TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Meeting Agenda

Town Council

Tuesday, June 25, 2024 | **7:00 PM** | **Council Chambers**

7:00 p.m. or immediately following the Urban Renewal Authority Meeting
Link to Watch or Comment Virtually: https://bit.ly/TownCouncil4thTuesday2024

I. Call Meeting to Order and Pledge of Allegiance

7:00 p.m.

II. Roll Call

III. Approval of the Agenda

IV. Consent Agenda

7:00-7:05 p.m.

24-284 Approval of June 11, 2024, Town Council Meeting Minutes

Attachments: 06-11-2024 Council Minutes

24-081 Proclamation of Park and Recreation Month July 2024

Attachments: Park and Recreation Month Proclamation

24-273 A Resolution of the Town Council of the Town of Erie Approving an Agreement for Professional Services with HDR Engineering, Inc. for Erie Lake Dam Seepage Rehabilitation, Analysis, and Design

Attachments: Resolution 24-099
Agreement
Budget Change Request Form

24-278 An Ordinance of the Town Council of the Town of Erie Amending Section 2-6-1 of the Erie Municipal Code, Regarding the Emergency Telephone Service Charge

Attachments: Ordinance 025-2024; BRETSA Rate Increase
Erie BRETSA Rate Increase
BRETSA IGA

24-290 1) A Resolution of the Town Council of the Town of Erie Adopting the Updated Housing Needs Assessment and Affordable Housing Strategy and 2) a Resolution of the Town Council of the Town of Erie Adopting the

Town of Erie Affordable Housing Policy.

Attachments: Resolution 24-095
Resolution 24-094
Housing Needs Assessment and Affordable Housing Strategy 2024
Town of Erie Affordable Housing Policy

24-298 An Ordinance of the Town Council of the Town of Erie Vacating a Public Right-of-Way Located at the Intersection of Baseline Road and East County Line Road in the South Half Quarter of the Southeast Quarter of Section 36, Township 1 North, Range 69 West, Boulder County, Colorado, in Accordance with the Intergovernmental Agreement with the City of Lafayette

Attachments: Ordinance 026-2024
IGA
Ordinance 36-2021

24-299 A Resolution of the Town Council of the Town of Erie Approving a Construction Contract with Power Products Co for the Erie Community Center Skylight Replacement

Attachments: Resolution 24-096
Agreement

24-300 A Resolution of the Town Council of the Town of Erie Approving an Agreement with Sunland Asphalt & Construction, LLC for the Erie Community Center Parking Lot Repairs

Attachments: Resolution 24-093
Construction Contract

24-293 A Resolution of the Town Council of the Town of Erie Approving a Second Amendment to the Lease Agreement with Vector Air Management, LLC

Attachments: Resolution 24-088
Second Amendment Lease Agreement

24-296 A Resolution of the Town Council of the Town of Erie Approving a Professional Services Agreement with Wenk Associates for Schofield Farm Concept Design and Construction Drawings

Attachments: Professional Services Agreement
Resolution No. 24-091

24-308 A Resolution of the Town Council of the Town of Erie Approving the Second Amendment to the Professional Services Agreement with Wold Architects and Engineers for the Town Hall Expansion Project

Attachments: Resolution 24-097
Second Amendment

24-303 A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Lafferty Subdivision

Attachments: Resolution 24-092
Lafferty Final Plat
Development Agreement

V. Public Comment On Non-Agenda and Consent Items only.

7:05-7:15 p.m.

(This agenda item provides the public an opportunity to discuss items that are not on the agenda or consent agenda items only. The Town Council is not prepared to decide on matters brought up at this time, but if warranted, will place them on a future agenda.)

VI. General Business

24-310 Disability Pride Month

Attachments: Proclamation

7:15-7:25 p.m.
Presenter(s): Melissa Wiley, Deputy Town Manager

24-208 A Resolution of the Town Council of the Town of Erie Approving a Construction Contract and Amendment 1 with Western Plains Construction for the 2024 Street Maintenance

Attachments: Resolution 24-102
Contract

7:25-7:40 p.m.
Presenter(s): Todd Fessenden, Acting Public Works Director

24-297 A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Cheesman Street Residences Subdivision

Attachments: Resolution 24-090
Cheesman Street Residences DA
Cheesman Street Residences Minor Subdivision

7:40-8:25 p.m.
Presenter(s): Aly Burkhalter, Senior Planner

24-314 An Emergency Ordinance of the Town Council of the Town of Erie Authorizing the Transfer of Real Property to HousePAD Erie LLC.

Attachments: Ordinance 027-2024

8:25-8:40 p.m.
Presenter(s): Aly Burkhalter, Senior Planner

24-192 PUBLIC HEARING: A Resolution of the Town Council of the Town of Erie

Approving the Redtail Ranch Preliminary Plat with Conditions

Attachments: Resolution 24-062
Staff Report
Staff Presentation
Applicant Presentation
Applicant Response and Update Memo
Proposed Preliminary Plat Exhibit
Redtail Ranch Illustrative Site Plan
Preliminary Plat Lot Impact Exhibit
Open Space and Trails Exhibit
Public Comments Received as of 6.21.2024
Colorado Brownfields Revolving Loan Fund
Application and Narrative
Additional Application Materials Part 1
Additional Application Materials Part 2
Neighborhood Meeting Summary
Public Hearing Notices
PC Resolution
PC Minutes Jan 17 2024

8:40-10:10 p.m.
Presenter(s): Harry Brennan, Senior Planner

VII. Staff Reports

Information Only

24-295 Public Works Monthly Report

Attachments: Monthly Report

24-304 Planning & Development Monthly Report - May 2024

Attachments: Planning & Development Monthly Report - May 2024

24-319 Environmental Services Monthly Report - May 2024

Attachments: Environmental Services Monthly Report - May 2024

24-322 Finance Sales Tax Monthly Report

Attachments: Monthly Sales Tax update_May 2024

VIII. Council Member Reports and Announcements

10:10-10:30 p.m.

IX. Adjournment

10:30 p.m.

(The Town Council's Goal is that all meetings be adjourned by 10:30pm. An agenda check will be conducted at or about 10:00 p.m., and no later than at the end of the first item finished after 10:00 p.m. Items not completed prior to adjournment will generally be taken up at the next regular meeting.)

Town Council

Board Meeting Date: 6/25/2024

File #: 24-284, **Version:** 1

SUBJECT:
Approval of June 11, 2024, Town Council Meeting Minutes

DEPARTMENT: Administration

PRESENTER(S): Debbie Stamp, Town Clerk

TIME ESTIMATE: ___ minutes

FISCAL SUMMARY:
Cost as Recommended: $_____
Balance Available: $_____
Budget Line Item Number: xxx-xx-xxx-xxxxxx-xxxxxx
New Appropriation Required: Yes/No

POLICY ISSUES:

STAFF RECOMMENDATION:
Approve the minutes from the June 11, 2024 Town Council Meeting.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:

COUNCIL PRIORITY(S) ADDRESSED:
- ✓ Effective Governance

ATTACHMENT(S):
1. 06-11-2024 Council Minutes

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Meeting Minutes

Town Council

Tuesday, June 11, 2024 | **6:30 PM** | **Calvary Bible Church, 615 Evans Street, Erie, CO**

Due to a Change in Venue:
Meeting will NOT be Live Streamed and
Online Comment is NOT available

I. Call Meeting to Order and Pledge of Allegiance

Mayor Brooks called the meeting to order at 6:34 p.m.

II. Roll Call

Present: 6 - Mayor Pro Tem Loflin, Council Member Baer, Council Member Sawusch, Mayor Brooks, Council Member Hoback, and Council Member Bell

III. Approval of the Agenda

Council Member Bell made a motion to approve the agenda. Council Member Baer seconded the motion. The motion passed by the following vote at 6:39 p.m.

Ayes 6 - Mayor Pro Tem Loflin
Council Member Baer
Council Member Sawusch
Mayor Brooks
Council Member Hoback
Council Member Bell

IV. Consent Agenda

24-280 Approval of the May 28, 2024 Town Council Meeting Minutes

Attachments: 05-28-2024 Council Minutes

24-232 A Resolution of the Town Council of the Town of Erie Approving a General Services Agreement with Sprung Instant Structures, Inc for the Dome Structure Repairs

Attachments: Resolution 24-070
Agreement

24-255 An Ordinance of the Town Council of the Town of Erie Adding a New Chapter 16 to Title 4 of the Erie Municipal Code, to Require Registration of Home Childcare Establishments

Attachments: Ordinance 022-2024

24-268 A Resolution of the Town Council of the Town of Erie Approving an Intergovernmental Agreement to Share Costs for the Preliminary and Environmental Engineering and Design of Colorado State Highway 7

Attachments: Resolution No. 24-083

IGA for Local Share Funding of CO 7 Priority 1 A Preconstruction

24-277 A Resolution of the Town Council of the Town of Erie Approving an Intergovernmental Agreement between Boulder County and the Town of Erie Re: Rehabilitation of Prince Lake No. 1

Attachments: Resolution 24-089

IGA

Exhibit A-4

Council Member Bell made a motion to approve the Consent Agenda. Council Member Sawusch seconded the motion. The motion passed by the following vote at 6:39 p.m.

Ayes 6 - Mayor Pro Tem Loflin
Council Member Baer
Council Member Sawusch
Mayor Brooks
Council Member Hoback
Council Member Bell

V. Public Comment On Non-Agenda and Consent Items only.

Mayor Brooks read the Public Comment rules and opened Public Comment at 6:41 p.m.

The following spoke:
1. Andrew Moore spoke about Ordinances 17-2023 and 11-2023.

With no additional speakers, Mayor Brooks closed Public Comment at 6:44 p.m.

VI. General Business

24-287 Juneteenth Proclamation

Attachments: Juneteenth Proclamation

Mayor Brooks read the Proclamation at 6:44 p.m.

24-289 PUBLIC HEARING: An Ordinance of the Town Council of the Town of

Erie Zoning the Real Property Known as 111th and Arapahoe

Attachments: Staff Report

Staff Presentation

2024.05.23 Memo re 111th Drainage

Applicant Presentation

Ordinance 005-2024 (Zoning)

Initial Zoning Map

Applicant Information

Neighborhood Meeting Summaries

Neighborhood Concerns and Responses (from Applicant)

Public Comments

Public Comment

Public Comment after 06-11-2024 111th & Arapahoe

DRT & Referral Comments

Memo from Applicant's Legal Counsel

Notifications

2019 Comprehensive Development Plan/Dispute Resolution IGA

Mayor Brooks opened the Public Hearing at 6:45 p.m.

Chris LaRue, Principal Planner, presented the Town's presentation at 7:05 p.m.

Jessica Tuttle, Sr. VP of Development-West Region Thompson Thrift, introduced the item at 7:24 p.m.

Russ Lee, Principal, Ripley Design, and Marcus Pachner, President, The Pachner Company, presented the Applicant Presentation.

The following spoke:

1. Jim Huber
2. Scott Hinrichs
3. Michael Keilly
4. Annmarie Jensen
5. Brie Fowler
6. John Mortellaro
7. Claire Scott
8. Maryelleln Roberts
9. Clifford Zwart
10. Cathy Frye
11. Jerry Howard
12. Matt Starr signed up to speak but didn't show
13. Sheena Brown
14. Alex Schatz

15. Andrew Moore
16. Maureen Pleil
17. Tim Mueller
18. Randolph Coffin
19. Deborah Coffin
20. Timothy Liston signed up to speak but didn't show
21. Krista Points signed up to speak but didn't show
22. Robert Drew
23. Christopher Dowling
24. Andreas Gauckler
25. Brenda Langille
26. Paula Kelly
27. Julia Wentworth signed up to speak but didn't show
28. Paul Leef
29. Patricia McNally-Leef
30. David Bickford
31. Nathan Dykhuis signed up to speak but didn't show
32. Matthew Dean
33. Stephen Tryon
34. Andrew Doty
35. Randa Sawaya signed up to speak but didn't show
36. Yvonne Larson signed up to speak but didn't show
37. Courtney Rella
38. Jem Corcoran
39. Robert Mahler
40. Janice Moore
41. Scott Griffith
42. Aaron Tritt
43. Dean Spencer
44. Lisa Goodman
45. Nathan Cyr signed up to speak but didn't show
46. Christine Hackett signed up to speak but didn't show
47. Robert Eisenberg signed up to speak but didn't show
48. Scott Kirkconnell signed up to speak but didn't show
49. Maria Arellano
50. Laura Schmid
51. Alexandra Cyr signed up to speak but didn't show
52. Rebecca Doksa signed up to speak but didn't show
53. Alexander Doksa signed up to speak but didn't show
54. Warren Turnbull signed up to speak but didn't show
55. Tricia Zadina-Turnbull signed up to speak but didn't show
56. Patti Tanaka signed up to speak but didn't show
57. Jim Schmidt signed up to speak but didn't show
58. Laura Smith signed up to speak but didn't show
59. Laura Pollock
60. Tricia Burns signed up to speak but didn't show
61. Nancy Grieder
62. Scott Hudson
63. Veronica Grasso
64. Linda Foos
65. John Davie signed up to speak but didn't show

66. Fred Walsh
67. Kathryn Novak signed up to speak but didn't show
68. Karen Galvin signed up to speak but didn't show
9. Olga Shilaeva signed up to speak but didn't show
70. Debra Gonzales
71. Jared Simons signed up to speak but didn't show
72. Patrick Gonzales
73. Laurie Davie signed up to speak but didn't show
74. Jane Fuller
75. Juanita Razo
76. Edward Galvin signed up to speak but didn't show
77. Eloy Razo signed up to speak but didn't show
78. Mark Behlmaier signed up to speak but didn't show
79. Ken Martin signed up to speak but didn't show
80. Mary Jean Mowbray signed up to speak but didn't show
81. Pam Merser signed up to speak but didn't show
82. Robin Blomquist
83. Karen Van dehy signed up to speak but didn't show
84. Lindsay Romero signed up to speak but didn't show
85. Frankie Ladwig signed up to speak but didn't show
86. Jeffrey Higgs signed up to speak but didn't show
87. Dallas Tully
88. John Mund signed up to speak but didn't show
89. Dudley Blauwet signed up to speak but didn't show
90. Maura Metheny signed up to speak but didn't show
91. Alison Mund signed up to speak but didn't show
92. Silas Goldstein
93. Annette Visbeck
94. Katherine Ford Goldstein
95. Silas Goldstein

Mayor Brooks closed the Public Hearing at 10:01 p.m.

Mayor Pro Tem Loflin made a motion to continue the Discussion & Deliberation sections of this agenda item to the June 18, 2024 Town Council Special Meeting

Ayes 6 - Mayor Pro Tem Loflin
Council Member Baer
Council Member Sawusch
Mayor Brooks
Council Member Hoback
Council Member Bell

VII. Staff Reports

24-274 Bi-Monthly Vector Air Airport Report

Attachments: Report

VIII. Council Member Reports and Announcements

IX> Adjournment

Mayor Brooks adjourned the meeting at 10:03 p.m.

Approved _____
Mayor

Attest _____
Town Clerk

Town Council

Board Meeting Date: 6/25/2024

File #: 24-081, **Version:** 1

SUBJECT:
Proclamation of Park and Recreation Month July 2024

DEPARTMENT: Parks and Recreation

PRESENTER: Luke Bolinger, Development & Neighborhood Services Division Manager

STAFF RECOMMENDATION:
Proclaim July 2024 Park and Recreation Month in the Town of Erie

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
Since 1985, people in the United States have celebrated Park and Recreation Month in July to promote building strong, vibrant, and resilient communities through the power of parks and recreation and to recognize the more than 160,000 full-time park and recreation professionals - along with hundreds of thousands of part-time and seasonal workers and volunteers - who maintain our country's local, state, and community parks.

According to NRPA's 2023 Engagement with Parks Report, people place a high value on the programs and services that park and recreation agencies deliver to their local communities every day and strongly support their mission.

- 280 million people in the United States visited a local park or recreation facility at least once during the past year.
- Nearly seven in 10 U.S. residents have at least one local park, playground, open space, or recreation center within walking distance of their homes.
- 84% of U.S. adults seek high-quality parks and recreation when choosing a place to live.
- Nine in 10 people agree parks and recreation are an important service provided by their local government.

The 2024 theme for National Park and Recreation Month is "Where You Belong." This theme celebrates the many ways park and recreation professionals across the country foster a sense of belonging in their community by providing welcoming and inclusive programs, essential services for all ages and abilities, and safe, accessible spaces to build meaningful connections.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Engaged and Diverse Community
- ✓ Small Town Feel
- ✓ Safe and Healthy Community
- ✓ Effective Governance

ATTACHMENT(S):

1. Proclamation

Park and Recreation Month Proclamation

Whereas, parks and recreation programs are an integral part of communities throughout this country; and

Whereas, parks and recreation are vitally important to establishing and maintaining the quality of life in our communities, ensuring the health of all residents, and contributing to the economic and environmental well-being of a community and region; and

Whereas, parks and recreation programs increase a community's economic prosperity through increased property values, expansion of local tax base, increased tourism, the attraction and retention of businesses, and crime reduction; and

Whereas, parks and natural recreation areas are fundamental to the environmental well-being of our community, improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetation buffers to development, produce habitat for wildlife, and ensure the ecological beauty of our community while providing a place for children and adults to connect with nature; and

Whereas, the Town of Erie recognizes the benefits derived from parks and recreation.

Now, therefore, I Justin Brooks, Mayor of the Town of Erie do hereby proclaim July 2024 to be Park and Recreation Month in the Town of Erie.

Dated this 25th day of June, 2024

_____

Justin Brooks, Mayor

Attest:

_____

Debbie Stamp, Deputy Town Clerk

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-273, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving an Agreement for Professional Services with HDR Engineering, Inc. for Erie Lake Dam Seepage Rehabilitation, Analysis, and Design

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Utilities Director
Bruce Chameroy, Water & Wastewater Division Manager

FISCAL SUMMARY:

Cost as Recommended:	$336,300
Balance Available:	$6,754,187
Budget Line Item Number:	500-75-110-605000-257502
Budget Transfer:	$336,300 from 500-75-100-605000-100365 (previously 500-70-110-605000-100365)
New Appropriation Required:	No

POLICY ISSUES:
Ensuring adequate water supplies in the event of an emergency are critical to life/safety in the Town. This project addresses that issue.

STAFF RECOMMENDATION:
Approve the Resolution

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In late 2022 a leak was discovered in Erie Lake by the State Dam Inspector. This was considered an emergency due to the potential for downstream property damage and safety issues to the same population. Staff worked diligently to quickly to find an engineering firm that could assist us in evaluating the cause of the leak and found that HDR Inc had staff specialized in this area. The Town has been working with HDR, in conjunction with the State of Colorado, as well as limiting the volume and level of storage in Erie Lake during this time. The analysis and approach required by the State has been very exhaustive and detailed with many meetings between the State, Town staff, and HDR.

This project is now ready to begin engineering a remedy to fix the leak and thus allow the Town to fill Erie Lake back at full capacity. Erie Lake is Erie's emergency storage in the event of a broad supply issue from Northern, at its full capacity the lake could provide about 10 days of indoor use to

the Town. It is currently drained to about half capacity to keep it from leaking. Given all of this, and the path that led to this point, staff recommend the Town continues working with HDR and award them the design for the fix, which the State Dam Inspector will also need to review.

The design fees are well above the threshold for bidding and staff approval, at $336,300 but given the overall history, that it started as an emergency and that it is Erie's emergency storage; the Town should work expeditiously to repair the dam and fill the lake to capacity. Staff think it is in the Town's best interest to continue to work with HDR and not competitively bid the repair design work. The proposed design cost is within norms for what the ultimate construction costs will be. Time is of the essence to get this emergency storage back to full and avoid further degradation.

This project is currently budgeted in 2025 but within the budget for the overall project. To complete this project, staff asks Council to transfer $336,300 to Budget Line Number 500-75-100-605000-257502 (Erie Lake Repairs) from 500-75-100-605000-100365 (Water Treatment Facility - New).

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Attractive Community Amenities
- ✓ Prosperous Economy
- ✓ Well-Maintained Transportation Infrastructure
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution 24-299
2. Agreement
3. Budget Change Request Form

Town of Erie
Resolution No. 24-099

A Resolution of the Town Council of the Town of Erie Approving an Agreement for Professional Services with HDR Engineering, Inc. for Erie Lake Dam Seepage Rehabilitation, Analysis, and Design

Whereas, the Town requires professional services of HDR Engineering, Inc. for Erie Lake Dam Seepage Rehabilitation, Analysis and Design; and

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve the Agreement for Professional in an amount not to exceed $336,300.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Agreement for Professional Services with HDR Engineering, Inc. is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

DocuSign Envelope ID: BE677B56-A581-4239-8FFA-8BEC70B72CA8

Agreement for Professional Services
(Erie Lake Dam Seepage Rehabilitation Investigation, Analysis, and Design)

This Agreement for Professional Services (the "Agreement") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516 (the "Town"), and HDR Engineering, Inc., an independent contractor with offices located at 1670 Broadway, Suite 3400, Denver, CO 80202 ("Contractor") (each a "Party" and collectively the "Parties").

Whereas, the Town requires professional services; and

Whereas, Contractor has held itself out to the Town as having the requisite expertise and experience to perform the required professional services.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. Scope of Services

A. Contractor shall furnish all labor and materials required for the complete and prompt execution and performance of all duties, obligations, and responsibilities which are described or reasonably implied from the Scope of Services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference.

B. A change in the Scope of Services shall not be effective unless authorized as an amendment to this Agreement. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

II. Term and Termination

A. This Agreement shall commence on the Effective Date, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

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III. Compensation

In consideration for the completion of the Scope of Services by Contractor, the Town shall pay Contractor an amount not to exceed $336,300, which includes a base amount of $298,956 and a contingency of $37,344. The contingency amount will only be paid upon the Town's approval. The not-to-exceed amount shall include all fees, costs and expenses incurred by Contractor. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

IV. Professional Responsibility

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. The work performed by Contractor shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community. The work and services to be performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations.

B. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. Because the Town has hired Contractor for its professional expertise, Contractor agrees not to employ subcontractors to perform any work under this Agreement, except as expressly set forth in the Scope of Services.

D. Contractor shall at all times comply with all applicable law, including without limitation all current and future federal, state and local statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, *et seq*. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, *et seq*.; the Resource Conservation and Recovery Act, 42 U.S.C. § 6901, *et seq*. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq*.; the Clean Water Act, 33 U.S.C. § 1251, *et seq*.; the Clean Air Act, 42 U.S.C. § 7401, *et seq*.; the Occupational Safety and Health Act, 29 U.S.C. § 651, *et seq*.; all applicable environmental statutes of the State of Colorado; and all other federal, state or local statutes, laws, ordinances, resolutions, codes, rules, regulations, orders or decrees regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, as now or at any time hereafter in effect.

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V. Ownership

Any materials, items, and work specified in the Scope of Services, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Services constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change the Work Product without providing notice to or receiving consent from Contractor; provided that Contractor shall have no liability for any work that has been modified by the Town.

VI. Independent Contractor

Contractor is an independent contractor. Notwithstanding any other provision of this Agreement, all personnel assigned by Contractor to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

VII. Insurance

A. Contractor agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Contractor pursuant to this Agreement. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

3. Professional liability insurance with minimum limits of $1,000,000 each claim and $2,000,000 general aggregate.

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B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Agreement.

VIII. Indemnification

A. Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including reasonable attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by, the omission, error, professional error, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor; provided that Contractor's liability under this indemnification provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor.

B. If Contractor is providing architectural, engineering, surveying or other design services under this Agreement, the extent of Contractor's obligation to indemnify and hold harmless the Town may be determined only after Contractor's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the Parties, as provided by C.R.S. § 13-50.5-102(8)(c).

IX. Miscellaneous

A. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.

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B. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

C. *Integration*. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

E. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. *Severability*. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. *Modification*. This Agreement may only be modified upon written agreement of the Parties.

H. *Assignment*. Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. *Governmental Immunity*. The Town and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities or protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. *Rights and Remedies*. The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

L. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this

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Agreement due to acts of God, floods, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Contractor

By: DocuSigned by: Kenneth J. Lowrey Jr C33831600FAC412... _____

Kenneth J. Lowrey Jr., SVP

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of _____.

My commission expires:

(Seal)

_____
Notary Public

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Exhibit A
Scope of Services

Contractor's Duties

During the term of this Agreement, Contractor shall perform the following duties, as directed by the Town: Contractor shall conduct a rehabilitation design at Erie Lake Dam.

Task 1 – Geotechnical Investigation

The geotechnical investigation is intended to log existing subsurface conditions and collect representative samples to characterize material properties for use in design. The geotechnical investigation includes the following subtasks:

- Contractor shall prepare a Subsurface Investigation Plan in accordance with State of Colorado Rules and Regulations for Dam Safety and Dam Construction, Rule (SEO Rule) 7.3.3 for submittal to the SEO in support of the subsurface investigation.
- Contractor shall contact CO811 prior to investigation for locating of public utilities. The Town will be responsible for locating private utilities on the property as well as providing access to locators.
- Contractor shall drilled and sample 10 borings in the embankment and at the downstream toe of the dam, to encompass the anticipated working limits of this project with a focus on where the 2022 seepage incident occurred and where relatively tall embankments exist.
  - 6 borings will be advanced along the southeast dike where the 2022 seepage incident occurred.
  - 2 boreholes will be advanced through both the northeast and north sections of the dam to investigate the potential for similar seepage conditions to exist at other locations on the dam.
  - 5 boreholes located on the crest of the dam will be drilled to an approximate depth of 30 feet below existing ground surface (bgs).
  - The other 5 boreholes will be located at the downstream toe of the dam perpendicular to the crest boreholes and will be drilled to an approximate depth of 15 feet bgs.
  - Each boring shall extend 15-20 feet into native foundation materials until claystone bedrock is encountered to investigate and sample substrata within the dam foundation. Select boreholes may be extended 5 to 10 feet into claystone bedrock to check for discontinuities, or lack thereof, within the bedrock.
- Contractor shall continuously obtain drive samples using a Standard Penetration Test (SPT) sampler without liners or a Modified California (MC) sampler with liners.

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When appropriate (if soft, cohesive soil is encountered), Contractor shall obtain push samples using a Shelby Tube (3.0-inch diameter) sampler, or similar. The type of sampler used at each sampling depth interval will be determined in the field by the logging geologist or geotechnical engineer based on the material encountered or expected. Contractor shall perform continuous sampling to allow for close observation of any defects, or changes in material type within the embankment, and to observe the properties at the embankment/foundation contact. All boreholes shall be logged by a geologist or geotechnical engineer.

- Contractor shall complete 3 boreholes with open standpipe piezometers to allow for monitoring of groundwater levels within the embankment, and the remaining 7 boreholes will be backfilled with tremie-placed neat cement-bentonite grout by the drilling subcontractor within 24 hours of completion. These piezometers will require periodic groundwater level readings and recording in a log by Town staff.
- Contractor shall review samples and field bore logs to develop a geotechnical laboratory testing program for representative samples collected from the boreholes. Laboratory testing shall characterize the index and engineering properties of the soil for use in geotechnical analyses and aid in the rehabilitation design. Soil properties to be evaluated from laboratory testing include: moisture content, wet and dry densities, grain size distributions, unconfined compressive strengths, undrained and drained shear strengths, hydraulic conductivity, dispersivity, and consolidation characteristics.

Task 2 – Geotechnical Analysis

Contractor shall utilize the data obtained from Task 1 and previous investigations to perform seepage, internal erosion, and filter compatibility analyses in accordance with SEO Rule 7.4.2.4. Seepage analysis will be performed via finite element modeling (Seep/W by GeoStudio) to simulate the pore water conditions within the embankment and foundation, specifically those at the time of the 2022 seepage incident. Seepage rates and gradients obtained from the model will be used in subsequent analyses. Internal erosion analyses will be performed using US Army Corps of Engineers internal erosion suite of toolboxes to provide probabilities of failure likelihood under varying reservoir elevations. Filter compatibility analyses of existing and proposed materials will be determined using filter design criteria by Foster and Fell, 2001.

In accordance with SEO Rule 7.4.2.5.1, Contractor shall perform a stability analysis on the design since the dam is considered a high hazard dam. Results from the seepage analysis will be coupled with the GeoStudio program Slope/W. Factors of safety shall be calculated for the proposed rehabilitation design.

Task 3 – Alternatives Analysis

Contractor shall perform an Alternatives Analysis to evaluate and compare rehabilitation designs in conjunction with results from Task 2. Contractor shall perform conceptual level designs to select a preferred alternative based on risk reduction, performance, constructability, cost, and other factors. Contractor shall develop 3 alternatives with a

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design effort sufficient enough to develop an Association for the Advancement of Cost Engineering (AACE) Class 5 Engineer's opinion of probable cost (OPCC) as well as other criteria critical for design selection. The Town shall be included in determining evaluation criteria and weighting via a teleconference to arrive at an alternative that satisfies dam safety criteria and is acceptable to the Town. Using the agreed-upon criteria and weighting, Contractor shall prepare a draft Alternatives Analysis Report that presents the results of the alternatives analysis and a recommendation for the selected alternative. Upon reconciliation of any edits or comments, Contractor shall finalize the report and design of the selected alternative will commence.

Task 4 – Design Report

Contractor shall prepare a Design Report presenting the results of the Task 2 seepage analysis for the design selected to move forward from Task 3. The Design Report shall be consistent with State of Colorado Rules and Regulations for Dam Safety and Dam Construction, Rule 6.8.7 and will form the basis of design for the subsequent tasks. The Design Report may be modified with progressive design iterations. Contractor shall submit a draft of the Design Report for Town review with each design iteration and eventually with the Final Design in accordance with SEO regulations. Contractor shall submit the Design Report to the SEO with the 90% Design package followed by a web conference with the SEO to discuss review comments prior to finalizing the Design Report at Final Design.

Tasks 5, 6, 7, and 8 – Engineering Design

Contractor shall prepare design packages for 30%, 60%, 90%, and Final Design submittals. Each submittal shall include the appropriate drawings, specifications, cost estimates, and construction schedules necessary for the level of design development as well as internal independent technical and constructability reviews. Prior to commencing with design, Contractor shall hold a virtual Pre-Design Meeting with the Town and SEO in accordance with SEO Rule 6.2.

Quality Assurance and Quality Control (QA/QC) are essential to all tasks but specifically the engineering design tasks 5, 6, 7, and 8 described below. Contractor shall review all deliverables. Task 6 (60% Design) includes review and input from Independent Technical Reviewers as described below. Contractor shall maintain a decision log and design reviews shall be maintained throughout the project.

Task 5 – 30% Design

The preferred alternative from Task 3 shall be further developed into a 30% design. Contractor shall develop preliminary construction drawings, a table of contents for the proposed technical specifications, an Engineer's OPCC, and update the Design Report as necessary. The primary purpose of these deliverables will be to establish the design criteria and identify key elements of the design. Contractor shall hold a 30% Design web conference with the Town after submittal of the 30% Design. The goals of the web conference will be to review the 30% submittal with the Town and to discuss questions, comments, and concerns that the Town has with the 30% design. The construction

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drawings and Table of Contents of proposed technical specifications shall be submitted to the SEO for initial input on the 30% design.

Task 6 – 60% Design

The 60% Design deliverable shall advance the construction drawings and key details, advance the technical specifications including select specifications of critical items (such as those with long lead times or items of particular technical complexity), and advance the construction drawings. The 60% Design shall finalize key design elements, develop a draft bid tab for construction, and update the Engineer's OPCC. The submittal shall be reviewed by the Town and the SEO. Contractor shall hold a 60% Design web conference to review the submittal with the Town and SEO and to discuss questions, comments, and concerns. Shortly thereafter, Contractor shall perform a brief Design Risk Analysis (DRA) in-person or via web conference, including key members of the design team, and appropriate Subject Matter Experts (SMEs) who have not been involved in the design to provide Independent Technical Reviews, to provide a fresh perspective to critically evaluate the design. Members of the Town and the SEO are anticipated to attend with DRA and are invited to actively estimate or participate in the workshop. The goals of the will be to:

- Verify that the risk-driving PFMs identified in the SQRA are adequately addressed by the design.
- Brainstorm new PFMs which could occur as part of the remediation project and identify additional investigations, analyses, or mitigation measures that could be implemented to reduce the risks posed by these PFMs.
- Identify key operational concerns to address in the 90% Design phase. The DRA shall be summarized in a brief DRA memorandum, and the findings incorporated into the 90% Design.

Task 7 – 90% Design

The 90% Design submittal shall include a complete Project Design Submittal, including Construction Drawings, Construction Specifications, the draft Design Report with supporting engineering analyses, and other items required to satisfy Rule 6 of the Rules and to obtain a construction permit from the SEO. Contractor shall also provide a bid tab for construction and an updated Engineer's OPCC. Contractor shall hold a 90% Design web conference after submittal of the 90% Design, the goals of which will be to review the submittal, discuss final changes for the design, and address comments.

Task 8 – Final Design Issued for Construction

Once Contractor has addressed comments from the Town and the SEO on our 90% Design submittal and the design is approved by the SEO, contractor will stamp the design as the Engineer of Record (EOR) and issue a construction package for bidding by contractors. Contractor will be responsible for the provision of final electronic files including without limitation: modeling files, drawing files, geospatial files, excel

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spreadsheets and calculations, final Design Report, and other final supporting documentation used in the development of the final project design.

Contractor shall assist the Town with bidding services including preparations for the pre-bid meeting. Contractor shall host a Construction Risk Workshop, after the Town and SEO have reviewed and provided comments on the design and the Town has selected a contractor. The primary goals of the Construction Risk Workshop are to identify how the construction might adversely load or otherwise potentially compromise the existing structure, including construction dewatering due to historical seepage incidents at the site and prior difficulties with control of water during construction of the Erie Lake By-Pass Waterline in 2015. The results shall be summarized in a brief Construction Risk Memorandum, and the findings would be used to inform construction risks to the Town and its selected contractor.

Task 9 - Project Management/Administration

Contractor shall include project management throughout each task, including monitoring and control of the project budget, scope of work and schedule, management of the project goals and objectives, management and coordination of resources including staff scheduling, subcontractors, invoicing, coordination, and management of team members. Contractor shall hold monthly virtual meetings with the Town to provide updates on progress and budget.

Contractor's Deliverables

Contractor shall deliver the following items to the Town:

- **Task 1 -** Bore logs and laboratory test results to be included in Task 4.
- **Task 2 -** Seepage and slope stability analysis results to be included in Task 4 submittal for the selected alternative.
- **Task 3** - Draft and Final Alternatives Analysis Report.
- **Task 4** - Design Report (draft deliverable to Town with each progressive design submittal, final submittal to SEO at 90% Design).
- **Task 5** - 30% Design construction drawings; Table of Contents of proposed technical specifications; AACE Class 4 OPCC; updated draft Design Report; Notes from 30% Design web conference.
- **Task 6** - 60% Design construction drawings; Technical specifications table of contents with critical specifications populated; AACE Class 3 OPCC; Updated draft Design Report; DRA summary memorandum (also to SEO if part of DRA).
- **Task 7** - 90% Design construction drawings; Construction specifications; AACE Class 2 OPCC (submitted to SEO in accordance with SEO Rule 6.9); Updated draft and Design Report; Notes from 90% Design web conference (submitted to Town only).

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- **Task 8** - State of CO PE sealed construction drawings; State of CO PE sealed technical specifications; updated AACE Class 2 OPCC; State of CO PE sealed Design Report; Construction Risk Workshop summary memorandum (submitted to Town only).
- **Task 9** - Monthly invoices and project status updates; design meeting notes; decision and design review log maintained throughout the project.

Assumptions and Exclusions

- State of Colorado Guidelines for Preparation of Subsurface Investigation Plans shall be used to establish the general requirements, procedures, and criteria for the geotechnical investigation. The Town will provide materials, operators, and equipment that may be needed for emergency action as a result of investigation precautions.
- If subsurface conditions vary from existing data, the investigation may need to be modified or supplemented.
- Town staff will coordinate with landowners, as needed, for access.
- Boreholes will not be located where there are any structural obstructions.
- The Town will measure and record groundwater levels in the piezometers installed as part of this scope of work on a minimum of a monthly basis.
- Should field work reveal any conditions (*e.g.*, contaminated soil, cultural resources sites, deficient dam conditions beyond proposed working limits, etc.) that result in significant modification of the embankment or other project component design, Contractor may request adjustments to this Agreement.
- Project schedule for Task 1 is dependent on driller and laboratory testing subcontractor schedules.
- Following piezometer installation the Town will provide depth to water measurements every 7 days for the first month, every 14 days for the second month, and on a monthly basis thereafter through the duration of the project.
- Alternatives analysis will not include raising the dam crest or modifying the spillway.
- The Town will provide a topographic survey of the dam embankment and toe area. The Town will consider lowering the reservoir as much as possible to allow for collection of upstream slope survey as much as possible. Survey shall be provided in AutoCAD at least 14 days prior to initiating Task 3 and shall include without limitation:
  - Surveyor generated surface with accuracy of 1-foot contours;
  - Points at a maximum of every 50 feet along grade breaks (dam crest, dam toe, etc.) or linear features; and

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- All existing site features above ground (structures, roads, edge of riprap, concrete slabs, etc.).

- The Town will provide prompt reviews and only one iteration of review will occur for deliverables to go from draft to final.

Budget Change Request Form

*This form should be used for budget transfer requests. For instructions, please refer to the Transfer Policy.

Department: Utilities **Date: 6/25/2024**

From:

Account Title: Water Treatment Facility - New

Tyler Account #: 500-75-110-605000-100365 **$** 336,300

To:

Account Title: Erie Lake Repairs

Tyler Account #: 500.75.110.605000.257502 **$** 336,300

Justification:
Moving the 2025 project up to 2024. This will reduce the amount needed in 2025. Design contract being presented to Council on 06/25/24 for approval.

Initiated by: **Date:**

Approved by: **Date:**

Approved by: **Date:**

Town Council

Board Meeting Date: 6/25/2024

File #: 24-278, **Version:** 1

SUBJECT:
An Ordinance of the Town Council of the Town of Erie Amending Section 2-6-1 of the Erie Municipal Code, Regarding the Emergency Telephone Service Charge

DEPARTMENT: Police

PRESENTER(S): Lee Mathis, Chief

POLICY ISSUES:
Emergency telephone service is vital to community safety and well-being. This service is provided by the Boulder Regional Emergency Telephone Service Authority (BRETSA) which currently charges $0.75/per phone line and is proposing a $0.50 increase per line effective Feb. 1, 2025, resulting in $1.25 per phone line.

This charge will fund maintenance and updates to technology, software and equipment for emergency telephone services in the BRETSA service area, which includes the Town of Erie.

STAFF RECOMMENDATION:
Approved the amended ordinance 025-2024

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In 1987, the Town entered into an Intergovernmental Agreement (IGA) to implement an enhanced emergency telephone service through the Boulder Regional Emergency Telephone Service Authority (BRETSA). The current $0.75/per phone line charge was established in 2014. This proposed $0.50 increase is necessary to maintain services consistent with other emergency telephone service providers. Even with this increase, the BRETSA rate will remain one of the lowest in the State, and below the average of Front Range ETCs.

Rate Information:

BRETSA Current ETC Rate: $.75

Proposed BRETSA ETC Rate $1.25 (Effective February 1, 2025)

Current State Average ETC Rate: $1.93

The attached letter from Boulder County Sheriff Curtis Johnson provides more background

information on why this increase is necessary.

Under the terms of the E911 IGA, each party to the IGA must pass an ordinance authorizing the imposition or change in the charge for E911 service. Any party to the IGA that does not pass such an ordinance is deemed to have provided notice of its intent to terminate its participation in the IGA and the E911 service.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Safe and Healthy Community
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Ordinance 025-2024
2. Letter from Sheriff Johnson
3. IGA for E911 Service

Town of Erie
Ordinance No. 025-2024

An Ordinance of the Town Council of the Town of Erie Amending Section 2-6-1 of the Erie Municipal Code, Regarding the Emergency Telephone Service Charge

Whereas, in 1987, the Town entered into an Intergovernmental Agreement to implement an enhanced emergency telephone service through the Boulder Regional Emergency Telephone Service Authority ("BRETSA");

Whereas, pursuant to Article VI of the Intergovernmental Agreement, the Town has agreed to pass an ordinance imposing an emergency telephone service charge on its constituents in the amount set by the BRETSA Board of Directors;

Whereas, BRETSA has determined it necessary to increase the emergency telephone service charge by $0.50 per line per month, from the current $0.75 established in 2014, to $1.25, effective February 1, 2025; and

WHEREAS, the Town Council finds it in the best interest of the Town to authorize the increase to the emergency telephone service charge.

Now Therefore be it Ordained by the Town Council of the Town of Erie, Colorado, as follows:

Section 1. Section 2-6-1 of the Erie Municipal Code is hereby amended as follows:

2-6-1 – Service charge imposed.

There is hereby imposed, pursuant to C.R.S. § ~~29-11-100.5~~ *29-11-100.2*, *et seq*., as amended *(the "Act")*, upon all telephone exchange access facilities within the Town, an emergency telephone charge in an amount not to exceed two *(2)* percent of the tariff rates as approved by the *Colorado* Public Utilities Commission or ~~$0.50~~ *$1.25*, whichever is less. The proceeds *of such charge* ~~from which~~ shall be collected and administered according to the terms of the intergovernmental agreement *(the "IGA") for the Boulder Regional Emergency Telephone Service Authority (the "Authority")* and the Act, as amended. The Town Council authorizes the Authority Board to set such lesser charges as the Authority Board may from time to time determine are appropriate in the course of the Authority Board's exercise of its functions under the *IGA* ~~intergovernmental agreement~~.

Section 2. Severability. If any article, section, paragraph, sentence, clause, or phrase of this Ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this

Ordinance. The Town Council hereby declares that it would have passed this Ordinance and each part or parts hereof irrespective of the fact that any one, or part, or parts be declared unconstitutional or invalid.

Section 3. Safety. The Town Council finds that the adoption of this Ordinance is necessary for the protection of the public health, safety and welfare.

Section 4. Effective Date. This Ordinance shall take effect 10 days after publication following adoption.

Introduced, Read, Passed and Ordered Published this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Boulder County Sheriff's Office

Curtis Johnson
Sheriff

April 29, 2024

Malcolm Fleming
Town Manager
645 Holbrook St.
Erie, CO 80516

Delivered via Email

Dear Mr. Fleming,

I am writing you today as the Chair of the Boulder Regional Emergency Telephone Service Authority (BRETSA) Board. As you may know, BRETSA establishes the amount of the Emergency Telephone Charge (ETC) assessed per-line per-month on telephone services billed in Boulder County. BRETSA also receives and disburses the proceeds of the ETC to partially fund 9-1-1 service and operation of the Emergency Call Centers (ECCs) in Boulder County, which receive 9-1-1 calls and dispatch First Responders.

After 10 years, BRETSA has determined that effective February 1, 2025, it will be necessary to increase in the ETC by $0.50, from the current $0.75 established in 2014 to $1.25. The rate will remain one of the lowest in the State, and below the average of Front Range ETCs. (Please note that federally-subsidized lifeline service for our low-income constituents is not subject to ETCs.)

Rate Information:

BRETSA Current ETC Rate:	$.75
Proposed BRETSA ETC Rate	$1.25 (Effective February 1, 2025)
Current State Average ETC Rate:	$1.93

Amendment of [City/Town] Ordinance

Pursuant to Article VI of the Intergovernmental Agreement by which BRETSA was formed and to which the Town of Erie is a party, Erie has agreed that it will pass an ordinance imposing an ETC on its constituents in the amount set by the BRETSA Board. For the new rate to be effective on February 1st, the ordinance must be passed prior to November 1st. We request the Town of Erie pass the ordinance as soon as feasible.

Why BRETSA Is Increasing the ETC

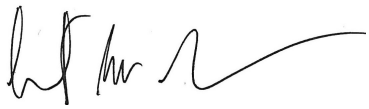
BRETSA has seen its costs, including technology and personnel costs, increase over the past decade. However, we have also improved 9-1-1 service in Boulder County over that time. The BRETSA-supported ECCs have implemented Text-to-911, MMS-to-911, receipt of 9-1-1 calls via a more reliable and robust Emergency Services IP Network, updated and supplemented ECC systems to improve Emergency Response including verification of caller locations. BRETSA has also implemented a system called Smart 9-1-1 which allows residents and businesses to provide information to ECCs regarding personal or property conditions (medical issues, a family member requiring assistance to exit a premises in the event of a fire, storage of hazardous chemicals on a business premises), in advance of an emergency. Dispatchers can access the information in the event of an emergency at the home of business.

BRETSA continues to fund public alerting systems and multilingual alerting capabilities. BRETSA also funds systems to provide the public in the County and each city and town in Boulder County with persistent information regarding the status of alerts, and available resources during public emergencies.

Finally, we can't say enough about our ECC dispatchers, the *first* First Responders who are always there to answer calls from people in the worst moment of their life, to send help, provide instructions in First Aid until First Responders arrive, talk suicidal individuals down, and so much more. Dispatchers at the BRETSA-funded PSAPs have handled at least nine major incidents, many of them federally-declared disasters, when many PSAPs have never handled even a single such incident. These have included the Old Stage Fire, Fourmile Canyon Fire, Flagstaff Fire, 2013 Floods, Cold Springs Fire, Calwood Fire, King Soopers Mass Shooting, and Marshall Fire. But only a small percentage of people have the skillsets to serve as dispatchers, to remain calm under the most stressful situations, effectively and succinctly communicate with both callers and First Responders, utilize multiple technical PSAP systems to verify caller information and location, dispatch the closest units, identify hazards and other relevant environmental information on the caller's location, going from call to call as soon as First Responders arrive, never knowing what the next call will be. It is of course difficult to recruit and retain such talented employees for such stressful positions, which includes shiftwork.

If you have any questions and/or would like to have a representative of BRETSA at a meeting to answer questions about the ETC increase, please do not hesitate to contact me.

Sincerely,



Curtis Johnson
Boulder County Sheriff
Chair, BRETSA Board

cc: Chief Lee Mathis

INTERGOVERNMENTAL AGREEMENT CONCERNING THE IMPLEMENTATION OF AN "E911" "EMERGENCY TELEPHONE SERVICE"

THIS AGREEMENT is made and entered into between the following parties: COUNTY OF BOULDER, a body politic and corporate; the CITY OF BOULDER, a municipal corporation; the CITY OF LAFAYETTE, a municipal corporation; CITY OF LONGMONT, a municipal corporation; CITY OF LOUISVILLE, a municipal corporation; TOWN OF ERIE, a municipal corporation; TOWN OF JAMESTOWN, a municipal corporation; TOWN OF LYONS, a municipal corporation; TOWN OF NEDERLAND, a municipal corporation; TOWN OF SUPERIOR, a municipal corporation; REGENTS OF THE UNIVERSITY OF COLORADO, a Body Corporate; ALLENSPARK FIRE PROTECTION DISTRICT; BERTHOUD FIRE PROTECTION DISTRICT; BIG ELK MEADOWS VOLUNTEER FIRE DEPARTMENT; BOULDER MOUNTAIN FIRE AUTHORITY; BOULDER RURAL FIRE PROTECTION DISTRICT; CHERRYVALE FIRE PROTECTION DISTRICT; COAL CREEK FIRE PROTECTION DISTRICT; ELDORADO SPRINGS/MARSHALL FIRE PROTECTION DISTRICT; FOUR MILE FIRE PROTECTION DISTRICT; GOLD HILL FIRE PROTECTION DISTRICT; HIGH COUNTRY FIRE PROTECTION DISTRICT; HYGIENE FIRE PROTECTION DISTRICT; INDIAN PEAKS FIRE PROTECTION DISTRICT; JAMESTOWN VOLUNTEER FIRE DEPARTMENT; LEFTHAND FIRE PROTECTION DISTRICT; LOUISVILLE FIRE PROTECTION DISTRICT; LYONS FIRE PROTECTION DISTRICT; MOUNTAIN VIEW FIRE PROTECTION DISTRICT; NEDERLAND FIRE PROTECTION DISTRICT; PINEBROOK HILLS FIRE PROTECTION DISTRICT; PINEWOOD SPRINGS FIRE PROTECTION DISTRICT; SUGARLOAF FIRE PROTECTION DISTRICT; and SUNSHINE FIRE PROTECTION DISTRICT (collectively "Parties").

WITNESSETH:

WHEREAS, pursuant to Article 11 of Title 29, C.R.S., as amended, the above-listed Parties are delegated the power to enter into intergovernmental agreements for the purpose of providing Emergency Telephone Services; and

WHEREAS, it would serve the public welfare and be in the best interest of all the above-referenced Parties to participate in the organization, administration, and common use of a central emergency telephone service authority; and

WHEREAS, in 1987 the Parties, their predecessors in interest, and/or certain other parties previously entered into an Intergovernmental Agreement Concerning the Implementation of an "E911" "Emergency Telephone Service" (the "Prior IGA") for the purposes of (i) establishing an Emergency Telephone Service Authority which shall be responsible for establishing and administering the Emergency Telephone Service program; and (ii) defining the manner in which each of the Parties will participate in the Authority; and

WHEREAS, changes in the parties to the Prior IGA, amendments to the authorizing Colorado statutes, increased competition and technological developments in the telecommunications industry, and technological advancements in the processing of 9-1-1 calls, make it necessary and appropriate to amend the Prior IGA; and

WHEREAS, the Parties desire to enter into this Intergovernmental Agreement as a novation of the Prior IGA substituting the terms and parties herein for those as set forth in the Prior IGA and for the purposes for which they entered into the Prior IGA;

NOW, THEREFORE, in consideration of the mutual covenants hereinafter contained, the Parties agree as follows:

I. DEFINITIONS

A. Capitalized terms shall have the meanings ascribed to them in Section 29-11-101, C.R.S., as amended.

B. The County of Boulder, the City of Boulder, the City of Lafayette, the City of Longmont, the City of Louisville, the City of Erie, the Town of Jamestown, the Town of Lyons, the Town of Nederland, and the Town of Superior shall be deemed the "Legislative Parties."

C. The Parties which are not Legislative Parties shall be deemed Nonlegislative Parties.

II. GENERAL PROVISIONS

A. Pursuant to Section 29-11-102(1)(b), C.R.S., the Parties hereby establish the "Boulder Regional Emergency Telephone Service Authority" (the "Authority") which shall have the following purposes, duties, and authority:

1. To determine the Emergency Telephone Service, Emergency Notification Service, if any, the Service Suppliers, the equipment, and the equipment suppliers which best serve the needs of the public in the Parties' jurisdictions.

2. To contract for advice from such consultants as deemed necessary.

3. To contract for, acquire, and pay for such equipment, its installation and maintenance, and the monthly recurring charges billed by the Service Suppliers for Emergency Telephone Service and Emergency Notification Service, including any charges by such supplier for reconfiguring its system to accommodate the level of emergency service chosen by the Board.

4. To determine the uniform rate of Emergency Telephone Charge to be imposed on each Service User which is reasonably required to pay these costs, and to notify each service suppler of such rate annually.

5. To take such other actions and pay for such other services and equipment as permitted by §29-11-101, *et. seq.*, C.R.S., including such services and equipment as the Board of the Authority shall deem proper and appropriate to assure that (i) 9-1-1 calls made from locations within the jurisdictions of the Parties are efficiently routed to the proper PSAP, with information necessary to determine the location of the caller and reconnect the call if disconnected, and are properly processed and recorded regardless of the technology employed by the Service Supplier (ii) Service Suppliers operating within the jurisdictions of the Parties remit

the Emergency Telephone Charge, (iii) developing and future exchange telephone services or substitutes therefore provided in Boulder County provide E9-1-1 service, route 9-1-1 calls to the PSAP serving the geographic area in which the caller is located, provide the PSAP with ANI and ALI or equivalent information, and collect and remit the Emergency Telephone Surcharge for each line or its equivalent, and (iv) operation of the Authority in compliance with this Agreement, 29-11-101, *et seq.*, C.R.S., and applicable rules and regulations of the Colorado Public Utility Commission and the Federal Communications Commission.

B. This agreement shall be interpreted consistently with §29-11-101, *et. seq.*, C.R.S.

III. EMERGENCY TELEPHONE SERVICE AUTHORITY BOARD

The governing board of the Authority (the "Board") shall consist of the following five members:

(1) The Boulder County Sheriff;

(2) The City of Boulder Police Chief;

(3) The designee of the Longmont City Council;

(4) The designee of the President of the Boulder County Firefighter's Association; and

(5) One member selected by the cities and towns, excluding the cities of Boulder and Longmont, which member shall serve a term of one year on the Board on a rotating basis with other cities and towns. The rotation will be in the following order: Town of Erie, Town of Jamestown, City of Lafayette, City of Louisville, Town of Lyons, Town of Nederland, and Town of Superior. Should a city or town choose not to take its turn in rotation, the next in order shall serve. The member may serve a consecutive term upon approval of the majority vote of eligible cities and towns.

IV. RULES AND REGULATIONS

The Board may pass such bylaws as are reasonably necessary for the conduct of its affairs in the exercise of its powers. Three members shall constitute a quorum of the Board, and the Board may not act except upon positive vote of three members.

V. BUDGET AND OPERATING COSTS

A. On or before July 1 of each year, the Board shall present to each of the Legislative Parties its proposed expenditures for the next fiscal year for Emergency Telephone Service and Emergency Notification Service equipment costs, installation costs, and directly related costs of the continued operation of the Emergency Telephone Service and Emergency Notification Service as permitted by Article 11 of Title 29, C.R.S., as amended, and the proposed charge per exchange access facility and the amount of revenue it is anticipated this charge will raise, together with actual and projected expenses and revenues for the current year, actual figures for the previous year, and actual and projected fund balances (altogether deemed "the budget"). This

budget shall be presented to the Nonlegislative Parties for their information. If any Legislative Party is dissatisfied with the budget, it may, no later than August 1 of such year, by resolution, direct the Board to hold a public meeting to consider specific modifications. Such meeting shall be held no later than August 20 of such year, and notice thereof should be published in a newspaper of general circulation in Boulder County no less than seven days in advance of such public meeting. After such meeting, the Board shall again approve a budget no later than September 1 of such year and shall forward it to the Parties for their information. The Authority shall notify the Service Supplier of the rate of Emergency Telephone Charge no later than October 1 of such year.

B. The fiscal year shall be the calendar year.

C. The Authority shall have no employees. The Authority may designate one or more employees of Parties an "Administrative Assistant" to provide administrative services to the Authority, with the consent of the employing Party. The Authority may reimburse the employing party for the Administrative Assistant's services from the Emergency Telephone Surcharge.

D. Any administrative costs of the Board and the Authority for any purpose not required by this Agreement or specified in Section II above shall be provided by or through the PSAPs operated under the authority of the Boulder County Sheriff, the Boulder Chief of Police and the City of Longmont, if approved by the Boulder County Sheriff, the City of Boulder Chief of Police or the City of Longmont, as the case may be, and funded by the Parties or some combination thereof as they may from time to time agree.

VI. CHARGES ON TELEPHONE SERVICE USERS

The Legislative Parties agree that they will each pass an ordinance (or a resolution in the case of Boulder County or special districts) imposing a charge pursuant to §§29-11-102, and 29-11-103 C.R.S., on each Service User within its jurisdiction in an amount that, together with any surplus funds carried forward, is sufficient to fund the expenditures of the Authority, or delegating to the Board the authority to set such rate as the Board may from time to time determine, not to exceed the lesser of (i) the maximum rate permitted pursuant to §29-11-102, and (ii) the maximum rate authorized by the Legislative Party. A Legislative Party which does not adopt an ordinance or resolution imposing a charge equal to or exceeding the charge specified in the Authority's budget pursuant to Article V hereof, shall be deemed to have provided written notice of its intent to terminate its participation in this Agreement pursuant to Article IX, Section C hereof.

VII. FUNDS AND OPERATIONS

A. The Board shall establish a policy for the expenditure, depositing, and investment of Authority funds pursuant to Article 11 of Title 29, C.R.S., as amended, and other applicable statutes and regulations. The policy shall provide that all moneys remaining in the Fund at the end of each fiscal year shall remain therein for payment during any succeeding year.

B. The Board shall designate a qualified Administrative Assistant, or retain the services of a qualified third party provider, as the Authority's Financial Officer. The Financial

Officer shall (i) maintain the books and accounts of the Authority, (ii) assist in the preparation of the Authority's budget pursuant to Article V hereof, (iii) advise the Board regarding the investment of Authority Funds, and (iv) provide such reports on the remittances, expenditures, fund balance, interest earned, and other related matters as the Authority or any Party reasonably may request from time to time. The Financial Officer shall be compensated from the Emergency Telephone Surcharge.

C. The Board shall each year retain the services of a Certified Public Accountant to conduct the annual audit of the Authority's financial statements pursuant to 29-1-601, *et. seq.*, C.R.S. The Certified Public Accountant shall be compensated from the Emergency Telephone Surcharge.

D. No disbursements shall be made from the funds of the Authority except by check and unless a verified claim for services of commodities actually rendered or delivered has been first submitted and approved for payment by the Board.

E. The Authority shall not borrow money, nor shall it approve any claims or incur any obligations for expenditures unless there is sufficient unencumbered cash in the appropriate fund credited to the Authority which is available and used to pay the same.

VIII. RECORDS AND REPORTS

The Authority shall maintain adequate and correct accounts of its properties and business transactions. The records and accounts of the Authority shall be Public Records as defined by C.R.S. §24-72-202, subject to the exceptions therein provided. The Authority shall also render to the Parties hereto, at reasonable intervals, such additional reports and accountings as the Parties hereto may from time to time request, provided, however, that nothing in this Agreement shall limit the right or ability of the Authority to take reasonable measures to prevent disclosure of confidential or competitively sensitive information as required by Colorado law or by agreement.

IX. TERM OF AGREEMENT

A. This Agreement shall be in full force and effect beginning upon the execution of this Agreement by all the Legislative Parties and the passage of the requisite ordinances or resolutions by all the Legislative Parties and shall remain in effect unless terminated by a majority of the Legislative Parties hereto.

B. Any Nonlegislative Party may terminate its participation in this Agreement by providing six calendar months advance written notice of intent to terminate to the Authority.

C. Any Legislative Party may terminate its participation in this Agreement only by providing written notice of intent to terminate to the Authority no later than June 1. Such termination shall be effective at the end of the fiscal year in which such notice is given.

D. Any Party terminating its participation in this Agreement shall not be entitled to any of the equipment purchased hereunder, nor to any of the monies in the fund. The Board shall notify the applicable service provider no later than October 1 of the year in which notice of

termination is given that the charge attributable to a withdrawing Legislative Party shall be terminated at the end of the current year.

E. This Agreement may be terminated by mutual agreement of a majority of the Legislative Parties hereto. Upon dissolution, the powers granted to the Authority under this Agreement shall continue to the extent necessary to enable the Authority to make an effective disposition of the property, equipment, and monies acquired or held pursuant to this Agreement. Any balance in the fund shall be transferred to the general funds of the Legislative Parties in proportion to the money collected for telephone service from each jurisdiction.

X. UNPAID CHARGES

Upon receipt of information from the service provider or the Authority, each of the Legislative Parties shall, within the scope of its available resources, undertake reasonable steps to collect any and all unpaid charges following its normal procedures for the collection of unpaid fees to it. All charges so collected shall be remitted by the collecting party to the Authority for deposit in the Fund.

XI. AMENDMENT

This Agreement may be amended by the Parties, provided that any amendment shall be in writing and executed by all Parties hereto, except that a Party may amend this agreement to modify their name or their address to which notices shall be sent, by giving notice to each other Party in accordance with Section XII hereto .

XII. NOTICES

Any notice given to or made upon any Party hereto in accordance with the provisions of the IGA, as amended hereby, shall be deemed to have been given or made when timely deposited in the mail, first class, postage prepaid, addressed to the Party as follows:

If to Boulder Regional Emergency Telephone Service Authority:
1805 33rd St.
Boulder, CO 80301

with copies to:

Joseph P. Benkert
Joseph P. Benkert, P.C.
PO Box 620208
Littleton, CO 80162-0308

If to County of Boulder:

County of Boulder
Boulder County Commissioners
1325 Pearl St.
Boulder, CO 80302

with copies to:

Town Council

Board Meeting Date: 6/25/2024

File #: 24-290, **Version:** 1

SUBJECT:
1) A Resolution of the Town Council of the Town of Erie Adopting the Updated Housing Needs Assessment and Affordable Housing Strategy and 2) a Resolution of the Town Council of the Town of Erie Adopting the Town of Erie Affordable Housing Policy.

DEPARTMENT: Planning and Development

PRESENTER(S): MJ Adams, AICP, Affordable Housing Manager

FISCAL SUMMARY:

Cost as Recommended:	NA
Balance Available:	NA
Budget Line Item Number:	NA
New Appropriation Required:	No

POLICY ISSUES:
The proposed resolutions adopt documents that provide guidance to Town staff working to implement the Town of Erie's affordable housing goals of encouraging the development of a variety of housing types and affordability throughout the community. The Town's efforts to promote more diverse housing opportunities for households in a broad range of income and types-families, households without children, and individuals-will enable them to call Erie home. This will in turn make it easier for local businesses and organizations to hire employees who live in Erie, help reduce traffic associated with jobs in Erie, enable more people who have grown up in Erie to afford to move back home, make it possible for more elders to afford to "age in community" when they downsize in Erie, and make it easier for grandparents who live elsewhere to move to Erie to be near their children and grandchildren who live here. Additionally, this work supports the Towns commitment through the Regional Housing Partnership to make 12% of the Town's housing stock be affordable by 2035.

STAFF RECOMMENDATION:
Staff recommend approving the two resolutions adopting the two documents prepared to serve as guides for the Town's affordable housing initiatives. The first document is the Updated Housing Needs Assessment and Affordable Housing Strategy, and the second document is the Town of Erie Affordable Housing Policy.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In February 2023, the Town's affordable housing consultants, czb LLC, completed the Housing Needs Assessment and Affordable Housing Strategy (HNA). Recognizing the need for additional analysis and detail on the gap in housing affordability in Erie, staff completed a gap analysis to identify types and affordability levels of housing needed. Staff also recognized that a concise list of policies would serve efforts to implement the Town's Affordable Housing Strategy.

Staff met with the Planning Commission on Feb. 21, 2024, and presented the gap analysis that is now included in the updated HNA. On May 15, 2024, staff met again with the Planning Commission to share and discuss the Affordable Housing Policy and to ask the Planning Commission to recommend adopting the HNA and the Affordable Housing Policy as guiding documents for the Town and the Affordable Housing Division. The Planning Commission voted unanimously to recommend the Town Council adopt these documents.

Staff presented the gap analysis update to the HNA to the Town Council on May 21, 2024. The presentation included an overview of the Affordable Housing Policy. Staff ask the Town Council to adopt the updated HNA document and the Affordable Housing Policy as guiding documents for the Town and the Affordable Housing Division as we pursue the Town's Affordable Housing goals.

COUNCIL PRIORITY(S) ADDRESSED:
- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Small Town Feel
- ✓ Safe and Healthy Community
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENT(S):
1. Resolution 24-095
2. Resolution 24-094
3. Housing Needs Assessment and Affordable Housing Strategy (updated May 2024)
4. Town of Erie Affordable Housing Policy

Town of Erie
Resolution No. 24-095

A Resolution of the Town Council of the Town of Erie Adopting the Updated Housing Needs Assessment and Affordable Housing Strategy

Whereas, the Town Council finds that it is in the best interest of the Town and the public health, safety and welfare to adopt the updated Housing Needs Assessment and Affordable Housing Strategy dated May 2024.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The updated Housing Needs Assessment and Affordable Housing Strategy dated May 2024 is hereby adopted.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Town of Erie
Resolution No. 24-094

A Resolution of the Town Council of the Town of Erie Adopting the Town of Erie Affordable Housing Policy

Whereas, the Town Council finds that it is in the best interest of the Town and the public health, safety and welfare to adopt the Town of Erie Affordable Housing Policy.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Town of Erie Affordable Housing Policy is hereby adopted in the form attached hereto.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Housing Needs Assessment and Affordable Housing Strategy

FEBRUARY 2023
updated May 2024

Town of Erie, CO

Planning Consultant
czbLLC

Acknowledgements

The following people made the Housing Needs Assessment and Affordable Housing Strategy possible:

Erie Board of Trustees

Justin Brooks, *Mayor*
Sarah Loflin, *Mayor Pro Tem*
Ari Harrison, *Trustee*
Emily Baer, *Trustee*
Andrew Sawusch, *Trustee*
Brandon Bell, *Trustee*
Dan Hoback, *Trustee*

Town Staff

Malcolm Fleming, *Town Administrator*
Sarah Nurmela, *Director of Planning and Development*
Ariel Tolefree, *Affordable Housing Manager*
Andrew Collins, *Planner*
Erin Fosdick, *Long Range Planner*

Special thanks to members of the development community and the public at-large who provided their insights, questions, and feedback to help shape this document.

The Housing Needs Assessment and Affordable Housing Strategy was supported by funding from the Colorado Department of Local Affairs Innovative Housing Planning Grant Program.

COLORADO
Department of Local Affairs

Town of Erie, CO

Planning Consultant
czbLLC

Table of Contents

4 **Executive Summary**

8 PART 1
Market Conditions and Affordability Challenges in Erie

26 PART 2
Options for Taking Action

46 **Appendix**

Executive Summary

Market Conditions and Affordability Challenges in Erie

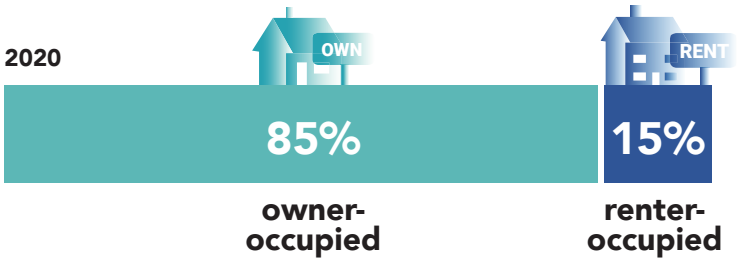
The Town of Erie is located in a region in which housing has been expensive, by national standards, for decades and which has seen rapid growth in housing costs through the 2010s and early 2020s. Erie has been impacted by, and has become a part of, this trend. In addition, Erie's housing cost conundrum has been exacerbated by its development history. The Town experienced most of its growth after the year 2000, specializing in newly built single-unit detached houses which are among the most expensive housing units that can be found in the marketplace. (Assuming the value of the underlying land is equal to that of an older house of the same size, new construction will always be more expensive on a per square foot basis than an older structure.)

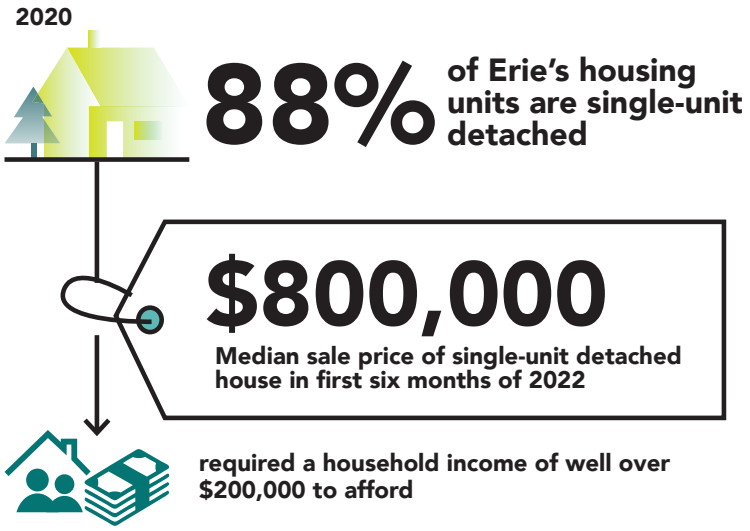
Erie's development history was one of responsiveness to private sector developers and builders who themselves were responding to market demand in the region for newer, larger houses at prices the market was willing to pay. Erie's location—easy commuting distance to Denver, Boulder, and Northern Colorado—made it a perfect place for high-income families to find a relatively large amount of space for the money compared to other communities, and in new construction, which appeals to dual-income professional households who do not want a fixer-upper. The Town also has not experienced much in the way of rental unit construction, meaning that those without the means or desire to be homeowners in an expensive market also have very few rental options as an alternative.

As of 2020, 85% of Erie's households were estimated to be owner-occupied, and only 15% were estimated to be renter-occupied. Also in 2020, 88% of Erie's housing units were estimated to be single-unit detached houses. The median sale price of a single-unit detached house in the first six months of 2022 was $800,000, an increase of $115,000 (17%) over the same period in 2021. The 2022 median sale price required a household income of well over $200,000 to afford. While half of homes sold for values below the median of $800,000 for the six-month period in question, it is reasonable to assume that homeownership in Erie requires a household income of at least $150,000.

The newness of Erie's housing stocks and its relative lack of rental units mean that potential new residents of Erie who want to be homeowners but have annual household incomes of less than $150,000, or who do not want to be homeowners at all, will find very limited choice. This describes the vast majority of regional households. Particular household types that may struggle to find suitable and affordable housing in Erie include all renters, first-time homebuyers, and local workers with low or moderate wages.

When it comes to affordability questions for Erie's existing households, three quarters, or just over 6,500 households, were estimated in 2020 to have no affordability challenges, meaning they paid less than 30% of their gross household income for housing costs. One quarter of Erie households, or just over 2,200 households, were estimated to pay 30% of their income, or more, for housing costs.





Erie households in 2020

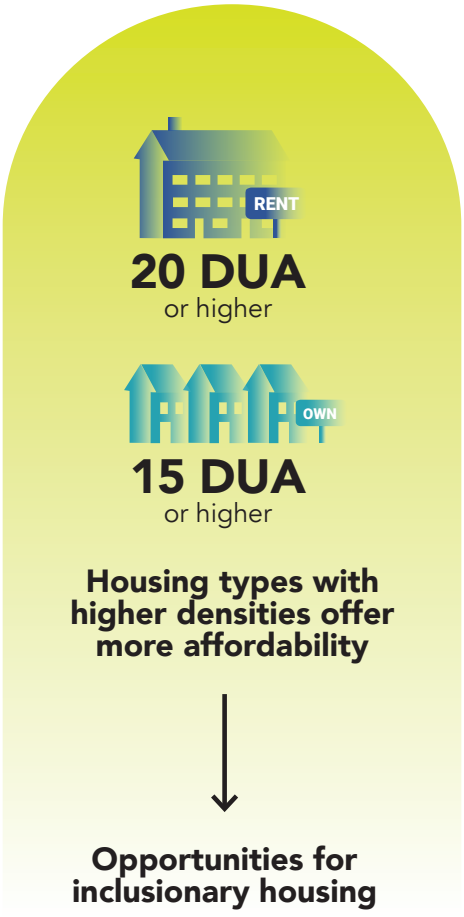
6,500
No affordability challenges

2,200
Paying 30% or more of income on housing costs

Source: 2016-2020 ACS Five Year Estimates

Options for Taking Action

Unlike many communities which developed earlier and with more diverse housing offerings, Erie has few opportunities to preserve existing affordable housing at any meaningful scale. The Town therefore has little choice but to focus on new construction activities. New construction activities, however, will continue to provide products that are affordable only to high-income households. New houses, even if they are attached townhomes or small single-unit detached houses, will require incomes of $150,000 or more due to the high costs of land and new construction. For the same reason, new rental units will require incomes close to, or even above, $100,000. Achieving affordability for households with lower incomes will require public sector interventions.



More diverse new housing types, especially ownership units built at densities above 15 dwelling units per acre and rental units built at densities above 20 dwelling units per acre, offer more affordability than single-unit detached houses, which have been built historically in Erie at densities of 4-8 units per acre. But somewhat lower prices are only a starting point. More importantly, higher-density housing developments feature project economics that unlock opportunity for inclusionary housing, which is a regulatory approach to gaining even greater levels of affordability in some portion of new units. Affordable housing providers who might choose to build in Erie will also need these higher densities to lower per-unit development costs and make their projects feasible.

Erie's path to building some of its new housing at higher densities, and applying regulatory and financial tools to leverage greater affordability, requires action on the following fronts:

Planning and Land Use Policy

The Town's updated Comprehensive Plan should provide the community commitment and policy basis for more diverse housing types and for affordable housing. The Plan's future land use map should identify areas in the Town where higher-density housing types are anticipated.

Land Use Regulations

The Town's Unified Development Code (UDC) and zoning should conform to the Comprehensive Plan and future land use map, explicitly stating where higher-density housing types are allowed. The UDC should also incorporate a requirement for inclusionary affordable housing in which some portion of new housing units are required to be affordable at income levels determined by the Town.

Financial Subsidies

Land use regulations alone, even with inclusionary housing requirements, may not achieve enough affordability to serve all of the Town's potential target markets. For those households with incomes lower than what inclusionary housing can match, additional financial subsidy will be needed to close gaps. The Town may consider a variety of methods to raise funds for affordable housing activities, including a cash-in-lieu fee as an alternative means of compliance with inclusionary housing requirements.

Land Purchases and Disposition

In a market with high and rising land prices, buying and holding land can be an important future contribution to affordable housing development. The Town may consider strategically acquiring sites and partnering with affordable housing providers when opportunities arise. Preserving developable land for future affordable housing, and/or contributing land to an affordable housing project, removes one major obstacle to the delivery of new affordable units.

PART 1

Market Conditions and Affordability Challenges in Erie

There is no debate that housing has become expensive in the Denver-Boulder region by any objective measure. The challenge is regional, not just local to Erie. However, before Erie can figure out where it is going, it needs to understand its starting point. How is Erie doing when it comes to affordability? What is happening in the region's housing market and how does Erie compare?

Part 1: Market Conditions and Affordability Challenges provides more detailed information and analysis related to:

Existing housing supply and costs.

Affordability for current households.

Implications of housing supply for household composition.

Potentially impacted household types.

Affordability Context

What does it mean for housing to be "affordable"?

By federal government definitions, housing is considered "affordable" when it costs less than 30% of a household's gross income, and those spending 30% or more on housing are considered "cost-burdened" which means housing is no longer affordable. Because the metric is a percentage, and not just an absolute number, affordability is relative, as illustrated in Figure 1.

(In 2020, Erie's median household annual income was estimated to be roughly $140,000, according to data from the American Community Survey 2016-2020 five-year estimates program. That is twice the estimated annual household income for the United States, which was about $70,000.)

FIG. 1
Examples of Affordable Housing Costs by Annual Gross Household Income

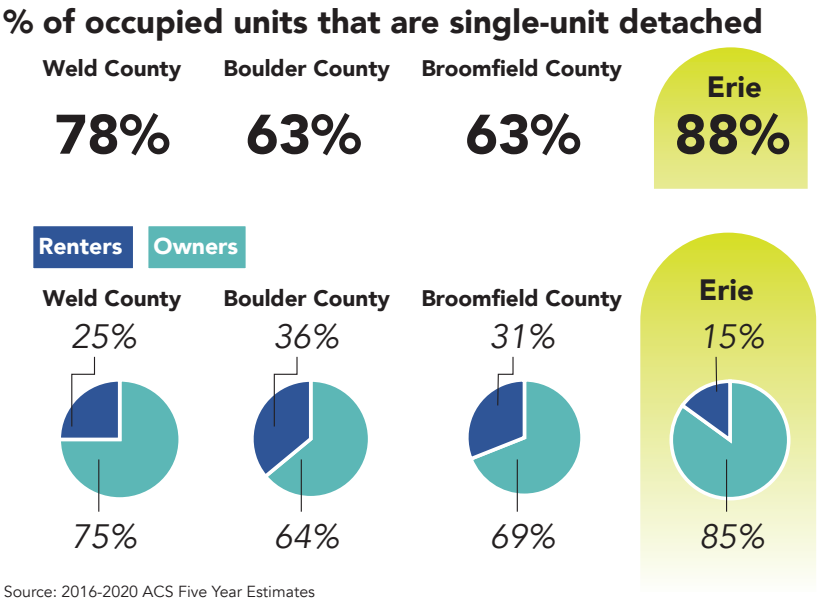
	$50,000	$75,000	$100,000	$150,000
Can afford up to this much each month	Up to **$1,250**	Up to **$1,875**	Up to **$2,500**	Up to **$3,750**
Can afford up to this much each year	Up to **$15,000**	Up to **$22,500**	Up to **$30,000**	Up to **$45,000**

Erie's Existing Housing Offerings: Mostly Single-Unit Detached Ownership

Relative to the region, Erie is dominated by single-unit detached houses, as shown in Figure 2. This is the largest, most land-consumptive housing type which means, all things being equal, it is almost always the most expensive. In addition, the Town features relatively few rental units.

As of 2020, the Town had an estimated 7,842 single-unit detached houses and an estimated 649 of them were renter-occupied. Of an estimated 1,299 total renter-occupied units, fully half were found in single-unit detached houses that were almost certainly originally built for owner-occupancy. This fact reinforces just how few housing units have been built in Erie expressly for rental purposes. See Figure 3 on page 11 for additional detail.

FIG. 2
Tenure and Single-Unit Detached Housing, 2020

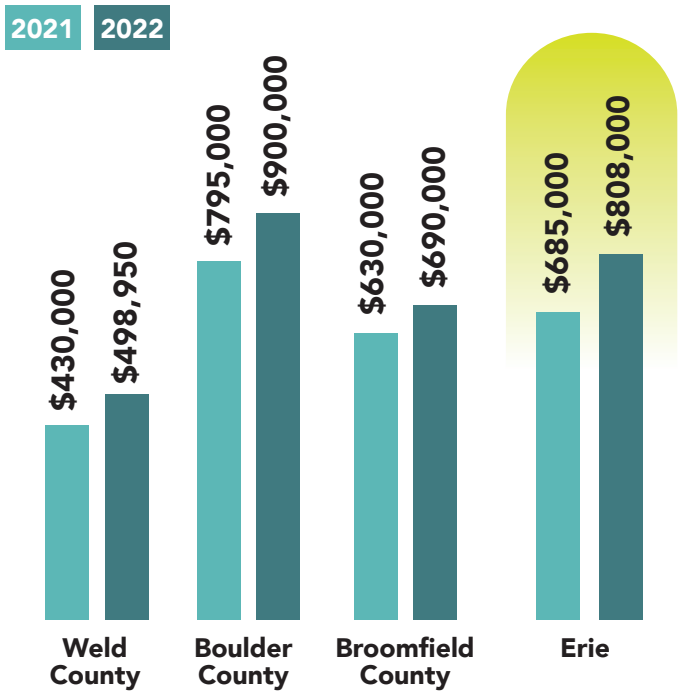


Source: 2016-2020 ACS Five Year Estimates

FIG. 3
Distribution of Occupied Housing Units in Erie by Type and Ownership/Rental Status, 2020

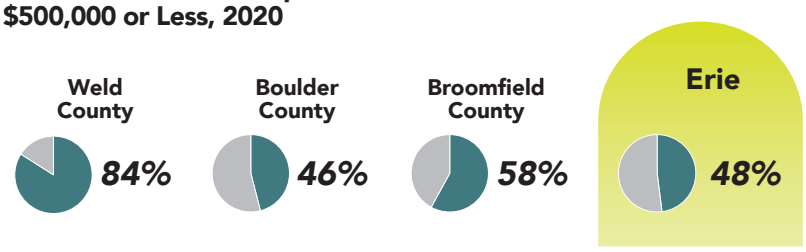
	Owners	Renters	TOTAL
Single-Unit Detached Houses	7,193	649	**7,842**
All Other Units (Duplex, Townhome, Apartment, etc)	420	650	**1,070**
Source: 2016-2020 ACS Five Year Estimates	7,613	1,299	**8,912**

FIG. 4
Single-Unit Detached Median Sale Price, First Six Months of the Year, 2021 vs 2022



Source: MLS via Colorado Association of Realtors

FIG. 5
Percent of Owner-Occupied Units Valued at $500,000 or Less, 2020



Source: 2016-2020 ACS Five Year Estimates

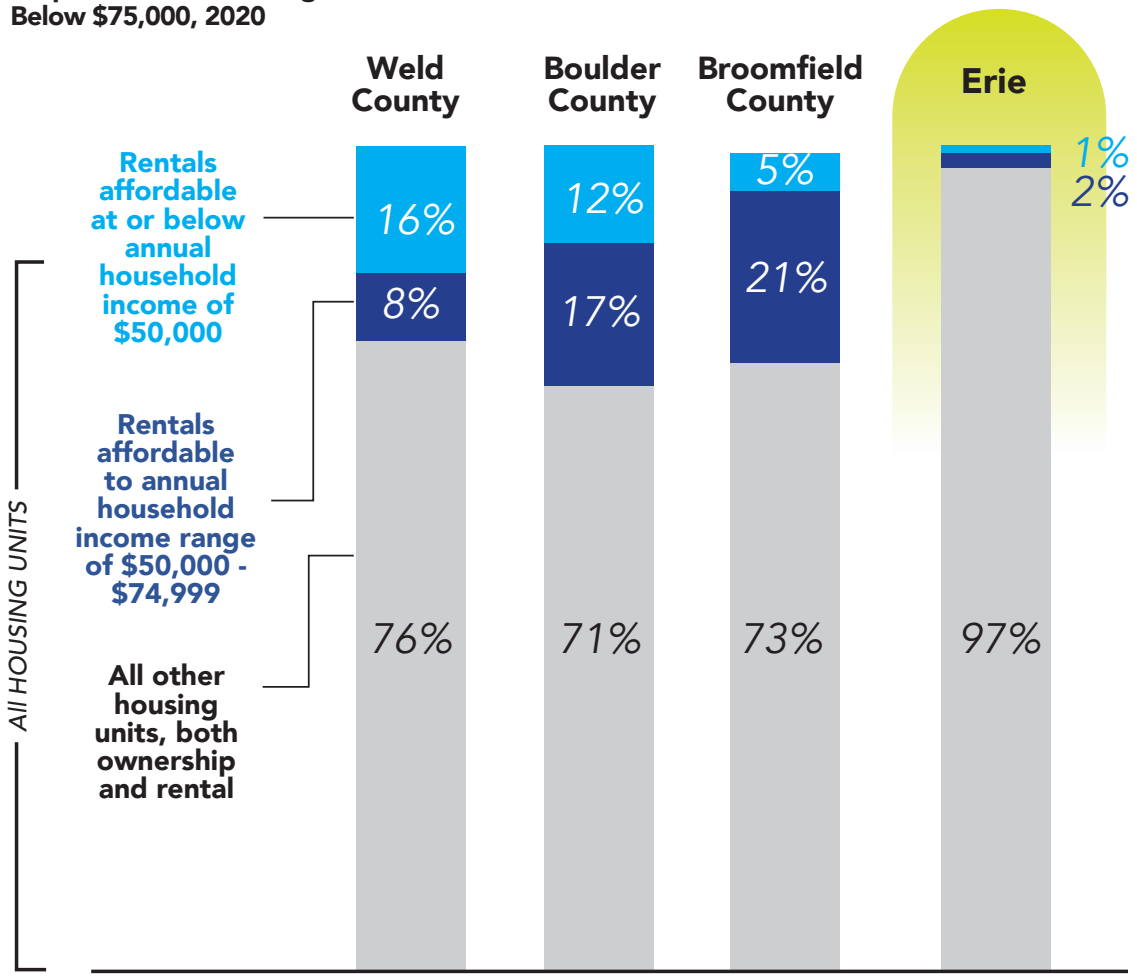
Affordability Challenges for Single-Unit Detached Ownership

The reason Erie's largely single-unit detached stocks impact affordability is because the stocks themselves are expensive. Single-unit detached house prices have risen steadily in the region in recent years, and Erie is no exception. In fact, Erie has recorded the highest year-over-year increase in sales price of the jurisdictions analyzed for this report. Figure 4 shows the increase in Median Sale Price between years 2021 and 2022.

The income required to purchase a home varies, depending on many factors, including down payment, credit score, and interest rates. It is generally understood that a ratio of annual income to purchase price should be 3:1 to be considered affordable. Depending on individual buyer circumstances, down payment, etc., the ratio could go as high as 4:1 while remaining affordable. As a rule, however, it is fair to say that a buyer household, with few exceptions, should plan to spend in excess of $600,000 for a detached house in Erie and such a purchase price will require ***at least*** a $150,000 annual household income. (This analysis makes no attempt to predict how a shifting interest rate environment in 2022 and beyond, or any other macroeconomic factors, will impact single-unit detached house prices.)

An additional challenge to affordability in Erie is that it lacks lower-priced ownership opportunities relative to the region. The lack of housing diversity —older houses, smaller houses, condos and townhouses, etc.— in Erie exacerbates the affordability challenge. Compared to Weld and Broomfield Counties, a smaller proportion of the Town's ownership units were estimated to be valued at less than $500,000 in 2020. This includes all detached houses, townhouses, and condos. Ownership units below this value become affordable to households with incomes less than $150,000. The Town's proportion of units estimated to be valued in this range as of 2020 is similar to Boulder County's, however, as shown in Figure 5. (While this data source is comprehensive and beneficial for comparison between jurisdictions, it should be noted that values are self-reported and the data itself is dated. As such, it is sensible to assume that the true percentage of owner-occupied units valued at less than $500,000 is likely smaller across the region at the time of this writing than is reported here.)

FIG. 6
Proportion of All Housing Units that are Rentals Affordable to Incomes Below $75,000, 2020

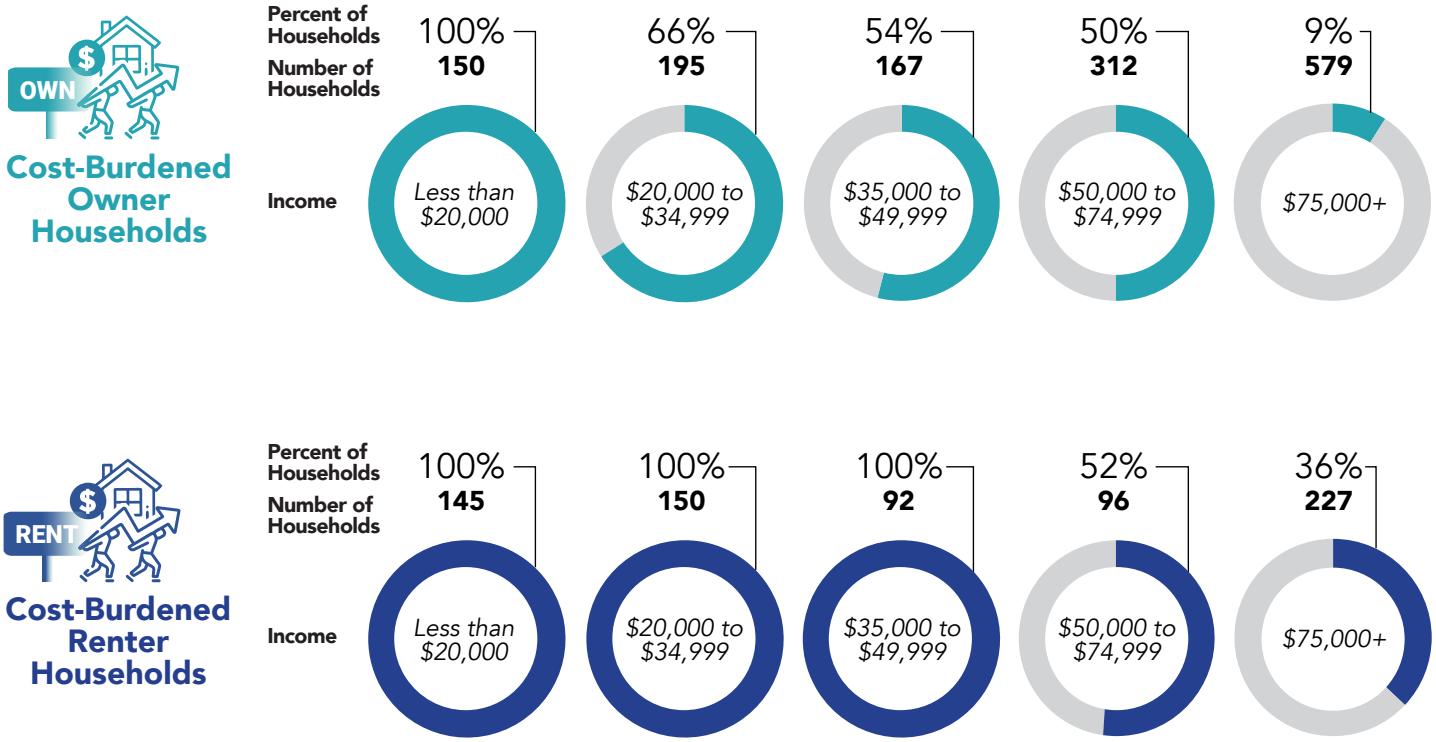


Source: 2016-2020 ACS Five Year Estimates

Affordability Challenges for Renters

For those households who cannot or choose not to become homeowners, Erie provides limited rental alternatives. Only 15% of Erie's housing units are estimated to be rentals, far below the proportion in surrounding counties. Among this relatively small number of rentals, the lack of availability is especially acute for households with incomes below $75,000—among Erie's limited rental offerings, very few are estimated to be affordable below that level. Across the rest of the region, as of 2020, estimates suggested that renter households with incomes of less than $75,000 could hope to access roughly a quarter of all housing units. In Erie, they could access only 3% of all housing units (Figure 6). The annual income figure of $75,000 is an important breakpoint in Erie, as can be seen later in Figure 7, as the demarcation between those who struggle greatly with affordability and those who struggle far less, or not at all.

FIG. 7
Cost Burdened Households by Income and Tenure, 2020



Source: 2016-2020 ACS Five Year Estimates

Affordability for Existing Erie Households

The information presented thus far paints a general picture for any household that may consider locating in Erie. But what is the status of households already living in the Town? How many households, whether they are owner- or renter-occupied, are facing affordability challenges?

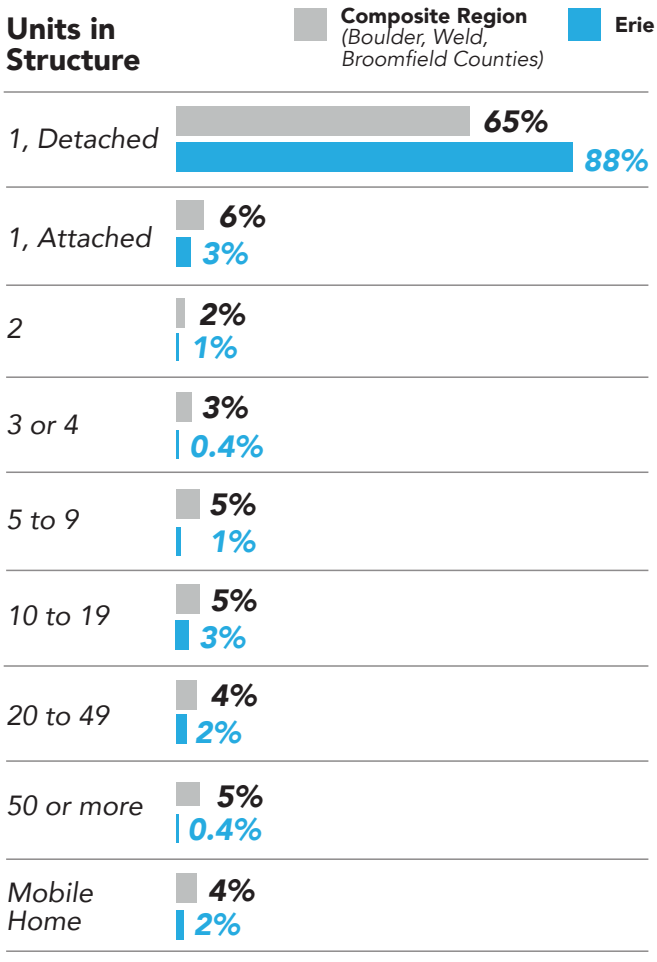
When households pay 30% or more of their gross income toward housing costs, they are considered "cost burdened." Generally speaking, rates of cost burden are lower in homeowners because mortgage underwriting practices help to guarantee that buyers will not buy more house than they can afford. This system can of course be impacted by life events such as job loss, divorce, or retirement, that lower household incomes without lowering monthly housing costs. Renters generally are more susceptible to cost burden because rents can reset at the end of lease terms even if household income does not increase accordingly. Erie is so dominated by homeownership that it would be reasonable to expect a low rate of cost burden amongst its households. In point of fact, however, nearly one in every four Erie households was estimated in 2020 to have been paying 30% or more of its income toward housing, as outlined in Figure 7. Again, the rates of cost burden are clearly higher amongst owners and renters with incomes below $75,000.

Erie vs. the Region: Housing Types and Households

Erie's development history has led to a very different mix of housing stocks and households than the region's overall. Erie is a community that experienced most of its housing development and population growth after the year 2000, which is different from surrounding communities that grew up earlier. The Town has less diversity in its housing stocks than the region, with a relatively large proportion of its housing having been built in the form of single-unit detached houses for purchase (See Figure 8.) The newness of the stocks, and their uniformity both in tenure (owner vs renter) and type, has had implications for affordability in Erie.

Newly built housing is generally the most expensive, on a per square foot basis. Single-unit detached houses, which have been the norm in Erie, have the greatest number of square feet. This means Erie has specialized in some of the most expensive housing stocks on the market. Newness is just as important as size. Even smaller housing types (e.g. a two-bedroom apartment or 1,300 square foot, three-bedroom house), while more affordable than large single-unit detached houses, still require about $100,000, or more, in annual income to be affordable due to land and construction costs.

FIG. 8
Housing Units by Units in Structure, Erie vs. Region, 2020



Source: 2016-2020 ACS Five Year Estimates

Examples of Common Housing Types

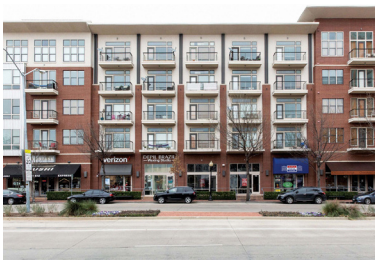
Units in Structure

1, Detached

1, Attached

20-49

50 or more



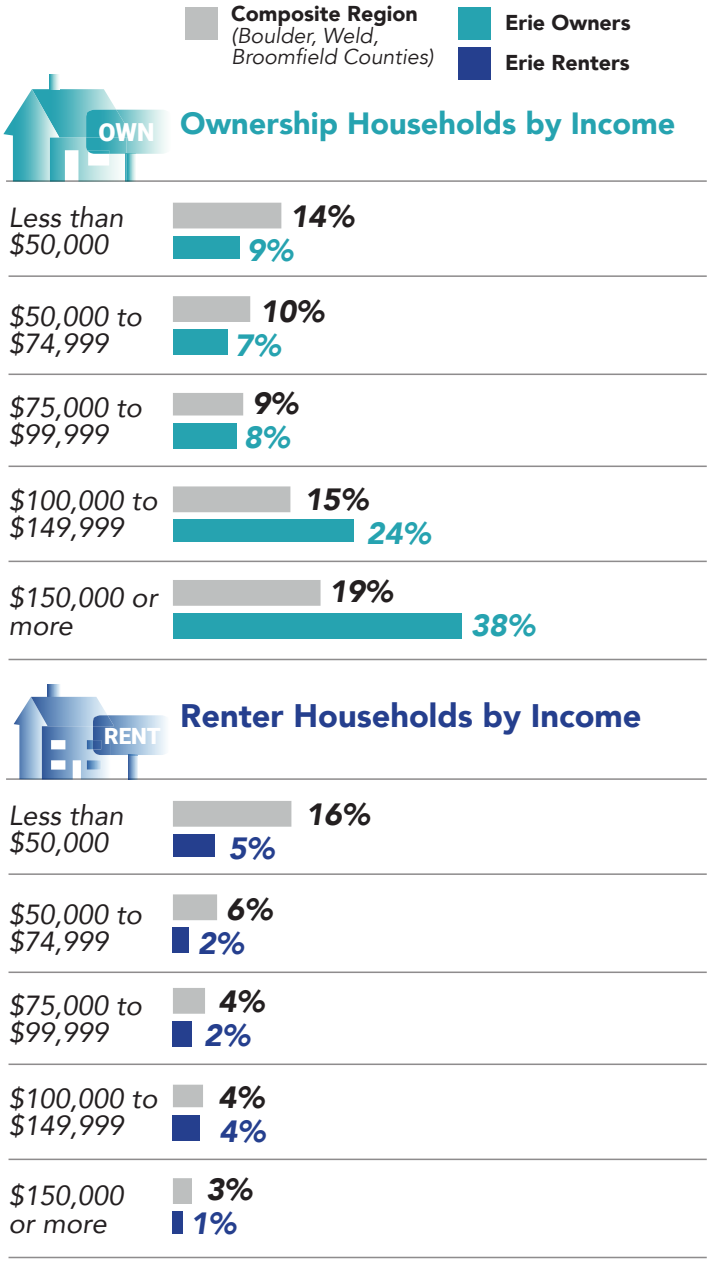
Erie skews disproportionately toward owners and higher incomes (See Figure 9.) In the region, the proportion of households estimated to rent as of 2020 was over 30%. In Erie, only about 15% of households were estimated to be renters in 2020. Rental units simply have not been built in any meaningful numbers in the Town. Newly constructed single-unit detached houses tend to be the most expensive housing units on the market, requiring the highest incomes to afford them. As of 2020, the estimated proportion of Erie households that were owner households with six-figure incomes was approximately 60% versus 35% regionwide.

A number of attributes of Erie's physical housing stocks contribute to the Town's affordability challenge:

- The high cost of new construction.
- The high cost of relatively large lots in a land-constrained region.
- A lack of rental units and specifically income-restricted units.
- A relative lack of older housing units that become less desirable over time and thus provide some measure of affordability.

This all suggests that Erie's focus needs to be on developing rental housing at all income levels as well as affordable ownership opportunities. The difficulties of doing so, and options for overcoming those difficulties, are discussed later in this report.

FIG. 9
Distribution of Households by Tenure and Income, Erie vs. Region, 2020

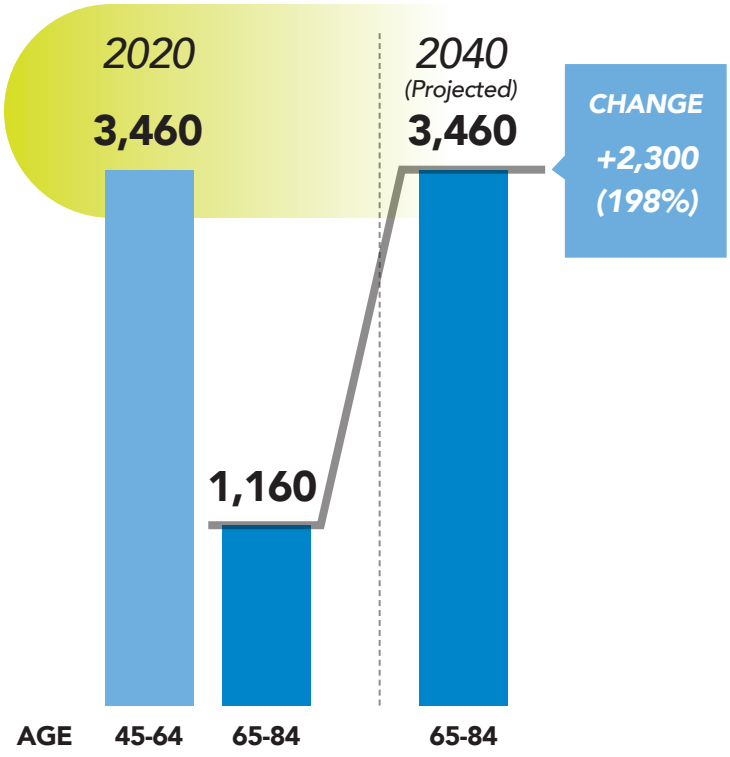


Source: 2016-2020 ACS Five Year Estimates

Determining Potential Housing Needs

There are a number of ways to think about potential future housing needs in Erie. It is a subjective, not objective, exercise. At the core of Erie's challenge is that it is a housing monoculture of the newest and largest housing units in the region. There is little the Town can do about the age of its stocks, but it may be able to achieve a better housing balance over time, while keeping in mind the specific needs of certain groups, including older adults, local low-wage workers, renters of all incomes, and entry-level home buyers.

FIG. 10
Projected Homeowners Aged 65-84, 2040 (Cohort Aging 2020-2040)



Source: 2016-2020 ACS Five Year Estimates

Anticipating Aging Homeowners

The number of elderly homeowners aged 65-84 in Erie could potentially triple between 2020 and 2040 (See Figure 10.) As of 2020, Erie was home to an estimated 1,160 homeowners aged 65-84 and an estimated 3,460 homeowners aged 45-64. If all members of the latter cohort of homeowners age another twenty years into the 65-84 age category, the category will grow by 2,300. This is a simplified method for projecting potential older adult homeowners in 2040. It is unknown, for example, whether the size of the cohort will grow or shrink via migration over two decades.

It is further unknown the extent to which aging homeowners will create demand for housing types different from the single-unit detached houses in which they are living. The group is not monolithic. Some may choose to "age in place" in their current homes. Some may choose to move to a single-story, single-unit detached house instead of the current multi-story house in which they currently live. (This may be a form of "downsizing," though a newly constructed single-story, single-unit house could have just as many square feet of living space as the occupants' previous home, albeit perhaps with less outdoor space to maintain.) Others may choose to sell their homes and move into rental situations that are specifically targeted at seniors, while others may choose rental options that are not age restricted.

As existing homeowners age, and if they seek new housing options, it is important to note that equity built over decades will come into play. In other words, although their incomes may fall and/or become "low" by future definitions, current Erie homeowners are likely to have substantial assets.

The impossibility of projecting the true number, financial need (if any), and housing preferences of Erie's future senior households means the best thing the Town can do is to diversify housing offerings. This requires the Town to allow other actors to produce the housing, including developers and builders of single-story, single-unit houses and duplexes and rental products of various kinds as well as multi-story, elevator served, housing that is popular for active older adults. Rental products may be market-rate age-restricted stacked flats, age-unrestricted stacked flats, and/or affordable developments delivered by local affordable housing organizations.

Providing Housing Choice to Local Workers

Erie is a bedroom community, housing workers employed in the greater Denver-Boulder region. According to the most recent relevant data from the U.S. Census Bureau's Center for Economic Studies, the number of commuters living in Erie grew from roughly 3,000 in 2002 to over 12,000 in 2019 (a 300% increase). In 2019, about 2,700 (23%) of those workers commuted to Boulder, about 1,400 (12%) to Denver, and the balance spread out to dozens of other cities across northern Colorado and the Denver metro. In addition, there were nearly 1,900 jobs in Erie paying wages or salaries of $40,000 or less. (See Figure 11.)

If a worker in one of these positions is the sole earner in the household, the chances of an affordability problem are very high in the region and affordable rental options in Erie are nearly non-existent. If two low-wage workers live in the same household, they may find affordable rental options in the region, but affordable rental options in Erie will still be nearly non-existent. Assuming two workers per household earning $40,000 each, a total household income of $80,000 per year can affordably pay for $2,000 in monthly rent.

As Erie grows into a mature community, it is adding its own jobs, from first responders to grocery and retail workers, to health care workers providing critical services to Erie residents. As the need for local workers grows, and market conditions outstrip the ability of those workers to afford housing, Erie service workers of all stripes have no choice but to find housing elsewhere and commute to Erie. The Town therefore recognizes a need to take responsibility for diversifying housing offerings that could be affordable options for local workers. In a regional housing market, many local workers will inevitably choose to live in another community for reasons that go beyond affordability, but intentionally creating and preserving space for those who work in Erie aligns with the Town's social, economic, and environmental goals.

FIG. 11
Jobs Paying $40,000 or Less, by Industry, 2019

INDUSTRY	JOBS
Manufacturing	194
Retail Trade	311
Health Care and Social Assistance	226
Accommodation and Food Services	198
All Other Industries	961
Total	**1,890**

Source: U.S. Census Bureau Center for Economic Studies, accessed via OnTheMap

Analysis of Housing Stock & Affordability Gap in Erie

The Town of Erie is experiencing unprecedented growth. The Town's estimated population in January 2024 is 36,835, an increase of more than 450% since the year 2000. The Town anticipates a population nearing 60,000 by 2045. Continuing development will drive this growth, with Erie's housing inventory projected to increase by 135% based on units that are under construction, units that are entitled but do not have building permits, and developments that are in the early planning stages. As noted elsewhere in the report, Erie is a strong market community in a strong market region.

At the moment, very few of the housing units in the pipeline will be "affordable." The percentage of affordable housing currently stands at 1.3%, the Town will need to make significant efforts to change practices to make progress toward the 12% goal.

Town of Erie Housing Stock, Dec. 31, 2023

CURRENT AND PROJECTED UNITS	DWELLING UNITS
Existing housing stock	12,898
Dwelling units for projects in construction	2,438
Dwelling units for entitled projects	4,979
Dwelling units for future planned developments	9,936
Total	30,251

In addition to understanding the number of dwelling units and the level of affordability, the Town must address specific affordability needs at different income levels and for different types of housing - rental and ownership. A housing gap analysis utilizing the area median income ("AMI) for Boulder County quantifies these needs. A housing gap analysis compares the supply of housing at certain price levels to the number of households that can afford housing at that price level.

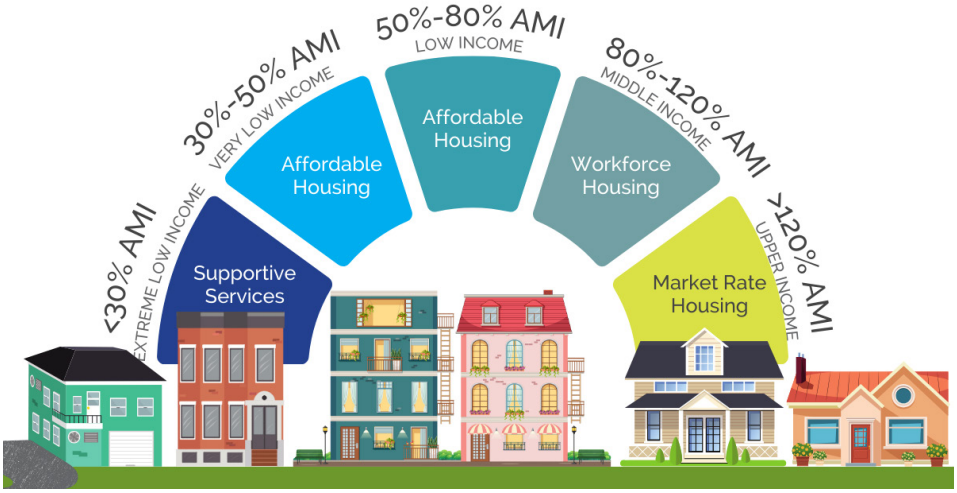
Town of Erie Housing Pipeline, Dec. 31, 2023

Current & Projected Units	Total Units	Affordable Units Needed to Meet 12% Goal	Actual Number of Affordable Units	% of Affordable Units	Affordable Unit Deficit
Existing Housing Stock	12,898	1,548	167*	1.3%	-1381
Dwelling Units in Construction	2,438	293	0	0%	-293
Dwelling Units for Entitled Projects	4,979	598	0	0%	-597
Dwelling Units for Future Development	9,936	1,192	262**	2.6%	-930
TOTAL	**30,251**	**3,630**	**429**	**1.4%**	**-3201**

**From Prop 123 baseline calculation **Currently Anticipated*

Gap Analysis

A number of local jurisdictions conducted housing gap analyses as part of their housing needs assessments, including Longmont, Lafayette, Boulder, and Westminster. [5] A rental housing gap analysis utilizes data from the Census Bureau on housing tenure, income, and median rent levels to compare the number of renter households at different AMI levels with the number of rental units on the market that would be affordable to those households.[6] When calculating the gap for for-sale, owner-occupied units, sales data is used to calculate the percentage of homes that were affordable at different income levels. The analysis compares these percentages to the percentage of renter households at those income levels, as they are prospective buyers. The ownership gap analysis also requires certain assumptions for interest rates and other factors.[7] These analyses focus on the current residents of Erie rather than the Town's workforce.



Boulder Area Median Income 2022

Area Median Income	1-Person	2-People	3-People	4-People
30%	26,340	30,120	33,870	37,620
50%	43,900	50,200	56,450	62,700
80%	70,240	80,320	90,320	100,320
100%	87,800	100,400	112,900	125,400
120%	105,360	120,480	135,480	150,480

Rental Gap Analysis

A rental housing affordability gap analysis provides a better understanding of how well local housing inventory meets the needs of residents. If there is a deficit at a certain income level, that means that residents at that income level will struggle to find housing that they can afford that meets their needs. A surplus of homes at a particular income level is not necessarily negative but is typically an indication that the Town should prioritize the creation of new units affordable at other income levels.

The analysis on the top of the next page shows that there is a **shortage of 293 rental units affordable to households making 50% of the AMI or less.** This means that these households are paying more than they should for their housing. This shows a strong need for additional rental units affordable at 50% AMI and below, and the Town should prioritize creating new rental units affordable at these income levels. The

5 *Root Policy Research, City of Boulder Housing Market Analysis & Needs Assessment Supplement; Root Policy Research, City of Longmont Housing Needs Assessment; Root Policy Research, Lafayette Economic Development & Housing Strategic Plan; BBC Research & Consulting, Housing Needs Assessment – City of Westminster.*

6 *This calculation utilizes data from the American Community Survey 5-year estimates for 2017-2022. Affordability calculations are based on the 2022 Area Median Income (AMI) for Boulder County as calculated by the Colorado Housing and Finance Authority (CHFA). The AMI for a 3-person household was used based on the average household size in Erie.*

7 *This analysis uses American Community Survey 5-year estimates for 2017-2022 and local home sale price data from the Multiple Listing Service (MLS) for 2022. The maximum affordable sales price was calculated using the following assumptions: a 30-year mortgage with a 10% down payment and 6.44% interest rate, with 30% of the household's gross income going toward their monthly payment.*

Erie Rental Gaps for Erie Residents (Not Workforce), 2022

AMI level	Maximum Rent	Current # of Renter Households	% of Total Renter Households	# of Units	% of Total Rental Units	Rental Mismatch
0-30%	$847	163	11%	0	0%	-163
31-50%	$1,411	299	21%	169	12%	-130
51-80%	$2,258	302	21%	327	22%	25
81-100%	$2,823	135	9%	423	29%	288
101-120%	$3,387	135	9%	415	29%	280
121%+	$3,388+	397	28%	120	8%	-277

Source: American Community Survey 2022 5-Year Estimates

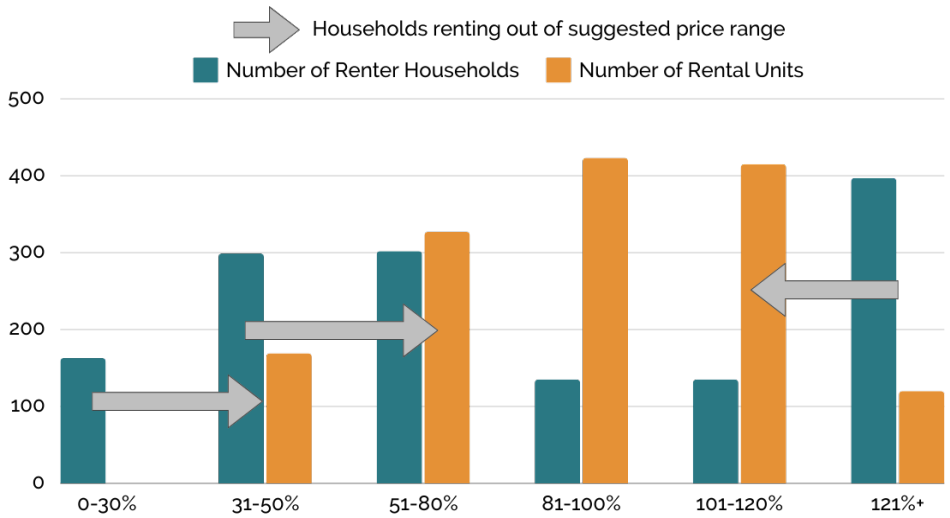
largest gap is for households making 30% AMI or less, who can afford to pay, at a maximum, $847 each month in rent.

While there is technically a "shortage" of 277 units affordable to renter households making more than 120% AMI, these households may not have a desire for higher-priced units. Many of these households "rent down" to spend less money on housing or save for a home purchase.

Shortages at the lower- and upper-income ranges gives the illusion of balance, but this is misleading. The surplus of rental housing options in the middle-income ranges means that households in the top income level still have plenty of adequate rental options that they can afford. Given their higher incomes, these households can more easily rent these units, particularly given that many owners of rental properties have income requirements tied to their rent levels. Lower-income households are less likely to have access to housing that costs more than is affordable at their income level. This is not just because of a lower supply of units with a lower monthly rental cost; the units in Erie that are affordable to households at the 51-120% AMI level are not deed restricted. This means that higher-income households can rent these units and tighten the market further for households in the 51-120% AMI income range.

Even in situations where lower-income households can access more expensive housing, the lack of affordable rental units significantly impacts families making 50% AMI or less significantly. As noted on page 13 of the Housing Needs Assessment, **100% of renter households in Erie that earn less than $50,000 annually are cost-burdened**, meaning

Erie Rental Unit Gaps, 2022



Source: American Community Survey 2022 5-Year Estimates

they spend more than 30% of their income on rent. On the other hand, only 36% of renting households making more than $75,000 are cost-burdened. It is crucial to address the affordability gap for renters under 50% AMI because of the ripple effect that high housing costs can create. When a family must pay more than they can afford in rent, they spend less money on other essentials, like food, medical care, and transportation. Creating new units affordable to these households is essential so that these families can thrive and build for the future.

Homeownership Gap Analysis

A for-sale ownership gap analysis uses current renters as representative of the potential pool of homebuyers in a particular community. In doing so, it can measure the affordability of the for-sale inventory and show whether home sales are economically accessible for households that want to progress toward homeownership and wealth-building.

This analysis shows a homeownership affordability gap for households making 100% AMI or less, concentrated at 80% AMI and below. **Sixty-two percent of renter households in Erie make 80% AMI or less**, but only **9%** of for-sale homes in 2022 were affordable to households at this income level. A significant oversupply exists at the highest income levels. Only **28% of renter households earn more than 120% of the AMI annually**, yet **81%** of the for-sale homes were affordable only to households at that income level[8]. This analysis highlights a significant need for a diversification of for-sale units in Erie that are affordable to households making less than 100% AMI. If the Town does not address this gap and prioritize diversifying for-sale units to be affordable at lower income levels, renters currently living in Erie who want to become homeowners in Erie will have few options.

Erie For-Sale Ownership Gaps for Erie Residents (Not Workforce), 2022

AMI Level	Max List Price	Potential Demand of 1st Time buyers		For-Sale Home Supply		Purchase Mismatch
		Number	Percentage	Number	Percentage	
0-30%	$156,923	163	11%	0	0%	**-163**
31-50%	$244,511	299	21%	0	0%	**-299**
51-80%	$391,217	302	21%	31	4%	**-271**
81-100%	$489,022	135	9%	39	5%	**-96**
101-120%	$586,826	135	9%	73	10%	**-62**
121%+	$586,827+	397	28%	601	81%	**204**

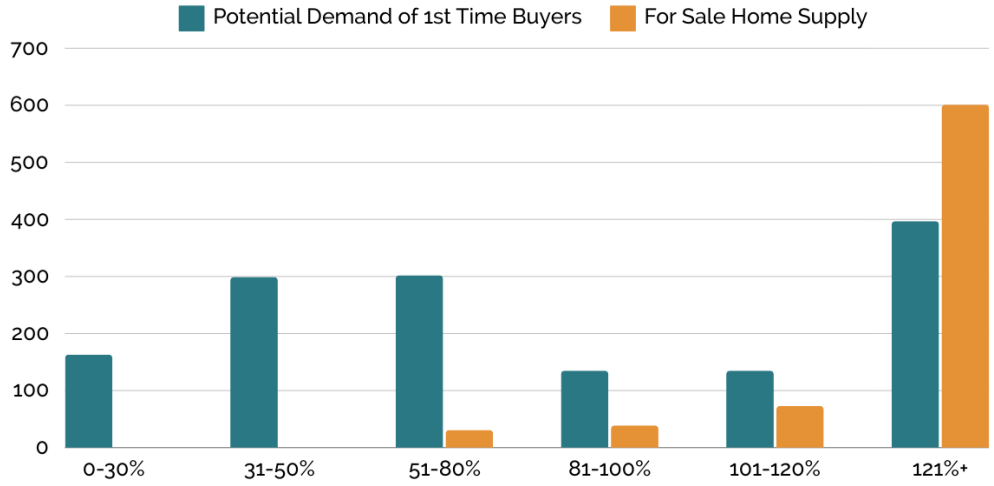
Source: American Community Survey 2022 5-Year Estimates and local sales data.

8 The for-sale gap analysis focuses on the percentage of for-sale units because of the disparity between owner-occupied units (85%) and renter-occupied units (15%) in the Town.

Housing Gap Analysis for Erie's Workforce

There are two levels of analysis for analyzing wages in the Town's workforce. The first is industry-level data that aggregates wages within a particular industry. This provides a good overall understanding of wages in the Town, but this data groups several different kinds of occupations together. Local wage data for specific occupations, on the other hand, provides a an understanding of earnings and affordability for individuals holding specific jobs rather than an industry-wide analysis.

Erie For-Sale Ownership Gaps, 2022



Source: American Community Survey 2022 5-Year Estimates and local sales data

Annual wages by industry provide important context for housing affordability in Erie. The most recent data shows that while the Town of Erie has a high average household income, workers in most industries cannot afford housing costs in Erie. Of seventeen industries analyzed by Economic & Planning Systems, Inc., the typical worker in only five industries can afford the median rent in Erie. These industries are those that tend to have a significant amount of education or technical expertise, such as business management, finance and insurance, and professional and technical services. The average worker in only three industries - finance and insurance, wholesale trade, and company management - can afford Erie's median for-sale home price.

Wages for individual earners may not fully reflect affordability in Erie, given Erie's large average household size and the prevalence of households with married couples. Even when calculating affordability on the basis of 1.5 workers per household (in line with Erie's typical household size) workers in most industries are priced out of the rental market, including education, food service, transportation, and construction. Even after assuming 1.5 workers per household, workers from only five industries can afford the median home price in Erie.

These dynamics could have a significant impact on Erie's local economy. If workers cannot afford to live in Erie, they may leave to find housing they can afford in other areas. Without a workforce that can afford to live in the Town, it will be difficult to attract new employers to the area. The prevalence of industries whose workers cannot afford to live in Erie reinforces the need for addressing affordability at all income levels.

Housing Affordability by Occupation, Single-Earner Household, 2022

Employer	Starting Salary	Max affordable rent	Can afford median rent ($2,650)?	Max affordable home price	Can afford median home price ($730,000)?
High Plains Library District (Full-time Adult Librarian	$52,644	$1,316	✖	$228,025	✖
St. Vrain Valley Schools (Licensed Teacher)	$56,000	$1,400	✖	$242,561	✖
Mountain View Fire Rescue (Firefighter EMT IV)	$67,363	$1,684	✖	$291,780	✖
Erie Police Department (Post-certified Police Officer)	$72,238	$1,806	✖	$312,896	✖

Sources: High Plains Library District - Jobs; St. Vrain Valley Schools Salary Schedule; Mountain View Fire Rescue – Entry Level Firefighter Positions; Erie Police Department – Pay and Benefits

At the occupational

level, many workers the provide valuable services simply cannot afford to live in Erie. If the Town does not address housing affordability, the community will continue to find that folks who work in Erie cannot afford to live here, including our educators and first responders.

Conclusion

The Town of Erie must invest significantly in addressing housing affordability and ensuring a diversity of housing types that are accessible to multiple income levels in order to meet the goal of 12% affordable units by 2035. To meet the

Erie Housing Affordability by Industry, Single-Earner Household, 2022

Job Title	Median annual income	Max affordable rent	Can afford median rent ($2,650)?	Max affordable home price	Can afford median home price ($730,000)?
Finance and Insurance	$188,066	$4,701	☑	$814,600	☑
Wholesale Trade	$174,424	$4,360	☑	$755,510	☑
Management of Companies and Enterprises	$173,543	$4,338	☑	$751,694	☑
Information	$142,066	$3,551	☑	$615,353	✗
Professional, Scientific, and Technical Services	$126,162	$3,154	☑	$546,465	✗
Manufacturing	$69,142	$1,728	✗	$299,486	✗
Arts, Entertainment, and Recreation	$65,858	$1,646	✗	$285,261	✗
Admin. and Waste Management	$61,718	$1,543	✗	$267,329	✗
Construction	$61,468	$1,536	✗	$266,246	✗
Real Estate and Rental & Leasing	$57,697	$1,442	✗	$249,912	✗
Educational Services	$57,080	$1,427	✗	$247,240	✗
Other Services, Except Public Administration	$55,526	$1,388	✗	$240,509	✗
Public Administration	$53,668	$1,341	✗	$232,461	✗
Transportation and Warehousing	$49,403	$1,235	✗	$213,987	✗
Healthcare and Social Assistance	$47,638	$1,191	✗	$206,342	✗
Retail Trade	$44,428	$1,110	✗	$192,438	✗
Accommodation and Food Service	$25,598	$640	✗	$110,877	✗

Source: Economic & Planning Systems, Inc.

Erie Housing Affordability by Industry, 1.5 Earner Household, 2022

Job Title	Median annual Income with 1.5 earners per household	Max affordable rent	Can afford median rent ($2,650)?	Max affordable home price	Can afford median home price ($730,000)?
Finance and Insurance	$282,099	$7,052	☑	$1,221,900	☑
Wholesale Trade	$261,636	$6,541	☑	$1,133,265	☑
Management of Companies and Enterprises	$260,315	$6,508	☑	$1,127,541	☑
Information	$213,099	$5,327	☑	$923,029	☑
Professional, Scientific, and Technical services	$189,243	$4,731	☑	$819,698	☑
Manufacturing	$103,713	$2,593	✗	$449,229	✗
Arts, Entertainment, and Recreation	$98,787	$2,470	✗	$427,892	✗
Admin. and Waste Management	$92,577	$2,314	✗	$400,993	✗
Construction	$92,202	$2,305	✗	$399,369	✗
Real Estate and Rental & Leasing	$86,546	$2,164	✗	$374,868	✗
Educational Services	$85,620	$2,141	✗	$370,859	✗
Other Services, Except Public Administration	$83,289	$2,082	✗	$360,763	✗
Public Administration	$80,502	$2,013	✗	$348,691	✗
Transportation and Warehousing	$74,105	$1,853	✗	$320,981	✗
Healthcare and Social Assistance	$71,457	$1,786	✗	$309,513	✗
Retail Trade	$66,642	$1,666	✗	$288,657	✗
Accommodation and Food Service	$38,397	$960	✗	$166,315	✗

Source: Economic & Planning Systems, Inc.

community's needs, the Town should ensure that new affordable units are of the type and income level where the most families will benefit from them.

The Town's current housing stock is not meeting the needs of its current residents and workforce. This also has implications for future residents, including young people who grew up in Erie and want to call it home for the long term. People who can afford to purchase homes in Erie are likely bringing equity from the sale of another home and are "moving up" to Erie. There are very few "starter home" opportunities in Erie, making it more difficult to attract young families. Erie residents understand this reality. In a survey

conducted in Spring 2023, only 20% of Erie residents gave the Town a positive rating on housing affordability.[5] Seventy-seven percent of respondents expressed a desire for employers to have the ability to hire employees who can buy or rent a home in Erie, and 73% expressed concern with the affordability of buying a home in Erie.

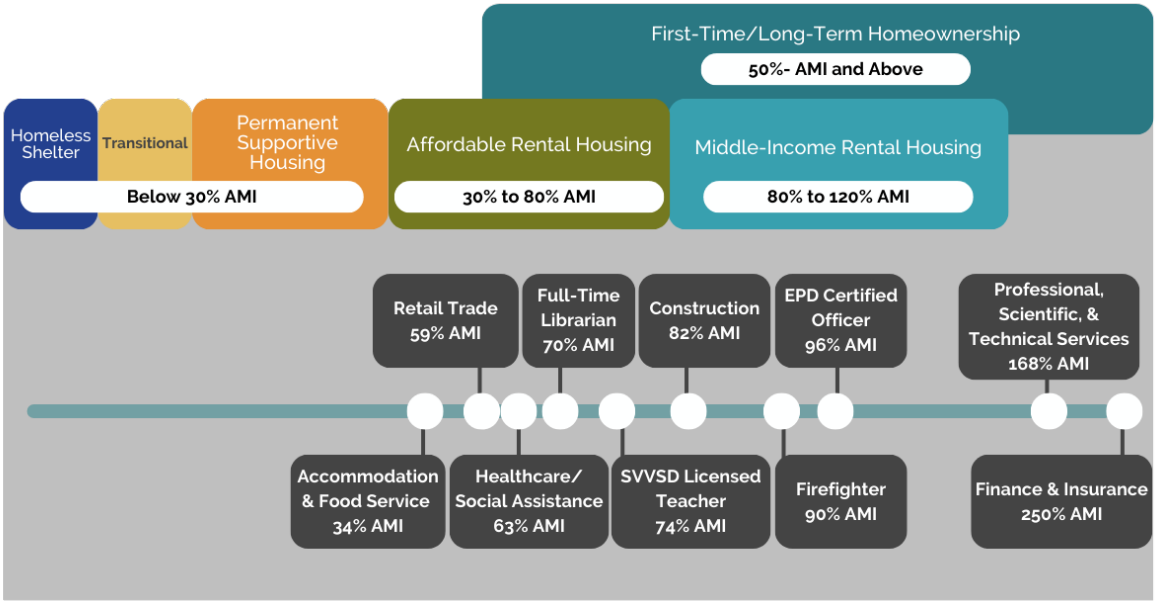
The Town needs cohesive solutions to address affordability in the rental and for-sale housing markets. Understanding the nuances of our gap analysis will guide the Town's affordable housing efforts. The largest need for rental units is at the 50% AMI level and below, where there is a deficit of 293 rental units. This can have a ripple effect through the rental market, with households forced to spend more than they can afford on rent, resulting in fewer units available for middle-income households.

Housing Affordability by Occupation, 1.5 Earner Household, 2022

Employer	Starting Salary (1.5 workers)	Max affordable rent	Can afford median rent ($2,650)?	Max affordable home price	Can afford median home price ($730,000)?
High Plains Library District	$78,966	$1,974	✗	$342,037	✗
St. Vrain Valley Schools (Licensed Teacher)	$84,000	$2,100	✗	$363,842	✗
Mountain View Fire Rescue (Firefighter EMT IV)	$101,044	$2,526.11	✗	$437,670	✗
Erie Police Department (Post-certified Police Officer)	$108,357	$2,708.93	☑	$469,344	✗

Sources: High Plains Library District - Jobs; St. Vrain Valley Schools Salary Schedule; Mountain View Fire Rescue – Entry Level Firefighter Positions; Erie Police Department – Pay and Benefits

Employment Wages in Erie, Colorado



Sources: Colorado Housing and Finance Authority, The Housing Continuum White Paper, April 2024; Economic & Planning Systems, Inc.; High Plains Library District - Jobs; St. Vrain Valley Schools Salary Schedule; Mountain View Fire Rescue – Entry Level Firefighter Positions; Erie Police Department – Pay and Benefits.

These dynamics could lead to essential workers looking elsewhere for housing that meets their needs; many of these workers earn more than 50% AMI but the lack of units affordable to lower-income levels could tighten the rental market that is affordable to middle-income families. In the for-sale market, only one out of five homes is affordable to households making less than 120% of the AMI, there is a clear need for affordable units at every income level up to 100% AMI.

High housing costs will make it harder to attract employers. Long-term residents will struggle to stay in the community they call home. By prioritizing housing affordability, in both the rental and for-sale markets, Erie residents will have the housing options that they need and allow the Town to maintain its vibrant community and culture.

5 *The National Community Survey, Erie, Colorado, Report of Results, 2023.*

PART 2

Options for Taking Action

The data clearly illustrate a set of affordability and housing diversity challenges for Erie, but what can the Town do to improve the situation? There are a handful of actions the Town can take to effectuate positive change by facilitating the delivery of affordable housing. Part 2, Options for Taking Action, identifies options the Town could explore and/or implement in short order to advance its housing goals.

Part 2 includes:

Important context related to development costs, land use, land use regulations, and the role of subsidy.

Discussion of options the Town may consider in the following categories:

- **-Planning and Land Use Policy**
- **-Land Use Regulations**
- **-Financial Subsidies**
- **-Land Purchases and Dispositions**

Development Costs, Land Use Regulations, and Subsidy

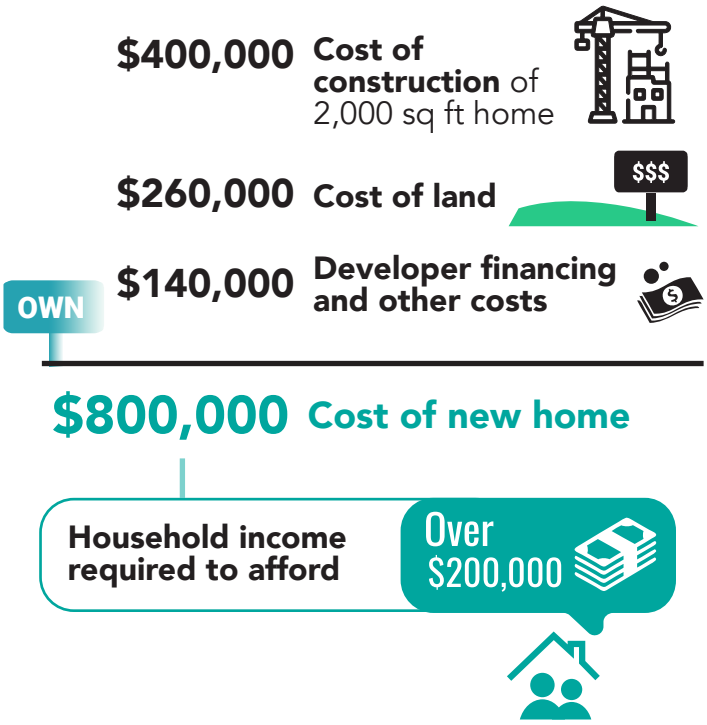
Just because housing needs are understood does not mean they will be met by the private sector. There are a number of hurdles that must be cleared. Desire for a housing unit is not the same as demand. Demand includes both the ***willingness and the ability*** to pay. The private sector will not bring new units online for the potential markets in question—seniors, low-wage workers, entry-level homebuyers, etc.—unless it knows the households can pay the prices required to cover the total costs of development. In the event that the gaps can be closed upon the identification of the right housing unit at the right development cost, subsidized (if necessary) by the right amount, a new affordable unit cannot be built unless it is allowed under the Town's development code.

There are a number of tools available to help local governments diversify housing supply and support the production of affordable housing. Some may provide substantial benefits while others contribute only at the margins. Key to understanding which tools will be most useful in Erie's specific context is first understanding why housing costs what it costs, how land use regulations can impact costs and affordability, and how public subsidy is needed to close affordability gaps.

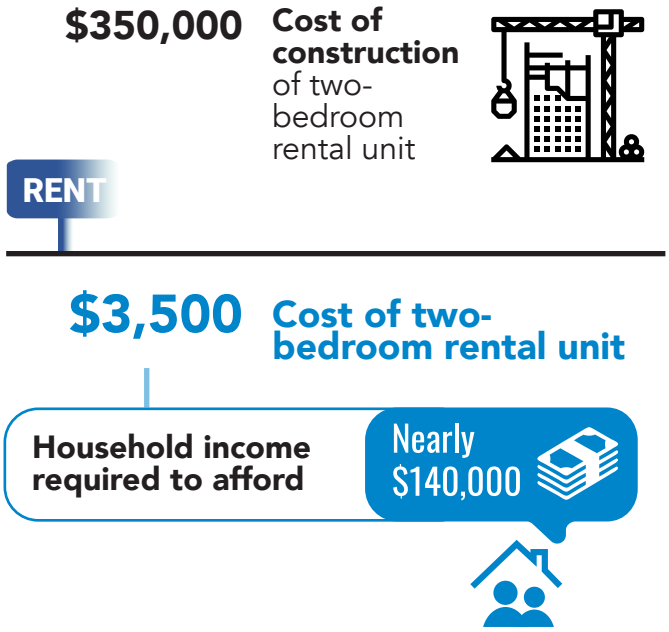
Development Costs Pose Affordability Challenges

Local market construction cost data indicate that the costs of labor and materials are on the rise, which impacts the cost to build housing. This is in addition to rising interest rates during 2022. Discussions with local developers working in Erie confirm the following analysis.

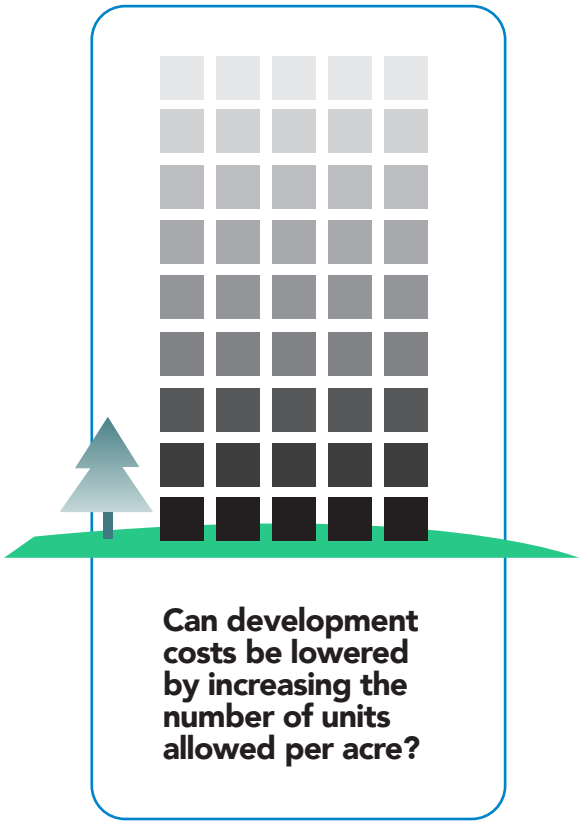
Between the costs of construction, the cost of land, and the other costs of developing housing, new residential units are expensive. If the construction cost of a house is $200 per square foot, which is a typical amount in the Denver region at the time of this report, a 2,000 square foot house costs $400,000 to build. If land costs **$1.3M per acre**, which is a typical amount in the Denver region at the time of this report, and **five** houses can be built on an acre, then the land for that house costs $260,000. Once developer financing and other costs are taken into account, the **new house costs $800,000** requiring well **over $200,000 in annual household income to afford.**



When it comes to rental projects, costs in the Denver area in 2022 suggest that Erie should anticipate a **two-bedroom rental unit may cost, on average, $350,000 to produce**. In some cases, the figure may be higher. As a general rule, monthly rents are about 1% of the cost to develop a rental unit, meaning that average two-bedroom rents for newly constructed projects in the area will hover around **$3,500 per month, which likely requires $140,000 in annual household income to afford**. (Whether, in fact, these rents are too high for the local market, and whether therefore new rental construction may slow, are open questions.)



When it comes to affordability, the first question to ask is whether development costs per unit can be lowered. A number of development costs are outside the control of developers and builders. These include costs for land, materials, labor, and financing to name a few. There are only a handful of variables a developer can adjust in order to lower the cost of delivering a housing unit. Among them are size, materials, and quality of the finishes. *But a key lever that is held by the municipality—in this case, the Town of Erie—is land use controls that determine the number of units that can be developed per acre of land.*

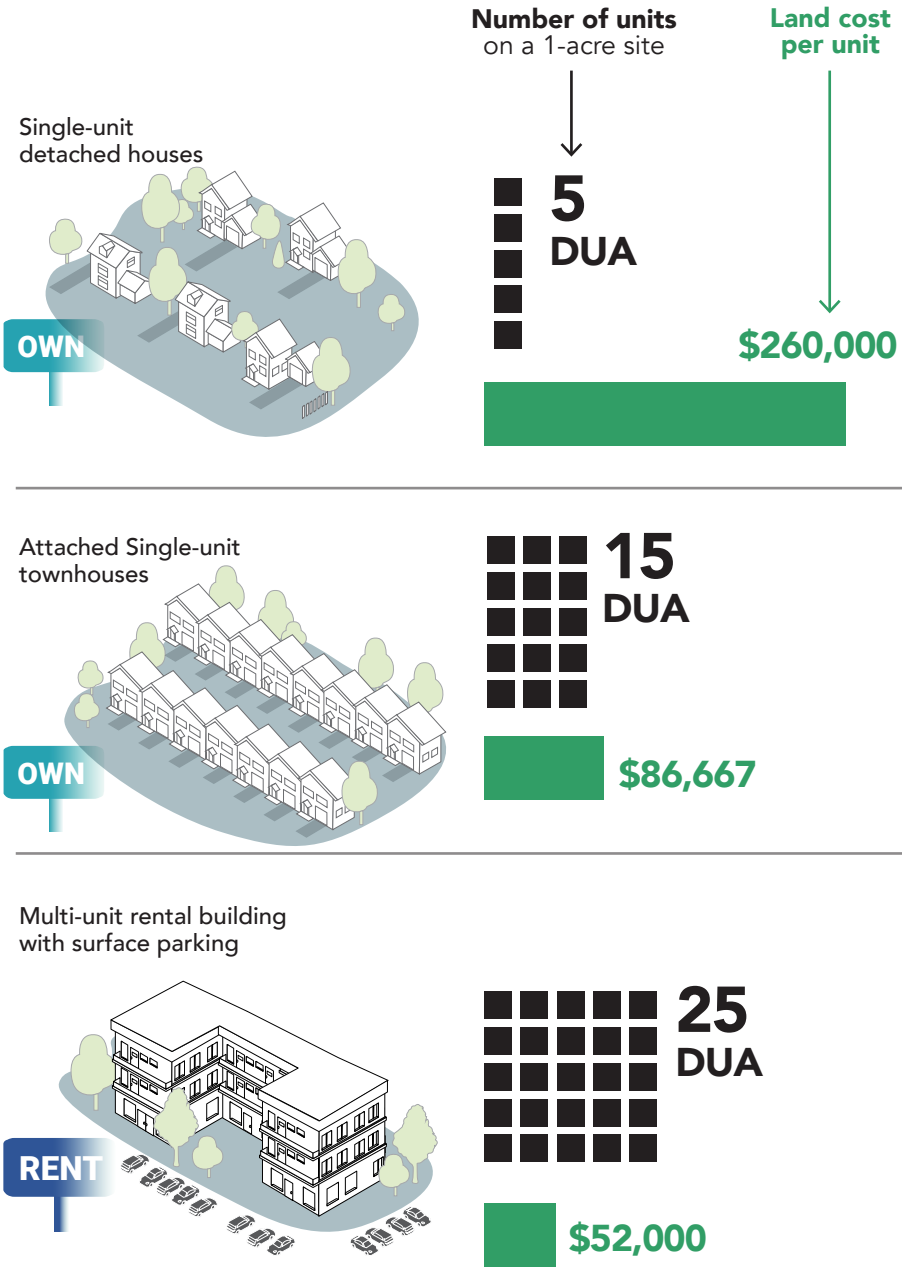


Role of Density in Decreasing Development Costs

Increased residential densities can lower the land cost per unit and make units more affordable. Returning to the example from page 20—land valued at $1.3M per acre and developed as single-unit detached houses at 5 dwelling units per acre (DUA)—the hypothetical scenarios at right illustrate how land costs per unit fall substantially as density increases. The difference in land cost alone between the 5 DUA scenario and the 15 DUA scenario, which is more than $170,000, reduces the household income necessary to purchase the unit by about $50,000.

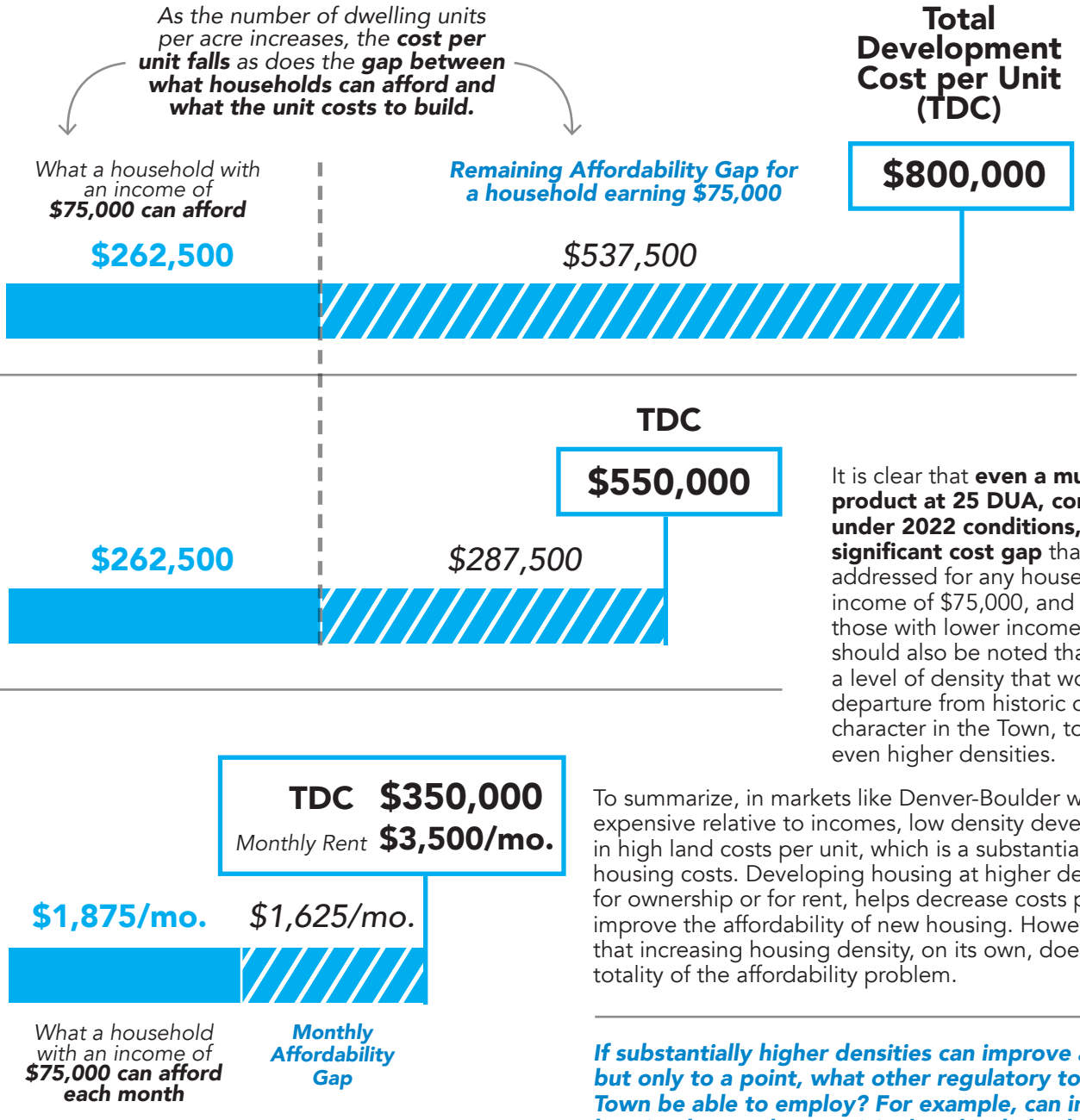
However, increasing density is not a panacea for housing affordability. The examples illustrate that increasing densities can decrease affordability gaps, but not necessarily eliminate them. In the 5 and 15 DUA examples, which are, respectively, a single-unit detached house and an attached townhouse, the total development cost is the same as the sale price—$800,000 or $550,00. A household with an annual income of $75,000 can afford to pay $262,500 for a house (about 3.5 times annual income), which leaves a significant gap in either case. Even moving to a newly built rental product at 25 DUA, which has an average development cost of $350,000, still leaves an affordability gap. (With monthly rent generally about 1% of TDC, the rent for a new unit would be roughly $3,500 while a $75,000/year household can afford $1,875 per month, which is 30% of the household's gross income.)

Hypothetical Development Scenarios



Assumptions:

- Q3 2022 Denver MSA Construction Costs, RS Means
- Land costs based on developer discussions.
- Homebuyers can afford 3.5 times annual household income.
- Total development costs are $800.000, $550,000, and $350,000 respectively.
- Detached house is 2,000 sf and townhouse is 1,600 sf. Rental unit is 2-BR, 850 sf.
- Renter households can afford to pay no more than 30% of gross income toward housing.
- Monthly rent is 1% of a rental unit's total development cost.



It is clear that **even a multi-unit rental product at 25 DUA, constructed under 2022 conditions, still has a significant cost gap** that needs to be addressed for any household with an income of $75,000, and certainly for those with lower incomes as well. It should also be noted that 25 DUA is a level of density that would mark a departure from historic development character in the Town, to say nothing of even higher densities.

To summarize, in markets like Denver-Boulder where land is expensive relative to incomes, low density development results in high land costs per unit, which is a substantial driver of housing costs. Developing housing at higher densities, whether for ownership or for rent, helps decrease costs per unit and improve the affordability of new housing. However, it is also true that increasing housing density, on its own, does not solve the totality of the affordability problem.

If substantially higher densities can improve affordability, but only to a point, what other regulatory tools might the Town be able to employ? For example, can inclusionary housing be another municipal tool to help close the gap?

See Appendix for a full list of unit development cost gaps by incomes.

Inclusionary Housing as a Regulatory Tool for Affordability

Inclusionary housing is a legal mechanism that requires developers or builders to provide some portion of new units as affordable, with affordability definitions determined by the regulating municipality. Inclusionary housing requirements can be a powerful tool to cause the private sector to deliver affordable housing units. A challenge with inclusionary housing is that because it relies on subsidy internal to a project, conditions must be right in order for it to work. There are a number of important considerations to decide if inclusionary requirements will be workable. Among them are the type of housing being built and the required percentage of affordable units.

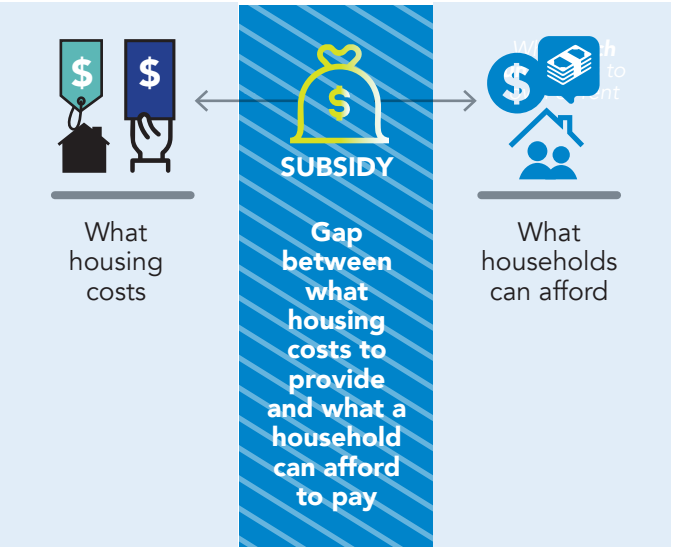
Assuming that inclusionary housing requires the affordable units to be of the same type, size, and quality as the market-rate units, then the conclusion is that the affordable units must cost the developer and/or builder the same amount to produce. However, they must be sold or rented for less than their development cost and this results in a financial gap that needs to be closed. When developers are faced with these gaps, they may "sharpen the pencils" to make adjustments to the project to close the gaps. They may seek to increase prices on the market-rate units where they believe it is possible, which is subject to many factors in the marketplace, or they will find ways to lower costs a bit where it makes sense. There are always limits to the adjustments that can be made. It is czb's assessment that a 10% inclusionary requirement could be feasible, but with caveats: **the allowed densities must exceed 10 DUA and the targeted household incomes must not be less than 60% of the Town's median household income for rental units and 80% of the median for ownership units (See Appendix for median income figures.)**

(Additional information on inclusionary housing can be found later in Part 2 of this document and in the Appendix.)

Importance of Public Subsidy

Higher densities and inclusionary housing requirements can only achieve certain levels of affordability on their own. If those tools do not meet local affordability goals, either because they do not produce enough affordable units, do not produce units affordable to incomes that the Town hopes to assist, or both, then additional resources are needed to close gaps.

Boiled down to its bare essence, **affordable housing work is about filling the gap between what housing costs to provide and what a household can afford to pay.** This requires, in some way, shape, or form, **subsidy** flowing from somewhere, and this is almost always from the public sector. Even in cases where housing can be built less expensively, through adjustments to allowed units per acre, unit size, or quality, subsidy may still have a role to play because the gaps between what housing costs to provide and what many households can afford is so great. For example, if a typical two-bedroom market-rate rental unit has a total development cost of $400,000, and somehow that cost could be reduced by 25% to $300,000—a significant reduction—through higher density or decreased square footage, the resulting monthly rent of $3,000 would still require $120,000 in annual household income. In a market like Erie's, the private sector is unable to build cheaply enough to provide affordability for households with annual incomes much below $100,000.



Public sector funding of affordable housing goes back to the very first public housing projects before the middle of the 20th century. **Low Income Housing Tax Credits** and **Community Development Block Grants** have been important sources of subsidy to affordable housing developers for decades. Individual households are also recipients of housing subsidy, via **Housing Choice Vouchers** for example. **Local governments also have the ability to raise and spend their own funds to subsidize affordable housing**, whether to developers or to households, or both. As with every other public expenditure, **the decision to allocate resources to affordable housing is a matter of political will, prioritization, and trade-offs.**

Framing Strategic Options

The dominant housing type in Erie is the owner-occupied single-unit detached house, most of which are relatively recently built. The Town has limited rental options and therefore also limited naturally occurring affordable housing, which tends to exist in aging rental units which have become less desirable in the marketplace over time and thus relatively affordable. Any household with an income of less than $150,000 seeking to become a homeowner, or any household that prefers to rent, will find their choices severely limited in Erie.

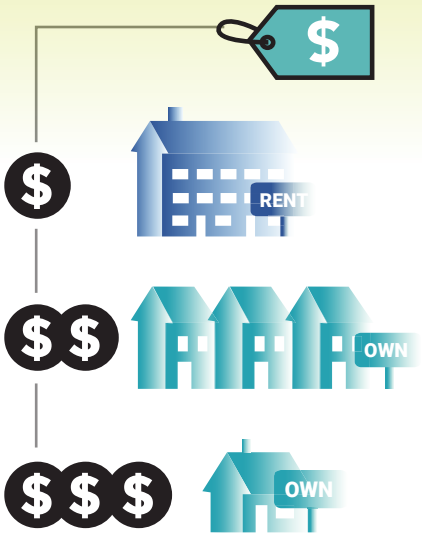
If Erie is to make any progress on housing affordability, it will need to *diversify the housing stocks both in tenure and price point*. As the Town's housing stocks become more diverse, the growing numbers of different types of units will become opportunities to capture some affordability benefits.

More diverse new housing options, on their own, will not achieve substantial affordability gains, but diversity is a precondition for the effectiveness of other tools.

There are a number of considerations for adding affordable housing in Erie:

Product type and tenure dictate price point.

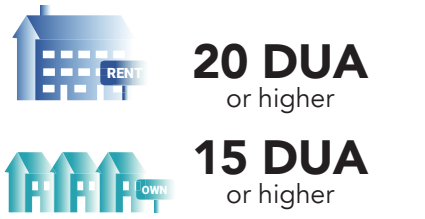
Generally speaking, rental products, usually in the form of stacked flats, can be constructed and operated so as to be affordable to households with incomes around $100,000 while attached ownership products will likely require tens of thousands of dollars beyond that, and new detached ownership products will require incomes well above $150,000.



This means Erie needs **more stacked flat rental** units first, **and attached ownership** products second.

Density allowances dictate product type and tenure…and scale matters.

Under prevailing conditions, rental products are infeasible in nearly all cases unless they can be built at 20 DUA, and attached townhome products ideally should be built at 15 DUA or higher. It is also the case that insofar as an affordable housing supply will have to come from new units, and the affordable units will be some percentage of the total new units, the supply of affordable units will be dependent on the Town's total growth in housing units. Greater allowed densities will facilitate the delivery of more units.



This means Erie needs more areas where explicitly allowed **densities can reach or exceed 20 DUA**.

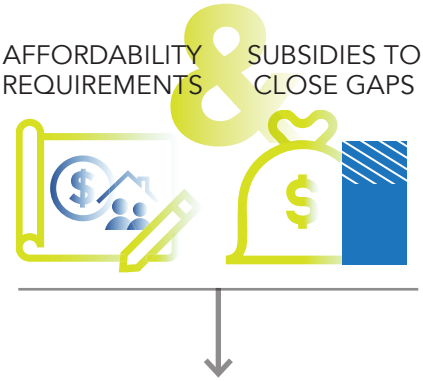
Planning and policy dictate density allowances.

Density allowances will be codified in the Town's UDC, but policy precedes legal implementation. The community needs to support, and the Board of Trustees needs to embrace, increased housing diversity production, densities, and affordability.

This means the Erie comprehensive plan, when adopted, needs to explicitly call for **more affordable housing** and areas where **densities can reach or exceed 20 DUA**.

Denser housing types alone cannot solve affordability.

The most affordable new market-rate housing unit is not necessarily affordable to the Town's potential target markets. Although new rental units will be more affordable than new ownership units, development costs at the time of this report will cause new rental units to be affordable only to households with incomes around $100,000. Getting newly built housing to a price point affordable to lower-income households means requiring some affordability from developers and likely also providing additional financial subsidy to close cost gaps.



This means Erie will need more than just land use changes—it will need to consider **inclusionary housing requirements** and it will need to find **subsidy**.

Discrete interventions for better affordable housing outcomes in Erie are not, in fact, discrete at all. In reality, new tools and approaches need to be carefully woven together into a system.

A systems approach acknowledges that:

The delivery of affordable housing is technically challenging and expensive, and it requires significant efforts by the public sector in terms of political capital, funding, and staff resources, as well as the legal imposition of requirements on development. In order to responsibly undertake these efforts, there must be a strong policy basis reflected in the Town's adopted policy documents, such as the Comprehensive Plan.

Planning and Land Use Policy

Comprehensive Plan

Housing development is controlled by the Town's UDC, in particular its zoning. To shape development in the community, the UDC and zoning must be well-designed, calibrated both to market conditions and desired outcomes, and clear. Getting the regulatory requirements right is critical to achieving better affordable housing outcomes. These legal requirements must have their origins and justifications in the Comprehensive Plan.

Land Use Regulations

Zoning and Inclusionary Requirements

No matter how firm the policy basis and well-crafted the land use regulations, there are limits to the levels of affordability that the private sector can provide because too many of the costs involved in housing development are outside the control of developers and builders. At a certain point, where the Town wants specific levels of affordability beyond what the private sector can produce, additional subsidy must be employed to close affordability gaps, and this may come in the form of money or perhaps contributions of land. The Town's land use regulations can ensure that subsidy stretches as far as possible as higher-density housing generally has smaller gaps per unit.

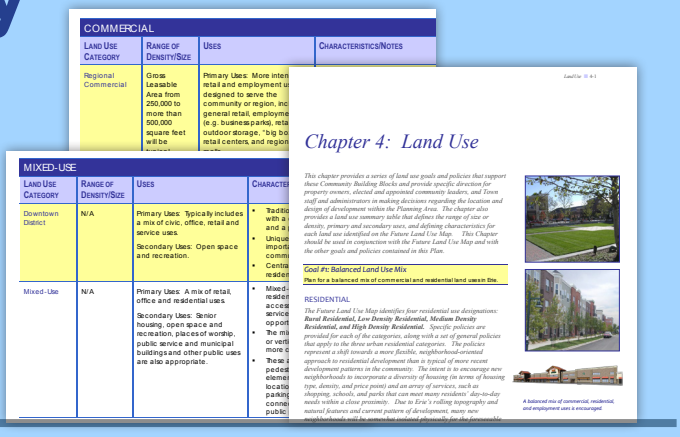
The Town should consider these four main categories of interventions to diversify its housing offerings and achieve some measure of affordability in Erie

Financial Subsidies

Land Purchases and Disposition

Money and Land

Planning and Land Use Policy



Comprehensive Plan

Erie's comprehensive plan, last updated in 2015 and just beginning another update at the time of this report in early 2023, makes many statements about the need for increased housing diversity in the Town. The most direct and substantive is Policy HN 3.2 regarding the future of housing and neighborhoods:

HN 3.2—MAINTAIN AND ENCOURAGE HOUSING THAT MEETS THE DIVERSE NEEDS OF RESIDENTS

There is growing concern about the availability of attainable housing for low and moderate-income families in Erie. The Town will work with the private sector and non-profit agencies to ensure that sites that are potentially suitable for housing are available within the Planning Area to achieve a variety of price points. This should include sites at a variety of scales to accommodate both small infill projects and larger redevelopment or green field projects. In addition, the Town will encourage innovative design in housing by considering financial incentives and other mechanisms to reduce development costs…..

As an extremely high-level policy, this statement is a good start. However, if the Town is committed to greater action on housing affordability than that which resulted from the 2015 update, the new comprehensive plan should be more explicit and detailed in its call for implementation of affordable housing efforts. Specifically, the next comprehensive plan should:

- Acknowledge and incorporate the data and analysis included in this report.
- Establish a housing vision that includes a much greater proportion of rental units than the Town now has.
- Recognize that new housing should and will be built at much higher densities than Erie's historical norm.
- Explicitly identify the locations within Erie—neighborhoods, intersections, and special planning areas, but not exact parcels—where higher density housing will be allowed.
- Acknowledge that affordable housing means income-restricted housing, regulated by the Town, and that specific income targets must be identified.
- Acknowledge that the Town's Unified Development Code will need to require some level of affordability because the private sector left on its own will not produce it.
- Acknowledge that the Town will almost certainly need to identify sources of financial subsidy to support affordable housing development.

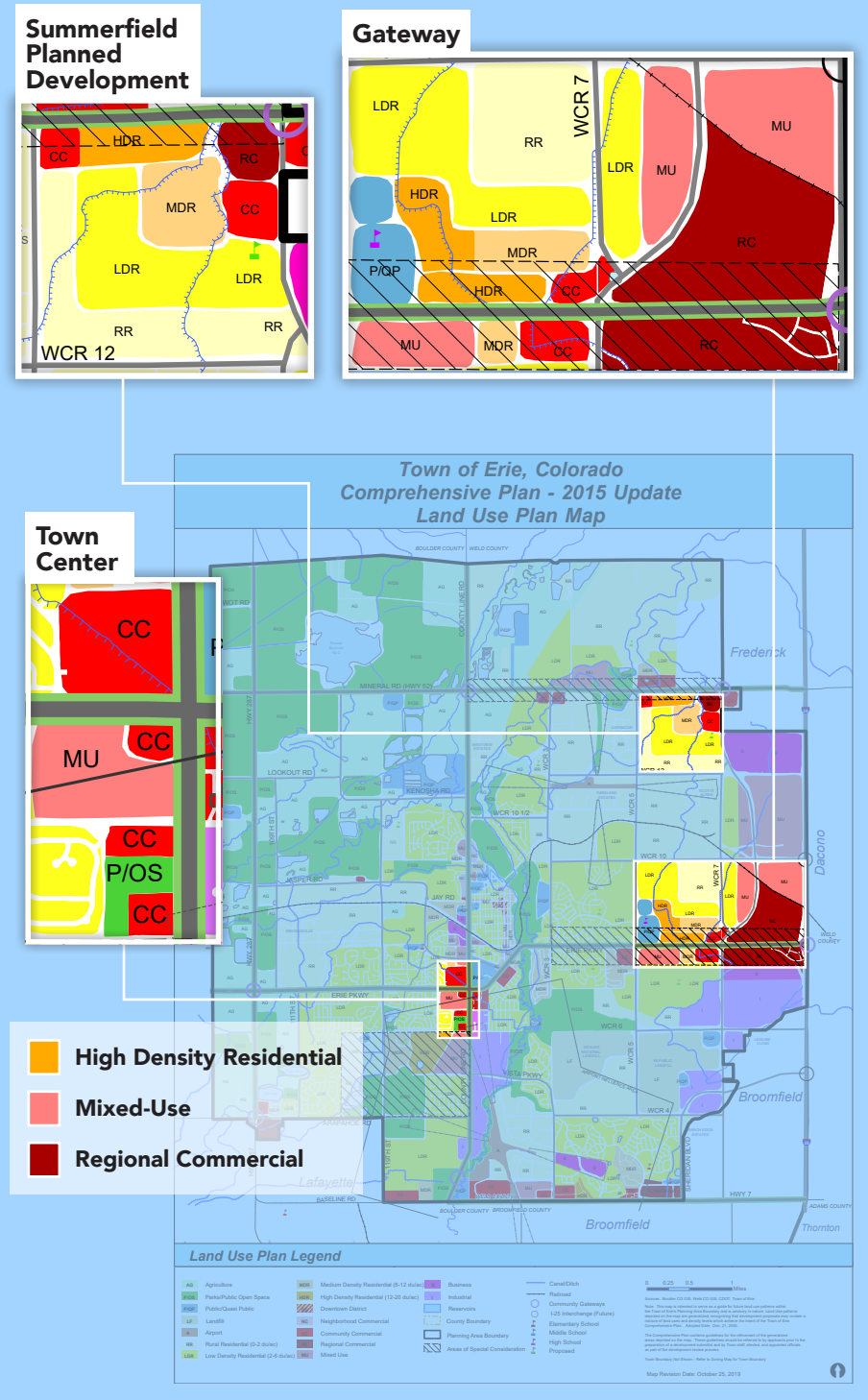
Future Land Use Map

The Town's future land use map, which is locally referred to as the Comprehensive Plan Map, is in fact comprehensive, specifying what kinds of land uses should go where and accounting for nearly the entirety of the Town's planning area.

The existing land use descriptions for areas in which higher density and affordable housing may best be located—High Density Residential, Mixed-Use, and Regional Commercial—are not explicit in suggesting such uses for those areas. Admittedly, land use descriptions at the comprehensive plan level are meant to be somewhat general, but more detailed encouragement of denser and more affordable housing is appropriate if Erie is committed to addressing housing affordability.

As of the time of this report, the future land use map has only a few spots that envision High Density Residential uses, which describes attached townhouse and stacked flat rental products. It has greater acreage devoted to Mixed-Use and Regional Commercial, especially at the Erie Gateway and, to a lesser extent, Erie Town Center.

Assuming development of the Gateway and Town Center proceeds as generally envisioned, and areas designated as High Density Residential are proposed for development (e.g. the Summerfield planned development south of Highway 52), these constitute the Town's best, and perhaps last, opportunities to leverage housing affordability. The land use designations and the future land use map need to explicitly set expectations for housing densities and affordability, specifically areas suitable for minimum of 15 DUA for townhouses and 20 DUA for multi-unit rental (these densities also support inclusionary housing as outlined on the following pages). It is also appropriate within the comprehensive planning process, and the future land use mapping, to examine whether some areas currently envisioned as Rural or Low Density Residential might in fact be candidates for higher-density residential use in the future.



Land Use Regulations

Zoning

The Town's Unified Development Code, Title 10, was updated in January 2022 with particular attention given to the zoning districts and uses section. In general, the updated district designations and allowed uses align well with what has actually been built to date town-wide, however, there are some apparent discrepancies between the 2015 comprehensive plan, the future land use map, and the zoning code.

Achieving Sufficient Densities in More Locations

20 DUA or higher

15 DUA or higher

As described throughout this report, densities above 15 DUA and 20 DUA are necessary to create products that can diversify the Town's housing stocks in tenure and in price point, and support potential inclusionary requirements. The only base zoning districts that would allow at least 15 DUA—High Density Residential, Neighborhood Mixed-Use, and Commercial Mixed-Use—are not widely used. If the Town is committed to facilitating better housing affordability, starting with increased housing density, the zoning districts and their mapped locations should send a stronger signal to the development community that such uses are allowed by right in a greater number of locations.

Aligning Zoning Districts with Future Land Uses

The future land use classifications in the comprehensive plan suggest that the densest housing types should be allowed not only in High Density Residential and Mixed-Use locations, but also in Regional Commercial locations. For example, Outlook Nine Mile and Enclave Vista Ridge are both rental developments in locations designated as Regional Commercial on the Future Land Use Map. At the time of this report, however, the associated Regional Commercial zoning district does not allow multi-family residential. Furthermore, it is reasonable to expect that other locations with Regional Commercial future land use designations, such as the Erie Gateway, will be attractive for dense housing development but it is unclear which zoning district is most appropriate to achieve dense housing outcomes.

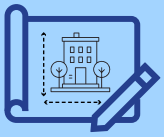
Everywhere the Town's highest density housing types are found (e.g. Blue Sky at Vista Ridge and Outlook Nine Mile) or where future land use designations suggest they might be built and where they have been proposed at the time of this report (e.g. Summerfield and North Station), Planned Development zoning is in place. What this suggests is that the Town currently lacks a base zoning district that can effectively support housing development above 15 DUA as it is being delivered by the private sector in recent years and at the time of this report. Planned Development zoning is a tool that can flexibly achieve a range of desired outcomes, including housing outcomes. But it is a reactive tool that does not make clear at the outset what the Town can say "yes" to and what it clearly wants. The new comprehensive plan, expected to be complete in 2024, should set a clear vision and expectations at a policy level, and in the Future Land Use Map, and the Town's UDC, zoning framework, and zoning map, should align with the comprehensive plan.

Inclusionary Housing

Inclusionary housing is a legal mechanism that requires developers or builders to provide some portion of new units as affordable, with affordability definitions determined by the regulating municipality. These requirements usually exist within the part of the municipal code that controls land use regulations, such as zoning. Given the affordability challenges described in Part 1 of this document, and the development cost and market realities described earlier in Part 2, Erie may consider an inclusionary housing approach as follows:

Minimum project size

5 units

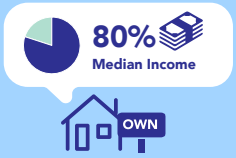


Affordable Set Aside

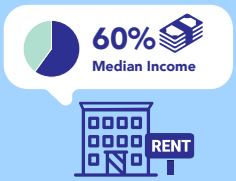
10%
(one in every ten newly built units must be affordable)

Annual Household Income Targets

80%
of the Town median income for **ownership units**



60%
of the Town median income for **rental units**



Alternative Means of Compliance

Cash-in-lieu fee, to be calculated and updated annually

It is impossible to know exactly what such an ordinance will produce, but it can be reasonably speculated based on development cost and market realities at the time of this report that the following would occur in the near-term (2023 and 2024) if those realities do not drastically change:

- Developers of larger single-unit detached houses (i.e. those built at densities of less than 10 DUA) will find it challenging to deliver affordable units and will seek to pay the cash-in-lieu fee.
- Developers of somewhat smaller single-unit detached houses and attached townhouses built at densities of 10 DUA or greater may choose to deliver the units or pay cash-in-lieu, depending on specific project conditions. As project density increases in these cases, the incentive to build affordable units should also increase.
- Developers of rental projects should be willing to deliver the affordable units.

The approach can be further calibrated by fine-tuning the cash-in-lieu fees. In nearly all inclusionary housing systems, a number of details must be worked out and within these details are incentives and disincentives. For example, some communities tilt the system toward producing cash-in-lieu by making it a more attractive option than building the units. Others may do the opposite, setting the cash-in-lieu fees at such a high level that building the units is less onerous than paying the fee.

The approach outlined above is biased, by design, toward the delivery of units over the payment of cash-in-lieu fees. It also assumes that planning, policy, and zoning tools will shift in the direction described in this document. If they do not, an inclusionary housing program is far less likely to produce many affordable housing units. This approach is basic, simple, and straightforward but fundamentally sound in its construction and ambitions. If the Town adopts such an approach, and it shows signs of success in the early years, it should be reevaluated to see if the program could be more ambitious, either in requiring a greater percentage of units as affordable, or deeper levels of affordability, or both. Before an inclusionary ordinance is passed by the Board of Trustees, discussion of the details will be critical and it should be made clear that regular updates to the ordinance, as frequently as every year, will be necessary as conditions change.

Financial Subsidies

While inclusionary requirements can procure some affordable units from the private sector, the percentage of units and the affordability levels are constrained by project realities. Achieving additional affordability requires additional subsidy. In cases where the Town desires deeper affordability than inclusionary requirements can provide, it will have to pay the difference. In addition, affordable housing developers are in a highly competitive situation when it comes to leveraging major subsidies such as Low-Income Housing Tax Credits (LIHTC). Beyond establishing zoning tools that can explicitly accommodate a multi-unit rental project of at least 20 DUA, local municipalities hoping to attract such a project should be willing to make financial investments and thus help the LIHTC developer succeed in putting together such a deal. Locally derived revenues can be used as grant or loan funds to affordable housing projects, or to purchase property or land for future affordable housing development. Local funding can be derived from different sources.

Inclusionary Housing Cash-in-Lieu Fees

As described previously, inclusionary housing requirements are one way to add affordable housing to the Town's supply. But some communities look to inclusionary housing at least partially as a funding source for affordable housing. Cash-in-lieu of units is a common means of complying with inclusionary requirements, meaning the developer pays a fee instead of providing the required units. The cash can then be applied to other affordable housing endeavors. It must be noted that although the revenue is a useful tool, it only flows to the Town if affordable units are not built. Whether this is seen as positive depends on overall strategy. Local governments with sophisticated affordable housing operations, whether in-house or in partnership with local providers, may see the cash as preferable to the units, because the local government has its own plan to produce the units.

Development Impact Fees

In some communities that do not have inclusionary housing requirements, affordable housing impact fees may be imposed on development to help pay the costs of affordable housing development. There are limitations and restrictions to impact fees, and they may only be used to defray the costs of *meeting service needs created by new development*. Because of the law governing impact fees, careful thought and analysis would be needed to quantify the impact of new development and to establish eligible uses for the fee revenue.

Dedicated Taxes

Local governments commonly impose taxes specifically dedicated to funding affordable housing. Taxes on hotel stays, short-term rentals, restaurant meals, and various other transactions have all been used to provide revenues to local government coffers for this purpose.

One-Time Monies and Grants

Local governments from time to time find themselves with budget surpluses, unspent funds of various kinds, or unexpected revenue sources such as federal funding from the American Rescue Plan Act (ARPA). These are all opportunities to set funds aside for affordable housing opportunities. Similarly, grant opportunities may become increasingly available due to State action in Colorado on affordable housing.

General Fund Appropriations

Regardless of the exact revenue source, local governments have the ability to simply allocate affordable housing resources from the General Fund, which is normally the local source of funding for basic government services such as public safety, public works, etc. This is especially true if the community sees housing expenditures as a basic obligation and ongoing cost of local government, as opposed to a special or one-time obligation.

Housing Related Fees in Area Communities

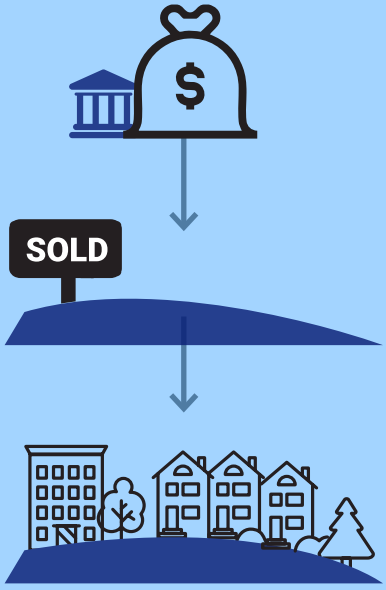
		Residential		Non-Residential	
	Inclusionary Housing	Mechanism	Amount	Mechanism	Amount
Boulder	✓	Cash-in-Lieu Fee	**$65,184 - $301,680** per required affordable unit	Affordable Housing Capital Facility Impact Fee	**$17.76 - $30.45** per square foot for most uses **$1,746.03** per bed for nursing home/assisted living **$5,238.09** per room for lodging
Broomfield	✓	Cash-in-Lieu Fee	**$88,566** per required affordable ownership unit **$55,295** per required affordable rental unit	N/A	N/A
Lafayette	✗	Development Fee	**$1.00** per square foot of interior floor area	Development Fee	**$1.00** per square foot of gross floor area
Longmont	✓	Cash-in-Lieu Fee	**$7.90** per finished square foot for ownership **$1.90** per finished square foot for rental	N/A	N/A
Louisville	✓	Cash-in-Lieu Fee	**$9.24** per finished square foot for ownership **$4.72** per finished square foot for rental	N/A	N/A
Superior	✓	Cash-in-Lieu Fee, *but only for projects of fewer than ten units*	Undetermined at the time of this report	N/A	N/A

Land Purchases and Dispositions

In a market with high and rising land prices, buying and holding land can be an important future contribution to affordable housing development. First, sites are critical for affordable housing developers and the public sector holding a site, or sites, while a deal comes together is one less stressor for the developing entity to worry about. Second, ownership equals control in a marketplace with strong development pressure. And third, as values rise over time, and sites become rare, the public contribution of a site may be just as good as a cash contribution, or better.

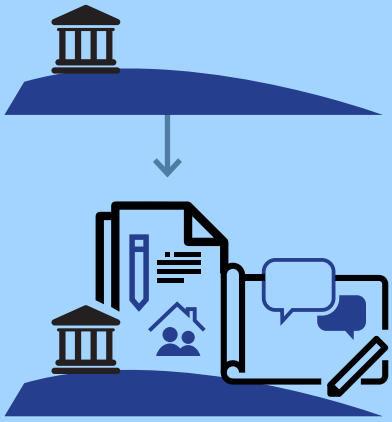
Purchases

The Town should consider acquiring land if and as opportunities arise if the site(s) in question are appropriate locations for future housing development. This is especially important in anticipation of the kinds of projects that will support uncommon affordability, even above and beyond what is possible via inclusionary housing requirements. These include fully affordable projects that might someday be completed by local nonprofit housing agencies, or complex mixed-income projects unlikely to ever be completed by the private sector without public sector involvement.



This approach is nothing new for the Town, which most recently purchased nearly 20 acres at the northwest corner of County Line Road and Erie Parkway in order to move its Town Center vision closer to reality. Funding for land acquisition, should opportunities arise, would come from affordable housing funds generated via the mechanisms described on page 34.

Disposition



Another reason that public ownership of land for affordable housing development is a wise investment is because carefully considering the best use of a site, and doing the commensurate planning work it requires, can take a good deal of time.

When the Town is able to establish a vision, refine it to a conceptual small area or even site plan inclusive of all the goals and expectations the community may have, and commit to a regulatory approach and potential incentive package that will make it all work, the odds of a development project making its best possible contribution to the Town increase dramatically. This is more easily done when the Town itself controls the site, can give the project the proper thought and public vetting, and can then seek a development partner to bring the community's vision to fruition. Again, the Town's request for proposals for a development partner at the Town Center site is a clear example of how such an approach would work, with future opportunities more directly aimed at affordable housing outcomes.

Appendix

Town of Erie Median Household Income by Household Size

Household Size	2020	2021
1-person households	$66,216	$66,446
2-person households	$116,204	$124,291
3-person households	$142,633	$160,938
4-person households	$159,583	$166,389
5-person households	$137,384	$165,417
6-person households	$160,536	$164,239
7-or-more-person households	$177,857	$148,558

Source: 2016-2020 and 2017-2021 ACS Five Year Estimates

Inclusionary Housing Impacts to Project, per 20 Units, by Income Targets, at Select Densities (Hypothetical Scenarios)

	Target Household Income for Affordable Units	Per Unit Gap, Sale Price	Project Gaps to Close: Resulting TOTAL GAP — 5% Requirement (1 of 20 units)	10% Requirement (2 of 20 units)	20% Requirement (4 of 20 units)
5 DUA	$50,000	**$625,000**	$625,000	$1,250,000	$2,500,000
	$75,000	**$537,500**	$537,500	$1,075,000	$2,150,000
	$100,000	**$450,000**	$450,000	$900,000	$1,800,000
	$125,000	**$362,500**	$362,500	$725,000	$1,450,000
	$150,000	**$275,000**	$275,000	$550,000	$1,100,000
15 DUA	$50,000	**$375,000**	$375,000	$750,000	$1,500,000
	$75,000	**$287,500**	$287,500	$575,000	$1,150,000
	$100,000	**$200,000**	$200,000	$400,000	$800,000
	$125,000	**$112,0500**	$112,500	$225,000	$450,000
	$150,000	**$25,000**	$25,000	$50,000	$100,000
	Target Household Income for Affordable Units	**Per Unit Gap, Monthly Rent**			
25 DUA	$50,000	**$2,250**	$2,250	$4,500	$9,000
	$75,000	**$1,625**	$1,625	$3,250	$6,500
	$100,000	**$1,000**	$1,000	$2,000	$4,000
	$125,000	**$375**	$375	$750	$1,500
	$150,000	**$0**	$0	$0	$0

Assuming all units in a project are roughly the same, on average, inclusionary housing requires some number of units in a project to be sold at or rented for prices below the average break-even price. Early in project planning, this projected decrease in project revenue creates a financial gap that needs to be addressed. The gap is a function both of the number of units that must be set aside as affordable and the level of affordability the regulations require. Based on the hypothetical examples from pages 22 and 23, which are based on realistic development costs in late 2022, the table above illustrates the project gaps that preliminarily result from inclusionary requirements at selected densities, whether for ownership products (5 or 15 DUA) or rental products (25 DUA). The project gaps for the ownership projects are reported as sale revenue and the rental project gaps are reported as monthly rent revenue.

Gaps of 0% - 3% Gaps of 3% - 5%

Inclusionary Housing Impacts per Unit by Income Targets	Project Gaps to Close Resulting PER UNIT GAP 5% Requirement (1 of 20 units)	10% Requirement (2 of 20 units)	20% Requirement (4 of 20 units)
$50,000	$31,250	$62,500	$125,000
$75,000	$26,875	$53,750	$107,500
$100,000	$22,500	$45,000	$90,000
$125,000	$18,125	$36,250	$72,500
$150,000	$13,750	$27,500	$55,000
$50,000	$18,750	$37,500	$75,000
$75,000	$14,375	$28,750	$57,500
$100,000	$10,000	$20,000	$40,000
$125,000	$5,625	$11,250	$22,500
$150,000	$1,250	$2,500	$5,000
$50,000	$113	$225	$450
$75,000	$81	$163	$325
$100,000	$50	$100	$200
$125,000	$19	$38	$75
$150,000	$0	$0	$0

For example, when a developer contemplates selling what is projected to be an $800,000 house, and is faced with a **potential gap of $22,500 (for a household with an income of $100,000) or $26,875 (for a household with an income of $75,000) created by a 5% inclusionary requirement**, developers must ask themselves whether they can cut costs by the gap amount or pass the costs on to some of the buyers. Depending on the cash-in-lieu amount, they may decide instead to simply pay the cash-in-lieu fee.

If the project is apartments for rent, and the future operator is required to rent some percentage of the units to households with incomes no higher than $75,000, whether 5% or 10%, developers must ask whether costs can be cut to **reduce the average monthly rent by $81 or $163**, or pass those higher rents on to future tenants. Or, they may decide to pay the cash-in-lieu fee.

The project gaps described on the previous page can be converted to per unit gaps as shown above. The per unit gaps are simply the total project gap divided by twenty units. This helps illustrate, for every unit that a project will include, the average gap that needs to be closed in order for the inclusionary requirement to be absorbed and addressed.

czb estimates that, generally speaking, developers and builders can likely find ways to close a gap of 3% or less (highlighted in yellow). It may be possible, though difficult, to close a gap of 4% or 5% (highlighted in orange). Beyond 5%, something fundamental may have to give, meaning the project could become infeasible.

Where the Town sets these requirements has important implications for effectiveness of an inclusionary system and careful calibration is required.

Integrating Higher Densities into a Suburban Context

The term density has been used throughout this document to help explain how future development projects might achieve economies of scale to diversify housing offerings and support inclusionary housing policies and requirements. This will require explicit changes to the Town's Comprehensive Plan and Unified Development Code (UDC) as outlined in Part 2 of this document.

That work began in late 2022 and offers the perfect opportunity to ensure the new land use plan as well as the ensuing zoning map and zoning code identify growth districts throughout the Town that can and should accommodate increased densities that allow for, and require, the construction of affordable housing via an inclusionary housing ordinance.

The following illustration, from a 2019 presentation to the League of California Cities – Planning Commissioners Academy, illustrates housing types at various densities with associated building heights and images of what each housing type might look like. Each of these housing types may be applicable in the Town of Erie, in the right locations.

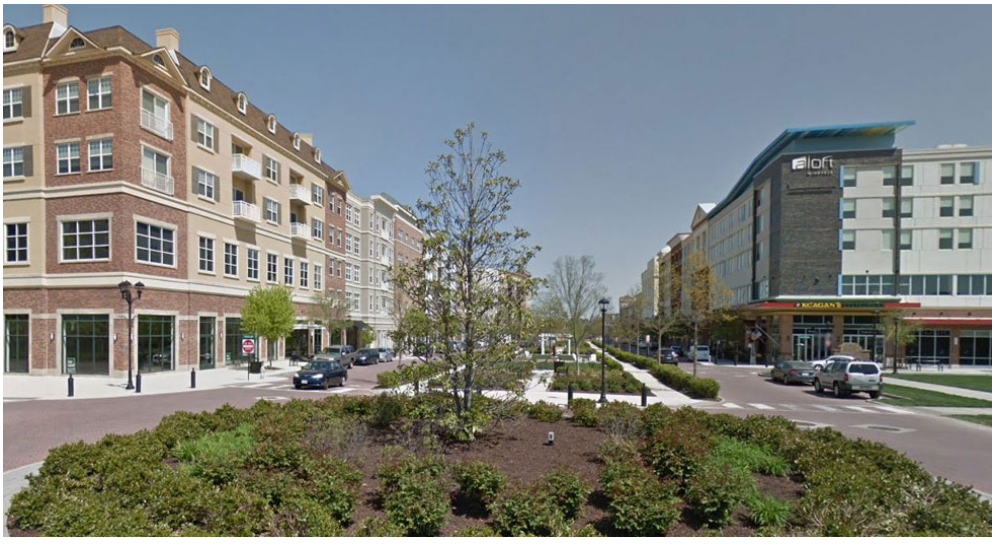
Examples of Higher Density Housing Types than are Typical in Erie

Berry Farms in Franklin, TN with multi-unit stacked flat housing located in a mixed-use district.

Credit:tennesseean.com

A six-plex unit with pitched roofs typical of suburban attached single-unit dwellings.

Credit:yankee-capital.com



West Broad Village in Glen Allen, VA is an example of a mixed-use development of four and five story buildings that support housing on the upper levels and commercial development on the first floor.

gathersbergmd.gov

Housing Needs Assessment and Affordable Housing Strategy

FEBRUARY 2023

Town of Erie, CO

Planning Consultant
czbLLC

Town of Erie Affordable Housing Policy

June 25, 2024

Introduction:

The Town Council is committed to advancing opportunities for affordable housing within the community to meet the goal of 12 percent of the Town's housing to be affordable. In February 2023, the Town completed the Housing Needs Assessment and Affordable Housing Strategy for the Town of Erie. This Housing Needs Assessment and Affordable Housing Strategy identifies strategies for work in advancing affordable housing efforts and identifies where to prioritize efforts. This Policy implements the Housing Needs Assessment and Affordable Housing Strategy.

Policy Statements and Objectives:

A. The Town will explore opportunities to create affordable housing in existing developed areas of Town, also known as "infill development."

    1. The Town's affordable housing ordinance, adopted in July 2023, encourages infill development through higher density allowances, no minimum lot sizes, reductions in setbacks and more flexibility in other development requirements through alternative equivalent compliance opportunities.

    2. The Town will explore other policy changes to encourage infill development, including more flexibility in regulatory codes while still meeting important safety and design standards.

B. Through the Town's comprehensive plan process, the Town will identify areas and establish land use classifications that accommodate higher density residential development and create new affordable housing with a diversity of housing types. The Town will, to the maximum extent feasible, encourage affordable housing development in areas already served by existing infrastructure. In other areas, developers will be responsible for making all necessary improvements to serve the proposed development.

C. The Town will evaluate and implement an inclusionary housing program so that all new residential development will contribute to creating affordable housing. The inclusionary housing program will require a percentage of affordable units for each development. The inclusionary housing program may also have a fee-in-lieu option for developers, which funds would then be placed in the Town's affordable housing fund and used for future affordable housing programs.

D. The Town will facilitate the creation of affordable housing through land acquisition and public/private partnerships with the private and non-profit housing development community. The fee-in-lieu for the inclusionary housing program can

be used to fund these activities as well as general funds or external funding sources like state or federal grants, depending on the project.

E. The Town will pursue grants and other resources to support and subsidize the creation and preservation of housing that is affordable to renters, homebuyers, and homeowners across a broad income spectrum.

F. The Town will explore new and innovative approaches to reduce the cost of affordable housing development, including:

    1. Reducing or waiving non-enterprise development fees, either Town-wide or in specific areas to incentivize infill development,

    2. Incentivizing creation of accessory dwelling units ("ADUs"), and

    3. Expediting the development review process to reduce upfront development costs.

G. The Town will actively collaborate with the Boulder County Regional Housing Partnership to advance efforts to achieve the region's goal of 12% affordable housing by 2035.

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-298, **Version:** 1

SUBJECT:
An Ordinance of the Town Council of the Town of Erie Vacating a Public Right-of-Way Located at the Intersection of Baseline Road and East County Line Road in the South Half Quarter of the Southeast Quarter of Section 36, Township 1 North, Range 69 West, Boulder County, Colorado, in Accordance with the Intergovernmental Agreement with the City of Lafayette

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Public Works Director

POLICY ISSUES:
The Town has a commitment to ensuring we follow all the commitments made in the 2019 Global IGA with Lafayette, this ordinance is in keeping with our legal obligations.

STAFF RECOMMENDATION:
Approve the Ordinance

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
As part of the Nine Mile Global Settlement IGA, the City of Lafayette and the Town are parties to an intergovernmental agreement, dated June 4, 2019, regarding the planning for and regulating land uses in certain areas surrounding their respective jurisdictions, sharing revenue, and resolving formal legal proceedings dealing with their respective authority to regulate specified development activities.

As part of the Global Settlement IGA, the Parties agreed to cooperate with one another to disconnect a portion of East County Line Road, a public right-of-way currently within Erie's jurisdictional boundaries, and to annex that portion of East County Line Road to Lafayette. As indicated in the Ordinance title, the right-of-way to be vacated by the Town is located at the intersection of Baseline Road (also known as State Highway 7) and East County Line Road, south of where Parkdale's new Monroe Street/Coal Creek Boulevard intersects County Line Road, and east of where Coal Creek Boulevard intersects Baseline/SH7.

This ordinance is the last step in effecting that transfer.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Effective Governance
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Ordinance
2. IGA
3. Ordinance 36-2021

Town of Erie
Ordinance No. 026-2024

An Ordinance of the Town Council of the Town of Erie Vacating a Public Right-of-Way Located at the Intersection of Baseline Road and East County Line Road in the South Half Quarter of the Southeast Quarter of Section 36, Township 1 North, Range 69 West, Boulder County, Colorado, in Accordance with the Intergovernmental Agreement with the City of Lafayette

Whereas, the City of Lafayette (the "City") and the Town are parties to an intergovernmental agreement, dated June 4, 2019, regarding the planning for and regulating of land uses as to certain areas surrounding their respective jurisdictions, the sharing of revenue, and the resolution of formal legal proceedings dealing with their respective authority to regulate development activities impacting their respective citizens (the "Global Settlement IGA");

Whereas, as part of the Global Settlement IGA, the City and the Town agreed to cooperate with one another to disconnect a portion of East County Line Road from the Town and to annex that portion of East County Line Road to the City;

Whereas, the Town disconnected the Property from the Town pursuant to the Global Settlement IGA via Ordinance No. 36-2021; and

Whereas, in furtherance of the Global Settlement IGA and of such annexation of East County Line Road to the City, the Town now seeks to vacate that portion of East County Line Road that it previously disconnected.

Now Therefore be it Ordained by the Town Council of the Town of Erie, Colorado, as follows:

Section 1. Pursuant to C.R.S. § 43-2-301, *et seq.*, the portion of the Town's right-of-way depicted in **Exhibit A**, attached hereto and incorporated herein by this reference, is hereby vacated.

Section 2. Pursuant to C.R.S. § 43-2-302, title to the vacated area will be vested in the abutting landowner, the City.

Section 3. The Town Clerk shall cause a copy of this Ordinance to be recorded in the real estate records of the Boulder County Clerk and Recorder and shall cause all applicable Town maps and plats to be amended to conform to the vacation accomplished hereby.

Section 4. Severability. If any article, section, paragraph, sentence, clause, or phrase of this Ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this

Ordinance. The Town Council hereby declares that it would have passed this Ordinance and each part or parts hereof irrespective of the fact that any one, or part, or parts be declared unconstitutional or invalid.

Section 5. Safety. The Town Council finds that the adoption of this Ordinance is necessary for the protection of the public health, safety and welfare.

Section 6. Effective Date. This Ordinance shall take effect 10 days after publication following adoption.

Introduced, Read, Passed and Ordered Published this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Exhibit A

Parcel Description

All that portion of that parcel annexed to the Town of Erie by Ordinance No. 38 Series 2016 filed February 3, 2017 at Reception Number 3573292 and as shown on the Erie Gateway South Annexation No. 6 to the Town of Erie Annexation Map filed February 3, 2017 at Reception Number 3573293 in the south half quarter of the southeast quarter of Section 36, Township 1 North, Range 69 West, Boulder County, Colorado;

Excepting therefrom any portion in that BNSF Parcel 2 Rev-2 Quit Claimed to OEO, LLC filed September 21, 2017 at Reception No. 3616070.

Prepared by Joel T. Vogt
For and on behalf of Topographic Land Surveyors
520 Stacy Ct. Ste B, Lafayette, CO 80026

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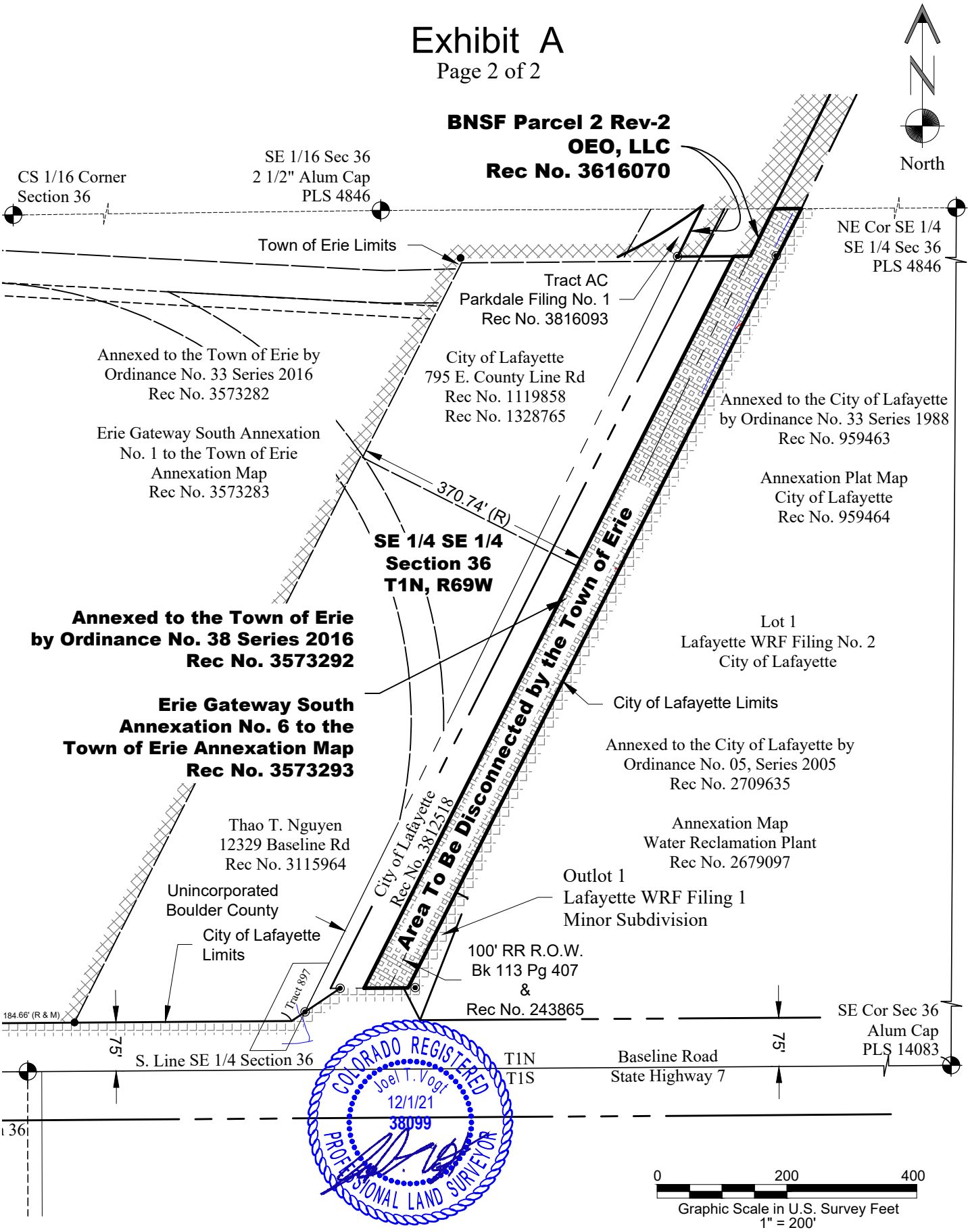
Printed: December 1, 2021, 8:08 AM By: JVogt

Exhibit A

Page 2 of 2



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Printed: December 1, 2021, 8:08 AM By: JVogt

INTERGOVERNMENTAL AGREEMENT
CITY OF LAFAYETTE – TOWN OF ERIE – TOWN OF ERIE URBAN RENEWAL AUTHORITY
Comprehensive Development Plan/Dispute Resolution

This Intergovernmental Agreement by and among the City of Lafayette, a Colorado home rule municipal corporation ("Lafayette"), the Town of Erie, a Colorado statutory town ("Erie"), and the Town of Erie Urban Renewal Authority, a Colorado urban renewal authority ("TOEURA") (each a "Party" and collectively, the "Parties"), is made to be effective on the 4th day of June, 2019 (the "Effective Date").

WITNESSETH:

WHEREAS, C.R.S. § 29-20-101, *et seq*., as amended, enables Lafayette and Erie to enter into Intergovernmental Agreements to plan for and regulate land uses in order to minimize the negative impacts on the surrounding areas; to regulate the location of activities and developments that may result in significant changes in population density, and provide for phased development of services and facilities; and specifically authorizes local governments to cooperate and contract with each other for the purpose of planning and regulating the development of land by means of a "comprehensive development plan" to agree as to areas that are subject to annexation, and to provide for revenue sharing; and

WHEREAS, in order to ensure that the unique and individual characters of Lafayette and Erie, respectively, are preserved, the Parties believe that a comprehensive development plan that recognizes the potential annexation areas and development approved by each community, accompanied by binding commitments by the respective jurisdictions for the preservation of the character of surrounding lands within the affected area is in the best interest of the citizens of both Lafayette and Erie; and

WHEREAS, the Parties desire to enter into this Intergovernmental Agreement in order to plan for and regulate the use of the lands within the affected area through joint disposition of a mutually binding and enforceable comprehensive development plan and to resolve ongoing disputes between the Parties; and

WHEREAS, with respect to the annexation provisions herein, Lafayette and Erie declare that the matters contained in this Agreement affect the future development of each municipality. Consistent with the municipal annexation, utility service, and land use laws of the State of Colorado, this Agreement, including specifically the annexation and utility service portions hereof, is intended to encourage the natural and well-ordered future development of Lafayette and Erie; to promote planned and orderly growth in the affected areas; to distribute fairly and equitably the costs of government services among those persons who benefit therefrom; to extend the government, services and facilities to the affected areas in a logical fashion; to simplify providing utility services to the affected areas; to simplify the governmental structure of the affected areas; to reduce and avoid, where possible, friction between the Parties; and to promote the economic viability of the Parties; and

WHEREAS, C.R.S.§ 29-1-201, *et seq*., as amended, authorizes the Parties to cooperate and contract with one another with respect to functions lawfully authorized to each of the Parties, and the people of the State of Colorado have encouraged such cooperation and contracting through the adoption of Colorado Constitution, Article XIV, § 18(2); and

WHEREAS, the Parties are currently engaged in formal legal proceedings (both judicial and administrative) dealing with their respective authority to regulate development activities affecting their respective citizens, which were partially resolved on February 11, 2019, when the Colorado Supreme Court denied Lafayette's petition for *certiorari* to hear the case. Nonetheless, because the denial of the petition addressed some, but not all, of the issues in dispute among the Parties, the Parties wish to resolve the remaining issues in an amicable way through this Agreement, and TOEURA, being a party to one such judicial proceeding, is included as a Party to this Agreement for the specific purpose of resolving such proceeding and to further implement the Highway 287 Urban Renewal Plan approved by Erie on September 16, 2015 (the "Urban Renewal Plan");

WHEREAS, Lafayette and Erie have each held public hearings for the consideration of entering into this Agreement and the adoption of a comprehensive development plan for the affected lands, and TOEURA has considered this Agreement at a duly-noticed public meeting; and

WHEREAS, the functions described in this Agreement are lawfully authorized to each of the Parties that perform such functions hereunder, as provided in Article 20 of Title 29, C.R.S., as amended; C.R.S. § 31-12-101, *et seq*., as amended; C.R.S. § 31-25-101, *et seq*.; Parts 2 and 3 of Article 23 of Title 31, C.R.S., as amended; and their respective ordinances, and in the case of Lafayette, its home rule charter.

NOW, THEREFORE, in consideration of the above and the mutual covenants and commitments made herein, the Parties agree as follows:

I. ANNEXATION PROVISIONS.

A. INFLUENCE AREAS.

1. Lafayette Influence Area: The map attached hereto as **Exhibit A** identifies areas currently located within the unincorporated Boulder County, which may in the future be annexed to Lafayette, which are collectively referenced herein as "Lafayette Influence Area" said Lafayette Influence Area generally being south or west of the red line shown on **Exhibit A**. Nothing in this section is intended to require Lafayette to annex such area. However, the Parties agree that, if such area is to be annexed to, or is to be provided water or sewer service by either municipality in the future, such area will be annexed to and will be so served by Lafayette, not by Erie. By authorizing the execution of this Agreement, the Erie Board of Trustees finds and declares that the community of interest in the area so designated on the map portion of this Agreement is with Lafayette rather than Erie.

2. Erie Influence Area: The map attached hereto as **Exhibit A** also identifies areas currently located within the unincorporated Boulder County that may in the future be annexed to Erie, which are collectively referenced herein as "Erie Influence Area" said Erie Influence Area

generally being north or east of the yellow line shown on **Exhibit A**. Nothing in this Section is intended to require Erie to annex such area. However, Erie and Lafayette agree that, if such area is to be annexed to or is to be provided water or sewer service by either municipality in the future, such area will be annexed to and will be so served by Erie, not Lafayette. By authorizing the execution of this Agreement, the City Council of the City of Lafayette finds and declares that the community of interest in the area so designated on the map portion of this Agreement is with Erie rather than Lafayette.

3. Any property located within the current municipal limits of Erie or Lafayette, and any property that hereafter annexes to either municipality in accordance with the provisions of this Agreement, which subsequently is disconnected from the municipality, shall thereafter, for purposes of this Agreement, be considered to be located within that municipality's Influence Area.

B. ***REFERRALS.***

1. Erie and Lafayette each agree that they will immediately disclose to the other any and all instances in which they are approached by landowners in the Influence Area of the other Party seeking annexation. Further, Erie and TOEURA commit that they are not currently pursuing any annexations within the Lafayette Influence Area; Lafayette commits that it is not currently pursuing any annexations within the Erie Influence Area; and Erie, TOEURA and Lafayette agree that they will not do so during the term of this Agreement.

2. Any application or other proposal for annexation or development on any parcel within 2,500 feet of the Erie Influence Area shall be immediately referred in writing to Erie, and no action shall be taken thereon by any Party until Erie has had the opportunity to respond concerning the proposal's conformity to this Agreement and other land use concerns, all such responses to be received within 21 days of the date of referral. Any application or other proposal for annexation or development within 2,500 feet of the Lafayette Influence Area shall be immediately referred in writing to Lafayette, and no action shall be taken thereon by any Party until Lafayette has had the opportunity to respond concerning the proposal's conformity to this Agreement and other land use concerns, all such responses to be received within 21 days of the date of the referral.

II. *ERIE DEVELOPMENT PARCEL PROVISIONS.*

A. ***FULL AND FINAL SETTLEMENT OF LITIGATION.***

The Parties are currently engaged in ongoing litigation pertaining to Lafayette's attempt to acquire title to a portion of property located on the southeast corner of the intersection of State Highway 287 and Arapahoe Road (the "Nine Mile Property"). Said litigation was designated as Case No. 16CV30791 in the Boulder County District Court; Case No. 17CA0595 in the Colorado Court of Appeals (collectively, the "underlying civil proceedings"); and Case No. 2018SC538 in the Colorado Supreme Court, where Lafayette's petition for certiorari was denied. The Parties intend to resolve all matters covered by said litigation in accordance with the provisions of this Section II. Within 30 days of the Effective Date, the Parties will stipulate to the

dismissal of the case. Dismissal of the litigation shall be with prejudice with each Party responsible for its respective costs and attorney fees, except as provided herein.

B. GRANT OF CONSERVATION EASEMENT.

1. TOEURA holds fee title to the Nine Mile Property. Within 30 days of the Effective Date, TOEURA will execute and deliver to Lafayette a conservation easement over, across and under a portion of the southernmost 150 feet of the Nine Mile Property, as depicted on **Exhibit B**, attached hereto and incorporated herein by this reference (the "Easement Area") for the purpose of preserving such property as a 150 foot buffer between Lafayette residential properties and development on the Erie Development Parcel (as defined below) and in furtherance of the Urban Renewal Plan. Such easement shall prohibit the development of the burdened property, except as provided herein. No structure or other improvement to the burdened property shall be permitted, except as follows:

a. The irrigation ditch that currently traverses the Nine Mile Property may be located in an underground pipeline within the Easement Area at such location as is necessary to accommodate the development of the remainder of the Nine Mile Property and Erie's property to the north of the Easement Area. The owner of the irrigation facility shall be entitled to an irrigation easement that is superior to the conservation easement for the purpose of maintaining the irrigation facility. To accommodate the location of the ditch within the Easement Area, portions of the existing ditch (both on and near the Nine Mile Property) will need to be relocated. Depending on the details of the relocation, such relation may be subject to permitting by Lafayette. Lafayette agrees not to oppose the relocation of the ditch, and Lafayette agrees not to unreasonably withhold or delay any permit or other approvals related to the relocation of the ditch, whether on or near the Nine Mile Property.

b. Underground utilities may be installed and maintained in the Easement Area at such location as is necessary to accommodate the development of the remainder of the Nine Mile Property and Erie's property to the north of the Easement Area, provided that the surface of the Easement Area is revegetated to substantially the same conditions as existed prior to the such installation or maintenance activities.

c. In conjunction with the development of the property to the north of the Easement Area, TOEURA and Erie may allow grading activities generally conforming with the drawing attached hereto as **Exhibit C**, including the installation, if necessary, of one retaining wall of approximately 8 feet in height, which will be located no closer than 80 feet to the southern boundary of the Easement Area. Upon completion of the grading, the surface of the property will be revegetated to substantially the same conditions as existed prior to the grading activity, except that the specific landscaping requirements described below shall be completed.

d. A water tank necessary and designed to provide fire flows to the Nine Mile Property shall be allowed to be located above ground or underground in the Easement Area. Any facilities that are appurtenant to the water tank, such as pumps, pump stations and equipment, shall not be located within the Easement Area, unless located

underground. The highest point of the water tank shall not exceed the highest point of the finish grading of the Easement Area. The determination of whether the water tank will be located above ground or underground shall be made as part of the land use approval process for the Nine Mile Property, and as such, will be solely within Erie's discretion. However, if Lafayette is willing and able to accommodate the fire flows necessary for the Nine Mile Property without the necessity of the on-site water tank and at a lower cost to Erie and the developer of the Nine Mile Property, then the on-site water tank shall not be permitted in the Easement Area.

2. Upon delivery of the executed easement document, Lafayette shall pay to TOEURA the sum of $476,500, said sum representing the attorney fees and costs incurred by Erie and TOEURA in the underlying civil proceedings and the negotiation of this Agreement. Lafayette shall not be required to pay any further monetary consideration for the conservation easement.

3. In conjunction with the development of the commercial and residential property immediately north of the Easement Area, TOEURA shall cause the Easement Area to be landscaped in accordance with the landscape plan mutually agreed upon by the Parties. The landscape plan shall be designed as a component of a visual buffer between the area immediately south of the Easement Area and the development area north of the Easement Area, and shall consist of a minimum of 2-inch caliper deciduous trees, 1.5-inch caliper ornamental trees, 6-foot tall evergreen trees and 5-gallon shrubs, with at least one tree per 600 square feet of the Easement Area and one shrub per 90 square feet of Easement Area, and native grasses for the balance. Erie shall ensure that the developer of the Nine Mile Property or its successors and assigns are responsible for the maintenance of such landscape improvements in good health and attractive condition.

4. Erie will require that any building installed within 350 feet of the Easement Area include adequate screening of rooftop mechanical equipment to reasonably block the view of such equipment from properties immediately adjacent to and south of the Easement Area. The Parties expressly acknowledge that this provision does not grant any third-party enforcement rights to any owner of property in the area to the south of the Easement Area.

5. The form and content of the conservation easement executed pursuant to this Section shall be modeled upon the standard form conservation easement utilized by the County of Boulder, with modifications as required herein. The easement shall be granted free and clear of encumbrances, except as provided herein.

C. TAX REVENUE SHARING.

1. For the purposes of this Agreement, the following four parcels of real property, as depicted on **Exhibit D**, shall be known as the "Erie Development Parcel": Parcel 2 (owned by TOEURA), which includes the Nine Mile Property; plus the parcel to the north of the Parcel 2 and to the east of Highway 287 owned by Erie (and the former site of the Prince Reservoir); plus the two parcels directly to the east and owned by TOEURA. For the purposes of this Agreement, "Erie Tax Revenue" shall include all revenue generated by Erie's sales, use, lodging, admissions,

amusement, excise and any other sales or activity based taxes for activities occurring on the Erie Development Parcel.

2. In the event that the Erie Development Parcel is developed for uses that generate Erie Tax Revenue, Erie and TOEURA, to the extent that TOEURA receives any portion of such Erie Tax Revenue as tax increment or otherwise, agree that they will share such Erie Tax Revenue with Lafayette on a 50%-50% basis with Lafayette receiving 50% of the net, unrestricted Erie Tax Revenue. Except for incentive payments that reduce the net amount of Erie Tax Revenue that is subject to sharing, as provided in Subsection 5 hereof, the amount of Erie Tax Revenue to which Lafayette is entitled to receive under this Agreement shall not be affected by, or otherwise reduced by reason of TOEURA's entitlement to sales tax increment pursuant to the Colorado Urban Renewal Law, or the relevant Urban Renewal Plan. The Erie Tax Revenue sharing shall continue in perpetuity, subject to annual appropriation, commencing on the date on which the first certificate of occupancy is issued by Erie for an Erie Tax Revenue generating business on the Erie Development Parcel. The Parties anticipate that the provisions regarding Erie Tax Revenue sharing for the Erie Development Parcel will be further detailed and memorialized in one or more separate agreements, to be negotiated at the time of development of the Erie Development Parcel.

3. Erie's current sales tax rate is 3.5% as is Lafayette's. Because 0.5% of Lafayette's 3.5% sales tax rate (*i.e.* $1/7^{th}$) is considered "restricted", and not subject to sharing (see Subsection III.A.2. hereof), for the purposes of equalizing the share of tax revenue that is subject to sharing pursuant to this Agreement, 0.5% of Erie's 3.5% sales tax rate (*i.e.* $1/7^{th}$) shall be considered as "restricted" and shall not be subject to sharing with Lafayette.

4. Any future increase in the rate of sales tax levied by Erie shall not increase the amount of Erie Tax Revenue that is subject to sharing under this Agreement.

5. To the extent that Erie or TOEURA enters into an economic incentive agreement with the owner or developer of the Erie Development Parcel and the incentives granted thereunder include the rebate of or payments based upon Erie Tax Revenue generated at the Erie Development Parcel, the Erie Tax Revenue subject to sharing with Lafayette shall be based on the net unrestricted Erie Tax Revenue received by Erie and TOEURA after such incentive payments are deducted. Erie and TOEURA shall consult with Lafayette prior to entering into an economic incentive agreement pertaining to the development of the Erie Development Parcel.

6. The Parties agree that the net expenses incurred to incentivize the development of the Erie Development Parcel, including any contributions of real property (the "Erie Incentive Expenses") shall be shared by Erie and Lafayette in the same proportion as the unrestricted Erie Tax Revenue shared (50% Lafayette and 50% Erie). Such expenses of the Parties may include not only future expenses, but expenses that have already been paid in anticipation of development of the Erie Development Parcel, such as the extension of infrastructure to the Erie Development Parcel. Any Erie Incentive Expenses incurred by TOEURA shall be allocated to Erie. Any Erie Incentive Expenses for which Lafayette is responsible pursuant to this subsection shall be deducted from Lafayette's share of the Erie Tax Revenue that are to be shared under this Agreement, until such time as Lafayette's obligation for the Erie Incentive Expenses is satisfied.

7. Subject to the receipt of Erie Tax Revenue by Erie or TOEURA, Erie shall remit to Lafayette within 60 days following the close of the last quarterly sales tax reporting period of the calendar year, any amounts that may be due pursuant to this Section. Nothing in this Agreement shall be construed as imposing upon Erie any obligation to exert special efforts in the collection of such revenue. Notwithstanding the foregoing, the Parties acknowledge that Erie is currently a statutory municipality and Erie's sales taxes are collected by the State of Colorado, and as such, there may be delays in receipt of sales tax revenue by Erie and subsequent remittance of the Erie Tax Revenue to Lafayette.

III. LAFAYETTE DEVELOPMENT PARCEL PROVISIONS.

This Section addresses the development parameters of that parcel of property currently in unincorporated Boulder County on the southwest corner of the intersection of Arapahoe Road and State Highway 287, which is currently owned by Tebo Partnership, LLLP, and referenced herein as the "Lafayette Development Parcel." The Lafayette Development Parcel is bounded by the Lafayette city limits on the west and south, Arapahoe Road on the north, and State Highway 287 on the east. The Lafayette Development Parcel is located within the Lafayette Influence Area as defined in Section I of this Agreement. Accordingly, if annexed for the purposes of development or otherwise, the Parties agree that annexation should be sought into Lafayette. If the owner of the Lafayette Development Parcel attempts to annex to Erie by filing an annexation petition, the Parties understand that Erie will not accept the annexation petition.

A. TAX REVENUE SHARING.

1. For purposes of this Agreement, "Lafayette Tax Revenue" shall include all tax revenue generated by Lafayette's retail sales, use, lodging, admissions, amusement, excise and any other sales or activity based taxes for activities occurring on the Lafayette Development Parcel. In the event that the Lafayette Development Parcel is annexed to Lafayette and developed for uses that generate Lafayette Tax Revenue, Lafayette agrees that it will share the unrestricted Lafayette Tax Revenue with Erie on a 50%-50% basis, with Erie receiving 50% of the net, unrestricted Lafayette Tax Revenue. The Lafayette Tax Revenue sharing shall continue in perpetuity, subject to annual appropriation, commencing on the date on which the first certificate of occupancy is issued by Lafayette for a Lafayette Tax Revenue generating business on the Lafayette Development Parcel. Erie and Lafayette anticipate that the provisions regarding Lafayette Tax Revenue sharing for the development of the Lafayette Development Parcel described herein will be further detailed and memorialized in one or more separate agreements, to be negotiated at the time of development of the Lafayette Development Parcel.

2. The revenue generated by the 0.5% Lafayette sales tax approved by the electors of Lafayette on November 2, 1992, and November 4, 2003, November 6, 2012, November 7, 2017, and any future extensions thereof, is dedicated and committed to the purchase and maintenance of open space, and is, therefore, "restricted," and shall not be considered as part of the unrestricted sales tax revenue for the purposes of this Agreement. The revenue generated by the remaining 3.0% Lafayette sales tax imposed on sales tax generating activities on the Lafayette Development Parcel shall be considered unrestricted for the purposes of this Agreement.

3. Any future increase in the rate of sales tax levied by Lafayette shall not increase the amount of Lafayette Tax Revenue that is subject to sharing under this Agreement.

4. To the extent that Lafayette enters into an economic incentive agreement with the owner or developer of the Lafayette Development Parcel and the incentives granted thereunder include the rebate of, or payments based upon, Lafayette Tax Revenue generated at the Lafayette Development Parcel, the Lafayette Tax Revenue subject to sharing with Erie shall be based upon the net unrestricted Lafayette Tax Revenue received by Lafayette after such incentive payments are deducted. Lafayette shall consult with Erie prior to entering into an economic incentive agreement pertaining to the development of the Lafayette Development Parcel.

5. Lafayette and Erie agree that any net expenses incurred to incentivize the development of the Lafayette Development Parcel (the "Lafayette Incentive Expenses") shall be shared by Lafayette and Erie in the same proportion as the unrestricted Lafayette Tax Revenue is shared (50% Lafayette and 50% Erie). Such expenses may include not only future expenses, but expenses that have already been paid by Erie or Lafayette in anticipation of development of the Lafayette Development Parcel, such as extension of infrastructure to the property, or expenses associated with acquisition of mineral extraction rights on the property and the current oil and gas well on the Property. Any Lafayette Incentive Expenses for which Erie is responsible pursuant to this subsection shall be deducted from Erie's share of the Lafayette Tax Revenue that is to be shared under this Agreement, until such time as Erie's obligation for the Lafayette Incentive Expenses is satisfied.

6. Subject to the receipt of Lafayette Tax Revenue by Lafayette, Lafayette shall remit to Erie, within 60 days following the close of the last quarterly sales tax reporting period of the calendar year, any amounts that may be due pursuant to the Lafayette Tax Revenue sharing provisions of this Section. Nothing in this Agreement shall be construed as imposing upon Lafayette any obligation to exert special efforts in the collection of such revenue.

B. ***WATER STORAGE FACILITY.***

The Parties agree to cooperate to find a suitable location for an above-ground water storage facility of sufficient elevation to provide fire flow, emergency water storage and drinking water supply for Erie water customers. Such cooperation shall not require Lafayette to expend any funds in conjunction with the acquisition or construction of such water storage facility. The Parties agree that the above-ground water storage facility will not be located on the Nine Mile Property. The Parties acknowledge that the above-ground water storage facility may be located on or near the Lafayette Development Parcel and within the boundaries of Lafayette. If the above-ground water storage facility is to be located on the Lafayette Development Parcel, the Parties acknowledge that this will be subject to negotiations between the owner of the Lafayette Development Parcel, or its successors, and Erie.

C. ***OIL AND GAS WELL.***

Within 7 days of the effective date of the annexation of the Lafayette Development Parcel into Lafayette, and contingent upon the issuance, or recognition by CDOT, of a valid access permit to Erie for a ¾ movement access from State Highway 287 to the Erie Development Parcel, as

contemplated by Section V below, Erie shall commence the process to close and permanently abandon the oil and gas well currently located on the Lafayette Development Parcel. Thereafter, Erie shall diligently pursue the closure and abandonment process until complete.

IV. ECONOMIC DEVELOPMENT COOPERATION.

A. ***BENEFITS.***

Erie and Lafayette agree there are numerous benefits associated with sharing equally the revenue and costs associated with incentivizing development on the Lafayette Development Parcel and the Erie Development Parcel, including without limitation: (i) more effectively achieving the highest and best development potential for the area, which will maximize the private property values and public tax revenue generated by the area; (ii) a more diversified portfolio of tax generating properties that is less subject to economic variability that could otherwise affect the Parties individually; (iii) equalizing all Parties' position with prospective tenants and thus reducing the need to offer incentives to achieve the same public benefits associated with location of those businesses in the area; (iv) more effectively planning the area to optimize success of retail sites and fostering higher functioning transit oriented development ("TOD"); and (v) identifying other actions that mutually benefit the Parties in a way that would be impossible without collaboration. The Parties also recognize that several "anchor" tenants have been negotiating with the owners/developers of both the Lafayette Development Parcel and the Erie Development Parcel.

B. COMMITMENT TO COOPERATE.

In light of these benefits, and in light of the tax revenue sharing set forth in Sections II and III above, the Parties agree that they will cooperate with each other to foster development of both the Lafayette Development Parcel and the Erie Development Parcel in a complementary pattern to achieve optimal economic and societal benefits for both Lafayette and Erie. Accordingly, all Parties recognize that neither the Lafayette Development Parcel, nor the Erie Development Parcel, should be developed in a time-frame that is detrimental to development of the other parcel. All Parties recognize the importance of attracting good quality anchor tenants to the commercial development of both parcels, and pledge to work cooperatively to attract relatively equally anchor tenants to both the Lafayette Development Parcel and the Erie Development Parcel. In accordance with this cooperation, and unless Erie and Lafayette mutually agree on an alternative approach, Erie and TOEURA agree that they will not provide any form of incentive for a second anchor tenant on the Erie Development Parcel until a first anchor tenant is irrevocably committed to locating on the Lafayette Development Parcel, and Lafayette agrees that it will not provide any form of incentive for a second anchor tenant on the Lafayette Development Parcel until a first anchor tenant is irrevocably committed to locating on the Erie Development Parcel.

V. STATE HIGHWAY 287 ACCESS.

Erie previously instituted an administrative appeal before the State of Colorado, Office of Administrative Courts, designated as Case No: HW20170003, wherein Erie is appealing certain actions of the Colorado Department of Transportation ("CDOT") with respect to access permits

issued by CDOT on State Highway 287. This administrative appeal sought to: (i) invalidate an access permit that allows for a full movement intersection at Lucerne Drive and State Highway 287; and (ii) reverse the denial of a full movement intersection access permit at a location north of Lucerne Drive that would provide access from State Highway 287 to the Erie Development Parcel. Lafayette was prepared to formally intervene in the administrative proceedings. While the administrative appeal has been formally withdrawn by Erie, the Parties wish to resolve issues raised in the appeal as follows.

A. Erie will promptly apply for, and Lafayette agrees to support the re-issuance of a three-quarter movement intersection to access the Erie Development Parcel in the location as depicted on the permit previously approved by CDOT, as shown on **Exhibit B**, attached hereto and incorporated herein by this reference. In conjunction with the re-issuance process, Lafayette also agrees to support any necessary amendments to existing intergovernmental agreements with CDOT and/or Boulder County, as well as necessary amendments to the State Highway 287 Access Control Plan. As part of its obligation under this Section, Lafayette acknowledges that the letter from Brent Butzin, on behalf of Lafayette, to CDOT dated March 6, 2019, is moot.

B. To the extent that Lafayette acts as the issuing authority for access permits on State Highway 287, Lafayette agrees that it will not unreasonably withhold approval for access permits related to improvements to the intersection at State Highway 287 and Arapahoe Road.

VI. STATE HIGHWAY 7 ACCESS – 119th / PARKDALE / COUNTY LINE ROAD.

In conjunction with a residential development in Erie known as "Parkdale," which is located north of State Highway 7 between 119th Street and County Line Road, Erie previously submitted an application to approve a full movement intersection located between 119th Street and County Line Road, as generally depicted in **Exhibit E**, that was intended to provide access to and serve the Parkdale development as well as properties to the north that have been previously accessed via County Line Road. The application was subsequently withdrawn by Erie; however, Erie anticipates that a new application will be forthcoming. Erie and Lafayette agree as to the conditions under which such a full movement intersection would be appropriate if an application substantially similar to the previous application is submitted.

A. ACCESS PERMIT.

1. In the event that an application for an access permit to serve the Parkdale development is submitted to Lafayette that is substantially similar to the previous access permit application, and subject to review of the details of such application for compliance with the State Highway Access Code, Lafayette agrees to issue the appropriate access permit to allow the intersection at County Line Road to serve the Parkdale development, and to enable utility services to cross State Highway 7 if necessary, on the condition that the current intersection at State Highway 7 and County Line Road will be closed to the general public and the properties currently served by the intersection of County Line Road and State Highway 7, which specifically includes, without limitation, Lafayette's wastewater treatment plant, are provided reasonable access through the intersection being planned for the Parkdale development, then through the Parkdale development and thence south along the current County Line Road right-of-way, as generally depicted in **Exhibit E**.

2. The intersection of the new public road within the Parkdale development and County Line Road, north of the wastewater treatment plant shall be designed and constructed by Erie, or the developer of Parkdale, appropriate for turning movements to and from the wastewater treatment plant.

3. Any improvements to the transportation system, specifically including improvements to the intersection of County Line Road and State Highway 7, and the new access to the properties previously served, shall be at the expense of Erie. The improvements to be paid for by Erie under this Section shall not include any improvements to County Line Road that are necessitated by Lafayette's wastewater treatment plant improvements or expansion, and Lafayette agrees to bear any such costs.

B. INTERSECTION IMPROVEMENTS.

The Parties agree that Erie will be responsible for 25% of the total cost of any future intersection improvements that are required to the intersection of North 119th Street and State Highway 7, including without limitation, traffic signals and additional lanes as may be necessary to the intersection, at such time as improvement is required. The total costs shall include all costs to design and construct the intersection improvements, including right-of-way acquisition, regardless of the source of the funding for such costs. The Parties acknowledge that the currently anticipated total cost is between $10,000,000 and $12,000,000. Such improvements shall be scheduled by Lafayette in consultation with Erie.

C. WATER RECLAMATION PLANT.

Erie acknowledges that Lafayette has submitted plans to the Colorado Department of Public Health and Environment for the improvement and expansion of its Water Reclamation Plant on County Line Road (the "Plant Expansion"). Erie agrees that it will not unreasonably object the Plant Expansion. Lafayette shall resolve the issues raised by Erie in its letter to Douglas Short dated March 8, 2019 by taking the following actions related to the Plant Expansion:

1. Provide odor control equipment for the Plant Expansion as well as existing odor sources in a reasonable manner, reviewable by Erie;

2. Provide visual screening of the Water Reclamation Plant and equipment when looking from west to east, and northwest to southeast, including without limitation the installation and maintenance of a solid wood privacy fence (or equivalent) at least six feet in height and rooftop mechanical equipment screening;

3. With the exception of the water rights already decreed for Lafayette's use, and subject to all prior stipulations and other water rights-related agreements between the Parties, the Plant Expansion and operation of the Water Reclamation Plant shall not result in additional impacts to Erie's decreed water rights;

4. With the exception of the water rights already decreed and permits issued for Lafayette's use, and subject to all prior stipulations and agreements between the Parties, the Plant

Expansion and operation of the Water Reclamation Plant shall not result in material adverse impacts on Erie's wastewater discharge permit limits; and

5. Assume full financial responsibility for any improvements to East County Line Road south of the intersection described in Section VI.A.2. above, as necessary to maintain access to the Water Reclamation Plant after County Line Road is closed at the terminus with State Highway 7.

D. RE-USE MAIN.

Erie acknowledges that Lafayette is in the process of designing and constructing a water re-use main that will convey water from the Water Reclamation Plant to the west across the Parkdale development and then north to Lafayette's Goose Haven Reservoir facilities on State Highway 287. The water re-use main will be located in the same easement, and generally run parallel to the existing wastewater outfall main as it traverses the Parkdale development. Erie will cooperate in good faith with Lafayette in conjunction with the design and construction of the water re-use main. Such cooperation shall not require Erie to expend any funds in conjunction with the design and construction of such water re-use main.

E. DISCONNECTION/ANNEXATION OF COUNTY LINE ROAD.

That portion of County Line Road that is south of the north boundary line of Assessor Parcel No. 14653600046 (which is owned by Lafayette), as extended to the east across County Line Road, and north of State Highway 7 (the "Disconnection Property") is currently within Erie's jurisdictional boundaries. Within 30 days of Lafayette's grant of the access permit described in Section VI.A. above, Erie and Lafayette will commence appropriate proceedings, and cooperate with each other, to disconnect the Disconnection Property from Erie and annex the Disconnection Property to Lafayette.

VII. GENERAL PROVISIONS.

A. CONTROLLING REGULATIONS.

1. No Party shall agree with any landowner or other person or entity interested in any parcel within the area affected by this Agreement to allow any use, development, or to annex property that does not comply with this Agreement without first obtaining an amendment, as set forth herein.

2. The Parties each agree to undertake all steps to adopt procedures, plans, policies, and ordinances or other regulations as may be necessary to implement and enforce the provisions of this Agreement. Any Party adopting such procedures, plans, policies, ordinances or regulations shall give each of the other Parties sufficient advance notice of such action as will enable such Parties, if they so desire, to comment upon the planned actions of that Party.

3. To the extent this Agreement is silent as to a particular land use matter, existing local land use regulations of the Party having jurisdiction over the property, as amended from time to time, shall control.

4. Nothing in this Agreement shall limit either Erie's or Lafayette's quasi-judicial authority over land use decisions, and nothing in this Agreement shall be construed as prejudgment of either Erie or Lafayette regarding such decisions.

B. AMENDMENTS.

This Agreement contains the entire agreement among the Parties. Amendment of this Agreement shall take place upon approval by resolution or ordinance adopted by the governing body of each of the Parties, after notice and hearing as may be required by law.

C. SEVERABILITY.

If any portion of this Agreement is held by a court in a final, non-appealable decision, to be *per se* invalid or unenforceable as to any Party, the entire Agreement shall be terminated, except for those matters that have been executed; it being the understanding and intent of the Parties that every portion of the Agreement is essential to and not severable from the remainder. Any finding of invalidity or unenforceability of any portion of this Agreement shall not void or otherwise affect matters that are executory.

D. BENEFICIARIES.

The Parties, in their corporate and representative governmental capacities, are the only entities intended to be the beneficiaries of the Agreement, and no other person or entity is so intended.

E. ENFORCEMENT.

Any one or more of the Parties may enforce this Agreement by any legal or equitable means including specific performance, declaratory and injunctive relief. No other person or entity shall have any right to enforce the provisions of this Agreement.

F. DEFENSE OF CLAIMS.

If any person allegedly aggrieved by any provision of this Agreement, and who is not a Party to the Agreement, should sue any Party concerning such Agreement provision, the other Parties may defend such claim upon receiving timely and appropriate notice of pendency of such claim. Defense costs shall be paid by the Party providing such defense.

G. GOVERNING LAW AND VENUE.

This Agreement shall be governed by the laws of the State of Colorado and venue shall lie in the County of Boulder.

H. TERM AND EFFECTIVE DATE.

This Agreement shall become effective upon signature of an authorized representative of the each of governing bodies of the Parties. Except as provided herein, this Agreement shall remain in effect for a period of 10 years from the Effective Date, unless terminated prior thereto by agreement of the Parties or pursuant to the terms of Section VII.C. above. This Agreement shall

automatically renew for one additional 10-year term unless, between 180 and 90 days prior to the termination of the initial term, a Party elects not to renew and provides written notice to the other Party of such election.

I. NO MULTI-YEAR FISCAL OBLIGATION.

Nothing herein shall constitute a multiple fiscal year obligation of the Parties pursuant to Colorado Constitution Article X, Section 20. Notwithstanding any other provisions of this Agreement, each Party's obligations under this Agreement for monetary payments in future years are subject to annual appropriation by the respective governing bodies of the Parties. Any failure to appropriate adequate monies to finance such obligations under this Agreement shall not constitute a breach of this Agreement. Notice shall be given promptly to the other Party of any failure to appropriate such adequate monies.

J. PARTY REPRESENTATIVE.

Notices under this Agreement shall be sent to the Parties' representatives as follows:

CITY OF LAFAYETTE	City Administrator 1290 S. Public Road Lafayette, CO 80026
TOWN OF ERIE	Town Administrator P.O. Box 750 Erie, CO 80516
TOWN OF ERIE URBAN RENEWAL AUTHORITY	Executive Director P.O. Box 750 Erie, CO 80516

Name and address changes for representatives shall be made in writing and mailed to the other representatives at the then current address.

THIS AGREEMENT is made and entered into to be effective on the Effective Date.

CITY OF LAFAYETTE

By: Alexandra Lynch
Alexandra Lynch, Mayor

ATTEST:

Susan Koster
Susan Koster, CMC, City Clerk

APPROVED AS TO FORM:

David S. Williamson, City Attorney

TOWN OF ERIE, COLORADO

By:

Jennifer Carroll, Mayor

ATTEST:

Jessica Koenig, Town Clerk

APPROVED AS TO FORM:

Kendra L. Carberry, Town Attorney

TOWN OF ERIE URBAN RENEWAL AUTHORITY

Jennifer Carroll, Chair

ATTEST:

Secretary

APPROVED AS TO FORM:

Carolynne C. White, General Counsel

Exhibit A

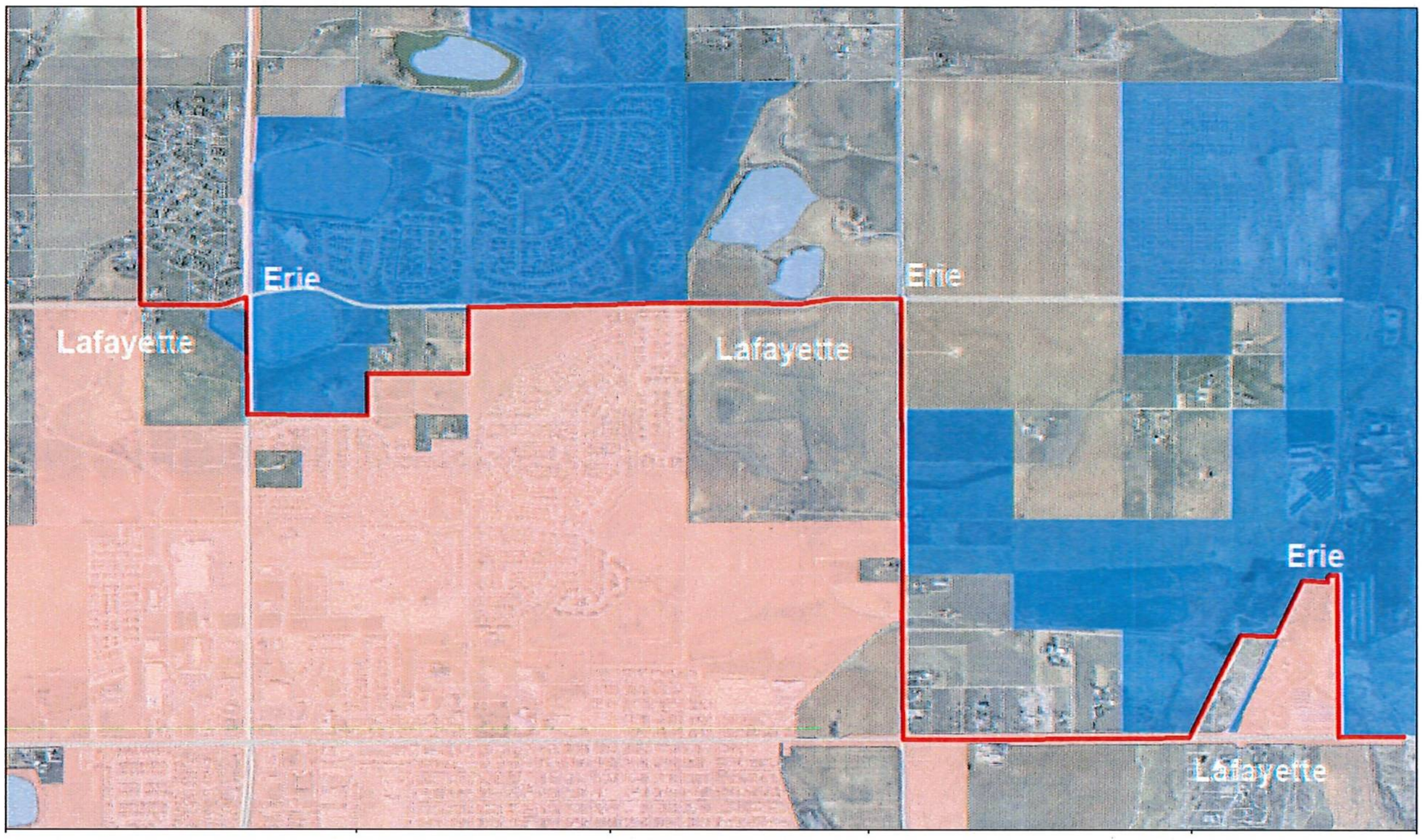


Exhibit B

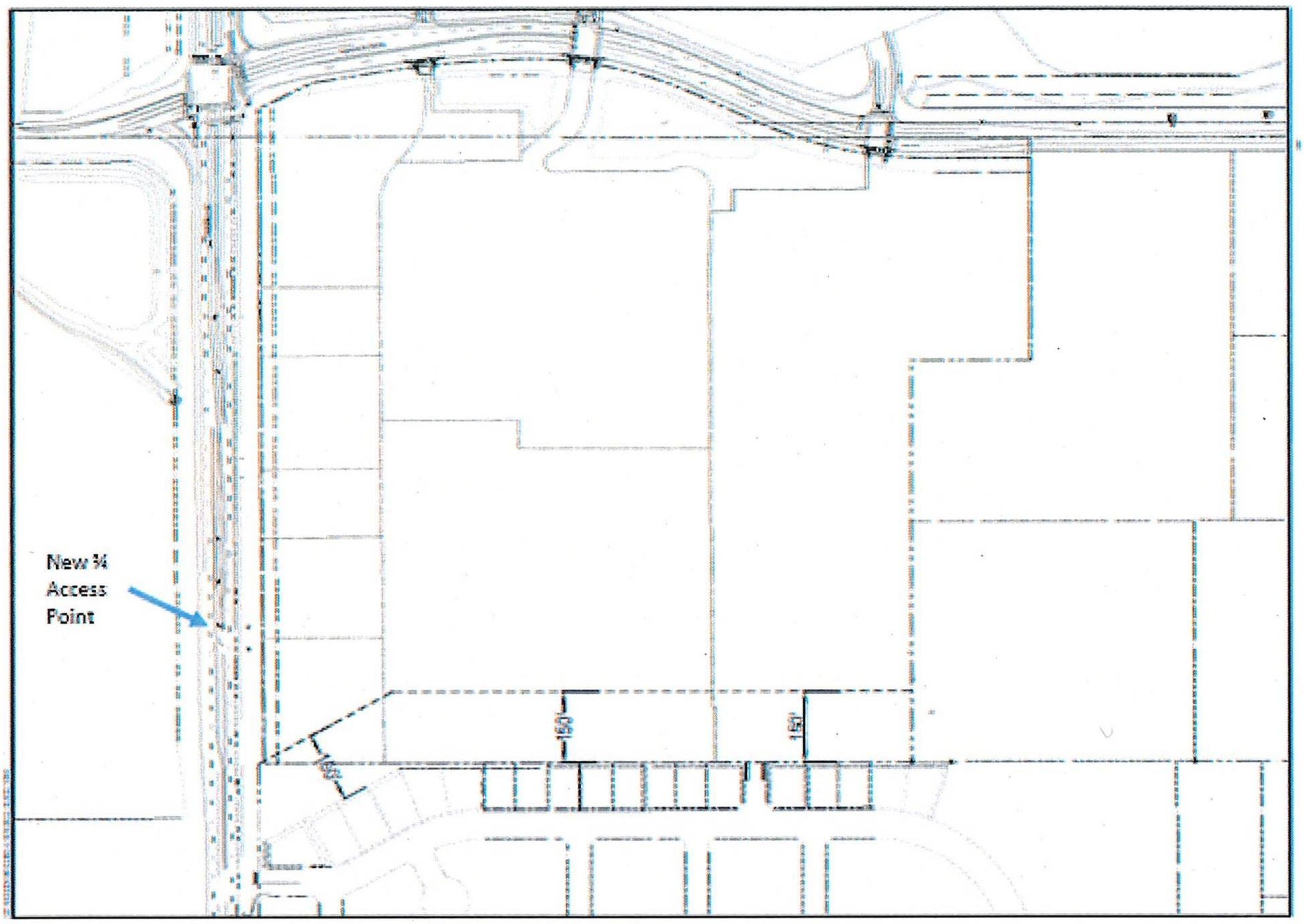


Exhibit C

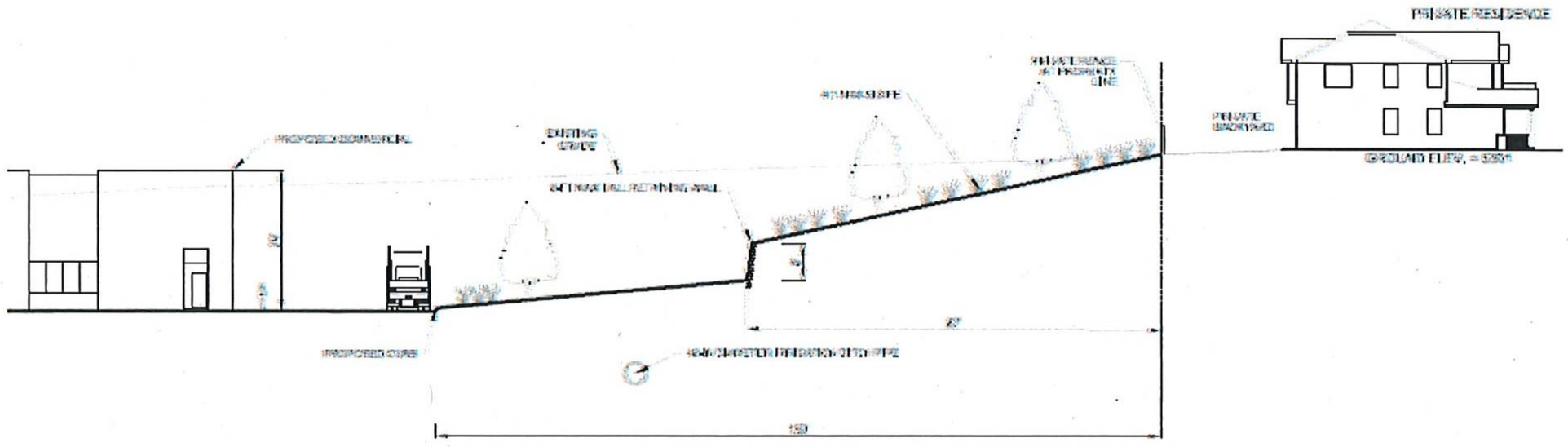

PROPOSED COMMERCIAL
EXISTING GRADE
RETAINING WALL
PROPERTY LINE
PRIVATE RESIDENCE
PRIVATE BACKYARD
GROUND ELEV. = 535'
PROPOSED CURB
150'

Exhibit D

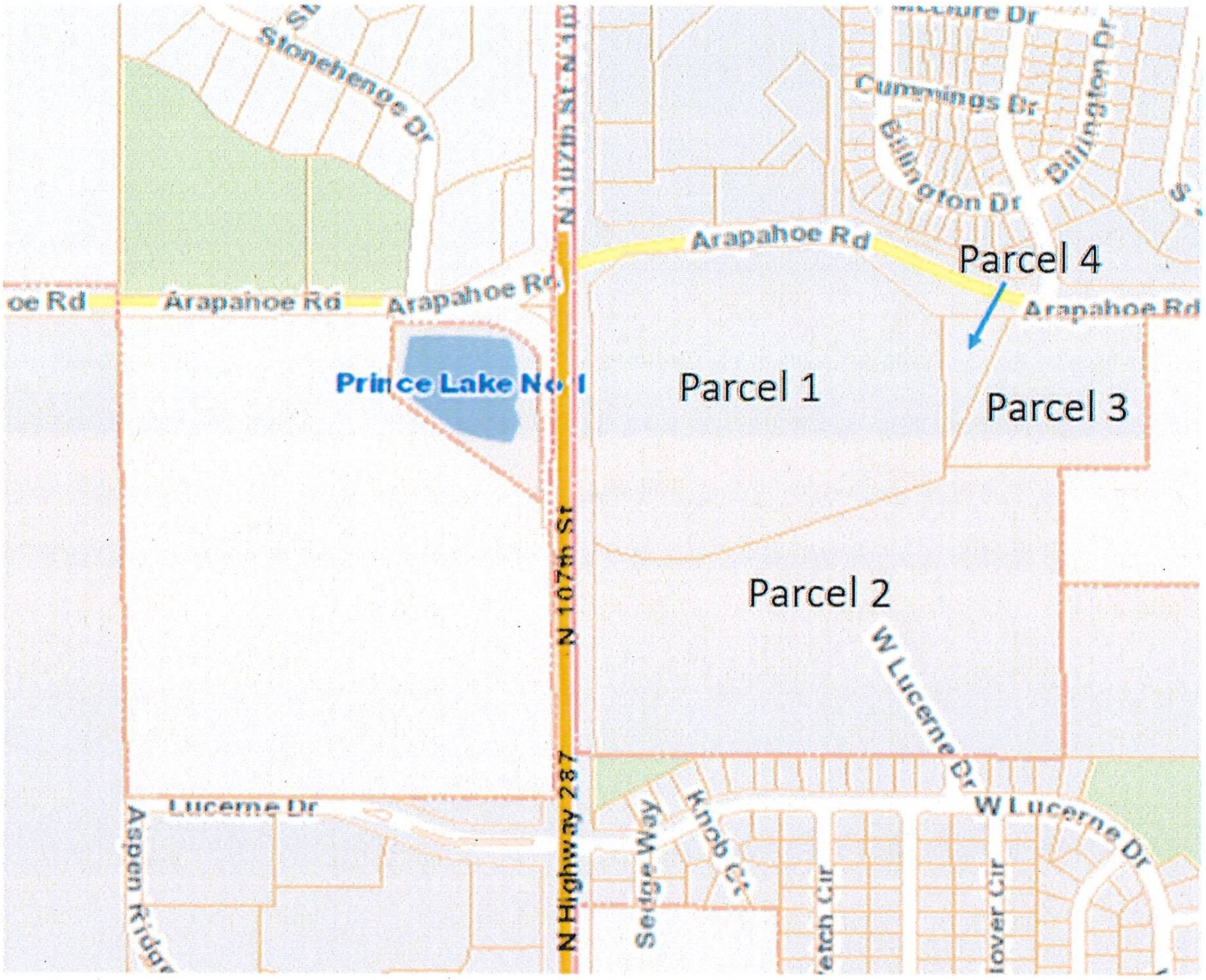

Stonehenge Dr
N 107th St
Arapahoe Rd
Arapahoe Rd
Arapahoe Rd
Arapahoe Rd
Cummings Dr
Billington Dr
Billington Dr
Parcel 4
Parcel 1
Parcel 3
Parcel 2
Prince Lake No 1
N Highway 287
W Lucerne Dr
W Lucerne Dr
Lucerne Dr
Sedge Way
Knob Ct

Exhibit E

SCANNED
JUN 19 2019

03984518 10/10/2022 01:29 PM
RF: $28.00 DF: $0.00 Page: 1 of 4
Electronically recorded in Boulder County Colorado. Recorded as received.

Town of Erie
Ordinance No. 36-2021

An Ordinance of the Board of Trustees of the Town of Erie Disconnecting a Parcel of Land Located at the Intersection of Baseline Road and County Line Road

Whereas the Town owns the real property more particularly described in **Exhibit A**, attached hereto and incorporated herein by this reference (the "Property");

Whereas, the City of Lafayette (the "City") and the Town are parties to an intergovernmental agreement, dated June 4, 2019, regarding the planning for and regulating of land uses as to certain areas surrounding their respective jurisdictions, the sharing of revenue, and the resolution of formal legal proceedings dealing with their respective authority to regulate development activities affective their respective citizens (the "Global Settlement IGA");

Whereas, as part of the Global Settlement IGA, the Parties agreed to cooperate with one another to disconnect a portion of East County Line Road, a public right-of-way currently within Erie's jurisdictional boundaries, and to annex that portion of East County Line Road to Lafayette; and

Whereas the Town wishes to disconnect the Property from the Town.

Now Therefore be it Ordained by the Board of Trustees of The Town of Erie, Colorado, that:

Section 1. The Property is hereby disconnected from the Town.

Section 2. Upon the effective date of this Ordinance all lands within the area disconnected from the Town shall no longer be subject to the municipal laws of the State of Colorado pertaining to towns, or to any ordinance, resolution, rule or regulation of the Town.

Section 3. The Town Clerk shall file for recording, two certified copies of this Disconnection Ordinance and two copies of the Disconnection Map with the Clerk and Recorder of the County of Boulder, State of Colorado.

Section 4. One copy of the Disconnection Ordinance and Disconnection Map showing the boundaries of the disconnected territory, as more particularly described in **Exhibit A**, shall be kept on file in the office of the Town Clerk of the Town of Erie.

Section 5. The Town Clerk shall file one certified copy of the Disconnection Ordinance and one certified copy of the Disconnection Map with the Division of Local Governments of the Department of Local Affairs.

Section 6. Severability. If this Ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this Ordinance. The Board of Trustees hereby declares that it would have passed this Ordinance and each part or parts hereof irrespective of the fact that any one, or part, or parts be declared unconstitutional or invalid.

Section 7. Safety. The Board of Trustees finds that the adoption of this Ordinance is necessary for the protection of the public health, safety and welfare.

Section 8. Effective Date. This Ordinance shall take effect 30 days after publication following adoption.

Introduced, read, passed and ordered published this 14th day of December, 2021.

Jennifer Carroll, Mayor

Attest:

Heidi Leatherwood, Town Clerk

TOWN OF ERIE CORPORATE SEAL COLORADO

Exhibit A

Page 1 of 2

Parcel Description

All that portion of that parcel annexed to the Town of Erie by Ordinance No. 38 Series 2016 filed February 3, 2017 at Reception Number 3573292 and as shown on the Erie Gateway South Annexation No. 6 to the Town of Erie Annexation Map filed February 3, 2017 at Reception Number 3573293 in the south half quarter of the southeast quarter of Section 36, Township 1 North, Range 69 West, Boulder County, Colorado;

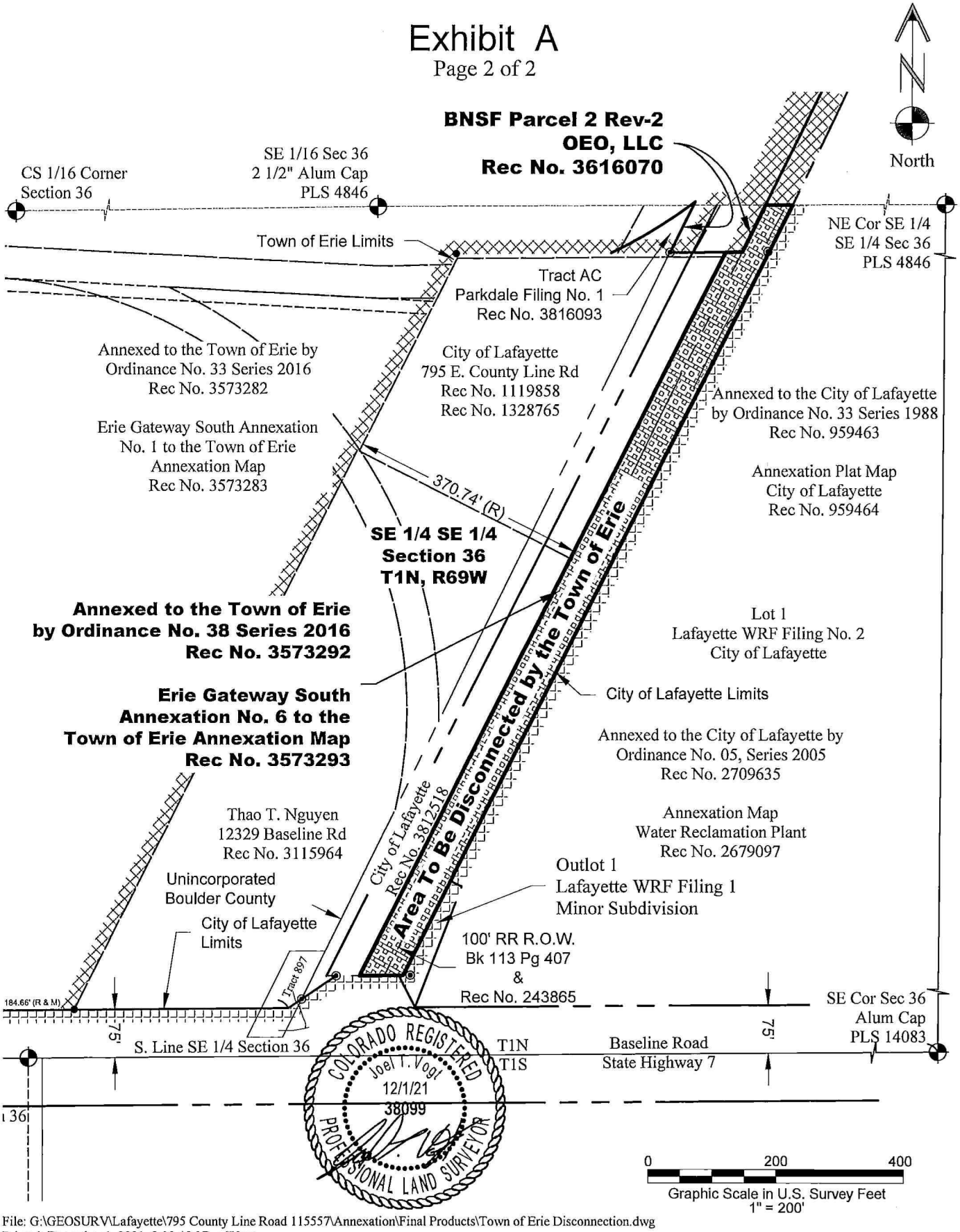
Excepting therefrom any portion in that BNSF Parcel 2 Rev-2 Quit Claimed to OEO, LLC filed September 21, 2017 at Reception No. 3616070.

Prepared by Joel T. Vogt
For and on behalf of Topographic Land Surveyors
520 Stacy Ct. Ste B, Lafayette, CO 80026

File: G:\GEOSURV\Lafayette\795 County Line Road 115557\Annexation\Final Products\Town of Erie Disconnection.dwg
Printed: December 1, 2021, 8:08 AM By: JVogt

Exhibit A

Page 2 of 2



File: G:\GEOSURV\Lafayette\795 County Line Road 115557\Annexation\Final Products\Town of Erie Disconnection.dwg
Printed: December 1, 2021, 8:08 AM By: JVogt

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-299, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving a Construction Contract with Power Products Co for the Erie Community Center Skylight Replacement

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Public Works Director
Chad Alexander, Facilities Division Manager

FISCAL SUMMARY:

Cost as Recommended:	$ 315,570.51
Balance Available:	$ 467,785.57
Budget Line-Item Number:	100-70-440-572110-140110
New Appropriation Required:	No

POLICY ISSUES:
By awarding this contract and completing the ECC Skylight Replacement Project the Town will meet its stated priorities related to Safe and Healthy Community, and Fiscally Responsible in spending funds appropriated for this purpose.

STAFF RECOMMENDATION:
Approve the Resolution authorizing the Construction Contract with Power Products Co.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
On May 9, 2023, the Town of Erie was hit by a severe hailstorm consisting of heavy rains and hail stones greater than 2 inches in diameter. With this storm, the skylights on the Erie Community Center were damaged. This damage was included in the Town's initial insurance claim with the Town's insurance carrier (CIRSA) and the Town received payment from CIRSA to complete this repair.

Town staff requested a proposal for the skylight replacement from Power Products. They installed the original skylights and are the preferred vendor to complete the replacement. Town staff believe Power Products is qualified to complete this project and is in the best interest of the Town to use.

COUNCIL PRIORITY(S) ADDRESSED:
- ✓ Safe and Healthy Community
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution 24-096
2. Agreement

Town of Erie
Resolution No. 24-096

A Resolution of the Town Council of the Town of Erie Approving an Agreement for Professional Services with Power Products Co. for the Erie Community Center Skylight Replacement

Whereas, the Town requires professional services of Power Products Co. for the Erie Community Center Skylight Replacement; and

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve the Professional Services Agreement in the amount of $315,570.51.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Professional Services Agreement with Power Products Co. is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

Agreement for Services
(ECC Skylight Replacement (P23-093))

This Agreement for Services (the "Agreement") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516 (the "Town"), and Power Products Co, an independent contractor with a principal place of business at 4400 S Federal Blvd, Englewood, CO 80110 ("Contractor") (each a "Party" and collectively the "Parties").

Whereas, the Town requires services; and

Whereas, Contractor has held itself out to the Town as having the requisite expertise and experience to perform the required services.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. Scope of Services

A. Contractor shall furnish all labor and materials required for the complete and prompt execution and performance of all duties, obligations, and responsibilities which are described or reasonably implied from the Scope of Services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference.

B. A change in the Scope of Services shall not be effective unless authorized as an amendment to this Agreement. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

II. Term and Termination

A. This Agreement shall commence on the Effective Date, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

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III. Compensation

In consideration for the completion of the Scope of Services by Contractor, the Town shall pay Contractor $315,570.51. This amount shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the Town for such fees, costs and expenses. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

IV. Responsibility

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein. The work performed by Contractor shall be in accordance with generally accepted practices and the level of competency presently maintained by other practicing contractors in the same or similar type of work in the applicable community.

B. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. Contractor shall at all times comply with all applicable law, including without limitation all current and future federal, state and local statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, *et seq*. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, *et seq*.; the Resource Conservation and Recovery Act, 42 U.S.C. § 6901, *et seq*. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq*.; the Clean Water Act, 33 U.S.C. § 1251, *et seq*.; the Clean Air Act, 42 U.S.C. § 7401, *et seq*.; the Occupational Safety and Health Act, 29 U.S.C. § 651, *et seq*.; all applicable environmental statutes of the State of Colorado; and all other federal, state or local statutes, laws, ordinances, resolutions, codes, rules, regulations, orders or decrees regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, as now or at any time hereafter in effect.

V. Ownership

Any materials, items, and work specified in the Scope of Services, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Services constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby

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transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change such work without providing notice to or receiving consent from Contractor; provided that Contractor shall have no liability for any work that has been modified by the Town.

VI. Independent Contractor

Contractor is an independent contractor. Notwithstanding any other provision of this Agreement, all personnel assigned by Contractor to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

VII. Insurance

A. Contractor agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Contractor pursuant to this Agreement. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees, or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Agreement.

VIII. Indemnification

Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by, the omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor.

IX. Miscellaneous

A. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.

B. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

C. *Integration*. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

E. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. *Severability*. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. *Modification*. This Agreement may only be modified upon written agreement of the Parties.

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

H. *Assignment*. Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. *Governmental Immunity*. The Town and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. *Rights and Remedies*. The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

L. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this Agreement due to acts of God, floods, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Malcolm Fleming, Town Manager

Attest:

_____
Debbie Stamp, Town Clerk

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

Contractor

By: DocuSigned by: Brent Powers 54CAEC9AFE9E4DB...

Brent Powers, CEO

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of Power Products Co.

My commission expires:

(Seal)

_____
Notary Public

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

Exhibit A
Scope of Services

Contractor's Duties

During the term of this Agreement, Contractor shall perform the following duties, as directed by the Town:

- Contractor shall furnish & install, includes demo & disposal of existing hail damaged Kalwall translucent skylights:
    - Qty. (1) Self-Supported Ridge Roof Skylight with endwalls, per existing dimensions having (14) equal panels along each side
    - Qty. (1) Self-Supported Ridge Roof Skylight, with endwalls, per existing dimensions having (14) equal panels along each side
    - Qty. (1) Self-Supported Ridge Roof Skylight, with endwalls, per existing dimensions having (14) equal panels along each side
    - Panel Specifications: Thickness: 2 3/4"
    - Exterior Face Sheet: .070" Crystal SW
    - Interior Face Sheet: .045" Crystal S-171
    - "U" Factor: .23TB "U" factor
    - Grid Pattern: 12" X 24" Shoji grid pattern
    - All exposed aluminum to be standard color Kalwall Corrosion Resistant Finish which meets performance requirements of AAMA 2604
    - State of New Hampshire Stamped Structural Calculations
    - Roofs are designed for 40 PSF live load, 30 PSF snow load, 30 PSF (ASD) wind load, and 0 PSF drift load with L/60 deflection
    - Includes Kalwall standard curb cap and flashing
- Exclusions
    - Sales or Use Taxes
    - Prevailing wage rates
    - Weekend and/or evening work
    - Pool covering / protection
    - Interior traffic control or interior work of any kind
    - Roof to curb flashing or membrane
    - Curb re-construction (if required)
    - Permits
    - Field testing of any kind

Contractor's Deliverables

In performance of the duties described above, Contractor shall deliver the following items to the Town, during the timeframes established by the Town:

DocuSign Envelope ID: 0869728C-A808-4987-AD28-ECD36C7B9DEE

- Furnish & install, includes demo & disposal of existing hail damaged Kalwall translucent skylights as noted in duties.

DocuSign

Certificate Of Completion

Envelope Id: 0869728CA8084987AD28ECD36C7B9DEE
Status: Completed
Subject: Complete with Docusign: General Services Agreement - ECC Skylight Replacement.pdf
Source Envelope:
Document Pages: 8
Signatures: 1
Certificate Pages: 5
Initials: 0
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-07:00) Mountain Time (US & Canada)

Envelope Originator:
Kris McDaniel
645 Holbrook Street
P.O. Box 750
Erie, CO 80516
krismc@erieco.gov
IP Address: 73.34.182.144

Record Tracking

Status: Original
6/4/2024 10:07:56 AM
Holder: Kris McDaniel
krismc@erieco.gov
Location: DocuSign

Signer Events	Signature	Timestamp
Brent Powers brentp@powersproducts.com CEO Powers Products Co. Security Level: Email, Account Authentication (None)	DocuSigned by: 54CAEC9AFE9E4DB... Signature Adoption: Pre-selected Style Using IP Address: 73.203.116.73	Sent: 6/4/2024 10:21:15 AM Resent: 6/5/2024 1:57:43 PM Resent: 6/10/2024 7:19:50 AM Resent: 6/11/2024 11:36:05 AM Viewed: 6/13/2024 10:28:36 AM Signed: 6/13/2024 10:29:09 AM

Electronic Record and Signature Disclosure:
Accepted: 6/4/2024 11:18:08 AM
ID: 3d03857f-9dfb-4a65-b251-bd3dc7d60e8e

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
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Envelope Updated	Security Checked	6/10/2024 12:39:59 PM
Envelope Updated	Security Checked	6/10/2024 12:39:59 PM
Envelope Updated	Security Checked	6/10/2024 12:41:03 PM
Envelope Updated	Security Checked	6/10/2024 12:41:03 PM
Certified Delivered	Security Checked	6/13/2024 10:28:36 AM
Signing Complete	Security Checked	6/13/2024 10:29:09 AM
Completed	Security Checked	6/13/2024 10:29:09 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, Town of Erie (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through the DocuSign system. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to this Electronic Record and Signature Disclosure (ERSD), please confirm your agreement by selecting the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. You will have the ability to download and print documents we send to you through the DocuSign system during and immediately after the signing session and, if you elect to create a DocuSign account, you may access the documents for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. Further, you will no longer be able to use the DocuSign system to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through the DocuSign system all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact Town of Erie:

You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: docusign@erieco.gov

To advise Town of Erie of your new email address

To let us know of a change in your email address where we should send notices and disclosures electronically to you, you must send an email message to us at docusign@erieco.gov and in the body of such request you must state: your previous email address, your new email address. We do not require any other information from you to change your email address.

If you created a DocuSign account, you may update it with your new email address through your account preferences.

To request paper copies from Town of Erie

To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an email to townclerk@erieco.gov and in the body of such request you must state your email address, full name, mailing address, and telephone number. We will bill you for any fees at that time, if any.

To withdraw your consent with Town of Erie

To inform us that you no longer wish to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your signing session, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;

ii. send us an email to docusign@erieco.gov and in the body of such request you must state your email, full name, mailing address, and telephone number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

The minimum system requirements for using the DocuSign system may change over time. The current system requirements are found here: https://support.docusign.com/guides/signer-guide-signing-system-requirements.

Acknowledging your access and consent to receive and sign documents electronically

To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please confirm that you have read this ERSD, and (i) that you are able to print on paper or electronically save this ERSD for your future reference and access; or (ii) that you are able to email this ERSD to an email address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format as described herein, then select the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

By selecting the check-box next to 'I agree to use electronic records and signatures', you confirm that:

- You can access and read this Electronic Record and Signature Disclosure; and
- You can print on paper this Electronic Record and Signature Disclosure, or save or send this Electronic Record and Disclosure to a location where you can print it, for future reference and access; and
- Until or unless you notify Town of Erie as described above, you consent to receive exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you by Town of Erie during the course of your relationship with Town of Erie.

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-300, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving an Agreement with Sunland Asphalt & Construction, LLC for the Erie Community Center Parking Lot Repairs

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Public Works Director
Chad Alexander, Facilities Division Manager

FISCAL SUMMARY:

Cost as Recommended:	$ 139,547.83
Balance Available:	$ 114,331.00, 35,000.00
Budget Line-Item Number:	100-70-440-605000-100166
	100-70-440-520100-100166
New Appropriation Required:	No

POLICY ISSUES:
By awarding this contract and completing the ECC Parking Lot Repairs Project the Town will meet its stated priorities related to Safe and Healthy Community, and Fiscally Responsible in spending funds appropriated for this purpose.

STAFF RECOMMENDATION:
Approve the Resolution authorizing the Agreement with Sunland Asphalt & Construction, LLC.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In 2023, staff started repairs to the Erie Community Center main parking lot with the allotted budget. The remaining work has been deferred to 2024.

The 2024 1st Supplemental budget includes remaining repairs to the main parking lot to correct failed asphalt, excessive cracking, and provide seal coating. The cracks in the main lot expanded over the winter and are safety concerns for ECC patrons causing trip hazards. These will only get worse over the next winter if not repaired now. This is the highest volume parking lot for visitors. Our paving consultant advises that investing in this work now will prevent more expensive milling and repaving the entire lot within five years.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Well-Maintained Transportation Infrastructure
- ✓ Safe and Healthy Community
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution 24-093
2. Construction Contract

Town of Erie
Resolution No. 24-093

A Resolution of the Town Council of the Town of Erie Approving a Construction Contract with Sunland Asphalt & Construction, LLC for the Erie Community Center Parking Lot Repairs

Whereas, the Town requires the services of Sunland Asphalt & Construction, LLC for the Erie Community Center Parking Lot Repairs; and

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve a Construction Contract with Sunland Asphalt & Construction, LLC in an amount not to exceed $139,547.83.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado, that:

Section 1. The Construction Contract with Sunland Asphalt & Construction, LLC, is hereby approved in substantially the form attached hereto, subject to approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Construction Contract on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

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Construction Contract
(Erie Community Center Parking Lot Repairs P24-1004)

This Construction Contract (the "Contract") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516 (the "Town"), and Sundland Asphalt and Construction ("Contractor") (each a "Party" and collectively the "Parties").

For the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. Scope of Work

A. Contractor shall furnish all labor and materials required for the complete and prompt execution and performance of all duties, obligations, and responsibilities which are described or reasonably implied from the Scope of Work set forth in **Exhibit A**, attached hereto and incorporated herein by this reference. No change to the Scope of Work, including any additional compensation, shall be effective or paid unless authorized by written amendment executed by the Town.

B. Contractor shall complete the Scope of Work within 16 days of the Town's issuance of a Notice to Proceed.

II. Term and Termination

This Contract shall commence on the Effective Date, and shall terminate when all the work described in the Scope of Work is completed to the Town's satisfaction, or upon the Town's providing Contractor with 30 days advance written notice, whichever occurs first; provided that the indemnification and warranty provisions of this Contract shall survive termination.

III. Compensation

Upon final acceptance by the Town of the work set forth in the Scope of Work, the Town shall pay Contractor an amount not to exceed **$139,547.83** (the "Contract Price"), subject to the requirements of C.R.S. § 38-26-107. If Contractor completes the Scope of Work for a lesser amount than the Contract Price, Contractor shall be paid the lesser amount.

IV. Ownership

Any materials, items, and work specified in the Scope of Work, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Work constitutes a "work made for hire." To the

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extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change such work without providing notice to or receiving consent from Contractor.

V. Keep Jobs in Colorado Act

Pursuant to the Keep Jobs in Colorado Act, C.R.S. § 8-17-101, *et seq.* (the "Act"), and the rules adopted by the Division of Labor of the Colorado Department of Labor and Employment implementing the Act (the "Rules"), Contractor shall employ Colorado labor to perform at least 80% of the work under this Contract and shall obtain and maintain the records required by the Act and the Rules. For purposes of this Section, "Colorado labor" means a person who is a resident of the state of Colorado at the time of this Contract, without discrimination as to race, color, creed, sex, sexual orientation, marital status, national origin, ancestry, age, or religion except when sex or age is a *bona fide* qualification. A resident of the state of Colorado is a person with a valid Colorado driver's license, a valid Colorado state-issued photo identification, or documentation that they have resided in Colorado for the last 30 days. Contractor represents that it is familiar with the requirements of the Act and the Rules and will fully comply with same. This Section shall not apply to any project for which appropriation or expenditure of moneys may be reasonably expected not to exceed $500,000 in the aggregate for any fiscal year.

VI. Miscellaneous

A. *Governing Law and Venue*. This Contract shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

B. *Integration*. This Contract and any attached exhibits constitute the entire agreement between Contractor and the Town, superseding all prior oral or written communications.

C. *Third Parties*. There are no intended third-party beneficiaries to this Contract.

D. *Notice*. Any notice under this Contract shall be in writing and shall be deemed sufficient when directly presented or sent pre-paid, first-class United States Mail to the Party at the address included on the first page of this Contract.

E. *Severability*. If any provision of this Contract is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

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F. *Modification*. This Contract may only be modified upon written agreement of the Parties.

G. *Assignment*. Neither this Contract nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

H. *Governmental Immunity*. The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

I. *Rights and Remedies*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Contract by the Town shall not constitute a waiver of any of the other terms or obligation of this Contract. The rights and remedies of the Town under this Contract are in addition to any other rights and remedies provided by law. The expiration of this Contract shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

J. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement or liability beyond the current fiscal year.

In Witness Whereof, the Parties have executed this Contract as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

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Contractor

By: DocuSigned by: Tim McWenie 39EA62F6410D4DD...

Tim McWenie, division manager

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of _____.

My commission expires:

(Seal)

_____
Notary Public

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Exhibit A
Scope of Work

This scope of work includes asphalt repairs at the Erie Community Center on general specifications provided by the Town of Erie and observation made by the contractor on June 2,2023 and in accordance with Gordian job order 20-TOE-0017.00. This work includes all parking areas on the west side of the Erie Community Center as well as Powers St. from the southern Erie Parkway entrance to the stop sign adjacent to the northern boundary of the parking lot as depicted in the included map view.

Crack Seal – small cracks

- Repair 6000 Ln. Ft. Of cracks 1/4 Inch To ¾ inch.
- Cracks to be power cleaned with compressed air and sealed with hot rubberized crack sealant. (alligatored areas are not included.)

Remove and replace - large cracks

- Remove and replace approximately 5446 sq/ft of failed asphalt to a depth of 6”.
- Compact existing base and pave with 6 inches of hot asphaltic surface course

Seal Coat

- Apply sealcoat finish and apply two 2 coats of seal PMM blended sealer by spray application on approx. 145,919 sq/ft.

Pavement Markings

- 680 SF Hashing
- 9 ADA markings
- 242 Stalls
- 2 Arrows
- 1200 SF White Cross Walk
- Qty 2- 10x18 Stop Bars

Exclusions

- This proposal is based on performing the work in 3 sections.
- Adhesion or bonding of seal coat materials is not warrantied in areas exposed to automotive fluids and/or other spills
- Estimate is for striping work to be performed over 3 phases. Additional MOB's required due to vehicles or equipment parked in scheduled work area subject to additional MOB fee (per MOB)

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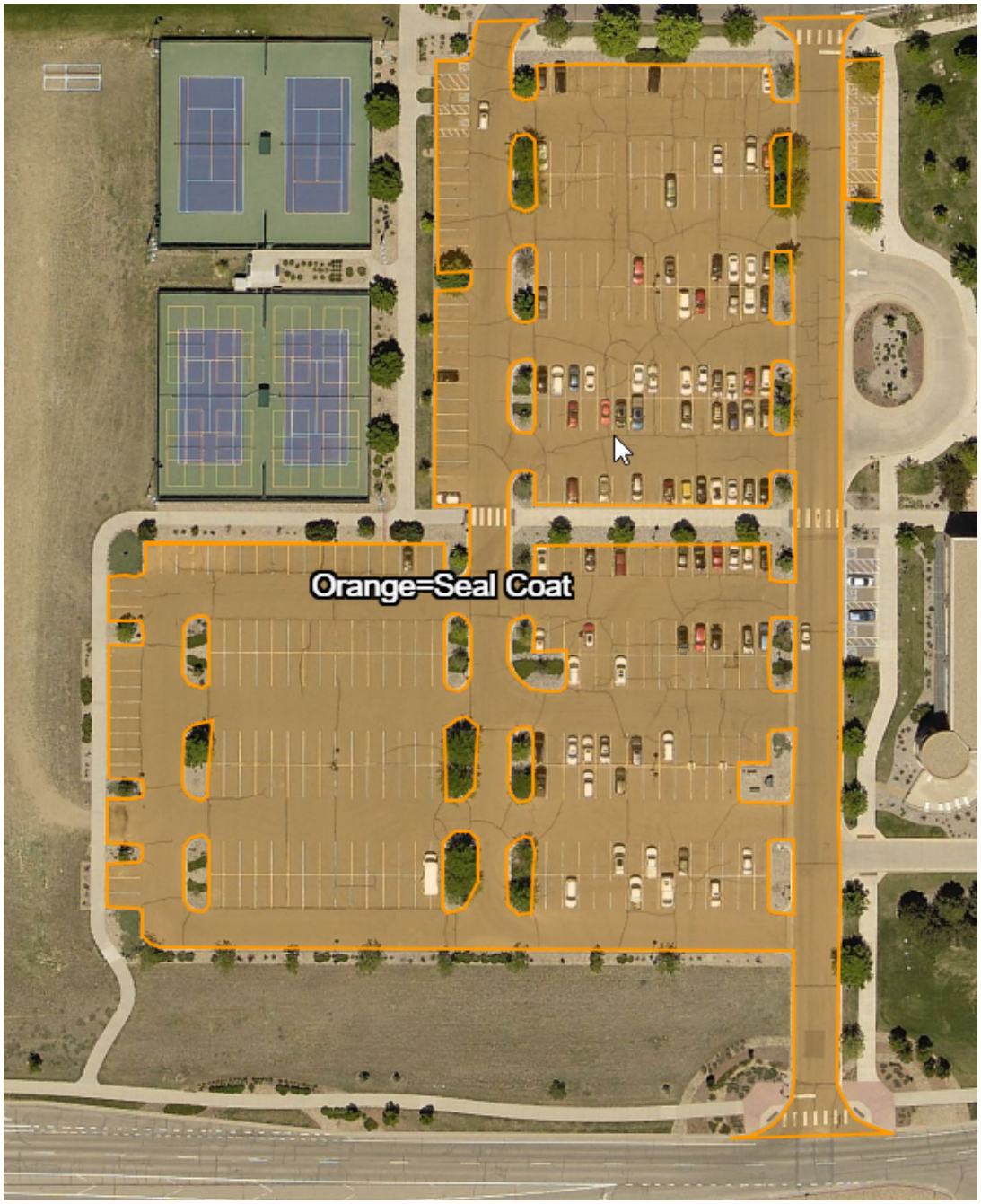

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Notice to Proceed

Date: _____

_____

Contractor Name

_____

Address

_____

_____

RE: ___Job Order Contract #_____

Dear _____:

This letter is your Notice to Proceed, effective as of the date cited below. This notice is in reference to the Construction Contract between you and the Town of Erie concerning the _____.

Please note that in accordance with the Construction Contract, Work must commence within 10 days of the date of this Notice, and all Work must be substantially completed within _____ (_____) days of the date of this Notice, which shall be the ___ day of _____, 2024, and finally completed within _____ days of the date of this Notice, which shall be the ___ day of _____, 20_.

If you have any questions, please call me at _____.

Sincerely,

_____

_____, Project Manager

_____

Date

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Certificate of Final Payment (submitted per Job Order)

With reference to Contract Number _____ dated _____, 2024, between the undersigned Contractor and the Town of Erie, for: Job Order Contract _____ at Erie, CO.

The undersigned hereby certifies that all costs, charges and expenses incurred by it on its behalf for work, labor, services, materials and equipment supplied to the foregoing premises, and/or used in connection with its Work under the Contract have been duly paid.

The undersigned further certifies that to its best knowledge and belief (based upon reasonable investigation) each of its subcontractors and material men have duly paid all costs, charges and expenses incurred by them or on their behalf for work, labor, services, materials and equipment supplied to the foregoing premises and/or used by them in connection with the Undersigned's Work under the Contract.

In consideration of $_____ representing final payment under the Contract, the undersigned hereby releases and discharges the Owner and Owner's property from all claims, liens and obligations of every nature arising out of or in connection with the performance of the Work.

As additional consideration for the final payment, and to the fullest extent permitted by law, the undersigned agrees to indemnify and hold harmless Owner from and against all costs, losses, damages, claims, causes of action, judgments and expenses arising out of or in connection with claims against Owner which may be asserted by the undersigned or any suppliers, subcontractors of any tier or any of their representatives, officers, agents and employees for the costs, losses, damages, claims, causes of action, judgments and expenses and expenses that are attributable to the act, omission, error, professional error, mistake, negligence or other fault of the undersigned.

The foregoing shall not relieve the Undersigned of its obligations under the provisions of the Contract as amended, which by their nature survive completion of the Work including, without limitation, warranties, guarantees and indemnities.

Executed this _____ day of _____, 2024.

_____
Contractor

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Certificate of Final Acceptance (Submitted per Job Order)

Date: _____

TO: _____ Project No.: _____

Project Title: _____

This is to advise you that a final inspection of the referenced Work has been made and all work and material was found to be satisfactory. Therefore, the Work is considered to be complete in accordance with the approved plans, specifications and contract documents.

In accordance with the Contract, all Warranty periods shall begin as of the date of this letter.

Town of Erie

By: _____

Title: _____

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General Provisions

Part 1. Definitions

1.01 Contract Documents:

A. Construction Contract;
B. General Provisions
C. Special Provisions;
D. Town of Erie Standard Specifications for the Design and Construction of Public Improvements;
E. Construction Task Catalog®;
F. Technical Specifications (Gordian);
G. Construction Drawings (if applicable);
H. Certificate of Insurance Verification;
I. Notice of Award;
J. Documentation submitted by Contractor prior to Notice of Award; and

Documents Submitted with Each Job Order:

A. Notice to Proceed;
B. Payment and Performance Bond;
C. Certificate of Final Payment; and
D. Final Acceptance Form.

1.02 Contract Amendment:

A written order issued by the Town after execution of the Contract authorizing a revision to the Contract as a whole.

1.03 Town:

The Town of Erie, Colorado.

1.04 Contract:

The entire written agreement covering the performance of the Work described in the Contract Documents.

1.05 Contract Price:

The amount set forth in Section 4 of the Construction Contract.

1.06 Contract Time:

The time for completion of the Work as set forth in Section 3 of the Construction Contract.

1.07 Day:

Calendar day, unless otherwise specified. When the last day for the occurrence of an event falls on a Sunday or legal holiday as recognized by the Town, the time for performance shall be automatically extended to the next business day.

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1.08 Final Completion:

The date as certified by the Project Manager when all of the Work is completed and final payment may be made.

1.09 Project Manager:

The Town's duly authorized representative in connection with the Work.

1.10 Subcontractor:

Any person, firm or corporation with a direct contract with Contractor who acts for or on behalf of Contractor in executing any part of the Contract, excluding one who merely furnishes material.

1.11 Substantial Completion:

The date as certified by the Project Manager when the Town occupies or takes possession of all or substantially all of the Work, or when the Town may occupy or take possession of all or substantially all of the Work and put it to beneficial use for its intended purposes.

1.12 Work:

All the work specified, indicated, shown or contemplated in the Contract Documents, including all alterations, amendments or extensions thereto made by supplemental agreements or written orders of the Project Manager.

Part 2. Time

2.01 Time of the Essence:

All times stated in the Contract Documents are of the essence.

2.02 Final Acceptance:

Upon Final Completion, the Project Manager will issue final acceptance.

2.03 Changes in the Work:

The Town reserves the right to order changes in the Work, in the nature of additions, deletions or modifications, without invalidating the Contract, and to make corresponding adjustments in the Job Order Price and the Job Order Completion Time. All changes shall be authorized by a written Supplemental Job Order signed by the Project Manager. The Supplemental Job Order shall include appropriate changes in the Job Order Proposal and the Job Order Completion Time. The Work shall be changed and the Job Order Price and Job Order Completion Time modified only as set forth in the written Supplemental Job Order. Any adjustment in the Job Order Price resulting in a credit or a charge to the Town shall be determined by mutual agreement of the parties before the work set forth in the Supplemental Job Order is commenced. If a Supplemental Job Order results in an increase in the Job Order Price, approval of the Erie Town Council shall be required, and if such approval is not obtained, the Town shall have no payment obligation regardless of whether the Work pursuant to the Supplemental Job Order has been performed.

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2.04 Delays:

A. If Contractor is delayed in the progress of the Work by fire, unusual delay in transportation, unanticipated adverse weather conditions, or other unavoidable casualties beyond Contractor's control other than unanticipated adverse weather conditions, the Contract Time shall be extended for a reasonable period of time. "Weather" means precipitation, temperature, or wind, and an "adverse weather condition" means weather that on any calendar day varies from the average weather conditions for that day by more than 100% as measured by the National Oceanic and Atmospheric Administration. The term "unanticipated adverse weather conditions" means the number of days in excess of the anticipated adverse weather days per month as set forth below:

Monthly Anticipated Adverse Weather Days

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	4	4	4	6	3	4	2	3	3	2	5

By reason of example only, if in March there are two days when the snowfall exceeds the average snowfall for that day by 100%, those two days will have experienced an adverse weather condition. However, there will have been no unanticipated adverse weather condition in March, because there are four anticipated adverse weather days in March, which should be accounted for in the schedule. If, however, there are 5 days in which the snowfall exceeds the average snowfall by 100%, an unanticipated adverse weather condition will have occurred, and Contractor shall be entitled to request an extension of Job Order Completion Time.

B. Any request for extension of the Job Order Completion Time shall be made in writing to the Project Manager not more than 7 days after commencement of the delay; otherwise it shall be waived. Any such request shall contain an estimate of the probable effect of such delay on the progress of the Work and should be contained in a Supplemental Job Order.

C. Contractor shall not be entitled to any increase in the Job Order Price, or to damages, or to additional compensation as a consequence of any such delays.

2.05 No Damages for Delay:

In strict accordance with C.R.S. § 24-91-103.5, the Town shall not amend the Contract Price or any Price associated with an individual Job Order to provide for additional compensation for any delays in performance which are not the result of acts or omissions of the Town or persons acting on behalf of the Town.

Part 3. Contractor's Responsibilities

3.01 Completion/Supervision of Work:

Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and licenses in

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good standing. The services performed by Contractor shall be in accordance with generally accepted professional practices and the level of competency presently maintained by others in the same or similar type of work, and in compliance with applicable laws, ordinances, rules and regulations. Contractor shall be responsible for completion of all Work in a timely and workmanlike manner in accordance with the terms and specifications of the Contract Documents, including the techniques, sequences, procedures and means. Contractor shall be responsible for the coordination of all Work. Contractor shall supervise and direct the Work and give it all attention necessary for proper supervision and direction. Contractor shall maintain a supervisor on site at all times when Contractor or any subcontractor is performing Work.

3.02 Duty to Inspect:

Contractor shall inspect all Contract Documents, tests and reports, including soil tests and engineering tests, if applicable, and shall conduct a site or field review prior to executing the Contract. Contractor assumes the risk of all conditions which are disclosed, or which are reasonably suggested by any such tests or reports, or which would be disclosed by a field or site review. Contractor shall have the affirmative duty to advise the Town of any concerns which Contractor may have regarding construction conditions prior to executing the Contract.

3.03 Furnishing of Labor and Materials:

A. Contractor shall provide and pay for all labor, materials and equipment, including: tools; construction equipment and machinery; utilities, including water; transportation; and all other facilities and services necessary for the proper completion of the Work.

B. In all purchases of supplies, materials and provisions to be incorporated or otherwise used by Contractor in the Work, Contractor shall use supplies, materials and provisions produced, manufactured or grown in Colorado if such supplies, materials and provisions are not of inferior quality to those offered by competitors outside of Colorado.

C. While engaged in the performance of the Work, Contractor shall maintain employment practices that do not violate the provisions of the Colorado Antidiscrimination Act of 1957, C.R.S. § 24-34-301, *et seq*.

3.04 Employees and Safety:

A. Contractor shall maintain at all times strict discipline of its employees, and Contractor shall not employ on the Work any person unfit or without sufficient knowledge, skill, and experience to perform properly the job for which the employee was hired.

B. Contractor shall be responsible to the Town for the acts, negligence and omissions of all direct and indirect employees and subcontractors. The Contract Documents shall not be construed as creating any contractual relation between any subcontractor and the Town.

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C. Contractor shall provide for and oversee all safety orders and precautions necessary for the safe performance of the Work. Contractor shall take reasonable precautions for the safety of all employees and others whom the Work might affect, all work and materials incorporated into the Work, and all property and improvements on the work site and adjacent property.

3.05 Cleanup:

A. Contractor shall keep the work site and adjoining ways free of waste material and rubbish. Contractor shall remove all waste material and rubbish daily during construction, together with all tools, equipment, machinery and surplus materials. Contractor shall, upon completion of its Work, conduct general cleanup operations on the work site, including the cleaning of all surfaces, paved streets and walks. Contractor shall also conduct such general cleanup operations on adjacent properties disturbed by the Work.

B. If Contractor fails to perform the cleanup required by this Section, after written notice, the Town may cause the cleanup to be performed at Contractor's expense. Upon receipt of a statement for such cleanup, Contractor shall pay to the Town the costs incurred by the Town for such cleanup, or the Town shall have the right to withhold said amount from any final payment due to Contractor.

3.06 Payment of Royalties and License Fees:

Contractor shall pay all royalties and license fees necessary for the Work, and to defend against all actions for infringement of copyright or patent rights, and to save and hold the Town harmless from such actions.

3.07 Taxes, Licenses and Permits:

Contractor shall pay all taxes imposed by law in connection with the Work and shall procure all permits and licenses necessary for the prosecution of the Work. Contractor shall obtain a Town tax-exempt number for exemption from the Town's sales tax.

3.08 Samples and Shop Drawings:

Contractor shall furnish, upon the request of the Project Manager, samples and shop drawings to the Project Manager, who shall review them for conformance with the Contract Documents.

3.09 Compliance with Laws and Regulations:

Contractor shall at all times comply with all applicable law, including without limitation all current and future federal, state and local statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, *et seq*. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, *et seq*.; the

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Resource Conservation and Recovery Act, 42 U.S.C. § 6901, *et seq*. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq.*; the Clean Water Act, 33 U.S.C. § 1251, *et seq.*; the Clean Air Act; the Federal Water Pollution Control Act; the Occupational Safety and Health Act; all applicable environmental statutes of the State of Colorado; and all other federal, state or local statutes, laws, ordinances, resolutions, codes, rules, regulations, orders or decrees regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, as now or at any time hereafter in effect.

3.10 Subcontractors:

A. Contractor shall furnish to the Project Manager at the time each Job Order Proposal is submitted, a list of names of subcontractors to whom Contractor proposes to award the portions of the Work to be subcontracted by Contractor.

B. Contractor shall not employ a subcontractor to whose employment the Town reasonably objects, nor shall Contractor be required to hire a subcontractor to whose employment Contractor reasonably objects.

C. All contracts between Contractor and subcontractor shall conform to the provisions of the Contract Documents and shall incorporate the relevant provisions of the Contract Documents.

3.11 Corrective Work:

When any Work does not conform to the Contract Documents, Contractor shall make the necessary corrections so that the Work will so conform, within the time period approved by the Project Manager. The Town's review, approval or acceptance of, or payment for any work shall not be construed as a waiver of any rights under this Contract or any cause of action arising out of the performance of this Contract.

3.12 Other Contracts:

The Town reserves the right to let other contracts in connection with the Work. Contractor shall cooperate with all other contractors so that their work is not impeded by the Work, and Contractor shall give other contractors access to the work site necessary to perform their contracts.

3.13 Communication:

Contractor shall direct all communications to the Town regarding the Work to the attention of the Project Manager.

Part 4. Termination

4.01 Labor Disputes:

Notwithstanding any other provision contained in this Contract, in the event of any picket or other form of labor dispute at the construction site, Contractor shall continue to perform the Work without interruption or delay. If Contractor ceases performance of the

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Work because of such picket or other form of labor dispute, the Town may terminate the services of Contractor after giving 48 hours' written notice of its intent to do so.

4.02 Default:

The Town may terminate this Contract upon 30 days' written notice to Contractor if Contractor defaults in the timely performance of any provision of the Contract Documents, or otherwise fails to perform the Work, or any part thereof, in accordance with the Contract Documents. Termination of the Contract by the Town shall not be the Town's exclusive remedy, and the Town may pursue such other remedies lawfully available to the Town including without limitation an action at law for damages against Contractor or any bonding agency issuing a bond hereunder, or an action in equity for injunctive relief.

Part 5. Warranties

5.01 Warranty of Fitness of Equipment and Materials:

Contractor represents and warrants to the Town that all equipment and materials used in the Work, and made a part of the Work, or placed permanently in the Work, shall be new unless otherwise specified in the Contract Documents. All equipment and materials used shall be of good quality, free of defects and in conformity with the Contract Documents. All equipment and materials not in conformity with the Contract Documents shall be considered defective.

5.02 General Warranty:

Contractor shall warrant and guarantee all material furnished and work performed by Contractor for a period of 2 years from the date of final acceptance of the Work by the Project Manager. Under this warranty, Contractor agrees to repair or replace, at its own expense and under the direction of the Project Manager, any portion of the Work which fails or is defective, unsound, unsatisfactory because of materials or workmanship, or which is not in conformity with the provisions of the Contract. Should Contractor fail to perform any such work within the warranty period after a request by the Town, the Town may withdraw from the Payment and Performance Bond any and all amounts necessary to complete the required work. The expiration of the warranty period shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

Part 6. Bonds, Insurance and Indemnification

6.01 Indemnification:

A. Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representatives, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, on account of injury, loss, or damage, including, without limitation, claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Contract or the Contract Documents, to the extent that such injury, loss or damage is attributable to the act, omission, error,

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professional error, mistake, negligence or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor, or which arise out of any worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor.

B. Contractor, to the fullest extent permitted by law, shall defend, investigate, handle, respond and provide defense for and defend against any such liability, claims, damages, losses, expenses or demands at the sole expense of Contractor, or at the option of the Town, Contractor agrees to pay the Town or reimburse the Town for defense costs incurred by the Town in connection with any such liability, claims, damages, losses, expenses or demands. Contractor, to the fullest extent permitted by law, shall defend and bear all other costs and expenses related thereto, including court costs and attorney fees, whether or not such liability, claims or demands alleged are groundless, false or fraudulent.

C. This indemnification provision is intended to comply with C.R.S. § 13-21-111.5(6) and shall be read as broadly as permitted to satisfy that intent. Contractor's liability under this provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor. If Contractor is providing architectural, engineering, surveying or other design services under this Contract, the extent of Contractor's obligation to defend, indemnify and hold harmless the Town may be determined only after Contractor's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement of the Parties, as provided by C.R.S. § 13-50.5-102(8)(c).

6.02 Notice of Claim:

If Contractor receives any claim arising from the performance of the Work, Contractor shall notify the Town in writing of the nature of the claim within 24 hours of receipt of the claim by Contractor. In this notice, Contractor shall provide evidence that Contractor has notified Contractor's insurer of the claim. Contractor shall keep the Town apprised of the disposition of the claim, and Contractor shall take all necessary action to resolve the claim and make restitution, if required, as quickly as possible.

6.03 Insurance:

A. Contractor agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Contractor pursuant to this Contract. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

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2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees, or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Contract.

6.04 Performance and Payment Bond:

Contractor shall furnish a Payment and Performance Bond in the full amount of the Job Order Price on all Job Orders valued $50,000 and above, as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents, including the warranty. This bond shall remain in effect at least until 2 years after the date of Final Completion.

Part 7. Payment

7.01 Progress Payments:

A. The Town shall make periodic progress payments to Contractor for all Job Orders that have a Job Order Completion Time of 45 days or less, or a Job Order Price of $25,000 or less. A progress payment shall be made only after Contractor has submitted an application for a progress payment on a form approved by the Project Manager, and if requested by the Project Manager, Contractor shall submit copies of invoices from subcontractors or supplies and partial waivers executed by each.

B. Progress payments shall be in an amount equal to 95% of the Work actually completed. Completed Work shall include materials and equipment not incorporated in the Work but delivered to the work site and suitably stored.

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C. If Contractor fails to complete any required Work within the time period agreed between Contractor and the Project Manager, or within any time period set forth in the Contract Documents, as modified or extended, the Town is expressly authorized to withhold any progress payment for such Work until such Work is completed.

D. For all other Job Orders, the Owner may make partial, monthly payments based on the percentage of the work completed.

7.02 Final Payment:

Upon final acceptance of the Work, the Town shall make final payment to Contractor pursuant to C.R.S. § 38-26-107.

7.03 Liquidated Damages:

A. Because time is of the essence and delayed performance causes a compensable, yet difficult to precisely ascertain, damage to the Town and its residents, the liquidated damages established in this Section shall be enforced. Such damages are not a penalty. For each day Final Completion is delayed after the Final Completion date stated in each Job Order Proposal, as modified through approved Supplemental Job Order(s), Contractor shall be assessed the following amounts which constitute a reasonable estimate of the actual damages such delay would cause the Town:

Value of Job Order	**Amount per day**
$0-$50,000	$350
$50,000-$100,000	$380
$100,000-$250,000	$440
$250,000-$500,000	$520
$500,000-$1,000,000	$640
$1,000,000-$2,000,000	$820
$2,000,000-$4,000,000	$1,080
$4,000,000-$8,000,000	$1,450
$8,000,000-$12,000,000	$1,820
$12,000,000 or greater	$2,250

B. Allowing Contractor to continue and finish the Work or any part thereof after the Final Completion date shall not operate as a waiver on the part of the Town of any of its rights under the Contract Documents. Any liquidated damages assessed shall not relieve Contractor from liability for any damages or costs of other contractors caused by a failure of Contractor to complete the Work in the Job Order Completion Time. Liquidated damages may be deducted from any

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payment due Contractor or the retainage. If the liquidated damages exceed the amount owed to Contractor, Contractor shall reimburse the Town.

7.04 Oral Agreements Prohibited:

This Contract is expressly subject to the provisions of C.R.S. § 29-1-110(1), and Contractor acknowledges that neither the Town nor any employee or agent thereof is authorized to expend or contract for the expenditure of any monies in excess of those appropriated by the Erie Town Council. The Town acknowledges that sufficient funds have been appropriated to pay the Contract Estimated Annual Value, but Contractor shall not rely upon the appropriation of any funds in addition to those already appropriated unless and until the same are lawfully appropriated by the Erie Town Council.

7.05 Items Not Included in Bid:

No additional compensation shall be paid for any costs or services listed in the Contract Documents but not specifically accounted for by Contractor in their bid Adjustment Factor(s).

7.06 Changes in Quantity:

A. Except as provided in Section 7.08, Contractor shall not be entitled to compensation for any increased expense, loss of expected reimbursement or loss of anticipated profits, directly or indirectly caused by any changes in quantity.

B. All other Changes in the Work shall be addressed by Section 8 of the Job Order Contract Special Conditions: Changes in the Work.

7.07 Bid Price Adjustments:

A. When a major item is increased to more than 125% or decreased below 75% of the original quantity stated in the original Job Order, the Price Proposal shall be modified by written Supplemental Job Order. Payment for major items shall be calculated by the terms of the Supplemental Job Order.

B. A "major spike" is defined as a spike in a specific material cost of more than 25% above what the cost of that material was on the date the Construction Task Catalog® was issued. If a major spike occurs, Contractor may submit a request for a price modification to a Unit Price or individual Job Order. To initiate such a request, Contractor shall:

1. Identify the specific material that has experienced a major spike;

2. Identify Pre-priced Task(s) or Job Orders that require the material experiencing a major spike; and

3. Demonstrate that the spike exists by submitting at least 3 quotes on material supplier letterhead to show that the current price is a "major spike".

C. The Town, after review of a request, may elect to adjust the Unit Price or Job Order by considering it a NPP item. The adjustment will be for the difference between the material cost at the time the Construction Task Catalog® was issued

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times the quantity stated in the Job Order. The adjustment will not include any other markup, and the NPP adjustment factor will not apply.

D. The Town, at its option, may also determine that a drastic decrease in a material cost warrants the same NPP adjustment downward in the Unit Price or a Job Order.

7.08 Eliminated Items:

Should any items contained in the Job Order Price Proposal be found unnecessary for completion of the Work, the items shall be eliminated. The Job Order Price shall be modified through written Supplemental Job Order, and the amount of the Supplemental Job Order shall be the eliminated quantity multiplied by the unit price stated in the Construction Task Catalog®, minus any reasonable costs incurred by Contractor for the eliminated items. Reasonable costs shall be determined by the Project Manager based on information provided by Contractor and may include mobilization of eliminated materials and equipment mobilization costs, if the sole purpose of the equipment was to place the eliminated material. In no case shall the costs exceed the amount of the eliminated items.

7.09 Materials Stored But Not Incorporated:

Payments may be made to Contractor for materials stored on the work site but not incorporated into the Work as evidenced by invoices or cost analyses of material produced, if the material has been fabricated or processed and is ready for installation into the Work and conforms with the Contract Documents. Payments shall not exceed 85% of the price shown in the Job Order or 100% of the certified invoice cost of the stockpiled material, whichever is less. Payment for stockpiled materials shall not relieve Contractor of responsibility for loss or damage to the material. Payment for living plant materials or perishable materials shall not be made until the living or perishable material is made an integral part of the finished Work.

7.10 Cost Records:

Contractor shall make cost records available to the Town if the Town deems it necessary to determine the validity and amount of any item claimed.

Part 8. Miscellaneous

8.01 Publications:

Any and all publications relating to the Work and authored by Contractor or any of its subcontractors shall be submitted to the Town for its prior written approval of the content of the publication. If the Town disapproves of the content of the publication, the author shall withdraw it from publication. The term "publication" as used herein shall include articles or letters to be published in any newspaper, magazine, trade journal or other periodical.

8.02 Confidentiality:

Any and all reports, information, date, statistics, forms, designs, plans, procedures, systems, studies and any other communication form of knowledge given to or prepared

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or assembled by Contractor under this Contract shall, to the extent permitted by law, be kept as confidential and not be made available by Contractor to any individual, company or organization without the prior written consent of the Town. Notwithstanding the foregoing, Contractor shall not be restricted from releasing information in response to a subpoena, court order, or legal process, but Contractor shall notify the Town in writing before responding.

8.03 Independent Contractor:

Contractor, for all purposes arising out of this Contract, is an independent contractor and not an employee of the Town. It is expressly understood and agreed that Contractor shall not be entitled to any benefits to which the Town's employees are entitled, such as overtime, retirement benefits, worker's compensation, injury leave or other benefits.

8.04 Conflicts:

Should any conflict arise in the Contract Documents, the order of precedence is as follows:

1. Contract Modifications (later takes precedence over earlier).
2. Construction Contract.
3. Addenda.
4. Job Orders (including Detailed Scopes of Work, Job Order Proposals and any Supplemental Job Orders).
5. Job Order Contract Special Conditions.
6. Request for Bids.
7. Special Provisions.
8. General Provisions.
9. Town Technical Specifications.
10. Standards and Specifications for Design and Construction of Public Improvements. *Most recent iteration.
11. Construction Task Catalog®.
12. Gordian Technical Specifications.
13. Supplemental Specifications.
14. Detailed Plans (Calculated dimensions will govern over scaled dimensions).

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Special Provisions

1. General.

   A. All labor, services, material, and other work necessary for construction shall be provided by Contractor, including without limitation: managing the budget; scheduling and coordinating work meetings; conducting field tests and geotechnical studies; preparing exhibits and participating in formal and informal public meetings at locations provided by the Town; and timely processing field orders, change orders, Supplemental Job Orders and notices of substantial completion.

   B. Contractor shall carefully examine all Work, and shall be solely responsible for the character, quality, and quantities of Work, materials, and compliance with the Contract Documents.

   C. Contractor shall identify any and all necessary easements for construction and maintenance of the Work.

2. Other Regulations.

   A. Contractor shall ensure that the Work is in compliance with the Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual, CDOT Specifications, AASHTO Specifications, International Building Code, Uniform Plumbing Code, Uniform Mechanical Code, National Electrical Code, Americans with Disabilities Act, and other applicable codes and specifications.

   B. In case of any discrepancy between any of the requirements set forth in the Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual, CDOT Specifications, AASHTO Specifications, International Building Code, Uniform Plumbing Code, Uniform Mechanical Code, National Electrical Code, Americans with Disabilities Act, and these Contract Documents, the more stringent requirement shall apply. If any questions arise as to which requirement is more stringent than another, the Project Manager shall be authorized to determine which is more stringent, and the Project Manager's decision shall be final.

3. Representatives. Contractor shall have at the work site at all times as its agent, a competent superintendent capable of reading and thoroughly understanding the Contract Documents and being thoroughly experienced in the type of work being performed. The Town shall have a representative on the job site to observe work for conformance with the Contract Documents (Job Order(s)).

4. Work Administration. The Town shall administer the Work, including the finalization of all Job Orders, any Supplemental Job Orders, pay estimates and payments of such, acceptance of work, and other matters as stipulated in the Contract Documents.

5. Engineer. The Engineer for this Work shall be the Town Engineer.

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6. Inspections and Testing.

A. Contractor shall be responsible for performing materials testing. In addition to the materials testing performed by Contractor, the Town may conduct Quality Assurance testing at its own discretion.

B. Contractor shall coordinate its construction schedule with the testing agency and Town so that key inspection points may be observed. If Contractor fails to provide reasonably adequate notice or proceeds without the required inspection, the subject work shall be re-exposed or redone in its entirety, while the inspector is present. No extra compensation shall be awarded to Contractor for extra work due to Contractor's failure to coordinate inspections with the testing agency or the Town. All costs associated with Contractor's failure to coordinate inspections shall be borne by Contractor.

C. Contractor shall perform construction inspections. Contractor shall attend any pre-construction meeting(s) and be available to provide technical assistance during the course of construction as necessary. Contractor shall provide site visits and reviews upon request from the Town during the construction phase to ensure compliance with the intent of the plans and to resolve any potential conflicts. Contractor shall provide a written summary after each site visit.

D. Contractor shall be responsible for scheduling the final inspection with the Town.

7. Construction Schedule.

A. At the time of the Pre-construction Conference (Joint Scope Meeting), Contractor shall prepare and submit to the Town for review a construction schedule including: proposed daily construction hours; details of all construction items; start and finish dates; confirmation and dates for coordinating all utility relocation and/or interruptions; and the same information for all subcontractor(s). The schedule shall not be changed without prior notification and review by the Town. The schedule shall be in the form of a chart of suitable scale to indicate approximately the percentage of Work scheduled for completion at any time. Contractor shall enter on the chart the actual progress at the end of each 2-week interval as directed by the Town and shall deliver to the Town 3 copies thereof on a biweekly basis.

B. Contractor shall also prepare and submit a schedule of the anticipated manpower by title and duty. The manpower shall be adequate for orderly flow of work and completion within the time specified in the Contract Documents.

C. All construction activities shall be coordinated with the Project Manager.

8. Saturday, Sunday, Holiday and Night Work.

A. The majority of work shall be performed during Normal Working hours as described in the Bid Schedule. Normal Working hours is work performed including the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except for Town

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holidays. If Work is identified outside of those hours and days, it will be deemed as Other than Normal Working hours, which shall include the hours of 6:00 p.m. to 7:00 a.m., Monday through Friday and all day Saturday, Sunday and Town Holidays. Lane closures are restricted to 8:30 a.m. to 3:30 p.m. on arterial and collector streets, except for such work as may be necessary for proper care, maintenance, and protection of Work already completed, or in cases where the Work would be endangered or if hazards to life or property would result.

B. If Contractor and Town agree it is necessary to perform work on Saturdays, Sundays, holidays, or at night, Contractor shall make prior arrangements with the Town and receive written approval at least 48 hours before such time. Such approval may be revoked by the Town if Contractor fails to maintain adequate equipment and lighting at night for the proper control, and inspection of the work. If Work is performed without the Town's prior approval, and as a result the Town had not assigned inspectors to the work, the Town may declare Work performed during this period of time defective.

9. Progress Reports.

A. Progress reports and progress/manpower schedules shall be updated and submitted to the Project Manager at the end of each 2-week period, or at such other times as the Project Manager may request. Contractor shall also forward to the Project Manager, at the end of each month, an itemized report of the delivery status of major and critical items of purchased equipment and material, including shop drawings and the status of shop and field fabricated work.

B. If the completion of any part of the Work or the delivery of materials is behind the approved schedule, Contractor shall submit a plan acceptable to the Project Manager for bringing the Work up to schedule. The Town shall have the right to withhold progress payments for the work if Contractor fails to update and submit the progress/manpower schedule and reports as specified.

10. Pre-construction Conference. See Section 5.4 of the Job Order Contract Special Conditions for Joint Scope Meeting Conference requirements.

11. Permit Fees. All fees for permits issued by the Town shall be waived.

12. Existing Utilities.

A. The Work shall be coordinated with all impacted utility companies, districts, associations, agencies, and residents located in the work site. Contractor shall conduct the meeting and provide summary minutes.

B. Contractor shall determine the actual location of all existing utilities prior to starting any Work. Contractor shall contact utility companies for field locations prior to the start of Construction Work and shall contact all utilities at least 48 hours prior to beginning excavation and/or grading. If the exact location and depth of existing underground utilities are unknown, Contractor shall perform all necessary exploratory excavation to locate these facilities which may affect the Work prior to beginning construction. Contractor shall obtain required locates and

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Contractor shall include the information on the plans. Contractor shall resolve any utility discrepancies. Contractor shall be liable for all damage done to existing utilities in the performance of the Work.

C. If Contractor requests that utility companies relocate utilities for Contractor's convenience, such relocation shall be at Contractor's expense.

D. The time of performance under the Contract shall not be extended to account for repair of utilities which are damaged by Contractor.

13. Water and Electricity. Contractor shall provide and maintain, at its own expense, an adequate supply of water and electricity required for the Work. Contractor shall install and maintain supply connections and lines satisfactory to the Project Manager, and prior to Final Completion, Contractor shall remove the supply lines at its expense.

14. Dust Control. Contractor shall use measures to prevent and control dust within the area affected by the Work. No additional compensation shall be paid to Contractor for dust control. Contractor shall clean any soil, dirt, or debris tracked onto any adjacent streets. Within 24 hours of notification by the Town that any adjacent streets require cleaning, Contractor shall clean such streets or the Town may have the streets cleaned and deduct the cost of such cleaning from the Contract Price.

15. Construction Staging Areas. All construction staging areas shall be located within the work site. The boundaries of construction staging areas shall be approved by the Town. Construction staging areas shall be used for material storage, parking for equipment, and employees' vehicles. A construction trailer shall not be required, but may be used if the location of the trailer is approved by the Town. Upon Final Completion, all staging areas shall be clean and restored to their original condition. No additional compensation shall be provided to Contractor for cleaning of construction staging areas.

16. Sanitary Facilities.

A. Sanitary convenience for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers and in such a manner and at such points as approved by the Town. The contents shall be removed and disposed of in a satisfactory manner.

B. The sanitary conveniences specified above shall be the obligation and responsibility of Contractor. The facilities shall be made available to all other contractors, subcontractors, and inspection personnel in the work site.

C. Contractor shall supply sufficient drinking water from approved sources to all of its employees.

D. Full compensation for compliance with this Section is included in the Job Order Price, and no additional compensation shall be provided.

17. Soils Investigations and Foundation Engineering. Contractor shall be responsible for all geotechnical investigations necessary to design and perform the Work.

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18. Lines and Grades. Contractor shall lay out the Work and shall be responsible for all measurements in connection therewith. Contractor shall, at its own expense, furnish all stakes, templates, platforms, equipment, and labor, including surveyors, that may be required in setting and cutting or laying out any part of the Work. Contractor shall be responsible for the proper execution of the Work to such lines and grades.

19. Traffic Control.

A. Contractor shall furnish all necessary flag persons; erect and maintain warning lights, advance warning signs, detour signs, barricades, temporary fence, and sufficient safeguards around all excavations, embankments, obstructions; and perform any other work necessary for the protection of all work being performed, and for the safety of the public and pedestrian traffic, as well as motor vehicles. All signs and barricades shall conform to the current Manual on Uniform Traffic Control Devices.

B. At the Pre-construction Conference, Contractor shall submit a traffic control plan for review by the Town. The plan shall discuss the traffic control measures proposed for the safety of vehicular and pedestrian traffic through the work site.

C. Contractor shall at all times take proper precautions for the protection of and replacement or restoration of landscaping, driveway culverts, street intersection culverts or aprons, irrigation crossings and systems, mailboxes, driveway approaches, signs, existing utilities, and all other public and private installations that may be encountered during the Work.

D. No driveway or private alley shall be blocked without prior written permission from the resident who would be affected by such blocking, with a copy to the Town.

E. No road shall be closed at any time.

F. Contractor shall advise the Police Department, school districts, trash services, and homeowners of any lane closures, including dates and times.

G. It shall be Contractor's responsibility to: maintain, protect, and control traffic in the vicinity of and in the work site; restrict parking on streets near the work site; and provide necessary parking areas for all employees in suitable locations as approved by the Town.

20. Archaeological and Historical Discoveries.

A. Contractor shall inform the Town of any evidence which might suggest to a layperson that archaeological or historical materials may be present in the work site. Upon making such a discovery, Contractor shall do whatever is necessary to avoid disturbing the work site. This may require that Contractor's activities be redirected or stopped until the Town determines how to proceed.

B. As a result of Contractor's efforts to preserve the potential discovery at the work site, if Contractor's activities are delayed for longer than 8 normal work

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hours, Contractor shall prepare accounting information to support an adjustment to the Job Order Price.

21. Water Control.

A. Contractor shall take such precautions as necessary to construct the Work in a dry condition, and Contractor shall provide for drainage, dewatering, and control of all surface and subsurface water and shall erect any necessary temporary structures or other facilities at its own expense.

B. Contractor, at its own expense, shall furnish all necessary equipment and materials required to control the surface and subsurface water in all the areas from the commencement of Work through Final Completion.

C. Contractor shall be responsible for furnishing, transporting, and installing all materials and equipment, well points, pumping, channelization, diversion, damming, or other means of controlling surface water and ground waters.

22. Disposal Site.

A. Contractor shall be responsible for the removal of all excess excavation, debris, deleterious material, muck, asphalt, concrete, trees, stumps, remains from clearing and grubbing, and all other materials not used for the construction of the improvements. Costs of disposal are included in the Job Order Price and shall not entitle Contractor to additional compensation. Contractor shall designate in writing a disposal site located outside the Town limits and acceptable to the Town.

B. Contractor's cost for loading, hauling, daily cleaning of streets, disposal of the earthwork (excavation) materials, together with the construction, maintaining and watering of haul roads, and dump fees and permits are included in the Job Order Price and shall not entitle Contractor to additional compensation.

23. Video Prior to Construction. Contractor shall provide the Town with a video of the entire work site prior to beginning construction, including all adjacent areas, at Contractor's own expense. One copy of the video shall be provided to the Town and become the property of the Town prior to the commencement of any Work.

24. Existing Improvements and Restoration.

A. Contractor has field inspected the work site and fully understands that existing landscaping and improvements are present within the work site. Such existing improvements shall be protected. Any damage or disruption in the public right-of-way, drainage easements, Town property, or private property related to the Work shall be restored to pre-existing or better condition.

B. Contractor shall be responsible for replacing all existing improvements, including irrigation systems and landscaping, damaged during Contractor's activities, except as otherwise provided in the Contract Documents.

25. Erosion Control. Contractor shall provide an erosion/sediment control plan for use during construction. The plan shall include site specific details showing the type,

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location, and quantity of BMP's to be used. The erosion/sediment control plan shall be designed to prevent sediment from leaving the construction area. Special attention shall be given to prevent sediment from entering into any wetland area.

26. Vandalism. Contractor shall take all necessary steps to protect the work site from vandalism. Contractor shall be solely responsible to repair any damage caused by vandalism, including the removal of graffiti, at Contractor's own cost. The Contract Price or Job Order Price shall not be increased to reimburse Contractor for such costs.

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Job Order Contract (JOC) Special Conditions

The following clarifications and modifications apply to the General, Supplemental and Special Provisions:

a) When the term "Contract" is used to describe the Work associated with an individual project, the term "Contract" shall be replaced with "Job Order".

b) When the term "Contract Time" is used to describe the duration associated with an individual project, the term "Contract Time" shall be replaced with "Job Order Completion Time".

c) When the term "Contract Sum or Price" is used to describe the value associated with an individual project, the term "Contract Sum or Price" shall be replaced with "Job Order Price".

d) The Job Order Price shall set forth the fixed price, lump sum amount for which Contractor is paid to complete the Detailed Scope of Work. Unless specifically stated for a Job Order, estimated quantities, lists of materials and bid prices shall not apply, the descriptions as related to costs and payment shall not apply, and the payment sections within the individual sections shall not apply.

e) All references to "Bid Items" shall be interpreted to mean Work tasks necessary to complete the Detailed Scope of Work.

f) All references to "change order work", "extra work", "force account work", and any other descriptions to changes to the Detailed Scope of Work shall be interpreted to mean work described in a Detailed Scope of Work of a Supplemental Job Order.

g) The Construction Task Catalog® shall govern the work included in the Unit Price of a Pre-Priced Task.

1. Definitions

1.1. **Adjustment Factor -** A competitively bid adjustment to be applied to the Unit Prices listed in the Construction Task Catalog®.

1.2. **Award Criteria Figure** - The amount determined in the Award Criteria Figure Calculation section of the Bid Form, which is used for the purposes of determining the lowest Bid.

1.3. **Base Term** - The initial period of the Contract and does not include any Option Terms.

1.4. **Construction Task Catalog® -** A comprehensive listing of construction related tasks together with a specific unit of measure and a published Unit Price.

1.5. **Detailed Scope of Work -** A document setting forth the work Contractor is obligated to complete for a particular Job Order.

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1.6. **Estimated Annual Value -** An estimate of the value of Job Orders that could be issued to Contractor each year.

1.7. **Job Order** - A written order issued by the Town, such as a Purchase Order, requiring Contractor to complete the Detailed Scope of Work within the Job Order Completion Time for the Job Order Price. A project may consist of one or more Job Orders.

1.8. **Job Order Completion Time -** The time within which Contractor must complete the Detailed Scope of Work.

1.9. **Job Order Price -** The value of the approved Job Order Price Proposal and the amount Contractor will be paid for completing a Job Order.

1.10. **Job Order Price Proposal -** A price proposal prepared by Contractor that includes the Pre-priced Tasks, Non Pre-priced Tasks, quantities and appropriate Adjustment Factors required to complete the Detailed Scope of Work.

1.11. **Job Order Proposal -** A set of documents including at least: (a) Job Order Price Proposal; (b) required drawings or sketches; (c) list of anticipated Subcontractors and Materialmen; (d) Construction schedule; and (e) other requested documents.

1.12. **Joint Scope Meeting -** A site meeting to discuss the work before the Detailed Scope of Work is finalized.

1.13. **Non Pre-priced Task -** A task that is not set forth in the Construction Task Catalog®.

1.14. **Normal Working Hours -** Normal Working hours is work performed including the hours of 7:00 a.m. to 6:00 p.m., Monday-Friday, except for Town holidays.

1.15. **Notice to Proceed -** A written notice issued by the Town directing Contractor to proceed with construction activities to complete the Job Order.

1.16. **Option Term -** An additional period of time beyond the Contract Time which extends the termination date of the Contract.

1.17. **Other than Normal Working Hours-** Include the hours of 6:00 p.m. to 7:00 a.m., Monday-Friday and all day Saturday, Sunday and Town Holidays.

1.18. **Pre-priced Task -** A task described in, and for which a Unit Price is set forth in, the Construction Task Catalog®.

1.19. **Project** - The collective improvements to be constructed by Contractor pursuant to a Job Order, or a series of related Job Orders.

1.20. **Request for Proposal -** A written request to Contractor to prepare a Proposal for the Detailed Scope of Work referenced therein.

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1.21. **Secured Facilities –** Any facility deemed to be "Secured" by the Town will require, at a minimum, tool inventory and a series of check in procedures. For each facility, the Town Project Manager shall determine and communicate the access and egress requirements in each request for Job Order Proposal.

1.22. **Supplemental Job Order** - A secondary Job Order developed after the initial Job Order has been issued for the purpose of changing, deleting, or adding work to the initial Detailed Scope of Work, or changing the Job Order Completion Time.

1.23. **Unit Price -** The price published in the Construction Task Catalog® for a specific construction or construction related work task. Unit Prices for new Pre-priced Tasks can be established during the course of the Contract and added to the Construction Task Catalogs®. Each Unit Price is comprised of labor, equipment, and material costs to accomplish that specific Pre-priced Task.

2. Contractor Selection

2.1. Job Order Contracting: The Town may award an individual Job Order to any selected Contractor. Selection of Contractor and award of the Job Order will be in compliance with established Town procedures and based on one or more of the following criteria:

2.1.1. Rotational selection among all contractors, unless otherwise determined by the Town.

2.1.2. Evaluation of past and current performance on Job Orders of a similar nature and type of work, project size, construction management challenges, schedule performance, and design management.

2.1.3. Balancing Job Order volume among contractors.

2.1.4. Price, as determined by the Adjustment Factors of contractors.

2.1.5. Limitations posed by bonding capacity of the contractors.

2.1.6. Other appropriate criteria as deemed in the best interest of the Town.

3. Contractor's Personnel

3.1. Contractor shall assign a full-time person as its representative for this Contract. This person shall be acceptable to the Town and shall have a cell phone at which they can be reached at all times.

3.2. Contractor shall have an office with the Town or within the County in which the work is being completed, or if the office is located in another location, offices will be approved at the Town's discretion.

3.3. Contractor shall also have at all times an Office Manager and a Superintendent assigned to this Contract. Additional staff will be provided depending on the volume of work. For each Job Order issued, Contractor shall identify the Superintendent responsible for that Job Order. The

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Superintendent shall be reachable 24 hours a day, 7 days a week. If the named Superintendent is not available because of illness or vacation or the like, Contractor shall notify the Town of a substitute Superintendent. At all times, Contractor shall provide at least one Superintendent for every 4 Job Orders. Whenever, in the sole discretion of the Town, Contractor is not providing a sufficient level of supervision, the Town may direct Contractor to increase the level of supervision for any or all projects, including but not limited to the right to direct Contractor to assign a full time, dedicated Superintendent for any project; submit daily management, inspection, activity, and planning reports; substitute subcontractors; submit daily photographs of the work in place and the work areas prepared for the next day's work; and develop a site specific quality control program, all at no cost to the Town.

4. Procedure for Ordering Work

4.1. Conduct the Joint Scope Meeting

4.2. As the need exists, the Town will notify Contractor of a Project, schedule a Joint Scope Meeting and issue a Notice of Joint Scope Meeting.

4.3. Contractor does not have the right to refuse to perform any Project, Pre-priced Task, or Non Pre-priced Task.

4.4. Contractor shall attend the Joint Scope Meeting and discuss, at a minimum:

4.4.1. The work to be performed;

4.4.2. Presence of hazardous materials;

4.4.3. Job Order specific Insurance (if any);

4.4.4. Required permits – including drawings for permits;

4.4.5. Long lead time materials;

4.4.6. Protocol for workers entering the site;

4.4.7. Staging area and areas that are off-limits;

4.4.8. Construction schedule and work hours – with critical milestones and phasing requirements;

4.4.9. Controlled inspections, testing requirements;

4.4.10. Value Engineering suggestions;

4.4.11. Organization of Price Proposal – by location, by corner, etc.;

4.4.12. Due Date for Detailed Scope of Work and for Price Proposal; and

4.4.13. The Traffic Control Plan, if required

4.5. Upon completion of the joint scoping process, the Town will prepare a draft Detailed Scope of Work referencing any sketches, drawings, photographs,

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and specifications required to document accurately the work to be accomplished. Contractor shall review the Detailed Scope of Work and request any required changes or modifications. When an acceptable Detailed Scope of Work has been prepared, the Town will issue a Request for Proposal that will require Contractor to prepare a Job Order Proposal. The Detailed Scope of Work, unless modified by both Contractor and the Town, will be the basis on which Contractor will develop its Job Order Proposal and the Town will evaluate the same. Contractor does not have the right to refuse to perform any task or any work in connection with a particular Project.

4.6. The Town may, at its option, include quantities in the Detailed Scope of Work if it helps to define the Detailed Scope of Work, if the actual quantities required are not known or cannot be determined at the time the Detailed Scope of Work is prepared, if Contractor and the Town cannot agree on the quantities required, or for any other reason as determined by the Town. In all such cases, the Town shall issue a Supplemental Job Order adjusting the quantities appearing in the Detailed Scope of Work to the actual quantities.

4.7. If Contractor requires additional information to clarify the Detailed Scope of Work before preparing the Job Order Proposal, Contractor shall make such request quickly so that the Job Order Proposal can be submitted on time.

5. Preparation of a Job Order Proposal

5.1. Contractor's Job Order Proposal shall include, at a minimum:

5.1.1. Job Order Price Proposal;

5.1.2. Support documentation for Non Pre-priced Tasks;

5.1.3. Required drawings or sketches;

5.1.4. List of anticipated Subcontractors including a MBE/WBE Certification;

5.1.5. Construction schedule; and

5.1.6. Other requested documents.

5.2. The Job Order Price shall be the value of the approved Job Order Price Proposal.

5.3. The value of the Job Order Price Proposal shall be calculated by summing the total of the calculations for each Pre-priced Tasks (Unit Price x quantity x Adjustment Factor) plus the value of all Non Pre-priced Tasks.

5.4. Contractor shall prepare Job Order Price Proposals in accordance with the following:

5.4.1. Pre-priced Task: Contractor shall select the appropriate Pre-priced Tasks, enter the accurate quantities, and select the appropriate Adjustment Factor to be used for each such Pre-priced Task. Contractor shall use the Adjustment Factors in effect on the date the

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Price Proposal is due, even though the Job Order may be issued after the Adjustment Factors have been updated.

5.4.2. Non Pre-priced Task: A task that is not set forth in the Construction Task Catalog®. The final price submitted for Non Pre-priced Tasks shall be according to the following formula:

For Non Pre-priced Tasks Performed with Contractor's own forces:

A = The hourly rate for each trade classification not in the Construction Task Catalog® multiplied by the quantity;

B = The hourly, weekly, or monthly rate for each piece of equipment not in the Construction Task Catalog® multiplied by the quantity;

C = Lowest of three independent quotes for all materials.

Total for Non Pre-priced Tasks performed with Contractor's own forces = (A+B+C) x Non Pre-priced Task Adjustment Factor

For Non Pre-priced Tasks Performed by subcontractors:

If the Non Pre-priced Task will be subcontracted, Contractor must submit three independent quotes for the work.

D = Lowest of 3 subcontractor quotes. If 3 quotes are not attainable, Contractor may submit less than 3 with a letter of justification explaining the circumstances.

Total for Non Pre-priced Tasks performed by subcontractors = D x Non Pre-priced Task Adjustment Factor

5.4.3. Information submitted in support of Non Pre-priced Tasks shall include the following without limitation:

5.4.3.1. Catalog cuts, specifications, technical data, drawings, or other information as required to evaluate the task.

5.4.3.2. If Contractor will perform the work with its own forces, it shall submit three independent quotes for all material to be installed and shall, to the extent possible, use Pre-priced Tasks for labor and equipment from the Construction Task Catalog®. If the work is to be subcontracted, Contractor shall submit 3 independent quotes from subcontractors. Contractor shall not submit a quote or bid from any supplier or subcontractor that Contractor is not prepared to use. The Town may require additional quotes and bids if the suppliers or

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subcontractors are not acceptable or if the prices are not reasonable. If 3 quotes or bids cannot be obtained, Contractor will provide the reason in writing for the Town's approval.

5.4.3.3. After a Non Pre-priced Task has been approved by the Town, the Unit Price for such task will be established, following approval by the Town, and fixed as a permanent Non Pre-priced Task which will no longer require price justification.

5.4.3.4. The Town's determination as to whether a task is a Pre-priced Task or a Non Pre-priced Task shall be final, binding and conclusive as to Contractor.

5.5. Whenever, because of trade jurisdiction rules or small quantities, the cost of a minor task in the Job Order Price Proposal is less than the cost of the actual labor and material to perform such task, the Town may permit Contractor to be paid for such task as a Non Pre-priced Task, or use Pre-priced labor tasks and material component pricing to cover the actual costs incurred; provided, however, that there is no other work for that trade on the Project or other work for that trade cannot be scheduled at the same time and the final charge does not exceed $1,000.

5.6. Contractor shall make the necessary arrangements for and obtain all filings and permits required for the Work, including the preparation of all drawings, sketches, calculations and other documents and information that may be required therefor. If Contractor is required to pay an application fee for filing a project, a fee to obtain a building permit, or any other permit fee to the City, State or some other governmental or regulatory agency, then the amount of such fee paid by Contractor for which a receipt is obtained shall be treated as a Reimbursable Task to be paid without mark-up. The cost of expediting services or equipment use fees are not reimbursable.

5.7. Contractor shall provide incidental engineering and architectural services required in connection with a particular Job Order including drawings and information required for filing.

5.8. Contractor's Job Order Proposal shall be submitted by the date indicated on the Request for Proposal. All incomplete Job Order Proposals shall be rejected. The time allowed for preparation of Contractor's Job Order Proposal will depend on the complexity and urgency of the Job Order but should average between 7 and 14 days. On complex Job Orders, such as Job Orders requiring incidental engineering/architectural drawings and approvals and permits, allowance will be made to provide adequate time for preparation and submittal of the necessary documents.

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5.9. In immediate response situations and minor maintenance and repair Job Orders requiring immediate completion, the Job Order Proposal may be required quickly and the due date will be so indicated on the Request for Proposal or, as described below, Contractor may be directed to begin work immediately with the paperwork to follow.

5.10. For purposes of Using the Construction Task Catalog®, the project site is defined as the exterior perimeter of a building. For work not performed in a building, the project site is defined as the limits of the work area.

5.11. By submitting a Job Order Proposal to the Town, Contractor agrees to accomplish the Detailed Scope of Work in accordance with the Request for Proposal at the price submitted. It is Contractor's responsibility to include the necessary tasks and quantities in the Job Order Price Proposal and apply the appropriate Adjustment Factor(s) prior to delivering it to the Town.

5.12. If Contractor requires clarifications or additional information regarding the Detailed Scope of work in order to prepare the Job Order Proposal, the request must be submitted so that the submittal of the Job Order Proposal is not delayed.

5.13. If Contractor is required to work in a secured facility or location where labor, materials, and equipment must be inspected, Contractor will be permitted to add labor hours to the Job Order Price Proposal to account for lost time as a result of such inspection.

6. Review of the Job Order Proposal and Issuance of the Job Order

6.1. The Town will evaluate the entire Job Order Price Proposal and compare these with the Town's estimate of the Detailed Scope of Work to determine the reasonableness of approach, including the appropriateness of the tasks and quantities proposed. All incomplete Job Order Proposals will be rejected. The Town will review the Price Proposal to determine the accuracy of the Pre-priced Tasks, quantities, Adjustment Factors, and Non Pre-priced Tasks.

6.2. Contractor may choose the means and methods of construction; subject however, to the Town's right to reject any means and methods proposed by Contractor that:

6.2.1. Will constitute or create a hazard to the work, or to persons or property;

6.2.2. Will not produce finished Work in accordance with the terms of the Contract; or

6.2.3. Unnecessarily increases the price of the Job Order when alternative means and methods are available.

6.3. The Town reserves the right to reject a Job Order Proposal or cancel a Project for any reason. The Town also reserves the right not to issue a Job Order if it is determined to be in the best interests of the Town. The Town may

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perform such work by other means. Contractor shall not recover any costs arising out of or related to the development of the Job Order including but not limited to the costs to attend the Joint Scope Meeting, review the Detailed Scope of Work, prepare a Job Order Proposal (including incidental architectural and engineering services), subcontractor costs, and the costs to review the Job Order Proposal with the Town.

6.4. By submitting a Job Order Proposal, Contractor agrees to accomplish the Detailed Scope of Work in accordance with the Request for Proposal at the lump sum price submitted. It is Contractor's responsibility to include the necessary Pre-priced Tasks and Non Pre-priced Tasks and quantities in the Job Order Price Proposal prior to delivering it to the Town.

6.5. It is Contractor's responsibility to include the necessary Pre-priced Tasks and Non-Pre-priced Tasks, accurate quantities, and correct Adjustment Factors in the Price Proposal prior to delivering it to the Town.

6.6. If the Job Order Proposal is found to be complete and accurate, the Town may issue a Job Order to Contractor.

6.7. The Job Order signed by the Town and delivered to Contractor constitutes the Town's acceptance of Contractor's Job Order Proposal.

6.8. A Job Order will reference the Detailed Scope of Work and set forth the Job Order Completion Time and the Job Order Price. The Job Order Price shall be the value of the approved Price Proposal.

6.9. All clauses of this Contract shall apply to each Job Order.

6.10. Contractor will be paid the Job Order Price for completing the Detailed Scope of Work within the Job Order Completion Time.

6.11. The Town, without invalidating the Job Order, may order changes in the Detailed Scope of Work by adding to, changing, or deleting from the Detailed Scope of Work, by issuing a Supplemental Job Order. All Supplemental Job Orders shall be developed in accordance with these procedures for ordering work.

6.12. The Town may decide not to issue a Job Order under development, may decide to cancel a Job Order or any portion of a Job Order, or cancel a Project or any portion of a Project, for any reason. In such case, Contractor shall not recover any costs arising out of or related to the development of the Job Order including but not limited to attending the Joint Scope Meeting, preparing or reviewing the Detailed Scope of Work, preparing a Job Order Proposal (including incidental architectural and engineering services), subcontractor costs, or reviewing the Job Order Proposal with The Town. The Town may perform such work by other means.

6.13. A Job Order will reference the Detailed Scope of Work and set forth the Job Order Completion Time, and the Job Order Price. A separate Job Order will

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be issued for each Project. Extra work, credits, and deletions will be contained in a Supplemental Job Order. The Job Order Price shall be a lump sum, fixed price for the completion of the Detailed Scope of Work,

6.14. Each Job Order provided to Contractor shall reference the Detailed Scope of Work and set forth the Job Order Price and the Job Order Completion Time. All clauses of this Contract shall be applicable to each Job Order. The Job Order, signed by the Town and delivered to Contractor constitutes the Town's acceptance of Contractor's Job Order Proposal. A signed copy of the Job Order will be provided to Contractor.

6.15. In the event that immediate emergency response is necessary, Contractor shall be required to follow alternative procedures as established by the Town. Contractor shall begin work as directed notwithstanding the absence of a fully developed Request for Proposal, Detailed Scope of Work, or Job Order. Contractor shall be compensated for such work as if the work had been ordered under the standard procedures. Contractor must submit to the Town's Representative, their emergency procedure/ safety plan prior to starting work. Contractor must be responsible for quality assurance and quality control.

7. Changes in the Work

7.1. The Town, without invalidating the Job Order, may order changes in the Work by altering, adding to or deducting from the Work, by issuing a Supplemental Job Order.

7.2. All Supplemental Job Orders shall be developed and priced in accordance with the Procedures for Developing All Job Orders

7.3. Credits for Pre-priced and Non Pre-priced Tasks shall be calculated at the pre-set Unit Prices and multiplied by the appropriate Adjustment Factors. The result is that a credit for Tasks that have been deleted from the Detailed Scope of Work will be given at 100% of the value at which they were included in the original Job Order Price Proposal.

8. Contract Modifications

8.1. Changes to the Contract may be accomplished after execution of the Contract and without invalidating the Contract, by Contract Amendment.

9. Payments

9.1. The Town will make one payment for all Job Orders that have a Job Order Completion Time of 45 days or less, or a Job Order Price of $25,000 or less. For all other Job Orders, the Town may make partial, monthly payments based on a percentage of the work completed.

9.2. Before submitting an Application for Payment (Final or Partial), Contractor shall reach an agreement with the Project Manager concerning the

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percentage complete of the detailed Scope of work and the dollar value for which the Application for Payment may be submitted.

10. Job Order Contracting Software

10.1. Job Order Contracting Software

10.1.1. The Town selected The Gordian Group's (Gordian) Job Order Contracting ("JOC") System for the JOC program. The Gordian JOC Solution includes Gordian's proprietary JOC System Software and JOC applications (JOC Applications) and construction cost data (Construction Task Catalog®), which shall be used by Contractor solely for the purpose of fulfilling its obligations under this Contract, including preparation and submission of Job Order Proposals, subcontractor lists, and other requirements specified by the Town. Contractor's use, in whole or in part, of Gordian's JOC Applications, Construction Task Catalog® and other proprietary materials provided by Gordian for any purpose other than to execute work under this Contract for the Town is strictly prohibited unless otherwise approved in writing by Gordian. Contractor shall be required to execute Gordian's JOC System License and Fee Agreement, and pay a 1% JOC System License Fee to obtain access to the Gordian JOC Solution. This Gordian JOC Solution is expressly excepted from Section IV of the Construction Contract.

11. ENR CCI Adjustment of the Adjustment Factors

11.1. Economic Price Adjustment: The Adjustment Factors may be updated on each anniversary of the Effective Date to account for changes in construction costs, provided, Contractor requests in writing, approximately 14 to 30 days prior to such anniversary, that the Adjustment Factors be updated. The request shall be delivered to the Town and to Gordian. If Contractor fails to deliver the request timely, then the Town shall determine the date on which the Adjustment Factors will be updated, but in no event will such date be later than thirty days after the written request to update the Adjustment Factors is received by the Town. Thereafter, Contractor's Adjustment Factors will be adjusted according to the following:

11.2. A Base Year Index shall be calculated by averaging the 12 month Construction Cost Indices (CCI) for the average of the twenty cities, published in the Engineering News Record (ENR) for the 12 months immediately prior to the month of the bid due date (e.g. February bid due date, Base Year Index is February of the prior year to January of the bid due date year).

11.3. A Current Year Index shall be calculated by averaging the 12 month Construction Cost Indices (CCI) for the average of the 20 cities published in the Engineering News Record (ENR) for the 12 months beginning with the

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month of anniversary of the bid due date (*e.g.* February bid due date, Current Year Index is February of the prior year to January of the current year).

11.4. The Economic Price Adjustment shall be calculated by dividing the Current Year Index by the Base Year Index.

11.5. Contractor's original Adjustment Factors shall be multiplied by the Economic Price Adjustment to obtain Contractor's new Adjustment Factors effective for the next 12 months.

11.6. Averages shall be obtained by summing the 12-month indices and dividing by 12.

11.7. All calculations shall be carried to the fifth decimal place and rounded to the fourth decimal place. The following rules shall be used for rounding:

11.7.1. The fourth decimal place shall be rounded up when the fifth decimal place is 5 or greater.

11.7.2. The fourth decimal place shall remain unchanged when the fifth decimal place is less than 5.

11.8. ENR occasionally revises indices. ENR CCIs used in the calculations described above shall be those currently published at the time the Economic Price Adjustment calculation is performed. No retroactive adjustments will be made as a result of an ENR revision. Revised CCI indices, if any, shall be used in subsequent calculations.

11.9. If Contractor submits a Price Proposal with outdated Adjustment Factors, then Contractor waives its right to resubmit the Price Proposal using updated Adjustment Factors.

11.10. Contractor cannot delay submitting a Job Order Proposal to take advantage of a scheduled update of the Adjustment Factors. In that event, Contractor shall use the Adjustment Factors that would have been in effect without the delay.

11.11. The Non Pre-priced Adjustment Factor shall remain fixed for the duration of the Contract.

12. As-Built Drawings

12.1. If Contractor is provided, or prepares, drawings as part of the Detailed Scope of Work, then, as the Detailed Scope of Work progresses, Contractor shall keep a complete and accurate record of changes to, and deviations from, such drawings. The As-Built Drawings will be created in the same medium (paper, electronic) in which they were originally prepared.

Town Council

Board Meeting Date: 6/25/2024

File #: 24-293, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving a Second Amendment to the Lease Agreement with Vector Air Management, LLC

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Public Works

FISCAL SUMMARY:
Cost as Recommended: $10,500 (revenue)
Budget Line Item Number: 530-00-000-481060-000000

POLICY ISSUES:
The current agreement expires June 30, 2024

STAFF RECOMMENDATION:
Approve the Resolution amending the agreement.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
On April 28, 2023, the Town entered into a contract with ABS Aviation Consultancy, Inc dba Airport Business Solutions (ABS) to review the existing management and Fixed Base Operations (FBO) services agreements between the Town and Vector Air. Based on ABS's recommendations, Town staff negotiated a proposed Management Agreement to separate airport management and FBO into two independent agreements - one for airport management and one for FBO services. Staff is still in negotiations on the FBO side. We have engaged Business Aviation Group to assist in lease rates and property values and Kaplan, Kirsch & Rockwell LLP to assist in developing an FBO agreement, as well as provide specialized legal support.

The Council approved the first amendment on March 26, 2024, and will expire on June 30, 2024.

The second amendment allows Vector Air to continue leasing the property from June 30 to Sept. 30, 2024, while a new agreement for FBO services (including property considerations) is finalized for consideration by Council. The amendment would also allow the Town to continue receiving $3,500 per month during this time and Vector Air to operate the FBO and occupy the building.

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Well-Maintained Transportation Infrastructure
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution
2. Second Amendment

Town of Erie
Resolution No. 24-088

A Resolution of the Town Council of the Town of Erie Approving a Second Amendment to the Lease Agreement with Vector Air Management, LLC

Whereas, on December 12, 2023, the Town entered into a Lease Agreement with Vector Air Management LLC.; and

Whereas, on March 26, 2024, the Parties amended the Lease Agreement, and wish to amend the Agreement again.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Second Amendment to the Lease Agreement is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Second Amendment on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

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Second Amendment to Lease Agreement

This Second Amendment to Lease Agreement (the "Amendment") is made and entered into this ____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of P.O. Box 750, Erie, CO 80516 (the "Town"), and Vector Air Management, LLC, a Colorado limited liability company with a principal place of business at 395 Airport Drive, Erie, CO 80516 ("Lessee") (each a "Party" and collectively the "Parties").

Whereas, the Town is the owner and operator of the Erie Municipal Airport, more particularly described in **Exhibit A**, attached and incorporated by this reference (the "Airport");

Whereas, on December 12, 2023, the Parties entered into a Lease Agreement for the Airport; and

Whereas, on March 26, 2024, the Parties amended the Lease Agreement to extend the term (the "First Amendment"); and

Whereas, the Parties wish to amend the Lease Agreement again to extend the term.

Now, therefore, in consideration of the promises and the mutual covenants herein contained, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. The term of the Lease Agreement shall be extended through September 30, 2024.

2. All other provisions of the Lease Agreement shall remain in full force and effect as written.

In Witness Whereof, the Parties have executed this Second Amendment as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

DocuSign Envelope ID: 2E344B8D-88AC-4B3F-B8B9-79A238313A4C

Lessee

DocuSigned by:
Jason Hurd
0B9FF46A3D3648F...

State of Colorado)
) ss.
County of _____)

Subscribed, sworn to and acknowledged before me this _____ day of _____, 2024, by _____ as _____ of Vector Air Management, LLC.

My Commission expires:

(Seal)

_____
Notary Public

DocuSign Envelope ID: 2E344B8D-88AC-4B3F-B8B9-79A238313A4C

Existing Structures List

No.	Description	Occupants	Size (Sqr. Ft.)	Elevation	Estimated Height
1	Hangar	FBO Hangar	±2,900	5,138'	25'
2	Hangar	Movable Hangars	±8,000	5,107'	12'
3	Hangar	Movable Hangars	±8,000	5,107'	12'
4	Office	Rocky Mountain Propeller - Off Airport	±8,000		12'
5	Hangar	Hangar Complex - Off Airport	±17,550		12'
6	Vacant	Office Complex - Off Airport	±6,400		12'
7	Hangar	Schofield Hangar Complex - Off Airport	±6,400		12'
8	Office	Waste Connection of CO - Off Airport	±3,600		12'
9	Office	Gopher Septic Systems - Off Airport	±1,575		12'
10	Office	LTS Glass Doors - Off Airport	±3,000		12'
11	Office	Spirit of Flight Museum - Off Airport	±15,500		12'
12	Office	Aero Systems - Off Airport	±8,800		12'
13	Office	Turf Cats, Trail Ridge Const. - Off Airport	±5,200		12'
14	Office	Tri-County Heliport - Off Airport	±8,000		12'
15	AWOS	AWOS		5,107'	33'

Future Structures List

No.	Description	Occupant	Size	Elevation	Estimated Height
F1	Ground Lease Hangar	- -	10,000'	5,106'	28'
F2	Ground Lease Hangar	- -	10,000'	5,106'	28'
F3	Ground Lease Hangar	- -	10,000'	5,106'	28'
F4	SRE Building	- -	1,750'	5,123'	30'
F5	Ground Lease Hangar	- -	10,000'	5,106'	28'
F6	GA Terminal	- -	10,000'	5,123'	35'
F7	Ground Lease Hangar	- -	2,400'	5,106'	28'
F8	T-Hangar	- -	9,450'	5,104'	16'
F9	T-Hangar	- -	9,450'	5,104'	16'
F10	T-Hangar	- -	11,550'	5,104'	16'
F11	T-Hangar	- -	11,550'	5,104'	16'

Runway End Coordinates

	Runway 15	Runway 33
Existing	North Latitude 40°00'59.51" West Longitude 105°02'59.70"	North Latitude 40°00'14.20" West Longitude 105°02'46.45"
Future	North Latitude 40°01'01.71" West Longitude 105°03'00.35"	North Latitude 40°00'14.20" West Longitude 105°02'46.45"

Note: All latitude/longitude coordinates are in North American Datum of 1983 (NAD 83) and NAVD88 vertical control datum was used.

Approvals

CONDITIONALLY APPROVED

Subject to Letter Dated: _____

FEDERAL AVIATION ADMINISTRATION

DENVER AIRPORTS DISTRICT OFFICE

Date: _____

Case No.: _____

PACS/SACS

	Identification	Coordinates
⚠	48VA, FID A15918 1546.76m NAD88 USGS QUAD: ERIE	40°00'58.03869" N 105°02'00.62646" W
⚠	TRIGO, FID L1444 1551.43m NAD88 USGS QUAD: ERIE	40°00'58.97310" N 105°02'54.93672" W
⚠	ERIE AIR PARK, FID A15917 1559.90 m NAD88 USGS QUAD: ERIE	40°00'14.41168" N 105°02'48.11732" W

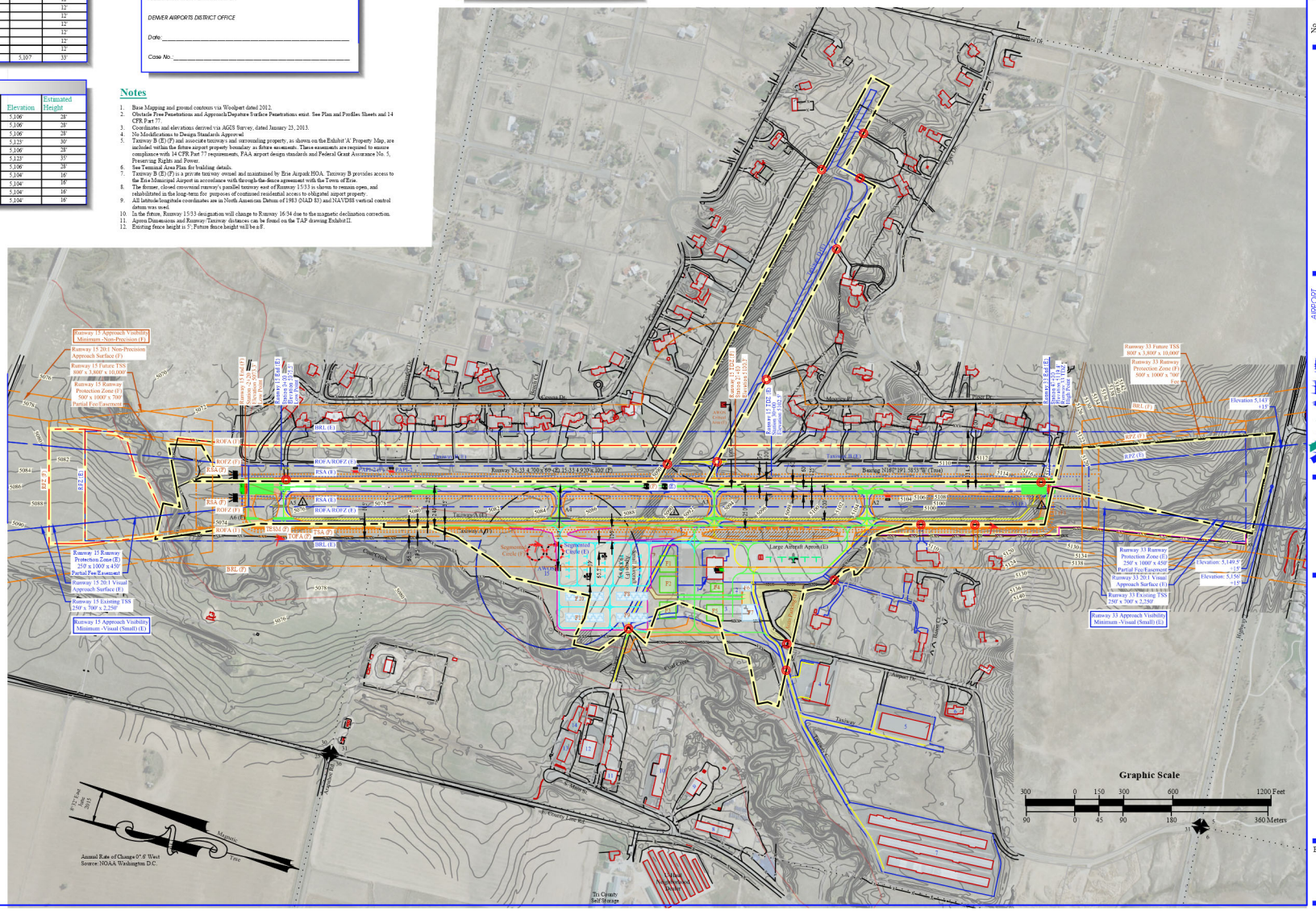
Notes

1. Base Mapping and ground contours via Woolpert dated 2012.
2. Obstacle Free Penetrations and Approach/Departure Surface Penetrations exist. See Plan and Profiles Sheets and 14 CFR Part 77.
3. Coordinates and elevations derived via AGIS Survey, dated January 25, 2013.
4. No Modifications to Design Standards Approved.
5. Taxiway B (E) (P) and associate taxiway's and surrounding property, as shown on the Exhibit 'A' Property Map, are included within the fixture airport property boundary as fixture easements. These easements are required to ensure compliance with 14 CFR Part 77 requirements, FAA airport design standards and Federal Grant Assurance No. 5, Preserving Rights and Power.
6. See Terminal Area Plan for building details.
7. Taxiway B (E) (P) is a private taxiway owned and maintained by Erie Airpark HOA. Taxiway B provides access to the Erie Municipal Airport in accordance with through-the-fence agreement with the Town of Erie.
8. The former, closed crosswind runway's parallel taxiway east of Runway 15/33 is shown to remain open, and rehabilitated in the long-term for purposes of continued residential access to obligated airport property.
9. All latitude/longitude coordinates are in North American Datum of 1983 (NAD 83) and NAVD88 vertical control datum was used.
10. In the future, Runway 15/33 designation will change to Runway 16/34 due to the magnetic declination correction.
11. Apron Dimensions and Runway/Taxiway distances can be found on the TAP drawing Exhibit II.
12. Existing fence height is 5'; Future fence height will be ±8'.

Legend

(E), (P) — Existing, Future

- Existing Property Line
- Future Limits of Easement
- Future Property Line
- Building Restriction Line (BRL)
- Runway Protection Zone (RPZ)
- 14 CFR Part 77 Approach Surface
- Object Free Area (OFA)
- Runway Safety Area (RSA)
- Obstacle Free Zone (OFZ)
- Existing Fence (5')
- Future Fence (±8')
- Section Line
- Dirt Road
- Existing Paved Roads
- Future Paved Roads
- Existing Pavement
- Future Pavement
- Pavements To Be Removed/Abandoned
- Existing Buildings
- Future Buildings
- Buildings To Be Removed
- Drainage Line
- Contour Line
- REILs
- Runway End Identifier Lights (REIL)
- Section Corner
- Precision Approach Path Indicators (PAPI-2)
- Airport Reference Point (ARP)
- Segmented Circle With Lighted Wind Cone
- Rotating Beacon
- Through-the-Fence Access Points



No.	Revision	Ckd	Date

Erie Municipal Airport
Town of Erie, CO

AIRPORT DEVELOPMENT GROUP, Inc.
1776 S. Jackson Street, Suite 916
Denver, Colorado 80210
303.758.8982 / 303.758.8942 (Fax)
www.ADGairports.com

A.I.P. Project Number: 3-08-0090-13-2012

Project No.:	EIK1598M
Designed By:	SMP
Drawn By:	KG
Approved By:	DPH
Date:	April 2016

Airport Layout Plan

Exhibit:
III
of IX Exhibits

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-296, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving a Professional Services Agreement with Wenk Associates for Schofield Farm Concept Design and Construction Drawings

DEPARTMENT: Parks & Recreation

PRESENTER(S): Luke Bolinger, Director of Parks & Recreation

FISCAL SUMMARY:

Cost as Recommended:	$385,247.00
Balance Available:	$9,345,000.00
Budget Line Item Number:	320-50-110-605000-100200
New Appropriation Required:	No

POLICY ISSUES:
This matter concerns a budgeted expenditure for design services needed to complete Schofield and thus has minimal policy implications.

STAFF RECOMMENDATION:
Approve the resolution for the professional services agreement with Wenk Associates

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
In 2018, the then Board of Trustees (now Town Council) approved a site development plan for the Schofield Farm Open Space. The development of the plan included substantial public outreach, research on similar sites, interviews with former residents of the farm, and site analysis. This process created a framework to develop the site into a unique cultural and recreational resource for the benefit of the residents of the Town of Erie and visitors.

Since 2018, staff have been working on a phased approach to gradually improve the site:

- A $30,900 State Historical Fund (SHF) grant funded a Historic Structures Assessment.
- A $32,780 SHF grant funded the design for interim grading on the site and the design of water and sanitary sewer connections.
- The Town installed water and sanitary sewer utilities onsite.
- A $250,000 SHF grant helped fund the complete rehabilitation of the historic farmhouse, originally built in 1889. The farmhouse now serves as Parks & Recreation staff

offices and staff meeting space.

For fiscal year 2024, Town Council appropriated approximately $10M to complete the project and fully realize the concepts from the site development plan. The Town is leveraging these funds with a $1.1M Land and Water Conservation Fund grant, which will be officially awarded this fall to fund the trailhead, trail connectors to Erie Lake, drainage improvements, and other site improvements.

The first step in this multi-year project involves bringing on an experienced consultant team to start a phased design scope and develop design and construction documents for site work. Wenk Associates, one of the Town's on-call landscape architectural firms, has extensive experience with large-scale, multi-year projects like this one. This scope of work includes a four-phase design approach to the site, allowing the Town to begin construction in the early phases while continuing design on future phases. Wenk's scope also includes architectural services to start the rehabilitation design of historic buildings, which will eventually be used for Town programs, private events, and other community purposes. This approach is not only more cost-effective but also creates a more cohesive design and assists with planning for future grant funding cycles.

TOWN COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Attractive Community Amenities
- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Small Town Feel
- ✓ Effective Governance
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution No. 24-091
2. Professional Services Agreement

DocuSign Envelope ID: 2C2FAF93-AD60-4BB6-822A-62693EDAF124

Agreement for Professional Services
(Schofield Farms Concept Design and Construction Drawings)

This Agreement for Professional Services (the "Agreement") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516, (the "Town"), and Wenk Associates, Inc., an independent contractor with a principal place of business at 1130 31st Street, Suite 101, Denver, CO 80205 ("Contractor") (each a "Party" and collectively the "Parties").

Whereas, the Town requires professional services; and

Whereas, Contractor has held itself out to the Town as having the requisite expertise and experience to perform the required professional services.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. Scope of Services

A. Contractor shall furnish all labor and materials required for the complete and prompt execution and performance of all duties, obligations, and responsibilities which are described or reasonably implied from the Scope of Services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference.

B. A change in the Scope of Services shall not be effective unless authorized as an amendment to this Agreement. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

II. Term and Termination

A. This Agreement shall commence on the Effective Date, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

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III. Compensation

In consideration for the completion of the Scope of Services by Contractor, the Town shall pay Contractor $385,247. This amount shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the Town for such fees, costs and expenses. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

IV. Professional Responsibility

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. The work performed by Contractor shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community. The work and services to be performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations.

B. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. Because the Town has hired Contractor for its professional expertise, Contractor agrees not to employ subcontractors to perform any work under this Agreement, except as expressly set forth in the Scope of Services.

D. Contractor shall at all times comply with all applicable law, including without limitation all current and future federal, state and local statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, *et seq*. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, *et seq*.; the Resource Conservation and Recovery Act, 42 U.S.C. § 6901, *et seq*. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq*.; the Clean Water Act, 33 U.S.C. § 1251, *et seq*.; the Clean Air Act, 42 U.S.C. § 7401, *et seq*.; the Occupational Safety and Health Act, 29 U.S.C. § 651, *et seq*.; all applicable environmental statutes of the State of Colorado; and all other federal, state or local statutes, laws, ordinances, resolutions, codes, rules, regulations, orders or decrees regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, as now or at any time hereafter in effect.

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V. Ownership

Any materials, items, and work specified in the Scope of Services, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Services constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change the Work Product without providing notice to or receiving consent from Contractor; provided that Contractor shall have no liability for any work that has been modified by the Town.

VI. Independent Contractor

Contractor is an independent contractor. Notwithstanding any other provision of this Agreement, all personnel assigned by Contractor to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

VII. Insurance

A. Contractor agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Contractor pursuant to this Agreement. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

3. Professional liability insurance with minimum limits of $1,000,000 each claim and $2,000,000 general aggregate.

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B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Agreement.

VIII. Indemnification

A. Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including reasonable attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by, the omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor; provided that Contractor's liability under this indemnification provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor.

B. If Contractor is providing architectural, engineering, surveying or other design services under this Agreement, the extent of Contractor's obligation to indemnify and hold harmless the Town may be determined only after Contractor's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the Parties, as provided by C.R.S. § 13-50.5-102(8)(c).

IX. Miscellaneous

A. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.

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B. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

C. *Integration*. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

E. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. *Severability*. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. *Modification*. This Agreement may only be modified upon written agreement of the Parties.

H. *Assignment*. Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. *Governmental Immunity*. The Town and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities or protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. *Rights and Remedies*. The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

L. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this

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Agreement due to acts of God, floods, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Contractor

By: DocuSigned by: Nicole Horst 82249C41B2E1419...

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of _____.

My commission expires:

(Seal)

_____
Notary Public

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Exhibit A
Scope of Services

Contractor's Duties

The scope of work builds on the 2018 Schofield Farm & Open Space Master Plan Report based on current program, drainage, parking, and circulation desired for the Site. During the term of this Agreement, Contractor shall perform the following duties, as directed by the Town:

Phase 1: Startup and Concept Refinement

Task 1: Data Collection:

- Provide Site Survey (by Flatirons, Inc.)
- Review drainage issues and potential based on JVA's Drainage Plan (Drainage Plan under a sperate contract with the Town). (With JVA Consulting Engineers).
- Review ditch company requirements and water rights standings.
- USACE classification/process understanding (for potential trails on dam).
- Utility review and opportunities/constraints understanding.
- Review Historical classification and significance (formal and informal/social values).
- Identify environmental considerations, opportunities, and constraints. (by Birch Ecology).
- Wetlands mapping (by Birch Ecology).
- Review existing Phase 1 Environmental Report and identify opportunities and constraints (by Birch Ecology).
- Identify Mile High Flood District access requirements and applicable standards.
- Develop a Stakeholder List outreach strategy (outreach performed by the Town).
- Develop information for distribution to surrounding Homeowners' Association(s) (distribution performed by the Town).
- Coordinate with Erie Makers' Space, identify utility, access/circulation, and visibility needs.
- Coordinate with current property lessee (farmer), identify access/circulation, storage/staging, irrigation, and other requirements.

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- Coordinate with Town of Erie Parks Operations to identify goals, objectives, and concerns.
- Coordinate with Town of Erie Parks Event Planner to identify programmatic goals, spatial requirements, technical event requirements/logistics, and parking/access needs/
- Coordinate with Boulder County to identify potential shared use of Prince Reservoir for items such as an overlook from the Schofield site, edge improvements, and trail connection.
- Coordinate with Erie Police Department to identify security, emergency access, visibility, and other needs.
- Coordinate with Mountain View Fire Rescue to identify access, addressing, circulation, and fire hydrant requirements.
- Regular Coordination with Town of Erie Parks & Recreation Project Manager(s).

Task 2: Program Establishment:

- Identify Parking needs, traffic impacts, and triggers for requiring improvements to 111th St.
- Precedents Study (scale, character, and program).
- Program Vicinity study (identify similar venues with a radius as determined in coordination with the TOE)
- Formalize Goals/Objectives for program areas included in this scope of work.
- Establish drainage goals/criteria/strategy to be included with this scope of work.

Task 3: Site-wide Concept Plan:

- Coordinate with drainage study/large scale drainage goals to identify impact and inclusions in the scope of this project.
- Establish final program/refine existing master plan for entire property.
- Determine parking and traffic needs and incorporate potential improvements in the Concept Plan.
- Determine water quality needs and incorporate into the Concept Plan.
- Evaluate layout, program options, and circulation with the Town.
- Finalize preferred Concept to guide next phases.

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- Develop detailed phasing plan with ROM cost opinion, including:
  - Program Plan
  - Layout Plan
  - Over-lot grading plan
  - Conceptual utility plan
  - Circulation diagram
  - Access diagram
  - Irrigation strategy (for raw water and potable water by area)

Phase 1 Meetings:

- Weekly Check-In with Parks PM (up to 4)
- Weekly Check-In with Core Design Team (up to 4)
- Up to (2) Meetings with Stakeholders

Phase 2, Package A: Trailhead, Drainage, Trails, & Waypoints.

Task 1: Schematic Design (SD, 30% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plan
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the Town for Review

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Task 2: Design Development (DD, 60% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation: Mainline with sized Point of Connection
    - Electrical: One line diagram, 60% plan
  - Sections
  - Details
- Opinion of Probable Construction Costs
- Outline Specifications
- Written responses to 30% Comments
- (1) Submittal to the Town for Review

Task 3: Construction Documents (90% CD and 100%/For Construction)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation
    - Electrical
  - Details
- Opinion of Probable Construction Costs
- Specifications
- Written responses to 60% and 90% Comments
- (2) Submittals (90% and 100%) to the Town for Review

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Task 4: Bid Assistance:

- Bid tab
- Review of contractor's bids
- Attendance at pre-bid meeting
- Respond to RFI's
- Issue addenda

Task 5: Construction Observation (CO):

CO services are not included, contractor to scope CO when program/inclusions are finalized after the 60% CD submittal as an additional service or under a new contract with the Town.

Phase 2, Package A Meetings:

- Bi-Weekly Check-In with Parks PM (up to 8)
- Bi-Weekly Check-In with Core Design Team (up to 8)
- Meeting total with TOE Departments or Reviewers (Public Works, Other)

Phase 2, Package B: Event/Multi-Use Areas, Landscaping Around Buildings, and Staff Parking:

Task 1: Schematic Design (SD, 30% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plans
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the Town for Review

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Task 2: Design Development (DD, 60% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation: Mainline with sized Point of Connection
    - Electrical: One line diagram, 60% plan
  - Sections
  - Details
- Opinion of Probable Construction Costs
- Outline Specifications
- Written responses to 30% Comments
- (1) Submittal to the Town for Review

Task 3: Construction Documents (90% CD and 100%/For Construction)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation
    - Electrical
  - Details
- Opinion of Probable Construction Costs
- Specifications
- Written responses to 60% and 90% Comments
- (2) Submittals (90% and 100%) to the Town for Review

Task 4: Bid Assistance:

- Bid tab
- Review of contractor's bids
- Attendance at pre-bid meeting
- Respond to Contractor's RFI's
- Issue addenda

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Task 5: Construction Observation (CO):

CO services are not included, contractor to scope CO when program/inclusions are finalized after the 60% CD submittal as an additional service or under a new contract with the Town.

Phase 2, Package B Meetings:

- Bi-Weekly Check-In with Parks PM (up to 6, assumes 4 week overlap with Package A)
- Bi-Weekly Check-In with Core Design Team (up to 6, assumes 4 week overlap with Package A
- (1) Meeting total with TOE Departments or Reviewers (Public Works, Other)

Phase 3: West/Other Improvements

Task 1: SD (30% CD)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plans
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the TOE for Review

Task 2: Phasing Plan

- Graphic Phasing Plan
- Descriptions of Phases/inclusions
- Summary of Costs by Phase

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Tasks 2-5, Design Development, Construction Documents, Bid Assistance, and Construction Observation:

Design services beyond SD are not included, contractor to scope additional tasks to completion after program and inclusions are determined in the SD Phase as an additional service or under a new contract with the Town.

Phase 3 Meetings:

- Bi-Weekly Check-In with Parks PM (up to 3)
- Bi-Weekly Check-In with Core Design Team (up to 3)
- (1) Meeting total with TOE Departments or Reviewers (Public Works, Other)
- (1) Meeting with Recreation Staff

Contractor's Deliverables

In performance of the duties described above, Contractor shall deliver the following items to the Town, during the timeframes established by the Town:

- Sitewide Concept Plan Refinement
- Construction Drawings for two sub-areas
- Schematic Design for a third sub-area

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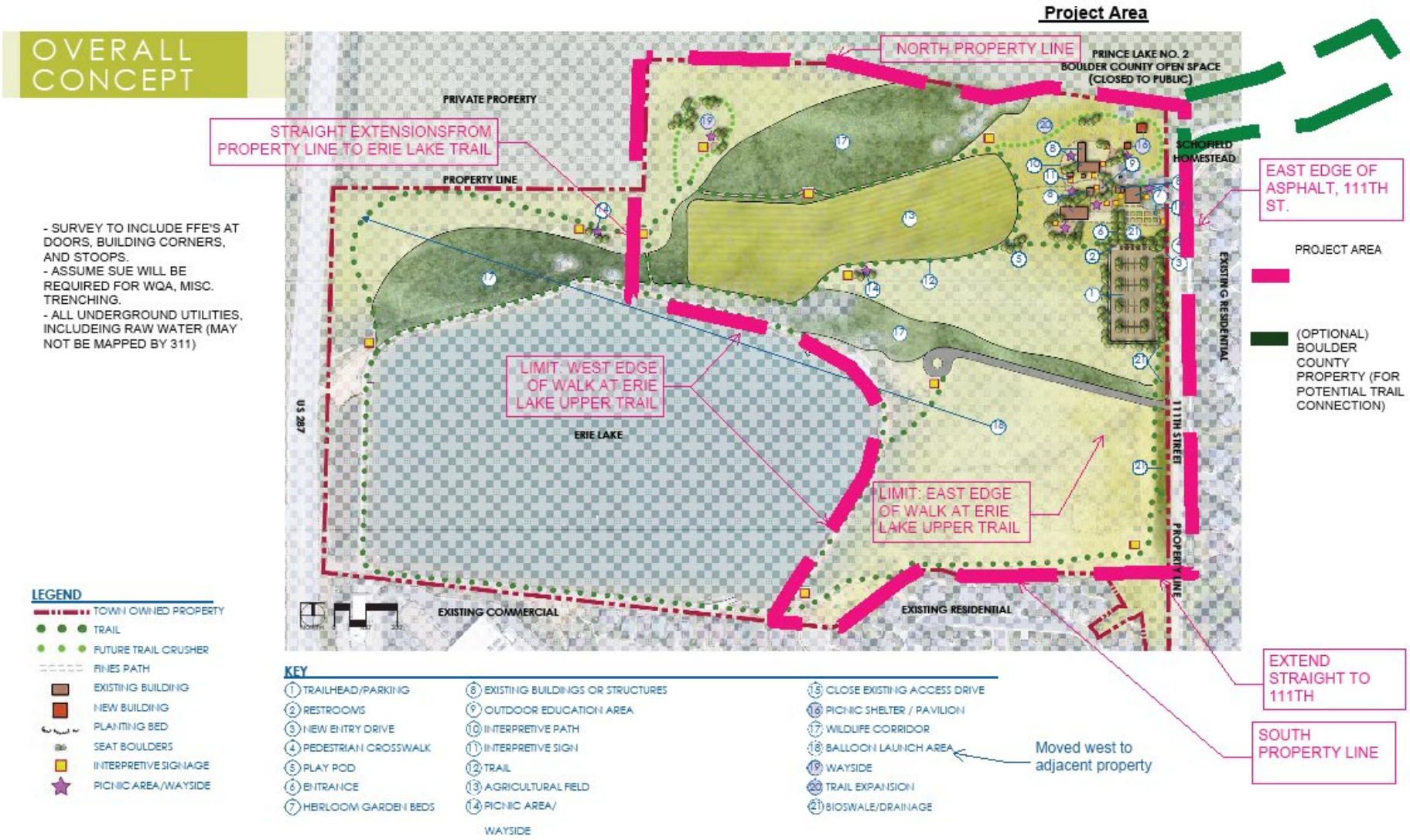
OVERALL CONCEPT



#DiscoverSchofield

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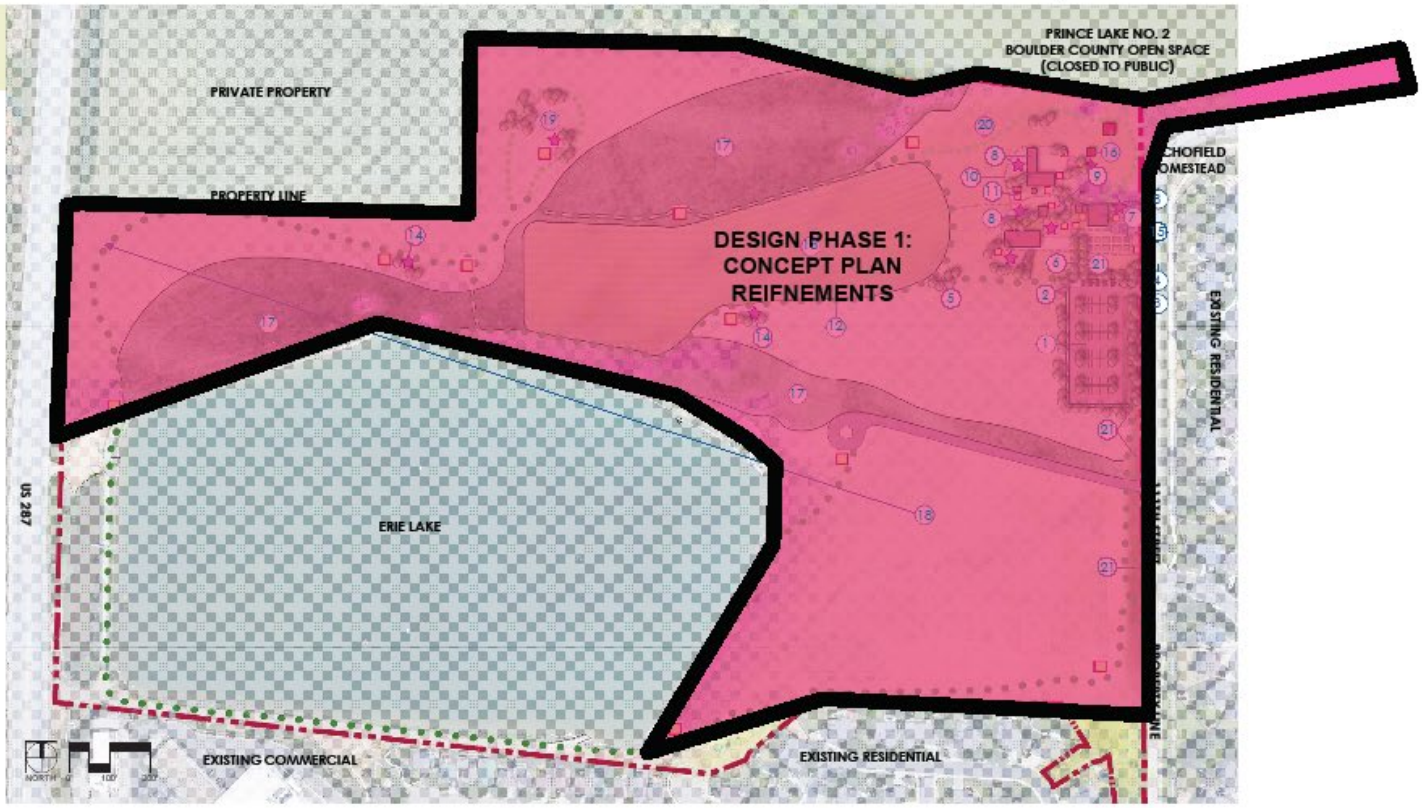
OVERALL CONCEPT

DESIGN PHASES DIAGRAM



LEGEND

- TOWN OWNED PROPERTY
- TRAIL
- FUTURE TRAIL CRUSHER FINES PATH
- EXISTING BUILDING
- NEW BUILDING
- PLANTING BED
- SEAT BOULDERS
- INTERPRETIVE SIGNAGE
- PICNIC AREA/WAYSIDE

KEY

1. TRAILHEAD/PARKING
2. RESTROOMS
3. NEW ENTRY DRIVE
4. PEDESTRIAN CROSSWALK
5. PLAY POD
6. ENTRANCE
7. HEIRLOOM GARDEN BEDS
8. EXISTING BUILDINGS OR STRUCTURES
9. OUTDOOR EDUCATION AREA
10. INTERPRETIVE PATH
11. INTERPRETIVE SIGN
12. TRAIL
13. AGRICULTURAL FIELD
14. PICNIC AREA/ WAYSIDE
15. CLOSE EXISTING ACCESS DRIVE
16. PICNIC SHELTER / PAVILION
17. WILDLIFE CORRIDOR
18. BALLOON LAUNCH AREA — Moved west to adjacent property
19. WAYSIDE
20. TRAIL EXPANSION
21. BIOSWALE/DRAINAGE

#DiscoverSchofield

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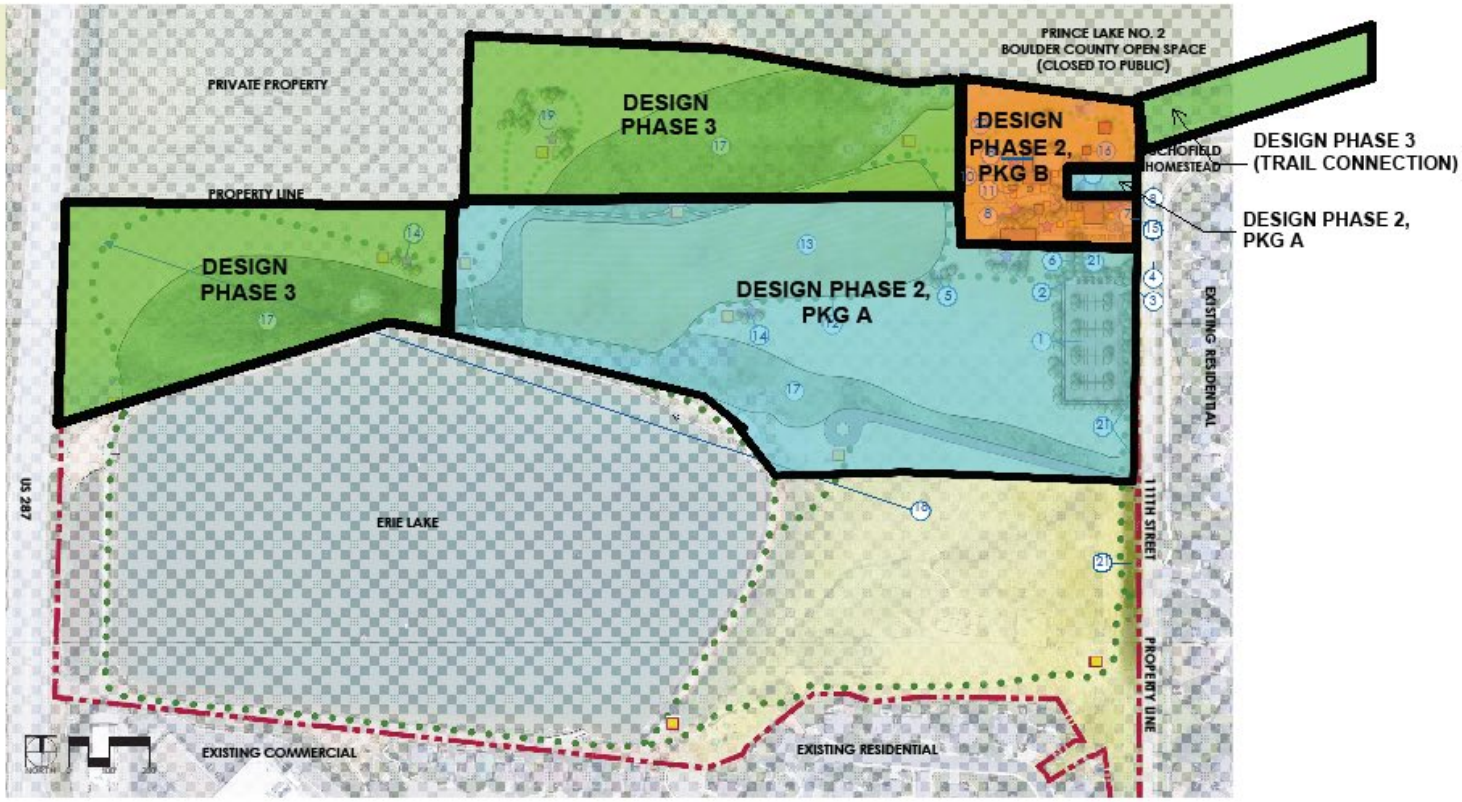
OVERALL CONCEPT

DESIGN PHASES DIAGRAM



LEGEND

- TOWN OWNED PROPERTY
- TRAIL
- FUTURE TRAIL CRUSHER
- FINES PATH
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18. BALLOON LAUNCH AREA — Moved west to adjacent property
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#DiscoverSchofield

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Schofield Farm
EXHIBIT F: Team Fees
22-May-24

	Wenk LA	JVA- Civil	JVA- Structural (Allowance)	Rocksol- Traffic	Rocksol Geotech	Birch Ecology Environmental	Flatirons Survey	enLighten Site Lighting / Elec	HydroSystems Irrigation	Topographic SUE	Total
Schofield Farm											
Phase 1: Sitewide Concept Design	$ 21,320.00	$ 5,500.00	n/a	$ 9,330.00	$ 17,890.00	$ 10,152.00	$ 21,900.00	$ 6,980.00	$ 2,895.00	n/a	$ 95,967.00
Phase 2 Pkg A: Trailhead, trails, Waypoints, Drainage	$ 70,610.00	$ 47,500.00	$ 5,000.00	$ 4,410.00	n/a	$ 3,145.00	n/a	$ 7,340.00	$ 4,475.00	$ 11,050.00	$ 153,530.00
Phase 2 Pkg B: Landscape areas, staff parking	$ 63,275.00	$ 23,000.00	$ 5,000.00	n/a	n/a	n/a	n/a	$ 8,420.00	$ 3,275.00	n/a	$ 102,970.00
Phase 3: West Areas	$ 29,280.00	$ 3,500.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$ 32,780.00
Subtotal	$ 184,485.00	$ 79,500.00	$ 10,000.00	$ 13,740.00	$ 17,890.00	$ 13,297.00	$ 21,900.00	$ 22,740.00	$ 10,645.00	$ 11,050.00	*$ 385,247.00*
									Grand Total:		*$385,247.00*

Town of Erie
Resolution No. 24-091

A Resolution of the Town Council of the Town of Erie Approving an Agreement for Professional Services with Wenk Associates, Inc. for Schofield Farm Concept Design and Construction Drawings

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve the Agreement for Professional Services with Wenk Associates, Inc. for Schofield Farm Concept Design and Construction Drawings.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Agreement for Professional Services with Wenk Associates, Inc. is hereby approved in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Agreement on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-308, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving the Second Amendment to the Professional Services Agreement with Wold Architects and Engineers for the Town Hall Expansion Project

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Acting Public Works Director

FISCAL SUMMARY:

Cost as Recommended:	$ 22,500
Balance Available:	$ 686,490
Budget Line Item Number:	100-70-440-605000-100199
New Appropriation Required:	No

POLICY ISSUES:
None.

STAFF RECOMMENDATION:
Approve the resolution

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
On June 14, 2022, the Board approved a Professional Services Agreement with Wold Architects and Engineers for the Town Hall Expansion design.

On May 9, 2023, the Board approved the First Amendment for design and coordination to add approximately 6,370 SF as a garden level third story on the building addition and the various connections from upper floors to that additional space. Approximately 1,700 SF of the garden level will be finished space for a staff breakroom, wellness room and locker room. The remaining SF will be unfinished space with a separate entry and basic mechanical and electrical services.

This Second Amendment will complete Design Services through Construction Administration for the remaining unfinished space in the Garden Level of the Town Hall Addition including the interior finishes, mechanical, electrical, and technology/low voltage design.

Staff recommends approving the Second Amendment with Wold Architects and Engineers for design of the Town Hall Expansion project to cover this expanded scope.

Original Contract Amount	$ 833,633
First Amendment	$ 200,213
Second Amendment	$ 22,500
Agreement Total	$1,056,346

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Attractive Community Amenities
- ✓ Well-Maintained Transportation Infrastructure
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution 24-097
2. Second Amendment

Town of Erie
Resolution No. 24-097

A Resolution of the Town Council of the Town of Erie Approving the Second Amendment to Professional Services Agreement with Wold Architects and Engineers for Design of the Town Hall Expansion Project

Whereas, on June 14, 2022, the Town and Wold Architects and Engineers entered into a Professional Services Agreement for Design of the Town Hall Expansion Project;

Whereas, on May 9, 2023, the Parties amended the Agreement and wish to amend the Agreement again; and

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve the Second Amendment to Professional Services Agreement.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado that:

Section 1. The Second Amendment to Professional Services Agreement with Wold Architects and Engineers is hereby approved in substantially the form attached hereto, subject to approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Second Amendment to Professional Services Agreement on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

DocuSign Envelope ID: FA09D883-B1E7-4489-921C-6AF66C96FC2D

Second Amendment to Agreement for Professional Services

This Second Amendment to Agreement for Professional Services (the "Second Amendment") is made and entered into this ____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516 (the "Town"), and Wold Architects and Engineers, an independent contractor with a principal place of business at 1553 Platte Street, Suite 201, Denver, CO 80202 ("Wold") (each a "Party" and collectively the "Parties").

Whereas, on June 14, 2022, the Parties entered into an Agreement for Professional Services (the "Agreement") for the Town Hall Expansion Design and;

Whereas, on May 9, 2023, the Town Council approved the First Amendment to the Agreement for additional services needed to complete final design and;

Whereas, additional services are needed to complete design for the Town Hall Addition Garden Level and the Parties wish to amend the Agreement as set forth herein.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Scope of Work. Exhibit A to the Agreement is hereby amended by the inclusion of the following additional items in the Scope of Work.

- Complete Design Services through Construction Administration for approximately 3,640 square feet of previously shelled, unfinished space in the Garden Level of the Town Hall Addition including the interior finishes, mechanical, electrical, and technology/low voltage design

2. Compensation. Exhibit B to the Agreement is hereby amended to increase the maximum amount of compensation to $1,056,346, allocated as follows:

Original Contract Amount:	$ 833,633
1st Amendment:	$ 200,213
2nd Amendment:	$ 22,500
Total New Contract Amount	$1,056,346

3. Remainder of Agreement. Except as expressly modified herein, the Agreement shall remain in full force and effect.

DocuSign Envelope ID: FA09D883-B1E7-4489-921C-6AF66C96FC2D

In Witness Whereof, the Parties have executed this Second Amendment as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Wold Architects and Engineers

DocuSigned by:
_____
7EEF4BBBCAAD49B...
Roger Schroepfer, Partner

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of Wold Architects and Engineers.

My commission expires:

(Seal)

_____
Notary Public

File #: 24-303, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Lafferty Subdivision

DEPARTMENT: Planning & Development Department

PRESENTER(S): Christopher C. LaRue, Principal Planner

POLICY ISSUES:
Staff's analysis indicates the proposed DA and proposed dedications are consistent with Town Charter, Municipal Code, and the Council's priorities. Approving the Resolution will confirm Council's agreement with staff's analysis and conclusions. The Lafferty Development Agreement (DA) reflects provisions negotiated by Town staff with the counsel of the Town Attorney, and the property owner, Stratus Canyon Creek, LLC. The DA includes, among other typical Town language, provisions addressing or requiring items to support the Lafferty Canyon Metro District Service Plan approved by Council in March 2023. Those requirements include:

- Plugging and abandoning oil and gas wells and subsequent monitoring (completed in Canyon Creek Filing No. 8)
- Installing solar panels on all homes sufficient to satisfy 50% of energy needs
- Pre-wiring garages for electric vehicle charging,
- Providing water and energy efficient fixtures,
- Monetary contribution towards the Town's affordable housing program (Completed with the DA for Canyon Creek Filing No. 7 and No. 8) and
- Monetary contribution towards necessary transportation safety improvements within the development (completed with the DA for Canyon Creek Filing No. 7).

The plat was reviewed for all necessary trail, transportation, and pedestrian connections and found to be compliant.

Approving the DA is consistent with the Board's policy objectives for metro districts and development and will be beneficial to the Town.

STAFF RECOMMENDATION:
Approve the Development Agreement and accept the dedications shown on the Final Plat for the

Lafferty Subdivision.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Lafferty subdivision property is located at 12166 Jay Road (now Lombardi Street), southwest of the future Lombardi Street right-of-way and the railroad tracks. Below is a map that depicts the site and surrounding area:

Site History and Prior Approvals

1. *Annexation*
   - The Town Council annexed the Lafferty site in July 2020.
2. *Zoning*
   - Concurrently with the annexation, the Town Council initially zoned the Lafferty site Low Density Residential (LR) in July 2020.

3. *Plats*
    - The Town Council approved the Lafferty Preliminary Plat in January 2023.
4. *Metropolitan District*
    - The Town Council approved the Lafferty Canyon Metropolitan District in March 2023.

Lafferty Final Plat

Development Information:

- Preliminary Plat Size: 39.665 acres
- Residential Development:
    - Single-Family Detached: 132 lots (3.33 du/ac)
- Amenities:
    - Pocket Park: 23,500 square feet
- Other Elements:
    - Tracts: 10 tracts - 9.131 acres
    - Public ROW: 8.923 acres

The subject property contains two single-family detached structures and various outbuildings. The proposed subdivision plats the existing homes on two separate lots, with the outbuildings anticipated to be demolished. The final plat creates 132 single-family detached lots and ten tracts for landscaping, a pocket park, utilities, trail connections, open area, and drainage. Single-family lot sizes range from approximately 5,200 to approximately 16,600 square feet. Access to all lots is provided through new public streets. One new pocket park and trail connections that tie into the overall development are incorporated into the project.

Development Agreement

Staff negotiated the Development Agreement (DA) in concert with the Final Plat. The agreement includes cost estimates and reimbursement provisions for public infrastructure associated with the development.

TOWN COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Attractive Community Amenities
- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Well-Maintained Transportation Infrastructure
- ✓ Small Town Feel
- ✓ Safe and Healthy Communities
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution No. 24-092
2. Lafferty Final Plat
3. Development Agreement

Town of Erie
Resolution 24-092

A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Lafferty Subdivision

Whereas, on June 12, 2023, Stratus Stonegate LLC filed an application for approval of the Final Plat for the Lafferty Subdivision (the "Final Plat");

Whereas, the Planning and Development Director has conditionally approved the Final Plat, on the condition that the Town Council approve an associated development agreement and accept certain dedications as shown on the Final Plat;

Whereas, on June 25th, 2024, the Town Council considered the Development Agreement and the acceptance of the dedications as shown on the Final Plat; and

Whereas, the Town Council desires to approve the Development Agreement and accept the dedications as shown on the Final Plat.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado, that:

Section 1. The Town Council hereby approves the Development Agreement for the Lafferty Subdivision, in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the development agreement on behalf of the Town.

Section 2. The Town Council hereby accepts the dedications shown on the Final Plat for the Lafferty Subdivision.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

LAFFERTY AT CANYON CREEK SUBDIVISION

FINAL PLAT

BEING A PART OF THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF BOULDER, STATE OF COLORADO
39.665 ACRES - 132 LOTS / 10 TRACTS
FP-001545-2023

CERTIFICATE OF DEDICATION AND OWNERSHIP

THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, OR LIEN HOLDERS OF CERTAIN LANDS IN THE TOWN OF ERIE, COUNTY OF BOULDER, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

A PARCEL IN THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARINGS ARE BASED ON THE WEST LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13, SAID TO BEAR NORTH 00°04'38" WEST, A DISTANCE OF 1316.98 FEET, FROM THE SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13 MONUMENTED BY A 2" ALUMINUM CAP, 0.3' BELOW ASPHALT ROADWAY, STAMPED "A.M. HASCALL, 6TH PM, PLS 23500 1995, 16TH, R69W", DAMAGED TO THE NORTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13 MONUMENTED BY A 2.5" ALUMINUM CAP, 0.4' DOWN IN A RANGE BOX WITH NO LID, TOP OF RANGE BOX IS 0.2' BELOW ASPHALT ROADWAY, STAMPED "CIVIL ARTS, T1N, 1/4, S14 | S13, R69W, 2016, PLS 25379";

BEGINNING (P.O.B.) AT THE SOUTHEAST CORNER OF THE NORTHEAST ONE-QUARTER OF SAID SOUTHWEST ONE-QUARTER OF SECTION 13, MONUMENTED BY A 2.5" ALUMINUM CAP, 0.1' ABOVE GROUND SURFACE, STAMPED "JR ENG, T1N R69W, C, S1/16, | S13, C, 2000, LS 19606";

THENCE NORTH 89°30'10" WEST ALONG THE SOUTH LINE OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, A DISTANCE OF 1329.43 FEET TO THE SOUTHWEST CORNER OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13;

THENCE NORTH 89°30'20" WEST ALONG THE SOUTH LINE OF SAID NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, A DISTANCE OF 9.39 FEET TO THE SOUTHEAST CORNER OF THE PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188;

THENCE NORTH 00°04'38" WEST ALONG THE EAST LINE OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188, A DISTANCE OF 312.74 FEET TO THE NORTHEAST CORNER OF SAID DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188;

THENCE NORTH 89°15'38" WEST ALONG THE NORTH LINE OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188, A DISTANCE OF 1290.00 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF NORTH 119TH STREET (60' PUBLIC RIGHT-OF-WAY WIDTH);

THENCE NORTH 00°04'38" WEST ALONG SAID EASTERLY RIGHT-OF-WAY LINE OF NORTH 119TH STREET, A DISTANCE OF 22.60 FEET TO THE SOUTHWEST CORNER OF A PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398;

THENCE SOUTH 89°15'38" EAST, A DISTANCE OF 1290.12 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398;

THENCE NORTH 00°04'38" WEST ALONG THE EAST LINE OF SAID DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398, A DISTANCE OF 949.29 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF THE REGIONAL TRANSPORTATION DISTRICT RIGHT-OF-WAY (FORMERLY UNION PACIFIC RAILROAD RIGHT-OF-WAY);

THENCE NORTH 89°42'02" EAST ALONG SAID SOUTH RIGHT-OF-WAY LINE, A DISTANCE OF 528.59 FEET TO A POINT OF CURVE;

THENCE EASTERLY A DISTANCE OF 819.74 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 2764.79 FEET AND CENTRAL ANGLE OF 16°59'16", SUBTENDED BY A CHORD WHICH BEARS SOUTH 81°48'20" EAST, A DISTANCE OF 816.74 FEET, TO THE EAST LINE OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, WHENCE THE CENTER CORNER OF SAID SECTION 13 BEARS NORTH 00°09'52" WEST, A DISTANCE OF 138.65 FEET;

THENCE SOUTH 00°09'52" EAST ALONG SAID EAST LINE, A DISTANCE 1182.60 FEET TO THE POINT OF BEGINNING (P.O.B.).

CONTAINING AN AREA OF 1,727,789 SQUARE FEET (39.665 ACRES), MORE OR LESS

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, BLOCKS, TRACTS, STREETS, AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF LAFFERTY AT CANYON CREEK SUBDIVISION. ALL PUBLIC WAYS AND OTHER PUBLIC RIGHTS-OF-WAY, LANDS, EASEMENTS AND OTHER DESIGNATED PUBLIC IMPROVEMENTS SHOWN HEREON ARE DEDICATED TO THE TOWN OF ERIE AND THE PUBLIC, COLORADO, FOR PUBLIC USES AND PURPOSES SHOWN HEREON.

OWNER: STRATUS STONEGATE, LLC, A COLORADO LIMITED LIABILITY COMPANY

BY: _____

ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2024,

BY _____

WITNESS MY HAND AND OFFICIAL SEAL:

_____ _____ (SEAL)
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

LIENHOLDER: FIRSTIER BANK

BY: _____

ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2024,

BY _____

WITNESS MY HAND AND OFFICIAL SEAL:

_____ _____ (SEAL)
NOTARY PUBLIC

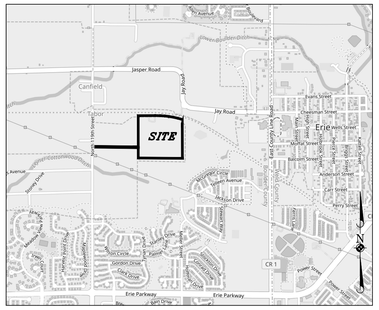
MY COMMISSION EXPIRES: _____

CLERK & RECORDER CERTIFICATE

STATE OF COLORADO)
) SS.
COUNTY OF BOULDER)

I HEREBY CERTIFY THAT THIS PLAT WAS FILED IN MY OFFICE ON THIS _____ DAY OF _____, 2024 A.D. AND WAS RECORDED AT RECEPTION NUMBER _____.

_____
COUNTY CLERK AND RECORDER



LOCATION MAP

SCALE: 1" = 2000'

TITLE VERIFICATION CERTIFICATE

WE, FIRST AMERICAN TITLE INSURANCE COMPANY, DO HEREBY CERTIFY THAT WE HAVE EXAMINED THE TITLE OF ALL LAND PLATTED HEREON AND THAT TITLE TO SUCH LAND IS IN THE DEDICATOR(S) FREE AND CLEAR OF ALL LIENS, TAXES AND ENCUMBRANCES, EXCEPT AS FOLLOWS:

FIRST AMERICAN TITLE INSURANCE COMPANY

BY: _____ DATE: _____

TITLE: _____

ATTEST:

SECRETARY/TREASURER
STATE OF COLORADO)
) SS.
COUNTY OF _____)

ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2024

BY _____ AS _____.

WITNESS MY HAND AND OFFICIAL SEAL

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

NOTES

1. DISTANCES ARE MARKED IN U.S. SURVEY FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (0.00') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.

2. THE LOCATION OF THE PROPERTY LINES SHOWN ON THE FACE OF THIS PLAT ARE BASED ON THE DESCRIPTION AND INFORMATION FURNISHED BY THE CLIENT, TOGETHER WITH THE TITLE COMMITMENT. THE PARCEL WHICH IS DEFINED MAY NOT REFLECT ACTUAL OWNERSHIP, BUT REFLECTS WHAT WAS SURVEYED. FOR OWNERSHIP, CONSULT YOUR TITLE COMPANY.

3. COMPARE THIS PLAT, LEGAL DESCRIPTION AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.

4. THIS LAND SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY CWC CONSULTING GROUP, INC. TO DETERMINE OWNERSHIP OF THIS TRACT, VERIFY THE DESCRIPTION SHOWN, VERIFY THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF ADJACENT TRACTS, OR VERIFY EASEMENTS OF RECORD. REFERENCE IS MADE TO FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NUMBER: NCS-993297-CO, WITH AN EFFECTIVE DATE OF DECEMBER 19, 2023 AT 5:00 PM FROM WHICH THIS SURVEY IS BASED. THIS PROPERTY IS SUBJECT TO ALL COVENANTS AND RESTRICTIONS RELATING TO THE USE AND CHARACTER OF THE LAND AND ALL MATTERS APPEARING OF PUBLIC RECORD AND AS MAY BE DISCLOSED BY A MORE RECENT TITLE COMMITMENT OR REPORT.

5. ALL REFERENCES HEREON TO BOOKS, PAGES, MAPS AND RECEPTION NUMBERS ARE PUBLIC DOCUMENTS FILED IN THE RECORDS OF THE BOULDER COUNTY CLERK AND RECORDER'S OFFICE.

6. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.

BASIS OF BEARINGS: BEARINGS ARE BASED ON THE WEST LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN, SAID TO BEAR NORTH 00°04'38" WEST, A DISTANCE OF 1316.98 FEET, FROM THE SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13 BEING MONUMENTED BY A 2" ALUMINUM CAP, 0.3' BELOW ASPHALT ROADWAY, STAMPED "A.M. HASCALL, 6TH PM, PLS 23500 1995, 16TH, R69W", DAMAGED TO THE NORTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13 BEING MONUMENTED BY A 2.5" ALUMINUM CAP, 0.4' DOWN IN A RANGE BOX WITH NO LID, TOP OF RANGE BOX IS 0.2' BELOW ASPHALT ROADWAY, STAMPED "CIVIL ARTS, T1N, 1/4, S14 | S13, R69W, 2016, PLS 25379"

7. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

8. DEFINITION: CERTIFY, CERTIFICATION – A PROFESSIONAL'S OPINION BASED ON HIS OR HER OBSERVATION OF CONDITIONS, KNOWLEDGE, INFORMATION AND BELIEFS. IT IS EXPRESSLY UNDERSTOOD THAT THE PROFESSIONAL'S CERTIFICATION OF A CONDITION'S EXISTENCE RELIEVES NO OTHER PARTY OF ANY RESPONSIBILITY OR OBLIGATION HE OR SHE HAS ACCEPTED BY CONTRACT OR CUSTOM.

9. CWC CONSULTING GROUP, INC. DOES NOT WARRANT THAT THE PARCEL, AS DESCRIBED HEREON, COMPLIES WITH COLORADO SENATE BILL 35. (30-28-101).

NOTES

11. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

12. THE PROPERTY IS LOCATED WITHIN "OTHER AREAS – ZONE X" (AREAS DETERMINED TO BE OUTSIDE THEN 0.2% ANNUAL CHANCE FLOODPLAIN.) AS IDENTIFIED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP – COMMUNITY PANELS NUMBERED 08013C0437J WITH AN EFFECTIVE DATE OF DECEMBER 18, 2012.

13. THE OWNERS OF THE LANDS DESCRIBED HEREIN ARE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF DRAINAGE EASEMENTS SHOWN HEREON AND RELATED FACILITIES, AS PROVIDED IN THE TOWN OF ERIE ENGINEERING STANDARDS AND SPECIFICATIONS, AS AMENDED. THE OWNER(S) GRANT THE TOWN OF ERIE A PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTY TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES COVERED BY THE TOWN OF ERIE MUNICIPAL CODE, AS AMENDED; AND TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES, WHEN THE OWNER(S) FAIL TO ADEQUATELY MAINTAIN SUCH DRAINAGE EASEMENTS AND RELATED FACILITIES, WHICH MAINTENANCE, OPERATION AND RECONSTRUCTION SHALL BE AT THE COST OF THE OWNER(S).

14. A BLANKET PUBLIC ACCESS EASEMENT IS GRANTED ACROSS TRACTS A, B, C, D, E, F, G, H AND I.

15. A BLANKET DRAINAGE EASEMENT IS GRANTED ACROSS TRACTS A AND I.

16. MINE SHAFT LOCATION DEPICTED HEREON AFTER REVIEW OF CLIENT PROVIDED DOCUMENT ENTITLED "MINE SUBSIDENCE INVESTIGATION, CANYON CREEK SUBDIVISION, FILINGS 7 AND 8, AND LAFFERTY PROPERTY, 109.41 ACRES, SECTION 13, TOWNSHIP 1 NORTH RANGE 69 WEST, BOULDER COUNTY, COLORADO" (WESTERN ENVIRONMENT AND ECOLOGY, INC., JULY 8, 2020). FOLLOWING REVIEW OF THIS DOCUMENT THE MINE SHAFTS WERE LOCATED IN THE FIELD BY WESTERN ENVIRONMENT AND ECOLOGY, INC. THE LOCATIONS WERE SHOT BY CWC CONSULTING ON SEPTEMBER 13, 2021.

FROM TOWN OF ERIE'S UNIFIED DEVELOPMENT CODE, FEBRUARY 18, 2022:
10.6.13 ABANDONED MINES:
A. GENERAL PROVISIONS: ALL DEVELOPMENT WITH UNDERMINING AND/OR MINE SHAFTS SHALL PROVIDE THE TOWN WITH GEOLOGICAL AND GEOTECHNICAL HAZARDS REPORTS PREPARED, SIGNED AND STAMPED BY A PROFESSIONAL IN THE FIELD OF UNDERMINING. THE REPORTS SHALL BE REFERRED TO THE COLORADO GEOLOGICAL SURVEY FOR REVIEW AND COMMENT. RECOMMENDATIONS FROM THE REPORTS AND COLORADO GEOLOGICAL SURVEY SHALL BE EVALUATED BY THE TOWN WHEN CONSIDERING APPROPRIATE LAND USES, RESTRICTIONS APPLICABLE TO LAND DEVELOPMENT, AND FOUNDATION DESIGN DUE TO UNDERMINING CONSTRAINTS. UNDERMINING AND/OR MINE SHAFTS SHALL BE NOTED ON SKETCH PLANS, PRELIMINARY PLATS, FINAL PLATS AND SITE PLANS.
B. MINESHAFTS:
1. All MINESHAFTS SHALL BE CAPPED AND MONUMENTED IN ACCORDANCE WITH STATE REQUIREMENTS.
2. MINESHAFTS SHALL NOT BE LOCATED ON A RESIDENTIAL LOT.
3. MINESHAFTS MAY BE LOCATED IN A STREET RIGHT-OF-WAY, TRACT, OR IN A NON-RESIDENTIAL LOT WITH AN EASEMENT RESTRICTED FOR PARKING, OPEN SPACE OR LANDSCAPE USE. ANY MODIFICATIONS TO THIS PROVISION PROPOSED BY THE APPLICANT FOR TOWN CONSIDERATION SHALL BE IN COMPLIANCE WITH RECOMMENDATIONS FROM THE GEOLOGICAL AND GEOTECHNICAL HAZARDS REPORTS AND THE COLORADO GEOLOGICAL SURVEY.
4. MINIMUM DIMENSIONS FOR TRACTS/EASEMENTS AND MINIMUM DISTANCES FROM ABANDONED MINESHAFTS TO RESIDENTIAL LOTS AND NON-RESIDENTIAL STRUCTURES SHALL BE DETERMINED BASED ON RECOMMENDATIONS FROM THE GEOLOGICAL AND GEOTECHNICAL HAZARDS REPORTS AND THE COLORADO GEOLOGICAL SURVEY.
C. MINE TAILINGS: IF MINE TAILINGS ARE LOCATED ON A PROPERTY, THE REMOVAL OF MINE TAILINGS SHALL BE ADDRESSED IN A DEVELOPMENT AGREEMENT. THE TOWN SHALL REQUIRE SUBMITTAL OF A PROFESSIONAL CERTIFICATION THAT THE MINE TAILINGS AND HAZARD ASSOCIATED WITH THE TAILING HAS BEEN REMOVED AND COMPLETED.

THE JACKSON MINE SHAFT WILL BE MITIGATED USING A CONCRETE CAP AND COMPACTION TECHNIQUES AS SPECIFIED BY WESTERN ENVIRONMENT AND ECOLOGY, INC. THE MITIGATION WILL BE PERFORMED IN CONFORMANCE WITH THE CAPPING DETAIL PROVIDED AND AT THE TIME OF FINAL CONSTRUCTION DEVELOPMENT BASED ON THE SPECIFICATION AND DEPTH.

THE CANFIELD MINE SHAFT WILL BE MITIGATED USING A CONCRETE CAP, POND LINER AND COMPACTION TECHNIQUES AS SPECIFIED BY WESTERN ENVIRONMENT AND ECOLOGY, INC. THE CANFIELD SHAFT WILL BE REVIEWED AND ADDITIONAL CAP MATERIAL MAY BE REQUIRED TO ENSURE NO WATER RELEASES FROM THE DETENTION POND INTO THE MINE SHAFT. THE SHAFT AND DETENTION POND MITIGATION WILL BE PERFORMED IN CONFORMANCE WITH THE CAPPING DETAIL PROVIDED AND AT THE TIME OF FINAL CONSTRUCTION DEVELOPMENT BASED ON THE SPECIFICATION AND DEPTH.

17. TO REDUCE RISK OF SUBSIDENCE-RELATED DAMAGE, AND IN ACCORDANCE WITH THE RECOMMENDATIONS IN MINE SUBSIDENCE INVESTIGATION, CANYON CREEK SUBDIVISION FILINGS 7 AND 8, AND LAFFERTY PROPERTY, 109.41 ACRES, SECTION 13, TOWNSHIP 1 NORTH RANGE 69 WEST, BOULDER COUNTY, COLORADO (WESTERN ENVIRONMENT AND ECOLOGY, INC., REVISED JULY 8, 2020 AND ON FILE WITH THE TOWN OF ERIE PLANNING AND DEVELOPMENT DEPARTMENT FILE NO. PP-001214-2020): NO BUILDING OR BUILDING SEGMENT WITHIN LAFFERTY AT CANYON CREEK, BLOCKS 5, 6, AND 7 MAY EXCEED 67 FEET IN LENGTH OR WIDTH. ALL STRUCTURES WITHIN LAFFERTY AT CANYON CREEK, BLOCKS 5, 6, AND 7 MUST BE CONSTRUCTED WITH STRAIN ISOLATION TRENCHES.

18. PER THE REQUEST RECEIVED FROM STRATUS CANYON CREEK, LLC; CWC CONSULTING GROUP, INC. FIELD OBSERVED AND RECORDED THE POSITION OF THE CANFIELD MINE SHAFT AND JACKSON MINE SHAFT WHICH WAS UNCOVERED IN THE FIELD BY WESTERN ENVIRONMENT AND ECOLOGY, INC. AND SURVEYED ON SEPTEMBER 14, 2021. THE PROJECT COORDINATE OF THE CANFIELD MINE SHAFT IS NORTHING: 262,028.6', EASTING: 121,600.9'. THE PROJECT COORDINATE OF THE JACKSON MINE SHAFT IS NORTHING: 261,012.3', EASTING: 121,369.9'. THE PROJECT COORDINATE SYSTEM IS A MODIFIED COLORADO STATE PLANE AT GROUND WITH THE FOLLOWING LOCAL SITE SETTINGS: PROJECT LATITUDE: N40°02'38.32882", PROJECT LONGITUDE: W105°03.54.06792", PROJECT HEIGHT: 5029.391' AND A GROUND SCALE FACTOR OF 1.000240013027 5.

THE UNITED STATES/STATE PLANE 1983, NAD83 (2011), COLORADO NORTH 0501 ZONE STATE PLANE COORDINATE IS NORTHING: 1,259,544.4', EASTING: 3,121,561.4'.

THE LOCATION OF THE CANFIELD MINE SHAFT AND JACKSON MINE SHAFT IS SHOWN HEREON ON SHEET 3 AND 4 PER SAID FIELD OBSERVATIONS.

19. THE LAFFERTY AT CANYON CREEK FINAL PLAT CONSTITUTES A SITE SPECIFIC DEVELOPMENT PLAN AS DEFINED IN C.R.S. § 24-68-101, ET SEQ., AND CHAPTER 3 OF TITLE 9 OF THE ERIE MUNICIPAL CODE, AND SHALL CREATE VESTED PROPERTY RIGHTS FOR 3 YEARS FROM THE DATE OF TOWN APPROVAL OF THE FINAL PLAT.

20. PERMANENT STRUCTURES, IMPROVEMENTS, OBJECTS, BUILDINGS, WELLS, WATER METERS AND OTHER OBJECTS THAT MY INTERFERE WITH THE UTILITY FACILITIES OR USE THEREOF (INTERFERING OBJECTS) SHALL NOT BE PERMITTED WITHIN SAID UTILITY EASEMENTS AND THE UTILITY PROVIDERS, AS GRANTEES, MAY REMOVE ANY INTERFERING OBJECTS AT NOT COST TO SUCH GRANTEES, INCLUDING, WITHOUT LIMITATION, VEGETATION. PUBLIC SERVICE COMPANY OF COLORADO (PSCo) AND ITS SUCCESSORS RESERVE THE RIGHT TO REQUIRE ADDITIONAL EASEMENTSAND TO REQUIRE THE PROPERTY OWNER TO GRANT PSCo AND EASEMENT ON ITS STANDARD FORM.

NOTES

21. LAFFERTY AT CANYON CREEK SUBDIVISION IS SUBJECT TO THE DITCH RELOCATION AND MAINTENANCE AGREEMENT AS SHOWN IN THE RECORDS OF THE BOULDER COUNTY CLERK AND RECORDER'S OFFICE AT RECEPTION NO. 04031210, RECORDED DECEMBER 14, 2023.

SURVEYOR'S CERTIFICATE

I, ERIC DAVID CARSON, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON APRIL 20, 2020, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:50,000 (SECOND ORDER); AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISIONS OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS _____ DAY OF _____, 2024.

_____
ERIC DAVID CARSON

COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR #37890

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS PLAT IS TO BE KNOWN AS LAFFERTY AT CANYON CREEK SUBDIVISION IS APPROVED AND ACCEPTED BY RESOLUTION NO. _____, PASSED AND ADOPTED AT A MEETING OF THE BOARD OF TRUSTEES OF ERIE, COLORADO, HELD ON THE _____ DAY OF _____ 2024.

_____
MAYOR

ATTEST _____
TOWN CLERK

PLANNING AND DEVELOPMENT APPROVAL CERTIFICATE

THIS PLAT IS HEREBY APPROVED BY THE TOWN OF ERIE PLANNING & DEVELOPMENT DIRECTOR ON THIS _____ DAY OF _____, 2024.

_____
PLANNING & DEVELOPMENT DIRECTOR

TRACT SUMMARY CHART

NAME	AREA (AC)	AREA (SF)	USE
TRACT A	5.380	234,361	DRAINAGE, OPEN SPACE, LANDSCAPING
TRACT B	0.619	26,999	DRAINAGE, LANDSCAPING
TRACT C	0.075	3,257	DRAINAGE, LANDSCAPING
TRACT D	0.041	1,778	DRAINAGE, LANDSCAPING
TRACT E	0.130	5,648	DRAINAGE, LANDSCAPING
TRACT F	0.088	3,818	DRAINAGE, LANDSCAPING
TRACT G	0.115	5,029	DRAINAGE, LANDSCAPING
TRACT H	0.539	23,500	POCKET PARK
TRACT I	1.474	64,214	DRAINAGE, LANDSCAPING
TRACT J	0.669	29,146	PRIVATE CONVEYANCE TO ADJACENT PROPERTY
TOTAL:	9.131	397,750	

LAND SUMMARY CHART

TYPE	AREA (AC)	AREA (SF)	% OF TOTAL AREA
LOTS (132)	21.610	941,349	54.483%
TRACTS (10)	9.131	397,750	23.021%
ROW	8.923	388,690	22.496%
TOTAL:	39.665	1,727,789	100.000%

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
10/10/23	TOWN COMMENTS-SECOND REVIEW, EASEMENT UPDATE	EDC
01/12/24	DITCH LATERAL EASEMENT UPDATE, LOTS 3-5, BLOCK 8	EDC
02/21/24	EASEMENT UPDATE, LOTS 2, BLOCK 15, TRACT A	EDC
03/15/24	ADDED NOTE #21	EDC
05/23/24	EASEMENT UPDATES	EDC

DRAFTED: XXX | CHECKED: E.D.C.
DATE: 01/25/2023 | JOB NO. 120-00334 130-00102
SURVEY PREPARED FOR: STRATUS STONEGATE, LLC
SHEET NO. 1 OF 4 SHEETS

T:\JOBS\1-20 Survey\120-00334 (130-00102)_Lafferty at Canyon Creek Subdivision\dwg\120-00334-FP.dwg Date:05/23/24 08:36a ecarson

LAFFERTY AT CANYON CREEK SUBDIVISION

FINAL PLAT

BEING A PART OF THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF BOULDER, STATE OF COLORADO
39.665 ACRES - 132 LOTS / 10 TRACTS
FP-001545-2023

POINT OF COMMENCEMENT
NORTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
2.5" ALUMINUM CAP, 0.4' DOWN IN A RANGE BOX WITH NO LID, TOP OF RANGE BOX IS 0.2' BELOW ASPHALT ROADWAY, STAMPED "CIVIL ARTS, T1N, 1/4, S14 | S13, R69W, 2016, PLS 25379"

FOUND 2" ALUMINUM CAP, FLUSH WITH GROUND SURFACE, STAMPED "CIVIL ARTS, *, PLS 25379" (29.77' MON REC TIE) 29.79' TIE

FOUND 3.5" BRASS CAP, SET IN CONCRETE FLUSH WITH GROUND SURFACE, STAMPED "U.S. GEOLOGICAL SURVEY, BENCH MARK, JR 54, ELEVATION, ABOVE SEA LEVEL, 5050 FEET, 1948" (80.72' MON REC TIE) 80.74' TIE

NORTHWEST CORNER OF THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
FOUND #4 REBAR, 0.1' ABOVE CONCRETE BASE, 0.1' BELOW GROUND SURFACE

REGIONAL TRANSPORTATION DISTRICT
(PARCEL NO. 146513000069)
VACANT LAND
ZONING: ROW
TOWN OF ERIE

JAY ROAD
(EX. PUBLIC R.O.W.-WIDTH VARIES)

RIGHT-OF-WAY DEDICATED BY SEPARATE DOCUMENT

CENTER CORNER OF SECTION 13
FOUND 2.5" ALUMINUM CAP 0.7' BELOW GRASS SURFACE, STAMPED "ALBERS DREXEL & POHLY, T1N R69W, C1/4 + S13, 1997, LS 24305"

N89°35'51"W 1328.31'
NORTH LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13

CORNER IS UNDER WATER, NOTHING SET

N89°35'37"W 1328.40'
NORTH LINE OF THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13

FOUND 3.25" ALUMINUM CAP, 0.1' BELOW GROUND SURFACE, STAMPED "REGIONAL TRANSPORTATION DISTRICT, UNLAWFUL TO DISTURB, PLS 24942, POINT #1154, ROW MONUMENT"

50.70' (TIE)
(SOUTH 50.70' TIE R2)

POINT OF BEGINNING
(BK.1300, PG.398) (R2)

FOUND 3.25" ALUMINUM CAP, FLUSH WITH GROUND SURFACE, STAMPED "REGIONAL TRANSPORTATION DISTRICT, ROW MONUMENT, UNLAWFUL TO DISTURB, POINT #WC 1158, C1158, PLS 24942, 30.03 <-" (58.68' MON REC TIE) 58.67' TIE

N89°41'22"E 1320.00'
(NORTH 89°46' EAST 1320.00' R)

N89°42'02"E 528.59' (N89°58'27"W RTD)

SET 1.25" PPC, FLUSH WITH GROUND SURFACE, STAMPED "WC, CWC CG INC, PLS 37890" 20.00' EASTERLY ON LINE

SET 1.25" PPC, FLUSH WITH GROUND SURFACE, STAMPED "WC, CWC CG INC, PLS 37890" 20.00' SOUTHERLY AND ON LINE

L=819.74' R=2764.79' Δ=16°59'16" RAD=2764.79' BRG=N81°28'49"W CHORD=S81°48'20"E 816.74' CH=816.74' ARC=819.73' RTD)

PIPED LATERAL EASEMENT (RECP. NO.04036871)

PIPED LATERAL EASEMENT (RECP. NO.04047914)

TRACT A

RIGHT-OF-WAY DEDICATED BY SEPARATE DOCUMENT

FOUND 3.25" ALUMINUM CAP, FLUSH WITH GROUND SURFACE, STAMPED "REGIONAL TRANSPORTATION DISTRICT, ROW MONUMENT, UNLAWFUL TO DISTURB, POINT #1152, PLS 24942"

RIGHT-OF-WAY DEDICATED BY SEPARATE DOCUMENT

FOUND 3.25" ALUMINUM CAP, FLUSH WITH GROUND SURFACE, STAMPED "REGIONAL TRANSPORTATION DISTRICT, ROW MONUMENT, UNLAWFUL TO DISTURB, POINT #1151, PLS 24942"

TOWN OF ERIE
(PARCEL NO. 146513000073)
(RECP. NO. 2004040413)
VACANT LAND
ZONING: ROW

LOT 1 BLOCK 17
CANYON CREEK FILING NO. 8
(RECP. NO. 04028047)
ZONING: PD-PLANNED DEVELOPMENT
TOWN OF ERIE

NW 1/4
SE 1/4
SEC. 13

LEGEND

- FOUND MONUMENT AS NOTED; NOTE: BEARING AND DISTANCE, IF LISTED, IS FROM THE BOUNDARY CORNER TO THE FOUND MONUMENT.
- FOUND PLSS MONUMENT AS NOTED
- SET NO. 5 REBAR WITH PPC, STAMPED "MG LLC, 37890" OR 1" BRASS TAG & ALUMINUM NAIL, STAMPED "MG LLC, 37890"

BOUNDARY LINE
SECTION/ALIQUOT LINE
RIGHT-OF-WAY LINE
CENTER/RANGE LINE
TRACT/LOT LINE
EASEMENT LINE

YPC = YELLOW PLASTIC CAP
RPC = RED PLASTIC CAP
PPC = PINK PLASTIC CAP
ESMT. = EASEMENT
R.O.W. = RIGHT OF WAY
EX. = EXISTING
BK. , PG. = BOOK , PAGE
RECP. NO. = RECEPTION NUMBER
(R1)=RECORD PER BOOK 1274, PAGE 188
(R2)=RECORD PER BOOK 1300, PAGE 398
RTD=RECORD PER RTD ROW MAP LS-17-0051
DE = DRAINAGE EASEMENT
DLE = DITCH LATERAL DRAINAGE EASEMENT

BRIAN J & KELLY M CARLSON
(PARCEL NO. 146513000065)
(RECP. NO. 3077785) (BK. 1300, PG. 398)
RESIDENCE
ZONING: A-AGRICULTURAL
COUNTY OF BOULDER

BASIS OF BEARINGS
N00°04'38"W 1316.98' (SECTION LINE)
WEST LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
998.60' (998.60' R1)
925.30' (NORTH 925.30' R2)
EASTERLY RIGHT-OF-WAY LINE OF NORTH 119TH STREET

GRAPHIC SCALE
100' 0 50' 100' 200'
(IN FEET)
1 inch = 100 ft.

NW 1/4
SW 1/4
SECTION 13

N00°04'38"W 949.29' (SOUTH 949.50' R2)
WEST LINE OF THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13

FOUND #5 REBAR BENT EASTERLY, FLUSH WITH GROUND SURFACE, AT SPIN POINT

S89°15'38"E 1290.12'

FOUND 1.25" PPC, FLUSH WITH GROUND SURFACE, STAMPED "CWC CG INC, PLS 37890"

N00°04'38"W 22.60'

TRACT J 29,146 SQ.FT. (0.669 ACRES)

N00°14'06"E 22.59'

POINT OF BEGINNING
(BK.1274, PG.188) (R1)

FOUND 1.25" PPC, 0.1' BELOW GROUND SURFACE, STAMPED "CWC CG INC, PLS 37890"

N89°15'38"W 1290.00'
NORTH LINE OF BOOK 1274 AT PAGE 188 (NORTH 89°11' WEST 1320' R1)

FOUND 1.25" PPC, FLUSH WITH GROUND SURFACE, STAMPED "CWC CG INC, PLS 37890"

SOUTH LINE OF BOOK 1300 AT PAGE 398 (NORTH 89°11' WEST 1320' R2)

J & J ELKE TRUST
(PARCEL NO. 146513000061)
(RECP. NO. 2075465) (BK. 1274, PG.188)
RESIDENCE
ZONING: A-AGRICULTURAL
COUNTY OF BOULDER

N00°04'38"W 312.74'
(NORTH 330' R1)

FOUND 0.75" TAG & NAIL, 3.7' ABOVE GROUND SURFACE, ON TOP OF OLD WOOD FENCE POST, STAMPED "PLS 23500" (93.54' MON REC TIE) 93.54' TIE

318.38' (SOUTH 330' R1)

TRACT I

350' OIL/GAS EQUIPMENT SETBACK

150' OIL/GAS WELL SETBACK

NORTH LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
1319.93' (SOUTH 89°11' EAST 1320' R1)
N89°30'20"W 1329.32' (SECTION LINE)

OIL/GAS EQUIPMENT

FOUND 1.25" YPC, FLUSH WITH GROUND SURFACE, ILLEGIBLE

OIL/GAS EQUIPMENT

N65°47'17"E 119.09'

N02°23'49"W 93.08'

N58°37'42"E 219.40'
WELL HEAD TO ADJOINT CORNER

CENTER OF OIL/GAS PRODUCTION FACILITY

OIL/GAS WELL HEAD

N89°30'20"W 9.39'

THOMAS M. JONES
(PARCEL NO. 146513000060)
(RECP. NO. 2004874)
RESIDENCE
ZONING: A-AGRICULTURAL
COUNTY OF BOULDER

FOUND 0.75" TAG & NAIL, 2.0' ABOVE GROUND SURFACE ON SOUTHEASTERLY FACE OF UTILITY POLE LEANING WEST, STAMPED "PLS 23500" (34.10' MON REC TIE) 34.28' TIE

N 119TH STREET
(60' PUBLIC R.O.W.)

SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
2" ALUMINUM CAP, 0.3' BELOW ASPHALT ROADWAY, STAMPED "A.M. HASCALL, 6TH PM, PLS 23500 1995, 16TH, R69W", DAMAGED

SW 1/4
SW 1/4
SEC. 13

NORTHWEST CORNER OF THE SOUTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
FOUND 2.5" ALUMINUM CAP 0.4' ABOVE GROUND SURFACE, STAMPED "JR ENG, T1N R69W, S1/16, + S13, 2000, LS 19606"

TRACT C

350' OIL/GAS FACILITY SETBACKS

SEE SHEET 3

BLOCK 7
BLOCK 8
BLOCK 15
BLOCK 14
BLOCK 13
BLOCK 1

DIAMOND COURT
PULLMAN COURT
RAILCAR COURT
LOMBARDI STREET
(80' PUBLIC R.O.W.)

NE 1/4
SW 1/4
SECTION 13

TRACT E
TRACT D
TRACT C
WAGON DRIVE

BLOCK 6
BLOCK 9
TRACT H
BLOCK 12
TRACT F
DIAMOND STREET
RAILCAR STREET
BLOCK 2

CARRIAGE AVENUE

SEE SHEET 4

BLOCK 5
TRACT G
BLOCK 10
BLOCK 11
JUNCTION STREET
(60' PUBLIC R.O.W.)
TRACT B
S00°09'52"E 1182.60'
EAST LINE OF THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13

STRINGER DRIVE

BLOCK 4
BLOCK 3

NORTH LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
N89°30'10"W 1329.43'

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 TRACT B LOT 1 LOT 2 LOT 3
BLOCK 1
BLOCK 2

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10 TRACT A
BLOCK 3

CANYON CREEK FILING NO. 7
(RECP. NO. 8402886A)
ZONING: PD-PLANNED DEVELOPMENT
TOWN OF ERIE

SW 1/4
SE 1/4
SEC. 13

CARRIAGE DRIVE
(EX. 60' PUBLIC R.O.W.)

TRACT A

CANYON CREEK FILING NO. 8
(RECP. NO. 04028047)
ZONING: PD-PLANNED DEVELOPMENT
TOWN OF ERIE

FOUND 3.25" ALUMINUM CAP 0.2' ABOVE GROUND SURFACE, STAMPED "T1N R69W, C, S1/16 + S13, C, 2007, PLS 35593" N11°34'19"E 0.21'
*THIS MONUMENT WAS NOT ACCEPTED.

POINT OF BEGINNING (P.O.B.)
SOUTHEAST CORNER OF THE NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13
FOUND 2.5" ALUMINUM CAP 0.1' ABOVE GROUND SURFACE, STAMPED "JR ENG, T1N R69W, C, S1/16, | S13, C, 2000, LS 19606"

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY

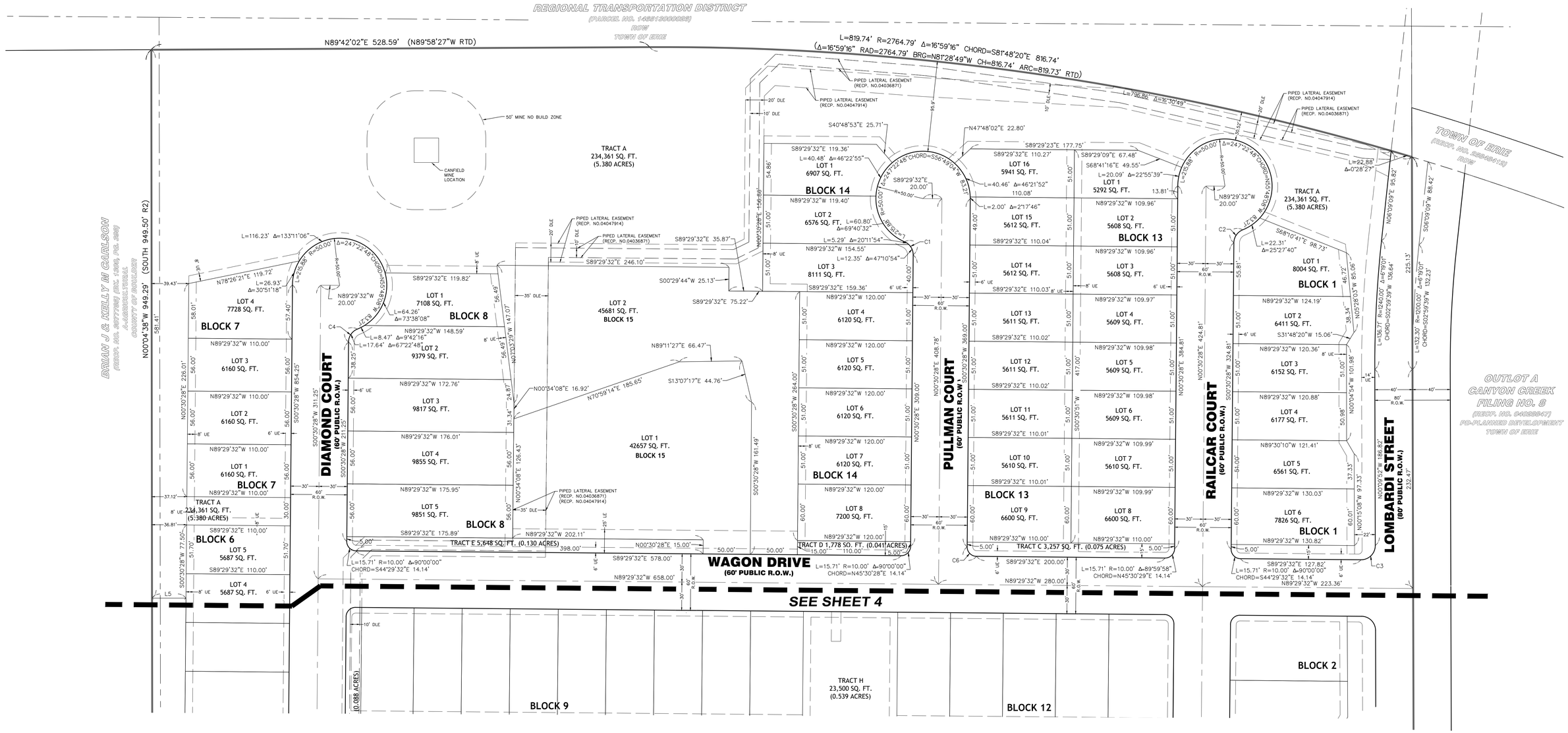
DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 01/25/2023 | JOB NO. 120-00334 130-00102
SURVEY PREPARED FOR: STRATUS STONEGATE, LLC

T:\JOBS\1-20 Survey\120-00334 (130-00102)_Lafferty at Canyon Creek Subdivision\dwg\120-00334-FP.dwg Date:05/23/24 08:36a ecarson

LAFFERTY AT CANYON CREEK SUBDIVISION

FINAL PLAT

BEING A PART OF THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF BOULDER, STATE OF COLORADO
39.665 ACRES - 132 LOTS / 10 TRACTS
FP-001545-2023



LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- CENTER LINE
- EASEMENT LINE

ABBREVIATIONS:
UE = UTILITY EASEMENT
DLE = DITCH LATERAL EASEMENT BY SEPARATE DOCUMENT REC. NO. _____
LE = LANDSCAPE EASEMENT BY SEPARATE DOCUMENT REC. NO. _____
R.O.W. = RIGHT-OF-WAY

GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

CURVE/LINE DATA:
C1: L=17.64' R=15.00' Δ=67°22'48" CHORD=N33°10'56"W 16.64'
C2: L=17.64' R=15.00' Δ=67°22'48" CHORD=S34°11'52"W 16.64'
C3: L=23.74' R=15.00' Δ=90°40'20" CHORD=N45°10'18"E 21.34'
C4: L=17.64' R=15.00' Δ=67°22'48" CHORD=S34°11'52"W 16.64'
C6: L=15.71' R=10.00' Δ=90°00'00" CHORD=S44°29'32"E 14.14'
L5: S89°55'22"W 36.02'

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY

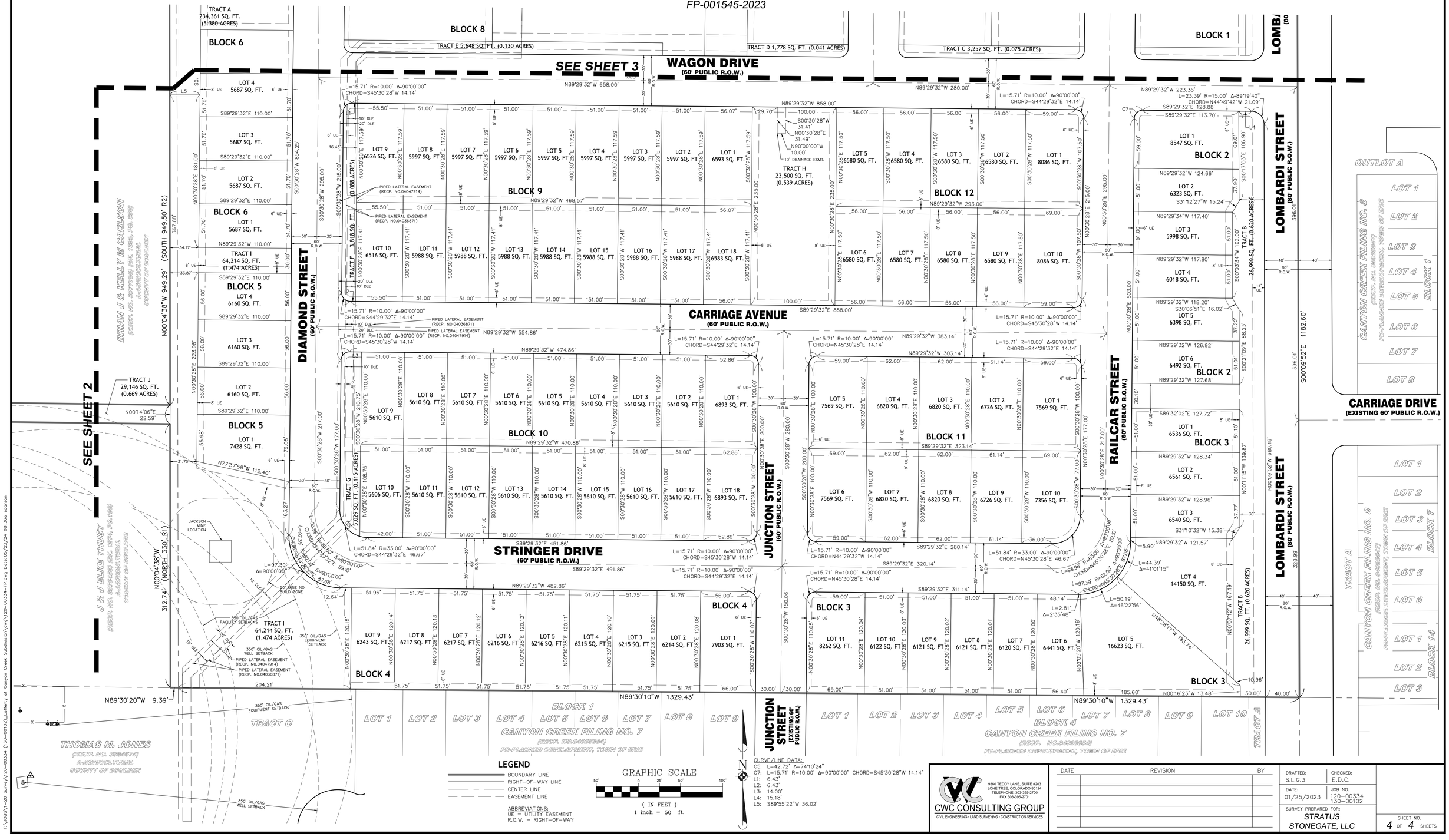
DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 01/25/2023 | JOB NO. 120-00334 130-00102
SURVEY PREPARED FOR: STRATUS STONEGATE, LLC
SHEET NO. 3 OF 4 SHEETS

T:\OBS\1-20 Survey\120-00334 (130-00102)_Lafferty at Canyon Creek Subdivision\dwg\120-00334-FP.dwg Date:05/23/24 08:36a ecarson

LAFFERTY AT CANYON CREEK SUBDIVISION

FINAL PLAT

BEING A PART OF THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF BOULDER, STATE OF COLORADO
39.665 ACRES - 132 LOTS / 10 TRACTS
FP-001545-2023



LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- CENTER LINE
- EASEMENT LINE

ABBREVIATIONS:
UE = UTILITY EASEMENT
R.O.W. = RIGHT-OF-WAY

GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

CURVE/LINE DATA:
C5: L=42.72' Δ=74°10'24"
C7: L=15.71' R=10.00' Δ=90°00'00" CHORD=S45°30'28"W 14.14'
L1: 6.43'
L2: 6.43'
L3: 14.00'
L4: 15.18'
L5: S89°55'22"W 36.02'

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 01/25/2023 | JOB NO. 120-00334 130-00102
SURVEY PREPARED FOR: STRATUS STONEGATE, LLC
SHEET NO. 4 OF 4 SHEETS

T:\JOBS\1-20 Survey\120-00334 (130-00102)_Lafferty at Canyon Creek Subdivision\dwg\120-00334-FP.dwg Date:05/23/24 08:36a ecarson

Development Agreement
(Lafferty at Canyon Creek Subdivision)

This Development Agreement (the "Agreement") is made and entered into this ____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of P.O. Box 750, Erie, CO 80516 (the "Town"), and Stratus Stonegate LLC, a Colorado limited liability company with an address of 1842 Montane Drive East, Golden, CO 80401 ("Developer") (each a "Party" and collectively the "Parties").

Whereas, Developer is the owner of the real property more particularly described in **Exhibit A** attached hereto and incorporated herein by this reference (the "Property");

Whereas, Developer wishes to develop the Property (the "Development"), and has filed an application for approval of a final plat for Lafferty at Canyon Creek Subdivision (the "Final Plat"); and

Whereas, the Parties acknowledge and agree that the matters hereinafter set forth are reasonable conditions and requirements to be imposed by the Town in connection with its approval of the Development, and that such matters are necessary to protect, promote and enhance the public health, safety and welfare.

Now, therefore, in consideration of the promises and the mutual covenants herein contained, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. Purpose. The purpose of this Agreement is to set forth the terms and conditions under which the Development may proceed. All provisions of this Agreement are in addition to, and not in lieu of, any requirements of the Erie Municipal Code (the "Code") and other applicable law.

2. District.

a. The Parties acknowledge that Developer has formed the Lafferty Canyon Metropolitan District (the "District") for the purpose of providing facilities and services for the Development. Any obligation of Developer under this Agreement may be performed by the District, provided that the District will be bound by this Agreement for any obligations that it undertakes on behalf of Developer.

b. Pursuant to the Town's Special District Policy, Developer agrees to the following additional conditions for the Development:

i. Developer shall cause the oil and gas wells known as Canyon Creek 33-13 and Canyon Creek 43-13, located within Tract P of Canyon Creek Subdivision Filing No. 8, to be plugged and abandoned, in compliance with all applicable law;

ii. Developer shall cause the plugged and abandoned wells to be monitored for a minimum of 5 years following completion of the plugging and abandonment;

iii. Developer shall require that all new homes constructed in the Development have solar panels installed meeting 50% of energy needs;

iv. Developer shall require that garages of all new homes constructed in the Development are pre-wire installed for electric vehicle charging stations; and

v. Developer shall require that all new homes constructed in the Development have installed 1.5 gpm shower heads, dual flush toilets, lead detection systems and high efficiency irrigation nozzles.

3. Construction of Improvements.

a. *General.* Developer shall, at its own expense, design, construct and install all public improvements necessary for the Development, including without limitation streets, alleys, curbs, gutters, sidewalks, landscaping, irrigation, fencing, street lights, water, waste water, storm sewer and drainage facilities, and trails and park improvements (collectively the "Improvements"). A list of the required Improvements is set forth in **Exhibit B**, attached hereto and incorporated herein by this reference. Omission of any necessary Improvement from **Exhibit B** does not relieve Developer from responsibility for furnishing, installing or constructing such Improvement.

b. *Construction Standards.* Developer shall construct the Improvements in accordance with plans approved by the Town (the "Plans"), as well as the Town's Standards and Specifications for Design and Construction of Public Improvements (the "Standards"). Developer shall furnish, at its expense, all necessary engineering and consulting services relating to the design and construction of the Improvements. These services shall be performed by or under the supervision of a professional engineer licensed in the State of Colorado.

c. *Public Improvement Permit.* Before the construction of any Improvements, Developer shall obtain a Public Improvement Permit ("PIP") from the Town as provided in the Code. Developer shall reimburse the Town for any expenses incurred by the Town for review of the application or associated documents. Unless otherwise approved by Town, overlot grading shall not be initiated until the Town approves drainage plans by the issuance of the PIP.

d. *Testing and Inspection.* Developer shall employ, at its own expense, a licensed testing company to perform all testing of materials or construction reasonably required by the Town. Developer shall furnish copies of test results to the Town on a timely basis. At all times during construction, the Town shall have access to inspect materials and work, and all materials and work not conforming to the Plans or Standards shall be repaired or removed and replaced at Developer's expense.

e. *Rights-of-way and Easements*. Prior to construction of any Improvements that require additional rights-of-way or easements, Developer shall acquire at its own expense all such rights-of-way and easements. Any easements or rights-of-way conveyed to the Town shall be free and clear of liens, taxes and encumbrances and shall be conveyed on documents in a form acceptable to the Town.

f. *Permits*. Developer shall, at its own cost, obtain the following permits, as applicable:

i. Any permits required by the United States Corps of Engineers.

ii. Colorado Department of Health and Environment General Permit for Stormwater Discharges Associated with Construction Activity.

iii. Grading, stormwater quality and right-of-way permits.

iv. Air quality permit.

g. *As-Built Drawings*. Upon completion of construction of the Improvements, Developer shall provide the Town with complete "as-built" drawings in the form required by the Standards.

h. *Applicable Law*. Developer shall at all times comply with all applicable law, including all federal, state and local statutes, regulations, ordinances, decrees and rules relating to the emission, discharge, release or threatened release of a hazardous material into the air, surface water, groundwater or land, the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a hazardous material, and the protection of human health and safety, including without limitation the following, as amended: the Comprehensive Environmental Response, Compensation and Liability Act; the Hazardous Materials Transportation Act; the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Clean Water Act; the Clean Air Act; the Occupational Safety and Health Act; the Solid Waste Disposal Act; the Davis Bacon Act; the Copeland Act; the Contract Work Hours and Safety Standards Act; the Byrd Anti-Lobbying Amendment; the Housing and Community Development Act; and the Energy Policy and Conservation Act.

4. Acceptance of Improvements and Warranty.

a. *Initial Acceptance*. No later than 10 days after Improvements are substantially complete, Developer shall request an inspection by the Town. If Developer does not request this inspection, the Town may conduct the inspection without Developer's approval. All Improvements for Phase 1 shall receive Initial Acceptance on or before November 30, 2025. All Improvements for Phase 2 shall receive Initial Acceptance on or before November 30, 2026. All Improvements for Phase 3 shall receive Initial Acceptance on or before November 30, 2027.

i. If the Improvements are satisfactory, the Town shall grant Initial Acceptance.

ii. If the Improvements are not satisfactory, the Town shall provide written notice to Developer of the repairs, replacements, construction or other work required to receive Initial Acceptance. Developer shall complete all needed repairs, replacements, construction or other work within 30 days of said notice. After Developer completes the repairs, replacements, construction or other work required, Developer shall request of the Town a re-inspection of such work to determine if Initial Acceptance can be granted, and the Town shall provide written notice to Developer of the acceptability or unacceptability of such work prior to proceeding to complete any such work at Developer's expense. If Developer does not complete the repairs, replacements, or other work required within 30 days, Developer shall be in breach of this Agreement. The costs of re-inspection shall be borne by Developer.

b. *Final Acceptance*. At least 30 days before 2 years has elapsed from the issuance of Initial Acceptance, or as soon thereafter as weather permits, Developer shall request an inspection by the Town. If Developer does not request this inspection, the Town may conduct the inspection without Developer's approval.

i. If the Improvements are satisfactory, the Town shall grant Final Acceptance.

ii. If the Improvements are not satisfactory, the Town shall provide written notice to Developer of the work required to receive Final Acceptance. After Developer completes such work, Developer shall request a re-inspection, and the Town shall provide written notice to Developer of the acceptability or unacceptability of such work. If Developer does not complete the required work in an acceptable manner within 30 days, Developer shall be in breach of this Agreement.

c. *Warranty*. For all Improvements to be dedicated to the Town, Developer shall provide the Town with a 2-year warranty, commencing on the date of Initial Acceptance (the "Warranty Period"). Specifically, but not by way of limitation, Developer shall warrant that: the title is marketable and its transfer rightful; the Improvements are free from any security interest or other lien or encumbrance; and the Improvements are free of defects in materials or workmanship. During the Warranty Period, Developer shall, at its own expense, take all actions necessary to maintain the Improvements and make all necessary repairs or replacements.

5. Maintenance.

a. *Improvements*. Unless dedicated to and accepted in writing by the Town for maintenance, all Improvements shall be maintained by Developer. Acceptance by the

Town of ownership of any Improvement does not constitute acceptance by the Town of maintenance for such Improvement. If Developer wishes to transfer maintenance obligations to the District or any other entity, including an owners' association, Developer shall obtain prior written approval from the Town.

b. *Vacant Lots/Tracts.* Developer shall be responsible for maintenance, including without limitation weed control and debris removal, on all vacant lots/tracts until such time as such lots/tracts are developed.

6. Improvement Guarantee.

a. *Amount and Form.* To secure the construction and installation of the Improvements, Developer shall provide a letter of credit or cash in an amount equal to 115% of the total costs listed in **Exhibit B** (the "Improvement Guarantee"), a form approved by the Town.

b. *Timing.* Developer shall not commence construction, including without limitation staking, earth work, overlot grading or the erection of any structure, temporary or otherwise, until the Town has received and approved the Improvement Guarantee.

c. *Draw.* If the Improvements are not satisfactorily completed within the periods of time specified herein, the Town may draw on the Improvement Guarantee to complete the Improvements. If the Improvement Guarantee is to expire within 14 days and Developer has not yet provided a satisfactory replacement, or completed the Improvements, the Town may draw on the Improvement Guarantee and either hold such funds as security for performance of this Agreement or spend such funds to finish the Improvements or correct problems with the Improvements as the Town deems appropriate. If the Town has drawn on the Improvement Guarantee, and a satisfactory replacement guarantee is provided or the Improvements have been completed, then the Town will release any funds received as a result of its draw within a reasonable period of time, or within 10 days of a request by Developer.

d. *Reduction.* Upon Initial Acceptance of Improvements, the Improvement Guarantee shall be reduced to the amount of 25% of the total actual cost of construction and installation of such Improvements. The reduced Improvement Guarantee shall be held by the Town during the Warranty Period.

7. Reimbursements. Developer shall reimburse the Town for a proportional cost of improvements previously constructed by the Town that benefit the Property, in the amounts and during the times set forth in **Exhibit C**, attached hereto and incorporated herein by this reference.

8. Fees and Dedications.

a. *Park, Open Space and Tree Mitigation Fees*. Developer shall pay park, open space and tree mitigation fees to the Town in the amounts and at the times set forth in **Exhibit C**.

b. *School Fees*. Pursuant to the Intergovernmental Agreement between the Town and Saint Vrain Valley School District No. 2, Developer shall pay the fees set forth in **Exhibit C** to Saint Vrain Valley School District No. 2, which shall be paid in a proportional amount for each building permit for the Development. Proof of payment shall be provided with each building permit application for the Development.

9. Phasing. The Development shall be constructed in phases in accordance with **Exhibit D**, attached hereto and incorporated herein by this reference. Prior to the issuance of any building permits for each Phase, all of the following Improvements shall be installed and shall have received preliminary approval from the Town for that Phase, which requires a finding by the Town Engineer that such Improvements are safe to be used during construction: streets; street signage; water; wastewater; drainage facilities; and streetlights, provided that such streetlights may be temporary at the time of issuance of building permits for that Phase, but must be permanent prior to issuance of any certificates of occupancy for that Phase.

10. Indemnification. Developer agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representatives, agents, employees, attorneys heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by the omission, error, professional error, mistake, negligence, or other fault of Developer, or any officer, employee, representative, agent or subcontractor of Developer. In addition, Developer shall pay all property taxes on property underlying Improvements to be dedicated to the Town before acceptance by the Town, and shall indemnify and hold harmless the Town for any such property tax liability.

11. Developer's Representations and Warranties. Developer hereby represents and warrants to the Town that all of the following are true and correct as of the date of signature and the Effective Date: this Agreement has been duly authorized and executed by Developer as the legal, valid and binding obligation of Developer, and is enforceable as to Developer in accordance with its terms; the person executing this Agreement on behalf of Developer is duly authorized and empowered to execute and deliver this Agreement on behalf of Developer; to the best of Developer's knowledge, there is no pending or threatened litigation, administrative proceeding or other proceeding pending or threatened against Developer which, if decided or determined adversely, would have a material adverse effect on the ability of Developer to undertake its obligations under

this Agreement nor, to the best of Developer's knowledge, is there any fact or condition of the Property known to Developer that may have a material adverse effect on Developer's ability to Develop the Property as contemplated; and neither the execution of this Agreement nor the consummation of the transaction contemplated by this Agreement will constitute a breach under any contract, agreement or obligation to which Developer is a party or by which Developer is bound or affected.

12. Vested Rights. The Final Plat constitutes a site specific development plan as defined in C.R.S. § 24-68-101, *et seq.*, and Chapter 3 of Title 9 of the Erie Municipal Code, and shall create vested property rights for 3 years from the date of approval of the Final Plat provided that all required procedures are followed. The Final Plat shall include the language required by C.R.S. § 24-68-102(4)(a). Developer shall be responsible for publication of the notice required by C.R.S. § 24-68-103(c).

13. Breach.

a. *Remedies.* If Developer breaches this Agreement, the Town may take such action as permitted or authorized by law, this Agreement or the ordinances of the Town, as the Town deems necessary to protect the public health, safety and welfare. The Town's remedies include without limitation:

i. The refusal to issue any building permit or certificate of occupancy;

ii. The revocation of any building permit previously issued under which construction directly related to such building permit has not commenced, except a building permit previously issued to a third party;

iii. A draw on the Improvement Guarantee; and

iv. Any other remedy available at law or in equity.

b. *Notice.* Unless necessary to protect the immediate health, safety and welfare of the Town, or to protect the interest of the Town with regard to the Improvement Guarantee, the Town shall provide Developer 30 days' written notice of its intent to take any action under this Section, during which Developer may cure the breach.

c. *Nature of Remedies.* The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

14. Miscellaneous.

a. *Assignment.* This Agreement shall not be assigned by Developer in whole or in part without the prior written authorization of the Town.

b. *Governing Law and Venue*. The laws of the State of Colorado shall govern this Agreement, and the exclusive venue for any legal proceeding arising out of this Agreement shall be in Boulder County, Colorado.

c. *No Third-Party Beneficiaries*. There are no intended third-party beneficiaries to this Agreement.

d. *Severability*. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

e. *Governmental Immunity*. Nothing herein shall be construed as a waiver of any protections or immunities the Town or its employees, officials or attorneys may have under the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended.

f. *No Joint Venture*. Notwithstanding any provision hereof, the Town shall never be a joint venture in any private entity or activity which participates in this Agreement, and the Town shall never be liable or responsible for any debt or obligation of any participant in this Agreement.

g. *Notice*. Notices under this Agreement shall be sufficiently given if sent by regular U.S. mail, postage prepaid, to the address on the first page of this Agreement.

h. *Integration*. This Agreement, together with all exhibits attached hereto, constitute the entire understanding and agreement of the Parties, integrates all the terms and conditions mentioned herein or incidental thereto, and supersedes all negotiations or previous arrangements between the Parties with respect to any and all of the subject matter hereof.

i. *Recordation*. This Agreement shall be recorded in the real estate records of the Boulder County Clerk and Recorder, and shall be a covenant running with the Property.

j. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

k. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this Agreement due to acts of God, floods, storms, fires, sabotage, terrorist attack, strikes,

riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Developer

By: _____

State of Colorado)
) ss.
County of Jefferson)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this 6th day of June, 2024, by Richard Dean as the manager of Stratus Stonegate LLC.

My commission expires: 5-16-2028

(Seal)

SANDRA L GRIGGS
Notary Public
State of Colorado
Notary ID # 20084017411
My Commission Expires 05-16-2028

_____
Notary Public

Exhibits List

Exhibit A – Legal Description

Exhibit B – Improvements

Exhibit C – Reimbursements and Fees

Exhibit D – Phasing Plan

Exhibit A
Legal Description

A PARCEL IN THE NORTH ONE-HALF OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, TOWNSHIP 1 NORTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARINGS ARE BASED ON THE WEST LINE OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13, SAID TO BEAR NORTH 00°04'38" WEST, A DISTANCE OF 1316.98 FEET, FROM THE SOUTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13 MONUMENTED BY A 2" ALUMINUM CAP, 0.3' BELOW ASPHALT ROADWAY, STAMPED "A.M. HASCALL, 6TH PM, PLS 23500 1995, 16TH, R69W", DAMAGED TO THE NORTHWEST CORNER OF THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 13 MONUMENTED BY A 2.5" ALUMINUM CAP, 0.4' DOWN IN A RANGE BOX WITH NO LID, TOP OF RANGE BOX IS 0.2' BELOW ASPHALT ROADWAY, STAMPED "CIVIL ARTS, T1N, 1/4, S14 | S13, R69W, 2016, PLS 25379";

BEGINNING (P.O.B.) AT THE SOUTHEAST CORNER OF THE NORTHEAST ONE-QUARTER OF SAID SOUTHWEST ONE-QUARTER OF SECTION 13, MONUMENTED BY A 2.5" ALUMINUM CAP, 0.1' ABOVE GROUND SURFACE, STAMPED "JR ENG, T1N R69W, C, S1/16, | S13, C, 2000, LS 19606";

THENCE NORTH 89°30'10" WEST ALONG THE SOUTH LINE OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, A DISTANCE OF 1329.43 FEET TO THE SOUTHWEST CORNER OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13;

THENCE NORTH 89°30'20" WEST ALONG THE SOUTH LINE OF SAID NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, A DISTANCE OF 9.39 FEET TO THE SOUTHEAST CORNER OF THE PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188;

THENCE NORTH 00°04'38" WEST ALONG THE EAST LINE OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188, A DISTANCE OF 312.74 FEET TO THE NORTHEAST CORNER OF SAID DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188;

THENCE NORTH 89°15'38" WEST ALONG THE NORTH LINE OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1274, AT PAGE 188, A DISTANCE OF 1290.00 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF NORTH 119TH STREET (60' PUBLIC RIGHT-OF-WAY WIDTH);

THENCE NORTH 00°04'38" WEST ALONG SAID EASTERLY RIGHT-OF-WAY LINE OF NORTH 119TH STREET, A DISTANCE OF 22.60 FEET TO THE SOUTHWEST CORNER OF A PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398;

THENCE SOUTH 89°15'38" EAST, A DISTANCE OF 1290.12 FEET TO THE SOUTHEAST CORNER OF SAID PARCEL OF LAND DESCRIBED IN THE DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398;

THENCE NORTH 00°04'38" WEST ALONG THE EAST LINE OF SAID DEED DESCRIBED IN THE DOCUMENT RECORDED IN BOOK 1300, AT PAGE 398, A DISTANCE OF 949.29 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF THE REGIONAL TRANSPORTATION DISTRICT RIGHT-OF-WAY (FORMERLY UNION PACIFIC RAILROAD RIGHT-OF-WAY);

THENCE NORTH 89°42'02" EAST ALONG SAID SOUTH RIGHT-OF-WAY LINE, A DISTANCE OF 528.59 FEET TO A POINT OF CURVE;

THENCE EASTERLY A DISTANCE OF 819.74 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 2764.79 FEET AND CENTRAL ANGLE OF 16°59'16", SUBTENDED BY A CHORD WHICH BEARS SOUTH 81°48'20" EAST, A DISTANCE OF 816.74 FEET, TO THE EAST LINE OF SAID NORTHEAST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 13, WHENCE THE CENTER CORNER OF SAID SECTION 13 BEARS NORTH 00°09'52" WEST, A DISTANCE OF 138.65 FEET;

THENCE SOUTH 00°09'52" EAST ALONG SAID EAST LINE, A DISTANCE 1182.60 FEET TO THE POINT OF BEGINNING (P.O.B.).

CONTAINING AN AREA OF 1,727,789 SQUARE FEET (39.665 ACRES), MORE OR LESS

Exhibit B
Improvements

LAFFERTY - PHASE 1

Project Name	LAFFERTY PHASE 1
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Earthwork (for roads, utility alignments and drainage improvements only)					
	1	Mobilization	1	LS	$ 25,000.00	$ 25,000.00
	2	Strip Topsoil & Stockpile (6")	30,662	CY	$ 2.40	$ 73,588.80
	3	Excavation (Cut)	73,077	CY	$ 1.75	$ 127,884.75
	4	Excavation (Fill)	94,630	CY	$ 1.75	$ 165,602.50
	4	Replace Strippings	35,261	CY	$ 2.40	$ 84,626.40
					Subtotal	**$ 476,702.45**
	Sanitary Sewer					
	1	8" PVC	2,065	LF	$ 42.00	$ 86,730.00
	2	4' MH	8	EA	$ 4,275.00	$ 34,200.00
	3	Connect to Existing	1	EA	$ 3,500.00	$ 3,500.00
	4	4" Sanitary Sewer Services	46	EA	$ 1,250.00	$ 57,500.00
	5	Jet and Clean	2,065	LF	$ 2.00	$ 4,130.00
	6	Testing and Certification	2,065	LF	$ 2.00	$ 4,130.00
	7	4X4 Marking Post	46	EA	$ 30.00	$ 1,380.00
	8	Dewatering	1	LS	$ 8,000.00	$ 8,000.00
					Subtotal	**$ 199,570.00**
	Watermain					
	1	Connect to Existing	2	EA	$ 4,350.00	$ 8,700.00
	2	8" Water Main - PVC	2,060	LF	$ 30.00	$ 61,800.00
	3	12" Water Main - PVC (both presure zones)	0	LF	$ 42.50	$ -
	4	8" Water Lowering	1	EA	$ 3,850.00	$ 3,850.00
	5	12" Water Lowering	0	EA	$ 48.00	$ -
	6	8" Gate Valve	18	EA	$ 4,450.00	$ 80,100.00
	7	8" Bend	3	EA	$ 570.00	$ 1,710.00
	8	8"x8" Tee	2	EA	$ 1,050.00	$ 2,100.00
	9	8" Cross	2	EA	$ 1,250.00	$ 2,500.00
	10	12" Gate Valve	0	EA	$ 3,525.00	$ -
	11	12" Bend	0	EA	$ 1,475.00	$ -
	12	12"x8" Tee	0	EA	$ 2,100.00	$ -
	13	MJ Restraint (Dead Line)	55	LF	$ 24.00	$ 1,320.00
	14	Plug w/ Blow Off	4	EA	$ 1,250.00	$ 5,000.00
	15	Fire Hydrant Assembly (Includes 8x6 Tee and Valve)	4	EA	$ 5,200.00	$ 20,800.00
	16	Testing	2,060	LF	$ 1.25	$ 2,575.00
	17	3/4" Services (w/meter pit)	34	EA	$ 1,500.00	$ 51,000.00
	18	Tract Irrigation Service w/ meter	1	EA	$ 1,500.00	$ 1,500.00
	19	Valve Adjustments	18	EA	$ 125.00	$ 2,250.00
					Subtotal	**$ 245,205.00**

LAFFERTY - PHASE 1

Project Name	LAFFERTY PHASE 1
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Storm Sewer					
	1	15" RCP	264	LF	$ 35.00	$ 9,240.00
	2	18" RCP	2,564	LF	$ 48.00	$ 123,072.00
	3	24" RCP	0	LF	$ 65.00	$ -
	4	30" RCP	103	LF	$ 87.00	$ 8,961.00
	5	36" RCP	166	LF	$ 108.00	$ 17,901.00
	6	42" RCP	0	LF	$ 142.00	$ -
	7	23"x14" HERCP	0	LF	$ 225.00	$ -
	8	18" FES	1	EA	$ 1,800.00	$ 1,800.00
	9	36" FES	0	EA	$ 2,400.00	$ -
	10	42" FES	0	EA	$ 3,200.00	$ -
	11	4' MH	12	EA	$ 4,200.00	$ 50,400.00
	12	5' MH	2	EA	$ 4,200.00	$ 8,400.00
	13	8.33'x8.33' Box Base Manhole	1	EA	$ 15,000.00	$ 15,000.00
	14	6' MH	3	EA	$ 5,180.00	$ 15,540.00
	15	20' Type R Inlet	2	EA	$ 15,000.00	$ 30,000.00
	16	10' Type R Inlet	1	EA	$ 8,000.00	$ 8,000.00
	17	15' Type R Inlet	1	EA	$ 12,500.00	$ 12,500.00
	18	5' Type R Inlet	2	EA	$ 6,000.00	$ 12,000.00
	19	Low Tailwater Riprap Basin - Type M Riprap	0	LS	$ 2,590.00	$ -
	20	Low Tailwater Riprap Basin - Concrete Cutoff Wall	0	CY	$ 425.00	$ -
	21	Rock Swale	0	LF	$ 28.00	$ -
	22	Outlet Structure Modification	0	EA	$ 15,000.00	$ -
	23	Rip Rap Type M D-12"	0	SY	$ 87.50	$ -
	24	Type C Area Inlet	2	EA	$ 3,000.00	$ 6,000.00
					Subtotal	**$ 318,814.00**

	Concrete - Flatwork					
	1	Subgrade Prep (Sidewalk and Curb & Gutter)	3,050	SY	$ 1.60	$ 4,880.00
	2	5' Detached Concrete Walk - Local	1,950	SY	$ 49.00	$ 95,550.00
	3	5' Detached Concrete Walk - Collector	0	SY	$ 49.00	$ -
	4	Mountable Curb / Gutter - Local	3,498	LF	$ 26.75	$ 93,571.50
	5	6" Vertical Curb w/ 2' Gutter - Jasper Road	0	LF	$ 24.80	$ -
	6	Median Curb and Gutter - Jasper Road	0	LF	$ 26.55	$ -
	7	Median Splash Block - Jasper Road	0	SY	$ 28.80	$ -
	8	Private Entry Drive - Lafferty Parcel	0	EA	$ 5,800.00	$ -
	9	Median Cross Walk Access - Jasper Road	0	EA	$ 8,500.00	$ -
	10	Handicap ramp	16	EA	$ 2,100.00	$ 33,600.00
	11	Crosspan / Transitions	5	EA	$ 4,875.00	$ 24,375.00
					Subtotal	**$ 251,976.50**

	Paving					
	1	Subgrade Prep - Standard road grade prep	6,549	SY	$ 1.45	$ 9,496.05
	2	Asphalt Paving-Local streets (5" Asphalt / 7" Roadbase)	6,549	SY	$ 45.75	$ 299,616.75
	3	Asphalt Paving-Jasper Road (7" Asphalt / 10" Roadbase)	0	SY	$ 67.90	$ -
	4	Jasper - Jay Road (Round-About)	0	LS	$ 245,000.00	$ -
	5	Street Washing (Cleaning)	1	LS	$ 4,800.00	$ 4,800.00
					Subtotal	**$ 313,912.80**
	Street Improvements - Signage and Striping					
	1	Street Lights	7	EA	$ 3,200.00	$ 22,400.00
	2	Striping	79	LF	$ 24.00	$ 1,896.00
	3	Street Signs (Street and Stop signs)	13	EA	$ 850.00	$ 11,050.00
	4	Utility Sleeving - Street Crossings 4"	2,900	LF	$ 14.50	$ 42,050.00
					Subtotal	**$ 77,396.00**

LAFFERTY - PHASE 1

Project Name	LAFFERTY PHASE 1
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Landscaping					
	1	Deciduous Shade Trees (2" Cal., B&B)	30	EA	$550.00	$16,500.00
	2	Deciduous Ornamental Trees (1.5" Cal., B&B)	1	EA	$450.00	$450.00
	3	Deciduous Shrubs	325	EA	$42.00	$13,650.00
	4	Evergreen Shrubs	12	EA	$47.00	$564.00
	5	Ornamental Grasses	109	EA	$17.00	$1,853.00
	6	Perennials	41	EA	$17.50	$717.50
	7	Sod	18,586	SF	$2.00	$37,172.00
	8	Edger (6" Roll Top)	714	LF	$6.00	$4,284.00
	9	Rock Mulch	16,223	SF	$1.80	$29,201.40
	10	Entry Monument Signage	1	EA	$29,315.00	$29,315.00
	Irrigation					
	1	Two-Wire Surge Arrestor	3	EA	$480.00	$1,440.00
	2	Two-Wire Cable	1,015	LF	$1.35	$1,370.25
	3	6" Pop-up Spray Head	377	EA	$42.00	$15,834.00
	4	Quick Coupling Valve	4	EA	$195.00	$780.00
	5	Drip Line Blow-Out Stub	6	EA	$67.00	$402.00
	6	Poly Drip Tubing	1,700	LF	$1.90	$3,230.00
	7	Drip Emitters	825	EA	$2.70	$2,227.50
	8	Drip Valve Assembly - 1" dia.	2	EA	$700.00	$1,400.00
	9	Electric Control Valve - 1" dia.	11	EA	$660.00	$7,260.00
	10	Electric Control Valve - 1 1/2" dia.	5	EA	$710.00	$3,550.00
	11	PVC Mainline w/ fittings - 2" dia.	1,015	LF	$6.30	$6,394.50
	13	PVC Lateral - 1 1/2" dia.	100	LF	$3.20	$320.00
	14	PVC Lateral - 1" dia.	3,570	LF	$2.20	$7,854.00
	15	Sleeve 4" dia.	100	70	$15.00	$1,500.00
	16	Sleeve 2" dia.	70	LF	$6.00	$420.00
	17	Gate Valve - 2" dia.	4	EA	$230.00	$920.00
	18	Rain Bird ESP-IVM controller - 60 sta.	1	EA	$5,000.00	$5,000.00
	19	Electrical power to controller	1	EA	$2,000.00	$2,000.00
	20	Rain/freeze sensor	1	EA	$350.00	$350.00
	21	Copper Tubing	40	LF	$45.00	$1,800.00
	22	1" backflow preventer with enclosure	1	EA	$3,400.00	$3,400.00
	24	Drain Valve - 3/4" dia.	1	EA	$175.00	$175.00
	25	Flow Sensor	1	EA	$1,100.00	$1,100.00
	26	Master Valve	1	EA	$800.00	$800.00
					Subtotal	**$ 203,234.15**

	Trails - Access Paths					
	1	Crusher Fine Recreation Trail - Mainteance Trail (6" CL5 CDOT Roadbase)	0	SY	$ 24.00	$ -
	2	Gravel Pond Access Drive	0	SY	$ 24.00	$ -
	3	Neighborhood trails/walks	106	SY	$ 38.75	$ 4,107.50
					Subtotal	**$ 4,107.50**

	Removal					
	1	Remove Concrete 6" Vertical C&G	60	LF	$ 21.50	$ 1,290.00
	2	Remove existing median (Jasper Road)	1	LS	$ 3,500.00	$ 3,500.00
	3	Sawcut Asphalt	0	LF	$ 21.50	$ -
	4	Mill Asphalt	40	SY	$ 42.00	$ 1,680.00
	5	Demo Asphalt	0	SY	$ 24.00	$ -
					Subtotal	**$ 6,470.00**

	Clean & Maintain					
	1	Misc Site Clean Up	1	LS	$ 10,000.00	$ 10,000.00
					Subtotal	**$ 10,000.00**

FILING NO.7 PHASE 1	**$ 2,107,388.40**

By: CWC Consulting Group Inc.

LAFFERTY - PHASE 2

Project Name	LAFFERTY PHASE 2
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Sanitary Sewer					
	1	8" PVC	3,495	LF	$ 42.00	$ 146,790.00
	2	4' MH	14	EA	$ 4,275.00	$ 59,850.00
	3	Connect to Existing	0	EA	$ 3,500.00	$ -
	4	4" Sanitary Sewer Services	60	EA	$ 1,250.00	$ 75,000.00
	5	Jet and Clean	3,495	LF	$ 2.00	$ 6,990.00
	6	Testing and Certification	3,495	LF	$ 2.00	$ 6,990.00
	7	4X4 Marking Post	60	EA	$ 30.00	$ 1,800.00
	8	Dewatering	1	LS	$ 8,000.00	$ 8,000.00
					Subtotal	**$ 305,420.00**
	Watermain					
	1	Connect to Existing	2	EA	$ 4,350.00	$ 8,700.00
	2	8" Water Main - PVC	2,479	LF	$ 30.00	$ 74,370.00
	3	8" Water Lowering	4	EA	$ 3,850.00	$ 15,400.00
	4	8" Gate Valve	11	EA	$ 4,450.00	$ 48,950.00
	5	8" Bend	6	EA	$ 570.00	$ 3,420.00
	6	8"x8" Tee	2	EA	$ 1,050.00	$ 2,100.00
	7	8" Cross	0	EA	$ 1,250.00	$ -
	8	MJ Restraint (Dead Line)	92	LF	$ 24.00	$ 2,208.00
	9	Plug w/ Blow Off	1	EA	$ 1,250.00	$ 1,250.00
	10	Fire Hydrant Assembly (Includes 8x6 Tee and Valve)	6	EA	$ 5,200.00	$ 31,200.00
	11	Testing	2,479	LF	$ 1.25	$ 3,098.75
	12	3/4" Services (w/meter pit)	59	EA	$ 1,500.00	$ 88,500.00
	13	Tract Irrigation Service w/ meter and tap fees	1	EA	$ 1,500.00	$ 1,500.00
	14	Valve Adjustments	11	EA	$ 125.00	$ 1,375.00
					Subtotal	**$ 282,071.75**

LAFFERTY - PHASE 2

Project Name	LAFFERTY PHASE 2
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Storm Sewer					
	1	15" RCP	0	LF	$ 35.00	$ -
	2	18" RCP	1,286	LF	$ 48.00	$ 61,728.00
	3	24" RCP	651	LF	$ 65.00	$ 42,315.00
	4	30" RCP	437	LF	$ 87.00	$ 38,019.00
	5	36" RCP	33	LF	$ 108.00	$ 3,564.00
	6	42" RCP	0	LF	$ 142.00	$ -
	7	23"x14" HERCP	69	LF	$ 225.00	$ 15,525.00
	8	38"x24" HERCP	202	LF	$ 285.00	$ 57,570.00
	9	30" FES	1	EA	$ 2,100.00	$ 2,100.00
	10	36" FES	0	EA	$ 2,400.00	$ -
	11	42" FES	0	EA	$ 3,200.00	$ -
	12	4' MH	11	EA	$ 4,200.00	$ 46,200.00
	13	5' MH	9	EA	$ 4,200.00	$ 37,800.00
	14	8.33'x8.33' Box Base Manhole	1	EA	$ 15,000.00	$ 15,000.00
	15	6' MH	3	EA	$ 5,180.00	$ 15,540.00
	16	20' Type R Inlet	1	EA	$ 15,000.00	$ 15,000.00
	17	10' Type R Inlet	0	EA	$ 8,000.00	$ -
	18	15' Type R Inlet	4	EA	$ 12,500.00	$ 50,000.00
	19	5' Type R Inlet	3	EA	$ 6,000.00	$ 18,000.00
	20	Low Tailwater Riprap Basin - Type M Riprap	0	LS	$ 2,590.00	$ -
	21	Low Tailwater Riprap Basin - Concrete Cutoff Wall	0	CY	$ 425.00	$ -
	22	Rock Swale	0	LF	$ 28.00	$ -
	23	Outlet Structure Modification	1	EA	$ 15,000.00	$ 15,000.00
	24	Rip Rap Type M D-12"	1,491	SY	$ 87.50	$ 130,462.50
	25	Type C Area Inlet	1	EA	$ 3,000.00	$ 3,000.00
	26	Type D Area Inlet	3	EA	$ 3,000.00	$ 9,000.00
	27	Concrete Cradle	1	EA	$ 1,500.00	$ 1,500.00
	28	Concrete Forebay	4	EA	$ 4,500.00	$ 18,000.00
	29	Chase Drain structure under spine trail	1	EA	$ 4,000.00	$ 4,000.00
					Subtotal	**$ 595,323.50**
	Concrete - Flatwork					
	1	Subgrade Prep (Sidewalk and Curb & Gutter)	3,936	SY	$ 1.60	$ 6,297.60
	2	5' Detached Concrete Walk - Local	2,554	SY	$ 49.00	$ 125,146.00
	3	Mountable Curb / Gutter - Local	4,385	LF	$ 24.80	$ 108,748.00
	4	HCR	7	EA	$ 2,100.00	$ 14,700.00
	4	Crosspan / Transitions	1	EA	$ 4,875.00	$ 4,875.00
					Subtotal	**$ 259,766.60**
	Paving					
	1	Subgrade Prep - Standard road grade prep	8,032	SY	$ 1.45	$ 11,646.40
	2	Asphalt Paving-Local streets (5" Asphalt / 7" Roadbase)	8,032	SY	$ 45.75	$ 367,464.00
	3	Street Washing (Cleaning)	1	LS	$ 2,500.00	$ 2,500.00
					Subtotal	**$ 381,610.40**
	Street Improvements - Signage and Striping					
	1	Street Lights	9	EA	$ 3,200.00	$ 28,800.00
	2	Striping	0	LF	$ 24.00	$ -
	3	Street Signs (Street and Stop signs)	8	EA	$ 850.00	$ 6,800.00
	4	Utility Sleeving - Street Crossings 4"	2,560	LF	$ 14.50	$ 37,120.00
					Subtotal	**$ 72,720.00**

LAFFERTY - PHASE 2

Project Name	LAFFERTY PHASE 2
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Landscaping					
	1	Deciduous Shade Trees (2" Cal., B&B)	59	EA	$550.00	$32,450.00
	2	Deciduous Ornamental Trees (1.5" Cal., B&B)	4	EA	$450.00	$1,800.00
	3	Evergreen Trees (6' Ht.)	6	EA	$450.00	$2,700.00
	4	Deciduous Shrubs	271	EA	$42.00	$11,382.00
	5	Evergreen Shrubs	8	EA	$47.00	$376.00
	6	Ornamental Grasses	271	EA	$17.00	$4,607.00
	7	Perennials	115	EA	$17.50	$2,012.50
	8	Sod	19,404	SF	$2.00	$38,808.00
	9	Native - Shortgrass Prairie	77,620	SF	$0.15	$11,643.00
	10	Native - Mixed Grass Prairie	69,836	SF	$0.15	$10,475.40
	11	Native - Moist Swale	57,794	SF	$0.15	$8,669.10
	12	Edger (6" Roll Top)	3,618	LF	$6.00	$21,708.00
	13	Root Barrier (48" Depth)	118	LF	$20.00	$2,360.00
	14	Rock Mulch	22,867	SF	$1.80	$41,160.60
	15	Boulders	18	EA	$400.00	$7,200.00
	Park					
	1	Grill	1	EA	$342.00	$342.00
	2	ADA Grill	1	EA	$248.00	$248.00
	3	Hot Coal Box	1	EA	$466.00	$466.00
	4	Steel Collection Can	1	EA	$29.00	$29.00
	5	Hot Coal Scoop	1	EA	$44.00	$44.00
	6	Pet Waste Station	1	EA	$410.00	$410.00
	7	Trash Receptacle	3	EA	$1,144.59	$3,433.77
	8	Bike Racks	2	EA	$119.00	$238.00
	9	Bench	3	EA	$779.00	$2,337.00
	10	Picnic Table	3	EA	$2,729.00	$8,187.00
	11	ADA Picnic Table	1	EA	$2,449.00	$2,449.00
	12	Picnic Shelter	1	EA	$22,529.00	$22,529.00
	13	Play Ground Structures	1	EA	$80,292.00	$80,292.00
	14	Park Sign	1	EA	$1,200.00	$1,200.00
	15	Concrete Flatwork for Shelter, Benches, Grill Area	3,220	SF	$10.50	$33,810.00
	16	Concrete for ADA Ramp	4	SY	$365.00	$1,460.00
	17	Concrete Playground Curb	226	LF	$105.00	$23,730.00
	18	Playground Safety Surfacing	93	CY	$135.00	$12,588.75
	19	Drainage Infrastructure	1	EA	$5,793.00	$5,793.00
	20	Crusher Fines	854	SF	$2.50	$2,135.00
	Irrigation					
	1	Two-Wire Surge Arrestor	13	EA	$480.00	$6,240.00
	2	Two-Wire Cable	4,220	LF	$1.35	$5,697.00
	3	6" Pop-up Spray Head	561	EA	$42.00	$23,562.00
	4	12" Hi-pop Spray Head	398	EA	$52.00	$20,696.00
	5	Hi-Pop Gear Driven Rotor	82	EA	$65.00	$5,330.00
	6	Root Watering System``	36	EA	$44.00	$1,584.00
	7	Quick Coupling Valve	12	EA	$195.00	$2,340.00
	8	Drip Line Blow-Out Stub	12	EA	$67.00	$804.00
	9	Poly Drip Tubing	3,710	LF	$1.90	$7,049.00
	10	Drip Emitters	1,425	EA	$2.70	$3,847.50
	11	Drip Valve Assembly - 1" dia.	9	EA	$700.00	$6,300.00
	12	Electric Control Valve - 1" dia.	41	EA	$660.00	$27,060.00
	13	Electric Control Valve - 1 1/2" dia.	19	EA	$710.00	$13,490.00
	14	PVC Mainline w/ fittings - 2 1/2" dia.	4,220	LF	$9.20	$38,824.00
	15	PVC Lateral - 2" dia.	80	LF	$4.80	$384.00
	16	PVC Lateral - 1 1/2" dia.	770	LF	$3.20	$2,464.00
	17	PVC Lateral - 1" dia.	14,560	LF	$2.20	$32,032.00
	18	Sleeve 6" dia.	190	LF	$20.00	$3,800.00
	19	Sleeve 4" dia.	110	70	$15.00	$1,650.00
	20	Sleeve 2" dia.	320	LF	$6.00	$1,920.00
	21	Gate Valve - 2-1/2" dia.	9	EA	$280.00	$2,520.00
	22	Rain Bird ESP-IVM controller - 240 sta.	1	EA	$6,000.00	$6,000.00
	23	Electrical power to controller	1	EA	$2,000.00	$2,000.00
	24	Rain/freeze sensor	1	EA	$350.00	$350.00
	25	Copper Tubing -1-1/2"	40	LF	$45.00	$1,800.00
	26	1-1/2" backflow preventer with enclosure	1	EA	$3,400.00	$3,400.00
	27	1-1/2" backflow preventer with enclosure	1	EA	$2,700.00	$2,700.00
	28	Drain Valve - 3/4" dia.	1	EA	$175.00	$175.00
	29	Flow Sensor	1	EA	$1,100.00	$1,100.00
	30	Master Valve	1	EA	$800.00	$800.00
					Subtotal	**$624,991.62**

LAFFERTY - PHASE 2

Project Name	LAFFERTY PHASE 2
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Trails - Access Paths					
	1	Crusher Fine Recreation Trail - Mainteance Trail (6" CL5 CDOT Roadbase)	0	SY	$ 24.00	$ -
	2	Gravel Pond Access Drive	152	SY	$ 24.00	$ 3,648.00
	3	Neighborhood trails/walks (park excluded)	721	SY	$ 38.75	$ 27,938.75
	4	10' Spine Trail	1,660	SY	$ 38.75	$ 64,325.00
	5	All-weather Base Course temp access road - per phasing map	1,735	SY	$ 24.00	$ 41,640.00
	6	Retaining wall - face square feet of Keystone Modular Block	4,141	SF	$ 25.00	$ 103,525.00
					Subtotal	**$ 241,076.75**
	Removal					
	1	Remove Concrete 6" Vertical C&G	0	LF	$ 21.50	$ -
	2	Sawcut Asphalt	0	LF	$ 3,500.00	$ -
	3	Mill Asphalt	70	SY	$ 21.50	$ 1,505.00
	4	Demo Asphalt	0	SY	$ 24.00	$ -
					Subtotal	**$ 1,505.00**
	Clean & Maintain					
	1	Misc Site Clean Up	1	LS	$ 10,000.00	$ 10,000.00
					Subtotal	**$ 10,000.00**
					FILING NO.7 PHASE 2	**$ 2,774,485.62**

By: CWC Consulting Group Inc.

LAFFERTY - PHASE 3

Project Name	LAFFERTY PHASE 3
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Sanitary Sewer					
	1	8" PVC	630	LF	$ 42.00	$ 26,460.00
	2	4' MH	3	EA	$ 4,275.00	$ 12,825.00
	3	Connect to Existing	3	EA	$ 3,500.00	$ 10,500.00
	4	4" Sanitary Sewer Services	24	EA	$ 1,250.00	$ 30,000.00
	5	Jet and Clean	630	LF	$ 2.00	$ 1,260.00
	6	Testing and Certification	630	LF	$ 2.00	$ 1,260.00
	7	4X4 Marking Post	24	EA	$ 30.00	$ 720.00
	8	Dewatering	1	LS	$ 8,000.00	$ 8,000.00
					Subtotal	**$ 91,025.00**

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Watermain					
	1	Connect to Existing	3	EA	$ 4,350.00	$ 13,050.00
	2	8" Water Main - PVC	1,452	LF	$ 30.00	$ 43,560.00
	3	8" Water Lowering	3	EA	$ 3,850.00	$ 11,550.00
	4	8" Gate Valve	7	EA	$ 4,450.00	$ 31,150.00
	5	8" Bend	2	EA	$ 570.00	$ 1,140.00
	6	8"x8" Tee	1	EA	$ 1,050.00	$ 1,050.00
	7	8" Cross	0	EA	$ 1,250.00	$ -
	8	MJ Restraint (Dead Line)	65	LF	$ 24.00	$ 1,560.00
	9	Plug w/ Blow Off	0	EA	$ 1,250.00	$ -
	10	Fire Hydrant Assembly (Includes 8x6 Tee and Valve)	4	EA	$ 5,200.00	$ 20,800.00
	11	Testing	1,452	LF	$ 1.25	$ 1,815.00
	12	3/4" Services (w/meter pit)	41	EA	$ 1,500.00	$ 61,500.00
	13	Tract Irrigation Service w/ meter and tap fees	0	EA	$ 1,500.00	$ -
	14	Valve Adjustments	7	EA	$ 125.00	$ 875.00
					Subtotal	**$ 188,050.00**

LAFFERTY - PHASE 3

Project Name	LAFFERTY PHASE 3
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Storm Sewer					
	1	15" RCP	0	LF	$ 35.00	$ -
	2	18" RCP	0	LF	$ 48.00	$ -
	3	24" RCP	93	LF	$ 65.00	$ 6,045.00
	4	30" RCP	0	LF	$ 87.00	$ -
	5	36" RCP	0	LF	$ 108.00	$ -
	6	42" RCP	0	LF	$ 142.00	$ -
	7	23"x14" HERCP	0	LF	$ 225.00	$ -
	8	38"x24" HERCP	0	LF	$ 285.00	$ -
	9	30" FES	0	EA	$ 2,100.00	$ -
	10	36" FES	0	EA	$ 2,400.00	$ -
	11	42" FES	0	EA	$ 3,200.00	$ -
	12	4' MH	0	EA	$ 4,200.00	$ -
	13	5' MH	1	EA	$ 4,200.00	$ 4,200.00
	14	8.33'x8.33' Box Base Manhole	0	EA	$ 15,000.00	$ -
	15	6' MH	0	EA	$ 5,180.00	$ -
	16	20' Type R Inlet	1	EA	$ 15,000.00	$ 15,000.00
	17	10' Type R Inlet	0	EA	$ 8,000.00	$ -
	18	15' Type R Inlet	1	EA	$ 12,500.00	$ 12,500.00
	19	5' Type R Inlet	0	EA	$ 6,000.00	$ -
	20	Low Tailwater Riprap Basin - Type M Riprap	0	LS	$ 2,590.00	$ -
	21	Low Tailwater Riprap Basin - Concrete Cutoff Wall	0	CY	$ 425.00	$ -
	22	Rock Swale	0	LF	$ 28.00	$ -
	23	Outlet Structure Modification	0	EA	$ 15,000.00	$ -
	24	Rip Rap Type M D-12"	867	SY	$ 87.50	$ 75,862.50
	25	Type C Area Inlet	0	EA	$ 3,000.00	$ -
	26	Type D Area Inlet	0	EA	$ 3,000.00	$ -
	27	Concrete Cradle	0	EA	$ 1,500.00	$ -
	28	Concrete Forebay	0	EA	$ 4,500.00	$ -
					Subtotal	**$ 113,607.50**
	Concrete - Flatwork					
	1	Subgrade Prep (Sidewalk and Curb & Gutter)	2,396	SY	$ 1.60	$ 3,833.60
	2	5' Detached Concrete Walk - Local	1,533	SY	$ 49.00	$ 75,117.00
	3	Mountable Curb / Gutter - Local	2,755	LF	$ 24.80	$ 68,324.00
	4	HCR	3	EA	$ 2,100.00	$ 6,300.00
	5	Crosspan / Transitions	1	EA	$ 4,875.00	$ 4,875.00
					Subtotal	**$ 158,449.60**
	Paving					
	1	Subgrade Prep - Standard road grade prep	4,783	SY	$ 1.45	$ 6,935.35
	2	Asphalt Paving-Local streets (5" Asphalt / 7" Roadbase)	4,783	SY	$ 45.75	$ 218,822.25
	3	Street Washing (Cleaning)	1	LS	$ 2,500.00	$ 2,500.00
					Subtotal	**$ 228,257.60**
	Street Improvements - Signage and Striping					
	1	Street Lights	5	EA	$ 3,200.00	$ 16,000.00
	2	Striping	0	LF	$ 24.00	$ -
	3	Street Signs (Street and Stop signs)	2	EA	$ 850.00	$ 1,700.00
	4	Utility Sleeving - Street Crossings 4"	140	LF	$ 14.50	$ 2,030.00
					Subtotal	**$ 19,730.00**
	Landscaping					
	1	Deciduous Shade Trees (2" Cal., B&B)	20	EA	$550.00	$11,000.00
	2	Evergreen Trees (6' Ht.)	2	EA	$450.00	$900.00
	3	Deciduous Shrubs	112	EA	$42.00	$4,704.00
	4	Ornamental Grasses	111	EA	$17.00	$1,887.00
	5	Perennials	54	EA	$17.50	$945.00
	6	Sod	3,613	SF	$2.00	$7,226.00
	7	Native - Shortgrass Prairie	16,363	SF	$0.15	$2,454.45
	8	Native - Mixed Grass Prairie	36,761	SF	$0.15	$5,514.15
	9	Root Barrier (48" Depth)	118	LF	$20.00	$2,360.00
	10	Edger (6" Roll Top)	1,097	LF	$6.00	$6,582.00
	11	Root Barrier (48" Depth)	118	LF	$20.00	$2,360.00
	12	Rock Mulch	7,964	SF	$1.80	$14,335.20

LAFFERTY - PHASE 3

Project Name	LAFFERTY PHASE 3
Project Number	?
Date Submitted	?

Item #	Sub Item #	Description	Quantity	Unit	Unit Price	Total
	Irrigation					
	1	Two-Wire Surge Arrestor	3	EA	$480.00	$1,440.00
	2	Two-Wire Cable	1,080	LF	$1.35	$1,458.00
	3	6" Pop-up Spray Head	148	EA	$42.00	$6,216.00
	4	12" Hi-pop Spray Head	99	EA	$52.00	$5,148.00
	5	Root Watering System``	14	EA	$44.00	$616.00
	6	Quick Coupling Valve	2	EA	$195.00	$390.00
	7	Drip Line Blow-Out Stub	6	EA	$67.00	$402.00
	8	Poly Drip Tubing	980	LF	$1.90	$1,862.00
	9	Drip Emitters	1,425	EA	$2.70	$3,847.50
	10	Drip Valve Assembly - 1" dia.	2	EA	$700.00	$1,400.00
	11	Electric Control Valve - 1" dia.	9	EA	$660.00	$5,940.00
	12	Electric Control Valve - 1 1/2" dia.	4	EA	$710.00	$2,840.00
	13	PVC Mainline w/ fittings - 2 1/2" dia.	180	LF	$9.20	$1,656.00
	14	PVC Mainline w/ fittings - 2" dia.	900	LF	$6.30	$5,670.00
	15	PVC Lateral - 2" dia.	50	LF	$4.80	$240.00
	16	PVC Lateral - 1 1/2" dia.	190	LF	$3.20	$608.00
	17	PVC Lateral - 1" dia.	2,820	LF	$2.20	$6,204.00
	18	Sleeve 4" dia.	160	70	$15.00	$2,400.00
	19	Sleeve 2" dia.	160	LF	$6.00	$960.00
	20	Gate Valve - 2" dia.	4	EA	$230.00	$920.00
					Subtotal	**$ 110,485.30**

	Trails - Access Paths					
	1	Crusher Fine Recreation Trail - Mainteance Trail (6" CL5 CDOT Roadbase)	0	SY	$ 24.00	$ -
	2	Gravel Pond Access Drive	0	SY	$ 24.00	$ -
	3	Neighborhood trails/walks	645	SY	$ 38.75	$ 24,993.75
	4	Ditch Structure chainlink fencing	173	LF	$ 20.00	$ 3,460.00
					Subtotal	**$ 28,453.75**

	Removal					
	1	Remove Concrete 6" Vertical C&G	0	LF	$ 21.50	$ -
	2	Sawcut Asphalt	0	LF	$ 3,500.00	$ -
	3	Mill Asphalt	105	SY	$ 21.50	$ 2,257.50
	4	Demo Asphalt	0	SY	$ 24.00	$ -
					Subtotal	**$ 2,257.50**

	Clean & Maintain					
	1	Misc Site Clean Up	1	LS	$ 10,000.00	$ 10,000.00
					Subtotal	**$ 10,000.00**

	FILING NO.7 PHASE 3	**$ 950,316.25**

By: CWC Consulting Group Inc.

Exhibit C
Reimbursements and Fees

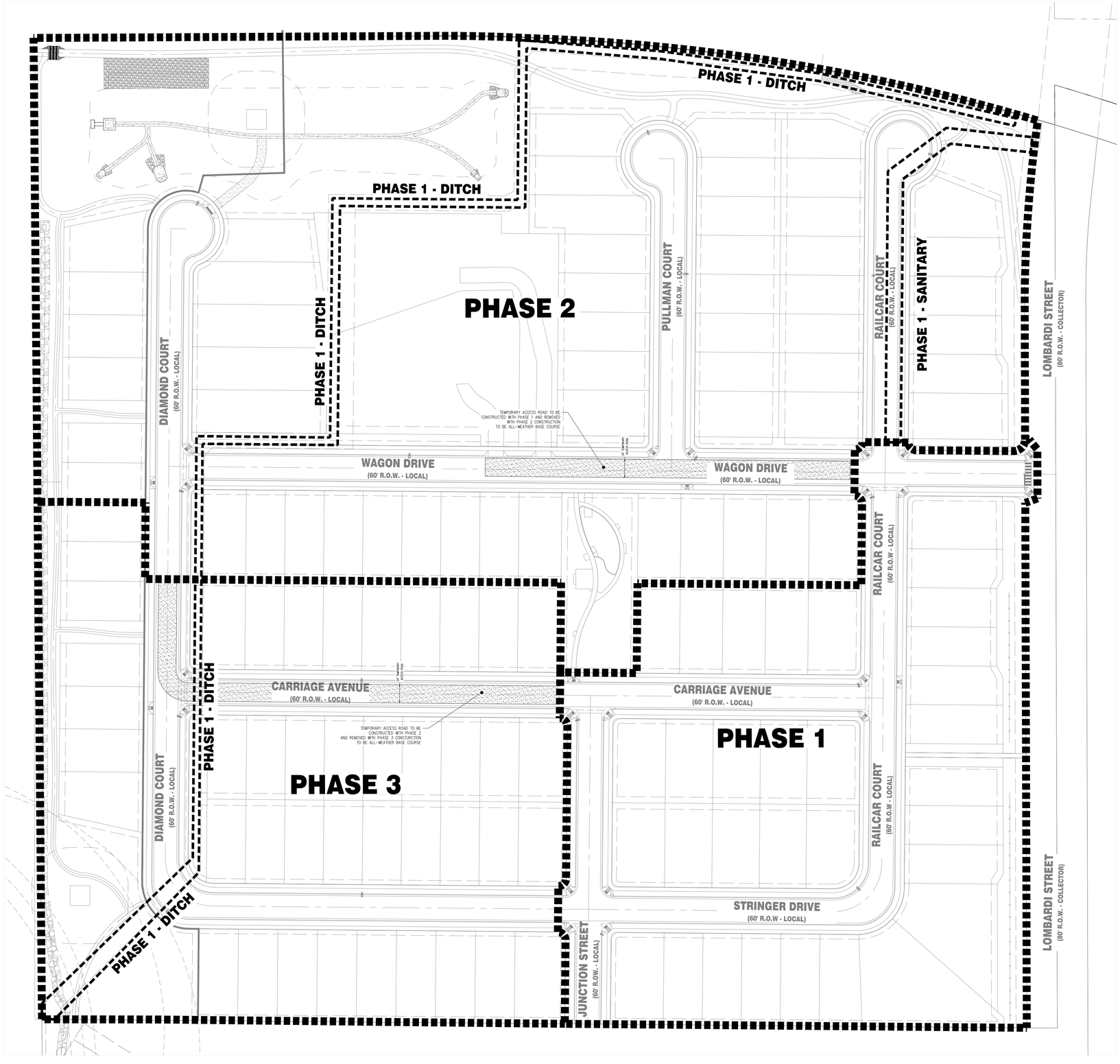
Reimbursements

Improvement	Amount ($)	Payment Timing
North Water Reclamation Facility Interceptor Line Connection	54,120	Within 30 days of Effective Date
West Side Interceptor Line Connection	46,200	Within 30 days of Effective Date

Fees

Type	Amount ($)	Payment Timing
School Fees	1,143 per lot	Proof of payment must submitted with building permit application
Park Fees	270,733	Within 30 days of Effective Date
Tree Mitigation Fees	47,400	Within 30 days of Effective Date
Open Space Fees	315,250	Within 30 days of Effective Date

Exhibit D
Phasing Plan



60 0 60 120

SCALE: 1"= 60'

NOTES:

1. ALL OVERLOT GRADING WILL BE COMPLETED WITHIN PHASE 1
2. RELOCATION OF PRIVATE IRRIGATION DITCH WILL BE COMPLETED WITHIN PHASE 1
3. SANITARY SEWER WITHIN RAILCAR COURT WILL BE COMPLETED WITHIN PHASE 1
4. TEMPORARY ACCESS ROADS REFLECTED HEREON WILL BE INSTALLED WITH EACH NOTED PHASE AND REMOVED WITH SUBSEQUENCE PHASE
5. ALL WATER, SEWER, STORM AND STREETS WILL BE INSTALLED AS REFLECTED PER PHASING AND AS REFLECTED IN THE CONSTRUCTION DOCUMENTS.

To request marking of underground facilities

811 Know what's **below.** **Call** before you dig.

Call 811 or visit call811.com for more information

It is the contractor's responsibility to contact UNCC a minimum of 2 days prior to the start of construction operations. CWC Consulting Group claims no responsibility for the underground facilities depicted in this plan set.

No.	Date	Description
	2/21/2024	5TH SUBMITTAL
	12/21/2023	4TH SUBMITTAL
	10/10/2023	3RD SUBMITTAL
	05/12/2023	2ND SUBMITTAL
	01/13/2023	1ST SUBMITTAL

DOCUMENT AMENDMENTS

STRATUS INVESTMENT PARTNERS, LLC
8480 EAST ORCHARD ROAD SUITE 1100
GREENWOOD VILLAGE, CO 80111
PHONE: 720-554-0500
CONTACT: RICHARD DEAN

LAFFERTY AT CANYON CREEK SUBDIVISION
FINAL CONSTRUCTION PLANS

PHASING MAP

CWC CONSULTING GROUP
CIVIL ENGINEERING - LAND SURVEYING - CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE 203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

Project Number: 130-00102
Designed By: DFL
Drawn By: HLM/MLG
Reviewed By:
Sheet Number: 4 of 110

P:\JOBS\STRATUS\LAFFERTY_AGREEMENTS\DGN\UPDATED_LAFF-PHASING MAP.DWG, 6/5/2024 9:42 AM, BRETT WOOLARD

Town Council

Board Meeting Date: 6/25/2024

File #: 24-310, **Version:** 1

SUBJECT:
Disability Pride Month

DEPARTMENT: Legislation

PRESENTER(S): Melissa Wiley, Deputy Town Manager

TIME ESTIMATE: 5 minutes

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
Disability Pride Month is celebrated each year in July. It started as a day of celebration on July 26, 1990, when the Americans with Disabilities Act (ADA) was signed into law. That same year, the City of Boston held the first Disability Pride Day. In 2015, the state of New York became the first state to recognize the month of July as Disability Pride Month.

Disability advocates and the disability community recommend using "pride" instead of "awareness." People with disabilities are the largest and most diverse minority group in the U.S. population, representing every age, race, gender, ethnicity, sexual orientation, and socio-economic background. Disability is a culture and an identity. In contrast, awareness portrays disability as a problem that needs to be fixed.

The Center for Disease Control and Prevention (CDC) estimates that roughly 1 in 4 (27%) of adults in the United States have some type of disability, and nearly 50% of adults over the age of 75 have a disability.

BOARD PRIORITY(S) ADDRESSED:
- ✓ Engaged and Diverse Community
- ✓ Effective Governance

ATTACHMENT:
1. Proclamation

Proclamation
In Recognition of Disability Pride Month

Whereas, the Americans with Disabilities Act (ADA) was passed by Congress on July 26, 1990 to ensure basic civil rights for all people living with disabilities; and

Whereas, 1 out of every 4 Coloradans has a disability, and even though over 30 years have passed since the ADA, people with disabilities continue to receive inadequate access to government services, education, healthcare, and workforce opportunities; and

Whereas, disability is a multi-faceted identity, encompassing those with physical, cognitive, neurological, developmental, invisible, acquired, chronic, and device-assisted disabilities; and

Whereas, the 2024 theme of Disability Pride Month is "We Want a Life Like Yours" and urges every community to recognize that people with disabilities have gifts and aspirations that too often go ignored and unrealized due to ongoing systemic prejudice, ignorance, fear; and

Whereas, we strive to create spaces that are accepting and safe for those individuals and their families to thrive; and

Whereas, 11 percent of Colorado's children have a disability and the Town of Erie is committed to ensuring children with disabilities grow-up in a community devoted to their education, rich and inclusive play experiences, opportunities to build life skills through adaptive sports, and with an ever-present hope that they one day become our future leaders; and

Whereas, the Town of Erie is dedicated to listening to the stories and experiences of people with disabilities so that we may build a town centered on inclusion and access for all; and

Now, therefore, I, Councilor Emily Baer, on behalf of the Mayor of the Town of Erie, Justin Brooks, do hereby proclaim the month of July 2024 as the Town of Erie's Disability Pride Month and call on all residents to celebrate and uplift our diverse communities, building a vision of equity and belonging.

Dated this 25th day of June, 2024

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Town Council

Board Meeting Date: 6/25/2024

File #: 24-208, **Version:** 1

SUBJECT:
A Resolution of the Town Council of the Town of Erie Approving a Construction Contract and Amendment 1 with Western Plains Construction for the 2024 Street Maintenance

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Acting Public Works Director

FISCAL SUMMARY:

Cost as Recommended:	$ 2,352,600
Balance Available:	$ 4,500,000
Budget Line Item Number:	100-70-710-605000-100378
New Appropriation Required:	No

POLICY ISSUES:
Money budgeted to complete the project. This serves the Council's goal for maintaining infrastructure. Delaying this service would result in additional deterioration and additional, even higher, future costs.

STAFF RECOMMENDATION:
Approve the resolution

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The 2024 capital budget includes funds for annual street maintenance projects. The Town uses a pavement management software (StreetScan) to identify and prioritize segments based on existing life expectancy. Staff requested bids using the Rocky Mountain E-Purchasing system (aka BidNet). Bids were received on May 3, 2024. The Town received eight bids.

Segments for the 2024 project include Application of a 2" mill & overlay on portions of various roads in Vista Ridge **-** approximately 60,057 SY. All areas in Vista Ridge will require repairing premarked subgrade failures, profile milling, fixing cracking identified in inspections done after surface milling, adjusting valves and manholes, and replacing all pavement marking. Segments include:

- Forsythia St - approximately 2,166 SY
- Forsythia Ct - approximately 660 SY
- Forsythia Pl - approximately 820 SY
- Lilac Cir- approximately 3,520 SY
- Alpine Drive - approximately 9,657 SY

- Primrose Lane - approximately 5,647 SY
- Primrose Place - approximately 1,664 SY
- Crestview Lane - approximately 6,041 SY
- Hamilton Road - approximately 539 SY
- Holly Drive - approximately 2,604 SY
- Dogwood Drive - approximately 8,266 SY
- Dogwood Circle - approximately 6,897 SY
- Ivy Way - approximately 2,063 SY
- Wisteria Drive - approximately 5,275 SY
- Azaela Way - approximately 4,238 SY

The low bidder was Western Plains Construction with a bid of $593,987.72. While reviewing the bids, staff discovered the StreetScan software didn't reflect accurate quantities for these segments. Updated quantities revised the contract to $826,417.31.

Additionally, because the Town received exceptional pricing, staff is working with the Contractor to complete more work this year up to their capacity and the Town's budget. Additional work for Vista Pointe includes a 2" mill & overlay on portions of various roads **-** approximately 94,012 SY. All areas in Vista Pointe will require repairing premarked subgrade failures, profile milling, fixing cracking identified in inspections done after surface milling, adjusting valves and manholes, and replacing all pavement marking. The new locations we are considering for this work are:

- Parkdale Court - approximately 665 SY
- North Parkdale Circle - approximately 8,750 SY
- South Parkdale Circle - approximately 9,213 SY
- Quintana Lane - approximately 2,206 SY
- Parkdale Place - approximately 1,902 SY
- Eaton Street - approximately 988 SY
- Columbine Way - approximately 5,704 SY
- Columbine Court - approximately 1,356 SY
- Serene Drive - approximately 10,758 SY
- Serene Court - approximately 1,199 SY
- Lawson Way - approximately 1,767 SY
- Lawson Place - approximately 815 SY
- Lawson Avenue - approximately 8,755 SY
- Reliance Drive - approximately 7,320 SY
- Reliance Court - approximately 987 SY
- Reliance Place - approximately 1,157 SY
- Clayton Way - approximately 3,993 SY
- Jacques Way - approximately 4,900 SY
- Lawson Court - approximately 720 SY
- Taylor Lane - approximately 1,830 SY
- Eagle Way - approximately 539 SY
- Eagle Drive - approximately 1,505 SY
- Eagle Circle - approximately 7,434 SY

- Ironwood Way - approximately 519 SY
- Ironwood Place - approximately 1,624 SY
- Ironwood Circle - approximately 7,406 SY

Because these bids came in significantly lower than anticipated and we still have roughly half of the 2024 budget remaining, staff are also currently bidding a Street Maintenance package 2. We will schedule that for Council's consideration during the July 9, 2024, Council meeting.

Cost Summary

Original Contract	$593,987.72
Add: Revised Quantities and Vista Pointe	$1,544,819.55
Contingency (10%)	$ 213,792.73
Total	$2,352,600.00

COUNCIL PRIORITY(S) ADDRESSED:

- ✓ Well-Maintained Transportation Infrastructure
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Fiscally Responsible

ATTACHMENT(S):

1. Resolution 24-102
2. Contract

Town of Erie
Resolution No. 24-102

A Resolution of the Town Council of the Town of Erie Approving a Construction Contract with Western Plains Construction for the 2024 Street Maintenance

Whereas, the Town requires the services of Western Plains Construction for the 2024 Street Maintenance; and

Whereas, the Town Council finds it in the best interest of the public health, safety and welfare to approve a Construction Contract with Western Plains Construction.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado, that:

Section 1. The Construction Contract with Western Plains Construction is hereby approved in substantially the form attached hereto, subject to approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Construction Contract on behalf of the Town.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Construction Contract
(2024 Street Maintenance Project (P24-098))

This Construction Contract (the "Contract") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, 645 Holbrook Street, P.O. Box 750, Erie, CO 80516, a Colorado municipal corporation (the "Town"), and Western Plains Construction, an independent contractor with a principal place of business at 8134 Conifer Road, Denver, CO 80221 ("Contractor") (each a "Party" and collectively the "Parties").

For the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Scope of Work. Contractor shall perform the following described work (the "Work"), in accordance with this Contract and the Contract Documents, attached hereto and incorporated herein by this reference:

Application of a 2" mill & overlay on portions of various roads in Vista Ridge and Vista Pointe **–** approximately 154,069 SY. All areas will require repair of premarked subgrade failures, profile milling, following the milling the surface will be inspected for cracking and addressed as needed, valves and manholes will be adjusted and all pavement marking replaced.

- **Forsythia St** – approximately 2,166 SY
- **Forsythia Ct** – approximately 660 SY
- **Forsythia Pl –** approximately 820 SY
- **Lilac Cir–** approximately 3,520 SY
- **Alpine Drive** – approximately 9,657 SY
- **Wisteria Drive** – approximately 5,275 SY
- **Dogwood Drive** – approximately 8,266 SY
- **Dogwood Circle** – approximately 6,897 SY
- **Holly Drive** – approximately 2,604 SY
- **Ivy Way** – approximately 2,063 SY
- **Azaela Way** – approximately 4,238 SY
- **Crestview Lane** – approximately 6,041 SY
- **Primrose Lane** – approximately 5,647 SY
- **Primrose Place** – approximately 1,664 SY
- **Hamilton Road** – approximately 539 SY
- Parkdale Court – approximately 665 SY
- North Parkdale Circle – approximately 8,750 SY
- South Parkdale Circle – approximately 9,213 SY
- Quintana Lane – approximately 2,206 SY
- Parkdale Place – approximately 1,902 SY
- Eaton Street – approximately 988 SY
- Columbine Way – approximately 5,704 SY

- Columbine Court – approximately 1,356 SY
- Serene Drive – approximately 10,758 SY
- Serene Court – approximately 1,199 SY
- Lawson Way – approximately 1,767 SY
- Lawson Place – approximately 815 SY
- Lawson Avenue – approximately 8,755 SY
- Reliance Drive – approximately 7,320 SY
- Reliance Court – approximately 987 SY
- Reliance Place – approximately 1,157 SY
- Clayton Way – approximately 3,993 SY
- Jacques Way – approximately 4,900 SY
- Lawson Court – approximately 720 SY
- Taylor Lane – approximately 1,830 SY
- Eagle Way – approximately 539 SY
- Eagle Drive – approximately 1,505 SY
- Eagle Circle – approximately 7,434 SY
- Ironwood Way – approximately 519 SY
- Ironwood Place – approximately 1,624 SY
- Ironwood Circle – approximately 7,406 SY

2. Bonds. Within 10 days of the date of this Contract, Contractor shall provide the payment and performance bond and certificate of insurance required by the Contract Documents. A payment and performance bond is not required for contract amounts under $50,000 unless indicated differently in the Request for Bids or the Contract Documents.

3. Commencement and Completion of Work. Contractor shall commence the Work within 10 days of date of the Notice to Proceed. Substantial Completion of the Work shall be accomplished within 120 days of the date of commencement, unless the period Substantial Completion is extended otherwise in accordance with the Contract Documents. Final Completion of the Work shall be accomplished within 7 days of the date of Substantial Completion.

4. Contract Price. The Town agrees to pay Contractor, subject to all of the terms and conditions of the Contract Documents, for the Work, an amount not to exceed $2,352,600.00 which includes a base amount of $2,138,807.27 and a contingency of $213,792.73. The contingency amount will only be paid upon the Town's approval. . This not-to-exceed amount shall include all fees, costs and expenses incurred by Contractor. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

5. Keep Jobs In Colorado Act. Pursuant to the Keep Jobs in Colorado Act, C.R.S. § 8-17-101, *et seq.* (the "Act"), and the rules adopted by the Division of Labor of the Colorado Department of Labor and Employment implementing the Act (the "Rules"), Contractor shall employ Colorado labor to perform at least 80% of the work under this Contract and shall obtain and maintain the records required by the Act and the Rules.

For purposes of this Section, "Colorado labor" means a person who is a resident of the state of Colorado at the time of this Contract, without discrimination as to race, color, creed, sex, sexual orientation, marital status, national origin, ancestry, age, or religion except when sex or age is a *bona fide* qualification. A resident of the state of Colorado is a person with a valid Colorado driver's license, a valid Colorado state-issued photo identification, or documentation that he or she has resided in Colorado for the last 30 days. Contractor represents that it is familiar with the requirements of the Act and the Rules and will fully comply with same. This Section shall not apply to any project for which appropriation or expenditure of moneys may be reasonably expected not to exceed $500,000 in the aggregate for any fiscal year.

6. Miscellaneous.

a. *Governing Law and Venue*. This Contract shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.

b. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Contract by the Town shall not constitute a waiver of any of the other terms or obligation of this Contract.

c. *Integration*. This Contract and any attached exhibits constitute the entire Contract between Contractor and the Town, superseding all prior oral or written communications.

d. *Third Parties*. There are no intended third-party beneficiaries to this Contract.

e. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

f. *Severability*. If any provision of this Contract is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

g. *Modification*. This Contract may only be modified upon written agreement of the Parties.

h. *Assignment*. Neither this Contract nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

i. *Governmental Immunity*. The Town and its officers, attorneys and employees are relying on, and do not waive or intend to waive by any provision of this Contract, the monetary limitations or any other rights, immunities, and protections

provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

j. *Rights and Remedies*. The rights and remedies of the Town under this Contract are in addition to any other rights and remedies provided by law. The expiration of this Contract shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

k. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement or liability beyond the current fiscal year.

In Witness Whereof, this Construction Contract has been executed by the Parties as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Contractor

By: _____

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of Western Plains Construction.

My commission expires:

(Seal)

_____
Notary Public

Town Council

Board Meeting Date: 6/25/2024

File #: 24-297, **Version:** 1

SUBJECT: Consent Agenda
A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Cheesman Street Residences Subdivision

DEPARTMENT: Planning and Development

PRESENTER: Aly Burkhalter, Senior Planner

FISCAL IMPACT:

Cost as Recommended:	$3,200,000
Balance Available:	$3,200,000
Budget Line-Item Number:	100-30-430-576000-130430 205-30-430-605000-130430 205-30-110-604000-212121
New Appropriation Required:	No

POLICY ISSUES:
The proposed resolution supports a specific affordable housing development that implements the Council's policy direction to encourage development of a variety of housing types and levels of affordability throughout the Town.

STAFF RECOMMENDATION:
Approve the Development Agreement and accept the dedications shown on the Final Plat for Cheesman Street Residences Subdivision.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Cheesman Street Residences Development is a public/private partnership that tackles Erie's need for affordable/attainable housing as documented in the Housing Needs Assessment the Town of Erie completed in 2023. Erie committed to strive for 12% of our housing to be affordable by 2035 (currently at 1.3%) and to collaborate with the Boulder County Regional Housing Partnership to work regionally on this issue.

In 2020, the Town of Erie committed to expand affordable and attainable housing throughout the community and in 2021 signed onto the Regional Housing Partnership commitment to work towards the collective regional goal of 12% of the region's housing inventory to be affordable by 2035. In 2023, the Town also committed to Proposition 123, which calls for a 3% annual increase in

affordable housing units. The commitment to Prop 123 calls for the Town to create an additional 15 units of affordable housing by November 2026.

In November 2022, the Board of Trustees (now, Town Council) voted to acquire the property at 765-785 Cheesman Street to support the development of affordable homeownership units. In February 2023, the Town closed on the property and issued an RFQ for a developer to tackle the challenge. The Town received two responses which staff reviewed and recommended that Vertikal Development be selected as the developer. On April 11, 2023, the Board of Trustees accepted the committee's recommendation to designate Vertikal as the developer and to start negotiations toward a development agreement.

On June 22, 2023, staff presented the framework for the pubic-private partnership that included:

- 35 for-sale homes
- 50% of the homes priced to be affordable to households earning less than 90% HUD AMI (household of 4: $119,520)
- 50% of the homes priced to be affordable to households earning less than 110% of the AMI; (household of 4: $146,080)
- Design to fit with fabric of Old Town; meet 2021 International Building Code (IBCC); and be net zero ready and all-electric;
- 20-year renewable deed restriction to maintain long term affordability, with restricted rental options;
- Developer return on investment not to exceed 10%; and
- Town contribution of land and up to $1,950,000 in rebates toward development and impact fees, and use taxes, and up to $100,000 in public site improvements along East County Line Road.

In October 2023, the Town and Vertikal entered into a Letter of Intent (LOI) as the concept design progressed. On Nov. 22, 2023, Erie received Vertikal's first submittal for Site Plan and Minor Subdivision. In concert with development review, Town staff negotiated a Pre-Development Agreement with Vertikal's construction entity, HousePad Erie, LLC. The Pre-Development Agreement included the terms presented in the LOI and was approved by the Town Council on March 12, 2024.

During development review, Vertikal held a neighborhood meeting and focused meetings with surrounding property owners. The first meeting was held on Dec. 14, 2023, which was attended by over 20 residents. Key concerns identified by residents included density and resulting traffic, parking, school capacity, process, and occupancy limits. These concerns were integrated into the Town's development review considerations and further discussed during one-on-one meetings with adjacent neighbors. Additionally, Town staff increased transparency and communication on this development with a dedicated website to provide ongoing updates to the community on the project and its progress.

In May 2024, the Town demolished the existing structures on the site as was stipulated in the Pre-Development Agreement to occur prior to conveyance of the land. Staff anticipates a Summer 2024 construction start. Staff will start outreach and marketing of the homeownership units in early

summer, with applications due in December for homebuyer selection in January 2025. Homes are expected to be ready for occupancy starting in late summer 2025.

Cheesman Street Residences and Development Agreement
The Cheesman Street Residences Development is the Town's first affordable housing public-private partnership. The development brings high quality design and construction at an affordable price to the Town of Erie. The 35 new single family detached and attached homes will offer opportunities for families who want to set down roots in Erie to become homeowners in a market where for households in the target income ranges homeownership has been elusive for several years.

Cheesman Street Residences Minor Subdivision Plat
Development Information:

- Plat Size: 2.028 acres
- Number of Lots: 35 residential dwelling units
- Number of Tracts: 2 tracts

The Cheesman Street Residences subdivision is generally located northwest of East County Line Road and Cheesman Street. The plat includes 35 residential lots, private open space and common areas tracts, right-of-way dedication to widen the public alley, and a new private alley internal to the property. The development is accessed primarily from the new proposed alley access off Evans Street and the existing public alley access from Cheesman Street to Evans Street.

Development Agreement
The Cheesman Street Residences Development Agreement (DA) reflects provisions negotiated by Town staff with the Town Attorney's counsel and the developer, HousePAD Erie, LLC (also referred to as Vertikal Development). The DA incorporates the terms of the previously-approved Pre-Development Agreement, typical Town language for public improvements, provisions addressing affordable housing requirements, fees and public improvements, and specifically:

- Affordability provisions related to home sales and deed restriction;
- Conveyance of the land from the Town to the Developer;
- Fees related to schools, parks, open space, and tree mitigation;
- Reimbursements to the Town for public improvements; and
- Town's contribution to estimated development costs.

Action Items
The Town Council is the approval body for both the DA and the acceptance of dedications as shown on the Final Plat.

Fiscal Impact
To accomplish the level of affordability outlined, the Town is contributing the land (acquired for $1.15M) and rebating up to $1,950,000 in permit, taxes, and fees, and $100,000 for public improvements along East County Line Road for a total of $3.2m. ARPA funds, general funds, and a DOLA grant of $1,000,000 will cover the Town's contribution. The estimated public contribution of

$91,500 per affordable home is well within the range of public contributions needed to create affordable units in the western front range communities, which currently ranges from $50,000-$150,000 per unit. No development fees will be waived or reduced. All required reimbursements and fees will be covered by the Town's contribution from the funding sources listed above and the Developer's obligations. It will generate property and sales taxes to the Town, County, School, and Fire Districts. The resulting revenue will be used to provide municipal services to support the new development.

COUNCIL PRIORITY(S) ADRESSED:

- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Small Town Feel
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENTS:

1. Resolution No. 24-090
2. Development Agreement
3. Cheesman Street Residences Plat

Town of Erie
Resolution 24-090

A Resolution of the Town Council of the Town of Erie Approving a Development Agreement and Accepting Dedications as Shown on the Final Plat for the Cheesman Street Residences Subdivision

Whereas, on November 22, 2023, HousePAD Erie LLC filed an application for approval of a final plat for the Cheesman Street Residences Subdivision (the "Final Plat");

Whereas, the Planning and Development Director has conditionally approved the Final Plat, on the condition that the Town Council approve an associated development agreement and accept certain dedications as shown on the Final Plat;

Whereas, on June 25, 2024, the Town Council considered the Development Agreement and the acceptance of the dedications as shown on the Final Plat; and

Whereas, the Town Council desires to approve the Development Agreement and accept the dedications as shown on the Final Plat.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado, that:

Section 1. The Town Council hereby approves the Development Agreement in substantially the form attached hereto, subject to final approval by the Town Attorney. Upon such approval, the Mayor is authorized to execute the Development Agreement on behalf of the Town.

Section 2. The Town Council hereby accepts the dedications shown on the Final Plat for the Cheesman Street Residences Subdivision.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Development Agreement
(Cheesman Street Residences)

This Development Agreement (the "Agreement") is made this ___ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado home rule municipality with an address of P.O. Box 750, Erie, CO 80516 (the "Town"), and HousePAD Erie, LLC, a Colorado limited liability company with an address of 1125 Jefferson Avenue, Louisville, CO 80027 ("Developer") (each a "Party" and collectively the "Parties").

Whereas, the Town owns the real property described in **Exhibit A**, attached hereto and incorporated herein by this reference (collectively the "Property");

Whereas, the Town wishes to convey the Property to Developer for the redevelopment of the Property for deed-restricted, affordable, for-sale housing (the "Development"); and

Whereas, the Parties wish to elaborate on the terms of the Development process and parameters of the Development.

Now, therefore, for and in consideration of the mutual promises and covenants contained herein, the sufficiency of which is mutually acknowledged, the Parties agree as follows:

1. Purpose. The purpose of this Agreement is to set forth the terms and conditions under which the Development may proceed. All provisions of this Agreement are in addition to, and not in lieu of, any requirements of the Erie Municipal Code (the "Code") and other applicable law.

2. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

a. *AMI*: the Area Median Income for Boulder County ("AMI"), as published by the Department of Housing and Urban Development ("HUD").

b. *Building Permit:* includes a building permit, asbestos abatement permit, demolition permit, grading permit, and foundation permit.

c. *Estimated Total Costs*: the estimated total costs to complete the Development, as set forth in **Exhibit B**, attached hereto and incorporated herein by this reference.

d. *Improvements*: All improvements necessary for the Development, including without limitation streets, alleys, curbs, gutters, sidewalks, landscaping, irrigation, fencing, street lights, water, waste water, storm sewer and drainage facilities, and trails and park improvements, but excluding the Units.

e. *Legal Challenge:* a legal proceeding filed by a third party unrelated to the Parties challenging this Agreement or the zoning, platting or other development approval, an appeal of any zoning, platting or other development approval, or a petition for referendum to repeal any ordinance approving a development application.

f. *Plans*. The approved plans for the Development, which are attached hereto as **Exhibit C** and incorporated herein by this reference (the "Plans").

g. *Standards*: The current version of the Town's Standards and Specifications for Design and Construction of Public Improvements.

h. *Unit*: Each individual residential dwelling unit constructed on the Property.

3. Affordability.

a. *Initial Sales*. All Units shall be initially sold to households with incomes less than 120% of AMI.

b. *Deed Restriction*. The Property and all Units shall be subject to the deed restriction attached hereto as **Exhibit D** and incorporated herein by this reference.

4. Town's Obligations.

a. *Conveyance*. The Town shall convey the Property to Developer, by special warranty deed subject to statutory exceptions, prior to recordation of the final plat for the Development. Developer acknowledges and agrees that the conveyance of the Property is made on an "as-is" basis. Developer fully and irrevocably releases the Town from any and all claims that it may now have or hereafter acquire against the Town or its officials, employees, representatives or agents for any cost, loss, liability, damage, expense, claim, demand, action or cause of action arising from or related to any such defects and conditions, including without limitation compliance with environmental laws, affecting the Property or any portion thereof,

b. *Demolition*. Prior to conveying the Property to Developer, the Town shall, at its sole cost and expense, demolish and remove from the Property any and all existing structures on the Property.

c. *Fees and Taxes.* The Town shall reimburse fees and taxes paid by Developer to the Town for the Development, in a total combined amount not to exceed $1,950,000. The Town shall decide, in its sole discretion, which fees and taxes will be reimbursed to reach the maximum amount, and after the maximum amount is reached, Developer shall be solely responsible for all fees and taxes. Reimbursement shall be made within 30 days after the Town's receipt of such fees and taxes.

5. Developer's Obligations.

a. *Development.* Subject to the terms and conditions of this Agreement and the obligations of the Town hereunder, Developer shall be solely responsible for ensuring that the Development is constructed in compliance with this Agreement, including without limitation site work, design, engineering, testing, entitlement, and horizontal and vertical construction, at Developer's sole risk.

b. *Applications, Drawings and Permits*. Developer, at his own expense, shall prepare all applications, design drawings and plans for the Development, including the preparation and filing of all required applications to subdivide the Property so as to enable the Units to be sold in compliance with the Plans. Developer shall be responsible for obtaining all required Building Permits and other permits for the Development, at Developer's own expense, subject to the fee reimbursements set forth herein.

c. *Schedule*. Developer shall commence construction of the Development and thereafter manage the schedule of construction of the Development and completer the Development in compliance with the schedule attached hereto as **Exhibit E** and incorporated herein by this reference (the "Schedule"). Until the last certificate of occupancy is issued for the Development, Developer shall make monthly reports in such commercially reasonable detail as may reasonably be requested by Town.

d. *General Contractor*. Developer intends to enter into a construction contract with Thrash Development, LLC as the general contractor for the Development. The construction contract with the general contractor shall be subject to the Town's prior review and written approval. Developer is authorized to select a replacement general contractor, if necessary, at Developer's discretion, but only after consultation with the Town.

e. *Other Contracts*. All contracts between Developer and any other person or entity working on the Development shall be subject to the prior review and written approval of the Town.

f. *Professional Responsibility*. Developer hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. The work performed by Developer shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

g. *Applicable Law*. In connection with the Development, Developer shall comply with all applicable law, including without limitation all federal, state and local

statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act; the Hazardous Materials Transportation Act; the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Clean Water Act; the Clean Air Act; the Federal Water Pollution Control Act; the Occupational Safety and Health Act; all applicable Colorado environmental laws; and all other federal, state or local laws and regulations relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, now or at any time hereafter in effect.

h. *Books and Records*. Developer shall maintain all books and records related to the Development for public inspection. Upon request by the Town, Developer shall provide evidence of all costs and expenses related to the Development.

i. *Return on Investment*. Developer shall limit its return on investment to 10%, including hard costs, soft costs, cost of interest on all sources of capital, and excluding any public contribution, grants, fee waivers and tax rebates. To ensure that this requirement is satisfied, Developer shall provide necessary financial documents to the Town, as confidential financial information, within 7 days of the Town's written request.

j. *Maintenance*. Unless dedicated to and accepted in writing by the Town for maintenance, all Improvements shall be maintained by Developer. Acceptance by the Town of ownership of any Improvement does not constitute acceptance by the Town of maintenance for such Improvement. If Developer wishes to transfer maintenance obligations to any other entity, including an owners' association, Developer shall obtain prior written approval from the Town.

k. *Marketing and Contracts*. Prior to marketing the Units for their initial sale, Developer shall prepare an Affirmative Fair Housing Marketing Plan ("AFHMP") and submit the AFHMP to the Town for approval. Developer shall be responsible for all matters related to the marketing, buyer selection, contracting for sale, and all other matters related to the initial sale of the Units and all costs related thereto, in compliance with the AFHMP. The AFHMP shall include the standard form of contract for sale, which shall not be changed without the Town's prior written approval. The AFHMP shall also include provisions for qualifying prospective purchasers.

l. *Common Interest Community*. Prior to issuance of the first certificate of occupancy for the Development, Developer shall lawfully establish a common interest community for the Development, pursuant to the Colorado Common Interest Ownership Act, C.R.S. § 38-33.3-101, *et seq*. All documents related to the common interest

community, including the declaration, shall be subject to the Town's prior written approval.

6. Construction of Improvements.

a. *General*. Developer shall, at its own expense, design, construct and install the Improvements. A list of the Improvements is set forth in **Exhibit F**, attached hereto and incorporated herein by this reference; omission of any necessary Improvement from **Exhibit F** does not relieve Developer from responsibility for furnishing, installing or constructing such Improvement.

b. *Standards*. Developer shall construct the Improvements in accordance with the Plans and the Standards. Developer shall furnish, at its expense, all necessary engineering and consulting services relating to the design and construction of the Improvements. These services shall be performed by or under the supervision of a professional engineer licensed in the State of Colorado.

c. *Public Improvement Permit*. Before the construction of any Improvements, Developer shall obtain a Public Improvement Permit ("PIP") from the Town as provided in the Code. Developer shall reimburse the Town for any expenses incurred by the Town for review of the application or associated documents. Unless otherwise approved by Town, overlot grading shall not be initiated until the Town approves drainage plans by the issuance of the PIP.

d. *Testing and Inspection*. Developer shall employ, at its own expense, a licensed testing company to perform all testing of materials or construction reasonably required by the Town. Developer shall furnish copies of test results to the Town on a timely basis. At all times during construction, the Town shall have access to inspect materials and work, and all materials and work not conforming to the Plans or Standards shall be repaired or removed and replaced at Developer's expense.

e. *Rights-of-way and Easements*. Prior to construction of any Improvements that require additional rights-of-way or easements, Developer shall acquire at its own expense all such rights-of-way and easements. Any easements or rights-of-way conveyed to the Town shall be free and clear of liens, taxes and encumbrances and shall be conveyed on documents in a form acceptable to the Town.

f. *Permits*. Developer shall, at its own cost, obtain the following permits, as applicable:

i. Any permits required by the United States Corps of Engineers.

ii. Colorado Department of Health and Environment General Permit for Stormwater Discharges Associated with Construction Activity.

iii. Grading, stormwater quality and right-of-way permits.

iv. Air quality permit.

g. *Timing of Utility Tie-Ins*. Developer acknowledges that the Town is improving County Line Road, and that, during the construction of such improvements, any right-of-way permits for utility tie-ins will be subject to approval of the Town Engineer. The Town expects the County Line Road project to be complete by May 31, 2025.

h. *As-Built Drawings*. Upon completion of construction of the Improvements, Developer shall provide the Town with complete "as-built" drawings in the form required by the Standards.

7. Acceptance of Improvements and Warranty.

a. *Initial Acceptance*. No later than 10 days after Improvements are substantially complete, Developer shall request an inspection by the Town. If Developer does not request this inspection, the Town may conduct the inspection without Developer's approval. All Improvements shall receive Initial Acceptance on or before November 15, 2024.

i. If the Improvements are satisfactory, the Town shall grant Initial Acceptance.

ii. If the Improvements are not satisfactory, the Town shall provide written notice to Developer of the repairs, replacements, construction or other work required to receive Initial Acceptance. Developer shall complete all needed repairs, replacements, construction or other work within 30 days of said notice. After Developer completes the repairs, replacements, construction or other work required, Developer shall request of the Town a re-inspection of such work to determine if Initial Acceptance can be granted, and the Town shall provide written notice to Developer of the acceptability or unacceptability of such work prior to proceeding to complete any such work at Developer's expense. If Developer does not complete the repairs, replacements, or other work required within 30 days, Developer shall be in breach of this Agreement. The costs of re-inspection shall be borne by Developer.

b. *Final Acceptance*. At least 30 days before 2 years has elapsed from the issuance of Initial Acceptance, or as soon thereafter as weather permits, Developer shall request an inspection by the Town. If Developer does not request this inspection, the Town may conduct the inspection without Developer's approval.

i. If the Improvements are satisfactory, the Town shall grant Final Acceptance.

ii. If the Improvements are not satisfactory, the Town shall provide written notice to Developer of the work required to receive Final Acceptance. After

Developer completes such work, Developer shall request a re-inspection, and the Town shall provide written notice to Developer of the acceptability or unacceptability of such work. If Developer does not complete the required work in an acceptable manner within 30 days, Developer shall be in breach of this Agreement.

c. *Warranty*. For all Improvements to be dedicated to the Town, Developer shall provide the Town with a 2-year warranty, commencing on the date of Initial Acceptance (the "Warranty Period"). Specifically, but not by way of limitation, Developer shall warrant that: the title is marketable and its transfer rightful; the Improvements are free from any security interest or other lien or encumbrance; and the Improvements are free of defects in materials or workmanship. During the Warranty Period, Developer shall, at its own expense, take all actions necessary to maintain the Improvements and make all necessary repairs or replacements.

8. Improvement Guarantee.

a. *Amount and Form.* To secure the construction and installation of the Improvements, Developer shall provide a letter of credit or cash in an amount equal to 115% of the total costs listed in **Exhibit F** (the "Improvement Guarantee"), a form approved by the Town.

b. *Timing*. Developer shall not commence construction, including without limitation staking, earth work, overlot grading or the erection of any structure, temporary or otherwise, until the Town has received and approved the Improvement Guarantee.

c. *Draw.* If the Improvements are not satisfactorily completed within the periods of time specified herein, the Town may draw on the Improvement Guarantee to complete the Improvements. If the Improvement Guarantee is to expire within 14 days and Developer has not yet provided a satisfactory replacement, or completed the Improvements, the Town may draw on the Improvement Guarantee and either hold such funds as security for performance of this Agreement or spend such funds to finish the Improvements or correct problems with the Improvements as the Town deems appropriate. If the Town has drawn on the Improvement Guarantee, and a satisfactory replacement guarantee is provided or the Improvements have been completed, then the Town will release any funds received as a result of its draw within a reasonable period of time, or within 10 days of a request by Developer.

d. *Reduction.* Upon Initial Acceptance of Improvements, the Improvement Guarantee shall be reduced to the amount of 25% of the total actual cost of construction and installation of such Improvements. The reduced Improvement Guarantee shall be held by the Town during the Warranty Period.

9. Reimbursements. Developer shall reimburse the Town for a proportional cost of improvements previously constructed by the Town that benefit the Property, in the

amounts and during the times set forth in **Exhibit G**, attached hereto and incorporated herein by this reference.

10. Fees and Dedications.

a. *Park, Open Space Fees and Tree Mitigation Fees*. Developer shall pay Park, Open Space and Tree Mitigation Fees to the Town in the amounts and at the times set forth in **Exhibit G**.

b. *School Fees*. Pursuant to the Intergovernmental Agreement between the Town and the St. Vrain Valley School District, Developer shall pay to the St. Vrain Valley School District the fees set forth in **Exhibit G**, which shall be paid in a proportional amount for each building permit for the Development. Proof of payment shall be provided with each Building Permit application for the Development.

11. Indemnification. Developer agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representatives, agents, employees, attorneys heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by the omission, error, professional error, mistake, negligence, or other fault of Developer, or any officer, employee, representative, agent or subcontractor of Developer. In addition, Developer shall pay all property taxes on property underlying Improvements to be dedicated to the Town before acceptance by the Town, and shall indemnify and hold harmless the Town for any such property tax liability.

12. Developer's Representations and Warranties. Developer hereby represents and warrants to the Town that all of the following are true and correct as of the date of signature and the Effective Date: this Agreement has been duly authorized and executed by Developer as the legal, valid and binding obligation of Developer, and is enforceable as to Developer in accordance with its terms; the person executing this Agreement on behalf of Developer is duly authorized and empowered to execute and deliver this Agreement on behalf of Developer; to the best of Developer's knowledge, there is no pending or threatened litigation, administrative proceeding or other proceeding pending or threatened against Developer which, if decided or determined adversely, would have a material adverse effect on the ability of Developer to undertake its obligations under this Agreement nor, to the best of Developer's knowledge, is there any fact or condition of the Property known to Developer that may have a material adverse effect on Developer's ability to Develop the Property as contemplated; and neither the execution of this Agreement nor the consummation of the transaction contemplated by this Agreement will constitute a breach under any contract, agreement or obligation to which Developer is a party or by which Developer is bound or affected.

13. Developer Default and Remedies.

a. *Default*. Each of the following is a Developer default of this Agreement:

i. If Developer fails to perform any of its obligations under this Agreement and fails to remedy the same within 30 days after Developer is given a written notice specifying the same; provided that, if the nature of the violation is such that it cannot reasonably be remedied within 30 days, and Developer provides evidence to the Town that the violation cannot reasonably be remedied within 30 days, then the violation shall be remedied as soon as reasonably practicable, but in any case, within 120 days of the original notice of violation.

ii. If an involuntary petition is filed against Developer under a bankruptcy or insolvency law or under the reorganization provisions of any law, or when a receiver of Developer, or of all or substantially all of the property of Developer, is appointed without acquiescence, and such petition or appointment is not discharged or stayed within 120 days after the happening of such event.

iii. If Developer makes an assignment of its property for the benefit of creditors or files a voluntary petition under a bankruptcy or insolvency law, or seeks relief under any other law for the benefit of debtors.

b. *Remedies*. If a Developer default occurs, the Town may, in its sole discretion and without waiving any other rights under this Agreement or available to the Town, cause construction of all or part of the Development to be completed and recover appropriate damages from Developer. If the Town proceeds to complete the Development, Developer shall, at the Town's request, promptly deliver a copy of all of Developer's plans and specifications related to construction of the Development. In addition to the specific remedies set forth herein, the Town shall have all other remedies available at law or equity, and the exercise of one remedy shall not preclude the exercise of any other remedy. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

c. *Reverter*. If construction is not commenced by October 1, 2024, title to the Property shall automatically revert to the Town, and Developer shall execute all required documents to effect such reverter.

d. *Remedies for Buyers.* Developer shall provide written notice to each Unit buyer of the anticipated substantial completion date of the buyer's Unit, at least 90 days before the anticipated substantial completion date. If Developer does not obtain a certificate of occupancy for such Unit within 30 days after the date in the notice, then Developer shall arrange and pay for accommodations for the Unit buyer and their household until such time that Developer delivers possession of the Unit to the buyer.

e. *Additional Notice*. Together with the notice of default issued to Developer under subsection a.i. hereof, the Town shall send a copy of the notice to Developer's lender, Alpine Bank ("Lender"). The notice shall be sent by first-class U.S. Mail, addressed as follows: Alpine Bank, 215 St. Paul Street, Suite 100, Denver, CO 80206, Attn: Margaux Askeland; and Stinson LLP, 1144 15th Street, Suite 2400, Denver, CO 80202, Deborah L. Bayles. It is Developer's sole responsibility to update these addresses as necessary. Notwithstanding anything herein to the contrary, the Town's failure to provide this additional notice and the lender's failure to receive such notice shall not be a default of this Agreement.

f. *Extinguishment of Deed Restriction.* If Developer defaults on its financing agreements with Lender and Lender commences foreclosure proceedings under such agreements, the Town will allow Lender to remove the Deed Restriction from a Unit upon a one-time, lump sum cash payment to the Town of $91,400. The termination of the Deed Restriction as to one Unit shall have no effect on the validity or enforceability of the Deed Restriction against other Units.

14. Town Default and Remedies.

a. *Default*. Each of the following is a Town default of this Agreement:

i. If the Town fails perform any of its obligations under this Agreement other than its obligation to pay the expenses and fees of the Development and fails to remedy the same within 30 days after the Town is given a written notice specifying the same; provided that, if the nature of the violation is such that it cannot reasonably be remedied within 30 days, and the Town provides evidence to Developer that the violation cannot reasonably be remedied within 30 days, then the violation shall be remedied as soon as reasonably practicable, but in any case, within 90 days of the original notice of violation.

ii. If the Town fails to pay any amount owed to Developer under this Agreement within 7 days after the date such payment is due.

b. *Remedies*. If a Town default occurs, Developer shall have all remedies available at law or equity, and the exercise of one remedy shall not preclude the exercise of any other remedy, provided that Developer shall not have the remedy of specific performance against the Town. Without limiting the generality of the foregoing, in the event a Town default occurs, Developer may terminate this Agreement upon notice given to the Town, without waiving any of its rights or remedies hereunder.

15. Miscellaneous.

a. *Modification*. This Agreement may only be modified by subsequent written agreement of the Parties.

b. *Integration*. This Agreement and any attached exhibits constitute the entire agreement between Developer and the Town, superseding all prior oral or written communications.

c. *Binding Effect*. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective heirs, successors and assigns.

d. *Severability*. If any provision of this Agreement is determined to be void by a court of competent jurisdiction, such determination shall not affect any other provision hereof, and all of the other provisions shall remain in full force and effect.

e. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

f. *Assignment*. Developer shall not assign any of its rights or obligations of Developer under this Agreement without the prior written approval of the Town.

g. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

h. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

i. *No Joint Venture*. Notwithstanding any provision hereof, the Town shall never be a joint venture in any private entity or activity which participates in this Agreement, and the Town shall never be liable or responsible for any debt or obligation of any participant in this Agreement.

j. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first-class United States Mail to the Party at the address set forth on the first page of this Agreement.

k. *Recording*. This Agreement shall be recorded with the Weld County Clerk and Recorder. The benefits and obligations of the Parties under this Agreement shall run with the land, and shall be binding on, and enforceable by, any subsequent holder of an interest in the Improvements or in the Property.

l. *Governmental Immunity*. Nothing herein shall be construed as a waiver of any protections or immunities the Town or its employees, officials or attorneys may have under the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended.

m. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this Agreement due to acts of God, floods, fires, sabotage, terrorist attacks, strikes, riots, war, labor disputes, pandemics or the authority and orders of government.

n. *Legal Challenge*. If a Legal Challenge occurs, this Agreement will remain in full force and effect through and until the 31st day following entry of a final, non-appealable order resolving such Legal Challenge, unless earlier terminated or modified by a written amendment signed by the Parties. If a Legal Challenge occurs, all deadlines and time requirements in this Agreement shall be tolled until such time as a final, non-appealable order resolving such Legal Challenge is entered. If a Legal Challenge successfully voids, enjoins, or otherwise invalidates this Agreement or a portion thereof, the Parties shall cooperate to cure the legal defect in a manner that most fully implements the intent and purpose of this Agreement; provided, however, that if the Parties do not enter into a written agreement to cure the defect, either Party may terminate this Agreement.

Wherefore, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Developer

_____

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to, and acknowledged before me this _____ day of _____, 2024, by _____ as the _____ of HousePAD Erie, LLC.

My commission expires:

(Seal)

_____
Notary Public

Exhibit A
Legal Description of Property

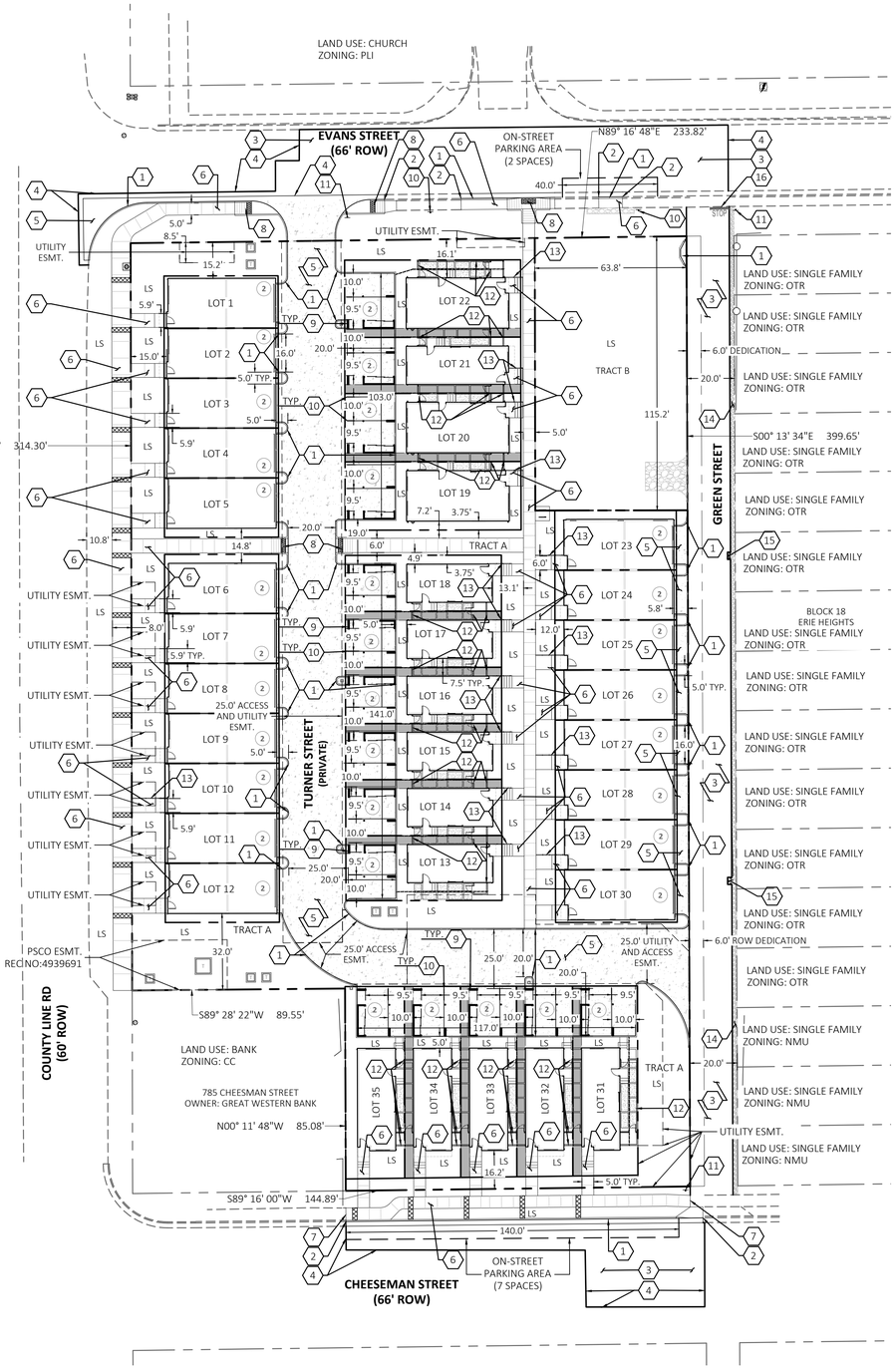
A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS, SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF EVANS STREET, A 66-FOOT PUBLIC RIGHT OF WAY AND THE WEST LINE OF A 14-FOOT ALLEY LOCATED WITHIN BLOCK 18, ERIE HEIGHTS;
THENCE S00° 13' 34"E ALONG THE COMMON WEST LINE OF SAID 14-FOOT ALLEY AND EAST LINE OF LOTS 17 THROUGH 32, SAID ERIE HEIGHTS WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO, A DISTANCE OF 399.64 TO A POINT ON THE NORTH RIGHT OF WAY LINE OF CHEESMAN STREET, A 66-FOOT PUBLIC RIGHT OF WAY;
THENCE S89° 16' 00"W, ALONG THE SOUTH LINE OF SAID CHEESMAN STREET, A DISTANCE OF 150.89 FEET;
THENCE N00° 11' 48"W, A DISTANCE OF 85.08 FEET;
THENCE S89° 28' 22"W, A DISTANCE OF 89.55 FEET TO THE EAST RIGHT OF WAY LINE OF WELD COUNTY ROAD 1, A 60-FOOT PUBLIC RIGHT OF WAY;
THENCE N00° 07' 18"W, ALONG THE EAST RIGHT OF WAY LINE OF SAID WELD COUNTY ROAD 1, A DISTANCE OF 314.30 FEET TO THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET;
THENCE N89° 16' 48"E, ALONG THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET, A DISTANCE OF 239.82 FEET TO THE POINT OF BEGINNING.
CONTAINING 88,354 SQUARE FEET, OR 2.028 ACRES OF LAND MORE OR LESS.

CHEESMAN STREET RESIDENCES
SITE PLAN DOCUMENTS

A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18,
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
2.028 ACRES
SITE PLAN - SP - 001667-2023

EXHIBIT B



LEGEND

- PROPERTY LINE
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER WITH 1-FOOT PAN
- PROPOSED VERTICAL CURB
- EASEMENT BOUNDARY
- PROPOSED CONCRETE SIDEWALK
- PROPOSED SIGN
- PROPOSED SITE LIGHTING
- LS — PROPOSED LANDSCAPE AREA
- EX. LS — EXISTING LANDSCAPE AREA
- S.Y.U.E. EASEMENT BOUNDARY
- (X) — PARKING COUNT PER UNIT

KEY NOTES

1. PROPOSED CURB. SEE GRADING PLAN FOR ADDITIONAL INFORMATION.
2. MATCH EXISTING CURB AND GUTTER.
3. PROPOSED ASPHALT PAVEMENT.
4. MATCH EXISTING ASPHALT.
5. PROPOSED CONCRETE PAVEMENT.
6. PROPOSED CONCRETE SIDEWALK, WIDTH PER PLAN.
7. MATCH EXISTING SIDEWALK.
8. PROPOSED ADA RAMP.
9. PROPOSED CARPORT.
   RE: BUILDING PLANS (SEPARATE SUBMITTAL PROCESS).
10. PROPOSED "PARKING MON-SAT ONLY" STREET SIGN.
11. PROPOSED STOP SIGN.
12. PROPOSED FENCE.
13. PROPOSED HANDRAIL.
14. PROPOSED COMPACTED RECYCLED ASPHALT.
15. PROPOSED PROTECTIVE BOLLARDS AROUND EXISTING UTILITY POLE.
16. PROPOSED STOP BAR WITH "STOP" LETTERS.

GENERAL NOTES

1. REFER TO SHEET 1, COVER SHEET, FOR THE BENCHMARK AND BASIS OF BEARINGS.
2. THE SIDE YARD USE EASEMENT (S.Y.U.E.) ALLOWS THE NEIGHBORING SINGLE FAMILY DETACHED PROPERTY OWNER TO UTILIZE THE EASEMENT AREA FOR PERSONAL USE. REFER TO THE MINOR SUBDIVISION PLAT FOR SPECIFIC RESTRICTIONS AND ALLOWANCES.

811 Know what's **below.** **Call** before you dig.

N
30 15 0 30
SCALE 1" = 30'

POINT CONSULTING, LLC
8460 W KEN CARYL AVE #101
LITTLETON, CO 80128
720-258-6836
www.pnt-llc.com
PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
LAND SURVEYING

SITE PLAN DOCUMENTS
CHEESMAN STREET RESIDENCES
ERIE, COLORADO

DATE	DESCRIPTION
2023.11.17	1ST TOWN SITE PLAN SUBMITTAL
2024.03.08	2ND TOWN SITE PLAN SUBMITTAL
2024.05.03	3RD TOWN SITE PLAN SUBMITTAL
2024.05.24	4TH TOWN SITE PLAN SUBMITTAL
2024.06.07	5TH TOWN SITE PLAN SUBMITTAL
- - -	- - -

SITE PLAN | JOB NO. 23.055
SHEET 2 OF 25

Exhibit C
Estimated Development Costs

	Total	Developer's Expense	Town Contribution
Land Cost	$1,150,000		$1,150,000
Infrastructure & Landscape Improvements	$1,615,000	$1,515,000	$100,000
Construction Costs			
Construction Cost	$9,726,000	$9,726,000	
Construction Contingency	$600,000	$600,000	
Soft Costs	$2,260,500	$2,260,500	
Permits/Fees/Taxes	$1,950,000		$1,950,000
Total	$17,301,500	$14,101,500	$3,200,000

Exhibit D
Deed Restriction

Deed Restriction Agreement
(Cheesman Street Residences)

This Deed Restriction Agreement (the "Agreement") is entered into this _____ day of _____, 2024 (the "Effective Date") by and between the Town of Erie, a Colorado municipal corporation with an address of P.O. Box 750, Erie, CO 80516 (the "Town"), and HousePAD Erie, LLC, a Colorado limited liability company with an address of 1125 Jefferson Avenue, Louisville, CO 80027 ("Developer") (each a "Party" and collectively the "Parties").

Whereas, Developer owns the real property described in Exhibit 1 (the "Property"), and has developed the Property for affordable housing;

Whereas, Developer will sell individual residential dwelling units on the Property (each a "Unit") to individual buyers; and

Whereas, prior to such sale, the Parties wish to permanently restrict the occupancy, use and resale of the Property.

Now, Therefore, for and in consideration of the mutual promises and covenants contained herein, the sufficiency of which is mutually acknowledged, the Parties agree as follows:

1. Property. The Property, including all Units, is hereby burdened with the covenants and restrictions specified in this Agreement.

2. Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

a. *AMI* means the Area Median Income for Boulder County, as published by the Department of Housing and Urban Development ("HUD"),

b. *Eligible Capital Improvement* means an improvement to the Property performed by the current Owner as described in the Guidelines, which shall qualify for inclusion within the calculation of Maximum Resale Price if the Owner furnishes the Town with the following information:

i. Original or duplicate receipts to verify the actual costs expended by the Owner for the Permitted Capital Improvements;

ii. An affidavit verifying the receipts are valid and correct receipts tendered at the time of purchase; and

iii. True and correct copies of any building permit or certificate of occupancy required to be issued by the Town for the Eligible Capital Improvement.

c. *Guidelines* means the current version of the Cheesman Street Residences Housing Guidelines adopted by the Town. The version adopted as of the Effective Date is attached hereto as **Exhibit 1** and incorporated herein by this reference.

d. *Maximum Resale Price* means the Purchase Price paid by the last Qualified Buyer adjusted by an appreciation of 5% annually, plus the value of Eligible Capital Improvements, plus the amount of the sales commission actually paid by Owner when purchasing the Unit in an amount not to exceed 2.5%.

e. *Non-Qualified Owner* means any person who acquires an ownership interest in a Unit who is not a Qualified Owner.

f. *Owner* means any person who acquires an ownership interest in the Property, including without limitation Qualified Owners, Non-Qualified Owners and Inheriting Owners.

g. *Principal Place of Residence* means the home or place in which one's habitation is fixed and to which one has a present intention of returning after a departure or absence therefrom. In determining what is a Principal Place of Residence, the Town shall consider the criteria set forth in C.R.S. § 31-10-201(3), as amended.

h. *Purchase Price* means all consideration paid by a Qualified Buyer for a Unit, but excludes: any proration amounts, taxes, costs and expenses of obtaining financing; costs of furnishings or personal property; lenders' fees; title insurance fees; closing cost; inspection fees; and real estate purchase or sales commission(s).

i. *Qualified Buyer* means the Town or a person who, upon purchase of a Unit, will be a Qualified Owner.

j. *Qualified Owner* means an owner with a total household income that does not exceed 140% of AMI, with income determined according to Colorado Housing Financial ("CHFA") guidelines in place at the time of income qualification; provided that, upon the initial sale of the Unit, the total household income at the time of income qualification shall not exceed 120% of AMI.

k. *Transfer* means any sale, conveyance, assignment or transfer, voluntary or involuntary, of any interest in the Property or a Unit, including without limitation a fee simple interest, a joint tenancy interest, a life estate, a leasehold interest and an interest evidenced by any contract by which possession of the Property or a Unit is transferred and an Owner retains title; provided that the lease of a room or rooms within the Property or a Unit to a tenant in accordance with this Agreement shall not constitute a Transfer.

3. Term and Termination.

a. *Term*. The term of this Agreement shall be 20 years from the Effective Date, provided that, upon each resale of a Unit, a new 20-year term shall commence.

b. *Termination.* In the event of a Developer default under the applicable Development Agreement for this Development, prior to the initial sale of a Unit, this Agreement may be terminated as to such Unit upon a one-time, lump sum cash payment from Developer's Lender to the Town in the amount of $91,400. The termination of this Agreement as to one Unit shall have no effect on the validity or enforceability of this Agreement against other Units.

4. Occupancy Restrictions.

a. Each Unit shall be continuously occupied by at least one Qualified Owner as their principal place of residence. If a Qualified Owner ceases to occupy their Unit as their principal place of residence, the Qualified Owner shall immediately contact the Town to Transfer the Unit pursuant to this Agreement. Notwithstanding the foregoing, a Qualified Owner may, without occupying the Unit as their principal place of residence, lease the Property to any tenant(s) for up to one year for each 4 years, of consecutive and continuous ownership of the Unit. Leases of less than 30 days are prohibited.

b. The Qualified Owner may lease a room or rooms within their Unit at any time, to any tenant, provided that the Qualified Owner still occupies their Unit as their principal place of residence. Leases of less than 30 days are prohibited.

c. No business activity shall occur on or within any Unit, other than as permitted within the zone district applicable to the Property.

d. If at any time a Qualified Owner also owns any interest alone or in conjunction with others in any developed residential property or dwelling unit located in Boulder County or Weld County, Colorado, the Qualified Owner shall immediately list said other property or unit for sale to sell the Qualified Owner's interest in such property at a sales price comparable to like units or properties in the area in which the property or dwelling unit is located. If said other property or unit(s) has not been sold by the Qualified Owner within 120 days of its listing, the Qualified Owner shall immediately contact the Town to Transfer the Property pursuant to this Agreement. It is understood and agreed that, in the case of a Qualified Owner whose business is the construction and sale of residential properties or the purchase and sale of such properties, the properties which constitute inventory in the business shall not constitute other developed residential property or dwelling unit as those terms are used in this Section.

e. No later than February 1st of each year, each Qualified Owner shall submit one copy of a sworn affidavit, on a form provided by the Town, verifying that their Unit is occupied in accordance with this Agreement and the Guidelines.

f. Should the Town acquire possession of the Property or any Unit for any reason, the Town may lease the Property or any Unit to any tenant for any period of time.

g. Nothing in this Agreement shall prohibit a Qualified Owner from making an improvement to a Unit which does not qualify as an Eligible Capital Improvement, in compliance with all applicable law.

5. Transfer.

a. An Owner shall first notify the Town that the Owner wishes to Transfer their Unit. The Town shall have the first option to purchase such Unit, exercisable within a period of 15 days after receipt of notice, and if the Town exercises its right and option, the Town shall purchase the Unit from the Owner for a price equal to the Maximum Resale Price, or the appraised market value, whichever is less.

b. Should the Town determine not to purchase the Property, the Owner shall list the Property for sale in accordance with the Guidelines.

c. The Property shall be transferred only to the Town or a Qualified Buyer, and shall not be sold for more than the Maximum Resale Price.

d. At closing, the Qualified Buyer shall execute, in a form satisfactory to the Town and for recording with the Weld County Clerk and Recorder, a document acknowledging this Deed Restriction and expressly agreeing to be bound by it.

6. Effect of Transfer to a Non-Qualified Owner.

a. If for any reason the Property or a Unit is transferred to a Non-Qualified Owner, the Non-Qualified Owner shall immediately Transfer the Property or Unit pursuant to this Agreement.

b. The Non-Qualified Owner shall execute any and all documents necessary for the Transfer.

c. A Non-Qualified Owner shall not: occupy the Property or Unit; rent any part of the Property or Unit; engage in any business activity in the Property or Unit; or Transfer the Property or Unit except in accordance with this Agreement.

7. Transfer by Devise or Inheritance.

a. If a Transfer occurs by devise or inheritance due to death of an Owner, the personal representative of the Owner's estate or the person inheriting the Property or Unit (the "Inheriting Owner") shall provide written notice to the Town within 30 days of the date of death.

b. If the Inheriting Owner is a Qualified Owner, they shall provide the Town with documentation proving their status as such, and the Town may determine if the Inheriting Owner is in fact a Qualified Owner. If the Inheriting Owner fails to provide the required documentation, they shall be deemed a Non-Qualified Owner.

c. If the Inheriting Owner is a Qualified Owner, they shall succeed in the Qualified Owner's interest and obligations under this Agreement. If the Inheriting Owner is a Non-Qualified Owner, the Inheriting Owner shall Transfer the Property or Unit pursuant to this Agreement.

8. Consensual Lien; Right to Redeem. For the purpose of securing performance under this Agreement and creating in favor of the Town a right to redeem in accordance with Part 3 of Article 38 of Title 38, C.R.S., as amended, Developer hereby grants to Town a consensual lien on the Property and each Unit. Such lien shall not have a lien amount.

9. Breach.

a. It shall be a breach of this Agreement for an Owner to make any provision of this Agreement, or to default in payment or other obligations due to be performed under a promissory note secured by a first deed of trust encumbering the Property or a Unit.

b. If the Town has reasonable cause to believe that an Owner is violating this Agreement, the Town may inspect the Property or Unit between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, after providing the Owner with 24 hours written notice. This Agreement shall constitute permission to enter the Property or Unit during such times upon such notice.

c. If the Town discovers a violation of this Agreement, the Town shall notify the Owner of the violation and allow 15 days to cure.

10. Remedies.

a. Any Transfer in violation of this Agreement shall be wholly null and void and shall confer no title whatsoever upon the purported buyer. Each and every Transfer, for all purposes, shall be deemed to include and incorporate by this reference the covenants contained in this Agreement, even if the Transfer documents fail to reference this Agreement.

b. The Town may pursue all available remedies for violations of this Agreement, including without limitation specific performance or a mandatory injunction requiring a Transfer of the Property or Unit, with the costs of such Transfer to be paid out of the proceeds of the sale.

c. Upon request by the Town, each Owner authorizes the holder of any mortgage or deed of trust against the Property or Unit to disclose to the Town if any payments due are delinquent and the duration and amount of such delinquency.

d. Any violation of this Agreement shall cause the Maximum Resale Price to freeze and remain fixed until the date such violation is fully cured.

e. In addition to the specific remedies set forth herein, the Town shall have all other remedies available at law or equity, and the exercise of one remedy shall not preclude the exercise of any other remedy.

11. Foreclosure.

a. An Owner shall notify the Town, in writing, of any notification received from a lender of past due payments or defaults in payments or other obligations within 5 days of receipt of such notification.

b. An Owner shall immediately notify the Town, in writing, of any notice of foreclosure under the first deed of trust or any other subordinate security interest in the Property or any Unit, or when any payment on any indebtedness encumbering the Property is required to avoid foreclosure of the first deed of trust or other subordinate security interest in the Property or Unit.

c. Within 60 days after receipt of any notice described herein, the Town may (but shall not be obligated to) proceed to make any payment required to avoid foreclosure. Upon making any such payment, the Town shall place a lien on the Property or Unit in the amount paid to cure the default and avoid foreclosure, including all fees and costs resulting from such foreclosure.

d. Notwithstanding any other provision of this Agreement, in the event of a foreclosure, acceptance of a deed-in-lieu of foreclosure, or assignment, this Agreement shall remain in full force and effect, including without limitation Section 5 hereof, restricting Transfer of the Property and Unit.

e. The Town shall have 30 days after issuance of the public trustee's deed or the acceptance of a deed in lieu of foreclosure by the holder in which to purchase by tendering to the holder, in cash or certified funds, an amount equal to the redemption price which would have been required of the borrower or any person who might be liable upon a deficiency on the last day of the statutory redemption period(s) and any additional reasonable costs incurred by the holder related to the foreclosure.

12. Miscellaneous.

a. *Modification*. This Agreement may only be modified by subsequent written agreement of the Parties, provided that, if the Town obtains title to the Property or Unit, the Town may modify or terminate this Agreement at any time.

b. *Integration*. This Agreement and any attached exhibits constitute the entire agreement between the Parties, superseding all prior oral or written communications.

c. *Binding Effect*. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective heirs, successors and assigns.

d. *Severability*. If any provision of this Agreement is determined to be void by a court of competent jurisdiction, such determination shall not affect any other provision hereof, and all of the other provisions shall remain in full force and effect.

e. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Weld County, Colorado.

f. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

g. *No Joint Venture*. Notwithstanding any provision hereof, the Town shall never be a joint venture in any private entity or activity which participates in this Agreement, and the Town shall never be liable or responsible for any debt or obligation of any participant in this Agreement.

h. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class United States Mail to the Party at the address set forth on the first page of this Agreement, or, if the Property or the Unit has been transferred to a subsequent Owner, the Owner's address on file with the Weld County Assessor.

i. *Recording*. This Agreement shall be recorded with the Weld County Clerk and Recorder. The benefits and obligations of Developer under this Agreement shall run with the land, and shall be binding on any subsequent holder of an interest in the Property or the Unit.

j. *Savings Clause*. If any of the terms, covenants, conditions, restrictions, uses, limitations, obligations or options created by this Agreement are held to be unlawful or void for violation of: the rule against perpetuities or some analogous statutory provision; the rule restricting restraints on alienation; or any other statutory or common law rules imposing like or similar time limits, then such provision shall continue only for the period of the lives of the current duly elected and seated members of the Erie Town Council, their now living descendants, if any, and the survivor of them, plus 21 years.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Developer

By: _____

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of HousePAD Erie, LLC.

Witness my hand and official seal.

_____
Notary Public

(Seal)

My commission expires:

Exhibit 1
Cheesman Street Residences Housing Guidelines

1. General. These Guidelines are intended to supplement the Deed Restriction Agreement (the "Deed Restriction"). These Guidelines may be updated by Town staff as necessary, and the current version of these Guidelines shall always control over any prior version. In the event of any conflict between these Guidelines and the Deed Restriction, the Deed Restriction shall control. For purposes of these Guidelines, "Town" shall include the Town or its authorized agent.

2. Eligible Capital Improvements.

a. Approval Required. All Eligible Capital Improvements must be pre-approved by the Town, except in the case of emergency. In the case of emergency, an Owner shall report to the Town within 30 days of completion of the Eligible Capital Improvement.

b. List. Eligible Capital Improvements shall include labor and materials for the following items, excluding labor performed by the Owner:

i. Improvements that increase habitable square footage.

ii. Installation of new cooling systems, in compliance with the Town's current energy code.

iii. Replacement of carpet or vinyl flooring that is at least 10 years old with hardwood floors or ceramic tile.

iv. Radon gas mitigation costs for levels above levels established by the Environmental Protection Agency, excluding the cost of testing.

v. New perimeter fencing.

vi. Renovation of kitchens and bathrooms that are at least 20 years old.

vii. Replacement of defective windows of any age, or any windows that are at least 20 years old with windows that meet the Town's current energy code.

viii. Replacement of a furnace, boiler or water heater that is at least 10 years old with a unit that meets the Town's current energy code.

ix. Installation of solar photovoltaic systems and solar thermal systems excluding leased systems.

x. Installation of additional wall, ceiling or crawlspace insulation.

xi. Installation of electric vehicle charging stations, with Level 1 or Level 2 outlets.

xii. Installation of improvements that make the unit accessible to individuals with disabilities.

c. Maximum Amount. The maximum amount of Eligible Capital Improvements that will be added to the Maximum Resale Price of a unit is $30,000, for the period that each Qualified Owner owns such unit.

3. Qualified Buyer Selection Process.

a. Town's Role. The Town represents the Town and its interests. All sellers and purchasers are advised to consult legal counsel regarding examination of title and all contracts, agreements and documents, at their own expense.

b. Advertising. Upon notice to the Town of the Owner's intent to sell, the Town will advertise the sale of the Property in any manner deemed appropriate by the Town.

c. Open Houses. The Town will coordinate with the selling Owner to establish open house dates when the Property may be viewed by interested parties.

4. Application. There is a two-step application process – first an initial application to determine basic eligibility, and second a final application.

a. Initial Application. The initial application to become a Qualified Buyer shall be submitted to the Town on forms provided by the Town, and shall include the following information, at a minimum:

i. Income documentation for all household members;

ii. Documentation of all household assets;

iii. A mortgage pre-qualification letter from a lender, other than an online mortgage lender;

iv. Source of down payment; and

v. A valid Colorado driver's license or identification card.

b. Final Application. If the Initial Application demonstrates that the applicant is a Qualified Buyer, and the applicant wishes to proceed to purchase a unit, the applicant shall submit a final application, which shall include the following additional information, at a minimum:

i. Most recent pay statements from current employer of anyone employed household member;

ii. A signed authorization letter allowing the Town to discuss employment details with each of the identified employers;

ii. The last 2 years of federal income tax returns for every household member, together with an executed Internal Revenue Service Form 8821 or equivalent;

iv. Documentation of funds available for downpayment, including bank statements, gift letters, or participation in a downpayment assistance program;

v. A prequalification letter from a lender for the purchase of the Property;

vi. An affidavit that the applicant will occupy the Property as their principal place of residence; and

vii. Any changes in the information submitted in the Initial Application.

c. Additional Information. Nothing herein shall prevent the Town from requesting and requiring the submission of reasonable additional information to assist the Town in determining eligibility.

5. Selection.

a. Process. The Town shall select Qualified Buyers on a first-come, first-served basis, provided that Qualified Buyers that require the number of bedrooms in a particular Unit will have priority over other Qualified Buyers.

b. Notice. Upon selecting a Qualified Buyer, the Town shall notify the Owner and the selected Qualified Buyer.

c. Offer. Within 5 days of notification from the Town, the selected Qualified Buyer shall make a written, binding offer to the selling Owner, using Colorado standard real estate forms. If the Qualified Buyer chooses not to make an offer, the Town shall provide notice to the next Qualified Buyer.

6. Purchase and Sale Contract. If the selected Qualified Buyer and the selling Owner agree on the purchase price, they will enter into a purchase and sale contract, using Colorado standard real estate forms.

7. Records. Every application and any accompanying documentation shall become the property of the Town and will not be returned to any applicant. All applicants should be aware that the Town is subject to the Colorado Open Records Act, C.R.S. § 24-72-200.1, *et seq*. ("CORA"), and as such, the Town may be required to release portions of an application that are not considered confidential under applicable law. The applicant shall have no recourse against the Town for release of any information in response to a CORA request or a court order.

8. Town Purchase.

a. Eligibility. As provided in the Deed Restriction, the Town will always be a Qualified Buyer.

b. Process. Upon notice to the Town of the Owner's intent to sell, the Town may, in its sole discretion, elect to purchase the Property.

c. Sale. If the Town purchases a Property, the Town may thereafter sell the Property to any Qualified Buyer.

Exhibit E
Schedule

Development Timeline	Begin Date	Anticipated Substantial Completion Date	Closing Date	Notes
Construction of Improvements	8/1/24	11/15/24	N/A	Initial Acceptance by 11/15/24
Construction of Site Built Units (Lots 19, 20, 22)	3/6/25	7/16/25	8/16/25	
Construction of Modular Units (Lots 21, 31-35, 13-18)	2/29/25	8/21/25	9/20/25	
Construction of Building E1 (Lots 1-5)	3/13/25	11/13/25	12/12/25	
Construction of Building E2 (Lots 6-12)	3/20/25	12/17/25	1/17/26	
Construction of Building D (Lots 23-30)	2/22/25	12/24/25	1/24/26	

EXHIBIT F

Engineer's Estimate of Probable Cost
Cheesman Street Residence
Friday, June 7, 2024

Item	Quantity	Units	Unit Price	Total Price
Water				
6" C-900 PVC	225	LF	$90.00	$20,250
Tap valve, valve box, pipe/fittings and mainline tee	4	EA	$1,200.00	$4,800
Fire Hydrant 6" includes fire hydrant, valve, valve box, pipe/fittings and mainline tee	1	EA	$9,750.00	$9,750
6" Gate Valve with valve box	2	EA	$2,600.00	$5,200
2" Pex-A Water Trunk	180	L.F.	$25.00	$4,500
1" Water Meter Manhole	7	EACH	$1,500.00	$10,500
Water Meter (Vault)	5	EACH	$12,000.00	$60,000
3/4" Copper Irrigation Service	1	EA	$4,500.00	$4,500
Sub-total Water				$119,500
Sanitary				
Connect to existing Sewer Main	1	EA	$5,000.00	$5,000
48" Manhole	3	EA	$8,000.00	$24,000
Sanitary Main (8" PVC)	483	LF	$85.00	$41,055
Sub-total Sanitary Sewer				$70,055
Storm Sewer - Private				
12 inch dia. HDPE Pipe	284	LF	$60.00	$17,040
18 inch dia. HDPE Pipe	61	LF	$80.00	$4,880
18 inch dia. RCP Pipe	146	LF	$110.00	$16,060
Denver Type 16 Inlet - Single	3	EA	$7,500.00	$22,500
CDOT Type C Inlet	1	EA	$7,000.00	$7,000
CDOT Type R Inlet - 10 Foot	1	EA	$12,000.00	$12,000
Concrete Chase Drain	21	EA	$1,000.00	$21,000
Maintainance Access	30	SY	$40.00	$1,200
48" Manhole	1	EA	$7,500.00	$7,500
60" Manhole	1	EA	$10,000.00	$10,000
Sub-total Site Storm Sewer				$119,180
Streets				
Regular duty asphalt (6" AC)	560	TON	$110.00	$61,600
Base Course (6")	435	TON	$55.00	$23,925
Recycled Asphalt	100	S.Y.	$65.00	$6,500
6" Vertical Curb / Gutter	220	LF	$35.00	$7,700
Sidewalks	680	SY	$80.00	$54,400
Drivecut	380	SF	$12.00	$4,560
ADA Ramps	3	EA	$2,000.00	$6,000
Sub-total Streets				$164,685
Landscaping and Amenities				
2" Caliper Deciduous Tree	9	EACH	$800.00	$7,200
6' Height Evergreen Tree	7	EACH	$800.00	$5,600
1.5" Ornamental Tree	3	EACH	$600.00	$1,800
Deciduous 5 Gallon Shrub	107	EACH	$70.00	$7,490
Evergreen 5 Gallon Shrub	29	EACH	$70.00	$2,030
1 Gallon Ornamental Grass/Perennial	422	EACH	$25.00	$10,550
Seeding Native Grasses	12,028	S.F.	$0.36	$4,330
Sod	3,148	S.F.	$1.75	$5,509
Decomposed Granite	450	S.F.	$3.00	$1,350
Rock Mulch	10,502	S.F.	$2.00	$21,004
Soil Amendment	314	CY	$85.00	$26,690
Gold Stone Boulders	67	TON	$120.00	$8,040
Sub-total Landscaping				$101,593
Irrigation				
1-1/4 Inch PVC	1,032	L.F.	$1.00	$1,032
1-Inch PVC	1,938	L.F.	$0.60	$1,163
3/4-Inch Polyethylene Pipe	2,340	L.F.	$0.40	$936
3-Inch PVC	415.0	L.F.	$1.90	$789
1-Inch Remote Control Drip Valve	14	EACH	$400.00	$5,600
1-Inch Remote Sprinkler Valve	6	EACH	$400.00	$2,400
1-Inch Irrigation Meter	1	EACH	$4,500.00	$4,500
Master Valve	1	EACH	$300.00	$300
Flow Sensor	1	EACH	$125.00	$125
Backflow Prevention	1	EACH	$725.00	$725
Quick Coupler	1	EACH	$175.00	$175
Irrigation Controller	1	EACH	$145.00	$145
Pop-up Spray Head	107	EACH	$8.00	$856
Total Irrigation				$18,745
Site Features				
Dog Waste Station	1	EACH	$500.00	$500
Trash Receptacle	1	EACH	$800.00	$800
Circular Bike Rack	2	EACH	$500.00	$1,000
Picnic Table	2	EACH	$2,750.00	$5,500
Scuplture/Art	1	EACH	$3,000.00	$3,000
Bench	1	EACH	$1,200.00	$1,200
Sub-total Site Features				$12,000
PROJECT BASE BID AMOUNT				$605,758
15% CONTIGENCY	**15%**			$90,864
PROJECT COST ESTIMATE TOTAL				**$696,622**

Exhibit G
Reimbursements and Fees

Reimbursements

Improvement	Amount ($)	Payment Timing
North Water Reclamation Facility	10,250	Within 30 days of Effective Date

Fees

Type	Amount ($)	Payment Timing
School Fees	25,325	Proof of payment must submitted with building permit application
Park Fees	74,269	Within 30 days of Effective Date
Open Space Fees	86,284	Within 30 days of Effective Date
Tree Mitigation Fees	6,000	Within 30 days of Effective Date

CHEESMAN STREET RESIDENCES SUBDIVISION

A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

2.028 ACRES, 35 LOTS, 2 TRACTS

PROJECT NO. MS-01668-2023

SHEET 1 OF 2

DEDICATION AND OWNERSHIP STATEMENT

THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, OR LIEN HOLDERS OF CERTAIN LANDS IN THE TOWN OF ERIE, COUNTY OF WELD, COLORADO, DESCRIBED AS FOLLOWS:

A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS, SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF EVANS STREET, A 66-FOOT PUBLIC RIGHT OF WAY AND THE WEST LINE OF A 14-FOOT ALLEY LOCATED WITHIN BLOCK 18, ERIE HEIGHTS;

THENCE S00° 13' 34"E ALONG THE COMMON WEST LINE OF SAID 14-FOOT ALLEY AND EAST LINE OF LOTS 17 THROUGH 32, SAID ERIE HEIGHTS WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO, A DISTANCE OF 399.64 TO A POINT ON THE NORTH RIGHT OF WAY LINE OF CHEESMAN STREET, A 66-FOOT PUBLIC RIGHT OF WAY;

THENCE S89° 16' 00"W, ALONG THE SOUTH LINE OF SAID CHEESMAN STREET, A DISTANCE OF 150.89 FEET;
THENCE N00° 11' 48"W, A DISTANCE OF 85.08 FEET;

THENCE S89° 28' 22"W, A DISTANCE OF 89.55 FEET TO THE EAST RIGHT OF WAY LINE OF WELD COUNTY ROAD 1, A 60-FOOT PUBLIC RIGHT OF WAY;

THENCE N00° 07' 18"W, ALONG THE EAST RIGHT OF WAY LINE OF SAID WELD COUNTY ROAD 1, A DISTANCE OF 314.30 FEET TO THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET;

THENCE N89° 16' 48"E, ALONG THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET, A DISTANCE OF 239.82 FEET TO THE POINT OF BEGINNING.

CONTAINING 88,354 SQUARE FEET, OR 2.028 ACRES OF LAND MORE OR LESS.

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, TRACTS, STREETS AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF CHEESMAN STREET RESIDENCES SUBDIVISION. THE STREETS AND EASEMENTS SHOWN HEREON ARE DEDICATED TO THE TOWN AND THE PUBLIC, FOR PUBLIC USES AND PURPOSES AS SHOWN HEREON.

HOUSEPAD ERIE, LLC

BY:_____

(DATE)
TITLE: _____ __

STATE OF COLORADO)
) ss.
COUNTY OF)

ACKNOWLEDGED BEFORE ME THIS_____DAY OF_____ , 20_____ BY_____
AS_____.

WITNESS MY HAND AND OFFICIAL SEAL

_____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

NOTES:

1. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
2. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY POINT CONSULTING, LLC. FOR INFORMATION REGARDING BOUNDARY, EASEMENTS AND TITLE, POINT CONSULTING, LLC RELIED UPON THE FOLLOWING TITLE COMMITMENT PREPARED BY LAND TITLE GUARANTEE COMPANY:

   ORDER NUMBER: FC25201025, DATE: 09/22/2022.
3. BEARINGS SHOWN HEREON ARE BASED ON THE EAST LINE OF LOTS 17-32, BLOCK 18, ERIE HEIGHTS ASSUMED TO BEAR S00° 13' 34"E BETWEEN THE MONUMENTS FOUND AND SHOWN HEREON.
4. FLOOD ZONE DESIGNATION: ACCORDING TO FLOOD INSURANCE RATE MAP (F.I.R.M.) NUMBER 08013C0441J, WITH AN EFFECTIVE DATE OF 12/18/2012, THE ENTIRE PROPERTY LIES ENTIRELY WITHIN THE FOLLOWING ZONE DESIGNATION:

   ZONE X - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
5. UNIT OF MEASURE: U.S. SURVEY FEET
6. THE SUBJECT PROPERTY CONTAINS 88,354 SQUARE FEET OR 2.028 ACRES, MORE OR LESS.
7. ZONING: MIXED USE NEIGHBORHOOD (MU-N).
8. THE OWNERS OF THE LANDS DESCRIBED HEREIN ARE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF DRAINAGE EASEMENTS SHOWN HEREON AND RELATED FACILITIES, AS PROVIDED IN THE TOWN OF ERIE ENGINEERING STANDARDS AND SPECIFICATIONS, AS AMENDED. THE OWNER(S) GRANT THE TOWN OF ERIE A PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTY TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES COVERED BY THE TOWN OF ERIE MUNICIPAL CODE, AS AMENDED; AND TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES, WHEN THE OWNER(S) FAIL TO ADEQUATELY MAINTAIN SUCH DRAINAGE EASEMENTS AND RELATED FACILITIES, WHICH MAINTENANCE, OPERATION AND RECONSTRUCTION SHALL BE AT THE COST OF THE OWNER(S)
9. BLANKET PUBLIC ACCESS IS GRANTED ACROSS TRACT A AND TRACT B
10. BLANKET STORM DRAINAGE ACCESS IS GRANTED ACROSS TRACT B

VICINITY MAP
Scale 1" = 600'

SIDE YARD USE EASEMENT:

SIDE YARD USE EASEMENTS OCCUR FROM FRONT PROPERTY LINE TO REAR PROPERTY LINE AND EXTEND FROM THE GRANTOR'S BUILDING FOUNDATION TO THE LOT LINE BETWEEN THE GRANTOR'S AND GRANTEE'S PARCELS THAT SHALL BE GRANTED TO THE EASEMENT GRANTEE PER THE RESTRICTIONS OUTLINE BELOW.

AT CHEESMAN STREET RESIDENCES, SIDE YARD USE EASEMENTS MAY BE DESIGNED AND USED WITHIN A SERIES OF ADJACENT LOTS FOR REVIEW AND APPROVAL BY THE TOWN AT THE TIME OF PLAT.

THE FOLLOWING RESTRICTIONS APPLY TO THE SIDE YARD USE EASEMENTS;

1. EASEMENT GRANTEE SHALL HAVE FULL ACCESS AND ENJOYMENT OF THE EASEMENT INCLUDING CONSTRUCTION OF IMPROVEMENTS, USE AND MAINTENANCE OF THE SPACE INCLUDED IN THE EASEMENT. FENCES AND WALLS USED AS PRIVACY SCREENS MAY NOT ENCROACH INTO THE FRONT AND REAR SETBACK. NON-COMBUSTIBLE IMPROVEMENTS INCLUDING BUT NOT LIMITED TO LANDSCAPING, FENCES, RAILS, FURNITURE AND SIMILAR ELEMENTS ARE PERMITTED WITHIN THE DEFINED SIDE YARD USE EASEMENT. PER TABLE R302.1 (1) IN THE IRC, NO COMBUSTIBLE BUILDING MATERIALS MAY BE USED IN THE CONSTRUCTION OF IMPROVEMENTS WITHIN 5' OF THE PROPERTY LINE (RESULTING IN A CLEAR ZONE FOR ALL COMBUSTIBLE MATERIALS BETWEEN HOMES.) ONLY LANDSCAPING, HARDSCAPE, AND IRRIGATION IMPROVEMENTS ARE PERMITTED WITHIN FRONT AND REAR SETBACKS. IRRIGATION IS NOT PERMITTED WITHIN 5' OF ANY FOUNDATION. NO IMPROVEMENTS MAY BE IMPLEMENTED AT THE DETRIMENT OF THE GRANTOR'S STRUCTURE OR THEIR ABILITY TO MAINTAIN THEIR HOME.
2. SIDE YARD USE EASEMENTS ARE PERMITTED ON DETACHED SINGLE FAMILY LOTS ONLY.
3. ALL IMPROVEMENTS BY GRANTEE LOCATED WITHIN THE SIDE YARD USE EASEMENT SHALL BE MAINTAINED BY THE EASEMENT GRANTEE.
4. EASEMENT GRANTOR IS ENSURED OF ACCESS WITHIN THIS EASEMENT FOR MAINTENANCE AND REPAIR OF THE PRINCIPAL STRUCTURE LOCATED ON THE EASEMENT GRANTORS LOT AND FOR NO OTHER PURPOSE.
5. ALL PRINCIPAL STRUCTURES AND GARAGES OWNED BY EASEMENT GRANTOR SHALL BE MAINTAINED BY EASEMENT GRANTOR.
6. SIDE YARD USE EASEMENTS MAY ALSO BE USED FOR DRAINAGE. NEITHER THE GRANTEE NOR THE GRANTOR SHALL ALTER FINISHED GRADE AND/OR DRAINAGE PATTERNS ON THE GRANTOR'S PROPERTY WITHOUT THE APPROVAL OF THE CHEESMAN STREET RESIDENCES HOMEOWNERS ASSOCIATION, INC AND APPROVAL BY A QUALIFIED REGISTERED PROFESSIONAL ENGINEER. ANY CHANGE IN DRAINAGE PATTERNS MUST BE APPROVED BY A PROFESSIONAL ENGINEER.
7. ALL IMPROVEMENTS IN SIDE YARD USE EASEMENTS MUST BE SHOWN AND DETAILED ON THE APPROVED CHEESEMAN STREET RESIDENCES ADMINISTRATIVE SITE PLAN OR AMENDED CHEESEMAN STREET RESIDENCES SITE PLAN. SIDE YARD EASEMENTS PROCEDURES AND POLICIES SHALL BE MANAGED BY ___HOA___.

DEFINITIONS:

EASEMENT GRANTOR: THE LOT OWNER GRANTING SIDE YARD AREA TO ADJACENT LOT OWNER FOR USE.

EASEMENT GRANTEE: THE LOT OWNER GAINING SIDE YARD AREA FROM ADJACENT LOT OWNER FOR USE.

TITLE VERIFICATION CERTIFICATE:

WE, LAND TITLE GUARANTEE COMPANY, DO HEREBY CERTIFY THAT WE HAVE EXAMINED THE TITLE OF ALL LAND PLATTED HEREON AND THAT TITLE TO SUCH LAND IS IN THE DEDICATOR(S) FREE AND CLEAR OF ALL LIENS, TAXES AND ENCUMBRANCES, EXCEPT AS FOLLOWS:

LAND TITLE GUARANTEE COMPANY

BY:_____
(NAME OF AUTHORIZED OFFICIAL)

(DATE)
TITLE: _____

ATTEST:

STATE OF COLORADO)
) SS.
COUNTY OF WELD)

ACKNOWLEDGED BEFORE ME THIS _____DAY OF _____ , 20_____
BY_____ AS _____.

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC:_____

MY COMMISSION EXPIRES: _____

TRACT NOTES:

TRACT A IS OWNED AND MAINTAINED BY THE CHESSMAN STREET RESIDENCES HOMEOWNERS ASSOCIATION.

TRACT A SHALL GRANT PUBLIC ACCESS.

TRACT B IS FOR DRAINAGE AND PUBLIC ACCESS. OWNED AND MAINTAINED BY CHESSMAN STREET RESIDENCES HOMEOWNERS ASSOCIATION.

TRACT B GRANTS PUBLIC ACCESS.

SURVEYOR'S CERTIFICATE:

I, CAMERON M. WATSON, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON OCTOBER 2023, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:50,000 (SECOND ORDER); AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISIONS OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS _____DAY OF_____, 20____.

CAMERON M. WATSON, PLS
COLORADO LICENSE NUMBER 38311
FOR AND ON BEHALF OF POINT CONSULTING, LLC
8460 W KEN CARYL AVE, #101
LITTLETON, CO 80128
(720) 258-6836
cwatson@pnt-llc.com

TOWN COUNCIL APPROVAL CERTIFICATE

THIS PLAT IS TO BE KNOWN AS CHEESMAN STREET RESIDENCES SUBDIVISION IS APPROVED AND ACCEPTED BY RESOLUTION NO._____, PASSED AND ADOPTED AT A MEETING OF THE TOWN COUNCIL OF ERIE, COLORADO, HELD ON THE _____ DAY OF _____ 20 ____.

_____
MAYOR

_____
ATTEST

PLANNING & DEVELOPMENT APPROVAL CERTIFICATE

THIS PLAT IS HEREBY APPROVED BY THE TOWN OF ERIE PLANNING & DEVELOPMENT DIRECTOR ON THIS _____ DAY OF _____, 20___.

_____
PLANNING & DEVELOPMENT DIRECTOR

ACCEPTANCE CERTIFICATE:

THE DEDICATION OF TRACT(S)

IS HEREBY ACCEPTED FOR OWNERSHIP AND MAINTENANCE BY THE CHEESMAN STREET RESIDENCES HOMEOWNERS ASSOCIATION, INC.

(NAME)

CHEESMAN STREET RESIDENCES HOMEOWNERS ASSOCIATION, INC.

BY:_____

(NOTARIZED SIGNATURE)
(NAME OF AUTHORIZED OFFICIAL)

(DATE)_____
TITLE:

STATE OF COLORADO)
) ss.
COUNTY OF)

ACKNOWLEDGED BEFORE ME THIS _____DAY OF _____, 20____ BY_____AS
_____.

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC_____

MY COMMISSION EXPIRES: _____

CLERK AND RECORDER CERTIFICATE

STATE OF COLORADO)
) ss.
COUNTY OF WELD)

I HEREBY CERTIFY THAT THIS PLAT WAS FILED IN MY OFFICE ON THIS_____DAY OF _____,
20___.

_____
(SIGNATURE)

POINT CONSULTING, LLC
8460 W KEN CARYL AVE # 101
LITTLETON, CO 80128
720-258-6836
www.pnt-llc.com
PLANNING
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
LAND SURVEYING

SUBDIVISION PLAT
CHEESMAN STREET RESIDENCES SUBDIVISION
ERIE, COLORADO

JOB NO. 23.055

DATE	DESCRIPTION
10.29.2023	ORIGINAL PREPARATION
06.07.2024	TECHNICAL REVISIONS

COVER SHEET

SHEET 1/2

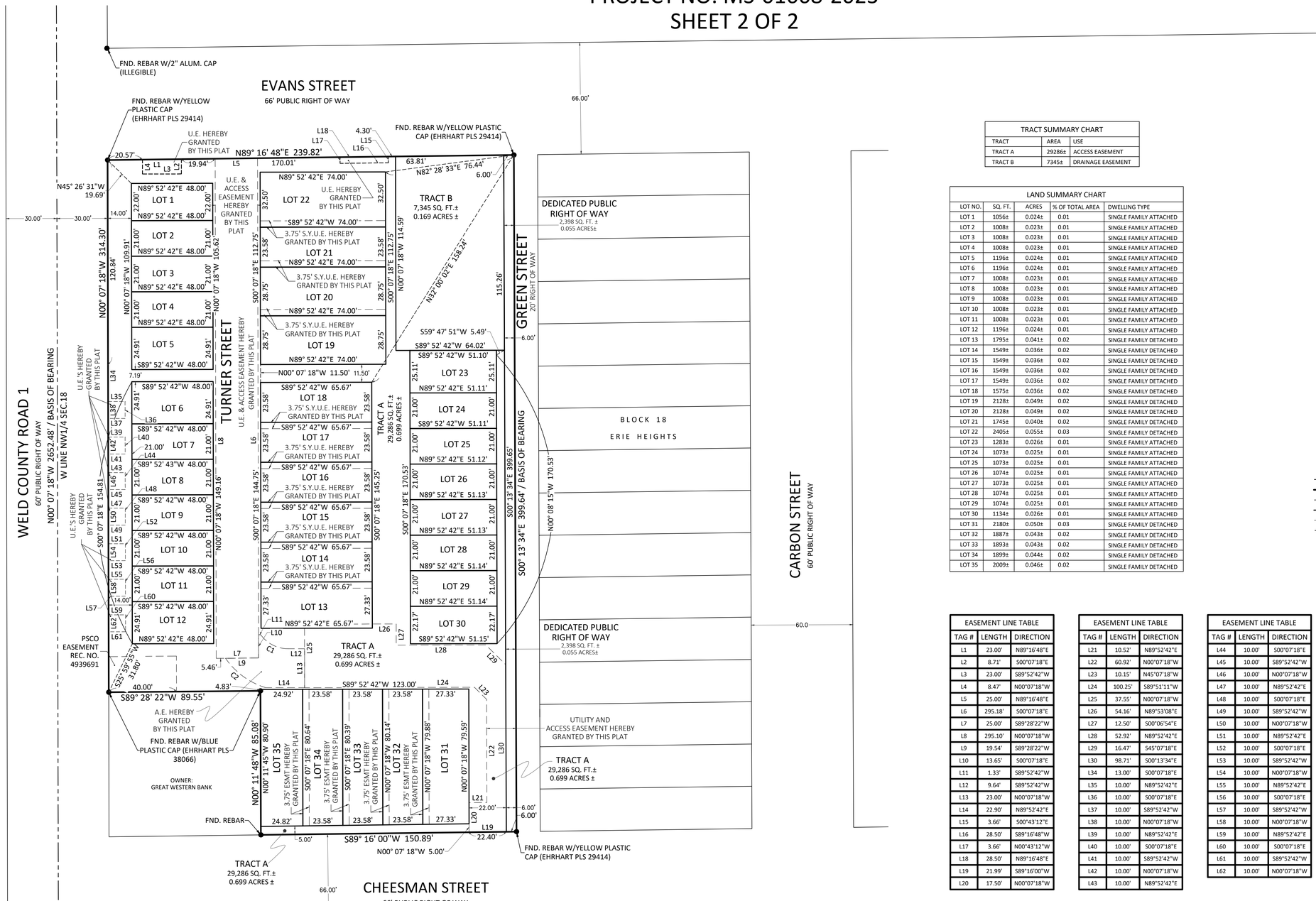
CHEESMAN STREET RESIDENCES SUBDIVISION

A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

2.028 ACRES, 35 LOTS, 2 TRACTS

PROJECT NO. MS-01668-2023

SHEET 2 OF 2



TRACT SUMMARY CHART		
TRACT	AREA	USE
TRACT A	29286±	ACCESS EASEMENT
TRACT B	7345±	DRAINAGE EASEMENT

LAND SUMMARY CHART				
LOT NO.	SQ. FT.	ACRES	% OF TOTAL AREA	DWELLING TYPE
LOT 1	1056±	0.024±	0.01	SINGLE FAMILY ATTACHED
LOT 2	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 3	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 4	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 5	1196±	0.024±	0.01	SINGLE FAMILY ATTACHED
LOT 6	1196±	0.024±	0.01	SINGLE FAMILY ATTACHED
LOT 7	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 8	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 9	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 10	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 11	1008±	0.023±	0.01	SINGLE FAMILY ATTACHED
LOT 12	1196±	0.024±	0.01	SINGLE FAMILY ATTACHED
LOT 13	1795±	0.041±	0.02	SINGLE FAMILY DETACHED
LOT 14	1549±	0.036±	0.02	SINGLE FAMILY DETACHED
LOT 15	1549±	0.036±	0.02	SINGLE FAMILY DETACHED
LOT 16	1549±	0.036±	0.02	SINGLE FAMILY DETACHED
LOT 17	1549±	0.036±	0.02	SINGLE FAMILY DETACHED
LOT 18	1575±	0.036±	0.02	SINGLE FAMILY DETACHED
LOT 19	2128±	0.049±	0.02	SINGLE FAMILY DETACHED
LOT 20	2128±	0.049±	0.02	SINGLE FAMILY DETACHED
LOT 21	1745±	0.040±	0.02	SINGLE FAMILY DETACHED
LOT 22	2405±	0.055±	0.03	SINGLE FAMILY DETACHED
LOT 23	1283±	0.026±	0.01	SINGLE FAMILY ATTACHED
LOT 24	1073±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 25	1073±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 26	1074±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 27	1073±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 28	1074±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 29	1074±	0.025±	0.01	SINGLE FAMILY ATTACHED
LOT 30	1134±	0.026±	0.01	SINGLE FAMILY ATTACHED
LOT 31	2180±	0.050±	0.03	SINGLE FAMILY ATTACHED
LOT 32	1887±	0.043±	0.02	SINGLE FAMILY ATTACHED
LOT 33	1893±	0.043±	0.02	SINGLE FAMILY ATTACHED
LOT 34	1899±	0.044±	0.02	SINGLE FAMILY ATTACHED
LOT 35	2009±	0.046±	0.02	SINGLE FAMILY DETACHED

MAP LEGEND:

- SECTION LINE
- BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- LOT LINE
- EASEMENT LINE
- TIE LINE
- FOUND MONUMENT AS NOTED

EASEMENT LINE TABLE		
TAG #	LENGTH	DIRECTION
L1	23.00'	N89°16'48"E
L2	8.71'	S00°07'18"E
L3	23.00'	S89°52'42"W
L4	8.47'	N00°07'18"W
L5	25.00'	N89°16'48"E
L6	295.18'	S00°07'18"E
L7	25.00'	S89°28'22"W
L8	295.10'	N00°07'18"W
L9	19.54'	S89°28'22"W
L10	13.65'	S00°07'18"E
L11	1.33'	S89°52'42"W
L12	9.64'	S89°52'42"W
L13	23.00'	N00°07'18"W
L14	22.90'	N89°52'42"E
L15	3.66'	S00°43'12"E
L16	28.50'	S89°16'48"W
L17	3.66'	N00°43'12"W
L18	28.50'	N89°16'48"E
L19	21.99'	S89°16'00"W
L20	17.50'	N00°07'18"W

EASEMENT LINE TABLE		
TAG #	LENGTH	DIRECTION
L21	10.52'	N89°52'42"E
L22	60.92'	N00°07'18"W
L23	10.15'	N45°07'18"W
L24	100.25'	S89°51'11"W
L25	37.55'	N00°07'18"W
L26	54.16'	N89°53'08"E
L27	12.50'	S00°06'54"E
L28	52.92'	N89°52'42"E
L29	16.47'	S45°07'18"E
L30	98.71'	S00°13'34"E
L34	13.00'	S00°07'18"E
L35	10.00'	N89°52'42"E
L36	10.00'	S00°07'18"E
L37	10.00'	S89°52'42"W
L38	10.00'	N00°07'18"W
L39	10.00'	N89°52'42"E
L40	10.00'	S00°07'18"E
L41	10.00'	S89°52'42"W
L42	10.00'	N00°07'18"W
L43	10.00'	N89°52'42"E

EASEMENT LINE TABLE		
TAG #	LENGTH	DIRECTION
L44	10.00'	S00°07'18"E
L45	10.00'	S89°52'42"W
L46	10.00'	N00°07'18"W
L47	10.00'	N89°52'42"E
L48	10.00'	S00°07'18"E
L49	10.00'	S89°52'42"W
L50	10.00'	N00°07'18"W
L51	10.00'	N89°52'42"E
L52	10.00'	S00°07'18"E
L53	10.00'	S89°52'42"W
L54	10.00'	N00°07'18"W
L55	10.00'	N89°52'42"E
L56	10.00'	S00°07'18"E
L57	10.00'	S89°52'42"W
L58	10.00'	N00°07'18"W
L59	10.00'	N89°52'42"E
L60	10.00'	S00°07'18"E
L61	10.00'	S89°52'42"W
L62	10.00'	N00°07'18"W

ABBREVIATIONS:

U.E.	UTILITY EASEMENT
ESMT.	EASEMENT
FND.	FOUND
S.Y.U.E.	SIDE YARD USE EASEMENT
A.E.	ACCESS EASEMENT
FT.	U.S. SURVEY FOOT
SQ. FT.	SQUARE FOOT
AC.	ACRE
TYP.	TYPICAL

0 15 30 60
SCALE 1" = 30'

N

POINT CONSULTING, LLC
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LITTLETON, CO 80128
720-258-6836
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SUBDIVISION PLAT
CHEESMAN STREET RESIDENCES SUBDIVISION
ERIE, COLORADO

JOB NO. 23.055

DESCRIPTION	DATE
ORIGINAL PREPARATION	10.29.2023
TECHNICAL REVISIONS	06.07.2024

MAP

SHEET 2/2

Town Council

Board Meeting Date: 6/25/2024

File #: 24-314, **Version:** 1

SUBJECT:
An Emergency Ordinance of the Town Council of the Town of Erie Authorizing the Transfer of Real Property to HousePAD Erie LLC.

DEPARTMENT: Planning and Development

PRESENTER(S): Aly Burkhalter, Senior Planner

POLICY ISSUES:
The proposed emergency ordinance supports a specific affordable housing development implementing the Council's previous policy decisions to encourage development of a variety of housing types and levels of affordability throughout the Town.

STAFF RECOMMENDATION:
Adopt the proposed Emergency Ordinance.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The attached emergency ordinance is proposed to maintain the project development schedule for the Cheesman Street Residences. The ordinance authorizes the transfer of property from the Town of Erie to HousePAD Erie, LLC per the terms of the Development Agreement (DA).

The property is located at 765-785 Cheesman Street and was purchased by the Town with the sole purpose of facilitating the development of affordable ownership housing. Transfer of the property will initiate the development of 35 single family and single family attached residences by HousePAD Erie, LLC. The DA stipulates that the property must be transferred prior to recordation of the Final Plat.

COUNCNIL PRIORITY(S) ADDRESSED:
- ✓ Engaged and Diverse Community
- ✓ Prosperous Economy
- ✓ Small Town Feel
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENT:

1. Emergency Ordinance

Town of Erie
Ordinance No. 027-2024

An Emergency Ordinance of the Town Council of the Town of Erie Authorizing the Transfer of Real Property to HousePad Erie LLC

Whereas, the Town is the owner of the real property more particularly described in **Exhibit A**, attached hereto and incorporated herein by this reference (the "Property");

Whereas, the Property is not held or used by the Town for park purposes or any other governmental purposes; and

Whereas, the Town wishes to transfer ownership of the Property to HousePad Erie, LLC.

Now Therefore be it Ordained by the Town Council of the Town of Erie, Colorado, as follows:

Section 1. The Town Council hereby approves the transfer of all of the Town's interest in the Property to HousePad Erie LLC by special warranty deed in a form to be approved by the Town Attorney. Upon such approval, the Town Manager is hereby authorized to execute the special warranty deed and all other documents necessary for closing on the sale of the Property.

Section 2. Severability. If any article, section, paragraph, sentence, clause, or phrase of this Ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this Ordinance. The Town Council hereby declares that it would have passed this Ordinance and each part or parts hereof irrespective of the fact that any one, or part, or parts be declared unconstitutional or invalid.

Section 3. Safety. The Town Council finds that the adoption of this Ordinance is necessary for the protection of the public health, safety and welfare.

Section 4. Emergency Declaration. Pursuant to Section 6.04 of the Town's Home Rule Charter, the Town Council hereby declares that this Ordinance is necessary for the immediate preservation of the public health, safety and welfare, so that construction of the Cheesman Residences development can begin in a timely manner, to serve the important public purpose of providing affordable housing in the Town.

Section 5. Effective Date. This Ordinance shall take effect immediately upon adoption.

Introduced, Read, Passed and Ordered Published this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Exhibit A
Legal Description of the Property

A PARCEL OF LAND BEING A PART OF ERIE HEIGHTS, SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 18, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF EVANS STREET, A 66-FOOT PUBLIC RIGHT OF WAY AND THE WEST LINE OF A 14-FOOT ALLEY LOCATED WITHIN BLOCK 18, ERIE HEIGHTS;
THENCE S00° 13' 34"E ALONG THE COMMON WEST LINE OF SAID 14-FOOT ALLEY AND EAST LINE OF LOTS 17 THROUGH 32, SAID ERIE HEIGHTS WITH ALL BEARINGS CONTAINED HEREIN RELATIVE THERETO, A DISTANCE OF 399.64 TO A POINT ON THE NORTH RIGHT OF WAY LINE OF CHEESMAN STREET, A 66-FOOT PUBLIC RIGHT OF WAY;
THENCE S89° 16' 00"W, ALONG THE SOUTH LINE OF SAID CHEESMAN STREET, A DISTANCE OF 150.89 FEET;
THENCE N00° 11' 48"W, A DISTANCE OF 85.08 FEET;
THENCE S89° 28' 22"W, A DISTANCE OF 89.55 FEET TO THE EAST RIGHT OF WAY LINE OF WELD COUNTY ROAD 1, A 60-FOOT PUBLIC RIGHT OF WAY;
THENCE N00° 07' 18"W, ALONG THE EAST RIGHT OF WAY LINE OF SAID WELD COUNTY ROAD 1, A DISTANCE OF 314.30 FEET TO THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET;
THENCE N89° 16' 48"E, ALONG THE SOUTH RIGHT OF WAY LINE OF SAID EVANS STREET, A DISTANCE OF 239.82 FEET TO THE POINT OF BEGINNING.
CONTAINING 88,354 SQUARE FEET, OR 2.028 ACRES OF LAND MORE OR LESS.

File #: 24-192, **Version:** 1

SUBJECT: GENERAL BUSINESS
PUBLIC HEARING: A Resolution of the Town Council of the Town of Erie Approving the Redtail Ranch Preliminary Plat with Conditions

DEPARTMENT: Planning and Development

PRESENTER: Harry Brennan, Senior Planner

ESTIMATED TIME: 90 Minutes

STAFF RECOMMENDATION:
Staff finds the Redtail Ranch Preliminary Plat complies with the Approval Criteria and recommends the Town Council adopt the resolution approving the Preliminary Plat with the following conditions:

- At the time of Final Plat, Applicant shall execute a Development Agreement in the form provided by the Town. The development agreement shall include a requirement for Environmental Disclosures as directed by Town staff.
- The applicant shall make all necessary technical corrections and update all application materials as directed by Town staff.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The applicant proposes a Preliminary Plat with 524 residential lots and 32 tracts. The applicant anticipates that these lots will develop with residential dwellings, with associated trails, private open space, drainage facilities, and utilities.

Site History and Prior Approvals

1. Annexation and Zoning
    - The Town of Erie annexed this property in 2007. At that time, the Town also zoned the property LR Low-Density Residential.
2. Plat
    - The property is not platted.

Preliminary Plat for Redtail Ranch

The Preliminary Plat for Redtail Ranch reflects an updated plan that reduces the number of residential lots originally proposed for the project. Following the Town Council hearing for the original

plat of 589 residential lots, the applicant updated the preliminary plat to align with the Town's standards for oil and gas setbacks. As a result, the proposed preliminary plat includes 524 lots and 32 tracts. Lot sizes range from 2,519 to 19,031 square feet to allow for a mixture of housing types including duplex and single-family detached dwellings. The tracts will accommodate site drainage, private parks and open space, public open space to be dedicated, utilities, and landscaping. The plat includes right-of-way dedication that will connect to the existing street network at three points: one at Vista Parkway, and two on Weld County Road 5. The right-of-way dedications include new local streets and a new collector street. The Preliminary Plat had five rounds of review and submittal; associated materials can be viewed here: <https://bit.ly/retailranch>

If approved, the applicant's next steps toward development of the property will include application submittal, review, and approval for Final Plat and Site Plan(s) as necessary.

Planning Commission Hearing

The Planning Commission held a public hearing for this application on January 27, 2024. A number of public comments were heard at the meeting. Planning Commission voted 7-0 to recommend approval of the Preliminary Plat to Town Council. Questions and concerns from public comment and Commissioners included:

- Environmental hazards and clean-up, regarding the legacy of the environmental contamination in the area, the subsequent mitigation efforts, and ongoing monitoring.
- Adjacency to and potential impacts of nearby active and historic landfills.
- Traffic impacts from new vehicular traffic generated by this development, and how that may also impact pedestrian/school safety.
- Oil and gas regulations, acknowledging that the application was filed under the previous oil and gas regulations that are less restrictive than the Town's current regulations.
- How the project is meeting open space requirements and trail connections.
- Mine subsidence-related recommendations from the environmental report.
- Timing of neighborhood meetings.

Town Council

The Town Council held a public hearing for this application on April 23, 2024. Council voted 3-3 on a motion to continue the hearing, which resulted in the motion failing. Therefore, no action was taken at the meeting. On May 14, 2024, Council moved to reconsider and ultimately approve the motion to continue the public hearing on June 25, 2024.

At the initial Town Council hearing on April 23, 2024, many of the questions and concerns from the public and Councilors echoed those in the Planning Commission hearing, and centered on:

- Oil and gas setbacks.
- Traffic impacts; in particular Redtail Parkway traffic calming strategies, traffic signal warrants, and the Vista Parkway roundabout.

- Spine trail location in relation to the oil & gas facilities.
- Traffic impacts from new vehicular traffic generated by this development, and how that may also impact pedestrian/school safety.
- Environmental disclosures for future homeowners.

Council Priority(s) Addressed:

- ✓ Prosperous Economy
- ✓ Well Maintained Transportation Infrastructure
- ✓ Fiscally Responsible

ATTACHMENTS:

1. **Resolution 24-062** - Updated with new conditions to make technical corrections and updates to the application materials as needed, and to require the future development agreement to include Environmental Disclosures as directed by Town staff.
2. **Staff Report** - Updated with new information.
3. **Staff Presentation** - Updated with new information.
4. **Applicant Response and Update Memo** - New attachment.
5. **Applicant Presentation** - Updated with new information.
6. **Proposed Preliminary Plat Exhibit** - Updated to reflect 500' O/G buffer and remove affected lots (63).
7. **Redtail Ranch Illustrative Site Plan** - New attachment.
8. **Preliminary Plat Lot Impact Exhibit** - New attachment.
9. **Open Space and Trails Exhibit** - Updated.
10. **Public Comments Received as of June 21, 2024** - One new comment received.
11. Colorado Brownfields Revolving Loan Fund - No updates.
12. Application and Narrative - No updates.
13. Additional Application Materials Part 1 - No updates.
14. Additional Application Materials Part 2 - No updates.
15. Neighborhood Meeting Summary - No updates.
16. **Public Hearing Notices** - Updated.
17. PC Resolution - No updates.
18. PC Minutes Jan 17, 2024 - No updates.

Town of Erie
Resolution No. 24-062

A Resolution of the Town Council of the Town of Erie Approving the Redtail Ranch Preliminary Plat with Conditions

Whereas, Stratus, LLC ("Applicant") owns the real property more particularly described as Redtail Ranch (the "Property");

Whereas, on April 15, 2021, the Applicant filed an application for approval of a Preliminary Plat for the Property (the "Application");

Whereas, on January 17, 2024, the Planning Commission conducted a properly-noticed public hearing on the Application and recommended the Town Council approve the Preliminary Plat with conditions;

Whereas, on April 23, 2024, the Town Council conducted a properly-noticed public hearing on the Application;

Whereas, on May 14, 2024, the Town Council moved to place the Application back on the agenda for June 25, 2024 to continue the public hearing; and

Whereas, on June 25, 2024, the Town Council conducted a properly-noticed continued public hearing on the Application.

Now Therefore be it Resolved by the Town Council of the Town of Erie, Colorado, that:

Section 1. Findings of Fact. The Town Council, upon reviewing the recommendation of the Planning Commission, hearing the statements of staff and the public, and giving due consideration to the matter, finds and determines as follows:

a. The Application complies with Title 10 of the Erie Municipal Code (the "UDC") and other applicable law and is consistent with the Town's Comprehensive Plan;

b. The Preliminary Plat is consistent with and implements the intent of the zone district in which it is located;

c. The Preliminary Plat will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated;

d. The Preliminary Plat will not result in significant adverse impacts on adjacent properties; and

e. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the Property, while maintaining sufficient levels of service to existing development.

Section 2. Decision. Based on the foregoing findings of fact, the Application is hereby approved with the following conditions:

a. At the time of Final Plat, Applicant shall execute a Development Agreement in the form provided by the Town, which Development Agreement shall include a requirement for Environmental Disclosures as directed by Town staff; and

b. Applicant shall make all necessary technical corrections and updates to the Application materials as directed by Town staff.

Adopted this 25th day of June, 2024.

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

TOWN OF ERIE
TOWN COUNCIL AGENDA ITEM
June 25, 2024

SUBJECT:	**PUBLIC HEARING: Redtail Ranch Preliminary Plat** A Resolution of the Town Council of the Town of Erie Approving the Redtail Ranch Preliminary Plat with Conditions
CODE REVIEW:	Erie Municipal Code, Title 10
PURPOSE:	Consideration of a Preliminary Plat to subdivide 290 acres into 524 lots and 32 tracts for future residential development.
DEPARTMENT:	Planning and Development
PRESENTER:	Harry Brennan, Senior Planner

STAFF RECOMMENDATION:

Preliminary Plat

Staff finds the Redtail Ranch Preliminary Plat complies with the Approval Criteria and recommends the Town Council approve the Preliminary Plat with the following conditions:

- At the time of Final Plat, Applicant shall execute a Development Agreement in the form provided by the Town. The development agreement shall include a requirement for Environmental Disclosures as directed by Town staff.

- The applicant shall make all necessary technical corrections and update all application materials as directed by Town staff.

PLANNING COMMISSION:

The Planning Commission held a public hearing for this application on January 27, 2024. A number of public comments were heard at the meeting. Planning Commission voted 7-0 to recommend approval of the Preliminary Plat to Town Council. At that meeting, questions and concerns from public comment and Commissioners included:

- Environmental hazards and clean-up, regarding the legacy of the environmental contamination in the area, the subsequent mitigation efforts, and ongoing monitoring.
- Adjacency to and potential impacts of nearby active and historic landfills.
- Traffic impacts from new vehicular traffic generated by this development, and how that may also impact pedestrian/school safety.
- Oil and gas regulations, acknowledging that the application was filed under the previous oil and gas regulations that are less restrictive than the Town's current regulations.
- How the project is meeting open space requirements and trail connections.
- Mine subsidence-related recommendations from the environmental report.

- Timing of neighborhood meetings.

TOWN COUNCIL:

The Town Council held a public hearing for this application on April 23, 2024. Council voted 3-3 on a motion to continue to the hearing, which resulted in the motion failing. Therefore, no action was taken at the meeting. On May 14, 2024, Council moved to reconsider and ultimately approve the motion to continue the public hearing on June 25, 2024.

At the initial Town Council hearing on April 23, 2024, many of the questions and concerns from the public and Councilors echoed those in the Planning Commission hearing, and centered on:

- Oil and gas setbacks.
- Traffic impacts; in particular Redtail Parkway traffic calming strategies, traffic signal warrants, and the Vista Parkway roundabout.
- Spine trail location in relation to the oil and gas facilities.
- Traffic impacts from new vehicular traffic generated by this development, and how that may also impact pedestrian/school safety.
- Environmental disclosures for future homeowners.

PACKET UPDATES FOR THE 6/25/24 TOWN COUNCIL MEETING:

1. **Resolution 24-062** – *Updated with new conditions to make technical corrections and updates to the application materials as needed, and to require the future development agreement to include Environmental Disclosures as directed by Town staff.*
2. **Staff Report** – *Updated with new information.*
3. **Staff Presentation** – *Updated with new information.*
4. **Applicant Response and Update Memo** – *New attachment.*
5. **Applicant Presentation** – *Updated with new information.*
6. **Proposed Preliminary Plat Exhibit –** *Updated to reflect 500' O/G buffer and remove effected lots (63).*
7. **Redtail Ranch Illustrative Site Plan** – *New attachment.*
8. **Preliminary Plat Lot Impact Exhibit** – *New attachment.*
9. **Open Space and Trails Exhibit** – *Updated.*
10. **Public Comments Received as of June 21, 2024** – *One new comment received.*
11. Colorado Brownfields Revolving Loan Fund – *No updates.*
12. Application and Narrative – *No updates.*
13. Additional Application Materials Part 1 – *No updates.*
14. Additional Application Materials Part 2 – *No updates.*
15. Neighborhood Meeting Summary – *No updates.*
16. **Public Hearing Notices** – *Updated.*

17. PC Resolution – *No updates.*
18. PC Minutes Jan 17, 2024 – *No updates.*

SUMMARY AND BACKGROUND OF SUBJECT MATTER:

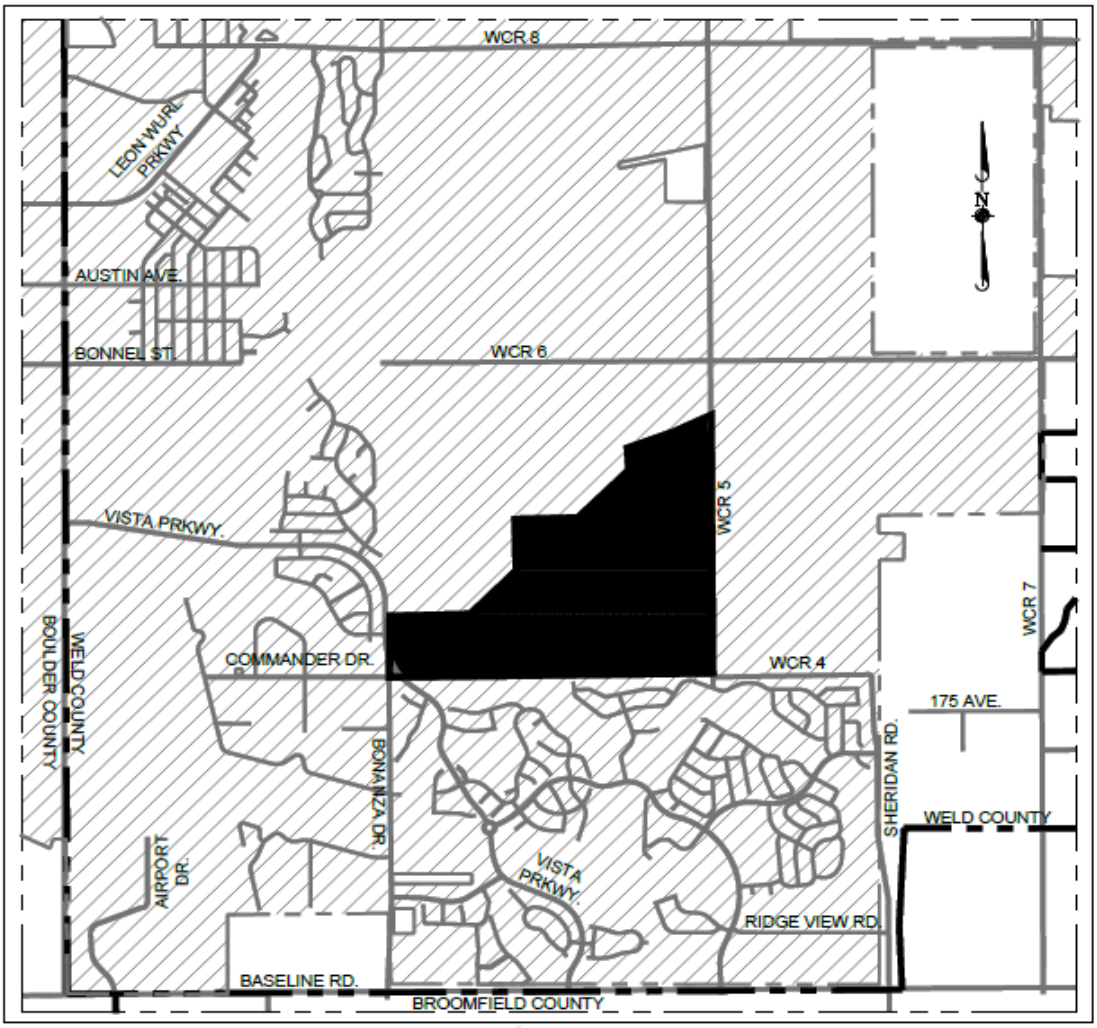
Applicant: Stratus Redtail Ranch LLC
8480 E. Orchard Road Suite 1100
Greenwood Village, CO 80111

Existing Conditions:

Zoning:	Low Density Residential (LR)
Project Size:	290 Acres
Existing Use:	Undeveloped
Future Land Use:	Residential

Location Maps:

Below is a map that depicts the site (shaded) and surrounding area:


WCR 8
LEON WURL PRKWY
AUSTIN AVE.
BONNEL ST.
WCR 6
WCR 5
VISTA PRKWY.
WCR 7
BOULDER COUNTY
WELD COUNTY
COMMANDER DR.
WCR 4
175 AVE.
BONANZA DR.
SHERIDAN RD.
WELD COUNTY
AIRPORT DR.
VISTA PRKWY.
RIDGE VIEW RD.
BASELINE RD.
BROOMFIELD COUNTY
N

Adjacent Land-Use/Zoning:

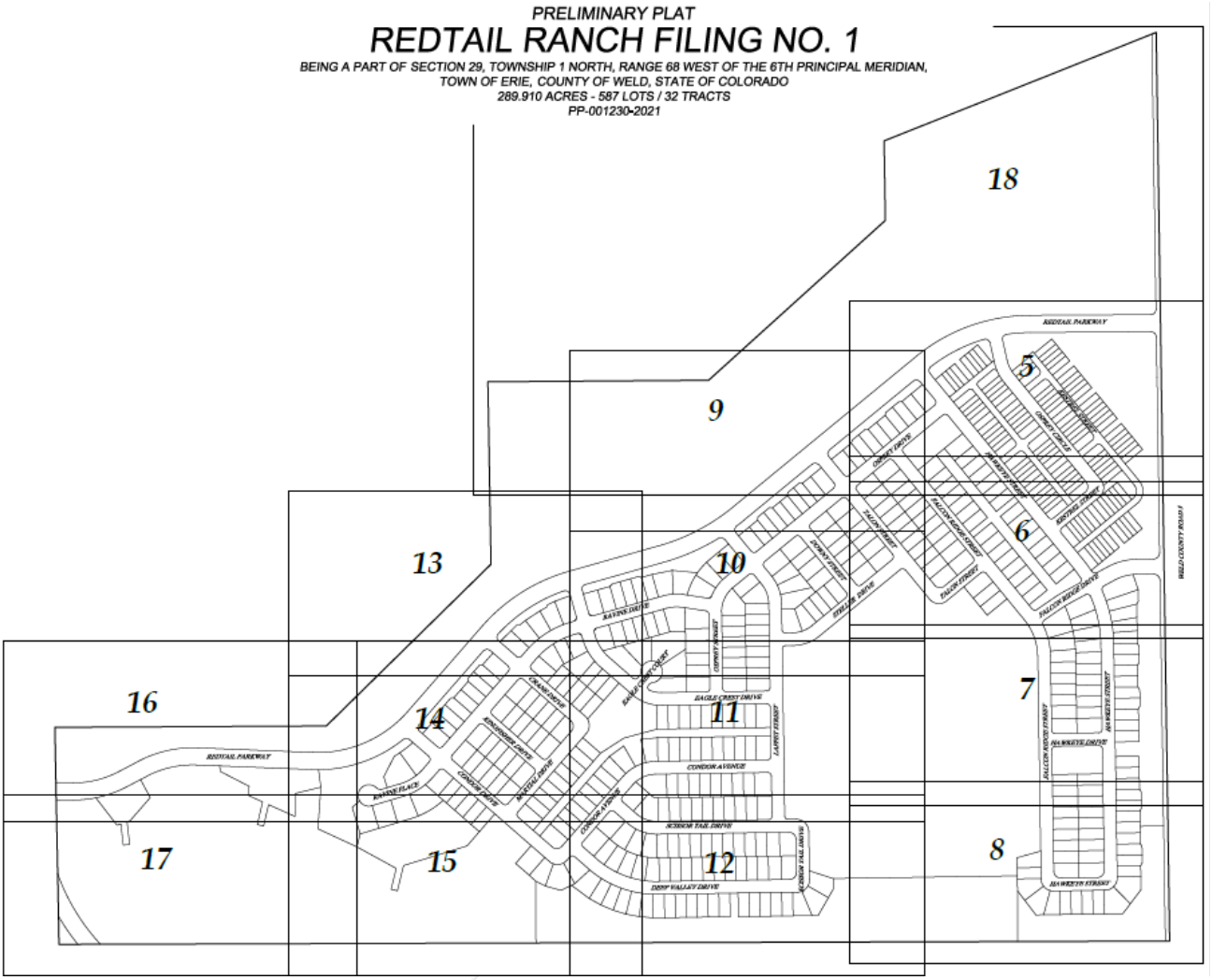
	ZONING	LAND USE
NORTH	Public Lands & Institutions	Denver Regional Landfill
SOUTH	PD	Vista Ridge Single Family Residential
EAST	PD	Front Range Landfill
WEST	PD	Vista Pointe Single Family Residential

Site History and Specific Development Information:

The Town of Erie annexed the subject site in 2007 and zoned it Low Density Residential. The annexation agreement specified that there could be a maximum of 587 dwelling units on the property. The property is not currently platted.

The applicant proposes a Preliminary Plat with 524 lots and 32 tracts. The applicant anticipates that these lots would develop with single family detached, townhome, and duplex residential units. The applicant anticipates the platted tracts will accommodate site drainage, private open spaces, utilities, and trails. The plat proposes access from Vista Ridge Parkway and two access points on Weld County Road 5, as well as a new internal system of roads to serve this neighborhood. The image below shows the overall layout of the proposed Preliminary Plat.

During the Town Council hearing on May 14, 2024, public and Council comments raised concern with the adequacy of the oil and gas buffer. The application was submitted under the Town's previous oil and gas regulations that required a 350-foot buffer from active oil and gas facilities. To address this concern, the applicant now proposes implementing a 500-foot buffer that is consistent with the Town's current oil & gas regulations. This larger buffer resulted in the elimination of 63 residential lots from the originally-proposed Preliminary Plat with 587 lots. The Preliminary Plat included in this packet reflects that new configuration.



Preliminary Plat Development Data:

Preliminary Plat Size	290 acres total
Number of Lots - Proposed	524 lots
Minimum Lot Size Permitted by Zoning	2,500-4,999 SF for SFD 'Medium' 5,000 SF for SFD 'Large' 2,500 SF per DU for Duplex
Gross Density	1.8 DU/Acre
Number of Tracts	32 tracts (167 acres)
Public Right-of-Way (ROW)	44 acres

Future Required Applications:

If approved, the next steps for development of the subject site will include a Development Agreement, and Final Plat(s) application that will be reviewed by staff with final acceptance by the Town Council.

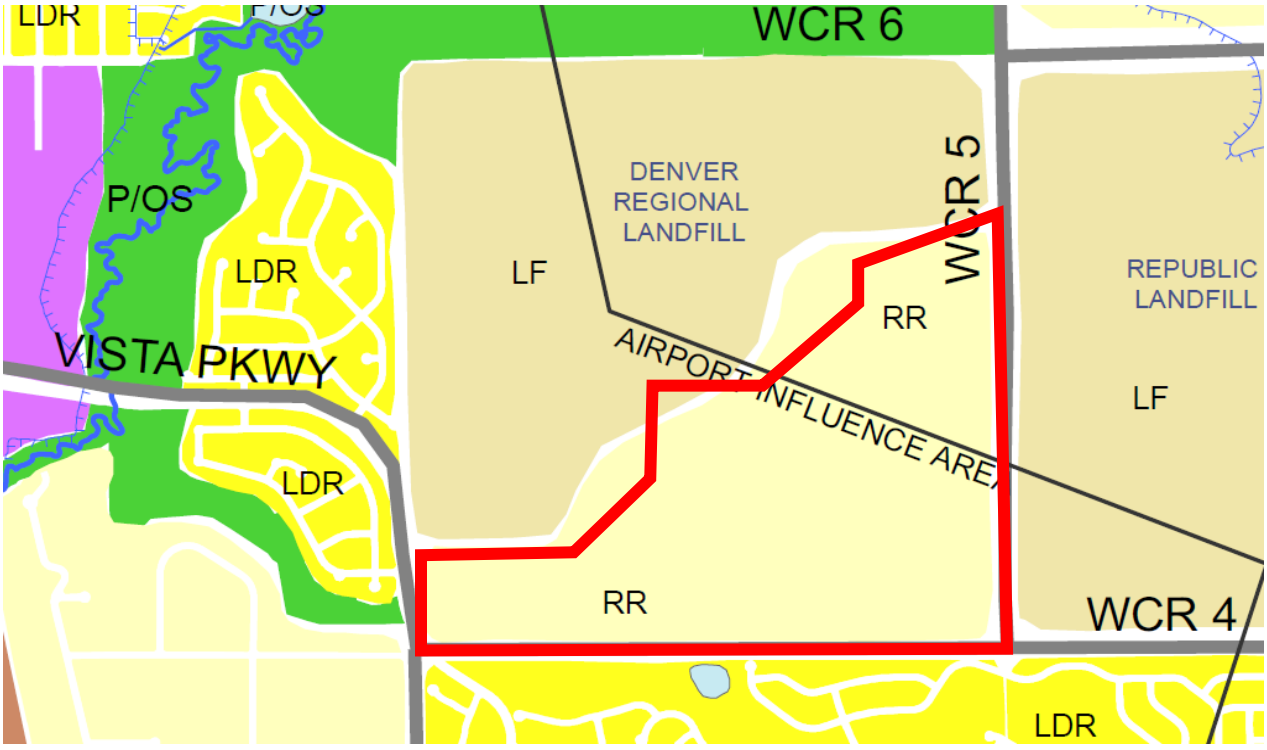
Compliance with Town of Erie Comprehensive Plan:

The Preliminary Plat application is in general compliance with the Land Use designations on the 2015 Updated Comprehensive Plan Land Use Map. The Land Use Map designates the entirety of this project area as Rural Residential (RR), which has a density of 0 to 2 dwelling units per acre. The Town zoned the property Low Density Residential in 2007, and the annexation agreement limited density to the threshold of Rural Residential (maximum 587 units) to maintain a character consistent with the designation in the Comprehensive Plan. The LR zoning allows clustering where development is most appropriate, given the constraints of the site. This Preliminary Plat will have a mix of housing types by including duplexes and single family detached units. The overall density of the proposed Preliminary Plat is 1.8 dwellings per acre.

Both clustering and a mix of housing types is encouraged by the Comprehensive Plan, as outlined in the following policies:

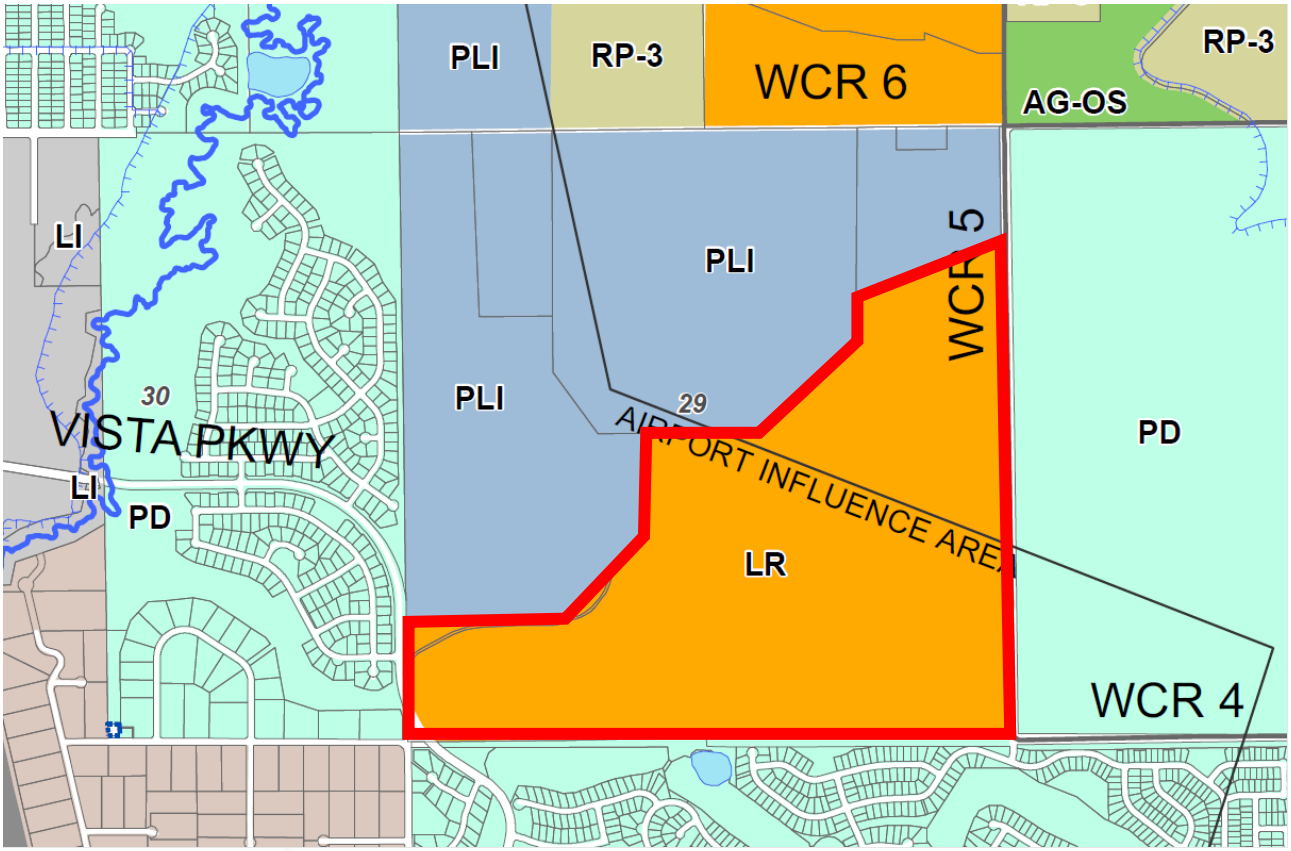
> *CCD 1.3: As an alternative to large lot subdivisions, the Town will encourage cluster development of housing in areas that may be appropriate.*
>
> *HN 3.1: The Town will encourage the incorporation of a mixture of housing types with varied price ranges, lot sizes, lot configurations, and densities, to attempt to meet the needs of all segments of the community.*
>
> *HN 3.2: The Town will encourage innovative design in housing by considering financial incentives and other mechanisms to reduce development costs, such as; varied lot sizes, varied lot configurations, clustering, mix of builders, and efficiency standards.*

Staff finds that this application complies with the Comprehensive Plan. The subject site is outlined in red on the Future Land Use map, below.



Compliance with Town of Erie Zoning Map:

The subject property is zoned LR – Low Density Residential. The property is outlined in red on the zoning map below. Staff find that this application is consistent with LR zoning. The proposed lots comply with the minimum lot size, lot width, and other development standards in the UDC. Staff evaluated the lot layout in relation to the dimensional standards (setbacks, etc.), and find that the lots are configured in a way that will allow compliance with the standards. At the time of the first submittal of this application, the UDC permitted Townhomes as a use by right in the Low Density Residential zone district.



Access/Roadways:

A Traffic Impact Study was submitted with the Preliminary Plat application materials. The Traffic Impact Study found that the traffic generation from this future development can be accommodated by the proposed internal and existing surrounding network with recommended intersection improvements. These intersection improvements will be specified in the Development Agreement included with the forthcoming Final Plat(s) and include:

- Weld County Road 5 (WCR 5) –
    - WCR 5 is anticipated to be widened to accommodate a second through-lane in each direction from Erie Parkway to Weld County Road 4 (WCR 4). This improvement is anticipated to be completed by the applicant prior to development of Redtail Ranch.
    - Unsignalized site access points from Redtail Ranch on WCR 5 will operate at acceptable levels of service through 2042 with stop signs and turn lanes.
    - The future intersection of WCR 5 and realigned WCR 4 is planned as an all-way stop but may require a traffic signal by 2042.
- Vista Parkway
    - Vista Parkway and the existing roundabout can accommodate the proposed traffic volumes with the new connection proposed at Redtail Parkway.
- Internal Street Network
    - The new internal street network proposed with the Redtail Ranch preliminary plat will adequately accommodate future traffic from the development.
- Regional Intersections
    - The Traffic Impact Analysis evaluated levels of service of nearby major intersections and the contribution to traffic volume by the proposed Redtail Ranch development. New intersection improvements may be necessary in the future. The Town will evaluate levels of service with future land use applications in Redtail Ranch and other nearby developments to determine necessary improvements for the following streets and intersections:
        - CR 5 & Erie Parkway
        - County Line Road & Vista Parkway
        - Hwy 7 & Sheridan Parkway
        - Hwy 7 & Vista Parkway

The streets and improvements proposed follow the Town's Standards and Specifications. Internally, the lots are served by a network of interconnected streets and sidewalks.

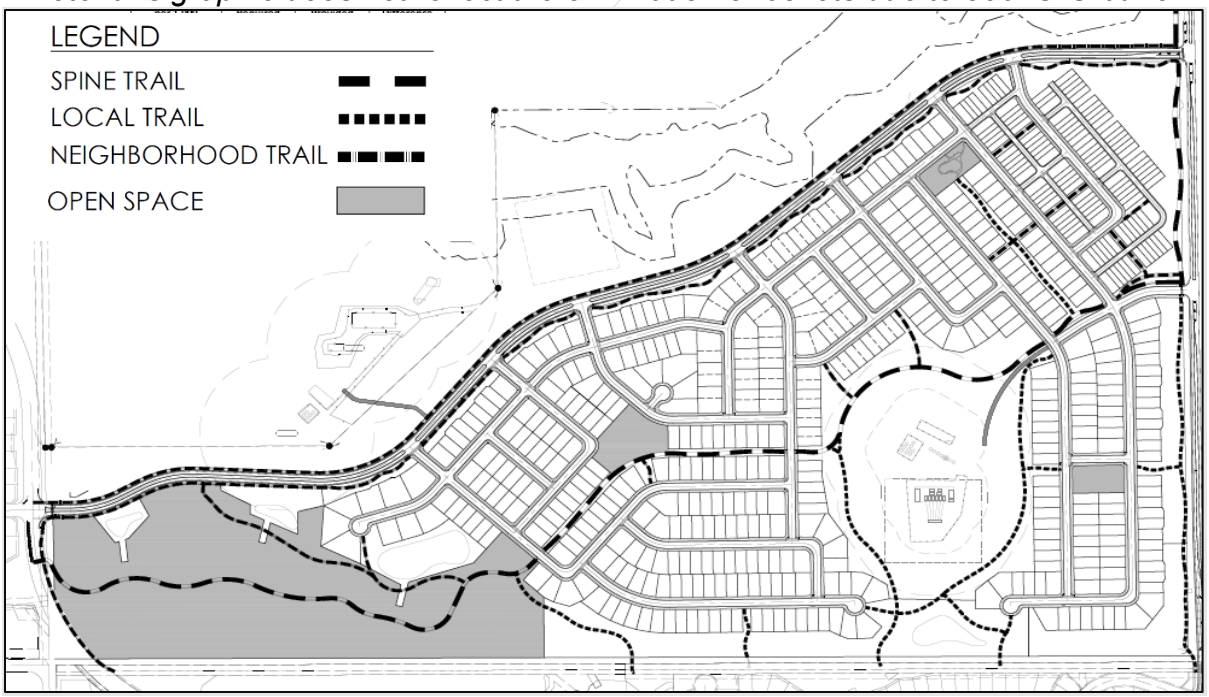
Parks, Open Space, and Trails:

The Preliminary Plat includes new trail connections and public open space dedications and pocket parks dedications. Fee-in-lieu will also be collected for the Neighborhood Parks requirement as well as impact fees for the Community Parks requirement. The proposal includes new Spine Trail connections through the development and connections to existing trails to the north, west, and south.

Park and Open Space Dedication Requirements

Park Type	Acres Required per 1,000 Residents*	Required Acres	Provided Acres	Difference (Cash In-Lieu)
Pocket Parks	0.05	0.76	2.92	
Open Space	17	25.74	29.43	
Sub-Total		**26.50**	**32.35**	**2.66**
Neighborhood Parks	3	4.54	0	-4.54
Total		**31.05**	**32.35**	
*Residents per unit	2.89			
Total Units	524			

Note: this graphic does not reflect the elimination of 63 lots due to 500' O/G buffer



Natural Areas Inventory:

The Town of Erie Natural Areas Inventory does not identify any natural areas of special concern within the project area. Coal Creek is the only drainage within the vicinity of the site that includes a FEMA mapped 100-year floodplain. Intermittent (seasonal) and ephemeral (post-storm event) drainage on-site is not identified or mapped by FEMA.

Development plans do not impact any jurisdictional waters or wetlands. Improvements to intermittent drainage of non-jurisdictional wetlands and waters on the north end of the site will be necessary for landfill remediation, creation of stormwater detention/water quality facilities and enhancement of open space. The northern ephemeral drainage is of very poor quality, is not jurisdictional, not regulated under the Clean Water Act and therefore no Section 404 permit is required.

Drainage and Erosion:

A Drainage Study was submitted and reviewed with the Preliminary Plat, with no concerns noted by engineering. Final drainage plans will be reviewed with the Final Plat.

Fire Protection:

Mountain View Fire Protection District provides fire and emergency medical services. The closest fire station is MVFPD Station 8, at 400 Bonanza Drive. The district had no concerns with the proposal.

Police Services:

The Erie Police Department will provide and plan for service to the property.

Schools:

This project falls within the SVVSD boundary. School fees-in-lieu will apply to this development, as no land is being dedicated to the school district. According to SVVSD, this project will generate 193 new students between elementary, middle, and high school levels - highlighted in yellow, below. The School District anticipates that this development would contribute to overcrowding at Soaring Heights K-8. However, Highlands Elementary will alleviate overcrowding at Soaring Heights in the elementary ranges, which will open additional capacity in grades 6-8. See tables below.

CAPACITY INFORMATION			
School Level	*Building Capacity*	*Students Oct-20*	*Student Impact*
Elementary	625		98
Middle (SH 6-8)	375	481	45
High (EHS)	1,456	1,609	50
Total	**2,456**		**193**

CAPACITY BENCHMARK* (includes projected students, plus development's student impact)									
2021-22		2022-23		2023-24		2024-25		2025-26	
Stdts.	Cap.	Stdts.	Cap.	Stdts.	Cap.	Stdts.	Cap.	Stdts.	Cap.
316	51%	374	60%	410	66%	445	71%	489	78%
509	**136%**	535	**143%**	558	**149%**	585	**156%**	616	**164%**
1716	118%	1782	122%	1843	**127%**	1888	**130%**	1925	**132%**
2541		2691		2811		1918		3030	
*Highlands Elementary will alleviate overcrowding at Soaring Heights K8 at the elementary level, opening up additional capacity in grades 6-8									

As this project does not dedicate land to the school district, SVVSD estimates the fees-in-lieu will total $426,957 as identified in the table below.

Cash-in-Lieu per unit payment by housing type:

HOUSING TYPE	CASH-IN-LIEU PAYMENT	UNITS PROPOSED	COST
Single Family	$970	339	$328,830
Duplex/Triplex	$846	68	$57,528
Multi-Family	$589	0	
Condo or Townhouse	$347	117	$40,599
Mobile Home	$785	0	
TOTAL			**$426,957**

Utilities:

The Town of Erie provides both water and wastewater services to the property. The utility service provider for the property is Xcel Energy for gas and electric, Century Link Communications for telephone services and Comcast for cable television. Utility easements for these providers will be established at the time of Final Plat but are adequately shown on the Preliminary Plat.

Trash Service:

Individual developments will contract for local pickup service.

Oil and Gas Facilities:

There are existing oil and gas facilities within this plat. The applicant submitted this Preliminary Plat application in 2021. At that point in time, the applicable regulations required a 350-foot setback from active oil and gas wells for all public parks and residential and non-residential buildings.

This application is subject to the 2021 regulations. However, to respond to concerns raised during the May 14, 2024 hearing, the applicant proposes to abide by the Town's

current oil & gas setback of 500 feet. This larger buffer will eliminate 63 residential lots from the Preliminary Plat. The 500-foot setback shown on the Preliminary Plat will thus restrict the affected area from construction of buildings but would allow other site uses such as parking and streets, landscaping, and outdoor fields.

Soils and Geology:

This application included a Mine Subsidence Investigation. The historic Columbine Mine did undermine a significant portion of the property included within the Redtail Ranch Preliminary Plat. However, the mining occurred primarily at depths greater than 250 feet below the surface. Given the depth of the undermining, the area is suitable for development at the scale of single-family dwellings proposed by the application. Larger-scale buildings could also be appropriate but would require further investigation on a case-by-case basis.

Environmental Hazards:

The Redtail Ranch property sits adjacent to multiple former (inactive) landfills and the Front Range Landfill, of which portions are currently active. Of particular concern is the northern portion of the Redtail Ranch property that was utilized as part of the former Neuhauser Landfill. Investigations revealed that chemical waste was improperly disposed of in the 1960s within northern portions of the Redtail Ranch site. The developer worked with a consultant team to investigate the extent of the environmental contamination for the entirety of the Redtail Ranch property.

The investigation discovered soil and groundwater contamination related to the improper chemical waste disposal. As a result, the applicant and consultants prepared and executed a Corrective Measures Work Plan to remove and mitigate contaminated materials. This work plan and an associated report complies with Environmental Protection Agency (EPA) standards and was approved by EPA.

In summary, the applicant and team mitigated the contamination risk satisfactorily according to CDPHE/EPA. These entities provided recommendations for continued monitoring and management of soil materials as construction commences.

Biological Assessment and Cultural Resources:

The Cultural Resources Report identified remnants of the Burlington Northern Railroad spur that came through the area associated with the Columbine Mine. Two isolated pieces of farm equipment were also found. Neither the railroad nor the farm equipment was identified as having significant historical significance.

STAFF REVIEW AND ANALYSIS

Staff finds the application is consistent with the Preliminary Plat approval criteria in Municipal Code, Section 10.7.7.D.2, as outlined below.

a. The subdivision is generally consistent with the Town's Comprehensive Master Plan.

   Staff: The subdivision is generally consistent with the Comprehensive Plan. The proposed Preliminary Plat meets the intent of the Rural Residential land use designation in overall density and clustering of housing.

b. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located.

   Staff: While the property is zoned Low-density residential (LR) which has an intent of providing areas for residential uses of an urban character, at a gross density no greater than five dwelling units per acre, and no less than three, the Annexation Agreement caps the gross density of the development at two dwelling units per acre. The proposed lots meet all dimensional standards included in LR and will allow for orderly development.

c. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this UDC.

   Staff: The Preliminary Plat meets the applicable Town standards as well as environmental corrective measures required by CDPHE and EPA. The major open space at the southwest corner of the plat maintains a riparian area. The grading plan will preserve existing vegetation and views from adjacent subdivisions to the maximum extent practicable.

d. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of this UDC that have not otherwise been modified or waived pursuant to this Chapter or this UDC. Applicants shall refer to the Development Standards in Chapter 5 of this UDC and shall consider them in the layout of the subdivision in order to avoid creating lots or patterns of lots in the subdivision that will make compliance with such development and design standards difficult or infeasible.

   Staff: The design of the Preliminary Plat considers applicable use, development, and design standards of Chapters 3, 5, and 6 of the Code. The layout and design of the subdivision is appropriate and consistent with the general provisions of the UDC. Streets and trail connections are appropriate and will benefit future residents and provide continuity to external developments and trails. Utility easements are provided on the Preliminary Plat. Appropriate provisions are in place for storm water, water, and wastewater lines.

e. The subdivision complies with all applicable regulations, standards, requirements, or plans of the Federal or State governments and other relevant jurisdictions, including but not limited to wetlands, water quality, erosion control, and wastewater regulations.

   Staff: Significant adverse impacts are not anticipated. The site is not impacted by a

designated floodplain. Provisions are in place to protect water quality, erosion control, and wastewater. Appropriate studies were reviewed during the review of the Preliminary Plat and no concerns are outstanding. Construction documents as part of the Final Plat process will require Best Management Practices (BMP's) for water quality, stormwater management and erosion control in accordance with the Town of Erie - Standards and Specifications for Design and Construction of Public Improvements.

f. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated.

   Staff: All new developments have impacts on the natural environment. This subdivision is not anticipated to create any significant or unmitigated adverse impacts on the environment. Appropriate studies were reviewed during the review of the Preliminary Plat and no concerns are outstanding.

g. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features.

   Staff: Pedestrian and vehicular access is adequately provided throughout the subdivision. Sidewalk and trail connections are provided at key locations and extend to existing facilities to the west, north, and south of the site.

h. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated.

   Staff: Significant adverse impacts are not anticipated. As part of the Preliminary Plat review, drainage and erosion, traffic impact, environmental, and cultural studies were reviewed. No concerns are outstanding.

i. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development.

   Staff: Adequate services and facilities currently exist or will be enhanced by the Preliminary Plat that will provide service to the development, adjacent neighborhoods, and the community at large. The School District anticipates that the impact on schools will be offset by an estimated total fee-in-lieu sum of $488,067.

j. As applicable, the proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

   Staff: A phasing plan is not contemplated for the Preliminary Plat. A Development Agreement between the applicant and the Town will be reviewed by The Town Council as part of Final Plat approvals which may include a phasing plan.

NEIGHBORHOOD MEETING

As required by the Municipal Code, a Neighborhood Meeting was held on April 21, 2021. The summary of the meeting and list of attendees is attached.

PUBLIC NOTICE

Notice of this Public Hearing has been provided as follows:

Published in the Colorado Hometown Weekly: 6/5/24

Property Posted: 6/7/24

Letters to adjacent property owners within 300 feet: 6/7/24

Redtail Ranch Preliminary Plat

Town Council

Harry Brennan, Senior Planner

June 25th, 2024

Case History

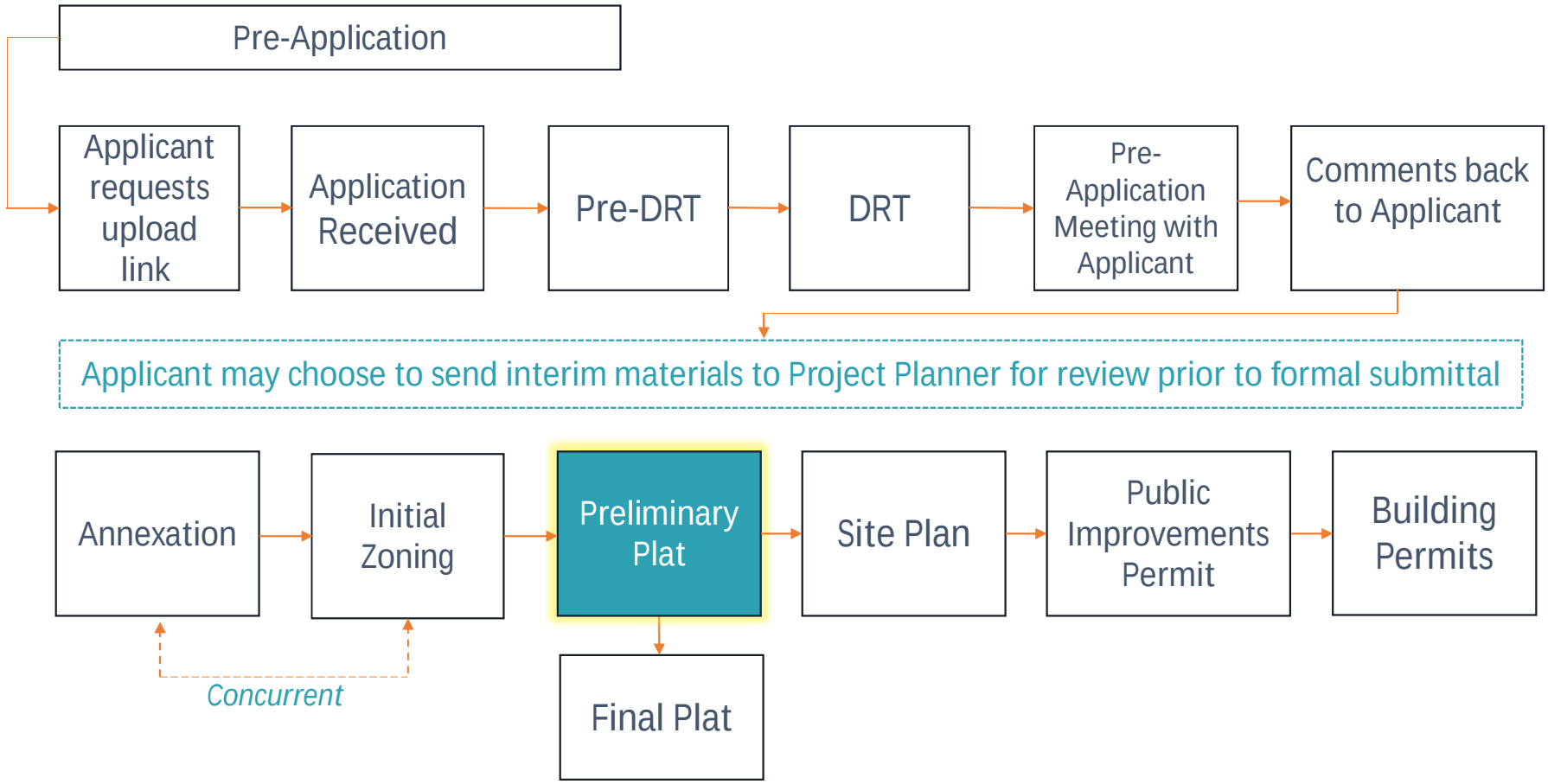
- Planning Commission hearing January 27, 2024
  - Vote 7-0 to recommend approval
- Town Council hearing April 23, 2024
  - Vote 3-3 to continue, motion failed
- Town Council May 14, 2024
  - Vote 4-1 to reconsider the motion to continue
  - Vote 4-1 to continue to June 25, 2024

Request

Approval of Preliminary Plat

- Project Size: 290 Acres
- Lots/Tracts: 524 Lots/32 Tracts
- Gross Density: 1.8 DU/AC
- Existing Zoning: Low Density Residential (LR)
- Existing Use: Undeveloped

Development Review Process

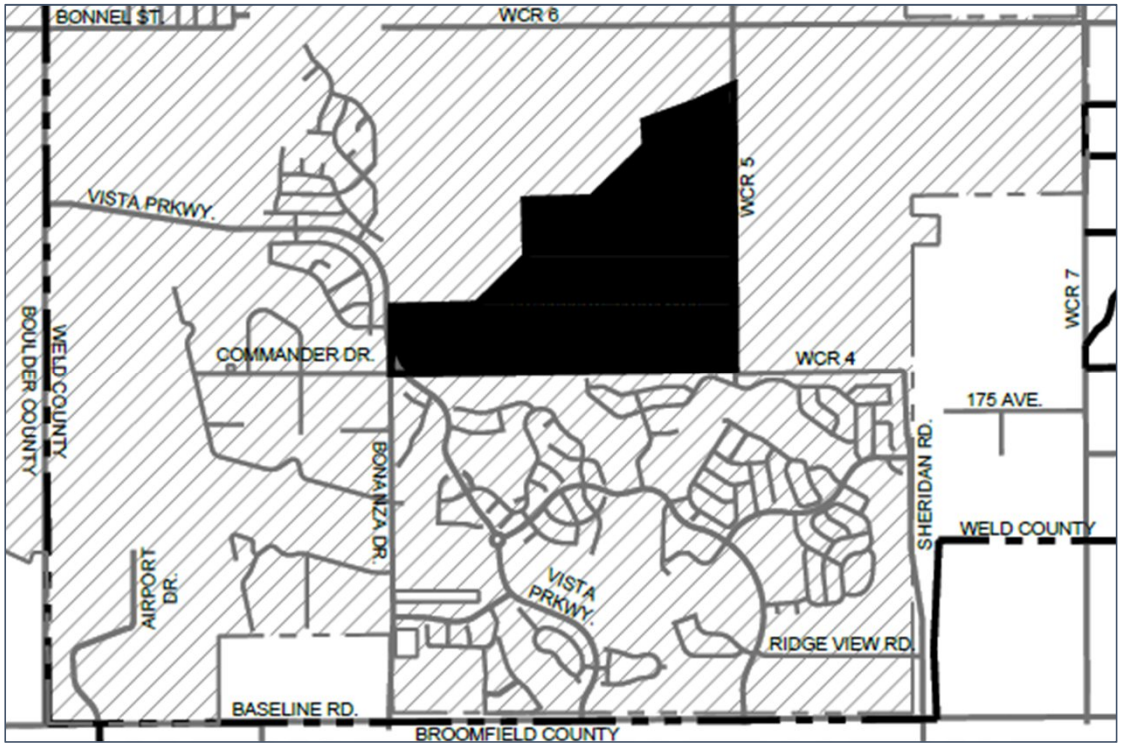


Overview

- Background
- Proposal
- Review & Evaluation
- Decision

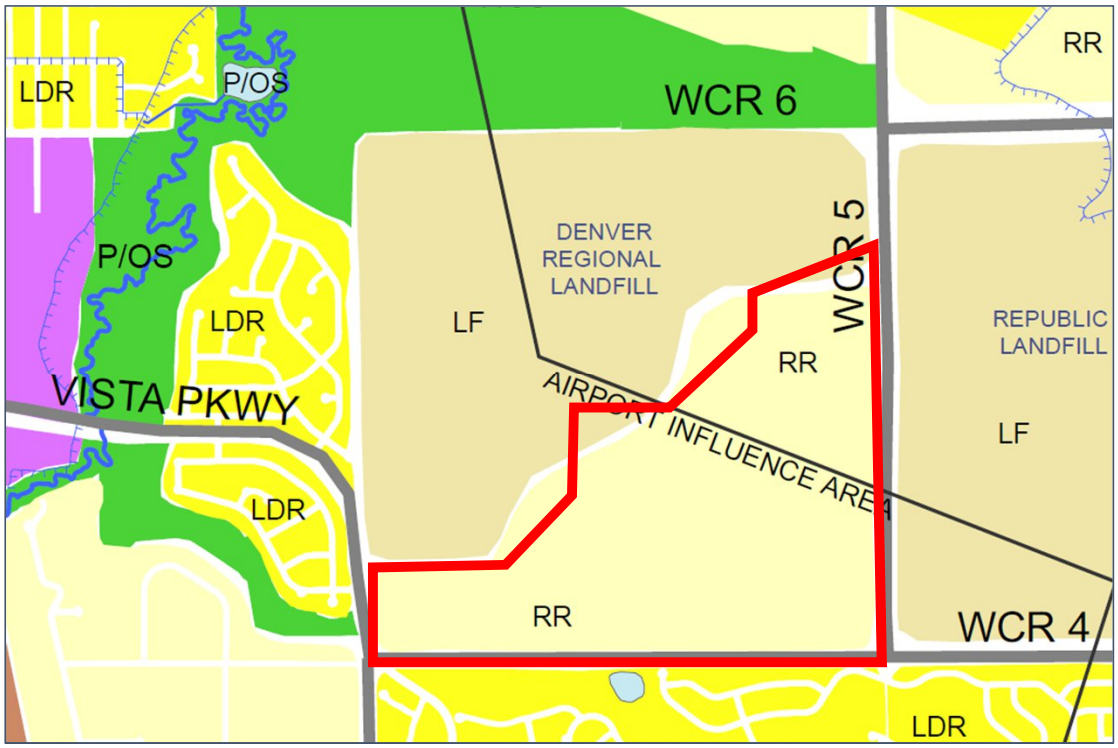
Location

- The subject site is west of WCR 5, east of Vista Pkwy, and north of WCR 4



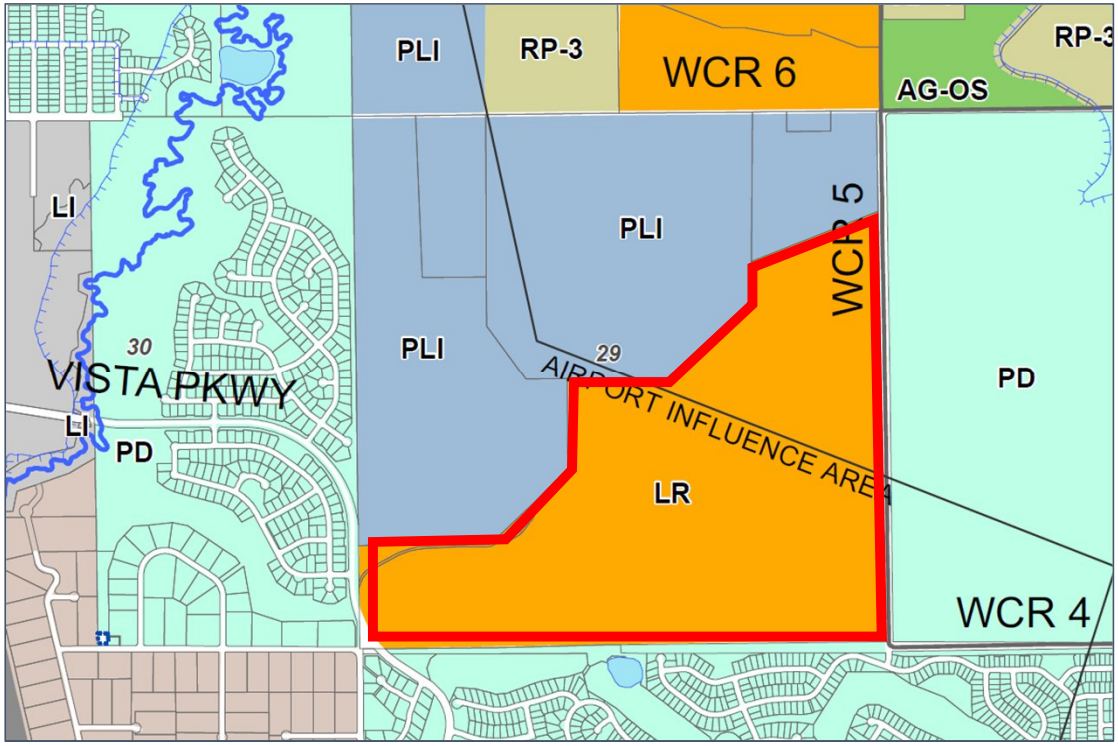
Comprehensive Plan

- Rural Residential (0-2 du/acre)



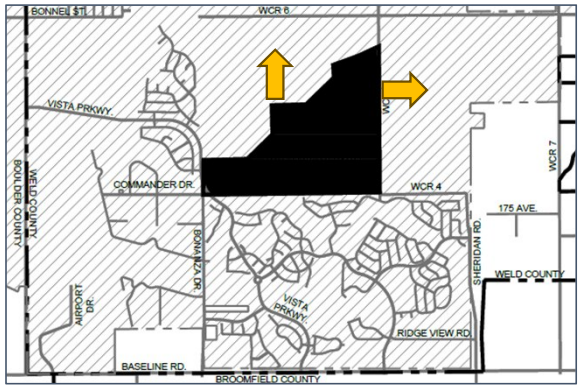
Zoning

- Low Density Residential (LR)



Surrounding Context

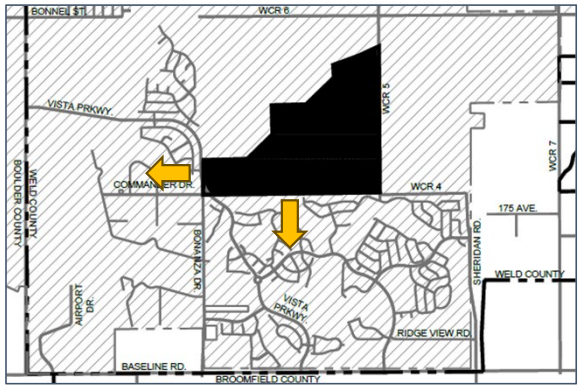
NORTH: Zoned PLI, Denver Regional Landfill



EAST: Zoned PD, Front Range Landfill

Surrounding Context

WEST: Zoned PD, Vista Pointe Residential Subdivision



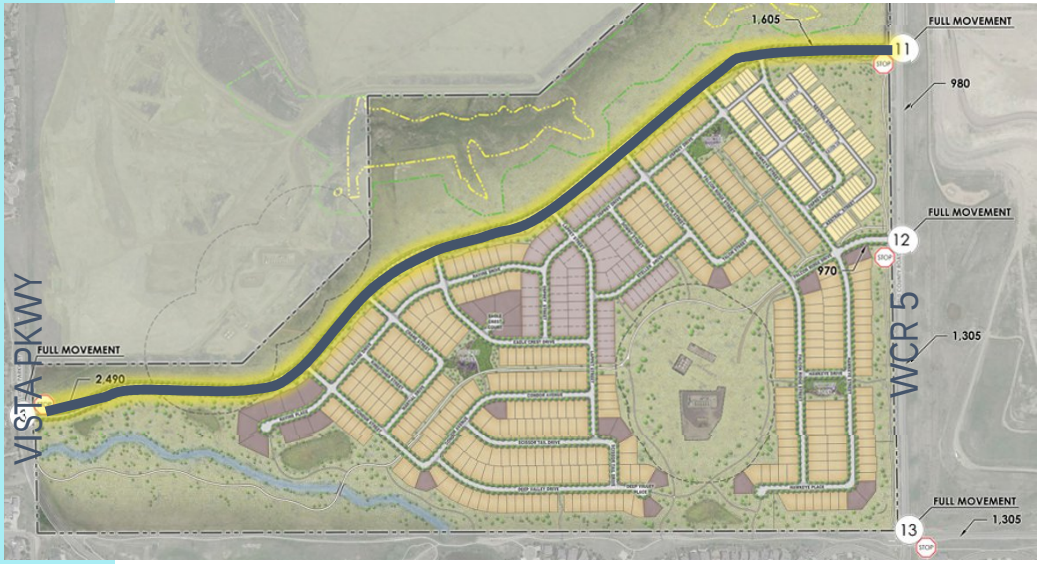
SOUTH: PD, Vista Ridge Residential Subdivision

TMP and Planned Projects

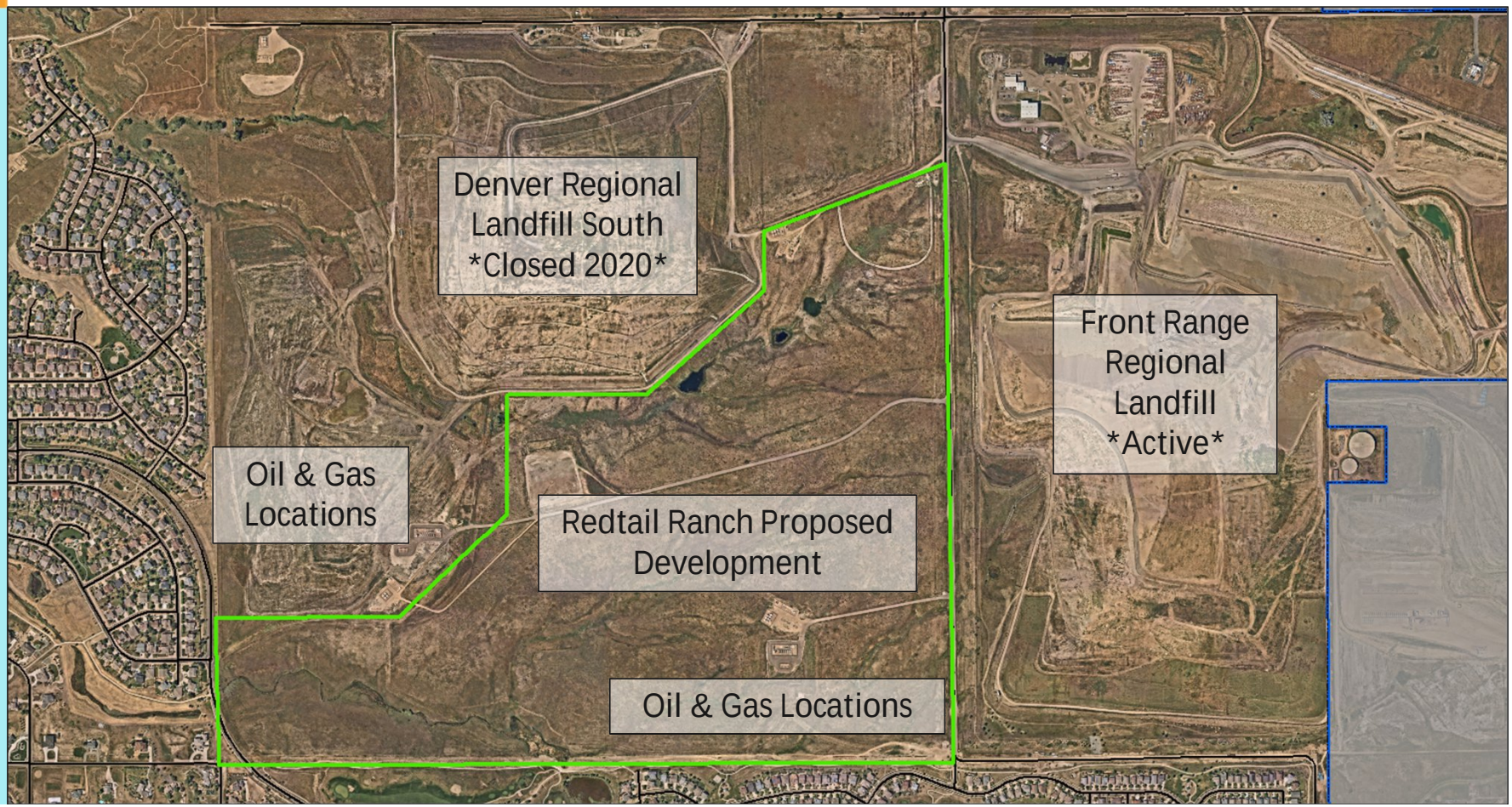
WCR 5, Minor Arterial

Previously, there was a connection desired to WCR 4

New road from Vista Pkwy to WCR 5

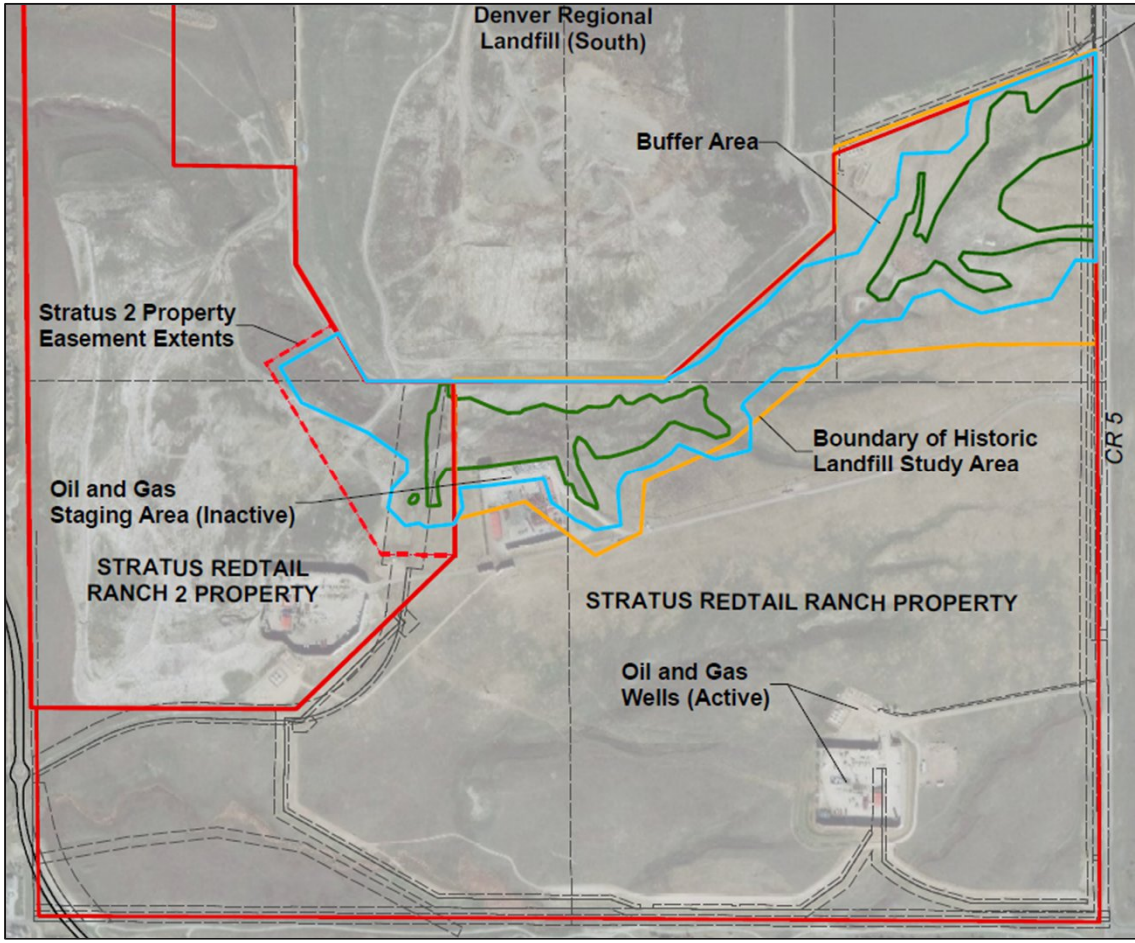


Environmental Hazards



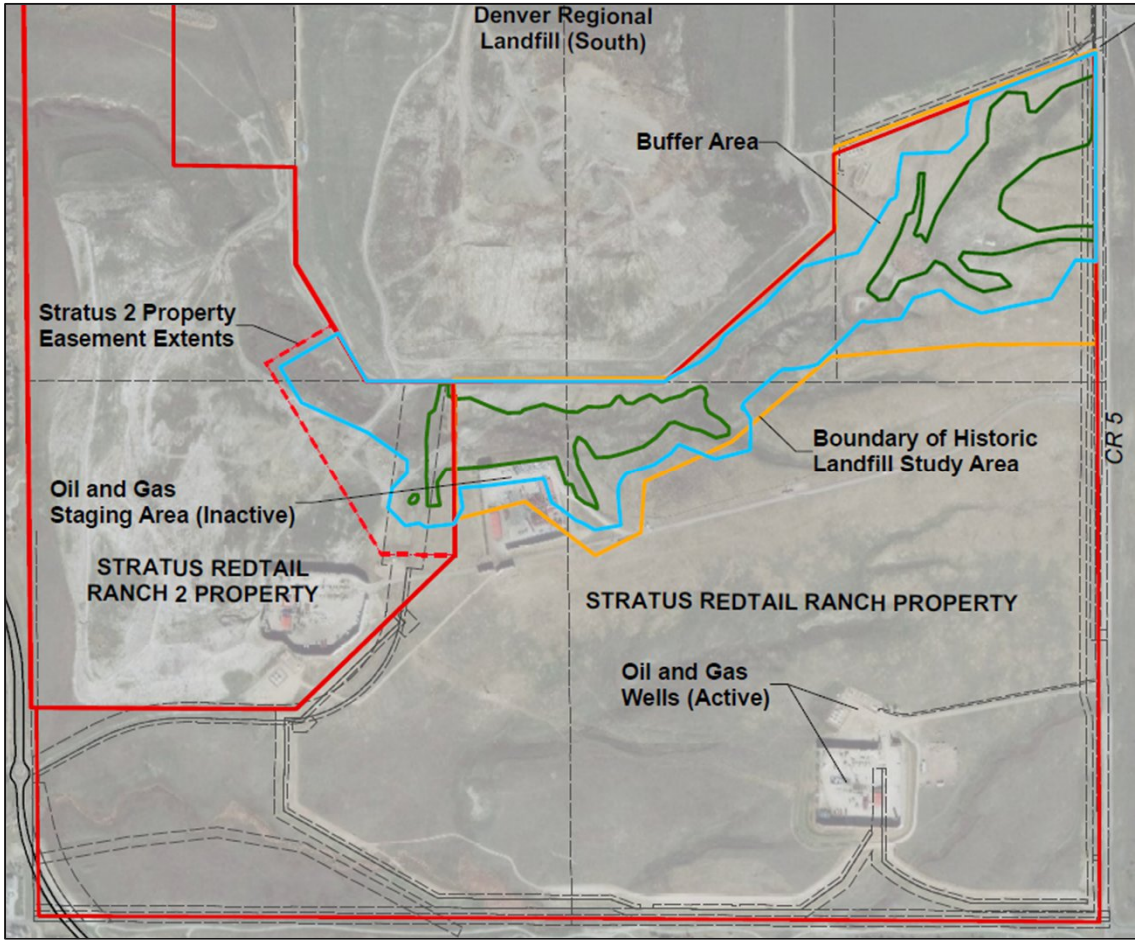
Environmental Hazards: Neuhauser Landfill

- Utilized from mid-1960 through 1969
- Certificate of Designation revoked following complaints & subsequent investigations in 1969
- IBM and Sundstrand Aviation disposed of ~1,500 drums containing ~84,000 gal of chemical waste



Environmental Hazards: Neuhauser Landfill

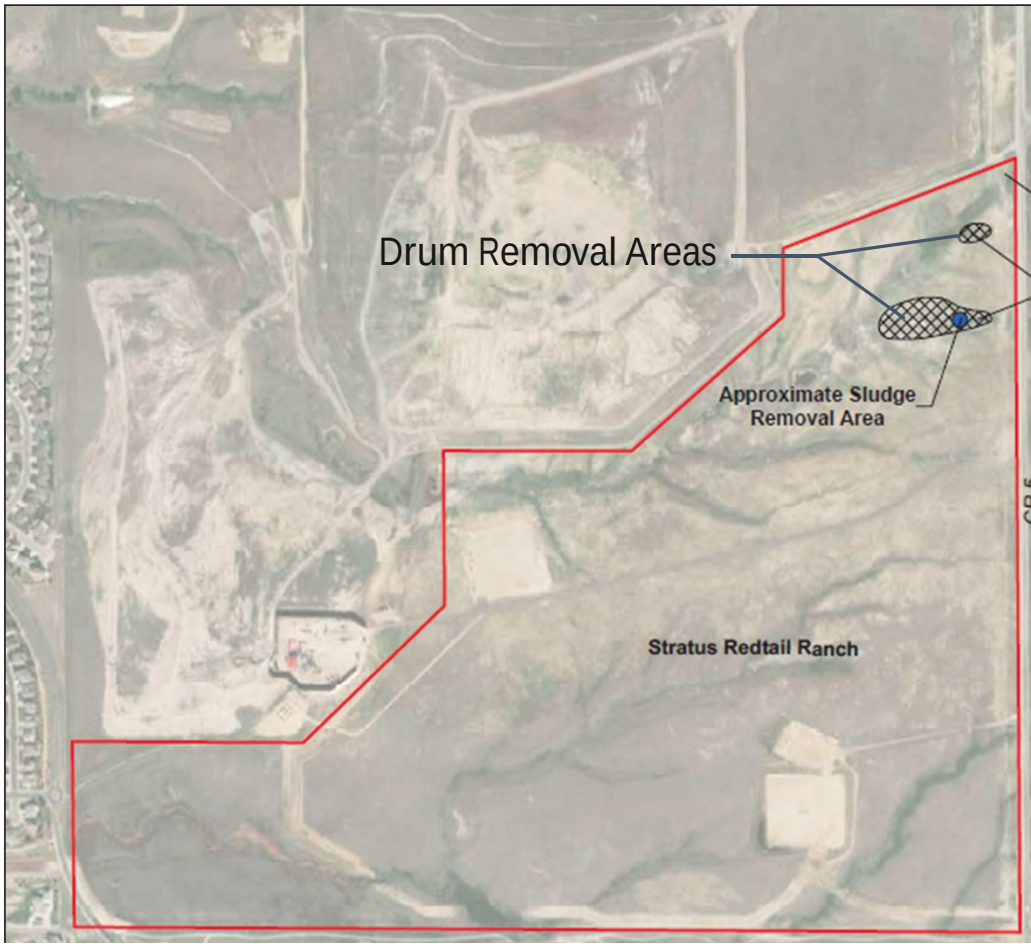
- Discovered in 1984, with further investigations in 1990, 2007, 2011, 2015-17
- Excavation and drum removal completed in 2018 under EPA/CDPHE
- Corrective Measures Design approved in 2020 with No Action Determination later that year
- In-Situ Chemical Oxidation completed in 2021



Environmental Hazards

Ongoing Work

- Grading, capping, and evapotranspiration cover installation
- Fencing and signs stating “Keep Out – Environmentally Sensitive Area” every 300 ft
- Continued semi-annual monitoring of soil vapor and groundwater for 30 years



Special Agreements

Annexation Agreement:

- The Town annexed this property in 2007 and at that time assigned the Low-Density Residential (LR) zoning
- Caps the number of residential units to 587, which maintains the gross density at 2 DU/Acre

Infrastructure

Water and wastewater adequate to serve

No concerns with the submitted drainage study

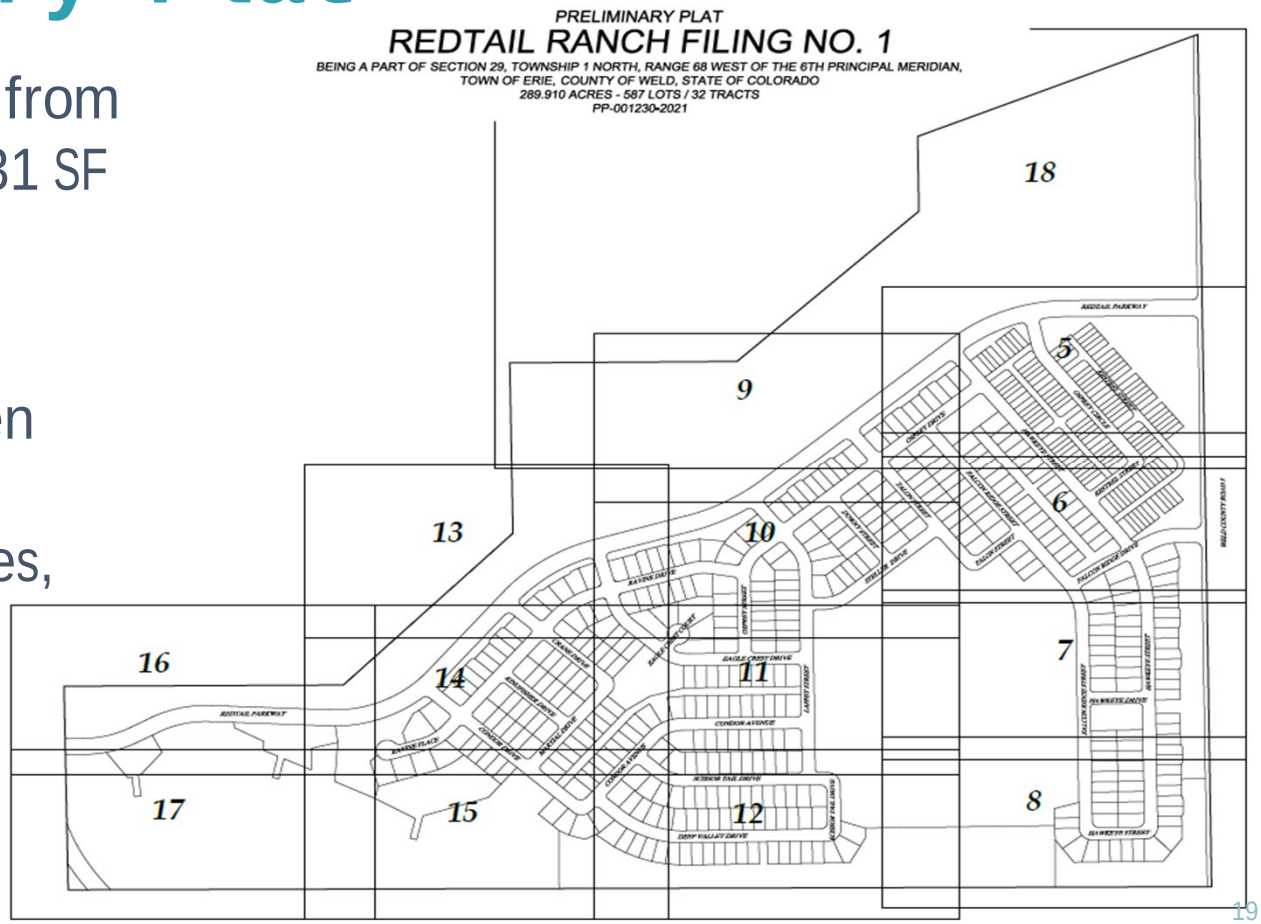
Utility easements and final drainage plans will be reviewed with the Final Plat

Overview

- ✓ Background
- Proposal
- Review & Evaluation
- Decision

Preliminary Plat

- 524 Lots ranging from 2,519 SF to 19,031 SF
- 32 Tracts for drainage, private parks, public open space to be dedicated, utilities, and landscaping



Overview

- ✓ Background
- ✓ Proposal
- Review & Evaluation
- Decision

Review & Evaluation

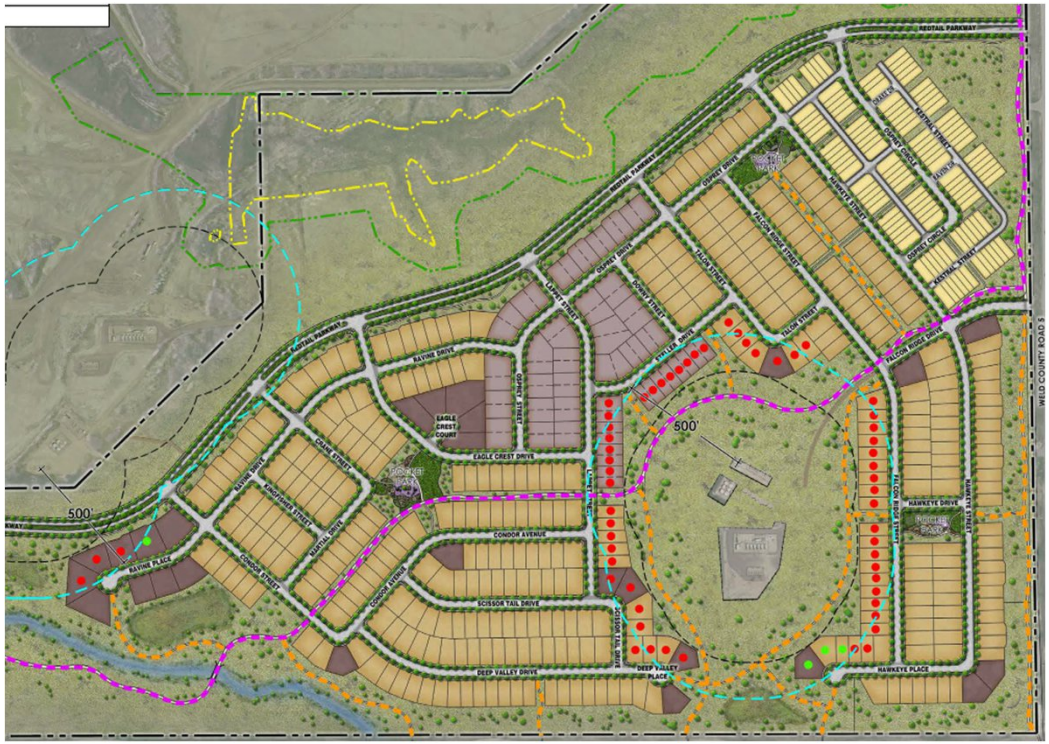
During the Council hearing on April 23rd questions and concerns centered on:

1. Oil & gas setbacks
2. Traffic impacts
3. Spine Trail location
4. Environmental disclosures for future homeowners

Review & Evaluation

1. Oil & Gas Setbacks

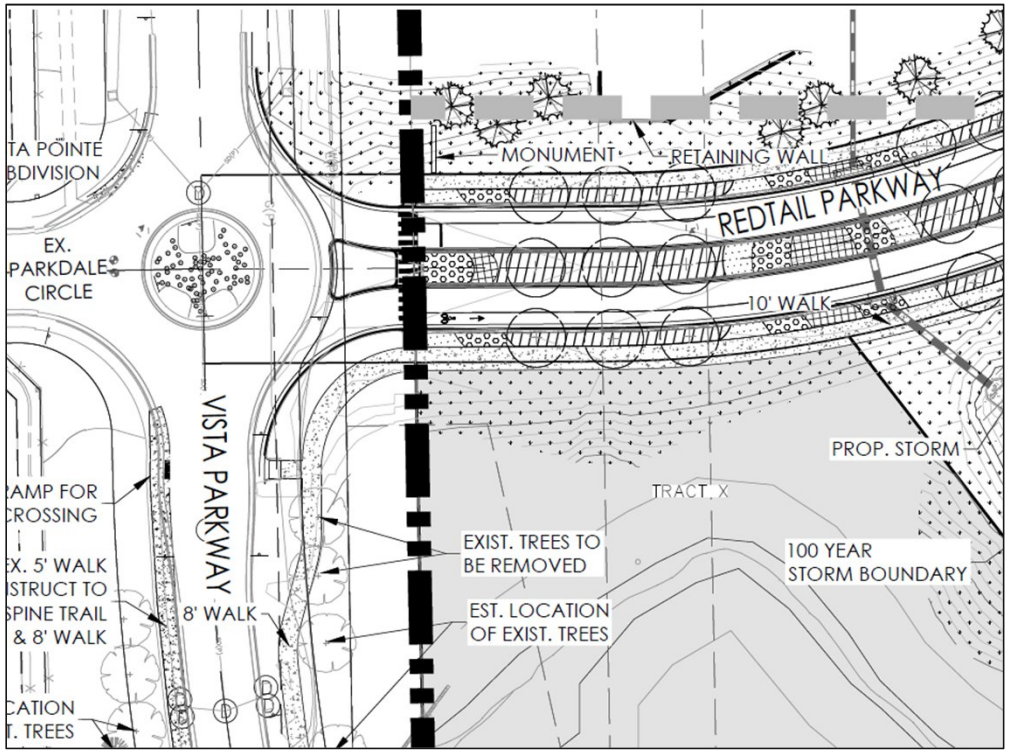
- Applicable 2021 standards for O/G require 350’ buffer.
- Applicant proposes abiding by current O/G standards which require 500’ buffer
- 63 lots are eliminated by abiding by the 500’ O/G buffer



Review & Evaluation

2. Traffic Impacts

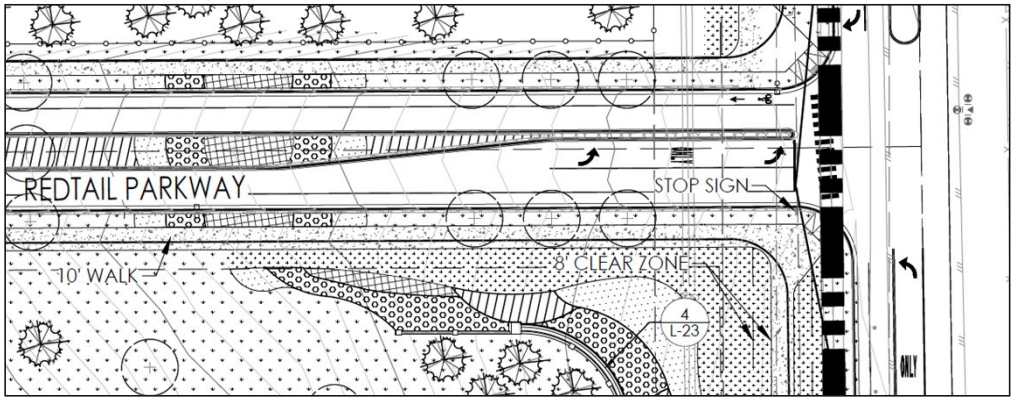
- Vista Pkwy - Access into existing roundabout at Vista Pkwy & Parkdale Circle. Applicant will work with Vista Pointe HOA to determine how Redtail Metro District may help with landscape maintenance.

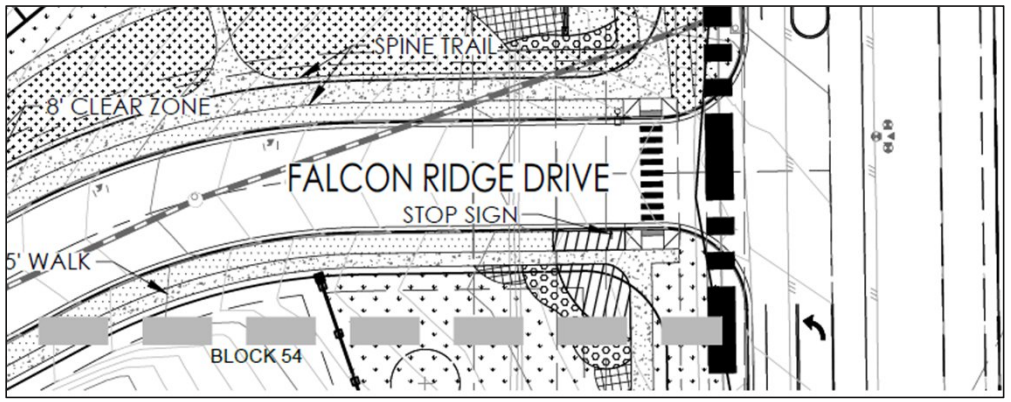


Review & Evaluation

2. Traffic Impacts

- WCR 5 – Road widening, stop sign controlled full movement access intersections. Traffic signals at Redtail Pkwy and Falcon Ridge Dr are not warranted at this time. Developer will pay fair share contribution to signals when warranted.





Review & Evaluation

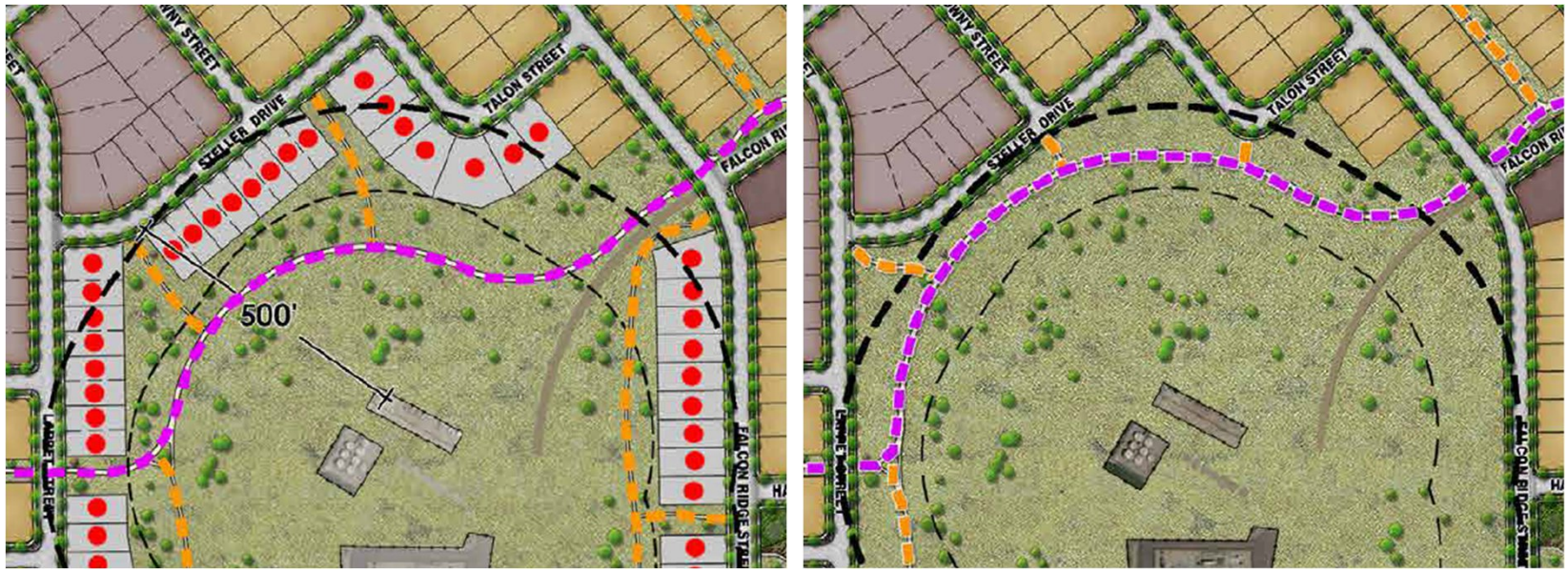
2. Traffic Impacts

- Regional Intersections - The Town will evaluate levels of service with future land use applications in Redtail Ranch and other nearby developments to determine necessary improvements.
- Traffic Calming on Redtail Pkwy – The plans show two speed feedback signs, bike lanes and 10’ travel lanes to help slow traffic. Further strategies can be explored at Final Plat.

Review & Evaluation

3. Spine Trail Location

- The applicant has relocated the Spine Trail to be 150’ further away from the Oil & Gas facilities (purple line, below).



Review & Evaluation

4. Environmental Disclosures

- Town will work with applicant to include an environmental disclosure requirement in the Development Agreement at Final Plat. In addition, the property owner will work with staff to agree on restrictions to be placed of record that requires installation of an appropriate vapor mitigation (i.e., radon) system in all structures on the 245-acre parcel as well as prohibition of the use or withdrawal of groundwater.

Overview

- ✓ Background
- ✓ Proposal
- ✓ Review & Evaluation
- Decision

Approval Criteria UDC Section 10.7.7.D.2

a. The subdivision is generally consistent with the Town's Comprehensive Master Plan.

b. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located.

Staff: The Preliminary Plat is generally consistent with the Town's Comprehensive Plan and the LR zone district. The proposed lots meet the dimensional standards in the LR zone district.

Approval Criteria

c. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this UDC.

d. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of this UDC that have not otherwise been modified or waived pursuant to this Chapter or this UDC. Applicants shall refer to the Development Standards in Chapter 5 of this UDC and shall consider them in the layout of the subdivision in order to avoid creating lots or patterns of lots in the subdivision that will make compliance with such development and design standards difficult or infeasible.

Staff: The Plat meets applicable Town standards in terms of general layout and will maintain riparian areas within the major open space area. The subdivision meets design standards contained in the UDC and will allow for orderly development.

Approval Criteria

e. The subdivision complies with all applicable regulations, standards, requirements, or plans of the Federal or State governments and other relevant jurisdictions, including but not limited to wetlands, water quality, erosion control, and wastewater regulations.

f. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated.

Staff: Provisions are in place to protect water quality, erosion control, and wastewater. Construction documents as part of the Final Plat process will require BMPs for water quality, stormwater management and erosion control in accordance with the Town of Erie standards. This subdivision is not anticipated to create any significant or unmitigated adverse impacts on the environment. Appropriate studies were reviewed during the review of the Preliminary Plat and no concerns are outstanding.

Approval Criteria

g. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features.

h. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development.

Staff: The subdivision provides adequate vehicular and pedestrian circulation. Trail connections are provided at key locations. Public services/facilities currently exist or will be extended/contributed by the developer to serve this subdivision.

Approval Criteria

i. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated.

j. As applicable, the proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

Staff: The subdivision will not create substantial offsite impacts on adjacent properties. Drainage and runoff will be accommodated by the development and roadway improvements will enhance the roadway network.

Phasing is not contemplated at this time. The future Final Plat(s) and Development Agreement(s) may include phasing.

Staff Recommendation

Staff finds the Redtail Ranch Preliminary Plat complies with the Approval Criteria and recommends the Town Council adopt the resolution approving the Preliminary Plat with the following conditions:

- At the time of Final Plat, Applicant shall execute a Development Agreement in the form provided by the Town. The development agreement shall include a requirement for Environmental Disclosures as directed by Town staff.
- The applicant shall make all necessary technical corrections and update all application materials as directed by Town staff.

Planning Commission

The Planning Commission held a public hearing for this application on 1/27/24. Planning Commission voted 7-0 to recommend approval of the Preliminary Plat to Town Council.

Town Council

- Town Council hearing April 23, 2024
  - Vote 3-3 to continue, motion failed
- Town Council May 14, 2024
  - Vote 4-1 to reconsider the motion to continue
  - Vote 4-1 to continue to June 25, 2024

Public Notice

Neighborhood Meeting

- April 21, 2021

Public Notice of Planning Commission Hearing

Published in the Colorado Hometown Weekly:	6/5/24
Property Posted:	6/7/24
Letters to Adjacent Property Owners:	6/7/24

Redtail Ranch Preliminary Plat

Town Council

Harry Brennan, Senior Planner

June 25th, 2024

REDTAIL RANCH

June 25, 2024

Town Council

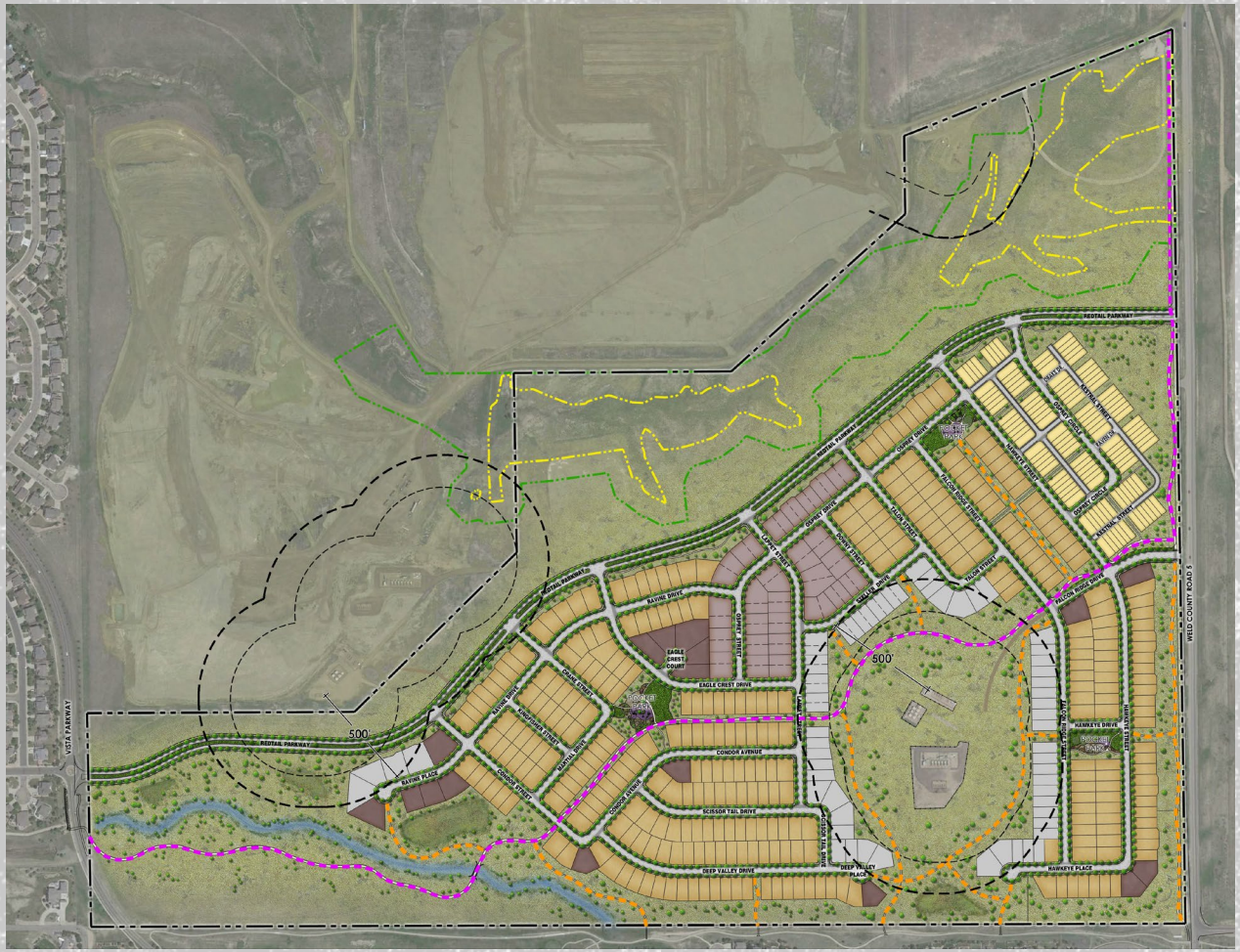
Preliminary Plat

SUMMARY OF CHANGES

- INCREASED OIL & GAS SETBACKS FROM 350' TO 500'
- REDUCED NUMBER OF HOMES FROM 587 TO 524 (11%)

  (DID NOT REDUCE PARKS OR OPEN SPACE)
- MOVED SPINE TRAIL APPROXIMATELY 150' FURTHER AWAY FROM OIL AND GAS FACILITIES
- INCLUDED TRAFFIC CALMING MEASURES ALONG REDTAIL PARKWAY
- IDENTIFIED A TRAFFIC SIGNAL AT REDTAIL PARKWAY & WCR5
- COORDINATED WITH VISTA POINTE HOA ON ASSUMING LANDSCAPE MAINTENANCE ALONG VISTA PARKWAY FRONTAGE.
- AGREED TO PROVIDE ENVIRONMENTAL DISCLOSURES PER THE OIL & GAS DISCLOSURE REQUIREMENTS IN UDC
- HELD A NEIGHBORHOOD MEETING ON JUNE 13, 2024

SITE PLAN COMPARISON



APRIL 23 PLAN

587 – HOMESITES
350' OIL & GAS SETBACK

CURRENT PLAN

524 – HOMESITES
500' OIL & GAS SETBACK

SITE PLAN

DEVELOPMENT SUMMARY		
LAND USE	**UNITS**	**% UNITS**
Townhomes Alley Loaded (Min. 24' x 105')* (Alley 30' Tract)	117	22.3%
Duplex Front Loaded (Min. 45' x 110')**	52	9.9%
Single-family Detached Lots (Min. 51' x 110')***	338	64.5%
Single-family Detached Large Lots (Min. 10,000 SF)	17	3.2%
TOTAL	**524**	**100.0%**
* Townhomes - Corner lots are a min. 40' x 105' Adjacent To tract 30'x105'		
** Duplex - Corner lots are a min. 60' x 110'		
*** Standard Lots - Corner lots are a min. 69' x 110'		

Proposed Density: 1.8 Dwelling Units / Acre

LEGEND

LOCAL TRAILS

SPINE TRAIL

500' OIL & GAS SETBACK

350' OIL & GAS SETBACK

Single Family

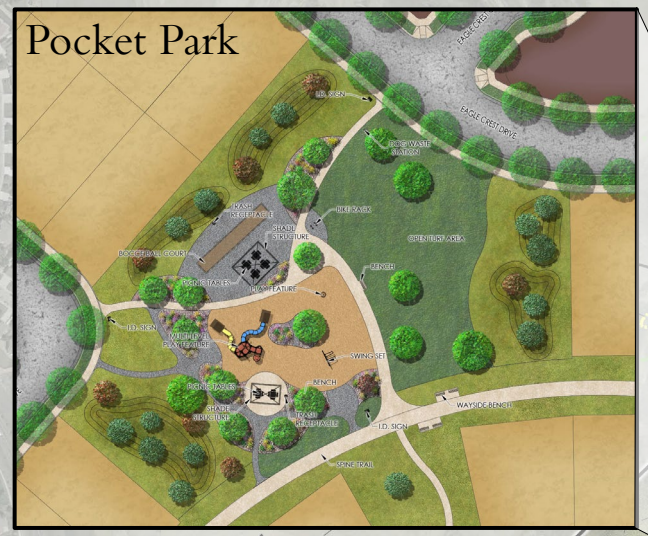
Large Lot Single Family

Duplexes

Townhomes

OPEN SPACE PLAN

Park and Open Space Dedication Requirements		
Park Type	**Required Acres**	**Provided Acres**
Pocket Parks	0.76	2.92
Open Space	25.74	29.43
Sub-Total	**26.50**	**32.35**
Neighborhood Parks	4.54	FEE IN LIEU



MAJOR INTERSECTIONS & TRAFFIC CALMING

1,540'

TRAFFIC CALMING
DESIGN AND LOCATIONS WILL BE DETERMINED BY TOWN AT TIME OF FINAL CONSTRUCTION DOCUMENTS

FULL MOVEMENT

SPEED FEEDBACK SIGN

FULL MOVEMENT

SPEED FEEDBACK SIGN

ROUNDABOUT

¾ MOVEMENT

VISTA POINT MAINTENANCE

LEGEND

REDTAIL MAINTENANCE

VISTA POINT MAINTENANCE

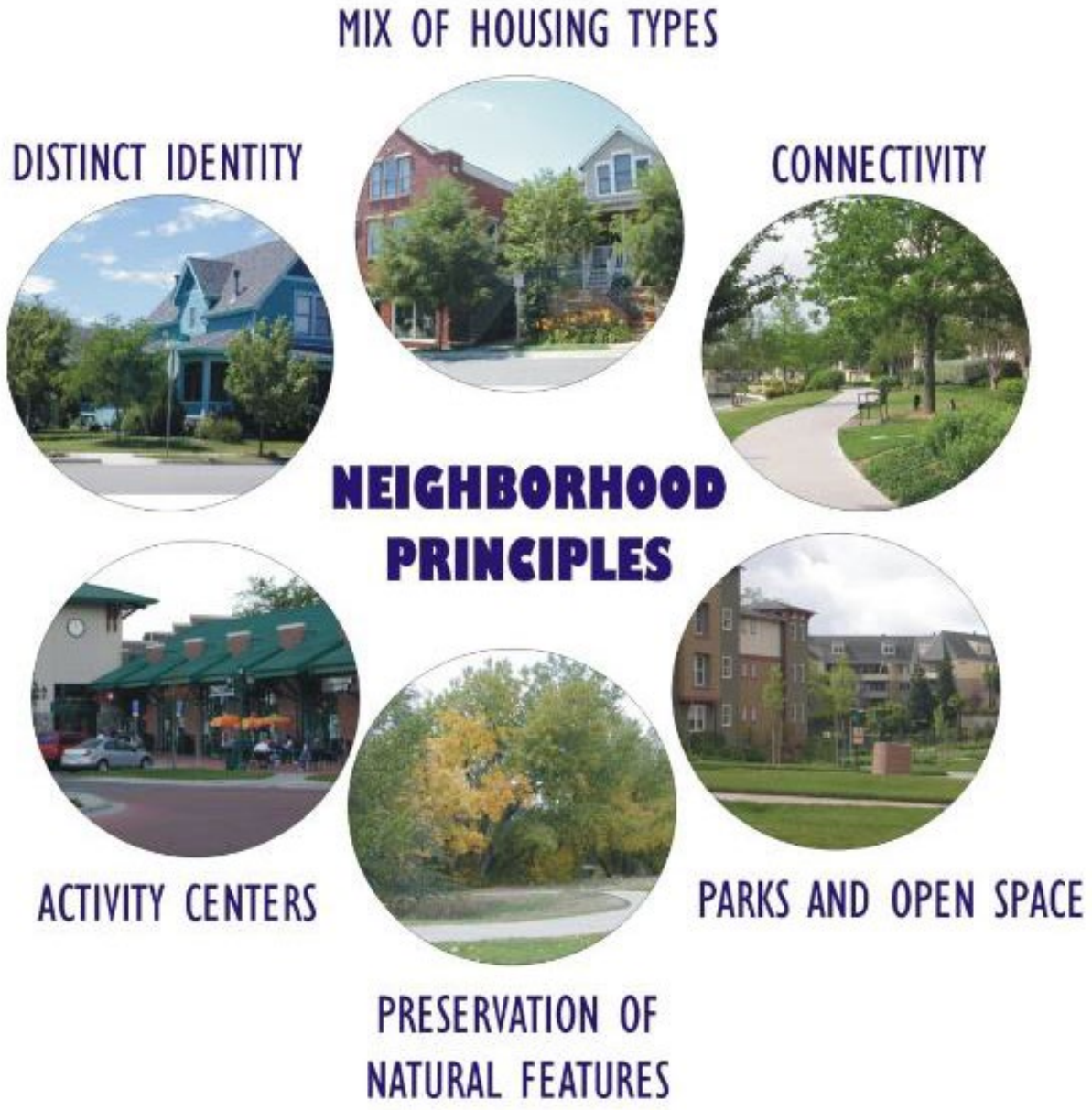
ENVIRONMENTAL DISCLOSURE

- Environmental disclosures to be provided to future homeowners.
- Follow process in UDC for oil & gas disclosures.
- Require vapor mitigation systems in all homes.
- Prohibition on use or withdrawal of ground water.

- MAJOR COMMENTS:
  - Site Plan
    - Positive feedback on increased setbacks and reduced number of homes.
  - Process
    - Confusion about the reconsideration.
    - Questions about timing of construction and when the first homes will be built.
  - Traffic
    - Primarily truck traffic from landfill on WCR4&5
    - Closure at Baseline
    - Timing of improvements of west half of WCR5 (along landfill).
  - Environmental
    - Questions about clean-up and current capping operations.
    - Timing of fencing.
  - Oil & Gas
    - Questions about plugging and what the 33-acre setback area could become in the future.
  - Trails
    - Concerns about location of connections to Vista Ridge trail.
    - Recommendation for loop trail around oil & gas setback area.
    - Questions about spine trail connection between our northern boundary and Sunset.
  - Schools
    - Concerns about over crowding.

NEIGHBORHOOD MEETING

- **WHEN:** JUNE 13, 2024 6:45 p.m.
- **WHERE:** ERIE COMMUNITY CENTER –BRIGGS ROOM
- **ATTENDANCE:** 20+ NEIGHBORS



COMPREHENSIVE PLAN NEIGHBORHOOD PRINCIPLES

- MIX OF HOUSING TYPES
  - Redtail Ranch contains SFD, SFA, and townhomes to provide a more diverse selection of lifestyles.
- CONNECTIVITY
  - Redtail Ranch is connected to adjacent neighborhoods and the surrounding communities with direct roadway and pedestrian connections and open space.
- PARKS AND OPEN SPACE
  - Redtail Ranch includes three parks, dedicated open space and trails to appeal to residents of all ages.
- PRESERVATION OF NATURAL FEATURES
  - Redtail Ranch has dedicated open space to preserve existing wetlands through the site.
- ACTIVITY CENTERS
  - Parks are dispersed throughout Redtail Ranch and are connected by the spine trail.
- DISTINCT IDENTITY
  - Redtail Ranch incorporates unique characteristics that serve as identifiers for residents, such as distinct streetscape elements along Redtail Parkway, architectural styles, and unique park elements.

COMPREHENSIVE PLAN POLICIES

GROWTH MANAGEMENT

- GM 3.1
  - NEW DEVELOPMENT WILL BE REQUIRED TO PAY ITS FAIR AND PROPORTIONATE SHARE OF THE COST OF SERVICES.

HOUSING AND NEIGHBORHOODS

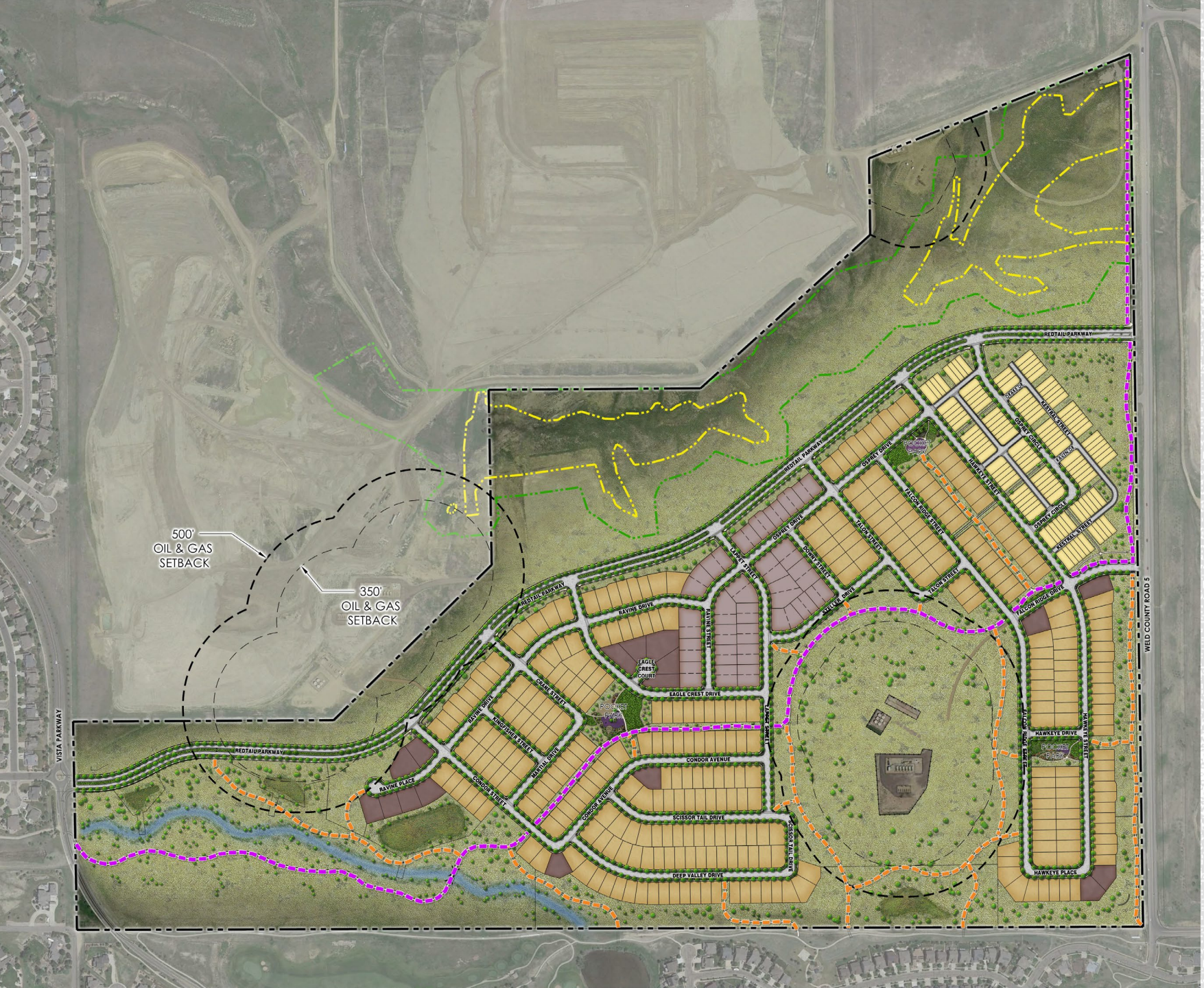
- HN 3.1
  - MIX OF HOUSING TYPES AND DENSITIES
- HN 3.2
  - ENCOURAGING HOUSING THAT MEETS THE DIVERSE NEEDS OF RESIDENTS

OPEN SPACE

- OS 1.1
  - COMPLIANCE WITH PROST MASTER PLAN WITH SPINE TRAIL CONNECTIONS

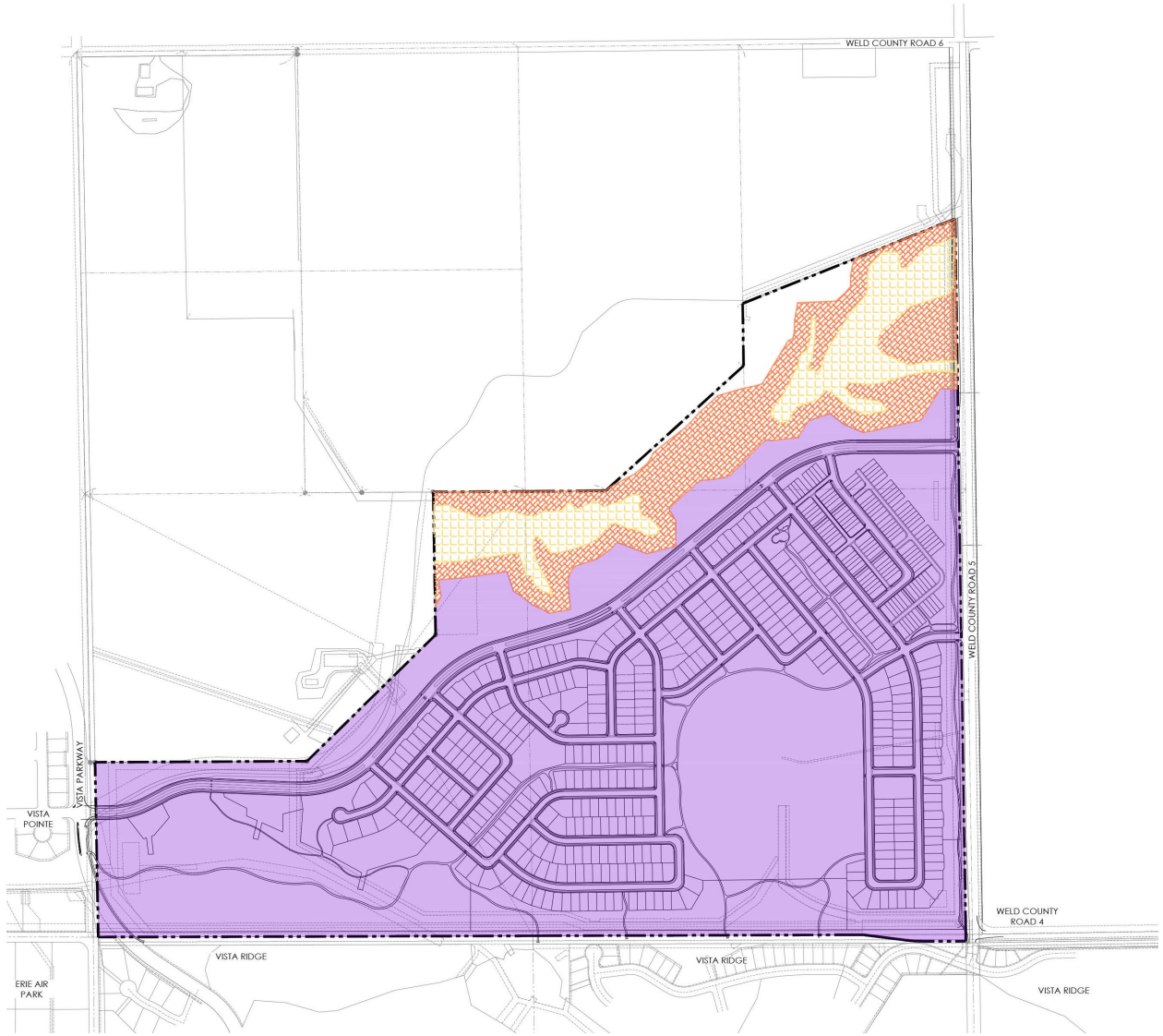
RURAL RESIDENTIAL

- RR 1.1-CHARACTERISTICS
  - BLEND IN WITH ADJACENT DEVLOPMENTS USING A VARIETY OF SIMILAR LOT TYPES
- RR 1.2 – DENSITY RANGE (0-2 DU/AC)
  - PROPOSED REDTAIL RANCH PLAN IS 1.8 DU/AC
- RR 1.4 – OPEN SPACE
  - PROVIDE STRONG CONNECTIONS TO OPEN SPACE & TRAILS NETWORK
- RR 1.6 - LANDFILL RELATIONSHIPS:
  - ENCOURAGED TO CLUSTER PRODUCTS TO CREATE OPEN SPACE BUFFER FROM LANDFILL



THANK YOU!

QUESTIONS?



LEGEND

- PROPERTY BOUNDARY
- ENVIRONMENTAL AREA (17.30 ACRES)
- ENVIRONMENTAL AREA SETBACK (28.47 ACRES)
- NO ACTION DETERMINATION (242.68 ACRES)

ENVIRONMENTAL CLEANUP

- LANDFILLED WASTE IN 1960s.
- WASTE DISCOVERED IN 2016.
- EPA APPROVED DRUM AND CONTAMINATED SOIL REMOVAL COMPLETED IN 2018.
- CDPHE APPROVED LANDFILL CLOSURE AND SITE REMEDIATION PLAN IN MAY 2020 (INCLUDING WASTE AREA SETBACK).
- LANDFILL COVER SYSTEM CONSTRUCTION SCHEDULED FOR 2024.
- TOWN'S CONSULTANT REVIEWED THE PLAN AND PROVIDED INPUT.
- EXISTING REDTAIL RANCH METRO DISTRICT WILL OWN AND MAINTAIN THE CLOSED LANDFILL AREA AND THE SETBACK AREA IN PERPETUITY.
- THE ENVIRONMENTAL AREA AND SET BACK WILL GET TRANSFERRED TO THE METRO DISTRICT AFTER COMPLETION OF CAP CONSTRUCTION AND REDTAIL RANCH METRO DISTRICT WILL BE RESPONSIBLE FOR ONGOING MONITORING AND COMPLIANCE WITH CDPHE REQUIREMENTS AFTER TRANSFER.
- NO ACTION PETETION SUBMITTED AND APPROVED DECEMBER 11, 2020
- THE ENVIRONMENTAL ASSESSMENT SUBMITTED BY THE APPLICANT AND PERFORMED BY QUALIFIED ENVIRONMENTAL PROFESSIONALS INDICATES THAT THERE IS NO EVIDENCE OF CONTAMINATION RELEASED INTO THE ENVIRONMENT FROM THE APPLICANT'S PROPERTY THAT IS THE SUBJECT OF THE NO ACTION DETERMINATION, THAT EXCEEDS APPLICABLE PROMULGATED STATE STANDARDS OR WHICH POSES AN UNACCEPTABLE RISK TO HUMAN HEALTH AND THE ENVIRONMENT.

REDTAIL RANCH PRELIMINARY PLAT
SUMMARY OF CHANGES
June 20, 2024

In response to comments made by the Town Council on April 23, 2024, the following changes have been made to the Preliminary Plat application.

1. Neighborhood Meeting
   Due to the length of time since our last neighborhood meeting, Stratus held an in-person neighborhood meeting on June 13, 2024 to present the updated plan and solicit community feedback. Approximately 20 neighbors attended the meeting and there was a good dialogue about the revised site plan, trail connections, traffic management, specifically landfill truck traffic along CR 4 and CR 5, oil and gas and the environmental clean-up process.

2. Oil and Gas Setback.
   - The oil and gas setback has increased from 350 feet to 500 feet resulting in the loss of 63 (11%) homesites. The total number of homesites in the Preliminary Plat has been reduced from 587 to 524. The Parks and Open Space areas remain the same.
   - The Comprehensive Plan allows for up to 2 dwelling units per acre in the Rural Residential Land Use and the Unified Development Code allows for up to 5 dwelling units per acre in the Low-Density Residential Zone District. The Redtail Ranch Preliminary Plat shows 1.8 dwelling units per acre.
   - All other development standards comply with the UDC including density, housing diversity, lot sizes, setbacks, parks and open space dedications, trail connections and roadway connections.

3. Spine trail.
   The portion of the spine trail located in Tract AA has been shifted approximately 150 feet further away (north) from the oil and gas facilities.

4. Traffic calming features along Redtail Parkway.
   The plans show two speed feedback signs along the road. In addition, we may include speed table designs on the final civil plans as recommended by Town staff.

5. Traffic Signal at Redtail Parkway and County Road 5.
   Redtail Ranch will contribute its fair share towards a traffic signal at Redtail Parkway and County Road 5 when warranted. This will be memorialized in the Development Agreement.

6. Vista Parkway/Roundabout landscape maintenance.
   Stratus has met with the Vista Pointe Homeowners Association to determine if there are landscape tracts that are currently being maintained by the Vista Pointe HOA that would be suitable for maintenance by Redtail Ranch. Redtail Ranch agrees with Vista Pointe that the landscape tracts east of Vista Parkway should be maintained by Redtail Ranch and will work with them on transitioning maintenance obligations when appropriate.

7. Environmental Disclosures.
   Stratus will work with staff on an appropriate disclosure notice for the clean-up area on the north side of the property. The notice will be provided utilizing the same process and notification areas as required for oil and gas in the UDC. In addition, the property owner will work with staff to agree on restrictions to be placed of record that requires installation of an appropriate vapor mitigation (i.e., radon) system in all structures as well as prohibition of the use or withdrawal of groundwater.

PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021

CERTIFICATE OF DEDICATION AND OWNERSHIP

KNOW ALL MEN THESE PRESENTS THAT THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, OR LIEN HOLDERS OF CERTAIN LANDS IN THE TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

PORTIONS OF W1/2 NE1/4, E1/2 NE1/4 AND S 1/2 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE EAST QUARTER CORNER OF SAID SECTION 29; THENCE S89°53'54"W, ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, A DISTANCE OF 40.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 5 (80' WIDE) AS DESCRIBED AT RECEPTION NO. 1973755 IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE S00°33'04"E, ALONG SAID WESTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2628.75 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF A 60' WIDE RIGHT-OF-WAY AS DESCRIBED IN BOOK 86 AT PAGE 273 AS RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO, THENCE N89°52'25"W, ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2582.89 FEET TO A POINT; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, N89°51'56"W, A DISTANCE OF 2592.85 FEET TO A POINT ON THE EASTERLY LINE OF A 60' WIDE RIGHT-OF-WAY LINE AS DESCRIBED IN SAID BOOK 86 AT PAGE 273; THENCE N00°46'44"W, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1011.94 FEET TO A POINT ON THE SOUTH LINE OF A PARCEL OF LAND AS DESCRIBED AT RECEPTION NO. 2360787, RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO; THENCE TRAVELING ALONG THE SOUTH AND EASTERLY PORTION OF SAID PARCEL OF LAND, THE FOLLOWING (3) THREE COURSES:

1. S89°59'07"E, A DISTANCE OF 1264.97 FEET TO A POINT;
2. N45°48'01"E, A DISTANCE OF 1075.96 FEET TO A POINT;
3. N00°40'10"W, A DISTANCE OF 850.48 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29;

THENCE N89°55'44"E, ALONG SAID NORTH LINE, A DISTANCE OF 549.46 FEET TO A POINT ON THE WEST HALF OF THE WEST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE CONTINUING ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, N89°55'15"E, A DISTANCE OF 479.08 FEET TO A POINT; THENCE N48°09'00"E, A DISTANCE OF 1110.81 FEET TO A POINT ON THE WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE N00°36'26"W, ALONG SAID WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 370.76 FEET TO A POINT ON THE SOUTHERLY LINE OF RIGHT-OF-WAY (60' WIDE) AS DESCRIBED IN BOOK 868 AT PAGE 89 AND AT RECEPTION NO. 1687926 AS RECORDED IN WELD COUNTY COLORADO; THENCE N68°34'00"E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1364.75 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 5; THENCE S00°32'52"E, ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 1607.21 FEET TO THE POINT OF BEGINNING.

CONTAINS A TOTAL AREA OF 12,628,490 SQUARE FEET (289.910 ACRES), MORE OR LESS

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, BLOCKS, TRACTS, STREETS, AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF REDTAIL RANCH FILING NO. 1. ALL PUBLIC WAYS AND OTHER PUBLIC RIGHTS-OF-WAY, LANDS, EASEMENTS AND OTHER DESIGNATED PUBLIC IMPROVEMENTS SHOWN HEREON ARE DEDICATED TO THE TOWN OF ERIE AND THE PUBLIC, COLORADO, FOR PUBLIC USES AND PURPOSES SHOWN HEREON.

OWNER: STRATUS COMPANIES

BY: _____

ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2021,

BY _____

WITNESS MY HAND AND OFFICIAL SEAL:

_____ _____ (SEAL)
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

VICINITY MAP

SCALE: 1" = 2000'

SURVEYOR'S CERTIFICATE

I, PAUL B. GROVES, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON APRIL 28, 2015, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:50,000 (SECOND ORDER); AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISIONS OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS _____ DAY OF _____, 2021.

_____
PAUL B. GROVES – ON BEHALF OF KING SURVEYORS
COLORADO LICENSED PROFESSIONAL
LAND SURVEYOR #38209

NOTES

1. DISTANCES ARE MARKED IN U.S. SURVEY FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (0.00') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.

2. THE LOCATION OF THE PROPERTY LINES SHOWN ON THE FACE OF THIS PLAT ARE BASED ON THE DESCRIPTION AND INFORMATION FURNISHED BY THE CLIENT, TOGETHER WITH THE TITLE COMMITMENT. THE PARCEL WHICH IS DEFINED MAY NOT REFLECT ACTUAL OWNERSHIP, BUT REFLECTS WHAT WAS SURVEYED. FOR OWNERSHIP, CONSULT YOUR TITLE COMPANY.

3. COMPARE THIS PLAT, LEGAL DESCRIPTION AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.

4. THIS LAND SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY CWC CONSULTING GROUP, INC. TO DETERMINE OWNERSHIP OF THIS TRACT, VERIFY THE DESCRIPTION SHOWN, VERIFY THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF ADJACENT TRACTS, OR VERIFY EASEMENTS OF RECORD. REFERENCE IS MADE TO LAND TITLE GUARANTEE INSURANCE COMPANY COMMITMENT NUMBER: 25165646, WITH AN EFFECTIVE DATE OF APRIL 8, 2021 FROM WHICH THIS SURVEY IS BASED. THIS PROPERTY IS SUBJECT TO ALL COVENANTS AND RESTRICTIONS RELATING TO THE USE AND CHARACTER OF THE LAND AND ALL MATTERS APPEARING OF PUBLIC RECORD AND AS MAY BE DISCLOSED BY A MORE RECENT TITLE COMMITMENT OR REPORT.

5. ALL REFERENCES HEREON TO BOOKS, PAGES, MAPS AND RECEPTION NUMBERS ARE PUBLIC DOCUMENTS FILED IN THE RECORDS OF THE BOULDER COUNTY CLERK AND RECORDER'S OFFICE.

6. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.

7. BASIS OF BEARINGS: ALL BEARINGS ARE BASED ON THE EAST LINE OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, SAID TO BEAR S00°51'06"E, A DISTANCE OF 5317.82', FROM THE NORTHEAST CORNER OF SECTION 29 BEING MONUMENTED BY A 3.25" ALUMINUM CAP, 0.3' DOWN IN A RANGE BOX WITH A LID AT THE INTERSECTION OF WELD COUNTY ROADS 5 AND 6, STAMPED "T1N R68W, 20|21, --, 29|28, 1998, LS13155" TO THE SOUTHEAST CORNER OF SECTION 29 BEING MONUMENTED BY A 2.5" ALUMINUM CAP, 0.3' BELOW GROUND SURFACE, IN A RANGE BOX WITH NO LID AT THE INTERSECTION OF WELD COUNTY ROADS 5 AND 4, STAMPED "GREENHORNE O'MARA INC., T1N R68W, 29|28, -*-, 32|33, PLS 28656, 1993".

8. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

9. DEFINITION: CERTIFY, CERTIFICATION – A PROFESSIONAL'S OPINION BASED ON HIS OR HER OBSERVATION OF CONDITIONS, KNOWLEDGE, INFORMATION AND BELIEFS. IT IS EXPRESSLY UNDERSTOOD THAT THE PROFESSIONAL'S CERTIFICATION OF A CONDITION'S EXISTENCE RELIEVES NO OTHER PARTY OF ANY RESPONSIBILITY OR OBLIGATION HE OR SHE HAS ACCEPTED BY CONTRACT OR CUSTOM.

10. CWC CONSULTING GROUP, INC. DOES NOT WARRANT THAT THE PARCEL, AS DESCRIBED HEREON, COMPLIES WITH COLORADO SENATE BILL 35. (30-28-101).

11. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

12. A PART OF THE PROPERTY IS LOCATED WITHIN "OTHER AREAS – ZONE X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS IDENTIFIED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP – COMMUNITY PANEL NUMBERED 08013C0443J WITH AN EFFECTIVE DATE OF DECEMBER 18, 2012. THE REMAINDER OF THE PROPERTY LIES WITHIN THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP – COMMUNITY PANEL NUMBERED 08013C0444J WHERE NO SPECIAL FLOOD HAZARD AREAS HAVE BEEN IDENTIFIED. THIS PANEL HAS NOT BEEN PRINTED.

13. THE UNDERSIGNED, AS OWNER OF THE LANDS DESCRIBED HEREIN, ARE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL DRAINAGE EASEMENTS SHOWN HEREON AND RELATED DRAINAGE FACILITIES, AS PROVIDED IN THE TOWN OF ERIE ENGINEERING STANDARDS AND SPECIFICATIONS, AS AMENDED. THE UNDERSIGNED GRANTS THE TOWN OF ERIE A PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTY TO INSPECT, MAINTAIN OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITY COVERED BY THE ERIE MUNICIPAL CODE, AS AMENDED; AND TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES, WHEN THE OWNER FAILS TO ADEQUATELY MAINTAIN SUCH DRAINAGE EASEMENTS AND RELATED FACILITIES, WHICH INSPECTION, MAINTENANCE, OPERATION AND RECONSTRUCTION SHALL BE AT THE COST OF THE OWNER.

14. REDTAIL RANCH PRELIMINARY PLAT NO. 1 IS UNDERMINED. TO REDUCE RISK OF SUBSIDENCE-RELATED DAMAGE, NO BUILDING OR BUILDING SEGMENT MAY EXCEED 115 FEET IN LENGTH OR WIDTH. STRUCTURES ARE LIMITED TO TWO STORIES IN HEIGHT AND MUST BE CONSTRUCTED USING WOOD OR METAL FRAMING.

THE SUBSIDENCE HAZARD AND MITIGATION RECOMMENDATIONS ARE DESCRIBED IN MINE SUBSIDENCE INVESTIGATION, PRATT PROPERTY, APPROXIMATELY 330 ACRES IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST, ERIE, COLORADO (WESTERN ENVIRONMENT AND ECOLOGY, SEPTEMBER 19, 2014). THIS REPORT IS ON FILE WITH THE TOWN OF ERIE PLANNING AND DEVELOPMENT DEPARTMENT, FILE NO. SJ-14-00034

15. AN AVIGATION EASEMENT WILL BE ESTABLISHED ON THE FINAL PLAT AS PER PRATT 2 PROPERTY ANNEXATION AGREEMENT RECORDED MAY 14, 2007 AT RECEPTION NO. 3475773.

TRACT OWNERSHIP, MAINTENANCE AND EASEMENTS

OWNERSHIP OF TRACTS A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA AND BB SHALL BE DEEDED TO THE HOMEOWNER'S ASSOCIATION
I) CONCURRENTLY WITH THE RECORDATION OF THE FINAL PLAT OR
II) AT THE TIME OF ESTABLISHMENT OF THE HOMEOWNER'S ASSOCIATION, WHICHEVER EVENT OCCURS LATER IN TIME.

ALL DRAINAGE FACILITIES WITHIN TRACTS A, B, N, P, W, X, Y, Z, AA AND BB SHALL BE OWNED, OPERATED AND MAINTAINED BY THE DISTRICT AND HOMEOWNER'S ASSOCIATION.

THE AREA WITHIN TRACTS C AND F ARE HEREBY DEDICATED FOR ALLEY PURPOSES AS PUBLIC ACCESS EASEMENT.

THE AREA WITHIN TRACTS A, B, C, F, N, P, W, X, Y, Z, AA AND BB ARE HEREBY DEDICATED AS EASEMENTS FOR THE PURPOSES IDENTIFIED ON THE PLAT.

A BLANKET PUBLIC ACCESS EASEMENT IS GRANTED ACROSS TRACTS A, B, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, BB, CC, DD, AND FF.

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com

JOB NO. 20210661

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK
6/27/23	REVISED SUBDIVISION PER COMMENTS	CSK
5/30/24	REDESIGN SUBDIVISION	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES

SHEET NO. 1 OF 18 SHEETS

N:\2021066\DWG\20210661SUB.dwg, 6/4/2024 2:59:21 PM, 1:1

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PRELIMINARY PLAT
REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021

LAND SUMMARY CHART			
TYPE	AREA (SF)	AREA (AC)	% OF TOTAL AREA
LOTS (524)	3,006,634	69.023	24%
TRACTS (32)	7,757,013	178.076	61%
R.O.W.	1,864,843	42.811	15%
TOTAL:	12,628,490	289.910	100%

EASEMENTS TO BE VACATED AT TIME OF FINAL PLAT BY SEPARATE INSTRUMENT	
DESCRIPTION:	RECEPTION NO.
10' PIPELINE RIGHT OF WAY GRANT	2331353
20' TEMPORARY CONSTRUCTION MAINTENANCE EASEMENT (T.C.M.E.)	4131491 (ONLY THE T.C.ME. IS TO BE VACATED)
A PORTION OF THE 75' R.O.W. CHICAGO BURLINGTON QUINCY RAILROAD	BOOK 541, PAGE 524 REC. NO. 545994-PRINT 49314 1/2

ALL OTHER EXISTING EASEMENTS TO REMAIN

TRACT SUMMARY CHART				
NAME	AREA (SF)	AREA (AC)	USE	OWNER
TRACT A	3,254,685	74.717	DRAINAGE, LANDSCAPE, OIL & GAS	DISTRICT & HOA
TRACT B	263,462	6.048	DRAINAGE, LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT C	43,518	0.999	ACCESS, UTILITIES, ALLEYS, PUBLIC ACCESS EASEMENT	HOA
TRACT D	3,150	0.072	LANDSCAPE	DISTRICT & HOA
TRACT E	8,928	0.205	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	HOA
TRACT F	3,150	0.072	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT G	18,992	0.436	LANDSCAPE	DISTRICT & HOA
TRACT H	3,570	0.082	LANDSCAPE	HOA
TRACT I	3,570	0.082	LANDSCAPE	HOA
TRACT J	35,881	0.824	ACCESS, UTILITIES, ALLEYS, PUBLIC ACCESS EASEMENT	HOA
TRACT K	3,150	0.072	LANDSCAPE	HOA
TRACT L	3,150	0.072	LANDSCAPE	HOA
TRACT M	20,418	0.469	LANDSCAPE	DISTRICT & HOA
TRACT N	33,653	0.773	POCKET PARK, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT O	60,977	1.400	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT P	18,266	0.419	LANDSCAPE	DISTRICT & HOA
TRACT Q	35,643	0.818	LANDSCAPE	DISTRICT & HOA
TRACT R	13,568	0.311	LANDSCAPE	DISTRICT & HOA
TRACT S	17,992	0.413	LANDSCAPE	DISTRICT & HOA
TRACT T	56,682	1.301	DRAINAGE & PEDESTRIAN ACESS EASEMENT AND LANDSCAPE	DISTRICT & HOA
TRACT U	82,446	1.893	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT V	60,569	1.390	DRAINAGE	DISTRICT & HOA
TRACT W	31,010	0.712	DRAINAGE	DISTRICT & HOA
TRACT X	1,281,953	29.430	DRAINAGE, UTILITY, PEDESTRIAN ACCESS EASEMENT, AND PUBLIC OPEN SPACE	TOWN OF ERIE
TRACT Y	98,273	2.256	DRAINAGE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT Z	474,719	10.898	DRAINAGE, UTILITY, PEDESTRIAN ACCESS EASEMENT, AND LANDSCAPE	DISTRICT & HOA
TRACT AA	1,452,101	33.336	DRAINAGE, LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT BB	30,819	0.708	POCKET PARK, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT CC	134,124	3.079	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT DD	140,460	3.225	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT EE	5,476	0.126	UTILITIES EASEMENT AGREEMENT REC. NO. 2892721 AND DRAINAGE, LANDSCAPE	TOWN OF ERIE
TRACT FF	62,656	1.438	POCKET PARK, DRAINAGE & PEDESTRIAN ACESS EASEMENT	DISTRICT & HOA
TOTAL	7,757,013	178.076		

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FAX 303-395-2701
CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK
6/27/23	REVISED SUBDIVISION PER COMMENTS	CSK
5/30/24	REDESIGN SUBDIVISION	CSK

DRAFTED: S.L.G.S | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 2 OF 18 SHEETS

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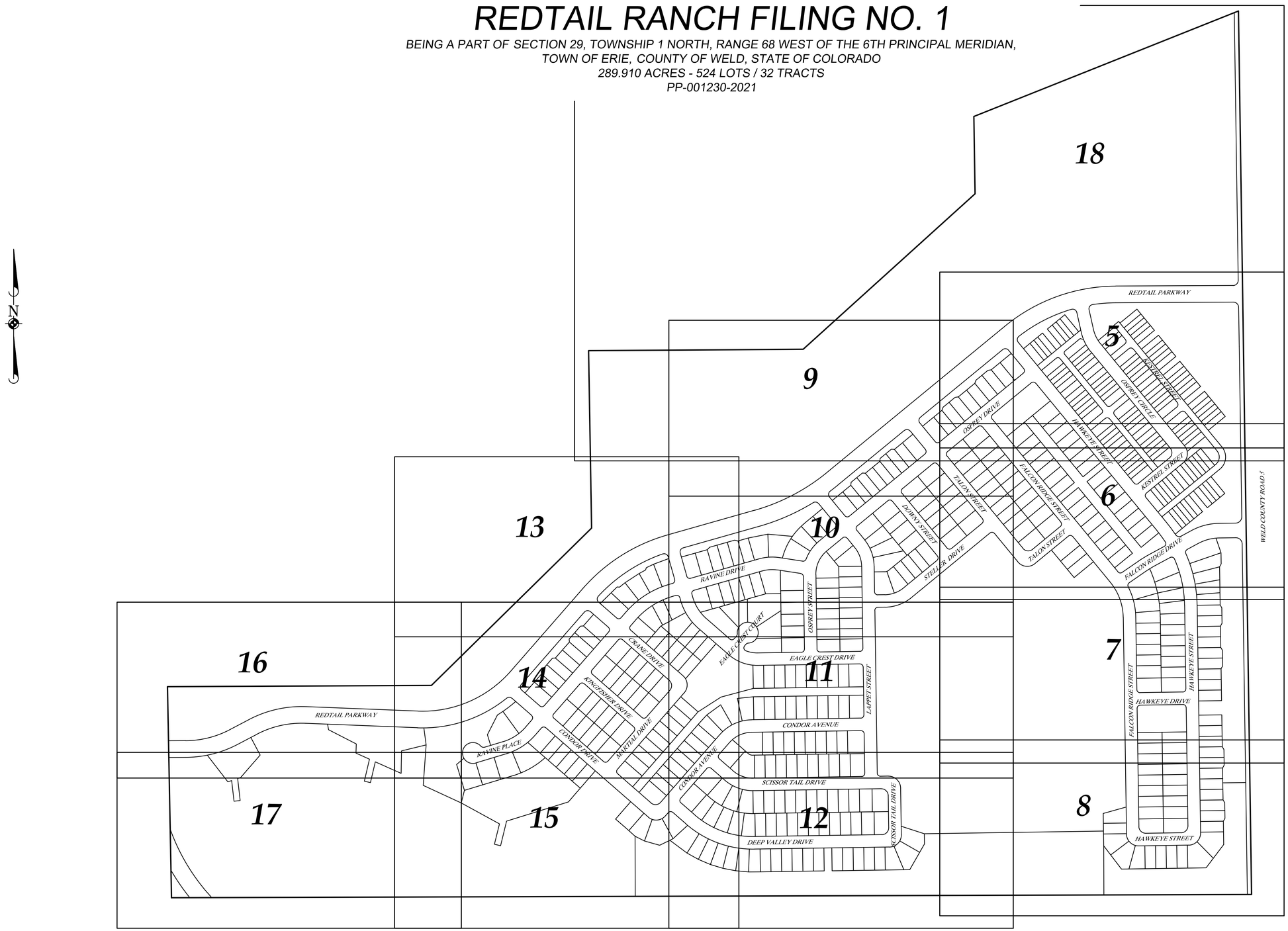
PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021



KEY MAP
NOT TO SCALE

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FAX 303-395-2701
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK
6/27/23	REVISED SUBDIVISION PER COMMENTS	CSK
5/30/24	REDESIGN SUBDIVISION	CSK

DRAFTED: S.L.G.S | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 3 OF 18 SHEETS

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N:\20210661\DWG\20210661SUB.dwg Date:06/04/24 02:59p carol

PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021

LINE TABLE

LINE	BEARING	LENGTH
L1	N41°06'00"E	21.34'
L2	N16°50'01"W	20.00'
L3	S44°08'42"W	13.50'
L4	S89°08'42"W	37.80'
L5	N41°06'00"E	9.40'
L6	S41°06'00"W	16.76'
L7	S84°57'50"E	11.25'
L8	N15°51'19"W	58.27'
L9	N15°51'19"W	13.27'
L10	S15°51'19"E	13.27'
L11	N74°08'41"E	15.27'
L12	S74°08'41"W	15.27'
L13	S89°08'42"W	79.06'
L14	S89°08'42"W	34.06'
L15	N89°08'42"E	34.06'
L16	S29°08'45"W	16.00'
L17	S30°51'20"E	16.00'
L18	N71°16'33"E	18.96'
L19	N71°16'33"E	14.97'
L20	N83°27'51"E	30.00'
L21	N10°57'29"W	27.35'
L22	S02°00'58"W	44.21'
L23	S76°47'54"E	30.00'
L24	S76°16'29"E	30.00'
L25	S41°04'57"E	27.63'
L26	S05°33'56"W	13.92'
L27	S47°29'35"E	40.50'
L28	N64°15'22"E	54.77'
L29	N64°13'13"E	16.91'
L30	S45°51'18"E	13.50'
L31	S00°51'18"E	49.23'
L32	S49°35'17"W	46.29'
L33	S16°50'01"E	53.65'
L34	N86°06'00"E	13.50'
L35	N03°54'00"W	14.14'
L36	N86°06'00"E	14.14'
L37	N03°54'00"W	14.14'
L38	N86°06'00"E	14.14'
L39	N51°49'38"E	33.94'
L40	N61°08'57"E	35.23'
L41	N44°08'41"E	16.00'
L42	S75°51'19"E	16.00'
L43	N89°08'42"E	49.06'
L44	N05°33'56"E	14.14'
L45	S84°26'04"E	14.14'
L46	N05°33'56"E	14.14'
L47	S84°26'04"E	14.14'
L48	N20°33'56"E	16.00'
L49	N80°33'56"E	16.00'
L50	S29°08'45"W	16.00'
L51	N20°33'56"E	16.00'
L52	N80°33'56"E	16.00'
L53	S30°51'20"E	16.00'
L54	S29°08'45"W	16.00'
L55	S13°55'50"W	62.43'
L56	S45°51'18"E	13.50'
L57	S30°51'18"E	16.00'
L58	S29°08'42"W	16.00'
L59	S30°51'18"E	16.00'
L60	S29°08'42"W	16.00'
L61	N50°33'56"E	30.00'
L62	N74°58'35"W	17.45'
L63	S89°08'42"W	38.00'
L64	S39°26'04"E	30.00'
L65	S39°28'28"E	30.00'
L66	S39°26'04"E	30.00'
L67	N39°26'04"W	30.00'
L68	S39°26'04"E	30.00'
L69	S39°28'28"E	30.00'
L70	S39°28'28"E	30.00'
L71	S03°54'00"E	13.50'
L72	N17°32'50"E	11.25'
L73	S39°28'28"E	30.00'
L74	S84°26'04"E	13.50'
L75	N64°14'58"E	38.85'
L76	S50°33'56"W	30.00'
L77	N55°54'41"E	50.22'
L78	N50°33'56"E	30.00'
L79	N44°08'42"E	13.50'

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C1	239.28'	500.00'	27°25'08"	237.00'	N75°59'17"E
C2	220.13'	460.00'	27°25'08"	218.04'	N75°59'17"E
C3	258.42'	540.00'	27°25'08"	255.96'	N75°59'17"E
C4	103.81'	540.00'	11°00'52"	103.65'	N84°11'25"E
C5	154.61'	540.00'	16°24'16"	154.08'	N70°28'51"E
C6	261.65'	500.00'	29°59'00"	258.68'	S77°16'13"W
C7	282.59'	540.00'	29°59'00"	279.37'	S77°16'13"W
C8	240.72'	460.00'	29°59'00"	237.98'	S77°16'13"W
C9	535.77'	600.00'	51°09'43"	518.14'	N66°40'51"E
C10	471.65'	600.00'	45°02'21"	459.60'	N69°44'32"E
C11	64.12'	600.00'	6°07'22"	64.09'	N44°09'41"E
C12	500.05'	560.00'	51°09'43"	483.60'	N66°40'51"E
C13	460.39'	640.00'	41°12'57"	450.52'	N71°39'14"E
C14	31.01'	640.00'	2°46'36"	31.01'	S89°07'35"E
C15	429.37'	640.00'	38°26'22"	421.36'	N70°15'56"E
C16	27.94'	20.00'	80°03'14"	25.73'	N88°55'37"W
C17	31.84'	20.00'	91°12'54"	28.58'	S03°17'33"E
C18	13.57'	640.00'	1°12'54"	13.57'	N41°42'27"E
C19	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C20	108.22'	654.63'	9°28'18"	108.10'	N53°30'58"E
C21	30.69'	654.63'	2°41'10"	30.69'	N56°54'31"E
C22	77.53'	654.63'	6°47'08"	77.48'	N52°10'23"E
C23	43.42'	230.00'	10°49'02"	43.36'	N46°30'31"E
C24	85.30'	230.00'	21°14'57"	84.81'	N62°32'30"E
C25	20.64'	18.00'	65°41'03"	19.52'	S73°59'30"E
C26	214.40'	50.00'	245°41'03"	84.02'	S16°00'30"W
C27	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C28	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C29	145.51'	260.00'	32°03'59"	143.62'	N57°07'59"E
C30	128.72'	230.00'	32°03'59"	127.05'	N57°07'59"E
C31	147.84'	50.00'	169°24'54"	99.57'	S54°08'35"W
C32	66.56'	50.00'	76°16'09"	61.75'	S68°41'57"E
C33	162.30'	290.00'	32°03'59"	160.19'	N57°07'59"E
C34	47.97'	290.00'	9°28'38"	47.91'	N45°50'19"E
C35	86.95'	290.00'	17°10'44"	86.62'	N59°10'00"E
C36	27.38'	290.00'	5°24'37"	27.37'	N70°27'40"E
C37	91.11'	58.00'	90°00'00"	82.02'	N45°51'18"W
C38	48.69'	62.00'	45°00'00"	47.45'	S61°56'04"E
C39	48.69'	62.00'	45°00'00"	47.45'	N73°03'56"E
C40	359.84'	960.00'	21°28'35"	357.74'	S30°20'39"E
C41	264.24'	1000.00'	15°08'23"	263.47'	S33°06'37"E
C42	160.01'	1040.00'	8°48'56"	159.85'	S34°24'54"E
C43	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C44	176.00'	400.00'	25°12'37"	174.58'	N60°33'40"E
C45	37.77'	400.00'	5°24'37"	37.76'	N70°27'40"E
C46	138.23'	400.00'	19°48'00"	137.54'	N57°51'22"E
C47	51.84'	33.00'	90°00'00"	46.67'	S45°51'18"E
C48	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C49	98.96'	63.00'	90°00'00"	89.10'	N86°06'00"E
C50	49.48'	63.00'	45°00'00"	48.22'	S71°24'00"E
C51	49.48'	63.00'	45°00'00"	48.22'	N63°36'00"E
C52	91.11'	58.00'	90°00'00"	82.02'	N86°06'00"E
C53	21.67'	58.00'	21°24'19"	21.54'	S59°36'10"E
C54	48.95'	58.00'	48°21'32"	47.51'	N85°30'55"E
C55	20.48'	58.00'	20°14'09"	20.38'	N51°13'04"E
C56	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C57	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C58	333.17'	455.00'	41°57'17"	325.78'	S69°52'39"E
C59	311.21'	425.00'	41°57'17"	304.30'	S69°52'39"E
C60	70.58'	315.00'	12°50'17"	70.43'	S55°19'09"E
C61	77.99'	315.00'	14°11'06"	77.79'	S68°49'50"E
C62	79.41'	315.00'	14°26'36"	79.20'	S83°08'41"E
C63	2.69'	315.00'	0°29'19"	2.69'	N89°23'22"E
C64	31.97'	315.00'	5°48'57"	31.96'	S51°48'29"E
C65	355.14'	485.00'	41°57'17"	347.26'	S69°52'39"E

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C66	8.76'	485.00'	1°02'03"	8.75'	S49°25'02"E
C67	68.14'	485.00'	8°02'57"	68.08'	S53°57'32"E
C68	50.90'	485.00'	6°00'45"	50.87'	S60°59'23"E
C69	50.90'	485.00'	6°00'45"	50.87'	S67°00'08"E
C70	50.90'	485.00'	6°00'45"	50.87'	S73°00'54"E
C71	50.90'	485.00'	6°00'45"	50.87'	S79°01'39"E
C72	50.90'	485.00'	6°00'45"	50.87'	S85°02'24"E
C73	23.78'	485.00'	2°48'32"	23.77'	S89°27'02"E
C74	98.96'	63.00'	90°00'00"	89.10'	S45°51'18"E
C75	49.48'	63.00'	45°00'00"	48.22'	S68°21'18"E
C76	49.48'	63.00'	45°00'00"	48.22'	S23°21'18"E
C77	91.11'	58.00'	90°00'00"	82.02'	S45°51'18"E
C78	16.37'	58.00'	16°10'10"	16.31'	S82°46'12"E
C79	37.92'	58.00'	37°27'45"	37.25'	S55°57'15"E
C80	36.81'	58.00'	36°22'04"	36.20'	S19°02'20"E
C81	51.84'	33.00'	90°00'00"	46.67'	N44°08'42"E
C82	98.96'	63.00'	90°00'00"	89.10'	N44°08'42"E
C83	49.48'	63.00'	45°00'00"	48.22'	N21°38'42"E
C84	49.48'	63.00'	45°00'00"	48.22'	N66°38'42"E
C85	51.00'	315.00'	9°16'35"	50.94'	S59°21'15"E
C86	51.00'	315.00'	9°16'35"	50.94'	S68°37'50"E
C87	51.00'	315.00'	9°16'35"	50.94'	S77°54'25"E
C88	45.69'	315.00'	8°18'35"	45.65'	S86°42'00"E
C89	43.14'	425.00'	5°48'57"	43.12'	S51°48'29"E
C90	68.81'	425.00'	9°16'35"	68.73'	S59°21'15"E
C91	68.81'	425.00'	9°16'35"	68.73'	S68°37'50"E
C92	68.81'	425.00'	9°16'35"	68.73'	S77°54'25"E
C93	61.64'	425.00'	8°18'35"	61.58'	S86°42'00"E
C94	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C95	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C96	128.14'	175.00'	41°57'17"	125.30'	S69°52'39"E
C97	106.18'	145.00'	41°57'17"	103.82'	S69°52'39"E
C98	19.86'	145.00'	7°50'55"	19.85'	S45°01'27"W
C99	101.73'	145.00'	40°11'47"	99.65'	S69°02'49"W
C100	150.11'	205.00'	41°57'17"	146.78'	S69°52'39"E
C101	2.69'	205.00'	0°45'02"	2.69'	N89°31'14"E
C102	50.74'	205.00'	14°10'53"	50.61'	S83°00'49"E
C103	50.75'	205.00'	14°11'06"	50.62'	S68°49'50"E
C104	45.93'	205.00'	12°50'17"	45.84'	S55°19'09"E
C105	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C106	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C107	98.96'	63.00'	90°00'00"	89.10'	N45°51'18"W
C108	91.11'	58.00'	90°00'00"	82.02'	N44°08'42"E
C109	30.98'	58.00'	30°36'09"	30.61'	N14°26'47"E
C110	25.63'	35.00'	41°57'17"	25.06'	S69°52'39"E
C111	51.84'	33.00'	90°00'00"	46.67'	N86°06'00"E
C112	51.84'	33.00'	90°00'00"	46.67'	N45°51'18"W
C113	146.75'	175.00'	48°02'43"	142.48'	S65°07'21"W
C114	171.90'	205.00'	48°02'43"	166.91'	S65°07'21"W
C115	18.37'	205.00'	5°08'04"	18.36'	S43°40'02"W
C116	55.75'	205.00'	15°34'57"	55.58'	S54°01'32"W
C117	52.59'	205.00'	14°41'56"	52.45'	S69°09'59"W
C118	45.19'	205.00'	12°37'46"	45.10'	S82°49'49"W
C119	121.59'	145.00'	48°02'43"	118.06'	S65°07'21"W
C120	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C121	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C122	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C123	51.84'	33.00'	90°00'00"	46.67'	N03°54'00"W
C124	98.96'	63.00'	90°00'00"	89.10'	N03°54'00"W
C125	23.56'	15.00'	90°00'00"	21.21'	N45°51'18"W
C126	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C127	49.48'	63.00'	45°00'00"	48.22'	N18°36'00"E
C128	49.48'	63.00'	45°00'00"	48.22'	N26°24'00"W
C129	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C130	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C131	91.11'	58.00'	90°00'00"	82.02'	N03°54'00"W
C132	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C133	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C134	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C135	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C136	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C137	230.70'	400.00'	33°02'41"	227.51'	S57°37'20"W
C138	213.39'	370.00'	33°02'41"	210.45'	S57°37'20"W
C139	15.43'	370.00'	2°23'22"	15.43'	S42°17'41"W
C140	88.63'	370.00'	13°43'27"	88.42'	S50°21'06"W
C141	59.78'	370.00'	9°15'24"	59.71'	S61°50'31"W
C142	49.56'	370.00'	7°40'27"	49.52'	S70°18'27"W
C143	23.56'	15.00'	90°00'00"	21.21'	N45°51'18"W
C144	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C145	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C146	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C147	128.14'	175.00'	41°57'17"	125.30'	S69°52'39"E
C148	57.18'	145.00'	22°35'38"	56.81'	S79°33'28"E
C149	28.63'	15.00'	109°21'39"	24.48'	S13°34'50"E
C150	150.11'	205.00'	41°57'17"	146.78'	S69°52'39"E
C151	22.63'	205.00'	6°19'35"	22.62'	S87°41'30"E
C152	127.48'	205.00'	35°37'43"	125.43'	S66°42'52"E
C153	64.11'	280.00'	13°07'06"	63.97'	S22°24'52"E
C154	56.50'	280.00'	11°33'43"	56.41'	S34°45'16"E
C155	40.88'	280.00'	8°21'53"	40.84'	S44°43'04"E
C156	14.17'	18.00'	45°05'57"	13.81'	S63°38'58"W
C157	235.79'	50.00'	270°11'54"	70.59'	N48°54'00"W
C158	45.18'	50.00'	51°46'40"	43.66'	N60°18'37"E
C159	59.38'	50.00'	68°02'30"	55.95'	N00°24'02"E
C160	49.85'	50.00'	57°07'42"	47.81'	N62°11'04"W
C161	53.03'	50.00'	60°46'10"	50.58'	S58°51'59"W
C162	28.34'	50.00'	32°28'51"	27.97'	S12°14'29"W
C163	14.17'	18.00'	45°05'57"	13.81'	N18°33'01"E
C164	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C165	144.18'	250.00'	33°02'41"	142.19'	S32°22'40"E
C166	126.88'	220.00'	33°02'41"	125.13'	S32°22'40"E
C167	43.14'	220.00'	11°14'09"	43.07'	S43°16'56"E
C168	83.74'	220.00'	21°48'32"	83.24'	S26°45'35"E
C169	161.49'	280.00'	33°02'41"	159.26'	S32°22'40"E
C170	248.00'	430.00'	33°02'41"	244.57'	S57°37'20"W
C171	15.43'	430.00'	2°03'21"	15.43'	S42°07'40"W
C172	65.08'	430.00'	8°40'18"	65.02'	S47°29'30"W
C173	23.56'	15.00'	90°00'00"	21.21'	S29°08'41"W
C174	23.56'	15.00'	90°00'00"	21.21'	S60°51'19"E
C175	23.56'	15.00'	90°00'00"	21.21'	N29°08'41"E
C176	23.56'	15.00'	90°00'00"	21.21'	N60°51'19"W
C177	65.08'	430.00'	8°40'18"	65.02'	S56°09'47"W
C178	65.08'	430.00'	8°40'18"	65.02'	S64°50'05"W
C179	37.33'	430.00'	4°58'27"	37.32'	S71°39'27"W
C180	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C181	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C182	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C183	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C184	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C185	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C186	288.44'	600.00'	27°32'39"	285.67'	N14°37'37"W
C187	253.98'	630.00'	23°05'53"	252.26'	N12°24'14"W
C188	31.42'	20.00'	90°00'00"	28.28'	S86°06'00"W
C189	31.95'	20.00'	91°32'06"	28.66'	S03°07'57"E
C190	373.65'	760.00'	28°10'08"	369.89'	S56°43'09"W
C191	32.58'	20.00'	93°20'27"	29.10'	N62°31'33"W
C192	461.39'	800.00'	33°02'41"	455.02'	S57°37'20"W
C193	484.46'	840.00'	33°02'41"	477.77'	S57°37'20"W
C194	31.42'	20.00'	90°00'00"	28.28'	S29°08'41"W
C195	51.96'	630.00'	4°43'33"	51.95'	N21°35'25"W

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C196	51.01'	630.00'	4°38'22"	51.00'	N16°54'27"W
C197	51.01'	630.00'	4°38'22"	51.00'	N12°16'05"W
C198	51.01'	630.00'	4°38'22"	51.00'	N07°37'43"W
C199	85.83'	200.00'	24°35'21"	85.17'	S86°26'21"W
C200	98.71'	230.00'	24°35'21"	97.95'	S86°26'21"W
C201	48.97'	630.00'	4°27'14"	48.96'	N03°04'55"W
C202	47.07'	230.00'	11°43'37"	46.99'	S80°00'29"W
C203	51.63'	230.00'	12°51'44"	51.52'	N87°41'51"W
C204	72.96'	170.00'	24°35'21"	72.40'	S86°26'21"W
C205	22.67'	315.00'	4°07'25"	22.67'	S01°12'25"W
C206	21.05'	15.00'	80°24'41"	19.37'	N41°03'38"W
C207	20.47'	15.00'	78°11'50"	18.92'	N59°38'06"E
C208	157.05'	175.00'	51°25'13"	151.84'	S24°51'19"W
C209	29.29'	175.00'	9°35'19"	29.25'	S03°56'22"W
C210	127.77'	175.00'	41°49'54"	124.95'	S29°38'58"W
C211	130.13'	145.00'	51°25'13"	125.81'	S24°51'19"W
C212	125.64'	145.00'	49°38'45"	121.75'	S23°58'05"W
C213	4.49'	145.00'	1°46'29"	4.49'	S49°40'41"W
C214	107.44'	205.00'	30°01'44"	106.22'	S35°33'04"W
C215	43.40'	205.00'	12°07'44"	43.32'	S26°36'04"W
C216	50.50'	205.00'	14°06'51"	50.37'	S39°43'21"W
C217	13.55'	205.00'	3°47'09"	13.54'	S48°40'21"W
C218	115.03'	315.00'	20°55'22"	114.39'	S24°39'36"W
C219	84.91'	315.00'	15°26'38"	84.65'	S42°50'36"W
C220	101.53'	315.00'	18°28'00"	101.09'	S23°25'55"W
C221	77.60'	315.00'	14°06'51"	77.40'	S39°43'21"W
C222	20.81'	315.00'	3°47'09"	20.81'	S48°40'21"W
C223	23.56'	15.00'	90°00'00"	21.21'	S44°08'42"W
C224	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C225	117.83'	175.00'	38°34'47"	115.62'	N69°51'19"E
C226	97.63'	145.00'	38°34'47"	95.80'	N69°51'19"E
C227	46.08'	145.00'	18°12'32"	45.89'	N80°02'26"E
C228	51.55'	145.00'	20°22'15"	51.28'	N60°45'03"E
C229	138.03'	205.00'	38°34'47"	135.44'	N69°51'19"E
C230	37.92'	58.00'	37°27'45"	37.25'	N48°28'44"E
C231	22.20'	58.00'	21°56'06"	22.07'	N78°10'39"E
C232	3.36'	630.00'	0°18'21"	3.36'	N33°24'21"W
C233	23.57'	35.00'	38°34'47"	23.12'	N69°51'19"E
C234	12.44'	35.00'	20°22'15"	12.38'	N60°45'03"E
C235	11.12'	35.00'	18°12'32"	11.08'	N80°02'26"E
C236	117.83'	175.00'	38°34'47"	115.62'	N20°08'41"W
C237	138.03'	205.00'	38°34'47"	135.44'	N20°08'41"W
C238	41.54'	205.00'	11°36'35"	41.47'	N06°39'35"W
C239	46.86'	205.00'	13°05'49"	46.76'	N19°00'47"W
C240	46.86'	205.00'	13°05'49"	46.76'	N32°06'36"W
C241	2.78'	205.00'	0°46'34"	2.78'	N39°02'47"W
C242	97.63'	145.00'	38°34'47"	95.80'	N20°08'41"W
C243	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C244	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C245	411.53'	1000.00'	23°34'45"	408.64'	N62°21'18"E
C246	314.33'	1000.00'	18°00'35"	313.04'	N65°08'23"E
C247	97.21'	1000.00'	5°34'10"	97.17'	N53°21'01"E
C248	395.07'	960.00'	23°34'45"	392.29'	N62°21'18"E
C249	283.25'	1040.00'	15°36'17"	282.38'	N66°20'32"E
C250	28.63'	20.00'	82°01'33"	26.25'	N80°26'51"W
C251	32.30'	20.00'	92°32'39"	28.91'	S06°50'15"W
C252	46.18'	1040.00'	2°32'39"	46.18'	N51°50'15"E
C253	227.75'	570.00'	22°53'36"	226.24'	N12°18'06"W
C254	67.37'	570.00'	6°46'19"	67.33'	N20°21'45"W
C255	31.42'	20.00'	90°00'00"	28.28'	N84°26'04"W
C256	31.42'	20.00'	90°00'00"	28.28'	S05°33'56"W
C257	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C258	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C259	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C260	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C261	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C262	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C263	97.39'	62.00'	90°00'00"	87.68'	S84°26'04"E
C264	51.84'	33.00'	90°00'00"	46.67'	S84°26'04"E
C265	91.11'	58.00'	90°00'00"	82.02'	S84°26'04"E
C266	18.45'	58.00'	18°13'35"	18.37'	N39°47'13"W
C267	72.66'	58.00'	71°46'25"	68.00'	N05°12'47"E
C269	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C270	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C271	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C272	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C273	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C274	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C275	31.42'	20.00'	90°00'00"	28.28'	N84°26'04"W
C276	31.92'	20.00'	91°27'01"	28.64'	S06°17'26"W
C277	546.58'	800.00'	39°08'46"	536.01'	S70°08'19"W
C278	329.45'	800.00'	23°35'42"	327.12'	S62°21'46"W
C279	217.14'	800.00'	15°33'05"	216.47'	S81°56'09"W
C280	573.91'	840.00'	39°08'46"	562.81'	S70°08'19"W
C281	76.59'	570.00'	7°41'55"	76.53'	N13°07'38"W
C282	61.62'	570.00'	6°11'37"	61.59'	N06°10'52"W
C283	22.18'	570.00'	2°13'46"	22.18'	N01°58'11"W
C284	51.00'	470.00'	6°13'03"	50.98'	S58°29'32"W
C285	39.52'	25.00'	90°33'44"	35.53'	N44°25'50"E
C286	39.02'	25.00'	89°26'16"	35.18'	N45°34'10"W
C287	22.13'	470.00'	2°41'53"	22.13'	S56°43'57"W
C288	28.87'	470.00'	3°31'10"	28.87'	S59°50'28"W
C289	151.29'	330.00'	26°16'01"	149.97'	N13°59'18"W
C290	68.05'	330.00'	11°48'57"	67.93'	N21°12'50"W
C291	61.70'	330.00'	10°42'43"	61.61'	N09°57'00"W
C292	21.54'	330.00'	3°44'21"	21.53'	N02°43'28"W
C293	181.80'	270.00'	38°34'47"	178.39'	N20°08'41"W
C294	98.96'	63.00'	90°00'00"	89.10'	N05°33'56"E
C295	49.48'	63.00'	45°00'00"	48.22'	N28°03'56"E
C296	49.48'	63.00'	45°00'00"	48.22'	N16°56'04"W
C297	122.75'	597.48'	11°46'17"	122.53'	N17°49'12"W
C298	85.39'	597.48'	8°11'20"	85.32'	N07°50'24"W
C299	29.21'	597.48'	2°48'04"	29.21'	N02°20'42"W
C300	69.00'	597.48'	6°37'01"	68.96'	N20°23'50"W
C301	53.75'	597.48'	5°09'16"	53.73'	N14°30'42"W
C302	51.00'	597.48'	4°53'27"	50.98'	N09°29'21"W
C303	51.00'	597.48'	4°53'27"	50.98'	N04°35'54"W
C304	12.60'	597.48'	1°12'31"	12.60'	N01°32'55"W
C305	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C306	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C307	88.10'	215.00'	23°28'42"	87.49'	S73°20'24"W
C308	15.26'	215.00'	4°04'00"	15.26'	S87°06'46"W
C309	91.11'	58.00'	90°00'00"	82.02'	N05°33'56"E
C310	61.80'	58.00'	61°02'43"	58.91'	N20°02'34"E
C311	29.31'	58.00'	28°57'17"	29.00'	N24°57'26"W
C312	115.56'	600.00'	11°02'08"	115.38'	N33°55'01"W
C313	64.61'	630.00'	5°52'33"	64.58'	N36°29'48"W
C314	67.97'	630.00'	6°10'54"	67.94'	N36°20'38"W
C315	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C316	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C317	29.72'	20.00'	85°08'46"	27.06'	S75°49'34"E
C318	63.52'	570.00'	6°23'05"	63.49'	N36°14'32"W
C319	9.47'	570.00'	0°57'07"	9.47'	N38°57'31"W
C320	54.05'	570.00'	5°25'59"	54.03'	N35°45'58"W
C321	24.78'	15.00'	94°39'03"	22.06'	N14°16'32"E
C322	120.19'	250.00'	27°32'42"	119.03'	S75°22'24"W
C323	137.01'	285.00'	27°32'42"	135.70'	S75°22'24"W
C324	103.36'	215.00'	27°32'42"	102.37'	S75°22'24"W
C325	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C326	98.96'	63.00'	90°00'00"	89.10'	N44°08'42"E

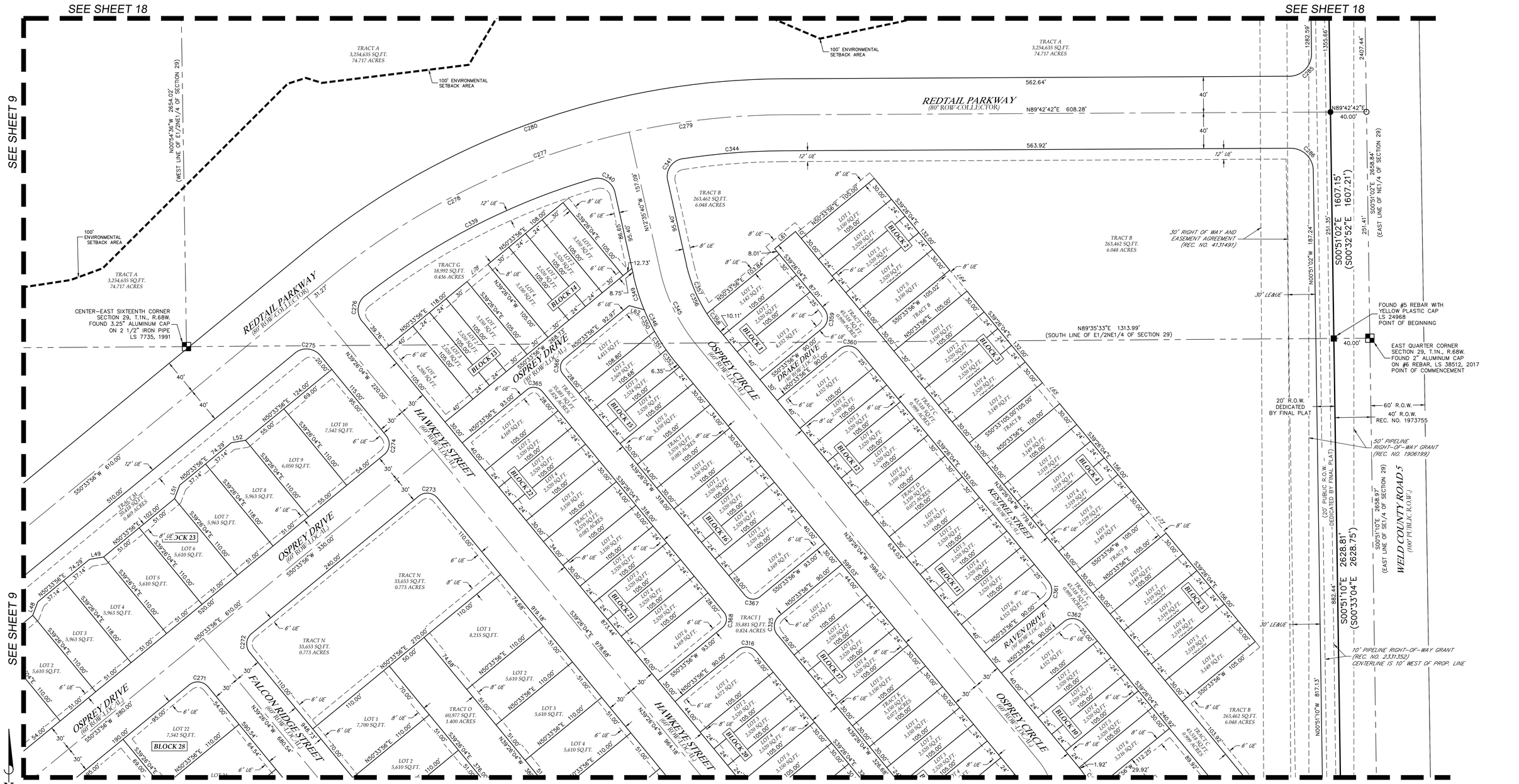
CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C327	47.12'	30.00'	89°59'56"	42.43'	N44°08'47"E
C328	47.12'	30.00'	90°00'04"	42.43'	N45°51'13"W
C329	22.40'	15.00'	85°33'14"	20.37'	S18°49'26"W
C330	49.48'	63.00'	45°00'00"	48.22'	N66°38'42"E
C331	49.48'	63.00'	45°00'00"	48.22'	N21°38'42"E
C332	51.84'	33.00'	90°00'00"	46.67'	N44°08'42"E
C333	91.11'	58.00'	90°00'00"	82.02'	N44°08'42"E
C334	44.23'	58.00'	43°41'33"	43.17'	N67°17'56"E
C335	46.88'	58.00'	46°18'27"	45.61'	N22°17'56"E
C336	24.78'	15.00'	94°39'03"	22.06'	N71°04'25"W
C337	23.56'	15.00'	90°

PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021



GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND	
BOUNDARY LINE	R.O.W. = RIGHT OF WAY
SECTION/ALIQUOT LINE	UE = UTILITY EASEMENT
CENTER LINE	DE = DRAINAGE EASEMENT
EASEMENT LINE	LE = LANDSCAPE EASEMENT
100' ENVIRONMENTAL SETBACK AREA	
ENVIRONMENTALLY SENSITIVE AREA	

UTILITY EASEMENTS (UE), DRAINAGE EASEMENT (DE), LANDSCAPE EASEMENT (LE) AND ALL INTERNAL ROAD ROW FOR THE DEVELOPMENT PROPOSED IN THIS PLAN SET, WILL BE CREATED AND DEDICATED BY FINAL PLAT

* FOR LINE AND CURVE TABLES SEE SHEET 4 *

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CWC CONSULTING GROUP
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9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK
6/27/23	REVISED SUBDIVISION PER COMMENTS	CSK
5/30/24	REDESIGN SUBDIVISION	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES

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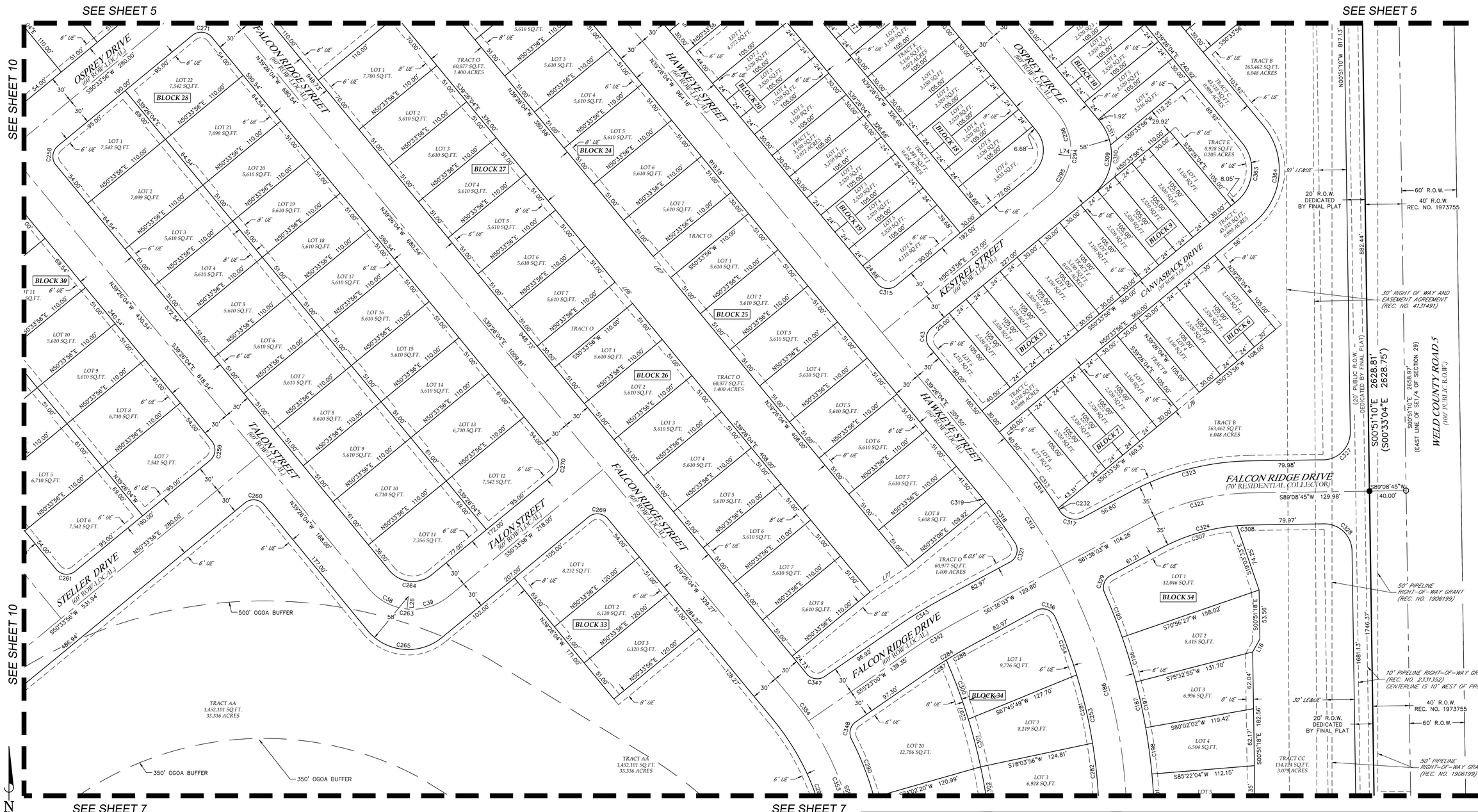
PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021



GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND	
BOUNDARY LINE	R.O.W. = RIGHT OF WAY
SECTION/ALIQUOT LINE	UE = UTILITY EASEMENT
CENTER LINE	DE = DRAINAGE EASEMENT
EASEMENT LINE	LE = LANDSCAPE EASEMENT
100' ENVIRONMENTAL SETBACK AREA	
ENVIRONMENTALLY SENSITIVE AREA	

UTILITY EASEMENTS (UE), DRAINAGE EASEMENT (DE), LANDSCAPE EASEMENT (LE) AND ALL INTERNAL ROAD ROW FOR THE DEVELOPMENT PROPOSED IN THIS PLAN SET, WILL BE CREATED AND DEDICATED BY FINAL PLAT

* FOR LINE AND CURVE TABLES SEE SHEET 4 *

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

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SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 6 OF 18 SHEETS

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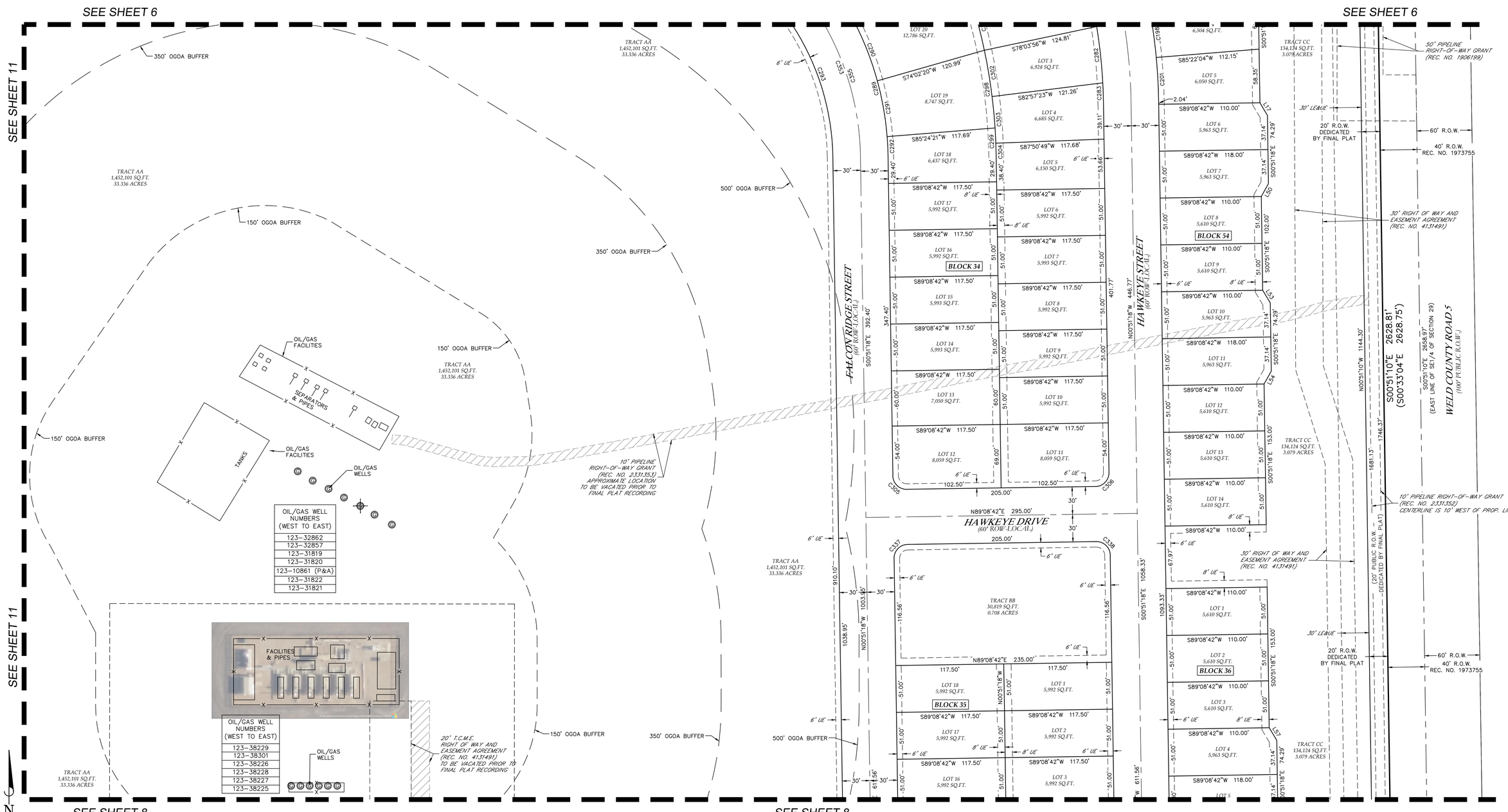

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SHEET NO. 7 OF 18 SHEETS

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N:\20210661\DWG\20210661SUB.dwg Date:06/04/24 02:59p carol

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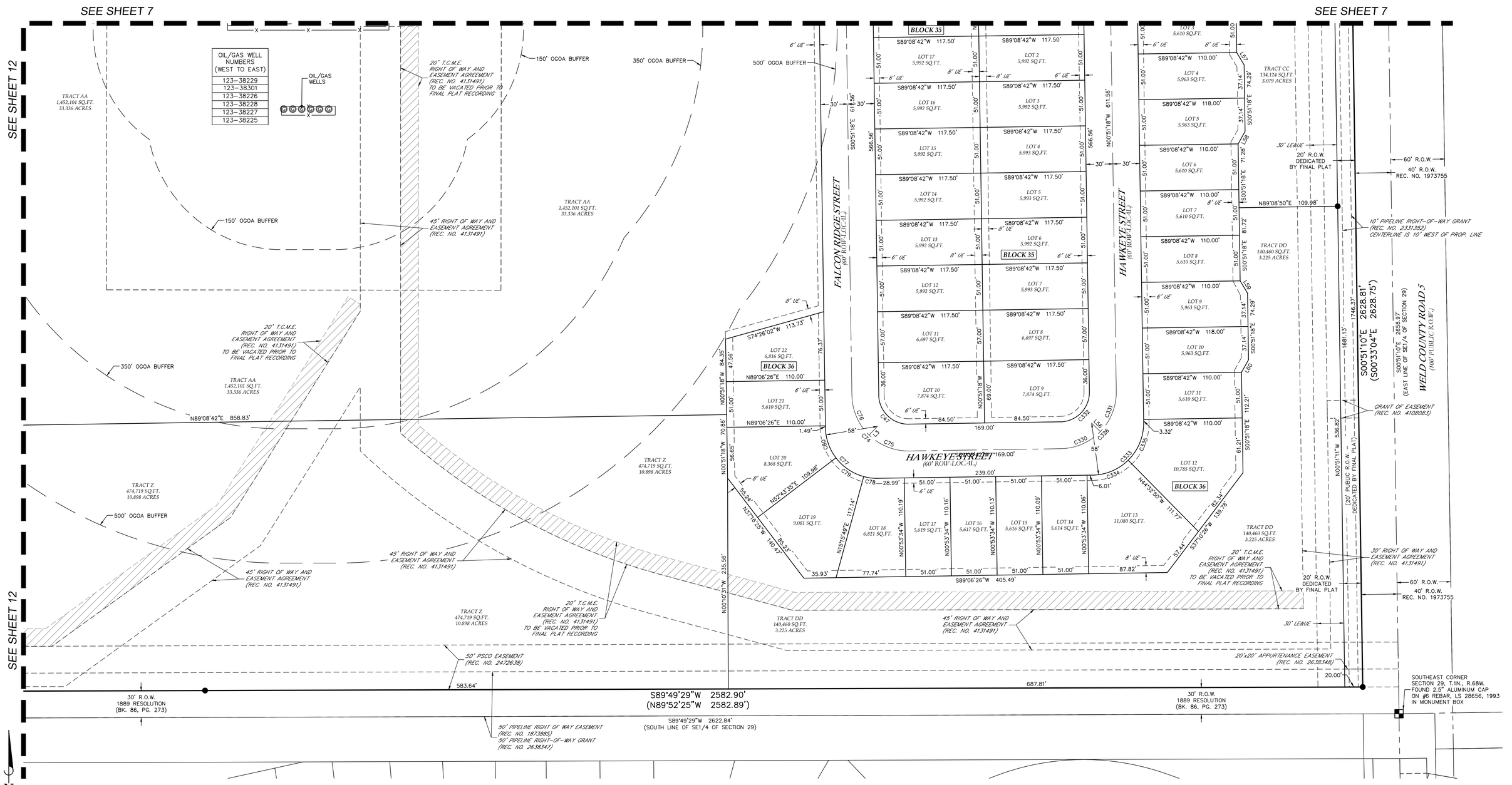

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SHEET NO. 8 OF 18 SHEETS

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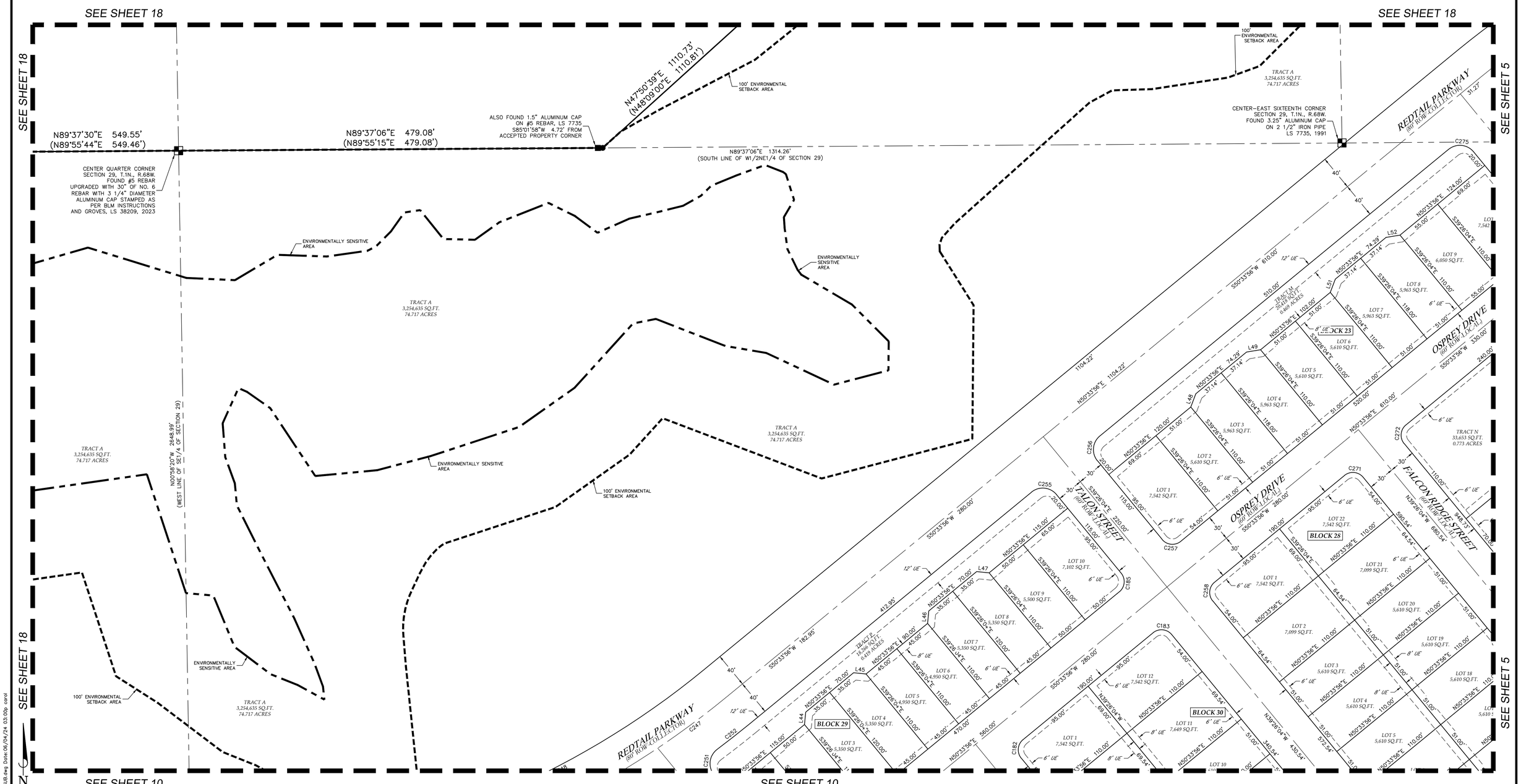

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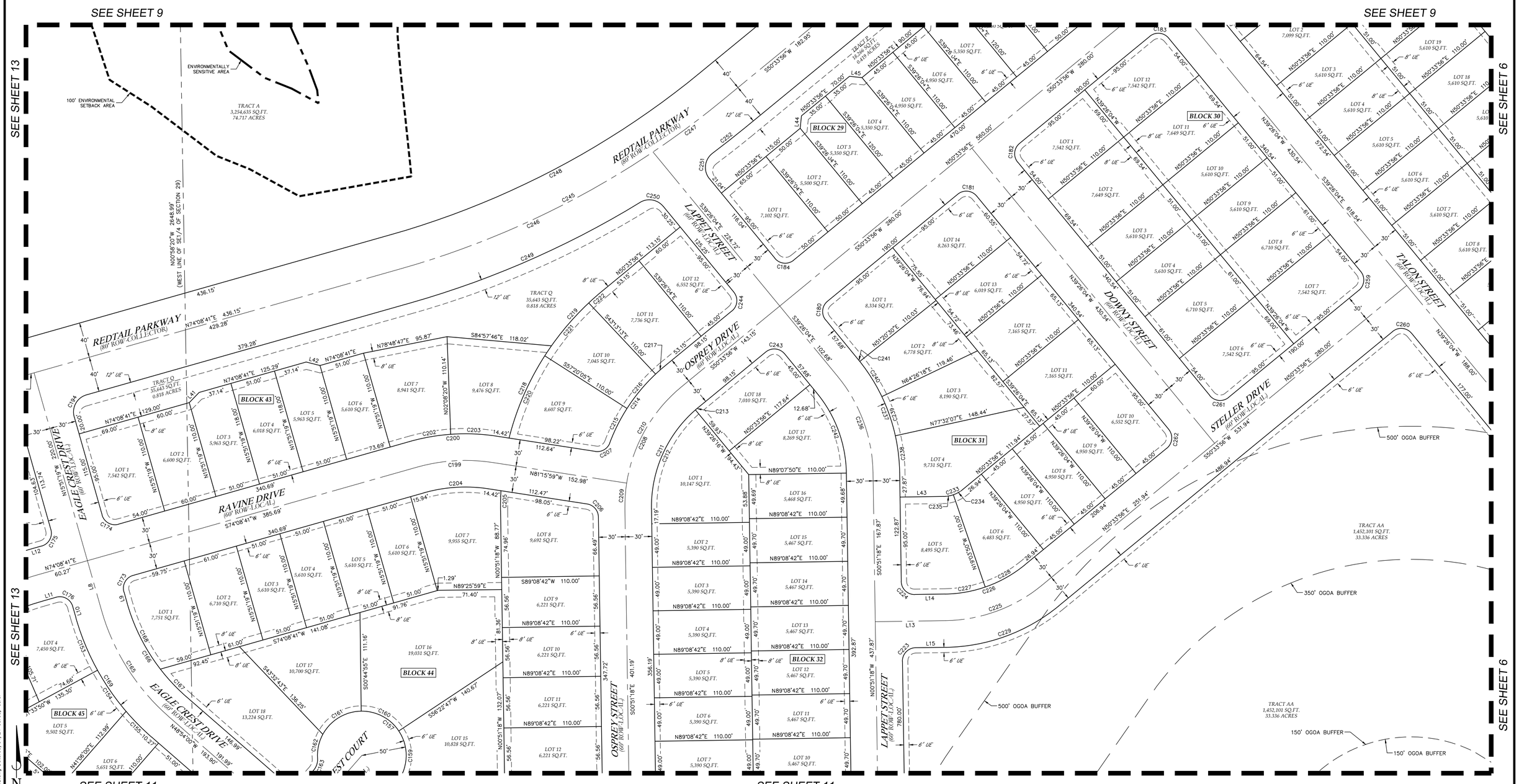

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SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 10 OF 18 SHEETS

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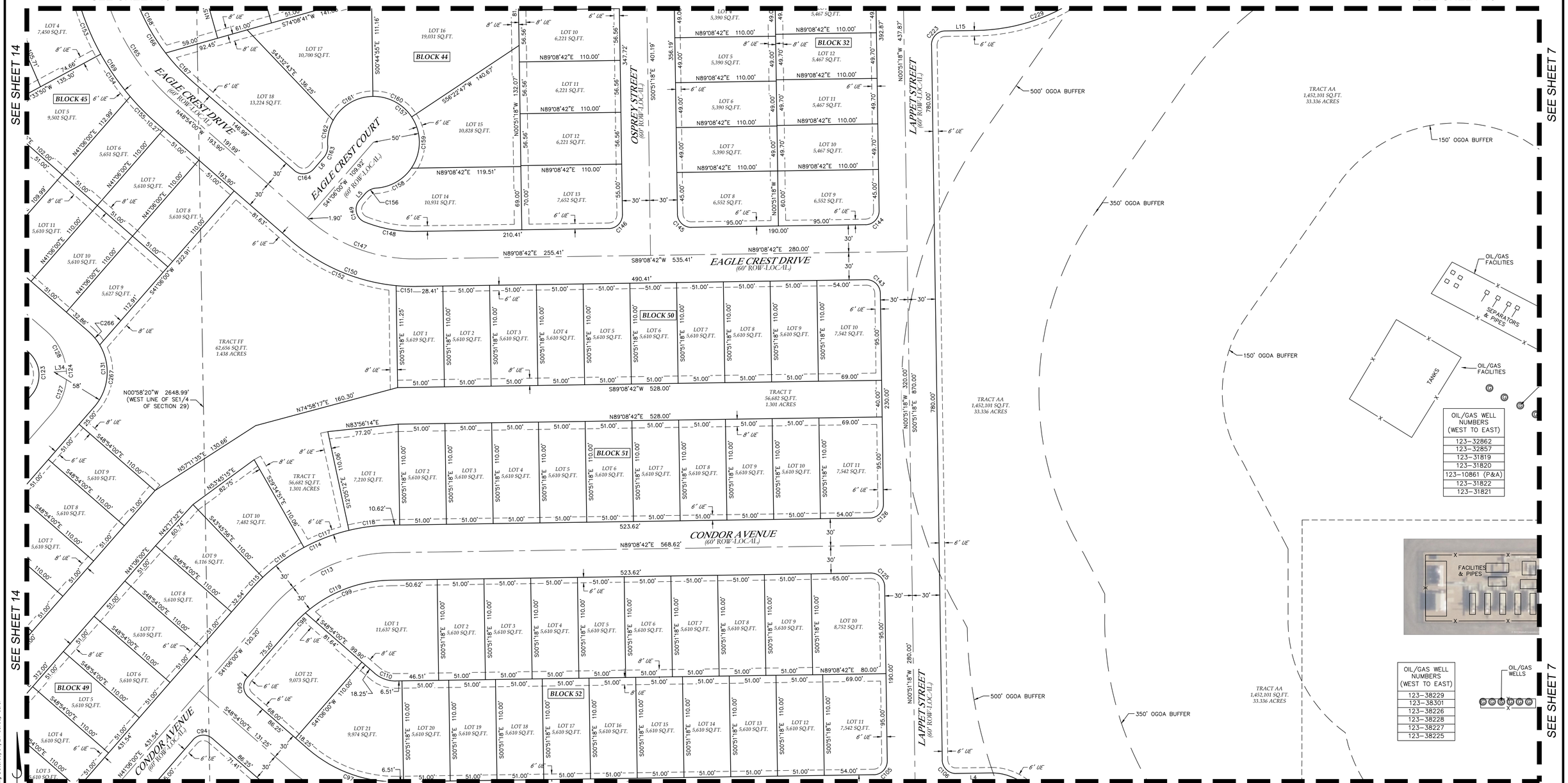

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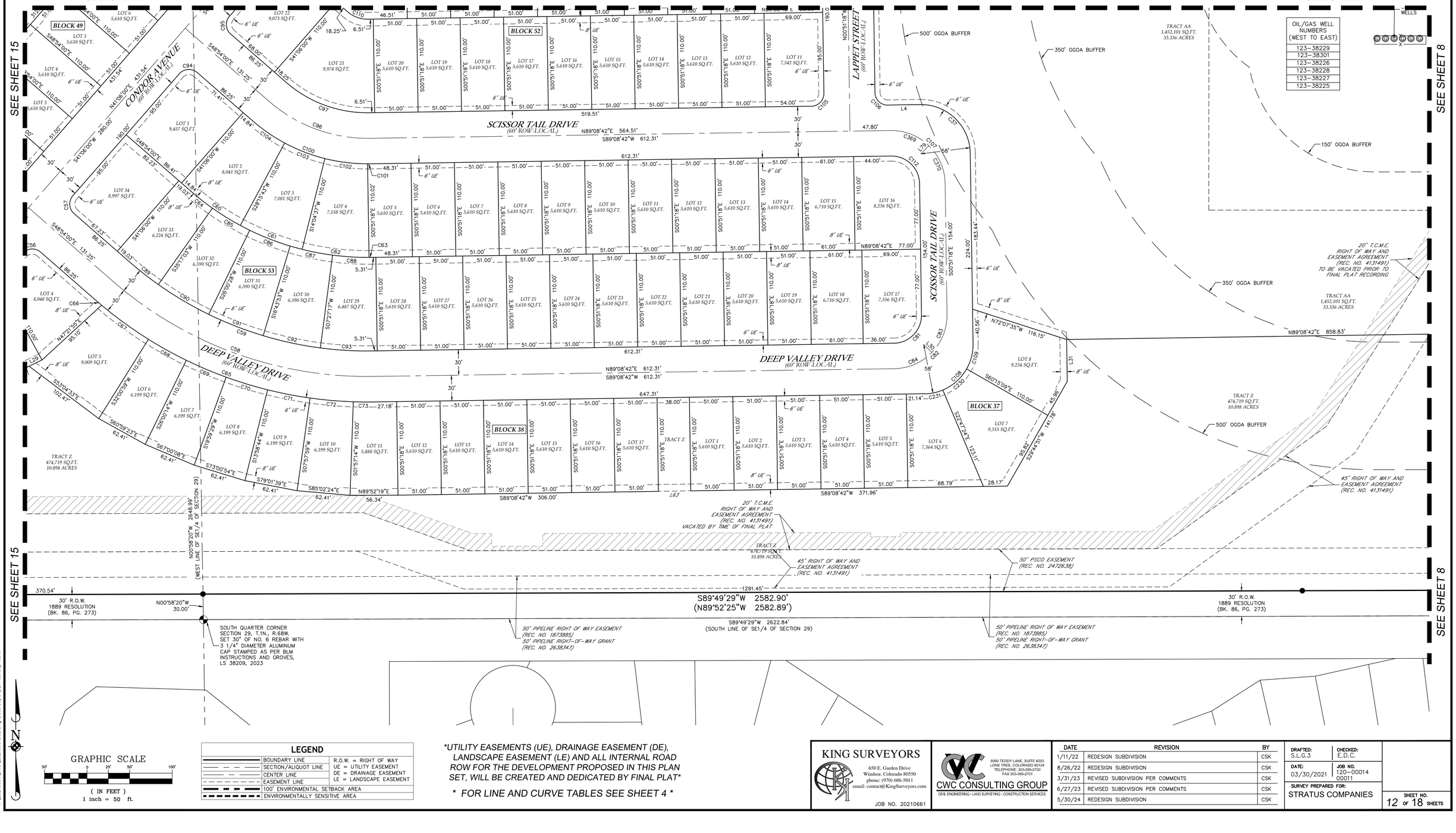
SEE SHEET 11
SEE SHEET 11
SEE SHEET 15
SEE SHEET 8
SEE SHEET 15
SEE SHEET 8
BLOCK 49
BLOCK 52
BLOCK 53
BLOCK 38
BLOCK 37
CONDOR AVENUE (60' ROW-LOCAL)
LAPPET STREET (60' ROW-LOCAL)
SCISSOR TAIL DRIVE (60' ROW-LOCAL)
DEEP VALLEY DRIVE (60' ROW-LOCAL)
TRACT Z 474,719 SQ.FT. 10.898 ACRES
TRACT AA 1,452,101 SQ.FT. 33.336 ACRES
500' OGOA BUFFER
350' OGOA BUFFER
150' OGOA BUFFER
OIL/GAS WELL NUMBERS (WEST TO EAST)
123-38229
123-38301
123-38226
123-38228
123-38227
123-38225
WELLS
20' T.C.M.E. RIGHT OF WAY AND EASEMENT AGREEMENT (REC. NO. 4131491) TO BE VACATED PRIOR TO FINAL PLAT RECORDING
20' T.C.M.E. RIGHT OF WAY AND EASEMENT AGREEMENT (REC. NO. 4131491) VACATED BY TIME OF FINAL PLAT
45' RIGHT OF WAY AND EASEMENT AGREEMENT (REC. NO. 4131491)
50' PSCO EASEMENT (REC. NO. 2472638)
50' PIPELINE RIGHT OF WAY EASEMENT (REC. NO. 1873885) 50' PIPELINE RIGHT-OF-WAY GRANT (REC. NO. 2638347)
S89°49'29"W 2582.90' (N89°52'25"W 2582.89')
S89°49'29"W 2622.84' (SOUTH LINE OF SE1/4 OF SECTION 29)
N00°58'20"W 2648.99' (WEST LINE OF SE1/4 OF SECTION 29)
370.54'
30' R.O.W. 1889 RESOLUTION (BK. 86, PG. 273)
N00°58'20"W 30.00'
SOUTH QUARTER CORNER SECTION 29, T.1N., R.68W. SET 30" OF NO. 6 REBAR WITH 3 1/4" DIAMETER ALUMINUM CAP STAMPED AS PER BLM INSTRUCTIONS AND GROVES, LS 38209, 2023
N89°08'42"E 858.83'
N72°07'35"W 116.15'
N89°08'42"E 564.51'
S89°08'42"W 612.31'
N89°08'42"E 612.31'
S89°08'42"W 612.31'
N89°08'42"E 612.31'
S89°08'42"W 612.31'
S89°08'42"W 306.00'
S89°08'42"W 371.96'
N89°52'19"E 56.34'
519.51'
647.31'
1291.45'
612.31'
612.31'
612.31

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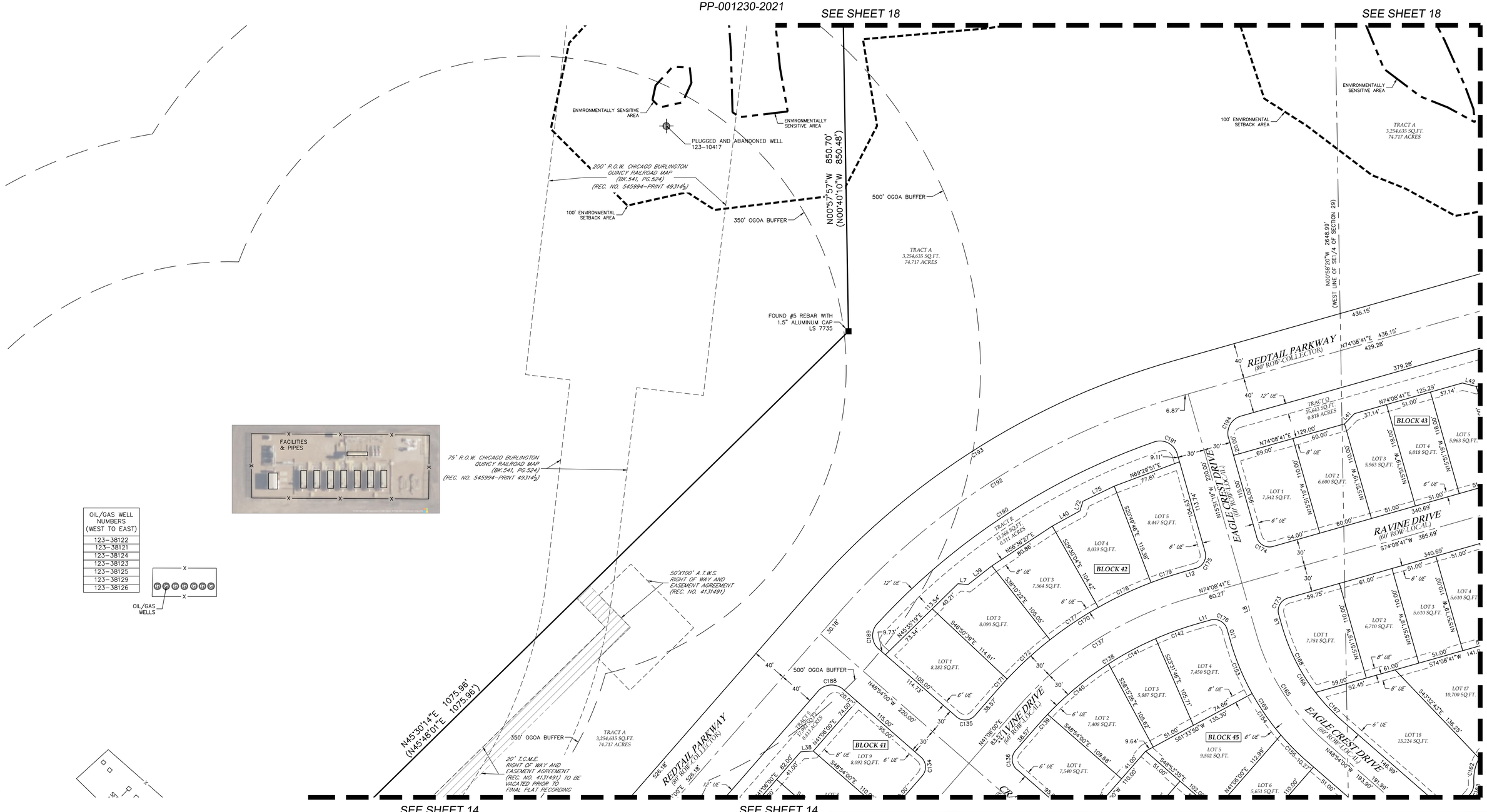

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SHEET NO. 13 OF 18 SHEETS

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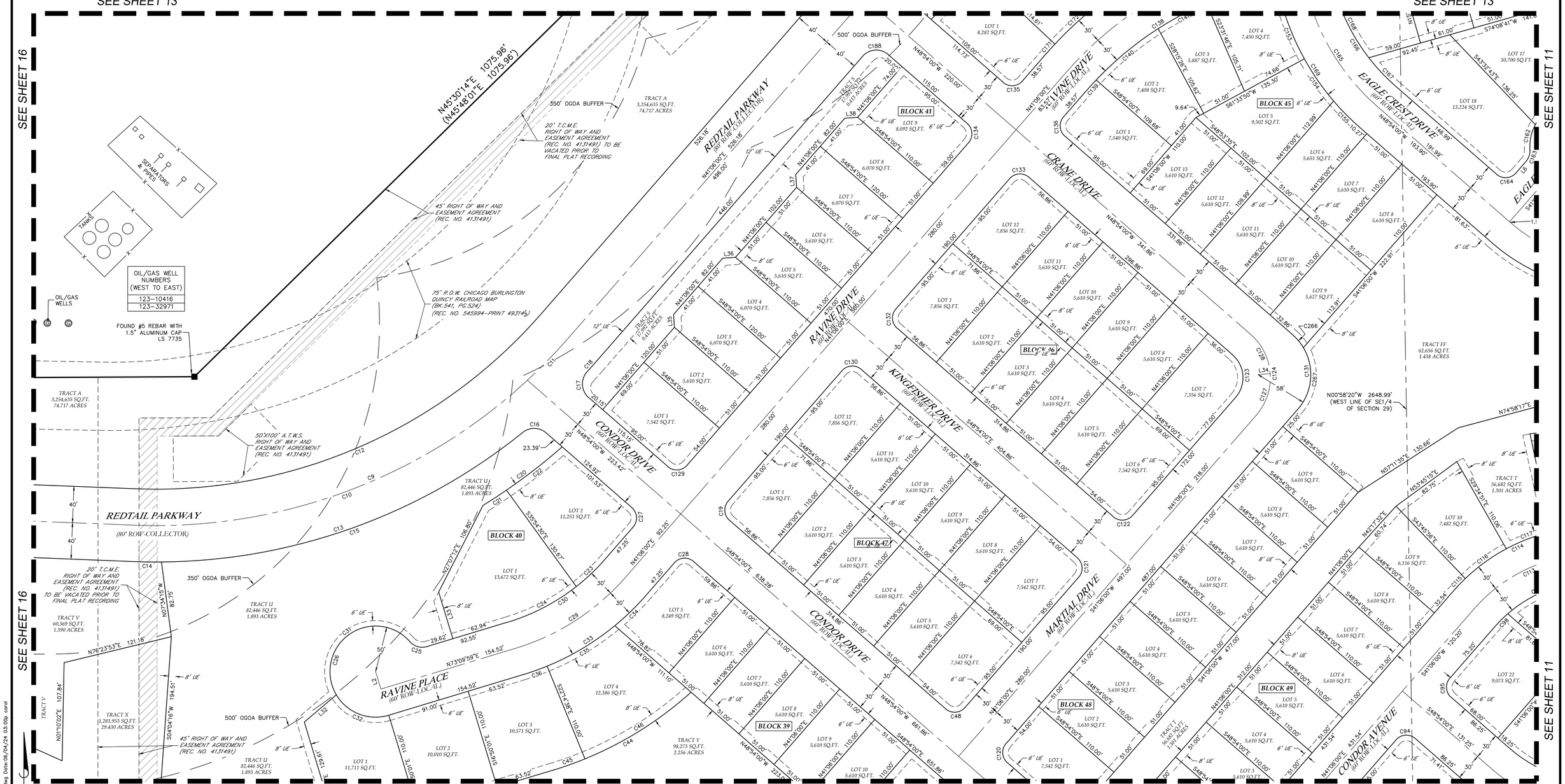

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SHEET NO. 14 OF 18 SHEETS

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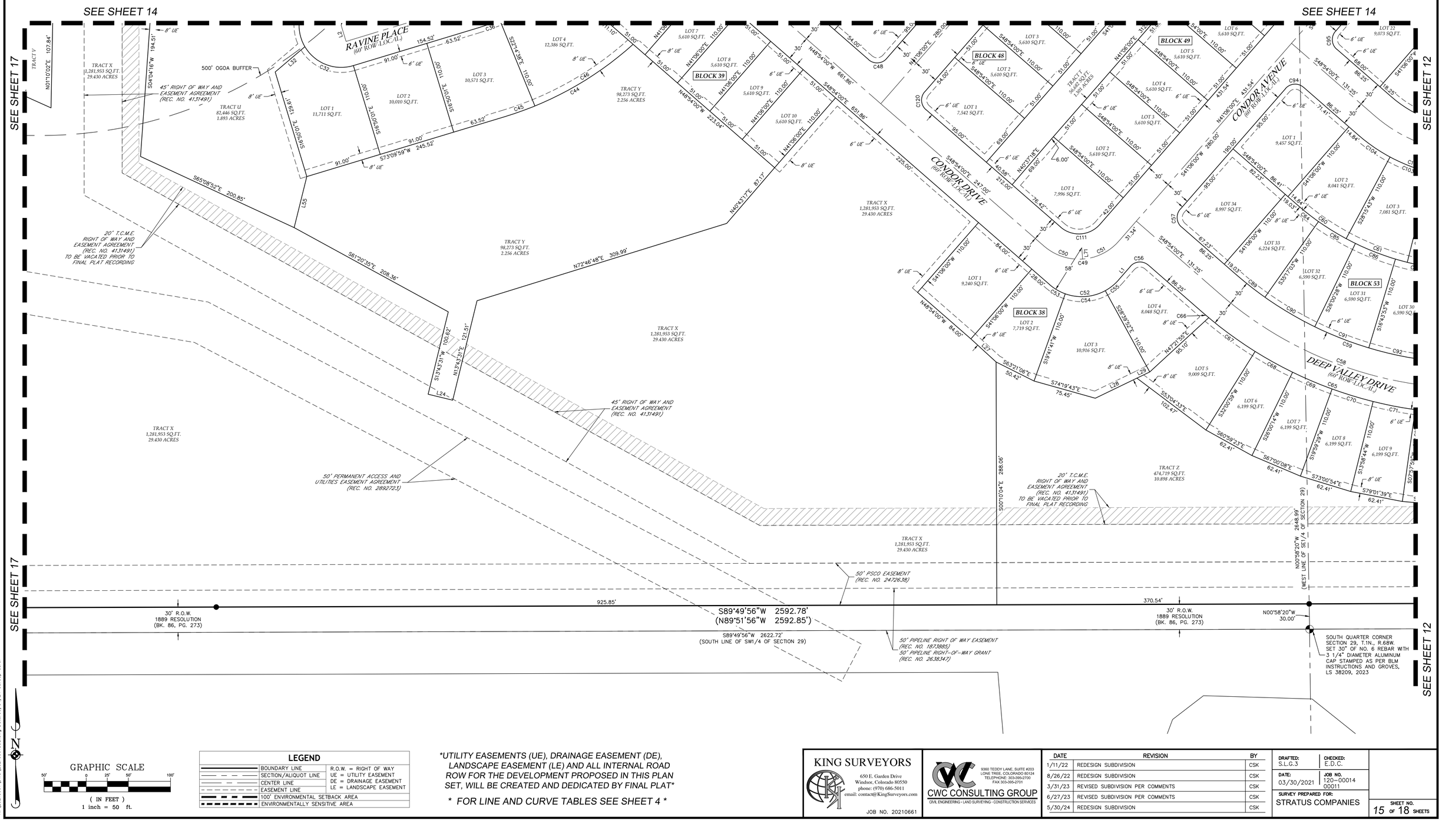

GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND		
BOUNDARY LINE	R.O.W. = RIGHT OF WAY	
SECTION/ALIQUOT LINE	UE = UTILITY EASEMENT	
CENTER LINE	DE = DRAINAGE EASEMENT	
EASEMENT LINE	LE = LANDSCAPE EASEMENT	
100' ENVIRONMENTAL SETBACK AREA		
ENVIRONMENTALLY SENSITIVE AREA		

UTILITY EASEMENTS (UE), DRAINAGE EASEMENT (DE), LANDSCAPE EASEMENT (LE) AND ALL INTERNAL ROAD ROW FOR THE DEVELOPMENT PROPOSED IN THIS PLAN SET, WILL BE CREATED AND DEDICATED BY FINAL PLAT

* FOR LINE AND CURVE TABLES SEE SHEET 4 *

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK
6/27/23	REVISED SUBDIVISION PER COMMENTS	CSK
5/30/24	REDESIGN SUBDIVISION	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES

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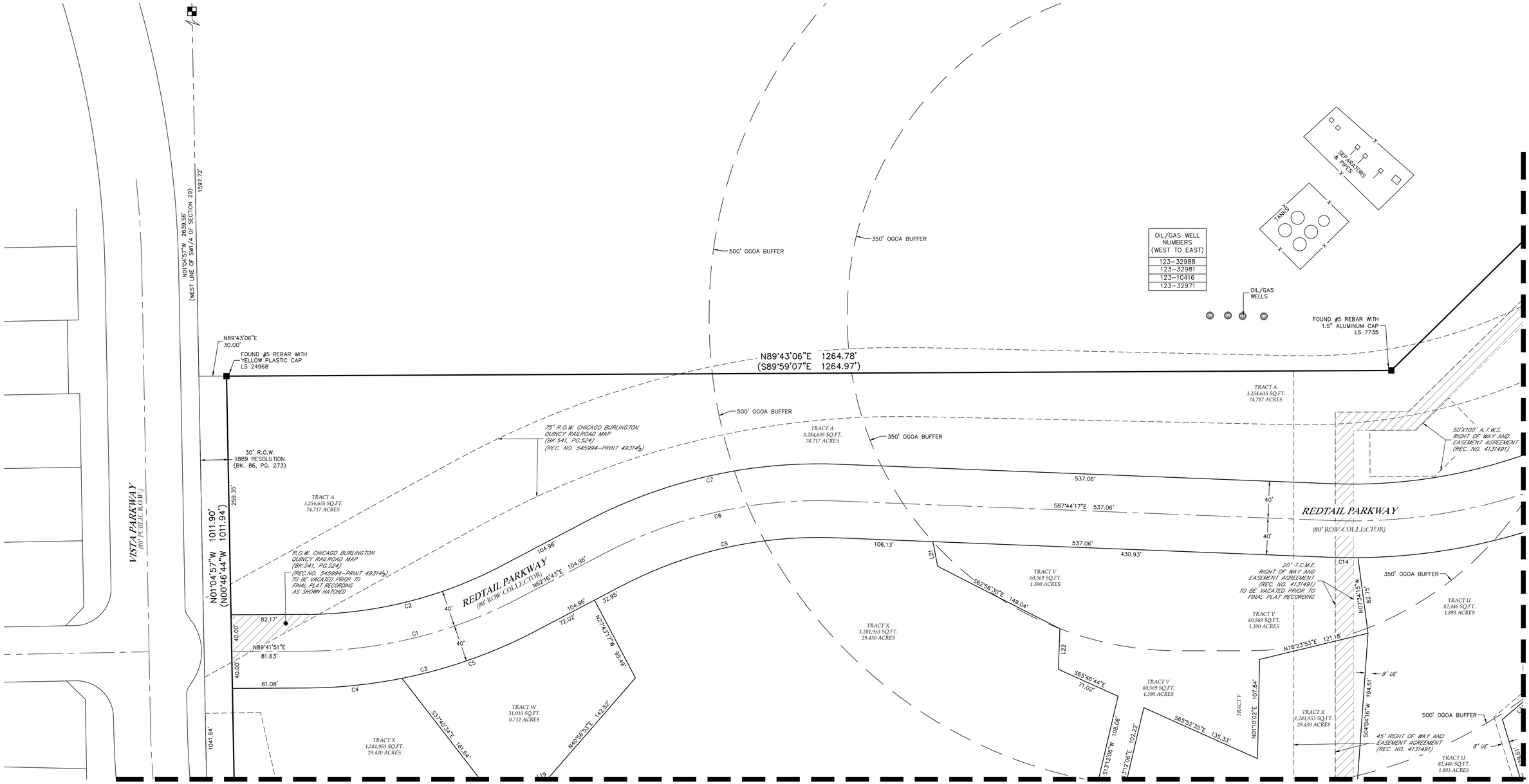
PRELIMINARY PLAT
REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
PP-001230-2021



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100' ENVIRONMENTAL SETBACK AREA		
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SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 16 OF 18 SHEETS

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

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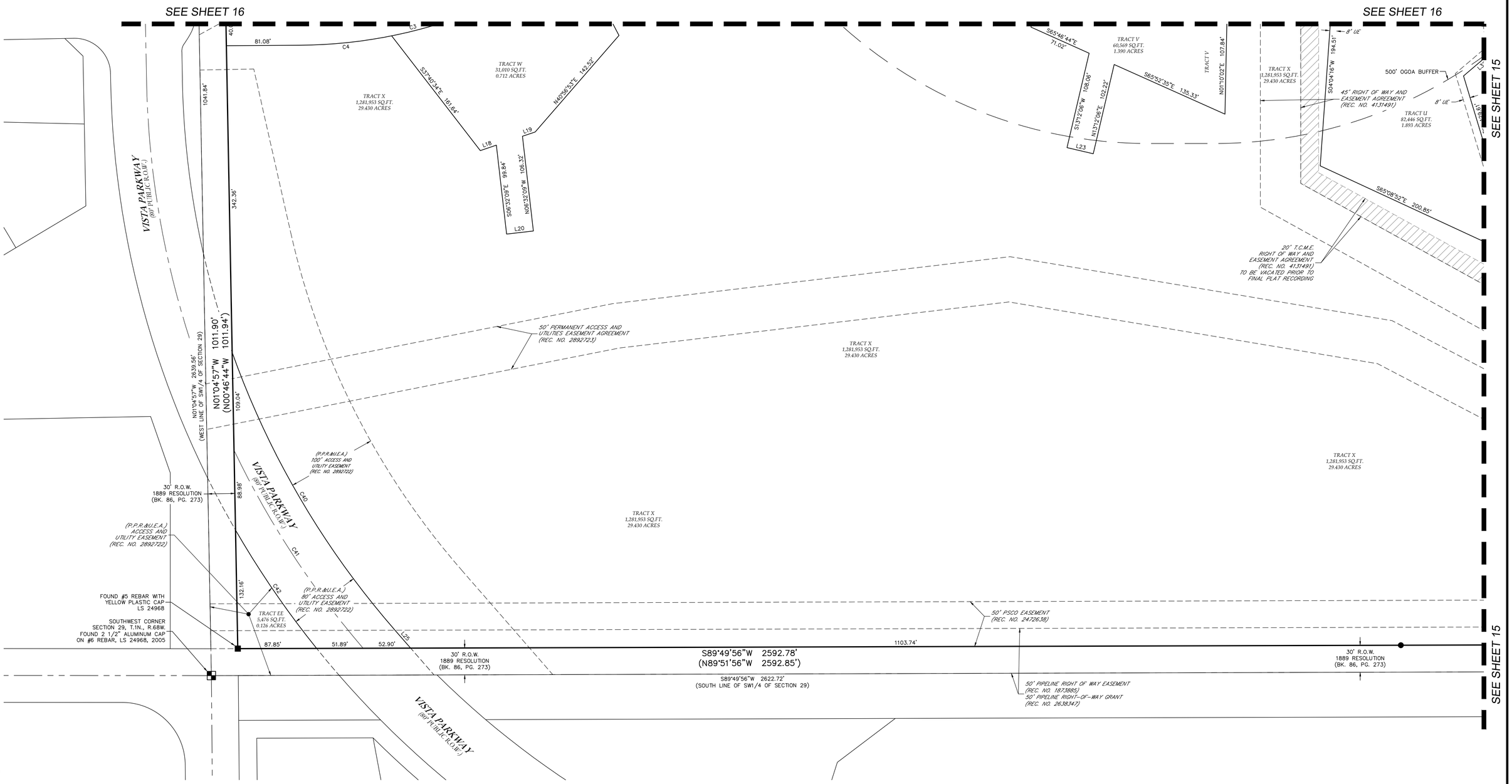

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(IN FEET)
1 inch = 50 ft.

LEGEND	
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100' ENVIRONMENTAL SETBACK AREA	
ENVIRONMENTALLY SENSITIVE AREA	

UTILITY EASEMENTS (UE), DRAINAGE EASEMENT (DE), LANDSCAPE EASEMENT (LE) AND ALL INTERNAL ROAD ROW FOR THE DEVELOPMENT PROPOSED IN THIS PLAN SET, WILL BE CREATED AND DEDICATED BY FINAL PLAT

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 524 LOTS / 32 TRACTS
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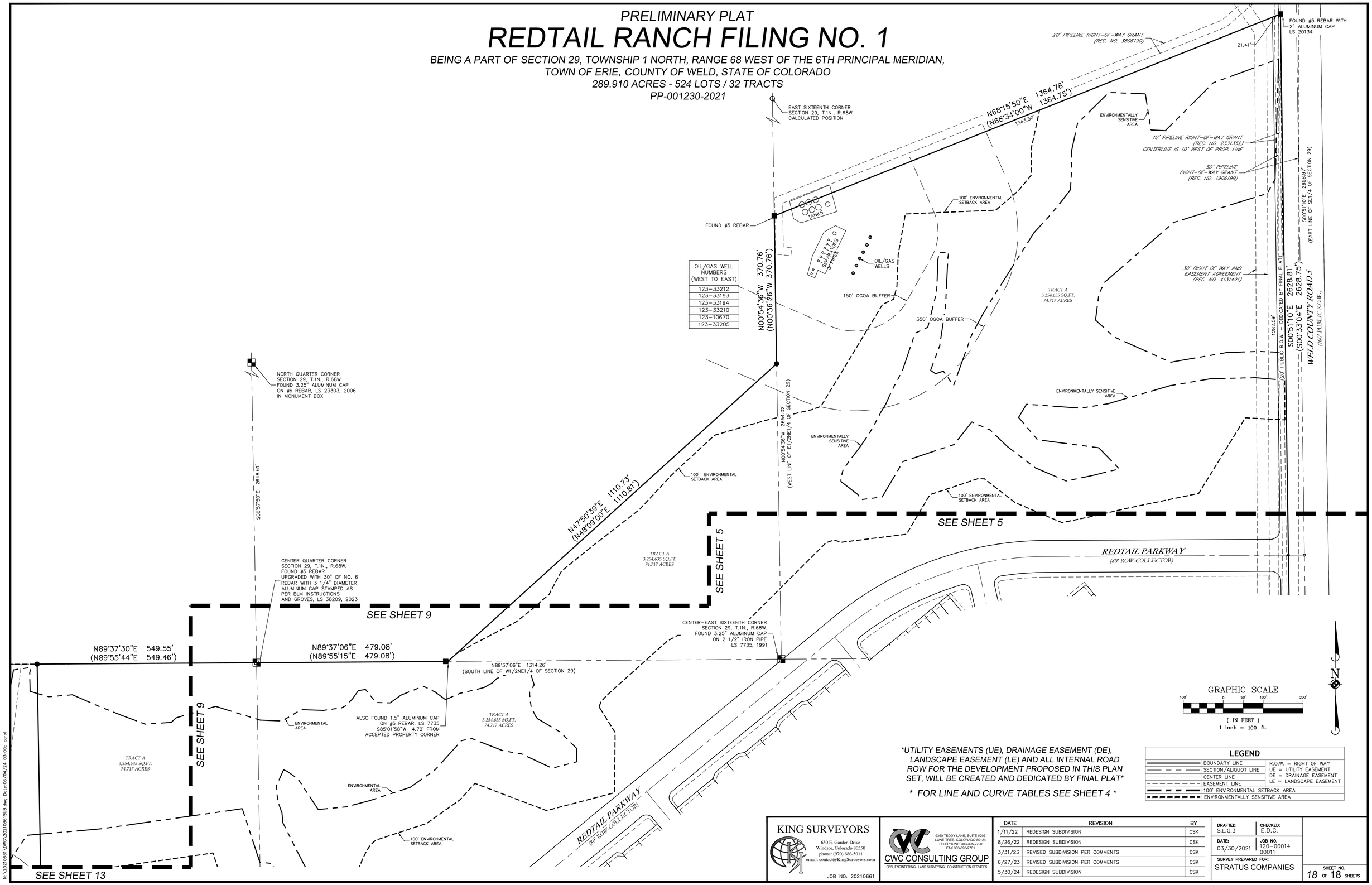

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LEGEND		
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DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 18 OF 18 SHEETS

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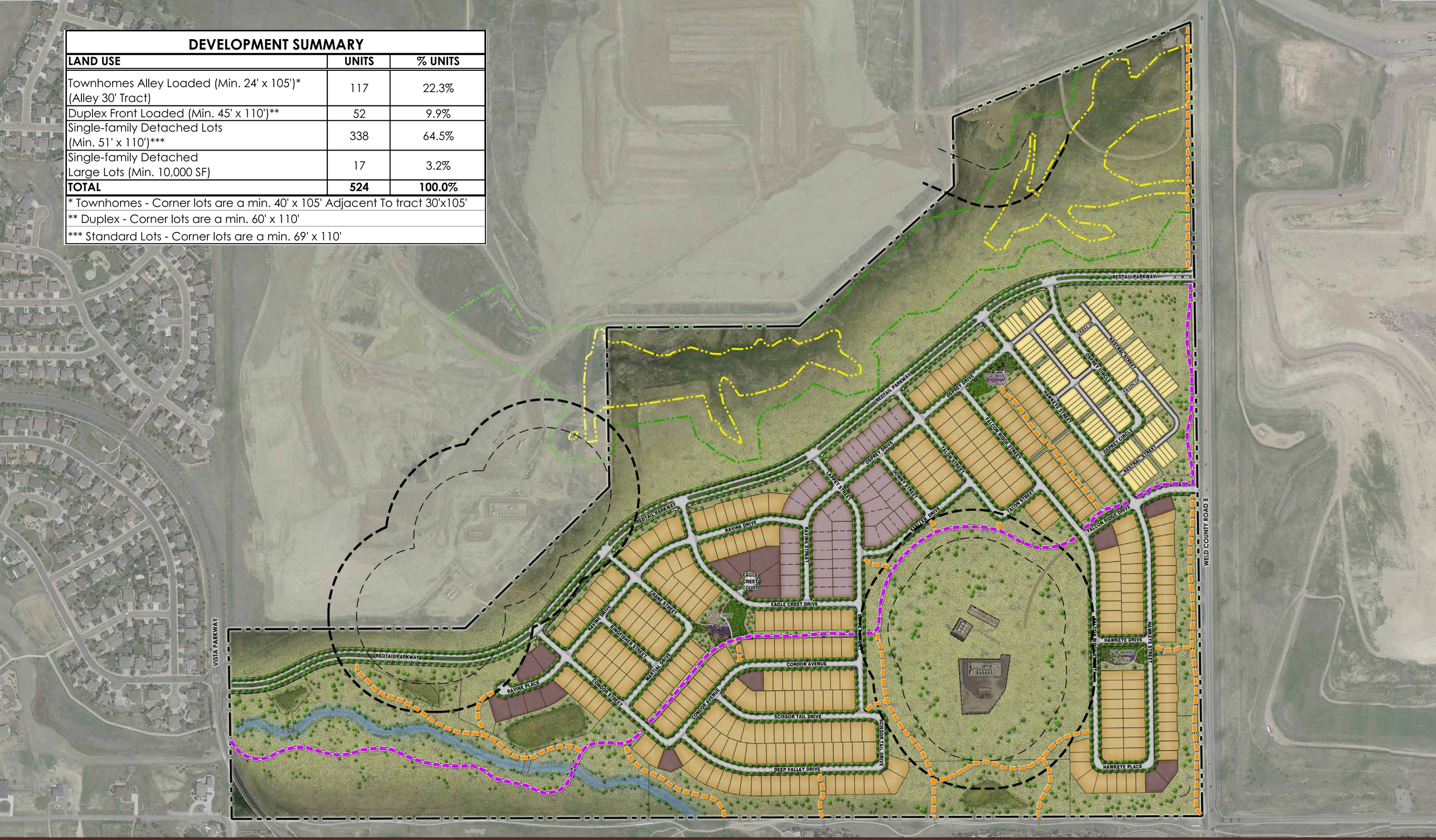
DEVELOPMENT SUMMARY		
LAND USE	**UNITS**	**% UNITS**
Townhomes Alley Loaded (Min. 24' x 105')* (Alley 30' Tract)	117	22.3%
Duplex Front Loaded (Min. 45' x 110')**	52	9.9%
Single-family Detached Lots (Min. 51' x 110')***	338	64.5%
Single-family Detached Large Lots (Min. 10,000 SF)	17	3.2%
TOTAL	**524**	**100.0%**
* Townhomes - Corner lots are a min. 40' x 105' Adjacent To tract 30'x105'		
** Duplex - Corner lots are a min. 60' x 110'		
*** Standard Lots - Corner lots are a min. 69' x 110'		



terracina design

STRATUS

REDTAIL RANCH

ILLUSTRATIVE

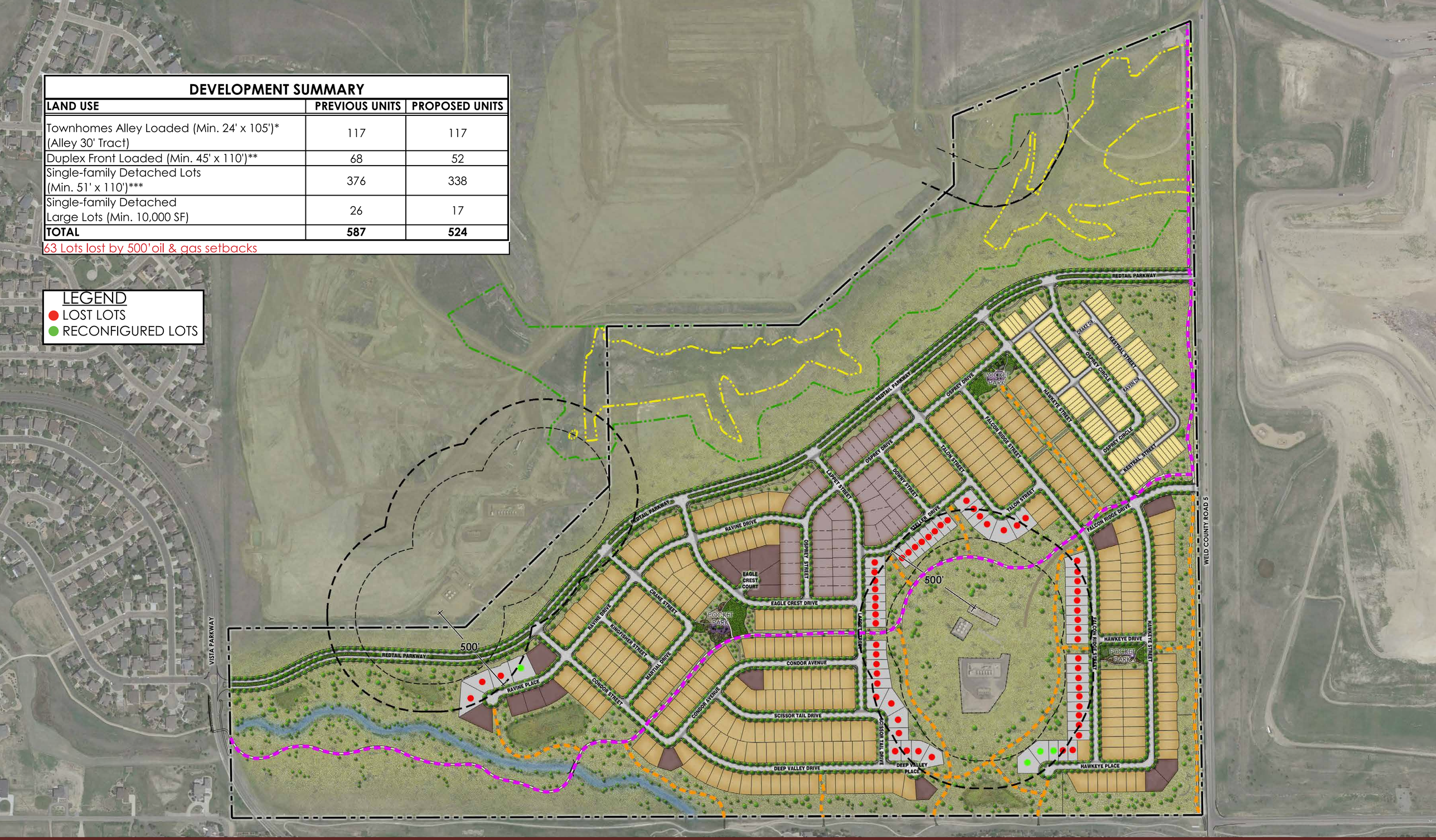
Scale: 1" = 200'

JUNE 13, 2024

DEVELOPMENT SUMMARY		
LAND USE	**PREVIOUS UNITS**	**PROPOSED UNITS**
Townhomes Alley Loaded (Min. 24' x 105')* (Alley 30' Tract)	117	117
Duplex Front Loaded (Min. 45' x 110')**	68	52
Single-family Detached Lots (Min. 51' x 110')***	376	338
Single-family Detached Large Lots (Min. 10,000 SF)	26	17
TOTAL	**587**	**524**

63 Lots lost by 500'oil & gas setbacks

LEGEND
- LOST LOTS
- RECONFIGURED LOTS



terracina design

STRATUS

REDTAIL RANCH
LOT IMPACT

Scale: 1" = 200'

JUNE 13, 2024

PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

289.910 ACRES - 587 LOTS / 32 TRACTS

PP-001230-2021

CERTIFICATE OF DEDICATION AND OWNERSHIP

KNOW ALL MEN THESE PRESENTS THAT THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES, OR LIEN HOLDERS OF CERTAIN LANDS IN THE TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

PORTIONS OF W1/2 NE1/4, E1/2 NE1/4 AND S 1/2 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE EAST QUARTER CORNER OF SAID SECTION 29; THENCE S89°53'54"W, ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, A DISTANCE OF 40.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 5 (80' WIDE) AS DESCRIBED AT RECEPTION NO. 1973755 IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE S00°33'04"E, ALONG SAID WESTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2628.75 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF A 60' WIDE RIGHT-OF-WAY AS DESCRIBED IN BOOK 86 AT PAGE 273 AS RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO, THENCE N89°52'25"W, ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2582.89 FEET TO A POINT; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, N89°51'56"W, A DISTANCE OF 2592.85 FEET TO A POINT ON THE EASTERLY LINE OF A 60' WIDE RIGHT-OF-WAY LINE AS DESCRIBED IN SAID BOOK 86 AT PAGE 273; THENCE N00°46'44"W, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1011.94 FEET TO A POINT ON THE SOUTH LINE OF A PARCEL OF LAND AS DESCRIBED AT RECEPTION NO. 2360787, RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO; THENCE TRAVELING ALONG THE SOUTH AND EASTERLY PORTION OF SAID PARCEL OF LAND, THE FOLLOWING (3) THREE COURSES:

1. S89°59'07"E, A DISTANCE OF 1264.97 FEET TO A POINT;
2. N45°48'01"E, A DISTANCE OF 1075.96 FEET TO A POINT;
3. N00°40'10"W, A DISTANCE OF 850.48 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29;

THENCE N89°55'44"E, ALONG SAID NORTH LINE, A DISTANCE OF 549.46 FEET TO A POINT ON THE WEST HALF OF THE WEST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE CONTINUING ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, N89°55'15"E, A DISTANCE OF 479.08 FEET TO A POINT; THENCE N48°09'00"E, A DISTANCE OF 1110.81 FEET TO A POINT ON THE WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE N00°36'26"W, ALONG SAID WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 370.76 FEET TO A POINT ON THE SOUTHERLY LINE OF RIGHT-OF-WAY (60' WIDE) AS DESCRIBED IN BOOK 868 AT PAGE 89 AND AT RECEPTION NO. 1687926 AS RECORDED IN WELD COUNTY COLORADO; THENCE N68°34'00"E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1364.75 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 5; THENCE S00°32'52"E, ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 1607.21 FEET TO THE POINT OF BEGINNING.

CONTAINS A TOTAL AREA OF 12,628,490 SQUARE FEET (289.910 ACRES), MORE OR LESS

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS, BLOCKS, TRACTS, STREETS, AND EASEMENTS AS SHOWN HEREON UNDER THE NAME AND SUBDIVISION OF REDTAIL RANCH FILING NO. 1. ALL PUBLIC WAYS AND OTHER PUBLIC RIGHTS-OF-WAY, LANDS, EASEMENTS AND OTHER DESIGNATED PUBLIC IMPROVEMENTS SHOWN HEREON ARE DEDICATED TO THE TOWN OF ERIE AND THE PUBLIC, COLORADO, FOR PUBLIC USES AND PURPOSES SHOWN HEREON.

OWNER: STRATUS COMPANIES

BY: _____

ACKNOWLEDGED BEFORE ME THIS _____ DAY OF _____, 2021,

BY _____

WITNESS MY HAND AND OFFICIAL SEAL:

_____ _____ (SEAL)
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

TRACT OWNERSHIP, MAINTENANCE AND EASEMENTS

OWNERSHIP OF TRACTS A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA AND BB SHALL BE DEEDED TO THE HOMEOWNER'S ASSOCIATION
I) CONCURRENTLY WITH THE RECORDATION OF THE FINAL PLAT OR
II) AT THE TIME OF ESTABLISHMENT OF THE HOMEOWNER'S ASSOCIATION, WHICHEVER EVENT OCCURS LATER IN TIME.

ALL DRAINAGE FACILITIES WITHIN TRACTS A, B, N, P, W, X, Y, Z, AA AND BB SHALL BE OWNED, OPERATED AND MAINTAINED BY THE DISTRICT AND HOMEOWNER'S ASSOCIATION.

THE AREA WITHIN TRACTS C AND F ARE HEREBY DEDICATED FOR ALLEY PURPOSES AS PUBLIC ACCESS EASEMENT.

THE AREA WITHIN TRACTS A, B, C, F, N, P, W, X, Y, Z, AA AND BB ARE HEREBY DEDICATED AS EASEMENTS FOR THE PURPOSES IDENTIFIED ON THE PLAT.

VICINITY MAP

SCALE: 1" = 2000'

SURVEYOR'S CERTIFICATE

I, PAUL B. GROVES, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS PLAT TRULY AND CORRECTLY REPRESENTS THE RESULTS OF A SURVEY MADE ON APRIL 28, 2015, BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL MONUMENTS EXIST AS SHOWN HEREON; THAT MATHEMATICAL CLOSURE ERRORS ARE LESS THAN 1:50,000 (SECOND ORDER); AND THAT SAID PLAT HAS BEEN PREPARED IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS OF THE STATE OF COLORADO DEALING WITH MONUMENTS, SUBDIVISIONS OR SURVEYING OF LAND AND ALL APPLICABLE PROVISIONS OF THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE.

I ATTEST THE ABOVE ON THIS _____ DAY OF _____, 2021.

_____
PAUL B. GROVES – ON BEHALF OF KING SURVEYORS
COLORADO LICENSED PROFESSIONAL
LAND SURVEYOR #38209

LEGEND
- LOST LOTS
- RECONFIGURED LOTS

NOTES

1. DISTANCES ARE MARKED IN U.S. SURVEY FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (0.00') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.

2. THE LOCATION OF THE PROPERTY LINES SHOWN ON THE FACE OF THIS PLAT ARE BASED ON THE DESCRIPTION AND INFORMATION FURNISHED BY THE CLIENT, TOGETHER WITH THE TITLE COMMITMENT. THE PARCEL WHICH IS DEFINED MAY NOT REFLECT ACTUAL OWNERSHIP, BUT REFLECTS WHAT WAS SURVEYED. FOR OWNERSHIP, CONSULT YOUR TITLE COMPANY.

3. COMPARE THIS PLAT, LEGAL DESCRIPTION AND ALL SURVEY MONUMENTS BEFORE BUILDING, AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE SURVEYOR.

4. THIS LAND SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY CWC CONSULTING GROUP, INC. TO DETERMINE OWNERSHIP OF THIS TRACT, VERIFY THE DESCRIPTION SHOWN, VERIFY THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF ADJACENT TRACTS, OR VERIFY EASEMENTS OF RECORD. REFERENCE IS MADE TO LAND TITLE GUARANTEE INSURANCE COMPANY COMMITMENT NUMBER: 25165646, WITH AN EFFECTIVE DATE OF APRIL 8, 2021 FROM WHICH THIS SURVEY IS BASED. THIS PROPERTY IS SUBJECT TO ALL COVENANTS AND RESTRICTIONS RELATING TO THE USE AND CHARACTER OF THE LAND AND ALL MATTERS APPEARING OF PUBLIC RECORD AND AS MAY BE DISCLOSED BY A MORE RECENT TITLE COMMITMENT OR REPORT.

5. ALL REFERENCES HEREON TO BOOKS, PAGES, MAPS AND RECEPTION NUMBERS ARE PUBLIC DOCUMENTS FILED IN THE RECORDS OF THE BOULDER COUNTY CLERK AND RECORDER'S OFFICE.

6. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.

7. BASIS OF BEARINGS: ALL BEARINGS ARE BASED ON THE EAST LINE OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN, SAID TO BEAR S00°51'06"E, A DISTANCE OF 5317.82', FROM THE NORTHEAST CORNER OF SECTION 29 BEING MONUMENTED BY A 3.25" ALUMINUM CAP, 0.3' DOWN IN A RANGE BOX WITH A LID AT THE INTERSECTION OF WELD COUNTY ROADS 5 AND 6, STAMPED "T1N R68W, 20|21, ––, 29|28, 1998, LS13155" TO THE SOUTHEAST CORNER OF SECTION 29 BEING MONUMENTED BY A 2.5" ALUMINUM CAP, 0.3' BELOW GROUND SURFACE, IN A RANGE BOX WITH NO LID AT THE INTERSECTION OF WELD COUNTY ROADS 5 AND 4, STAMPED "GREENHORNE O'MARA INC., T1N R68W, 29|28, –*–, 32|33, PLS 28656, 1993".

8. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.

9. DEFINITION: CERTIFY, CERTIFICATION – A PROFESSIONAL'S OPINION BASED ON HIS OR HER OBSERVATION OF CONDITIONS, KNOWLEDGE, INFORMATION AND BELIEFS. IT IS EXPRESSLY UNDERSTOOD THAT THE PROFESSIONAL'S CERTIFICATION OF A CONDITION'S EXISTENCE RELIEVES NO OTHER PARTY OF ANY RESPONSIBILITY OR OBLIGATION HE OR SHE HAS ACCEPTED BY CONTRACT OR CUSTOM.

10. CWC CONSULTING GROUP, INC. DOES NOT WARRANT THAT THE PARCEL, AS DESCRIBED HEREON, COMPLIES WITH COLORADO SENATE BILL 35. (30-28-101).

11. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

12. A PART OF THE PROPERTY IS LOCATED WITHIN "OTHER AREAS – ZONE X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS IDENTIFIED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP – COMMUNITY PANEL NUMBERED 08013C0443J WITH AN EFFECTIVE DATE OF DECEMBER 18, 2012. THE REMAINDER OF THE PROPERTY LIES WITHIN THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP – COMMUNITY PANEL NUMBERED 08013C0444J WHERE NO SPECIAL FLOOD HAZARD AREAS HAVE BEEN IDENTIFIED. THIS PANEL HAS NOT BEEN PRINTED.

13. THE UNDERSIGNED, AS OWNER OF THE LANDS DESCRIBED HEREIN, ARE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL DRAINAGE EASEMENTS SHOWN HEREON AND RELATED DRAINAGE FACILITIES, AS PROVIDED IN THE TOWN OF ERIE ENGINEERING STANDARDS AND SPECIFICATIONS, AS AMENDED. THE UNDERSIGNED GRANTS THE TOWN OF ERIE A PERPETUAL RIGHT OF INGRESS AND EGRESS FROM AND TO ADJACENT PROPERTY TO INSPECT, MAINTAIN OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITY COVERED BY THE ERIE MUNICIPAL CODE, AS AMENDED; AND TO INSPECT, MAINTAIN, OPERATE AND RECONSTRUCT THE DRAINAGE EASEMENTS AND RELATED FACILITIES, WHEN THE OWNER FAILS TO ADEQUATELY MAINTAIN SUCH DRAINAGE EASEMENTS AND RELATED FACILITIES, WHICH INSPECTION, MAINTENANCE, OPERATION AND RECONSTRUCTION SHALL BE AT THE COST OF THE OWNER.

14. REDTAIL RANCH PRELIMINARY PLAT NO. 1 IS UNDERMINED. TO REDUCE RISK OF SUBSIDENCE-RELATED DAMAGE, NO BUILDING OR BUILDING SEGMENT MAY EXCEED 115 FEET IN LENGTH OR WIDTH. STRUCTURES ARE LIMITED TO TWO STORIES IN HEIGHT AND MUST BE CONSTRUCTED USING WOOD OR METAL FRAMING.

THE SUBSIDENCE HAZARD AND MITIGATION RECOMMENDATIONS ARE DESCRIBED IN MINE SUBSIDENCE INVESTIGATION, PRATT PROPERTY, APPROXIMATELY 330 ACRES IN SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST, ERIE, COLORADO (WESTERN ENVIRONMENT AND ECOLOGY, SEPTEMBER 19, 2014). THIS REPORT IS ON FILE WITH THE TOWN OF ERIE PLANNING AND DEVELOPMENT DEPARTMENT, FILE NO. FP-_____-202_

15. AN AVIGATION EASEMENT WILL BE ESTABLISHED ON THE FINAL PLAT AS PER PRATT 2 PROPERTY ANNEXATION AGREEMENT RECORDED MAY 14, 2007 AT RECEPTION NO. 3475773.

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LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 1 OF 18 SHEETS

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021

LAND SUMMARY CHART			
TYPE	AREA (SF)	AREA (AC)	% OF TOTAL AREA
LOTS (587)	3,447,725	79.149	27%
TRACTS (32)	7,277,233	167.062	58%
R.O.W.	1,903,532	43.699	15%
TOTAL:	12,628,490	289.910	100%

EASEMENTS TO BE VACATED AT TIME OF FINAL PLAT BY SEPARATE INSTRUMENT	
DESCRIPTION:	RECEPTION NO.
10' PIPELINE RIGHT OF WAY GRANT	2331353
20' TEMPORARY CONSTRUCTION MAINTENANCE EASEMENT (T.C.M.E.)	4131491 (ONLY THE T.C.ME. IS TO BE VACATED)
A PORTION OF THE 75' R.O.W. CHICAGO BURLINGTON QUINCY RAILROAD	BOOK 541, PAGE 524 REC. NO. 545994-PRINT 49314 1/2

ALL OTHER EXISTING EASEMENTS TO REMAIN

TRACT SUMMARY CHART				
NAME	AREA (SF)	AREA (AC)	USE	OWNER
TRACT A	3,254,685	74.717	DRAINAGE, LANDSCAPE, OIL & GAS	DISTRICT & HOA
TRACT B	263,462	6.048	DRAINAGE, LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT C	43,518	0.999	ACCESS, UTILITIES, ALLEYS, PUBLIC ACCESS EASEMENT	HOA
TRACT D	3,150	0.072	LANDSCAPE	DISTRICT & HOA
TRACT E	8,928	0.205	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	HOA
TRACT F	3,150	0.072	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT G	18,992	0.436	LANDSCAPE	DISTRICT & HOA
TRACT H	3,570	0.082	LANDSCAPE	HOA
TRACT I	3,570	0.082	LANDSCAPE	HOA
TRACT J	35,881	0.824	ACCESS, UTILITIES, ALLEYS, PUBLIC ACCESS EASEMENT	HOA
TRACT K	3,150	0.072	LANDSCAPE	HOA
TRACT L	3,150	0.072	LANDSCAPE	HOA
TRACT M	20,418	0.469	LANDSCAPE	DISTRICT & HOA
TRACT N	33,653	0.773	POCKET PARK, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT O	60,977	1.400	LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT P	18,266	0.419	LANDSCAPE	DISTRICT & HOA
TRACT Q	35,643	0.818	LANDSCAPE	DISTRICT & HOA
TRACT R	13,568	0.311	LANDSCAPE	DISTRICT & HOA
TRACT S	17,992	0.413	LANDSCAPE	DISTRICT & HOA
TRACT T	56,682	1.301	DRAINAGE & PEDESTRIAN ACESS EASEMENT AND LANDSCAPE	DISTRICT & HOA
TRACT U	20,067	0.461	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT V	60,569	1.390	DRAINAGE	DISTRICT & HOA
TRACT W	31,010	0.712	DRAINAGE	DISTRICT & HOA
TRACT X	1,281,953	29.430	DRAINAGE, UTILITY, PEDESTRIAN ACCESS EASEMENT, AND PUBLIC OPEN SPACE	TOWN OF ERIE
TRACT Y	107,178	2.460	DRAINAGE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT Z	399,289	9.166	DRAINAGE, UTILITY, PEDESTRIAN ACCESS EASEMENT, AND LANDSCAPE	DISTRICT & HOA
TRACT AA	1,095,693	25.154	DRAINAGE, LANDSCAPE, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT BB	30,819	0.708	POCKET PARK, PEDESTRIAN ACCESS EASEMENT	DISTRICT & HOA
TRACT CC	134,124	3.079	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT DD	145,992	3.352	DRAINAGE, LANDSCAPE	DISTRICT & HOA
TRACT EE	5,476	0.126	UTILITIES EASEMENT AGREEMENT REC. NO. 2892721 AND DRAINAGE, LANDSCAPE	TOWN OF ERIE
TRACT FF	62,656	1.438	POCKET PARK, DRAINAGE & PEDESTRIAN ACESS EASEMENT	DISTRICT & HOA
TOTAL	7,277,233	167.061		

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

CWC CONSULTING GROUP
CIVIL ENGINEERING - LAND SURVEYING - CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES

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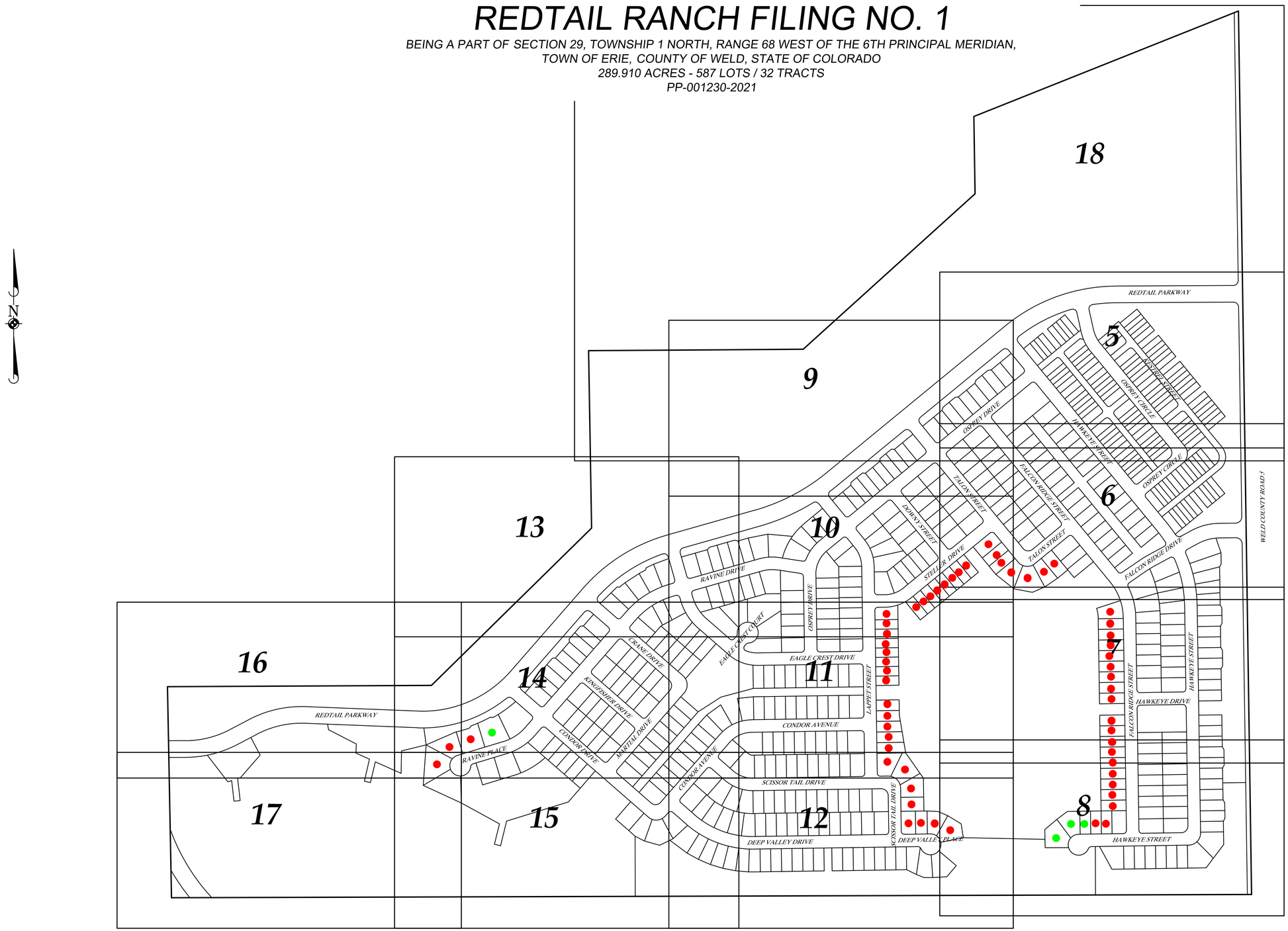
PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021



KEY MAP
NOT TO SCALE

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

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DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 3 OF 18 SHEETS

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021

LINE TABLE		
LINE	BEARING	LENGTH
L1	N41°06'00"E	21.34'
L2	N16°50'01"W	20.00'
L3	N00°51'18"W	20.00'
L4	S89°08'42"W	37.80'
L5	N41°06'00"E	9.40'
L6	S41°06'00"W	16.76'
L7	S84°57'50"E	11.25'
L8	N15°51'19"W	58.27'
L9	N15°51'19"W	13.27'
L10	S15°51'19"E	13.27'
L11	N74°08'41"E	15.27'
L12	S74°08'41"W	15.27'
L13	S89°08'42"W	79.06'
L14	S89°08'42"W	34.06'
L15	N89°08'42"E	34.06'
L16	S29°08'45"W	16.00'
L17	S30°51'20"E	16.00'
L18	N71°16'33"E	18.96'
L19	N71°16'33"E	14.97'
L20	N83°27'51"E	30.00'
L21	N10°57'29"W	27.35'
L22	S02°00'58"W	44.21'
L23	S76°47'54"E	30.00'
L24	S76°16'29"E	30.00'
L25	N40°45'11"E	16.00'
L26	N90°00'00"E	16.48'
L27	S47°29'35"E	40.50'
L28	N64°15'22"E	54.77'
L29	N64°13'13"E	16.91'
L30	S68°16'08"E	39.63'
L31	S89°33'35"E	41.40'
L32	S66°58'54"E	51.65'
L33	S87°20'02"E	51.65'
L34	N86°06'00"E	13.50'
L35	N03°54'00"W	14.14'
L36	N86°06'00"E	14.14'
L37	N03°54'00"W	14.14'
L38	N86°06'00"E	14.14'
L39	N51°49'38"E	33.94'
L40	N61°08'57"E	35.23'
L41	N44°08'41"E	16.00'
L42	S75°51'19"E	16.00'
L43	N89°08'42"E	49.06'
L44	N05°33'56"E	14.14'
L45	S84°26'04"E	14.14'
L46	N05°33'56"E	14.14'
L47	S84°26'04"E	14.14'
L48	N20°33'56"E	16.00'
L49	N80°33'56"E	16.00'
L50	S29°08'45"W	16.00'
L51	N20°33'56"E	16.00'
L52	N80°33'56"E	16.00'
L53	S30°51'20"E	16.00'
L54	S29°08'45"W	16.00'
L55	N00°51'18"W	20.00'
L56	S45°51'18"E	13.50'
L57	S30°51'18"E	16.00'
L58	S29°08'42"W	16.00'
L59	S30°51'18"E	16.00'
L60	S29°08'42"W	16.00'
L61	N50°33'56"E	30.00'
L62	N74°58'35"W	17.45'
L63	S89°08'42"W	38.00'
L64	S00°51'18"E	70.00'
L65	N00°51'18"W	54.55'
L66	S39°26'04"E	30.00'
L67	N39°26'04"W	30.00'
L68	S39°26'04"E	30.00'
L69	S39°28'28"E	30.00'
L70	S39°28'28"E	30.00'
L71	S03°54'00"E	13.50'
L72	N17°32'50"E	11.25'
L73	S05°33'56"W	13.92'
L74	S84°26'04"E	13.50'
L75	N64°14'58"E	38.85'
L76	S50°33'56"W	30.00'
L77	N55°54'41"E	50.22'
L78	N50°33'56"E	30.00'
L79	S41°04'57"E	27.63'

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C1	239.28'	500.00'	27°25'08"	237.00'	N75°59'17"E
C2	220.13'	460.00'	27°25'08"	218.04'	N75°59'17"E
C3	258.42'	540.00'	27°25'08"	255.96'	N75°59'17"E
C4	103.81'	540.00'	11°00'52"	103.65'	N84°11'25"E
C5	154.61'	540.00'	16°24'16"	154.08'	N70°28'51"E
C6	261.65'	500.00'	29°59'00"	258.68'	S77°16'13"W
C7	282.59'	540.00'	29°59'00"	279.37'	S77°16'13"W
C8	240.72'	460.00'	29°59'00"	237.98'	S77°16'13"W
C9	535.77'	600.00'	51°09'43"	518.14'	N66°40'51"E
C10	471.65'	600.00'	45°02'21"	459.60'	N69°44'32"E
C11	64.12'	600.00'	6°07'22"	64.09'	N44°09'41"E
C12	500.05'	560.00'	51°09'43"	483.60'	N66°40'51"E
C13	460.39'	640.00'	41°12'57"	450.52'	N71°39'14"E
C14	31.01'	640.00'	2°46'36"	31.01'	S89°07'35"E
C15	429.37'	640.00'	38°26'22"	421.36'	N70°15'56"E
C16	27.94'	20.00'	80°03'14"	25.73'	N88°55'37"W
C17	31.84'	20.00'	91°12'54"	28.58'	S03°17'33"E
C18	13.57'	640.00'	1°12'54"	13.57'	N41°42'27"E
C19	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C20	132.00'	654.63'	11°33'11"	131.78'	N54°33'24"E
C21	104.24'	654.63'	9°07'25"	104.13'	N53°20'31"E
C22	27.76'	654.63'	2°25'46"	27.76'	N59°07'07"E
C23	96.36'	646.63'	8°32'19"	96.28'	N65°52'18"E
C24	64.91'	646.63'	5°45'06"	64.89'	N64°28'42"E
C25	31.45'	646.63'	2°47'12"	31.45'	N68°44'51"E
C26	65.18'	654.63'	5°42'16"	65.15'	N74°12'48"E
C27	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C28	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C29	145.51'	260.00'	32°03'59"	143.62'	N57°07'59"E
C30	128.72'	230.00'	32°03'59"	127.05'	N57°07'59"E
C31	93.86'	230.00'	23°22'52"	93.21'	N52°47'26"E
C32	34.86'	230.00'	8°41'07"	34.83'	N68°49'25"E
C33	162.30'	290.00'	32°03'59"	160.19'	N57°07'59"E
C34	47.97'	290.00'	9°28'38"	47.91'	N45°50'19"E
C35	86.95'	290.00'	17°10'44"	86.62'	N59°10'00"E
C36	27.38'	290.00'	5°24'37"	27.37'	N70°27'40"E
C37	91.11'	58.00'	90°00'00"	82.02'	N45°51'18"W
C38	20.64'	18.00'	65°41'03"	19.52'	S40°19'27"W
C39	214.40'	50.00'	245°41'03"	84.02'	S49°40'33"E
C40	29.17'	50.00'	33°25'20"	28.75'	S56°27'18"W
C41	52.84'	50.00'	60°33'19"	50.42'	S09°27'59"W
C42	61.54'	50.00'	70°31'09"	57.73'	S56°04'15"E
C43	70.85'	50.00'	81°11'15"	65.07'	N48°04'33"E
C44	176.00'	400.00'	25°12'37"	174.58'	N60°33'40"E
C45	37.77'	400.00'	5°24'37"	37.76'	N70°27'40"E
C46	138.23'	400.00'	19°48'00"	137.54'	N57°51'22"E
C47	11.75'	58.00'	11°36'10"	11.73'	N85°03'13"W
C48	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C49	98.96'	63.00'	90°00'00"	89.10'	N86°06'00"E
C50	49.48'	63.00'	45°00'00"	48.22'	S71°24'00"E
C51	49.48'	63.00'	45°00'00"	48.22'	N63°36'00"E
C52	91.11'	58.00'	90°00'00"	82.02'	N86°06'00"E
C53	21.67'	58.00'	21°24'19"	21.54'	S59°36'10"E
C54	48.95'	58.00'	48°21'32"	47.51'	N85°30'55"E
C55	20.48'	58.00'	20°14'09"	20.38'	N51°13'04"E
C56	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C57	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C58	333.17'	455.00'	41°57'17"	325.78'	S69°52'39"E
C59	311.21'	425.00'	41°57'17"	304.30'	S69°52'39"E
C60	70.58'	315.00'	12°50'17"	70.43'	S55°19'09"E
C61	77.99'	315.00'	14°11'06"	77.79'	S68°49'50"E
C62	79.41'	315.00'	14°26'36"	79.20'	S83°08'41"E
C63	2.69'	315.00'	0°29'19"	2.69'	N89°23'22"E
C64	31.97'	315.00'	5°48'57"	31.96'	S51°48'29"E
C65	355.14'	485.00'	41°57'17"	347.26'	S69°52'39"E
C66	8.76'	485.00'	1°02'03"	8.75'	S49°25'02"E

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C67	68.14'	485.00'	8°02'57"	68.08'	S53°57'32"E
C68	50.90'	485.00'	6°00'45"	50.87'	S60°59'23"E
C69	50.90'	485.00'	6°00'45"	50.87'	S67°00'08"E
C70	50.90'	485.00'	6°00'45"	50.87'	S73°00'54"E
C71	50.90'	485.00'	6°00'45"	50.87'	S79°01'39"E
C72	50.90'	485.00'	6°00'45"	50.87'	S85°02'24"E
C73	23.78'	485.00'	2°48'32"	23.77'	S89°27'02"E
C74	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C75	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C76	214.40'	50.00'	245°41'03"	84.02'	N31°59'14"E
C77	31.82'	50.00'	36°27'31"	31.28'	N72°37'32"W
C78	37.43'	50.00'	42°53'45"	36.57'	N32°56'55"W
C79	43.53'	50.00'	49°52'38"	42.16'	N13°26'17"E
C80	41.83'	50.00'	47°55'44"	40.62'	N62°20'28"E
C81	59.80'	50.00'	68°31'26"	56.30'	S59°25'57"E
C82	20.64'	18.00'	65°41'03"	19.52'	N58°00'46"W
C83	13.48'	18.00'	42°54'29"	13.17'	N69°24'03"W
C84	7.16'	18.00'	22°46'35"	7.11'	N36°33'32"W
C85	51.00'	315.00'	9°16'35"	50.94'	S59°21'15"E
C86	51.00'	315.00'	9°16'35"	50.94'	S68°37'50"E
C87	51.00'	315.00'	9°16'35"	50.94'	S77°54'25"E
C88	45.69'	315.00'	8°18'35"	45.65'	S86°42'00"E
C89	43.14'	425.00'	5°48'57"	43.12'	S51°48'29"E
C90	68.81'	425.00'	9°16'35"	68.73'	S59°21'15"E
C91	68.81'	425.00'	9°16'35"	68.73'	S68°37'50"E
C92	68.81'	425.00'	9°16'35"	68.73'	S77°54'25"E
C93	61.64'	425.00'	8°18'35"	61.58'	S86°42'00"E
C94	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C95	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C96	128.14'	175.00'	41°57'17"	125.30'	S69°52'39"E
C97	106.18'	145.00'	41°57'17"	103.82'	S69°52'39"E
C98	19.86'	145.00'	7°50'55"	19.85'	S45°01'27"W
C99	101.73'	145.00'	40°11'47"	99.65'	S69°02'49"W
C100	150.11'	205.00'	41°57'17"	146.78'	S69°52'39"E
C101	2.69'	205.00'	0°45'02"	2.69'	N89°31'14"E
C102	50.74'	205.00'	14°10'53"	50.61'	S83°00'49"E
C103	50.75'	205.00'	14°11'06"	50.62'	S68°49'50"E
C104	45.93'	205.00'	12°50'17"	45.84'	S55°19'09"E
C105	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C106	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C107	98.96'	63.00'	90°00'00"	89.10'	N45°51'18"W
C108	63.73'	58.00'	62°57'26"	60.57'	N47°46'24"W
C109	15.63'	58.00'	15°26'24"	15.58'	N08°34'30"W
C110	25.63'	35.00'	41°57'17"	25.06'	S69°52'39"E
C111	51.84'	33.00'	90°00'00"	46.67'	N86°06'00"E
C112	51.84'	33.00'	90°00'00"	46.67'	N45°51'18"W
C113	146.75'	175.00'	48°02'43"	142.48'	S65°07'21"W
C114	171.90'	205.00'	48°02'43"	166.91'	S65°07'21"W
C115	18.37'	205.00'	5°08'04"	18.36'	S43°40'02"W
C116	55.75'	205.00'	15°34'57"	55.58'	S54°01'32"W
C117	52.59'	205.00'	14°41'56"	52.45'	S69°09'59"W
C118	45.19'	205.00'	12°37'46"	45.10'	S82°49'49"W
C119	121.59'	145.00'	48°02'43"	118.06'	S65°07'21"W
C120	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C121	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C122	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C123	51.84'	33.00'	90°00'00"	46.67'	N03°54'00"W
C124	98.96'	63.00'	90°00'00"	89.10'	N03°54'00"W
C125	23.56'	15.00'	90°00'00"	21.21'	N45°51'18"W
C126	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C127	49.48'	63.00'	45°00'00"	48.22'	N18°36'00"E
C128	49.48'	63.00'	45°00'00"	48.22'	N26°24'00"W
C129	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C130	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C131	91.11'	58.00'	90°00'00"	82.02'	N03°54'00"W
C132	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C133	23.56'	15.00'	90°00'00"	21.21'	S86°06'00"W
C134	23.56'	15.00'	90°00'00"	21.21'	N03°54'00"W
C135	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C136	23.56'	15.00'	90°00'00"	21.21'	S03°54'00"E
C137	230.70'	400.00'	33°02'41"	227.51'	S57°37'20"W
C138	213.39'	370.00'	33°02'41"	210.45'	S57°37'20"W
C139	15.43'	370.00'	2°23'22"	15.43'	S42°17'41"W
C140	88.63'	370.00'	13°43'27"	88.42'	S50°21'06"W
C141	59.78'	370.00'	9°15'24"	59.71'	S61°50'31"W
C142	49.56'	370.00'	7°40'27"	49.52'	S70°18'27"W
C143	23.56'	15.00'	90°00'00"	21.21'	N45°51'18"W
C144	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C145	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C146	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C147	128.14'	175.00'	41°57'17"	125.30'	S69°52'39"E
C148	57.18'	145.00'	22°35'38"	56.81'	S79°33'28"E
C149	28.63'	15.00'	109°21'39"	24.48'	S13°34'50"E
C150	150.11'	205.00'	41°57'17"	146.78'	S69°52'39"E
C151	22.63'	205.00'	6°19'35"	22.62'	S87°41'30"E
C152	127.48'	205.00'	35°37'43"	125.43'	S66°42'52"E
C153	64.11'	280.00'	13°07'06"	63.97'	S22°24'52"E
C154	56.50'	280.00'	11°33'43"	56.41'	S34°45'16"E
C155	40.88'	280.00'	8°21'53"	40.84'	S44°43'04"E
C156	14.17'	18.00'	45°05'57"	13.81'	S63°38'58"W
C157	235.79'	50.00'	270°11'54"	70.59'	N48°54'00"W
C158	45.18'	50.00'	51°46'40"	43.66'	N60°18'37"E
C159	59.38'	50.00'	68°02'30"	55.95'	N00°24'02"E
C160	49.85'	50.00'	57°07'42"	47.81'	N62°11'04"W
C161	53.03'	50.00'	60°46'10"	50.58'	S58°51'59"W
C162	28.34'	50.00'	32°28'51"	27.97'	S12°14'29"W
C163	14.17'	18.00'	45°05'57"	13.81'	N18°33'01"E
C164	23.56'	15.00'	90°00'00"	21.21'	N86°06'00"E
C165	144.18'	250.00'	33°02'41"	142.19'	S32°22'40"E
C166	126.88'	220.00'	33°02'41"	125.13'	S32°22'40"E
C167	43.14'	220.00'	11°14'09"	43.07'	S43°16'56"E
C168	83.74'	220.00'	21°48'32"	83.24'	S26°45'35"E
C169	161.49'	280.00'	33°02'41"	159.26'	S32°22'40"E
C170	248.00'	430.00'	33°02'41"	244.57'	S57°37'20"W
C171	15.43'	430.00'	2°03'21"	15.43'	S42°07'40"W
C172	65.08'	430.00'	8°40'18"	65.02'	S47°29'30"W
C173	23.56'	15.00'	90°00'00"	21.21'	S29°08'41"W
C174	23.56'	15.00'	90°00'00"	21.21'	S60°51'19"E
C175	23.56'	15.00'	90°00'00"	21.21'	N29°08'41"E
C176	23.56'	15.00'	90°00'00"	21.21'	N60°51'19"W
C177	65.08'	430.00'	8°40'18"	65.02'	S56°09'47"W
C178	65.08'	430.00'	8°40'18"	65.02'	S64°50'05"W
C179	37.33'	430.00'	4°58'27"	37.32'	S71°39'27"W
C180	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C181	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C182	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C183	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C184	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C185	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C186	288.44'	600.00'	27°32'39"	285.67'	N14°37'37"W
C187	253.98'	630.00'	23°05'53"	252.26'	N12°24'14"W
C188	31.42'	20.00'	90°00'00"	28.28'	S86°06'00"W
C189	31.95'	20.00'	91°32'06"	28.66'	S03°07'57"E
C190	373.65'	760.00'	28°10'08"	369.89'	S56°43'09"W
C191	32.58'	20.00'	93°20'27"	29.10'	N62°31'33"W
C192	461.39'	800.00'	33°02'41"	455.02'	S57°37'20"W
C193	484.46'	840.00'	33°02'41"	477.77'	S57°37'20"W
C194	31.42'	20.00'	90°00'00"	28.28'	S29°08'41"W
C195	51.96'	630.00'	4°43'33"	51.95'	N21°35'25"W
C196	51.01'	630.00'	4°38'22"	51.00'	N16°54'27"W
C197	51.01'	630.00'	4°38'22"	51.00'	N12°16'05"W
C198	51.01'	630.00'	4°38'22"	51.00'	N07°37'43"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C199	85.83'	200.00'	24°35'21"	85.17'	S86°26'21"W
C200	98.71'	230.00'	24°35'21"	97.95'	S86°26'21"W
C201	48.97'	630.00'	4°27'14"	48.96'	N03°04'55"W
C202	47.07'	230.00'	11°43'37"	46.99'	S80°00'29"W
C203	51.63'	230.00'	12°51'44"	51.52'	N87°41'51"W
C204	72.96'	170.00'	24°35'21"	72.40'	S86°26'21"W
C205	22.67'	315.00'	4°07'25"	22.67'	S01°12'25"W
C206	21.05'	15.00'	80°24'41"	19.37'	N41°03'38"W
C207	20.47'	15.00'	78°11'50"	18.92'	N59°38'06"E
C208	157.05'	175.00'	51°25'13"	151.84'	S24°51'19"W
C209	29.29'	175.00'	9°35'19"	29.25'	S03°56'22"W
C210	127.77'	175.00'	41°49'54"	124.95'	S29°38'58"W
C211	130.13'	145.00'	51°25'13"	125.81'	S24°51'19"W
C212	125.64'	145.00'	49°38'45"	121.75'	S23°58'05"W
C213	4.49'	145.00'	1°46'29"	4.49'	S49°40'41"W
C214	107.44'	205.00'	30°01'44"	106.22'	S35°33'04"W
C215	43.40'	205.00'	12°07'44"	43.32'	S26°36'04"W
C216	50.50'	205.00'	14°06'51"	50.37'	S39°43'21"W
C217	13.55'	205.00'	3°47'09"	13.54'	S48°40'21"W
C218	115.03'	315.00'	20°55'22"	114.39'	S24°39'36"W
C219	84.91'	315.00'	15°26'38"	84.65'	S42°50'36"W
C220	101.53'	315.00'	18°28'00"	101.09'	S23°25'55"W
C221	77.60'	315.00'	14°06'51"	77.40'	S39°43'21"W
C222	20.81'	315.00'	3°47'09"	20.81'	S48°40'21"W
C223	23.56'	15.00'	90°00'00"	21.21'	S44°08'42"W
C224	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C225	117.83'	175.00'	38°34'47"	115.62'	N69°51'19"E
C226	97.63'	145.00'	38°34'47"	95.80'	N69°51'19"E
C227	46.08'	145.00'	18°12'32"	45.89'	N80°02'26"E
C228	51.55'	145.00'	20°22'15"	51.28'	N60°45'03"E
C229	138.03'	205.00'	38°34'47"	135.44'	N69°51'19"E
C230	61.87'	205.00'	17°17'34"	61.64'	N80°29'55"E
C231	40.04'	205.00'	11°11'22"	39.97'	N66°15'27"E
C232	36.13'	205.00'	10°05'51"	36.08'	N55°36'51"E
C233	23.57'	35.00'	38°34'47"	23.12'	N69°51'19"E
C234	12.44'	35.00'	20°22'15"	12.38'	N60°45'03"E
C235	11.12'	35.00'	18°12'32"	11.08'	N80°02'26"E
C236	117.83'	175.00'	38°34'47"	115.62'	N20°08'41"W
C237	138.03'	205.00'	38°34'47"	135.44'	N20°08'41"W
C238	41.54'	205.00'	11°36'35"	41.47'	N06°39'35"W
C239	46.86'	205.00'	13°05'49"	46.76'	N19°00'47"W
C240	46.86'	205.00'	13°05'49"	46.76'	N32°06'36"W
C241	2.78'	205.00'	0°46'34"	2.78'	N39°02'47"W
C242	97.63'	145.00'	38°34'47"	95.80'	N20°08'41"W
C243	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C244	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C245	411.53'	1000.00'	23°34'45"	408.64'	N62°21'18"E
C246	314.33'	1000.00'	18°00'35"	313.04'	N65°08'23"E
C247	97.21'	1000.00'	5°34'10"	97.17'	N53°21'01"E
C248	395.07'	960.00'	23°34'45"	392.29'	N62°21'18"E
C249	283.25'	1040.00'	15°36'17"	282.38'	N66°20'32"E
C250	28.63'	20.00'	82°01'33"	26.25'	N80°26'51"W
C251	32.30'	20.00'	92°32'39"	28.91'	S06°50'15"W
C252	46.18'	1040.00'	2°32'39"	46.18'	N51°50'15"E
C253	227.75'	570.00'	22°53'36"	226.24'	N12°18'06"W
C254	67.37'	570.00'	6°46'19"	67.33'	N20°21'45"W
C255	31.42'	20.00'	90°00'00"	28.28'	N84°26'04"W
C256	31.42'	20.00'	90°00'00"	28.28'	S05°33'56"W
C257	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C258	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C259	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C260	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C261	23.56'	15.00'	90°00'00"	21.21'	S84°26'04"E
C262	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C263	97.39'	62.00'	90°00'00"	87.68'	S84°26'04"E
C264	51.84'	33.00'	90°00'00"	46.67'	S84°26'04"E

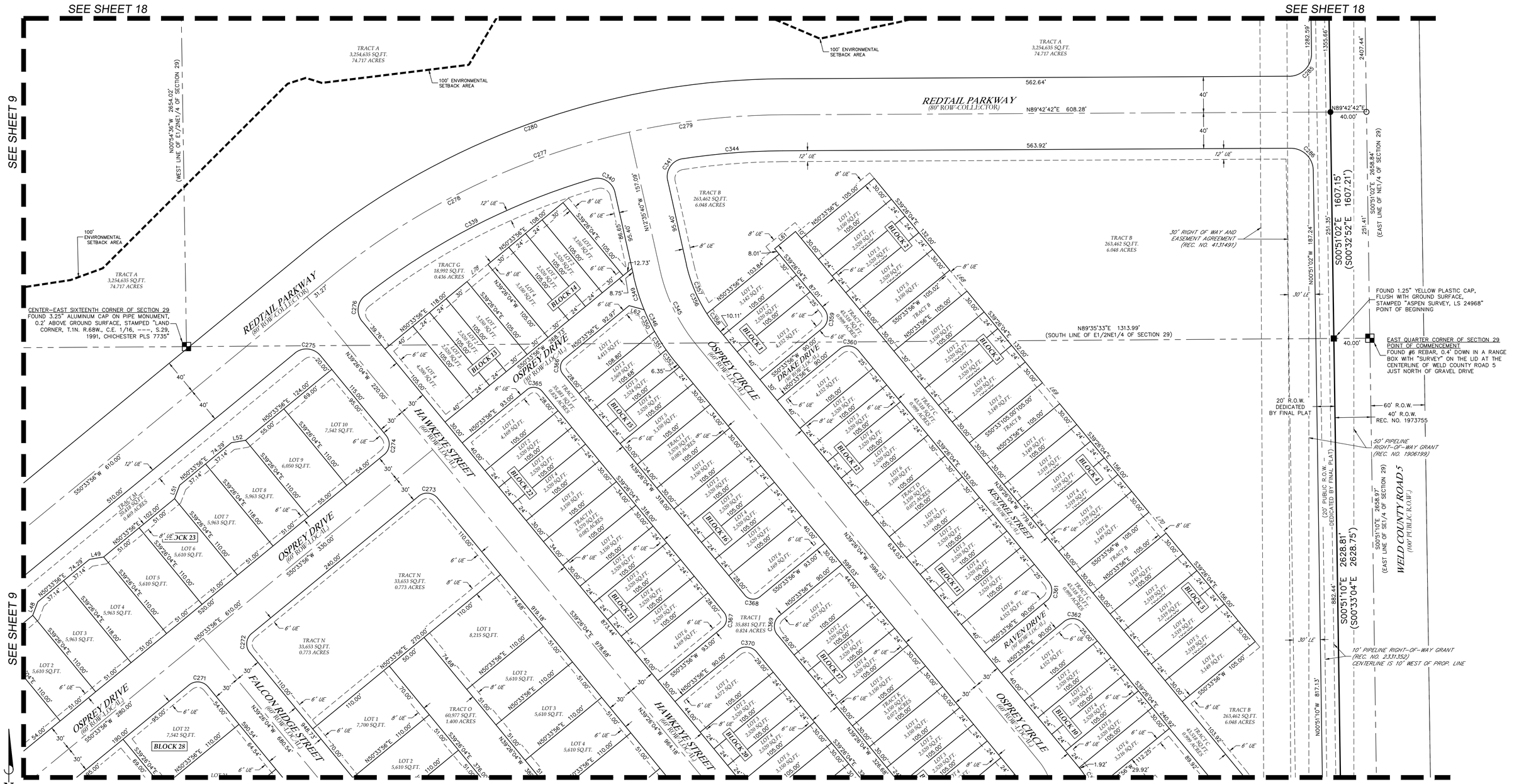
CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C265	91.11'	58.00'	90°00'00"	82.02'	S84°26'04"E
C266	11.48'	58.00'	11°20'23"	11.46'	N56°14'07"E
C267	50.14'	58.00'	49°31'37"	48.59'	N86°40'07"E
C268	29.49'	58.00'	29°08'00"	29.17'	S54°00'05"E
C269	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C270	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C271	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C272	23.56'	15.00'	90°00'00"	21.21'	S05°33'56"W
C273	23.56'	15.00'	90°00'00"	21.21'	N84°26'04"W
C274	23.56'	15.00'	90°00'00"	21.21'	N05°33'56"E
C275	31.42'	20.00'	90°00'00"	28.28'	N84°26'04"W
C276	31.92'	20.00'	91°27'01"	28.64'	S06°17'26"W
C277	546.58'	800.00'	39°08'46"	536.01'	S70°08'19"W
C278	329.45'	800.00'	23°35'42"	327.12'	S62°21'46"W
C279	217.14'	800.00'	15°33'05"	216.47'	S81°56'09"W
C280	573.91'	840.00'	39°08'46"	562.81'	S70°08'19"W
C281	76.59'	570.00'	7°41'55"	76.53'	N13°07'38"W
C282	61.62'	570.00'	6°11'37"	61.59'	N06°10'52"W
C283	22.18'	570.00'	2°13'46"	22.18'	N01°58'11"W
C284	51.00'	470.00'	6°13'03"	50.98'	S58°29'32"W
C285	39.52'	25.00'	90°33'44"	35.53'	N44°25'50"E
C286	39.02'	25.00'	89°26'16"	35.18'	N45°34'10"W
C287	22.13'	470.00'	2°41'53"	22.13'	S56°43'57"W
C288	28.87'	470.00'	3°31'10"	28.87'	S59°50'28"W
C289	151.29'	330.00'	26°16'01"	149.97'	N13°59'18"W
C290	68.05'	330.00'	11°48'57"	67.93'	N21°12'50"W
C291	61.70'	330.00'	10°42'43"	61.61'	N09°57'00"W
C292	21.54'	330.00'	3°44'21"	21.53'	N02°43'28"W
C293	181.80'	270.00'	38°34'47"	178.39'	N20°08'41"W
C294	100.34'	270.00'	21°17'32"	99.76'	N28°47'19"W
C295	81.47'	270.00'	17°17'15"	81.16'	N09°29'55"W
C296	45.26'	150.00'	17°17'15"	45.09'	N09°29'55"W
C297	122.75'	597.48'	11°46'17"	122.53'	N17°49'12"W
C298	85.39'	597.48'	8°11'20"	85.32'	N07°50'24"W
C299	29.21'	597.48'	2°48'04"	29.21'	N02°20'42"W
C300	69.00'	597.48'	6°37'01"	68.96'	N20°23'50"W
C301	53.75'	597.48'	5°09'16"	53.73'	N14°30'42"W
C302	51.00'	597.48'	4°53'27"	50.98'	N09°29'21"W
C303	51.00'	597.48'	4°53'27"	50.98'	N04°35'54"W
C304	12.60'	597.48'	1°12'31"	12.60'	N01°32'55"W
C305	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C306	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C307	88.10'	215.00'	23°28'42"	87.49'	S73°20'24"W
C308	15.26'	215.00'	4°04'00"	15.26'	S87°06'46"W
C309	23.56'	15.00'	90°00'00"	21.21'	N44°08'42"E
C310	23.56'	15.00'	90°00'00"	21.21'	S45°51'18"E
C311	214.40'	50.00'	245°41'04"	84.02'	S33°41'49"E
C312	115.56'	600.00'	11°02'08"	115.38'	N33°55'01"W
C313	42.35'	50.00'	48°31'28"	41.09'	S64°53'00"W
C314	67.97'	630.00'	6°10'54"	67.94'	N36°20'38"W
C315	49.77'	50.00'	57°02'00"	47.74'	S12°06'16"W
C316	122.28'	50.00'	140°07'37"	94.01'	S86°28'33"E
C317	29.72'	20.00'	85°08'46"	27.06'	S75°49'34"E
C318	63.52'	570.00'	6°23'05"	63.49'	N36°14'32"W
C319	9.47'	570.00'	0°57'07"	9.47'	N38°57'31"W
C320	54.05'	570.00'	5°25'59"	54.03'	N35°45'58"W
C321	24.78'	15.00'	94°39'03"	22.06'	N14°16'32"E
C322	120.19'	250.00'	27°32'42"	119.03'	S75°22'24"W
C323	137.01'	285.00'	27°32'42"	135.70'	S75°22'24"W
C324	103.36'	215.00'	27°32'42"	102.37'	S75°22'24"W
C325	20.64'	18.00'	65°41'03"	19.52'	S56°18'11"W
C326	98.96'	63.00'	90°00'00"	89.10'	N44°08'42"E
C327	47.12'	30.00'	89°59'56"	42.43'	N44°08'47"E
C328	47.12'	30.00'	90°00'04"	42.43'	N45°51'13"W
C329	22.40'	15.00'	85°33'14"	20.37'	S18°49'26"W
C330	49.48'	63.00'	45°00'00"	48.22'	N66°38'42"E

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD	CH BEARING
C331	49.48'	63.00'	45°00'00"	48.22'	N21°38'42"E
C332	51.84'	33.00'	90°00'00"	46.67'	N44°08'42"E
C333	91.11'	58.00'	90°00'00"	82.02'	N44°08'42"E
C334	44.23'	58.00'	43°41'33"	43.17'	N67°17'56"E
C335	46.88'	58.00'

PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021



GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND	
BOUNDARY LINE	R.O.W. = RIGHT OF WAY
SECTION/ALIQUOT LINE	UE = UTILITY EASEMENT
CENTER LINE	DE = DRAINAGE EASEMENT
EASEMENT LINE	LE = LANDSCAPE EASEMENT
100' ENVIRONMENTAL SETBACK AREA	
ENVIRONMENTALLY SENSITIVE AREA	

UTILITY EASEMENTS (UE), DRAINAGE EASEMENT (DE), LANDSCAPE EASEMENT (LE) AND ALL INTERNAL ROAD ROW FOR THE DEVELOPMENT PROPOSED IN THIS PLAN SET, WILL BE CREATED AND DEDICATED BY FINAL PLAT

* FOR LINE AND CURVE TABLES SEE SHEET 4 *

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK

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DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021

GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND	
BOUNDARY LINE	R.O.W. = RIGHT OF WAY
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SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 6 OF 18 SHEETS

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PRELIMINARY PLAT

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TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
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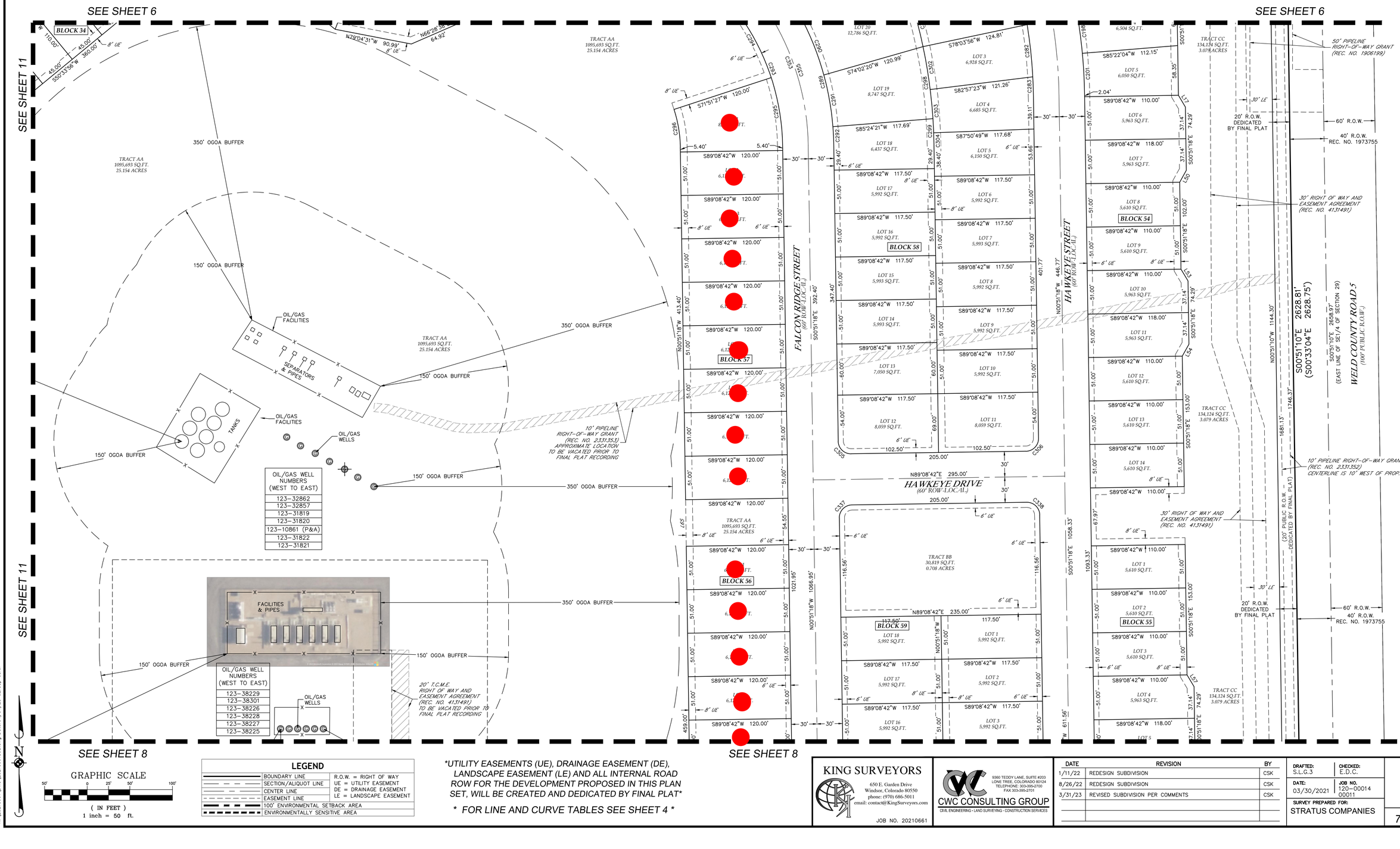
PP-001230-2021



LEGEND

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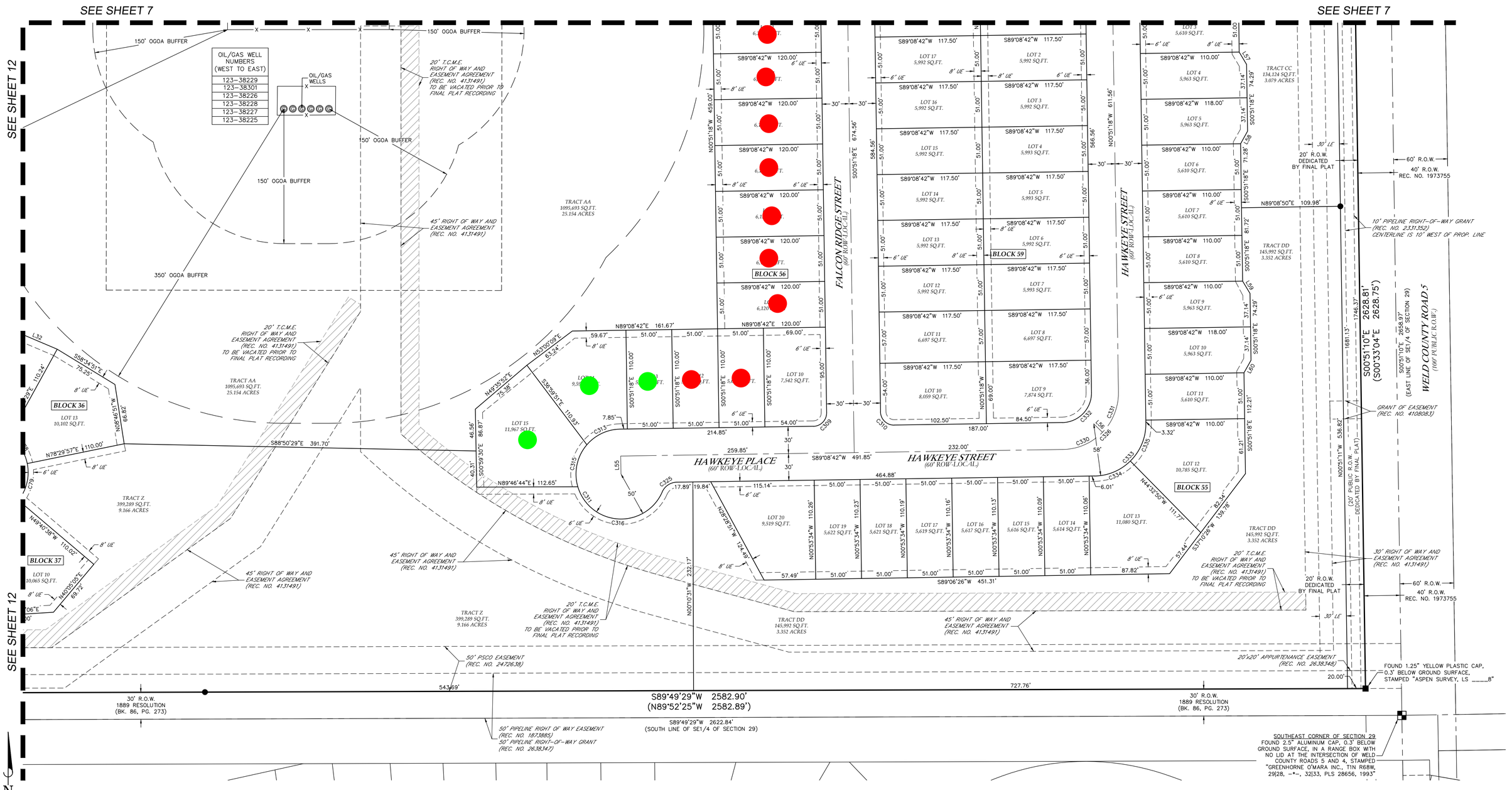

GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND		
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SHEET NO. 8 OF 18 SHEETS

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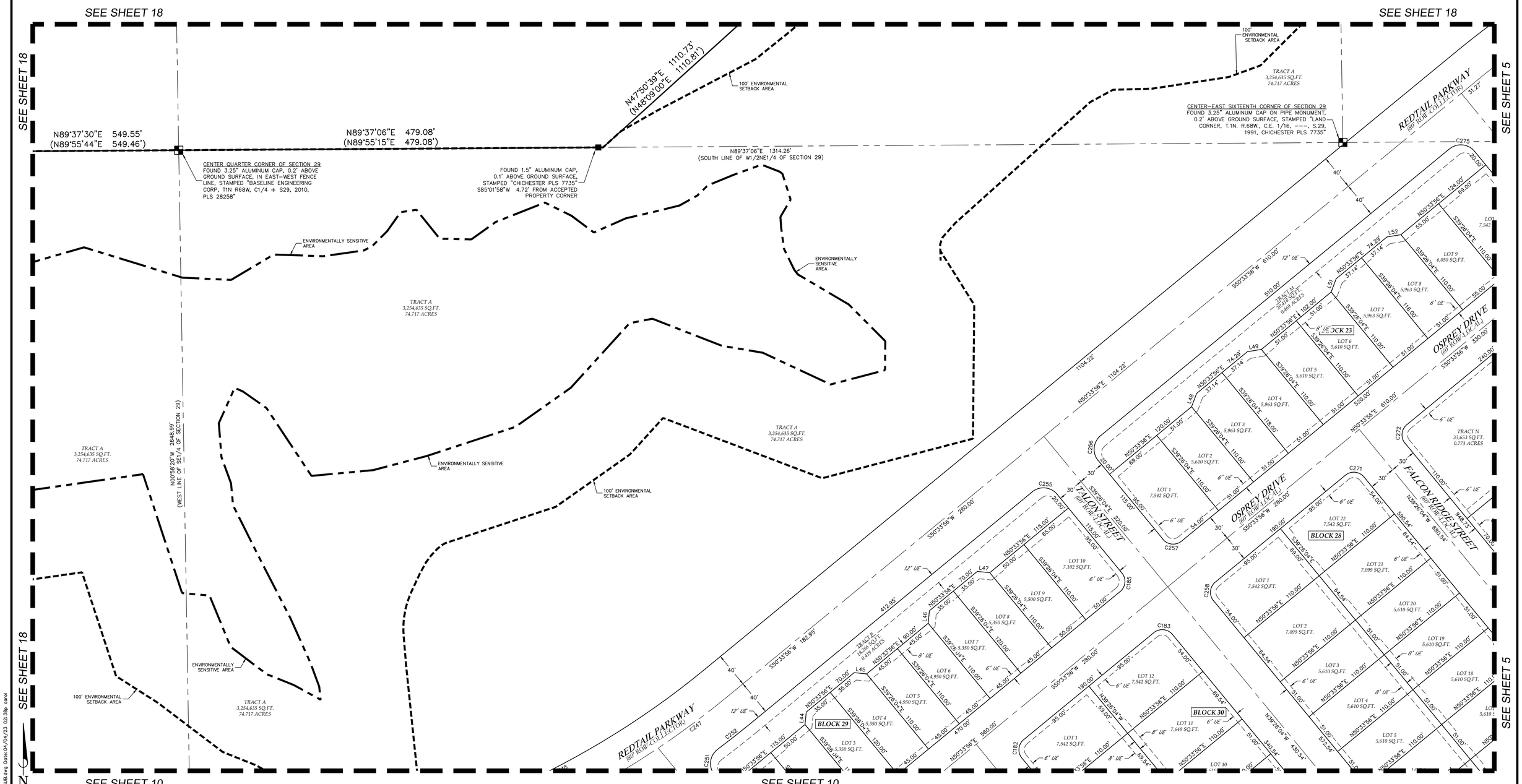

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SHEET NO. 9 OF 18 SHEETS

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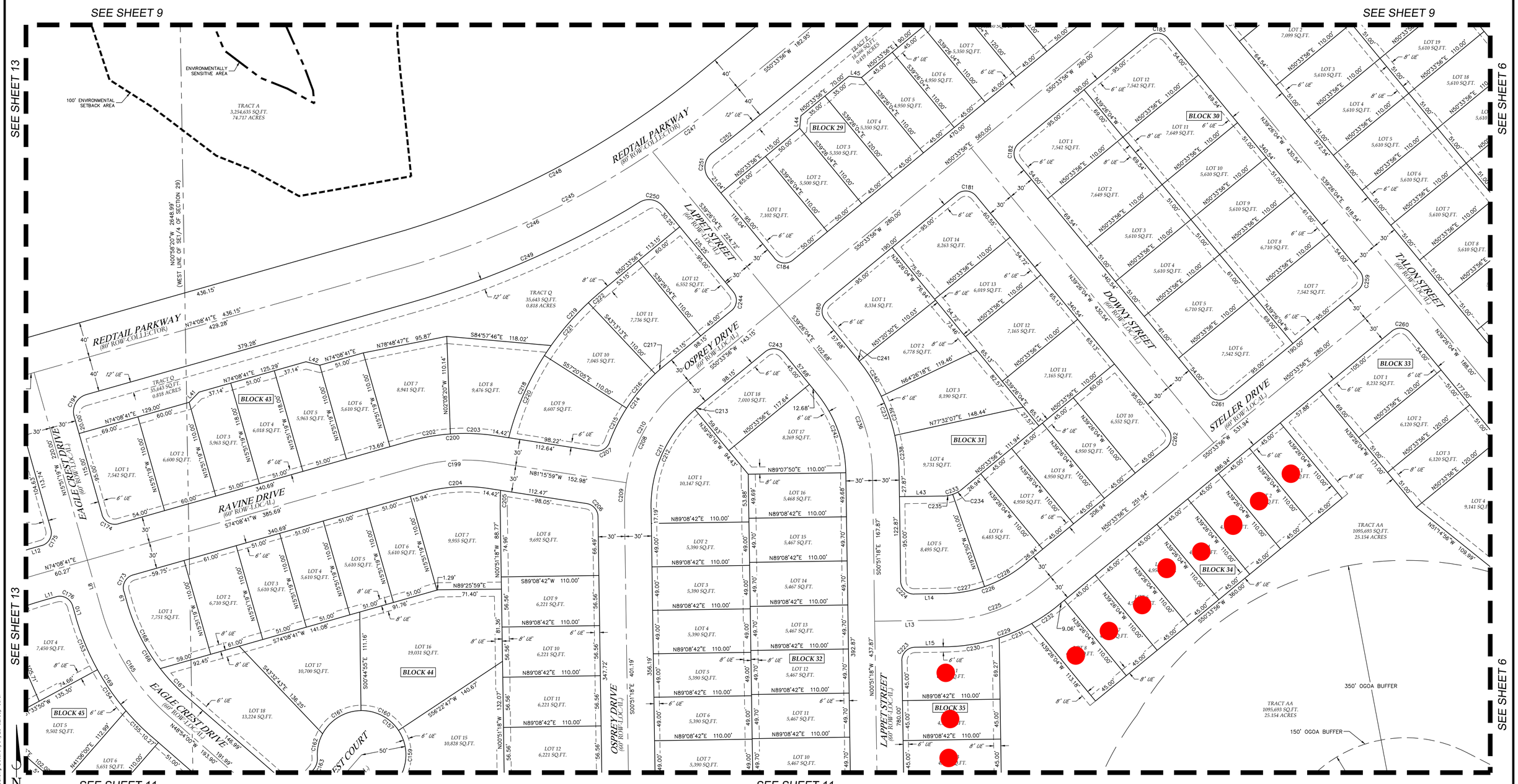

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SHEET NO. 10 OF 18 SHEETS

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PRELIMINARY PLAT

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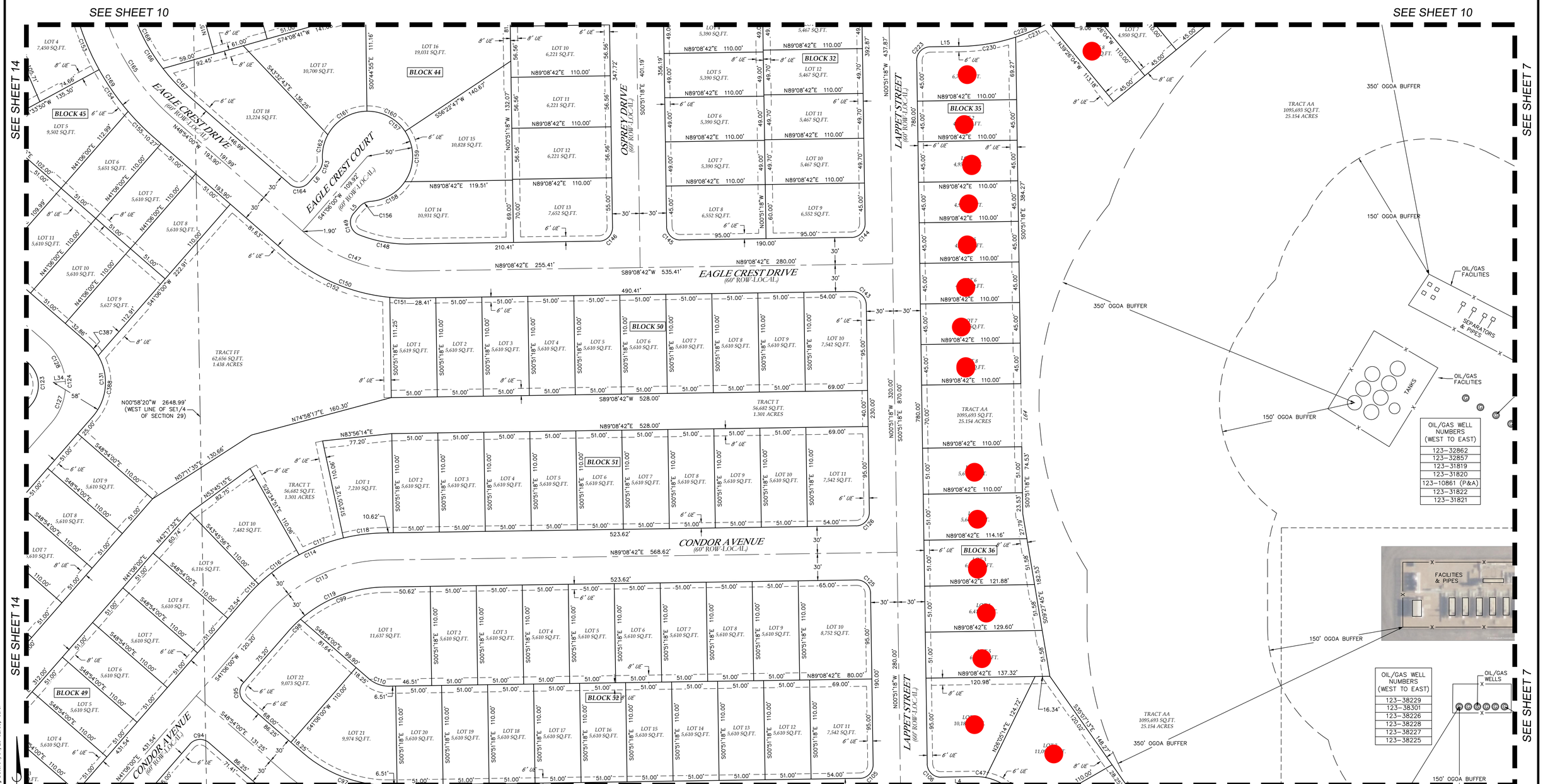
SEE SHEET 10
SEE SHEET 10
SEE SHEET 14
SEE SHEET 7
SEE SHEET 12
SEE SHEET 12
EAGLE CREST DRIVE (60' ROW-LOCAL)
EAGLE CREST COURT (60' ROW-LOCAL)
OSPREY DRIVE (60' ROW-LOCAL)
LAPPET STREET (60' ROW-LOCAL)
CONDOR AVENUE (60' ROW-LOCAL)
BLOCK 44
BLOCK 45
BLOCK 32
BLOCK 35
BLOCK 50
BLOCK 51
BLOCK 36
BLOCK 49
BLOCK 52
TRACT AA 1095,693 SQ.FT. 25.154 ACRES
TRACT FF 62,656 SQ.FT. 1.438 ACRES
TRACT T 56,682 SQ.FT. 1.301 ACRES
350' OGOA BUFFER
150' OGOA BUFFER
OIL/GAS FACILITIES
SEPARATORS & PIPES
TANKS
FACILITIES & PIPES
OIL/GAS WELL NUMBERS (WEST TO EAST)
123-32862
123-32857
123-31819
123-31820
123-10861 (P&A)
123-31822
123-31821
OIL/GAS WELL NUMBERS (WEST TO EAST)
123-38229
123-38301
123-38226
123-38228
123-38227
123-38225
N00°58'20"W 2648.99' (WEST LINE OF SE1/4 OF SECTION 29)
N89°08'42"E 255.41'
S89°08'42"W 535.41'
N89°08'42"E 280.00'
N89°08'42"E 528.00'
N89°08'42"E 568.62'
S89°08'42"W 528.00'
N89°08'42"E 255.41'
N89°08'42"E 280.00'
N89°08'42"E 528.00'
N89°08'42"E 568.62'
S89°08'42"W 528.00'
N89°08'42"E 110.00'
N89°08'42"E 119.51'
N89°08'42"E 121.88'
N89°08'42"E 129.60'
N89°08'42"E 137.32'
N89°08'42"E 120.98'
N89°08'42"E 114.16'
N89°08'42"E 110.00'
S89°08'42"W 528.00'
N89°08'42"E 528.00'
N89°08'42"E 568.62

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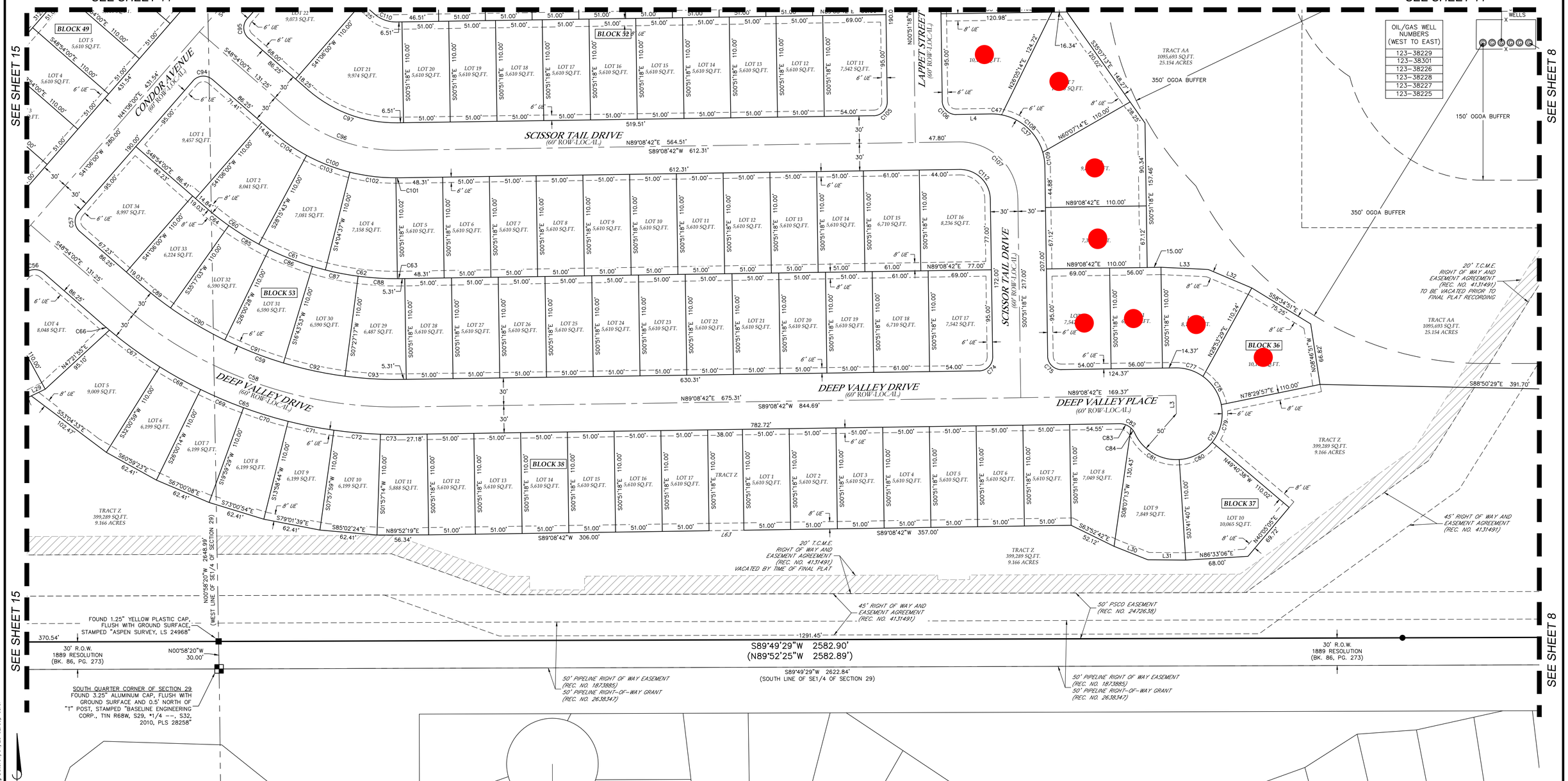

GRAPHIC SCALE
50' 0 25' 50' 100'
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SHEET NO. 12 OF 18 SHEETS

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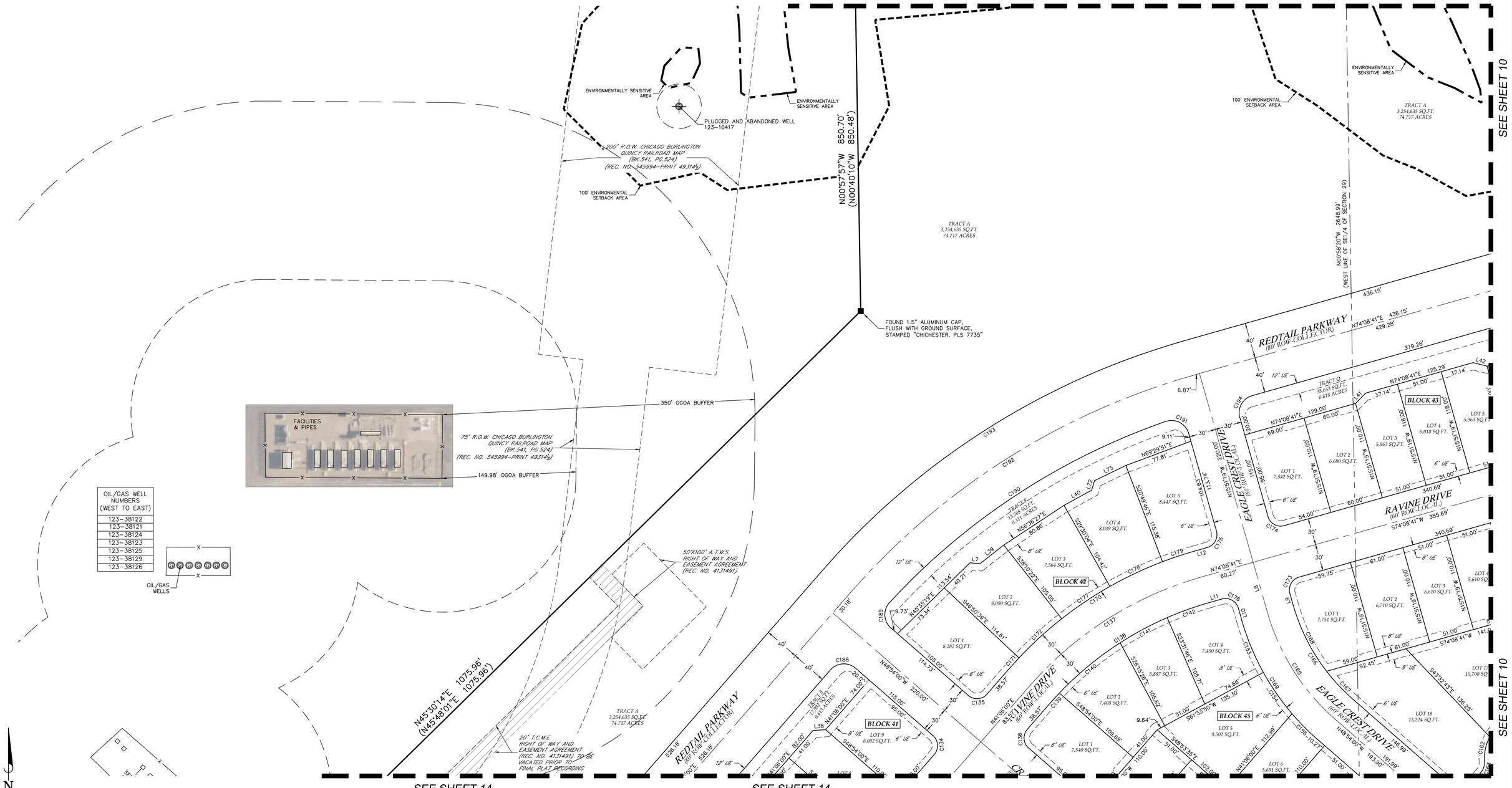

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SHEET NO. 13 OF 18 SHEETS

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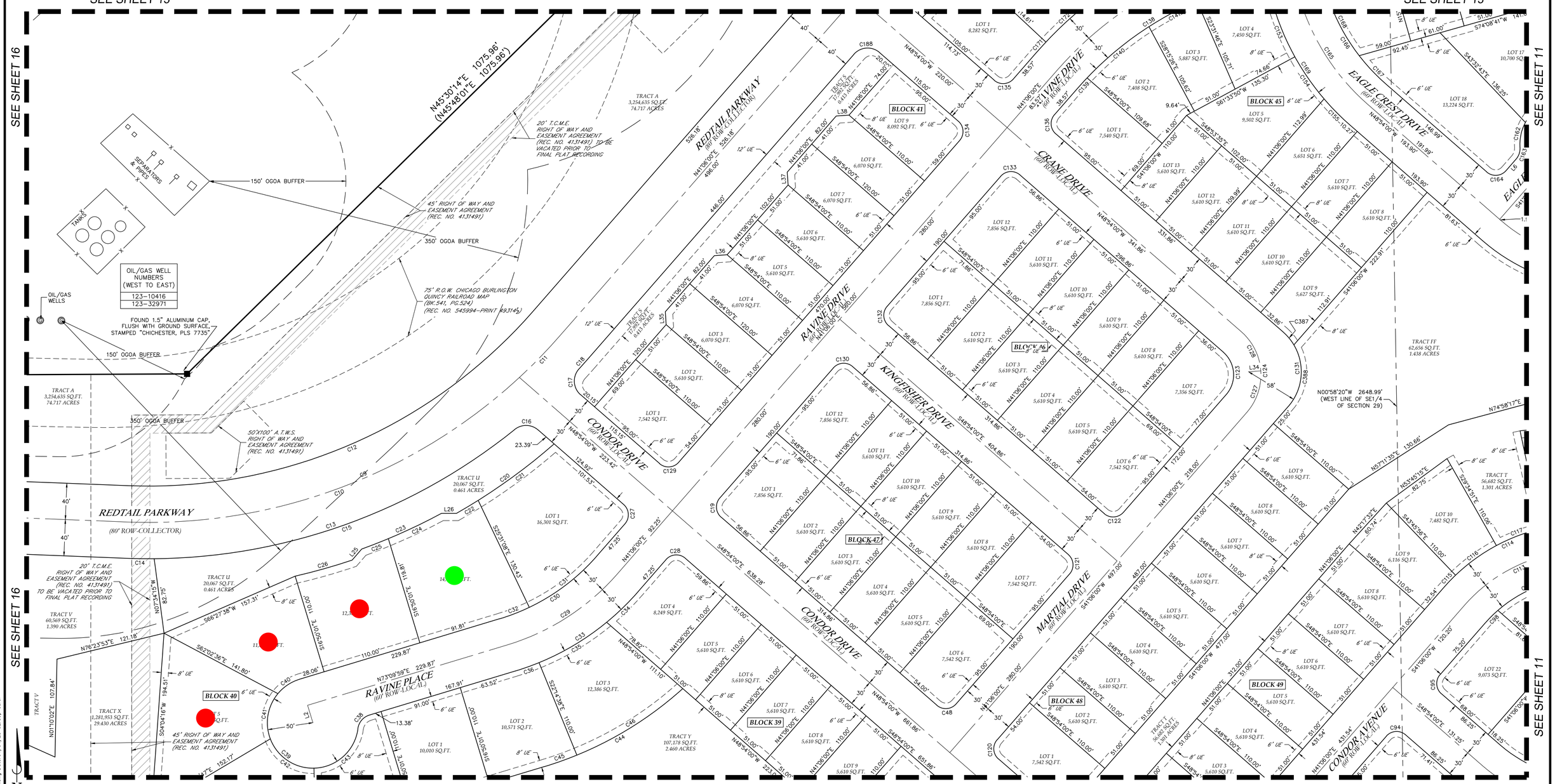

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SHEET NO. 14 OF 18 SHEETS

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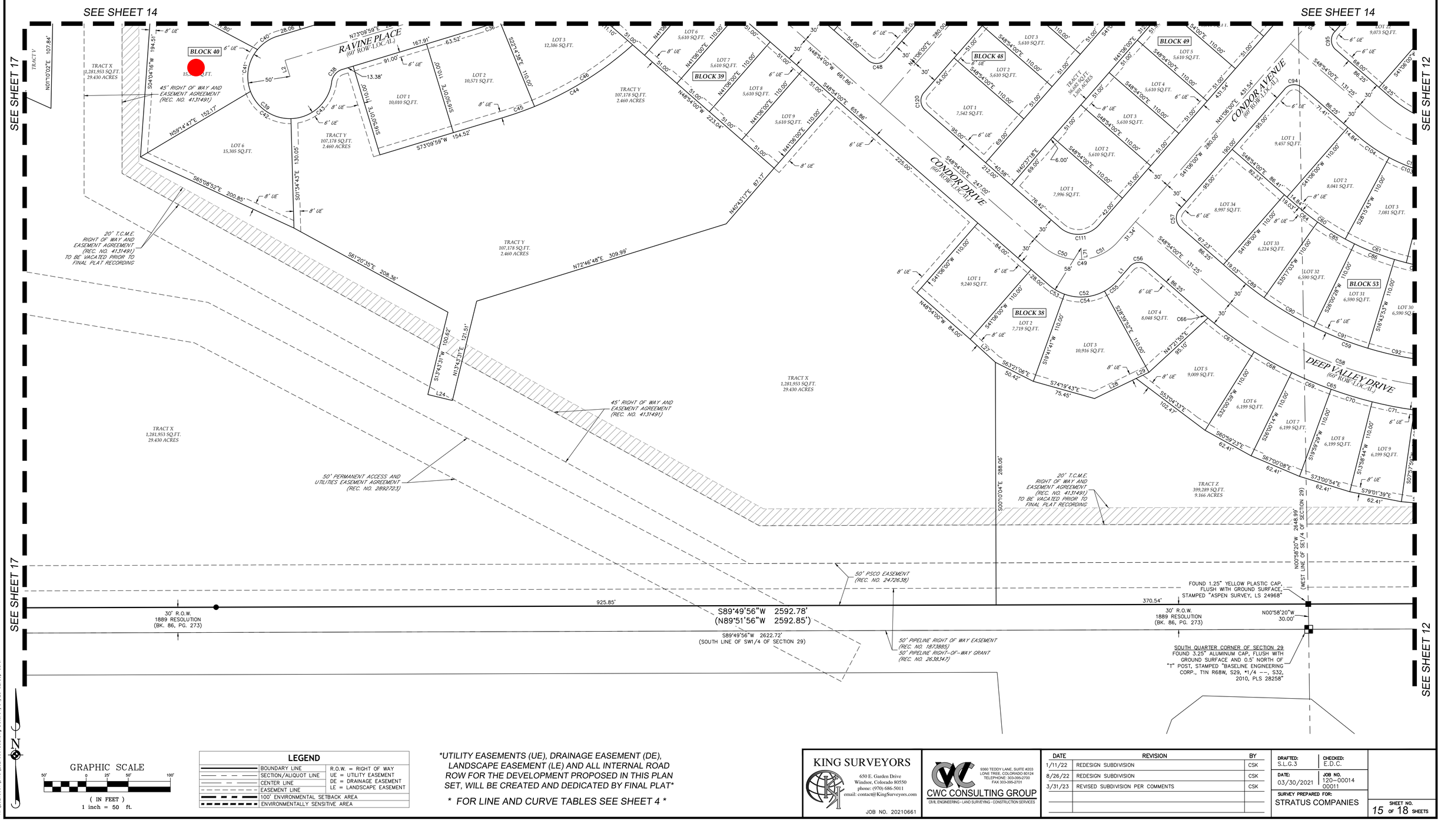

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* FOR LINE AND CURVE TABLES SEE SHEET 4 *

KING SURVEYORS
650 E. Garden Drive
Windsor, Colorado 80550
phone: (970) 686-5011
email: contact@KingSurveyors.com
JOB NO. 20210661

CWC CONSULTING GROUP
CIVIL ENGINEERING · LAND SURVEYING · CONSTRUCTION SERVICES
9360 TEDDY LANE, SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

DATE	REVISION	BY
1/11/22	REDESIGN SUBDIVISION	CSK
8/26/22	REDESIGN SUBDIVISION	CSK
3/31/23	REVISED SUBDIVISION PER COMMENTS	CSK

DRAFTED: S.L.G.3 | CHECKED: E.D.C.
DATE: 03/30/2021 | JOB NO. 120-00014 00011
SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 15 OF 18 SHEETS

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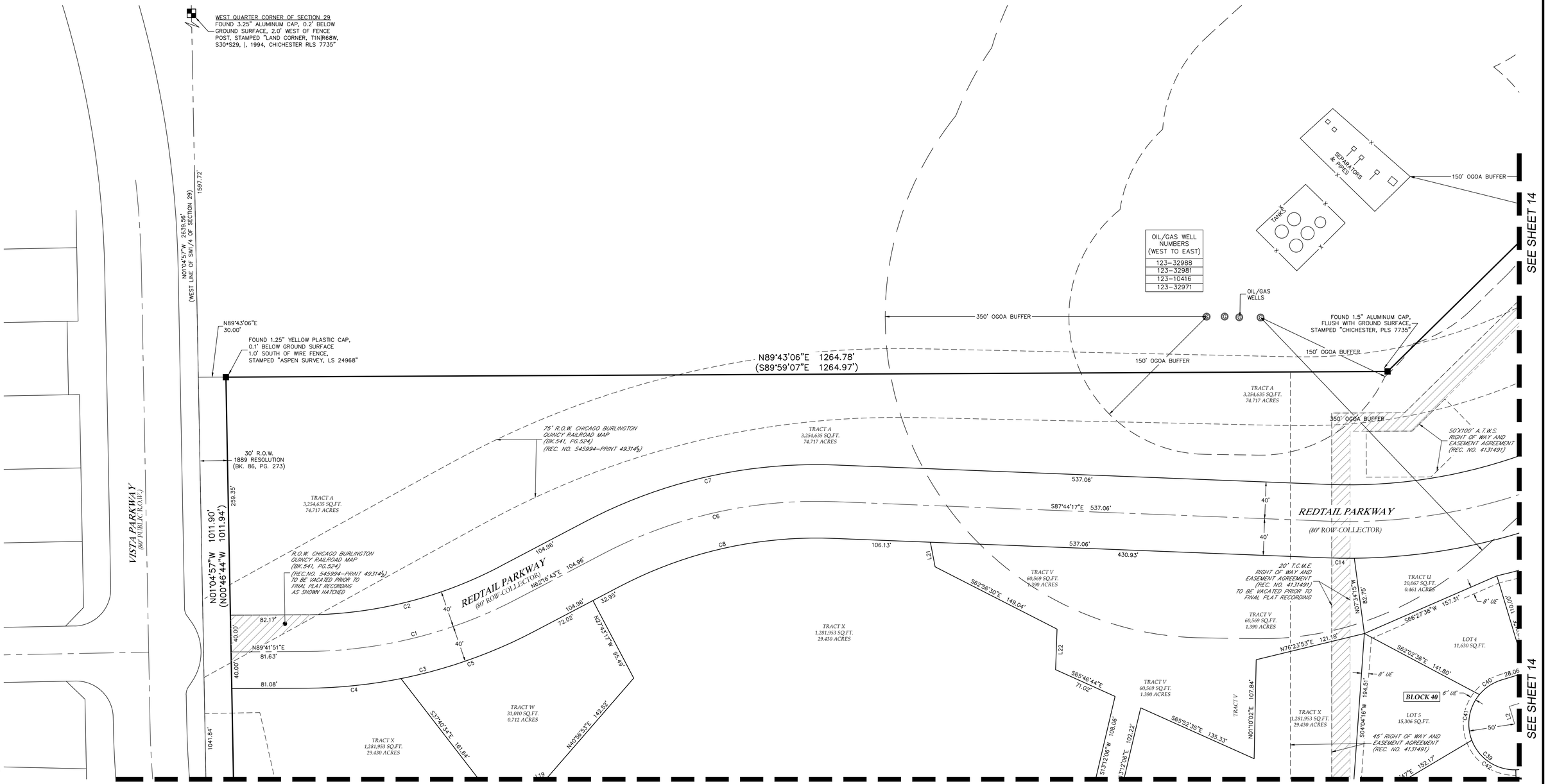
PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

BEING A PART OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021



GRAPHIC SCALE
50' 0 25' 50' 100'
(IN FEET)
1 inch = 50 ft.

LEGEND

BOUNDARY LINE	R.O.W. = RIGHT OF WAY
SECTION/ALIQUOT LINE	UE = UTILITY EASEMENT
CENTER LINE	DE = DRAINAGE EASEMENT
EASEMENT LINE	LE = LANDSCAPE EASEMENT
100' ENVIRONMENTAL SETBACK AREA	
ENVIRONMENTALLY SENSITIVE AREA	

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SURVEY PREPARED FOR: STRATUS COMPANIES
SHEET NO. 16 OF 18 SHEETS

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PRELIMINARY PLAT

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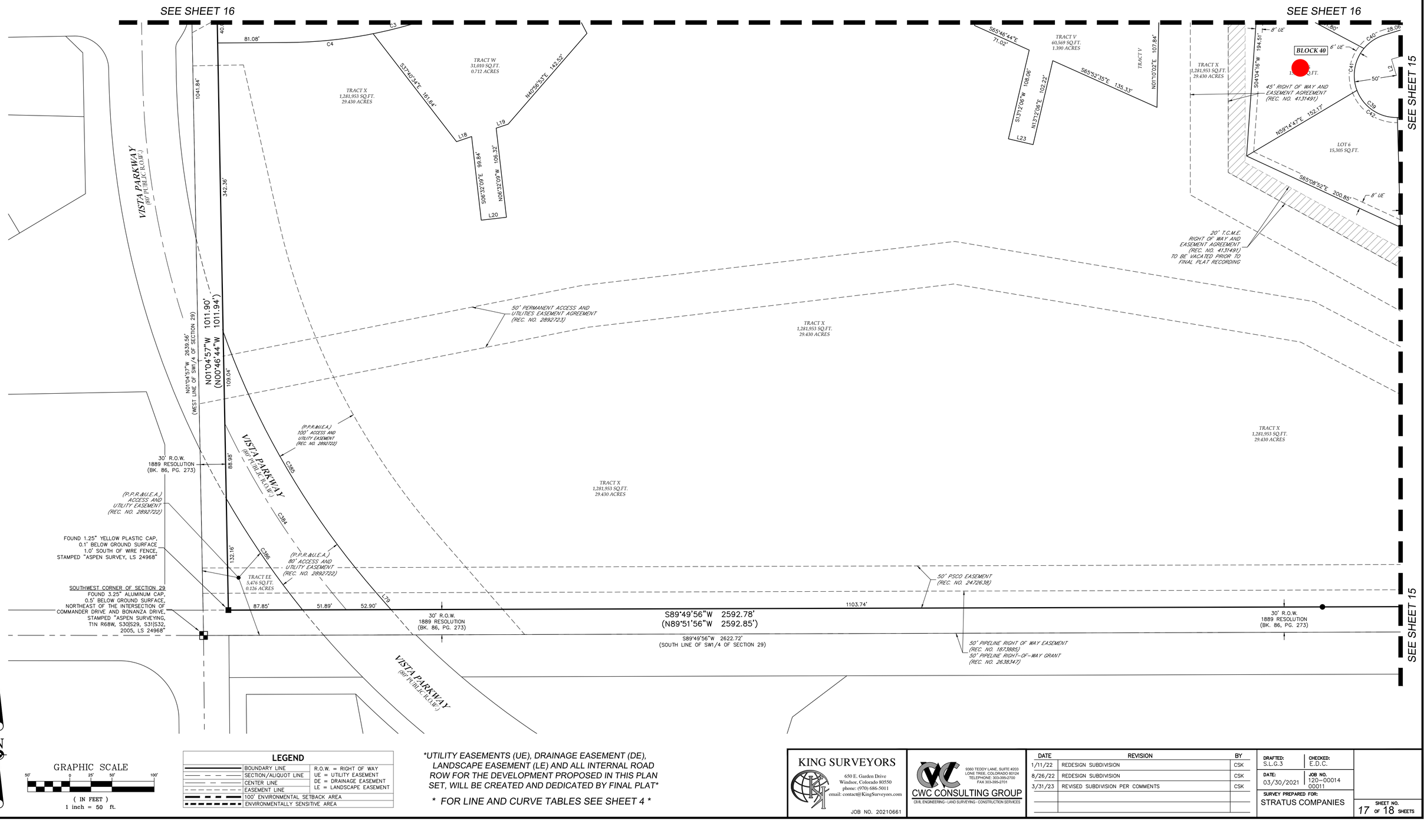

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PRELIMINARY PLAT

REDTAIL RANCH FILING NO. 1

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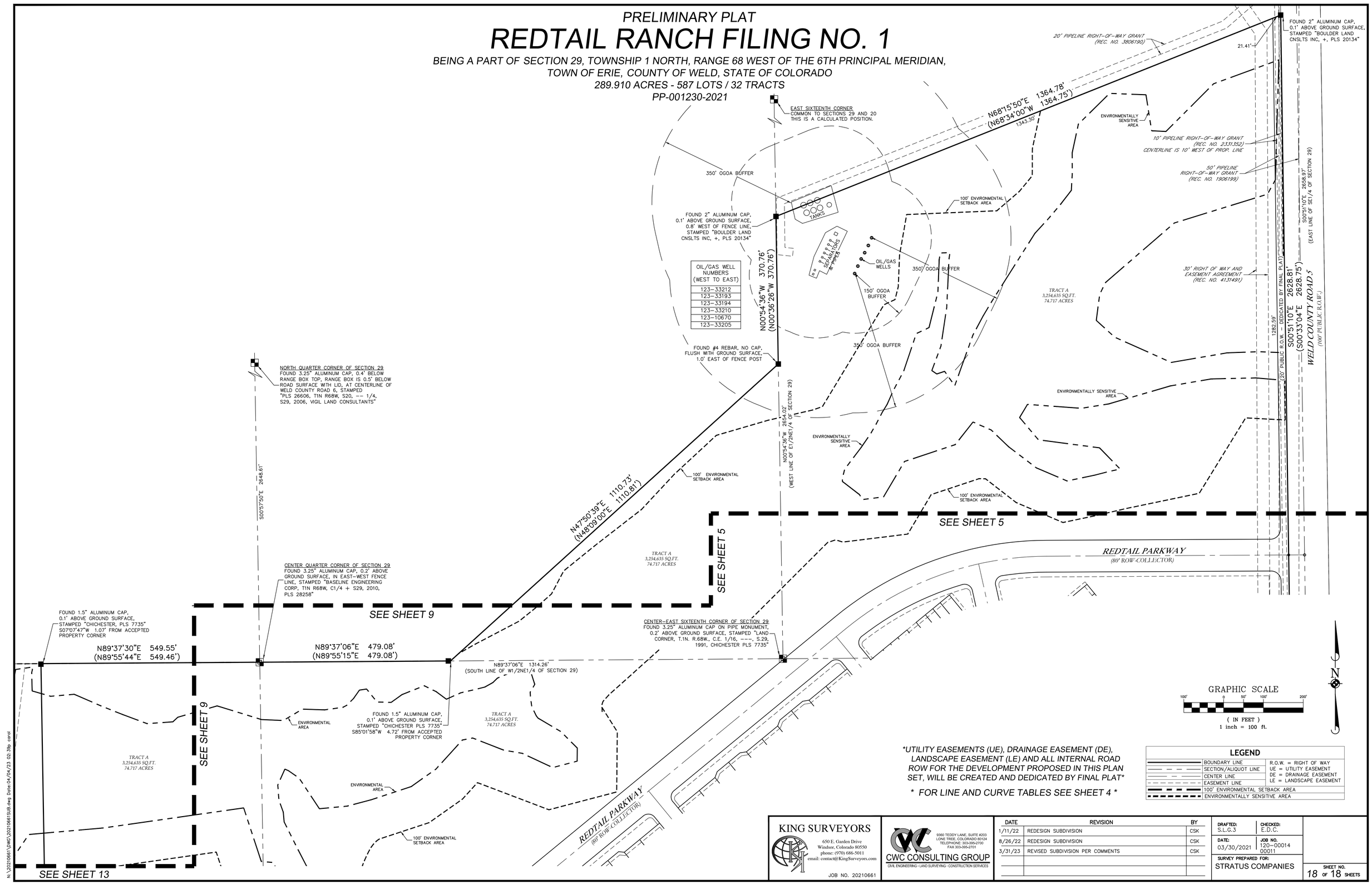
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
289.910 ACRES - 587 LOTS / 32 TRACTS
PP-001230-2021



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SHEET NO. 18 OF 18 SHEETS

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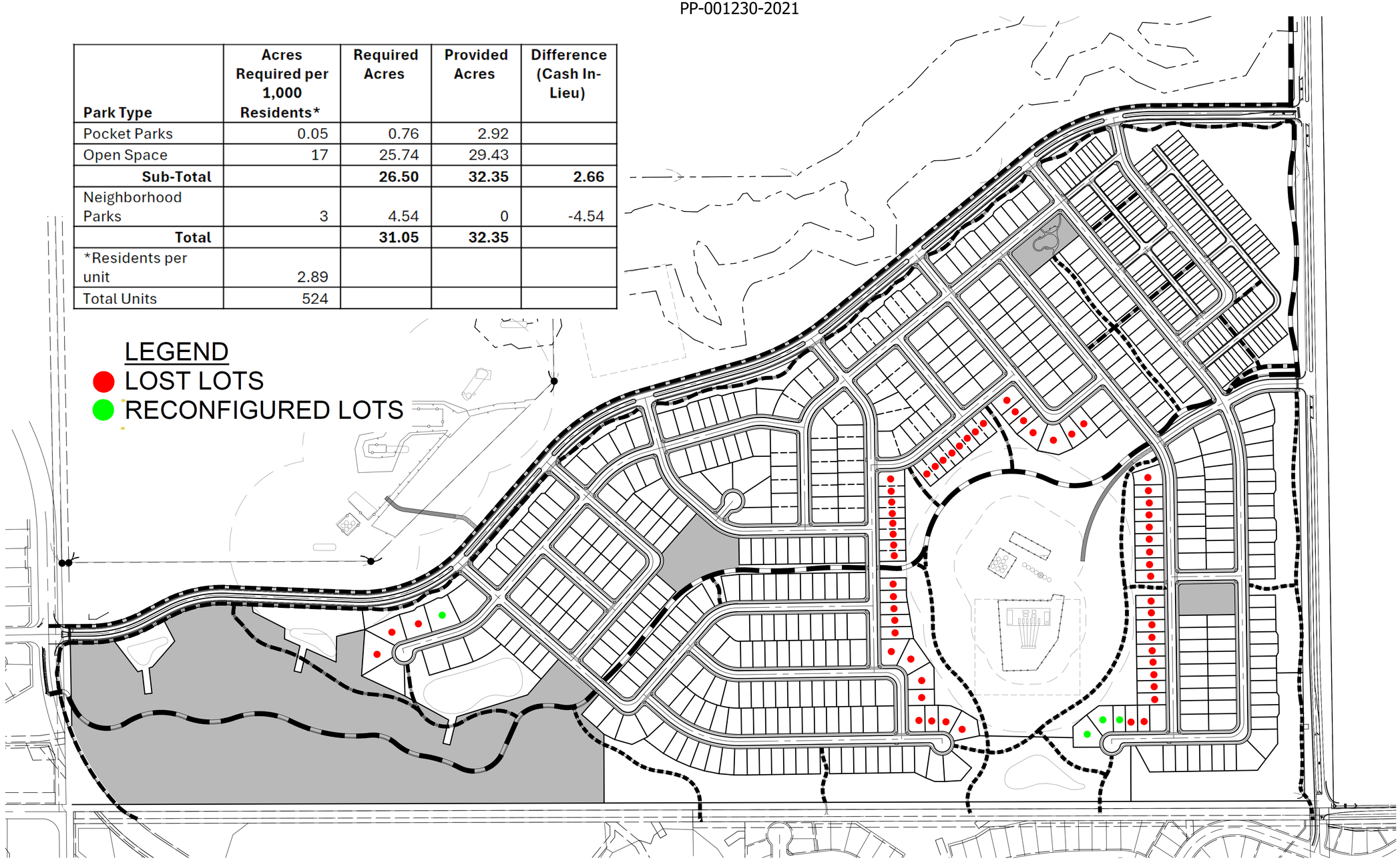
REDTAIL RANCH - PRELIMINARY PLAT

LOCATED IN A PORTION OF THE SECTION 29, TIN, RANGE 68 WEST OF THE 6TH P.M.,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
+/-289.9 ACRES/ 524 SF LOTS / 32 TRACTS
PP-001230-2021

Park Type	Acres Required per 1,000 Residents*	Required Acres	Provided Acres	Difference (Cash In-Lieu)
Pocket Parks	0.05	0.76	2.92	
Open Space	17	25.74	29.43	
Sub-Total		**26.50**	**32.35**	**2.66**
Neighborhood Parks	3	4.54	0	-4.54
Total		**31.05**	**32.35**	
*Residents per unit	2.89			
Total Units	524			



terracina design
10200 E. Girard Ave, A-314
Denver, CO 80231
ph: 303.632.3887

PROJECT NAME

REDTAIL RANCH
TOWN OF ERIE, COLORADO
PRELIMINARY LANDSCAPE PLANS

SUBMITTAL DATE:
5-13-2021
REVISION DATE:
3-31-2023
8-24-2023

SHEET TITLE

TRAILS EXHIBIT

SHEET NUMBER

L.28

SHEET 28 OF 51

AUGUST 24, 2023

p:\straus\redtail ranch\cad\submittals\preliminary plat\submittal 5\redtail open space and trails exhibit.dwg

From: Vista Pointe President <vistapointepres@gmail.com>
Sent: Thursday, June 20, 2024 6:22 PM
To: Harry Brennan; Chris LaRue
Cc: lrosales@terracinadesign.com
Subject: Redtail Ranch Development

Follow Up Flag: Flag for follow up
Flag Status: Flagged

External Email: Do not click links or open attachments unless you recognize the sender and know the content is safe.

To the Town of Erie,

As President of the Vista Pointe HOA, I am writing to express my support of the proposed Redtail Ranch development. As our future neighbor to the east, we understand that it will affect our community. However, I believe the impact will be manageable, and we have found Stratus Companies and its partners to be very responsive to our concerns.

I do understand that there will be an increase in traffic volumes, but recognize that Vista Parkway is a primary route into Erie and is designed for higher volumes. At the same time we realize that additional access via Redtail Parkway will provide a benefit to our residents.

I know there have been some concerns expressed regarding both the historical hazardous waste dump, and current oil and gas development. Given that Stratus has completed all required cleanup per CDPHE guidance, and that almost every community in Erie has been safely developed around oil and gas production facilities, I don't see why the Town would have any ongoing concerns.

In summary, I see no reason to reject the proposed Redtail Ranch development up for consideration.

Thank you for your time.

Michael Pierce
President, Vista Pointe HOA

Vista Pointe Home Owners Association, Erie, CO
Managed by: MSI, LLC, 11002 Benton St.
Westminster, CO 80020-3200
303-420-4433

From: dutchy 25ttm
To: Planning Application
Subject: Re: 1/17 comments Redtail ranch
Date: Wednesday, January 17, 2024 7:34:49 PM
Attachments: CDPHERM HAZ SW - Permitting - Response to Post Closure Monitoring and Maintenance Report - Third and Fourth Quarter 2021 - December 2021.pdf

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External Email: Do not click links or open attachments unless you recognize the sender and know the content is safe.

I am also forwarding to support the claim of the request to CDPHE to remove water wells and soil monitoring which was denied to the developer.

Arnold

On Wed, Jan 17, 2024 at 7:23 PM dutchy 25ttm <arnold@slabbekoorn.com> wrote:

> Thank you for speaking. Below is my comments from tonight. I also have attached my original presentation of sketch plan from January 15th 2015 as reference. It will give a good insights of historical issues with this portion of land.
>
> It is also ridiculous to say the neighborhood meeting of 2021 counts towards this proposal as this proposal is significantly different then what was presented in 2021. So neighborhood has not have had any time to provide developer feedback till now.
>
> My name is Arnold Slabbekoorn, 1721 Crestview Ln, Erie, CO. resident of Vista ridge, my backyard is directly bordered to the proposed development. 9 years ago I presented to the board of trustees my objections to this proposed development after finding out in archives of CDPHE the contamination reports within this parcel and its toxic drum contents which were disposed and visible on the surface in a then unknown marked landfill.
>
> Despite the fact informing Mr. Dean of Stratus at the time he continued in procuring this property from the Pratt family to pursue the Redtail ranch development. After further discovery of contaminated soil the CDPHE stepped in to force the owner in cleanup of set area and designate it as a landfill with no option for future resident buildings. This reduced the plan to 587 units cramped on much smaller space with limited open space then a few small pocket parks. Although staff stated this # of DU is within town regulations for zoning, calculations included areas of open space wetland, O&G facilities and forementioned landfill in its totals, I think this skews the calculations for allowed DUs on this property and should not have met regulations
>
> With four oil and gas facilities within or bordering this proposed property of which 10 out of 14 are still active wells, 30% of houses viewing those oil & gas wells or neighboring landfills, I don't see how this development is going to add any value to future Erie residents.
>
> Last week I discovered that the developer had asked CDPHE last year to reduce/remove soil and water well monitoring on its landfill portion, I assume to reduce expenses which

fortunately was denied by CDPHE. This does not seem to me a partner the town wants to allow developing a property if they do not want to guarantee safety for its future resident owners.
As well as the fact it seems cost of such landfill monitoring is moved into Metro District oversight, pushing the tax burden too such new residents, who are going to be without fault and unknown to past events.

The Neuhauser landfill has still not been capped or fenced properly by the developer and prior boards of trustees have demanded that this work needed to be finished before any proposed development would come back to the town for review. Developer cannot guarantee 100% that existing development soil would not contain other contaminated garbage or portions of the still 300+ missing IBM drums.

Finally, the WCR5 widening and connection to WCR4 corner is stated to be left open to other parties by Town staff report. Further clarity on this too my opinion is needed of who pays and what is proposed to create a safe pass through by high school students and other traffic.

I highly recommend for the planning commission to reconsider and deny this resolution preventing future legal and health risk exposure to its residents which would damage the reputation of our town.

REDTAIL RANCH – SKETCH REVIEW

I oppose against the development of this sub-division and have outlined my arguments in the following presentation.

Arnold Slabbekoorn

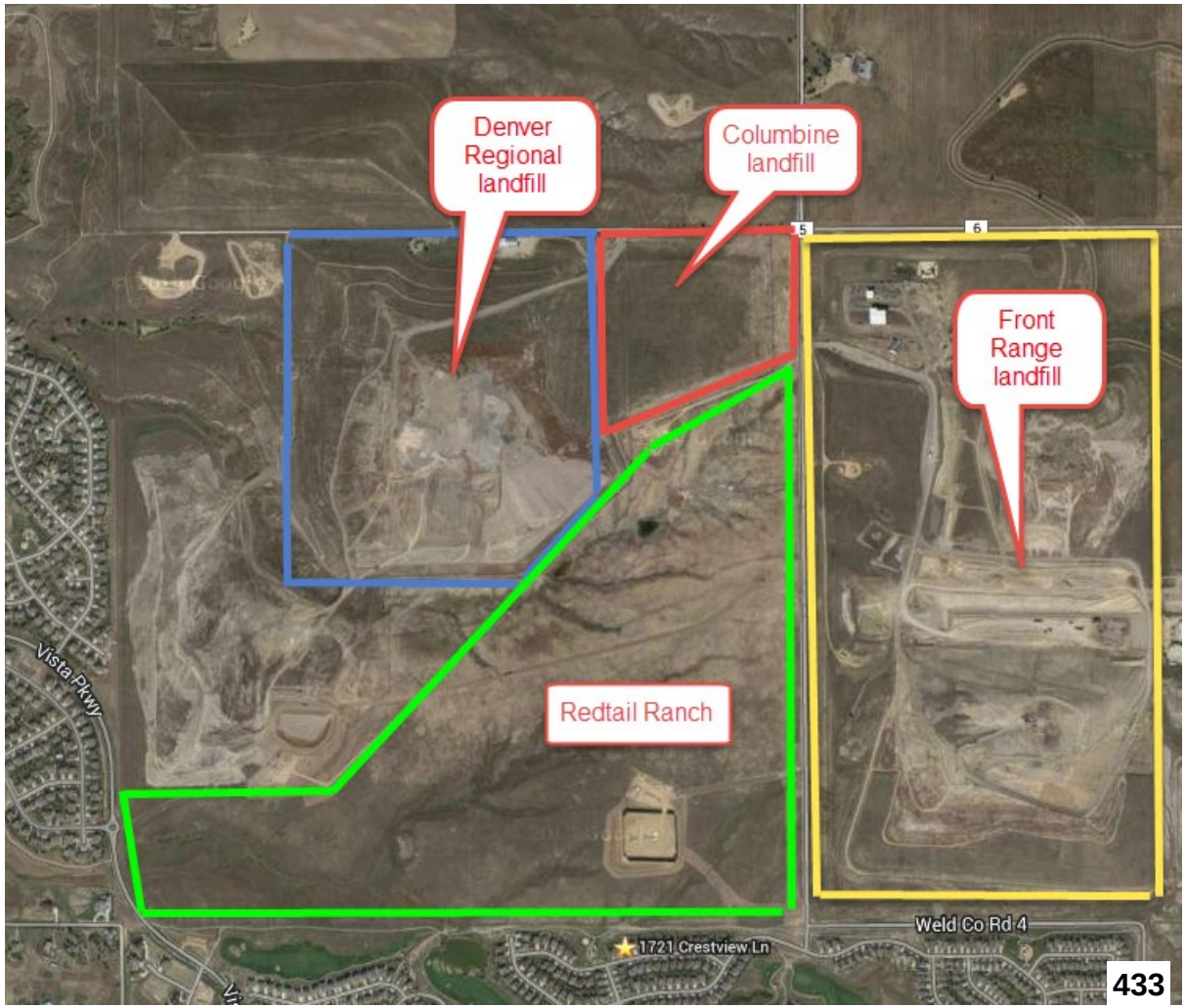
Why Prevent Redtail Ranch?

- Location is between 3 landfills, of which the Front Range Landfill is still active for another 30+ years.
- Adjacent to Columbine landfill, which had proven contamination of ground and surface water in small amounts by EPA 1990/1992. Pond 1 in the Redtail Ranch development shows distress of vegetation.
- The entire plan is surrounded by around 30 O&G wells (17 existing and 13 planned by Encana)
- The entire area has one of highest rankings in subsidence risk due to former Columbine mining activities.
- Traffic impact
  - The traffic from daily Front range landfill trucks on WCR5 as well as the traffic true Vista Parkway, is already very extensive.
  - Three entrance/exit way's on WCR5 with high waste management truck traffic, is asking for trouble.

Is This Location High Quality?

The sub-division is primarily enclosed by three landfills as you can see on the map below.

- Most units are located on the east side of the sketch plan
- FRLF will remain open for 30+ years with continues traffic on WCR5 as well as high wind causing garbage flowing into the neighborhood like we have in Vista Ridge.
- Developer states this will be a high quality community. From the location perspective I don't see that I want to spend 400k plus on a house surrounded by land fills?



Open Space Claims True?

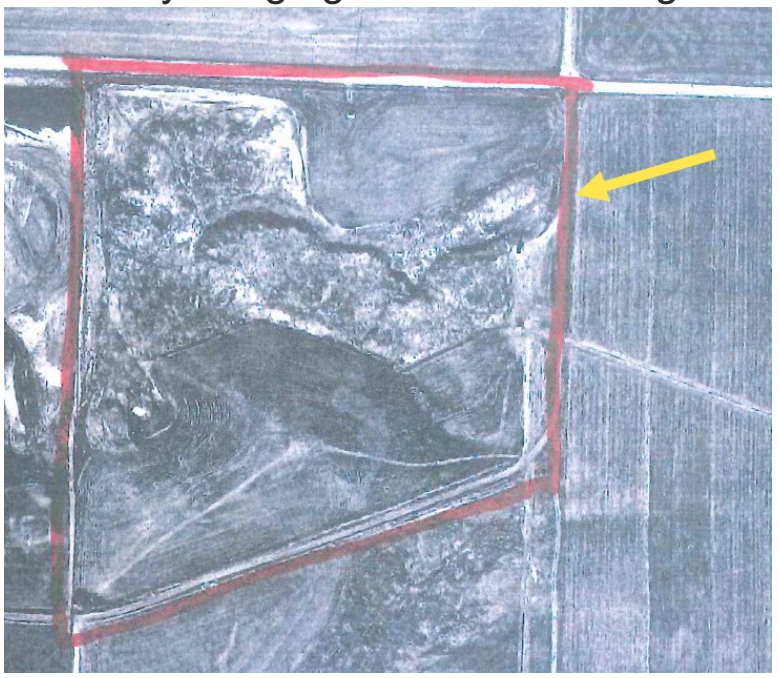
- Developer claims 40% is open space but…
- Pratt site is in the middle of development located with 12 wells (6 Synergy, 6 Encana)
- Another 6 well pads are in the NE section located
- Another 12 wells in the western section, so setback of 150 feet was required.
- Public open space (SW corner) is for pond and drainage of the entire VR community required.
- No neighborhood / Community park is part of the plan only small pocket parks surrounded mostly by streets on three sides of a pocket park which is not very safe for kids.

I wouldn't be proud to call all the oil and gas wells Open Space in my plan!

Columbine Landfill

- Encana dug up trash out of this location November 2014 and CDPHE send a letter Compliance Advisory which indicated they did indeed dig up trash out of this landfill.
- LAI design group wrote in an email to me “this is just liter not part of the landfill..”
- From the picture below I would not call this liter and who knows what the exact boundaries are of this landfill and what they disturbed by bringing this stuff above grade level?

Trash dig-up and cover up by Encana, fence is the so called boundary of columbine landfill



1981 aerial photo of Columbine landfill send by Pratt property to CDPHE. Clearly boundary in l section ran all the way to WCR 5 road.

Columbine Landfill Facts

- Operated from 1964 to 1989 (no operations between ‘69 and ‘79)
- Under continuous investigations by EPA and CDPHE up to 1992 to add to Superfunds National Priority List (NPL) for complete cleanup.
- EPA finally decided in 1992 due to low residence and small size of contamination the site would be flagged as NFA in the CERCLIS Superfund database. Quote from EPA memo to Erie resident in 1992, memo is embedded in this slide:
  “Only about 3.5% of all sites in CERCLIS are placed on the National Priority List. A release to ground water is not sufficient by itself to make a candidate for the National Priority List”

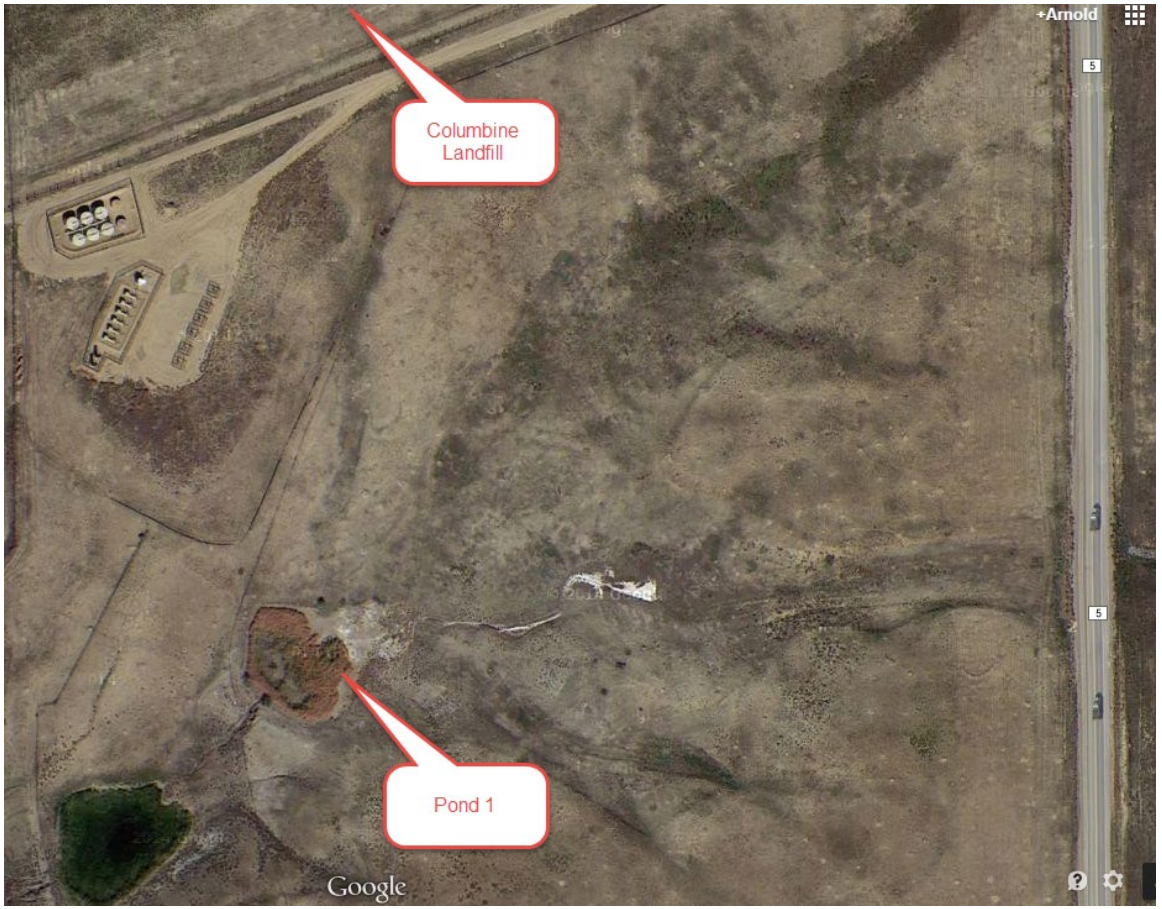
Adobe Acrobat Document

- Small overview of Hazard Contents (source: final inspection report EPA 1992):
  - 1500 barrels (88.000 gallons) of IBM solvents
  - Torpedo propellant
  - Large amounts of oil, grease and sludge
  - Car wash and grease trap waste
  - Asbestos and cyanide contamination
  - Many more materials are listed and can be found in URS- EPA Site Inspection report of 1992
- Confirmed release to surface and groundwater in the area can be found in both 1990 PA and 1992 inspection reports.

Columbine Landfill Safety Concerns?

Pond 1 seems to show distress of vegetation on current 2015 google maps imagery, when was this surface water last tested?

As the Town requested to incorporate the three ponds in the plans open space I would not let my children play there knowing what was dumped in the Columbine landfill between 1964 and 1989 based on EPA inspection reports.



Regardless of Redtail Ranch development, I would like the Town of Erie to further follow up with EPA to inspect current status of this landfill and the ground and surface water drainage, incl Coal Creek, as well as soil samples. As the last inspection reports seem to be from 1992, we are almost 25 years later, who knows with soil movements what has happened to the liquids inside that landfill and the 1500 barrels (see next pag pictures!!)

Columbine Landfill Safety Concerns?

Source: PRELIMINARY ASSESSMENT 1990, COLUMBINE LANDFILL ERIE, COLORADO COD 980951735

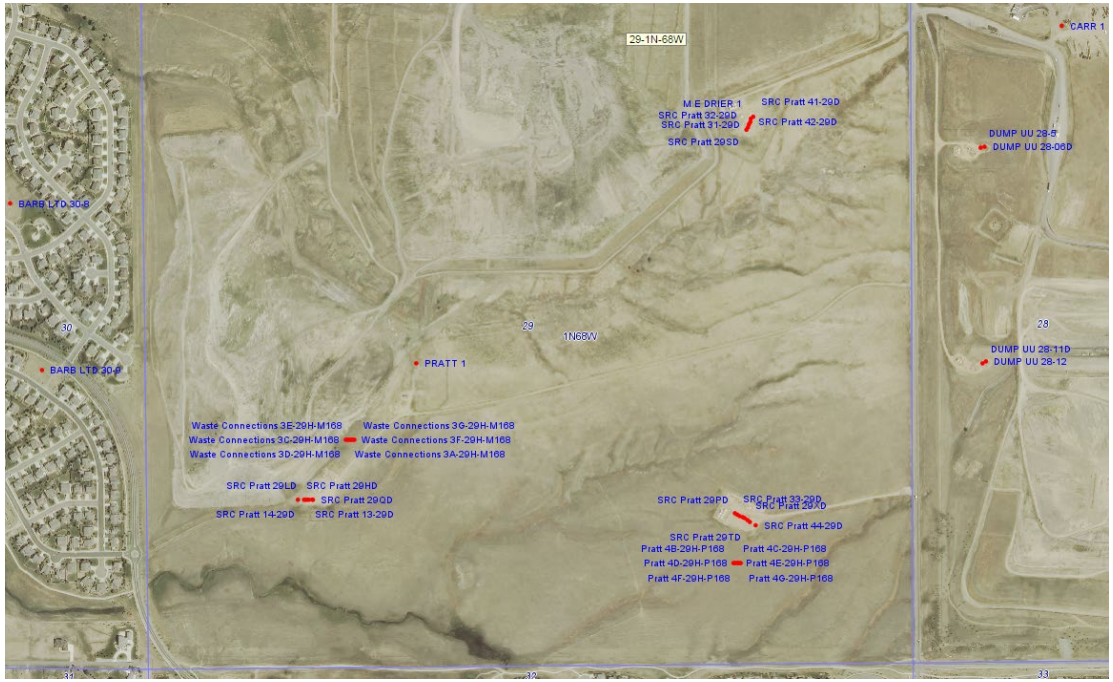
Pictures from EPA 1990 PA report, drums are surfaced, bulging, leaking with holes and contents are visibly contaminating surface water at that time?

How can we be sure that **25 years later** some of these contents have not migrated further in our ground/surface water?

Cleary visible 4 drums in this picture, imagine there are 1500 or more of those still buried as of today…

Oil and Gas Wells Close Proximity

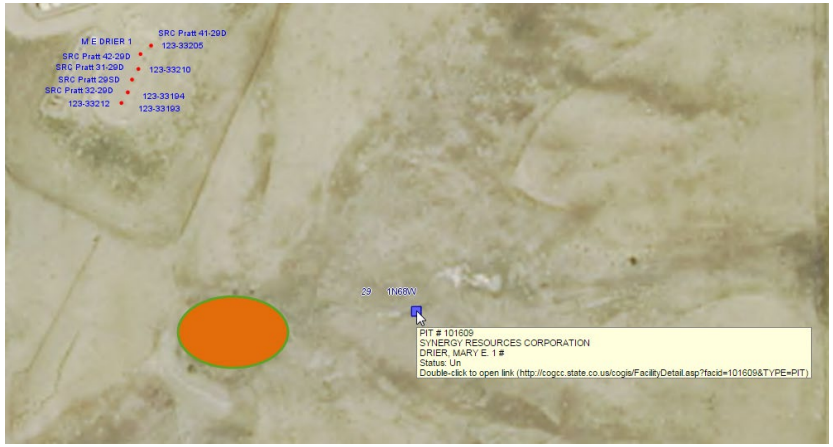
- There are 30+ oil and gas wells around the entire sub-division located of which 12 right in the middle of it, which the developer calls Open Space?



- There are several unknown pits showing up on the COGCC wells mapping website.

  One pit from Synergy is right next to pond 1 on the property, nothing is noted in the sketch plan of those unknown pits?

- Are those pits being inspected or monitored for any leakage?



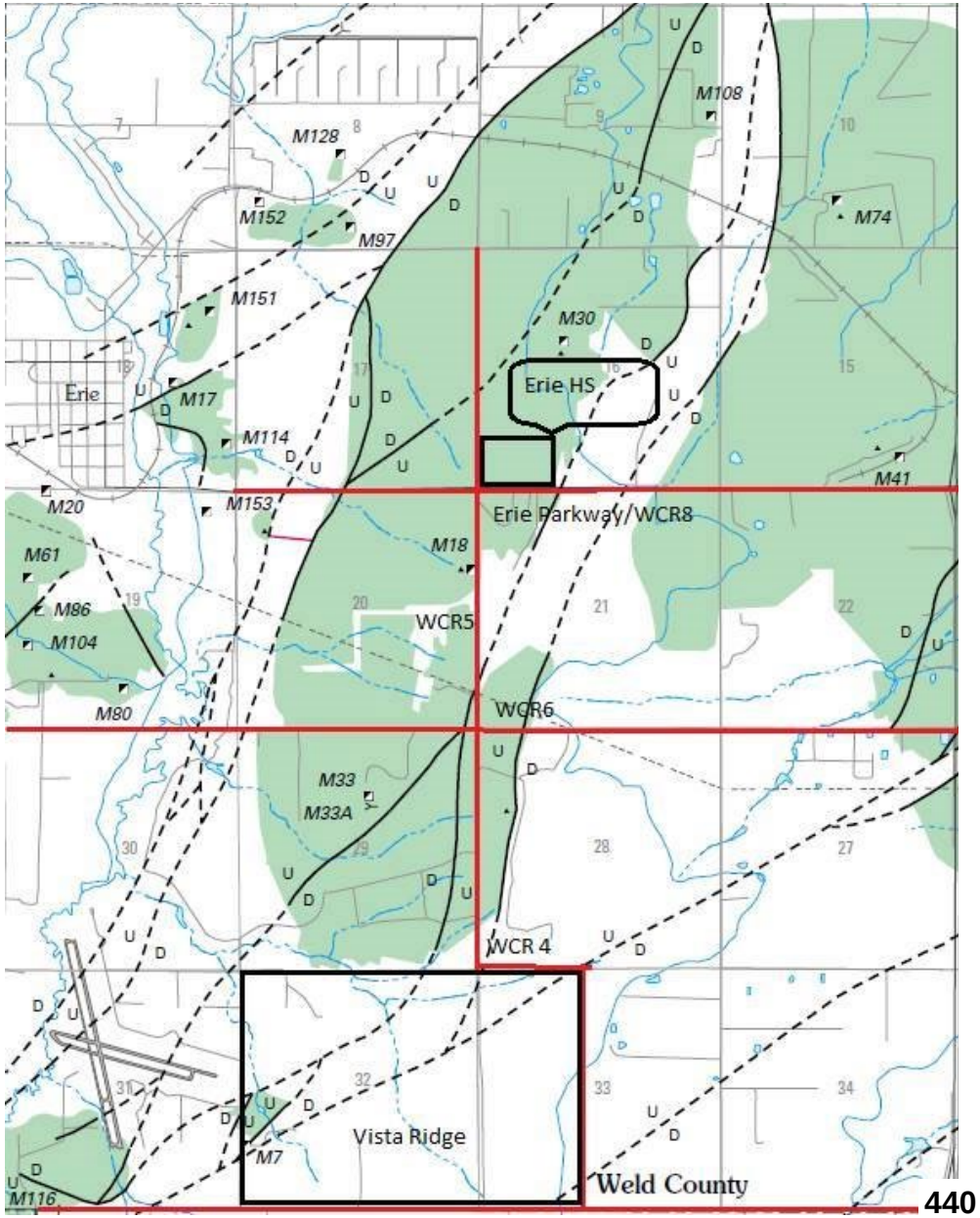
Subsidence Risk

- The entire area lays in a high hazard risk for subsidence.
- A paper based geological study was performed for Redtail Ranch by Western environment and Ecology.

  They only took a 2006 water study with 2 bore locations into account for the property, all other conclusions were based off other adjacent property studies done in the past, some of which dating back to 2001.

  No recent geological study of the property itself has been performed as of my knowledge.

- The green area above Vista Ridge indicates subsidence hazard area from the Columbine mine shafts.



Subsidence Risk

This shows the Columbine mine shaft and tunnels below the planned Redtail Ranch sub-division plan and current Encana Pratt well pad.

Below the recent subsidence accident in Lafayette on Jan 12th 2015.

Can you imagine if this would happen below one of the 12 Pratt well locations in the planned Redtail Ranch plan?

A SUV teeters on the edge of a sinkhole that opened above an old mine shaft under East Cleveland Street between Foote and Burlington avenues in Lafayette on Monday. (*Courtesy Coyochault Carbone*)

Subsidence case studies

- Erie is prominent shown on the Geological survey website as an area were often sinkholes haven occurred.
- http://coloradogeologicalsurvey.org/geologic-hazards/subsidence-mine/case-histories/

  - Bonanza drive (Vista Ridge)
- http://www.denverpost.com/ci_19042335

Case History 2: Erie, CO 2008

In December of 2008, a report of a large subsidence hole in a field west of Erie was reported. The hole was about 50 feet in diameter and 35 feet deep before being filled with water. The field where the hole appeared was under consideration for annexation by the town for future residential development. A geophysical investigation conducted 3 months prior did not show any evidence of voids in the area. The hole was located outside of the mined area shown on the mine map indicating that the mine map was inaccurate. During the mitigation process, a secondary subsidence pit of smaller dimensions was found directly west of the original hole. Both holes were backfilled by the Abandoned Mine Lands program.

Case History 3: Marshall Area 2007

In May 2007, a consultant reported mine-related subsidence features in a property near Marshall being considered for residential development. Upon investigation, a number of subsidence holes and mine-related features were found on the property. An abandoned building showed significant damage possibly related to the old mine. No records of the mine were found, but several old foundations around the property indicate a mine entry exists west of the site. Due to the unknown mine, lack of records, and the presence of subsidence features, the property owner elected not to pursue development.

Traffic impact / Incident risk

- I don't think the developer has done any traffic impact study for either WCR5 –WCR4 – Highway 7 connection or Vista Parkway round-about connection.
- WCR5 is not developed to handle high volume of residential and waste management traffic. Also by adding three entry/exits into the sub-division seems to me a bad idea from a traffic incident risk level with high volume of industrial truck traffic on this road, six days a week.
- Vista Parkway is already a shortcut road many non-residents take from HW7 into Erie, adding another sub-division to it seems a very bad idea. The road itself has been re-paved several times and is currently again not in the best condition and very bumpy.
- My fear is that Prospector Road is just going to be used as another shortcut road from I-25, Highway 7, Sheridan exit into WCR4 to reach downtown Erie to avoid the traffic jams on Highway 7. The current infrastructure of those roads is just not ready for this amount of traffic to safely cross through all our sub-divisions.
- I have not seen a comprehensive infrastructure road upgrade plan by the Town of Erie to support the Redtail Ranch sub-division traffic increase by its residents as well as additional Vista Ridge residents and other shortcut traffic from Highway 7.

  I guarantee you Prospector Road will be utilized as shortcut, just like Vista Parkway is acting currently.

Remarks / Recommendation

- I believe the Redtail Ranch location is poorly chosen and is not going to bring the quality community as the developer claims. There are just to many negative factors in play as outlined in this document. Ask yourself would any of the BOT members invest 400k or more and move your family into a house in this location, knowing all these facts?

- I looked at the Erie residential master development plan and nearly all those locations seem much better fitted and do not have most of the issues as outlined before.

- I hope the BOT and planning commission will look at **Quality over Quantity** and rejects the Redtail Ranch sub-division plan for the Pratt Property location.

- I would like to make a suggestion to the Town that perhaps they can convince the developer and property owner to develop a **Solar Farm** as a renewable energy plant in Town. I think this property location would be perfect for this type of clean industry and many residents would support it. Or just leave it open space…

Solar Farm is a better purpose for this location.
Create incentive for developer/property owner to focus on creation of renewable Energy in Erie!

Thank you!

- Please contact me to discuss if any of the items outlined above are not clear or if I have facts stated incorrectly.
- Arnold Slabbekoorn – Arnold@Slabbekoorn.Com

COLORADO
Department of Public Health & Environment

Transmitted Via Electronic Mail c/o: rdean@stratuscompanies.com

April 27, 2022

Mr. Richard Dean, CEO
Stratus Redtail Ranch LLC
8480 E. Orchard Road, Ste. 1100
Greenwood Village, CO 80111

Re: Response to Post Closure Monitoring and Maintenance Report:
Third and Fourth Quarter 2021, December 2021
Neuhauser Landfill
WLD153
SW - Permitting

Dear Mr. Dean:

The Hazardous Materials and Waste Management Division (the division) of the Colorado Department of Public Health and Environment has completed its review of the above-referenced report (the Report), prepared by Geosyntec Consultants (Geosyntec) and received by the division on December 7, 2021. In addition to presenting routine monitoring results required under the Facility's Post Closure Care Plan, the Report also requests six revisions to the site groundwater monitoring program. The division reviews such requests for compliance with 6 CCR 1007-2, Part 1 (the Regulations), and in the context of key permitting documents in the administrative record.

Determination: The outcome of the division's review of the Report is that the division has determined the requested revisions cannot be approved in their entirety. With this letter, the division approves some of the requests and denies others. For that reason, each requested revision will be addressed with an individual response below.

Proposed Revisions:

1. **Plugging and abandonment of MW-23D:** Stratus is requesting permission to plug and abandon MW-23D in accordance with Colorado Division of Water Resources Rules and Regulations.

   CDPHE Response: This request is denied because water level monitoring has only occurred for a relatively short period of time, since 2018. Instead, the division allows the frequency of such monitoring to be reduced to annually, for the time being. If and when the occurrence of groundwater is observed in this well at volumes conducive to sampling, the frequency of monitoring must revert to semi-annual, and samples must be analyzed in accordance with the site groundwater monitoring program.

2. **Reduce the Frequency of MNA Performance Monitoring to Annual:** In Table 5-1, Stratus is requesting to reduce the frequency of MNA performance monitoring to annually.

   CDPHE Response: This request is denied because performance monitoring must continue on a semi-annual schedule until the remedy has been fully implemented, and sufficient data exists to evaluate remedy success. This means that such monitoring will likely need to continue for some time after completion of the remedy. The division will not consider the remedy complete until the water balance cover is constructed and certified, along with associated stormwater features, according to the approved Corrective Measures Design.

3. **Reduce the Frequency of Compliance Monitoring from Semi-Annual to Once Every Five Years:** In Table 5-1, Stratus is requesting to reduce the frequency of compliance monitoring to once every five years.

   CDPHE Response: The division denies the request, for the same reasons as above. In addition, the division wishes to discuss potential changes to the point of compliance wells to account for the distance between the WCMW-25 and Cap Extent Area East.

4. **Plug and Abandon Temporary ISCO Monitoring Points:** Stratus is requesting to plug and abandon, in accordance with Colorado Division of Water Resources Rules and Regulations, monitoring points, PMP-1, PMP-2, PMP-3 and PMP-4.

   CDPHE Response: The division conditionally approves this request, under the condition that this approval shall not preclude the possibility that future actions involving similar wells, including additional ISCO injections, might be needed to effect a successful remedy. In other words, the division's approval of this current request is not to be construed as implicit agreement with certain statements made in the Report regarding remedy success. It is the division's view that the remedy is not only incomplete at this point, but that the success of measures already taken has yet to be fully proven. Therefore, Stratus would be taking this step at its own risk, should future evaluation of remedy performance indicate the need for additional ISCO injection wells or monitoring points in these approximate locations.

5. **Change to Analysis of Metals on a Dissolved Basis:** In Section 4 of the Report, as well as Table 5-1, Stratus is requesting that site groundwater samples be analyzed on a dissolved instead of a totals basis, due to what Geosyntec characterizes as high turbidity in many site groundwater samples, this being observed despite the use of a low flow sampling technique.

   CDPHE Response: The division conditionally approves this request, with the condition that for at least one sampling event, groundwater samples for metals be analyzed on both a total and a dissolved metals basis to enable comparison of the results from these different methods. The division agrees that groundwater sampling results for metals on a dissolved basis will be necessary for direct comparison with the standards promulgated in 5 CCR 1002-41.

6. **Sampling Method to be used for 1,4-dioxane:** This Stratus request is unclear: Section 4 requests that the 1,4-dioxane analytical method be 8270C and a footnote to Table 5-1 indicates the method will be 8270 SIM.

   CDPHE Response: The division requires that the 8270 SIM method be used for analysis of 1,4-dioxane samples because it is the division's experience that this method has a greater likelihood of achieving a reporting limit at or below the Colorado Basic Groundwater Standard for 1,4-dioxane.

Comment on Statistics

The methods that the site uses in statistical analysis should be expanded. Perhaps other trend analyses, such as linear regression or Theil-Sen, can be performed. The Report's assumption that Mann-Kendall has a detection frequency requirement may not have a firm basis, from a quick check of key reference materials, such as the USEPA Unified Guidance. For purposes of eventual comparison of performance monitoring wells to a groundwater standard, analysis such as confidence intervals are worth adding to the data evaluation. Finally, it is not clear whether seasonal variation has been evaluated.

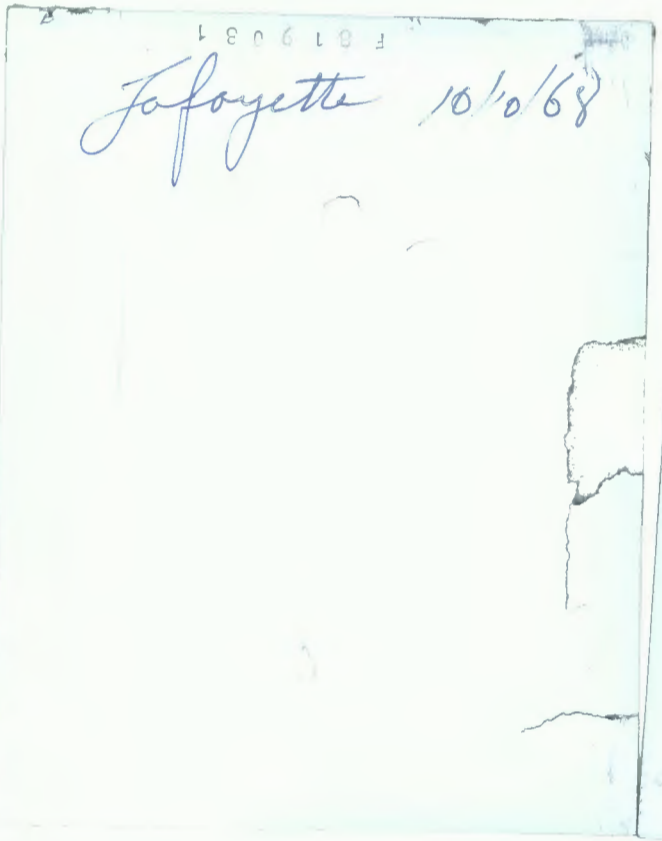
Note: The division's silence on various aspects of the Report should not be taken as implicit agreement with opinions or statements made that were outside the scope of this review. The division therefore disclaims any and all assertions made in the Report regarding success of the remedy and the timing of required future actions, and other statements not directly addressed in this response. The division is authorized to bill for time spent reviewing permitting requests and monitoring reports (among other document types), pursuant to Section 1.7 of 6 CCR 1007-2, Part 1. The division invoices owners and operators of solid waste disposal sites and facilities on a quarterly basis for document review time.

If there are any questions regarding this correspondence, please feel free to contact me at jerry.henderson@state.co.us or 720-263-0710.

Sincerely,

Jerry Henderson, Unit Leader
Solid Waste Permitting – Groundwater and Environmental Unit
Solid Waste and Materials Mgmt. Program
Hazardous Materials and Waste Mgmt. Div.

ec: Todd Fessenden, Town of Erie
Emily Stockwell, Geosyntec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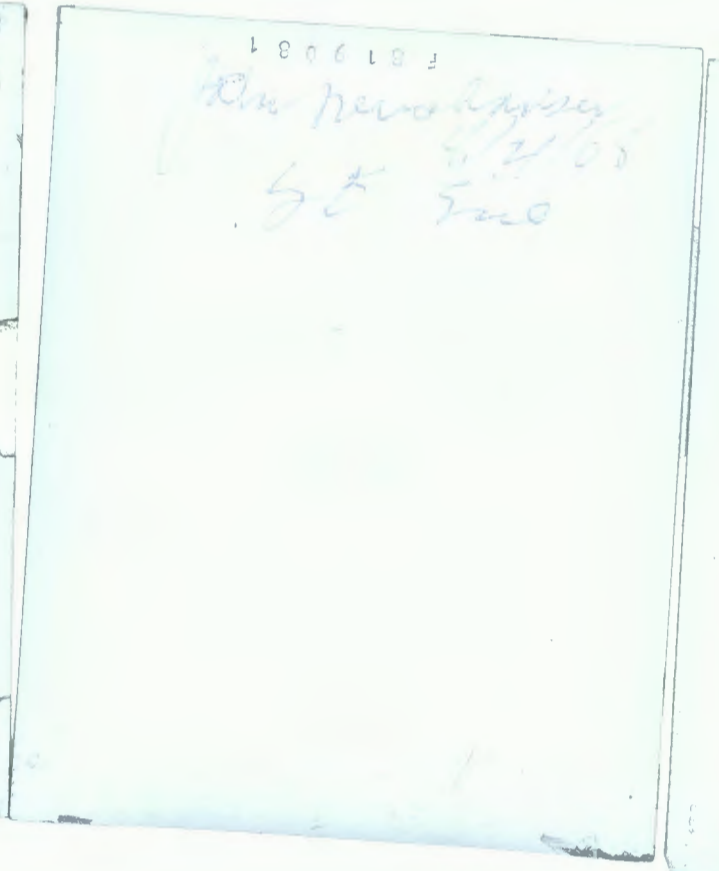
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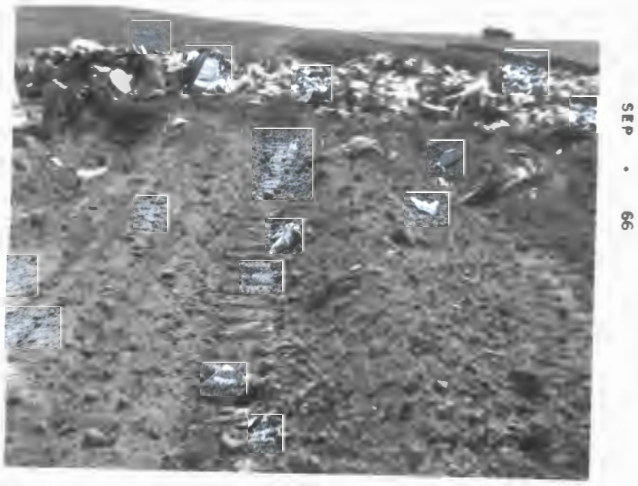

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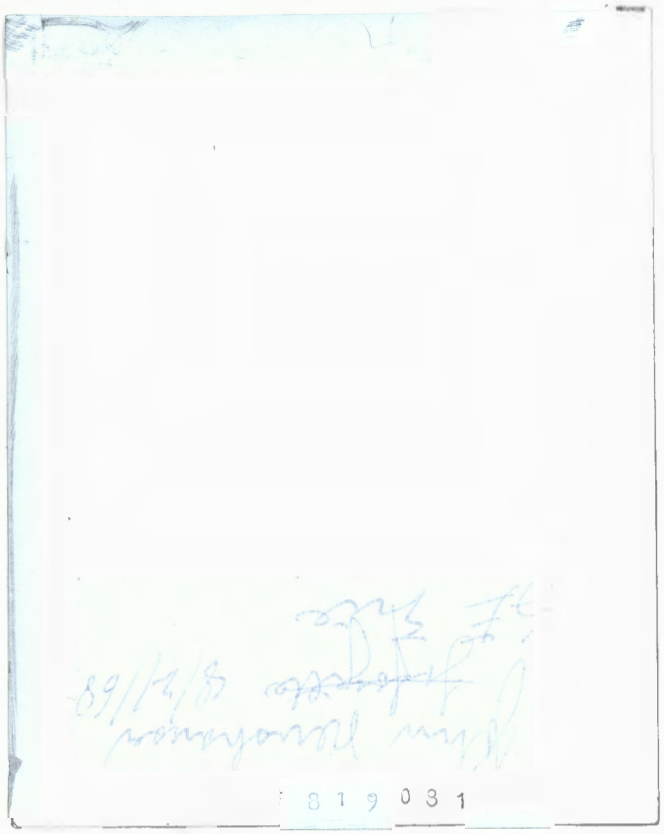

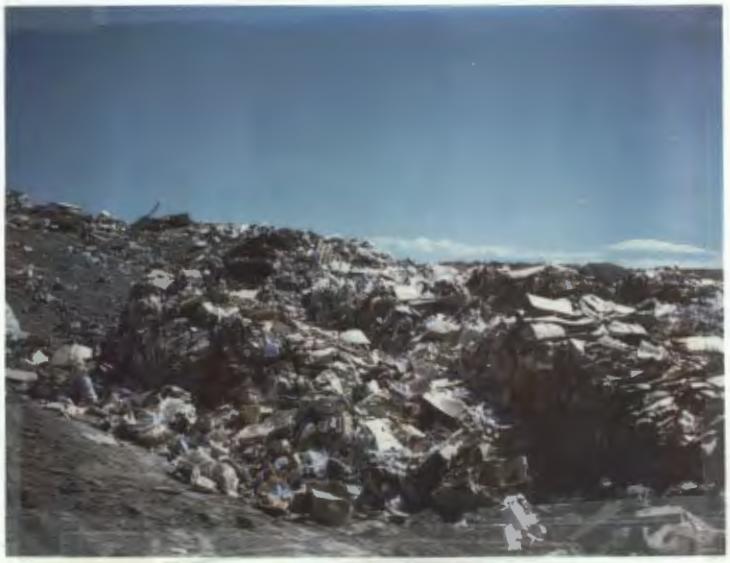

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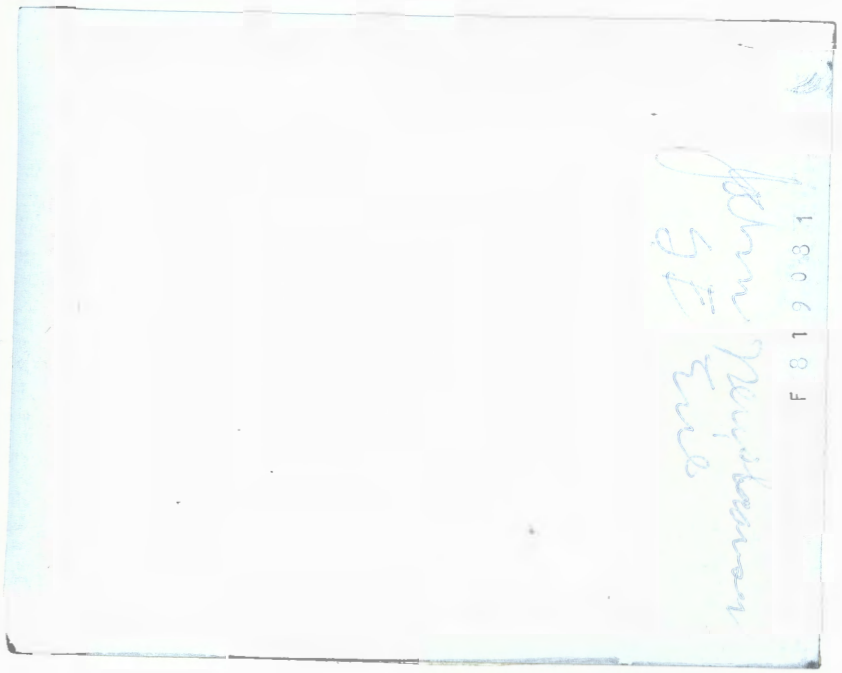

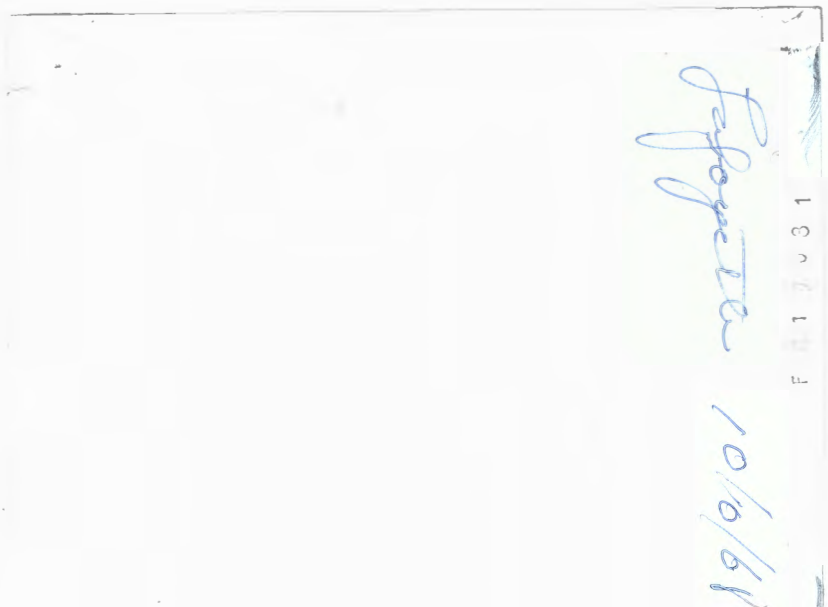

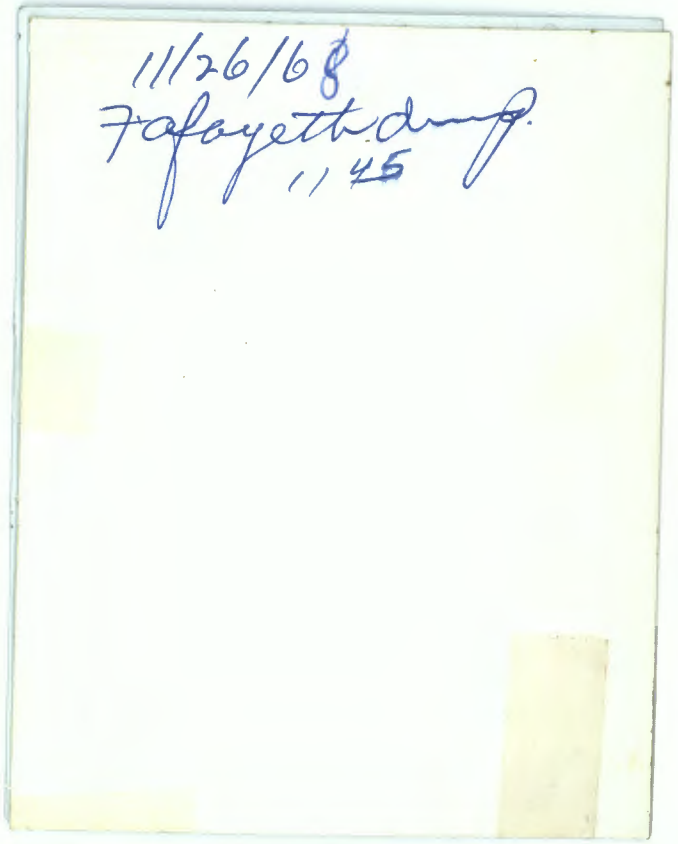
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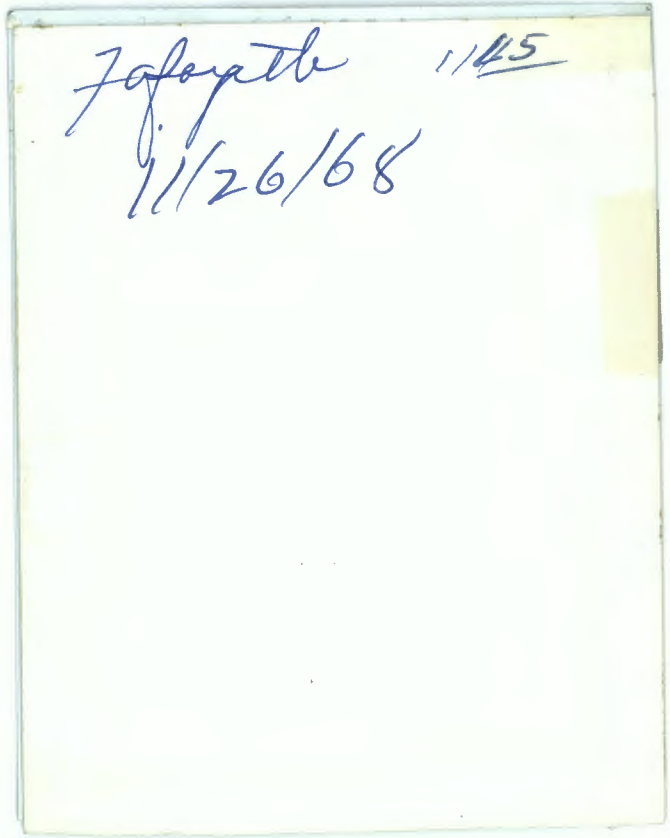
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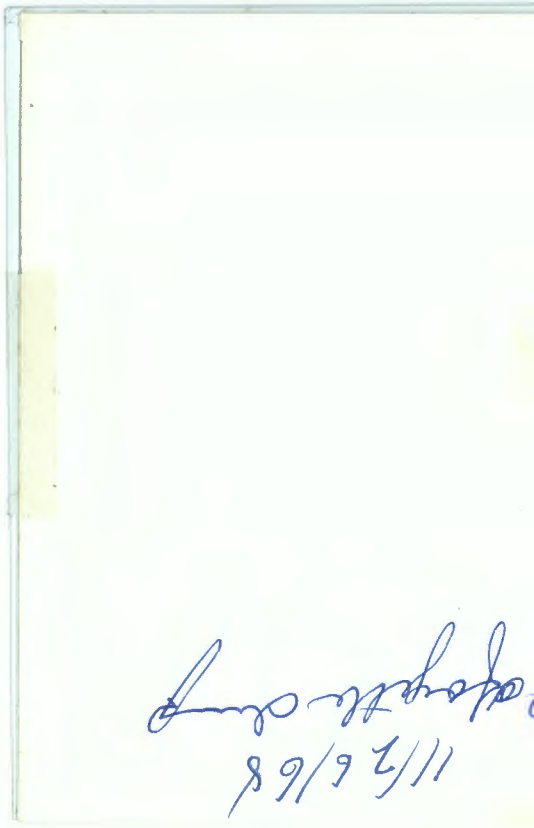
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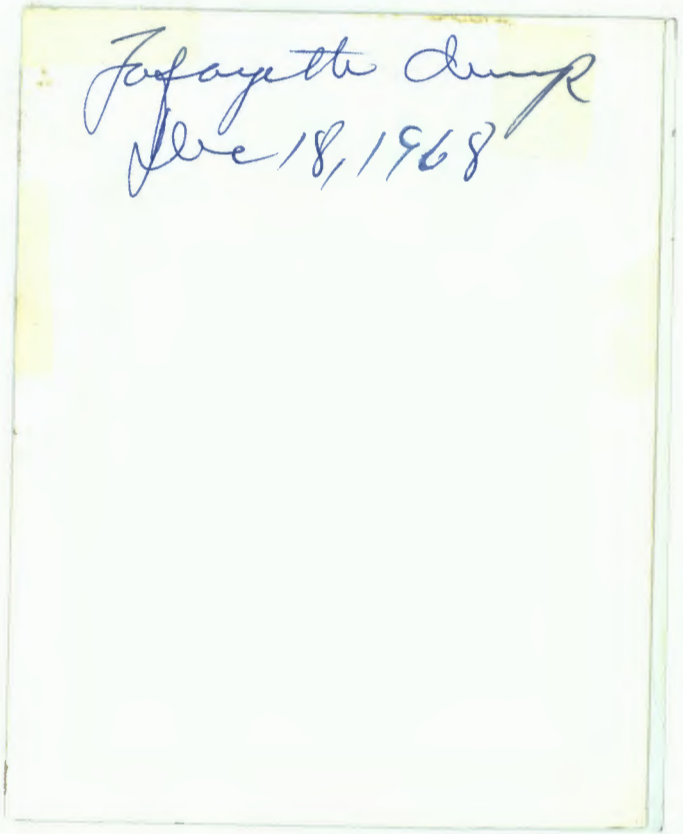
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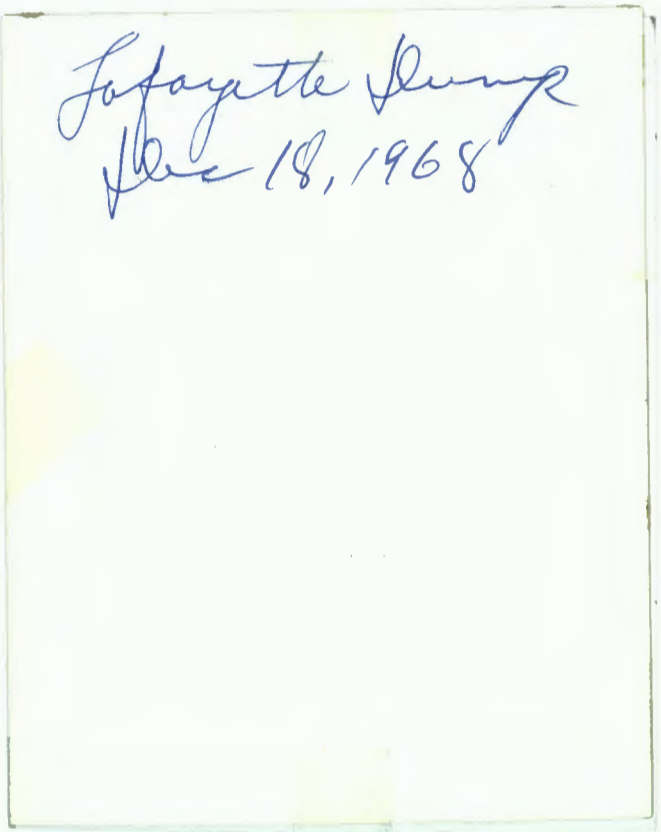
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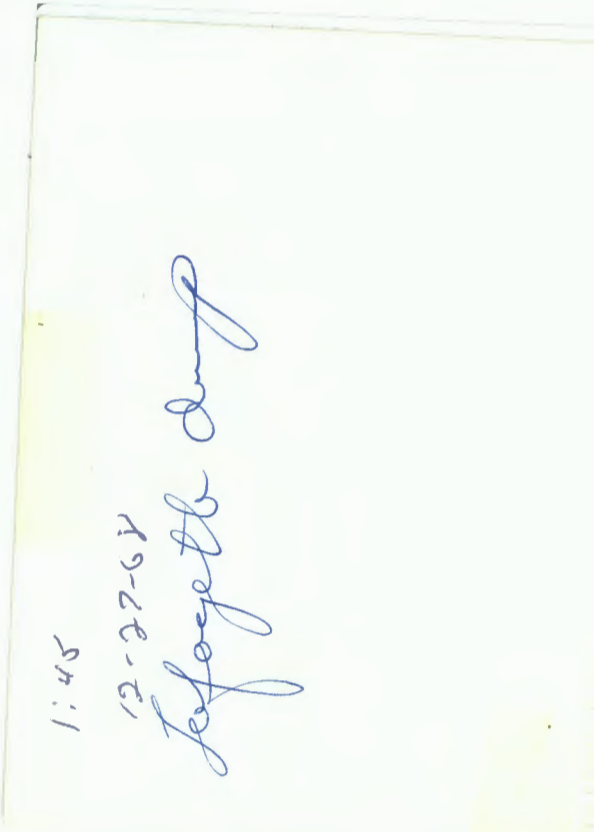
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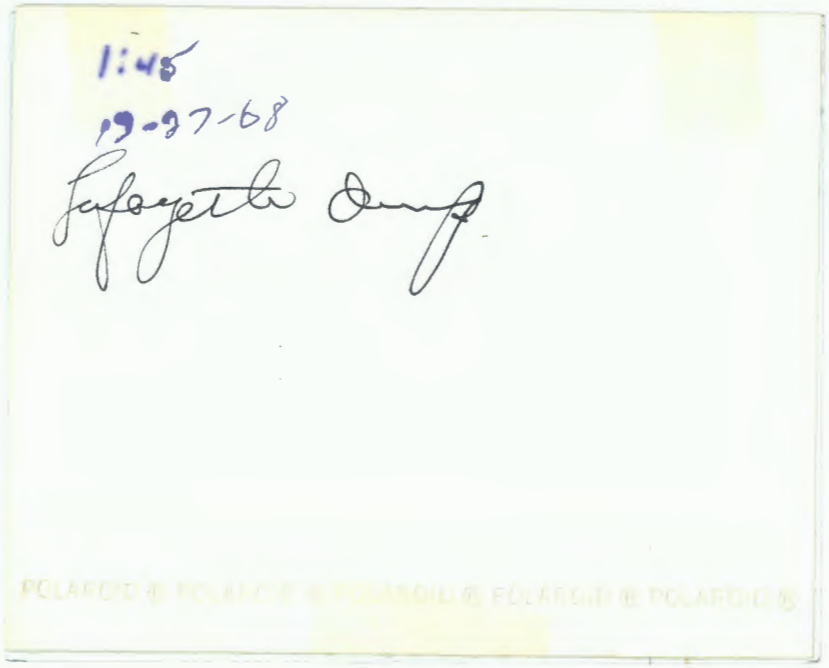
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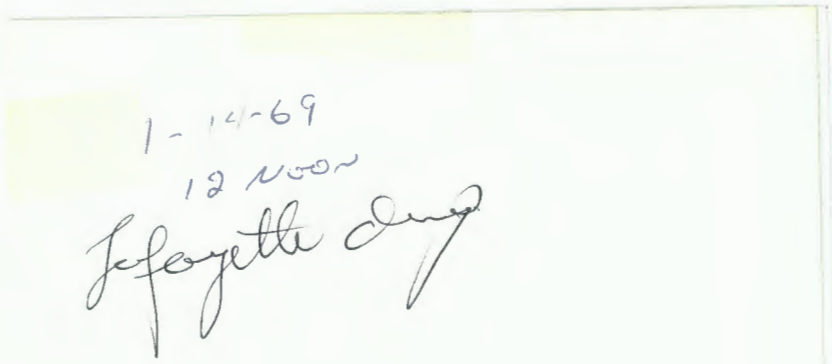
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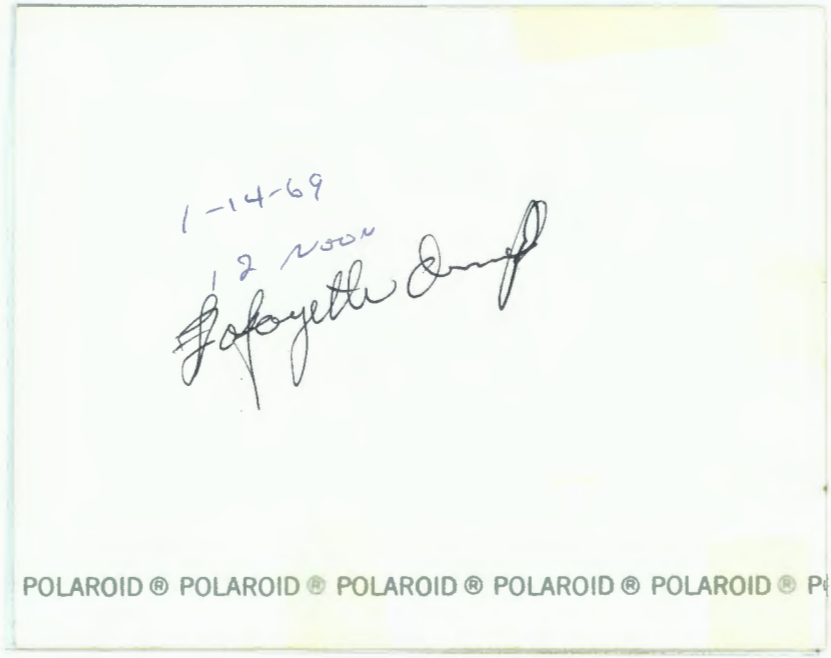
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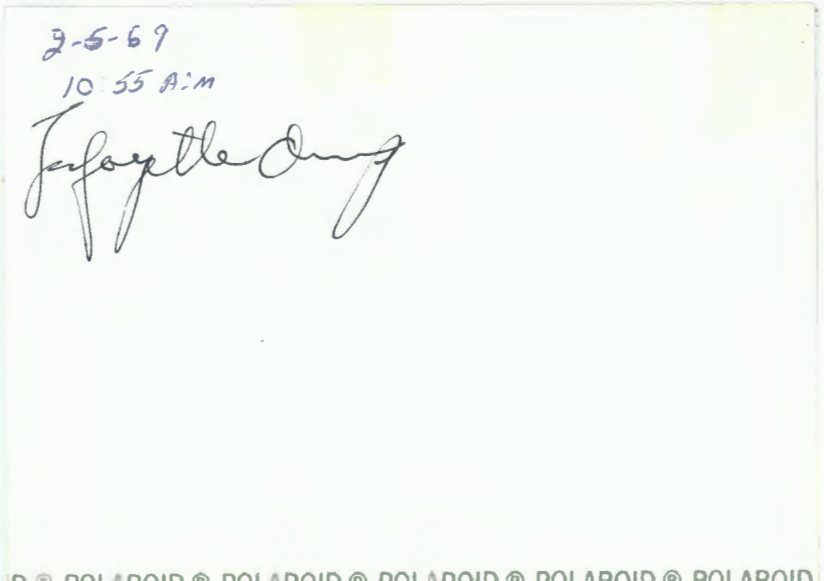
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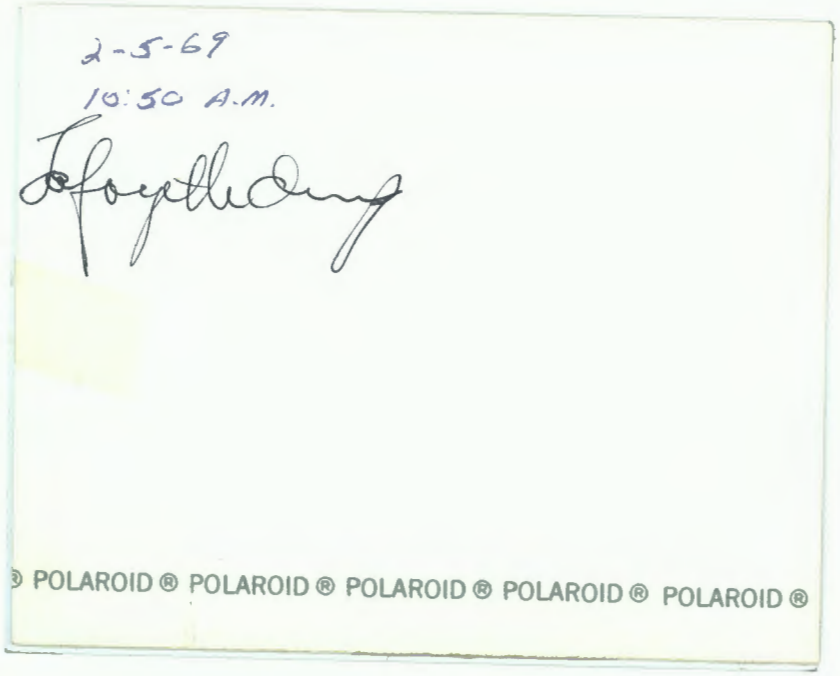
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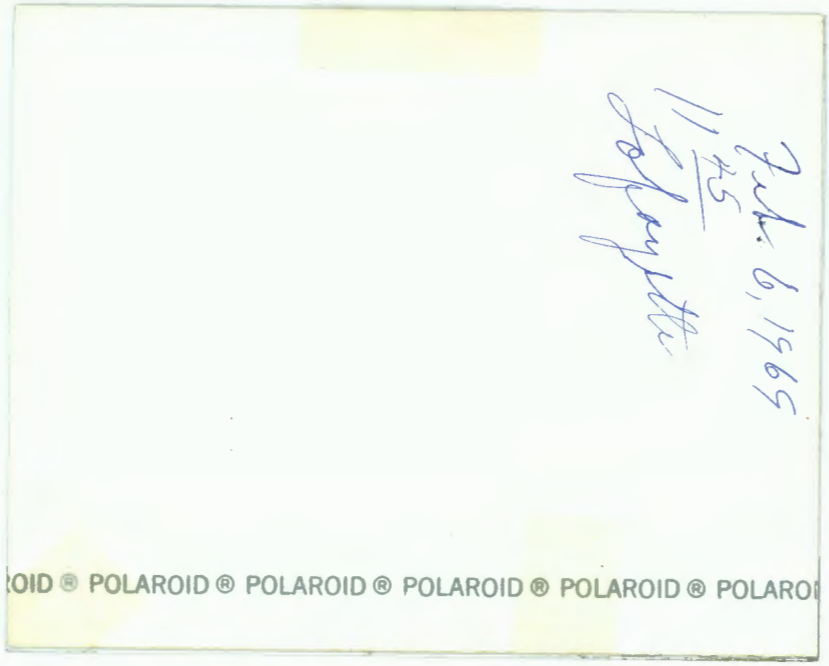
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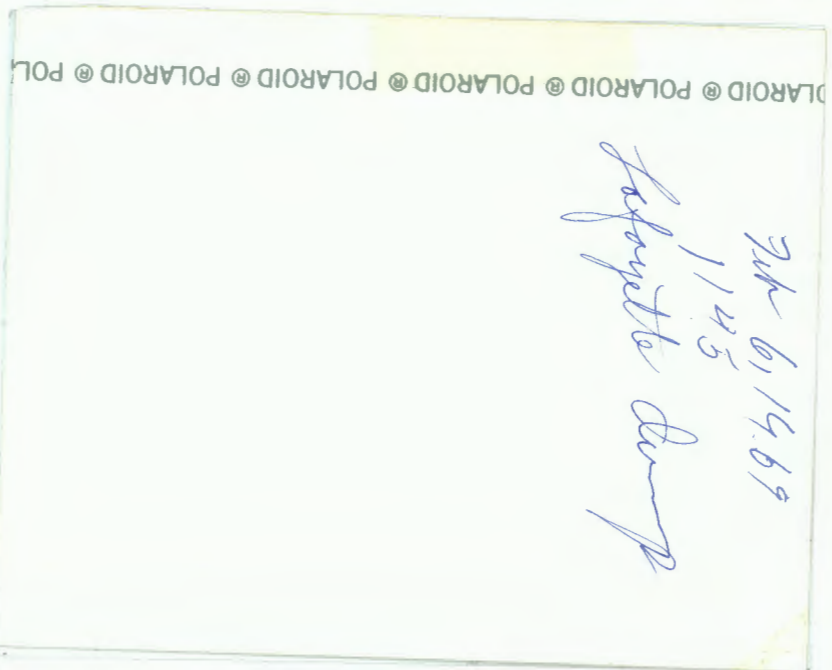
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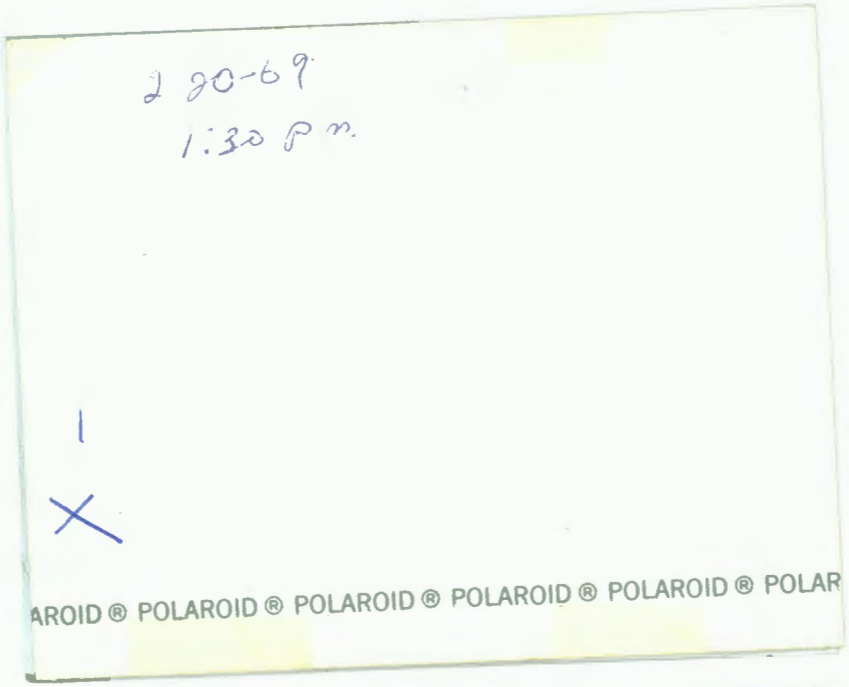
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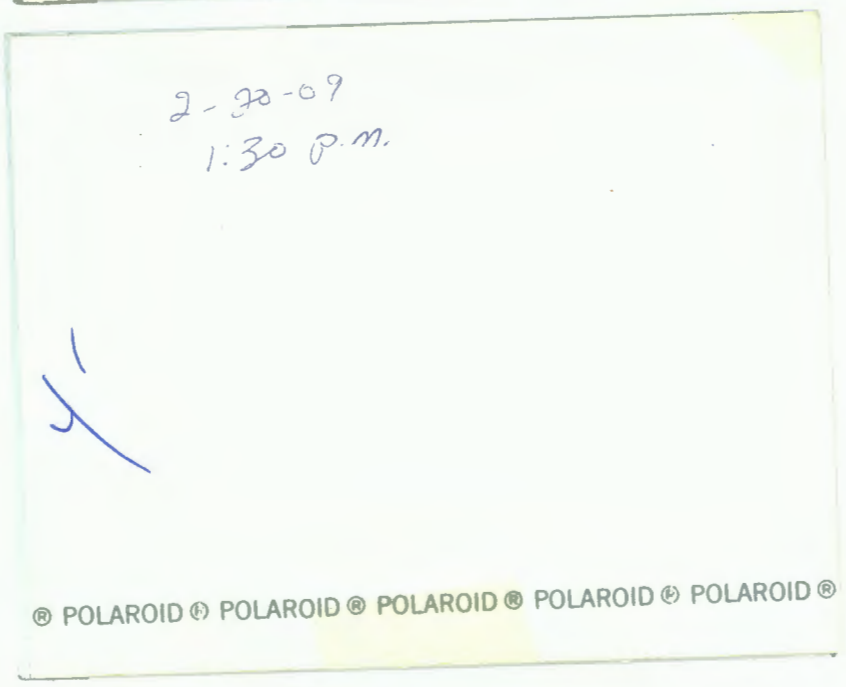
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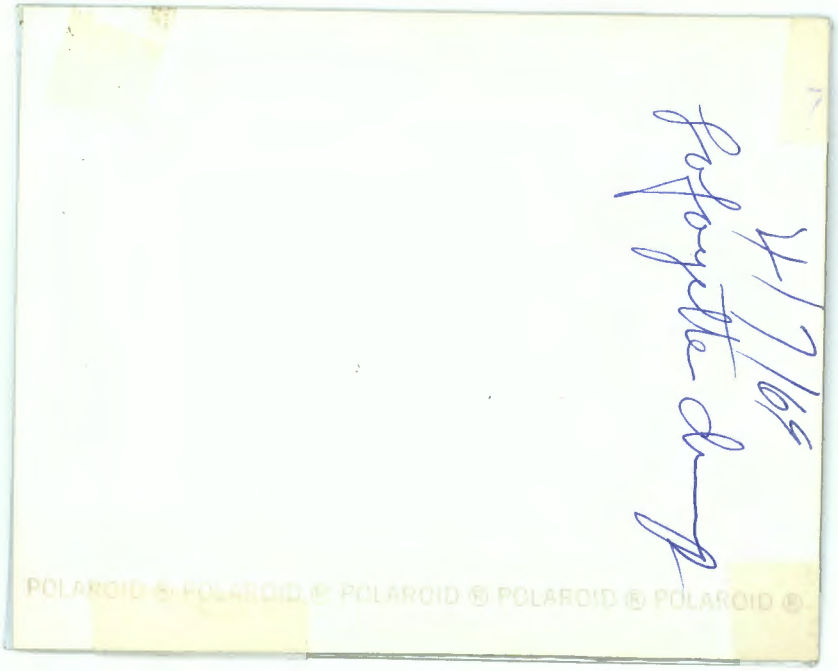
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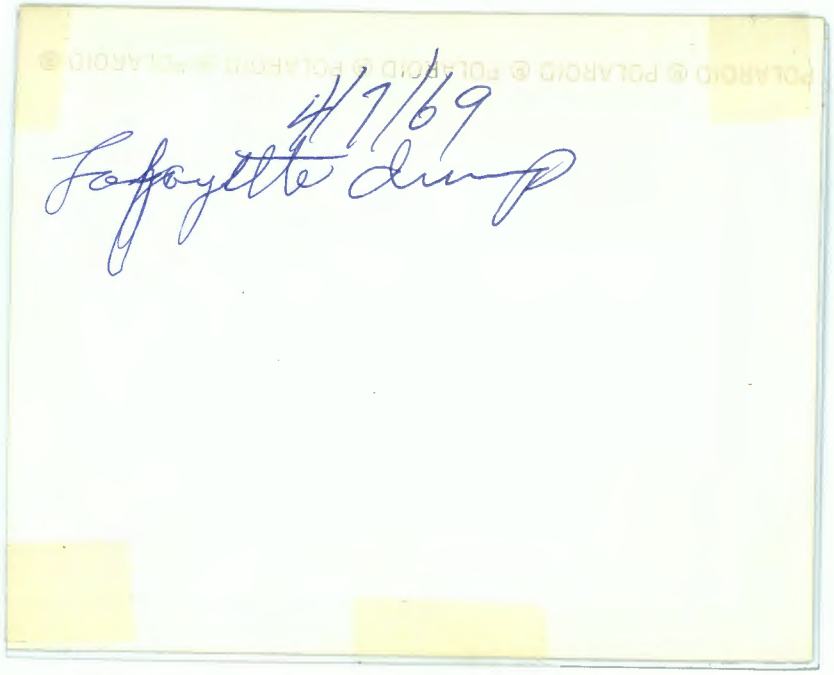
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Lafayette dump

From: Liz Fisher
To: Planning Application
Subject: Redtail Ranch Preliminary Plat
Date: Tuesday, January 16, 2024 3:49:25 PM

External Email: Do not click links or open attachments unless you recognize the sender and know the content is safe.

TO: Erie Planning Commission

RE: Redtail Ranch Preliminary Plat

My comment is in opposition to the RTR preliminary plat, due to the many environmental and public health, safety and quality of life concerns.

I encourage the Planning Commissioners to more closely scrutinize the events surrounding the discovery and clean-up of contaminated waste that was found at this location. Some 300 drums of toxic material from an old dump are still unaccounted for! Please ask yourselves if you'd want your family to live there.

Additionally, considering the proposed development's extreme proximity to existing neighborhoods, a landfill, active oil & gas wells and pipelines, a recommendation of approval to the Town Council would seem to be an egregious miscarriage of Erie's civic responsibility to protect the vital interests of both current and future residents.

Respectfully,

Elisabeth Fisher
635 Moffat St.
Erie, CO 80516

From: Melinda Helmer
Sent: Wednesday, April 10, 2024 12:31 PM
To: Harry Brennan
Subject: FW: Proposed Re-zoning of western portion of the landfill

Melinda Helmer, CMC | Business Operations Coordinator

Town of Erie | Planning & Development
645 Holbrook Street | P.O. Box 750 | Erie, CO
80516
Cell: 720.745.1062
www.erieco.gov/planning

Enhancing the quality of life by serving and building Erie with PRIDE.

The information contained in this email message may be privileged, confidential, and protected from disclosure. If you are not the intended recipient, any dissemination, distribution, or copying is strictly prohibited. If you think you have received this email message in error, please contact the sender and delete the original message immediately.

From: BRATS 5 <rbstoffer@msn.com>
Sent: Tuesday, March 5, 2024 11:42 AM
To: Council Mail <council@erieco.gov>; Planning Commission Board <planning@erieco.gov>
Subject: Proposed Re-zoning of western portion of the landfill

External Email: Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning.

As a concerned resident and family of Erie I/we would like to voice our opinion on the proposal of re-zoning a portion of the landfill to Industrial.

Back in 2019/2020 Redtail Ranch proposed to the council a re-zoning effort on this same piece of land to residential. This effort was thankfully shot down by the Erie Town Council & Mayor Jennifer Carroll. A major part of this choice came through the public outcry of residents of Vista Pointe and Vista Ridge.

When we moved our family from Vista Ridge over to Vista Pointe in 2015, I visited Town Hall to discuss the landfill. We looked at the map of Erie & as I spoke with the Planning Commission I was told that there never will be building to the east of your home. I was told that there might be plans to create a park or mountain bike park, works for us!

Remember the town slogan, "The Best Place to Raise a Family"? This will absolutely not be the case if the choice to re-zone the western portion of the landfill occurs. If we bow down to the request of a developer and forget about a town promise to its residents, what is next?

I never thought that we would be visiting this subject again 4 years later. We ask you Mr. Mayor, Council Members, Planning Commission. Please don't give this proposal a second thought, quash it now!

From a family of all Colorado natives, thank you for your time & consideration.

The Stoffer Family
1427 Serene Drive

COLORADO BROWNFIELDS
REVOLVING LOAN FUND

April 12, 2024

Board of Trustees
Town of Erie
645 Holbrook Street
P.O. Box 750
Erie, CO 80516

Re: Stratus Redtail Ranch, LLC Preliminary Plat PP-001230-2021

Ladies and Gentlemen:

I am the Unit Leader for the Colorado Department of Public Health and Environment (CDPHE) Superfund/Brownfields program. I also serve as the Chair of the Colorado Brownfields Revolving Loan Fund (CBRLF) Board. In those capacities, I oversee the CDPHE response to requests for (i) No Action Determinations under the Colorado Voluntary Cleanup Program and (ii) funding under the Colorado Brownfields Revolving Loan Fund. It is my understanding that Stratus Redtail Ranch LLC will be presenting to the Erie Board of Trustees, for its approval, a Preliminary Plat of an approximately 295-acre parcel of real estate located in the Town of Erie, currently zoned for residential use.

I am quite familiar with the property. In 2021, my unit issued a No Action Determination regarding the southern approximately 250 acres of the property, which is where the residential use will be located under the proposed preliminary plat. That determination indicated that no further remedial work or investigation was necessary to assure that this portion of the property was safe for residential uses. With regard to an approximately 45 acre parcel on the northern portion of the property, another division of CDPHE is responsible for overseeing construction of a cap to an abandoned landfill that has existed in an uncontrolled condition since the mid-1960s, almost 50 years prior to the acquisition of the property by Stratus.

Stratus Redtail has been very proactive in working to address environmental contamination associated with northern parcel, having worked first with the United

States Environmental Protection Agency (EPA) and later, the CDPHE Solid Waste Program to remediate the issues on this portion of the Property. Installing an engineered cover system is the final remedial work that needs to be completed. It is my understanding that Stratus has spent significant funds to remediate this decades old issue. In connection with the remediation, Stratus contacted the CBRLF to assist Stratus by loaning to Stratus funds to complete the construction of the cap, scheduled to commence in 2024. The CBRLF, through the Colorado Housing and Finance Authority (CHFA), has closed on a loan to Stratus and looks forward to the commencement and ultimate cleanup of the 45-acre parcel.

The CBRLF is a partnership between CDPHE, the Colorado Housing and Finance Authority (CHFA) and seven Front Range local governments, formed to provide financing to facilitate cleanup of contaminated properties with the goal of allowing productive reuse of the affected property. CBRLF and CHFA are excited to be involved in this project and wholeheartedly support Stratus' efforts to complete the cleanup. Although CBRLF is not regulatory agency, nor has any responsibility for overseeing the cleanup, I have been in contact with my colleagues at CDPHE and understand that Stratus has been working closely with the CDPHE Solid Waste Program to complete the cleanup pursuant to the CDPHE approved plan. The Solid Waste Program is responsible for approving the ultimate cleanup and construction of the cap.

The Stratus Redtail Ranch project is an excellent example demonstrating how public-private partnerships can work to implement environmental cleanup and allow productive reuse of formerly contaminated properties. The CBRLF Board looks forward to approval of this plat.

Sincerely,

Douglas C. Jamison
Chair, Colorado Brownfields Revolving Loan Fund Board

TOWN OF ERIE
Planning & Development – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Website: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed. Application fees must accompany application.

STAFF USE ONLY		
FILE NAME:		
FILE NO:	DATE SUBMITTED:	FEES PAID:

PROJECT/BUSINESS NAME: REDTAIL RANCH

PROJECT ADDRESS: WCR 4 AND WCR 5

PROJECT DESCRIPTION: PRELIMINARY PLAT FOR REDTAIL RANCH

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: See attached legal

Filing #: Lot #: Block #: Section: Township: Range:

OWNER (*attach separate sheets if multiple*)

Name/Company: STRATUS REDTAIL RANCH LLC
Contact Person: RICHARD DEAN
Address: 8480 E. ORCHARD ROAD, SUITE 1100
City/State/Zip: GREENWOOD VILLAGE, CO 80111
Phone: (720) 214-5000 Fax:
E-mail:

[X] Check here if Owner is responsible for Application Billing

AUTHORIZED REPRESENTATIVE

Company/Firm: TERRACINA DESIGN
Contact Person: LAYLA ROSALES
Address: 10200 E GIRARD AVE SUITE A-314
City/State/Zip: DENVER, CO 80231
Phone: 303-632-8867 Fax:
E-mail: lrosales@terracinadesign.co

[ ] Check here if Authorized Representative is responsible for Application Billing

MINERAL RIGHTS OWNER (*attach separate sheets if multiple*)

Name/Company: ENCANA OIL & GAS (USA) INC
Address: 370 1 st Street, Suite 1700
City/State/Zip: Denver, CO 80202

MINERAL LEASE HOLDER (*attach separate sheets if multiple*)

Name/Company:
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: LR
Proposed Zoning:
Gross Acreage: 293.9 ACRES
Gross Site Density (du/ac): 1.92
Lots/Units Proposed:587
Gross Floor Area: N/A

SERVICE PROVIDERS

Electric: UNITED POWER
Metro District: REDTAIL RANCH METRO DISTRICT
Water *(if other than Town):*
Gas: XCEL ENERGY
Fire District: MOUNTAIN VIEW FIRE RESCUE DISTRICT
Sewer *(if other than Town):*

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES

ANNEXATION		**SUBDIVISION**	
☐ Major (10+ acres)	$ 4000.00	☐ Sketch Plan	$ 1000.00 + 10.00 per lot
☐ Minor (less than 10 acres)	$ 2000.00	☒ Preliminary Plat	$ 2000.00 + 40.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☐ Final Plat	$ 2000.00 + 20.00 per lot
☐ Major	$ 3000.00	☐ Minor Subdivision Plat	$ 2000.00
☐ Minor	$ 1200.00	☐ Minor Plat Amendment	$400.00
ZONING/REZONING		☐ Road Vacation (constructed)	$1000.00
☐ Initial Zoning	$ 1700.00 + 10.00 per acre	☐ Road Vacation (paper	$100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre		
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Residential	$ 1400.00 + 10.00 per unit
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2,200.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
SPECIAL REVIEW USE		☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
☐ Major	$ 1000.00	☐ Amendment (major)	$1100.00
☐ Minor	$ 400.00	☐ Amendment (minor)	$350.00
☐ Oil & Gas	$ 1200.00	**VARIANCE**	$600.00
MISCELLANEOUS		**METRO DIST SERVICE PLAN**	$10,000.00
☐ Outdoor Café Permit/R.O.W. Encroachment	$50.00		
☐			

*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff. See Town of Erie Municipal Code, Title 2-10-5 for all COMMUNITY DEVELOPMENT FEES.*

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. **The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Title 10, Section 7.2.B.5 of the Town of Erie Municipal Code, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of staff, necessary for project review. By this acknowledgement, the undersigned hereby certify that the above information is true and correct.**

Owner: Richard O Dean mgr Date: 1/6/2021

Owner: Date:

Applicant: Date:

STATE OF COLORADO)
) ss.
County of Jefferson)

The foregoing instrument was acknowledged before me this 6th day of January, 2021, by Richard O Dean Manager Red Tail Ranch

My commission expires: 8/24/2021.

Witness my hand and official seal.

JAN M. BERRY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID #19874015171
MY COMMISSION EXPIRES AUG. 24, 2021

Notary Public 16800 W Colfax Ave Golden Co 80401

REDTAIL RANCH LEGAL DESCRIPTION:

PORTIONS OF W1/2 NE1/4, E1/2 NE1/4 AND S 1/2 OF SECTION 29, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE EAST QUARTER CORNER OF SAID SECTION 29; THENCE S89°53'54"W, ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, A DISTANCE OF 40.00 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF COUNTY ROAD 5 (80' WIDE) AS DESCRIBED AT RECEPTION NO. 1973755 IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO SAID POINT ALSO BEING THE POINT OF BEGINNING;

THENCE S00°33'04"E, ALONG SAID WESTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2628.75 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF A 60' WIDE RIGHT-OF-WAY AS DESCRIBED IN BOOK 86 AT PAGE 273 AS RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO, THENCE N89°52'25"W, ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 2582.89 FEET TO A POINT; THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, N89°51'56"W, A DISTANCE OF 2592.85 FEET TO A POINT ON THE EASTERLY LINE OF A 60' WIDE RIGHT-OF-WAY LINE AS DESCRIBED IN SAID BOOK 86 AT PAGE 273; THENCE N00°46'44"W, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1011.94 FEET TO A POINT ON THE SOUTH LINE OF A PARCEL OF LAND AS DESCRIBED AT RECEPTION NO. 2360787, RECORDED IN THE OFFICE OF THE CLERK AND RECORDER OF WELD COUNTY, COLORADO; THENCE TRAVELING ALONG THE SOUTH AND EASTERLY PORTION OF SAID PARCEL OF LAND, THE FOLLOWING (3) THREE COURSES:

1. S89°59'07"E, A DISTANCE OF 1264.97 FEET TO A POINT;
2. N45°48'01"E, A DISTANCE OF 1075.96 FEET TO A POINT;
3. N00°40'10"W, A DISTANCE OF 850.48 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29;

THENCE N89°55'44"E, ALONG SAID NORTH LINE, A DISTANCE OF 549.46 FEET TO A POINT ON THE WEST HALF OF THE WEST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE CONTINUING ALONG THE NORTH LINE OF THE SOUTH HALF OF SAID SECTION 29, N89°55'15"E, A DISTANCE OF 479.08 FEET TO A POINT; THENCE N48°09'00"E, A DISTANCE OF 1110.81 FEET TO A POINT ON THE WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 29; THENCE N00°36'26"W, ALONG SAID WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER, A DISTANCE OF 370.76 FEET TO A POINT ON THE SOUTHERLY LINE OF RIGHT-OF-WAY (60' WIDE) AS DESCRIBED IN BOOK 868 AT PAGE 89 AND AT RECEPTION NO. 1687926 AS RECORDED IN WELD COUNTY COLORADO; THENCE NORTH 68°34'00"E, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 1364.75 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF SAID COUNTY ROAD 5; THENCE S00°32'52"E, ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 1607.21 FEET TO THE POINT OF BEGINNING.

Redtail Ranch

Preliminary Plat Narrative

April 3,2023

a. General project concept and purpose of the request:

Redtail Ranch is a 289.9-acre master planned community that has been designed to integrate seamlessly with the surrounding neighborhoods. Special consideration was given to the adjacent neighbors by providing open space and landscape buffers along the south edges of the community. This will ensure that existing residents benefit from the development of Redtail Ranch by creating permanent landscape areas adjacent to their homes.

The plan shows 587 homes, including estate, traditional single family, and duplexes. Several New Urbanist principles are utilized within the community. The design intent is to create a traditional neighborhood form and sense of place by utilizing a modified grid street network. Also shown on the plan is an integrated open space and trail system to promote connectivity and walkability.

The property consists of 289.9 acres and zoned LR. The site is consistent with the LR zoning and includes 587 homes at a density of 2.0 dwelling units per acre. The approved Annexation Agreement allows for 598 units and a density of 2.0 dwelling units per acre. After the Preliminary Plat is approved a Final Plat will be submitted for the first phase of development.

b. The total land area to be subdivided totals: 289.9 acres

DEVELOPMENT SUMMARY		
LAND USE	**UNITS**	**% UNITS**
Townhomes Alley Loaded (Min. 32' x 100')* (Alley 30' Tract)	117	19.9%
Duplex Front Loaded (Min. 45' x 110')**	68	11.6%
Single-family Detached Lots (Min. 56' x 110')***	376	64.0%
Single-family Detached Large Lots (Min. 10,000 SF)	26	4.4%
TOTAL	**587**	**100.0%**
* Townhomes - Corner lots are a min. 45' x 100' Adjacent To tract 37'x100'		
** Duplex - Corner lots are a min. 60' x 110'		
*** Standard Lots - Corner lots are a min. 69' x 110'		

c. The total number of lots, and if residential the proposed density:

The Preliminary plat shows a total of 587 dwelling units at a gross density of 2.0 DU/acre.

d. *N/A*

e. The total land area to be preserved as open space

The plan proposes three pocket parks (2.92 acres). In addition to the parks, 29.4 acres of dedicated open space is proposed on the southwest corner to protect the existing drainage and natural feature on the site. The plan also includes an additional 134.7 acres of private landscape tracts and buffer areas.

f. A brief description regarding the phasing of the proposed subdivision:

Development will begin in the southeast portion of the property and work towards the west.

g. A brief description regarding the availability and adequacy of existing infrastructure and other necessary services including schools, fire protection, water/sewer service, and utility providers:

The property is within the Town of Erie's infrastructure service area and will be designed in accordance with the Town of Erie Master Plans for water, sanitary sewer, and drainage. Engineering reports prepared in 2015 demonstrate that there is available capacity in the Town's existing infrastructure for water and sanitary. Streets will be constructed in accordance with the Town of Erie's standards. Fire protection will be provided under the Mountain View Fire Protection District. Dry Utilities will be provided by United Power and Xcel.

The development is anticipated to increase the demand on the St. Vrain Valley School District RE-1J (the "School District") due to the predicted increase in the number of school age children who will reside in the development. Stratus anticipates entering into an agreement with the School District for cash in lieu as a school site is not anticipated in this community.

h. A brief description regarding the location, function and ownership/maintenance of public and private open space, parks, trails, common areas, common

buildings:

Redtail Ranch will satisfy the pocket and open space dedication requirements on site and provide cash-in-lieu for the neighborhood park and community park. The dedicated open space 29.4 acres will be owned and maintained by the Town. The three pocket parks (2.92 acres) and 134.7 acres of landscape tracts and buffer areas will be owned and maintained by the metro district.

As part of the Trails and Open Space Master Plan we will dedicate an east/west spine trail in the center of the property that will be owned and maintained by the Town. We have also created an internal system of neighborhood trails within the site that will be owned and maintained by the metro district.

i. A brief description regarding the substance of any existing or proposed covenants, special conditions, grants of easements, or other restrictions applying to the proposed subdivision.

Environmental

In 2017, CDPHE officially notified the EPA that it suspected there were buried drums containing hazardous chemicals dumped onto the Pratt family's land (Redtail Ranch) in the 1960s. All the barrels and contaminated soil were safely removed, and the EPA signed off on the completed clean-up in October 2018.

As part of the next step, Stratus looked at the longer-term issues of containing any remaining solid waste and establishing monitoring systems to ensure protection of the area's groundwater. In March 2019, CDPHE approved Stratus' conceptual design for the project and in May 2020, Stratus received an approval letter for the submitted Corrective Measures Design (CMD) from the CDPHE. The approval letter can be found in Tab 10 and the full digital report is available upon request.

We have also included a No Action Determination Approval letter from CDPHE Dated December 11, 2020, stating that "no further action is required to assure that this property, when used for the purposes identified in the No Action Petition (Residential), is protective of existing and proposed uses and does not pose an unacceptable risk to human health or the environment at the site."

We have also included the soil vapor observations memorandum in response to the Pinyon report. Any additional information or discussions will be held and responded to during the Preliminary Plat process.

Gas Pipeline along CR5

County Road 5 has an existing 100' right-of-way and the intent is to expand County Road 5 to a 2-Lane minor arterial with a 120' right-of-way. In previous discussion with the Town it was determined that the existing slope to the west of Count Road 5 was too steep and expanding the road to west would create a major disturbance to the existing grade. To mitigate the impact to the existing grade it was proposed that the additional 20' of right-of-way will be dedicated on our property to the west side of County Road 5.

There are existing gas lines on the east side of County Road 5 and there is concern that the road expansion will be impacted by the gas lines. Based on the proposed County Road 5 full build-out design, the gas line will be out of the paved portion of County Road 5 and will not impact the roadway. The plan only shows a portion of Road C that will cross the gas line and we are working with the gas line representatives on that road crossing.

Oil and Gas Operations

The oil and gas facilities on the property are in compliance with the Surface Use Agreement and the operators have drilled the site to its maximum capacity. No additional oil and gas development will occur on this property.

COLORADO
Department of Public Health & Environment

May 12, 2020

Mr. Richard Dean
Stratus Redtail Ranch, LLC
8480 E. Orchard Road, Suite 1100
Greenwood Village, CO 80111

RE: **CDPHE Approval of the Corrective Measures Design Report Rev. 1**
Neuhauser Landfill, Erie, Colorado

SW/WLD/NEU 2.4

Dear Mr. Dean:

The Colorado Department of Public Health and Environment ("CDPHE" or "Department") Hazardous Materials and Waste Management Division ("Division") received the following document on May 1, 2020:

> *"Corrective Measures Design Report, Historic Landfill Site, Rev. 1;"* prepared for Stratus Redtail Ranch LLC ("Stratus"); prepared by Geosyntec Consultants ("Geosyntec"); dated May 1, 2020 (referred to herein as the "CMD Rev.1").

Stratus and CDPHE entered into Compliance Order on Consent Number 18-05-15-01 on May 16, 2018 ("Consent Order"). Among other things, the Consent Order requires Stratus to prepare a corrective measures design ("CMD") and a post-closure monitoring and maintenance plan ("PCMMP"). The CMD was originally due on June 5, 2019. Under the Consent Order, the PCMMP is due within sixty calendar days of approval of the CMD. Stratus requested, and the Division approved, Stratus' request to include the PCMMP as an appendix to the CMD. Stratus also requested and the Division approved time extensions for the due date of the CMD. Stratus submitted a draft CMD to the Division on August 27, 2019 for an informal technical review. The Division provided written comments on the draft CMD to Stratus in four separate transmittals between September 10, 2019 and October 7, 2019.

Stratus submitted CMD Rev. 0 to the Division for review on February 7, 2020. The Division advertised a 30-day public comment period starting on February 26, 2020 inviting the public to comment on the CMD Rev. 0. The public comment period ended on March 26, 2020. The Division received no comments from the public. The Division's comments on CMD Rev. 0 were issued to Stratus on April 2, 2020.

The Division has completed its review of the CMD Rev.1. The Division reviewed CMD Rev.1 to determine its compliance with requirements of the Solid Wastes Disposal Sites and Facilities Act, CRS 30-20-100.5 *et. seq.* ("Act"), the Regulations Pertaining to Solid Waste Sites and Facilities, 6 CCR 1007-2, Part 1 ("Regulations"), and the Consent Order. Based on its review, the Division has determined that the Division's comments have been adequately addressed and that the CMD Rev. 1 meets the requirements of the Act,

Regulations, and Consent Order. Therefore, the Division hereby approves the CMD Rev. 1 as submitted.

Please note that this approval letter does not preclude the Town of Erie from taking independent review action.

The Division requests that Stratus submit its closure and post-closure financial assurance cost estimate by August 12, 2020. The cost estimate does not need to include the work to be performed during the summer of 2020.

The Department is authorized to bill for its review of technical submittals at a rate of $125 per hour pursuant to Section 1.7 of the solid waste regulations. An invoice for the Division's review of the above-referenced document will be transmitted under separate cover.

Should you have questions about this letter please call me at (303) 692-2295 or email me at curtis.stovall@state.co.us.

Sincerely,

Curt Stovall, P.E.
Solid Waste Permitting Unit
Solid Waste and Materials Management Program
Hazardous Materials and Waste Management Division

ec: Joyce Ackerman – EPA Superfund Technical Assessment and Response Team
Mark Adams – Waste Connections
Colleen Brisnehan – CDPHE Site Assessment
Farrell Buller – Town of Erie Deputy Town Administrator
Steve Derus – Republic Services
Lauren Errico – CDPHE Community Involvement
Malcolm Fleming – Town of Erie Town Administrator
David Folkes, PE – Geosyntec Consultants
Ben Frissell – Weld County Department of Public Health and Environment
David Fronczak – EPA Site Assessment Program
Jonathan Gillen, PE – Geosyntec Consultants
Jerry Henderson – CDPHE Solid Waste Permitting Unit Leader
Doug Ikenberry, PE – CDPHE Solid Waste Compliance Assurance Unit
Jason King, Esq – Colorado Office of the Attorney General
Alan Linton – Pratt Management Company, LLC
Amber Luttrell – Town of Erie Communications & Marketing Manager
Randy Perila - CDPHE Solid Waste Compliance Assurance Unit
Ben Pratt, CEcD – Town of Erie Director of Economic Development
Dani Serna, RS/REHS – Weld County Department of Public Health and Environment
Ed Smith – CDPHE Solid Waste Compliance Assurance Unit Leader
Fred Starr, AICP - Town of Erie Director of Planning & Development
Jonathan Steeler, Esq – Senn Visciano Canges P.C.

Pinyon Environmental, Inc.
Corporate Headquarters
3222 South Vance Street, Suite 200, Lakewood, CO 80227
T: 303.980.5200 F: 303.980.0089
www.pinyon-env.com

April 12, 2022

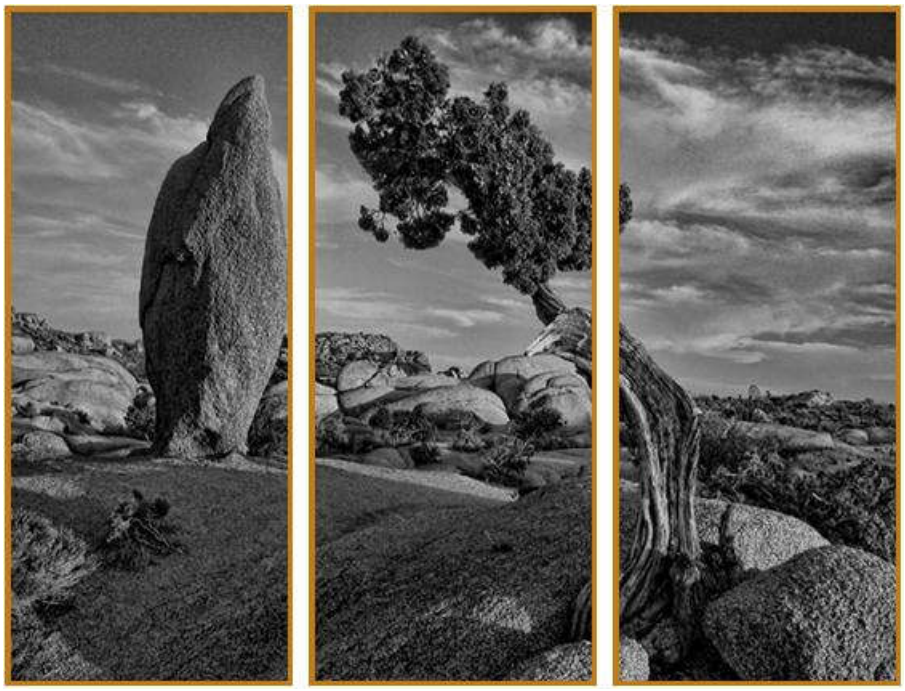
Property Development Environmental Review Update

Stratus Redtail Ranch
Erie, Weld County, Colorado

Prepared For:
Town of Erie
645 Holbrook Street
Erie, CO 80516

Pinyon Project No.:

122069502.SC007



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3222 South Vance Street, Suite 200, Lakewood, CO 80227
T: 303.980.5200 F: 303.980.0089
www.pinyon-env.com

April 12, 2022

Property Development Environmental Review Update

Redtail Ranch
Erie, Colorado

Prepared For:
Town of Erie
645 Holbrook Street
Erie, CO 80516

Pinyon Project No.:

122069502.SC007

Prepared by:

Tim Grenier, P.E.
Technical Group Manager – Due Diligence/Site Characterization

Darin Worden
Senior Hydrologist

Reviewed by:

Brian Partington
Principal – Project Delivery

Table of Contents

1. Introduction 1

1.1 Methods 1

2. Site History 3

2.1 Site Background 3

2.2 Site Investigations 3

2.2.1 Tetra Tech – Summary Report of Preliminary Site Investigation Activities, February 2007 (TT, 2007) 3

2.2.2 Stewart Environmental Consultants – Supplemental Soil Vapor Investigation, September 2007 (SEC, 2007) 4

2.2.3 Stewart Environmental Consultants – Soil Vapor Monitoring, January 2011 (SEC, 2011) 4

2.2.4 Quality Environmental Services and Technologies, Inc. - Phase I Environmental Site Assessment, March 2015 (Quest, 2015) 4

2.2.5 Quality Environmental Services and Technologies, Inc. – May 2016 Groundwater Assessment, May 2016 (Quest, 2016) 4

2.2.6 Stewart Environmental Consulting Group, LLC – Report on Phase 2 Nature and Extent Investigation, October 2017 (SEC, 2017) 5

2.2.7 Summary of Site Investigations 5

2.3 Site Drum and Soil Removal Activities 6

2.4 Corrective Measures Work Plan (Geosyntec, 2019) 7

2.4.1 Test Pit Investigation 8

2.4.2 Shallow Groundwater Investigation 8

2.4.3 Deep Groundwater Investigation 8

3. Corrective Measures 9

3.1 Corrective Measures Design (Geosyntec, 2020a) 9

3.2 Groundwater Remediation 9

3.2.1 In-situ Chemical Oxidation 9

3.2.2 Monitored Natural Attenuation 10

3.2.3 Evapotranspiration Cover System 11

3.3 Use Restrictions 12

3.4 Proposed Buffer Area 13

3.5 Post-Closure Monitoring and Maintenance Plan (Geosyntec, 2020b) 14

3.5.1 Site Security Requirements 15

3.5.2 Safety Requirements 15

3.5.3 Vector Control Plan 15

3.5.4 Noxious Weed Control 15

3.5.5 Routine Evapotranspiration Cover Inspections 15

3.5.6 Groundwater Monitoring 16

3.5.7 Soil Gas Monitoring 17
3.5.8 Reporting 17
3.6 Stormwater Management 17
3.7 Residential Irrigation Considerations 18
3.8 Geosyntec's Response to Pinyon's November 5, 2020 Property Development Environmental Review Report (Geosyntec, 2020c) 18
3.9 Stratus NAD Application (Geosyntec, 2020d) and CDPHE Approval (CDPHE, 2020b) 19
3.9.1 NAD Application Summary 19
3.9.2 NAD Application Contents 19
3.9.3 CDPHE Approval 20
3.10 ISOC Implementation Report (Geosyntec, 2021a) 20
3.10.1 ISOC Objectives 20
3.10.2 Drilling and Installation of Temporary Monitoring Points 21
3.10.3 ISOC Injections 21
3.10.4 Injection Monitoring 21
3.10.5 Distribution of Oxidant During Injection Period 22
3.10.6 Heat and Gas Formation 22
3.11 CGS Review of NAD and Other Documents (CGS, 2021) with Geosyntec's Response (Geosyntec, 2021b) 22
4. Landfill Development Considerations 25
5. Conclusions and Recommendations 26
6. Limitations 28
7. References 29

Figures

Figure 1 Site Plan (Geosyntec, 2020a)
Figure 2 Soil Vapor Monitoring Points (SEC, 2011)
Figure 3 Quest Groundwater Well Map (Quest, 2016)
Figure 4a and 4b Groundwater Monitoring Well Map (Geosyntec, 2020a)
Figure 5a and 5b Drum and Sludge Removal Areas (Geosyntec, 2018)
Figure 6a and 6b Test Trench Locations (Geosyntec, 2019)
Figure 7 ISCO Treatment Areas (Geosyntec, 2020a)
Figure 8a and 8b Post-Closure Groundwater Monitoring Locations (Geosyntec, 2020b)
Figure 9a and 9b ET Cover with Stormwater Plan (Geosyntec, 2020b)
Figure 10 Post-Closure Soil Gas Monitoring Locations (Geosyntec, 2020b)

Figure 11 Soil Vapor Sampling Locations (Geosyntec, 2020c)
Figure 12 Site Layout Map, NAD Application Site Boundary (Geosyntec, 2020d)
Figure 13 ISOC Injection Layout (Geosyntec, 2021a)

List of Acronyms

Acronym	Definition
AOC	Administrative Settlement Agreement and Order on Consent
bgs	below ground surface
CDPHE	Colorado Department of Public Health and Environment
CGS	Colorado Geological Survey
CGWS	Colorado Groundwater Screening Levels
CMD	Corrective Measure Design
CMWP	Corrective Measures Work Plan
COC	Compounds of Concern
COPC	Contaminants of Potential Concern
CR	County Road
CREC	Controlled Recognized Environmental Condition
DCE	Dichloroethylene
DO	Dissolved Oxygen
EISB	Enhanced In-situ Bioremediation
EM	Electromagnetic
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ET	Evapotranspiration
GPR	Ground Penetrating Radar
IBM	International Business Machines
IDW	Investigation Derived Waste
ISCO	In-situ Chemical Oxidation
LEL	Lower Explosive Limit
MCLs	Maximum Contaminant Levels
MNA	Monitored Natura Attenuation
NGPRS	National Ground Penetrating Radar Services
NAD	No Action Determination
ORP	Oxidation Reduction Potential
PA	Preliminary Assessment
PCE	Tetrachloroethylene
PCMM	Post-Closure Monitoring and Maintenance
PID	Photoionization Detector
POC	Point of Compliance
ppm	parts per million
PVC	Polyvinyl Chloride
REC	Recognized Environmental Conditions
RPA	Revised Preliminary Assessment
SEC	Stewart Environmental Consultants
SVOC	Semi-Volatile Organic Compounds
TCE	Trichloroethene
TOC	Total Organic Carbon

TPH	Total Petroleum Hydrocarbon
TT	Tetra Tech
VOC	Volatile Organic Compounds

1. Introduction

The subject property consists of two parcels totaling approximately 418 acres. Parcel 1 is the Stratus Redtail Ranch Property (Weld County Parcel Number 146729400002), which is approximately 290-acres; Parcel 2 is the Stratus Redtail Ranch 2 Property (Weld County Parcel Number 146729200046) which is approximately 128-acres and located to the northwest of Parcel 1. Combined, Parcel 1 and Parcel 2 with be referred to as the Site.

The Site includes the majority of Section 29, Township 1 North, Range 68th of the 6th Principal Meridian (Section 29), and is located to the southwest of Weld County Road (CR) 6 and CR 5. The east-adjacent property is the Front Range Landfill; the south adjacent property is developed with a golf course and residences; the west adjacent properties are residential; and the Denver Regional Landfill and Old Erie Landfill are located adjacent north of the Site (Figure 1). (Note: Pinyon has included figures prepared by others and appended to this report.) Stratus acquired the Site in July 2015 with plans to redevelop the property for residential purposes. Stratus submitted a Corrective Measure Design (CMD) Report to the Colorado Department of Public Health and Environment (CDPHE) in anticipation of development of the property for residential purposes, which CDPHE approved on May 12, 2020. At the request of the Town of Erie (Town), Pinyon reviewed documents available at that time, that were related to the Site. Following the review, Pinyon prepared the *Property Development Environmental Review*, dated March 5, 2020, providing a summary and professional opinions including recommendations on how thorough, complete, and technically sound Stratus' work had been.

Since that time, Stratus has implemented treatment of volatile organic compound (VOC)-impacted groundwater in release source areas through implementation of in-situ chemical oxidation (ISOC). Additionally, Stratus prepared and submitted an application for No Action Determination (NAD) through CDPHE. Several additional documents have been prepared by CDPHE, Geosyntec Consultants (Geosyntec), and the Colorado Geological Survey (CGS).

The Town requested Pinyon complete a second independent third-party analysis of the new/additional environmental documents including work remaining under the CMD to assist the Town's understanding of whether or not the CMD will adequately protect human health and the environment. Additionally, the Town requested that Pinyon's original report, dated November 5, 2020, be updated to include a summary and review of the new/additional documents.

1.1 Methods

Pinyon reviewed the new documents related to the Site, which were provided by the Town. The new information was incorporated into the original report. Therefore, this updated report has been segregated into the following main categories:

- Site background presented in Sections 2.1 and 2.2.
- Site remediation activities completed through November 5, 2020 (Sections 2.3 and 2.4).
- Site remediation and monitoring plans and reports are presented in Section 3 including:
    - Geosyntec's Corrective Measures Design (CMD) (Sections 3.1 – 3.7).
    - Geosyntec's response to Pinyon's Property Development Environmental Review Report, November 5, 2020 (Section 3.8).

- ISOC Implementation Report (Section 3.9).
- Stratus filing of the NAD and the subsequent CDPHE approval (Section 3.10).
- CGS's review of the NAD and multiple other documents including a geotechnical study of the Site and underground coal mine subsidence investigation; and Geosyntec's response to the CGS review (Section 3.11).

- Pinyon's conclusions and recommendations are presented in Section 5.

2. Site History

2.1 Site Background

The north and northeastern portion of Section 29 (Denver Regional Landfill and Old Erie Landfill) as well as the northern and northeastern portion of the Site (Neuhauser Landfill) were historically used for landfilling activities from approximately the mid-1960's through 1969 (Figure 1). Numerous environmental investigations and site assessments have been completed at the Site starting in 1969 when complaints from neighboring property owners led to Weld County holding a hearing regarding Certificate of Designation status for the Neuhauser Landfill. The landfill Certificate of Designation was revoked, and operations were forced to cease in 1969 (Weld County, 1969).

A Preliminary Assessment (PA) and subsequent Revised Preliminary Assessment (RPA) were completed for the Columbine Landfill in 1984 and 1990, respectively. The Columbine Landfill consists of two parcels; one is the approximately 160-acre parcel currently known as the Denver Regional Landfill (adjacent north of the Site), and the second parcel is a 35-acre parcel currently known as the Old Erie Landfill (adjacent to the north of the northeast portion of the Site) (Figure 1). The reports found that John Neuhauser leased property immediately south of the Denver Regional Landfill and the Old Erie Landfill (the northern portion of the Site), circa 1964. John Neuhauser entered into contract agreements with International Business Machines (IBM) and Sundstrand Aviation to dispose of chemical waste at the Neuhauser Landfill (CDPHE, 1984). The PA noted that up to 1,500 drums containing approximately 84,000 gallons of chemical waste from IBM may have been disposed at the Neuhauser Landfill in the 1960's.

2.2 Site Investigations

Numerous environmental investigations have been completed to evaluate impacts stemming from the historical landfill and chemical disposal facility on the northern and northeastern portion of Section 29, including portions of the Site. The following sections focuses on the Site investigation and cleanup activities and does not discuss the history or cleanup activities conducted on the Denver Regional and Old Erie Landfill portions of Section 29.

2.2.1 Tetra Tech – Summary Report of Preliminary Site Investigation Activities, February 2007 (TT, 2007)

Three soil vapor monitoring points were installed on January 11, 2007, along the northeastern Site boundary, south of the Old Erie Landfill (Figure 2 [the red labels, SV-1 (TT), SV-2 (TT), and SV-3 (TT)]); soil vapor samples were collected on January 16, 2007 and were analyzed for landfill gas suites and volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method AP-42. In addition to the soil vapor samples, two groundwater samples were collected from existing wells located south of the Old Erie Landfill on January 15, 2007. Groundwater was observed at depths between 18.50 and 54.62 feet below ground surface (bgs). The groundwater samples were analyzed for total petroleum hydrocarbons (TPH) and VOCs.

Various VOCs exceeded the selected Target Shallow Soil Gas Concentration screening levels in each of the three soil vapor samples. Sample SV-3 (TT), which was collected from the northeastern most corner of the Site had the highest concentrations, with numerous exceedances including trichloroethene (TCE), and tetrachloroethylene (PCE) by factors of 20,000 and 2,000, respectively (Figure 2).

TPH and VOCs were not detected above the laboratory detection limits in the two groundwater samples.

2.2.2 *Stewart Environmental Consultants – Supplemental Soil Vapor Investigation, September 2007 (SEC, 2007)*

Based on the findings of the Tetra Tech soil vapor investigation, Stewart installed an additional 30 soil vapor sampling points throughout the northern and eastern portion of Parcel 1; no vapor points were installed on Parcel 2. The northern points were selected to evaluate soil vapor conditions migrating from the Denver Regional Landfill and Old Erie Landfill properties and the eastern points were used to evaluate potential soil vapor conditions migrating from the east adjacent Front Range Landfill. Most of the points were nested with two screen intervals at five feet, and between 15 to 20 feet bgs. Samples were collected and lab analyzed for VOCs from 16 of the vapor points along the northern portion of Parcel 1 (Figure 2). During this sampling event, TCE was detected above the risk-based screening level at SV-14, SV-16, and SV-22. Samples were not collected for lab analysis at the other vapor point locations; instead, the vapor points were field screened for landfill gases. Those included three locations immediately south of the Old Erie Landfill (SV-10, SV-11, and SV-3(TT)), which indicated methane concentrations above the lower explosive limit (LEL) (Figure 2). Methane was not detected at the other locations.

The investigation concluded that landfill gases were migrating onto the Site from the Denver Regional Landfill and the Old Erie Landfill, but were not migrating onto the Site from the east adjacent Front Range Landfill. The soil vapor impacts were limited to the northern and northeastern portions of the Site, within the Buffer Area. The Buffer Area is an area that is subject to Environmental Use Restrictions to protect future Site users and residents from coming into contact with things that remain at the Site. The Environmental User Restrictions are further discussed in Section 3.2 and shown on Figure 1. Perched groundwater in the northeast corner of the Site was impacted, although the concentrations were not considered an immediate threat to human health.

2.2.3 *Stewart Environmental Consultants – Soil Vapor Monitoring, January 2011 (SEC, 2011)*

This investigation included screening the existing vapor monitoring wells for landfill gases (e.g., methane, carbon dioxide, oxygen, and LEL). No elevated methane or LEL measurements were recorded. Waste Connections, Inc. (the operators of the Denver Regional Landfill), noted that their methane recovery system was improved. This, along with aging of the landfills, was believed to have had a positive effect on the migration of landfill gases into the Site.

2.2.4 *Quality Environmental Services and Technologies, Inc. - Phase I Environmental Site Assessment, March 2015 (Quest, 2015)*

This Phase I Environmental Site Assessment (ESA) was completed as part of Stratus' acquisition of the Site. The Phase I ESA identified surficial soil staining associated with the on-site oil and gas operations. The report identified the east-adjacent Front Range Landfill as a recognized environmental condition (REC) and the north adjacent Denver Regional and Old Erie Landfills as controlled recognized environmental conditions (CRECs).

2.2.5 *Quality Environmental Services and Technologies, Inc. – May 2016 Groundwater Assessment, May 2016 (Quest, 2016)*

Based on the findings of its Phase I ESA, Quality Environmental Services and Technologies, Inc. (Quest), conducted groundwater monitoring at 17 locations, in three phases, at the north/northeast boundary of the Site (Figure 3). Eleven groundwater samples were collected and submitted for lab analysis for VOCs (six of the wells did not produce water). Quest's investigation noted that impacted soils were present along the northeastern portion of the Site. Elevated VOC concentrations exceeding the CDPHE Groundwater Standards

were noted at five locations (GW#3, GW#8, GW#9, GW#13, GW#16, and TB-1), each of which were collected from the northeastern portion of the Site (Figure 3).

2.2.6 Stewart Environmental Consulting Group, LLC – Report on Phase 2 Nature and Extent Investigation, October 2017 (SEC, 2017)

Stewart Environmental Consulting Group, LLC (SEC) installed six shallow (15 to 30 feet) groundwater monitoring wells at the northeastern portion of Parcel 1 (Figures 4a and 4b). SEC collected samples from the newly installed wells and the wells installed by Quest in 2016. Samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), total organic carbon (TOC), metals, and select organic and inorganic compounds. Multiple exceedances of the Colorado groundwater standards were noted. Groundwater was found to flow from the east to the west and was found to be impacted by multiple VOCs including TCE, toluene, 1,2-dichloroethylene (DCE), and cis-1,2-DCE.

National Ground Penetrating Radar Services (NGPRS) completed ground penetrating radar (GPR) and electro-magnetic (EM) investigations at the Site to identify the locations of the drums identified in the PA and RPA reports completed in 1984 and 1990, respectively, and to identify areas of potential solid waste. Several areas with potential drums were identified during the GPR/EM survey, the locations were confirmed by completing excavations in the discovery areas using a front-end loader. The drum investigation concluded that there were drums buried on the Site; the locations of the drums were mapped; and the total number of drums and their contents were not determined. However, based on sampling of a few drums, some of the drum contents were found to contain hazardous materials.

In conjunction with the drum investigation, SEC also conducted an investigation of buried solid waste at the Site. The investigation methods also included the use of EM techniques and completion of excavated test pits to evaluate anomalies identified during the EM survey. The investigation concluded that there were two solid waste areas at the Site totaling approximately 16-acres (8.5 acres on the east side and 7.5 acres on the west side) (Figure 1). The western solid waste site extends onto the eastern portion of Parcel 2. The solid waste included residential waste, magnetic tape, and drums containing solvents (classified as characteristically hazardous waste).

SEC also completed bedrock mapping during the GPR/EM investigation and found that there is an area of high elevation bedrock on the south side of the Site. It was reported that the bedrock high should prevent shallow groundwater from migrating to the south towards proposed development areas. There was also a bedrock high separating the east and west sides of the Site.

2.2.7 Summary of Site Investigations

Multiple investigations have been completed at the Site, as detailed above. The following are the general findings:

- 1964-1969: The northern portion of the Site was used as a landfill (Neuhauser Landfill) by Sanitation Engineering, Inc., from 1964 to 1969 (the green boundaries presented in Figure 1). Up to 1,500 drums containing approximately 84,000 gallons of chemical waste from IBM may have been disposed at the Neuhauser Landfill in the 1960's. The Neuhauser Landfill extended along the north/northeastern portions of the Site and extended west onto the adjacent Stratus Redtail Ranch 2 Property.

- 2007: Tetra Tech collected three soil vapor samples from the northeastern portion of the Site and found high levels of VOCs migrated from the Denver Regional and Old Erie Landfills. SEC completed additional

soil vapor sampling and found soil vapor and groundwater impacts that were likely from the north adjacent landfills.

- 2011: SEC completed additional landfill gas screening at the Site and no elevated methane or LEL measurements were recorded. This was attributed to an improved methane recovery system at the Denver Regional Landfill, and potentially related to the further aging of the landfill having less material to breakdown and release gases.

- 2015-2017: Stratus acquired the Site in 2015 and Quest completed a Phase I ESA as part of the acquisition. Quest installed 17 groundwater monitoring wells and was able to collect 11 groundwater samples for lab VOC analysis. Elevated VOC concentrations were noted in five samples collected from the northeastern portion of the Site. SEC completed additional groundwater sampling in 2017 and encountered elevated VOCs at the northeastern portion of the Site.

  SEC completed a GPR/EM survey and test trenches to identify the locations of the buried drums and delineated the extent of the solid waste fill areas. They also mapped bedrock and found bedrock highs at the southern portion of the Site and central portion of the Site presumably separating groundwater into an eastern and western regime.

- 2018: CDPHE and Stratus entered into a Compliance Order on Consent (Consent Order) on May 16, 2018, to address remediation and closure of the Neuhauser Landfill site. The following has been completed under the Consent Order:

  - A final report for the drum removal at the Site was submitted to the EPA on August 10, 2018; this is discussed in Section 2.3.

  - Additional Site investigations including test pit excavations to further delineate the extent of solid waste, install shallow groundwater monitoring wells, install a deep groundwater monitoring well, and completed soil borings and sampling of soil from the southern portion of the Site to evaluate suitability to be used for an Evapotranspiration (ET) cover system. Findings of the investigations were included in the Corrective Measures Work Plan (Geosyntec, 2020a) and are detailed in Section 2.4.

2.3 Site Drum and Soil Removal Activities

Stratus and the EPA entered into a voluntary Administrative Settlement Agreement and Order on Consent (AOC) Docket Number CERCLA-08-2018-0002 for removal of the buried drums at the Site (Geosyntec, 2018). Stratus contracted ACTenviro to begin drum removal on December 11, 2017, with the final drums excavated on February 22, 2018. A total of 1,145 drums were excavated, 781 were considered empty, 47 drums contained material that were either removed from or fell out of the drum during excavation, and 317 drums contained materials that were further containerized and sent for disposal. The excavation and drum removal areas were completed as follows (Geosyntec, 2018) (Figures 5a and 5b):

- Phase 1 – Soil excavations occurred between December 2017 and May 2018. Approximately 3,013 cubic yards of soil was excavated from this area. This volume included drums and other wastes, impacted soils, and soils that were deemed suitable for on-site reuse by the EPA based on laboratory analytical results. A total of 1,543.14 tons of soil and materials were transported offsite for disposal; the remaining soil was used as backfill.

- Phase 2A – 444 cubic yards of material was excavated with 144.63 tons found to be impacted and disposed of offsite.
- Phase 2B – 2,643 cubic yards of material was excavated with 1,733.4 tons found to be impacted and disposed of offsite.
- Phase 3 – 1,700 cubic yards of material was excavated with 2,541.04 tons found to be impacted and disposed of offsite.
- An EM survey conducted by NGPRS in December 2017 identified nine additional drums in areas that fell outside of the four area (Phase 1, 2A, 2B, and 3).
- Fourteen drums discovered underneath a road on the Site were excavated; six of the drums contained solid material and the other eight were empty. Soils in the immediate area surrounding these drums did not exhibit contamination based on visual observation and photoionization detector (PID) screening.
- Two full and one partially full 21,000-gallon frac tanks of stormwater, groundwater, and liquids that leaked from drums were characterized and transported offsite for disposal or used for dust suppression when contaminant concentrations were low. The practice of using stormwater and/or groundwater for dust suppression was approved by the EPA and CDPHE.

2.4 Corrective Measures Work Plan (Geosyntec, 2019)

Geosyntec Consultants (Geosyntec) completed a Corrective Measures Work Plan (CMWP) investigation for the Site, which was approved by CDPHE on September 28, 2018. The following were the key objectives of the CMWP investigation:

- CDPHE deemed that previous groundwater sampling completed by Tetra Tech and SEC did not include all of the necessary analytes and requested that additional samples be collected and analyzed for SVOCs (EPA Method 8270), pesticides (EPA Method 8081), herbicides (EPA Method 8151), polychlorinated biphenyls (PCBs) (EPA Method 8082), anions (EPA Method 9056A), and metals (EPA Method 6010B).
- Identify the extent of solid waste on the Site.
- Delineate the nature and extent of shallow groundwater contamination.
- Delineate shallow groundwater migration at the western property boundary with the addition of a westerly well (point of compliance).
- Delineate the nature and extent of contamination in deep groundwater.
- Identify and sample soil for appropriate geotechnical and chemical properties to design and implement final soil cover.
- Obtain additional and supplemental information about the Site to support the evaluation of remedy alternatives and to support the design of a selected remedy.

2.4.1 Test Pit Investigation

A total of 39 test pits were completed from October 3-11, 2018, at the Site; 26 were completed on Parcel 1 and 13 on Parcel 2 (Figures 6a and 6b). Based on the findings of the test pits, Geosyntec was able to map the boundaries of the buried solid waste areas (Figures 6a and 6b). Other anomalies identified during the Site EM survey (Section 2.2.6) were investigated and no additional drums were found. Geosyntec reported that the test pit investigation was successful in delineating the boundaries of the solid waste fill areas and no additional test pits were found to be necessary.

2.4.2 Shallow Groundwater Investigation

A total of 16 groundwater samples were collected from Parcel 1 and one sample from Parcel 2 in November 2018 and analyzed for VOCs, SVOCs, total metals, general chemistry and the CDPHE Appendix II list. Geosyntec reported that the data indicate that horizontal migration of contaminants of potential concern (COPCs) in shallow groundwater was limited, which is consistent with the relatively low permeability of the soil and weathered bedrock at the Site. The impacts are generally concentrated at the northeastern and northcentral portions of the Site. Significant vertical migration through the competent portions of the claystone and sandstone bedrock layers is also not likely, based on the substantial thickness of low permeability claystone and siltstone encountered below the weathered zone; the lack of observed saturation in both the intermediate depth well (MW-24) and deep well (MW-23D); and photoionization detector (PID) readings of less than two parts per million (ppm) in soil and rock cores over the entire depth interval of MW-23D. Therefore, it was concluded that both horizontal and vertical migration of COPCs has been limited and COPC concentrations appear to attenuate rapidly within relatively short distances, as was indicated by the groundwater sampling results shown on Figures 4a and 4b.

2.4.3 Deep Groundwater Investigation

Geosyntec completed an investigation of deep (confined) groundwater in Parcel 1 by installing a two-inch diameter schedule 40 polyvinylchloride (PVC) pipe with 0.010-inch slotted screen to a total depth of at least 216 feet bgs. Coal seams were observed at depths of 68, 71, 168, 192, and 216 feet bgs at well location MW-23D, south of the drum removal areas; however, groundwater was not present and a sample was not collected (Figures 4a and 4b).

3. Corrective Measures

3.1 Corrective Measures Design (Geosyntec, 2020a)

Geosyntec submitted a CMD Report to CDPHE on behalf of Stratus on February 7, 2020, and submitted a revised CMD on May 1, 2020, to address CDPHE comments. CDPHE approved the revised CMD on May 12, 2020. Based on the findings of the previous Site investigations (e.g., shallow groundwater impacts and presence of solid waste) and cleanup activities, the following Site remedies were proposed in the CMD:

- Groundwater remediation via ISCO
- Groundwater remediation via monitored natural attenuation (MNA)
- Solid waste containment via an ET cover system, including stormwater controls
- Post-closure groundwater monitoring
- Post-closure methane gas monitoring
- Long-term monitoring and maintenance of the ET cover and stormwater control features
- Institutional controls

3.2 Groundwater Remediation

3.2.1 In-situ Chemical Oxidation

Geosyntec proposes groundwater remediation via a ISCO system. ISCO is a treatment method usually used to treat soil and groundwater contamination in the source area where contaminants were originally released because the source area may contain contaminants that have yet to dissolve into groundwater. Geosyntec proposes to target the contaminant mass within the weathered bedrock interval below the Phase 2A and 2B excavation area (Figure 7). When oxidants are added to the contaminated soil and groundwater, a chemical reaction occurs that destroys contaminants and produces harmless byproducts (EPA, 2012). ISCO can work relatively quickly to cleanup a source area but the timeline for contaminant cleanup is dependent on how well the oxidants are able to reach the contaminants and how quickly the oxidants are distributed through the groundwater. Oxidants are not harmful to the environment or people and the process poses little risk to the surrounding community. Geosyntec has proposed an enhanced in-situ bioremediation (EISB) system as a contingency to the ISCO; the need of the EISB will be evaluated following the implementation of ISCO.

Based on Pinyon's review of provided documents, a determination for the need of EISB has not yet been reported.

ISCO system performance monitoring will be completed to confirm the effectiveness of the injections and to monitor the contaminant concentrations. Geosyntec has proposed the following performance monitoring program:

- Baseline sampling for Site contaminants of concern (VOCs and 1,4-dioxane)
- Collection of operational data during ISCO injections
- Monitoring of oxidant and the target contaminant concentrations during and for up to 4 weeks (28 days) after injections occur
- Following this, the performance of the groundwater remedy will be evaluated by the post-closure monitoring and maintenance (PCMM) Plan (Section 3.3.6)

ISOC was implemented at the site in October and November 2020. Results are described below in Section 3.9.

3.2.2 Monitored Natural Attenuation

Monitored natural attenuation (MNA) will be used to demonstrate contaminants downgradient of Phases 1 and 3 are attenuating following removal of the drums and impacted soils. It will also be used to confirm contaminants downgradient of Phases 2A and 2B are attenuating, following ISCO. Natural attenuation is a method that relies on natural processes (i.e., biodegradation, sorption, dilution, evaporation, and chemical reactions) to take place to decrease contaminant concentrations. The contaminant concentrations are monitored with regular sampling to evaluate whether the natural processes result in decreases of the contaminant concentrations.

The MNA program would monitor from locations within the groundwater plume near and downgradient from the Phase 2A, 2B, and 3 removal areas, ISCO treatment areas, and at the point of compliance (POC) (Figures 8a and 8b):

- POC well (WCMW-25)
- ISCO performance monitoring wells (MW-16, and MW-21)
- Proximal MNA performance monitoring wells (MW-1, MW-3B, MW-4, MW-5, MW-6, MW-8, MW-11, and MW-12)
- Distal MNA performance monitoring wells (MW-19, MW-22)
- The detection monitoring well (MW-23D)

The MNA sampling locations would be used to evaluate the concentrations of the contaminants over time and will evaluate the geochemical trends to ensure conditions are conducive to successful natural attenuation. The short-term and long-term monitoring plan and frequency are discussed in Section 3.3 and are detailed in the PCMM Plan (Geosyntec, 2020b).

3.2.3 Evapotranspiration Cover System

Geosyntec has proposed a remedy for the solid waste at the Site via an ET cover system. The ET cover system would prevent direct exposure to humans and ecological receptors and would reduce stormwater infiltration and groundwater recharge. The proposed ET cover system would work in conjunction with the groundwater remediation and the stormwater controls to reduce the volume of groundwater and concentrations of contaminants at the Site. Geosyntec designed an ET cover system to:

- Provide final cover for all solid waste within the Cap Extent Area East and Cap Extent Area West boundaries (Figures 9a and 9b)
- Minimize surface water infiltration into the source area
- Maintain existing stormwater flow paths within the Buffer Area
- Utilize soil materials from an adjacent borrow source area located south of the capped areas
- Reduce erosion and provide passive remediation and protection using vegetative growth within the capped areas, which will be covered with a permanent seed mix and erosion control blanket
- Provide additional water balance cover protection in areas where potential future improvements, such as a possible local bike trail system or possible expansion of Weld County Road 5 (CR-5), may encroach on capped areas

Because of the previous Site test pit investigations, the extent of the solid waste has been defined and were incorporated into Geosyntec's ET cover system design. Geosyntec used the CDPHE guidance for water balance covers to design their system with the following considerations:

- Existing groundwater monitoring wells will be maintained and extended to keep the well riser above ground surface; this will allow for future evaluation of the ISCO and MNA programs.
- A noxious weed survey will be completed with noxious weed removal, as needed.
- Prairie dogs and burrowing animals will be removed from the Site prior to construction of the ET cover system.
- Excavations within the solid waste areas will not be completed except for a stormwater drainage channel near CR-5.
- Cover material will be sourced from within the Site, south of the capped areas.
- The system has been calculated to achieve the intended slopes and grades and will meet the minimum soil cover thickness of 2.5 feet, recommended in the CDPHE water balance cover guidance document (CDPHE, 2013).
- The ET cover system design and Use Restrictions (Section 3.2) will accommodate current and future improvements to highway CR-5; however, improvements should be limited to the road right of way.

- The ET cover system design may accommodate bike trail concepts according to the requirements for bike trail design and layout set forth by the Town. If the bike trail is accommodated, details for bike trail crossing ET cover system areas will be incorporated into the design drawings.

- Stormwater diversion channels consisting of compacted cover soil materials with riprap reinforcement will be used to convey water across areas of the ET cover system. The stormwater controls will help in preventing erosion, undermining, scouring, and damage to the ET cover system.

- Areas with a final cover, as well as the buffer area, will be subject to use restrictions including restriction of vehicle traffic except for low ground pressure vehicles.

- Areas with a final cover and areas disturbed during construction will be revegetated using seeding and erosion controls. Vegetation will include native grass species that are effective for managing moisture of the water balance cover soils, minimize infiltration, and protect against stormwater erosion. Trees will not be permitted within the capped areas.

- Soil-gas monitoring probes will be installed and screened to monitor for the presence of explosive gas migration during the post-closure period (Figure 10).

The ET system will be inspected per the Post-Closure Monitoring and Maintenance Plan, discussed in Section 3.4 of this report and included as Appendix I of the CMD report.

3.3 Use Restrictions

The Cap Extent Area East, Cap Extent Area West, and the Buffer Area (together called the Restricted Property) have been defined in the Notice of Environmental Use Restrictions agreement between CDPHE and Stratus (Geosyntec, 2020a). The Cap Extent areas encompass the areas where solid waste has been mapped, the Buffer Area is a minimum offset distance of 100 feet from the Cap Extent areas, or to the Stratus Property boundary, whichever comes first. Some of the use limitations on the Restricted Property include:

- Restrictions to the use of groundwater.

- Unless approved by CDPHE, ground disturbance activities are prohibited.

- Unless approved by CDPHE, irrigation is prohibited.

- Temporary or permanent improvements, earthwork, structures, or appurtenances that increase the flow of stormwater over, through, or under the Buffer Area is prohibited.

- Construction or maintenance of standing water is prohibited.

- Construction of trails for non-motorized vehicles, including electric bikes, are prohibited in the East and West Cap Extent Areas; however, non-motorized vehicle trails are permitted within the Buffer Area. Hard-surface trails are unlikely to create significant increases to infiltration in these areas, particularly if the surface water control system considers these surfaces in its design; therefore, if a hard surface trail system is desired in the use restriction area, this consideration should be communicated with the design team prior to construction.

- Groundwater and surface water use within the Buffer Area is prohibited, excluding the installation, abandonment, or use of monitoring wells.

- Access to the Buffer Area will be restricted with construction fencing until all vegetation has been established per the post-closure monitoring and maintenance plan.

- Utility installation in the Buffer Area may be permitted; however, CDPHE will consult with the Town of Erie prior to approving utilities in the Buffer Area. Utilities would need to be positioned and designed carefully to avoid creating undesirable preferential conduits for groundwater or vapor flow.

- The property owner is responsible for protecting and maintaining the integrity of the remediation systems.

3.4 Proposed Buffer Area

There are many factors that relate to determining a safe setback distance (buffer) for residences at the site. These factors are summarized below and include discussion on possible influences on setback distance.

- The **geologic media** surrounding and underlying the contaminated zones and planned residential development areas at the Site is composed predominantly of 0.5 to 49 feet of unconsolidated clay with sands and silts underlain by approximately 400 ft of consolidated claystone (the Laramie Formation). These unconsolidated and consolidated sediments exhibit relatively low hydraulic conductivity, and consequently, they have restricted the flow of groundwater, transport of dissolved contaminant mass, and migration of contaminant vapor at the Site. This condition tends to favor a reduced setback distance.

- Other conditions, however, can create **secondary permeability** within these sediments that can increase contaminant mass transport. Examples of these conditions include fissures, cracks, fractures, coal seams, and faults; anthropogenic deposits of permeable fill; and utility-lines (e.g., sewer, water, stormwater, communications, and gas) which can act individually, or interconnect, to form preferential flow conduits within the otherwise low-permeability sediments. These conditions tend to favor an increased setback distance.

- Changes in the **distribution of potential energy within the groundwater system** can cause changes in hydraulic gradients, and hence, the direction and/or magnitude of groundwater flow and contaminant mass transfer. While the site documents reviewed show that the potentiometric surface of the shallow groundwater system generally represents favorable groundwater flow gradients—away from the residences and toward the creeks/zones of subsurface contamination—if the water elevation in the creeks increase sufficiently, or the groundwater levels beneath the residences decrease sufficiently, the potentiometric gradients could reverse and cause groundwater, and contaminant mass, to instead flow from the creek/contaminated zones back toward the residences. While this scenario could reduce the concentrations of contaminant mass in the associated significantly increased water flow volume through the creek/drainage, it is also possible that the increased flow volume could mobilize additional contaminant mass. Other activities that could alter groundwater flow patterns at the Site include changes in nearby groundwater well pumping, flood water management practices, area of paved surfaces, ditches and infiltration pond expression, and irrigation practices. The uncertainty of these conditions would tend to favor an increased setback distance.

- Similarly, changes in the distribution of **potential energy within the soil vapor system** can cause contaminant vapor to migrate further or less, and/or in new directions—including through the potential

network of anthropogenic and natural preferential flow conduits described above. Such changes in potential energy in the soil vapor system can be caused by:

- Changes in precipitation, including draught, that influence the movement of wetting fronts through the shallow surface sediments.
- Changes in water table elevations, barometric pressure, ground-surface wind speed, and temperature.
- Chemical reactions that may be occurring in response to ISCO, bioremediation, degradation, interaction, or geochemistry.
- Changes in the distribution of contaminant mass via groundwater advection.

The uncertainty of these conditions would tend to favor an increased setback distance.

- **Capping and Vapor Flow Channeling** can cause vapors that would otherwise migrate upward through the sediments into the atmosphere to instead be trapped beneath clayey surficial soils or an ET cap, for example. These vertically trapped vapors can then migrate laterally below these capping mechanisms, potentially toward residences. Conversely, if the ET cap, along with surface water controls, reduce infiltration and groundwater recharge near/below these areas, groundwater gradients will tend to remain in the favorable direction (away from residences) and the hydraulic potential force (head) available to move contaminant mass down-gradient of the Site will be further diminished. These conditions can favor an increased or reduced setback distance.

Pinyon contacted both Geosyntec and CDPHE to discuss where the 100-foot buffer originated. Pinyon was told that the buffer distance was selected based on guidance provided in the *EPA OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (EPA, 2015), the lack of landfill gases measured near the proposed development area, and the age of the landfill (approximately 60 years old).

The variable nature of many of these aforementioned conditions attest to a common difficulty in predicting the fate and transport of contaminant mass, particularly in the vapor-phase, at sites with built structures and utilities located near contaminated areas. On the other hand, numerous residential projects around the country have been successfully built directly on top of landfills—with regulatory approval and the confidence of residents in the long-term protection of health and safety—even when high concentrations of explosive methane are involved. Given that mitigation systems can be engineered to effectively address this condition, the 100-foot buffer at the Redtail site appears reasonable—if appropriate mitigation engineering is implemented.

3.5 Post-Closure Monitoring and Maintenance Plan (Geosyntec, 2020b)

Geosyntec submitted a Post-Closure Monitoring and Maintenance (PCMM) Plan as part of the CMD report. The purpose of the PCMM Plan is to present requirements for inspections, monitoring, and maintenance that will be necessary to preserve the long-term effectiveness of the groundwater remediation systems (the ISCO and MNA programs) and the ET cover system. Those plans, which have been approved by the CDPHE, are presented in the following sections.

3.5.1 Site Security Requirements

Orange construction fencing will be erected around the ET cover area during construction. During the post-closure period, the existing property fencing, and additional split-rail fencing, will be used to surround the ET cover area. There will be signs stating "Keep Out – Environmentally Sensitive Area" every 300 feet along the fence perimeter. Monitoring wells will be fitted with locks and additional security around the Phase 2B ISCO system is proposed to be implemented. The additional security includes locking covers over all open ends of exposed section of PVC piping and maintaining protective fencing around the exposed risers. Routine inspections would be completed as discussed in Section 3.3.5.

3.5.2 Safety Requirements

The PCMM Plan notes that any contractor, subcontractor, consultant or subconsultant working within the boundaries of the Site must do so under their own approved health and safety plan (HASP) which would be specific for the type of work and location it is being completed.

3.5.3 Vector Control Plan

A vector control plan is a plan to limit or eradicate the presence of pests and vectors such as burrowing animals, which pose a threat to the integrity and effectiveness of the ET cover. Burrows dug into the ET cover present a potential problem by providing a preferential pathway for surface water infiltration and increases the likelihood of contaminated materials being brought to the surface during the burrowing process. Geosyntec proposes to remove prairie dogs and other burrowing animals prior to the construction of the ET cover. A survey to identify animals on the Site would be completed prior to the initiation of construction activities and during the routine Site inspections discussed in Section 3.3.5.

3.5.4 Noxious Weed Control

A noxious weed survey of the East and West Cap Extent Areas and the Buffer Zone will be performed prior to initiating Site construction activities and during the routine post-closure period inspections. Noxious weeds will be removed, as needed, and the area of removal will be revegetated per the specifications detailed in the CMD.

3.5.5 Routine Evapotranspiration Cover Inspections

The guidance provided by CDPHE in the *Final Guidance Document – Water Balance Covers in Colorado* would be followed for ongoing maintenance and monitoring practices (CDPHE, 2013). Per the CDPHE guidance document, inspections of the ET cover would occur semi-annually for the first two years after ET cover installation and annually after the first two years. The routine inspections would include:

- The inspections will look for any sign of erosion, burrowing animals, cracks, or failures in the soil on slopes, condition of the vegetation, and any other signs that might be indicative of the ET cover not functioning as intended.

- The inspection will look for signs of surface subsidence, which could indicate settling of solid waste materials, including ponding of water and the presence of tension cracks, slides, or cover soil slumping.

- The presence of pests, vectors, and noxious weeks will be evaluated.

- Vegetation monitoring within the cap area will occur during the routine ET cover inspection. Additionally, a comprehensive assessment of the vegetation will occur annually for the first two years after final cover installation. Following that, the comprehensive inspection will occur on the fifth year after installation and every five years thereafter. Issues regarding vegetation will be remedied or re-seeded within two weeks of identification.

- Stormwater inspections will inspect for:

    - Erosion, undermining, or sloughing of soils on hill sides and channels

    - Signs of erosion or damage to the diversion channels, riprap, and turf reinforcement mats

    - Ponding of water on the ET cover

    - Sediment accumulation in drop structures, spillways, and in areas of channels or ditches that could inhibit water flow

    - Condition of pooled stormwater located upstream and downstream, or between the ET cover areas

3.5.6 Groundwater Monitoring

Groundwater monitoring would be completed to assess the effectiveness of the ISCO and MNA programs, evaluate concentrations at the down-gradient point of compliance (POC) well (WCMW-25 located on Parcel 2), and the effectiveness of the ET cover. Semi-annual groundwater samples will be collected for at least two years following installation of the ISCO system. The samples will be analyzed for 1,4-dioxane and compounds required by the CDPHE Regulations Pertaining to Solid Waste Site and Facilities from the following locations (CDPHE, 2020a) (Figures 8a and 8b):

- POC well (WCMW-25)

- ISCO performance monitoring wells (MW-16, and MW-21)

- Proximal MNA performance monitoring wells (MW-1, MW-3B, MW-4, MW-5, MW-6, MW-8, MW-11, and MW-12)

- Distal MNA performance monitoring wells (MW-19, MW-22)

- The detection monitoring well (MW-23D)

- Additional sampling will be completed at temporary monitoring locations as part of the ISCO system

After at least two years of semi-annual groundwater sampling, annual sampling will be completed for an additional 28 years, for a total of 30 years of groundwater sampling. The reduction from semi-annual to annual sampling must be approved by CDPHE and will be based on the progress of the groundwater remediation. The

following is the anticipated long-term groundwater monitoring program that will be submitted to CDPHE for approval after semi-annual sampling is completed:

- Sampling of the following wells on an annual basis, until the end of the post-closure period:
    - MNA monitoring wells (MW-19, and MW-22)
    - Detection monitoring well (MW-23D)
    - POC monitoring well (WCMW-25)
- Sampling of the following wells on an annual basis for three years, then once every five years until the end of the post-closure period.
    - The proximal MNA monitoring wells (MW-4, MW-8, and MW-12)
    - ISCO monitoring wells (MW-16, and MW-21)
- Decommissioning of all other groundwater wells not listed above
- The soil gas sampling detailed in Sections 3.4.7 and 4, in conjunction with the groundwater monitoring may provide information on the influence that groundwater levels have on vapor transport

3.5.7 Soil Gas Monitoring

Soil gas monitoring is proposed to occur on a quarterly basis following installation of the ET cover. Samples will be collected from the 11 locations presented on Figure 10. Each location will be screened for landfill gases including methane, carbon dioxide, oxygen, and hydrogen sulfide. Depending on the results of the monitoring, the monitoring frequency may be reduced with written approval from CDPHE.

Geosyntec notes that in the event that methane concentrations exceed 100% of the lower explosive limit (LEL), CDPHE, the Town of Erie, and local emergency response authorities will be notified immediately and necessary steps to ensure protection of human health will be taken.

3.5.8 Reporting

A Post Closure Monitoring and Maintenance Report is planned to be submitted to CDPHE semi-annually by February 28 and August 31 for the first two years following Site closure. After the first two year, the report will be submitted annually by February 28, if a reduction in sampling is warranted and approved by CDPHE.

3.6 Stormwater Management

CWC Consultants, Inc. (CWC), developed a stormwater control system for the Site, which has been integrated into the ET cover system. The purpose of the stormwater control system is to protect the functionality of the ET cover system from being compromised by erosion and damage due to stormwater, and to manage stormwater run-on and runoff. Currently, stormwater flows from east to west through the boundary of the

solid waste area and pools in at least four separate locations. The proposed stormwater controls are as follows (Figures 10a and 10b):

- Permanent stormwater diversion structures to control post-closure run-on and runoff.
- Drainage channels, stormwater ponds, and other system controls will accommodate the current drainage area and anticipated drainage from the proposed southern residential development.
- The new stormwater pond will be designed to control discharge to prevent downstream erosion, sedimentation, or impairment of water quality.
- ET cover system integrity would be controlled from erosion and stormwater damage by:
    - Currently there are two existing culverts under CR-5 discharging to the capped areas. A culvert and stormwater diversion channel would be installed to divert water off the capped areas.
- Stormwater conveyance across the Cap Extent Area East and Cap Extent Area West will be by open channel flow; culverts are prohibited below the ET cover soil.
- To manage stormwater migration from the southern portion of the Site (the proposed residential development area), a stormwater diversion ditch has been designed between the cap area and the southern buffer boundary.

3.7 Residential Irrigation Considerations

Excessive irrigation that might occur in the residential areas likely will tend to increase hydraulic head in these areas and enhance the desired gradient for groundwater flow—away from the residential area and toward the contaminated area — and would potentially dilute groundwater impacts. Additionally, the stormwater diversion ditch designed south of the cap areas would convey surface runoff away from the ET system.

3.8 Geosyntec's Response to Pinyon's November 5, 2020 Property Development Environmental Review Report (Geosyntec, 2020c)

In response to Stratus's review of Pinyon's November 5, 2020 report, they requested Geosyntec obtain additional soil vapor information from existing groundwater wells located within the Historical Landfill Area Buffer Zone, and at several additional locations around the Site. Geosyntec collected additional soil vapor data on November 12, 2020, using handheld portable instruments as percent (%) of the total air stream for methane (CH^4), carbon dioxide (CO^2), oxygen (O^2); as well as photoionization detector readings (PID), which were reported in parts per million (ppm).

These data were collected from 11 different locations. Six locations were within the buffer zone, and five were located in other areas of the development. The sampling locations are presented on Figure 11. The sampling method employed readings at five second or 30 second intervals over a five-minute period. Reported results indicated methane readings between 0% and 0.5% by volume. Average PID readings ranged from 0 ppm to 0.45 ppm, with a maximum of 2.3 ppm.

It should be noted that Geosyntec did not provide information on the type/reading wavelength of lamp used in the PID. The lamp is specific to the kind and type of VOC that the PID can identify within acceptable accuracy

ranges. It is Pinyon's experience that most PIDs contain lamps that are specific to gasoline range hydrocarbons and are not accurate for chlorinated hydrocarbons such as TCE and/or PCE. If the PID used by Geosyntec contained the gasoline range hydrocarbon lamp, it is very probable that the VOC measurements, specifically for TCE, PCE, and their degradation products, were grossly underestimated. Therefore, without clarification of the lamp used in the PID, these data are considered unreliable and potentially inaccurate for measuring chlorinated hydrocarbon vapor.

No other responses to issues or recommendations made in Pinyon's November 5, 2020 report were provided in this document.

3.9 Stratus NAD Application (Geosyntec, 2020d) and CDPHE Approval (CDPHE, 2020b)

The Site area that was proposed as the NAD boundary is depicted on Figure 12. This area is outside of the historic landfill, drum burial, and soil/groundwater remediation areas, and includes the proposed residential development.

3.9.1 NAD Application Summary

At the time of issuance of the NAD application, the Site was undeveloped land (zoned as a mix of low-density residential and public lands and institutions) except for unpaved access roads and parking area, metal culverts in ditches, and a stormwater settling pond with a containment berm and rip-rap outfall. The southern portion of the Redtail Ranch 2 property was used for stockpiling borrow soils to use as landfill cover and to manage runoff from the neighboring Denver Regional Landfill. The proposed Site use is for residential development to be incorporated into the Town municipality.

Based on environmental assessment work conducted at the Site, VOCs were not observed in shallow groundwater and only one low-level result for 1,4-dioxane exceeded the Colorado Groundwater Screening Levels (CGWS) along the western Site boundary. Several elevated total metals, dissolved selenium, nitrogen as nitrate+nitrite, and sulfate were also reported in groundwater samples above the CGWS and/or EPA Maximum Contaminant Levels (MCLs) for drinking water. Potable water for the residential development would be provided by the Town and these impacts do not pose a direct risk to humans or the environment. No indications of waste materials or impacts to soils were observed in boreholes and soil samples collected across the Site. Additionally, soil vapor monitoring did not show elevated levels of VOCs or methane migrating from adjoining and nearby off-Site landfills.

Stratus requested that CDPHE approve the NAD application with the intended future land use as a residential development.

3.9.2 NAD Application Contents

The NAD application included the following information:

- General Site information including size, location, and ownership; current land use and zoning; proposed land use and zoning
- Type of contamination

- Site history and adjoining property use
- Basis for the application
- Discussion of the CDPHE's Voluntary Cleanup Roadmap, whereby regulatory oversight and authority of CDPHE's voluntary cleanup program was appropriate for the Site
- A summary of environmental assessments completed at the Site, including:
    - Qualifications of the environmental professionals conducting and overseeing the work
    - Summary and findings from previous environmental reports (all of which have been referenced in previous sections of this document)
    - Physical Site characteristics including topography, geology, and hydrology
- An evaluation of applicable soil, groundwater, and vapor concentration standards
- An evaluation of risks, including potential exposure pathways and mitigation

No remedial action was proposed for the Site. The historic landfill area, which was not part of the NAD application, is undergoing a remedial action effort pursuant to the CMD.

3.9.3 CDPHE Approval

On December 11, 2020, CDPHE issued the No Action Determination Approval for 2259 County Road 5, Erie, CO. The document states that the environmental assessment submitted by the applicant and performed by qualified environmental professionals indicates that there is no evidence of contamination released into the environment present from the applicant's property, which exceeds applicable promulgated state standards, or which poses and unacceptable risk to human health and the environment.

3.10 ISOC Implementation Report (Geosyntec, 2021a)

The report summarizes the ISCO implementation targeting compounds of concern (COC) present in source zone materials and downgradient groundwater in the historic landfilled areas of the Site. The report included objectives, implementation procedures (procurement, drilling, installation, development of performance monitoring points, injections, injection monitoring, and investigation derived waste (IDW)).

3.10.1 ISOC Objectives

ISOC objectives were as follows:

- Target and reduce COC mass in the weathered bedrock
- Reduce the magnitude and distribution of the COC plume over time
- Achieve remediation objectives

The performance of the ISCO remedy in meeting these objectives will be evaluated as part of the post closure monitoring and maintenance reports.

3.10.2 Drilling and Installation of Temporary Monitoring Points

Two temporary monitoring points (PMP-1 and PMP-2) were installed at the downgradient edge of the Phase 2A area, and two additional points (PMP-3 and PMP-4) were installed at the downgradient edge of the Phase 2B area. These monitoring points are shown on Figure 12.

3.10.3 ISOC Injections

Injections were performed October 13 – 16, 2020 (injection #1), and again on November 2 – 5, 2020 (injection #2). Injection solutions included both sodium persulfate and hydrogen peroxide. The chemicals were mixed in separate tanks. Solution concentrations ranged from 97 grams per liter (g/L) to 195 g/L for sodium persulfate; and 12% to 19% for hydrogen peroxide. Solution concentrations were increased due to difficulty in injecting the design amount of injectate.

The injections were made using direct push technology including 2.25-inch Pressure Activated Injection Probes made by Geoprobe Systems®. Injectate surfacing and borehole collapse occurred. Due to an inability to inject the design volume in Phase 2A, injection points were relocated down gradient of the target area. Injection point locations are shown on Figure 12. A total of 10,406 gallons of solution was injected at Phase 2A.

The Phase 2B area used both an injection gallery and direct push injection points. The injection gallery included four two-inch diameter injection wells with bottom screened sections emplaced into a 12-inch thick gravel layer, located at the bottom of the former drum removal/impacted soil excavation area. Injections into the gallery continued until the area became saturated and injectate started surfacing in the southwest corner of the Phase 2B area. Injections in this area were completed, due to the saturation of the injection gallery, into seven direct push points. The injection gallery and direct push point locations are shown on Figure 12. A total of 14,319 gallons of solution was injected into Phase 2B.

3.10.4 Injection Monitoring

Performance monitoring during injections was completed to evaluate:

- Oxidant distribution
- Injection pressures and flow rates
- Heat and gas formation
- Other design or operational parameters that provided indication ISOC reagent distribution

Geochemical parameters were measured in six monitoring wells each day that injections occurred including pre-injection baseline data. The wells included PMP-1 through PMP-4, MW-16, and MW21. Measured parameters included temperature, conductance, pH, dissolved oxygen (DO), and oxidation reduction potential (ORP) using a multi-parameter instrument, and sodium persulfate using a CHEMetrics field test kit. Monitoring frequency was initially at the beginning, middle, and end of each injection day. Monitoring frequency for PMP-1 through MPP-4 was reduced to once per day after positive measures of injection activity were observed.

3.10.5 Distribution of Oxidant During Injection Period

In Phase 2A at the beginning of injections, a significant increase in persulfate, ORP, specific conductance, and DO was observed in PMP-1 and PMP-2, located approximately 10 feet downgradient from the injection area. Additionally, slight increases in persulfate, ORP, and DO were observed in MW-16, located approximately 130 feet from the Phase 2A Area. This large distribution distance suggests that reagent transport was predominantly along discrete fractures within the weathered bedrock and/or more conductive intervals in the weathered bedrock.

In the Phase 2B area, at the beginning of injections into the gallery, a slight increase in ORP and DO was observed in PMP-3 and PMP-4. No increase in persulfate or specific conductance was observed. Because the monitoring points were screened deeper (five to 15 feet bgs) when compared to the injection points (four feet bgs), these data suggest only limited infiltration of injected oxidants into the deeper weathered bedrock occurred. However, after beginning the injections through the direct push points, significant increases in persulfate, ORP, specific conductance, and DO were observed. This suggests that the direct push points were more effective in distributing the reagents into the weathered bedrock.

3.10.6 Heat and Gas Formation

Groundwater temperatures during and immediately following ISCO injections fluctuated approximately 2°C, but no substantial heat or gas generation was observed. This data indicates that the potential for high heat generation due to vigorous reactions is not a concern at this Site.

It is Pinyon's opinion that the lack of heat and gas formation may be a result of only minimal chemical oxidation reactions, i.e., poor treatment and ineffective COC mass reduction. It has been Pinyon's experience that effective ISOC treatments include strong exothermic chemical reactions, generating both off-gassing and heat. Long-term monitoring data review would be required to determine overall COC mass reductions and the overall effectiveness of the ISOC treatment.

3.11 CGS Review of NAD and Other Documents (CGS, 2021) with Geosyntec's Response (Geosyntec, 2021b)

The CGS reviewed the Redtail Ranch – Preliminary Plat PP-001230-2021 and issued a letter report to the Town dated June 25, 2021. This review included eight separate documents and a Site visit conducted on June 24, 2021. Below is a summary of the review findings:

- CGS recommended the following:
    - Delaying development until after the groundwater remediation and two years (at a minimum) of post-remediation groundwater monitoring is complete.
    - Additional long-term monitoring wells (with a long-term monitoring program) between the on-Site landfill sections and the proposed development.
    - The Town require vapor barriers beneath floor slabs and surrounding all below-grade walls to reduce the risk of contaminant infiltration and poor indoor air quality.

- Further evaluate the presence of faults in the Laramie Formation using a comparative analysis because of dry monitoring wells. This analysis would evaluate why some wells contain groundwater and other nearby wells do not, and if faulting is the cause, then the fault(s) could influence contaminated groundwater migration pathways.

- During the Site visit, CGS observed strong rotting garbage odors from one or both of the nearby active landfills, whereby concerns over future odor complaints by residences were raised.

- The relative 100-foot setback distance between the landfilled solid waste and the nearest proposed residential home appeared to be inadequate, considering the residual groundwater impacts.

- The 350-foot setback distance for the on-Site oil and gas activities may not be adequate and should be increased the 500 feet as is required when placing new oil and gas facilities near existing homes. Additionally, a conservative setback from existing pipelines near CR5 was also recommended for the residences in that area.

- Due to the Site being undermined by the Columbine Coal Mine and the risk of associated subsidence, structure and utility design constraints should include limiting allowable foundation length to 115 feet, and utility design to withstand up to 0.17% strain. Lastly, due to the risk of unmapped shafts or other mining-related features existing within the proposed development areas, all grading activities should be carefully observed to identify any unmapped shafts or other mining features.

- Geosyntec's responses included:

  - The basis for the NAD approval is the Voluntary Cleanup Program (VCUP) NAD Application, which was not listed as one of the documents CGS reviewed. Additionally, ISCO injections were completed in October and November 2020 and documented in the In-Situ Chemical Oxidation Implementation Report. Information contained in these reports was the basis for CDPHE approving the NAD application and subsequently issuing the No Action Determination Approval dated December 11, 2020. Based on two phases of investigation by SEC, additional investigations by Geosyntec, four semi-annual monitoring events, and three ISOC performance monitoring events, groundwater contamination is confined to shallow groundwater within the drainage known as the South Draw on the Redtail Ranch property and was not migrating toward the planned residential areas. The removal of drums and contaminated soil, followed by ISOC treatment, has substantially reduced the contaminant mass in the source zone and should reduce both the plume extent and concentrations over time. Groundwater monitoring will continue for the next 30 years. The recommended two years of monitoring after ISOC treatment before development occurs in inconsistent with CDPHE requirements.

  - The intent of the CDPHE-approved CMD is to treat contaminated soils remaining in the drum removal area and not treat the downgradient plume, which is already naturally attenuating prior to treatment of the source zone and is expected to attenuate more rapidly after treatment. ISOC injections were targeted in areas consistent with the CDPHE-approved CMD.

  - Groundwater flow within the weathered bedrock generally follows the bedrock morphology, i.e., it flows toward the west within the draw, which acts as a hydraulic sink for the entire landfill rea. As a result, the groundwater plume is located within the area that will be designated as open space and protected by an environmental covenant. This concept is based on several years of investigation under CDPHE oversight. Information related to this investigation is among the documents contained in the NAD Application.

- The risk of vapor intrusion outside of the landfill/open space portion of the site was evaluated as part of the CMD process. Consistent with EPA (2015) and CDPHE (2021) vapor intrusion guidance, and as approved by CDPHE as part of the CMD, a 100-foot buffer zone was established beyond the extent of the landfill and contaminated groundwater to protect against the potential for lateral diffusion of VOCs. Therefore, the potential for vapor intrusion of the residential development is negligible; nevertheless, soil vapor monitoring will be conducted in the buffer zone to confirm this under the CDPHE-approved CMD.

- Of the 23 active monitoring wells at the site, only four were dry in November 2018. The vertical extent of groundwater impacts, the reason for occasional dry wells in some locations, and the potential influence of shallow faults were all matters of concern to CDPHE. The vertical extent and potential for migration of contamination was addressed to the satisfaction of CDPHE, as indicated by its approvals of the CMD, which includes monitoring over the next 30 years to confirm understanding of site conditions.

- Shallow groundwater is not continuous across the Site and is only found in drainages where stormwater collects and saturates the alluvium and shallow weathered bedrock within the drainage. No hydrological or contaminant data indicate that any faults in this setting have enhanced potential for contaminant migration.

- The 100-foot setback or buffer zone is consistent with both EPA and CDPHE guidance. The remaining issues raised pertain to odors for adjacent landfills, setback distances from oil and gas facilities, and unmapped mine shafts or other geotechnical issues, which are beyond the scope of the approved CMD.

4. Landfill Development Considerations

As indicated earlier, many residential projects have been built directly on/above historical landfills around the country that involve mitigation engineering that protects against the explosion potential associated with methane, and health effects associated with other contaminant vapors. This mitigation engineering can include a range of flow control and monitoring techniques that are specific to the conditions, construction, and uses planned for the Site. Examples of potential concepts that may be worth considering include:

- Positioning and engineering utility corridors to test for, intercept, ventilate, and impede or reverse flow gradients of contaminant vapor away from the residential areas—in addition to conveying resources and/or wastes. This concept could use the gravel filter that typically surrounds these closed system-lines to provide this effect/benefit.

- Using sub-slab radon type mitigation systems in structures to also serve as a second line of protection for potential contaminant vapors.

- Completing regular testing of the vapor in these systems, and in conjunction with monitoring well sampling, as appropriate to characterize and facilitate control of the system.

Soil vapor sampling, prior to initiating development of the residential structure, would provide insight on soil vapor contaminant of concern (COC) concentrations relative to changes in barometric pressure, windspeed, groundwater table elevations, precipitation events (including timing and intensity), and, when corresponding groundwater sampling is taking place, the potentiometric surface of the shallow groundwater system and the concentrations of dissolved COCs. This information will provide an understanding of baseline conditions that can be compared to conditions associated with construction of the ET cover, surface water controls, foundation/slab emplacement, utility line installation, and structure construction.

The information from this sampling would be used to reduce uncertainty and risk of potential vapor transport and exposure "surprises," and inform the team of design considerations for monitoring; potential interceptor, control, and/or ventilation systems; and/or combinations thereof that may be able to be synergistically combined to lower costs while enhancing the protection, and confidence, of residents and stakeholders at the Site. Pinyon can work with the State and Developer's Consultant to flush out the details of this monitoring, while protecting and advancing the Town's interests.

Soil vapor sampling should also be completed under floor slabs as they are being constructed to monitor for potential slab-effects which can include concentrating soil vapors. This sampling should be continued as the structures are completed above the slabs to measure the effects of the increased upward pressure gradient that is caused by the enclosed structure. This sampling can be completed on a representative basis for each residential area and would likely focus on the residential structures located closest to the creeks.

5. Conclusions and Recommendations

Pinyon has reviewed numerous reports summarizing the Site's history, site characterization, cleanup activities, and corrective measure plan, as detailed in the previous sections of this report. The Site has an extensive history of impacts associated with both on and off-site landfill operations. Over 1,100 buried IBM chemical drums and an area of approximately 16 acres of solid waste was buried at the Site. The drums and grossly contaminated soils around the drums have been excavated and removed from the Site. Other solid waste and impacted groundwater and potentially impacted soil gas remain on the Site. Groundwater at the Site generally flows from east to west with bedrock high points on the southern and central portions of the Site that restricts the flow.

Geosyntec has submitted, and CDPHE has approved, a CMD which details the approaches that will be taken to remediate impacted soil and groundwater and prevent the buried solid waste from further negatively impacting human health and the environment (Geosyntec, 2020a). The impact source areas (i.e., the areas where the drums were buried) will be remediated using an ISCO system and MNA, and the solid waste will be capped with an ET cover. Groundwater and soil gas monitoring are proposed to be completed for no less than a 30-year period. The monitoring and inspection requirements were summarized above.

With such an extensive history of environmental issues at the Site, it cannot be guaranteed that mitigation measures will be protective of human health and the environment. However, it is Pinyon's opinion that although the solid waste will remain on Site, if properly implemented, the CMD adequately addresses and mitigates potential concerns associated with future residential development that would occur outside the buffer area. The main source of impacts at the Site were removed during the drum and impacted soil excavations. The proposed ISCO and MNA remediation programs, the capping of the solid waste areas, the proposed buffer area and use restrictions, the stormwater design plan, and the short and long-term soil gas and groundwater monitoring, should address the environmental and human health concerns associated with the former Site uses.

Pinyon recommends the following:

- At least one additional soil gas monitoring point should be installed to the west of the Cap Extent Area West, approximately 350 feet south of WCMW-25.

- Construction activities should be completed with a CDPHE approved Materials Management Plan (MMP) with the oversight of an environmental professional (MMP Supervisor) skilled in the identification and management of solid and/or hazardous wastes. The MMP supervisor should be 40-Hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations Trained with and current 8-hour OSHA annual update. Any suspect materials discovered during work should be immediately reported to the CDPHE. Should suspect environmental issues be identified in other areas of the development, it may be necessary to amend the CMD should other impacts be identified during the development of the property.

- Contractors doing work construction supporting development of the property should be educated on the environmental constraints at portions of the Site and be provided instructions to report suspect discoveries that may occur during the work.

- To support mitigation engineering at the Redtail site, Pinyon recommends that soil vapor be sampled at the wells scheduled for post-closure soil gas sampling—beginning early enough to inform the design process. The wells that should be part of this vapor sampling are those located between the creeks and

the planned residential areas, particularly near the areas with remaining contamination (northeast corner of the Site). We assume that these wells have screens that extend above the top of the water table at the time of sampling. Lastly, the soil vapor sampling should include appropriate hand-held instrumentation best suited to accurately measure PCE/TCE and their degradation products in air, or laboratory analysis, such that these data can be relied on to evaluate and understand site conditions.

- Sub-slab radon type ventilation systems are recommended for all structures at the Site. The systems should be designed for coverage below all subgrade walls and floors. The systems can include concealed piping stubs that if landfill gas or vapor intrusion issues arise, the stubs can be accessed and blowers connected to provide appropriate protections for the residences.

- Each proposed residential structure should be constructed with a sub-slab vapor mitigation system to vent potential landfill gases and VOCs. These are often similar (or the same) in construction techniques as a radon venting system. Those systems should be designed to operate both passively, and if concerns are identified later, to be easily retrofitted to operate actively (i.e., with a blower, ideally explosion proof [intrinsically safe]). It may be beneficial to engage an environmental engineer during the structure design to incorporate a venting system, as retrofitting a venting system is more costly than incorporating into the original construction. Further, the environmental engineer should verify proper construction of the systems during and after construction to ensure proper function. Post-construction sampling in the system for the presence of landfill gases and VOCs should be considered, which can be the deciding factor on whether the system should operate passively or actively. This screening can likely be completed with field screening devises such as a PID and a four-gas landfill meter.

- The PCMM Report will be submitted to CDPHE. If the Town desires, it should be requested that copies of the report also be submitted to the Town for review.

- The post-closure soil gas monitoring plan states that if methane concentrations exceeding 100% of the LEL are detected, CDPHE, the Town of Erie, and local emergency response authorities will be notified. It would be recommended that the CDPHE and Town of Erie be notified if 10 of LEL is detected, this way the issues can be addressed before becoming an explosion hazard.

- Pinyon was not provided groundwater or reliable soil gas data for the areas of Parcel 2 that share a boundary with the Denver Regional Landfill; therefore, Pinyon cannot provide recommendations on the Parcel 2 design.

- For the ET cover system, in addition to inspections during the regularly scheduled intervals, the area should be inspected after substantial rain events until vegetation has taken hold. Rules regarding stormwater permits should be followed for this work.

- If underground utilities related to the current and historical oil and gas operations have not been mapped or searched, an investigation should be completed.

6. Limitations

This Environmental Site Evaluation was prepared by Pinyon Environmental, Inc., at the request of and for the sole benefit of the Town of Erie, or any entity controlling, controlled by, or under common control with the Town of Erie. The conclusions and recommendations offered in this report are based on the data collected and presented by other consultants. Pinyon cannot warrant the sampling methods, or the quality of the data provided and cannot be held liable for errors, omissions, or negligence (if applicable) for the work of others in any way. Our work is based on the review of the work of others, and we cannot validate their work.

This report is for the exclusive and present use of the Town of Erie, or any entity controlling, controlled by, or under common control with the Town of Erie. Laboratory analysis performed during the previous investigations were completed for specific constituents, as described in the text. This study makes no attempt to assess constituents not searched for in the previous investigations.

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Figures

CR 6

Old Erie Landfill

Denver Regional Landfill (South)

Site Entry

Buffer Area

Stratus 2 Property Easement Extents

Front Range Landfill

Vista Pkwy

Boundary of Historic Landfill Study Area

CR 5

Oil and Gas Staging Area (Inactive)

STRATUS REDTAIL RANCH 2 PROPERTY

STRATUS REDTAIL RANCH PROPERTY

Oil and Gas Wells (Active)

CR 4

Legend

- Property Boundaries
- Boundary of Historic Landfill Study Area
- Extent of Solid Waste (Note 1)
- Buffer Area

N

0 500 1,000

Feet

Notes:
1. The Extent of Solid Waste is based on the surveyed location of the edge of solid waste identified during the Corrective Measures Work Plan field work, test pit observations made during previous site investigations, and discussions with CDPHE.

Pinyon Report
Figure 1
Site Plan
(Geosyntec, 2020a)

Historic Landfill Site
Erie, Colorado

Site Plan

Geosyntec consultants

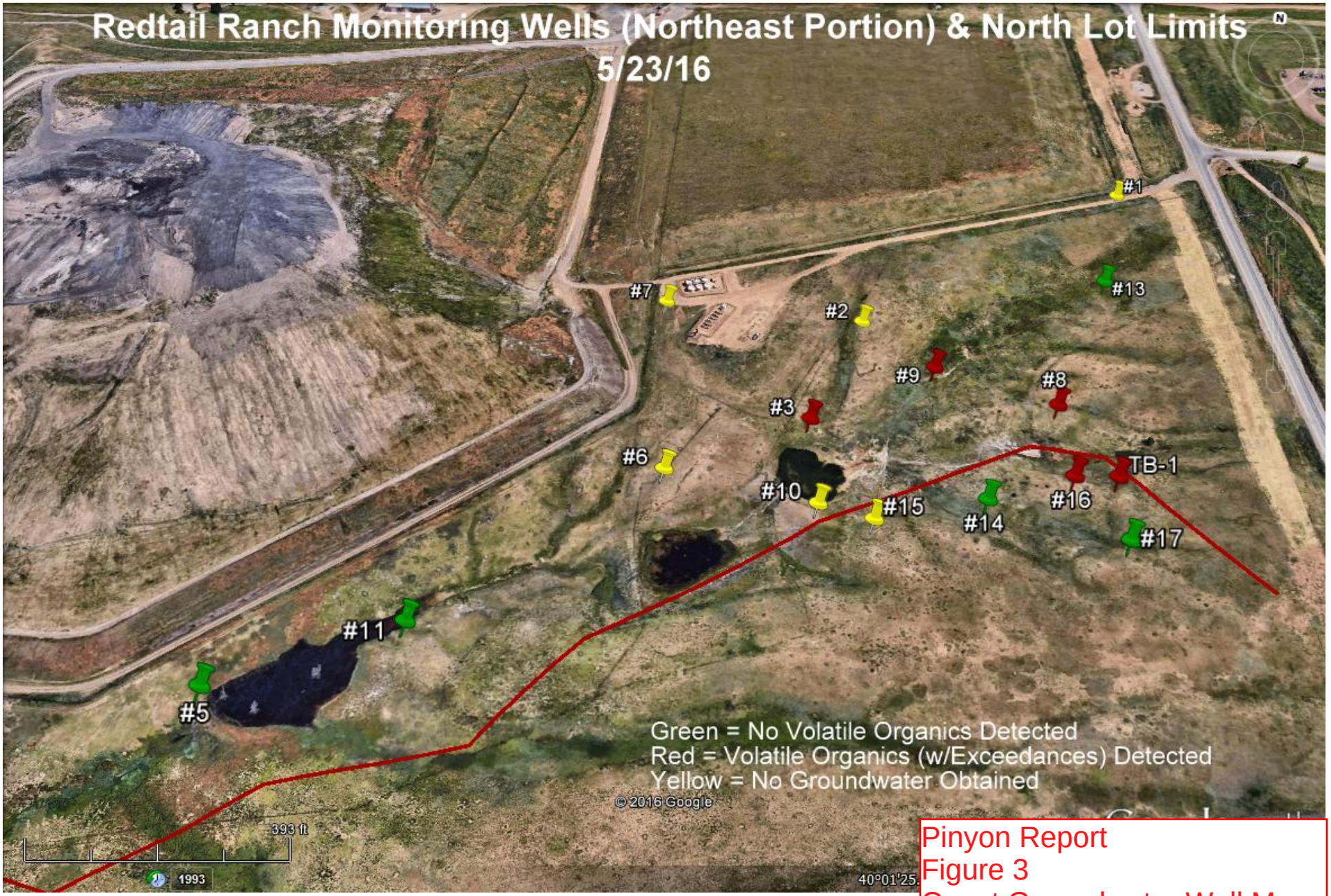
Figure 2-1	May 2020
DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work_OLD\GIS\DE0302_Stratus\2020\202004\CMWP Figures\mxd\Fig2-1_site_plan.mxd

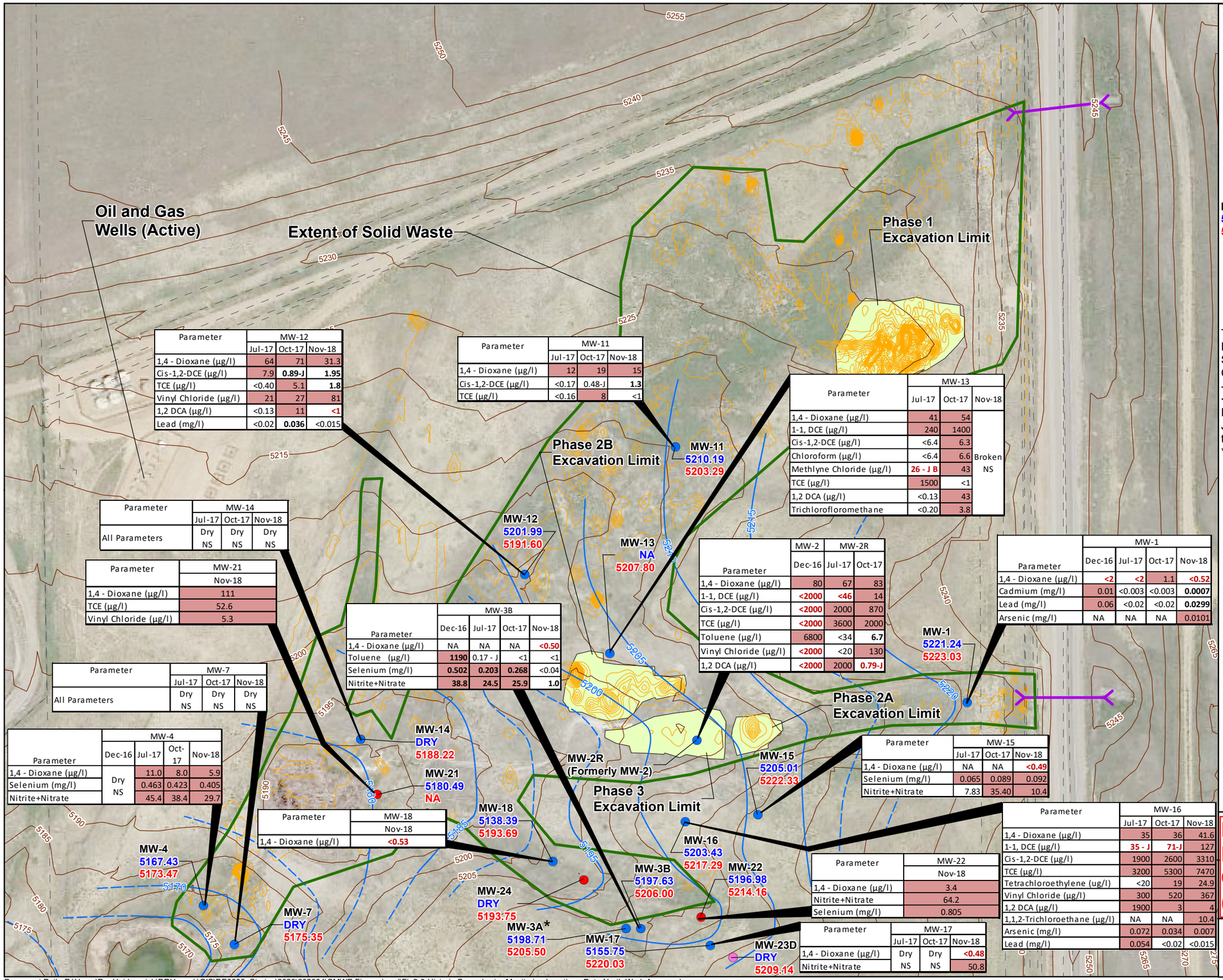
Pinyon Report
Figure 2
Soil Vapor Monitoring Points
(SEC, 2011)

Stewart Environmental Consultants, Inc. *consulting engineers and scientists*	PROJECT NUMBER 3710-001 DATE August 2007	0 200 400 600 800 1,000 APPROX. SCALE IN FEET	PROJECT Old Erie Landfill Erie, Colorado	FIGURE 2 SOIL VAPOR MONITORING SUMMARY OF RESULTS

Engneer\3700\3710-001\Old erie lf sample results lel and voc.cdr



Pinyon Report
Figure 3
Quest Groundwater Well Map
(Quest, 2016)



Parameter	MW-12		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	64	71	31.3
Cis-1,2-DCE (µg/l)	7.9	**0.89-J**	**1.95**
TCE (µg/l)	<0.40	5.1	**1.8**
Vinyl Chloride (µg/l)	21	27	81
1,2 DCA (µg/l)	<0.13	11	<1
Lead (mg/l)	<0.02	**0.036**	<0.015

Parameter	MW-11		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	12	19	15
Cis-1,2-DCE (µg/l)	<0.17	0.48-J	**1.3**
TCE (µg/l)	<0.16	8	<1

Parameter	MW-13		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	41	54	Broken NS
1-1, DCE (µg/l)	240	1400	
Cis-1,2-DCE (µg/l)	<6.4	6.3	
Chloroform (µg/l)	<6.4	6.6	
Methlyne Chloride (µg/l)	26 - J B	43	
TCE (µg/l)	1500	<1	
1,2 DCA (µg/l)	<0.13	43	
Trichloroflоromethane	<0.20	3.8	

Parameter	MW-14		
	Jul-17	Oct-17	Nov-18
All Parameters	Dry NS	Dry NS	Dry NS

Parameter	MW-21
	Nov-18
1,4 - Dioxane (µg/l)	111
TCE (µg/l)	52.6
Vinyl Chloride (µg/l)	5.3

Parameter	MW-3B			
	Dec-16	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	NA	NA	NA	**<0.50**
Toluene (µg/l)	**1190**	0.17 - J	<1	<1
Selenium (mg/l)	**0.502**	**0.203**	**0.268**	<0.04
Nitrite+Nitrate	**38.8**	**24.5**	**25.9**	**1.0**

Parameter	MW-2	MW-2R	
	Dec-16	Jul-17	Oct-17
1,4 - Dioxane (µg/l)	80	67	83
1-1, DCE (µg/l)	**<2000**	**<46**	14
Cis-1,2-DCE (µg/l)	**<2000**	2000	870
TCE (µg/l)	**<2000**	3600	2000
Toluene (µg/l)	6800	<34	**6.7**
Vinyl Chloride (µg/l)	**<2000**	<20	130
1,2 DCA (µg/l)	**<2000**	2000	**0.79-J**

Parameter	MW-1			
	Dec-16	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	**<2**	**<2**	1.1	**<0.52**
Cadmium (mg/l)	0.01	<0.003	<0.003	**0.0007**
Lead (mg/l)	0.06	<0.02	<0.02	**0.0299**
Arsenic (mg/l)	NA	NA	NA	0.0101

Parameter	MW-7		
	Jul-17	Oct-17	Nov-18
All Parameters	Dry NS	Dry NS	Dry NS

Parameter	MW-4			
	Dec-16	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	Dry NS	11.0	8.0	5.9
Selenium (mg/l)		0.463	0.423	0.405
Nitrite+Nitrate		45.4	38.4	29.7

Parameter	MW-18
	Nov-18
1,4 - Dioxane (µg/l)	**<0.53**

Parameter	MW-15		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	NA	NA	**<0.49**
Selenium (mg/l)	0.065	0.089	0.092
Nitrite+Nitrate	7.83	35.40	10.4

Parameter	MW-16		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	35	36	41.6
1-1, DCE (µg/l)	**35 - J**	**71-J**	127
Cis-1,2-DCE (µg/l)	1900	2600	3310
TCE (µg/l)	3200	5300	7470
Tetrachloroethylene (ug/l)	<20	19	24.9
Vinyl Chloride (µg/l)	300	520	367
1,2 DCA (µg/l)	1900	3	4
1,1,2-Trichloroethane (µg/l)	NA	NA	10.4
Arsenic (mg/l)	0.072	0.034	0.007
Lead (mg/l)	0.054	<0.02	<0.015

Parameter	MW-22
	Nov-18
1,4 - Dioxane (µg/l)	3.4
Nitrite+Nitrate	64.2
Selenium (mg/l)	0.805

Parameter	MW-17		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	Dry NS	Dry NS	**<0.48**
Nitrite+Nitrate			50.8

Parameter	MW-21
	Nov-18
1,4 - Dioxane (µg/l)	111
TCE (µg/l)	52.6
Vinyl Chloride (µg/l)	5.3

Legend

- SEC Monitoring Well Location
- Geosyntec Deep Monitoring Well Location
- Geosyntec Shallow Monitoring Well Location
- Electromagnetic Survey Contours
- Existing Surface Contours
- EPA AOC Drum Removal Excavation Limits
- Extent of Solid Waste
- MW-1 5221.24 5223.03 — Groundwater Monitoring Well along with Groundwater Elevation (blue - ft amsl) and Bedrock Elevation (red - ft amsl)
- Groundwater Elevation Contour (ft amsl); Dashed where inferred
- Culvert (Location Approximate)

N

Table Notes:
Results shaded red are detected values above the Groundwater Standard (Regulation 41: Table A Ground water Organic Chemical Standards, and Table 1 Domestic Water Supply - Human Health Standards)
< - Compound not detected at the laboratory Reporting Limit
Results with red text are reporting limits that are > the standard
J - Laboratory Qualifier; Estimated concentration detected above the method detection limit (MDL) but below the reporting limit (RL).
* - No sampling required at well.

0 100 200
Feet

References:
1. Quest and SEC monitoring well locations were obtained from Figure 2-1 titles "Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits" developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Electromagnetic (EM) Survey Contours were generated based on EM surveys performed between 11 July and 13 July 2017, and on 1 December 2017 by National GPR Services.

4. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

5. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

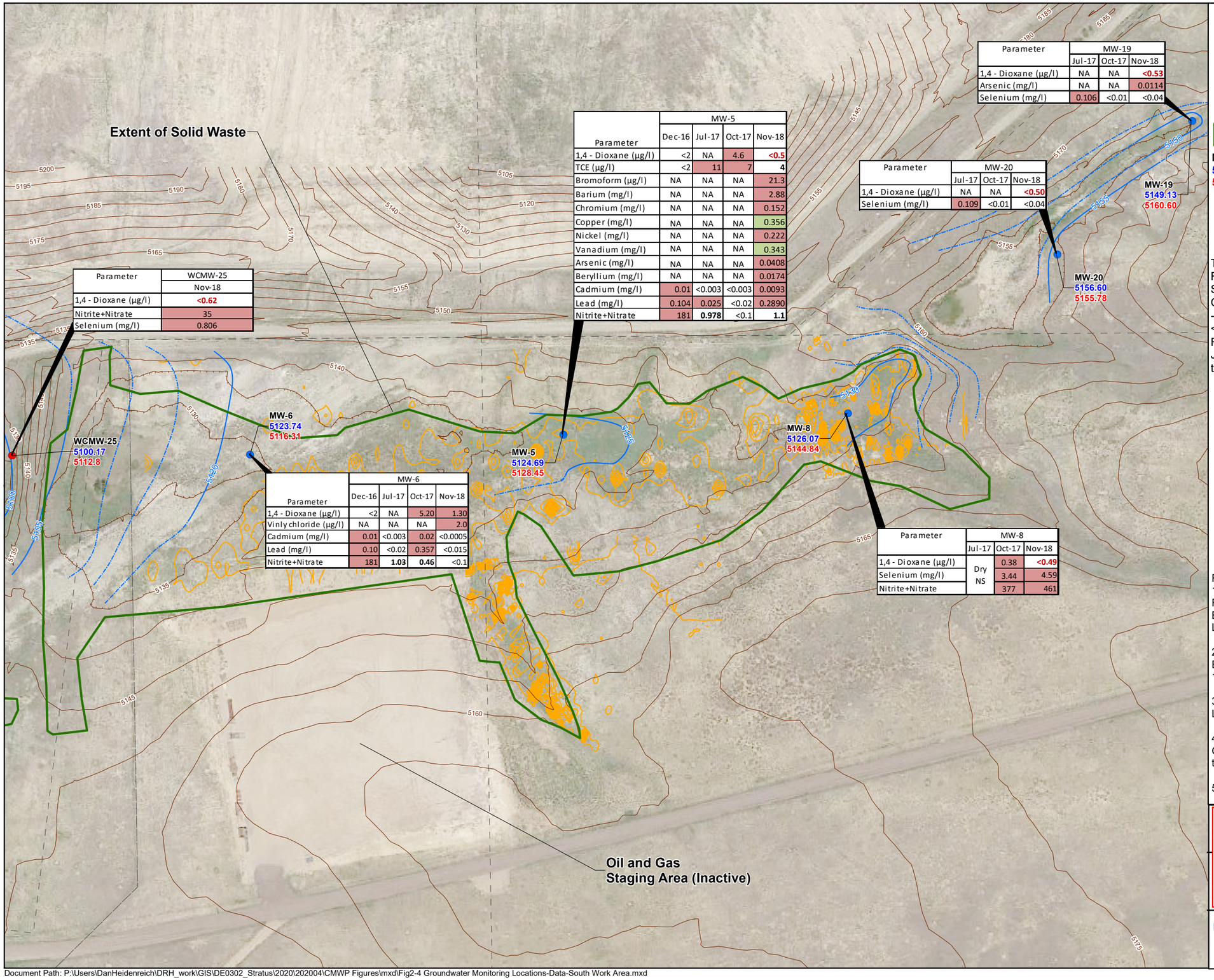
6. Aerial photograph was obtained from Google Earth 2017.

Pinyon Report
Figure 4a
Groundwater Monitoring Well Map
(Geosyntec, 2020a)

Geosyntec consultants

Figure 2-3	May 2020
DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\CMWP Figures\mxd\Fig2-3-Historic Groundwater Monitoring Locations-Data-North Work Area.mxd



Parameter	WCMW-25
	Nov-18
1,4 - Dioxane (µg/l)	**<0.62**
Nitrite+Nitrate	35
Selenium (mg/l)	0.806

Parameter	MW-5			
	Dec-16	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	<2	NA	4.6	**<0.5**
TCE (µg/l)	<2	11	7	**4**
Bromoform (µg/l)	NA	NA	NA	21.3
Barium (mg/l)	NA	NA	NA	2.88
Chromium (mg/l)	NA	NA	NA	0.152
Copper (mg/l)	NA	NA	NA	0.356
Nickel (mg/l)	NA	NA	NA	0.222
Vanadium (mg/l)	NA	NA	NA	0.343
Arsenic (mg/l)	NA	NA	NA	0.0408
Beryllium (mg/l)	NA	NA	NA	0.0174
Cadmium (mg/l)	0.01	<0.003	<0.003	0.0093
Lead (mg/l)	0.104	0.025	<0.02	0.2890
Nitrite+Nitrate	181	**0.978**	<0.1	**1.1**

Parameter	MW-6			
	Dec-16	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	<2	NA	5.20	1.30
Vinly chloride (µg/l)	NA	NA	NA	2.0
Cadmium (mg/l)	0.01	<0.003	0.02	<0.0005
Lead (mg/l)	0.10	<0.02	0.357	<0.015
Nitrite+Nitrate	181	**1.03**	**0.46**	<0.1

Parameter	MW-8		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	Dry NS	0.38	**<0.49**
Selenium (mg/l)		3.44	4.59
Nitrite+Nitrate		377	461

Parameter	MW-19		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	NA	NA	**<0.53**
Arsenic (mg/l)	NA	NA	0.0114
Selenium (mg/l)	0.106	<0.01	<0.04

Parameter	MW-20		
	Jul-17	Oct-17	Nov-18
1,4 - Dioxane (µg/l)	NA	NA	**<0.50**
Selenium (mg/l)	0.109	<0.01	<0.04

Legend

- SEC Monitoring Well Location
- Geosyntec Shallow Monitoring Well Location
- Electromagnetic Survey Contours
- Existing Surface Contours
- Extent of Solid Waste
- MW-19 / 5149.13 / 5160.60 — Groundwater Monitoring Well along with Groundwater Elevation (blue - ft amsl) and Bedrock Elevation (red - ft amsl)
- Groundwater Elevation Contour (ft amsl); Dashed Where Inferred

N

Table Notes:
Results shaded red are detected values above the Groundwater Standard (Regulation 41: Table A Ground water Organic Chemical Standards, and Table 1 Domestic Water Supply - Human Health Standards)
< - Compound not detected at the laboratory Reporting Limit
Results with red text are reporting limits that are > the standard
J - Laboratory Qualifier; Estimated concentration detected above the method detection limit (MDL) but below the reporting limit (RL).

0 100 200
Feet

References:
1. Quest and SEC monitoring well locations were obtained from Figure 2-1 titles "Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits" developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. Electromagnetic (EM) Survey Contours were generated based on EM surveys performed between 11 July and 13 July 2017, and on 1 December 2017 by National GPR Services.

3. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

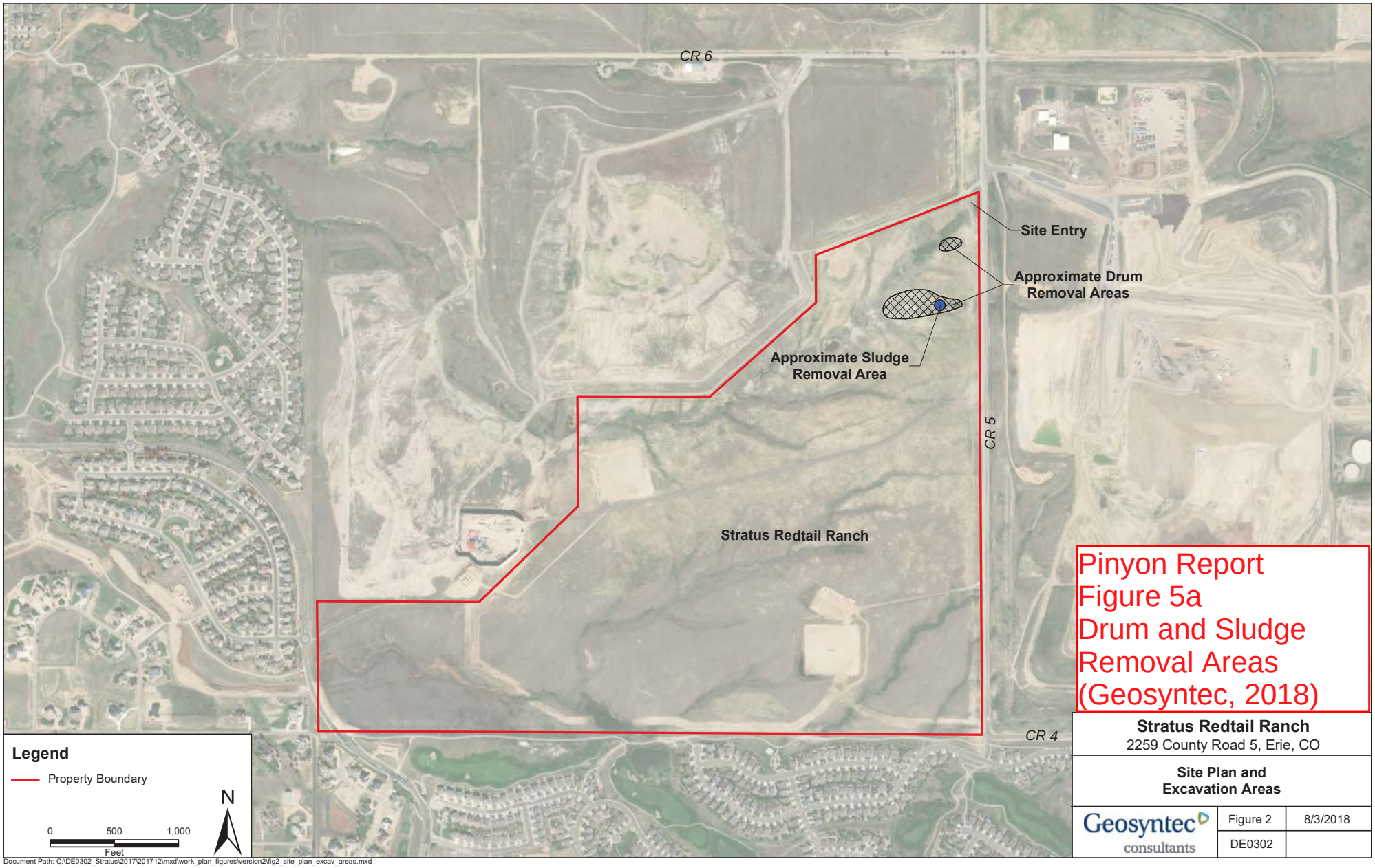
4. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

5. Aerial photograph was obtained from Google Earth 2017.

Pinyon Report
Figure 4b
Groundwater Monitoring Well Map
(Geosyntec, 2020a)

Geosyntec consultants	Figure 2-4	May 2020
	DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\CMWP Figures\mxd\Fig2-4 Groundwater Monitoring Locations-Data-South Work Area.mxd



Pinyon Report
Figure 5a
Drum and Sludge Removal Areas
(Geosyntec, 2018)

Stratus Redtail Ranch
2259 County Road 5, Erie, CO

Site Plan and Excavation Areas

Geosyntec consultants	Figure 2	8/3/2018
	DE0302	

Document Path: C:\DE0302_Stratus\2017\201712\mxd\work_plan_figures\version2\fig2_site_plan_excav_areas.mxd

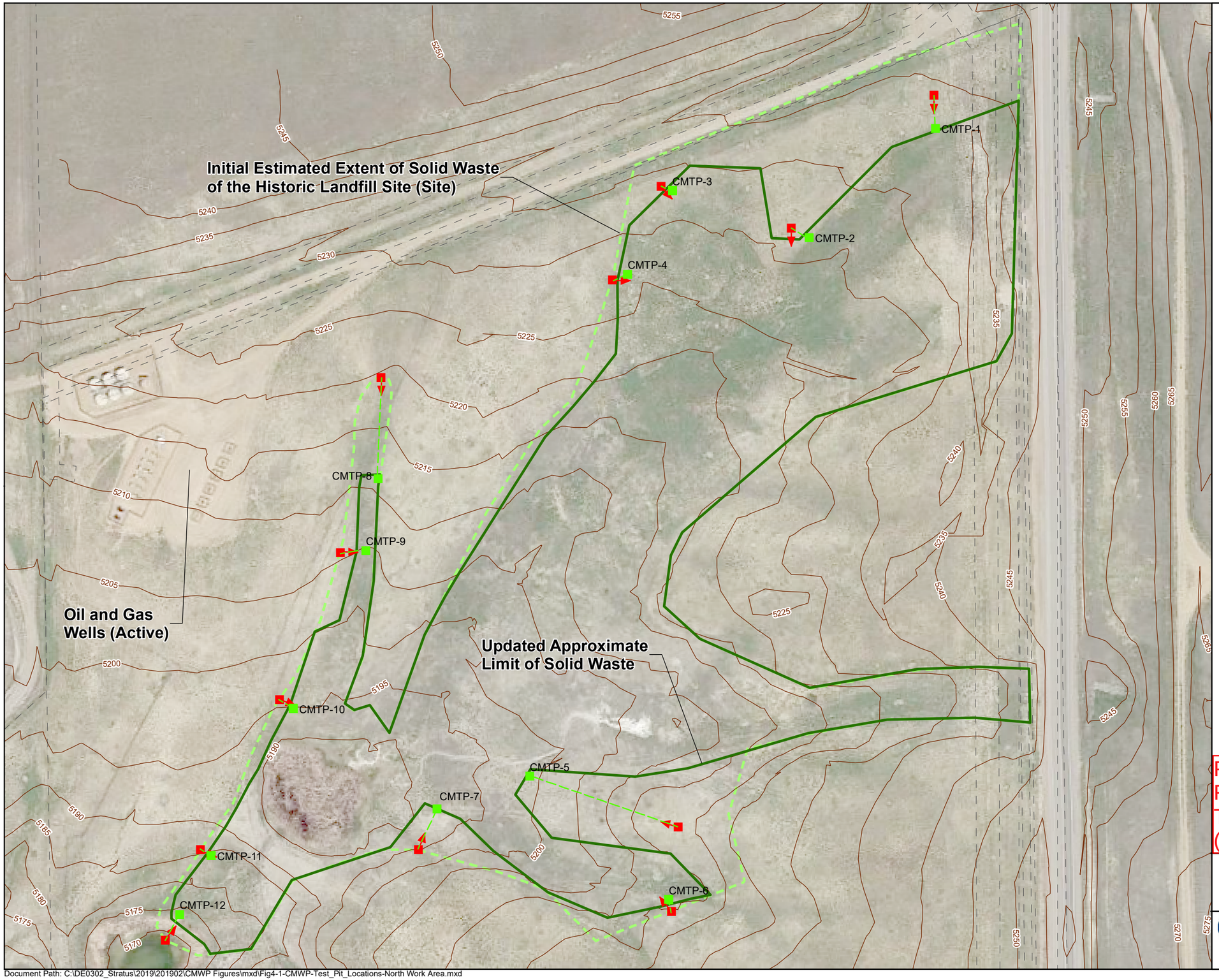
Pinyon Report
Figure 5b
Drum and Sludge
Removal Areas
(Geosyntec, 2018)

Neuhauser Landfill Site
Erie, Colorado

Final Excavation Extents and Excavation Contours

Geosyntec consultants	Figure 5	8/10/2018
	DE0302	

Document Path: C:\DE0302_Stratus\2018\201807\mxd\fig5_Final_Excavation_Extent_EM_contours.mxd



Legend

- Test Pit with Directional Dig Arrows
- Test Pit and Surveyed Location of Edge of Solid Waste
- Existing Surface Contours
- Initial Estimated Extent of Solid Waste
- Extent of Solid Waste (Note 1)

N

0 100 200
Feet

Notes:
1. The Extent of Solid Waste is based on the surveyed location of the edge of solid waste identified during the Corrective Measures Work Plan field work, test pit observations made during previous site investigations, and discussions with CDPHE.

2. Edge of Solid Waste locations were verified by a GPS survey conducted by CWC Consulting Group on 4 and 5 December 2018.

3. Topography provided by Stewart Environmental Consultants (SEC), LLC . Projection in NAD 1983 State Plane Colorado North U.S. Feet.

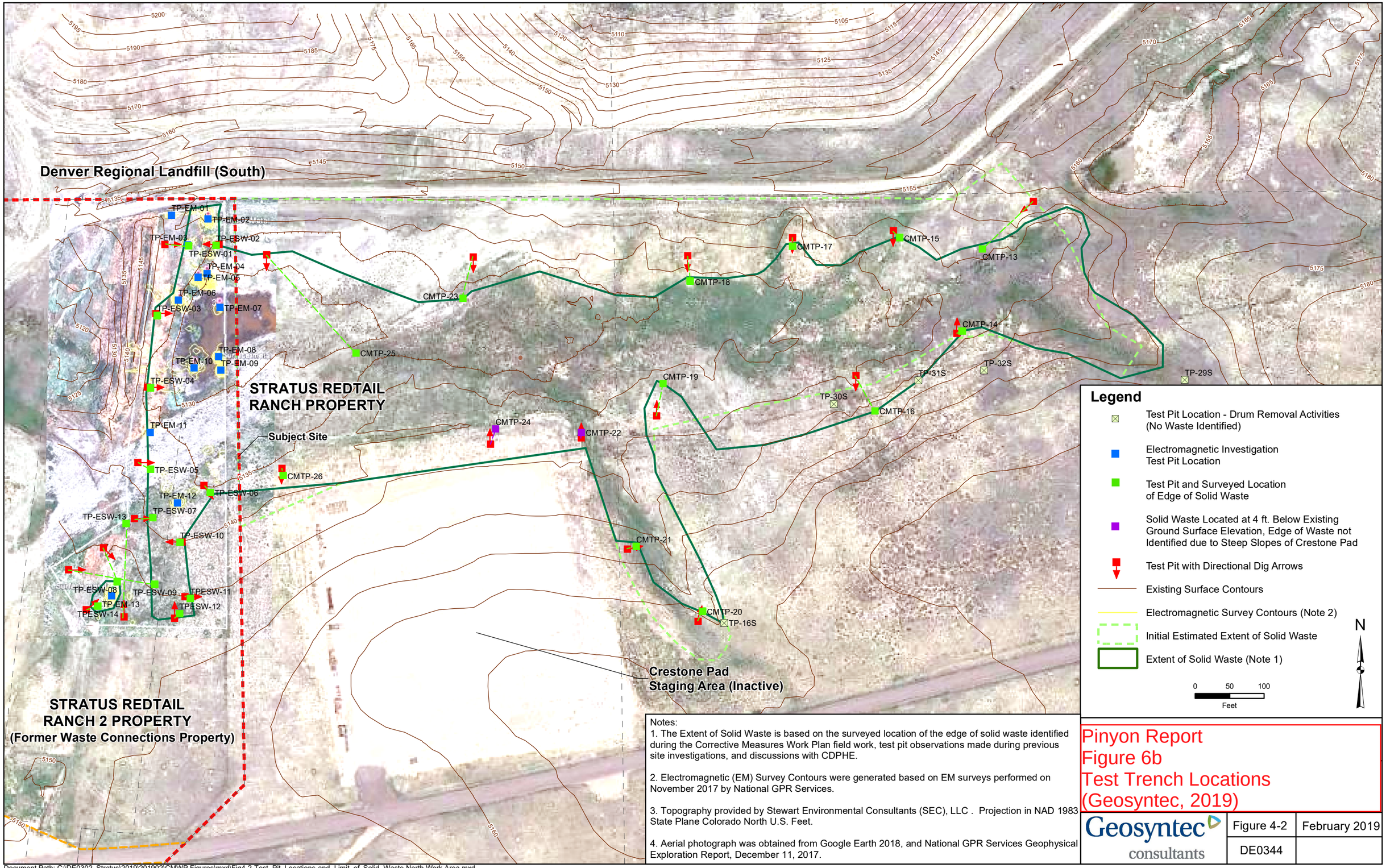
4. Aerial photograph was obtained from Google Earth 2018.

Pinyon Report
Figure 6a
Test Trench Locations
(Geosyntec, 2019)

Test Pit Locations and Extents of Solid Waste North Work Area

Geosyntec consultants	Figure 4-1	February 2019
	DE0344	

Document Path: C:\DE0302_Stratus\2019\201902\CMWP Figures\mxd\Fig4-1-CMWP-Test_Pit_Locations-North Work Area.mxd



Legend

- Test Pit Location - Drum Removal Activities (No Waste Identified)
- Electromagnetic Investigation Test Pit Location
- Test Pit and Surveyed Location of Edge of Solid Waste
- Solid Waste Located at 4 ft. Below Existing Ground Surface Elevation, Edge of Waste not Identified due to Steep Slopes of Crestone Pad
- Test Pit with Directional Dig Arrows
- Existing Surface Contours
- Electromagnetic Survey Contours (Note 2)
- Initial Estimated Extent of Solid Waste
- Extent of Solid Waste (Note 1)

N

0 50 100
Feet

Notes:
1. The Extent of Solid Waste is based on the surveyed location of the edge of solid waste identified during the Corrective Measures Work Plan field work, test pit observations made during previous site investigations, and discussions with CDPHE.

2. Electromagnetic (EM) Survey Contours were generated based on EM surveys performed on November 2017 by National GPR Services.

3. Topography provided by Stewart Environmental Consultants (SEC), LLC . Projection in NAD 1983 State Plane Colorado North U.S. Feet.

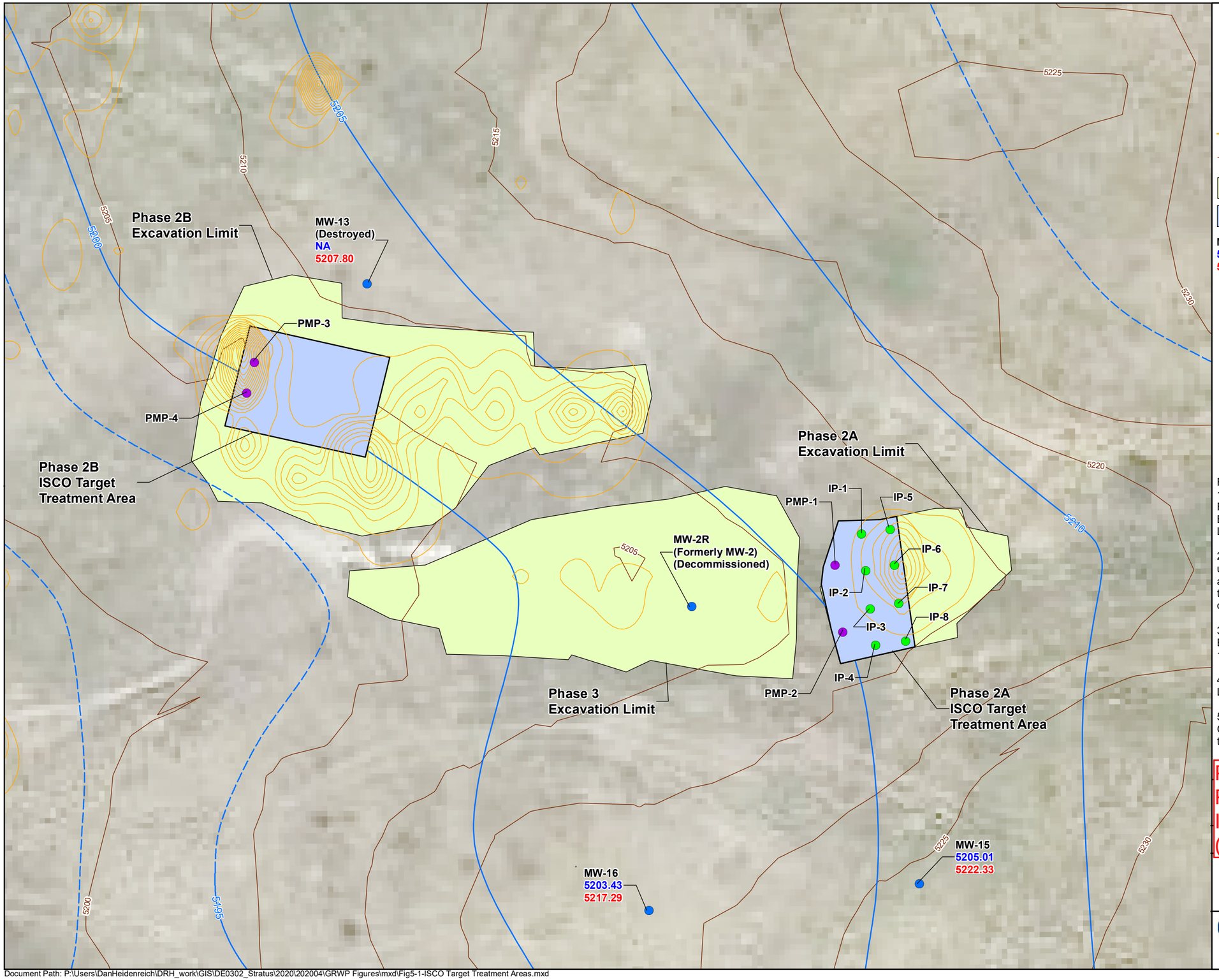
4. Aerial photograph was obtained from Google Earth 2018, and National GPR Services Geophysical Exploration Report, December 11, 2017.

Pinyon Report
Figure 6b
Test Trench Locations (Geosyntec, 2019)

Geosyntec consultants

Figure 4-2	February 2019
DE0344	

Document Path: C:\DE0302_Stratus\2019\201902\CMWP Figures\mxd\Fig4-2-Test_Pit_Locations-and -Limit_of_Solid_Waste-North Work Area.mxd



Legend

- SEC Monitoring Well Location
- Temporary Performance Monitoring Point
- Injection Point
- Electromagnetic Survey Contours
- Existing Surface Contours
- EPA AOC Drum Removal Excavation Limits
- ISCO Target Treatment Area
- MW-16 / 5203.43 / 5217.29 — Groundwater Monitoring Well along with Groundwater Elevation (blue - ft amsl) and Bedrock Elevation (red - ft amsl)
- Groundwater Elevation Contour (ft amsl); Dashed where inferred

N

0 20 40
Feet

References:
1. Quest and SEC monitoring well locations were obtained from Figure 2-1 titles “Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits” developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Electromagnetic (EM) Survey Contours were generated based on EM surveys performed between 11 July and 13 July 2017, and on 1 December 2017 by National GPR Services.

4. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

5. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

Pinyon Report
Figure 7
ISCO Treatment Areas
(Geosyntec, 2020a)

Target Treatment Areas for Groundwater Remediation

Geosyntec consultants	Figure 5-1	May 2020
	DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\GRWP Figures\mxd\Fig5-1-ISCO Target Treatment Areas.mxd

Legend

- Point of Compliance Monitoring Well Location
- Distal Monitored Natural Attenuation Monitoring Well Location
- ISCO Performance Monitoring Well Location
- Proximal Monitored Natural Attenuation Monitoring Well Location
- Detection Monitoring Well Location
- Topographic Contour (ft amsl)
- EPA AOC Drum Removal Excavation Limits
- Estimated Extent of Solid Waste
- Buffer Area
- Groundwater Elevation Contour (ft amsl); Dashed where inferred

N

0 200 400
Feet

References:

1. Locations for Monitoring Wells Installed During Previous Investigaions were obtained from Figure 2-1 titles "Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits" developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

4. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

5. Aerial photograph was obtained from Google Earth 2017.

Buffer Area
MW-11
MW-12
MW-1
MW-21
MW-16
MW-4
MW-22
MW-19
MW-3B
MW-23D
WCMW-25
Property Boundary
MW-6
MW-5
MW-8
Stratus 2 Property Easement Extents

Pinyon Report
Figure 8a
Post-Closure Groundwater Monitoring Locations
(Geosyntec, 2020b)

Historic Landfill Site
Erie, Colorado

Post-Closure Monitoring and Maintenance Plan

Groundwater Monitoring Locations
Initial Four Semi-Annual Monitoring Events

Geosyntec consultants	Figure 5-1	May 2020
	DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\PCMM Figures\mxd\Fig5-1_Proposed GW Mon Location 4-semi-annual Events Map.mxd

Legend

- Point of Compliance Monitoring Well Location - Sampled Semi-Anually
- Distal MNA Monitoring Well Location - Sampled Semi-Annually
- ISCO Performance Monitoring Well Location - Sampled Annually for Three Years Following Initial Semi-Annual Sampling Events, and Every 5th Year Following
- Proximal Monitored Natural Attenuation Monitoring Well Location - Sampled Annually for Three Years Following Initial Semi-Annual Sampling Events, and Every 5th Year Following
- Detection Monitoring Well Location - Sampled Semi-Annually
- Topographic Contour (ft amsl)
- EPA AOC Drum Removal Excavation Limits
- Estimated Extent of Solid Waste
- Buffer Area
- Groundwater Elevation Contour (ft amsl); Dashed where inferred

0 200 400
Feet

N

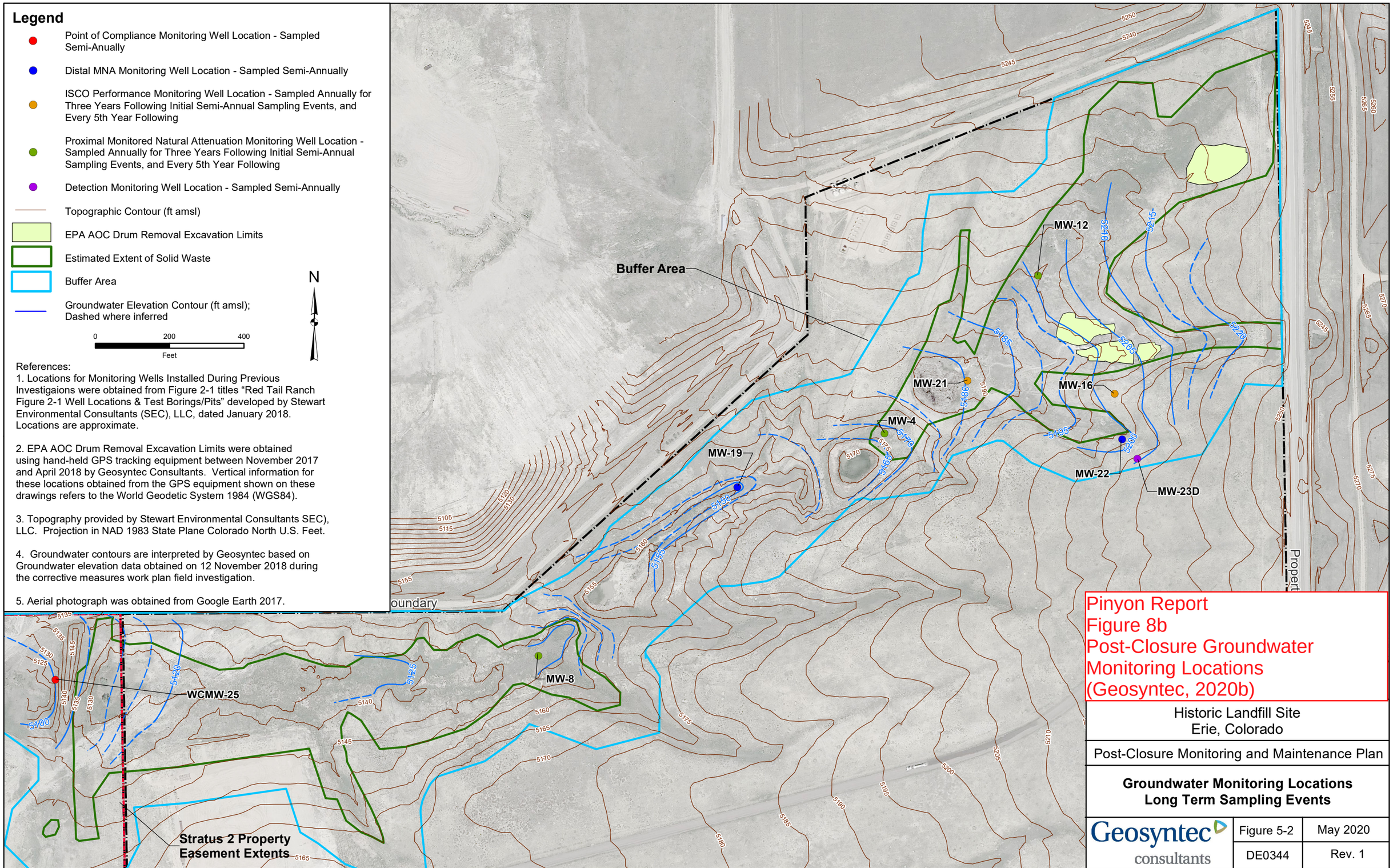
References:
1. Locations for Monitoring Wells Installed During Previous Investigaions were obtained from Figure 2-1 titles “Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits” developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

4. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

5. Aerial photograph was obtained from Google Earth 2017.



Pinyon Report
Figure 8b
Post-Closure Groundwater Monitoring Locations
(Geosyntec, 2020b)

Historic Landfill Site
Erie, Colorado

Post-Closure Monitoring and Maintenance Plan

Groundwater Monitoring Locations
Long Term Sampling Events

Geosyntec consultants	Figure 5-2	May 2020
	DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\PCMM Figures\mxd\Fig5-2_Proposed GW Mon Location Ongoing Map.mxd

80 0 80 160

SCALE: 1"=80'

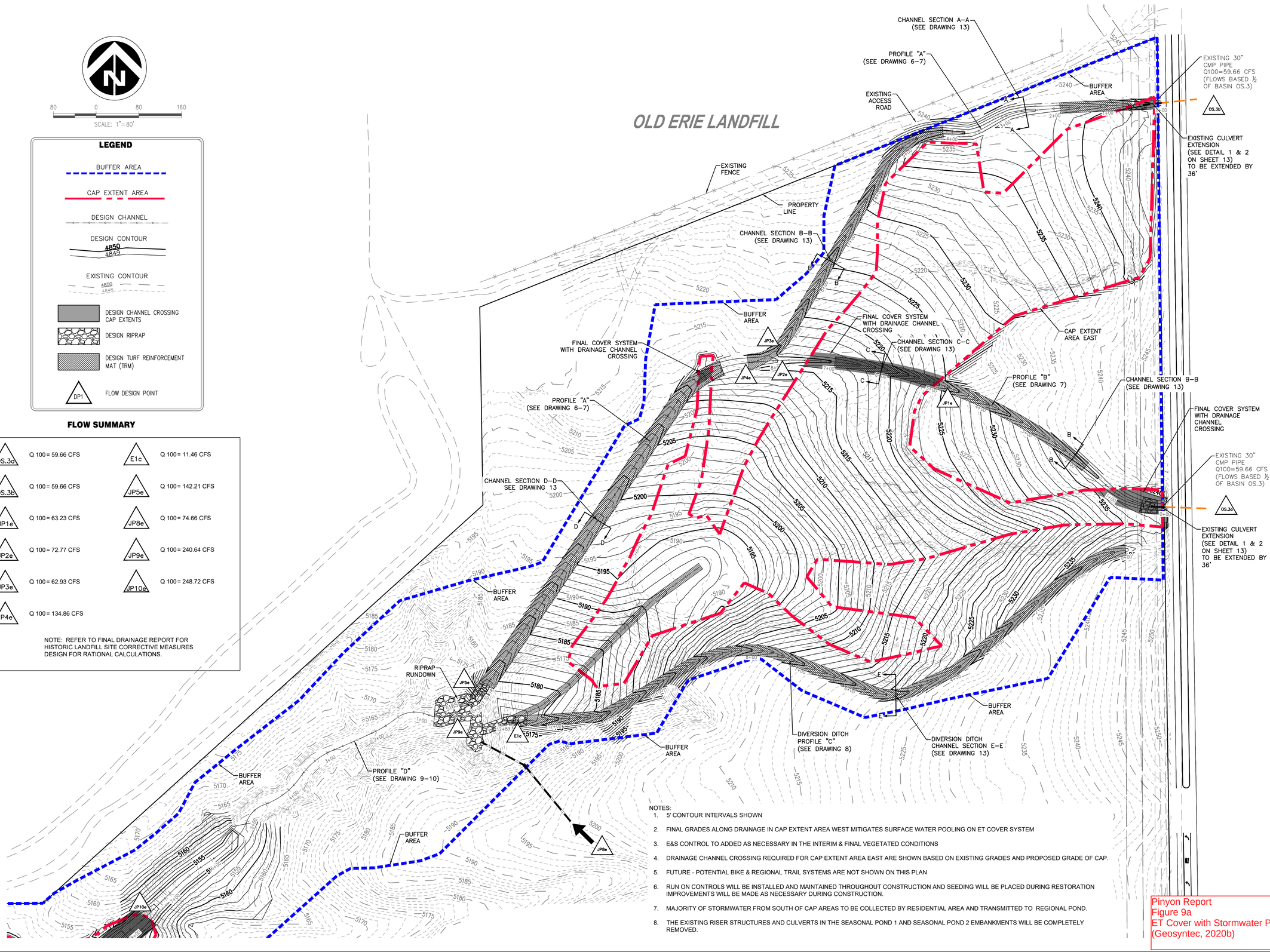
LEGEND

- BUFFER AREA
- CAP EXTENT AREA
- DESIGN CHANNEL
- DESIGN CONTOUR (4850 / 4849)
- EXISTING CONTOUR (4850 / 4849)
- DESIGN CHANNEL CROSSING CAP EXTENTS
- DESIGN RIPRAP
- DESIGN TURF REINFORCEMENT MAT (TRM)
- DP1 — FLOW DESIGN POINT

FLOW SUMMARY

OS.3a	Q 100 = 59.66 CFS	E1c	Q 100 = 11.46 CFS
OS.3b	Q 100 = 59.66 CFS	JP5e	Q 100 = 142.21 CFS
JP1e	Q 100 = 63.23 CFS	JP8e	Q 100 = 74.66 CFS
JP2e	Q 100 = 72.77 CFS	JP9e	Q 100 = 240.64 CFS
JP3e	Q 100 = 62.93 CFS	JP10e	Q 100 = 248.72 CFS
JP4e	Q 100 = 134.86 CFS		

NOTE: REFER TO FINAL DRAINAGE REPORT FOR HISTORIC LANDFILL SITE CORRECTIVE MEASURES DESIGN FOR RATIONAL CALCULATIONS.



NOTES:

1. 5' CONTOUR INTERVALS SHOWN
2. FINAL GRADES ALONG DRAINAGE IN CAP EXTENT AREA WEST MITIGATES SURFACE WATER POOLING ON ET COVER SYSTEM
3. E&S CONTROL TO ADDED AS NECESSARY IN THE INTERIM & FINAL VEGETATED CONDITIONS
4. DRAINAGE CHANNEL CROSSING REQUIRED FOR CAP EXTENT AREA EAST ARE SHOWN BASED ON EXISTING GRADES AND PROPOSED GRADE OF CAP.
5. FUTURE - POTENTIAL BIKE & REGIONAL TRAIL SYSTEMS ARE NOT SHOWN ON THIS PLAN
6. RUN ON CONTROLS WILL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION AND SEEDING WILL BE PLACED DURING RESTORATION IMPROVEMENTS WILL BE MADE AS NECESSARY DURING CONSTRUCTION.
7. MAJORITY OF STORMWATER FROM SOUTH OF CAP AREAS TO BE COLLECTED BY RESIDENTIAL AREA AND TRANSMITTED TO REGIONAL POND.
8. THE EXISTING RISER STRUCTURES AND CULVERTS IN THE SEASONAL POND 1 AND SEASONAL POND 2 EMBANKMENTS WILL BE COMPLETELY REMOVED.

Pinyon Report
Figure 9a
ET Cover with Stormwater Plan
(Geosyntec, 2020b)

No.	Date	Description
1	05/01/2020	ISSUE AS RESPONSE TO PUBLIC COMMENT
0	02/07/2020	ISSUE FOR PUBLIC COMMENT

DOCUMENT AMENDMENTS

STRATUS REDTAIL RANCH, LLC
8480 EAST ORCHARD ROAD SUITE 1100
GREENWOOD VILLAGE, CO 80111
PHONE: (720) 214-5000
CONTACT: RICHARD DEAN

EVAPOTRANSPIRATION COVER AND STORMWATER GRADING PLAN - EAST

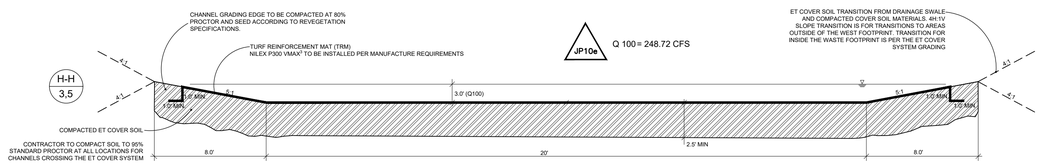
9360 TEDDY LANE SUITE #203
LONE TREE, COLORADO 80124
TELEPHONE: 303-395-2700
FAX 303-395-2701

CWC CONSULTING GROUP
CIVIL ENGINEERING - LAND SURVEYING - CONSTRUCTION SERVICES

PRELIMINARY NOT FOR CONSTRUCTION

Project Number: 130-00011	Drawn By: JEC	Designed By: JEC	Reviewed By: BAW
Drawing Number: 4 OF 26			

T:\JOBS\STRATUS\REDTAIL RANCH\ENVIRONMENTAL - LINER\PLAN SETS\REVISED GRADING SHEETS.DWG, 4/24/2020 10:31 AM, JCROOP



CHANNEL SECTION H-H
FINAL ET COVER SYSTEM WITH DRAINAGE CHANNEL CROSSING WITH RIPRAP

CHANNEL SECTION I-I
FINAL ET COVER SYSTEM WITH DRAINAGE CHANNEL CROSSING

ET COVER SYSTEM (TYPICAL)

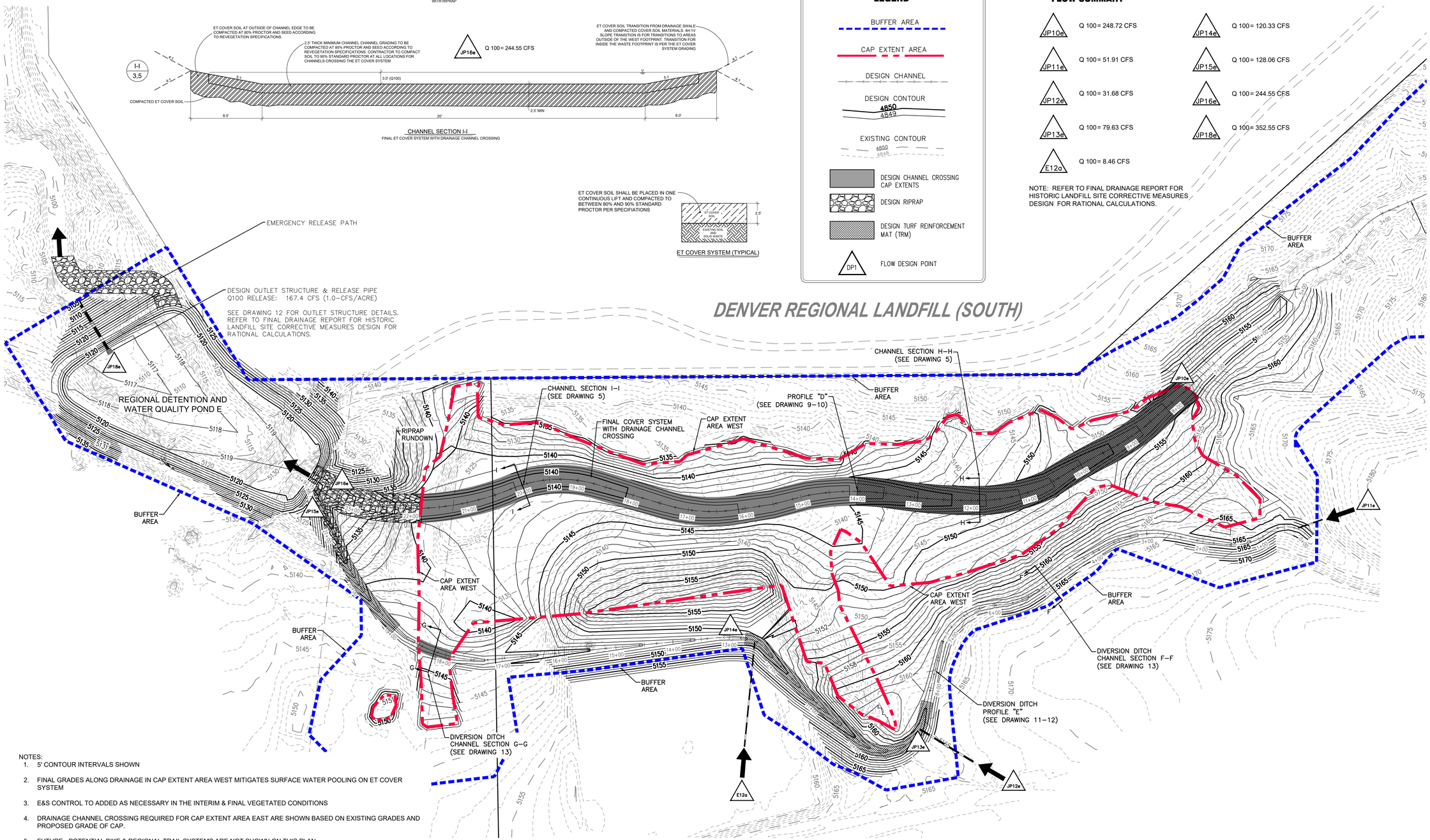
LEGEND

- BUFFER AREA
- CAP EXTENT AREA
- DESIGN CHANNEL
- DESIGN CONTOUR (4850 / 4849)
- EXISTING CONTOUR (4850 / 4848)
- DESIGN CHANNEL CROSSING CAP EXTENTS
- DESIGN RIPRAP
- DESIGN TURF REINFORCEMENT MAT (TRM)
- DP1 FLOW DESIGN POINT

FLOW SUMMARY

JP10e	Q 100 = 248.72 CFS
JP11e	Q 100 = 51.91 CFS
JP12e	Q 100 = 31.68 CFS
JP13e	Q 100 = 79.63 CFS
E12a	Q 100 = 8.46 CFS
JP14e	Q 100 = 120.33 CFS
JP15e	Q 100 = 128.06 CFS
JP16e	Q 100 = 244.55 CFS
JP18e	Q 100 = 352.55 CFS

NOTE: REFER TO FINAL DRAINAGE REPORT FOR HISTORIC LANDFILL SITE CORRECTIVE MEASURES DESIGN FOR RATIONAL CALCULATIONS.



NOTES:

1. 5' CONTOUR INTERVALS SHOWN
2. FINAL GRADES ALONG DRAINAGE IN CAP EXTENT AREA WEST MITIGATES SURFACE WATER POOLING ON ET COVER SYSTEM
3. E&S CONTROL TO ADDED AS NECESSARY IN THE INTERIM & FINAL VEGETATED CONDITIONS
4. DRAINAGE CHANNEL CROSSING REQUIRED FOR CAP EXTENT AREA EAST ARE SHOWN BASED ON EXISTING GRADES AND PROPOSED GRADE OF CAP.
5. FUTURE - POTENTIAL BIKE & REGIONAL TRAIL SYSTEMS ARE NOT SHOWN ON THIS PLAN
6. RUN ON CONTROLS WILL BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION AND SEEDING WILL BE PLACED DURING RESTORATION IMPROVEMENTS WILL BE MADE AS NECESSARY DURING CONSTRUCTION.
7. MAJORITY OF STORMWATER FROM SOUTH OF CAP AREAS TO BE COLLECTED BY RESIDENTIAL AREA AND TRANSMITTED TO REGIONAL POND.
8. THE EXISTING RISER STRUCTURES AND CULVERTS IN THE SEASONAL POND 3 AND SEASONAL POND 4 EMBANKMENTS NEAR STATIONS 7+00 AND 22+00, RESPECTIVELY, WILL BE COMPLETELY REMOVED.

No.	Date	Description
1	05/01/2020	ISSUE AS RESPONSE TO PUBLIC COMMENT
0	02/07/2020	ISSUE FOR PUBLIC COMMENT

DOCUMENT AMENDMENTS

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PHONE: (720) 214-5000
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EVAPOTRANSPIRATION COVER AND STORMWATER GRADING PLAN - WEST

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CWC CONSULTING GROUP
CIVIL ENGINEERING - LAND SURVEYING - CONSTRUCTION SERVICES

PRELIMINARY NOT FOR CONSTRUCTION

Project Number: 130-00011
Designed By: JEC
Drawn By: JEC
Reviewed By: BAW
Drawing Number: 5 OF 26

Pinyon Report
Figure 9b
ET Cover with Stormwater Plan
(Geosyntec, 2020b)

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Legend

- Soil Gas Monitoring Location at Existing Groundawater Monitoring Well
- Soil Gas Monitoring Location
- Topographic Contour (ft amsl)
- EPA AOC Drum Removal Excavation Limits
- Estimated Extent of Solid Waste
- Buffer Area
- Groundwater Elevation Contour (ft amsl); Dashed where inferred

0 200 400
Feet

N

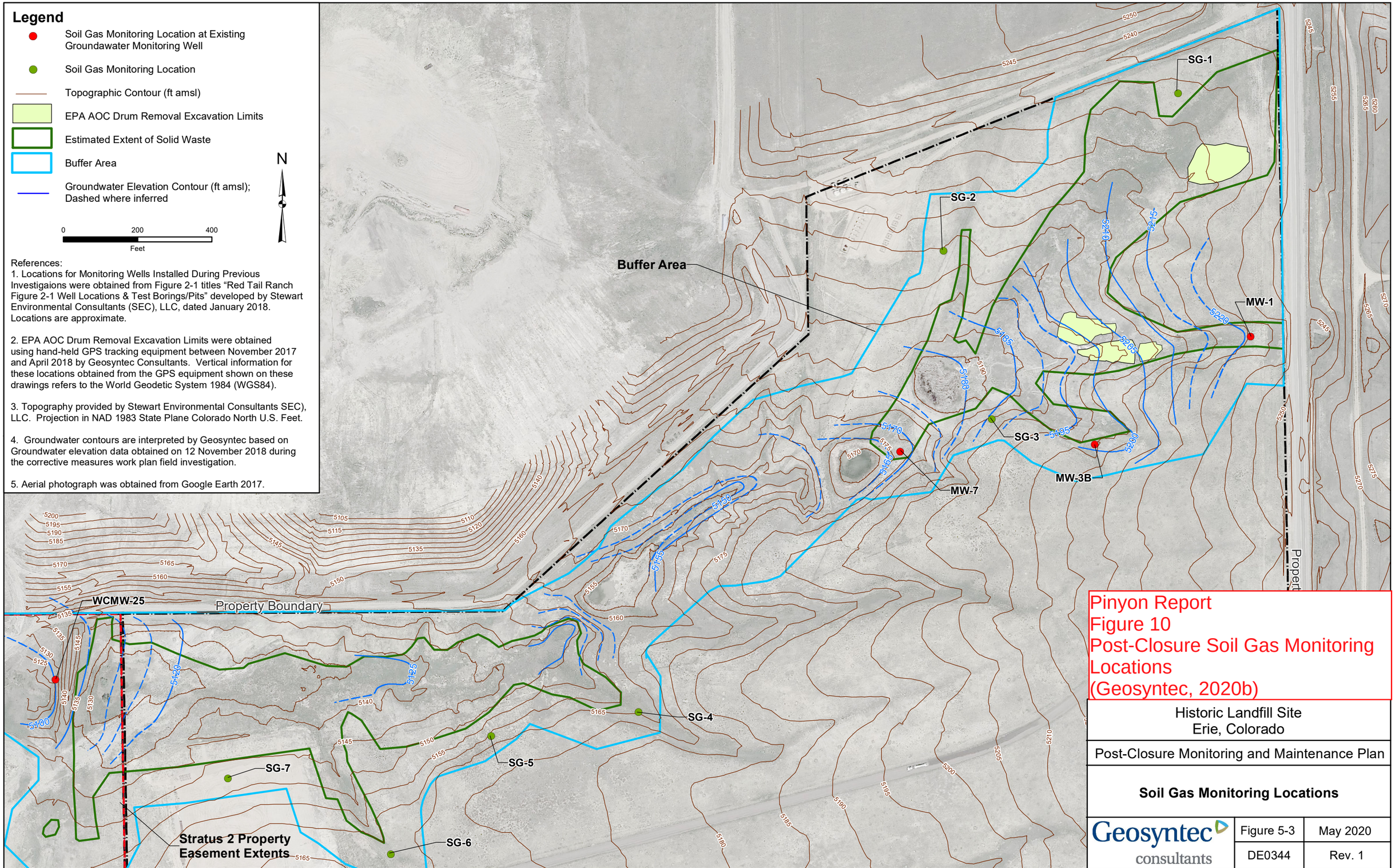
References:
1. Locations for Monitoring Wells Installed During Previous Investigaions were obtained from Figure 2-1 titles "Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits" developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

4. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

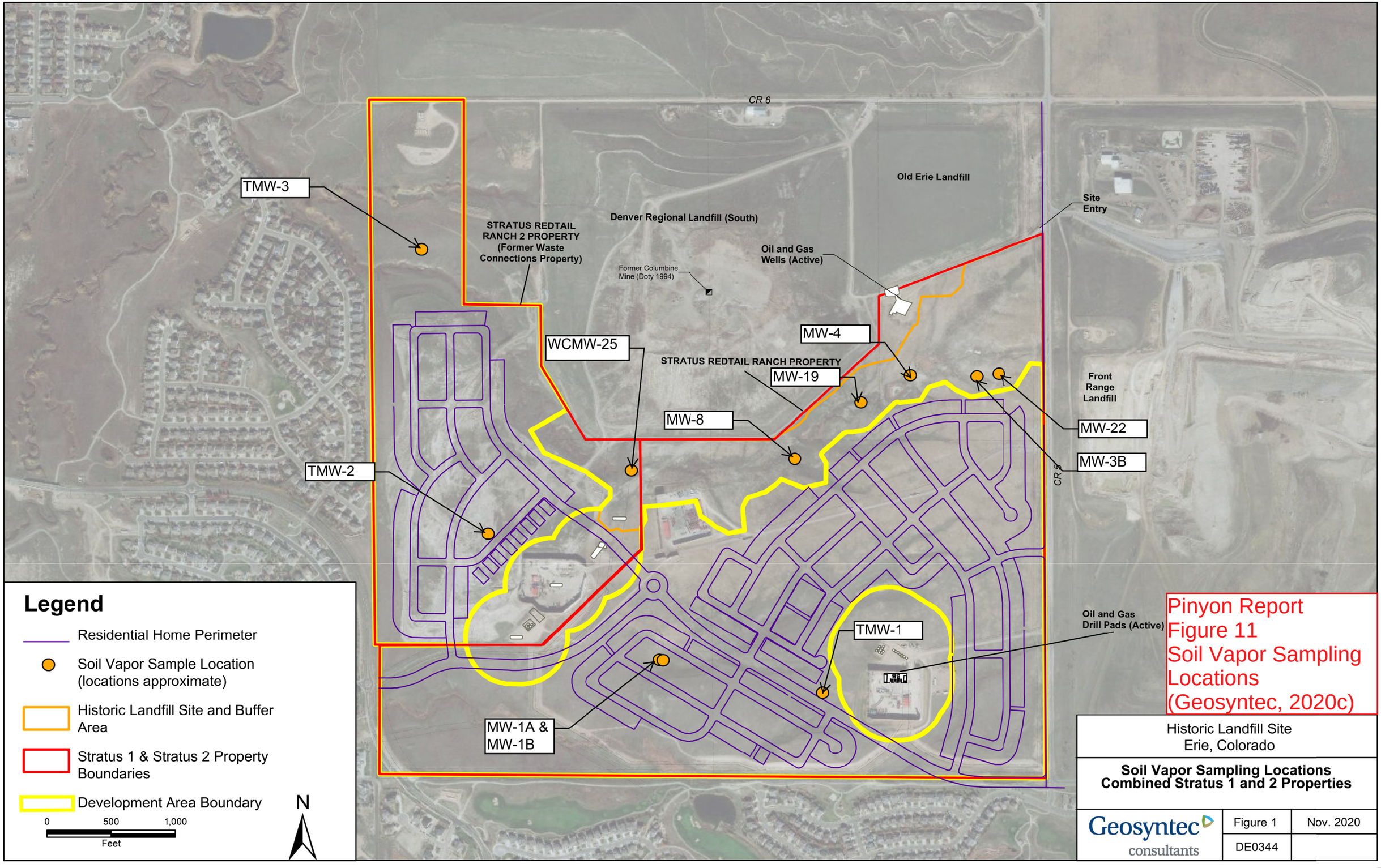
5. Aerial photograph was obtained from Google Earth 2017.

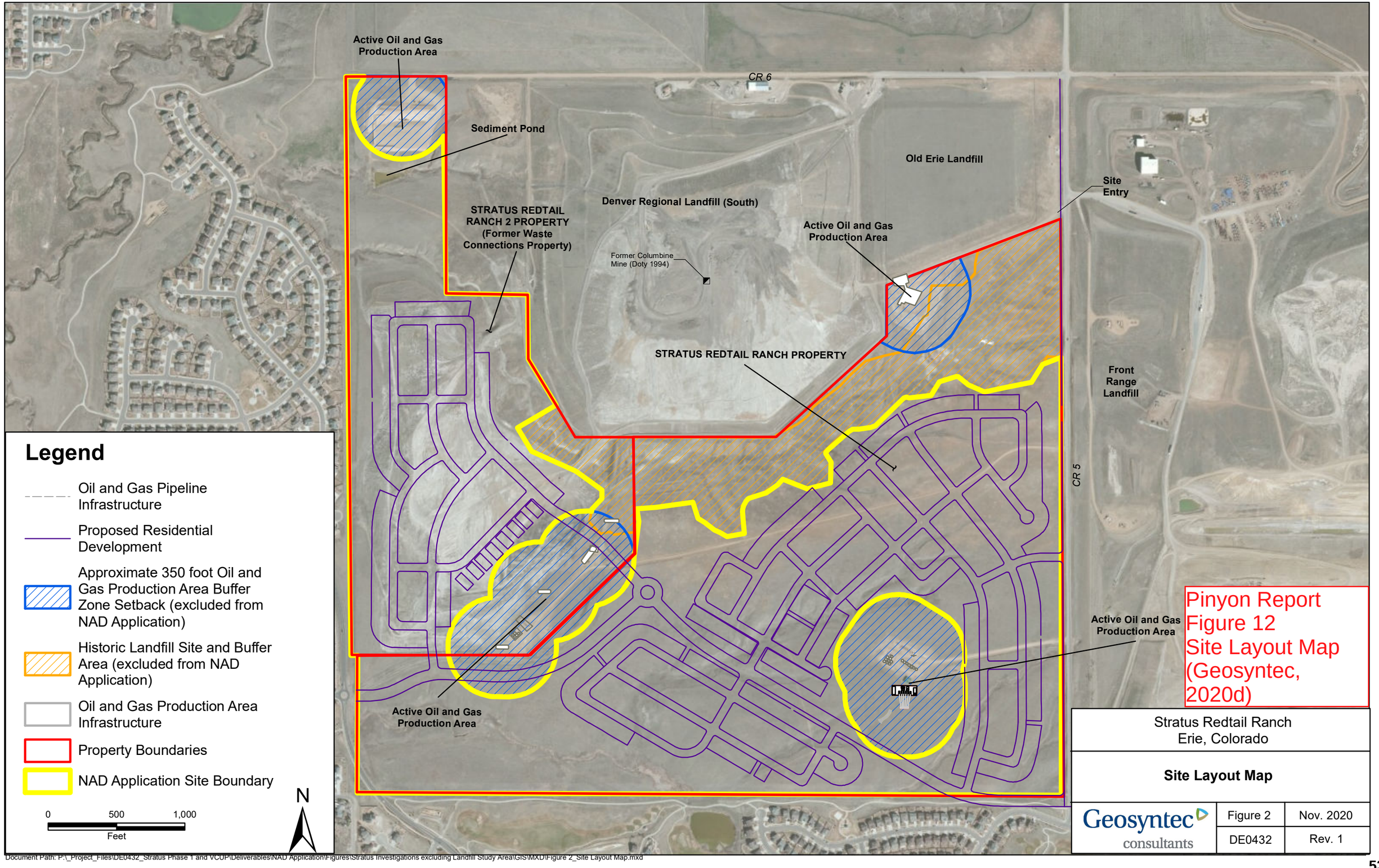


Pinyon Report
Figure 10
Post-Closure Soil Gas Monitoring Locations
(Geosyntec, 2020b)

Historic Landfill Site Erie, Colorado		
Post-Closure Monitoring and Maintenance Plan		
Soil Gas Monitoring Locations		
Geosyntec consultants	Figure 5-3	May 2020
	DE0344	Rev. 1

Document Path: P:\Users\DanHeidenreich\DRH_work\GIS\DE0302_Stratus\2020\202004\PCMM Figures\mxd\Fig5-3_Proposed Soil Gas Mon Location Map.mxd


CR 6
TMW-3
STRATUS REDTAIL RANCH 2 PROPERTY (Former Waste Connections Property)
Denver Regional Landfill (South)
Old Erie Landfill
Site Entry
Former Columbine Mine (Doty 1994)
Oil and Gas Wells (Active)
WCMW-25
MW-4
STRATUS REDTAIL RANCH PROPERTY
MW-19
Front Range Landfill
MW-8
MW-22
MW-3B
CR 5
TMW-2
TMW-1
Oil and Gas Drill Pads (Active)
MW-1A & MW-1B
Legend
Residential Home Perimeter
Soil Vapor Sample Location (locations approximate)
Historic Landfill Site and Buffer Area
Stratus 1 & Stratus 2 Property Boundaries
Development Area Boundary
0
500
1,000
Feet
N
Pinyon Report
Figure 11
Soil Vapor Sampling Locations
(Geosyntec, 2020c)
Historic Landfill Site
Erie, Colorado
Soil Vapor Sampling Locations
Combined Stratus 1 and 2 Properties
Geosyntec consultants
Figure 1
Nov. 2020
DE0344



Pinyon Report
Figure 12
Site Layout Map
(Geosyntec, 2020d)

Stratus Redtail Ranch Erie, Colorado		
Site Layout Map		
Geosyntec consultants	Figure 2	Nov. 2020
	DE0432	Rev. 1

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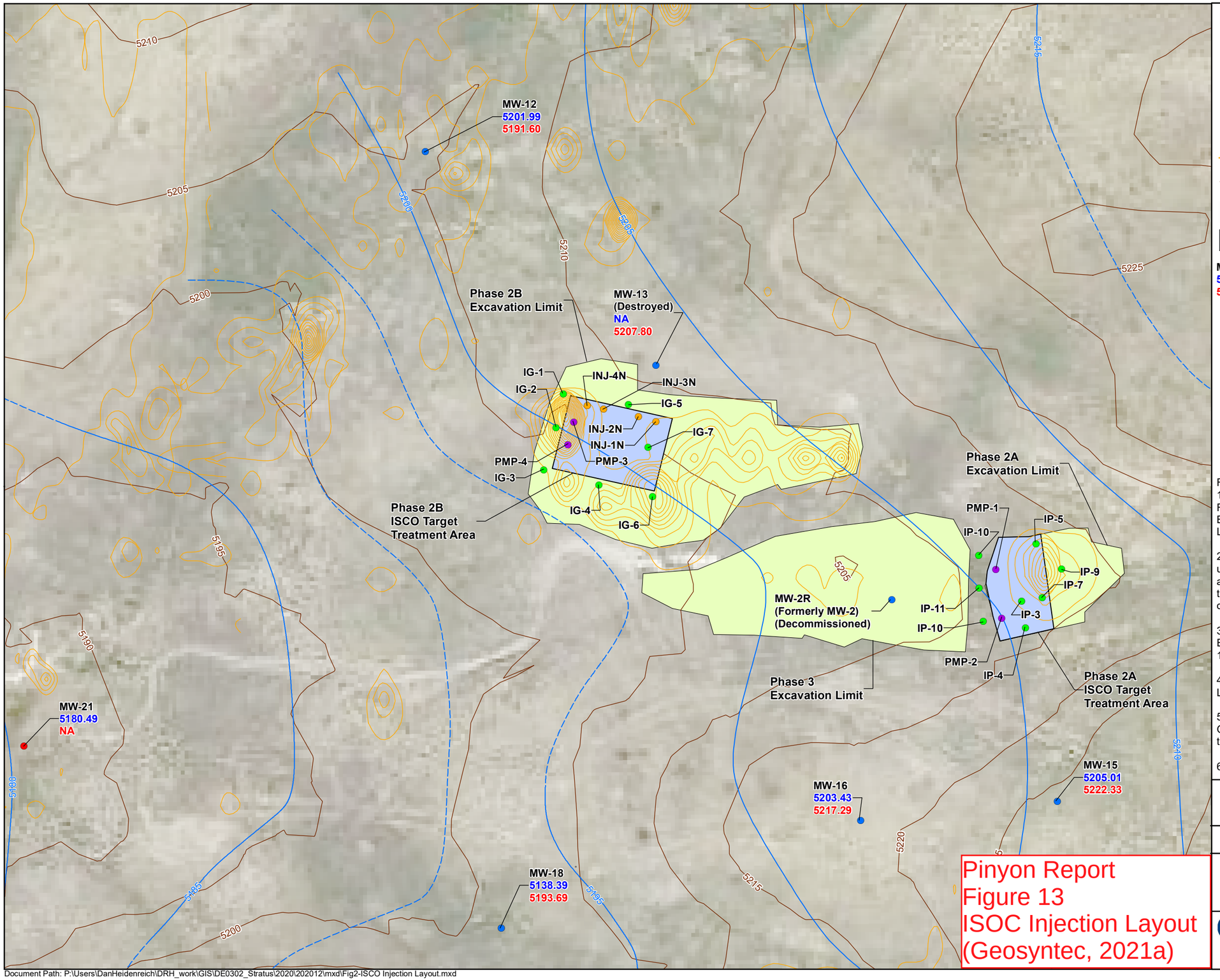

Legend

- SEC Monitoring Well Location
- Geosyntec Shallow Monitoring Well Location
- Temporary Performance Monitoring Point
- Direct Push Injection Point
- Injection Gallery Injection Point
- Electromagnetic Survey Contours
- Existing Surface Contours
- EPA AOC Drum Removal Excavation Limits
- ISCO Target Treatment Area
- MW-16 / 5203.43 / 5217.29 — Groundwater Monitoring Well along with Groundwater Elevation (blue - ft amsl) and Bedrock Elevation (red - ft amsl)
- Groundwater Elevation Contour (ft amsl); Dashed where inferred

N

0 20 40
Feet

References:

1. Quest and SEC monitoring well locations were obtained from Figure 2-1 titles “Red Tail Ranch Figure 2-1 Well Locations & Test Borings/Pits” developed by Stewart Environmental Consultants (SEC), LLC, dated January 2018. Locations are approximate.

2. EPA AOC Drum Removal Excavation Limits were obtained using hand-held GPS tracking equipment between November 2017 and April 2018 by Geosyntec Consultants. Vertical information for these locations obtained from the GPS equipment shown on these drawings refers to the World Geodetic System 1984 (WGS84).

3. Electromagnetic (EM) Survey Contours were generated based on EM surveys performed between 11 July and 13 July 2017, and on 1 December 2017 by National GPR Services.

4. Topography provided by Stewart Environmental Consultants SEC), LLC. Projection in NAD 1983 State Plane Colorado North U.S. Feet.

5. Groundwater contours are interpreted by Geosyntec based on Groundwater elevation data obtained on 12 November 2018 during the corrective measures work plan field investigation.

6. Aerial photograph was obtained from Google Earth 2017.

Historic Landfill Site
Erie, Colorado

ISCO Implementation Report

ISCO Injection Layout

Pinyon Report
Figure 13
ISOC Injection Layout
(Geosyntec, 2021a)

Geosyntec consultants	Figure 2	Feb 2021
	DE0344	Rev. 0

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Threatened & Endangered Species, Habitat & Wetlands Report
and
Native & Specimen Tree & Vegetation Survey & Protection Plan

Redtail Ranch Filing No. 1
Erie, Colorado

November 15, 2019

Prepared for:

Stratus Redtail Ranch, LLC
1842 Montane Drive East
Golden, CO 80401

Prepared by:

1455 Washburn Street
Erie, Colorado 80516
(p): 970-812-3267

Project Number: 2019-5-1

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 PURPOSE 1
1.2 PROJECT DESCRIPTION AND SITE LOCATION 1
2.0 METHODOLOGY 4
3.0 EXISTING HABITAT 5
3.1 UPLAND HABITAT 5
3.2 RIPARIAN AND WETLAND HABITAT 7
3.2 NATIVE AND SPECIMEN TREES 10
4.0 FLOODPLAINS, WATERS OF THE US INCLUDING WETLANDS 13
5.0 STATE AND FEDERAL LISTED SPECIES 15
6.0 RAPTORS AND MIGRATORY BIRDS 20
7.0 SIGNIFICANT WILDLIFE HABITAT AND CORRIDORS 20
8.0 ARCHAEOLOGICAL & HISTORICAL & RESOURCES 21
9.0 REGULATORY RECOMMENDATIONS 23
9.1 CLEAN WATER ACT 23
9.2 ENDANGERED SPECIES ACT 23
9.3 MIGRATORY BIRD TREATY ACT & BALD AND GOLDEN EAGLE PROTECTION ACT 24
10.0 REFERENCES 25

LIST OF FIGURES

FIGURE 1 - USGS SITE LOCATION MAP..... 2
FIGURE 2 - EXISTING CONDITIONS AERIAL PHOTO 3
FIGURE 3 - VEGETATION MAP 9
FIGURE 4 - NATIVE & SPECIMEN TREE MAP 12
FIGURE 5 - WETLAND AND WATER BODIES MAP..... 14
Figure 6 - SIGNIFICANT WILDLIFE HABITAT & CORRIDORS MAP..... 21

LIST OF APPENDICES

APPENDIX A – ALPINE ECOLOGICAL RESOURCES WETLAND REPORT & USACE APPROVED JURISDICTIONAL DETERMINATION

APPENDIX B – USFWS IPAC TRUST RESOURCES REPORT

APPENDIX C – PHOTO LOCATION MAP & SITE PHOTOGRAPHS

APPENDIX D – OFFICE OF ARCHAEOLOGY & HISTORIC PRESERVATION LETTER

APPENDIX E – PROFESSIONAL QUALIFICATIONS

LIST OF ACROYNMS AND ABBREVIATIONS

AMSL	above mean sea level
BGEPA	Bald and Golden Eagle Protection Act
CDA	Colorado Department of Agriculture
CNHP	Colorado Natural Heritage Program
COGCC	Colorado Oil and Gas Conservation Commission
CPW	Colorado Parks and Wildlife
CWA	Clean Water Act
Ecos or ecos	Ecosystem Services, LLC
JD	Jurisdictional Determination under the Clean Water Act
MBTA	Migratory Bird Treaty Act
Non-JD	Non-Jurisdictional Determination under the Clean Water Act
OHWM	Ordinary High Water Mark
PMJM	Preble's meadow jumping mouse
Site	Redtail Ranch Filing No. 1
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Ecosystem Services, LLC (Ecos or ecos) was retained by Stratus Redtail Ranch, LLC (Stratus) to provide environmental support services for Redtail Ranch Filing No. 1 (Project) (Site). This Threatened & Endangered Species, Habitat & Wetlands Report and Native & Specimen Tree & Vegetation Survey & Protection Plan (Report) has been prepared for the Preliminary Plat review process per Town of Erie (Erie) requirements.

The contact information for the Stratus Redtail Ranch, LLC and ecos representatives for this Report is provided below:

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1455 Washburn Street
Erie, Colorado 80516
Phone: (970) 812-6167
grant@ecologicalbenefits.com

1.1 Purpose

The purpose of this Report is to identify and document the natural resources, ecological characteristics and existing conditions of the Site; identify potential ecological impacts associated with Site development; identify potential archaeological resources; and provide current regulatory guidance related to potential development-related impacts to natural resources. This Report and associated mapping do not represent a formal presence/absence survey for threatened and endangered species and therefore are not suitable for regulatory submission to the United States Fish and Wildlife Service (USFWS). The wetland and waters boundary delineation and report referenced herein is suitable for regulatory submission to the US Army Corps of Engineers (USACE) to support a 404 Permit application, if necessary. The specific resources addressed in this Report are per the Town of Erie Development Design Standards, Chapter 6, Section 10.6.2 Natural and Scenic Resource Protection.

1.2 Project Description and Site Location

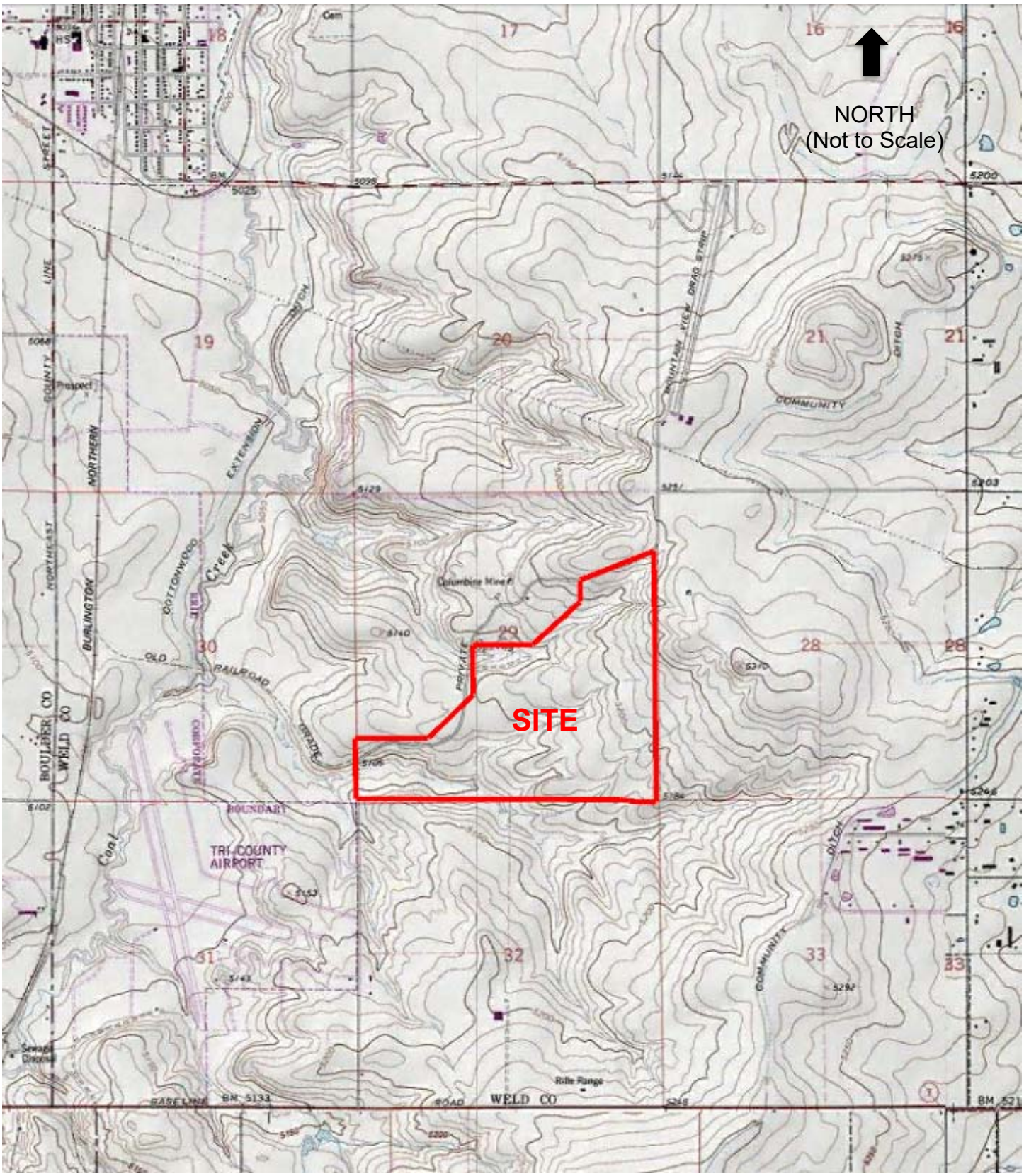
The Applicant proposes to develop the Redtail Ranch Filing No. 1 as a planned residential community with associated infrastructure including roads, trails, stormwater management, and open space. The Project is described and plans are illustrated in greater detail in the development application.

The 295-acre Site is in the Town of Erie, Boulder County, Colorado. The Site is located within Section 29, Township 1 North, Range 68 West. Please refer to Figure 1, USGS Site Location Map and Figure 2, Existing Conditions Aerial Photo for location and general site conditions. The longitude and latitude of the Site at its center are 105.025000° west and 40.019275° north.

The Site is located in the Town of Erie northwest of the intersection of Weld County Roads 4 and 5 (Figure 2). The Site is bordered to the north by the Denver Regional Landfill; the east by Weld County Road 5 and the Front Range Landfill; the south by Vista Ridge neighborhood/Colorado National Golf Club; and the west by the Vista Point neighborhood. Vista Parkway abuts the southwest corner of the Site.

Figure 1

USGS SITE LOCATION MAP



USGS 7.5 min. Quad: Erie
Latitude: 40.019275°N Longitude: -105.025000°W

Figure 2

EXISTING CONDITIONS AERIAL PHOTO

SOURCE: Google Earth Aerial Image, 5/31/18

Figure 2 EXISTING CONDITIONS AERIAL PHO

2.0 METHODOLOGY

Ecos performed an office assessment in which available databases, resources, literature and field guides on local flora and fauna were reviewed to gather background information on the environmental setting of the Site. We consulted several organizations, previous studies, agencies and their databases, including but not limited to:

- Town of Erie UDC, Chapter 6, Section 10.6.2 Natural and Scenic Resource Protection;
- Town of Erie Planning & Development Department;
- Town of Erie Natural Areas Inventory
- USFWS Information for Planning and Consultation (IPaC);
- Colorado Parks Division of and Wildlife (CPW) wildlife corridors and habitat mapping;
- U.S. Geological Survey (USGS) Topographic Quadrangles;
- Natural Resource Conservation Service (NRCS) soil maps;
- USFWS National Wetland Inventory (NWI) maps;
- Colorado Natural Heritage Program (CNHP) wetland and riparian habitat mapping;
- Colorado Oil and Gas Conservation Commission (COGCC) raptor data;
- USDA PLANTS Database
- Wetland Report prepared by Alpine Ecological Resources, LLC;
- Approved Jurisdictional Determination for Redtail Ranch (USACE File No. NOW-2015-00393-DEN);
- Initial Site Assessment (ISA) Report, Pratt Well Pad Site prepared by Ecosystem Services, LLC
- Google Earth aerial imagery

The above data were used to create a preliminary natural resources map including vegetation communities, trees, prairie dog colonies, known raptor nests, wetlands, drainages, and ditches. The preliminary mapping was printed on aerial photographs and downloaded to a mobile phone GPS application for field proofing.

The Site was visited on October 25, 2019. Field reconnaissance concentrated on identifying major vegetation communities, including species composition and habitat suitability for nesting birds and threatened and endangered species. Open water, drainages, and wetland features were verified in the field utilizing wetland delineation data and mapping prepared previously by Alpine Ecological Resources and a U.S. Army Corps of Engineers (USACE) Approved Jurisdictional Determination of Waters of the United States. Representative photographs were taken throughout the Site to assist in documenting existing conditions.

Per the Town of Erie requirements for “Native and Specimen Tree and Vegetation Protection”, all trees within potential impact areas were assessed to determine the species and condition. An inventory of trees on or immediately adjacent to the Site that could be impacted by site development are described in Section 3.3 below.

3.0 EXISTING HABITAT

3.1 Upland Habitat

Historically, short- and mixed-grass prairie were the dominant habitat types on Colorado's eastern plains, and the Town of Erie. Historic uses of the Site (i.e., prior to establishment of the adjacent landfill and current well pads) likely included non-crop land, rangeland for livestock grazing, as well as native wildlife habitat.

The Erie Natural Areas Inventory (Town of Erie 2007) and the NRCS soils data (NRCS 2013) provide a comprehensive list of plant species that have been documented or are likely to be present on the Site or occur within 0.25 miles of the Site:

Common Name	**Scientific Name**
alyssum	*Alyssum spp*.
silver sagebrush	*Artemisia cana*
big sagebrush	*Artemisia tridentate*
*kochia	*Bassia sieversiana* (*Kochia sieversiana)*
buffalograss	*Bouteloua dactyloides*
blue grama	*Bouteloua gracilis* (*Chondrosum gracile)*
*Canada thistle	*Breea arvensis* (*Cirsium arvense*)
*cheatgrass	*Bromus tectorum*
*musk thistle	*Carduus nutans*
*lambsquarters	*Chenopodium album*
*goosefoot	*Chenopodium rubrum*
rabbitbrush	*Chrysothamnus nauseosa*
*field bindweed	*Convolvulus arvensis*
needle and thread	*Hesperostipa comata*
prairie Junegrass	*Koeleria macrantha*
*prickly lettuce	*Lactuca serriola*
alfalfa	*Medicago sativa*
western wheatgrass	*Pascopyrum smithii*
Plains cottonwood	*Populus deltoides*
bluebunch wheatgrass	*Pseudoroegneria spicata*
*curly dock	*Rumex crispus*
coyote willow	*Salix exigua*
*Russian thistle (tumbleweed)	*Salsola australis*
bulrush	*Schoenoplectus spp*.
tall tumble mustard	*Sisymbrium altissimum*
common wheat	*Triticum aestivum*
narrowleaf cattail	*Typha angustifolia*
broad-leaf cattail	*Typha latifolia*

Upland vegetation communities/land cover types observed on the Site include:

Bare Ground (BG) = BG consists of roads and oil and gas well pads and work areas covering approximately 10.5 acres out of a total of 295 acres (3.5%). These areas are not vegetated.

Xeric Midgrass Prairie (XMP): XMP is the largest plant community on the Site covering approximately 264.61 acres out of a total of 295 acres (89.7%). XMP has dry (xeric) soil conditions supporting semi-native midgrass prairie species listed below. XMP has been affected by persistent human disturbance and heavy prairie dog use in the northern 2/3^{rds} of the Site and is therefore weedy and in poor condition. XMP quality and cover is fair in non-prairie dog areas in the southern 1/3rd of the Site with occasional patches of weeds. Portions of XMP have recently been disturbed and reclaimed following installation of oil and gas pipelines and facilities.

Common Name	**Scientific Name**
alyssum	*Alyssum spp*.
oats	*Avena sp.*
Crested wheatgrass	*Agropyron cristatum*
*kochia	*Bassia sieversiana* (*Kochia sieversiana)*
blue grama	*Bouteloua gracilis* (*Chondrosum gracile)*
sideoats grama	*Bouteloua curtipendula*
*mustard	*Brassica spp.*
*Canada thistle	*Breea arvensis* (*Cirsium arvense*)
smooth brome	*Bromus inermis*
*cheatgrass	*Bromus tectorum*
*musk thistle	*Carduus nutans*
*field bindweed	*Convolvulus arvensis*
slender wheatgrass	*Elymus trachycaulus*
common sunflower	*Helianthus annuus*
*prickly lettuce	*Lactuca serriola*
sweetclover	*Melilotus spp.*
Plains pricklypear	*Opuntia polycantha*
western wheatgrass	*Pascopyrum smithii*
bluebunch wheatgrass	*Pseudoroegneria spicata*
*curly dock	*Rumex crispus*
rye	*Secale sp.*
*tall tumble mustard	*Sisymbrium altissimum*
*field pennycress	*Thlaspi arvense*
yucca	Y*ucca glauca*

Note: * indicates noxious, invasive and/or common weeds.

Figure 3, Vegetation Map illustrates the major upland vegetation communities listed above.

The recommended upland seed mix for the restoration of open space on the Site is based on the plant species present on the Site, within the region, as well as the NRCS soil data. Erie has recommended native seed mixes in their Standard Specifications for Design and Construction of Public Improvements, Section 1000 - Parks and Recreation Construction (Town of Erie 2013a) that are also applicable. The mixture included below is intended for seeding of open space and roadsides. It is an adaptable mix of short- to mid-grass native and introduced warm and cool season grasses. Agronomic soil testing should be performed in all restoration areas to assess the need for soil amendments prior to seeding. This mixture should be applied as a dormant seeding between October 30th and April 30th:

COMMON NAME	**SCIENTIFIC NAME**	**VARIETY**	**PLS LBS/ACRE**
Western wheatgrass	*Pascopyrum smithii*	Arriba, Oahe or Rosana	7.0
Crested wheatgrass	*Agropyron cristatum*	Ephriam	4.0
Streambank wheatgrass	*Elymus lanceolatus*	Sodar	4.0
Sideoats grama	*Bouteloua gracilis*	Butte, Niner or El Reno	2.0
Blue grama	*Bouteloua gracilis*	Lovington, Alma, Native or Hachita	5.0
Buffalograss	*Buchloe dactyloides*	Native, Bison or Texoka	3.0
Sand dropseed	*Sporobolus cryptandrus*	Common	1.0
Prairie Junegrass	*Loeleria macrantha*	Common	3.0
Hard Fescue	*Festuca brevipila*	'Durar'	3.0
SEEDING RATE POUNDS PLS/ACRE			**32.0**

3.2 Riparian and Wetland Habitat

Riparian habitat typically consists of trees and shrubs and more robust herbaceous vegetation associated with surface and ground water in or adjacent to natural drainages. Within short grass prairie ecosystems, riparian habitat increases the overall diversity of vegetation and provides valuable wildlife habitat and movement corridors for species to navigate the landscape. High bird diversity is correlated with the structural diversity provided by varied sizes of trees and shrubs. Some shrubs species provide berries for birds and mammals. Dead trees provide roosting and nesting sites for raptors and dens for terrestrial mammals such as raccoons.

Riparian vegetation communities/land cover types observed on the Site include:

Mesic Midgrass Prairie (MMP): MMP is the second largest plant community on the Site covering approximately 16.47 AC out of a total of 295 acres (5.6%). MMP along natural channels and ravines closely approximates riparian habitat on this Site but is dominated by grassland versus trees and shrubs, and grassland found along major perennial creeks and rivers.

MMP is characterized by moist (mesic) soil conditions that support semi-native midgrass prairie species (listed above) but is more robust due to greater soil moisture. Like XMP, MMP has been affected by persistent human disturbance and prairie dog use within the northern ephemeral channel. MMP quality and cover is fair to good in non-prairie dog areas along the southern channel and its ephemeral tributaries. MMP contains occasional patches of weeds that are more robust due to greater soil moisture.

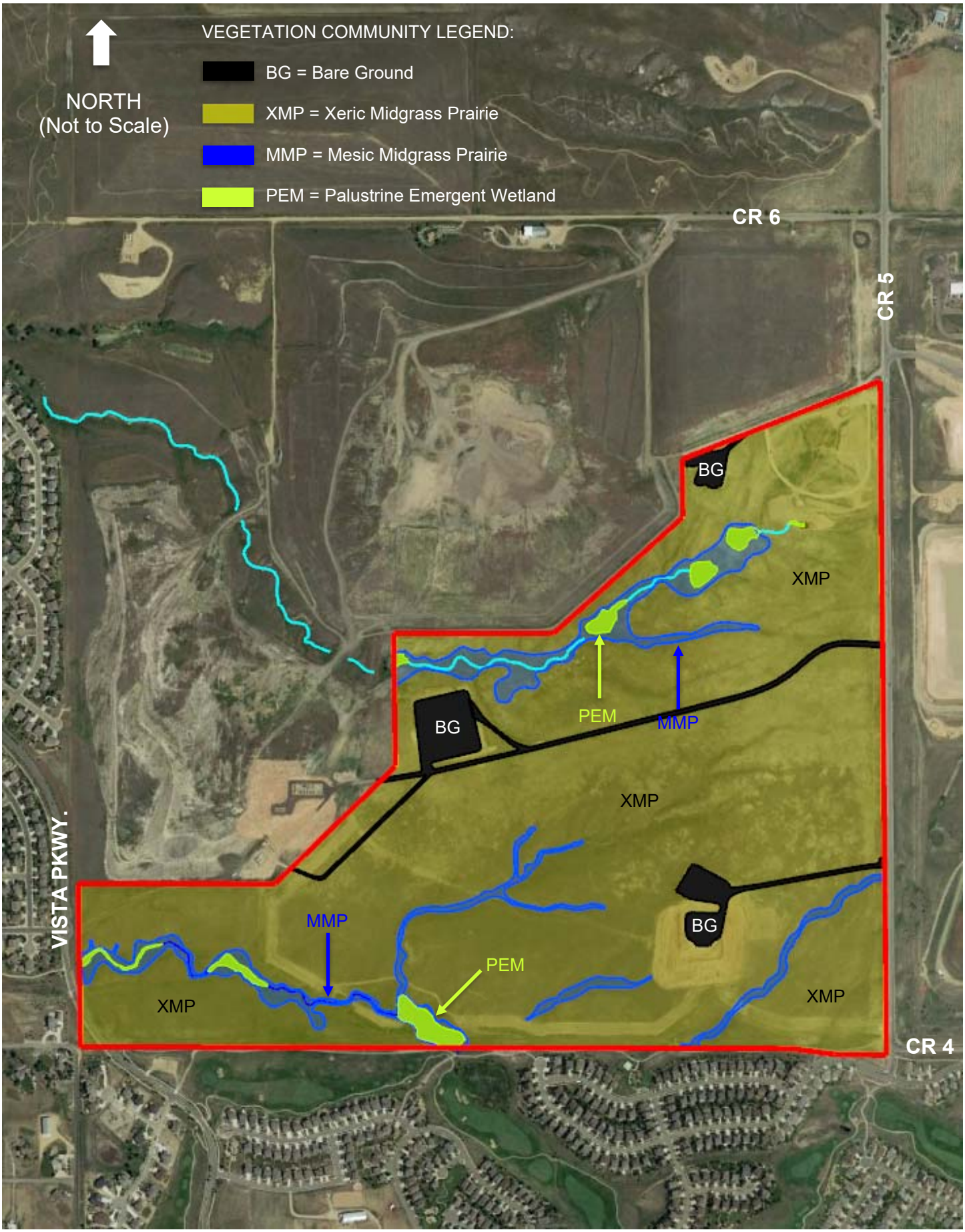
Palustrine Emergent Wetland (PEM): PEM occupies approximately 3.57 acres out of a total of 295 acres (1.2%). Out of the total, PEM in remnant stock ponds along the northern ephemeral channel consists of 1.62 acres of poor quality herbaceous wetland plants and 1.95 acres of wetland patches along the southern intermittent channel.

Wetland Vegetation is further described in the Wetland Report prepared by Alpine Ecological Resources, LLC provided in Appendix A.

Figure 3, Vegetation Map illustrates the major riparian and wetland vegetation communities noted above. Representative photos of the Site are provided in Appendix C including a photo location map.

Figure 3

VEGETATION MAP



SOURCE: Google Earth Aerial Image, 5/31/18

3.2 Native and Specimen Trees

The current Stratus development plan does not propose impacts to any existing trees on the Site. However, if plans change, all native and specimen trees were inventoried as described below, including those that are under 4-inches diameter at breast height (DBH) such that a Native and Specimen Tree Protection Plan may be prepared. Existing trees are illustrated on Figure 4, Native and Specimen Tree Map.

A total of 4 individual riparian trees (single stem and multi-stem) exist immediately off site in the lower reach of the northern ephemeral drainage immediately adjacent to the western Site boundary:

- SAL FRA – Salix fragilis (crack willow): 2” Multi-stem
- SAL FRA – Salix fragilis (crack willow): 2” Multi-stem
- SAL FRA – Salix fragilis (crack willow): 6” Multi-stem
- POP DEL – Populus deltoides (plains cottonwood): 9” Multi-stem

Two (2) dead trees exist in the upper reach of the northern ephemeral drainage adjacent to a remnant stock pond. Dead trees are potential habitat for cavity nesting birds. These trees should be checked for cavities and birds prior to removal.

A total of 9 individual riparian trees (single stem and multi-stem) exist adjacent to the southern, intermittent drainage:

- SAL FRA – Salix fragilis (crack willow): 6” Multi-stem
- ELA ANG – Elaeagnus angustifolia (Russian olive): 2”
- ELA ANG – Elaeagnus angustifolia (Russian olive): 2”
- SAL FRA – Salix fragilis (crack willow): 6” Multi-stem
- SAL FRA – Salix fragilis (crack willow): 4” Multi-stem
- SAL FRA – Salix fragilis (crack willow): 4” Multi-stem
- POP DEL – Populus deltoides (plains cottonwood): 6” Multi-stem
- SAL FRA – Salix fragilis (crack willow): 3” Multi-stem
- FRA PEN – Fraxinus pennsylvanica (green ash): 3”
- POP DEL – Populus deltoides (plains cottonwood): 9”

A total of 7 individual specimen trees (single stem) exist along the eastern side of Vista Parkway adjacent to the western edge of the Site just south of the Parkdale Circle round-about:

- MAL SN – Malus Spring Snow’ (spring snow crabapple): 3”
- QUE SPP – Quercus species (oak species): 2”
- QUE SPP – Quercus species (oak species): 2”
- ALM AME – Ulmus Americana (American elm): 3”
- AES GLA – Aesculus glabra (Ohio buckeye): 1”
- GLE TRI – Gleditsia tricanthos (Honeylocust): 2”
- MAL SN – Malus Spring Snow’ (spring snow crabapple): 3”

A total of 5 individual specimen trees (single stem) exist along the western side of Vista Parkway within the southwestern corner of the site:

- MAL SN – Malus Spring Snow’ (spring snow crabapple): 2”

- FRA PEN – Fraxinus pennsylvanica (green ash): 3”
- FRA PEN – Fraxinus pennsylvanica (green ash): 6”
- FRA PEN – Fraxinus pennsylvanica (green ash): 4”
- CAT SPE – Catalpa speciose (Catalpa): 2”

Figure 4

NATIVE & SPECIMEN TREE MAP

SOURCE: Google Earth Aerial Image, 5/31/18

SOURCE: Google Earth Aerial Image, 5/31/18

4.0 FLOODPLAINS, WATERS OF THE US INCLUDING WETLANDS

An unnamed ephemeral drainage with remnant stock ponds runs east to west along the north edge of the Site, herein referred to as the northern ephemeral drainage. This drainage runs into future Redtail Ranch Filing #2 in a northwesterly direction toward Coal Creek. An intermittent drainage with patches of emergent wetland runs east to west along the southwestern edge of the site beginning in Vista Ridge and exiting under a major culvert under Vista Parkway. This drainage is herein referred to as the southern intermittent drainage. Numerous ephemeral tributaries/upland ravines run into both of these drainages. Please refer to Figure 5, Wetland and Waterbodies Map.

Waters of the United States (WOUS) and wetlands are described in detail in the attached Wetland Report prepared by Alpine Ecological Resources, LLC provided in Appendix A. Ecos agrees with the data provided in this report and therefore it is incorporated herein by reference.

The USACE provided an Approved Jurisdictional Determination for Redtail Ranch (USACE File No. NOW-2015-00393-DEN) on May 11, 2015 whereby the northern ephemeral drainage was deemed non-jurisdictional. The southern intermittent drainage was deemed jurisdictional and subject to regulation under the Clean Water Act (CWA). Please refer to Appendix A. Jurisdictional Determinations (JDs) are legally valid for a period of 5 years. Stratus has requested that the USACE extend the JD for an additional 5 years.

Coal Creek is the only drainage within the vicinity of the Site that includes a FEMA mapped 100-year floodplain. The intermittent and ephemeral drainages on Site are not identified and mapped by FEMA.

Stratus development plans do not currently propose impacts to any jurisdictional waters or wetlands. If during the course of site design unavoidable impacts are found to be necessary along jurisdictional waters to install roads, trails, or utilities, Stratus will obtain a Section 404 permit.

Stratus will impact non-jurisdictional wetlands and waters in the northern ephemeral drainage to conduct necessary landfill remediation, create stormwater detention/water quality facilities, and enhance open space. This northern ephemeral drainage is of very poor quality, is not jurisdictional, not regulated under the Clean Water Act and therefore no Section 404 permit is required.

Figure 5

WETLAND AND WATER BODIES MAP

Source: Alpine Ecological Jurisdictional Delineation, May 2015

5.0 STATE AND FEDERAL LISTED SPECIES

A number of species that occur in Weld County are listed as candidate, threatened or endangered by the USFWS (USFWS 2019a) and the CPW (CPW, 2019). Ecos compiled the special status species for the Site in Table 1 below based on the data sources listed above, as well as our onsite assessment. Table 1 includes all species listed by the USFWS Information for Planning on Consultation (IPAC) database provided in Appendix B. The results of the IPAC database search covers all of Weld County. Some species are included which are not expected to occur on the Site. Additional state-listed animal species are included if there is potential for them to be impacted by the Project. Ecos has provided our professional opinion regarding the probability that these species may occur within the Site and their probability of being impacted by the Project.

The likelihood that the Project would impact any federally-listed species is none to very low. Most are not expected occur in the Project area and no downstream impacts to the North Platte, South Platte and Laramie River Basins would occur. There is low to moderate potential for impacts to some State-listed species. However, there are no state-level regulatory protections for these species.

TABLE 1 - STATE AND FEDERAL PROTECTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT

Species	Status	Habitat Requirements and Potential Presence	Probability of Impact by Project
FISH			
Pallid sturgeon (*Scaphirhynchus albus*)	Federal: Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. The Site is not within species range; and the proposed project will not alter or deplete flows to the relevant river basins.
REPTILES AND AMPHIBIANS			

TABLE 1 - STATE AND FEDERAL PROTECTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT			
Species	**Status**	**Habitat Requirements and Potential Presence**	**Probability of Impact by Project**
Common garter snake (*Thamnophis sirtalis*)	State: Special Concern	Occupy most wetland habitats during the summer. Hibernate during the winter in a variety of habitats. Moderate potential to occur along the margins of the unnamed tributary to Coal Creek that flows along the southern edge of the Site.	Moderate. The best summer habitat will not be directly impacted. Lower quality habitat and upland buffer areas will be impacted. Development will increase the residence time of water but could reduce water quality.
BIRDS			
Least tern (*Sternula antillarum*)	Federal: Endangered State: Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. Does not occur on Site; and the proposed project will not alter or deplete flows to the relevant river basins.
Mexican spotted owl (*Strix occidentalis lucida*)	Federal: Threatened State: Threatened	Mature, old-growth forests of white pine, Douglas fir, and ponderosa pine; steep slopes and canyons with rocky cliffs.	None. Suitable, montane habitat is not present on Site.

TABLE 1 - STATE AND FEDERAL PROTECTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT			
Species	**Status**	**Habitat Requirements and Potential Presence**	**Probability of Impact by Project**
Piping plover (*Charadrius melodus*)	Federal: Threatened State: Threatened	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. Does not occur on Site; and the proposed project will not alter or deplete flows to the relevant river basins.
Western burrowing owl (*Athene cunicularia*)	State: Threatened	Occurs in grasslands in, or near, prairie dog towns. Typically found farther east in areas with minimal human presence.	Moderate. Numerous prairied dog burrows are present within the Site which provide potential habitat.
Whooping crane (*Grus americana*)	Federal: Endangered State: Endangered	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.	None. Does not occur on Site; and the proposed project will not alter or deplete flows to the relevant river basins.
MAMMALS			

TABLE 1 - STATE AND FEDERAL PROTECTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT			
Species	**Status**	**Habitat Requirements and Potential Presence**	**Probability of Impact by Project**
Black-tailed prairie dog (*Cynomys ludovicianus*)	State: Special Concern	Form large colonies or "towns" in shortgrass or mixed prairie. This species occurs on Site.	High. The existing burrows are adjacent to and within the proposed limits of disturbance. Development will eradicate & reduce the options for natural dispersal.
Preble's meadow jumping mouse (*Zapus hudsonius preblei*)	Federal: Threatened State: Threatened	Inhabits well-developed riparian habitat with adjacent, relatively undisturbed grassland communities, and a nearby water source. Well-developed riparian habitat includes a dense combination of grasses, forbs and shrubs; a taller shrub and tree canopy may be present. Has been found to regularly use uplands at least as far out as 100 meters beyond the 100-year floodplain.	Very low. The closest potentially occupied habitat is 8 miles southwest of the Site; and the closest USFWS designated critical habitat is 9.5 miles southwest of the Site. Additionally, all USFWS trapping data within a 6-mile radius of the Site indicate “Trapped Not Found”, therefore it is not expected to occur.

TABLE 1 - STATE AND FEDERAL PROTECTED SPECIES POTENTIALLY IMPACTED BY THE PROJECT			
Species	**Status**	**Habitat Requirements and Potential Presence**	**Probability of Impact by Project**
PLANTS			
Colorado butterfly plant (*Oenothera coloradensis*)	Federal: Recently Delisted (published11/5/19 at 84 FR 59570, effective 12/5/19)	Typically occur in flat, sunny areas within the transitional hydrologic zone between wetlands and uplands.	None. Only known from one location in Colorado, therefore not expected to occur on Site. This species was recently delisted under the ESA
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Federal: Threatened	Primarily occurs along seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels or valleys, and lakeshores. May also occur along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside borrow pits, reservoirs, and other human-modified wetlands. Prefers open habitats with generally low vegetation.	None. Suitable habitat does not occur on Site.
Western prairie fringed orchid (*Platanthera praeclara*)	Federal: Threatened	Occurs in tallgrass prairie in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and Oklahoma. Upstream depletions to the Platte River system in Colorado and Wyoming may affect the species in Nebraska. Site is not within species range.	None. Site is not within species range; and the proposed project will not alter or deplete flows to the relevant river basins.

6.0 RAPTORS AND MIGRATORY BIRDS

Raptors and most birds are protected by the Colorado Nongame Wildlife Regulations, as well as by the federal Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). The COGCC GIS database did not show any active raptor nests within one mile of the Site.

Any tree, shrub, patch of shrubs, undisturbed grassland, or prairie dog colony on or adjacent to the site can provide potential nesting habitat for resident or migratory raptors or songbirds. Riparian and wetland habitat along channels and occasional trees therein can provide valuable nesting habitat for resident and migrating songbirds and waterfowl.

Suitable habitat for ground nesting birds is present on Site in undisturbed grassland areas. Prairie dog colonies on Site that cover approximately 152.75 acres of the Site (52%) provide suitable habitat for burrowing owl and abundant prey for transient eagles and raptors. Great horned owl were observed perching in cottonwood trees at the downstream end of the northern drainage. However, no raptor or songbird nests were observed on the Site during the inspection.

The development plan being prepared by Stratus will preserve existing trees and a grassland buffer along the main threads of the northern and southern drainages. In addition, native tree and shrub planting and grassland restoration and management in proposed open space will improve the health of potential habitat for raptors and songbirds. Increased runoff captured and detained in stormwater detention ponds and released downstream will improve the vitality of riparian habitat along the channels on site as well as downstream areas.

Please refer to Figure 4, Native and Specimen Tree Map for locations of trees that may provide potential habitat for raptors and migratory birds.

7.0 SIGNIFICANT WILDLIFE HABITAT AND CORRIDORS

The Town of Erie Development and Design Standards state that applicants should give priority to the preservation of significant natural features including wetlands, natural drainage ways, bodies of water, significant wildlife corridors and habitat, and sites with federally- or state-recognized endangered species.

Weedy and disturbed, midgrass prairie occupied by prairie dog is potential habitat for fox, coyotes, and burrowing owl when they migrate and temporarily reside in Colorado (roughly between May 1st and October 31st). Prairie dog colonies are also a source of abundant prey for raptors. Undisturbed grassland habitat provides habitat for ground nesting birds such as meadow lark and ferruginous hawk. The natural ephemeral and intermittent drainages running across the site provide corridors in which numerous mammals such as coyote, fox, rodents, deer and other large mammals can forage and move through the landscape and connect to other corridors such as the Coal Creek corridor to the west that allow animals to connect to the regional landscape. Riparian and wetland habitat provide good habitat for many species of wildlife and provide numerous functions, values and benefits to Erie residents.

The development plan being prepared by Stratus will preserve the lower part of the southern intermittent drainage and adjacent grassland buffer for open space and trail corridors. The northern ephemeral drainage will be improved for stormwater detention and conveyance facilities, open space and trail corridors. Some prairie dog habitat will be preserved in proposed open space adjacent to these corridors, however the majority of it will be eradicated and covered by development.

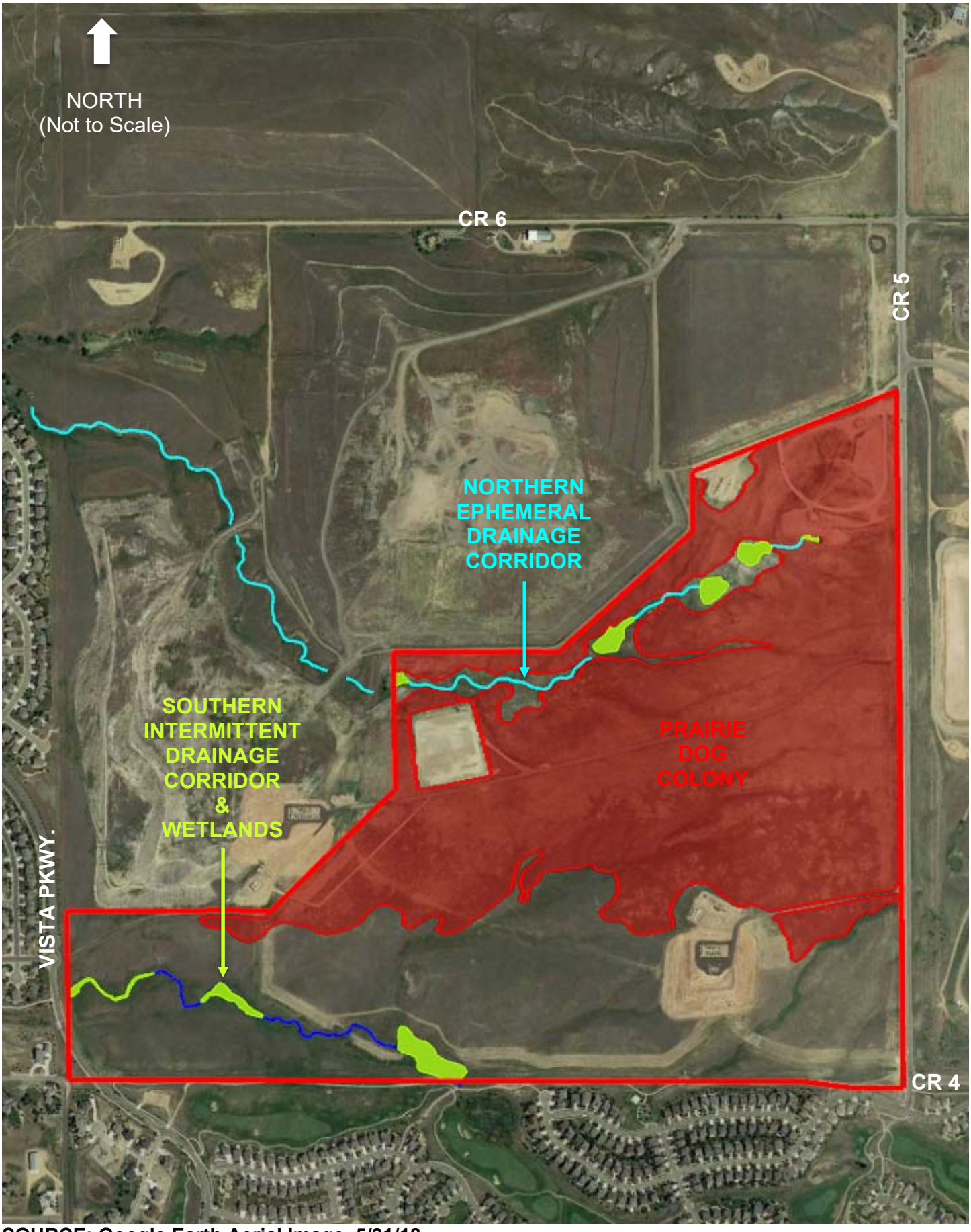
Please refer to Figure 6, Significant Wildlife Habitat and Corridors Map that illustrate the location and extent of prairie dog colonies, wetlands, natural drainage ways, and bodies of water that may be considered significant wildlife habitat and corridors.

8.0 ARCHAEOLOGICAL & HISTORICAL & RESOURCES

Ecos contacted the State of Colorado Office of Archaeology and Historic Preservation (OAHP) to conduct a file search of the Colorado Inventory of Cultural Resources. The OAHP provided a letter stating that 3 sites and 4 surveys were located and performed in Section 29, the section where the Site is located. Refer to Appendix D, Office of Archaeology and Historic Preservation (OAHP) Letter. All sites listed, including a segment of the Burlington Northern Railroad are not officially eligible for preservation. No mapping of any listed sites was provided by the OAHP.

Figure 6

SIGNIFICANT WILDLIFE HABITAT & CORRIDORS MAP



SOURCE: Google Earth Aerial Image, 5/31/18

9.0 REGULATORY RECOMMENDATIONS

9.1 Clean Water Act

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into jurisdictional waters of the U.S. (including wetland habitat) protected by the Act without a valid permit. The Alpine-Eco Wetland report and Approved Jurisdictional Determination provided by the USACE identified jurisdictional and non-jurisdictional Waters of the US, including wetlands on the Site. If the jurisdictional areas were to be impacted, then a Section 404 permit would be required, and the developer must coordinate with the U.S. Army Corps of Engineers prior to implementation of said impacts.

Clarification of Jurisdictional vs. Non-Jurisdictional Waters of the U.S.

In 2008 the USACE and U.S. Environmental Protection Agency (EPA) prepared a guidance memorandum, *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*. This memorandum provides guidance to EPA regions and USACE districts implementing the Supreme Court's decision in the consolidated Rapanos and Carabell cases which address the jurisdiction over waters of the United States under the Clean Water Act. The key points of the memorandum, which apply to the Jurisdictional Determination made by the USACE are summarized below:

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and
- Wetlands that directly abut such tributaries.

The agencies generally will not assert jurisdiction over the following features:

- Ephemeral channels, swales or erosional features (e.g., upland ravines, gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The guidance above was memorialized in 2015 via the Clean Water Rule issued by the Obama Administration. However, the Trump Administration has reviewed the 2015 Clean Water Rule and after December 23, 2019, has decided to implement pre-2015 guidance under a revised Clean Water Rule. The northern ephemeral drainage with man-made stock ponds and man-induced wetlands in the landfill cap area would still be considered non-jurisdictional. The southern, intermittent drainage proposed to be preserved in open space will likely still be jurisdictional and require a 404 permit if any impacts were proposed.

9.2 Endangered Species Act

The Site is not located within any officially designated occupied or critical habitat for federally designated threatened or endangered species, including the Preble's meadow jumping mouse; nor are any federally-listed species expected to occur on Site. However, if a Section 404 permit is required then the USACE must comply with the Endangered

Species Act. This would likely be limited to including a written summary of federally-listed species, similar to the information summarized in Table 1 above.

9.3 Migratory Bird Treaty Act & Bald and Golden Eagle Protection Act

There is good habitat for ground nesting birds, several small trees along the north and south drainages that could provide nesting and cavity habitat; and potential for burrowing owls to nest within prairie dog colonies. Impacts to native birds, including their eggs, are prohibited by the MBTA and BGEPA. In Colorado, most species of birds nest between April and August and a 50 to 100-foot buffer is usually sufficient to prevent nest abandonment. Raptors may nest much earlier and have larger CPW recommended buffers to avoid impacting nests. While no raptor nests were observed on the Site, it is possible that they could build nests immediately prior to site construction. Burrowing owl nesting restrictions begin in mid-March and have a CPW recommended buffer zone of 150 feet, as well as a recommended series of three surveys prior to construction, prairie dog eradication, or other disturbance. Please note the owls are protected under the MBTA and as such the CPW recommendations are warranted and should be implemented as necessary. If possible, initial Site clearing and grubbing should be completed between September and January, which is outside of the nesting season for all species except eagles. If construction would occur in any vegetated areas between April and August, vegetation should be mowed beginning in April and kept below six inches in height to keep birds from nesting. Ecos recommends a nesting bird inventory, including a burrowing owl survey 1 to 2 weeks prior to construction to identify any new nests or presence of burrowing owl within the Site or within the CPW recommended buffers of the Site.

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Appendix A

Alpine Ecological Resources Wetland Report

&

Approved Jurisdictional Determination

Alpine Ecological Resources, LLC

Wetland Delineation Report

330-Acre Property
Weld County, Colorado

Prepared for: Cardno ATC
October 23, 2014

Andy Herb, Ecologist/Owner
1127 Adams Street
Denver, CO 80206

Table of Contents

1.0 Introduction 2
1.1 Purpose of This Report 2
1.2 Project Description 2

2.0 Site Description 3

3.0 Methods 4
3.1 Literature Review 4
3.2 Field Data Collection 4
3.3 Mapping 5
3.4 Wetland Classification 5
3.5 Wetland Functional Assessment 5
3.6 Jurisdictional Status 5

4.0 Wetlands 7
4.1 Vegetation 7
4.2 Hydrology 11
4.3 Soils 11
4.4 Wetland Functions 12

5.0 Other Water Features 13

6.0 Literature Cited 15

List of Figures

Figure 1—Location Map
Figure 2—Wetlands (Overview and Maps 1—4)

List of Tables

Table 1 — Wetlands in the Study Area (p. 7)
Table 2 — Common Plants Found In and Near Wetlands in the Study Area (p. 9)
Table 3 — Other Water Features in the Study Area (p. 13)

List of Appendices

Appendix A — Wetland Determination Data Forms
Appendix B — Site Photographs

1.0 Introduction

1.1 Purpose of This Report

The purpose of this report is to formally document the wetlands and other water features present in the study area. The primary reason for this documentation is to assist with project planning and design, which is intended to maximize avoidance of these features wherever practicable. The wetland and other water features described in this report include all those present, not just those that may be considered jurisdictional under Section 404 of the Clean Water Act.

1.2 Project Description

The current plan is to develop the property in a way that integrates residential areas within an extensive open space, parks and trails system, and a network of public streets. The proposed uses include single-family detached front-loaded homes of varying lot sizes in addition to single-family attached front-loaded homes. The current plan includes generous open space buffers to the north and east where landfills exist, and an extension of County Road 4 through the site, designed as a collector to improve the road system. The proposed density is 2.2 dwelling units per acre, but they will be clustered to preserve more than a third of the site as open space or developed park land.

2.0 Site Description

The 330-acre study area is in Weld County, approximately 2 miles southeast of the town of Erie, Colorado (**Figure 1**). It is immediately northwest of the intersection of County Road (CR) 4 and CR 5. It can be located on the United States Geological Survey (USGS) 7.5-minute series Erie, Colorado quadrangle and has the following coordinates (datum is NAD 83):

- Township 1 North, Range 68 W, Section 29
- Universal Transversal Mercator (UTM): 13 497789E, 4429915N
- Latitude/Longitude: 40.0194°N, 105.0259°W

The study area is approximately 4,600 feet above mean sea level and is flanked by residential development and a golf course on the south, residential development on the west, and landfills on the north and east. The site consists of rolling hills dominated by disturbed grasslands. The only current land use observed is oil and gas production; several wells are present in and adjacent to the study area. There are two unnamed tributaries to Coal Creek flowing through the site and the hydrologic unit code (HUC) is 10190005 (St. Vrain).

The site is located near the interface of the Front Range Fans and the Flat to Rolling Plains portions of the High Plains Ecoregion (EPA 2014). It is more typical of the Flat to Rolling Plains which is characterized by flat to rolling plains with intermittent streams situated between 3,600 and 5,700 feet above mean sea level. Typical vegetation for this part of the ecoregion is shortgrass prairie with riparian areas dominated by cottonwoods (*Populus* spp.), shrubs, and herbaceous vegetation. Typical land use is mostly dryland and irrigated cropland, grazing, oil and gas production, and some grassland.

The site is also in the Western Great Plains Range and Irrigated Land Resource Region (NRCS 2006). This Land Resource Region is delineated by the western edge of the Great Plains, abutting the foothills of the Rocky Mountains. The primary resource concerns in this region are overgrazing, wind and water erosion, invasive vegetation, and surface water quality.

3.0 Methods

3.1 Literature Review

Prior to conducting the field survey, numerous sources of data were reviewed to gain a general understanding of the ecology of the study area. These sources included National Wetlands Inventory (NWI) maps, aerial photographs, topographic maps, soil survey, local and federal regulatory agency websites, and other relevant data.

3.2 Field Data Collection

Andy Herb (senior ecologist) surveyed the entire study area on September 12, 13, and 16, 2014 to identify wetlands and other water features. These features were delineated within the defined study area using procedures outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Corps 2010). This involved a detailed examination of plants, soils, and hydrologic indicators present.

Generally, the detailed examination of each wetland involves the collection of vegetation, soil, and hydrology data at paired data points. These paired points include one point within the suspected wetland and one point in the adjacent upland. However, if numerous wetlands are in close proximity and surrounded by the same or similar upland plant community, then upland data points of nearby sites are often utilized, rather than creating a new upland data point for each wetland area.

All plants considered dominant in wetlands, as well as other commonly observed species, were identified and are listed in this report. During field examinations, a list of dominant plants was documented for each potential wetland area and was compared to the *National Wetland Plant List* (NWPL) (Corps 2014) to determine the "wetland indicator status" of each species. Generally, if at least 50 percent of those species had an indicator status of facultative (FAC) or wetter, the potential wetland area would satisfy the US Army Corps of Engineers (Corps) criterion for wetland vegetation. The botanical nomenclature presented in this report follows the NWPL. If a species is not listed in the NWPL, then the nomenclature follows the PLANTS Database (NRCS 2014).

Soils were examined at various locations throughout the study area to identify the presence of hydric soil indicators. If indicators were found, multiple pits may have been dug along the gradient to identify the extent of hydric soils.

While recording plant species and identifying soil characteristics, potential wetlands within the study area were assessed for evidence and potential sources of wetland hydrology. This evidence included primary indicators such as the presence of surface water and saturation, and secondary indicators including surface soil cracks and drainage patterns.

Most surrounding uplands were not formally sampled or recorded on data forms, and were generally examined while attempting to identify wetland areas. Those uplands examined in more detail or recorded on data forms typically exhibited evidence of at least one wetland indicator (hydrophytic vegetation, hydric soils, or wetland hydrology). Data collected for all areas investigated and deemed non-wetland are not necessarily included in this report.

3.3 Mapping

After determining the approximate extent of the wetlands based on the presence of hydric soils, hydrophytic vegetation, and wetland hydrology, the wetland boundary was flagged and recorded using survey equipment. This equipment generally provides accuracy to within one or two centimeters.

3.4 Wetland Classification

Wetlands in the study area were classified in accordance with the *Hydrogeomorphic Method* (HGM) (Brinson 1993) and the *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin, et al. 1979).

There are two HGM classifications applicable to the wetlands in the study area, including riverine and depressional. Riverine wetlands are those that are associated with a stream channel, floodplain, or terrace and primarily supported by overbank flows or shallow subsurface flow associated with the channel. Depressional wetlands are those that are situated in topographic depressions that do not contain permanent water deeper than 6.6 feet.

The Cowardin classification scheme includes only one wetland type that applies to wetlands in the study area: palustrine emergent (PEM). PEM wetlands are those dominated by herbaceous vegetation (grasses, grass-likes, and forbs).

3.5 Wetland Functional Assessment

Wetland functions were generally assessed using the concepts presented in the *Functional Assessment of Colorado Wetlands (FACWet) Method* (Johnson, et al. 2013), although a complete assessment was not conducted. FACWet is a rapid assessment method that provides a reliable and consistent approach to rating the condition of wetlands relative to their natural potential by focusing on the presence of stressors. Stressors are human-caused changes to a wetland or adjacent lands that alter a wetland's ability to perform ecological functions and processes.

3.6 Jurisdictional Status

The jurisdictional status of wetlands and other water features is generally based on the *US Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (Corps 2007) and other Corps documents (Corps 2008). In order for an aquatic feature to be considered a "water of the US" and jurisdictional under Section 404 of the Clean Water Act, it must be at least one of the following:

- A traditional navigable water (TNW)
- A wetland adjacent to a TNW
- A relatively permanent water (RPW), including tributaries that typically flow year-round or have a continuous flow at least seasonally, typically three months
- A wetland that directly abuts a RPW
- A wetland adjacent to a RPW, but only if it can be shown that the feature has a "significant nexus" with a TNW

- A non-RPW or wetland adjacent to a non-RPW, if the feature has a "significant nexus" with a TNW

The significant nexus evaluation includes an assessment of the flow characteristics and functions of the feature to see if it has "more than an insubstantial or speculative effect on the chemical, physical, or biological integrity of TNWs (Corps 2007)." If it does, then it is considered jurisdictional.

4.0 Wetlands

The study area contains four individual wetland areas encompassing a total of 2.85 acres (Wetlands A through D). All of these wetlands are associated with unnamed tributaries to Coal Creek, which is located approximately 0.5 mile west of the study area. The wetlands are listed in **Table 1**, shown on **Figure 2**, and briefly described in the following sections. Wetland Determination Data Forms for all the wetlands are in **Appendix A** and photos are in **Appendix B**.

Wetland A is expected to be considered jurisdictional under Section 404 of the Clean Water Act as a result of connections to Coal Creek, which is likely considered a RPW. Wetlands B, C, and D appear to be hydrologically isolated, with no connection to or significant nexus with Coal Creek, or other RPWs or TNWs.

Table 1: Wetlands in the Study Area

Wetland	Cowardin Classification	HGM Classification	Area (acres)	Notes
South Unnamed Tributary				
Wetland A	PEM	Riverine	2.41	Wetlands in and along a small channel
North Unnamed Tributary				
Wetland B	PEM	Depressional	0.30	Wetland fringe around old pond with non-wetland spring and channel
Wetland C	PEM	Depressional	0.13	Wetland fringe around old pond
Wetland D	PEM	Depressional	<0.01	Small wetland below dam of old pond
		Total	**2.85**	

4.1 General Description

South Unnamed Tributary Wetlands: The South Unnamed Tributary contains one wetland (Wetland A). This wetland runs through the southwest portion of the study area and carries water from east to west. It is the largest wetland in the study area and generally consists of PEM fringe along both sides of a narrow and shallow channel (**Photos 1—9 in Appendix B**). In some areas, especially in the upper portion of the tributary, the wetlands fill the entire channel (from bank to bank). In other areas, especially in the middle reach, the fringe is discontinuous and very narrow (1 to 3 feet wide) as a result of channel degradation (down-cutting). The soils along the tributary are generally very thick clay, which was evident in some of the exposed banks.

Adjacent areas are generally very weedy and previously disturbed, presumably by historic agriculture or grazing activities. There is a golf course and dense residential development along the tributary immediately upstream of the study area, including a man-made pond.

North Unnamed Tributary Wetlands: The North Unnamed Tributary contains three wetlands (Wetlands B, C and D) and all are associated with man-made ponds (see *Section 5.0 Other Water Features*). The drainage runs through the north portion of the study area and carries water from east to west. There is a spring upstream of the ponds that appears to discharge water seasonally (**Photo 16 in Appendix B**). Wetlands B and C consist of PEM wetland fringes around open water in the ponds, and Wetland D is a very small PEM wetland at the base of the lowest of the three dams (**Photos 10—15 in Appendix B**). There is a fourth old pond at the downstream end of the tributary, but it doesn't contain water at enough frequency or duration to be considered a wetland or other water feature.

Adjacent areas are similar to that of the South Unnamed Tributary and are generally very weedy and previously disturbed, presumably by historic agriculture or grazing activities. This tributary has a landfill both upstream and downstream of the study area, leaving this reach disconnected from the rest of the tributary.

4.2 Vegetation

All of the wetlands in the study area are classified as PEM. A list of the most common plant species observed in and near the wetlands is provided in **Table 2**. A brief discussion of the vegetation in the different wetland areas follows the table. More information can be found on the data forms in **Appendix A**.

Table 2: Common Plants Found In and Near Wetlands in the Study Area

Common Name	Scientific Name[1]	Indicator Status[2]
Woody Plants		
Russian olive	*Elaeagnus angustifolia*	FACU
Rubber rabbitbrush	*Ericameria nauseosus*	UPL
Green ash	*Fraxinus pennslyvanica*	FAC
Plains cottonwood	*Populus deltoides*	FAC
Golden currant	*Ribes aureum*	FACU
Peachleaf willow	*Salix amygdaloides*	FACW
Narrowleaf willow	*Salix exigua*	OBL
Five stamen tamarisk	*Tamarix chinensis*	FACW
Herbaceous Plants		
Crested wheatgrass	*Agropyron cristatum*	UPL
Showy milkweed	*Asclepias speciosa*	FAC
Haldberdleaf orache	*Atriplex patula*	FACW
Mexican fireweed	*Bassia scoparia*	FACU
Devil's pitchfork	*Bidens frondosa*	FACW
Smooth brome	*Bromus inermis*	UPL
Cheatgrass	*Bromus tectorum*	UPL
Clustered field sedge	*Carex praegracilis*	FACW
Canadian thistle	*Cirsium arvense*	FACU
Field bindweed	*Convolvulus arvensis*	UPL
Canadian horseweed	*Conyza canadensis*	UPL
Golden tickseed	*Coreopsis tinctoria*	FAC
Large barnyard grass	*Echinochloa crus-galli*	FAC
Common spikerush	*Eleocharis palustris*	OBL
Slender wildrye	*Elymus trachycaulus*	FACU
Creeping wildrye	*Elymus repens*	FACU
Fringed willowherb	*Epilobium ciliatum*	FACW
Velvetweed	*Gaura parviflora*	UPL
American licorice	*Glcyrrhiza lepidota*	FACU
Common sunflower	*Helianthus annuus*	FACU
Foxtail barley	*Hordeum jubatum*	FACW
Deer root	*Iva axillaris*	FAC
Baltic rush	*Juncus balticus*	FACW
Lesser poverty rush	*Juncus tenuis*	FAC
Prickly lettuce	*Lactuca serriola*	FAC
Yellow sweetclover	*Melilotus officinalis*	FACU
Hairy evening primrose	*Oenothera villosa*	FACU
Common panic grass	*Panicum capillare*	FAC
Wand panic grass	*Panicum virgatum*	FAC
Western wheatgrass	*Pascopyrum smithii*	FACU
Dockleaf smartweed	*Persicaria lapathifolia*	OBL

Common Name	Scientific Name[1]	Indicator Status[2]
Reed canarygrass	*Phalaris arundinacea*	FACW
Great plantain	*Plantago major*	FAC
Kentucky bluegrass	*Poa pratensis*	FACU
Yard knotweed	*Polygonum aviculare*	FACU
Annual rabbitfoot grass	*Polypogon monspeliensis*	FACW
Curly dock	*Rumex crispus*	FAC
Saltmarsh club rush	*Schoenoplectus maritimus*	OBL
Softstem clubrush	*Schoenoplectus tabernaemontani*	OBL
Cutleaf nightshade	*Solanum triflorum*	UPL
Tall goldenrod	*Solidago altissima*	FACU
Spinyleaf sowthistle	*Sonchus asper*	FAC
White heath American aster	*Symphyotrichum ericoides*	FACU
Common dandelion	*Taraxacum officinale*	FACU
Field pennycress	*Thlaspi arvense*	FACU
Narrowleaf cattail	*Typha angustifolia*	OBL
Broadleaf cattail	*Typha latifolia*	OBL
Carpet vervain	*Verbena bracteata*	FACU
Blue water speedwell	*Veronica anagallis-aquatica*	OBL
Rough cocklebur	*Xanthium strumarium*	FAC

[1] Nomenclature presented in this table follows the National Wetland Plant List (Corps 2014); if the species is not listed then nomenclature follows the PLANTS database (NRCS 2014).
[2] Indicator status is from the National Wetland Plant List (Corps 2014): OBL = obligate wetland species, >99% probability of occurring in a wetland; FACW = facultative wetland species, 67-99% probability of occurring in a wetland; FAC = facultative species, 34-66% probability of occurring in a wetland; FACU = facultative upland species, <33% probability of occurring in a wetland; and UPL = <1% probability of occurring in a wetland. If the species is not included in the National Wetland Plant List then the indicator status is assumed to be UPL.

South Unnamed Tributary Wetlands: By far the most dominant plant in Wetland A is cattail (*Typha* spp.). The other most common herbaceous plants found in the wetlands are softstem clubrush, curly dock, dockleaf smartweed, and common spikerush. There is one large pocket of narrowleaf willow at the downstream end of the tributary but otherwise, woody vegetation is very widely scattered and consists of a few young plains cottonwood and peachleaf willow.

The wetland boundary is very distinct in most areas as a result of abrupt changes in topography. It generally consists of a transition from drier wetland plants like dockleaf smartweed, curly dock, and halberdleaf orache to mesic (but upland) species like Canadian thistle, Kentucky bluegrass, creeping wildrye, yellow sweetclover, and slender wildrye.

North Unnamed Tributary Wetlands: Similar to Wetland A, the wetlands in the North Unnamed Tributary are almost exclusively dominated by cattail and the wetland boundary is very distinct in most areas as a result of abrupt changes in topography. The boundary generally consists of a transition from dense cattail to sparse cattail with drier wetland plants like peachleaf willow and plains cottonwood saplings, curly dock, and deer root.

4.3 Hydrology

South Unnamed Tributary Wetlands: The wetland hydrology for Wetland A is provided by surface flows in the tributary and capillary action associated with shallow groundwater. Surface flows have likely increased in recent years as the watershed has become more developed (mainly residential). These flows are likely seasonal or related to precipitation events, and probably not perennial. Flows were high during the field survey as a result of recent rains. Evidence of very high flows were observed, including rafted debris as much as 3 feet above the low flow channel elevation. These flows were likely present in September 2013 when widespread flooding occurred between Denver and Fort Collins.

Wetland hydrology indicators observed in Wetland A include: Surface Water (A1), High Water Table (A2), Saturation (A3), Drift Deposits (B3), and Geomorphic Position (D2). Wetland A is a tributary to Coal Creek, which is a perennial tributary to Boulder Creek and an RPW.

North Unnamed Tributary Wetlands: The wetland hydrology for Wetlands B, C, and D is provided by surface flows in the tributary, including discharge from the seasonal spring at the upper end of Wetland B and capillary action associated with shallow groundwater. Flows in this tributary (and probably the spring) have likely been altered by the presence of the landfill in the upper reaches of the watershed. Flows appear to be seasonal or related to precipitation events, and not perennial. Although no flows were observed during the field visit, each of the ponds associated with the wetlands contained water 0.5 to 2+ feet deep, and standing water was observed in these areas on the 2013 aerial photo.

Wetland hydrology indicators observed in the North Unnamed Tributary Wetlands include: Surface Water (A1), Saturation (A3), Surface Soil Cracks (B6), Salt Crust (B11), Hydrogen Sulfide Odor (C1), Crayfish Burrows (C8), Inundation Visible on Aerial Imagery (C9), and Geomorphic Position (D2). Wetlands B, C, and D appear to be hydrologically isolated as a result of the landfill downstream of the study area.

4.4 Soils

According to the Web Soil Survey (NRCS 2014a), the most common mapped soils in the study area are (in descending order): Midway-Shingle Complex, Ulm clay loam, Colombo clay loam, Renohill clay loam, and Wiley-Colby Complex. None of these soils or their minor components are listed as hydric.

South Unnamed Tributary Wetlands: The soils in the vicinity of the South Unnamed Tributary are all mapped as Colombo clay loam (NRCS 2014a). This soil is found on floodplains and terraces, and is derived from stratified calcareous alluvium. It is generally well-drained and has a normal depth to water table of more than 80 inches. The typical profile includes clay loam to 14 inches; stratified loam and clay loam between 14 and 21 inches; and stratified sand, loam, and clay loam between 21 and 60 inches.

Soil pits excavated in and near Wetland A (SP-A1, A2, and A3) generally confirmed the mapped soil type, revealing silty clay to a depth of about 18 inches. The hydric soil indicator observed in the wetland soil pit was Depleted Matrix (F3).

North Unnamed Tributary Wetlands: The soils in the vicinity of the North Unnamed Tributary are part of the Midway-Shingle Complex (NRCS 2014a). The complex includes 50 percent Midway and similar soils, 35 percent Shingle and similar soils, and 15 percent other minor components. Both Midway and Shingle soils are found on ridges and hills, and are derived from calcareous residuum weathered from shale. Both are well-drained and have a normal depth to water table of more than 80 inches. The typically profile of Midway is clay to a depth of 13 inches and weathered bedrock between 13 and 17 inches. Shingle has a typical profile of loam to 6 inches, clay loam between 6 and 18 inches, and unweathered bedrock from 18 to 22 inches.

Soil pits excavated in and near Wetland B (SP-B1 and B2) generally confirmed the mapped soil type, revealing silty clay to a depth of about 18 inches. The hydric soil indicators observed in the wetland soil pit were Hydrogen Sulfide (A4) and Depleted Matrix (F3).

4.5 Wetland Functions

Based on the concepts presented in the FACWet Method (Johnson, et al. 2013), the primary functions provided by the wetlands in the study area are support of wildlife habitat and sediment retention. These functions are a result of the wetlands generally having a relatively dense vegetation community along a channel, surrounded by relatively undeveloped lands. The most common stressors to the wetlands include presence of development in the watershed; severe alteration of the water source and water distribution associated with nearby development (including the golf course, residential areas, and landfills) and the multiple dams; channel incision/entrenchment; and overall soil disturbances (dams, excavations, etc.).

A complete assessment of the wetlands using FACWet will be required prior to permitting if wetland impacts exceed 0.5 acre or an Individual Section 404 permit is required.

5.0 Other Water Features

There are five other water features in the study area, including one channel associated with the South Unnamed Tributary, and three ponds and a channel associated with the North Unnamed Tributary. A summary of these features is provided in **Table 3** and they are shown on **Figure 2**.

The only other water feature expected to be jurisdictional under Section 404 of the Clean Water Act is the channel of the South Unnamed Tributary, since it is connected to Coal Creek which is likely a RPW. The other features are hydrologically isolated as a result of the landfill.

Table 3: Other Water Features in the Study Area

Feature	Area (acres)	Length (feet)	Notes
South Unnamed Tributary	-	3,066	Main channel
North Unnamed Tributary	-	320	Channel from seasonal spring to Pond B
Pond B	0.16	-	Pond associated with Wetland B
Pond C	0.34	-	Pond associated with Wetland C
Pond D	0.53	-	Pond associated with Wetland D
Total	**1.03**	**3,386**	

South Unnamed Tributary Water Features: The only other water feature associated with the South Unnamed Tributary is the channel of the tributary itself (**Photos 2—5, and 9 in Appendix B**). It appears to be intermittent or ephemeral. The channel averages approximately 3 feet wide in most areas and generally has a clay/silt bottom. The upper reach of the channel is relatively flat and shallow, with the channel banks less than 2 feet tall. The middle and lower reaches are generally much more incised, with bank heights from 2 to 4 feet. Wetlands (Wetland A) are present along most of the channel length, except for parts of the middle reach where it is the most incised. The channel enters the study area through a culvert from the golf course, carries flows east to west, and flows out of the study area through large box culverts to its confluence with Coal Creek approximately 0.5 mile to the west.

North Unnamed Tributary Water Features: There are four other water features present in the North Unnamed Tributary, including three ponds and one channel below the seasonal spring (**Photos 10—17 in Appendix B**). All of the ponds (Ponds B, C, and D) are associated with the corresponding wetlands and appear to be hydrologically isolated as a result of the landfill downstream of the study area. They are all man-made and vary in depth. Depth of water during the field visit varied from 6 inches to approximately 3 feet. The ponds appear to be intermittent or ephemeral, and likely only fill with water seasonally or after major precipitation events. Ponds B and C appear to

be more regularly wet than Pond D. This is likely because they capture the surface flows first and only those flows big enough to spill out of Pond C make it to Pond D.

The channel in this tributary connects the seasonal spring to Pond B and is intermittent or ephemeral. There are substantial salt deposits present at the spring, along the flatter parts of the channel, and in Pond B (**Photos 16 and 17 in Appendix B**), indicating the evaporation of standing water. The channel has a clay bottom and is very narrow, with an average width of around 2 feet. It flows from east to west and terminates in Pond B.

There is a fourth old pond at the downstream end of the North Unnamed Tributary, but it does not hold water at a frequency or duration enough to be considered a water feature and has not been included.

6.0 Literature Cited

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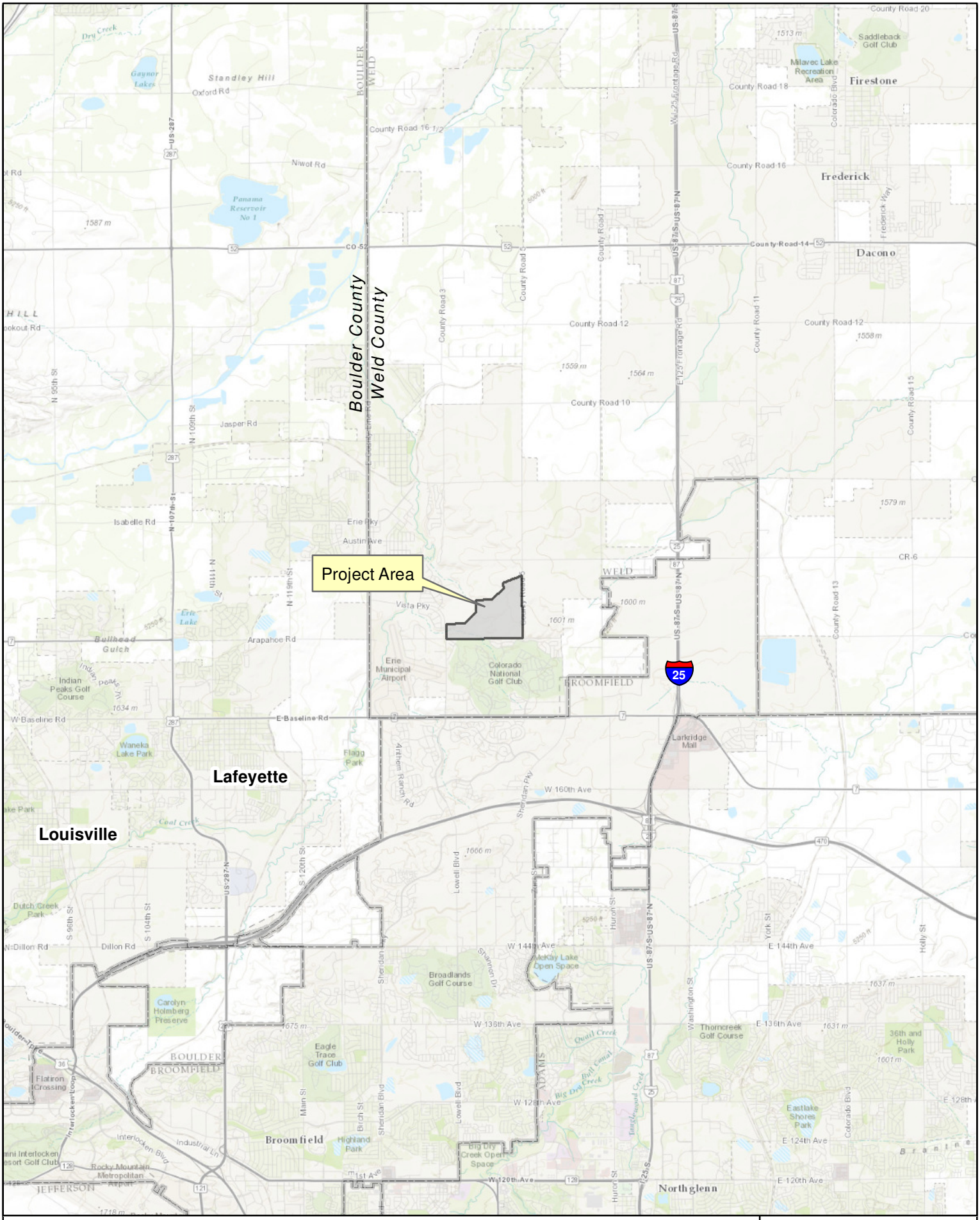
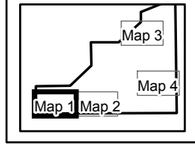

Project Area
Boulder County
Weld County
Lafeyette
Louisville
Broomfield
Northglenn
Frederick
Firestone
Dacono
BROOMFIELD
WELD
ADAMS
JEFFERSON
Erie Municipal Airport
Colorado National Golf Club
Broadlands Golf Course
Eagle Trace Golf Club
Thornecreek Golf Course
Indian Peaks Golf Course
Saddleback Golf Club
Milavec Lake Recreation Area
Larkridge Mall
Waneka Lake Park
Flagg Park
Carolyn Holmberg Preserve
McKay Lake Open Space
Big Dry Creek Open Space
Eastlake Shores Park
36th and Holly Park
Highland Park
Flatiron Crossing
Rocky Mountain Metropolitan Airport
Standley Hill
Panama Reservoir No 1
Gaynor Lakes
Erie Lake
Bullhead Gulch
Coal Creek
Dry Creek
Dutch Creek Park
Oxford Rd
Niwot Rd
Jasper Rd
Isabelle Rd
Erie Pky
Austin Ave
Vista Pky
Arapahoe Rd
W Baseline Rd
E Baseline Rd
Dillon Rd
W 160th Ave
W 144th Ave
E 144th Ave
W 136th Ave
E 136th Ave
W 128th Ave
W 120th Ave
E 120th Ave
E 124th Ave
County Road 20
County Road 18
County Road 16
County Road 16 1/2
County Road 14
County Road 12
County Road 10
CO-52
US-287
US-87-N
US-87-S
E 125 Frontage Rd
W 125 Frontage Rd
Sheridan Pkwy
Sheridan Blvd
Lowell Blvd
Huron St
York St
Washington St
Colorado Blvd
Frederick Pkwy
Interlocken Blvd
Industrial Ln
1st Ave
Big Dry Creek
Quail Creek
Tributary Quail Creek
Coal Creek
Arthem Ranch Rd
Shannon Dr
Main St
Birch St
Holly St
Brainard
1513 m
1587 m
1559 m
1564 m
1558 m
1579 m
1600 m
1601 m
1634 m
1666 m
1675 m
1637 m
1631 m
1718 m
5250 ft
5000 ft
5200 ft
N
0 0.5 1 2 3
Miles
AlpineEco
10/09/2014
Weld County 330 Acres
Figure 1
Location Map
594

AlpineEco

10/10/2014

Weld County 330 Acres

Figure 2
Overview Map



Legend

- Photo Point
- Sample Point
- Other Water
- Wetland

N

0 50 100 200 300 400 Feet

1 in = 100 ft

AlpineEco

Weld County 330 Acres

Figure 2
Wetlands
Map 1 of 4

10/14/2014

8

SP-A3

Wetland A

FLOW

South Unnamed Tributary

9

Map 3
Map 4
Map 1
Map 2

Legend

- Photo Point
- Sample Point
- Other Water
- Wetland

N

0 50 100 200 300 400 Feet

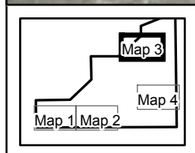
1 in = 100 ft

AlpineEco

Weld County 330 Acres

Figure 2
Wetlands
Map 2 of 4

10/14/2014



Legend

- Photo Point
- Sample Point
- Other Water
- Wetland

N

0 50 100 200 300 400 Feet

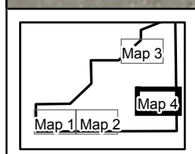
1 in = 100 ft

AlpineEco

Weld County 330 Acres

Figure 2
Wetlands
Map 3 of 4

10/14/2014



Legend

- Photo Point
- Sample Point
- Other Water
- Wetland

N

0 50 100 200 300 400 Feet

1 in = 100 ft

AlpineEco

Weld County 330 Acres

Figure 2
Wetlands
Map 4 of 4

10/14/2014

Appendix A
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie/Weld Sampling Date: 9/12/14

Applicant/Owner: — State: CO Sampling Point: SP-A1

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.016153 Long: -105.033655 Datum: NAD83

Soil Map Unit Name: Colombo clay loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: Low-lying floodplain area w/mix of mesic vegetation. Appears to receive overbank flows occasionally. No WL. Currently wet from significant rains.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 x 3 m)			
1. Elymus trachycaulus	60	Y	FACU
2. Rumex crispus	20	Y	FAC
3. Persicaria lapathifolia	15	N	OBL
4. Atriplex patula	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ~0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: Edge of WL A – area flooded occasionally; mesic mix.

SOIL

Sampling Point: SP-A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5YR 4/2	100	–	–	–	–	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: –

Depth (inches): –

Hydric Soil Present? Yes ____ No ✓

Remarks: No indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: –

Remarks: Saturated to surface – presumably from heavy recent rains. High flows assoc. with Area appears to occasionally receive overbank flows.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie / Weld Sampling Date: 9/12/14

Applicant/Owner: — State: CO Sampling Point: SP-A2

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.016178 Long: -105.033679 Datum: NAD83

Soil Map Unit Name: Colombo clay loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: PEM Wetland along South Unnamed tributary - mostly Typha

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 x 3 m)			
1. Persicaria lapathifolia	60	Y	OBL
2. Typha latifolia	30	Y	OBL
3. Rumex crispus	5	N	FAC
4. Schoenoplectus maritimus	2	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ~0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Dense PEM WL dominated by Typha. w/ Persicaria understory

SOIL

Sampling Point: SP-A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5Y4/2	100	—	—	—	—	silty clay	
9-18+	2.5Y4/2	95	10YR5/6	5	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks: Depleted Matrix –

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

—

Remarks: Surface water (in channel of South Tributary) w/in ~ 5' – Source of WL hydrology is tributary – via capillary action + overbank flows

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie/Weld Sampling Date: 9/12/14

Applicant/Owner: — State: CO Sampling Point: SP-A3

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.015583 Long: -105.029366 Datum: NAD83

Soil Map Unit Name: Colombo clay loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No ✓	

Remarks: Small UPL island associated w/ South Unnamed Tributary. Occasionally flooded but not wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1x3M)			
1. Cirsium arvense	60	Y	FACU
2. Atriplex patula	20	Y	FACW
3. Rumex crispus	5	N	FAC
4. Typha latifolia	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum ~5-10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: Weedy upland island surrounded by mostly Typha dominated WL.

SOIL

Sampling Point: SP-A3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/3	100	—	—	—	—	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ____ No ✓

Remarks: No indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: —

Remarks: No hydrology indicators; island ~1-1.5' V above wetland

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie / Weld Sampling Date: 9/16/14

Applicant/Owner: — State: CO Sampling Point: SP-B1

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): pond / depression Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.023760 Long: -105.021692 Datum: NAD 83

Soil Map Unit Name: Midway - Shingle Complex NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks: Small pond in Unnamed Tributary (North). Typha filled + seasonally flooded. Recieves surface flows, incl. discharge from nearby spring

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 3 m)			
1. Typha angustifolia	80	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum ~20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: Typha monotypical stand in pond bottom

SOIL

Sampling Point: SP-B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5y5/3	60	2.5y5/1	40	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks: H_2S in both layers; also may be some contaminated soil — possibly a hydrocarbon smell

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ✓ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

2013 aerial photo — inundated

Remarks: Uppermost pond in Unnamed Trib (North); WL hydrology from ponding surface flows, incl. discharge from seasonal spring

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie/Weld Sampling Date: 9/16/14

Applicant/Owner: — State: CO Sampling Point: SP-B2

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): pond/depression Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.023875 Long: -105.021561 Datum: NAD83

Soil Map Unit Name: Midway - Shingle Complex NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks: Edge of pond – occasionally flooded

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 x 3m)			
1. Convolvulus arvensis	30	Y	UPL
2. Bassia scoparia	30	Y	FACU
3. Solanum triflorum	10	N	UPL
4. Rumex crispus	5	N	FAC
5. Verbena bracteata	2	N	FACU
6.			
7.			
8.			
9.			
10.			
	77 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ~20-25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: Weedy upland edge of pond

SOIL

Sampling Point: SP-B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 4/2	95	2.5Y 5/8	5	C	M	silty clay – dry	
3-16	2.5Y 5/3	60	2.5Y 3/3	40	C	M	silty clay – dry	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: –

Depth (inches): –

Hydric Soil Present? Yes ✓ No ___

Remarks: Upper layer of soil considered hydric – likely from occasional ponding

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Inundation visible on 2013 aerial (after huge rain events)

Remarks: Occasionally flooded – when pond at its fullest – but no WL hydrology

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Weld Cty 330 acres City/County: Erie / Weld Sampling Date: 9/16/14

Applicant/Owner: — State: Co Sampling Point: SP-W1

Investigator(s): A. Herb Section, Township, Range: Sec 29, T1N, R68W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR): W. Great Plains + Irrig. Land Lat: 40.017718 Long: -105.018440 Datum: NAD83

Soil Map Unit Name: Ulm clay loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: Swale vegetated w/mesic mix of species. Occasional surface flows but no WL.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1 x 3m)			
1. Rumex crispus	30	Y	FAC
2. Helianthus annuus	25	Y	FACU
3. Conyza canadensis	5	N	UPL
4. Typha latifolia	5	N	OBL
5. Hordeum jubatum	2	N	FACW
6. Panicum capillare	2	N	FAC
7.			
8.			
9.			
10.			
	69 = Total Cover 35/14		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum ~30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: Mesic mix in bottom of swale; scattered Typha

SOIL

Sampling Point: SP-U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/2	100	—	-	-	-	silty clay	ox rhizos
4-16	10YR4/2	100	—	-	-	—	silty clay	no ox rhizos

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No ✓

Remarks: No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

—

Remarks: Two secondary indicators obs. Receives occasional surface flows from landfill to east

Appendix B
Site Photographs

Photo 1: Wetland A, looking northeast from Vista Parkway (upstream)

Photo 2: Wetland A, looking northeast (upstream)

Photo 3: Wetland A, looking north (downstream)

Photo 4 : Wetland A, looking east (upstream)

Photo 5: Wetland A, looking southwest (downstream)

Photo 6: Wetland A, looking north at SP-A1 (double flag in foreground) and SP-A2 (double flag in background)

Photo 7: Wetland A, looking southeast (upstream)

Photo 8: Upland sample point (SP-A3) adjacent to Wetland A, looking southeast

Photo 9: Wetland A, looking north from golf course (downstream)

Photo 10: Wetland and Pond B, looking southwest

Photo 11: Wetland and Pond B, looking southwest at SP-B2 (double flag)

Photo 12: Wetland and Pond C, looking southwest from the Pond B dam

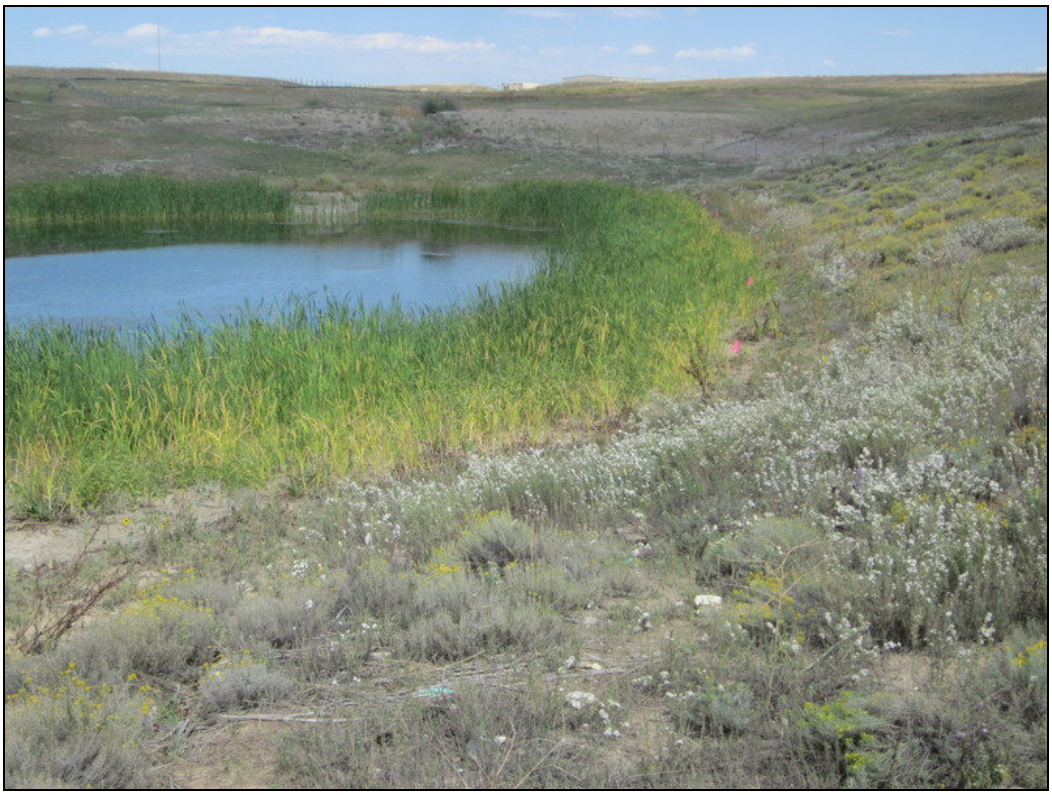


Photo 13: Wetland and Pond B, looking northeast

Photo 14: Pond C, looking southwest from the inlet

Photo 15: Wetland below Pond C, looking northeast

Photo 16: Start of Channel B (at spring; marked by shovel), looking west

Photo 17: Channel B between spring and Pond B, looking southwest

Photo 18: Upland sample point (SP-U1), looking southwest

Appendix B

USFWS IPaC Trust Resources Report

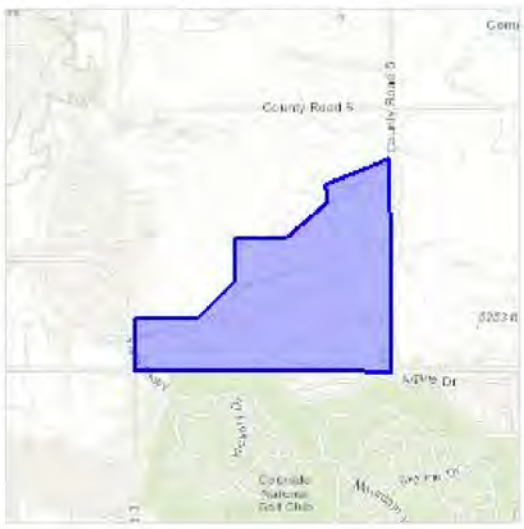
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Weld County, Colorado



Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS
134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

http://www.fws.gov/coloradoES
http://www.fws.gov/platteriver

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Preble's Meadow Jumping Mouse Zapus hudsonius preblei There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4090	Threatened

Birds

NAME	STATUS
Least Tern Sterna antillarum This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Mexican Spotted Owl Strix occidentalis lucida There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8196	Threatened
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened

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Whooping Crane Grus americana — Endangered

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/758

Fishes

NAME	STATUS
Pallid Sturgeon Scaphirhynchus albus	Endangered

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7162

Flowering Plants

NAME	STATUS
Colorado Butterfly Plant Gaura neomexicana var. coloradensis	Threatened
Ute Ladies'-tresses Spiranthes diluvialis	Threatened
Western Prairie Fringed Orchid Platanthera praeclara	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/6110

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2159

This species only needs to be considered if the following condition applies:

- Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1669

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date

NOT FOR CONSULTATION

range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus** This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Jul 31
Burrowing Owl *Athene cunicularia** This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Golden Eagle *Aquila chrysaetos** This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lark Bunting *Calamospiza melanocorys** This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Aug 15
Lesser Yellowlegs *Tringa flavipes** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew *Numenius americanus** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Mccown's Longspur *Calcarius mccownii** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9292	Breeds May 1 to Aug 15
Semipalmated Sandpiper *Calidris pusilla** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Willet *Tringa semipalmata** This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

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Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

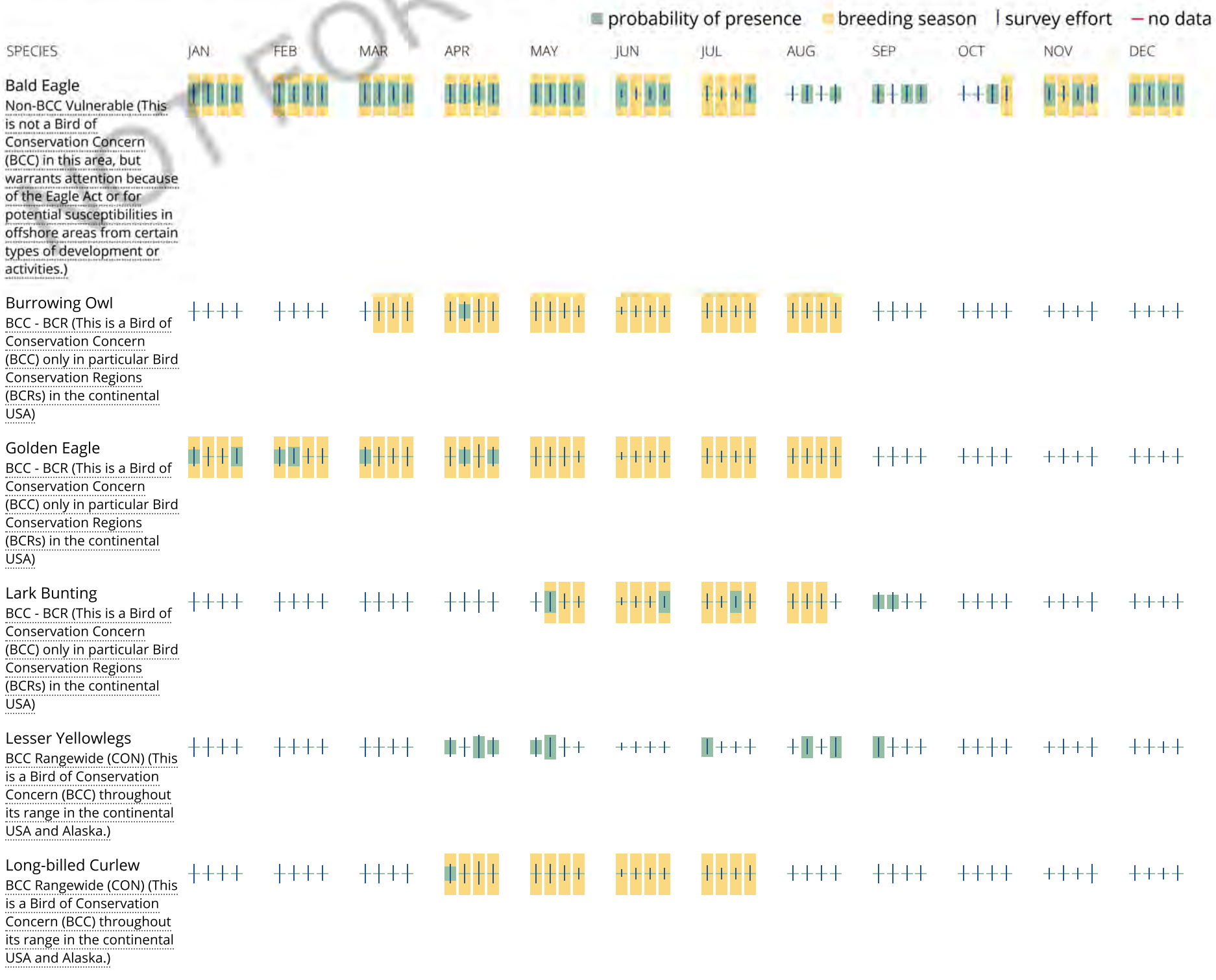
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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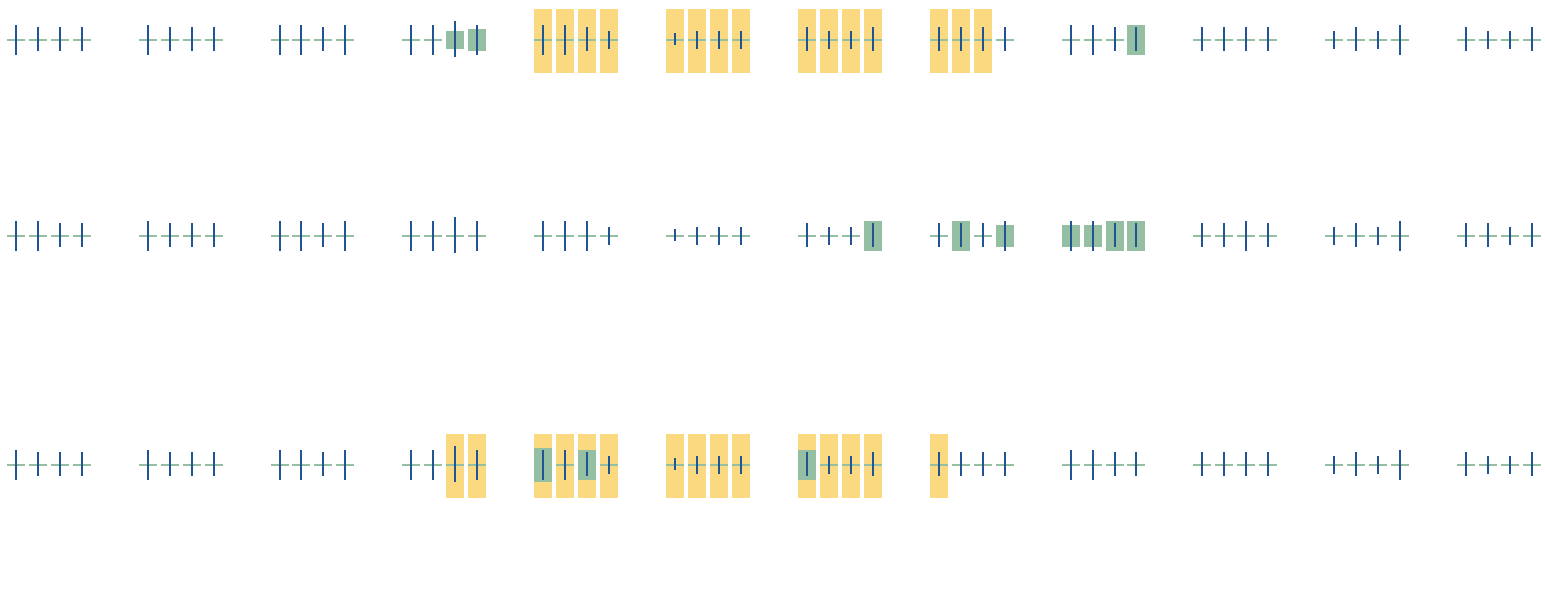

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

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What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1A

RIVERINE

R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal

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zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix C

Photo Location Map and Site Photographs

Photo Location Map

Photo Point #9: View north of weedy midgrass prairie between landfill borrow soil and Vista Parkway at northwest property corner.

Photo Point #9: View northeast of weedy midgrass prairie between landfill borrow soil and Vista Parkway at northwest property corner.

Photo Point #9: View east along northern property line of weedy midgrass prairie at northwest property corner.

Photo Point #9: View southeast of midgrass prairie slope down to southern drainage at northwest property corner.

Photo Point #9: View south of midgrass prairie and Vista Parkway Right of Way landscaping at northwest property corner.

Photo Point #10: View northeast of southern channel/wetlands and abutting midgrass prairie at Vista Parkway culvert from western property line.

Photo Point #10: View east of southern channel/wetlands and abutting midgrass at Vista Parkway culvert from western property line.

Photo Point #10: View southeast of southern channel/wetlands and abutting midgrass at Vista Parkway culvert from western property line.

Photo Point #11: View west of good quality midgrass prairie, Vista Parkway, and Airpark Neighborhood beyond near southwestern property corner.

Photo Point #11: View northwest of good quality midgrass prairie transition to southern drainage/wetlands near southwestern property corner.

Photo Point #11: View north of good quality midgrass prairie transition to southern drainage/wetlands toward Denver Regional Landfill near southwestern property corner.

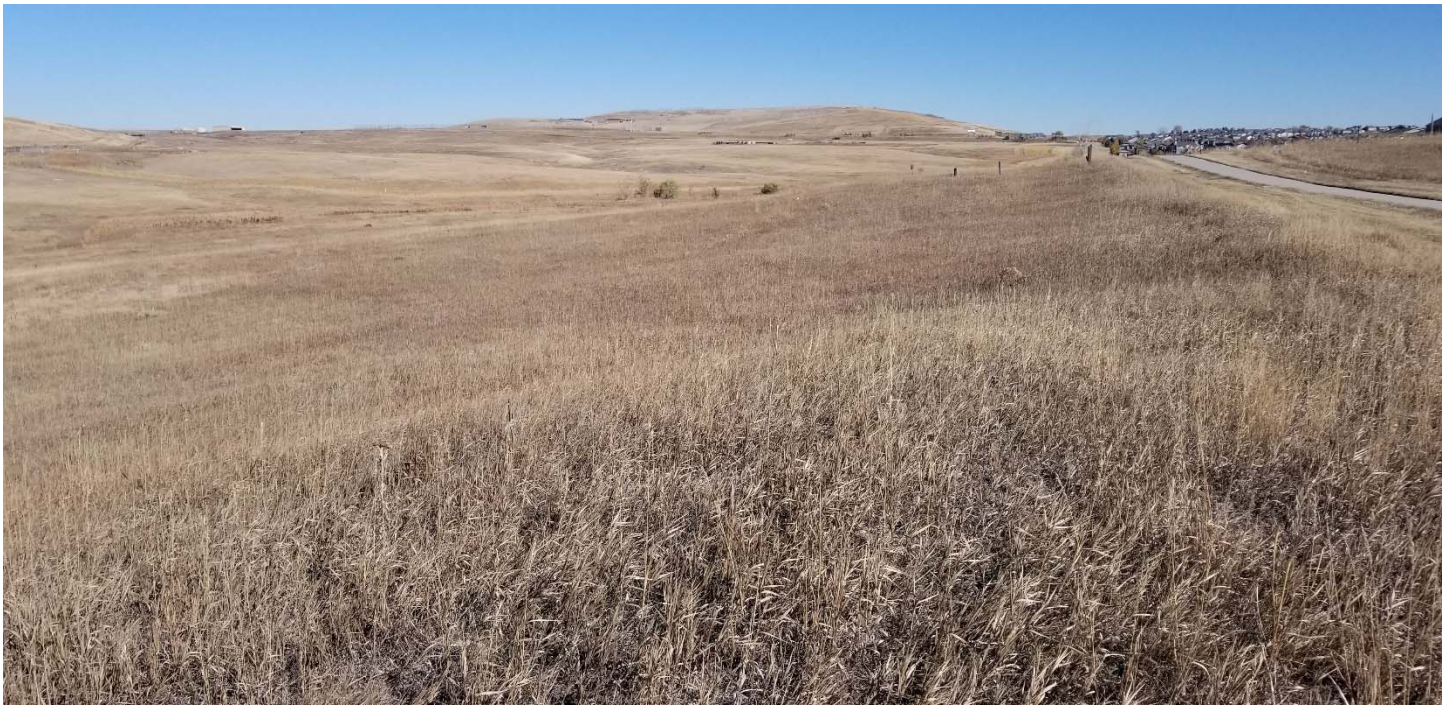

Photo Point #11: View northeast of good quality midgrass prairie transition to southern drainage/wetlands toward Front Range Landfill near southwestern property corner.

Photo Point #12: View west of disturbed midgrass prairie and pipeline reclamation corridor from southeastern property corner.

Photo Point #12: View northwest of disturbed midgrass prairie and pipeline reclamation corridor from southeastern property corner.

Photo Point #12: View north of disturbed midgrass prairie and pipeline reclamation corridor from southeastern property corner.

Photo Point #13: View south of disturbed midgrass prairie, pipeline reclamation corridor, and prairie dog colony from eastern property line at existing site entrance on CR5.

Photo Point #13: View southwest of disturbed midgrass prairie, pipeline reclamation corridor, and prairie dog colony from eastern property line at existing site entrance on CR5.

Photo Point #13: View west of disturbed midgrass prairie, pipeline reclamation corridor, prairie dog colony, and Denver Regional Landfill from eastern property line at existing site entrance on CR5.

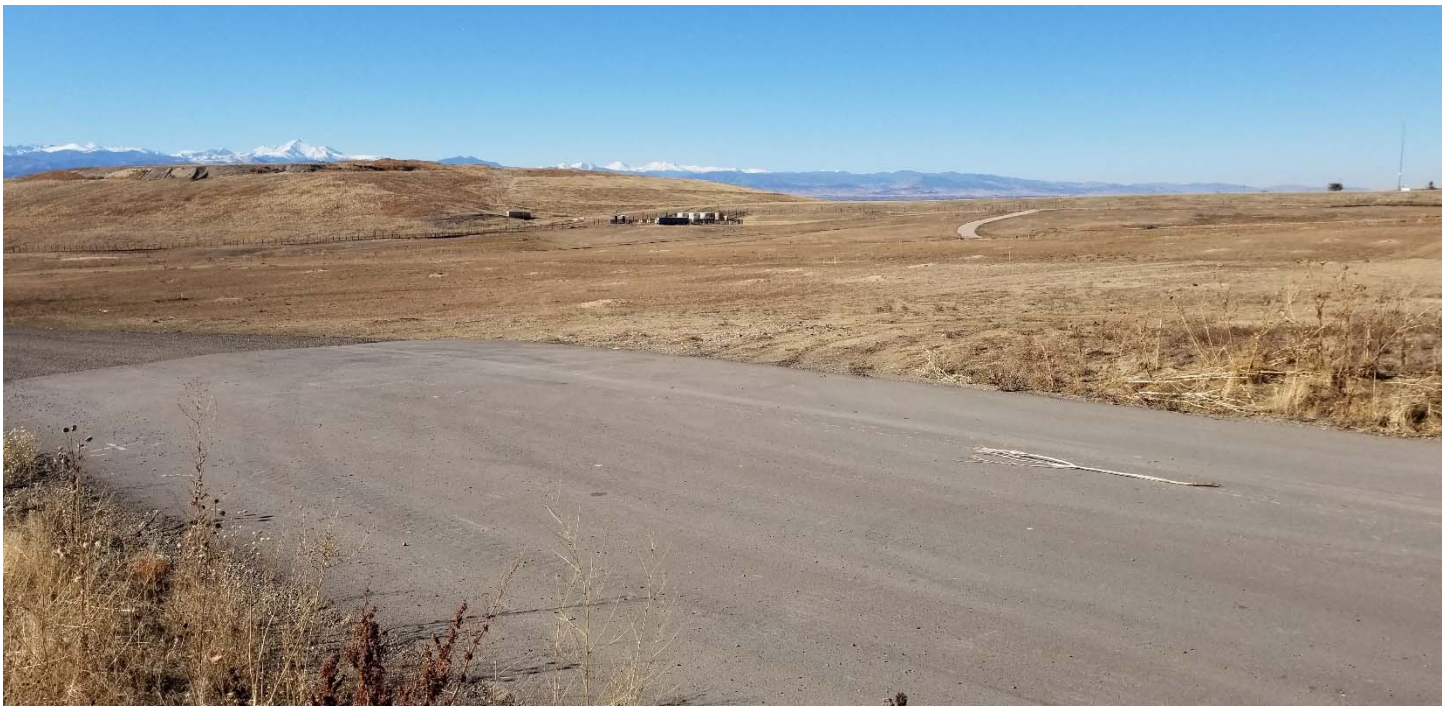

Photo Point #13: View northwest of disturbed midgrass prairie, pipeline reclamation corridor, prairie dog colony, and Denver Regional Landfill from eastern property line at existing site entrance on CR5.

Photo Point #13: View north of disturbed midgrass prairie, pipeline reclamation corridor, and prairie dog colony, and Front Range Landfill from eastern property line at existing site entrance on CR5.

Photo Point #14: View south of disturbed midgrass prairie and pipeline reclamation corridor from northeastern property corner on CR5.

Photo Point #14: View southwest of disturbed midgrass prairie, pipeline reclamation corridor and Denver Regional Landfill from northeastern property corner on CR5.

Photo Point #15: View east of disturbed midgrass prairie, northern ephemeral drainage, prairie dog colony, and Front Range Landfill from northwestern central property corner.

Photo Point #15: View southeast of disturbed midgrass prairie, northern ephemeral drainage, prairie dog colony, and oil and gas staging pad from northwestern central property corner.

Photo Point #15: View south of disturbed midgrass prairie, northern ephemeral drainage, prairie dog colony, and oil and gas staging pad from northwestern central property corner.

Photo Point #16: View east of disturbed midgrass prairie, northern ephemeral drainage, and Front Range Landfill from off-site stock pond berm.

Photo Point #16: View west of northern ephemeral drainage and view of Front Range from off-site stock pond berm.

Photo Point #17: View north of disturbed midgrass prairie and Denver Regional Landfill from northwest diagonal property corner.

Photo Point #17: View northeast of disturbed midgrass prairie, prairie dog colony and Denver Regional Landfill from northwest diagonal property corner.

Photo Point #17: View east of disturbed midgrass prairie, prairie dog colony and Front Range Landfill from northwest diagonal property corner.

Photo Point #17: View southeast of disturbed midgrass prairie, prairie dog colony and Vista Ridge Neighborhood from northwest diagonal property corner.

Photo Point #17: View south of disturbed midgrass prairie, prairie dog colony and Vista Ridge Neighborhood from northwest diagonal property corner.

Photo Point #17: View southwest of disturbed midgrass prairie, prairie dog colony and Vista Ridge Neighborhood from northwest diagonal property corner.

Photo Point #18: View north of disturbed midgrass prairie and prairie dog colony from northwest diagonal property corner.

Photo Point #18: View east of disturbed midgrass prairie and prairie dog colony from northwest diagonal property corner.

Photo Point #18: View southeast of prairie dog colony, disturbed midgrass prairie leading down to southern drainage from northwest diagonal property corner.

Photo Point #18: View south of prairie dog colony, disturbed midgrass prairie leading down to southern drainage from northwest diagonal property corner.

Photo Point #18: View southwest of prairie dog colony, disturbed midgrass prairie leading down to southern drainage from northwest diagonal property corner.

Appendix D

Office of Archaeology and Historic Preservation (OAHP) Letter

HISTORY COLORADO
Office of Archaeology and Historic Preservation
1200 Broadway, Denver, Colorado 80203

Grant Gurnee
Ecosystem Services, LLC
11712 Montgomery Circle
Longmont, CO 80504

October 29, 2019

Re: 2019-15-1
File Search No. 22199

At your request, the Office of Archaeology and Historic Preservation has conducted a search of the Colorado Inventory of Cultural Resources within the area shown in the provided shapefiles, located in the following areas:

PM	T	R	S
6th	1N	68W	29, 32

3 sites and 4 surveys were located in the designated area(s).

If information on any district, site, building, structure, or object in the project area was found, detailed information follows the summary. If no properties were found, but surveys are known to have been conducted in the project area, survey information follows the summary. We do not have complete information on surveys conducted in Colorado, and our site files cannot be considered complete because most of the state has not been surveyed for cultural resources. There is the possibility that as yet unidentified cultural resources exist within the proposed impact area.

Our letter should not be interpreted as formal consultation under Section 106 of the National Historic Preservation Act (36 CFR 800) or the Colorado Register of Historic Places (CRS 24-80.1). In the event that there is federal or state agency involvement, please note that it is the responsibility of the agencies to meet the requirements of these regulations.

We look forward to consulting with you regarding the effect of the proposed project on significant cultural resources in accordance with the Advisory Council on Historic Preservation regulations titled "Protection of Historic Properties" or the Colorado Register of Historic Places, as applicable (http://www.historycolorado.org/oahp/consultation-guidance).

If you have any questions, please contact the Office of Archaeology and Historic Preservation at (303) 866-3392. Thank you for your interest in Colorado's cultural heritage.

Steve Turner, AIA
State Historic Preservation Officer

*Information regarding significant archaeological resources is excluded from the Freedom of Information Act. Therefore, legal locations of these resources must not be included in documents for public distribution.

22199_s_sy

Appendix E
Professional Qualifications

Appendix A

Professional Qualifications

ecos ecosystem services LLC

RESUME

Jon Dauzvardis, M.L.A, P.W.S.

Owner/Managing Partner
Senior Restoration Ecologist
Landscape Architect
Wetland Ecologist

AREAS OF EXPERTISE:

- Vegetation Inventories and Mapping
- Habitat Assessment, Functional Assessment and Wetland Delineation
- Aquatic, Wetland, and Riparian Restoration Ecology, Planning and Design
- Landscape Ecology, Planning and Landscape Architecture
- Conservation and Resource Mitigation Bank Support Services
- Grant Funding Support for Conservation and Restoration Projects
- Open Space and Trail Planning, Design and Habitat Management
- Construction Oversight & Best Management Practices
- AutoCAD, Mapping, Presentation Graphics

EDUCATION:

- Master of Landscape Architecture, Texas A&M University, College Station, Texas, 1995
- Bachelor of Science, Environmental Design, University of Missouri, Columbia, 1991
- Architecture Study, Harvard University Graduate School of Design, Cambridge, Massachusetts, 1989

EMPLOYMENT HISTORY:

- 2008-Present, Owner/Manager and Senior Restoration Ecologist, Ecosystem Services, LLC, Erie Colorado
- 2000 – 2011, Senior Restoration Ecologist, Walsh Environmental Scientists and Engineers, LLC, Boulder, Colorado
- 1997 – 2000, Restoration Ecologist, Construction Supervisor, Aquatic and Wetland Company, Boulder, Colorado
- 1996-1997, Landscape Architect, Design Studios West, Denver, Colorado
- 1995-1996, Landscape Architect, Wenk Associates, Denver, Colorado
- 1994-1995, Graduate Researcher, ALCOA – Texas A&M University, College Station, Texas
- 1994, Johnson County Parks and Recreation Department, Shawnee Mission, Kansas
- 1992-1994, Grounds Maintenance Superintendent, Brazos County, Texas

CONTINUING EDUCATION:

- Stream Functions Pyramid Workshop, Denver, CO - 2014
- Colorado Natural Heritage Program, Wetland Plant Identification - 2014
- Colorado Natural Heritage Program, Ecological Integrity Assessment for Colorado Wetlands - 2013
- FACWet – Functional Assessment of Colorado Wetlands - 2010, 2012 and 2013
- ESRI, ARC View Geographic Information System (GIS) Training, 1996
- Bicycle Planning and Facilities Training, 1994
- AutoCAD Drafting and Design, Self-taught, 1991

CERTIFICATIONS:

- Professional Wetland Scientist Certification (# 1699), Society of Wetland Scientists Certification Program, 2004

EXPERIENCE SUMMARY:

Mr. Dauzvardis is a founder and managing partner of Ecosystem Services, LLC (**ecos**), an ecological planning and design business dedicated to the restoration, enhancement and creation of aquatic, wetland and riparian habitat. Jon is a certified Professional Wetland Scientist with over 25 years of experience working in the fields of landscape architecture and ecological restoration in Colorado, Wyoming, Texas, Kansas and the Intermountain West. Jon's academic and professional work history in housing design and construction, community planning, architecture, landscape architecture, ecological planning and restoration is unique and makes him a valuable and multi-faceted asset to his company, clients and their projects. His diverse knowledge and skills in landscape planning, habitat design, bioengineering, and hands-on experience demonstrate that he can easily negotiate between art and science, man-made and natural systems, generalities and detail, and from concept to construction. Jon takes a practical and realistic approach to problem solving, concentrating on broad scale ecological master planning simultaneously with fine scale design of aquatic, wetland, riparian and terrestrial habitats. As a restoration ecologist, Jon specializes in restoring and enriching habitat structure, stability and health and how to manage landscapes and natural systems so that they function, change, and respond positively over time. Jon's strengths are rooted in his understanding of natural and landscape processes; finding design solutions that integrate the needs of people, wildlife, and visual quality; sustaining ecosystem goods and services; and integration of nature-based recreation and environmental education programs and facilities.

RELEVANT PROJECT EXPERIENCE:

Mr. Dauzvardis has been an essential team lead and player in hundreds of habitat assessments; permitting efforts; master plans; and aquatic, wetland, and riparian habitat design and mitigation projects. The following is a sampling of select projects and clientele that Jon has successfully completed or is currently involved with:

Habitat Assessment and Regulatory Compliance

Mr. Dauzvardis routinely performs ecological site and resource impacts assessments, jurisdictional wetland determinations and functional assessments to assist clients in site planning, design, and permitting processes. Assessment methods established by the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and Colorado Department of Transportation among others are used to assess habitat elements and screen sites for threatened and endangered plants and animals, wetlands, migratory birds and other wildlife. Jon stresses habitat impact avoidance and minimization to preserve a site's ecological benefits and to minimize regulatory constraints, timing and permitting costs. Jon has performed a multitude of site assessments, delineations and prepared permits, including but not limited to the following notable projects as well as others listed throughout this resume:

- **Banning Lewis Ranch, Colorado Springs, CO –** ecos was hired by Norwood Homes to perform and ecological assessment of wetlands, Sand Creek, Jimmy Camp Creek and its tributaries; and provide regulatory guidance for the Banning Lewis Ranch (BLR), an 18,000-acre site that will double the size of Colorado Springs. Part of Jon's work on the project included mapping and buffer recommendations on how to best conserve pristine prairie and sandy creeks that are highly susceptible to degradation caused by urbanization.
- **Bellvue Pipeline Project, Larimer County, CO** – ecos was retained by the City of Greeley as Best Management Practices (BMP) Facilitators to provide pre-construction documentation post-construction oversight of pipeline reclamation processes. Essential responsibilities include meeting with landowners prior to construction to facilitate project understanding and post-construction outcomes; to document landowner needs and wants relative to project goals and land use; and to document and monitor pre- and post-construction reclamation and maintenance requirements.
- **Georgetown Lake, Georgetown, CO –**ecos was hired to prepare an office level assessment report of ecological resources to describe the physical/ecological characteristics of the Project area and evaluate the potential effects of the construction of a loop trail project on environmental issues and species of concern to support a GOCO grant application. Items evaluated and documented, include site location/ownership, general site characteristics, current land use, proposed impacts, possible effects on Federal– and State-listed T&E animal and plant species, unique or important wildlife, water quality, water bodies, wetlands, and floodplains, stormwater runoff, sedimentation, soil erosion, and invasive species. The assessment report also included mitigation measures, project benefits, and environmental compliance recommendations under applicable regulatory programs.

- **Appraisal Support Documentation Report for the 1st Bank Parcel, Colorado Springs, CO** - ecos was retained by 1st Bank Holding Company to perform a Preble's meadow jumping mouse (PMJM) habitat assessment, mitigation cost analysis, and conceptual lot layout for the approximate 9.4-acre Parcel located adjacent to the Northgate Open Space along Smith Creek. Jon was responsible for preparing the lot layout, existing habitat aerial photo interpretation/delineation, proposed conceptual mitigation, and quantification of impacts and associated mitigation to ascertain appraisal value of the site if it were to be developed.
- **Encana Oil and Gas (USA), Denver Julesburg Basin, CO** – Encana hired ecos to assess their ecological constraints, recommend means and methods to avoid, minimize and permit impacts; and to mitigate, restore and prepare ecological management plans for their drilling and pipeline operations in the Denver Julesburg basin. Jon's role on the team is to perform site assessments, research background data, and prepare assessment reports and mapping data that can be utilized by Encana's project managers and geographic information systems (GIS) department to proactively track ecological resources before issues arise. In addition to client consultation, Jon is responsible for tracking drill site schedules, constraints, restoration and management efforts in a data base and reporting said information to Encana's project manager on a regular basis.
- **Tollgate Creek Riparian and Wetland Habitat Assessment, Aurora, CO** – Jon performed high level aerial photo interpretation and delineation of riparian and wetland habitat along Toll Gate Creek and East Toll Gate Creek from confluence with Sand Creek upstream to East Hampden Avenue. The delineation was performed in Google Earth and imported into AutoCAD by digitizing riparian and wetland habitat zones. Once complete, the data was turned over to the project engineer to incorporate into a Drainage Master Plan for the Urban Drainage and Flood Control District (UDFCD).
- **Eagle River Meadows Ecological Inventory and Strategic Wetland Action Plan, Edwards, CO** – Mr. Dauzvardis delineated, assessed, and provided an analysis of potential adverse effects to wetlands within a complex site adjacent to the Eagle River. Jon also developed a strategic process and decision making tool to determine avoidance, minimization, low impact development (LID), and mitigation measures in support of a County Sketch Plan application for a Multi-use Health Care Community.
- **Mesa County Colorado Riverfront Trail, Grand Junction, CO** – Jon performed wetland delineation, jurisdictional determination, Section 404 Permitting; and prepared wetland mitigation plans to construct approximately two miles of regional trail along the north side of the Colorado River between the James M. Robb and the Colorado River State Park at Corn Lake.
- **ARCO Upper Clark Fork River Basin Superfund Site Functional Wetland Assessment, MT** – Between 2000 and 2008, Jon managed the assessment team and performed extensive wetland delineation, GPS surveying, functional assessments, and impact mapping and analysis covering a 200 square mile Superfund Site affected by historic mining practices. Assessments we done in preparation for soil remediation of heavy metals, capping of tailings ponds, sediment and dam removal, and implementation of compensatory wetland mitigation plans required under a consent decree. Assessment areas included the Anaconda Smelter, Old Works, Opportunity Ponds, and Milltown Reservoir.
- **Jefferson County Highways & Transportation Department Gunbarrel Bridge Replacement, Oxyoke, CO** – Jon consulted with the USACE, USFWS, CDOT, and the FHWA to document regulatory requirements. Produced a CDOT Wetland Finding Report, Biological Assessment, Preble's meadow jumping mouse and wetland mitigation plans, and helped acquire a Section 404 Permit and Biological Opinion.
- **Pole Canyon Wind Farm, Babcock and Brown, Huerfano County,** CO – Assessed and prepared critical issues analysis and County 1041 Permit application for a 125-megawatt wind farm and associated transmission lines located on a 5,800-acre site. The project included detailed site assessments to document the presence or absence of potential development constraints and site-specific ecological conditions as well as preparation of permit maps, plot plans, and environmental analyses, alternatives analysis, and mitigation measures.
- **Dalton Property Wetland Assessment, Longmont, CO** – Provided site assessment, regulatory analyses, and developed a restoration plan for critical riparian and wetland habitat along Left Hand Creek in Boulder County, CO.
- **Colowyo Coal Mine Wetland Delineation, Meeker,** CO – Delineated 1.5 miles of jurisdictional waters and wetlands in preparation for wetland mitigation design along West New Goodspring Creek.
- **Lafarge Northbank Resources Gravel Pit Wetland Assessment, Rifle, CO** – Delineated and acquired a jurisdictional determination from the USACE for complex tailwater and riparian wetlands along the

Colorado River. Prepared gravel pit reclamation plans aimed at providing suitable shallow-water lake edge wetlands to serve as compensatory wetland mitigation.

- **Jefferson County Highways & Transportation Department Highway 73 Expansion, Conifer,** CO – Performed presence/absence study, habitat assessment and documentation of wetlands, Migratory Birds, State Species of Concern, and federally listed T&E Species including Bald eagle, Preble's meadow jumping mouse, the Pawnee montane skipper butterfly and Colorado butterfly plant along a one-mile corridor of highway.
- **Flying Horse Ranch and the Club at Flying Horse Golf Course, Colorado Springs, CO** – Conducted an assessment of wetland habitat, impact avoidance and minimization and Section 404 of the Clean Water Act permitting for a 1500-acre mixed use development and Weiskopf golf course design being implemented by Neiber Golf.
- **C-Lazy-U and Horn Ranch Environmental Assessments, Granby, CO** – Performed site assessment of ecological opportunities and constraints of aquatic, riparian, wetland and threatened and endangered species habitat along the Colorado River for the development and enhancement of fishing/resort ranch amenities.
- **Village at Avon, Avon, CO** – Delineated wetlands and prepared a Section 404 Permit for the town center expansion and low-density ranchette development.
- **Residential Developers and Realtors** – Performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and prepared Clean Water Act Section 404 Permits and mitigation plans for residential developers and realtors, including: 4 Site Investments, Nor'wood, Proterra Properties, Denver Transit Oriented Development Fund, La Plata Communities, Windsor Ridge Homes, Clearwater Communities, Schuck Corporation, Equinox Land Group, DR Horton, Melody Homes, Standard Pacific Homes, Gateway American Properties, Zephyr Real Estate Company, Lowell Development Partners, and Palmer-McAlister, Classic Communities, Stoll Properties, Karen Bernardi, Colorado Commercial Builders, Terra Visions, Smith Creek Holdings, Picolan, Realty Development Services, Northgate Properties.
- **Commercial and Industrial Developers** - Performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and prepared Clean Water Act Section 404 Permits and mitigation plans for commercial and industrial developers, including: Atira Group, Leadership Circle, Ridgeway Valley Enterprises, Morley Companies, HF Holdings, Regency Centers, Miller-Weingarten, Gulf Coast Commercial Development, Traer Creek, Mountain Property Associates, Morley Golf, Executive Consulting, Inc.
- **Architectural and Engineering Companies** – Jon has performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and prepared Clean Water Act Section 404 Permits and mitigation plans for A&E firms, including: William Guman and Associates, JVA, Beyers Group, Engineering Analytics, Classic Consulting Engineers, J3 Engineering, DHM Design, Del-Mont Consultants, JW Nakai and Associates, Nolte and Associates, JR Engineering, Hyrdosphere, Executive Consulting Engineers, Muller Engineering, Farnsworth Group.
- **Counties, Municipalities, Metro Districts and Quasi-Public Institutions** – Mr. Dauzvardis has performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and prepared Clean Water Act Section 404 Permits and mitigation plans for counties, municipalities, and quasi-public institutions, including: City of Louisville Highway 42 and 96th Street realignment, City of Westminster Jim Baker Reservoir and Standley Lake Protection Projects, Jefferson County Highway 73 and 67 Improvement Projects, Todd Creek Village Metro District, Town of Monument/Triview Metro District, Boulder Community Hospital, and City of Fort Collins Regulatory Fact Sheets Preparation Project, Todd Creek Village Metro District on-call consultant, Three-lakes Water and Sanitation District, City of Greeley,
- **Educational Institutions** – Performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and prepared Clean Water Act Section 404 Permits and mitigation plans for educational institutions, including: Colorado Mountain College - Steamboat Springs, The Classical Academy – Colorado Springs, and Coal Ridge High School – Rifle.
- **Wind Energy Developers** – Performed numerous wetland and T&E species habitat ecological assessments, wetland delineations, and critical issues analyses for wind development projects, including: Cedar Creek Windfarm – Weld County, CO, Wheatland Windfarm – Platte County, WY, Silver Mountain Windfarm – Huerfano County, CO, Pole Canyon Windfarm, Huerfano Count, CO.

- **Mining Companies** – Performed wetland and T&E species habitat ecological assessments, wetland delineations, and critical issues analyses for mining companies, including: Brannan Sand and Gravel Company, Lafarge and Kennecott Coal.

Ecological Master Planning

- **Jackson Creek Land Company PMJM and Wetland Mitigation, Colorado Springs, CO** – ecos has been performing Preble's meadow jumping mouse (PMJM) habitat biological assessments, conservation, mitigation planning and design throughout its range since 1994. Among numerous other private land developers in the Colorado Springs areas, ecos is currently assisting the Jackson Creek Land Company and Triview Metropolitan District with the implementation of physical habitat conservation and mitigation measures, including shortgrass prairie, upland hibernaculum, and riparian habitat restoration. Jon is responsible for mapping, design assessment and restoration plan preparation.
- **Park Creek Mitigation Bank, Fort Collins, CO –** ecos was retained by Burns and McDonnell to assess, map, and prepare preliminary mitigation design of aquatic, wetland, riparian and terrestrial habitat in support of a mitigation banking prospectus. Upon completion and acceptance of the prospectus by the USACE, ecos has been tasked to manage the baseline assessment of the site, including groundwater testing, topographic surveys, and hydrology; prepare a detailed habitat design for inclusion in mitigation banking instrument; as well as coordinate design-build process with a selected nursery and contractor. Jon has been responsible for the mapping and preparation of design documents and will co-manage construction and long-term monitoring to help our client meet their performance criteria and sell bank credits.
- **Front Range Umbrella Mitigation Bank, CO –** ecos was retained by Restoration Systems, a nationally renowned wetland mitigation banking firm, to help identify and prepare conceptual design plans for mitigation banking sites to establish the Front Range Umbrella Mitigation Bank (Bank). The purpose of the Bank is to provide compensatory mitigation credits for unavoidable, permitted impacts to aquatic, wetland, riparian, upland, wildlife, and threatened and endangered (T&E) species habitat regulated under the Clean Water and Endangered Species Acts; and to restore, enhance and preserve valuable natural resource functions at degraded mitigation sites within multiple watersheds along Colorado's Front Range. Currently, the Bank is developing banks sites that serve the Cache la Poudre, St. Vrain, Upper South Platte, Fountain and Upper Arkansas watersheds. Jon's primary role on the team is to perform functional habitat assessments; prepare mapping and graphics of baseline and future conditions; grading and plant community design based on hydrologic, hydraulic, and geomorphic modelling and engineering; and communicate with landowners and stakeholders regarding the process, technicalities, and outcomes.
- **Sand Creek Channel Improvements Stability Analysis at Indigo Ranch, Colorado Springs, CO** - ecos was retained to perform an analysis of channel stability under proposed development conditions for a 1.17 mile reach of Sand Creek. Ecos utilized existing vegetation composition data, density and height within the Project reach as a basis; and compared the 10-year and 100-year storm event modelling data (specifically flow velocity, flow depth and shear stress) to reference literature to provide a professional opinion regarding the future stability of the channel under developed conditions. The analysis of channel stability for the proposed Project assumes a bioengineering and biotechnical approach that preserves and enhances the existing vegetation, as well as substrate cohesion and stability, within the channel and its streambanks. The Stability Analysis will likely serve as a benchmark study for the City of Colorado Springs to use to preserve other naturally stable channels.
- **Brush Creek Ranch Stewardship Plan, Saratoga, WY** – Brush Creek Ranch Stewardship Plan, Fishery Enhancement and Bank Stabilization, Saratoga, WY – Mr. Dauzvardis managed the organization, generation and graphic design of the Ranch Stewardship Plan. Jon assessed and prepared stewardship goals, objectives, and implementation action items, including ranch-wide master planning of the trail and recreational systems and design of the Brush Creek riparian corridor trail. Trail and recreation planning and design focused on universal access, habitat sensitivity, environmental education, wildlife observation opportunities and unique landscape experiences. Simultaneously with the master plan, Jon developed revegetation plans to support geomorphic stream alterations and bank stabilization to enhance the creek fishery. Jon was responsible for the design and supervised construction of a cold-water pond to be used by novice anglers to learn the art and experience the pleasure of catching trout.
- **Town of Erie, Comprehensive Plan, Parks Recreation Open Space and Trails Master Plan, and Natural Areas Inventory, Erie, CO -** As a former 8-year Member, Chair, and Vice Chair of the Town Erie

Open Space and Trails Advisory Board (OSTAB) and an Erie resident and small business owner, Jon has an intimate knowledge of Erie's political and physical landscape and public processes. During his tenure on OSTAB, Jon actively participated in the writing and development of the Town's guiding documents. Jon authored the Open Space Chapter of the Comprehensive Plan which eventually was codified in the Town's Unified Development Code (UDC). Jon was the key commenter on the content, analysis and synthesis of the of the Open Space and Trail Chapters and Mapping that was adopted with the Town's first Parks Recreation Open Space and Trails Master Plan (PROST). Jon guided the process used in the development of the Erie Natural Areas Inventory (ENAI) to identify and design a habitat condition, quality and restoration rating and ranking system of significant natural areas throughout the Town's 49-square mile planning area.

- **Uncompahgre River Corridor Master Plan, Montrose, CO** – Jon was responsible for the development of an ecological master plan focusing on the Uncompahgre River as a natural asset for eco-tourism and the generation of riverfront economic development. Mr. Dauzvardis was responsible for assessing the character, condition and quality of aquatic, wetland and riparian habitat; and developing a rating, ranking, land acquisition prioritization system, and associated mapping aimed at the preservation and integration of open space and habitat within the City's parks, recreation and trail system.
- **Ruby Pipeline Wetland, Riparian and Waterbody Mitigation and Restoration Plan, WY, UT, NV and OR** – Jon was responsible for assisting with the generation of a Comprehensive Wetland Mitigation Plan outlining Clean Water Act regulatory guidelines, requirements, and processes. Jon developed an eco-region specific restoration plan for a 675-mile natural gas pipeline specifying the basis of design, construction, revegetation, maintenance, performance criteria, and monitoring means and methods for restoring approximately 460 acres of temporarily impacted riparian and wetland habitat.
- **Dry Creek Regional Urbanization Area, Weld County, CO** – Mr. Dauzvardis performed an ecological inventory and prepared the assessment report for a 6,000-acre Regional Urbanization Area (RUA); and a1000-acre multi-use site development in un-incorporated Weld County. Subsequent phases included establishing ecological policy, goals, and objectives for the study area that will assist the County in the refining their first ever Comprehensive Plan.
- **City of Broomfield I-25 Subarea Environmental Guidelines, Broomfield, CO** – Jon drafted development sensitivity design and ecological sustainability standards.
- **McStain Development Corporation, Mountain Village III Master Plan, Loveland, CO** – Conducted concept planning for recreational and environmental interpretation facilities focusing on lake and wetland habitat features of the community.
- **Estes Park Comprehensive Land Use Plan, Estes Park, Larimer County, CO** – Teamed with town planning staff in producing a county-wide land use plan using GIS as a public involvement/participation tool.
- **San Miguel River Park Corridor Master Plan, Telluride, CO** – Prepared park, trail, wetland and riparian corridor master plan and design for the San Miguel River Park Corridor. Jon prepared illustrative plan graphics that assisted the Town in applying for and winning approximately $500,000 in Natural Resource Damage Assessment Fund money from the State of Colorado, which was used for final design and implementation.
- **South Platte River Wildlife and Recreation Corridor Plan, Denver, CO** – Designed the Zuni Riverfront Park and planned the wildlife and recreation corridor between I-25 and 8th Street near Mile High Stadium. Prepared, steered and presented graphics that the City and County of Denver Mayor's Commission (Wellington Webb) and the Urban Drainage and Flood Control District used to help sell the project to the public and federal funding sources in Washington D.C.
- **Historic Arkansas River Walk, Pueblo, CO** – Coordinated and steered the design and presentation of riparian, aquatic, and palustrine wetlands in the HARP Natural Area. Designed environmental Education Park to include outdoor classroom, access, and multi-thematic interpretive nodes.
- **Pueblo Natural Resources and Environmental Education Council Plan, Pueblo, CO** – Designed the identity and jointly produced strategic natural resource based environmental education plan for Pueblo County (PNREEC). The plan helped build consensus among multiple private and governmental agencies and stakeholders on funding, conservation, restoration, and enhancement priorities throughout the County.
- **Aluminum Company of America (ALCOA) Huisache Cove Master and Design Plan Master of Landscape Architecture Thesis, Port Lavaca, TX** – Served as environmental consultant in researching and generating wildlife habitat restoration plan and multi-functional landfill cap redesign incorporating

coastal prairie, lacustrine, palustrine, estuarine wetlands, passive recreation, bird watching and ecological interpretation facilities on an industrial superfund clean-up site.

Aquatic, Wetland, and Riparian Habitat and Mitigation Design:

- **Big Thompson River Flood Recovery and Restoration, Loveland, CO -** ecos is currently part of a multi-disciplinary team assisting the Big Thompson Watershed Coalition (BTWC) with assessment, design, and construction of the Big Thompson between Rossum and Wilson Drives which are majority-owned by the City of Loveland and Loveland Ready-mix. As with all the flood recovery projects ecos has worked on, Jon produced 30%, 60% and 100% design plans, construction cost estimates, and specifications guiding soil development/enrichment; upland, riparian, and wetland seeding and planting; and numerous bioengineering techniques aimed at restoring the river and making it more resilient to future flood events. This project is aimed at completion in the summer of 2019.
- **Saint Vrain Creek Reach 3 Flood Recovery and Restoration, Boulder County, CO** - ecos is part of the multi-disciplinary team assisting Boulder County Parks & Open Space (BCPOS) with resilient design for the restoration of Reach 3 of the Saint Vrain Creek (from Highway 36 downstream to Hygiene Road) that was damaged by the 2013 floods. Jon's role in the project includes: 1) desktop and field assessment to inventory and document the characteristics of the stream reach and riparian corridor (e.g. in-stream features, vegetation, wildlife habitat); identify and locate significant habitat features within the areas of proposed construction; identify potential sources of native plant materials for restoration; and identify areas of opportunity within the reach that require native vegetation, wetland, PMJM, leopard frog and fishery habitat restoration; and delineate wetland habitat and waters of the U.S. in all areas of proposed/potential construction-related impact; 2) vegetation community and wildlife habitat restoration design; 3) permitting and compliance under the CWA, ESA and NHPA; and 4) construction oversight of restoration construction activities. This project was completed in the summer of 2018.
- **Bohn Park Flood Recovery and Restoration, Town of Lyons, CO** – ecos is part of the Design Team assisting the Town with the restoration, enhancement and stabilization of Bohn Park which was damaged by the 2013 floods. Ecos role is to assess, design, and prepare design-bid-build specifications for the natural restoration of the vegetation communities and habitat along South St. Vrain Creek that have been incorporated in to the landscape architecture of Bohn Park, the Towns largest and most used recreational asset. This project was completed in the spring of 2018.
- **Fourmile Creek Flood Recovery and Restoration, Boulder County, CO** – ecos was part of the Fourmile Watershed Coalition design-build team tasked with restoring flood-damaged properties that were prioritized in the watershed master plan. Jon generated seeding and planting plans, performance notes, cost estimates, and co-managed construction oversight in collaboration with the executive director of the Watershed Coalition. This project was completed in the summer of 2017.
- **James Creek Post-flood Restoration, Lefthand Watershed Oversight Group (LWOG), Jamestown, CO –** ecos was part of the LWOG Team responsible for preparing the 30-60% design package for James Creek Reach 16 as identified in the Lefthand Creek Watershed Master Plan. ecos performed pre- and post-flood plant community assessment; developed revegetation goals and objectives, the basis of design, monitoring protocols, and revegetation plans according to Colorado Department of Local Affairs, Community Development Block Grant – Disaster Recovery 30% Guidelines. Specific resources and issues of concern addressed by ecos, included federal and state listed candidate, threatened and endangered species, wildlife species of concern (including raptors), fisheries and fish passage, native plant communities, and management of noxious weeds.
- **Saint Vrain Creek Flood Recovery and Restoration, Town of Lyons, CO –** ecos is part of a design-build team tasked with restoring the St. Vrain Creek corridor in the Town of Lyons that was damaged during the September 2013 flood event. The goal of the project is to work with the Town and affected land-owners to create a more resilient floodplain and natural channel condition that will help alleviate future threats to the community, reestablish floodplain connectivity, stabilize banks, and restore aquatic, wetland and riparian habitat that was wiped out during the flood. Mr. Dauzvardis is responsible for developing the plant communities and revegetation strategies needed to restore aquatic and riparian structure and functions within the corridor that support fish, wildlife, recreation, and help the Town regain the ecological benefits and economic value they receive from outdoor enthusiasts. This project was completed in the summer of 2016.

- **Plum Creek Mitigation Bank, Sedalia, CO –** ecos was retained by Restoration Systems to prepare conceptual design plans for the Plum Creek Mitigation Bank Site that is currently under consideration by the Chatfield Reservoir Mitigation Company (CRMC). The purpose of the Site is to provide compensatory mitigation credits for unavoidable, permitted impacts to wetland, PMJM and bird (target resources) habitat regulated under the CWA and ESA; and to restore, enhance and preserve natural resource functions. Jon has guided agency and CRMC staff on tours of the Site; performed plant community mapping, baseline EFU assessment for PMJM, and FACWet assessment of wetlands. Jon was responsible for mapping, interpretation, and quantification of historic and existing habitat on the site. Jon prepared Conceptual Design Plans for resource mitigation including channel geomorphology, PMJM and wetland habitat setting the stage for post-mitigation calculations of EFU's.
- **Bellvue Raw Water Ponds Riverbank Restoration, Bellvue, CO –** The 2013 flood on the Poudre River altered the course of the river and severely eroded a bank nearly causing a breach of the City of Greeley's raw water ponds – their main municipal water supply. The goal of the project was to stabilize the bank to protect the ponds and to create riparian habitat for the Preble's meadow jumping mouse, a federally listed threatened and endangered species. Jon was responsible for preparing bioengineering design plans and specifications that include soil/cobble encapsulated lifts, stream barbs to deflect flows away from the bank, and harder, biotechnical design of soil/riprap and stream bed scour protection measures to prevent erosion and further undermining and sloughing of the bank. Design plans included specification of native plant materials and various techniques to restore cottonwood forest and willow habitat to further stabilize the bank.
- **Poudre River Pipeline Crossing at Kodak, Windsor, CO –** Jon's role on the ecos team was to assess restoration potential, techniques, and prepare design plans and performance specifications to reclaim a pipeline corridor across the lower Poudre River where the City of Greely had to replace 3 major water supply lines. Flooding on the Poudre River in 2013 and 2014 temporarily suspended construction of the pipeline. Jon will oversee site stabilization and restoration measures once all 3 pipelines have been installed.
- **Lions Park Poudre River Restoration Plan, Laporte, CO –** Jon's role on the ecos team was to assess habitat conditions; gather, compile and analyze field survey data; and to prepare the mapping and mitigation design plans for the Lions Park PMJM habitat and the Poudre River Bank Stabilization Plans. Jon simultaneously designed and executed the technical drawings for the structural components of the habitat, ensuring that the proposed riparian plant community, habitat structures (brush piles), and bioengineered streambank stabilization measures will create the conditions that alleviate the current habitat fragmentation; support the life requisites of the PMJM; and enhance the overall health of the Poudre River fishery.
- **St. Vrain River Riparian Corridor Enhancement, Lyons, CO –** Jon designed, managed and led the construction of the Preble's Meadow Jumping Mouse Habitat (PMJM) enhancement project along the St. Vrain River. Jon worked in coordination with the project sponsor and Director of the Town of Lyons, Parks, Recreation and Cultural Events Department to implement required mitigation within a passive greenway park along the St. Vrain. Jon's role included riparian/PMJM mitigation site identification and habitat assessment; and design; and implementation of riverbank stabilization and riparian habitat enhancement measures.
- **Brush Creek Fishery Enhancement Plan, Saratoga, WY** – Prepared access, staging and design plans, details and performed on-site construction oversight of instream and riparian habitat enhancements and bioengineered bank stabilization along a 3-mile reach of Brush Creek. The purpose of the project is to enhance fish, bird and wildlife habitat and use these resources to facilitate education and improve the recreational experience of Ranch guests. Access routes were planned so that they can be easily converted to trails to avoid repetitive impacts to high quality habitat and productive pastures.
- **St. Vrain River Riparian Corridor Enhancement, Lyons, CO** – Jon is the lead Landscape Architect for the restoration and enhancement of Preble's Meadow Jumping Mouse Habitat (PMJM) along the St. Vrain River. Jon and ecos are working in coordination with the Town of Lyons, Parks, Recreation and Cultural Events team to implement this restoration project within a passive park area along the St. Vrain. Jon's tasks include riparian/PMJM habitat assessment; PMJM site location and habitat design; and implementation of riverbank stabilization and riparian habitat enhancement measures.
- **TZ Ranch, Elk Hollow Creek Fishery Habitat Enhancement Plan, Saratoga, WY -** ecos performed the assessment and design of the Elk Hollow Creek Project, which included instream and riparian habitat

improvements aimed at increasing bank stability, improving aquatic habitat and angling opportunities, and providing long-term stability to the reach. Instream improvements included drop structures, plunge pools, deep pools, riffles and spawning habitat. Bank improvements included seeding and planting plans for native wetland and riparian species. Jon was the lead on the generation of design-build plans and provided construction oversight of instream structure and native plant installation.

- **Brush Creek Ranch Pond Creation Plan, Saratoga, WY** – Prepared below grade pond excavation, grading, drainage and revegetation plan for a 0.30-acre fishing pond, followed by on-site field layout and surveying, wetland sod transplanting, submerged aquatic habitat and construction support of heavy equipment operators. The pond was designed to be a self-sustaining, cold water fishery that supports all components of the aquatic food-chain and incorporates all necessary life requisites for trout; and provide fishing opportunities during high water in Brush Creek.
- **Edwards Eagle River Restoration Project, Edwards, CO** – Assessment, planning, native plant community design and construction oversight of aquatic, wetland, riparian habitat along 1.5 mile reach and 168-acres of floodplain along the Eagle River utilizing indigenous materials and methods that naturally integrate habitat structure in the landscape context. Planning and design included trails, boat launch, boardwalks, overlooks, and interpretive sign systems and thematic content.
- **Boone Property, Boulder Creek Fishery Enhancement Project, Boulder, CO** – Performed site assessment and identified instream and overhead cover habitat to enhance fish habitat along a short reach of Boulder Creek adjacent to City of Boulder, Eldorado Canyon Open Space.
- **C-Lazy-U Ranch Willow Creek Fishery Enhancement Plan, Granby, CO** – Assessed and prepared design plans for 2 miles of instream and overhead cover habitat aimed at enhancing water quality through increased bank stability, improving aquatic habitat and angling opportunities, and providing long-term stability to the reach influenced ongoing ranching activities. Bank-side improvements include detailed seeding and planting plans indicating site-specific plant and seed locations, life zones, and species palettes according to hydrologic, soil, and aspect conditions.
- **Colowyo Coal Mine Wetland Creation Plan, Meeker, CO** – Performed wetland mitigation site feasibility assessment and design of 2.2-acres of created wetland benches along a 1.5-mile reach of the West New Goodspring Creek.
- **Uncompahgre River Wetland Creation and Streambank Stabilization, Montrose, CO** – Mr. Dauzvardis developed a Clean Water Act Individual Section 404, alternatives analysis and mitigation plans that successfully defrayed public descent and offset unavoidable impacts related to the River Landing Retail Development Project. Once approved by the USACE, the project turned a degraded, gravel-mined portion of the floodplain into functional and aesthetic riparian habitat that is now enjoyed by the public via a segment of trail that Mr. Dauzvardis designed. Two acres of riparian and "backwater" wetland habitat were strategically created along the Uncompahgre River to ensure reliable hydrologic connectivity and support of the designed wetland plant community. Nearly 350 lineal feet of severely degraded stream bank was stabilized using a naturalized bio-engineering approach that incorporated soil, native seed, erosion control blanket, shrubs, trees, and strategically located river boulders and logs to restore the riparian habitat, create fish habitat and redirect scouring flows away from the once barren bank.
- **River Point at Sheridan Brownfield Redevelopment, Sheridan, CO** – Designed and oversaw the construction of a "bio-engineered" and "bio-technical" vegetative landfill cap system and water quality swale that drains to the South Platte River. Jon was responsible for integrating the swale in to the River Point at Sheridan commercial redevelopment and the City of Englewood Golf Course renewal – renamed to the Broken Tee Golf Course.
- **Broken Tee Golf Course Flood Protection, City of Englewood, CO –** Oversaw the construction of a biotechnical subsurface stabilization and flood protection system (under-armor) designed to ensure that the woodland golf course tees, fairways and greens in the South Platte River floodplain are not compromised by flood scour. Designed and implemented bioengineered bank stabilization and under-armor on Bear Creek that was essential for protecting tees and greens. Jon was responsible for disproving the jurisdictional status of artificially supported wetlands via a groundwater monitoring system.
- **Lafarge Northbank Resources Gravel Pit Wetland Design, Rifle, CO** – Jon asses DMG requirements and prepared gravel pit reclamation plans aimed at providing suitable shallow-water wetlands and islands within the pit closure area to serve as compensatory mitigation for wetland impacts associated with mine operations adjacent to the Colorado River.

- **Leach Creek Stream Enhancement, Grand Junction, CO** – Designed stream corridor enhancements for a ½-mile section of Leach Creek that was channelized and used as an irrigation canal. Enhancements were designed to restore natural channel form and function, improve the aquatic environment, and provide mitigation for jurisdictional impacts permitted under the Nationwide Permit program. This project is being used as a model and replicated along other reaches of Leach Creek
- **Castro Property Wetlands and Wildlife Ponds, Beulah, CO** – Performed the site assessment, feasibility analysis, water resource and minor dam design, native plant design, landscape architecture, and supported the water rights application needed to create shallow water wetland habitat for amphibians, waterfowl, migrating bird and ungulates, and deep water habitat for trout at a sub-alpine elevation of 9000 feet. Project included development of a spring, creation of a creek and a mechanical water circulation and aeration system to support the aquatic, wetland, and riparian ecosystem. Organized, supervised and participated in a volunteer planting effort.
- **Jefferson County Gunbarrel Bridge Replacement, Oxyoke, CO** – Developed construction plans and specifications and oversaw construction of wetland and Preble's mouse habitat mitigation to enhance weedy and degraded wetland and Preble's mouse habitat along Gunbarrel Creek, a tributary to the upper South Platte River near Deckers, CO.
- **Coal Creek Bank Stabilization, Erie, CO** – Assessed, permitted, designed and performed construction oversight of bio-engineered/bio-technical bank stabilization and wetland creation associated with the Vista Parkway bridge crossing over Coal Creek in Erie, CO. The project involved pulling back vertical banks and restoring native wetland, riparian, and short grass prairie habitat.
- **Spring Creek Wetland Mitigation, Colorado Springs, CO** – Generated wetland and creek creation plans that integrated required mitigation into a high density, "new urban" development. The design emphasized re-utilization of urban storm water to sustain wetlands, use of indigenous plants, construction materials, and natural geomorphic relationships.
- **Sulphur Gulch, Parker, CO** – Developed a naturalized sculpted concrete drop structure design, planting and bio-engineering plans for a highly visible, urbanizing reach of a sandy creek through the center of the Town of Parker.
- **Skylark Creek Restoration Plan, Kremmling, CO** – Designed and performed construction oversight of aquatic, wetland and riparian plant community, and trail system along a historic side channel of the Upper Colorado River on a private fishing ranch.
- **ARCO Opportunity Ponds Wetland Mitigation Design, Anaconda, MT –** Jon generated the design of a 908-acre complex of wetlands and terrestrial habitat required to meet the Consent Decree and the functional assessment criteria established during the wetland assessment process mentioned previously. The design is currently being implemented. Once complete, the grading, drainage, hydrology, and revegetation strategy used to create wetlands from massive soil borrow pits will potentially be the largest inland, freshwater wetland mitigation project in the United States.
- **Northgate Boulevard Realignment, Colorado Springs, CO** – Coordinated and prepared ESA Section 7 and CWA Section 404 consultation documents as required by the USFWS and USACE, including mitigation construction documents, specifications, on-site layout of plant communities and construction supervision aimed at restoring wetland and riparian habitat occupied by Preble's meadow jumping mouse.
- **Northgate PMJM and Wetland Mitigation Plan, Colorado Springs, CO** – Mr. Dauzvardis was an instrumental member of multidisciplinary team responsible for delineating wetlands, preparing ESA Section 7 and CWA Section 404 assessment, impact analysis and consultation documents as required by the USFWS and USACE. As the lead designer, Jon was responsible for the design of over 80 acres of wetland, riparian, and grassland habitat utilized as primary and secondary habitat for Preble's Meadow Jumping Mouse, a Federally-listed threatened species. Jon prepared mitigation construction documents, specifications, onsite layout of plant communities and supervised construction for this precedent setting mitigation plan designed to offset impacts to critical habitat over a 1200-acre site.
- **Martin County Coal Corporation, Inez, KY** – Mr. Dauzvardis bioengineered and performed on-the-ground triage of two stream corridors, consisting of 26 miles, impacted by a coal slurry spill that originated from a mountaintop mine reservoir used to hold liquefied coal dust. Jon identified and documented critically imperiled stream banks and human settlements, and then designed, coordinated, led and supervised local crews during the implementation of specified floodplain, bioengineered bank stabilization, and reforestation efforts.

- **Uncompahgre River Restoration and Park Corridor, Ouray, CO** – Jon designed and performed construction oversight of the restoration and reclamation of one mile of upland, riparian and wetland habitat left barren by historic placer mining. The major challenge presented by this project was a lack of soil, organic matter and nutrients to sustain vegetation. This constraint was addressed by amending the soil with humate and planting and seeding riparian vegetation to initiate natural succession and bioaccumulation of matter, assisted by an irrigation system that injected organic fertilizer and microbes (mycorrhizea) in to the substrate.
- **Burlington Mine Remediation, Jamestown, CO** – Preparation and management of specification package, best management practices (BMPs), and revegetation design for mine waste capping and closure.
- **Powder River Coal Company – Porcupine Creek Restoration, Douglas, WY** – Designed and supervised the construction of this post mine wetland/creek restoration project. Following the pit closure, reclamation specialists reestablished the original location and geomorphic relationships of the creek using historic aerial photography using a trapezoidal channel cross-section design. Jon adapted the design creating grading and wetland planting plans that mimic the landform, natural lateral and longitudinal channel tilt, and plant communities that are indigenous to ephemeral creeks in the shortgrass prairie landscapes of eastern Wyoming.
- **Sand Creek Corridor Habitat Enhancement at Bluff Lake, Denver, CO** – Prepared plant community, bioengineering and bank stabilization design. Prepared visualization graphics to present and receive design approval.
- **Intrawest Resort Development, West Ten Mile Creek, Copper Mountain Village, CO** – Prepared vegetation community and concept design of village base streamside recreational amenities.

Construction and Plant Installation:

- **St. Vrain River Riparian Corridor Enhancement, Lyons, CO –** Jon managed construction and implementation of the restoration and enhancement of 0.60-acre of riparian Preble's Meadow Jumping Mouse Habitat (PMJM) along the St. Vrain River.
- **Standley Lake Protection Project, Westminster, CO** – Designed and supervised construction of a 0.50-acre created emergent wetland to fulfill final mitigation requirements of the USACE and bring closure to the City's drinking water protection project.
- **Caribou Peat Bog Restoration, Nederland, CO** –Prepared native plant community design, planting cost estimate, and on-the-ground oversight of volunteers to restore a high-altitude peat bog disturbed by an illegal four-wheel drive "mudfest".
- **Department of Energy (DOE) Wetland Mitigation Bank, Westminster, CO** – Construction supervision of grading and planting plans of a 12-acre wetland mitigation bank design for the Department of Energy.
- **ARCO Lower Area One and Butte Reduction Works, Butte, MT** – Performed construction observation and supervision of temporary labor crews to plant a passive treatment wetland designed to absorb heavy metals from groundwater.
- **Colorado Department of Transportation Mitigation Bank, Limon, CO** – Performed in-field planting design and supervised local labor to complete a 10-acre wetland mitigation bank designed by CDOT to offset future wetland impacts in the transportation region.
- **Irvine Ranch Water District – San Joaquin Wetland Treatment System, Irvine, CA** – Planting superintendent of a wetland designed to be a used as tertiary wastewater treatment facility and waterfowl refuge.

PRESENTATIONS & INSTRUCTION:

Dauzvardis, Jonathan B. 2008. Preserving the Ecological Services of Willow Cuttings. Research presented at the Colorado Riparian Association (CRA) Sustaining Colorado Watersheds Conference. October 2, 2008. Vail, Colorado.

Dauzvardis, Jonathan B. 2006. Water Pollution and Wetland Plant Tolerance to Various Ph Levels. Classroom instruction with Elementary Students. Flagstaff Academy Charter School. February 2, 2006. Longmont, Colorado.

Dauzvardis, Jonathan B. 2006. Soil Erosion and Habitat Destruction. Classroom instruction with Elementary Students. Flagstaff Academy Charter School. January 26, 2006. Longmont, Colorado.

Dauzvardis, Jonathan B. 2004. Wetland and Wildlife Habitat Restoration, Opportunity Ponds, Anaconda, Montana. Poster Presentation at Ecological Restoration Conference. October, 2003. Orlando, Florida.

Dauzvardis, Jonathan B. 2003. Application of Landscape Ecology Principles to Mine Remediation and Wetland Creation: An Ecological Restoration Seminar using a Case Study of the Opportunity Ponds Wetlands Plan, Anaconda, Montana. Presented at the University of Colorado, Denver. November, 2003. Denver, Colorado.

Dauzvardis, Jonathan B. 2000. Endangered Species Act Issues: Incorporating the ESA into Mitigation Projects. Presented at the Continuing Legal Education (CLE, International) Colorado Wetlands Conference. September 18, 2000. Denver, Colorado.

AWARDS:

- Colorado Landscape Contractors Award, Sand Creek Enhancement Project – 2000
- Colorado Landscape Contractors Award, Skylark Creek Restoration Project – 1998
- Colorado American Society of Landscape Architects, Research, and Communications – 1997
- Texas American Society of Landscape Architects Honor Award – 1995
- Texas A&M Landscape Architecture Faculty Award – 1995

PROFESSIONAL ASSOCIATIONS:

- Town of Erie, Colorado Open Space and Trails Advisory Board (OSTAB) - As a former member and chair of the Town of Erie Open Space and Trails Advisory Board (OSTAB), Mr. Dauzvardis routinely collaborated with Town Administrator, Community Planning, Public Works, and Parks and Recreation Directors and Staff, and advised the Board of Trustees on all matters related to the goals, objectives, prioritization, acquisition, conservation, and the management of open space and trails throughout a 49-square mile planning area. Jon's 8-year experience on the OSTAB translates to an intimate knowledge of public processes.
- Society of Wetland Scientists (SWS)

ecos ecosystem services LLC

RESUME

Grant E. Gurnée, P.W.S.

Owner/Managing Partner
Senior Restoration Ecologist
Fisheries and Wildlife Biologist
Wetland Ecologist

AREAS OF EXPERTISE:

- Project Management for Complex, Environmental Regulatory and Restoration Projects
- Habitat Assessment, Surveys, Planning, Permitting, Restoration Design, Construction Oversight & Monitoring for:
  - Aquatic, Wetland and Riparian Habitat, and Wildlife Habitat
  - Threatened & Endangered Species, Special Status Species, and Species of Concern
  - Nesting Birds & Raptors
  - Natural Areas, Open Space, Trails and Environmental Education Facilities
  - Conservation and Resource Mitigation Banks
- Natural Resources/Environmental Regulatory Compliance
- Construction Oversight & Best Management Practices
- Grant Funding Support for Conservation and Restoration Projects
- Expert Witness Testimony

EDUCATION:

- MCRP, Environmental Planning and Law Program, Rutgers University, 1994
- Bachelor of Science, Biology, Richard Stockton College of N.J., 1984

EMPLOYMENT HISTORY:

- 2008-Present: Owner, Managing Partner and Senior Restoration Ecologist
  Ecosystem Services, LLC, Erie, Colorado
- 1999-2011: Ecological Restoration Group Manager
  Walsh Environmental Scientists and Engineers, LLC, Boulder, Colorado
- 1994-1999: Vice President and Consulting Division Manager
  Aquatic and Wetland Company, Boulder, Colorado
- 1987-1994: Ecological Assessment Group Manager
  Killam Associates, Millburn, New Jersey
- 1989 – 1994: Owner and Ecologist, Westhill Environmental, Colonia, NJ
- 1986-1987: Project Manager, Connolly Environmental, Denville, New Jersey
- 1985-1986: Biological Technician/Team Lead, EA Engineering Science and Technology, Forked River Field Station, New Jersey

CONTINUING EDUCATION:

- Stream Functions Pyramid Workshop, Denver, CO - 2014
- Colorado Natural Heritage Program, Wetland Plant Identification - 2014
- Colorado Natural Heritage Program, Ecological Integrity Assessment for Colorado Wetlands - 2013
- FACWet – Functional Assessment of Colorado Wetlands - 2010, 2012 and 2013
- Natural Treatment System Design and Implementation, Southwest Wetlands, Phoenix, AZ - 1995
- Continuing Education in Coastal and Wetland Ecology, Rutgers University, 1985 – 1994

CERTIFICATIONS:

- Professional Wetland Scientist, Certification (#559), Society of Wetland Scientists Certification Program, 1995
- Certified Wetland Delineator, Army Corps of Engineers Wetland Delineator Certification Program, 1993
- Wetland Mitigation Planning and Design Certification, Environmental Concern, Sparks, MD, 1992
- Certified Ornithologist, Marine Biologist, Aquatic Biologist and Ecologist for the preparation and certification of Environmentally Sensitive Areas Protection Plans, N.J. Dept. of Environmental Protection and Energy, 1988
- Wetland Delineation and Regulatory Certification, National Wetland Science Training Institute, 1988

PROTECTED SPECIES SURVEYS AND HABITAT ASSESSMENTS:

- Ute-ladies' tresses orchid and Colorado butterfly plant
- Preble's meadow jumping mouse
- Nesting birds and raptors, including burrowing owls
- Swift fox and bobcat
- Boreal toad
- Pine Barrens and grey tree frogs
- Freshwater, estuarine and marine surveys for native fish
- Western Tiger Salamander
- Terrestrial and sea turtles

EXPERIENCE SUMMARY:

Mr. Gurnée is a founder and managing partner of Ecosystem Services, LLC (ecos), a design-build, ecological planning and design firm that is the culmination of his life's work and passion for restoring and conserving the natural world. Grant is a certified Professional Wetland Scientist with over 35 years of experience in wetland ecology, restoration ecology, wildlife and fisheries biology, environmental planning, and regulatory compliance. Prior to ecos Grant established the Ecological Restoration Group at Walsh Environmental and was the Vice President in charge of the Consulting & Design Division for Aquatic and Wetland Company, the first design-build-grow firm in Colorado. Mr. Gurnée utilizes his diverse field assessment and hands-on experience to bring a unique and pragmatic, big-picture perspective to projects from conceptual planning through implementation. Grant's environmental planning and law education combined with his regulatory compliance experience make him one of the leading experts in the Intermountain West in Clean Water Act and Endangered Species Act issues. He enjoys teaching and furthering the science and art that comprise the field of restoration ecology. As such, Grant has published and presented papers and technical manuals, and lectured nationally and internationally at educational programs that further the understanding of aquatic, wetland, riparian and T&E species habitat assessment and restoration. Mr. Gurnée has also been called upon to provide expert reports, expert witness testimony and liaison representation in complex regulatory compliance matters.

RELEVANT PROJECT EXPERIENCE:

The following is a sampling of select projects and clientele that Grant has successfully completed or is currently involved in:

Habitat Assessment and Regulatory Compliance

- **Banning Lewis Ranch, Colorado Springs, CO** – ecos was hired by Norwood Homes to perform a Preliminary Habitat Assessment (PHA) for the Banning Lewis Ranch (BLR), an 18,000-acre property within El Paso County, Colorado that will double the size of Colorado Springs once it is developed. The PHA included an assessment and mapping of vegetation, noxious weeds, Federal and State Listed Candidate, Threatened and Endangered (T&E) Species, Wildlife Species of Concern (including Raptors), Waters of the U.S. and Wetland Habitat, Floodplains, and Cultural, Archeological and Paleontological Resources. The PHA Report summarizes ecos' Site assessment findings and includes the mapping of all ecological constraints and cultural resources, a preliminary jurisdictional status determination of all potential wetland habitat and waters of the U.S. (WOUS) under the Clean Water Act (CWA), a summary of ecological opportunities and constraints, and provides regulatory guidance to assist in planning and implementing the future development of the BLR. Norwood and their planning team, in association with ecos, are currently uploading and interpreting all of the ecos Site assessment mapping into their base GIS layers to inform

future site planning and recommend proactive measures to conserve wildlife and wetland habitat, pristine prairie and ephemeral creeks, floodplains, and significant cultural resources.

- **Clean Water Act Jurisdictional Assessment of El Guique Mine in Estaca, New Mexico –** Ecos assisted Espanola Transit Mix, LLC (ETM) in their assessment at the El Guique Mine in Estaca, New Mexico (Site) by determining the potential jurisdictional status of onsite drainages and other waters under the CWA. We reviewed available background information and base mapping to gain a better understanding of the Site and the adjacent offsite area and prepared an overlay of potential WOUS on Google Earth aerial Imagery for mark-up and notation in the field. Ecos then conducted a field assessment to review Site conditions, and potential offsite, downstream connections to WOUS, and particularly the presence of a Significant Nexus to the Rio Grande, a TNW. We drafted a Technical Memorandum summarizing the methodology employed, the results of the field assessment, the rationale under the CWA for all areas deemed to be excluded or non-jurisdictional and illustrated the locations of potential jurisdictional and non-jurisdictional features identified in the field on Google Earth aerial imagery.
- **Bellvue Pipeline Project, BMP Facilitator, Larimer County, CO** – ecos was retained by the City of Greeley as Best Management Practices (BMP) Facilitators to provide pre-construction documentation post-construction oversight of pipeline reclamation processes. Essential responsibilities include meeting with landowners prior to construction to facilitate project understanding and post-construction outcomes; to document landowner needs and wants relative to project goals and land use; to document and monitor pre- and post-construction reclamation and maintenance requirements; and to ensure the contractors maintain compliance with all state and federal laws, county regulations, and Greeley construction and restoration specifications.
- **Encana Oil and Gas (USA), Denver Julesburg Basin, CO** – Encana hired ecos to assess their ecological constraints, recommend means and methods to avoid, minimize and permit unavoidable impacts; and to mitigate, restore and prepare ecological management plans for their drilling and pipeline operations in the Denver Julesburg basin. Grant's role on the team is to perform site assessments, research background data, and prepare assessment reports and mapping data that can be utilized by Encana's project managers to proactively track ecological resources before issues arise. In addition to client consultation, Ecos is responsible for tracking drill site schedules, constraints, restoration and management efforts in a data base and reporting said information to Encana's project manager on a regular basis.
- **Georgetown Lake, Georgetown, CO** –ecos was hired to perform an onsite assessment of ecological resources and prepare a summary report to describe the physical/ecological characteristics of the Project area and evaluate the potential effects of the construction of a loop trail project on environmental issues and species of concern to support a GOCO grant application. Items evaluated and documented, include site location/ownership, general site characteristics, current land use, proposed impacts, possible effects on Federal– and State-listed T&E animal and plant species, unique or important wildlife, water quality, water bodies, wetlands, and floodplains, stormwater runoff, sedimentation, soil erosion, and invasive species. The assessment report also included mitigation measures, project benefits, and environmental compliance recommendations under applicable regulatory programs.
- **Site Assessments for General Vegetation Cover and T&E Species Presence/Absence** – ecos was retained by JADE Consulting, LLC to perform the assessment of two future development sites located in Lafayette and Yuma, Colorado. We performed a desk-top assessment to identify existing site characteristics and screen the potential presence/absence of federally-listed threatened and endangered (T&E) species and followed up with onsite assessments to verify our preliminary findings. Our findings and recommendations were summarized in a Technical Memorandum in which we determined that no further assessment or regulatory compliance actions are required.
- **The Cove Assessment & Regulatory Compliance Report, El Paso County, CO** - ecos was retained by Lake Woodmoor Development, Inc.to perform a natural resource assessment for The Cove development, and to prepare a Natural Features Wetland, Wildfire, Noxious Weeds & Wildlife Report (Report) pursuant to El Paso County environmental review regulations. The purpose of the project was to identify and document the natural resources, ecological characteristics and existing conditions of the Site; identify potential ecological impacts associated with Site development; and provide current regulatory guidance related to potential development-related impacts to natural resources, including: Mineral and Natural Resource Extraction; Vegetation; Wetland Habitat and Waters of the U.S.; Noxious Weeds; Wildfire Hazard; Wildlife; Federal and State Listed Candidate, Threatened and Endangered Species; and Raptors and Migratory Birds.

- **Jurisdictional Determination Request for Banning Lewis Ranch, Villages 1 and 2 Residential Development, El Paso County, CO** - ecos was retained by Oakwood Homes, LLC to review a 2014 Jurisdictional Boundary Delineation and determine if a portion of the wetlands and waters within the site could be deemed non-jurisdictional under the Clean Water Act (CWA) based on their "isolated" status. Following data review, ecos arranged a field assessment with the U.S. Army Corps of Engineers (Corps) to review site conditions, and potential offsite, downstream connections to waters of the U.S. (WOUS), and particularly the presence of a Significant Nexus to Traditional Navigable Waters TNW). Ecos and the Corps agreed that several of the intermittent drainages on the suite are not jurisdictional under the CWA, as they are not: 1) a TNW or wetland adjacent to a TNW; 2) a Relatively Permanent Water (RPW) or a wetland directly abutting an RPW with perennial or seasonal flow; 3) a tributary to a TNW; or 4) a direct tributary to a downstream WOUS as the feature loses it bed and banks. The Corps submitted ecos' findings to the U.S. Environmental Protection Agency (EPA) and they concurred and issued an Approved Jurisdictional Determination stating that the drainages were indeed "isolated" features exempt from the CWA.
- **Bellvue Pipeline Project, CWA and ESA Regulatory Negotiation, Larimer County, CO** – ecos assisted the City of Greeley from 2011 through 2014 in their negotiations with the Corps to facilitate review and verification of the Project under CWA, Nationwide Permit12 (NP12) in 2014. Grant aided the City during Corps meetings, field visits and teleconferences; in coordinating with the Corps and the technical experts on the Corps Common Technical Platform (CTP) team; and in utilizing the CTP Poudre watershed data to assess the probability of Project-specific impacts. Grant also provided regulatory and technical support to the City for the CWA, Pre-Construction Notification (PCN) Supplement for the Project from 2014 through the USACE's 2017 issuance of the "removal of capacity conditions for the Northern and Fort Collins segments" placed on the 2014 NP12. His tasks included performing Impact Avoidance Evaluations, providing historical context and data from the initial work performed for the City on this Project, assisting a Team of multi-disciplinary professionals in the preparation of Impact Assessment Reports, meeting with the City to discuss overall regulatory strategy, assisting with the preparation of the cover letter to transmit the PCN Supplement to the USACE, and assisting with discussions and presentations to the USACE during their review and processing of a Minimal Effects Determination for the Project.
  Mr. Gurnée also assisted Greeley in their negotiations with the FWS to facilitate review and consultation for the Northern Segment of the Project under Section 7 of the ESA. Grant led the field assessment with FWS, identification and prioritization of potential PMJM habitat mitigation sites, development of a conceptual design for the selected PMJM habitat mitigation sites, and preparation of the Biological Assessment Addendum and Habitat Mitigation Plan. Grant also aided the City during agency review and approval of the FWS Biological Opinion by utilizing his relationships with the FWS, and extensive experience of ESA regulations, policies and precedents.
- **Appraisal Support Documentation Report for the 1st Bank Parcel, Colorado Springs, CO** - ecos was retained by 1st Bank Holding Company to perform a Preble's meadow jumping mouse (PMJM) habitat assessment, mitigation cost analysis and conceptual lot layout for the approximate 9.4-acre 1st Bank Parcel (Site) situated south of the Gleneagle residential development and north of the current Northgate Open Space along Smith Creek in Colorado Springs, Colorado.
- **South Boulder Canon Ditch Maintenance, Clean Water Act (CWA) Exemption Determination, Erie, CO** – ecos assisted the Town of Erie in exempting their proposed ditch maintenance project by performing an assessment of site conditions, submitting the assessment report to the Corps, and verifying that said project is exempt pursuant to Section 404(f) of the CWA.
- **Endangered Species Act (ESA) Compliance Documentation for the Pinon Lake tributary CLOMR Application, Forest Lakes Filing 2B in El Paso County, Colorado** – ecos performed an assessment to document the absence of federally-listed T&E species and their habitat and prepared a report for FEMA that documents that the proposed CLOMR action will not result in a "take" of T&E species.
- **Gleneagle Infill Development Assessment & Regulatory Compliance Report, El Paso County, CO** - ecos was retained by G & S Development, Inc. to perform a natural resource assessment for the proposed Gleneagle Infill Development at the former Gleneagle Golf Course, and to prepare a Natural Features and Wetland Report (Report) pursuant to El Paso County environmental review regulations. The purpose of the project was to identify and document the natural resources, ecological characteristics and existing conditions of the Site; identify potential ecological impacts associated with Site development; and provide current regulatory guidance related to potential development-related impacts to natural resources, including: Mineral and Natural Resource Extraction; Vegetation; Wetland Habitat and Waters of the U.S.;

Weeds; Wildfire Hazard; Wildlife; Federal and State Listed Candidate, Threatened and Endangered Species; and Raptors and Migratory Birds. As part of the Project, ecos obtained an Approved Jurisdictional Determination from the Corps.

- **North Fork at Briargate Habitat Evaluation and ESA Compliance, Colorado Springs, CO** - ecos performed a habitat evaluation on behalf of High Valley Land Co., Inc. and La Plata Communities to support informal consultation with the U.S. Fish and Wildlife Service (FWS) under the ESA for potential effects to the Federally-listed, threatened PMJM from the proposed North Fork development, Filings 3 through 7 at Briargate.
- **C Lazy U Preserves Natural Resource Inventory and Conservation Easement Documentation, Grand County, CO** – ecos is assisting the C Lazy U Preserves in assessing and documenting the conservation values of the 980-acre site known as C Lazy U Preserves near Granby, CO such that the site may be protected under Conservation Easements (CE's) held by The Nature Conservancy. The purpose of the CE's is the long-term preservation of the scenic, open space, agricultural, significant natural habitat, native vegetation, rare plant communities, riparian, and wetland values of the Property. ecos staff completed the Easement Documentation Reports Phase 1 of the CE's in 2006, Phase 2 in 2007, and Phase 3 in 2015.
- **Seaman Water Management Project, Riparian-Wetland Technical Support -** Mr. Gurnée supported Greeley in the NEPA EIS process by reviewing riparian and wetland technical reports prepared by the Corps CTP team, and providing comments to assist the City in their formal review and response to the Corps. He also provided technical and regulatory support for CWA and ESA (PMJM habitat) assessment, consultation, and compensatory mitigation planning and design.
- **City of Louisville, City of Westminster, Jefferson County and Town of Monument** – ecos performed numerous wetland habitat, wildlife, MBTA and T&E species habitat ecological assessments, wetland delineations, and Clean Water Act Section 404 and Endangered Species Act Section 7 Permits and mitigation plans for counties, municipalities and quasi- municipalities, including Highway 42 and 96th Street realignment, Jim Baker Reservoir, Standley Lake Protection Project, Triview Metro District Preble's and wetland habitat mitigation planning.
- **ARCO Clark Fork River Basin Anaconda Smelter Superfund Site, Anaconda, MT** – Grant and his Team performed wetland delineation, functional assessments, and impact analysis over a 200 square mile area affected by historic mining practices and current remedial actions required by an EPA consent decree.
- **ARCO Clark Fork River Basin Milltown Reservoir Superfund Site, Missoula, MT** – Mr. Gurnée and his Team performed wetland delineation, functional assessments, and impact analysis of proposed remedial actions that will remove metal laden sediments from the site prior to dam removal.
- **C-Lazy-U and Horn Ranch Environmental Assessments, Granby, CO** – Mr. Gurnée and his Team performed an assessment of ecological opportunities and constraints in the aquatic, riparian, wetland and threatened and endangered species habitat along the Colorado River for the development and enhancement of fishing/resort ranch amenities.
- **Village at Avon, Avon, CO** – Grant and his Team performed a wetland delineation and prepared CWA Section 404 permitting for the town center expansion and low-density ranchette development.

Protected Species Surveys and Habitat Assessments

- **Golden Eagle Monitoring at Meadow Park in Lyons, CO** - ecos was retained by the Town of Lyons (Town) to perform the monthly monitoring of the Golden Eagle (*Aquila chrysaetos*) nest sites at Meadow Park, to prepare monthly Monitoring Summary Memorandum following each event, and to prepare and submit annual reporting to the U.S. Fish and Wildlife Service (USFWS) associated with the *Lyons Federal Fish and Wildlife Permit #MB82833B-0, Eagle Take Associated With But Not The Purpose Of An Activity* (Take Permit).
- **Nesting Birds, Raptors and Burrowing Owls** – Grant has completed over 100 pre-construction nesting surveys and numerous monitoring surveys for raptors and burrowing owls. His projects include pipeline rights-of-way, housing and commercial development projects, stream and river restoration projects, wind and solar farm projects, and oil and gas projects along the Front Range of Colorado, as well as projects in the Pine Barrens of southern New Jersey. His avian experience includes golden eagle nest monitoring; barred owl roost and nest monitoring, and call playback inventory; and multi-species raptor surveys.
- **Native Plants** - Grant has completed numerous pre-construction and monitoring surveys for Ute ladies' tresses orchid and Colorado butterfly plant since 1994. His projects include pipeline rights-of way, mined

land reclamation projects, housing and commercial development projects, stream and river restoration projects, wind and solar farm projects, and oil and gas projects along the Front Range of Colorado.

- **Threatened, Endangered and Candidate Species** – Grant trained with the leading expert, Robert Stoecker, PhD, in 1994 and 1995 to gain an understanding of the soon to be listed, Preble's meadow jumping mouse, a threatened species; and since that time, he has completed numerous surveys, habitat assessments, and ESA consultations. He has also performed night-time Swift fox surveys at windfarm sites in southern CO and Boreal toad surveys in northern CO. Prior to relocating to CO Grant performed numerous surveys in N.J., including bobcat surveys to assist in protecting the Pyramid Rock Natural Area; Pine Barrens and gray tree frog surveys, and native Pine Barrens fish surveys with his mentor, Dr. Rudy Arndt; and Eastern box turtle surveys. He also assessed migration routes and alternative mitigation measures for sea turtles that were being impacted by the Garden State Parkway.

Wetland Mitigation and Habitat Restoration

- **Park Creek Mitigation Bank, Fort Collins, CO –** ecos was retained by Burns and McDonnell to assess, map, and prepare preliminary mitigation design of aquatic, wetland, riparian and terrestrial habitat in support of a mitigation banking prospectus. Upon completion and acceptance of the prospectus by the USACE, ecos has been tasked to manage the baseline assessment of the site, including groundwater testing, topographic surveys, and hydrology; prepare a detailed habitat design for inclusion in mitigation banking instrument; as well as coordinate design-build process with a selected nursery and contractor.
- **Front Range Mitigation and Habitat Conservation Bank –** ecos is assisting Restoration Systems, LLC (RS), the Bank Sponsor, with the assessment, planning and design of the Front Range Umbrella Bank for Aquatic Resource Mitigation & Habitat Conservation (Bank). This “umbrella” Bank is intended to provide habitat mitigation for projects along the entire Front Range of Colorado. The **ecos**/RS Team is in the process of securing viable sites in the major watersheds along the Front Range; and recently submitted the Draft Prospectus for the establishment of the Bank to the U.S. Army Corps of Engineers, Albuquerque District, Southern Colorado Regulatory Office and Omaha District, Denver Regulatory Office.
- **Lions Park Poudre River CWA and ESA Mitigation Site** - ecos assisted Greeley in developing and constructing an advance river and wetland mitigation site at Lions Park in LaPorte, Colorado that may be used for future CWA impacts in the Poudre River watershed. We also prepared a conceptual design for Preble’s meadow jumping mouse habitat that will be used to support ESA consultation. ecos assessed the site, prepared the designs, and coordinated review with Greeley, Colorado Department of Parks and Wildlife, Larimer County Parks and Open Lands and Larimer County Engineering Department. The mitigation site provides compensatory mitigation for impacts to wetland and waters of the U.S. under the CWA and will also provide compensation for PMJM habitat under the ESA. This mitigation project entails development of mitigation measures including bioengineered streambank stabilization, fishery habitat enhancement, riparian and wetland habitat restoration and PMJM habitat enhancement.
- **Bellvue Transmission Line Project, Preliminary Compensatory Mitigation Plan (PCMP) -** Mr. Gurnée was the Project Manager for the preparation of the Preliminary Compensatory Mitigation Plan (PCMP) for the Bellvue Transmission Line Project. Built upon preferred strategies in the 2008 Corps Compensatory Mitigation Rules, the PCMP leverages a broad strategy to ensure mitigation success and employs a watershed approach to select and prioritize compensatory mitigation (CM) measures that will best mitigate adverse environmental effects. It is intended to support a Corps determination of minimal adverse effect and allow verification of the Northern Segment of the Project under Nationwide Permit 12. Grant led the Team during the watershed assessment of the Poudre River, identification and prioritization of potential CM and preservation sites, development of a Pilot Watershed Plan, and conceptual design of priority CM sites. The PCMP has been submitted to the Corps for review and approval.
- **Flatirons Parcel Riparian and Wetland Habitat Restoration Project** – Grant assisted Greeley in developing a multiple use project at the Flatirons Parcel, a gravel quarry site in Greeley, Colorado. The site is being decommissioned over the next decade and offers great potential to create a system of ponds connected via a naturalized stream that discharges into the Poudre. The concept design incorporates recreation opportunities that are tied into the Poudre River Trail, a passive park, and the development of wetland, riparian and wildlife habitat.
- **Ruby Pipeline Wetland, Riparian and Waterbody Mitigation and Restoration Plan, WY, UT, NV AND OR -** Mr. Gurnée was the lead restoration ecologist and wetland scientist for the 675-mile, Ruby Pipeline; a natural gas pipeline traversing four states. He was the lead for the preparation of Wetland Mitigation,

Riparian and Waterbody Restoration Plans under the CWA, BLM regulations and state equivalent programs. The plans included regulatory guidelines, requirements, and processes; and ecoregion specific restoration plans. The plans detailed specifications for the basis of design, construction, and revegetation; outlined performance criteria, maintenance and monitoring methods for the restoration of approximately 460 acres of temporary wetland impacts.

- **River Point, Sheridan, CO -** Mr. Gurnée was the project manager and lead restoration ecologist for the team that assessed, permitted and designed the natural and aesthetic features of this Brownfields project. The project included a naturalized water quality swale and riverfront improvements which complement the aesthetics and ecology of the South Platte River corridor. The swale was designed to mimic the form and function of a tributary stream, providing passive water treatment with native wetland and riparian vegetation, as well as flood attenuation with instream structures and grade control. The project utilized natural, "bio-engineering" and "bio-technical" techniques to repair and maintain channel and stream bank stability, and native vegetation to enhance and restore habitat. This project also addressed the interface of proposed restaurants, a regional greenway trail, and the river through planning and design of nature trails, interpretive nodes and overlooks/access features that will function to both stabilize banks and help connect people with the river.
- **Caribou Peat Bog Restoration, Nederland, CO –** Grant performed the impact assessment, prepared native plant community design, planting cost estimate, and on-the-ground oversight of restoration volunteers to restore a high-altitude peat bog disturbed by an illegal off-road-vehicle "mudfest".
- **Opportunity Ponds Operational Unit, Anaconda, MT -** Mr. Gurnée was the project manager and lead restoration ecologist providing technical support to Atlantic Richfield/British Petroleum at a Superfund site in the Upper Clark Fork River basin in Montana between 1995 and 2008. Services included wetland delineation and functional assessment of over 3,000 acres of wetland, stream and pond habitat; design of stream and wetland habitat mitigation projects; and permitting/compliance services. The largest project within the Superfund site was the Opportunity Ponds, a 908-acre wetland, stream and wildlife habitat creation project. The project will result in the largest freshwater mitigation project in the U.S; and is intended to mitigate for historic wetland/waters impacts from Anaconda Mining Company operations and current impacts resulting from remedial actions associated with the Superfund cleanup process.
- **The Club at Flying Horse Golf Course, Colorado Springs, CO –** On behalf of Classic Communities, Grant and his Team assessed wetland habitat, recommended impact avoidance and minimization measures, and prepared the Section 404, CWA permit for a 1500-acre mixed use development and Weiskopf golf course. The project aesthetic and mitigation measures included the design of native prairie roughs, meandering stream channels and native wetland meadows within the golf course. Extra wetland mitigation was created to serve as a private mitigation bank for the client.
- **Maloit Park, Minturn, CO -** Grant was the project manager and restoration ecologist for the Maloit Park Restoration Project, which was necessitated by the accidental release of mine slurry that contaminated the soils and vegetation of critical wetland habitat at the confluence of Cross Creek and the Eagle River. The project included the assessment of the site, the collection of native wetland seed (that was adapted to site conditions); the selection of appropriate replacement soil; the design of the restoration grading and planting plans; and oversight during the soil replacement, grading and planting phases. Mr. Gurnée also provided follow-up monitoring and reporting to ensure the successful establishment of the wetland habitat.
- **Department of Energy, Private Mitigation Bank, Westminster, CO -** Mr. Gurnée provided the project assessment, design, permitting, mitigation banking instrument negotiation with the Corps and EPA, and construction supervision of a 12-acre wetland mitigation bank for the Department of Energy in Westminster, CO. The project provides compensatory mitigation for impacts associated with the Rocky Flats clean-up and remediation project. It should be noted that this was the first private mitigation bank negotiated in Colorado, and as such it assisted in setting the precedent for future negotiations.
- **Saudi Arabia Coastal Wetland Restoration -** Mr. Gurnée assisted in the restoration planning for 67 square kilometers (41 square miles) of high salt marsh (sabhka) impacted by Gulf War oil spills.

Aquatic, Wetland, and Riparian Habitat Design

- **Big Thompson River Flood Recovery and Restoration, Loveland, CO -** ecos is currently part of a multi-disciplinary team assisting the Big Thompson Watershed Coalition (BTWC) with assessment, design, and construction of the Big Thompson between Rossum and Wilson Drives which are majority-owned by the City of Loveland and Loveland Ready-mix. As with all the flood recovery projects ecos has worked on, we

produced 30%, 60% and 100% design plans, construction cost estimates, and specifications guiding soil development/enrichment; upland, riparian, and wetland seeding and planting; and numerous bioengineering techniques aimed at restoring the river and making it more resilient to future flood events. This project is aimed at completion in the summer of 2019.

- **Saint Vrain Creek Reach 3 Flood Recovery and Restoration, Boulder County, CO** - ecos is part of the Design Team assisting Boulder County Parks & Open Space (BCPOS) with the restoration, repair and enhancement of the reach of the Saint Vrain Creek from Highway 36 downstream to Hygiene Road in rural Boulder County, which was damaged by the 2013 floods. Our role on the project includes: 1) desktop and field assessment to inventory and document the characteristics of the stream reach and riparian corridor (e.g. stream/in-stream features, vegetation, wildlife habitat); identify and locate significant habitat features within the areas of proposed construction; identify potential sources of native plant materials for restoration; and identify areas of opportunity within the breach repair work areas for native vegetation, wetland, PMJM, leopard frog and fishery habitat restoration; and delineate wetland habitat and waters of the U.S. in all areas of proposed/potential construction-related impact; 2) vegetation community and wildlife habitat restoration design and fish passage design parameters; 3) permitting and compliance under the CWA, ESA and NHPA; 4) construction oversight for restoration construction; and 5) monitoring and reporting project success/establishment to BCPOS, stakeholders, the Corps, FWS and the State of Colorado Department of Local Affairs (DOLA) under the (the Grant funding agency under the Community Development Block Grant Disaster Recovery (CDBGDR) Resilience Planning Program grant.
- **Bohn Park Flood Recovery Design, Town of Lyons, CO** – ecos is part of the Design Team assisting the Town with the restoration, repair and enhancement of Bohn Park in Lyons, which was damaged by the 2013 floods. Ecos roles is to assess and design the natural restoration of the vegetation communities and habitat along St. Vrain Creek and riparian corridor; and to support the project design by acquiring permits/approvals and maintaining regulatory compliance under the CWA, ESA and National Historic Preservation Act (NHPA). The final design will address goals and priorities associated with the Parks Flood Recovery Planning Process, FEMA Project Worksheets and Project Scopes, the Lyons Recovery Action Plan (LRAP), associated Program Development Guides (PDG's), existing Town master plans, comprehensive plans and other relevant documentation and studies.
- **James Creek Post-Flood Restoration, Lefthand Watershed Oversight Group (LWOG), Jamestown, CO** – ecos was part of the LWOG and Boulder County Department of Transportation Team responsible for preparing the 30-60% design package for James Creek Reach 16 as identified in the Left Hand Creek Watershed Master Plan. ecos performed pre- and post-flood plant community assessment; developed revegetation goals and objectives, the basis of design, monitoring protocols, and revegetation plans in accordance with Colorado Department of Local Affairs (DOLA), Community Development Block Grant – Disaster Recovery (CDBG-DR) 30% Guidelines. Specific resources and issues of concern addressed by ecos, included federal and state listed candidate, threatened and endangered species, wildlife species of concern (including raptors), fisheries and fish passage, native plant communities, and management of noxious weeds, all in concert with geomorphic, hydrology and hydraulic analysis and design prepared by other team members.
- **Saint Vrain Creek Restoration and Floodplain Resiliency Plan, Lyons, CO** – ecos is part of the design-build team intent on restoring the St. Vrain Creek corridor in the Town of Lyons that was damaged during the September 2013 flood event. The goal of the project is to create a more resilient floodplain and natural channel condition that will alleviate future threats to the community, reestablish floodplain connectivity, stabilize banks, and restore aquatic, wetland and riparian habitat that was wiped out during the flood. Grant is responsible for CWA, ESA, Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act permitting; as well as developing the plant communities and revegetation strategies needed to restore aquatic and riparian structure and functions within the corridor that support fish, wildlife, recreation, and help the town regain the ecological benefits and economic value they receive from outdoor enthusiasts.
- **Bellvue Raw Water Ponds Riverbank Restoration, Bellvue, CO –** The 2013 flood on the Poudre River altered the course of the river and severely eroded a bank nearly causing a breach of the City of Greeley's raw water ponds – their main municipal water supply. The goal of the project was to stabilize the bank to protect the ponds and to create riparian habitat for the Preble's meadow jumping mouse, a federally listed threatened and endangered species. Jon was responsible for preparing bioengineering design plans and specifications that include soil/cobble encapsulated lifts, stream barbs to deflect flows away from the bank, and harder, biotechnical design of soil/riprap and stream bed scour protection measures to prevent erosion

and further undermining and sloughing of the bank. Design plans included specification of native plant materials and various techniques to restore cottonwood forest and willow habitat to further stabilize the bank.

- **Poudre River Pipeline Crossing at Kodak, Windsor, CO –** ecos role on the project was to assess restoration potential, techniques, and prepare design plans and performance specifications to reclaim a pipeline corridor across the lower Poudre River where the City of Greely had to replace 3 major water supply lines. ecos also provided oversight during the construction of site and riverbank stabilization and restoration measures following installation of the pipelines.
- **Lions Park Poudre River Restoration Plan, Laporte, CO –** ecos role on the project was to assess habitat conditions; gather, compile and analyze field survey data; and to prepare the mapping and mitigation design plans for the Lions Park PMJM habitat and the Poudre River Bank Stabilization Plans. We designed and executed the technical drawings for the structural components of the habitat, ensuring that the proposed riparian plant community, habitat structures (brush piles), and bioengineered streambank stabilization measures will create the conditions that alleviate the current habitat fragmentation; support the life requisites of the PMJM; and enhance the overall health of the Poudre River fishery.
- **C Lazy U Ranch, Willow Creek Fishery Enhancement Plan, Granby, CO -** Mr. Gurnée was the lead fisheries biologist and wetland ecologist for the assessment and design of this project. The project entailed 2 miles of instream and riparian cover habitat aimed at enhancing water quality through increased bank stability, improving aquatic habitat and angling opportunities, and providing long-term stability to the reach given existing land-use constraints, and ongoing ranching activities. Bank-side improvements included wetland mitigation design to support ranch impacts, detailed seeding and planting plans indicating site-specific plant and seed locations, life zones, and species palettes according to hydrologic, soil, and aspect conditions. Grant was the regulatory lead, consulting with the Corps under Section 404 of the CWA.
- **Edwards Eagle River Restoration Project, Edwards, CO –** Grant was the senior wetland ecologist and fisheries biologist for the Edwards Eagle River Restoration Project (Project); which is roughly 1.5 miles long covering an area of 168 acres of floodplain along the Eagle River in the heart of the Edwards community. The project utilized indigenous materials and methods to naturally integrate habitat structure in the landscape context. He provided grant funding support; stream, riparian, wetland and fisheries habitat assessment, planning and design; and construction oversight services to the Eagle River Watershed Council for the Project. He assisted the ERWC in facilitating the public process associated with developing stakeholder support and gaining funding through the Eagle Mine Natural Resources Damage Fund. The Project was awarded over $2,000,000 in grant funding; $1,400,000 of which was from the Eagle Mine NRDF. The total project cost is projected at $4,300,000.
- **Gypsum Creek Fisheries Enhancement, Gypsum, CO -** Mr. Gurnée was the lead fisheries biologist and restoration ecologist for the instream and riparian habitat assessment, design, permitting and implementation of habitat improvements along Gypsum Creek. Project treatments included both instream and bankside treatments. Instream treatments served to improve deep-water habitat, create flow separation or concentration zones, increase low flow sinuosity, provide instream cover, improve adult fish habitat, create nursery areas, and enhance spawning opportunities. Bankside treatments for aquatic habitat improvements included creation or enhancement of overhead cover; provision of protective cover; and enhancing shading, cooling, and nutrient cycling functions. Bank protection treatments served to correct localized bank instabilities and reduce bank erosion and the potential for sediment deposition downstream. The Colorado Division of Wildlife (CDOW) commented that, “The Gypsum Creek project was implemented in such a low impact manner that you cannot tell that construction had occurred in the area.”
- **Cache La Poudre River Removal Action, Fort Collins, CO -** On behalf of the City of Fort Collins, Mr. Gurnée led negotiations between the EPA, stakeholders and the City regarding riverine, riparian and wetland regulatory and restoration design standards during the removal and remediation of a contaminated reach of the Poudre River. He also provided design review and revision, as well as construction oversight to ensure successful implementation of the instream and streambank restoration along the 0.50 mile, highly visible reach of the river near downtown Fort Collins.
- **TZ Ranch, Elk Hollow Creek Fishery Habitat Enhancement Plan, Saratoga, WY -** ecos performed the assessment and design of the Elk Hollow Creek Project, which included instream and riparian habitat improvements aimed at increasing bank stability, improving aquatic habitat and angling opportunities, and providing long-term stability to the reach. Instream improvements included drop structures, plunge pools, deep pools, riffles and spawning habitat. Bank improvements included seeding and planting plans for

native wetland and riparian species. Grant was the regulatory lead, consulting with the Corps under Section 404 of the CWA and the Wyoming Department of Fish and Game. ecos also provided construction oversight and native plant installation services to ensure the successful implementation of the Project.

- **Brush Creek Fishery Enhancement Plans, Saratoga, WY –** Grant assisted in the preparation of access and staging plans, design plans and details, and performed on-site construction oversight of instream and riparian habitat enhancements and bioengineered bank stabilization for a 3-mile reach of Brush Creek. The purpose of the project is to enhance fish, bird and wildlife habitat and use these resources to facilitate education and improve the recreational experience of Ranch guests.
- **Brush Creek Ranch Pond Creation Plans, Saratoga, WY –** ecos provided design-build services including site optimization selection; excavation, grading, drainage and revegetation plans; and construction oversight for a 0.30-acre fishing pond. The pond design included an innovative undercut bank design incorporating a framework of trees supporting transplanted, native sod; which provided excellent fish habitat.
- **Boulder Creek Fishery Enhancement and Pond Creation Project, Boulder, CO -** Grant was the lead fisheries biologist and restoration ecologist for this project along a private reach of South Boulder Creek adjacent to City of Boulder, Eldorado Canyon Open Space. His tasks included instream and riparian habitat assessment, design of instream and pond fishery habitat and riparian enhancement measures and permitting and consultation. Grant was also the regulatory lead, consulting with the FWS regarding PMJM habitat and with the Corps under Section 404 of the CWA.
- **Stream and Floodplain Restoration at A.T. Massey Coal Mining Facility, KY -** Grant was the Project Manager, fisheries biologist and restoration ecologist for the technical team tasked with assessment and restoration of 26 miles of stream corridor following the accidental release of 250 million gallons of coal slurry into two separate drainages in eastern Kentucky. He was the first ecologist to respond after the spill to ensure that fisheries, stream and riparian habitat restoration objectives were incorporated into the selected cleanup measures. As such, Grant devised a "triage" categorization and remediation system for all affected reaches that minimized impacts to sensitive aquatic and riparian habitat based on the site-specific level of cleanup and remediation required. In addition to instream and bank restoration and stabilization, comprehensive riparian corridor restoration was a major component of the project. Grant was the regulatory and permitting lead and coordinated permits and approval with EPA, Corps and State agencies.
- **Roaring Fork Golf and Fishing Club, Basalt, CO -** Mr. Gurnée was the lead fisheries biologist and restoration ecologist for the assessment, design, permitting and construction supervision of a native trout stream (1 mile) with associated wetland complexes (3 acres). The trout stream was created as an amenity and functional fly-fishing challenge for this fishing component of the Roaring Fork Club; and the associated wetland and riparian habitat were created to naturalize the stream and provide compensatory mitigation for impacts associated with the development of the club facilities. Grant was the regulatory and permitting lead and coordinated permits and approval with Corps and CDOW.
- **Spring Creek Wetland Mitigation, Colorado Springs, CO** – Grant and his team generated wetland and creek creation plans that integrated required mitigation into a high density, "new urban" development. The design emphasized re-utilization of urban storm water to sustain wetlands, use of indigenous plants, construction materials, and natural geomorphic relationships.
- **Tobacco Island Project, Kansas City, MO -** Grant was the lead fisheries biologist and restoration ecologist on a multi-disciplinary Team for the Corps, Tobacco Island Project - a portion of the Missouri River Bank Stabilization and Navigation, Fish and Wildlife Mitigation Project. Project tasks included assessment and conceptual design of measures aimed at reconnecting floodplain and riparian habitat to a reach of the Missouri River near Kansas City. He prepared preliminary designs of channel and backwater wetlands; provided regulatory analysis under Section 404 of the CWA; and assisted in the preparation of an Environmental Impact Statement.
- **San Miguel River Corridor Restoration Plan -** Mr. Gurnée was the lead restoration ecologist, planner and designer for phase 1 of the San Miguel River Corridor Restoration Plan, which included a 1-mile reach through Town. He and his team assisted the Town of Telluride in applying for and winning approximately $500,000 in Natural Resource Damage Assessment Fund money from the State of Colorado. The money, along with other funding, was utilized for final design and construction of the project which included instream habitat, streambank restoration, riparian and wetland restoration, trails and parks. Grant was

responsible for leading all public meetings, regulatory negotiation and permitting; assisted the Town with grant funding; and provided construction oversight services.

- **High Altitude Stream Restoration at Copper Mountain Resort, CO -** Grant was the lead ecologist for the restoration of an alpine stream and enhancement of associated wetland and riparian habitat situated within tundra habitat atop Union Peak at Copper Mountain Resort. Grant performed the assessment, design, permitting, and construction oversight for one of the highest altitude stream restoration and wetland mitigation projects in Colorado (approximately 11,500 feet above sea level). Innovative bioengineering and construction techniques were designed and adapted to this sensitive environment to minimize construction-related impacts and maximize environmental benefits.

Threatened & Endangered Species Consultation & Habitat Restoration

- **Jackson Creek Land Company PMJM and Wetland Mitigation, Colorado Springs, CO –** ecos has been performing PMJM habitat biological assessments, conservation, mitigation planning and design throughout its range since 1994. Among numerous other private land developers in the Colorado Springs areas, ecos is currently assisting the Jackson Creek Land Company and Triview Metropolitan District with the implementation of physical habitat preservation and mitigation measures, including shortgrass prairie, upland hibernaculum, and riparian habitat restoration. We are also assisting the client with construction oversight and maintaining regulatory compliance during the implementation of the phased mitigation plans.
- **The Farm (formerly Allison Valley Ranch), Colorado Springs, CO –** Mr. Gurnée performed the habitat assessment and mapping; and prepared ESA, Section 7 and CWA, Section 404 consultation documents as required by the FWS and Corps, including mitigation construction documents, specifications, on-site layout of plant communities and construction supervision aimed at restoring wetland and riparian habitat occupied by Preble's meadow jumping mouse. Ecos is currently assisting the owner with construction oversight for habitat restoration and native planting.
- **Advance Mitigation for PMJM Habitat** – ecos is assisting a private client in identifying, assessing, prioritizing and designing advance mitigation sites for PMJM habitat in the North Fork and main stem of the Cache la Poudre River.
- **TriView Metropolitan District ESA and CWA Permit Resolution, Monument, CO -** Mr. Gurnée represented the TriView Metropolitan District (TriView) and Phoenix Bell as the lead consultant to resolve outstanding compliance issues related to a joint ESA, Section 7 Consultation and CWA, Section 404 Permit. Grant lead negotiations amongst the various landowners, TriView and the Town to resolve compliance issues related to PMJM and wetland habitat, such that development may proceed in this core area of the town. Upon resolution and agreement of the stakeholders, he led the negotiations with the FWS and Corps to formally amend the Biological Opinion and 404 Permit. Once the approvals were amended, Grant lead the planning and design of PMJM and wetland habitat to meet mitigation requirements under the ESA and CWA.
- **Bernardi Residential Property, Eldorado Canyon, Boulder, CO –** ecos consulted with the Corps and FWS to document and fulfill regulatory requirements for a residential home construction project in PMJM, wetland and riparian habitat. Mr. Gurnée coordinated with the FWS and Corps and obtained approvals under ESA, Section 7 and CWA, Section 404. He prepared all consultation documents, including the Biological Assessment, mitigation plan, and construction documents and specifications. Grant is leading the on-site layout of plant communities and construction supervision, aimed at restoring wetland and riparian habitat occupied by the PMJM.
- **Northgate Boulevard Realignment, Colorado Springs, CO –** Mr. Gurnée performed the habitat assessment and mapping; and coordinated and prepared ESA, Section 7 and CWA, Section 404 consultation documents as required by the FWS and Corps, including mitigation construction documents, specifications, on-site layout of plant communities and construction supervision aimed at restoring wetland and riparian habitat occupied by Preble's meadow jumping mouse.
- **Jefferson County Highways and Transportation Department Gunbarrel Bridge Replacement, Oxyoke, CO -** ecos staff consulted with the Corps, FWS, CDOT, and the FHWA to document regulatory requirements for a bridge replacement project in PMJM, wetland and riparian habitat. He and his Team produced a CDOT Wetland Finding Report, Biological Assessment, acquired a Section 404 Permit and Biological Opinion (Section 7 of the ESA), and then implemented habitat mitigation improvements at the site.

- **Northgate Project, Colorado Springs, CO -** As project manager, Mr. Gurnée led the team in the assessment, permitting and regulatory negotiation (Section 404 of the CWA and Section 7 of the ESA) for the project which included the planning, design and construction supervision of a precedent setting, "joint" mitigation plan for 60 acres of wetland, riparian and PMJM habitat.

Ecological Master Planning

- **Sundance Trail Guest Ranch, Larimer County,** CO – ecos is currently assisting a local guest ranch in the assessment of natural resources and site features, and the development of site plans to balance natural habitat and aesthetic values with the expansion of guest facilities and services.
- **Sand Creek Channel Improvements Stability Analysis at Indigo Ranch, Colorado Springs, CO** - ecos was retained to perform an analysis of channel stability under proposed development conditions for a 1.17-mile reach of Sand Creek. Ecos utilized existing vegetation composition data, density and height within the Project reach as a basis; and compared the 10-year and 100-year storm event modelling data (specifically flow velocity, flow depth and shear stress) to reference literature to provide a professional opinion regarding the future stability of the channel under developed conditions. The analysis of channel stability for the proposed Project assumes a bioengineering and biotechnical approach that preserves and enhances the existing vegetation, as well as substrate cohesion and stability, within the channel and its streambanks. The Stability Analysis will likely serve as a benchmark study for the City of Colorado Springs to use to preserve other naturally stable channels.
- **Uncompahgre River Corridor Master Plan, Montrose, CO –** Grant and his Team assessed the character, condition and quality of aquatic, wetland and riparian habitat along a 10-mile rural and urban corridor of the Uncompahgre River through the City of Montrose. Habitats were then rated, ranked, prioritized and master planned for their preservation potential and integration in to the parks, recreation and trail system. The master plans form the foundation for the City to focus environmental stewardship, tourism and generate riverfront economic development with a focus on the river – the major asset of the Community.
- **Brush Creek Stewardship and Enhancement Plan, Saratoga, WY –** Mr. Gurnée managed the assessment of a 12,000-acre, private ranch near Saratoga, Wyoming and the preparation of the Ranch Stewardship Plan (Plan). The Plan includes land and resource stewardship goals, objectives, and implementation action items; including ranch-wide master planning of the trail and recreational systems, design of the Brush Creek riparian corridor trail, and restoration/fisheries habitat enhancement of Brush Creek. Trail and recreation planning and design focused on universal access, habitat sensitivity, environmental education, and wildlife observation opportunities and unique landscape experiences.

Environmental Assessment and Impact Studies

- **NEPA EA for Eagle County Airport Runway Expansion, Eagle County, CO -** Grant was project manager and senior ecologist for an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for a proposed 1000-foot runway expansion and ILS installation at the Eagle County Airport, west of Vail, Colorado. Critical issues addressed included noise, ecological, and public opinion considerations. Grant conducted the work under FAA guidance requirements for EAs.
- **NEPA EA for the Avon Interstate 70 Interchange -** Mr. Gurnée was project manager and senior ecologist for this NEPA EA. He performed environmental assessment and data compilation work for construction of a new CDOT interchange and associated development on Interstate 70. This included evaluating T&E Species; a wetlands inventory; a cultural/archeological resources survey; noise and air pollution modeling and studies; and reviewing soils, meteorology, geologic hazards, and other impacts.
- **Raritan River Wetland Inundation Impact Study, N.J. -** Grant's work on the preparation and processing of the first Individual Permit under the New Jersey Freshwater Wetlands Protection Act of 1987 included a precedent setting wetland inundation study. This study shaped the N.J. Department of Environmental Protection's policy regarding the need to assess hydrologic impacts during wetland permit reviews.

Construction Oversight and Plant Installation

- **St. Vrain Creek Reach 3 Flood Recovery and Restoration, Lyons, CO –** Ecos performed construction lay-out and observation during the implementation of the restoration and enhancement of 0.60-acre of riparian Preble's Meadow Jumping Mouse Habitat (PMJM) along the St. Vrain River.

- **2013 Flood and 2014 Runoff Events, Damage Restoration, Cache la Poudre River, CO** - ecos performed the construction oversight of 3 flood and runoff damage restoration projects along the Cache la Poudre River for the City of Greeley, including the Bellvue Treatment Plant Raw Water Ponds Restoration, the Kodak Pipeline Crossing Restoration and the Watson Lake Pipeline Crossing Restoration.
- **Lions Park CWA and ESA Mitigation Site** - ecos performed the construction oversight for an advance river and wetland mitigation site at Lions Park in LaPorte, Colorado.
- **TZ Ranch, Elk Hollow Creek Fishery Habitat Enhancement Plan, Saratoga, WY -** ecos performed the construction oversight for the Elk Hollow Creek Project.
- **Brush Creek Ranch Fishery Enhancement Plans, Saratoga, WY –** Mr. Gurnée assisted in the construction oversight for a 3-mile reach of Brush Creek to improve fisheries and outdoor recreation experiences for guests of the Ranch.
- **C Lazy U Ranch, Willow Creek Fishery Enhancement Plan, Granby, CO -** Grant assisted in the construction oversight for this fishery habitat, channel stabilization and streambank restoration project.
- **Standley Lake Protection Project, Westminster, CO –** Mr. Gurnée performed construction oversight of a 12-acre created emergent wetland that he and his Team designed to fulfill CWA mitigation requirements and bring closure to the City's drinking water protection project.
- **Caribou Peat Bog Restoration, Nederland, CO –** Grant prepared native plant community design, planting cost estimate, and on-the-ground oversight of volunteers to restore a high-altitude peat bog disturbed by an illegal four-wheel drive "mudfest".
- **Department of Energy Wetland Mitigation Bank, Westminster, CO –** Mr. Gurnée provided construction supervision of the grading and planting of a 12-acre wetland mitigation bank that he and his Team designed for the Department of Energy.
- **ARCO Lower Area One and Butte Reduction Works, Butte, MT –** Grant performed construction observation and supervision of temporary labor crews to plant a passive treatment wetland designed to absorb heavy metals from groundwater.

Natural Treatment System Design

- **Natural Treatment Wetlands, Butte, MT -** Mr. Gurnée and his Team performed the assessment and design of the ARCO Lower Area One and Butte Reduction Works passive treatment wetlands. These natural treatment systems were situated within two units of a reclaimed superfund site to treat heavy metals in surface and groundwater.
- **Natural Treatment Wetlands, Avondale, AZ –** Grant and his Team performed the assessment and design of a constructed wetland system to treat surface water and inject/recharge the municipal well system for the City of Avondale, AZ. This system successfully alleviated a well moratorium necessitated by a contaminated groundwater aquifer.

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Hoag, Chris, Hollis Allen, Craig Fischenich and Grant Gurnée. Assistant instructor for a Bioengineering Workshop sponsored by the U.S. Army Corps of Engineers Waterways Experiment Station and the U.S. Department of Agriculture – Aberdeen Plant Materials Center. September 1998. Carson City, Nevada.

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Gurnée, Grant E. 1998. Stream and Wetland Restoration Successes and Failures: The Good, the Bad, and the Ugly. Presented at the Colorado Riparian Association (CRA) Restoring the Greenline Conference. October 16, 1998. Salida, Colorado.

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AWARDS:

- Colorado Landscape Contractors Award, Sand Creek Enhancement Project – 2000

PROFESSIONAL ASSOCIATIONS:

- Association of State Wetland Managers (ASWM)

- Society of Wetland Scientists (SWS)
- Environmental Concern (EC)

REDTAIL RANCH
WATER & WASTEWATER UTILITY REPORT (PRELIMINARY PLAT)

PREPARED FOR:

THE TOWN OF ERIE

ON BEHALF OF:

STRATUS REDTAIL

March 9, 2023

Prepared By:

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Job No. 39-004-01

COLORADO LICENSED
DAVID LARRAND TAKEDA
34757
3/9/2023
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

Section 1: Introduction 1
1.1 Background 1
1.2 Location 1

Figure 1-1 –Location Map 1

Section 2: Development Summary 2
2.1 Development Composition 2

Section 3: Water System 3
3.1 Water System Design Criteria 3
3.2 Water Demand 3
3.3 Existing Water System Infrastructure 4
3.4 Water Model 5
3.5 Proposed Water System Infrastructure 6

Figure 3-3 –Proposed Water Connections 4

Section 4: Wastewater System 7
4.1 Wastewater System Design Criteria 7
4.2 Wastewater Loading 7
4.3 Existing Wastewater System Infrastructure 8
4.4 Wastewater Analysis 8
4.5 Proposed Wastewater System Infrastructure 9

Figure 4-3 –Proposed Connection to Existing Interceptor 8

APPENDICES

Appendix A: Water and Sewer System Exhibits

Appendix B: Water Model Results

Appendix C: Wastewater Calculations

SECTION 1: INTRODUCTION

1.1 BACKGROUND

Redtail Ranch is a proposed 293.9-acre residential development located in Weld County and the Town of Erie, CO. Redtail Ranch will contain 587 single-family residential units. Redtail Ranch is being developed by Stratus Companies and this report is specific to the Preliminary Plat application for the entire development.

Redtail Ranch will receive water and wastewater service from the Town of Erie (Erie). This Water & Wastewater Utility Report will summarize the water and wastewater infrastructure required to provide service in accordance with Erie's development standards.

1.2 LOCATION

Redtail Ranch is located within Erie at the northwest corner of the Weld County Road 5 and Weld County Road 4 intersection. The development is bound on the north by the Denver Regional landfill, the west by the Vista Pointe development, the south by the Vista Ridge development and the east by the Republic landfill.

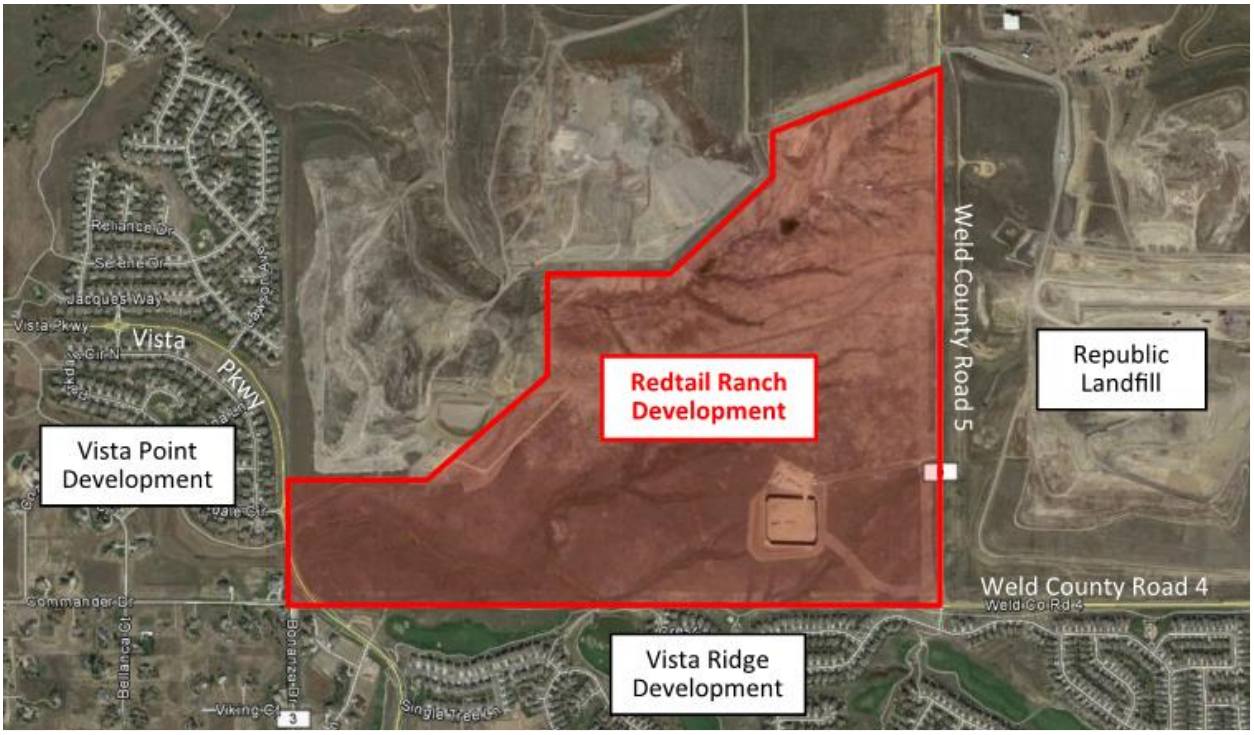


FIGURE 1-1: LOCATION MAP
(NOT TO SCALE)

SECTION 2: DEVELOPMENT SUMMARY

2.1 DEVELOPMENT COMPOSITION

The development boundary for Redtail Ranch is shown in Figure 1-1. It encompasses 293.9 gross acres and is zoned Low Density Residential. The development will be completed in phases.

The proposed development consists of 587 single-family residences. There are no multi-family, commercial, school, or industrial users. Redtail Ranch does not have a club house or other community facility.

The proposed development composition is provided in Table 2-1:

Table 2-1: Proposed Development Summary

Development Type	Total Units
Single-family Residential	587

.

SECTION 3: WATER SYSTEM

3.1 WATER SYSTEM DESIGN CRITERIA

The water system within Redtail Ranch will be designed in accordance with Erie's *Standards and Specifications for Design and Construction of Public Improvements, Section 600 Water Supply Facilities*, 2023 Edition. Where criteria is not specifically stated in these standards, the design will conform to general industry practices. Provided below is the water system design criteria that was used to develop the proposed water system:

Table 3-1: Summary Water System Design Criteria

Description	Value
Residential Demand	140 gpd/capita
Capita per Residential Unit	2.89
Average Day Demand (ADD)	404.6 gpd/unit
Maximum Day Demand (MDD)	1,000 gpd/unit
Peak Hour Demand (PHD) Factor	2.0 x MDD
Maximum system pressure	125 psi
Minimum system pressure	43 psi
Fire flow criteria	See section 3.4.3

3.2 WATER DEMAND

Based on the development composition listed in Section 2.1 and the demand unit values, Redtail Ranch will have an average daily water demand of 237,500 gallons per day (gpd) and a maximum day demand of 587,000 gpd. Provided in Table 3-2 is a summary of the water demands for Redtail Ranch.

Table 3-2: Summary of Water Demands

Development Type	Number of Units	Average Day Demand (gpd)	Maximum Day Demand (gpd)	Peak Hour Demand (gpm)
Single-family Residential	587	237,500	587,000	815.3

3.3 EXISTING WATER SYSTEM INFRASTRUCTURE

3.3.1 Existing Pressure Zones

Redtail Ranch is located in two pressure zones: Zone 3 and Zone 4. The information on both pressure zones is provided in Table 3-3. These values were used in the hydraulic model of the system.

Table 3-3: Pressure Zone Information

Zone	Elevation Range (feet)	HGL Static Elevation (feet)
3	5070 to 5210	5313
4	5210 to 5300	5420

The majority of Redtail Ranch will be situated in Pressure Zone 3 with 135 of the homes in Pressure Zone 4.

3.3.3 Existing Pipelines

There are two Zone 3 pipelines near Redtail Ranch. The first is a 24-inch located to the west in Vista Parkway and the second is a 24-inch running along the south boundary of Redtail Ranch. The nearest existing Zone 4 pipeline will be a 20-inch to the east in Weld County Road 5.

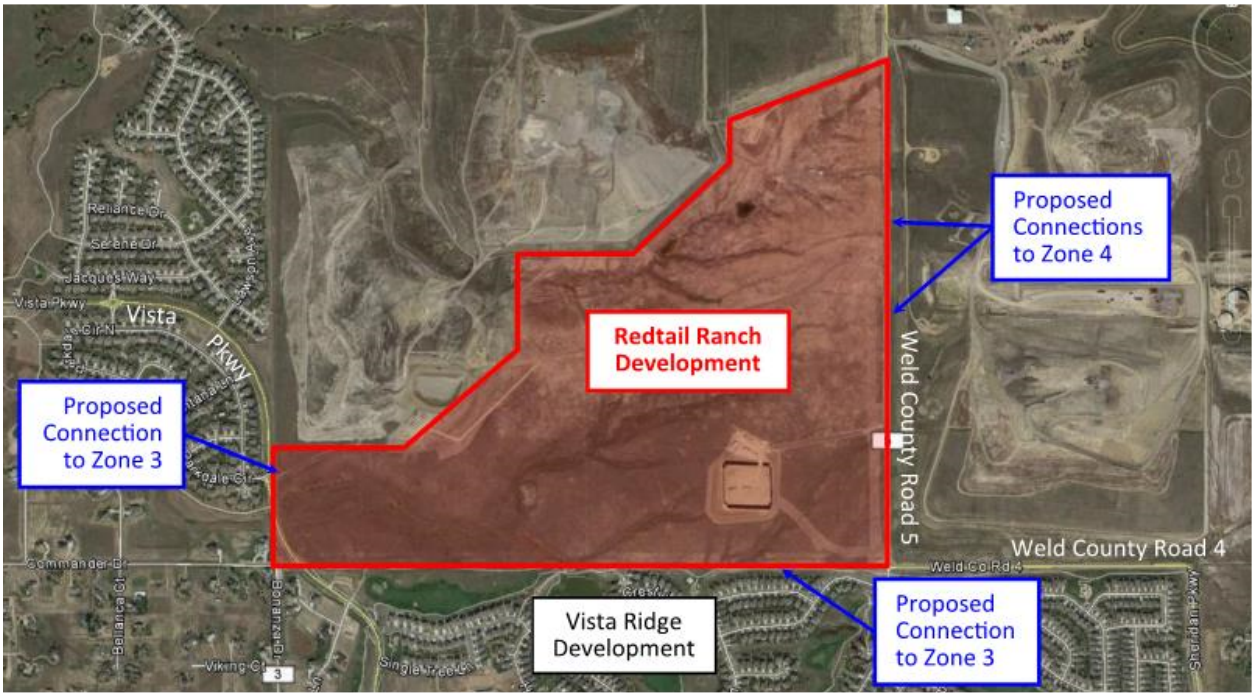


FIGURE 3-3: PROPOSED WATER CONNECTIONS
(NOT TO SCALE)

3.4 WATER MODEL

3.4.1 Methodology

A computer analysis using the Innovyze® software was performed on Redtail Ranch. The water lines throughout the proposed water distribution system were evaluated.

Demands for each lot in the development were clustered to the nearest junction along the water lines. The following scenarios were evaluated by the model:

- Peak Hour Demand
- Maximum Day Demand plus Fire Flow

The final sizing of the proposed waterlines were based on the worst-case demand scenario – Maximum Day plus Fire Flow. The model utilized a Hazen-Williams coefficient of 120 for all pipes.

Table 3-4A: Water System Connection Point Pressures

No.	Location/Description	Junction Number	Elevation	Static Pressure (psi)
1	Zone 3 connection, 24-inch in Vista Parkway	J250	5109.26	87.99
2	Zone 3 connection, 24-inch to the south	Z3_FEED2	5174.00	60.21
3	Zone 4 connection to existing 20-inch in Weld County Road 5	J348	5183.00	82.79

3.4.2 Off-site Demands

The proposed water system pipelines within Redtail Ranch will be incorporated into the Town's existing system and will convey flows to the adjacent developments. However, off-site demands were not included in the hydraulic analysis.

3.4.3 Fire Flow

A fire flow scenario was performed by the water model. It applies a fire flow demand at each fire hydrant location and determines the residual pressure at that point. A minimum of 20 psi residual pressure is required to "pass". Fire flows demands are applied during the maximum day demand scenario. The fire flows demand is 1,000 gpm for a residential unit and is based on Erie's criteria.

3.4.4 Summary of Results

The water model demonstrated the following (detailed results are provided in Appendix B):

Table 3-4B: Zone 3 Water System Model Results

Scenario	Lowest Pressure (psi)	Highest Pressure Drop (psi)	Highest Velocity (fps)	Fire Flow Residual Pressure
PHD	44.03 (J366)	1.14 (multiple)	1.77 (P76)	n/a
MDD plus FF	40.82 (J258)	11.05 (J326)	n/a	Pass

Table 3-4C: Zone 4 Water System Model Results

Scenario	Lowest Pressure (psi)	Highest Pressure Drop (psi)	Highest Velocity (fps)	Fire Flow Residual Pressure
PHD	82.76 (J350)	0.12 (multiple)	0.63 (P128)	n/a
MDD plus FF	82.78 (J306)	5.47 (J350)	n/a	Pass

3.5 PROPOSED WATER SYSTEM INFRASTRUCTURE

Based on the water model analysis, the following infrastructure is required to maintain adequate pressures in the development.

3.5.1 Booster Pump Station

A booster pump station is not proposed in order to provide pressure to Redtail Ranch.

3.5.2 Distribution System

The connection to Zone 3 near Hawkeye Street will be 12-inch C900 PVC. Elsewhere in the development, 8-inch diameter C900 PVC pipelines will be installed. All of the pipelines will be located within the public streets or dedicated easements.

SECTION 4: WASTEWATER SYSTEM

4.1 WASTEWATER SYSTEM DESIGN CRITERIA

The wastewater system within Redtail Ranch will be designed in accordance with Erie's *Standards and Specifications for Design and Construction of Public Improvements, Section 700 Sanitary Sewer Facilities*, 2023 Edition. Additional information was taken from the *2020 Wastewater Utility Plan*. Where criteria is not specifically stated in these standards, the design will conform to general industry practices for this region. Provided below is a list of criteria that was used to evaluate the proposed wastewater system:

Table 4-1: Summary Wastewater System Design Criteria

Description	Value
Pipe velocity (maximum)	10 fps
Pipe velocity (minimum)	2 fps
Residential Wastewater Production	90 gpd/capita
Capita per Residential Unit	2.89
Residential Average Daily Flow	260.1 gpd/unit
Peak Demand Factor (Min. 2.0, Max. 4.0)	$2.6*Q_{max}^{-0.16}$
d/D Maximum (12-inch and smaller)	0.5
d/D Maximum (larger than 12-inch)	0.7
Inflow/Infiltration	Included in ADF

4.2 WASTEWATER LOADING

Based on the development's composition and average wastewater loading from Table 4-1, the anticipated daily wastewater flow from Redtail Ranch is 152,679 gpd. Table 4-2 provides a breakdown of the flows.

Table 4-2: Redtail Ranch Summary of Wastewater Loading

Development Type	Total Units	Average Flow (gpd)	Peak Flow (gpm)
Single-family residential	587	152,679	347

4.3 EXISTING WASTEWATER SYSTEM INFRASTRUCTURE

4.3.1 Existing Interceptors

Per the *2020 Wastewater Master Plan*, flows from Redtail Ranch will discharge into the existing 18-inch Coal Creek Interceptor, which currently extends through Retail Ranch's boundary and serves Vista Ridge. The Coal Creek Interceptor eventually increases to 30-inch diameter and discharges into the South Water Reclamation Facility.

4.3.2 Existing Lift Stations

The flows from Redtail Ranch will reach the South Water Reclamation Facility via the Coal Creek Interceptor without the use of lift stations.

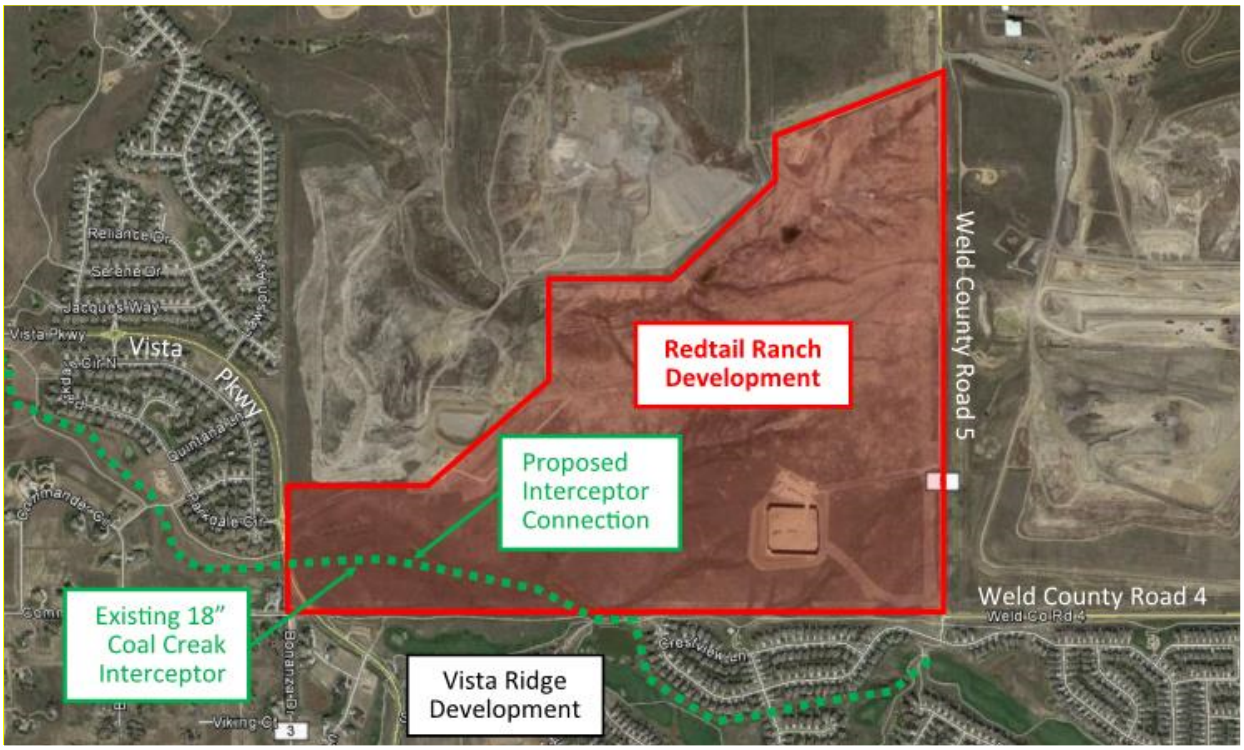


FIGURE 4-3: PROPOSED CONNECTION TO EXISTING INTERCEPTOR
(NOT TO SCALE)

4.4 WASTEWATER ANALYSIS

4.4.1 Methodology

Calculations were performed on the sanitary sewer outfall from Redtail Ranch. The existing Coal Creek Interceptor was not analyzed as the proposed development composition is within the Annexation Agreement. The flows generated by the proposed 587 units were used to evaluate the proposed sewer outfall. The peaking factor was applied to the average day flows and the sum total was used to analyze the pipe's carrying capacity. The analysis utilized a Manning's coefficient of 0.012.

4.4.2 Off-site Flows

Proposed sanitary sewers in Redtail Ranch will not carry any off-site flows.

4.4.3 Summary of Results

For the Preliminary Plat, preliminary sanitary sewer plan and profiles were prepared by CWC Consulting Group. This report evaluated the pipe's capacity to convey the proposed peak wastewater loads from the service basin. The results below assume the most downstream portion of the collection system including the segment that conveys all of the development's flow prior to connecting to the existing Coal Creek Interceptor.

Table 4-4: Sanitary Sewer Slopes

Number of Lots Served	Pipeline Size (inch)	Slope (%)	Erie's Min. Slope (%)	Meets Erie's Slope Criteria?	d/D	Erie's d/D Criteria	Meets Erie's d/D Criteria?
120	8	1.01%	0.40%	Yes	0.23	0.50	Yes
587	12	0.58%	0.22%	Yes	0.35	0.50	Yes

4.5 PROPOSED WASTEWATER SYSTEM INFRASTRUCTURE

4.5.1 Lift Stations

Redtail Ranch will not require a lift station to convey wastewater flows within or out of the development.

4.5.2 Collection Pipelines

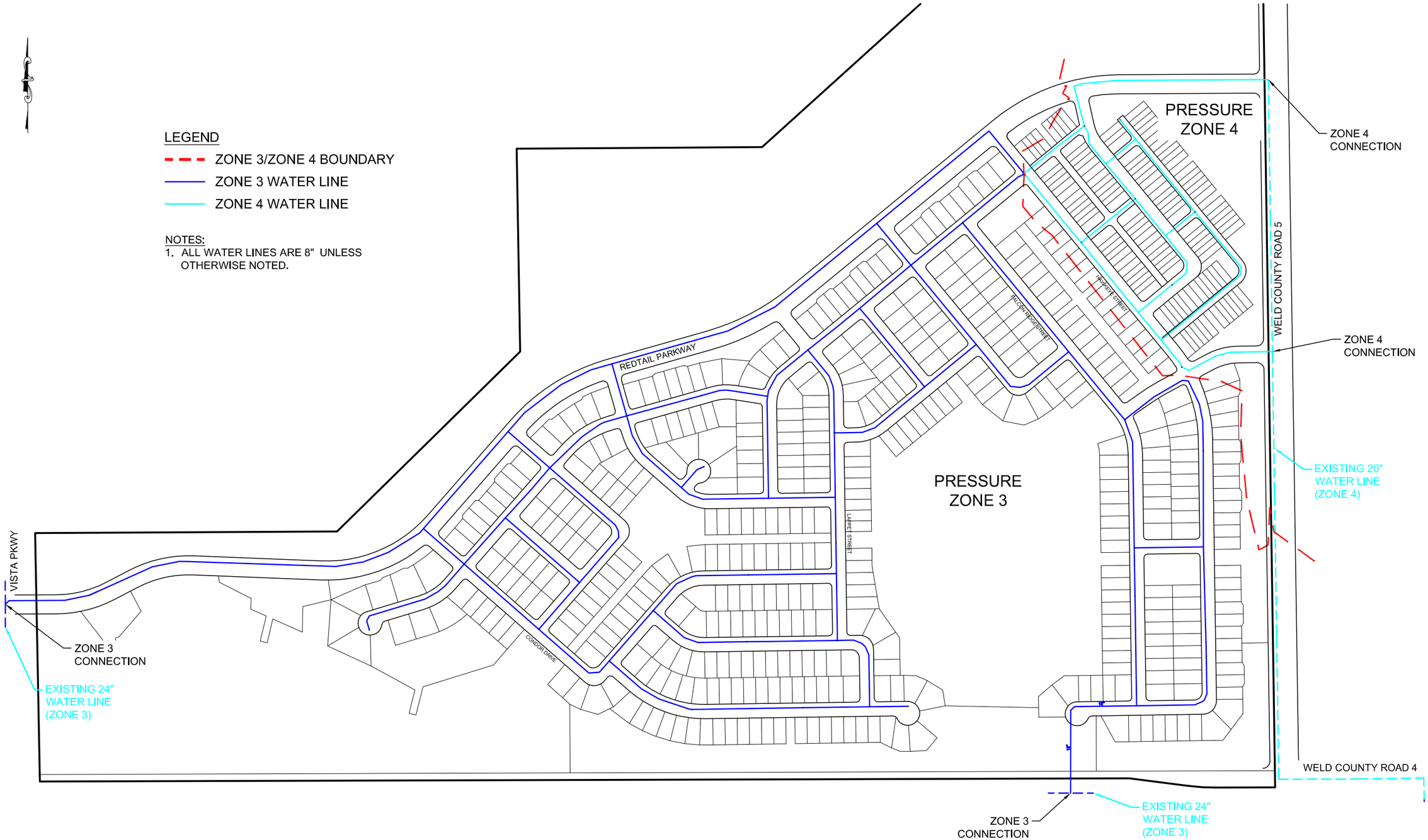
The sanitary sewer lines within Redtail Ranch will be evaluated for the Final Plat submittal. It is anticipated that some of the most downstream segments will be 12-inch diameter.

Appendix A
Water and Sewer System Exhibits

LEGEND

- ZONE 3/ZONE 4 BOUNDARY
- ZONE 3 WATER LINE
- ZONE 4 WATER LINE

NOTES:
1. ALL WATER LINES ARE 8" UNLESS OTHERWISE NOTED.



MSK consulting
7157 S. Andes Circle
Centennial, CO 80016
303-903-0918

PRELIMINARY

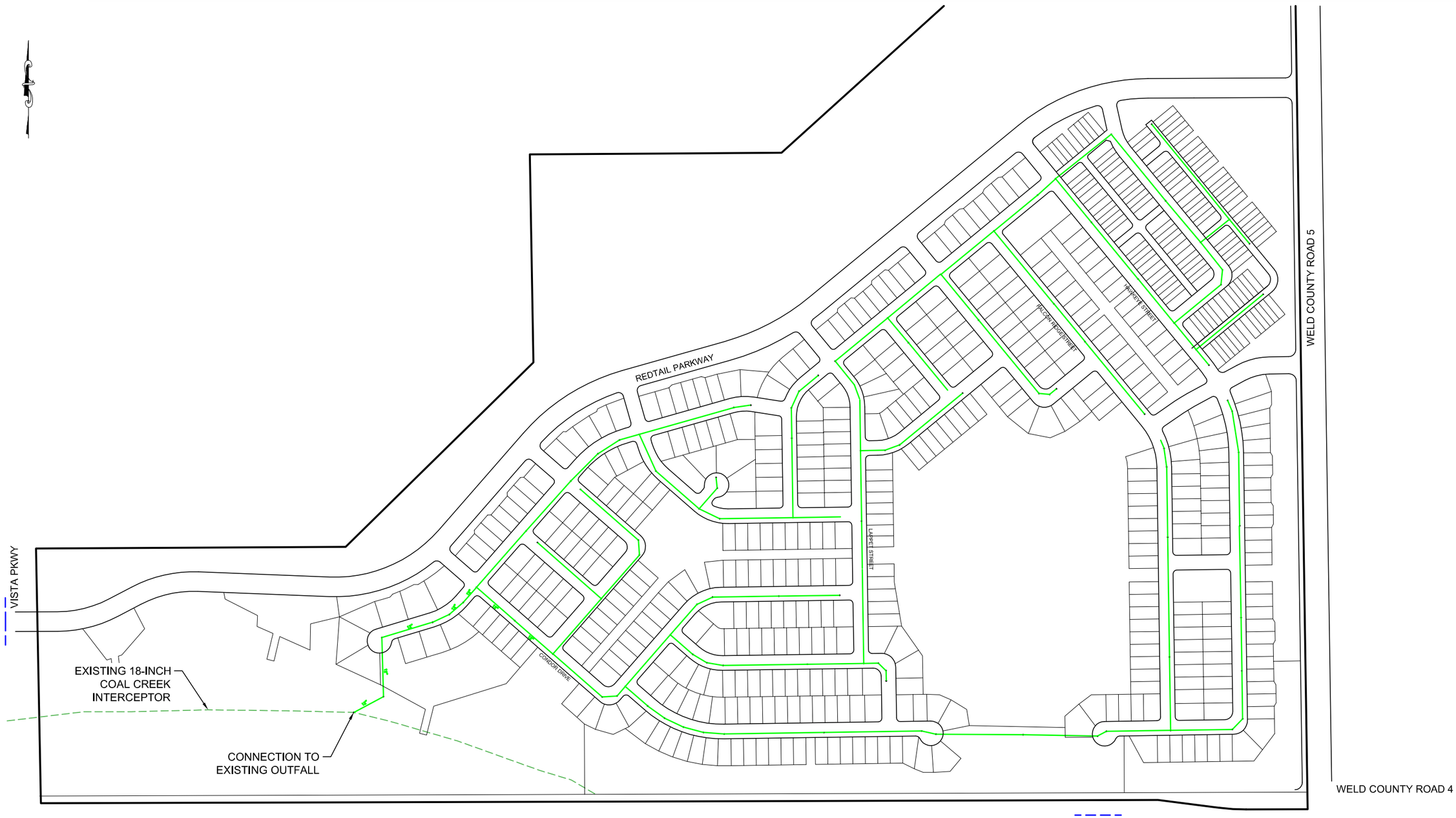
STRATUS REDTAIL

REDTAIL RANCH

FIGURE A1 - WATER SYSTEM

MARCH 2023 | SCALE: 1"=400'

696



NOTES:
1. ALL SEWER LINES ARE 8" UNLESS OTHERWISE NOTED.

MSK consulting
7157 S. Andes Circle
Centennial, CO 80016
303-903-0918

PRELIMINARY

STRATUS REDTAIL

REDTAIL RANCH

FIGURE A2 - SANITARY SEWER SYSTEM

MARCH 2023 | SCALE: 1"=400'

Appendix B
Water Model Results

Redtail Ranch

Utility Report Water & Wastewater Calculations (Preliminary Plat)

Water Demand

Date: March 2023

MSK Project #: 39-004-01

Calc'd by: DLT

PRELIMINARY
3/7/23

Based on Erie Criteria (Section 600 of the Standards and Specifications, dated January 2023)

Residential Demand:	140	gpd/capita
Capita per SF Unit:	2.89	capita/unit
Average Day Demand:	404.6	gpd (per residential unit)
Max. Day Demand Factor:	1,000	gpd/EQR
Peak Hour Demand Factor:	2.0	times MDD

Table B1-1: Buildout Water Demands

A	B	C	D	E	F	G
No.	Description	EQRs	Average Day Demand (gpd)	Max. Day Demand (gpd)	Max. Day Demand (gpm)	Peak Hour Demand (gpm)
1	Single-family Residential (Zone 3)	587.0	237,500	587,000	407.6	815.3
Totals		**587.0**	**237,500**	**587,000**	**407.6**	**815.3**

STRATUS REDTAIL

Redtail Ranch Preliminary Utility Report
Water Model Junction Report
Model Run Date: Mar 6, 2023

ADD= 404.6 gpd/SFE
0.281 gpm/SFE
MDD= 2.4716 x ADD
PHD= 4.9432 x ADD

Min. pressure: **44.03**

Table B2-1: Water Model Junction Report

PHD Factor: 4.94
PHD OUTPUT = 815.3 gpm

ID	Description (Char)	DU	Zone (Char)	Elevation (ft)	Static (ft)	Static (psi)	Demand (gpm)	Head (ft)	Pressure (psi)
J10	New Junction	7	3	5,174.00	139.00	60.25	9.72	5,310.59	59.18
J108	FH	13	3	5,154.45	158.55	68.73	18.06	5,310.44	67.59
J12	FH	9	3	5,170.50	142.50	61.77	12.50	5,310.55	60.68
J14	New Junction		3	5,159.49	153.51	66.54	0.00	5,310.58	65.47
J16	FH		3	5,143.78	169.22	73.35	0.00	5,310.59	72.28
J17	New Junction	7	3	5,136.49	176.51	76.51	9.72	5,310.56	75.43
J18	FH		3	5,134.89	178.11	77.20	0.00	5,310.65	76.15
J20	FH		3	5,178.85	134.15	58.15	0.00	5,310.63	57.1
J22	FH	17	3	5,191.58	121.42	52.63	23.61	5,310.66	51.6
J230	FH	8	4	5,214.00	206.00	89.29	11.11	5,419.82	89.18
J24	FH	10	3	5,156.23	156.77	67.95	13.89	5,310.43	66.82
J250	Z3 Feed West		3	5,110.00	203.00	87.99	0.00	5,313.00	87.96
J256	FH		3	5,201.13	111.87	48.49	0.00	5,310.65	47.45
J258	FH		3	5,202.65	110.35	47.83	0.00	5,310.65	46.8
J26	FH	8	3	5,166.00	147.00	63.72	11.11	5,310.43	62.58
J262	FH	14	3	5,168.00	145.00	62.85	19.44	5,310.54	61.76
J278	FH		3	5,169.18	143.82	62.34	0.00	5,310.62	61.28
J28	FH	11	3	5,163.61	149.39	64.76	15.28	5,310.44	63.62
J290	FH	18	3	5,207.76	105.24	45.62	25.00	5,311.89	45.12
J294	New Junction	16	3	5,199.00	114.00	49.41	22.22	5,312.11	49.01
J298	FH	11	3	5,188.96	124.04	53.77	15.28	5,312.44	53.51
J30	New Junction		3	5,127.09	185.91	80.59	0.00	5,310.70	79.56
J306	FH	4	4	5,219.50	200.50	86.91	5.56	5,419.80	86.79
J308	New Junction		4	5,211.06	208.94	90.57	0.00	5,419.87	90.48
J310	FH	22	4	5,220.00	200.00	86.69	30.56	5,419.80	86.57
J312	New Junction	6	4	5,217.80	202.20	87.65	8.33	5,419.80	87.53
J314	New Junction	16	4	5,219.00	201.00	87.13	22.22	5,419.80	87.01
J316	New Junction	6	4	5,215.89	204.11	88.47	8.33	5,419.81	88.36
J318	FH	11	4	5,213.00	207.00	89.73	15.28	5,419.80	89.61
J32	FH	9	3	5,127.24	185.76	80.52	12.50	5,310.58	79.44
J320	FH	7	4	5,219.46	200.54	86.93	9.72	5,419.81	86.81
J322	New Junction	4	3	5,150.00	163.00	70.65	5.56	5,310.54	69.56
J324	FH	3	3	5,152.54	160.46	69.55	4.17	5,310.54	68.46
J326	FH	6	3	5,118.52	194.48	84.30	8.33	5,310.58	83.22
J328	FH	11	3	5,121.59	191.41	82.97	15.28	5,310.53	81.87
J330	FH	14	3	5,128.49	184.51	79.98	19.44	5,310.45	78.84
J332	FH	16	3	5,137.63	175.37	76.02	22.22	5,310.44	74.88
J334	FH	20	3	5,131.58	181.42	78.64	27.78	5,310.54	77.54
J336	New Junction	11	3	5,168.00	145.00	62.85	15.28	5,310.45	61.72
J338	FH	4	3	5,174.10	138.90	60.21	5.56	5,313.00	60.18
J34	FH		4	5,213.00	207.00	89.73	0.00	5,419.86	89.63
J342	FH	20	3	5,191.56	121.44	52.64	27.78	5,312.11	52.23
J344	New Junction	18	3	5,181.00	132.00	57.22	25.00	5,312.84	57.13
J346	New Junction		4	5,228.71	191.29	82.92	0.00	5,419.95	82.86
J348	Z4 Feed		4	5,229.00	191.00	82.79	0.00	5,420.00	82.76
J350	FH	16	4	5,204.00	216.00	93.63	22.22	5,419.81	93.51
J352	New Junction	14	4	5,211.00	209.00	90.59	19.44	5,419.81	90.48
J354	FH		4	5,211.00	209.00	90.59	0.00	5,419.81	90.48
J356	New Junction		3	5,208.07	104.93	45.48	0.00	5,311.73	44.91
J358	New Junction	11	3	5,182.00	131.00	56.78	15.28	5,310.63	55.74
J36	New Junction	15	4	5,212.00	208.00	90.16	20.83	5,419.82	90.05
J360	FH	19	3	5,197.48	115.52	50.07	26.39	5,310.93	49.15
J362	FH	9	3	5,203.01	109.99	47.68	12.50	5,311.65	47.07
J364	New Junction		3	5,209.60	103.40	44.82	0.00	5,311.85	44.31
J366	New Junction		3	5,210.15	102.85	44.58	0.00	5,311.77	44.03
J368	FH		3	5,193.49	119.51	51.80	0.00	5,312.00	51.35
J370	New Junction	16	3	5,156.23	156.77	67.95	22.22	5,310.53	66.86
J372	FH	14	3	5,155.00	158.00	68.49	19.44	5,310.55	67.4
J374	FH	6	3	5,160.94	152.06	65.91	8.33	5,310.55	64.82
J376	New Junction		3	5,167.00	146.00	63.29	0.00	5,310.61	62.23
J378	New Junction	8	3	5,164.28	148.72	64.46	11.11	5,310.54	63.37
J38	FH	17	3	5,137.99	175.01	75.86	23.61	5,310.43	74.72
J380	New Junction	10	3	5,164.84	148.16	64.22	13.89	5,310.51	63.12
J382	New Junction		4	5,210.00	210.00	91.03	0.00	5,419.82	90.91
J384	New Junction	10	4	5,210.28	209.72	90.91	13.89	5,419.81	90.79
J40	FH	13	3	5,150.80	162.20	70.31	18.06	5,310.44	69.17
J42	FH	18	3	5,190.55	122.45	53.08	25.00	5,310.65	52.04
J44	FH	17	3	5,180.01	132.99	57.65	23.61	5,310.59	56.58
J68	New Junction	12	3	5,145.84	167.16	72.46	16.67	5,310.56	71.37
J84	FH	5	3	5,164.00	149.00	64.59	6.94	5,310.43	63.45
J92	FH		3	5,165.58	147.42	63.90	0.00	5,310.48	62.78
		587					815.3		

STRATUS REDTAIL
Redtail Ranch Preliminary Utility Report
Water Model Pipe Report
Model Run Date: Mar 6, 2023

Max. Velocity: 1.77 ft/sec

Table B2-2: Water Model Pipe Report

									PHD OUTPUT				
ID	Description (Char)	Zone (Char)	NOTE (Char)	From Node	To Node	Length (ft)	Diameter (in)	Roughness	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	HL/1000 (ft/k-ft)	Status
P10	P_Z3-Water	3		J108	J336	369	8	120	-26.33	0.17	0.01	0.03	Open
P100	P_Z3-Water	3		J362	J356	206.82	8	120	-113.33	0.72	0.08	0.38	Open
P102	P_Z3-Water	3	Closed	J366	J34	13.78	8	120	0	0	0	0	Closed
P104	P_Z3-Water	3		J12	J10	278.88	8	120	-63.71	0.41	0.04	0.13	Open
P106	connection	3		Z3_FEED1	J250	1	8	120	217.56	1.39	0	1.46	Open
P110	connection	4		Z4_FEED1	J348	1	8	120	187.49	1.2	0	0.98	Open
P112	P_Z3-Water	3		J16	J18	278.85	8	120	-82.73	0.53	0.06	0.21	Open
P114	P_Z3-Water	3		J358	J22	280	8	120	-60.96	0.39	0.03	0.12	Open
P116	P_Z3-Water	3		J24	J26	277	8	120	-3.09	0.02	0	0	Open
P118	P_Z3-Water	3		J26	J28	379.62	8	120	-21.14	0.13	0.01	0.02	Open
P12	P_Z3-Water	3		J26	J84	161.25	8	120	6.94	0.04	0	0	Open
P120	P_Z3-Water	3		J30	J32	226.5	8	120	134.83	0.86	0.12	0.52	Open
P122	P_Z3-Water	3		J256	J258	167.35	8	120	-28.4	0.18	0	0.03	Open
P124	P_Z4-Water	4		J34	J36	169.63	8	120	89.16	0.57	0.04	0.24	Open
P126	P_Z3-Water	3		J376	J278	260.44	8	120	-34.6	0.22	0.01	0.04	Open
P128	P_Z4-Water	4		J230	J308	172.47	8	120	-98.33	0.63	0.05	0.29	Open
P130	P_Z4-Water	4		J36	J310	765.59	8	120	22.29	0.14	0.01	0.02	Open
P132	P_Z4-Water	4		J314	J316	162.88	8	120	-26.43	0.17	0	0.03	Open
P134	P_Z3-Water	3		J332	J40	438.96	8	120	15.44	0.1	0	0.01	Open
P136	P_Z4-Water	4		J312	J320	200.02	8	120	-13.59	0.09	0	0.01	Open
P138	P_Z3-Water	3		J16	J68	232.58	8	120	60.2	0.38	0.03	0.12	Open
P14	P_Z3-Water	3		J17	J334	412.85	8	120	36	0.23	0.02	0.04	Open
P140	P_Z3-Water	3		J68	J372	396.79	8	120	21.51	0.14	0.01	0.02	Open
P141	P_Z3-Water	3		J17	J68	280.19	8	120	5.39	0.03	0	0	Open
P142	P_Z3-Water	3		J16	J14	529.95	8	120	22.53	0.14	0.01	0.02	Open
P143	connection	3		Z3_FEED2	J338	1	12	120	410.22	1.16	0	0.49	Open
P144	P_Z3-Water	3		J44	J10	427.13	8	120	3.28	0.02	0	0	Open
P146	P_Z3-Water	3		J12	J262	382.37	8	120	22.69	0.14	0.01	0.02	Open
P148	P_Z3-Water	3		J262	J44	443.17	8	120	-54.96	0.35	0.04	0.1	Open
P150	P_Z3-Water	3		J10	J358	281.16	8	120	-70.15	0.45	0.04	0.15	Open
P152	P_Z3-Water	3		J250	J30	1,829.23	8	120	217.56	1.39	2.3	1.26	Open
P154	P_Z3-Water	3		J30	J18	260	8	120	82.73	0.53	0.05	0.21	Open
P156	P_Z3-Water	3		J42	J44	280	8	120	81.86	0.52	0.06	0.21	Open
P158	P_Z3-Water	3		J322	J324	131.95	8	120	4.17	0.03	0	0	Open
P16	P_Z3-Water	3		J28	J336	280	8	120	-39.04	0.25	0.01	0.05	Open
P160	P_Z3-Water	3		J32	J326	528.84	8	120	8.33	0.05	0	0	Open
P161	P_Z3-Water	3		J32	J17	260.01	8	120	51.11	0.33	0.02	0.08	Open
P162	P_Z3-Water	3		J32	J328	414.86	8	120	62.89	0.4	0.05	0.13	Open
P164	P_Z3-Water	3		J328	J330	386.15	8	120	83.24	0.53	0.08	0.21	Open
P166	P_Z3-Water	3		J372	J374	323.82	8	120	23.92	0.15	0.01	0.02	Open
P168	P_Z3-Water	3		J328	J334	260	8	120	-35.63	0.23	0.01	0.05	Open
P170	P_Z3-Water	3		J330	J332	280	8	120	29.39	0.19	0.01	0.03	Open
P172	P_Z3-Water	3		J332	J108	456.82	8	120	-8.27	0.05	0	0	Open
P174	P_Z3-Water	3		J334	J68	670.45	8	120	-27.41	0.17	0.02	0.03	Open
P176	P_Z3-Water	3		J38	J24	468.56	8	120	10.8	0.07	0	0.01	Open
P178	P_Z3-Water	3		J374	J378	283.12	8	120	15.59	0.1	0	0.01	Open
P180	P_Z3-Water	3		J378	J12	264.28	8	120	-28.52	0.18	0.01	0.03	Open
P182	P_Z3-Water	3		J370	J378	427.60	8	120	-32.99	0.21	0.02	0.04	Open
P184	P_Z3-Water	3		J380	J262	270	8	120	-58.21	0.37	0.03	0.11	Open
P186	P_Z4-Water	4		J382	J230	132.24	8	120	-36.11	0.23	0.01	0.04	Open
P188	P_Z4-Water	4	Closed	J384	J354	64.48	8	120	0	0	0	0	Closed
P2	P_Z3-Water	3		J14	J376	737.55	8	120	-34.6	0.22	0.03	0.04	Open
P20	P_Z3-Water	3		J342	J294	291.36	8	120	-0.49	0	0	0	Open
P22	P_Z3-Water	3		J344	J338	281.88	12	120	-404.66	1.15	0.16	0.55	Open
P24	P_Z3-Water	3		J298	J344	473.34	8	120	-176.32	1.13	0.4	0.85	Open
P26	P_Z3-Water	3		J294	J298	458.9	8	120	-161.04	1.03	0.33	0.72	Open
P28	P_Z3-Water	3		J342	J344	661.45	8	120	-203.34	1.3	0.73	1.11	Open
P30	P_Z4-Water	4		J308	J346	1,957.18	12	120	-98.33	0.28	0.08	0.04	Open
P32	P_Z4-Water	4		J348	J346	49.94	8	120	187.49	1.2	0.05	0.96	Open
P34	P_Z4-Water	4		J34	J346	388.04	8	120	-89.16	0.57	0.09	0.24	Open
P36	P_Z4-Water	4		J350	J382	189.77	8	120	-36.11	0.23	0.01	0.05	Open
P38	P_Z4-Water	4		J352	J318	183.09	8	120	19.63	0.13	0	0.02	Open
P4	P_Z3-Water	3		J336	J92	129.71	8	120	-80.65	0.51	0.03	0.2	Open
P40	P_Z4-Water	4		J310	J314	393.80	8	120	1.35	0.01	0	0	Open
P42	P_Z4-Water	4		J312	J310	158.41	8	120	9.61	0.06	0	0.01	Open
P44	P_Z3-Water	3		J278	J20	280.00	8	120	-34.6	0.22	0.01	0.04	Open
P46	P_Z4-Water	4		J314	J306	104.00	8	120	5.56	0.04	0	0	Open
P48	P_Z4-Water	4		J316	J320	191.45	8	120	16.35	0.1	0	0.01	Open
P50	P_Z4-Water	4		J318	J312	265.22	8	120	4.35	0.03	0	0	Open
P52	P_Z4-Water	4		J352	J36	150.00	8	120	-46.03	0.29	0.01	0.07	Open
P54	P_Z4-Water	4		J320	J354	291.60	8	120	-6.96	0.04	0	0	Open
P56	P_Z4-Water	4		J354	J352	378.88	8	120	-6.96	0.04	0	0	Open
P58	P_Z4-Water	4		J350	J384	310.36	8	120	13.89	0.09	0	0.01	Open
P6	P_Z3-Water	3		J370	J380	280.00	8	120	36.33	0.23	0.01	0.05	Open
P60	P_Z3-Water	3		J22	J258	388.68	8	120	28.4	0.18	0.01	0.03	Open
P62	P_Z4-Water	4		J316	J230	187.96	8	120	-51.11	0.33	0.02	0.09	Open
P64	P_Z3-Water	3		J356	J366	110.63	8	120	-113.33	0.72	0.04	0.38	Open
P68	P_Z3-Water	3		J358	J42	430.54	8	120	-30.66	0.2	0.01	0.03	Open
P70	P_Z3-Water	3		J20	J358	226.50	8	120	-6.2	0.04	0	0	Open
P72	P_Z3-Water	3		J22	J360	700.54	8	120	-112.97	0.72	0.26	0.37	Open
P74	P_Z3-Water	3		J42	J360	522.08	8	120	-137.52	0.88	0.28	0.54	Open
P76	P_Z3-Water	3		J360	J362	368.56	8	120	-276.88	1.77	0.72	1.96	Open
P78	P_Z3-Water	3		J92	J380	190.29	8	120	-80.65	0.51	0.04	0.2	Open
P8	P_Z3-Water	3		J40	J28	379.04	8	120	-2.62	0.02	0	0	Open
P80	P_Z3-Water	3		J364	J366	228.47	8	120	113.33	0.72	0.09	0.38	Open
P82	P_Z3-Water	3		J290	J294	402.60	8	120	-138.33	0.88	0.22	0.54	Open
P84	P_Z3-Water	3		J290	J364	100.23	8	120	113.33	0.72	0.04	0.38	Open
P86	P_Z3-Water	3		J368	J342	127.96	8	120	-176.05	1.12	0.11	0.85	Open
P88	P_Z3-Water	3		J362	J368	415.41	8	120	-176.05	1.12	0.35	0.85	Open
P90	P_Z3-Water	3		J20	J256	610.00	8	120	-28.4	0.18	0.02	0.03	Open
P92	P_Z3-Water	3		J38	J330	407.54	8	120	-34.41	0.22	0.02	0.04	Open
P94	P_Z3-Water	3		J322	J370	379.50	8	120	25.55	0.16	0.01	0.02	Open
P96	P_Z3-Water	3		J372	J14	226.71	8	120	-57.13	0.36	0.02	0.11	Open
P98	P_Z3-Water	3		J372	J322	388.89	8	120	35.28	0.23	0.02	0.04	Open

STRATUS REDTAIL

Redtail Ranch Preliminary Utility Report

Water Model Fire Flow Report

Model Run Date: Mar 6, 2023

Table B2-3: Water Model Fire Flow Report

ID (Char)	Description (Char)	Zone (Char)	Elevation (ft)	Static Demand (gpm)	Static Pressure (psi)	Static Pressure (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)	Hydrant Pressure at Available Flow (psi)	Pass /Fail
J108	FH	3	5,154.45	9.03	68.73	158.55	1,000.00	60.53	2,921.38	20	Pass
J12	FH	3	5,170.50	6.25	61.77	142.50	1,000.00	55.69	3,260.54	20	Pass
J16	FH	3	5,143.78	0	73.35	169.22	1,000.00	67.23	3,716.31	20	Pass
J18	FH	3	5,134.89	0	77.20	178.11	1,000.00	70.80	3,733.26	20	Pass
J20	FH	3	5,178.85	0	58.15	134.15	1,000.00	51.98	3,035.88	20	Pass
J22	FH	3	5,191.58	11.81	52.63	121.42	1,000.00	46.71	2,857.13	20	Pass
J230	FH	4	5,214.00	5.56	89.29	206.00	1,000.00	86.89	6,592.32	20	Pass
J24	FH	3	5,156.23	6.94	67.95	156.77	1,000.00	58.77	2,683.21	20	Pass
J256	FH	3	5,201.13	0	48.49	111.87	1,000.00	41.34	2,305.35	20	Pass
J258	FH	3	5,202.65	0	47.83	110.35	1,000.00	40.82	2,303.77	20	Pass
J26	FH	3	5,166.00	5.56	63.72	147.00	1,000.00	54.82	2,596.87	20	Pass
J262	FH	3	5,168.00	9.72	62.85	145.00	1,000.00	56.69	3,284.25	20	Pass
J278	FH	3	5,169.18	0	62.34	143.82	1,000.00	55.38	2,959.43	20	Pass
J28	FH	3	5,163.61	7.64	64.76	149.39	1,000.00	56.97	2,885.12	20	Pass
J290	FH	3	5,207.76	12.5	45.62	105.24	1,000.00	41.88	3,139.87	20	Pass
J298	FH	3	5,188.96	7.64	53.77	124.04	1,000.00	51.41	4,673.23	20	Pass
J306	FH	4	5,219.50	2.78	86.91	200.50	1,000.00	82.78	4,709.63	20	Pass
J310	FH	4	5,220.00	15.28	86.69	200.00	1,000.00	83.75	5,769.69	20	Pass
J318	FH	4	5,213.00	7.64	89.73	207.00	1,000.00	86.51	5,595.00	20	Pass
J32	FH	3	5,127.24	6.25	80.52	185.76	1,000.00	74.37	3,995.08	20	Pass
J320	FH	4	5,219.46	4.86	86.93	200.54	1,000.00	84.09	5,897.13	20	Pass
J324	FH	3	5,152.54	2.08	69.55	160.46	1,000.00	61.44	2,932.26	20	Pass
J326	FH	3	5,118.52	4.17	84.30	194.48	1,000.00	73.25	2,774.87	20	Pass
J328	FH	3	5,121.59	7.64	82.97	191.41	1,000.00	76.49	3,960.47	20	Pass
J330	FH	3	5,128.49	9.72	79.98	184.51	1,000.00	72.65	3,556.37	20	Pass
J332	FH	3	5,137.63	11.11	76.02	175.37	1,000.00	68.34	3,315.89	20	Pass
J334	FH	3	5,131.58	13.89	78.64	181.42	1,000.00	72.18	3,806.13	20	Pass
J338	FH	3	5,174.10	2.78	60.21	138.90	1,000.00	60.18	269,091.91	20	Pass
J34	FH	4	5,213.00	0	89.73	207.00	1,000.00	87.46	6,789.44	20	Pass
J342	FH	3	5,191.56	13.89	52.64	121.44	1,000.00	50.22	4,789.62	20	Pass
J350	FH	4	5,204.00	11.11	93.63	216.00	1,000.00	88.16	4,230.66	20	Pass
J354	FH	4	5,211.00	0	90.59	209.00	1,000.00	87.13	5,364.28	20	Pass
J360	FH	3	5,197.48	13.19	50.07	115.52	1,000.00	45.15	3,074.51	20	Pass
J362	FH	3	5,203.01	6.25	47.68	109.99	1,000.00	44.25	3,603.57	20	Pass
J368	FH	3	5,193.49	0	51.80	119.51	1,000.00	48.89	4,176.44	20	Pass
J372	FH	3	5,155.00	9.72	68.49	158.00	1,000.00	62.47	3,585.17	20	Pass
J374	FH	3	5,160.94	4.17	65.91	152.06	1,000.00	59.25	3,223.49	20	Pass
J38	FH	3	5,137.99	11.81	75.86	175.01	1,000.00	67.05	3,013.08	20	Pass
J40	FH	3	5,150.80	9.03	70.31	162.20	1,000.00	61.92	2,929.77	20	Pass
J42	FH	3	5,190.55	12.5	53.08	122.45	1,000.00	47.38	2,968.46	20	Pass
J44	FH	3	5,180.01	11.81	57.65	132.99	1,000.00	51.66	3,104.51	20	Pass
J84	FH	3	5,164.00	3.47	64.59	149.00	1,000.00	54.20	2,367.62	20	Pass
J92	FH	3	5,165.58	0	63.90	147.42	1,000.00	56.95	3,069.06	20	Pass

N

Z3_FEED1

Z4_FEED1

Z3_FEED2

Legend

- Junction
- Supply
- Pipe
- P-Z3-Z4_Bnd-2023-03
- P-ROW-2022-08
- P-lots-2022-08
- P-Boundary
- E-Road

Layer

- P_Z3 Water
- P_Z4 Water

MSK consulting
7157 S. Andes Cir
Centennial, CO 80016
303-903-0918

PRELIMINARY

REDTAIL RANCH	
UTILITY REPORT	
FIGURE B1	
POTABLE WATER DISTRIBUTION SYSTEM MODEL	
PIPE & JUNCTION ID	
MARCH 2023	JN 39-004-01

Appendix C
Wastewater Calculations

Redtail Ranch

Utility Report Water & Wastewater Calculations (Preliminary Plat)

Wastewater Loads
Date: March 2023
MSK Project #: 39-004-01
Calc'd by: DLT

PRELIMINARY
3/3/23

Based on Erie Criteria (Section 700 of the Standards and Specifications, dated January 2023)

Residential Production	90	gpd/capita
Capita per SF Unit:	2.89	capita/unit
Average Daily Flow:	260.1	gpd (per residential unit)
Peaking Factor:	2.6*Qmax-0.16	
Peaking Factor Range:	2.0 to 4.0	

Table C1-1: Buildout Wastewater Production

A	B	C	D	E	F	G
No.	Description	Units	Average WW (gpd)	Peaking Factor	Peak Flow (gpd)	Peak Flow (gpm)
1	Single-family Residential	587.0	152,679	3.3	500,050	347
Totals		**587.0**	**152,679**		**500,050**	**347**

Note:
1. Inflow/infiltration is included in the unit values.

Redtail Ranch

Utility Report Water & Wastewater Calculations (Preliminary Plat)

Sanitary Sewer Analysis - Min. Pipe Slopes

Date: March 2023

MSK Project #: 39-004-01

Calc'd by: DLT

PRELIMINARY
3/3/23

Assumptions

Buildout Peak Flow:	71	gpm
Slope:	1.01%	(Erie's criteria is 0.40% minimum)
Manning's coeff:	0.012	(PVC)
Pipe Diameter:	8 in	0.67 ft
Hydraulic Radius R:	0.333 ft	

Table C2-1: 8-inch Capacity

	Depth, ft	Area, ft^2	Wetted Perimeter, ft	Hydraulic Radius, ft	Slope, ft/ft	Slope, %	Velocity, ft/sec	Flow, cfs	Flow, mgd	Flow, gpm
d/D= 0.20	0.13	0.050	0.618	0.080	0.010	1.01%	2.32	0.1	0.1	52
d/D= 0.23	0.16	0.062	0.673	0.092	0.010	1.01%	2.55	0.2	0.1	71
d/D= 0.40	0.27	0.130	0.913	0.143	0.010	1.01%	3.41	0.4	0.3	200
d/D= 0.50	0.33	0.175	1.047	0.167	0.010	1.01%	3.78	0.7	0.4	296
d/D= 0.60	0.40	0.219	1.181	0.185	0.010	1.01%	4.05	0.9	0.6	398
d/D= 0.70	0.47	0.261	1.322	0.197	0.010	1.01%	4.23	1.1	0.7	496

Redtail Ranch
Utility Report Water & Wastewater Calculations (Preliminary Plat)
Sanitary Sewer Analysis - Min. Pipe Slopes
Date: March 2023
MSK Project #: 39-004-01
Calc'd by: DLT

PRELIMINARY
3/3/23

Assumptions

Buildout Peak Flow:	347	gpm
Slope:	0.58%	(Erie's criteria is 0.22% minimum)
Manning's coeff:	0.012	(PVC)
Pipe Diameter:	12 in	1.00 ft
Hydraulic Radius R:	0.500 ft	

Table C2-3: 12-inch Capacity

	Depth, ft	Area, ft^2	Wetted Perimeter, ft	Hydraulic Radius, ft	Slope, ft/ft	Slope, %	Velocity, ft/sec	Flow, cfs	Flow, mgd	Flow, gpm
d/D= 0.20	0.20	0.112	0.927	0.121	0.006	0.58%	2.31	0.3	0.2	116
d/D= 0.35	0.35	0.245	1.265	0.193	0.006	0.58%	3.16	0.8	0.5	347
d/D= 0.40	0.40	0.293	1.369	0.214	0.006	0.58%	3.39	1.0	0.6	446
d/D= 0.50	0.50	0.393	1.571	0.250	0.006	0.58%	3.75	1.5	1.0	661
d/D= 0.60	0.60	0.492	1.772	0.278	0.006	0.58%	4.02	2.0	1.3	889
d/D= 0.70	0.70	0.587	1.982	0.296	0.006	0.58%	4.20	2.5	1.6	1,107

Prepared for

LAI Design Group and the Town of Erie

A Class III Cultural Resource Inventory for LAI Design Group's Redtail Ranch Project, Weld County, Colorado

May 15, 2015

Prepared by
WCRM
Western Cultural Resource Management, Inc.

Under Contract With
LAI Design Group

A CLASS III CULTURAL RESOURCE INVENTORY FOR LAI DESIGN GROUP'S REDTAIL RANCH PROJECT, WELD COUNTY, COLORADO

Prepared by

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Boulder, Colorado 80306

Thomas J. Lennon
Principal Investigator

Prepared for

The LAI Design Group
8201 Southpark Lane
Littleton, Colorado 80120

and

Town of Erie
645 Holbrook
Erie, Colorado 80516

Colorado State Permit 2015-37

WCRM Project No. LAI-RED/15B048

May 15, 2015

Abstract

From May 1-3, 2015, Western Cultural Resource Management, Inc. (WCRM) conducted a Class III cultural resource survey of 289.92 acres for LAI Design Group of the Redtail Ranch Project area. The Project Area is located southeast of Erie, west of Vista Parkway, and south of the Denver Regional Landfill in Weld County, Colorado. The work was completed for LAI Design Group as per the request of the Town of Erie. The majority of the project area will be directly affected by residential development and associated activities. The pedestrian survey was conducted in order to comply with Section 106 of the National Historic Preservation Act of 1966 (as amended). The purpose of the study was to locate, record, and evaluate cultural resources according to the criteria outlined in 36CFR800 for inclusion of resources in the National Register of Historic Places (NRHP).

Cultural resources have not been documented within the Redtail Ranch Project area. One historic site, a segment of the Burlington Northern Railroad grade (5WL1423.44) and two isolated finds (5WL7793 and 5WL7794) were recorded during the course of the survey. An adjoining segment of the Burlington Northern Railroad grade (5WL1423.8) was recorded immediately west of the Redtail Ranch Project area in the current location of the Vista Pointe housing subdivision (Chambellan and Mehls 2001); it was officially determined not eligible for inclusion in the NRHP on September 14, 2001 and subsequently destroyed by the construction of the subdivision. The railroad segment located within the project area consists of two portions (eastern and western) and both have been heavily altered and impacted by the removal of the tracks and associated structures, modification and use as a two-track road, and the installation of oil and gas facilities. As a result, this segment of the surviving grade has lost its integrity and is not recommended eligible for inclusion in the NRHP. The two isolated finds are also not recommended eligible.

Contents

Introduction 1

Effective Environment 3
Environmental Constraints 3

Culture History and Previous Work 4
Prehistoric Overview 4
Historic Overview 4
Previous Work 4

Statements of Objectives and Research Design 8
Objectives 8
Prehistoric Research Design 8
Historic Research Design 8

Field Methods 9

Inventory Results 11
Site Description 11
Isolated Find Descriptions 12

Evaluation and Recommendations 14
5WL1423.44 14
Isolated Finds 14
Evaluation of Research and Application of Research Design 14

Conclusions 16

References Cited 17

List of Figures

Figure 1. Project Location..... 2

Figure 2. View to south of a recent trash scatter and vegetation cover in the southern portion of the Redtail Ranch Project area. 9

List of Tables

Table 1. Projects within One-Mile of the Redtail Ranch Project Area. 5

Table 2. General Land Office Data for the Redtail Ranch Project Area..... 7

OAHP1421

History Colorado-Office of Archaeology and Historic Preservation
COLORADO CULTURAL RESOURCE SURVEY
Cultural Resource Survey Management Information Form

I. PROJECT SIZE

Total federal acres in project	N/A		Total federal acres surveyed	N/A
Total state acres in project	N/A		Total state acres surveyed	N/A
Total private acres in project	289.92		Total private acres surveyed	289.92
Total other acres in project	N/A		Total other acres surveyed	N/A

II. PROJECT LOCATION

County:	Weld
USGS Quad Map:	Erie, CO
Principal Meridian:	6th

Township	1N		Range	68W		Section	29			1/4			1/4		SE	1/4		SE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		NE	1/4		SE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		SW	1/4		SE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		NW	1/4		SE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		SE	1/4		NE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		SW	1/4		NE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		NE	1/4		NE 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		SW	1/4		SW 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		NE	1/4		SW 1/4
Township	1N		Range	68W		Section	29			1/4			1/4		SE	1/4		SW 1/4

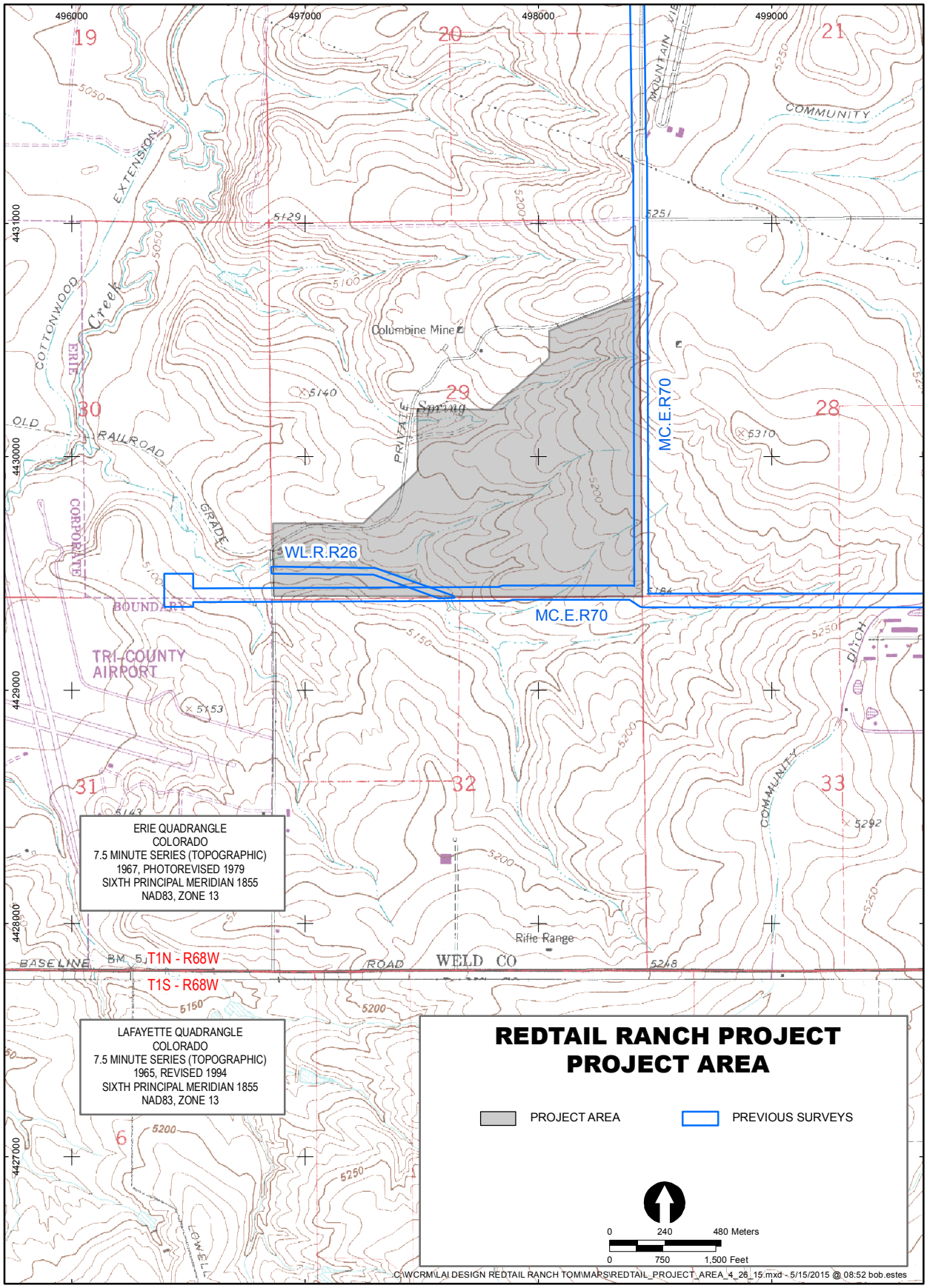
III. SITES

Smithsonian Number	Resource Type				Eligibility				Management Recommendations						
	Prehistoric	Historic	Paleontological	Unknown	Eligible	Not Eligible	Need Data	Contributes to a District	No Further Work	Preserve / Avoid	Monitor	Test	Excavate	Archival Research	Other
5WL1423.44		X				X			X						

IV. ISOLATED FINDS

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown
5WL7793		X		
5WL7794	X			

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown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32
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6
WL.R.R26
MC.E.R70
MC.E.R70
Columbine Mine
Spring
TRI-COUNTY AIRPORT
BOUNDARY
BASELINE
BM 5
T1N - R68W
T1S - R68W
ROAD
WELD CO
Rifle Range
COTTONWOOD Creek
ERIE
OLD RAILROAD GRADE
CORPORATE
MOUNTAIN VIEW
COMMUNITY DITCH
COMMUNITY
EXTENSION
ERIE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1967, PHOTOREVISED 1979
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
LAFAYETTE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1965, REVISED 1994
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
REDTAIL RANCH PROJECT
PROJECT AREA
PROJECT AREA
PREVIOUS SURVEYS
0 240 480 Meters
0 750 1,500 Feet
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Introduction

A Class III cultural resource survey of 289.92 acres of the Redtail Ranch Project area was conducted by Western Cultural Resource Management, Inc. (WCRM) on May 1-3, 2015. The Project Area is located in Section 29 of Township 1 North, Range 68 West in southern Weld County (Figure 1). The work was conducted at the request of Joshua Rowland of LAI Design Group and the Town of Erie and supervised by Thomas Hoffert. Thomas J. Lennon served as the Principal Investigator. The majority of the Project Area will be directly impacted by residential construction and related activities.

The evaluation was conducted in compliance with the National Historic Preservation Act of 1966 (as amended), Executive Order 11593, and the Archaeological and Historical Preservation Act of 1974. The purpose was to locate and record all cultural resources within the project area and evaluate them with regard to the National Register of Historic Places (NRHP) criteria.

No resources had been previously recorded within the Project Area. During the course of the pedestrian survey, one historic railroad segment (5WL1423.44) and two isolated finds (5WL7793 and 5WL7794) were documented and evaluated. A stock pond was also noted as being in the area.

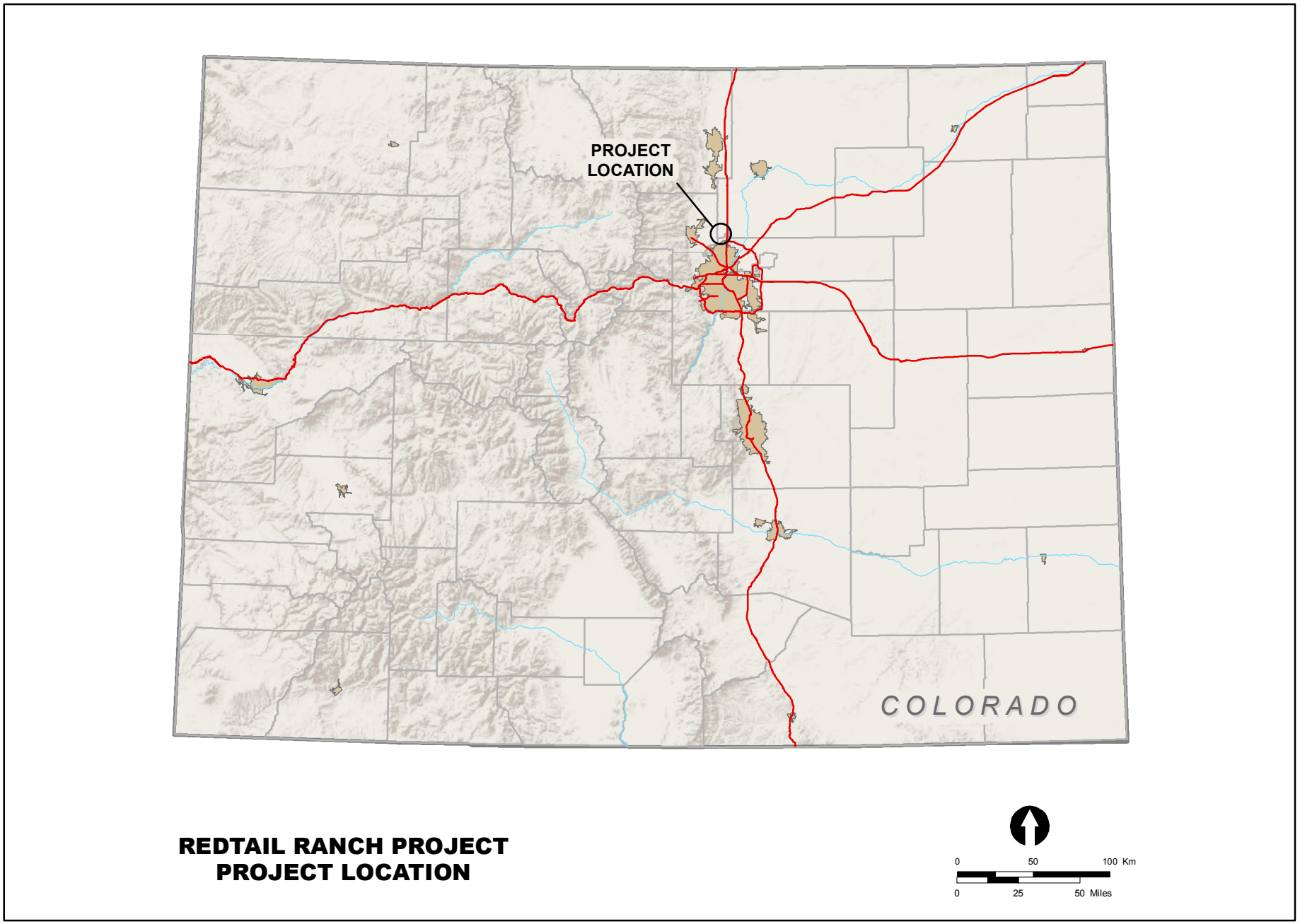

Figure 1. Project Location

Effective Environment

The project area consists primarily of uncultivated prairie cross-cut by intermittent drainages. The Coal Creek Valley lies to the west where it flows from southeast to northwest and joins Boulder Creek to the north. Interstate 25 and the eastern plains of Colorado lie to the east. Housing subdivisions have impacted the area with the Vista Point subdivision to the west and the Vista Ridge subdivision to the south.

The area is located within the "Colorado Piedmont section of the Great Plains Division, one of three major physiographic divisions in Colorado" in the South Platte River drainage system (Anderson and Mehls 1994:8; Gerstle and Mehls 1994:11). Elevations range from 5100 to 5250 feet.

Climate within the area is typical for the Colorado Plains and is characterized by low humidity, sparse rainfall, moderate to high winds, abundant sunshine and a large range in temperatures daily (Anderson and Mehls 1994:8). Most of the annual rainfall occurs in spring and summer falling between April and September. Usually precipitation is in the form of heavy thunderstorms and averages 18 to 24 inches per year. Flooding in this area of the plains may be as a result of these thunderstorms and occasional snow runoff. Droughts can occur lasting several years.

The geology of the area generally dates to the Cretaceous Period when sedimentary rocks were formed by a large inland sea. The soils of the area are composed of clay and some Aeolian deposits. Historically, coal beds contained in these formations were commercially mined.

A number of animal and bird species inhabit the area. Birds include hawks, eagles, meadow larks, owls, robins, prairie pigeons and sparrows. Native carnivorous animals include coyotes, wolves, badgers, foxes and weasels; all are still present within the area except wolves. Jackrabbits, rabbits, mice, raccoons and other small mammals used to be plentiful in the area, but have recently been removed by establishment of housing subdivisions. Likewise, native grazing animals (e.g., mule deer elk, bison and pronghorn antelope) are no longer present in the area.

Environmental Constraints

The quantity and quality of prehistoric and historic materials and resources have been impacted by the removal of the tracks and associated structures from 5WL1423.44 and use of the rail bed as a two-track road, placement of oil field installations, trash dumping, and target shooting activities by historic and modem inhabitants. Prehistoric artifacts may have been displaced by these activities and/or collected.

Culture History and Previous Work

Prehistoric Overview

The Front Range and Plains of Colorado have been occupied for over 12,000 years. Four prehistoric cultural stages have been defined from the archaeological evidence documented from sites in the Foothills and Front Range of the Platte River Basin: the Pre-Projectile, the Paleo-Indian, the Archaic and the Late Prehistoric (Cassells 1983; Eighmy 1984, Gilmore et al. 1999; Guthrie et al. 1984; and Jepson and Hand 1994). For further discussion of these time periods, see these studies and Chambellan and Mehls (2001).

Historic Overview

Historic Indian tribes located within close proximity to the Project Area included the Apache (ca.1700 A.D.), the Comanche (ca. 1700-1820), and the Arapaho and Cheyenne (ca. 1820-1870) (Baker et al. 2007; Cassells 1983:198). After the removal of the Arapaho and Cheyenne to reservations in Oklahoma an expanse of unoccupied grassland was available for Euro-American settlers to claim.

In considering the cultural history of the Historic Period, the study team identified two themes based on a reconnaissance of the area and knowledge of local history. These themes were adapted from the mountains historic period RP3 (Mehls 1984). The themes include Coal Mining (1870-1930) and Farming and Ranch (1859-1945). For a more detailed discussion of these themes see Chambellan and Mehls 2001, Church et al. 2007, and Mehls et al. 1999.

Previous Work

OAHP File Search

A literature search of the Redtail Ranch Project area was submitted by Bob Estes, WCRM's GIS Specialist, to Historic Colorado's Office of Archaeology and Historic Preservation (OAHP), and results were received on April 28, 2015. No cultural resources had been previously recorded within the project area; however, two surveys had been conducted (see Project Area map in front matter). The first survey was conducted by WCRM for a proposed sewer line associated with the development of the Vista Ridge subdivision (Chambellan 2001a) across the southwestern corner. The second survey was conducted by Greystone Environmental Services (Späth 1998) for a transmission line along the southern and eastern project boundaries.

The sewer line area was surveyed as an addendum (Chambellan 2001a) to a larger portion of land (920 acres) immediately south of the current project area for the Vista Ridge Project (Chambellan and Mehls 2000a). A refuse pile dating from 1900 to 1960, 16 isolated finds and an additional segment of the Community Ditch (5WL2247.10) were recorded during survey of the Vista Ridge Project area. None of the sites were deemed eligible for the NRHP. A second addendum for the Vista Ridge Project was also conducted in 2001 (Chambellan 2001b). This project consisted of a 20 – 25 acre parcel of land surveyed prior to road improvements intended for access into the proposed Vista Ridge subdivision. No cultural resources were located.

Within a mile surrounding the area, 15 additional cultural resource inventories have been conducted. To the southwest the Parkdale Mine (5WL2951) and one historic isolated find were recorded for the 70 acre Vista Plaza Annexation Project (Chambellan and Mehls 1999). The Parkdale Mine was recommended as not eligible for the NRHP. Immediately east of the project area, 320 acres were surveyed for the Vista Pointe Subdivision Project (Chambellan and Mehls 2001). Two historic sites consisting of a segment of the Burlington Northern Railroad (5WL1423.8) and a segment of the Cottonwood Extension Ditch (5WL2248.6), five prehistoric sites and 12 isolated finds were recorded during the course of the survey. None of the cultural resources were considered eligible for the NRHP. An addendum to this project (Chambellan 2001c) consisted of a 12 acre sanitation right-of-way survey. One historic site, a segment of the Cottonwood Extension Ditch (5WL2248.7) and one historic isolate were recorded during the pedestrian survey. Neither resource was recommended as eligible for the NRHP. Additional work associated with the Vista Pointe Subdivision Project included the evaluation of a stone cabin (Chambellan and Mehls 2000b) located in the proposed subdivision locale. The cabin was recommended not eligible as a result of severe alterations and deterioration. Finally, to the northwest of the project area a segment of the Community Ditch (5WL2247.9) was recorded during a survey of the KN Wattenberg Transmission Pipeline (Späth 1998). This segment was recommended field not eligible for the NRHP. The remaining 12 projects within one mile of the current project area are summarized in Table 1.

Table 1. Projects within One-Mile of the Redtail Ranch Project Area.

Organization	Recording Date	Project/OAHP Report Number	Sites Recorded
CDOT Colorado Department of Transportation	01/07/2009	Unknown/No report	5WL.2247.15
Foothill Engineering Consultants, Inc.	13/07/1995	Cultural Resources Survey of the Flatiron-Erie Transmission Line; Larimer, Boulder and Weld Counties, Colorado/MC.E.R18	5WL.2247.1 5WL.2248.1

Organization	Recording Date	Project/OAHP Report Number	Sites Recorded
Greystone Environmental Services, Inc.	23/02/1998	KN Wattenberg Transmission L.L.C Front Runner Pipeline, Adams, Weld, and Broomfield Counties, Colorado, Cultural Resource Inventory Report #4: Erie Lateral and Tri-Town Lateral Southeast of Erie to the Amoco west Dougan South Mainline/MC.E.R70	5WL.2247.9
James M. Brechtel, Consulting Archaeologist	07/1995	Unknown/No report	5WL.2224
James M. Brechtel, Consulting Archaeologist	30/03/1998	Intensive Cultural Resource Survey of Coal Creek Heights PUD Weld County, Colorado/WL.R.R10	5WL.2248.3 5WL.2248.4
SWCA, Inc.	10/26/2006	Class III Cultural Resource Inventory of the Sunset Real Estate Development Weld County, Colorado/WL.R.R58>MC.E.R41	5WL.3154.1 5WL.5257
URS Corporation	03/10/2002	SHPO Level Documentation of the Burlington Northern Railroad (5WL1423.10), Weld County, Colorado, Erie Commons Development, Colorado: Results of an Intensive Cultural Resource Inventory/WL.R.R46>WL.R.R54	5WL.1423.10
URS Corporation	03/10/2002	SHPO Level II Documentation of the Erie-Coal Creek Ditch (5WL2248.9) Weld County, Colorado. Eire Commons Development, Colorado/WL.R.R44>WL.R.R54	5WL.2248.9
URS Corporation	03/10/2002	Erie Commons Development, Colorado: Results of an Intensive Cultural Resource Inventory/WL.R.R54	5WL.4305 5WL.4306 5WL.4307 5WL.4309
URS Corporation	04/10/2002	Site 5WL4308, Weld County, Colorado: Results of Evaluative Testing at a Historic Refuse Dump/WL.R.R40>WL.R.R54	5WL.4308
URS Corporation	03/10/2002	SHPO Level Documentation of the Leyner-Cottonwood No. 1 Ditch (5WL4310.1), Weld County, Colorado/WL.R.R45>WL.R.R54	5WL.4310.1
Western Cultural Resource Management, Inc. (WCRM)	03/12/1993	Cultural Resources Inventory of the Southern Water Supply Pipeline Right-of-Way. Segment III: Ogallala Road to Broomfield, Boulder, Weld and Adams Counties, Colorado/WL.CH.R25>MC.R.R15	5WL.1043.7 5WL.2141 5WL.2142.1 5WL.2143.1 5WL2144

GLO Records Search

On May 14, 2015, Collette Chambellan conducted a search of General Land Office (GLO) records. The file search of the GLO records yielded the information listed in Table 1 for Township 1N, Range 68W, Section 29. Madore Cushman obtained a patent on July 1, 1868 to purchase 160 acres at the aliquots shown in Table 2. It appears that the land was used historically for agricultural purposes and subsequently crossed by the railroad spur.

Table 2. General Land Office Data for the Redtail Ranch Project Area.

Aliquots for T1N, R68W, Sec. 29	Patentee	Law	Date
E½, NW¼	Madore Cushman	Cash Sale	7/1/1868
W½,NE¼	Madore Cushman	Cash Sale	7/1/1868

Statements of Objectives and Research Design

Objectives

The objective of the cultural resource inventory was to locate, record, and evaluate cultural resources according to the criteria outlined in 36CFR800 for inclusion of resources in the National Register of Historic Places (NRHP). To facilitate the evaluation process with regard to historic resources, WCRM adopted the historic context as defined by the Secretary of Interior and the National Register staff as the vehicle for site eligibility recommendations.

Prehistoric Research Design

Prehistoric research design themes include Chronology and Cultural Relationships, Paleoecology, Geomorphology, Subsistence and Settlement, and Cultural Economy and Technology. See Chambellan and Mehls 2001for an in-depth discussion of the prehistoric research design.

Historic Research Design

Historic research design themes for the area include The Great Depression (1920-1940) and Post-1900 Agriculture—Dryland Farming themes from the Colorado Plains Historic Context Theme (Mehls 1984). See Chambellan and Mehls 2001for an in-depth discussion of the historic research design.

Field Methods

From May 1-3, 2015, Thomas Hoffert and Cathryn Williamson of WCRM conducted a Class III pedestrian inventory of approximately 300 acres of land located two miles southeast of Erie, Colorado. During the survey, the Project Area was 100 % covered by walking parallel 15-20 meter (m) transects. In general, ground visibility in the area was poor due to the presence of trash from the landfill and natural and invasive grasses (Figure 2). Areas of exposed earth (i.e., two track roads, rodent burrows, and disturbed areas) were thoroughly examined. Resources were recorded on the appropriate Colorado Cultural Resource Survey Forms (see Appendix), mapped and photographed. No artifacts were collected nor was laboratory work conducted. All project records, field notes, photographs and negatives are on file at WCRM's Boulder office. All GIS mapping was completed by Bob Estes of WCRM.

Figure 2. View to south of a recent trash scatter and vegetation cover in the southern portion of the Redtail Ranch Project area.

Isolated artifacts/features are the occurrence of four or fewer pieces of debitage, tools or tool fragments not from the same item or the occurrence of an isolated feature. A prehistoric site is defined as five or more artifacts, two or more features or features associated with artifacts. Historic sites consist of linear features, historic buildings or structures, or features with five or more associated artifacts less than 100 feet apart. Historic materials must be 50 more years of age to merit recordation.

Inventory Results

During the 289.92-acre Retail Ranch Class III pedestrian survey, WCRM recorded one historic site (5WL1423.44) and two isolate finds (5WL7793 and 5WL7794); cultural resource documentation is provided in the Appendix. One stock pond was noted just to the south and below the Denver Regional Landfill boundary fence within the project area. Ground visibility, especially in the southern portion of the project area was poor due to presence of dense vegetation. The visibility in the northern portion of the project area was considerably better due to the presence of a large prairie dog colony, which had denuded the vegetation in the area. Additional areas of disturbance consisted of two existing oil and gas well installations, one cleared well pad with no infrastructure present, and access roads constructed to these locations. In total, the oil and gas installations comprised approximately 18 acres. A small portion of the project area had been disturbed by the construction of a sewer pipeline; this area had been previously surveyed by WCRM (Chambellan 2001b). Large amounts of trash associated with the Denver Regional Landfill litter the extreme northern portion of the project area. The landfill abuts the northern boundary of the project area and as such spill off and previous dumping has created a line of trash along the northern fence line. The landfill was created in 1940 and decommissioned in 2011 but still accepts small amounts of refuse on a case by case basis.

Site Description
5WL1423.44

Railroad segment 5WL1423.44, a segment of the Burlington Northern Line (5EP1423) is located on an uncultivated section of prairie cross-cut by intermittent drainages. Site elevations range from 5106 feet to 5147 feet. The Denver Regional Landfill lies to the north, the Vista Pointe housing subdivision lies to the west, the Vista Ridge housing subdivision lies to the south, and Weld County Road 5 lies to the east. Coal Creek Valley is located to the west where the creek flows from southeast to northwest and joins Boulder Creek to the north. An unnamed seasonal drainage lies 100 m south of 5WL1423.44. The geology of the area generally dates to the Cretaceous Period when sedimentary rocks were formed by a large inland sea. The soils of the area are composed of brown clay loam and abundant surface gravels of quartzite, sandstone, and iron stone, and some aeolian deposits. Historically, coal beds contained in these formations were commercially mined. In general, ground visibility in the area was poor due to the presence of dense native and invasive grasses. Areas of exposed earth (i.e., two track roads, rodent burrows, and disturbed areas) were thoroughly examined. Besides native and invasive grasses, vegetation in the project area included weeds, sparse yucca and prickly pear cactus. Today, the aspect from 5WL1423.44 is to the south. Prior to the construction of the Denver Regional Landfill (immediately northeast of the railroad grade) the aspect may have included the northeast, as well.

The segment is part of a spur that diverged from the mainline west of Coal Creek, continued east crossing the Redtail Ranch Project area, and turned north of the project area to the historic Columbine Mine. The overall Burlington Northern route from Chicago to Denver was completed in 1882 (Ubbelohde et al. 2006). The railroad segment that crosses the project area was part of a 2.1 mile spur built in 1919 from the Lyons Branch of the Chicago, Burlington and Quincy Railroad to the Columbine Mine and the town of Serene (5WL749); the coal mine and town were owned by the Rocky Mountain Fuel Company, which was operated from the early to mid-1900s. The spur to the Columbine Mine was abandoned in 1946 and the tracks were removed in the early 1950s (Wilkins 1974:56, 204, 243).

Within the project area, the visible extent of 5WL1423.44 is 1,404 feet in length and 65 feet in width (entire track foundation); it is a continuation of the rail bed from the west previously recorded as segment 5WL1423.8 (Chambellan and Mehls 2001). The full extent of the spur that would have cut across the project area prior to recent impacts would have been approximately 2,001 feet. To the west, 5WL1423.8 has been obliterated by the construction of Vista Parkway and the Vista Pointe housing subdivision. On average, the rail lay down area is 12 feet wide. There is no longer evidence of the rails or ballast.

The western portion of 5WL1423.44 has a pronounced five-foot high berm on the south side; it is far less pronounced on the north side. Sometime in the past, this portion was bladed and graveled for use as a two-track road. The east end of the western portion of the segment was not used as a two-track road but has been completely impacted by oil and gas development operations, has slumped considerably, and no longer has a level surface. A pile of seven pieces of squared lumber and one railroad tie measuring 12 feet north-south by four feet east-west was associated with the western portion. The eastern portion of the segment consists of two pieces; one inside the project area and the other to the north and outside of the project area. They are located east of an oil and gas installation and are separated from each other by a bulldozer cut. These segments have not been used as a two-track, and they have a high (approximately four-foot), well-pronounced berm. These pieces are terminated abruptly by more oil and gas development and a bulldozer cut. No additional segments were observed north of the eastern portion of the segment; the remaining rail bed that would have extended north to the town of Serene (5WL749) and the Columbine Mine was most likely eradicated by the existing Denver Regional landfill.

Isolated Find Descriptions

Two isolated finds were located during the course of the pedestrian survey; they consisted of one prehistoric flake and one piece of historic farm equipment. The quartzite primary flake (5WL7794) was

struck from a pebble and is 4 cm by 2.5 cm. It was found on the north facing slope of an east-west trending low ridge approximately 15 m below the rim. The area is badly disturbed by slope wash and is denuded of vegetation, and the artifact is considered to be in a secondary depositional context due to the obvious slope wash. The farm implement (5WL7793) is a "John Deere 400" harrow with two harrows joined together and attached to a triangular series of cables and chain. Each harrow has five teeth and measures 12 feet 8 inches in length and 2 feet 10 inches in width. The tires are no longer present but the rims still exist. There are four rims measuring 2 feet 4 inches in diameter and four rims measuring 1 foot 4 inches in diameter. The implement is situated on a low ridge with a west facing aspect. The harrow was found in an area overlooking a seasonal drainage on the north side of the ridge.

Evaluation and Recommendations

During the course of the Retail Ranch Project cultural resource survey, one railroad segment (5WL1423.44) and two isolated finds (5WL7793 and 5WL7794) were recorded. There were no previously recorded resources within the project area.

5WL1423.44

Segment 5WL1423.44 of the Burlington Northern Railroad is neither individually eligible for inclusion in the NRHP nor does it contribute to the eligibility of the entire railroad system (5WL1423). Although a portion of the spur rail bed within the Redtail Ranch Project area is partially visible, the western section of the segment has been almost completely altered as a result of its use as a road for accessing gas wells. This portion of the grade has been bladed and a two-track road now traverses the top of the berm. The eastern portion of the segment was not used as a two-track road but has been completely impacted by oil and gas development operations, has slumped considerably, and no longer has a level surface. In addition, the spur is no longer associated with the Columbine Mine or the towns of Serene (5WL749), which have both been completely eradicated by the presence of the Denver Region landfill. The original viewshed of the site has been destroyed by landfill, housing, and energy development. Finally, important characteristics, such as bridges, rails, ties, and ballast, are no longer present.

Management Recommendations: No further work.

Isolated Finds

Two isolated finds were recorded during the course of the survey of the Redtail Ranch Project area. One was a prehistoric primary flake (5WL7794) indicating that it was likely that prehistoric inhabitants were present within the project area; however, the flake could not address the research themes as presented above. One set of attached historic harrows (5WL7793) indicates that farming activities were carried out in the project area sometime between 1935 and the present. These isolated resources are not recommended eligible for inclusion in the NRHP.

Management Recommendations: No further work.

Evaluation of Research and Application of Research Design

The Redtail Ranch Project area has been heavily impacted by historic and modern uses. Within the area, there is evidence of target shooting activities, dumping episodes, well pad construction, and transmission line installation.

Site 5WL1423.44, as part of the Burlington Northern Railroad (5WL1423), falls within The Great Depression (1920-1940) Colorado Plains Historic Context Theme; however, it no longer retains integrity of location, design, setting, materials, workmanship, feeling and association related to this theme. Without integrity this segment cannot answer questions posed by the research design and, therefore, is not recommended eligible for inclusion in the NRHP. The GLO record search results in combination with the presence of a historic isolated harrow indicate that a Post-1900 Agriculture—Dryland Farming theme is also represented in the project area.

The prehistoric isolated find did not provide information on the research themes of Chronology and Cultural Relationships, Paleoecology, Geomorphology, Subsistence and Settlement, and Cultural Economy and Technology and cannot answer research questions. It does indicate that flakes were being struck from naturally occurring pebbles (i.e., a possible pebble core technology is present).

Conclusions

A Class III cultural resource inventory of 289.92 acres was conducted from May 1-3, 2015 for LAI Design Group of the aRanch Project Area. The project area will be directly impacted by the development of a housing subdivision and associated facilities. The inventory was conducted so that NRHP evaluations and recommendations could be made with regard to cultural resources located during the pedestrian survey.

One historic site, a segment of the Burlington Northern Railroad grade (5WL1423.44) and two isolated finds (5WL7793 and 5WL7794) were located, documented, and evaluated during the survey. All three resources are recommended not eligible for inclusion in the NRHP; therefore, no further work is recommended.

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APPENDIX: CULTURAL RESOURCE DOCUMENTATION

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**:	5WL1423.44	2. **Temporary Resource Number**:	

3. **Attachments (check as many as apply)**	4. **Official determination (OAHP use only)**	
☐ Prehistoric Archaeological Component	☐ Determined Eligible NR\SR	____
☐ Historic Archaeological Component	☒ Determined Not Eligible NR\SR	____
☐ Historic Architectural Component Form	☐ Nominated	____
☒ Linear Component	☐ Need Data NR\SR	____
☐ Sketch/Instrument Map (required)	☐ Contributing to NR Dist.\SR Dist.	____
☒ U.S.G.S. Map Photocopy (required)	☐ Not Contributing to NR Dist.\SR Dist.	____
☒ Photograph(s) (required)	☐ Supports overall linear eligibility NR\SR	____
☐ Other, specify:	☒ Does not support overall linear eligibility NR\SR	____

I. IDENTIFICATION

5. **Resource Name**: Segment of the Burlington Northern Railroad Spur

6. **Project Name/Number**: LAI Design Group - Redtail Ranch/15B048 LAI-RED

7. **Government Involvement**: ☒ Local ☐ State ☐ Federal

Agency: Town of Erie

8. **Site Categories (check as many as apply)**:

Prehistoric:	☐ archaeological site	☐ paleontological site			☐ In existing National Register District
National Register District name:					
Historic:	☒ archaeology site	☐ building(s)	☐ structure(s)	☐ object(s)	☐ In existing National Register District
National Register District name: N/A					

9. **Owner(s) Name and Address**: LAI Design Group, 8201 Southpark Lane, Littleton, Colorado 80120

10. **Boundary Description and Justification**: 5WL1423.44 is a segment of a 2.1 mile long railroad spur that originally connected the Lyons Branch of the Chicago, Burlington and Quincy Railroad (west of Coal Creek and west of the Redtail Ranch Project area) to the Columbine Mine and town of Serene (north of the project area). The segment is defined by its visible extent within the project area and is 1,404 feet long by 65 feet wide (entire track foundation). Vista Parkway defines its western extent.

11. **Site/Property Dimensions**	Length:	428 m	Width:	20m	Area:	8,560m^2	Acres (m^2/4047): 2.1
Area was calculated as:	☐ Length x Width (rectangle/square)		☐ Length x Width x 0.785 (Ellipse)		☒ GIS		

II. LOCATION

12. **Legal Location**

PM	6th	Township	1N	Range	68W	Section	29	SW	¼	SW	¼	
PM	6th	Township	1N	Range	68W	Section	29	NE	¼	SW	¼	
PM	___	Township	_____	Range	_____	Section	___	__	¼	__	¼	
PM	___	Township	_____	Range	_____	Section	___	__	¼	__	¼	

If section is irregular, explain alignment method:

13. **USGS Quad**:	Erie	14. **County**:	Weld

15. **UTM Coordinates**:	Datum used	☐ NAD 27	☒ NAD 83	☐ WGS 84	Other:	
A. Zone	13;	496855 mE	4429621 mN	Western boundary of western portion		

B. Zone	13;	497155	mE	4429702	mN Eastern boundary of western portion
C. Zone	13;	497325	mE	4429750	mN Western boundary of eastern portion
D. Zone	13;	497387	mE	4429845	mN Eastern boundary of eastern portion

16. **UTM Source**: ☒ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template

Other (explain):

17. **Site elevation** (feet): 5106 to 5147

18. **Address**:	N/A	Lot:		Block:		Addition:	

19. **Location/Access**: From the intersection of Vista Parkway and Highway 7, go north on Vista Parkway approximately 1.5 miles to the project area. The western boundary of the western rail bed section is on right (east).

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility):

Rail segment 5WL1423.44 is located on an uncultivated section of prairie cross-cut by intermittent drainages. Site elevations range from 5106 feet to 5147 feet. The Denver Regional Landfill lies to the north, the Vista Pointe housing subdivision lies to the west, the Vista Ridge housing subdivision lies to the south, and Weld County Road 5 lies to the east. Coal Creek Valley is located to the west where the creek flows from southeast to northwest and joins Boulder Creek to the north. An unnamed seasonal drainage lies 100 m south of 5WL1423.44. The geology of the area generally dates to the Cretaceous Period when sedimentary rocks were formed by a large inland sea. The soils of the area are composed of brown clay loam and abundant surface gravels of quartzite, sandstone, and iron stone, and some aeolian deposits. Historically, coal beds contained in these formations were commercially mined. In general, ground visibility in the area was poor due to the presence of dense native and invasive grasses. Areas of exposed earth (i.e., two track roads, rodent burrows, and disturbed areas) were thoroughly examined. Besides native and invasive grasses, vegetation in the project area included weeds, sparse yucca and prickly pear cactus. Today, the aspect from 5WL1423.44 is to the south. Prior to the construction of the Denver Regional Landfill (immediately northeast of the railroad grade) the aspect may have included the northeast, as well.

21. **Soil depth (cm) and description**: The soils of the area are composed of brown clay loam and abundant surface gravels of quartzite, sandstone, and iron stone, and some Aeolian deposits. The depth of the soils is unknown.

22. **Condition**

a. Architectural/Structural	b. Archaeological/Paleontological
☐ Excellent	☐ Undisturbed
☐ Good	☐ Light disturbance
☐ Fair	☐ Moderate disturbance
☒ Deteriorated	☒ Heavy disturbance
☒ Ruin	☒ Total disturbance

23. **Describe condition**: The western portion of 5WL1423.44 has a pronounced five-foot high berm on the south side; it is far less pronounced on the north side. Sometime in the past, this portion was bladed and graveled for use as a two-track road. The east end of the western portion of the segment was not used as a two-track road but has been completely impacted by oil and gas development operations, has slumped considerably, and no longer has a level surface. A pile of seven pieces of squared lumber and one railroad tie measuring 12 feet north-south by four feet east-west was associated with the western portion. The eastern portion of the segment consists of two pieces; one inside the project area and the other to the north and outside of the project area. They are located east of an oil and gas installation and are separated from each other by a bulldozer cut. These segments have not been used as a two-track, and they have a high (approximately four-foot), well-pronounced berm. These pieces are terminated abruptly by more oil and gas development and a bulldozer cut. No additional segments were observed north of the eastern portion of the segment; the remaining rail bed that would have extended north to the town of Serene (5WL749) and the Columbine Mine was most likely eradicated by the existing Denver Regional landfill.

24. **Vandalism**: ☐ Yes ☒ No

Describe:	

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Colorado Plains Historic Context Theme: The Great Depression (1920-1940)

26. **Applicable National Register Criteria**:

- ☐ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☐ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☒ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:

- ☐ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☐ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☒ Does not meet any of the State Register criteria

28. **Area(s) of significance**: N/A

29. **Period(s) of significance**: N/A

30. **Level of significance**:	☐ National	☐ State	☐ Local

31. **Statement of significance**: Segment 5WL1423.44 of the Burlington Northern Railroad is neither individually eligible for inclusion in the NRHP nor does it contribute to the eligibility of the entire railroad system (5WL1423). Although a portion of the spur rail bed within the Redtail Ranch Project area is partially visible, the western section of the segment has been almost completely altered as a result of its use as a road for accessing gas wells. This portion of the grade has been bladed and a two-track road now traverses the top of the berm. The eastern portion of the segment was not used as a two-track road but has been completely impacted by oil and gas development operations, has slumped considerably, and no longer has a level surface. In addition, the spur is no longer associated with the Columbine Mine or the towns of Serene, which have both been completely eradicated by the presence of the Denver Region landfill. The original viewshed of the site has been destroyed by landfill, housing, and energy development. Finally, important characteristics, such as bridges, rails, ties, and ballast, are no longer present.

32. **Statement of historic integrity related to significance**: N/A

33. **National Register Eligibility Field Assessment**:	☐ Eligible	☒ Not eligible	☐ Need data
Linear Segment Evaluation (if applicable):	☐ Supporting	☒ Non Supporting	
34. **Status in an Existing National Register Distric**t:	☐ Contributing	☐ Non-contributing	
35. **State Register Eligibility Field Assessmen**t:	☐ Eligible	☒ Not eligible	☐ Need data
36. **Status in an Existing State Register District**:	☐ Contributing	☐Non-contributing	

37. **National/State Register District Potential**: ☐ Yes ☒ No Describe: Segment 5WL1423.44 is a spur off of the mainline of the Burlington and Missouri River Railroad, which also includes the Chicago, Burlington and Quincy Railroad, the Burlington Northern Railroad, and the Burlington Northern and Santa Fe Railroad; the mainline was officially determined eligible on August 11, 1993. Due to impacts to the spur including this segment and the dismantling of its features, it cannot contribute to a potential district.

38. **Cultural Landscape Potential**: ☐ Yes ☒ No Describe: The site no longer has significance or context (see #37 above). The site original viewshed has been destroyed by landfill, housing, and energy development in the area.

39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40.**Threats to Resource**:	☒ Water erosion	☒ Wind erosion	☐ Grazing	☐ Neglect	☐ Vandalism
☐Recreation	☒ Construction	☐ Other (explain):			

Management Data Form

Resource Number: 5WL1423.44 **Temporary Resource Number**:

41. **Existing protection**	☐ None	☐ Marked	☒ Fenced	☐ Patrolled	☐ Access controlled
Other (specify):					
Comments:					
42. **Local landmark designation**:	N/A		43. **Easement**:	N/A	
44. **Recorder's Management Recommendations**: No further work					
VI. DOCUMENTATION					
45. **Previous actions accomplished at the site**:	☐ Tested	☐ Partial excavation	☐ Complete excavation		
Date(s):					
a. Excavations:					
b. Stabilization:		Date(s):			
c. HABS/HAER documentation [date(s) and numbers]:					
d. Other:					
46. **Known collections/reports/interviews and other references (list)**: Segment 5WL1423.8 was recorded immediately to the west by WCRM (Chambellan and Mehls 2001) and discussed in a report titled *A Class III Cultural Resource Inventory of the Vista Pointe Subdivision, Weld County, Colorado*. Tivis E. Wilkins (1974) *Colorado Railroads, A Chronological Development*, Pruett Publishing Company, Boulder.					
47. **Primary location of additional data**: Office of Archaeology and Historic Preservation, Denver.					
48. **State or Federal Permit number**:	Colorado State Permit 2015-37				
49. **Collection**:	Artifact collection authorized:	☐ Yes	☒ No	Were artifacts collected:	☐ Yes ☒ No
Artifact repository:					
Collection method:	☐ Diagnostics	☐ Grab Sample	☐ Random Sample		
Other (specify):					
50. **Photograph Numbers**:	LAI-RED Digital #DSCF0570-0582				
Files or negatives stored at:	Photographs and digital media are on file at WCRM, Inc. Boulder office				
51. **Report title**: *A Class III Cultural Resource Inventory for the LAI Design Group's Redtail Ranch Project, Weld County, Colorado*; WCRM Project LAI-RED/15B048					
52. **Recorder(s)**:	Tom Hoffert and Cathryn Williamson		Date: 5/3/15		
53. **Recorder affiliation**:	Western Cultural Resource Management (WCRM)				
Phone number/Email:	(303) 449-1151				

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395

Linear Component Form

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification			
1. **Resource Number**:	5WL1423.44	2. T**emporary Resource Number**:	
3. **Site Name**:	Segment of the Burlington Northern Railroad Spur		
4. **Record of**:	☐ Entire resource	☒ Segment	

II. Resource Description				
5. **Resource Type**:	☐ Road	☒ Railroad	☐ Trail	☐ Ditch/Canal
Other (specify):				

6. **Component Description**:

Railroad segment 5WL1423.44, a segment of the of the Burlington Northern Line (5EP1423), is part of a spur that diverged from the mainline west of Coal Creek, continued east crossing the Redtail Ranch Project area, and turned north of the project area to the historic Columbine Mine. The overall Burlington Northern route from Chicago to Denver was completed in 1882 (Ubbelohde et al. 2006). The railroad segment that crosses the project area was part of a 2.1 mile spur built in 1919 from the Lyons Branch of the Chicago, Burlington and Quincy Railroad to the Columbine Mine and the town of Serene (5WL749); the coal mine and town were owned by the Rocky Mountain Fuel Company, which was operated from the early to mid-1900s. The spur to the Columbine Mine was abandoned in 1946 and the tracks were removed in the early 1950s (Wilkins 1974:56, 204, 243).

Within the project area, the visible extent of 5WL1423.44 is 1,404 feet in length and 65 feet in width (entire track foundation); it is a continuation of the rail bed from the west previously recorded as segment 5WL1423.8 (Chambellan and Mehls 2001). The full extent of the spur that would have cut across the project area prior to recent impacts would have been approximately 2,001 feet. To the west, 5WL1423.8 has been obliterated by the construction of Vista Parkway and the Vista Pointe housing subdivision. On average, the rail lay down area is 12 feet wide. There is no longer evidence of the rails or ballast.

The western portion of 5WL1423.44 has a pronounced five-foot high berm on the south side; it is far less pronounced on the north side. Sometime in the past, this portion was bladed and graveled for use as a two-track road. The east end of the western portion of the segment was not used as a two-track road but has been completely impacted by oil and gas development operations, has slumped considerably, and no longer has a level surface. A pile of seven pieces of squared lumber and one railroad tie measuring 12 feet north-south by four feet east-west was associated with the western portion. The eastern portion of the segment consists of two pieces; one inside the project area and the other to the north and outside of the project area. They are located east of an oil and gas installation and are separated from each other by a bulldozer cut. These segments have not been used as a two-track, and they have a high (approximately four-foot), well-pronounced berm. These pieces are terminated abruptly by more oil and gas development and a bulldozer cut. No additional segments were observed north of the eastern portion of the segment; the remaining rail bed that would have extended north to the town of Serene (5WL749) and the Columbine Mine was most likely eradicated by the existing Denver Regional landfill.

7. **Original use**:	Spur of the Burlington Northern Railroad
8. **Current use**:	Abandoned

9. **Modifications (describe and include dates)**: The 2.1 mile railroad spur from the Lyons Branch of the Chicago, Burlington and Quincy Railroad to the Columbine Mine was abandoned in 1946, and the tracks were removed in the early 1950s. The rail bed was subsequently modified for use as a two-track road. Portions of 5WL1423.44 have been impacted by oil and gas installations within the project area. To the north outside of the project area, the spur has been impacted by the construction and use of the Denver Regional landfill.

10. **Extent of Entire Resource**: Railroad segment 5WL1423.44 is a portion of a spur off of the Burlington Northern (5EP1423) (i.e., the Lyons Branch of the Chicago, Burlington and Quincy Railroad), which extended from Chicago to Denver.

Linear Component Form

Resource Number: 5WL1423.44 **Temporary Resource Number**:

11. **Associated Artifacts**: A pile of seven pieces of squared lumber and one railroad tie measuring 12 feet north-south by four feet east-west was associated with the western portion of the segment within the project area.

12. **Associated Features or Resources**: None

III. Research Information

13. **Architect/Engineer**:	Colorado Central Railway Engineering Department
Source(s) of Information:	Tivis E. Wilkins (1974) *Colorado Railroads, A Chronological Development*, Pruett Publishing Company, Boulder.
14. **Builder**:	Denver, Utah and Pacific Railway
Source(s) of Information:	Tivis E. Wilkins (1974) *Colorado Railroads, A Chronological Development*, Pruett Publishing Company, Boulder.
15. **Date of Construction / Date Range**:	1919
Source(s) of Information:	Tivis E. Wilkins (1974) *Colorado Railroads, A Chronological Development*, Pruett Publishing Company, Boulder.

16. **Historical / Archival Data**: The spur was originally built and opened for service in 1919 as a 2.1-mile long connection from the Lyons Branch of the Chicago, Burlington and Quincy Railroad to the Columbine Mine in the town of Serene (5WL749). The Lyons Branch of the Burlington was originally built as the mainline of the Denver, Utah and Pacific Railroad, a narrow gauge line planned to run north and west from Denver to Salt Lake City. The segment from Longmont to Lyons was finished in 1885. The company was financially supported by the Burlington (CB&Q) and subsequently the Denver, Utah and Pacific was absorbed by the Burlington, after plans to cross the mountains to Utah were abandoned. The former Denver, Utah and Pacific line became the Lyons Branch (i.e., the western terminus branch of the Burlington). The spur to the Columbine Mine was abandoned in 1946, and the tracks were removed in the early 1950s (Wilkins 1974:56, 204, 243).

17. **Cultural Affiliation and Justification**: Multi-cultural

IV. Management Recommendations

18. **Eligibility of Entire Resource**

☒ Eligible	☐ Not Eligible	☐ Need Data	Is this an official determination?	☒ Yes	☐ No

Remarks / Justification: The mainline of the Burlington and Missouri River Railroad, which also includes the Chicago, Burlington and Quincy Railroad, the Burlington Northern Railroad, and the Burlington Northern and Santa Fe Railroad, was officially determined eligible on August 11, 1993.

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☐ Supporting	☒ Non-supporting	☐ Not applicable

Remarks / Justification: The integrity of this segment of a spur from the Lyons Branch of the Chicago, Burlington, and Quincy Railroad to the Columbine Mine has been heavily altered and impacted by removal of the tracks and associated structures, modification and use as a two-track road, and oil and gas facility installations. It can no longer be associated with the Columbine Mine or the town of Serene (5WL749); both of these historic sites have been completely impacted by the Denver Regional landfill constructed to the north of the project area.

20. **Recorder(s)**:	Tom Hoffert and Cathryn Williamson	21. **Date**:	05/02/15

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395

5WL1423.44, western portion of railroad segment. View to the northeast showing the grass covered berm of the railroad segment. The Denver Regional Landfill is in the background.

5WL1423.44, western portion of railroad segment. View to the north showing the grass covered berm of the railroad segment. The vehicle is parked on an existing two-track road on top of the berm. The Denver Regional Landfill is in the background.

5WL1423.44, western portion of railroad segment. View to the northwest showing the grass covered berm of the railroad segment. The west end of the berm is truncated by the Vista Pointe subdivision.

5WL1423.44, western portion of railroad segment. View to the east showing the railroad berm and the existing two-track road on top of it.

5WL1423.44, western portion of railroad segment. View to the southwest showing the western terminus of the railroad berm at Vista Parkway. The Vista Pointe subdivision is in the background.

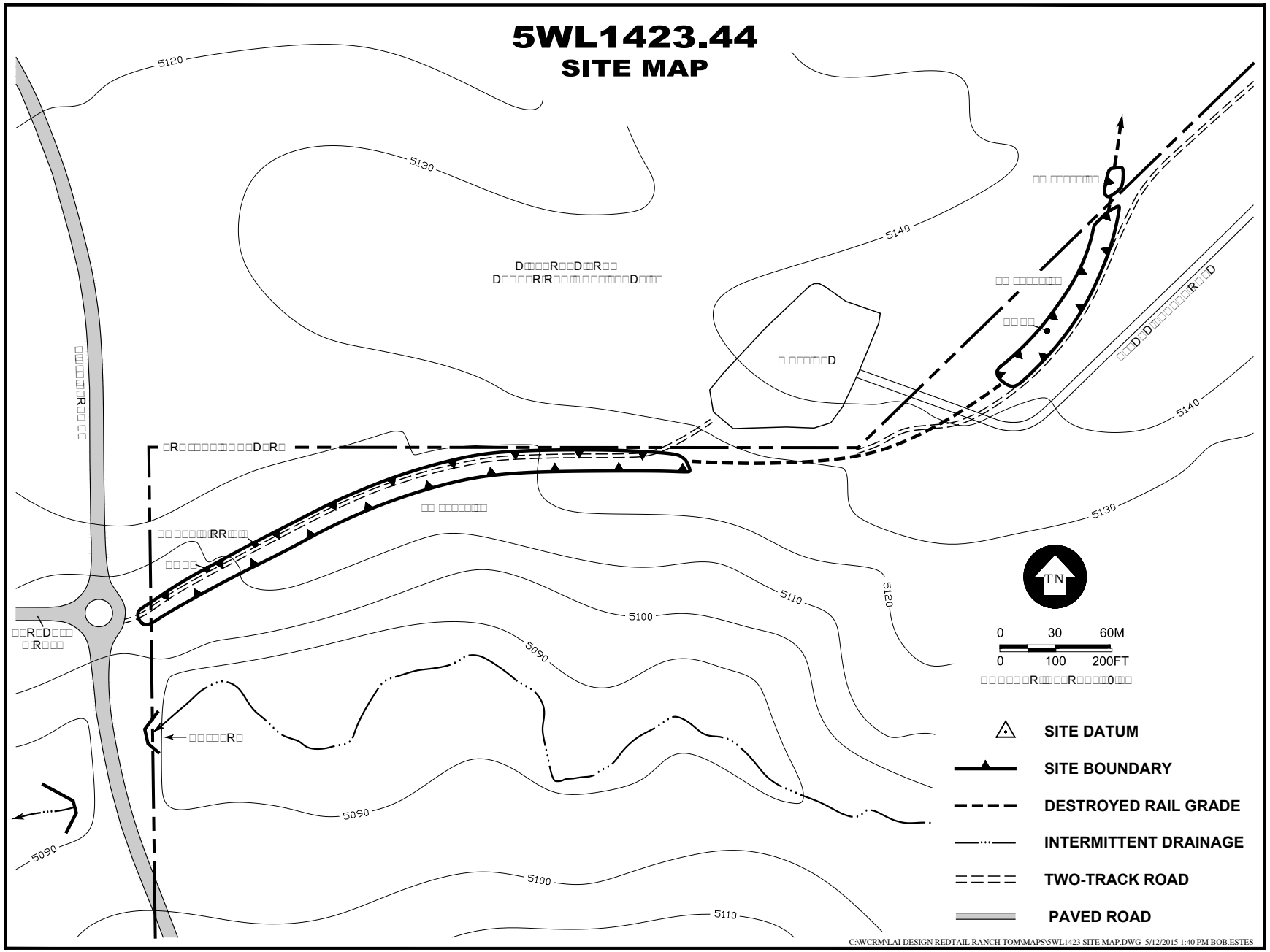
5WL1423.44, western portion of railroad segment. View to the west of wood poles and a railway tie associated with the railroad berm.

5WL1423.44, eastern portion of railroad segment. View to the west showing the bulldozer cut through the railroad segment; the piece on the right is outside of the project area and the piece on the left is inside the project area. The individual is standing at the eastern terminus of the eastern portion of the site within the project area. On the right is a disturbed area from well pad installation.

5WL1423.44, eastern portion of railroad segment. View to the southwest showing the bulldozer cut through the railroad segment at the project boundary. On the right is a disturbed area from well pad installation.

5WL1423.44, eastern portion of railroad segment. View to the east showing the railroad berm east of a disturbed well pad area.

5WL1423.44, eastern portion of railroad segment. View to the southwest showing the railroad berm east of disturbed well pad area. Note the bladed well pad access road in the center of the photo that bisects the berm.


5WL1423.44
SITE MAP
5120
5130
5140
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5090
TN
0 30 60M
0 100 200FT
SITE DATUM
SITE BOUNDARY
DESTROYED RAIL GRADE
INTERMITTENT DRAINAGE
TWO-TRACK ROAD
PAVED ROAD
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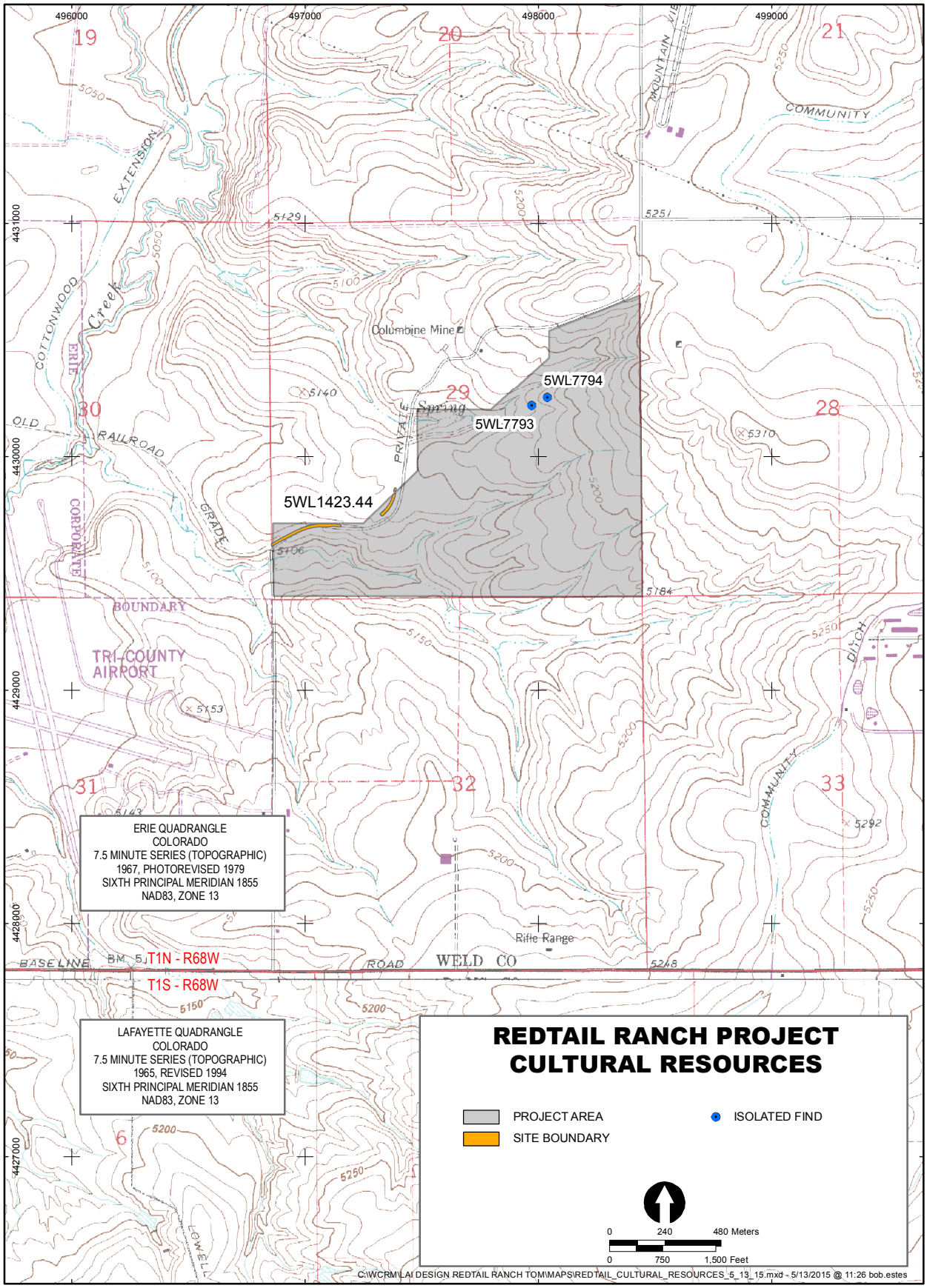
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5WL7794
5WL7793
5WL1423.44
Columbine Mine
Spring
COMMUNITY DITCH
COTTONWOOD Creek
ERIE EXTENSION
OLD RAILROAD GRADE
CORPORATED BOUNDARY
TRI-COUNTY AIRPORT
Rifle Range
BASE LINE
BM 5
T1N - R68W
T1S - R68W
ROAD
WELD CO
LOWELL
ERIE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1967, PHOTOREVISED 1979
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
LAFAYETTE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1965, REVISED 1994
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
REDTAIL RANCH PROJECT
CULTURAL RESOURCES
PROJECT AREA
SITE BOUNDARY
ISOLATED FIND
0 240 480 Meters
0 750 1,500 Feet
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COLORADO CULTURAL RESOURCE SURVEY

Archaeological Isolated Find/Feature Form

OAHP 1408
Rev. 11/10

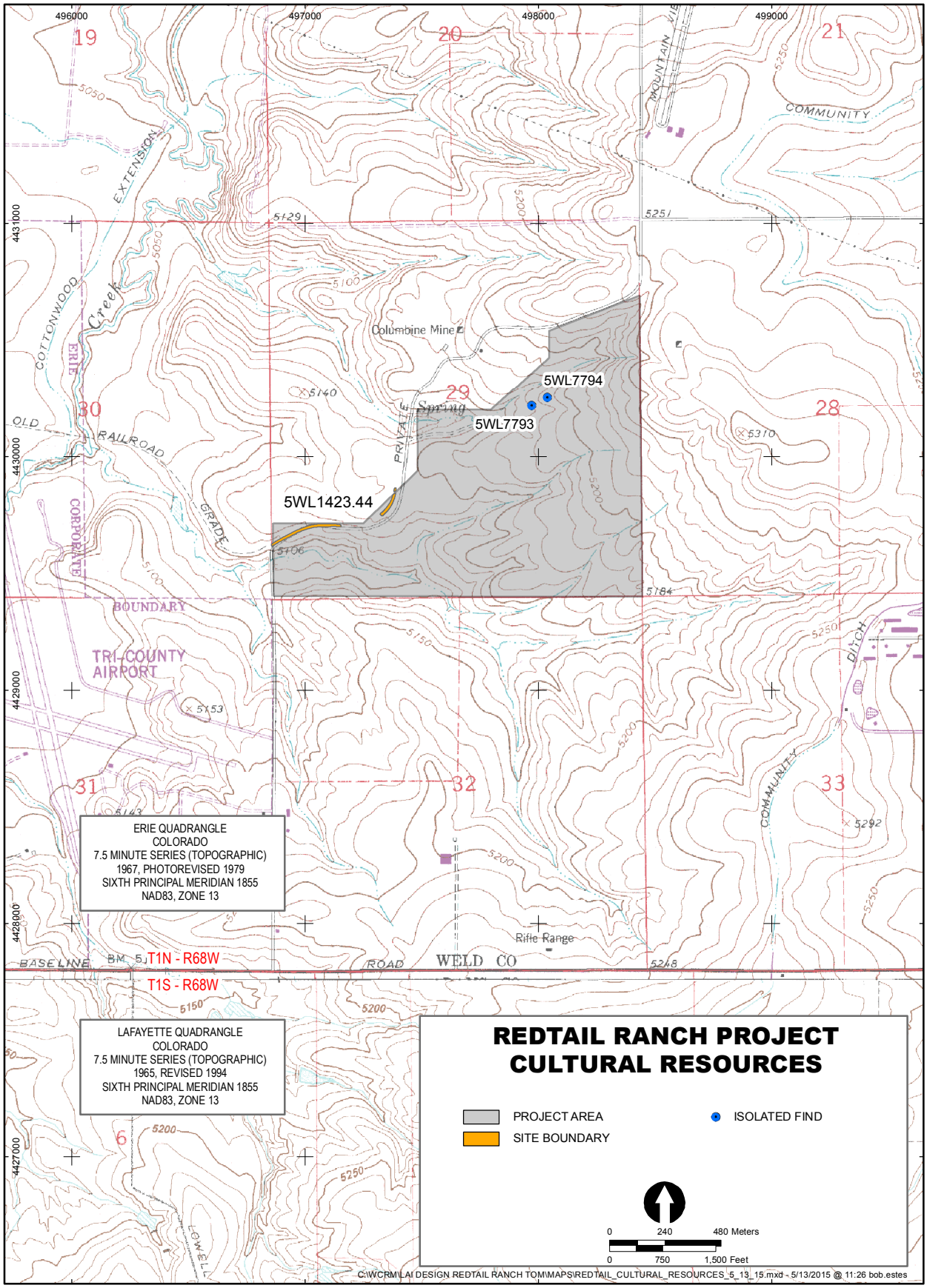
This form is not to be used for phenomena that are eligible for the National Register or are part of the built environment. To be ***only*** used for phenomena that meet the requirements of the recorder's definition as provided below. A map at 1:24,000 scale with IF clearly plotted must be attached.

1. **Site Number**:	5WL7793	2. **Temporary Resource Number**:	1F RT1	3. **County**:	Weld						
4. **Recorder's Definition of Isolated Find**: Historic isolated artifacts/features are the occurrence of four or fewer artifacts not from the same item or the occurrence of an isolated feature.											
5. **PM**	6	**Township**	1N	**Range**	68W	**Section**	29		¼	SW	¼ NE
If section is irregular, explain alignment method:											
6. **USGS Quad**: Erie								7. **Elevation**:	5170 feet		
8. **UTM Coordinates**:	Datum used	☐ NAD 27	☒ NAD 83	☐ WGS 84	Other:						
Zone:	13;	497972	mE	4430223	mN						
9. **UTM Source**:	☒ Corrected GPS/rectified survey (<5m error)	☐ Uncorrected GPS	☐ Map template								
Other (explain):											
10. **Landowner**: LAI Design Group, 8201 Southpark Lane, Littleton, Colorado 80120											
11. **Describe Artifact(s) and their distribution**: Two historic harrows attached side-by-side. They are made of fabricated metal, and "John Deere 400" is stamped across the front of each piece. The harrows are 12'8" L x 2'10" W, with five harrow blades extending from the back end. Four rims are 2'4" diameter and four rims are 1'4" diameter.											
☐ No artifacts											
12. **Describe Feature (include dimensions)**:											
☒ No features											
13. **Cultural Affiliation and Justification**: Unknown											
14. **Time Period and Justification**: 1935 to present											
5. **Relevant environmental information (e.g., elevation, topography, soils, vegetation, nearby water source)**: The isolated harrows are situated on the bench of a low ridge with a western aspect. There is a 360º view extending approximately 200m to the north, 1m to the east and many miles to the south and west. The locale overlooks a seasonal drainage on the north side of the ridge that feeds into a stock pond. There was standing water in the pond at the time of the survey. The soil is brown clay loam with abundant surface gravels of quartzite, sandstone, and iron stone. Vegetation in the area is comprised of native and invasive grasses, weeds, sparse yucca and prickly pear cactus.											
16. **Is this isolate located in a cultural landscape?**	☐ Yes	☒ No									
If yes, describe:											
17. **Why is this isolated find not eligible for the National Register?** The isolated artifact is not unique, cannot yield additional information, and is not within an intact historic landscape.											
18. **Additional Information (e.g., narrative, drawings, photographs, sketch map; attach extra pages if desired)**: Photographs and digital media are on file at WCRM, Inc Boulder, Co office. LAI-TRE Project – Digital #DSCF0560-0562											
19. **Artifacts Collected?**	☐ Yes	☒ No									
If yes, provide repository information:											
20. **Report Title and Project Number**: *A Class III Cultural Resource Inventory for the LAI Design Group's Redtail Ranch Project, Weld County, Colorado*; WCRM Project LAI-RED/15B048											
21. **Recorder and Affiliation**: Tom Hoffert and Cathryn Williamson/Western Cultural Resource Management, Inc.											
Date: 5/2/15											

History Colorado - Office of Archaeology & Historic Preservation
1200 Broadway, Denver, CO 80203
303-866-3395

5WL7793, two isolated historic harrows joined together, looking west. The Denver Regional Landfill is on the right.

5WL7793, two isolated historic harrows joined together, looking north. The Denver Regional Landfill is in the background.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5WL7794
5WL7793
5WL1423.44
Columbine Mine
Spring
COMMUNITY DITCH
OLD RAILROAD GRADE
COTTONWOOD Creek
ERIE
BOUNDARY
TRI-COUNTY AIRPORT
Rifle Range
BASELINE
BM 5
ROAD
WELD CO
T1N - R68W
T1S - R68W
ERIE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
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LAFAYETTE QUADRANGLE
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REDTAIL RANCH PROJECT
CULTURAL RESOURCES
PROJECT AREA
SITE BOUNDARY
ISOLATED FIND
0 240 480 Meters
0 750 1,500 Feet
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COLORADO CULTURAL RESOURCE SURVEY

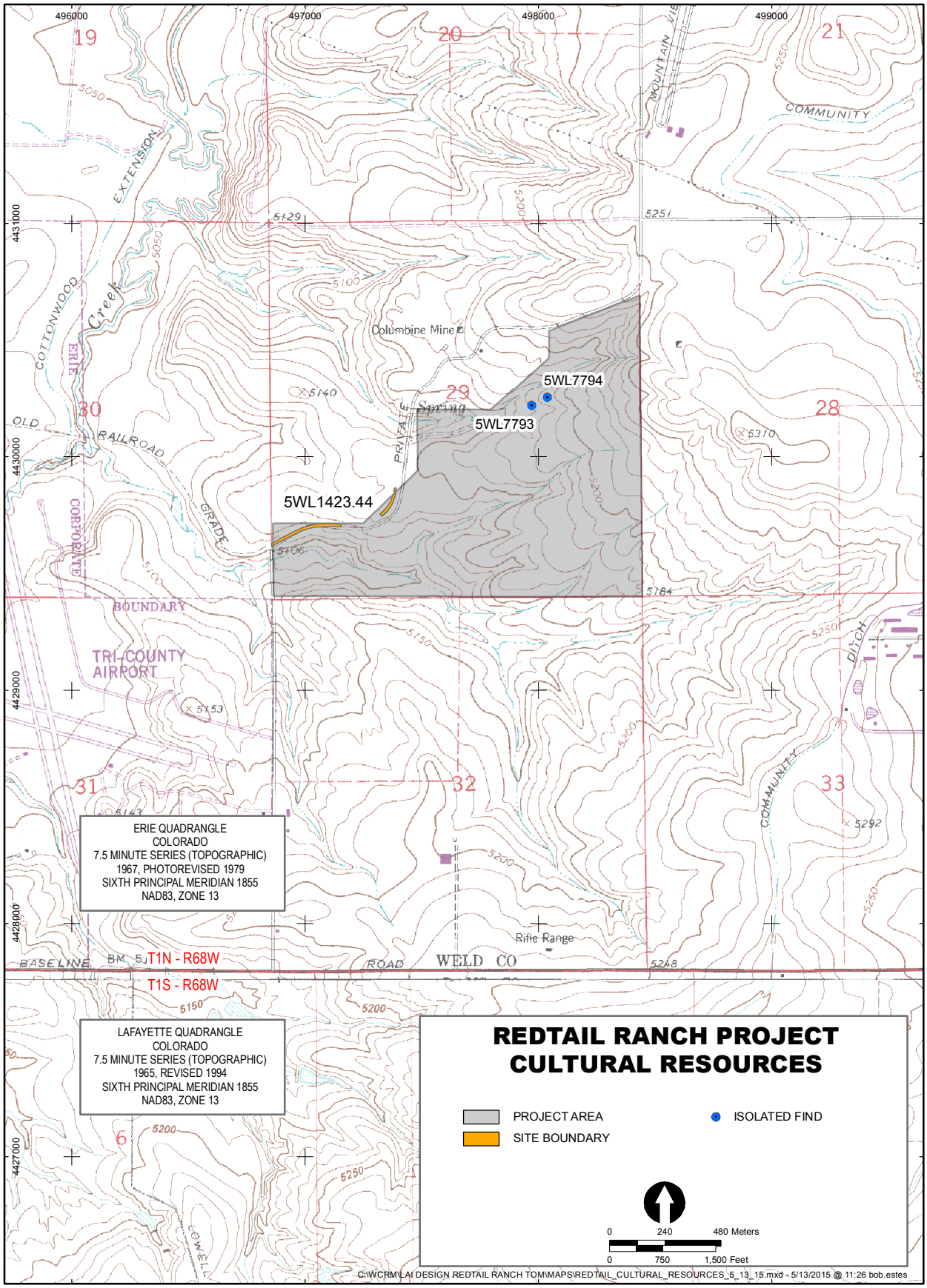
Archaeological Isolated Find/Feature Form

OAHP 1408
Rev. 11/10

This form is not to be used for phenomena that are eligible for the National Register or are part of the built environment. To be ***only*** used for phenomena that meet the requirements of the recorder's definition as provided below. A map at 1:24,000 scale with IF clearly plotted must be attached.

1. **Site Number**:	5WL7794	2. **Temporary Resource Number**:	1F RT2	3. **County**:	Weld						
4. **Recorder's Definition of Isolated Find**: Prehistoric isolated artifacts/features are the occurrence of four or fewer artifacts not from the same item or the occurrence of an isolated feature.											
5. **PM**	6	**Township**	1N	**Range**	68W	**Section**	29		¼	SW	¼ NE
If section is irregular, explain alignment method:											
6. **USGS Quad**: Erie								7. **Elevation**:	5185 feet		
8. **UTM Coordinates**:	Datum used	☐ NAD 27	☒ NAD 83	☐ WGS 84	Other:						
Zone:	13;	498038	mE	4430256	mN						
9. **UTM Source**:	☒ Corrected GPS/rectified survey (<5m error)	☐ Uncorrected GPS	☐ Map template								
Other (explain):											
10. **Landowner**: LAI Design Group, 8201 Southpark Lane, Littleton, Colorado 80120											
11. **Describe Artifact(s) and their distribution**: One fine-grained, tan, quartzite primary flake. Platform and bulb of percussion are intact. It has been struck from a pebble. It measures 4 cm by 2.5 cm.											
☐ No artifacts											
12. **Describe Feature (include dimensions)**:											
☒ No features											
13. **Cultural Affiliation and Justification**: Prehistoric – based on artifact type											
14. **Time Period and Justification**: Unknown prehistoric; not diagnostic											
15. **Relevant environmental information (e.g., elevation, topography, soils, vegetation, nearby water source)**: The isolate is situated on the north slope of an east-west trending low ridge, approximately 15m below the rim. The area is badly disturbed by slope wash and is denuded of vegetation. The artifact is almost certainly in a secondary context having been moved to present position by slope wash. The soil is a clay loam with moderate surficial gravel.											
16. **Is this isolate located in a cultural landscape?**	☐ Yes	☒ No									
If yes, describe:											
17. **Why is this isolated find not eligible for the National Register?** The isolate is not unique, associated with a feature that can yield unique and/or additional information, or within an intact prehistoric landscape.											
18. **Additional Information (e.g., narrative, drawings, photographs, sketch map; attach extra pages if desired)**: Photographs and digital media are on file at WCRM, Inc Boulder, Co office. LAI-TRE Project – Digital #DSCF0563.											
19. **Artifacts Collected?**	☐ Yes	☒ No									
If yes, provide repository information:											
20. **Report Title and Project Number**: *A Class III Cultural Resource Inventory for the LAI Design Group's Redtail Ranch Project, Weld County, Colorado*; WCRM Project LAI-RED/15B048											
21. **Recorder and Affiliation**: om Hoffert and Cathryn Williamson/Western Cultural Resource Management, Inc.											
Date: 5/2/15											

History Colorado - Office of Archaeology & Historic Preservation
1200 Broadway, Denver, CO 80203
303-866-3395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Columbine Mine
Spring
COMMUNITY DITCH
COTTONWOOD Creek
ERIE EXTENSION
OLD RAILROAD GRADE
CORPORATED BOUNDARY
TRI-COUNTY AIRPORT
BASELINE
BM 5
ROAD
WELD CO
Rifle Range
T1N - R68W
T1S - R68W
ERIE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1967, PHOTOREVISED 1979
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
LAFAYETTE QUADRANGLE
COLORADO
7.5 MINUTE SERIES (TOPOGRAPHIC)
1965, REVISED 1994
SIXTH PRINCIPAL MERIDIAN 1855
NAD83, ZONE 13
REDTAIL RANCH PROJECT
CULTURAL RESOURCES
PROJECT AREA
SITE BOUNDARY
ISOLATED FIND
0 240 480 Meters
0 750 1,500 Feet
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MINE SUBSIDENCE INVESTIGATION

Pratt Property, Approximately 330 Acres in Section 29,
Township 1 North, Range 68 West,
Erie, Colorado

Prepared For:

LAI Design Group
88 Inverness Circle East, Suite J101
Englewood, Colorado 80112

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2217 West Powers Avenue
Littleton, Colorado 80210
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www.westernenvironment.com

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88 Inverness Circle East, Suite J101
Englewood, Colorado 80112

Project Number 655-001-01

September 19, 2014

Prepared By:

_____
Greg D. Sherman, P.G.
President

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TABLE OF CONTENTS

1.0	CONCLUSIONS AND RECOMMENDATIONS	1
2.0	INTRODUCTION	2
3.0	SITE CHARACTERISTICS	4
4.0	COAL MINE DESCRIPTIONS	6
5.0	DRILLING PROCEDURES	11
6.0	REGIONAL GEOLOGY	12
	6.1 OUTCROPPING UNITS	12
	6.2 STRUCTURE	15
7.0	SITE GEOLOGY	16
8.0	DESCRIPTIONS OF HOLES	17
9 .0	POTENTIAL MECHANISMS OF COAL MINE ROOF FAILURE	23
10.0	STRAIN ANALYSIS	25
11.0	CLOSURE	28
12.0	SELECTED REFERENCES	29

FIGURES:

Figure 1	Site Location Map	3
Figure 2	Borehole Location Map	5
Figure 3	Pillar Retreat Method for Coal Mining	8
Figure 4	Generalized Composite Stratigraphic Section	13
Figure 5	Generalized Stratigraphic Model	14
Figure 6	Strain Percent to Damage	27

APPENDICES:

Appendix A Architectural Techniques to Reduce Subsidence
Appendix B Lithologic Descriptions and Caliper Data Sheets

1.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of the preliminary investigation completed on the property consisting of approximately 330 acres in Section 29, Township 1 North, Range 68 West, Erie, Colorado, Western Environment and Ecology, Inc. (Western Environment) presents the following:

- The average "theoretical void" encountered beneath the property was 0.8 feet.

- The top of the "main" seam ranged from 267 to 309 feet below the surface. However, using the results of subsidence investigations on adjacent projects, a conservative average depth to the top of the main seam of **272** feet was used.

Using these conclusions, the following general subsidence related recommendations for development are presented.

- Areas shown of Figure 2 as not being undermined have no mine subsidence related development restrictions.

- The theoretical "worst case" strains identified for the project will allow construction of buildings or building segments of **115 feet in maximum length.**

- Structures should be limited to two stories and be constructed using wood or metal framing.

- Utility installations should take into account the potential for **0.17%** strains above mine workings.

- Larger structures may be built if additional studies are conducted.

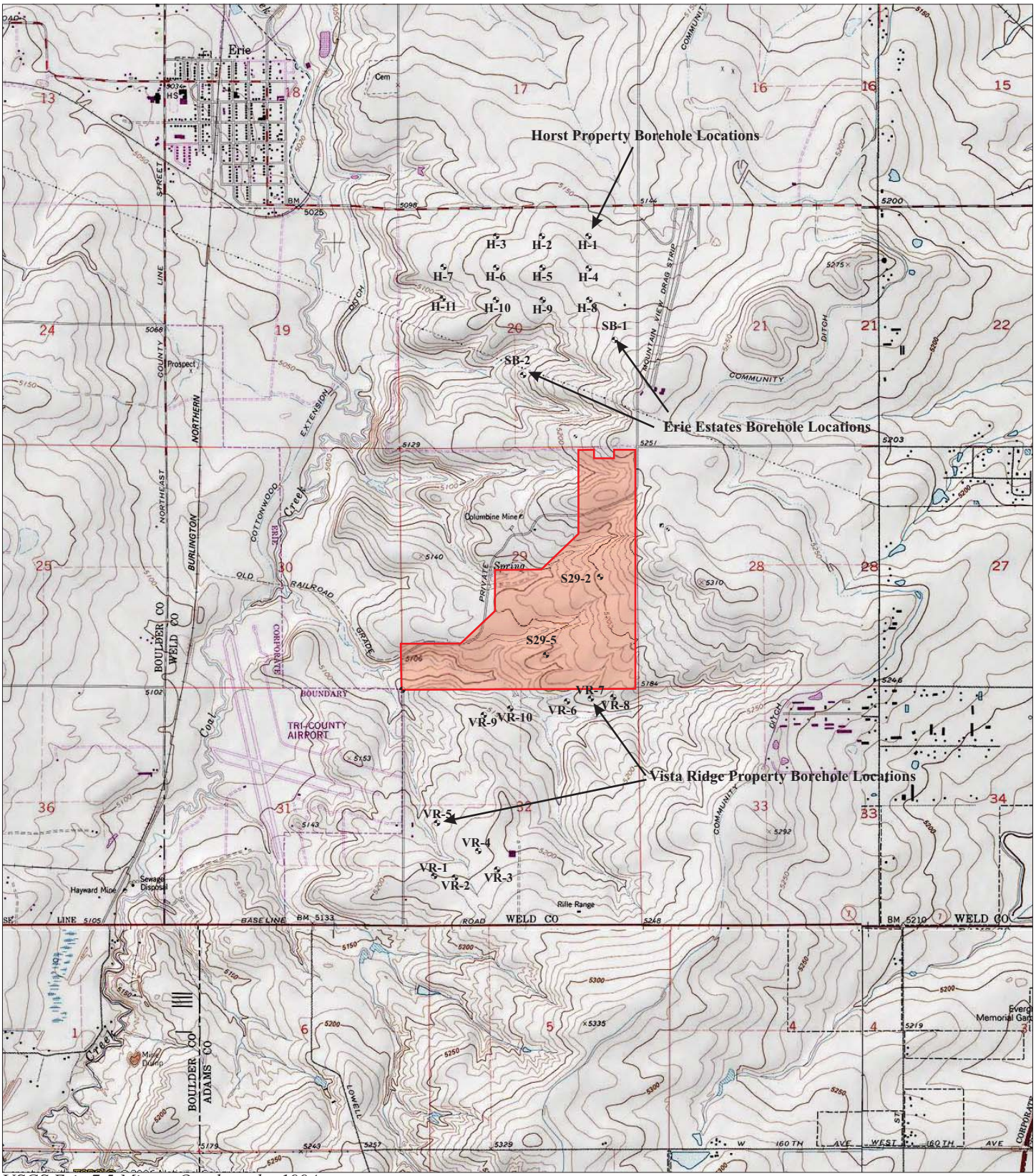
2.0 INTRODUCTION

Western Environment & Ecology, Inc. was retained by Mr. Josh Rowland of LAI Design Group to conduct a mine subsidence investigation of approximately 330 acres in Section 29, Township 1 North, Range 68 West, Weld County, Colorado (Figure 1). This site is referred to as the Pratt Property.

The purpose of this investigation is to evaluate the subsidence potential and condition of the Columbine Mine, and evaluate "theoretical" surface strains from a theoretical "worst case" subsidence event. Additionally, recommendations for subsidence resistant construction procedures and techniques are given.

Western Environment has completed a previous mine subsidence investigation on the Pratt Property for Southwest Investment Group (Project Number 445-001-01) dated November 16, 2006. Additionally, several Western Environment studies on adjacent properties to the north and south have been performed. These investigations were presented in reports entitled *Mine Subsidence Investigation Erie Estates Subdivision, Southwest 1/4 Section 20, Township 1 North, Range 68 West,* dated May 29, 2008*: Mine Subsidence Investigation, Horst Property*, dated April 4, 2000: and *Mine Subsidence Investigation, Vista Ridge Development,* dated March 1, 2001. Data acquired from these studies were utilized to evaluate subsidence induced surface strains. The results of all the assessments have been previously submitted to the Colorado Geological Survey for review, and therefore are public information.

The results and recommendations contained within this report are intended for use as an aid in planning and design. The information herein must be made available to the project geotechnical and structural engineers. Additionally, this, and all subsequent subsidence reports, should accompany the site development plan when submitted to the Town of Erie. The Town will request that the Colorado Geological Survey review and comment on this subsidence investigation. Following these procedures will aid in assuring a more predictable and thus economic development process.



USGS Erie 7.5 Minute Quadrangle, 1994

VR-1 **Borehole Locations**

N

Scale - 1 inch = 3,000 feet

1500 0 1500 3000

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Littleton, Colorado 80120

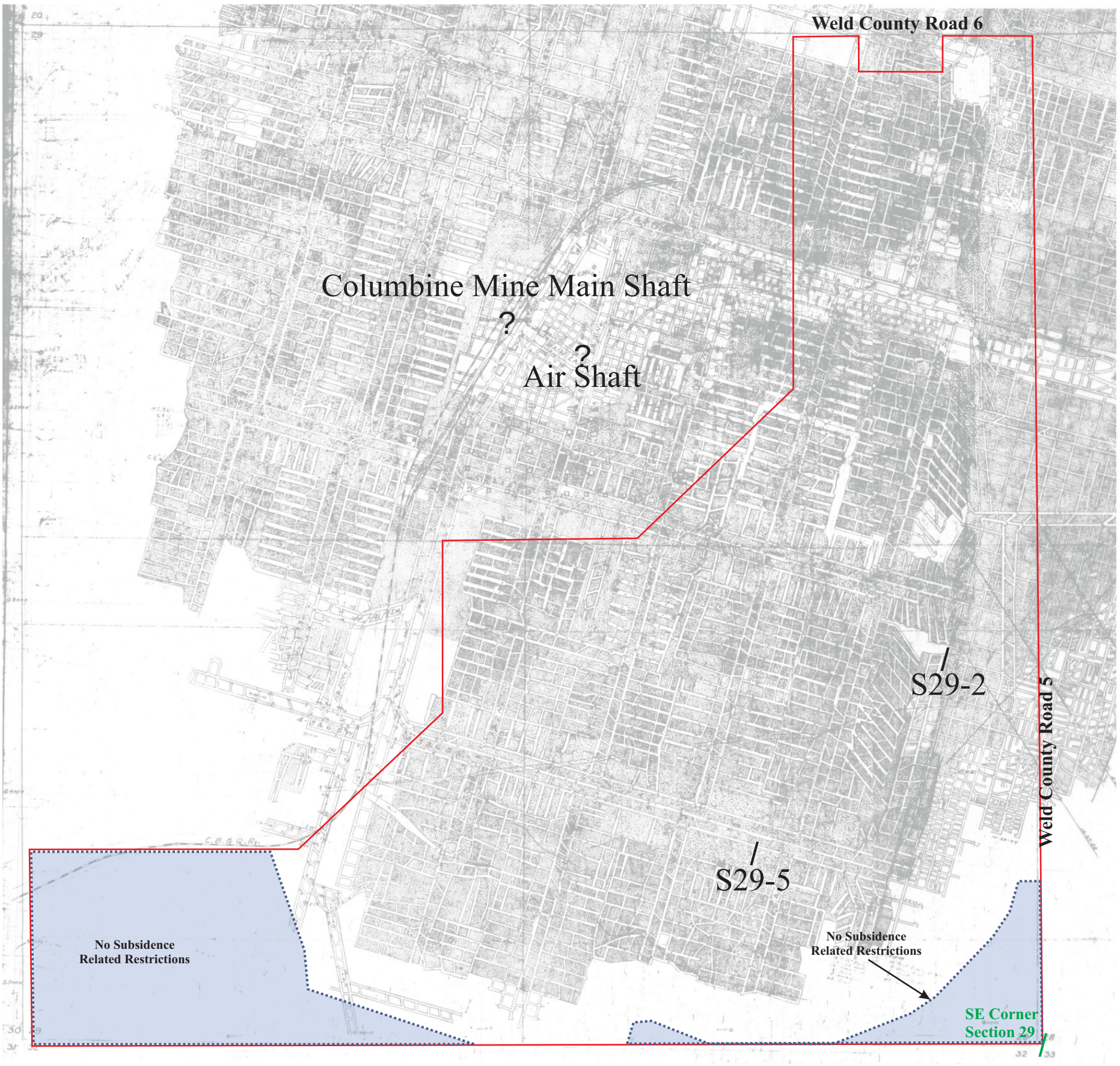
Figure 1 - Site Location Map
Approximately 330 Acres in Section 29,
Township 1 North, Range 68 West,
Erie, Colorado

3.0 SITE CHARACTERISTICS

This mine subsidence investigation was conducted for 330 acres in Section 29, Township 1 North, Range 68 West, in Weld County, Colorado. At the time of the inspection, the site was vacant. The property abuts two active landfills, and encompasses the closed Old Erie Landfill. The Pratt Property occurs southwest of the intersection of Weld County Roads (WCR) 5 and 6 (Figure 2). The site slopes gently to moderately to the west, and ranges from 5,090 to 5,260 feet (USGS Erie 7.5 Minute Quadrangle, 1979).

The abandoned coal mine that underlies the project is referenced in the files of the Colorado Geological Survey as the Columbine Mine. A detailed description of the mine is presented in Section 4.0.

View to the west from onsite, arrow shows approximate location of Serene Townsite



/ **Western Environment and Ecology, Inc. Boring location**

Scale - 1 inch = 600 feet

300 0 300 600

Mine Map from the Colorado Geological Survey, Columbine Mine

Western environment
and ecology, inc.
2217 West Powers Avenue
Littleton, Colorado 80120

Figure 2 -Borehole Location Map
Showing Columbine Mine
Approximately 330 Acres in Section 29,
Township 1 North, Range 68 West,
Eire County, Colorado

4.0 COAL MINE DESCRIPTION

The mine which operated below the Pratt property is the Columbine Mine. The Columbine Mine and it's owner, Josephine Roche, have an important role in Colorado history. The "Columbine Mine Massacre" occurred in 1927 when striking coal miners were attacked by Colorado State Police. The strike was a nationwide work stoppage called by the Industrial Workers of the World (the precursor of the Communist Workers Party). The company town of Serene, located near the center of Section 29, was the site of the Columbine Mine. Strikers had been conducting morning rallies at Serene for two weeks because the Columbine was one of the few coal mines in the state to remain in operation using management and non-striking employees. On November 21, 1927, five hundred miners, some accompanied by their wives and children, arrived at the north gate just before dawn. The miners were surprised to see men dressed in civilian clothes and armed with automatic weapons. After verbal alterations escalated into violence, six miners lay dead or dying.

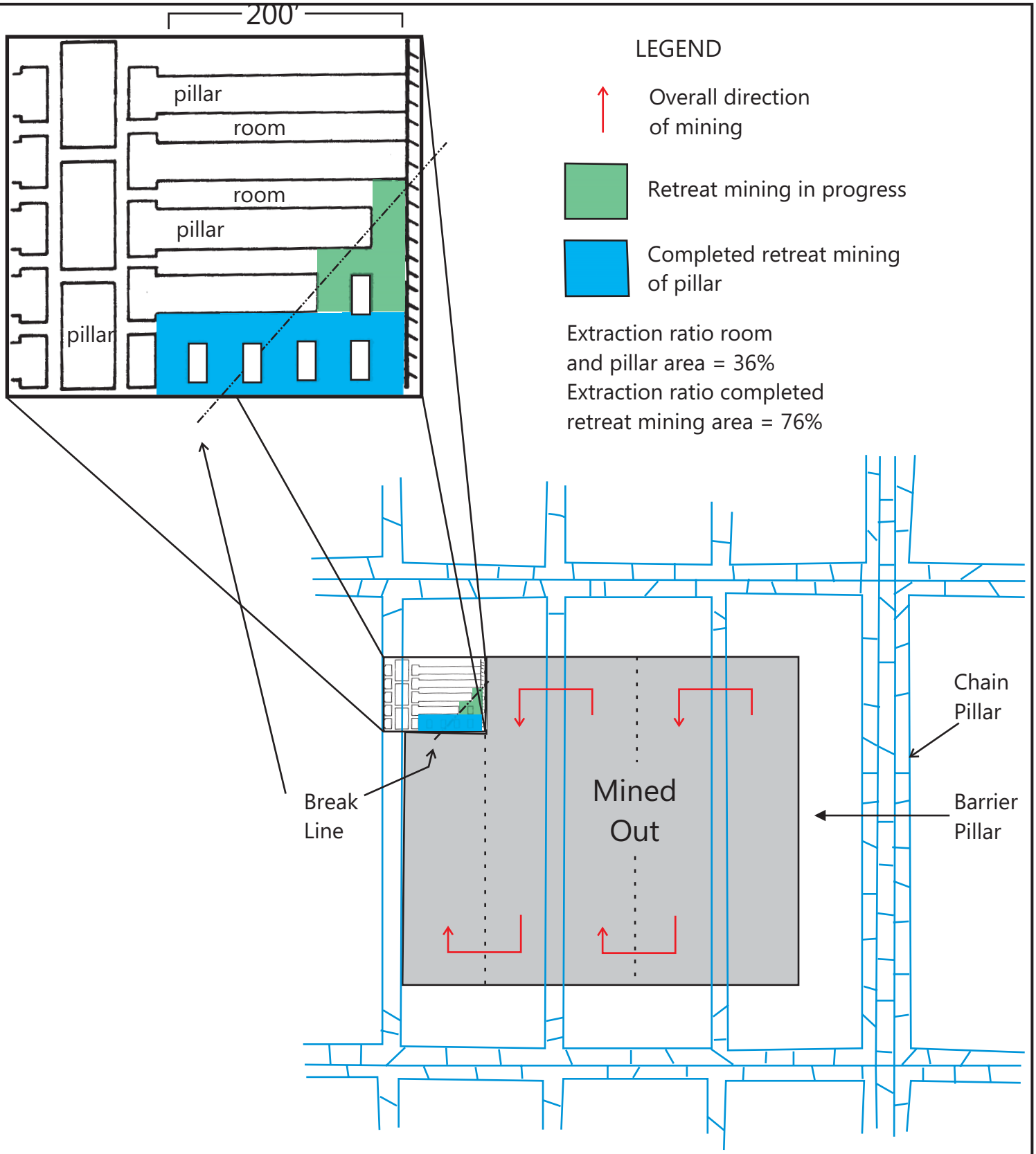
After the death of her father John Roche in 1927, Ms. Josephine Roche gained control of Rocky Mountain Fuel Company in 1929 and instituted a labor policy that allowed the Columbine Mine to be the first United Mine Workers mine in Colorado. She was highly regarded by the miners, obtaining a loan to make sure the striking miners were paid during work stoppage. Later, Ms. Roche was named Assistant Secretary of the Treasury by Franklin Roosevelt during his first term as President.

Crowd gathers outside doctors office after shootings, 1927

Records from the Colorado Division of Mines and the Colorado Geologic Survey show the "Columbine" Mine began operation in 1920 and continued until 1946. Total production from all operations was placed at 7, 216,286 tons. Entry to the mine was gained via a 300 foot deep, two compartment production shaft located north of the Pratt Property, beneath the currently operating Denver Regional Landfill South. The Columbine mine maps indicate that only one level of mining occurs in Section 29. Elevation description on the maps and drilling indicate that the levels were separated by twenty to thirty feet.

The Columbine Mine operation was classified as a modified room and pillar mine (Figure 3). The "pillar retreat" method was utilized during the early years of operation. Haulage ways were ten feet wide and were separated by 30 foot wide "chain pillars". Rooms had approximate widths of fifteen feet and lengths of 200 feet. The Columbine Mine was among the largest in the Boulder/Weld Coal Field. However, it differs somewhat from the other large mines in the district in that it was one of the first to utilize the continuous mining machine. This equipment / technique radically changed coal mining after its wide spread use in the early 1950's. However, review of the original mine map of the Columbine Mine indicate that from approximately 1940 through 1946, when the mine closed, a continuous

Tipple at Columbine Mine, Erie
ROCKY MOUNTAIN FUEL CO. OPERATED COLUMBINE MINE FROM 1920 UNTIL IT WAS CLOSED IN 1946. THE MINE WAS LOCATED SOUTH OF ERIE AND THE MINE CAMP OF SERENE WAS CLOSE BY FOR HOUSING FOR THE MINERS. 7,316,275 TONS OF COAL WERE PRODUCED AT THE MINE.
Photo from Louisville Public Library and Louisville Historical Museum



Literature Cited: Gray, Richard E. and Robert W. Bruhm, Coal Mine Subsidence - Eastern United States. Geological Society of America, Volume VI, 1984. And Tomlinson, H., "A Study of Falls of Roof and Coal In Northern Colorado", Dept. of Commerce, U.S. Bureau of Mines, Report of Investigations 3199, Jan., 1933.

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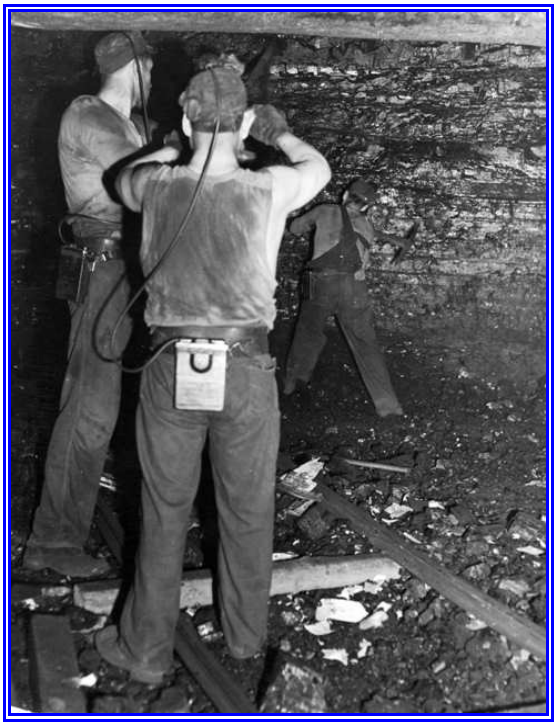
Figure 3 - Pillar Retreat Method for Coal Mining, Approximately 330 Acres in Section 29, Township 1 North, Range 68 West, Erie, Colorado

mining operation was occurring in the northeast potions of the mine. Western Environment has determined that coal extraction rates increased from 50-60% in the older (pillar retreat) mines, to 60-70% or greater in the mines operating after introduction of the continuous miner. This increase in extraction resulted in a reduction in overall roof support, which in turn produced more complete and thorough subsidence in the newer mines. Western Environment calculated, that given similar depth, mine layout, and seam thickness, "theoretical" surface strains could be 30% higher in the older mines.



Workers in Columbine Mine. Photo from the Denver Public Library, Western History Collection

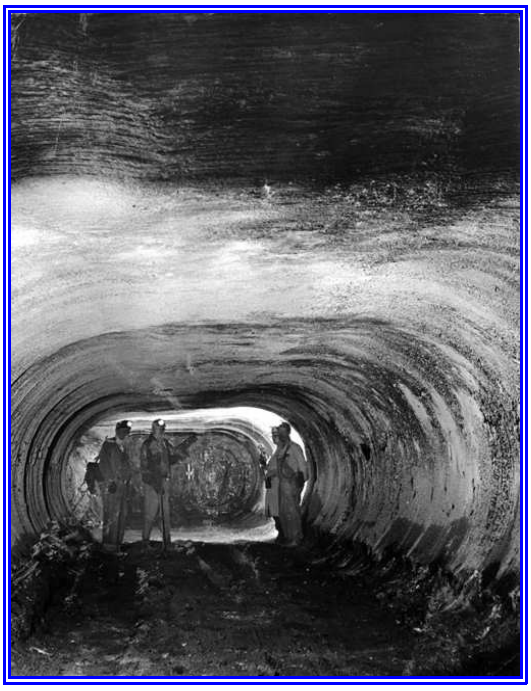


Photo of Room Mined Using Continuous Miner

Western Environment has researched the mining methods utilized in the Boulder/Weld mines. In the report entitled "A Study of Falls of Roof and Coal in Northern Colorado" Tomlinson (1933) describes the mining method used in five operating mines "*The room and pillar and panel methods of mining are employed. Pairs of room entries are advanced to a predetermined point, and rooms in sets of two to four are turned from one room entry or in some places from both entries. Room pillars are recovered immediately after the rooms have been advanced for the required distance, and a uniform break line maintained with each group of retreating pillars.*" This method of retreat mining is illustrated on Figure 3.

Starting The Cross Cut

5.0 DRILLING PROCEDURES

Two rotary holes were drilled on the Pratt Property for the previous Southwest Investment investigation by Plains Water Well Service, Inc. of Cheyenne, Wyoming. All holes were both lithologically and geophysically logged. Lithologic strip logs (Appendix A) were taken of cutting samples at five foot intervals. Geophysical logs consisting of natural gamma, spontaneous potential (SP), resistance and a three arm caliper were run selected holes intercepting the mine workings (Appendix B).

The caliper tool was calibrated prior to each use to graphically show the diameter of the hole. The full extension of the arms would indicate a cavity of at least greater than 21 inches. The drill will normally make a 5.125 inch or 6.25 inch hole. Therefore, a significantly larger or smaller hole could indicate mining activity.

After drilling and logging, each hole required plugging in a manner which would not allow water to enter the workings. On all holes, a simple cement plug was set from 2 to 15 feet with the remaining footage of the hole being filled with Colorado State Mined Land Reclamation Board approved abandonment fluid which is designed to inhibit fluid penetration. Native soil was then replaced from 2 feet to the surface.

Rotary Drill Pratt Property

6.0 REGIONAL GEOLOGY

6.1 Outcropping Units

Outcropping units within and surrounding the Erie area are the Pierre Shale, the Fox Hills Sandstone, the Laramie Formation and Quaternary gravels and soils (Figure 4).

The Pierre Shale is a lead gray to brown and black shale of marine origin. Total thickness in the area is greater than 7,000 feet (Blair 1951), with the majority of the formation made up of shale. Near the top of the Pierre Shale it becomes increasingly sandy and contains beds of fine sandstones and siltstones as it grades into the Fox Hills Sandstone. This unit does not outcrop on the site but can be seen southeast of the project on the east side of the Town of Erie.

The Fox Hills Sandstone is a massive to crossbedded sandstone. It was deposited in a beach and/or delta-front environment and comfortably overlies the Pierre Shale. The lower two-thirds of the formation is a fine to coarse grained, bluff colored sandstone which weathers to a light tan to tan color. The Fox Hills Sandstone contains numerous iron colored calcareous concretions, ranging in size from fractions of an inch to several feet. The upper one-third of the Fox Hills Sandstone is a fine to medium grained, light gray to pale yellow in color, crossbedded sandstone. The total thickness of the formation near this location is about 140 feet as measured in the NW 1/4 of Section 28, T1S, R70W. Thickness varies from 60 feet near Ralston Creek (Van Horn, 1957) to 250 feet near Baseline Reservoir.

The Laramie Formation, which directly underlies the site is predominantly a fresh water deltaic sequence, consisting of clays, sands, silts and coals (Figure 5). The lower portion is approximately 100 feet thick and is composed of sandstones, sandy shales, claystones, and coal beds. These coals have been economically mined in the past. The upper unit has a thickness of approximately 600 feet and is made up of mostly clay shales, very fine sandy shales, and lenticular beds of sandstone. The shales are largely carbonaceous and in places becomes lignitic. The Laramie Formation lies comfortably on the Fox Hills Sandstone.

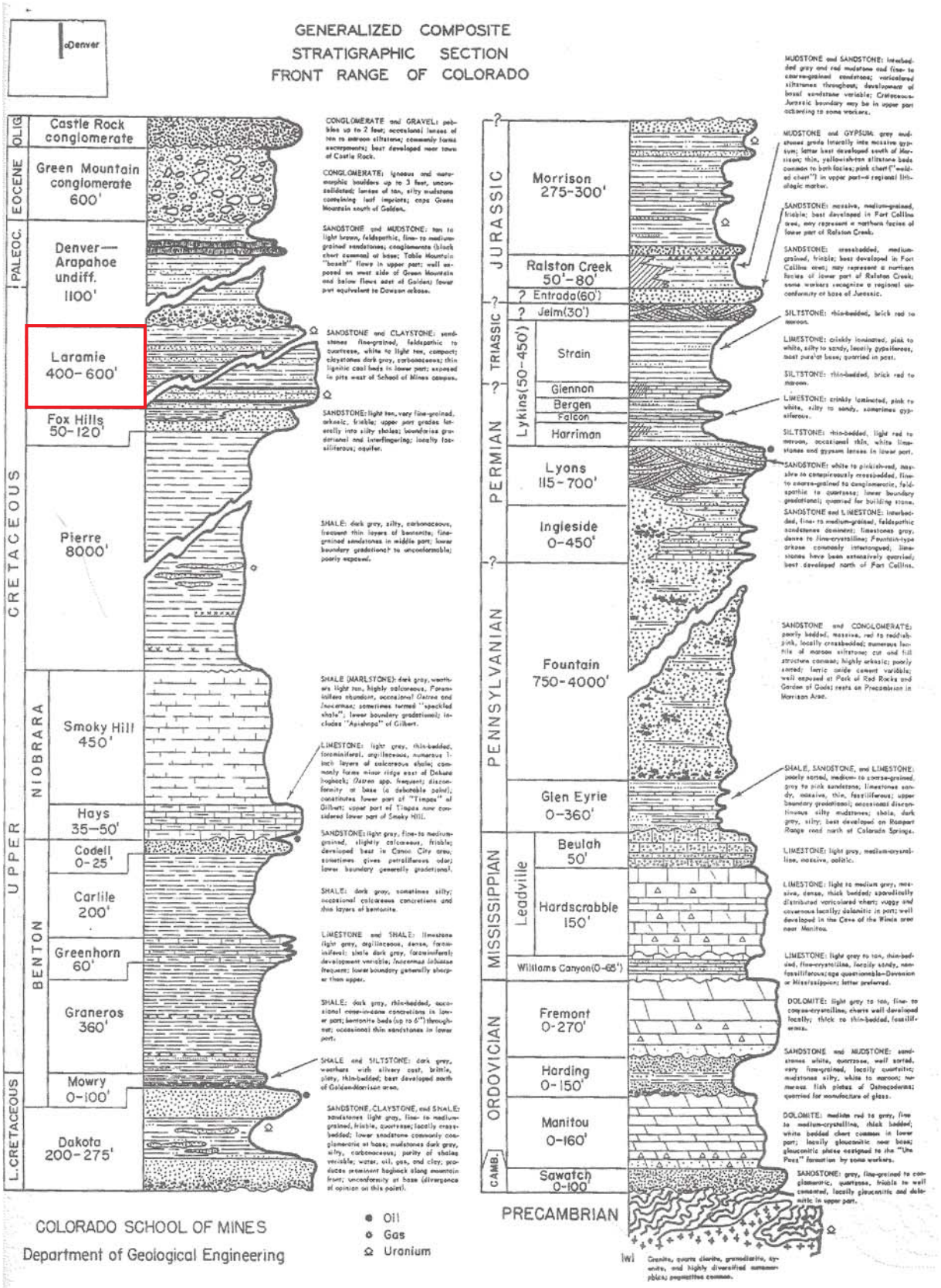


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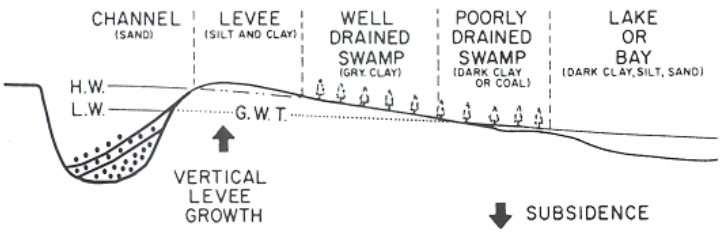
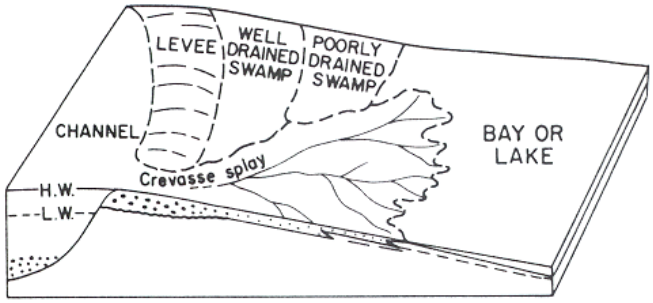
Figure 4 - Generalized Stratigraphic Section, Approximately 330 Acres in Section 29, Township 1 North, Range 68 West, Weld County, Colorado

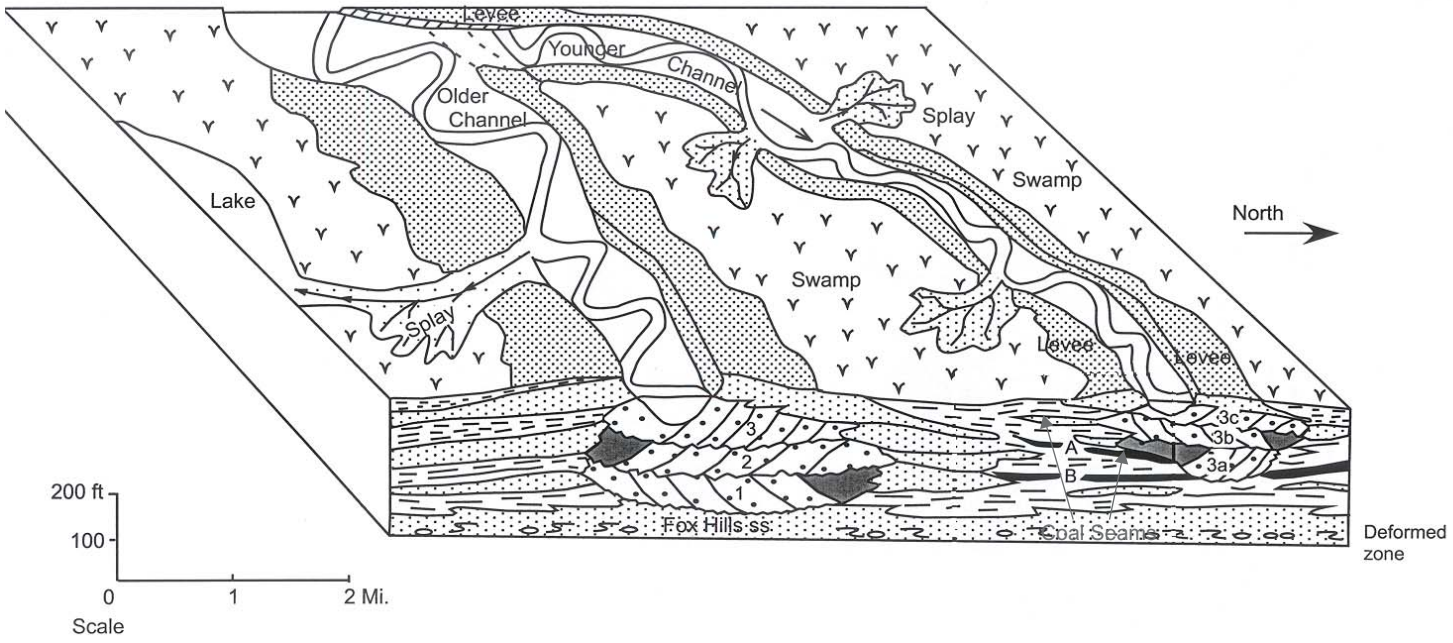


Channel and channel margin environments for lithologies in Laramie Formation.



LARAMIE ENVIRONMENTS OF DEPOSITION

Relationship of channel margin environments to crevasse splay deltas.



Figures from: A Guide to the uppermost Cretaceous stratigraphy, central Front Range Colorado, deltaic sedimentation, growth faulting and early Larimde vertical Movement
Weimer, R.J. 1973

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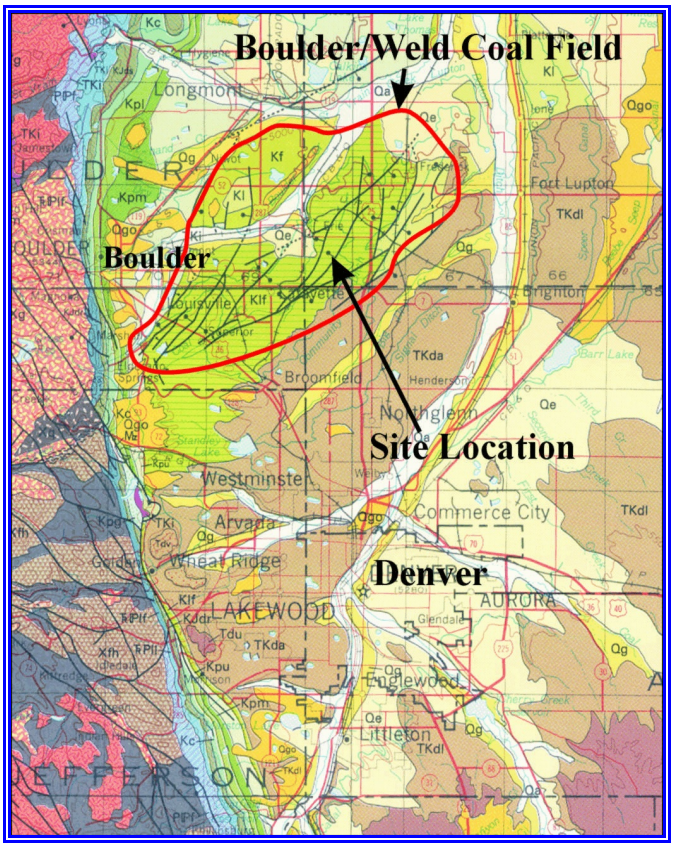
Figure 5 - Generalized Stratigraphic Models of the Laramie Formation, Approximately 330 Acres in Section 29, Township 1 North, Range 68 West, Erie, Colorado

6.2 Structure

The subject property lies on the western edge of the Denver-Julesberg Basin against the Front Range Uplift. This basin contains up to 13,000 feet of sediments derived from the ancestral Rockies which laid to the west. Two kinds of faulting occur in this portion of the basin. A basement-controlled late Cretaceous Laramide faulting is the most prevalent and is the result of deformation associated with uplift. The second basin has been described by Davis and Weimer (1976) as growth-faulting as a result of differential loading of the deltaic sequence at the time of deposition.

Growth faulting is the major structural feature seen in the area. A zone is present with dominant faults trending in a northeasterly direction. This system is ten miles wide and thirty miles long. These faults are high-angle, normal structures near the surface, but seismic work has shown that they tend to flatten and die out at depth. Work by Davis and Weimer (1976) shows that these listric normal faults do not continue below the Hygiene Member of the Pierre Shale. Antithetic faults resulting from tension then form horst and grabens. This effect had resulted in the increased thickness of sediments in the graben areas. The Fox Hills Sandstone has been reported to have a thickness near a growth fault of 484 feet (Spencer, 1961). The Laramie Formation also has increased thickness in these zones and this is believed to be the reason for the increased thickness of the coal seams in the Boulder-Weld coal field.



Front Range geology, from Tweto, 1979

7.0 SITE GEOLOGY

Two distinct units were encountered during drilling on the Pratt Property. The first unit penetrated was a sandy clay occurring from 0 to15 feet in depth. This unit appears to be aeolian (wind deposited) in occurrence. Western Environment's experience with the geotechnical properties of the unit has shown that, although high swell potentials are unlikely, collapsing upon saturation can occur with aeolian soils.

The next unit that had a transitional boundary between soil, weathered rock, and fresh rock was the interbedded clays, silts, fine-grained sand, and coals of the Cretaceous Age Laramie Formation. This formation extended from approximately 10 to15 feet beneath the surface to greater than 380 feet.

At least six coals have been identified during drilling on the subject property. However, no attempt to correlate the coals was made. The "main" seam of the Columbine Mine occurred at a depth ranging from approximately 267 to 307 feet in the borings advanced on the property. The Fox Hills Formation was not encountered during drilling.

Review of mine maps show that the Columbine Mine and the Boulder Valley Mine operated from within the same coal seam.

8.0 DESCRIPTION OF HOLES

The description of rotary holes drilled on the project and adjacent projects are from the drill cuttings taken every five feet, and interpretation of geophysical logs for each boring. **Horst** indicates borings advanced on the Horst Property, **VR** indicates borings advanced on the Vista Ridge Property, and **S29** indicates borings advanced on the Pratt property. The Erie Estates Project borings are designated as **SB-1** and **SB-2**.

Horst Property

Horst 1 A light brown arenaceous soil occurred from 0 to 20 feet. Light gray to brown claystone was penetrated from 20 to 60 feet. A light gray claystone was encountered from 60 to 275 feet. The "A" seam was encountered from 145 to 150 feet. The "main" seam interval was encountered from 280 to 285 feet. Circulation was lost at 275 feet. A 6 inch caliper deflection occurred at 280 feet. Total depth of the boring was 340 feet. Collapse was complete with no open voids.

Horst 2 A light brown arenaceous soil occurred from 0 to 30 feet. Brown to gray claystone was penetrated from 30 to 320 feet. The "A" seam was encoutnered from 120 to 125 feet. The "main" seam occured from 290 to 295 feet. No mine workings were penetrated. Total depth of the boring was 340 feet.

Horst 3 A light brown arenaceous soil occurred from 0 to 10 feet. Light gray to brown claystone was penetrated from 10 to 80 feet. A light gray claystone was encountered from 80 to 265 feet,. The "A" seam was encountered from 145 to 150 feet. The "main" seam interval occurred from 240 to 245 feet. Circulation was lost at 265 feet. Maximum caliper deflection of 7.2 inches occurred at 249 feet. Total depth of the boring was 300 feet. Collapse was complete with no open voids.

Horst 4 A light brown arenaceous soil occurred from 0 to 20 feet. Light gray to brown claystone was penetrated from 20 to 95 feet. A light to medium gray claystone with carbonaceous stringers was encountered from 95 to 315 feet. The "A" seam was encountered from 160 to 165 feet. The "main" seam interval occurred from 315 to 320 feet. Circulation was lost at 315 feet. Maximum caliper deflection of 6.0 inches occurred at 310 feet. Total depth of the boring was 340 feet. Collapse was complete with no open voids.

Horst 5 A light brown arenaceous soil occurred from 0 to 15 feet. Light gray to brown claystone was penetrated from 15 to 70 feet. A light gray claystone was encountered from 70 to 270 feet,. The "A" seam was encountered from 120 to 125 feet. The "main" seam interval occurred from 285 to 290 feet. Circulation was lost at 275 feet. Maximum caliper deflection of 11 inches occurred at 284 feet. Total depth of the boring was 300 feet. Collapse was complete with no open voids.

Horst 6 A light brown arenaceous soil occurred from 0 to 15 feet. Light gray to brown claystone was penetrated from 15 to 80 feet. A light gray claystone was encountered from 80 to 270 feet. The "A" seam was encountered from 105 to 110 feet. The "main" seam interval occurred from 235 to 240 feet. Circulation was lost at 230 feet. Maximum caliper deflection of 11 inches occurred at 238 feet. Total depth of the boring was 300 feet. Collapse was complete with no open voids.

Horst 7 A light brown arenaceous soil occurred frm 0 to 15 feet. Light gray to brown claystone was penetrated from 15 to 75 feet. A light gray claystone was encountered from 75 to 150 feet. A light gray sandstone was drilled from 155 to 230 feet. No coal seams were penetrated. No mine workings were encountered. Total depth of the boring was 230 feet.

Horst 8 A light brown arenaceous soil occurred from 0 to 20 feet. Light gray to brown claystone was penetrated from 20 to 70 feet. A light to medium gray claystone was encountered from 80 to 260 feet. The "A" seam was encountered from 165 to 170 feet. Circulation was not lost. No mine workings were encountered. Total depth of the boring was 260 feet.

Horst 9 A light brown arenaceous soil occurred from 0 to 15 feet. Light gray claystone was penetrated from 15 to 50 feet. A medium gray claystone was encountered from 50 to 325 feet. The "main" seam was encountered from 230 to 237 feet. No mine workings were penetrated. Total depth of the boring was 340 feet.

Horst 10 A light brown arenaceous soil occurred from 0 to 15 feet. Light gray to brown claystone was penetrated from 15 to 70 feet. A medium gray claystone was encountered from 70 to 200 feet. The "A" seam was encountered from 130 to 135 feet. Circulation was lost at 200 feet. The "main" seam interval occurred from 235 to 240 feet. A maximum caliper deflection of 6 inches occurred at 223 feet. Total depth of the boring was 280 feet. Collapse was complete with no open voids.

Horst 11 A light brown arenaceous soil occurred from 0 to 20 feet. Light gray to brown claystone was penetrated from 20 to 100 feet. A medium gray claystone was encountered from 100 to 340 feet. No mine workings were penetrated. Total depth of the boring was 340 feet.

Vista Ridge Property

VR-6 Tan sandy argillaceous soil occurred from 0 to 20 feet. Tan claystone with carbonaceous clay was observed from 20 to 30 feet. Medium to light grey claystone was encountered from 30 to 60 feet. Medium to dark grey claystone with minor carbonaceous claystone was penetrated from 60 to 200 feet. Medium grey claystone with coal was encountered at 210 feet. Medium grey claystone was observed from 220 to 260 feet. The Columbine Mine "main" seam occurred at 260 to 270 feet. Light grey sandstone, was observed from 260 to 300 feet. Total depth of the hole was 300 feet. No mine workings were encountered.

VR-7 Medium grey argillaceous soil occurred from 0 to 40 feet. Medium grey claystone with carbonaceous clay was observed from 40 to 50 feet. Medium grey claystone was encountered from 50 to 150 feet. Light grey claystone was penetrated from 150 to 170 feet. Medium to light grey claystone was encountered from 170 to 220 feet. Dark grey claystone was observed from 220 to 240 feet. Medium grey claystone was present from 240 to 260 feet. The Columbine Mine "main" seam occurred at 260 to 270 feet. Tan to grey claystone was observed from 270 to 300 feet. Total depth of the hole was 300 feet. No mine workings were encountered.

VR-8 Tan sandy argillaceous soil occurred from 0 to 40 feet. Medium to dark grey claystone was penetrated from 40 to 180 feet. Light grey sandstone was encountered from 180 to 200 feet. Medium grey claystone was present from 200 to 220 feet. Light grey sandstone was observed from 220 to 270 feet. Medium grey claystone was located from 270 to 290 feet. Medium grey sandstone was present at 300 feet. Total depth of the hole was 300 feet. No mine workings were encountered.

VR-9 Tan sandy argillaceous soil occurred from 0 to 30 feet. Tan claystone was observed from 30 to 60 feet. Medium to light grey claystone was encountered from 60 to 170 feet. Medium to dark grey claystone was penetrated from 170 to 220 feet. Medium to light grey claystone was encountered from 220 to 280 feet. The Columbine Mine "main" seam occurred at 280 to 290 feet.. Medium grey claystone was observed from 290 to 300 feet. Total depth of the hole was 300 feet. No mine workings were encountered.

VR-10 Tan sandy argillaceous soil occurred from 0 to 20 feet. Tan and grey claystone was observed from 20 to 40 feet. Light grey claystone was encountered from 40 to 50 feet. Medium grey claystone was penetrated from 50 to 220 feet. The Columbine Mine "main" seam occurred from 230 to 240 feet.. Medium grey claystone was penetrated from 240 to 300 feet. Total depth of the hole was 300 feet. No mine workings were encountered.

Pratt Property

S29-2 Sandy clay soil occurred from 0 to 10 feet. Brown to iron stained claystone was drilled from 10 to 35 feet. From 35 feet to 295 feet, light gray to dark gray claystone was penetrated. Circulation was lost at 295 feet. The Columbine "main" seam occurred from 307 to 315 feet. Maximum caliper deflection of 7.8 inches at 309.8 feet was observed. Total depth of the hole was 320 feet. Collapse was complete, with no open voids.

S29-5 Sandy clay soil occurred from 0 to 15 feet. Light brown to gray to dark gray claystone with interbedded coal was drilled from 15 to 360 feet. Circulation was not lost. The Columbine "main" seam was penetrated from 267 to 275 feet. Negative caliper deflection was observed at this location. Collapse was complete with no open voids.

Erie Estates Property

SB-1 Light brown silty sandy clay was penetrated from 0 to10 feet. From 10 to 45 feet sandy to silty brown grading to gray claystone was encountered. From 45 to 50 feet an oxidized coal seam (clinker) was present. From 50 to 130 feet medium gray claystone occurred. Light gray very fine grained quartzose sandstone was penetrated from 130 to 135 feet. From 135 to 243 feet medium gray claystone with minor carbonaceous intervals was drilled. From 243 to 285 feet interbedded coal and claystone was penetrated. Circulation was lost a 285 feet. From 285 feet to 330 feet claystone was encountered. The Upper Columbine "main" seam interval was drilled from 330 to 337 feet. Collapse was complete with no open voids. Total depth of the hole was 340 feet.

SB-2 Light brown silty sandy clay was penetrated from 0 to10 feet. From 10 to 33 feet brown grading to gray claystone was encountered. From 33 to36 feet carbonaceous claystone was present. From 36 to 101 feet medium gray claystone occurred. Carbonaceous claystone was penetrated from 101 to 106 feet. From 106 to 220 feet, interbedded claystone with carbonaceous layers were encountered. Circulation was lost at 220 feet. From 220 feet to 245 feet, drilling progress indicated undisturbed bedrock was present. From 245 to 275 feet fractured rock was penetrated. Drilling progress from 280 285 feet indicated in-place bedrock. Western Environment interprets that the Upper Columbine "main" seam was penetrated from 245 to 252 feet. The Lower Columbine "main" seam was interpreted to occur from 275 to 280 feet. Due to "Block Caving" at 215 feet no caliper log could be run.

9.0 POTENTIAL MECHANISMS OF COAL MINE ROOF FAILURE

The following presents what appears to be the most obvious progression for collapse and subsidence occurring within the Boulder-Weld Coal Field. This discussion is based upon research conducted by Western Environment personnel. However, it must be emphasized that all of the following explanations are theoretical and inferred interpretations.

The results of the numerous studies conducted by Western Environment show that when coal was removed, often no significant displacement of overlying beds occurred. Two possible explanations exist for this observation: 1) after mining, enough natural roof strength remained across the span of rooms to support the load and not fail, or 2) after roof failure, the collapse is somehow confined to a specific interval. In the majority of Western Environment projects, the caliper logs show that the rooms are not open and that the "back" or roof of the mine is down. Therefore, the collapse and subsequent bed deflections are somehow limited to a specific horizon.

The idea of progressive collapse of overlying units continuing until a "pressure arch" or dome is formed above the collapsed workings is well-documented (U.S.G.S. Prof. Paper 969). Bell (1975) states that from his experiences in rock of similar character as those present in the Boulder-Weld Coal Field, upward migration is commonly one to two times the width of the intervening room. Ackenheil and Doughtery (1970) use a figure of twice the distance between supports for an approximation of arch development. Both of these estimates fit well with the observed results from the drilling on the site that show that collapse is confined to an interval of 20 to 40 feet above the workings. In addition to the "pressure arch", the caliper log indicated that no void is present within the mined zone or at the top of the arch. It is then necessary to increase the volume (decrease the density) of the overlying material in order that the void and developing arch is filled, potentially resulting in additional support (Bell, 1975). Testing performed on the claystone bedrock has shown that the clays can "swell" upon wetting in excess of 20% (ATEC, 1985). Therefore, a five foot void could be filled by the fracturing, wetting, and swelling of 25 feet of claystone.

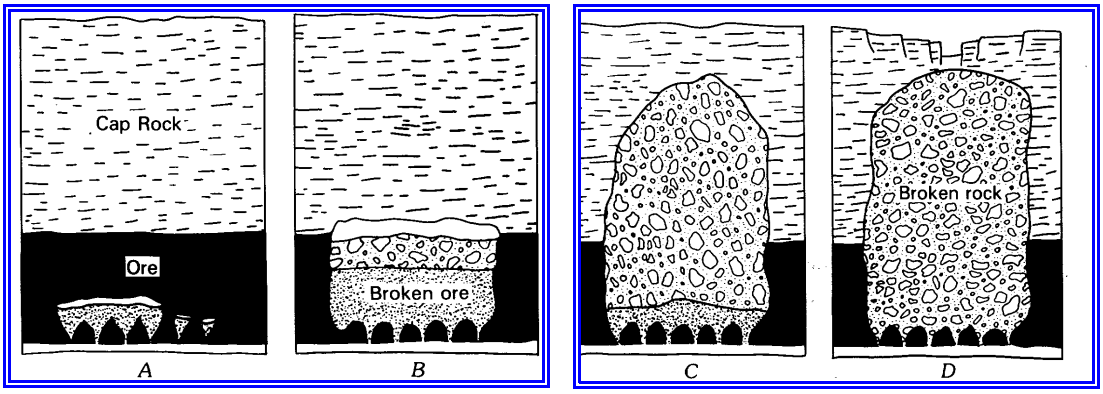
Jeff Hynes, senior engineering geologist with the CGS, has expressed his opinion that the "swelling" of the claystone observed by Western Environment may actually be a result of expansion of the clays when the isostatic confining is removed during drilling. Additionally, Mr. Hynes had commented on his observation that floor "heave" is prevalent in operating Boulder-Weld coal mines. This is likely due to the higher uniaxial compressional strength of the coal (Western Environment, 2004) in relation to the claystone that commonly makes up the floor of the mine.

Regardless of the exact mechanism, it is evident that the following process involving collapse confinement and support are likely to occur within the Boulder-Weld Coal Field:

1) Formation of pressure arches approximately 20 to 40 feet above the mined seam, and

2) Increase in volume (by swelling, depressurizing, or floor heave) of claystone roof and floor rock.

The importance of the concept of the pressure arch increases as the depth to mining decreases. If mine geometry remains consistent, the pressure arch that forms 20-40 feet above the mine will encounter either weakened weathered rock or potential "fluid" soil at a mining depth of 80 feet or less. Should the top of the pressure arch contact either the weathered rock or soil, a "sink hole" can form. Therefore, due to the depth of the working beneath the Pratt Property project, **sinkhole development is unlikely**.



Progress of subsurface subsidence induced by the block caving method (Holzer, 1984)

10.0 STRAIN ANALYSIS

The strain analysis performed for this study is adapted from the United Kingdom National Coal Board's graphical strain profiling system. This method of strain prediction was developed for on-going long wall mining operations. To make the method applicable to abandoned room and pillar mines, several modifications and assumptions were made.

The first modification is to define the thickness of the void space. The standard method is to use the actual mined thickness of coal. However, the drill holes completed on the Pratt Property project and all adjacent sites show collapse to be complete. Therefore, to proceed with a "worst case" theoretical analysis, the following assumption was made: any increase in hole diameter greater than 50% (9 inches for 5 1/8 inch boring) will be treated as an open void. The amount of "theoretical" void for all holes intercepting the mine within the Columbine Mine and equivalent mined intervals was then averaged. Due to hole collapse in SB-2, Western Environment chose to utilize 4.0 feet of "theoretical" void which represents 2 times the maximum theoretical void identified on adjacent projects.. This results in a theoretical void space for the Pratt Property project of **0.80 feet** (Table 1).

Table 1. Depth to top of mined interval / Theoretical Void, Section 29

Boring	Depth to Top of Mined Interval	Theoretical Void (Feet)
Horst 1	280	0.0
Horst 2	290	NM
Horst 3	240	0.0
Horst 4	315	0.0
Horst 5	284	2.0
Horst 6	238	2.0
Horst 7	No Coal	No Coal
Horst 8	No Coal	No Coal
Horst 9	230	NM
Horst 10	235	0.0
Horst 11	No Coal	No Coal
S29-2	307	0.0
S29-5	267	0.0
SB-1	330	0.0
SB-2	245	4.0*
Average	272	0.80

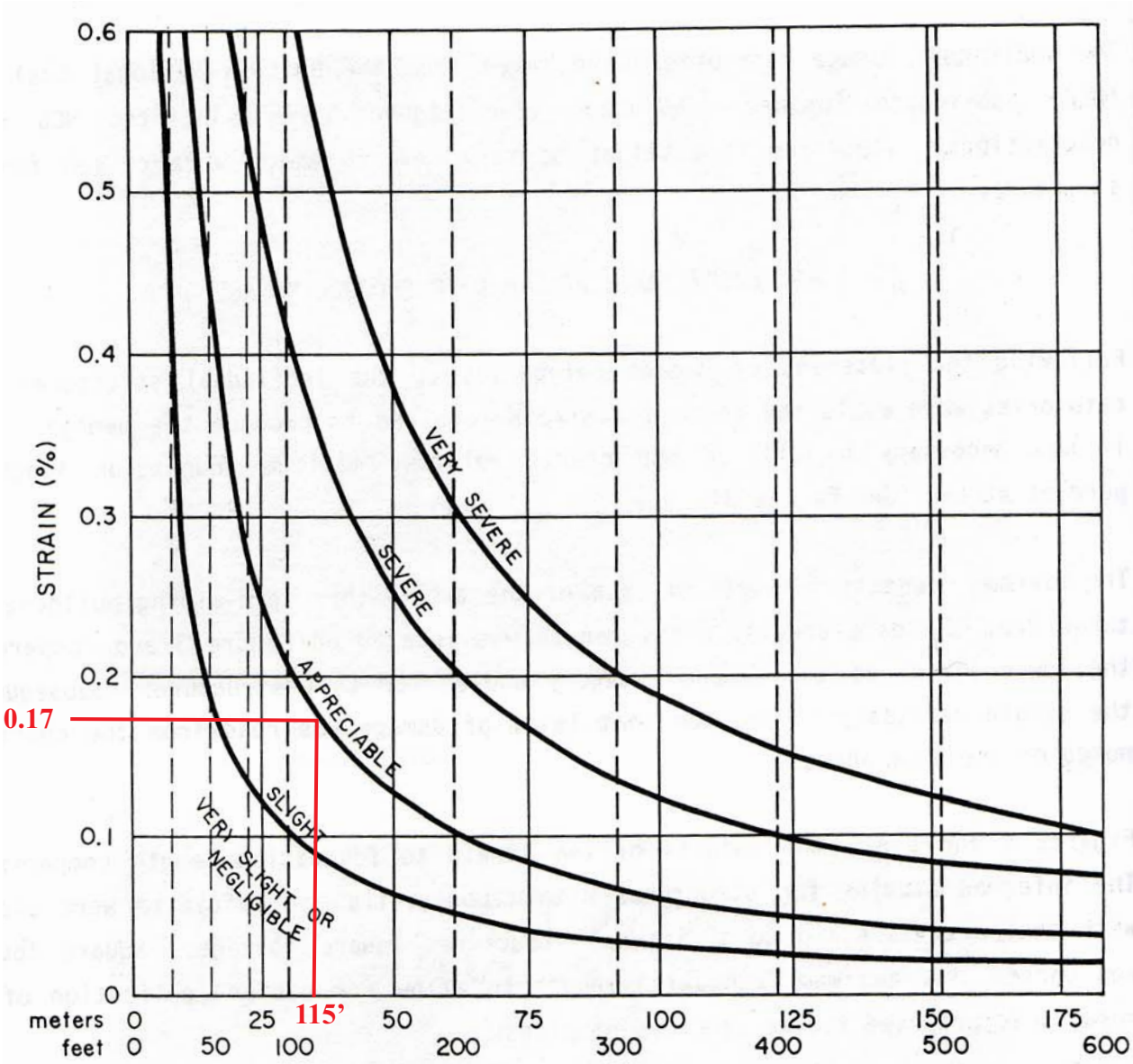
NM - Not Mined

* No caliper run, value taken as 2x the maximum theoretical void encountered on adjacent properties

The width of the extraction is critical to the analysis. Several options are available to use in the analysis. They include distance between drill holes, actual width (length) of the workings, or arbitrary values to produce the maximum amount of subsidence. Due to the apparent accuracy of the mine maps, Western Environment chose to use the width (length) of the workings shown on the mine map, which is approximately **200 feet**.

The reader is here encouraged to review both the United Kingdom National Coal Board's Subsidence Handbook, and the previous studies for the mechanics of the process. By using this information, and assuming that **multi-level mining was present at all undermined locations**, the maximum "worst case" theoretical horizontal strains would be **0.17%** with a maximum surface subsidence of **0.40** feet over a 290 foot profile**.**

These theoretical worst case strains are in-sufficient to cause "appreciable " damage to structures or foundation segments of **115 feet or less** (Figure 5).



CLASS OF DAMAGE	DESCRIPTION OF TYPICAL DAMAGE
VERY SLIGHT OR NEGLIGIBLE	SLIGHT CRACKS SHOWING IN WALLS AND CEILINGS INSIDE BUILDINGS, BUT NOT VISIBLE ON OUTSIDE.
SLIGHT	SLIGHT CRACKS SHOWING INSIDE THE BUILDING. DOORS AND WINDOWS WILL NOT CLOSE.
APPRECIABLE	SLIGHT CRACKS SHOWING BOTH OUTSIDE AND INSIDE BUILDING. DOORS AND WINDOWS WILL NOT CLOSE. DRAINS, SEWERS, AND GAS PIPES FRACTURE.
SEVERE	DRAINS, SEWERS, AND GAS PIPES FRACTURE. OPEN FRACTURES THROUGH WALLS OF BUILDING. WINDOW AND DOOR FRAMES DISTORTED, FLOORS NOTICEABLY SLOPING, WALLS LEANING OR BULGING NOTICEABLY. SOME LOSS OF BEARING OF BEAMS ON WALLS. PORTICOES AND FLOORS BUCKLE.
VERY SEVERE	WORSE THAN ABOVE AND REQUIRING PARTIAL OR COMPLETE REBUILDING. ROOF AND FLOOR BEAMS LOSE BEARING AND WALLS LEAN BADLY AND NEED EXTERNAL SUPPORT. WINDOWS BROKEN AND DISTORTED. SEVERE SLOPES, BUCKLING AND BULGING OF ROOFS AND WALLS OCCUR.

(FROM N.C.B.)

WESTERN ENVIRONMENT AND ECOLOGY, INC.
2217 West Powers Avenue
Littleton, Colorado 80120

Figure 6 - Strain Percent to Length of Structure, Approximately 330 Acres in Section 29, Township 1 North, Range 68 West, Erie, Colorado

11.0 CLOSURE

The recommendations provided herein were developed from the information obtained from field exploration which reflect subsurface conditions only at the specific locations, at the particular times designated. Subsurface conditions at other locations and times may differ from conditions occurring at these locations. The nature and extent of any variations between the drill holes may not become evident until or during the course of construction. If variations then appear, it may be necessary to re-evaluate the recommendations of this report after performing on-site observations during the excavation period and noting the characteristics of any variations.

This report was prepared by a Professional Engineering Geologist, not a Geotechnical Engineer, and should not be construed as, or substituted for, engineering. This report is intended to inform geotechnical and structural engineers working on building design of the potential earth forces that could develop at the site, and to assist the client in determining whether to acquire and develop the site in question.

Our professional services have been performed, our findings, and our recommendations prepared in, accordance with generally accepted geological principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

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APPENDICES

Appendix A

Architectural Techniques to Reduce Subsidence

ARCHITECTURAL TECHNIQUES TO REDUCE STRUCTURAL DAMAGE DUE TO SUBSIDENCE

Numerous papers have been written concerning building techniques designed to accommodate strain associated with subsidence (NTIS 1979). Presented below are some very basic strain reduction techniques which could be incorporated into structures located in these areas.

A structure of simple box form, designed to act as a unit, is best suited to resist the effects of mining subsidence. The smaller the plan of the building, the less likelihood there is of damage, and therefore, attached structures should be avoided. Where it is desired to retain the attached plan, this can be achieved by building units with adequate gaps between them to permit movement. Semi-detached buildings are preferable to detached. Outbuildings should not be attached structurally to the main building; they should be able to move independently.

The gaps between the structural units should be kept free from obstructions and should extend through the foundations; they should be sufficient to prevent adjacent units from coming into contact when the ground is deformed by subsidence. A gap of at least four inches is suggested for two-story buildings. Suitable gaps should be provided in all boundary walls especially when they abut a structure.

If required, areas between units should be paved with a flexible material, such as asphalt, incapable of offering any appreciable resistance to horizontal compression. Solid concrete paving should not be used.

Openings are a source of weakness in walls and should be kept as small as other considerations permit. Windows and doors are best arranged with substantial widths of brickwork around them so that the wall, wether reinforced or not, may be as strong as possible. Arched lintels should not be used. Corner windows, bay windows, and other similar projections weaken the structure, door openings have more serious weakening effects than windows and are best located in the shorter sides of buildings. If in the longer sided, they should be installed in the middle rather than at the ends of the building. Front and back doors should not be arranged closely side by side.

Floors and flat roofs should be fastened to all walls and not merely to those which carry

joists and rafters. Plasterboard or fiberboard should be used for ceilings. To ensure continued effective drainage if the building has been tilted by subsidence, the gradients of gutters should be kept higher than normal.

For complete protection against damage due to subsidence, a building would have to be able to resist the effects of vertical and horizontal differential movements. Protection against most damage by differential horizontal movements is comparatively simple and may be obtained by building the structure on a lightly reinforced concrete base slab which is bedded on granular material. The base slab ties the walls together and the flat underside forms slip surface. The total tensile strength of the slab in the direction of either principal axis should be adequate to resists a force equal to the product of half the weight of the structure on the slab and the coefficient of friction between the slab and granular material. Before placing the reinforcement and concrete in the base slab, the granular material in the sub-grade should be covered with a layer of stout waterproof paper (to form a slip plane). The provision of a reinforced base slab, combined with the recommendations already made, should be sufficient to prevent damage except where differential vertical movement occur.

The resistance of the walls to flexure may be increased by the introduction of steel reinforcement in any brickwork. The additional cost of such reinforcement is justifiable only in structures certain to be subjected to severe differential vertical movements, such as those near the boundaries of mine workings. Horizontal reinforcement may be used in brick walls of any thickness, but vertical reinforcement can only be used in wall 9 inches thick or more. Special care is necessary where steel reinforcement is to be used in conjunction with brickwork; the metal will not be protected from corrosion in the same way as rods in well made concrete. Lime mortar should be used in brickwork. Damp-proof courses should be of the bituminous type.

The weakest mortar consistent with the normal load-carrying requirements of the walls should be used. This will allow the walls to adjust themselves to moderate changes of curvature of the ground without serious cracking. If the ground on which the structures are built is of a yielding nature, the conditions will be more favorable than if it is yielding since abrupt changes of curvature are less likely.

APPENDIX B

Lithologic and Geophysical Logs

Hole Number: **S29-2**
Drilled by: Plains Water Well Service
Date: 11/6/06

Location: N40º01.217 W105º01.198
Logged by: D. Greeley
Bit Size: 6.25 inches

State: Colorado
Total Depth: 320'
Drilled with: Mud

Depth	Sample Description
5	Clay, sandy, light brown to brown
10	Clay, sandy, light brown to brown
15	Claystone, silty, brown
20	Claystone, silty, brown
25	Claystone, silty, gray with rust stains
30	Claystone, silty, gray with rust stains
35	Claystone, silty, gray with rust stains
40	Claystone, silty, gray with rust stains
45	Claystone, dark gray
50	Claystone, dark gray
55	Claystone, dark gray
60	Claystone, dark gray
65	Claystone, dark gray
70	Claystone, dark gray
75	Claystone, dark gray
80	Claystone, dark gray
85	Claystone, dark gray
90	Claystone, dark gray
95	Claystone, dark gray
100	Claystone, dark gray
105	Claystone, dark gray
110	Claystone, dark gray
115	Claystone, dark gray
120	Claystone, dark gray
125	Claystone, dark gray
130	Claystone, dark gray
135	Claystone, dark gray
140	Claystone, dark gray
145	Claystone, dark gray
150	Claystone, dark gray
155	Claystone, dark gray
160	Claystone, dark gray
165	Claystone, dark gray
170	Claystone, dark gray
175	Claystone, dark gray

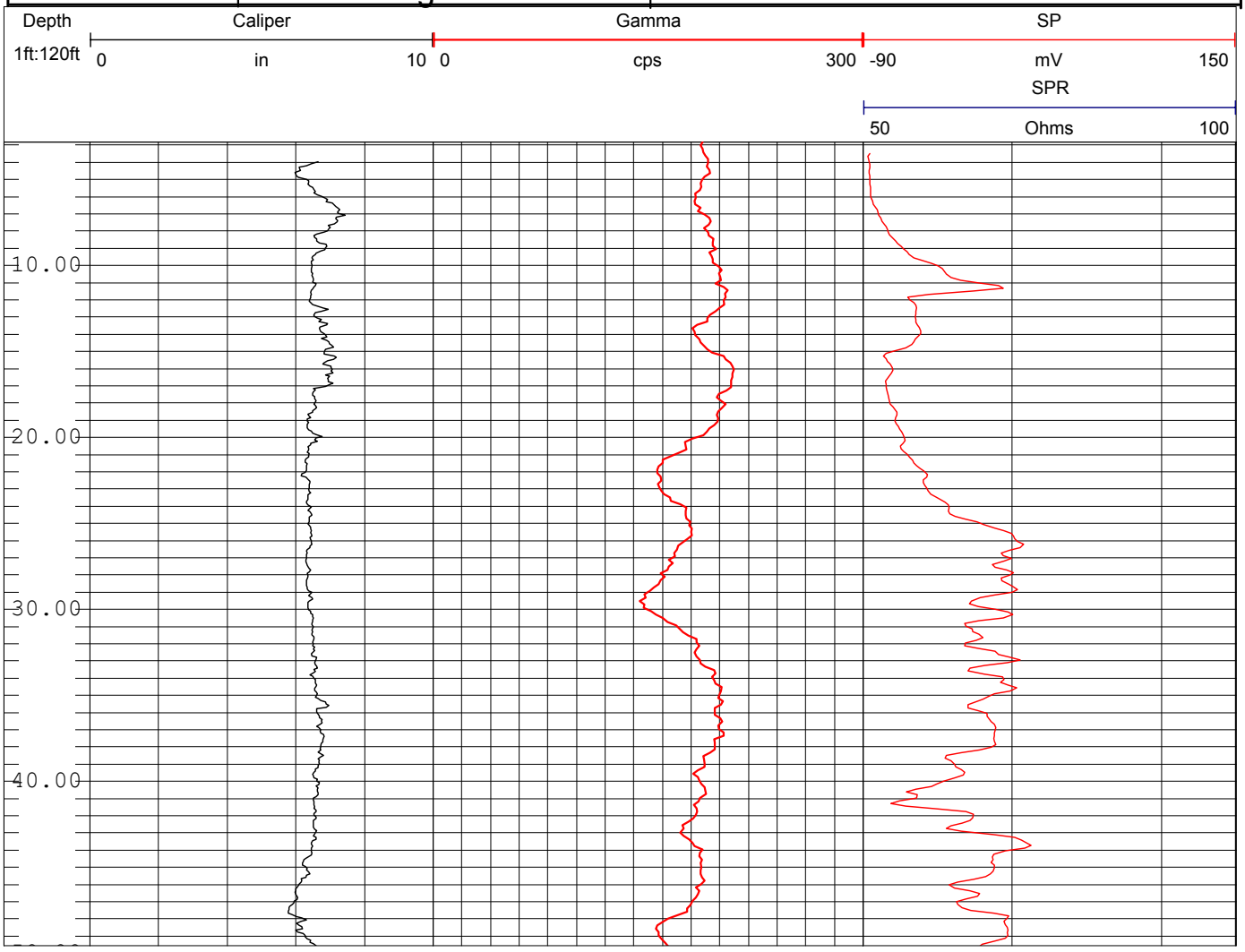
180	Claystone, dark gray
185	Claystone, dark gray
190	Claystone, dark gray
195	Claystone, dark gray
200	Claystone, dark gray
205	Claystone, dark gray
210	Claystone, dark gray
215	Claystone, dark gray
220	Claystone, dark gray
225	Claystone, carbonaceous, dark gray with coal
230	Claystone, dark gray
235	Claystone, dark gray
240	Claystone, dark gray
245	Claystone, dark gray
250	Claystone, dark gray to black with coal
255	Claystone, gray
260	Claystone, gray
265	Claystone, gray
270	Claystone, gray
275	Claystone, gray
280	Claystone, gray
285	Claystone, gray
290	Claystone, gray
295	Circulation lost, no sample recovery
300	No Recovery
305	No Recovery
310	No Recovery
315	No Recovery
320	No Recovery Total Depth

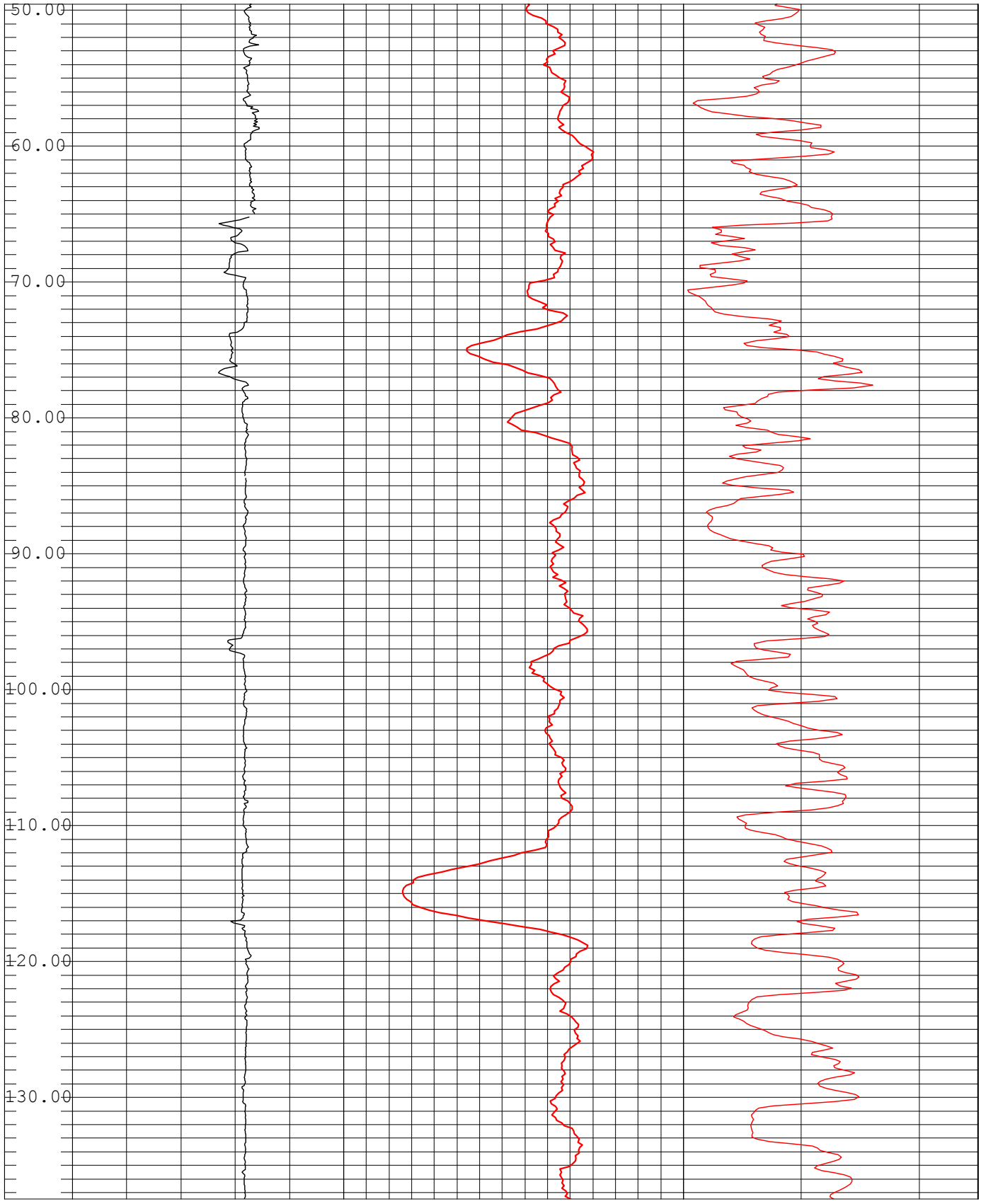
Hole Number: **S29-5** | Location: N40º01.052 W105º01.413 | State: Colorado
Drilled by: Plains Water Well Service | Logged by: D. Greeley | Total Depth: 360'
Date: 11/7/06 | Bit Size: 6.25 inches | Drilled with: Mud

Depth	Sample Description
5	Clay, sandy, light brown to brown
10	Clay, sandy, light brown to brown
15	Clay, sandy, light brown to brown
20	Claystone, silty, light brown with rust
25	Claystone, silty, light brown with rust
30	Claystone, silty, light brown with rust
35	Claystone, silty, light brown with rust
40	Claystone, silty, light brown with rust
45	Claystone, silty, light brown with rust
50	Claystone, silty, light brown with rust
55	Claystone, silty, light brown with rust
60	Claystone, silty, light brown with rust
65	Claystone, silty, light brown with rust
70	Claystone, dark gray
75	Claystone, dark gray
80	Claystone, dark gray
85	Claystone, dark gray
90	Claystone, dark gray
95	Claystone, dark gray
100	Claystone, dark gray
105	Claystone, dark gray
110	Claystone, dark gray
115	Claystone, dark gray
120	Sandstone lense, gray
125	Claystone, dark gray
130	Claystone, dark gray
135	Claystone, dark gray
140	Claystone, dark gray
145	Claystone, dark gray
150	Claystone, dark gray
155	Claystone, dark gray
160	Claystone, dark gray
165	Claystone, dark gray
170	Claystone, dark gray
175	Claystone, dark gray

180	Claystone, dark gray	
185	Claystone, dark gray	
190	Claystone, dark gray	
195	Claystone, dark gray	
200	Claystone, dark gray	
205	Claystone, dark gray	
210	Claystone, dark gray, with coal	
215	Claystone, dark gray	
220	Claystone, dark gray	
225	Claystone, carbonaceous, dark gray	
230	Claystone, dark gray	
235	Claystone, dark gray	
240	Claystone, dark gray	
245	Claystone, dark gray	
250	Claystone, dark gray to black with coal	
255	Claystone, gray	
260	Claystone, gray	
265	Claystone, carbonaceous, dark gray, with coal	Columbine Main Seam
270	Claystone, gray	
275	Claystone, gray	
280	Claystone, gray	
285	Claystone, gray	
290	Claystone, gray	
295	Claystone, gray	
300	Claystone, gray	
305	Claystone, gray	
310	Claystone, gray	
315	Claystone, gray	
320	Claystone, gray	
325	Claystone, gray	
330	Claystone, gray	
335	Claystone, gray	
340	Claystone, gray	
345	Claystone, gray	
350	Claystone, gray	
355	Claystone, gray	
360	Claystone, gray	Total Depth

	COMPANY: WESTERN ENVIRONMENT AND ECOLOGY, INC		
	Location: N40 01.217, W105 01.198		
Well	S29-2	OTHER SERVICES	
Date	11/6/06	BH Fluid	Mud
Casing	None		
File Name	S29-2		
Depth Driller	320		
Depth Logger	318		
Logged by:	D. Greeley		
Witness:	B. Partington		





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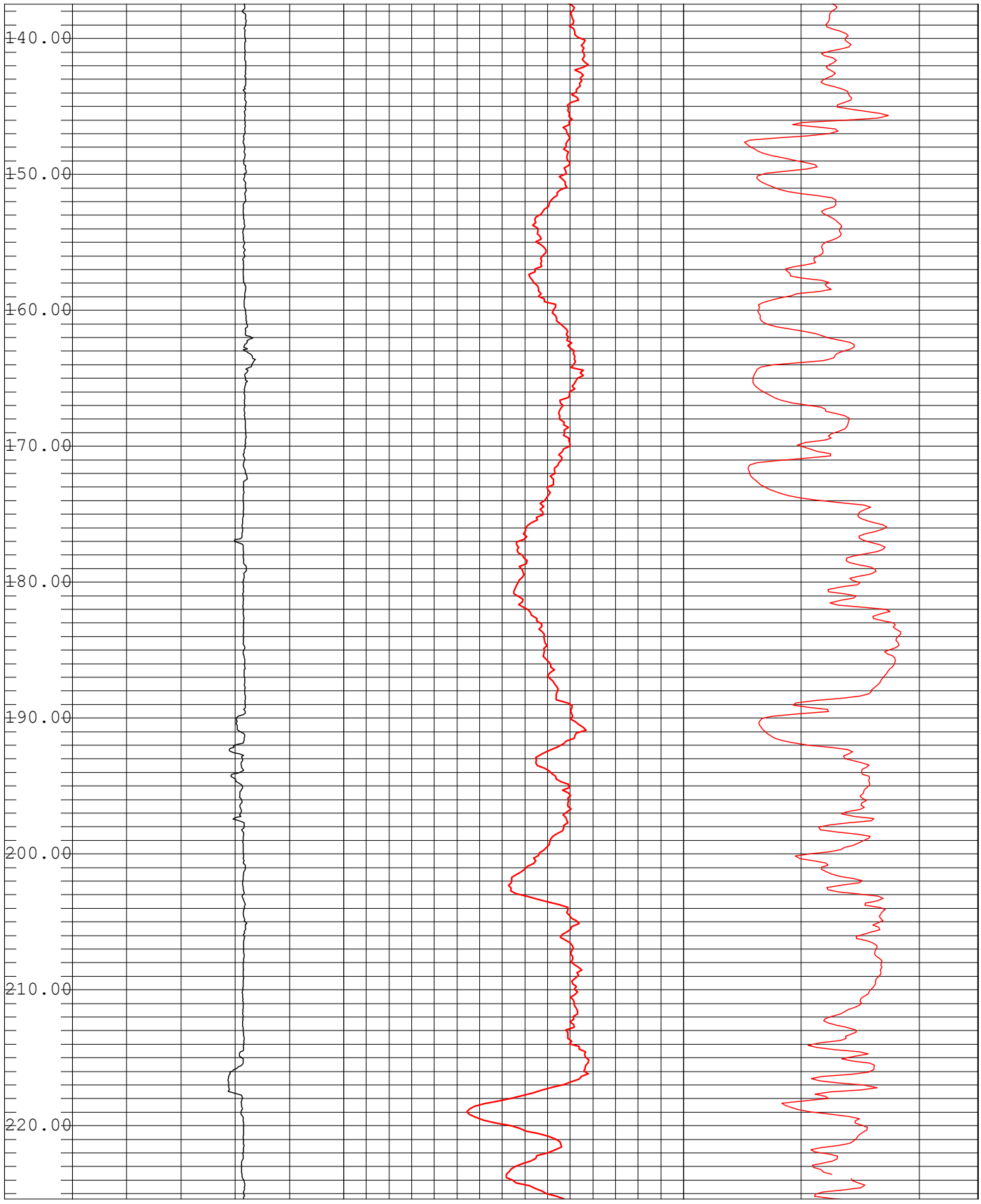
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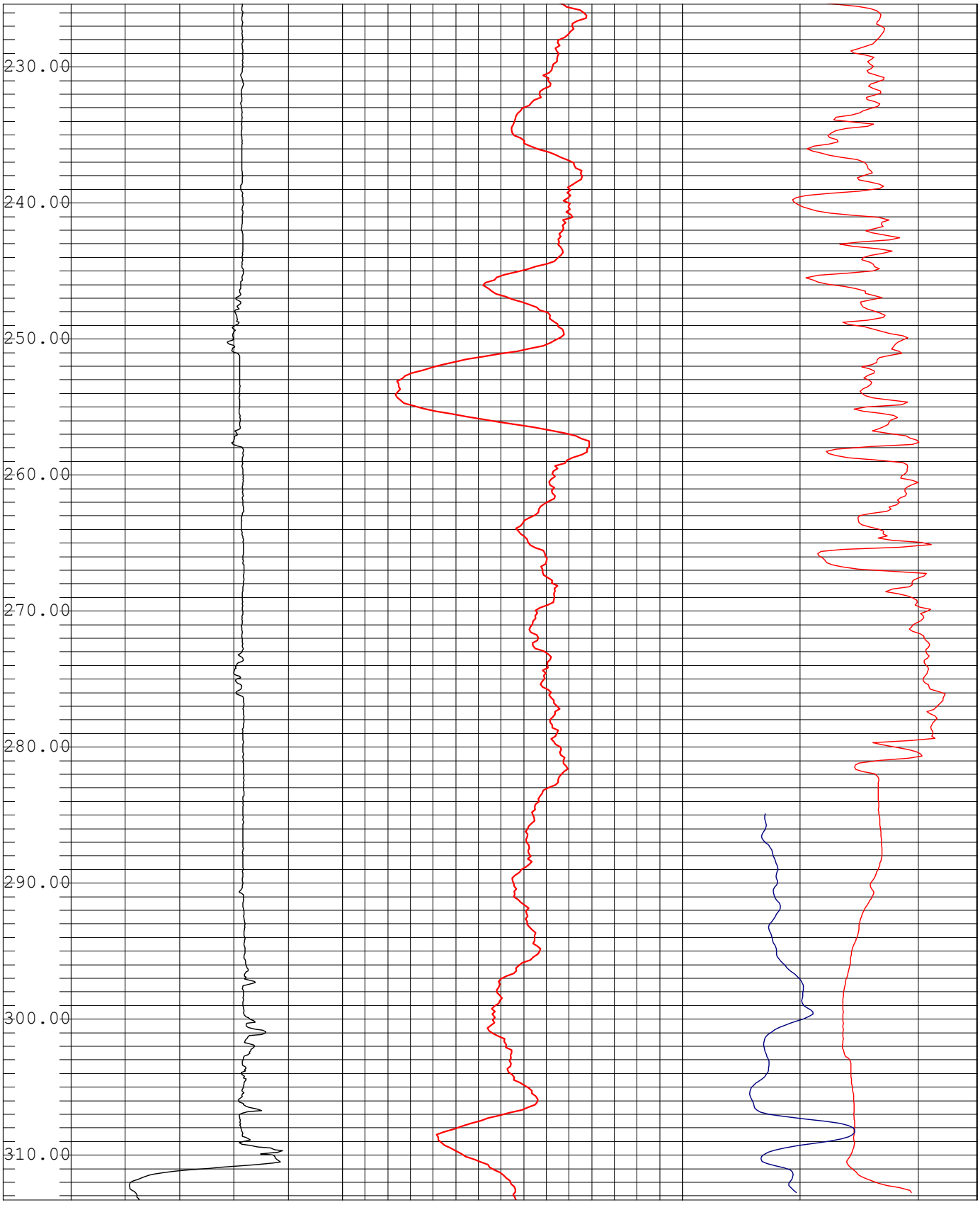
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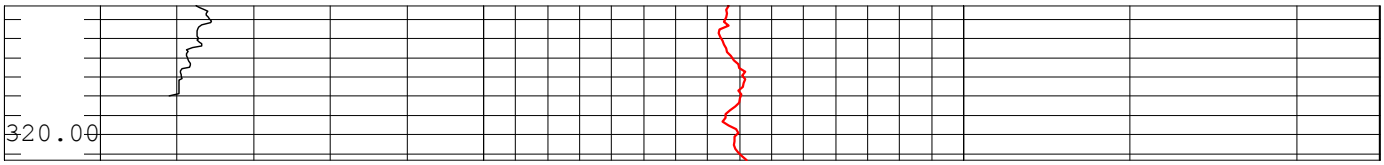
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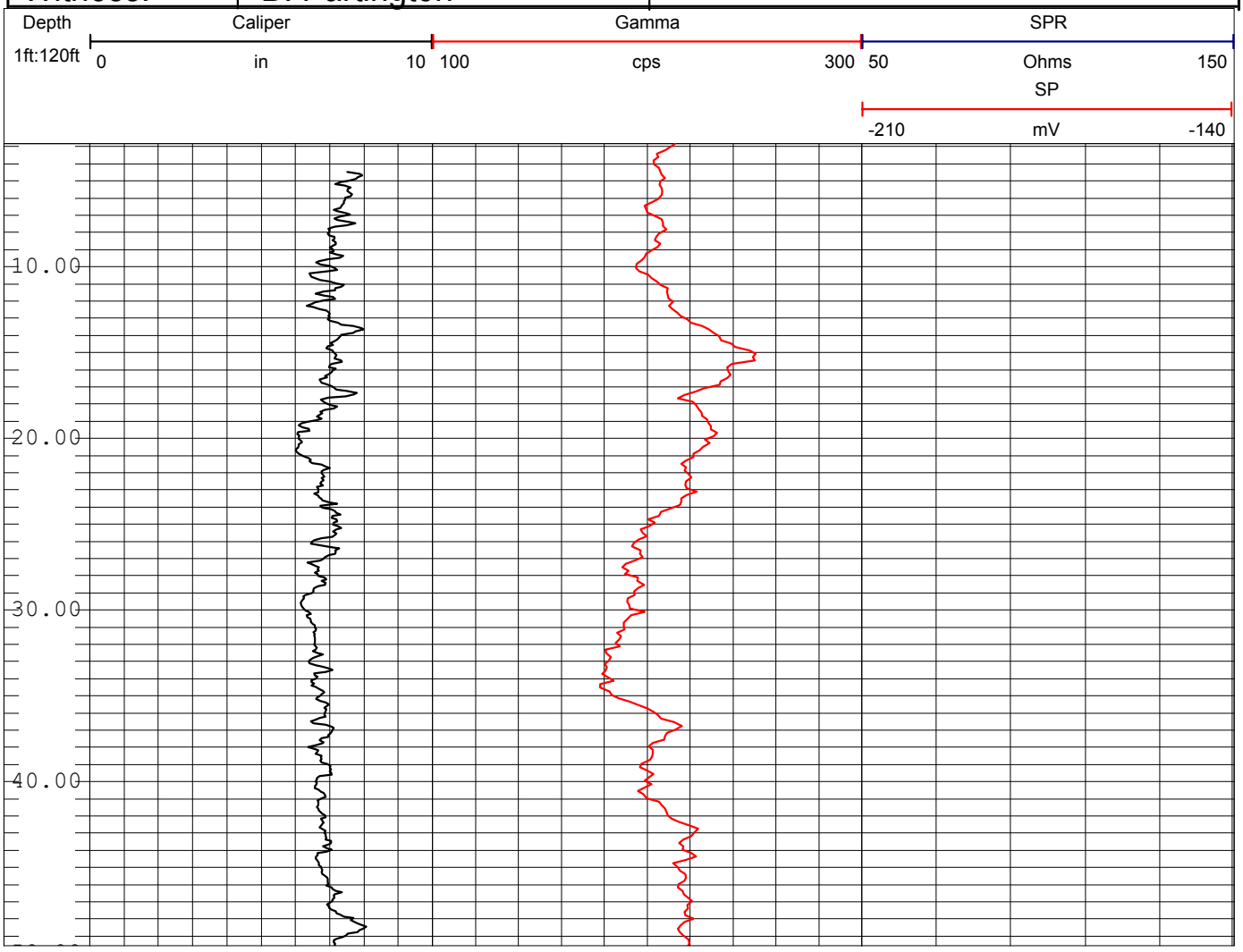
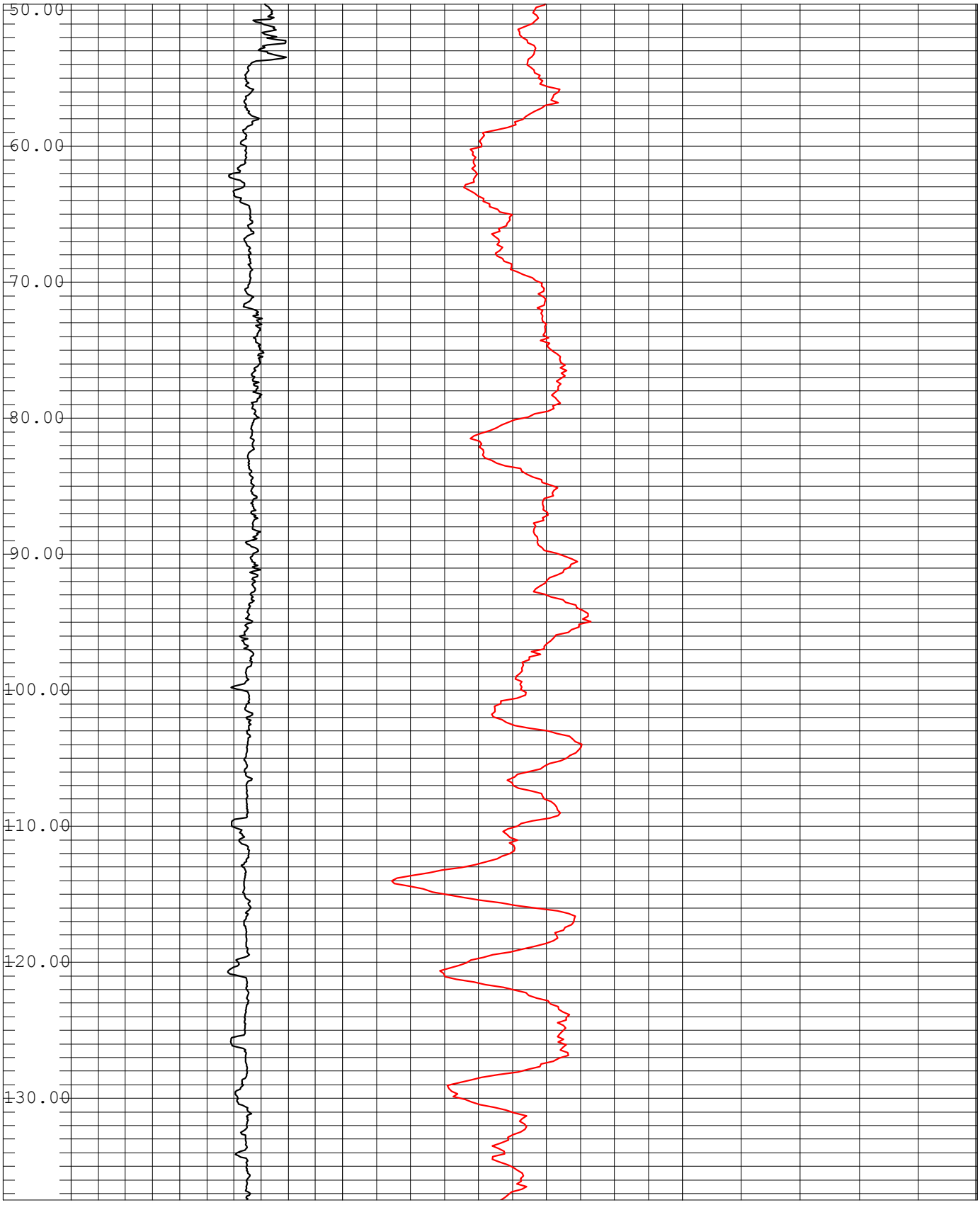
	COMPANY: WESTERN ENVIRONMENT AND ECOLOGY, INC
	Location: N40 01.052, W105 01.413

Well	S29-5		
Date	11/7/06	BH Fluid	Mud
Casing	None		
File Name	S29-5		
Depth Driller	380		
Depth Logger	336		
Logged by:	D. Greeley		
Witness:	B. Partington		

OTHER SERVICES

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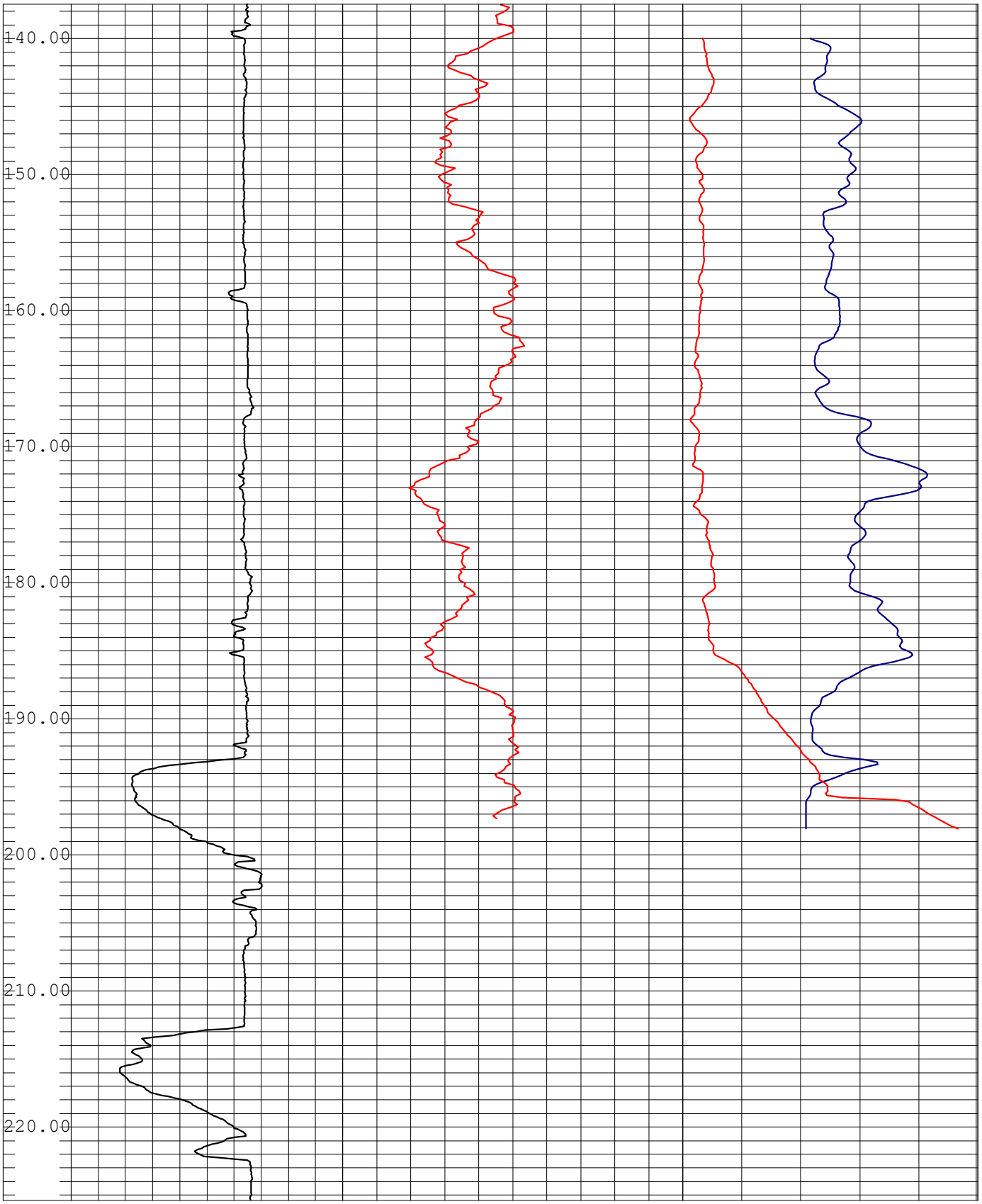
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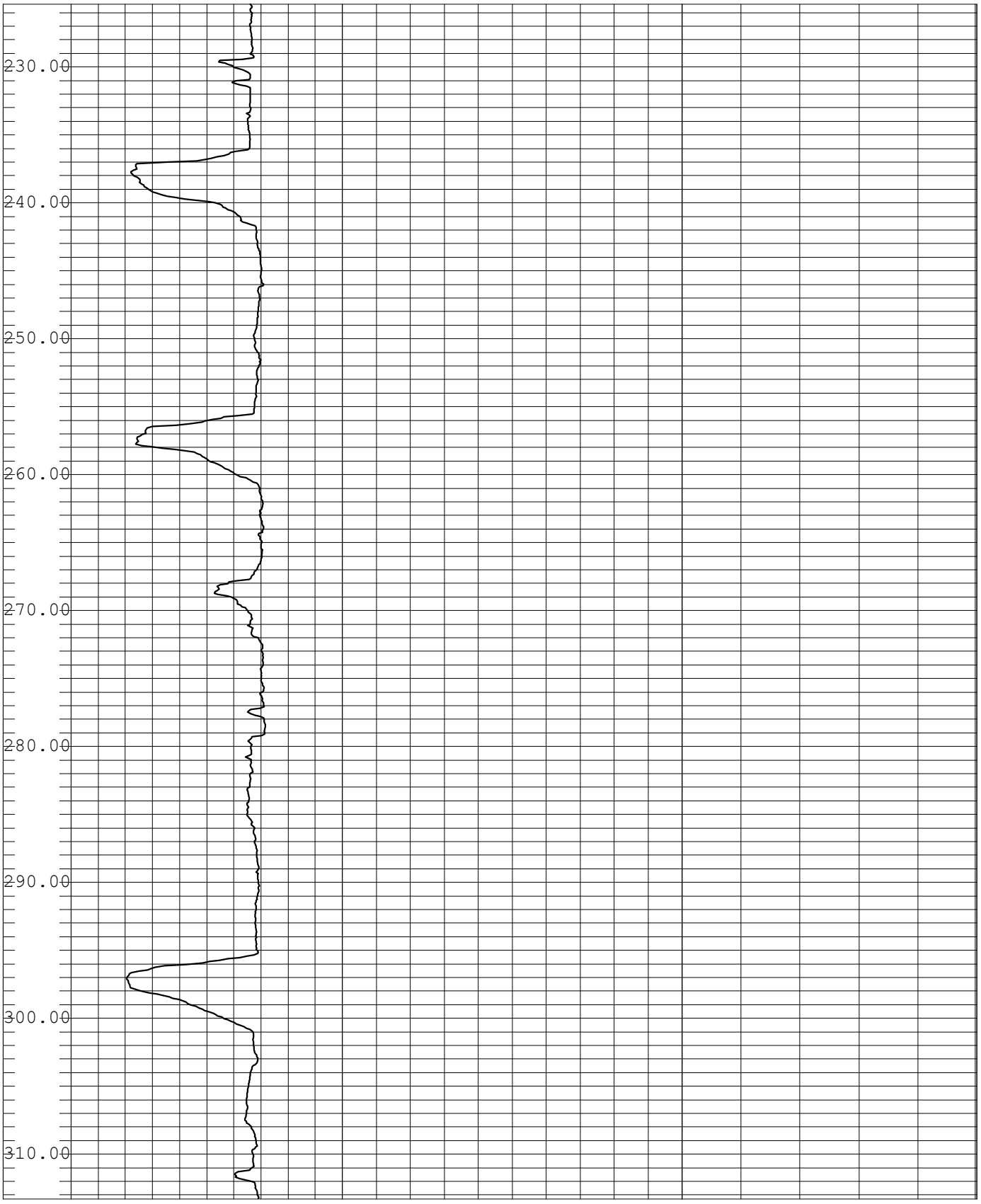
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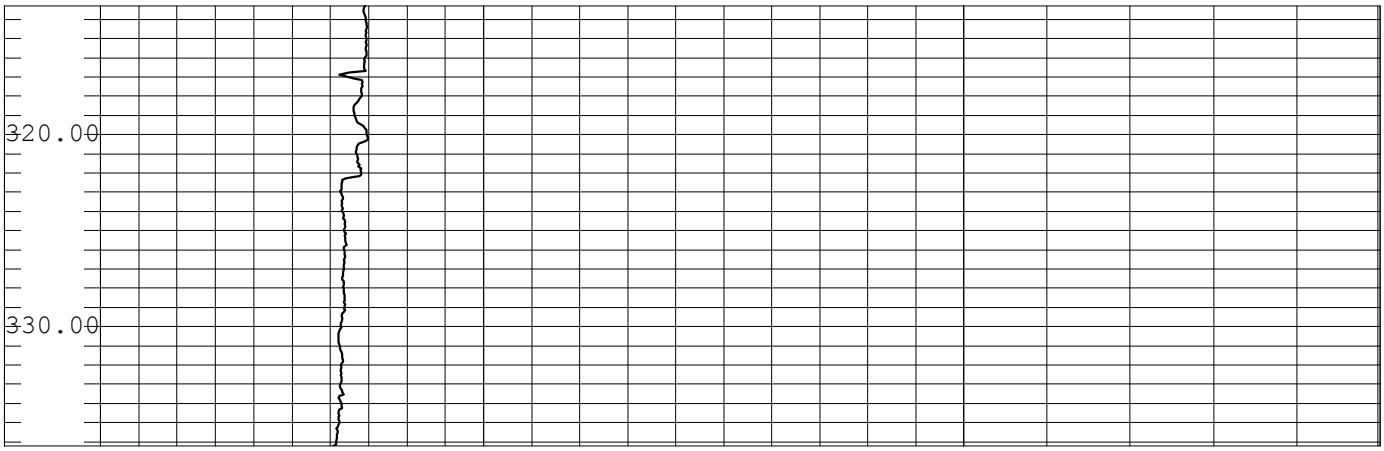
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330.00

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

August 16, 2022

Mr. Richard Dean
Stratus Redtail Ranch, LLC
8480 E. Orchard Road, Suite 150
Greenwood Village, CO 80111

Re: Redtail Ranch Update
Traffic Impact Analysis
Erie, CO
LSC #211310

Dear Mr. Dean:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Redtail Ranch development. As shown on Figure 1, the site is located north of the Weld County Road (WCR) 4 alignment and west of WCR 5 in Erie, Colorado. This site was studied previously in the September, 2015 *Redtail Ranch TIA* by LSC.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include about 400 single-family detached dwelling units, about 119 townhome dwelling units, and about 68 paired home dwelling units. Access is proposed in several locations as shown in the conceptual site plan in Figure 2.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **Erie Parkway** is an east-west, four-lane arterial roadway north of the site. The intersection with WCR 5 is signalized with auxiliary turn lanes with one eastbound and one westbound

through lane. The posted speed limit in the vicinity of the site varies between 40 and 50 mph. The *Town of Erie Master Transportation Plan* shows Erie Parkway as a four-lane principal arterial at buildout.

- **Weld County Road 5** is a north-south, two-lane minor arterial roadway east of the site. The intersection with Erie Parkway is signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 45 mph. The *Town of Erie Master Transportation Plan* shows a four-lane minor arterial at buildout.

- **Weld County Road 4** is an east-west, two-lane minor arterial roadway south of the site. The intersection with WCR 5 is all-way stop sign controlled. The posted speed limit in the vicinity of the site is 45 mph. The *Town of Erie Master Transportation Plan* shows two lanes through buildout conditions with a four-lane right-of-way dedication.

- **Vista Parkway** is a north-south, two-lane collector roadway west of the site. The posted speed limit in the vicinity of the site is 35 mph.

Existing Traffic Conditions

Figure 3a shows the existing traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in January, 2022. Figure 3b shows the existing lane geometries, traffic controls, and posted speed limits.

2027 and 2042 Background Traffic

Figure 4a shows the estimated 2027 background traffic. The volumes at Intersection #18 are based on a two percent annual growth rate and the volumes at Intersection #1 are based on the projections in Figure 8 of the May, 2021 *Colliers Hill TIA* by LSC plus one year of growth at a rate of two percent less site-generated trips.

Figure 5a shows the estimated 2042 background traffic. The volumes at Intersection #18 are based the *SH 7 PEL* projections (Figure 4.10 of the SH 7 PEL) grown for seven years at an annual growth rate of two percent less site-generated trips with adjustments based on recent traffic counts. Volumes at Intersection #1 are based on the projections in Figure 9 of the May, 2021 *Colliers Hill TIA* by LSC plus two years of growth at a rate of two percent less site-generated trips.

Figures 4b and 5b show the 2027 and 2042 lane geometries and traffic controls.

Existing, 2027, and 2042 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections.

The intersections in Figures 3a through 5b were analyzed as appropriate to determine the existing, 2027, and 2042 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **CR 5/Erie Parkway:** This signalized intersection currently operates at an overall LOS "C" during both morning and afternoon peak-hours. By 2025, the morning peak-hour is expected to operate at LOS "E" and the afternoon peak-hour is expected to operate at LOS "C. By 2042, both peak-hours are expected to operate at LOS "C" with the planned improvements.

2. **Intentionally Left Blank**

3. **Vista Parkway/Parkdale Circle:** All movements at this roundabout controlled intersection currently operate at LOS "A" and are expected to do so through 2042.

4. **Redtail Parkway/Site Access #4:** This intersection was analyzed only in the total traffic scenarios.

5. **Redtail Parkway/Site Access #5:** This intersection was analyzed only in the total traffic scenarios.

6. **Redtail Parkway/Site Access #6:** This intersection was analyzed only in the total traffic scenarios.

7. **Redtail Parkway/Site Access #7:** This intersection was analyzed only in the total traffic scenarios.

8. **Redtail Parkway/Site Access #8:** This intersection was analyzed only in the total traffic scenarios.

9. **Redtail Parkway/Site Access #9:** This intersection was analyzed only in the total traffic scenarios.

10. **Redtail Parkway/Site Access #10:** This intersection was analyzed only in the total traffic scenarios.

11. **CR 5/Redtail Parkway:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better through 2042.

12. **CR 5/E. Middle Site Access:** This intersection was analyzed only in the total traffic scenarios.

13. **CR 5/WCR 4:** This all-way stop controlled intersection currently operates at an overall LOS "B" during both morning peak-hours and is expected to operate at an overall LOS "C" during both peak-hours through 2027. By 2042, the morning peak-hour is expected to operate at LOS "D" and the afternoon peak-hour at LOS "E". The intersection may require traffic signal control by 2042.

14. Intentionally Left Blank

15. Sheridan Parkway/Baseline (SH 7): This signalized intersection currently operates at an overall LOS "C" during both peak-hours. By 2027, the morning peak-hour is expected to operate at LOS "C" and the afternoon peak-hour is expected to operate at LOS "D". By 2042, the morning peak-hour is expected to operate at LOS "C" and the afternoon peak-hour is expected to operate at LOS "E". The overall LOS "E" is primarily due to the very heavy westbound left-turn movement predicted in the *SH 7 PEL* study.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The proposed land use is projected to generate about 5,064 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 94 vehicles would enter and about 266 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 297 vehicles would enter and about 178 vehicles would exit.

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site's proposed land use.

TRIP ASSIGNMENT

Figure 7 shows the estimated site-generated traffic volumes which are the directional distribution percentages (from Figure 6) applied to the trip generation estimate (from Table 2).

2027 and 2042 TOTAL TRAFFIC

Figure 8a shows the 2027 total traffic which is the sum of the 2027 background traffic volumes (from Figure 4a) and the site-generated traffic volumes (from Figure 7). Figure 8b shows the recommended 2027 lane geometry and traffic control.

Figure 9a shows the 2042 total traffic which is the sum of 2042 background traffic volumes (from Figure 5a) and the site-generated traffic volumes (from Figure 7). Figure 9b shows the recommended 2042 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8a through 9b were analyzed to determine the 2027 and 2042 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **CR 5/Erie Parkway:** This signalized intersection is expected to operate at an overall LOS "E" during the morning peak-hour and LOS "D" during the afternoon peak-hour through 2027. By 2042, both peak-hours are expected to operate at LOS "C". The 2027 results suggest two eastbound through lanes, two westbound through lanes, and two southbound left-turn lanes may be needed by 2027 to accommodate growth in background traffic.

2. **Intentionally Left Blank**

3. **Vista Parkway/Parkdale Circle:** All movements at this roundabout controlled intersection are expected to operate at LOS "A" through 2042.

4. **Redtail Parkway/Site Access #4:** All movements at this stop-sign controlled intersection are expected to operate at LOS "B" or better through 2042.

5. **Redtail Parkway/Site Access #5:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

6. **Redtail Parkway/Site Access #6:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

7. **Redtail Parkway/Site Access #7:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

8. **Redtail Parkway/Site Access #8:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

9. **Redtail Parkway/Site Access #9:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

10. **Redtail Parkway/Site Access #10:** All movements at this stop-sign controlled intersection are expected to operate at LOS "A" through 2042.

11. **CR 5/Redtail Parkway:** All movements at this unsignalized intersection are expected to operate at LOS "D" or better through 2042.

12. **CR 5/E. Middle Site Access:** All movements at this stop-sign controlled intersection are expected to operate at LOS "C" or better through 2042.

13. **CR 5/WCR 4:** This all-way stop controlled intersection is expected to operate at an overall LOS "C" during both peak-hours through 2027. By 2042, the morning peak-hour is expected to operate at LOS "E" and the afternoon peak-hour is expected to operate at LOS "F". This intersection may require traffic signal control by 2042 with or without development of the site.

14. **Intentionally Left Blank**

15. **Sheridan Parkway/Baseline (SH 7):** This signalized intersection is expected to operate at an overall LOS "D" or better during both peak-hours through 2027. By 2042, the mor-

ning peak-hour is expected to operate at LOS "C" and the afternoon peak-hour is expected to operate at LOS "E". The overall LOS "E" is primarily due to the very heavy westbound left-turn movement predicted in the *SH 7 PEL* study.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 5,064 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 94 vehicles would enter and about 266 vehicles would exit the site. During the afternoon peak-hour, about 297 vehicles would enter and about 178 vehicles would exit.

Projected Levels of Service

2. The signalized CR 5/Erie Parkway intersection (#1) is expected to operate at an overall LOS "E" during the morning peak-hour and LOS "D" during the afternoon peak-hour through 2027. By 2042, both peak-hours are expected to operate at LOS "C". The 2027 results suggest two eastbound through lanes, two westbound through lanes, and two southbound left-turn lanes may be needed by 2027 to accommodate growth in background traffic.

3. The signalized Sheridan Parkway/Baseline (SH 7) intersection (#15) is expected to operate at an overall LOS "D" or better during both peak-hours through 2027. By 2042, the morning peak-hour is expected to operate at LOS "C" and the afternoon peak-hour is expected to operate at LOS "E". The overall LOS "E" is primarily due to the very heavy westbound left-turn movement predicted in the *SH 7 PEL* study.

4. All movements at the roundabout-controlled intersection (#3) of Vista Parkway/Parkdale Circle/Redtail Parkway are expected to operate at LOS "A" through 2042.

5. All movements at the all-way stop-controlled CR 5/CR 4 intersection (#13) are expected to operate at LOS "D" or better through 2027. By 2042, the southbound approach will likely operate at LOS "E" or "F". Traffic signal control may be needed by 2042.

6. All movements at the unsignalized CR 5/Redtail Parkway (#11) and CR 5/Middle Site Access (#12) intersections are expected to operate at LOS "D" or better through 2042.

7. All movements at the unsignalized site access intersections are expected to operate at LOS "B" or better through 2042.

Conclusions

The impact of the Redtail Ranch development site can be accommodated by the existing and proposed roadway network with the recommended improvements below.

Recommended Improvements

8. The recommended improvements at the site access and nearby intersections are detailed in Figures 8b and 9b.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Redtail Ranch development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By _____
Christopher S. McGranahan, PE, PTOE
Principal

CSM/wc

Enclosures: Tables 1 and 2
Figures 1 - 9b
Traffic Count Reports
Figures 8 and 9 from May, 2021 *Colliers Hill TIA* by LSC
Figure 4.10 from *SH 7 PEL* study
Level of Service Definitions
Level of Service Reports

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Table 1 (Page 1 of 2)
Intersection Levels of Service Analysis
Redtail Ranch
Erie, CO
LSC #211310; August, 2022

Intersection No. & Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2027 Background Traffic Level of Service AM	2027 Background Traffic Level of Service PM	2027 Total Traffic Level of Service AM	2027 Total Traffic Level of Service PM	2042 Background Traffic Level of Service AM	2042 Background Traffic Level of Service PM	2042 Total Traffic Level of Service AM	2042 Total Traffic Level of Service PM
1) CR 5/Erie Parkway	Signalized										
EB Left		B	B	E	C	E	D	E	D	E	D
EB Through		B	B	C	D	C	E	B	C	B	C
EB Right		A	A	A	A	A	A	A	A	A	A
WB Left		B	B	B	B	B	C	B	B	B	B
WB Through		C	B	F	D	F	D	C	C	C	C
WB Right		A	A	A	A	A	A	A	A	A	A
NB Left		C	C	D	D	E	D	E	D	E	D
NB Through/Right		D	D	D	D	D	D	--	--	--	--
NB Through		--	--	--	--	--	--	D	D	D	D
NB Right		--	--	--	--	--	--	A	A	A	A
SB Left		D	C	F	D	F	D	E	D	E	D
SB Through		D	D	D	C	D	C	D	D	D	D
SB Right		A	A	A	A	A	A	C	B	C	B
Entire Intersection Delay (sec /veh)		23.3	22.0	56.1	34.9	62.8	37.1	33.1	28.9	33.4	29.2
Entire Intersection LOS		C	C	E	C	E	D	C	C	C	C
2) County Line Road/Vista Parkway - Intentionally Left Blank											
3) Vista Parkway/Parkdale Circle/ Redtail Pkwy	Roundabout										
EB Approach		A	A	A	A	A	A	A	A	A	A
WB Approach		--	--	A	A	A	A	A	A	A	A
NB Approach		A	A	A	A	A	A	A	A	A	A
SB Approach		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		3.9	4.1	4.3	4.5	4.8	5.4	4.5	4.7	5.0	5.7
4) Redtail Parkway/Site Access #4	TWSC										
NB Approach		--	--	--	--	B	B	--	--	B	B
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	10.0	10.5	--	--	10.0	10.5
5) Redtail Parkway/Site Access #5	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.3	9.6	--	--	9.3	9.6
6) Redtail Parkway/Site Access #6	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.5	9.9	--	--	9.5	9.9
7) Redtail Parkway/Site Access #7	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.5	9.9	--	--	9.5	9.9
8) Redtail Parkway/Site Access #8	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.6	9.8	--	--	9.6	9.8

Note:
[ ] = Indicates LOS "E" or "F" for stop-sign controlled movement, LOS "F" for minor traffic signal movement, and LOS "E" for major traffic signal movements and overall traffic signal operations.

Table 1 (Page 2 of 2)
Intersection Levels of Service Analysis
Redtail Ranch
Erie, CO
LSC #211310; August, 2022

Intersection No. & Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2027 Background Traffic Level of Service AM	2027 Background Traffic Level of Service PM	2027 Total Traffic Level of Service AM	2027 Total Traffic Level of Service PM	2042 Background Traffic Level of Service AM	2042 Background Traffic Level of Service PM	2042 Total Traffic Level of Service AM	2042 Total Traffic Level of Service PM
9) Redtail Parkway/Site Access #9	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.6	9.9	--	--	9.6	9.9
10) Redtail Parkway/Site Access #10	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.5	9.6	--	--	9.5	9.6
11) CR 5/Redtail Parkway	TWSC										
NB Left		A	A	A	A	A	A	A	A	A	A
EB Left		C	C	C	C	D	D	C	C	D	D
EB Right		B	B	B	B	B	B	B	B	B	B
Critical Movement Delay		21.5	19.1	21.5	19.1	30.0	26.8	20.3	20.2	27.4	29.3
12) CR 5/E. Middle Site Access	TWSC										
NB Left		--	--	--	--	A	A	--	--	A	A
EB Approach		--	--	--	--	C	C	--	--	B	C
Critical Movement Delay		--	--	--	--	16.1	15.9	--	--	14.7	15.3
13) CR 5/WCR 4	AWSC										
NB Approach		B	A	B	A	B	B	B	B	C	B
WB Left		--	--	--	--	--	--	--	--	B	B
WB Right		--	--	--	--	--	--	--	--	E	E
WB Approach		B	B	B	B	B	C	C	C	--	--
SB Left		--	--	--	--	C	D	--	--	F	F
SB Through		--	--	--	--	B	B	--	--	B	B
SB Approach		C	C	C	C	--	--	E	F	--	--
Entire Intersection Delay (sec /veh)		14.0	14.0	16.0	16.5	15.6	18.8	30.5	37.4	35.1	52.8
Entire Intersection LOS		B	B	C	C	C	C	D	E	E	F
14) Vista Parkway/E. Baseline Road - Intentionally Left Blank											
15) Sheridan Parkway/Baseline (SH 7)	Signalized										
EB Left		A	A	A	A	A	A	B	B	B	B
EB Through		C	C	C	D	C	D	D	D	D	D
EB Right		A	A	A	A	A	A	A	A	A	A
WB Left		D	E	D	E	D	E	D	F	D	F
WB Through		B	B	B	B	B	B	C	B	C	B
WB Right		A	A	A	A	A	A	A	A	A	A
NB Left		D	E	D	E	D	E	E	D	E	D
NB Through		D	D	D	D	D	D	D	D	D	D
NB Right		B	A	A	A	A	A	A	A	A	A
SB Left		D	E	D	E	D	E	E	E	E	E
SB Through		D	D	D	D	D	D	D	D	D	D
SB Right		A	A	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		25.7	31.0	25.7	35.4	26.8	37.5	32.0	63.3	32.2	65.3
Entire Intersection LOS		C	C	C	D	C	D	C	E	C	E

Note:
[ ] = Indicates LOS "E" or "F" for stop-sign controlled movement, LOS "F" for minor traffic signal movement, and LOS "E" for major traffic signal movements and overall traffic signal operations.

Table 2
ESTIMATED TRAFFIC GENERATION
Redtail Ranch
Erie, CO
LSC #211310; August, 2022

		Trip Generation Rates [1]					Vehicle-Trips Generated				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
CURRENTLY PROPOSED LAND USE											
Single-Family Detached Homes [2]	400 DU [3]	9.43	0.182	0.518	0.592	0.348	3,772	73	207	237	139
Townhomes [4]	119 DU [3]	6.74	0.096	0.304	0.321	0.189	802	11	36	38	22
Paired Homes [5]	68 DU [3]	7.20	0.149	0.331	0.325	0.245	490	10	23	22	17
						Total =	**5,064**	**94**	**266**	**297**	**178**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
(2) ITE Land Use No. 210 - Single-Family Detached Housing
(3) DU = Dwelling Unit
(4) ITE Land Use No. 220 - Multifamily Housing
(5) ITE Land Use No. 215 - Single-Family Attached Housing

Figure 1

Vicinity Map

Redtail Ranch Update (LSC #211310)

LSC TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: NTS

DEVELOPMENT SUMMARY		
LAND USE	**UNITS**	**% UNITS**
Townhomes Alley Loaded (Min. 24' x 105')* (Alley 30' Tract)	119	20.3%
Duplex Front Loaded (Min. 45' x 110')**	68	11.6%
Single-family Detached Lots (Min. 51' x 110')***	374	63.7%
Single-family Detached Large Lots (Min. 10,000 SF)	26	4.4%
TOTAL	**587**	**100.0%**

* Townhomes - Corner lots are a min. 40' x 105' Adjacent To tract 30'x105'

** Duplex - Corner lots are a min. 60' x 110'

*** Standard Lots - Corner lots are a min. 69' x 110'

Park and Open Space Dedication Requirements

Park Type	Acres Required per 1,000 residents*	Required Acres	Provided Acres	Difference (Cash In-Lieu)
Pocket Parks	0.5	0.85	3.12	
Open Space	17	28.84	29.43	
Sub-Total		**29.69**	**32.55**	**2.86**
Neighborhood Parks	3	5.09	0.00	-5.09
Total		**34.78**	**32.55**	

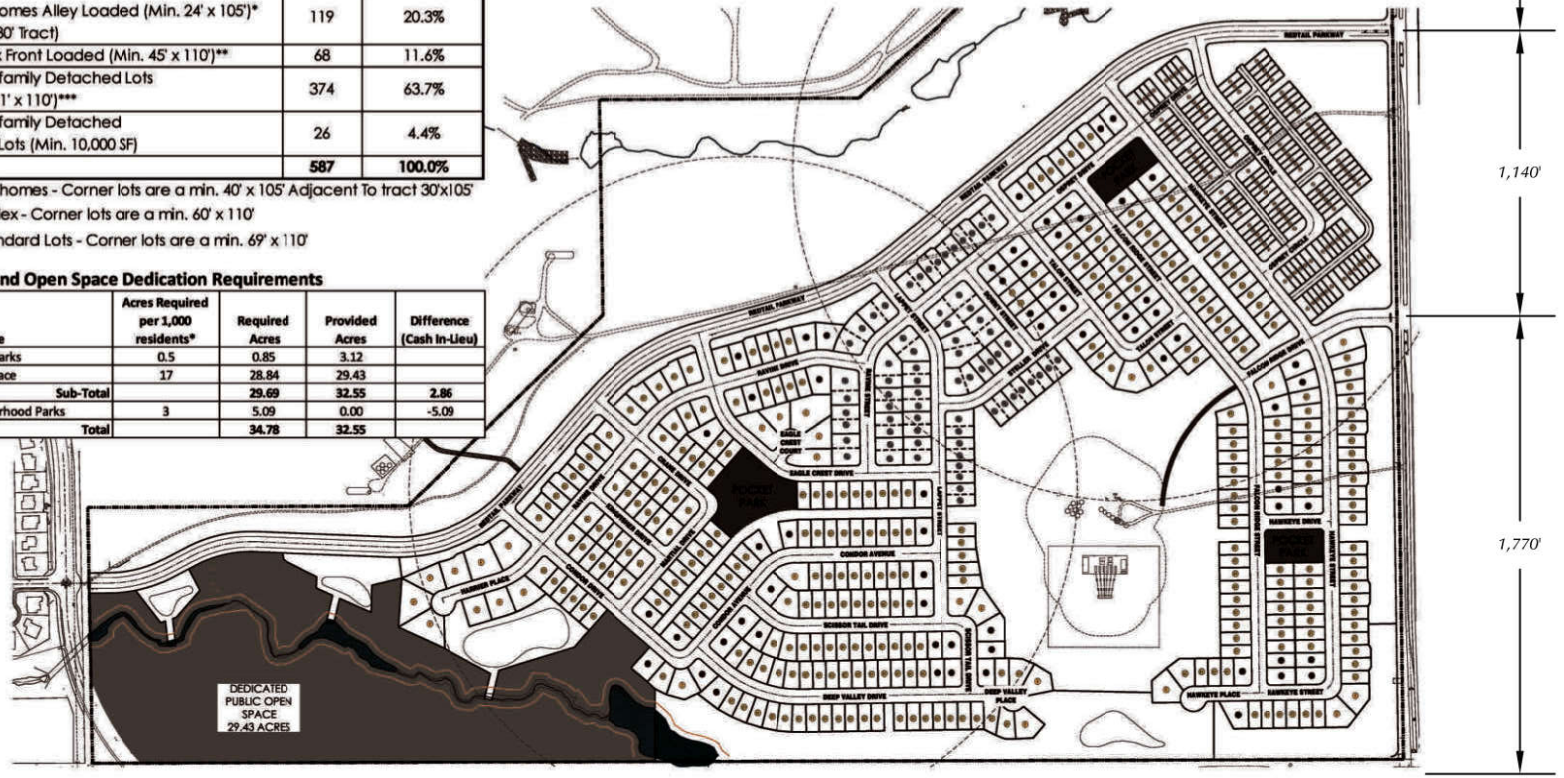
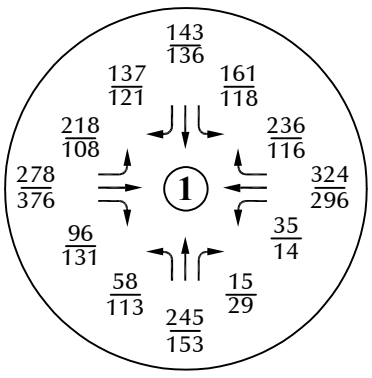


Figure 2

Site Plan

Redtail Ranch Update (LSC #211310)



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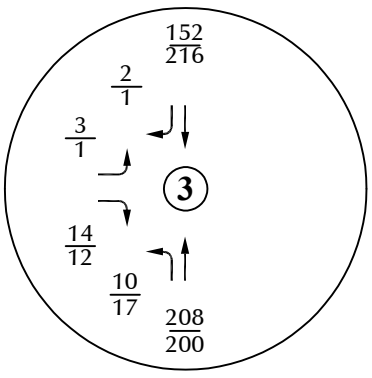

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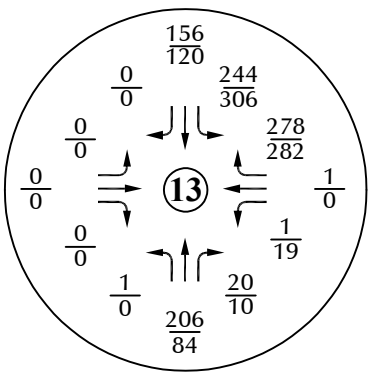

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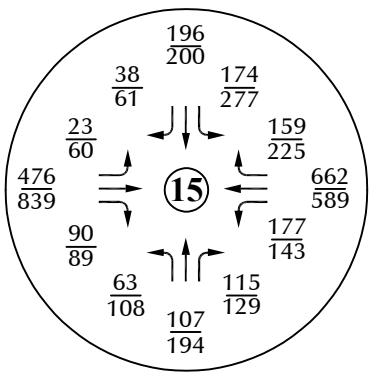


LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Approximate Scale
Scale: 1"=2,000'

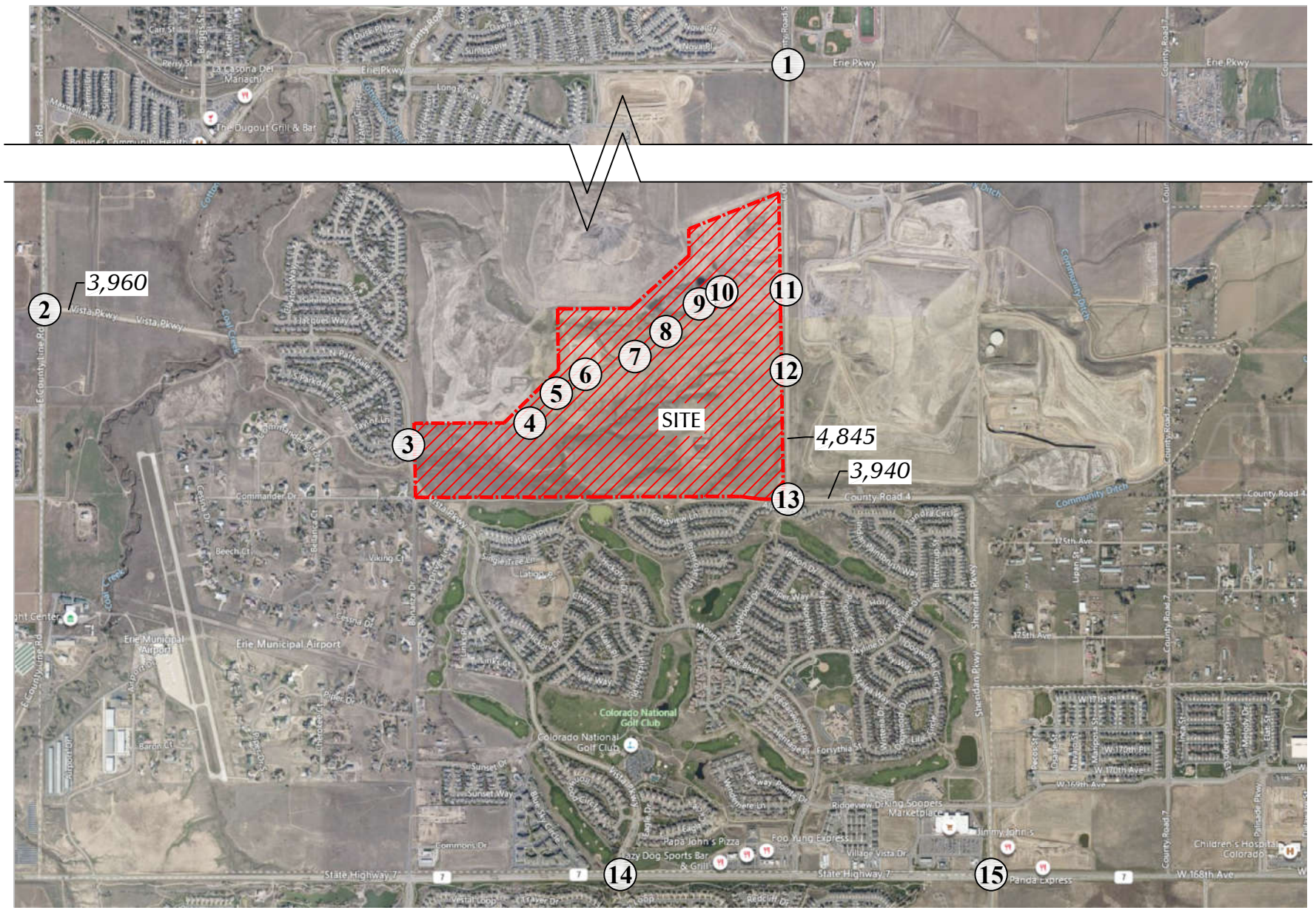
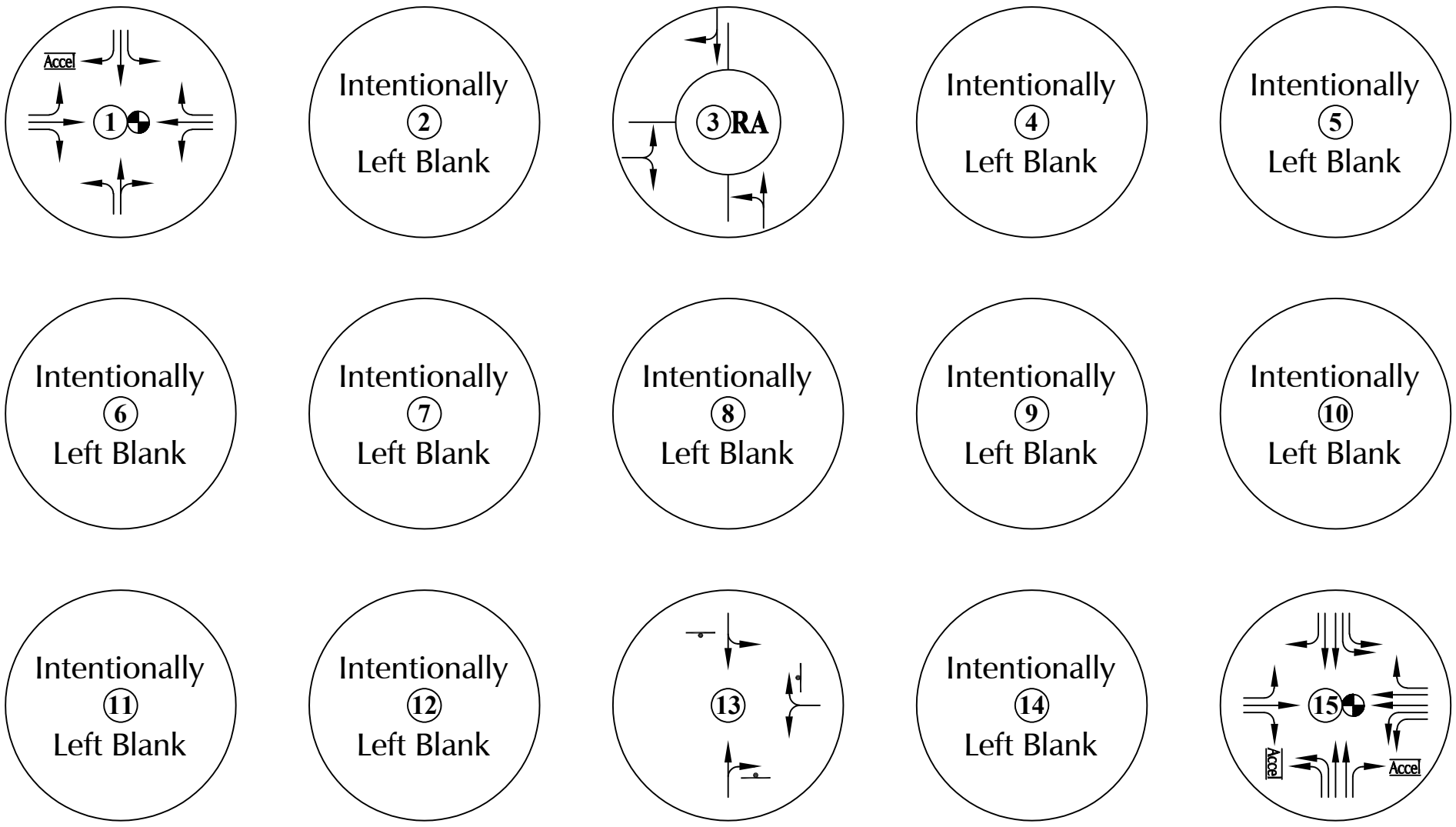


Figure 3a

Existing Traffic Volumes

Redtail Ranch Update (LSC #211310)



LEGEND:

= Stop Sign

= Traffic Signal

= Speed Limit

Approximate Scale
Scale: 1"=2,000'

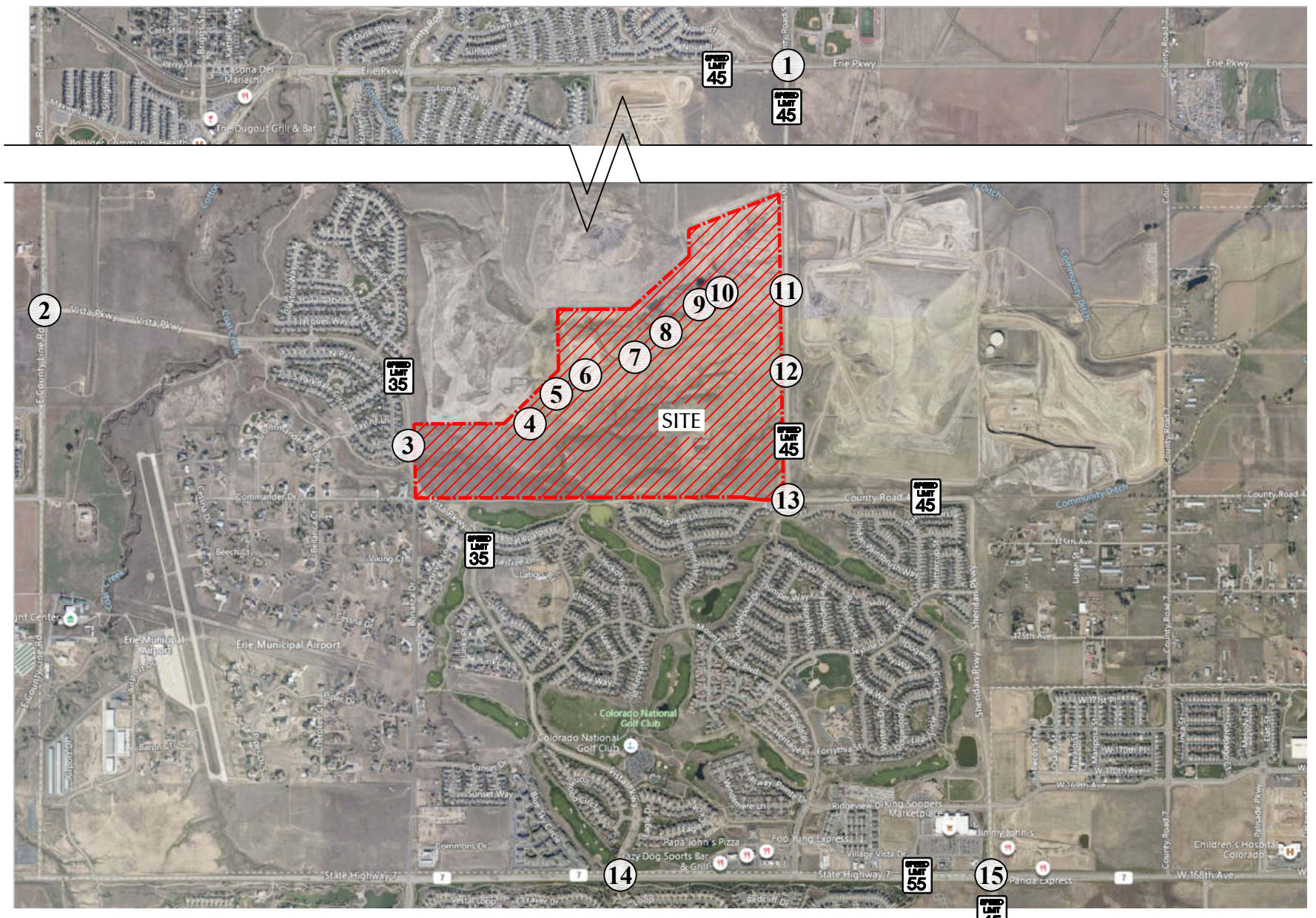
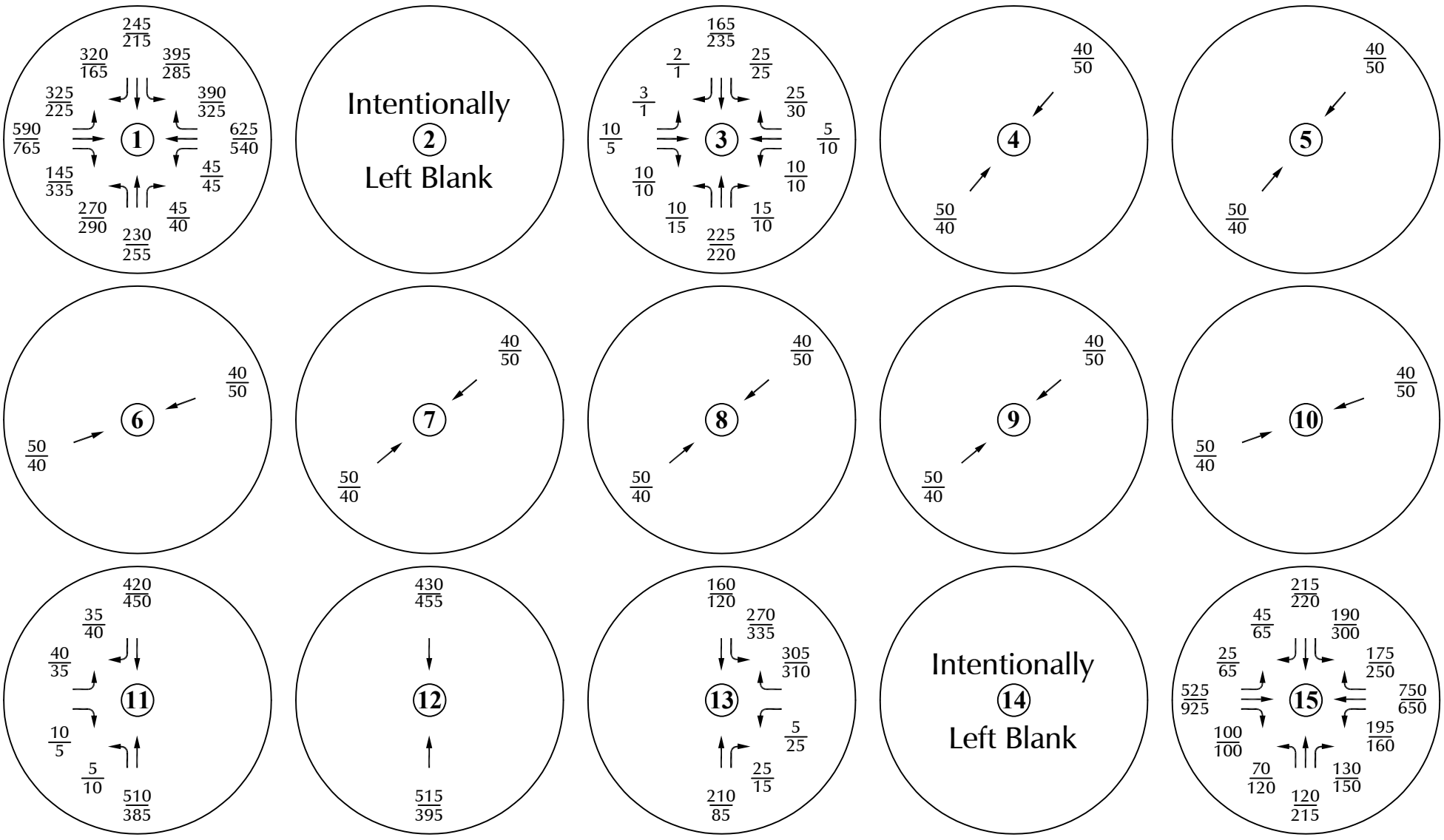


Figure 3b

Existing Lane Geometry and Traffic Control

Redtail Ranch Update (LSC #211310)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

N

Approximate Scale
Scale: 1"=2,000'

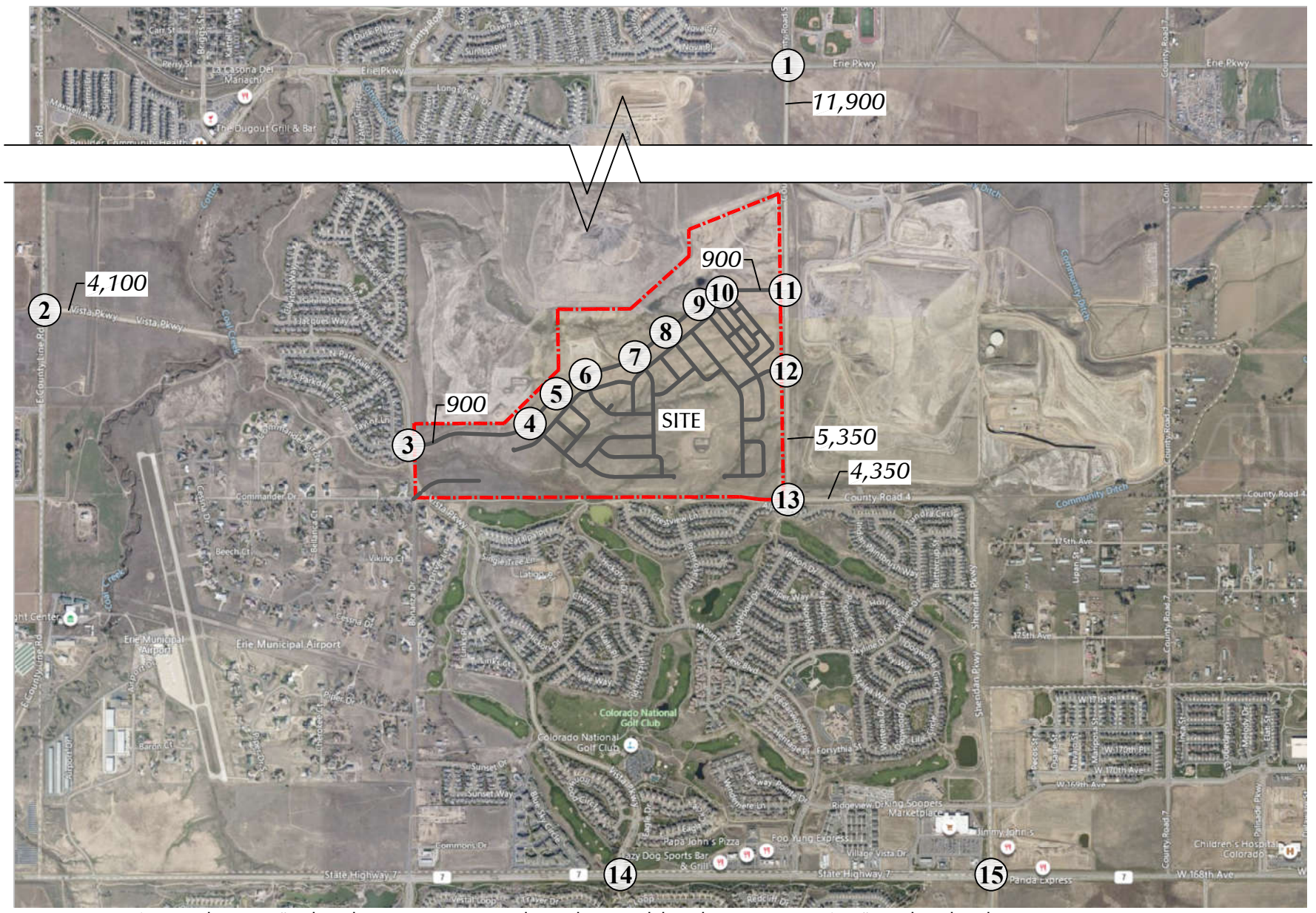
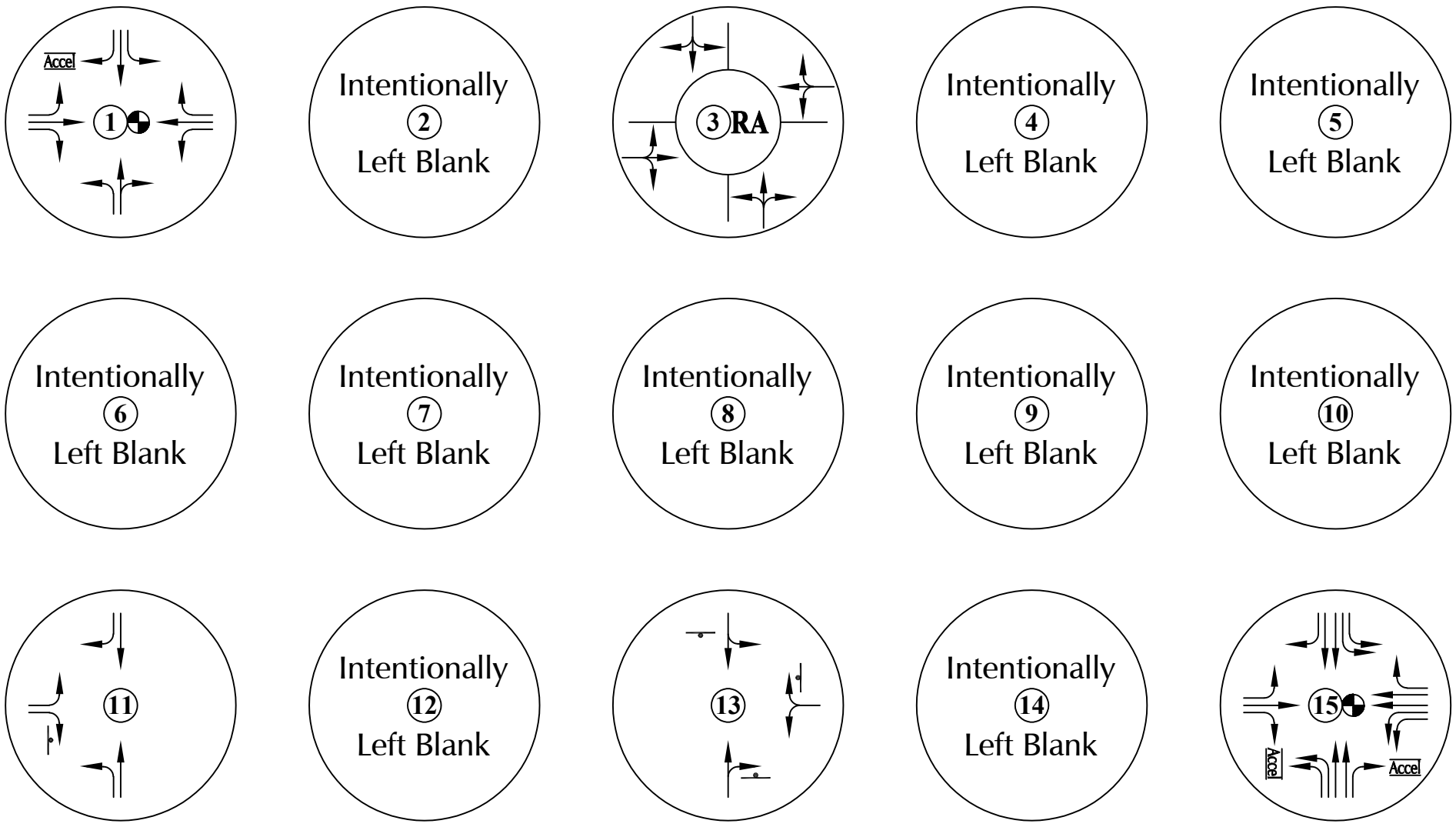


Figure 4a

Note: Volumes at #18 based on two percent annual growth rate and the volumes at Intersection #1 are based on the projections in Figure 8 of the May, 2021 Colliers Hill TIA by LSC plus one year of growth at a rate of two percent less site-generated trips.

Year 2027 Background Traffic Volumes

Redtail Ranch Update (LSC #211310)



LEGEND:

= Stop Sign

= Traffic Signal

Approximate Scale
Scale: 1"=2,000'

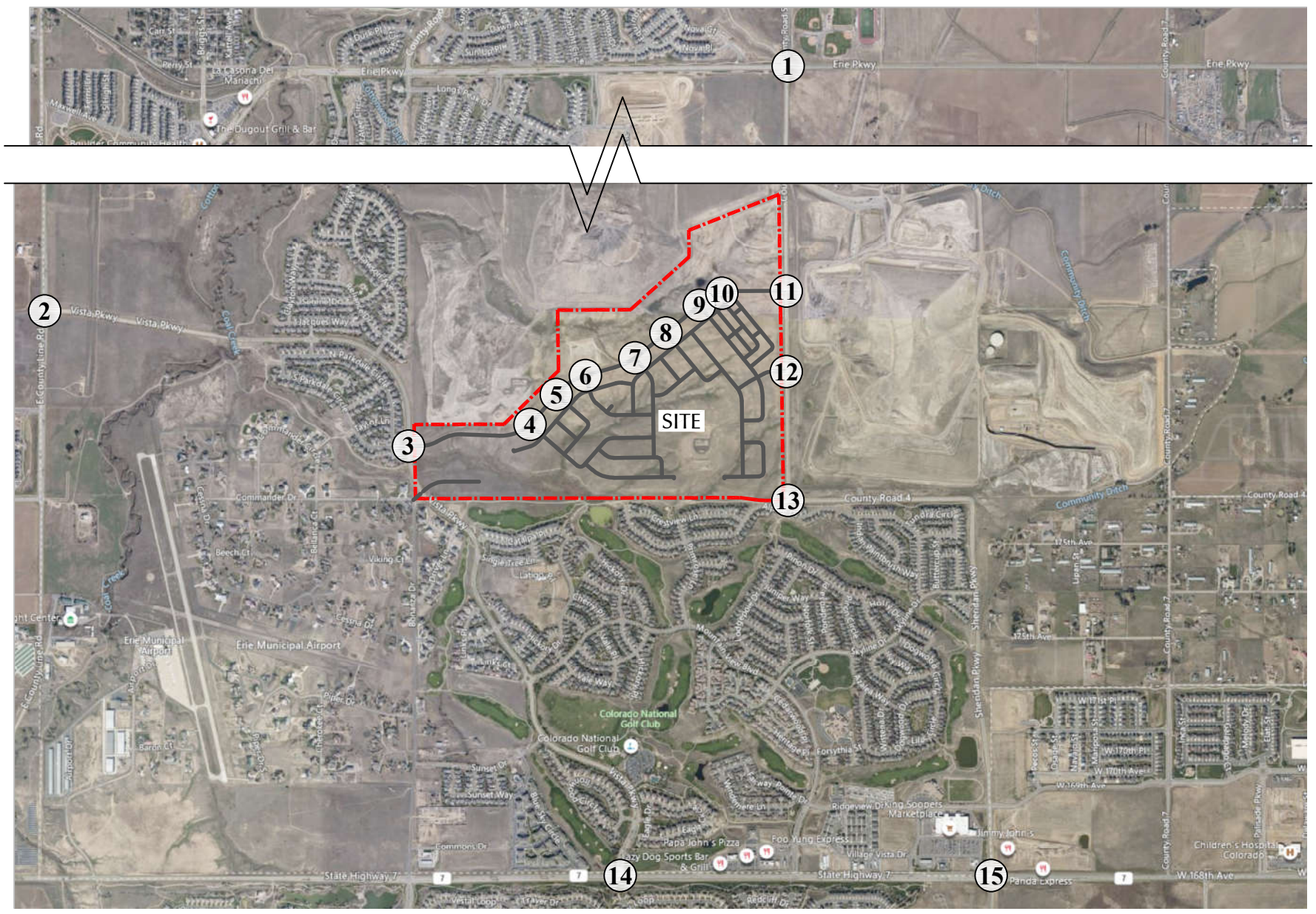
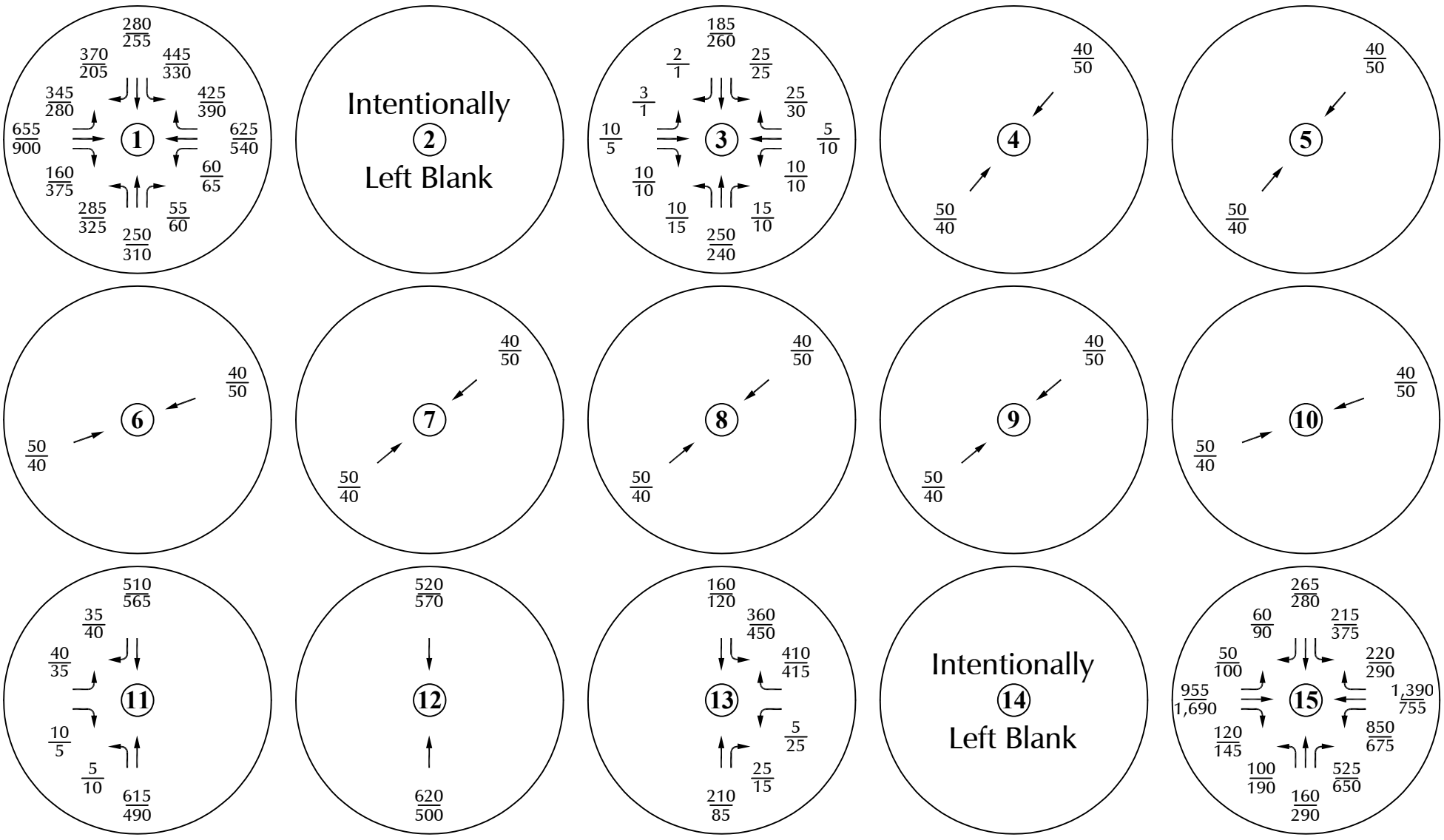


Figure 4b

Year 2027 Background Lane Geometry and Traffic Control

Redtail Ranch Update (LSC #211310)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Approximate Scale
Scale: 1"=2,000'

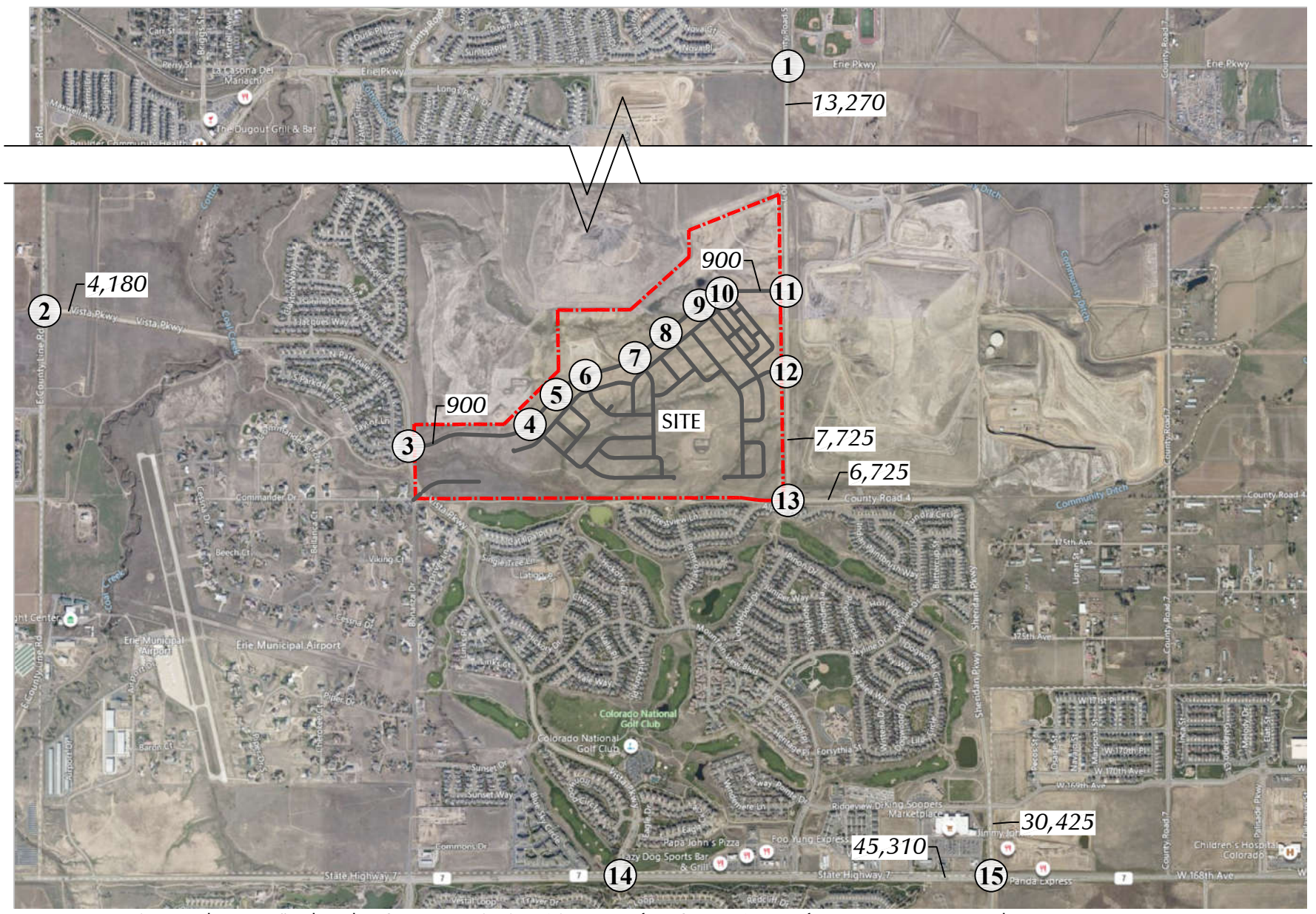
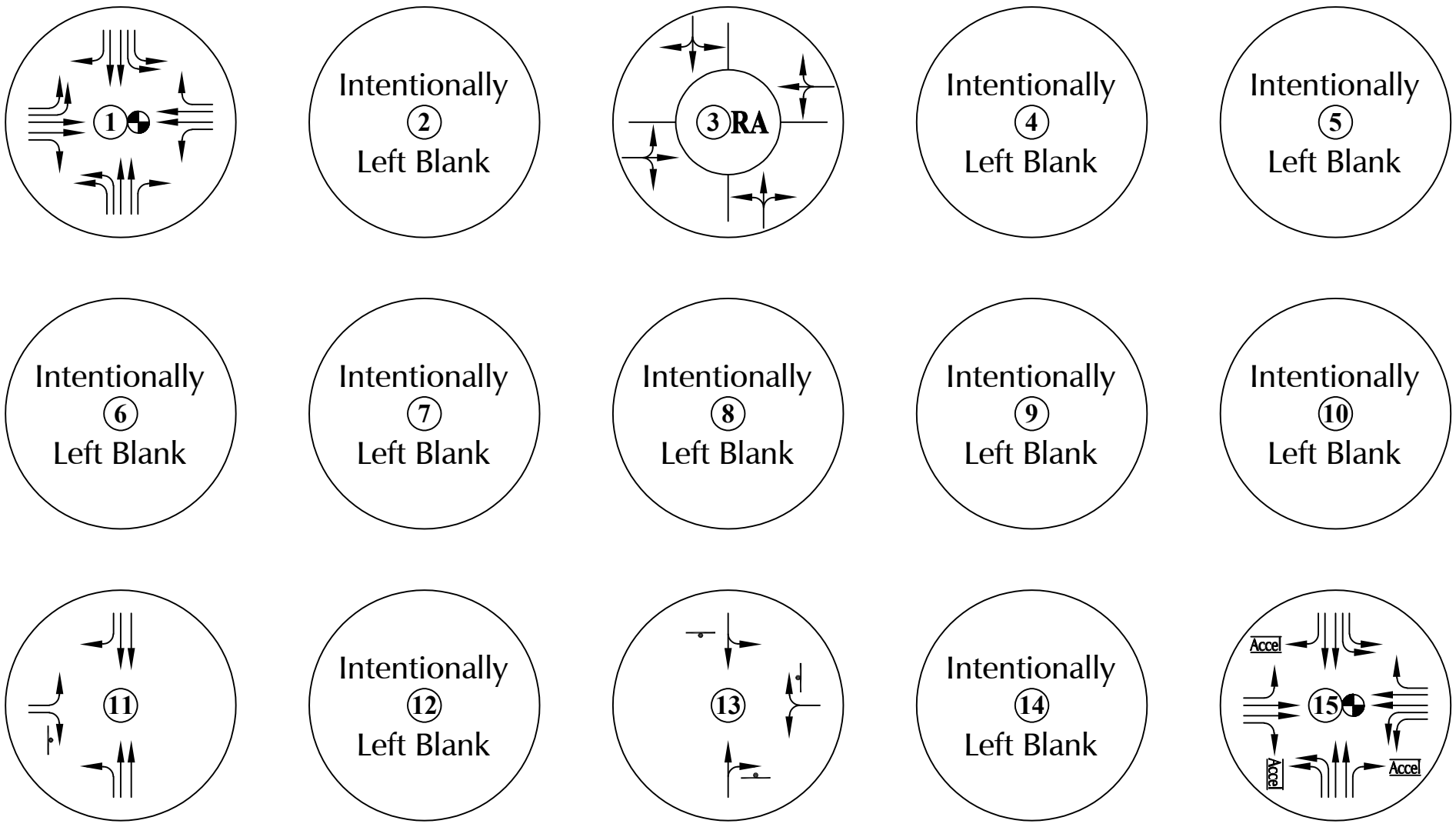


Figure 5a

Note: Volumes at #18 based on SH 7 PEL projections (Figure 4.10 from SH 7 PEL) grown for seven years at an annual rate of two percent less site-generated trips with adjustments based in recent traffic counts. Volumes at #1 based on the projections in Figure 9 of the May, 2021 Colliers Hill TIA by LSC plus two years of growth at a rate of two percent less site-generated trips.

Year 2042 Background Traffic Volumes

Redtail Ranch Update (LSC #211310)



LEGEND:

= Stop Sign

= Traffic Signal

Approximate Scale
Scale: 1"=2,000'

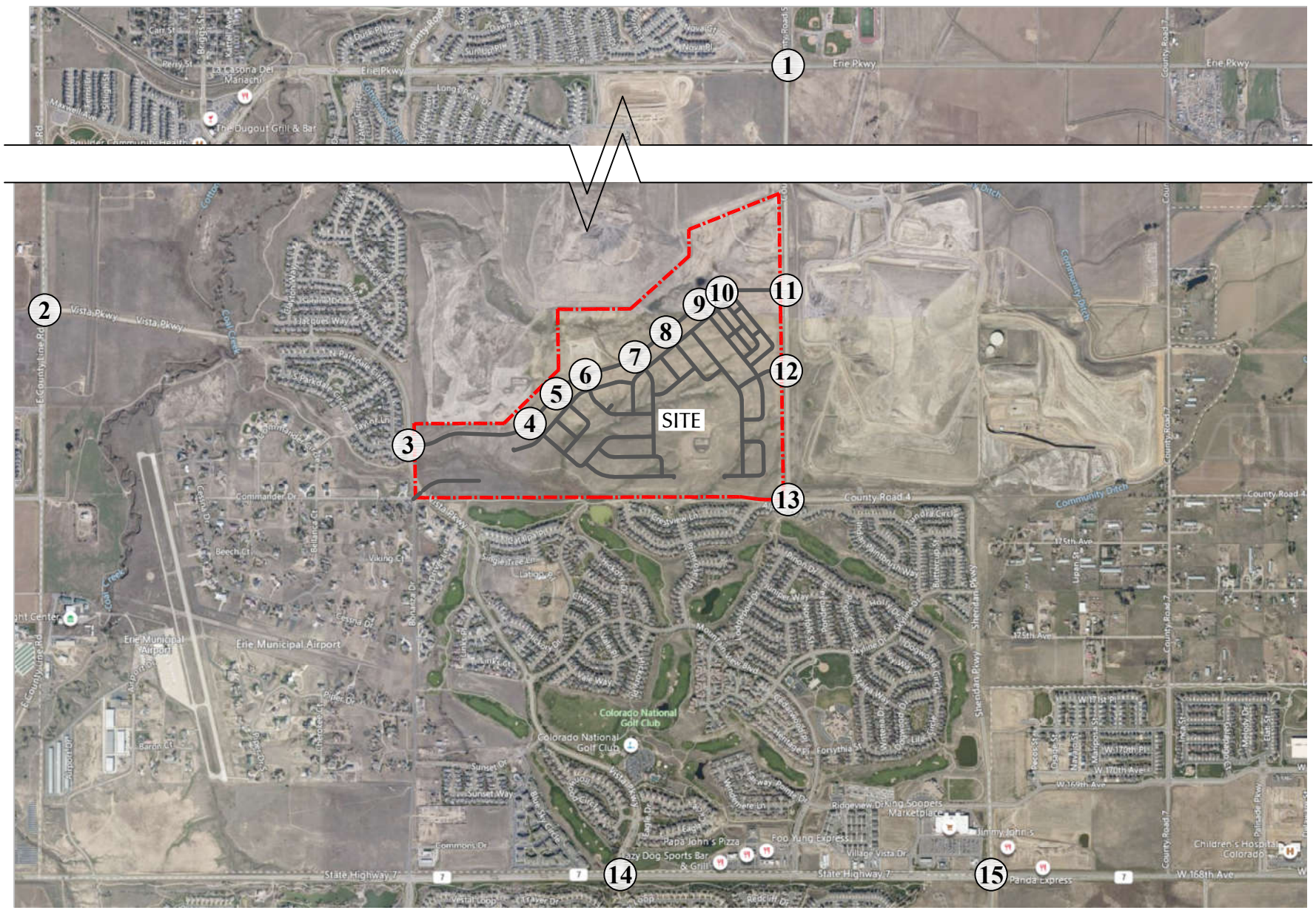


Figure 5b

Year 2042 Background Lane Geometry and Traffic Control

Redtail Ranch Update (LSC #211310)

Approximate Scale
Scale: 1" = 3,000

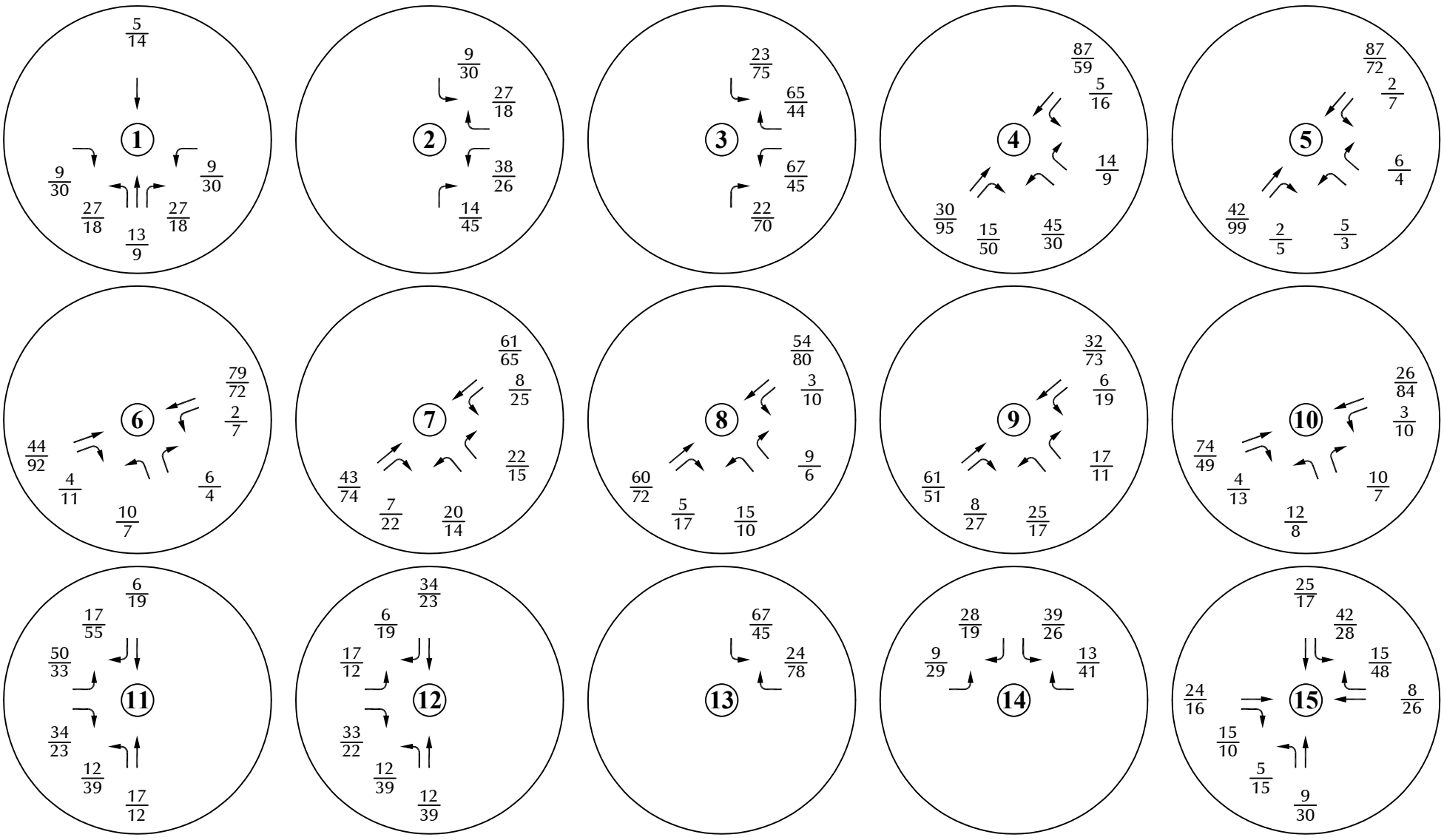
LEGEND:

65% = Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

Redtail Ranch Update (LSC #211310)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

N

Approximate Scale
Scale: 1"=2,000'

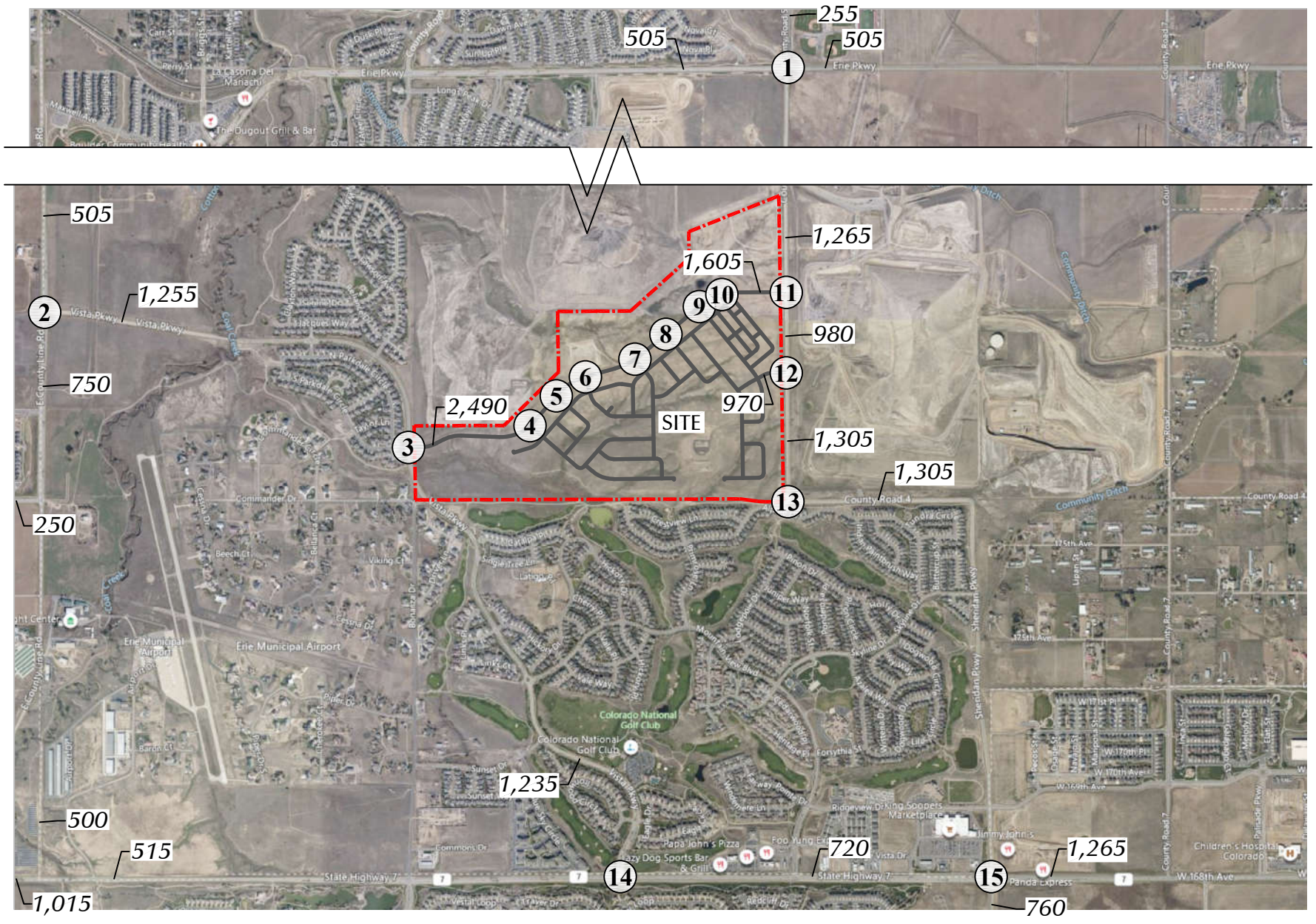
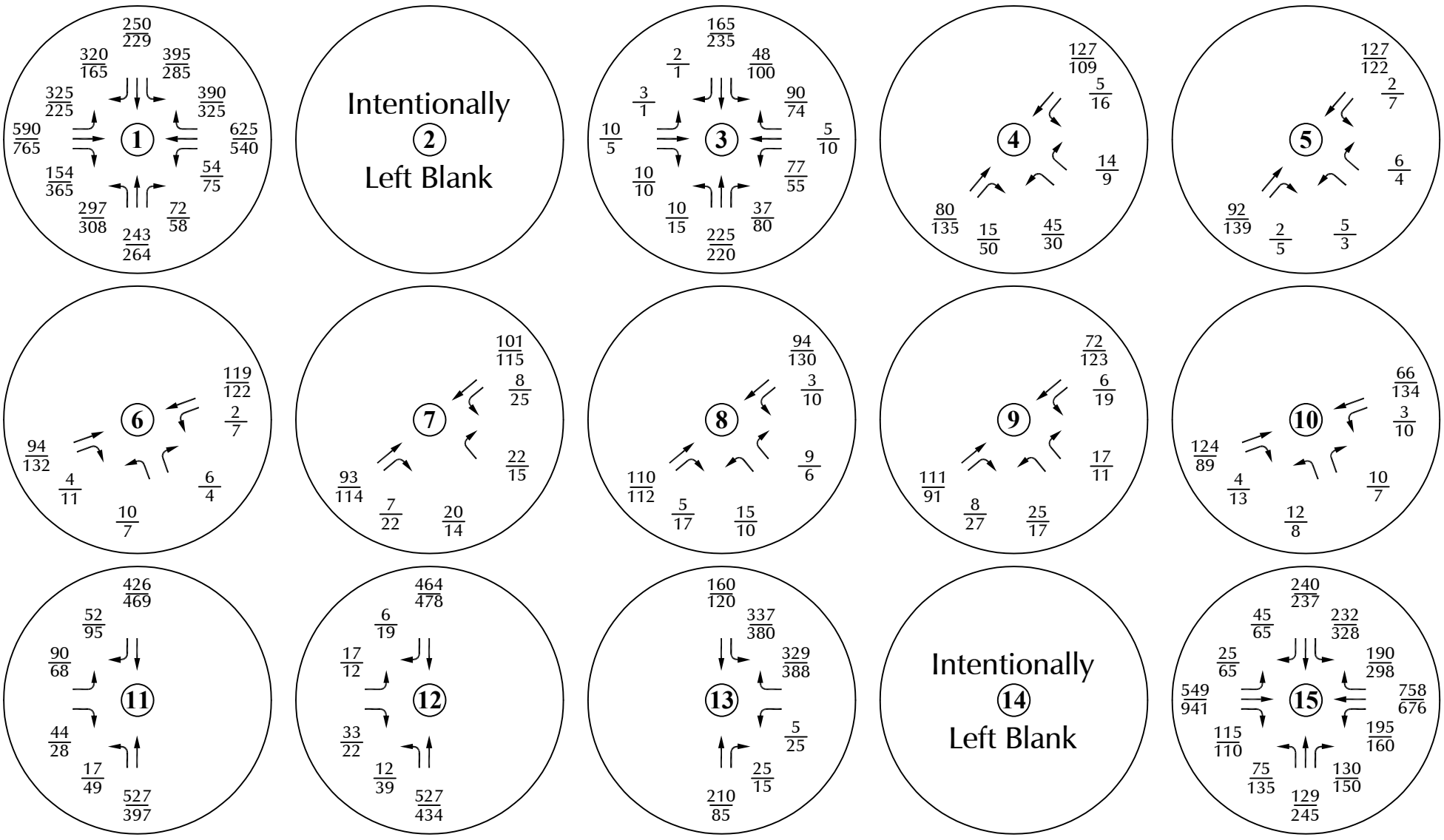


Figure 7

Assignment of Site-Generated Traffic

Redtail Ranch Update (LSC #211310)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

N

Approximate Scale
Scale: 1"=2,000'

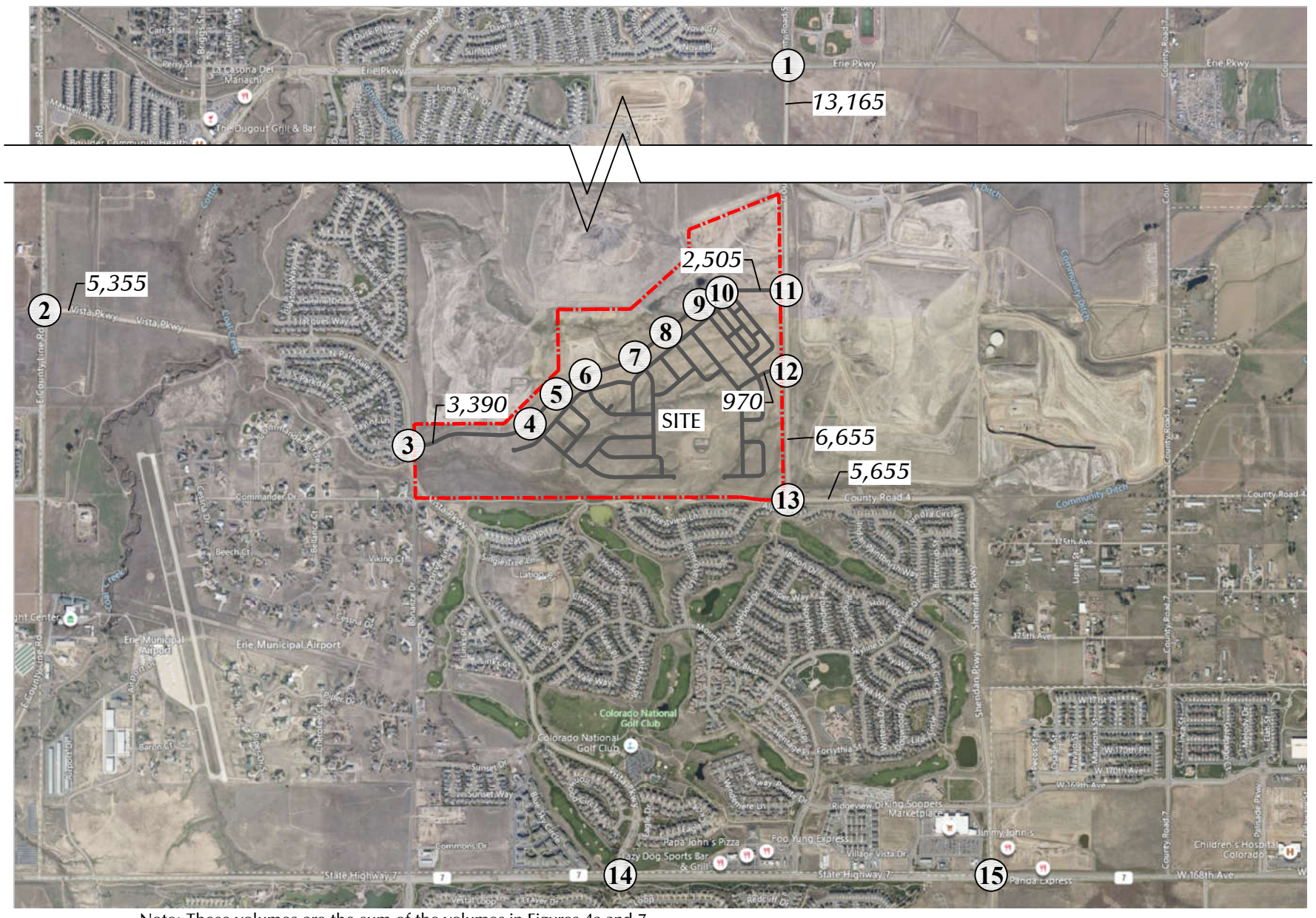
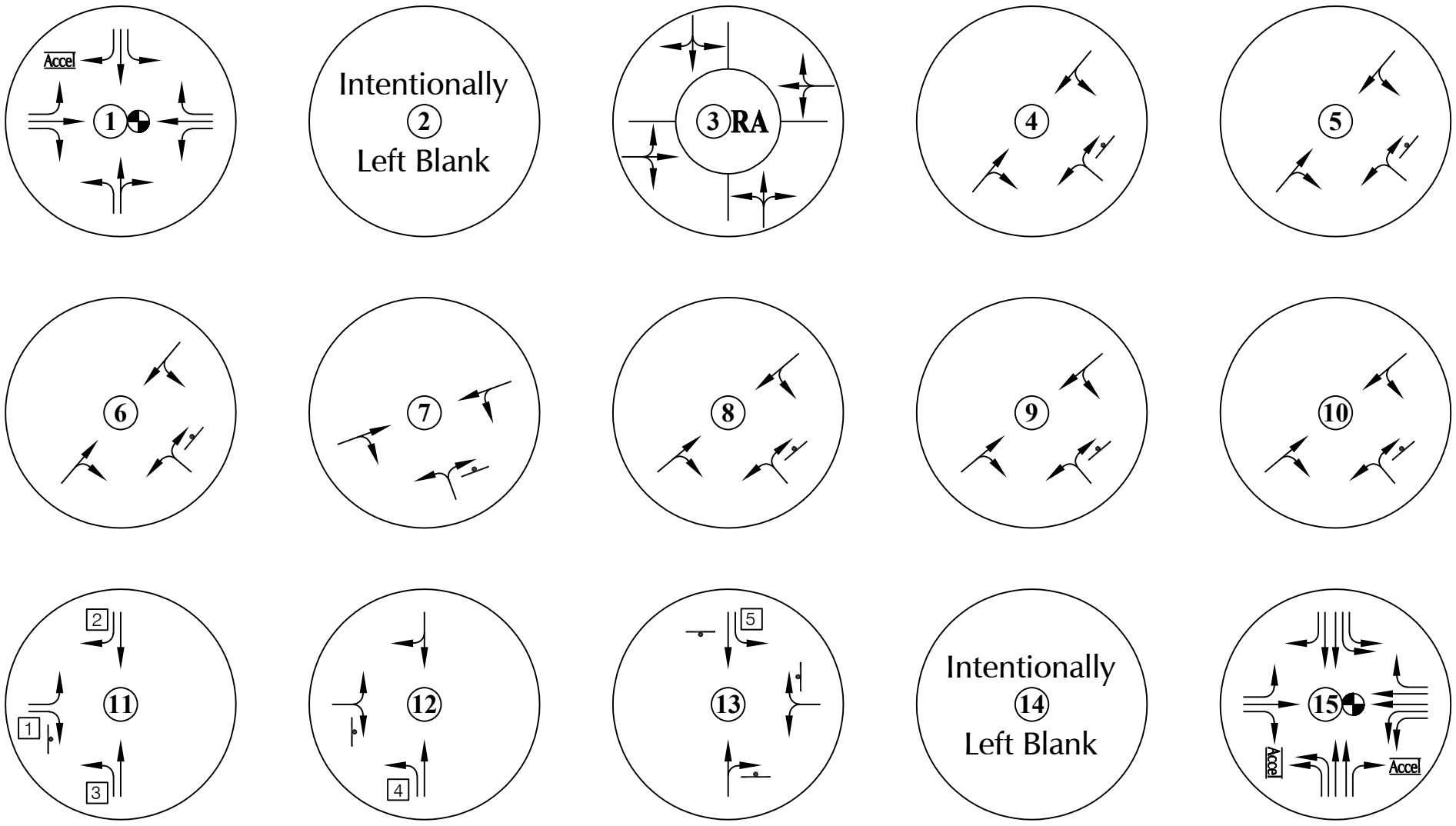


Figure 8a

Note: These volumes are the sum of the volumes in Figures 4a and 7.

Year 2027 Total Traffic Volumes

Redtail Ranch Update (LSC #211310)



LEGEND:

= Stop Sign

= Traffic Signal

Approximate Scale
Scale: 1"=2,000'

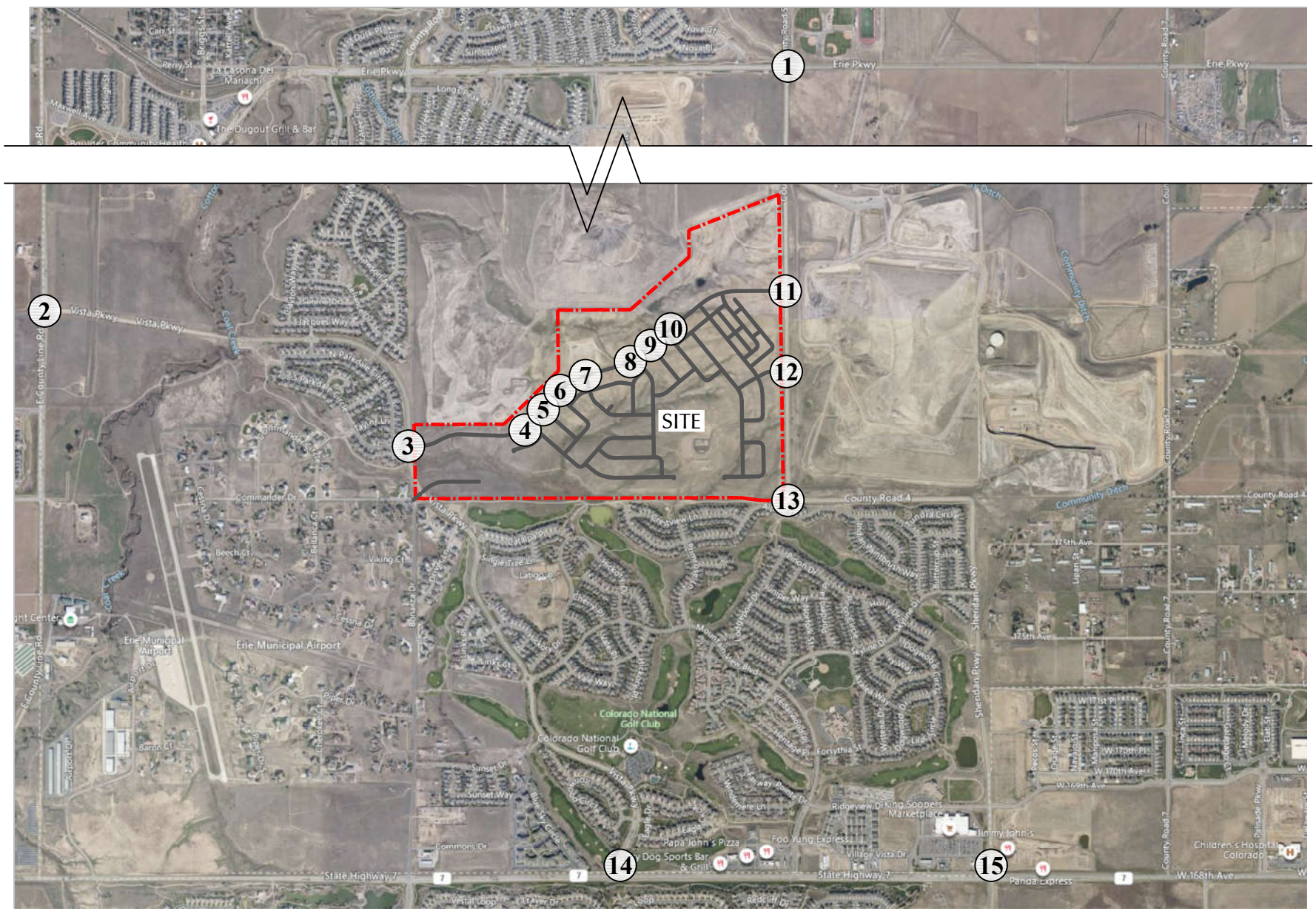
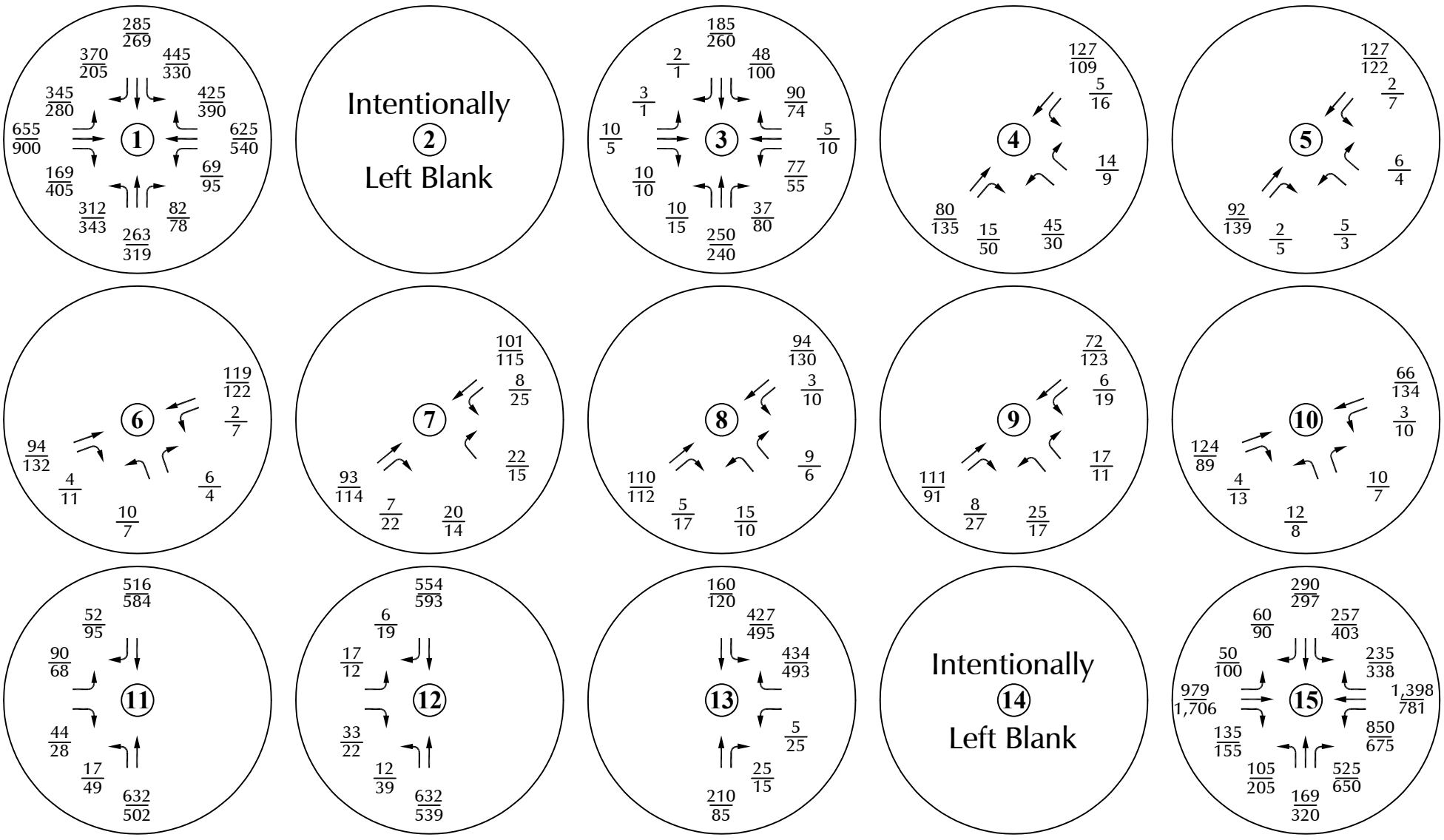


Figure 8b

1 EB RT = 100 feet + 10:1 taper
2 SB RT = 100 feet + 12:1 taper
3 NB LT = 100 feet + 12:1 taper
4 NB LT = 100 feet + 12:1 taper
5 SB LT = 300 feet + 12:1 taper

Year 2027 Total Lane Geometry and Traffic Control

Redtail Ranch Update (LSC #211310)



LEGEND:

$\frac{26}{35} = \frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

N

Approximate Scale
Scale: 1"=2,000'

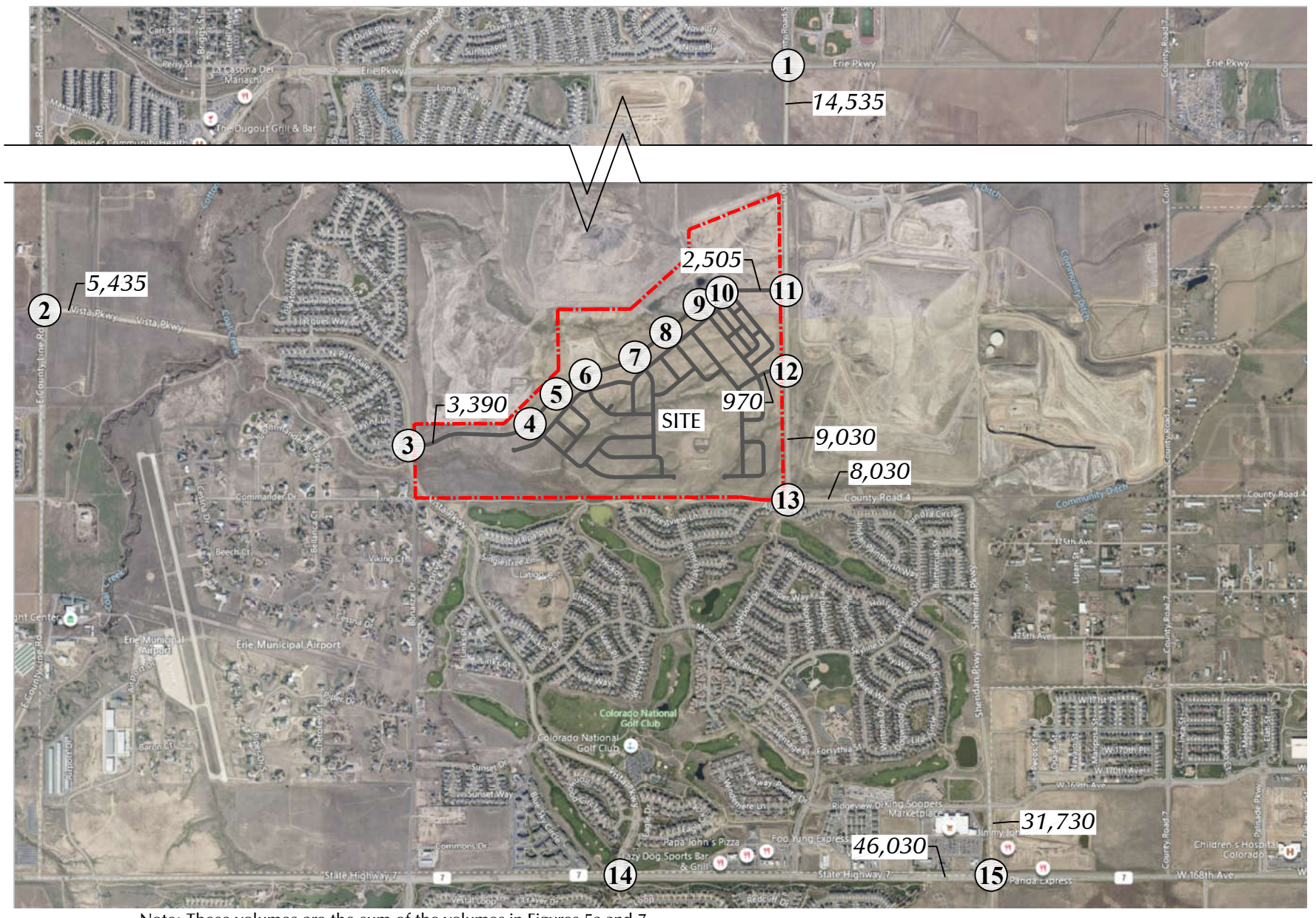
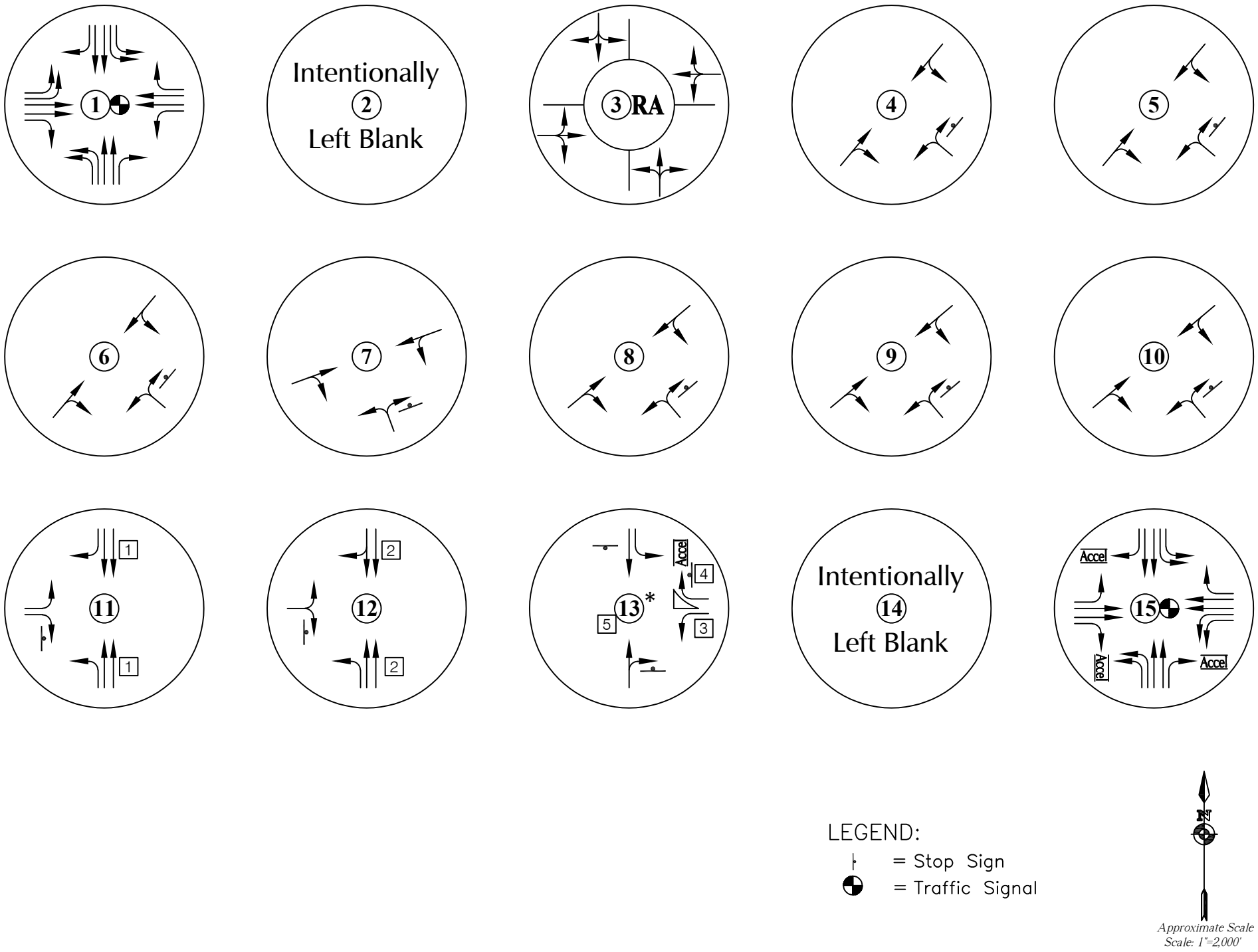


Figure 9a

Note: These volumes are the sum of the volumes in Figures 5a and 7.

Year 2042 Total Traffic Volumes

Redtail Ranch Update (LSC #211310)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Intentionally
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3 RA
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9
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11
12
13*
Accel
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Intentionally
14
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Accel
Accel
Accel
LEGEND:
= Stop Sign
= Traffic Signal
N
Approximate Scale
Scale: 1"=2,000'
1
Erie Pkwy
2
Vista Pkwy
3
4
5
6
7
8
9
10
11
12
13
14
15
SITE
County Road 4
State Highway 7
Erie Municipal Airport
Colorado National Golf Club
Commander Dr
Commons Dr
Sunset Dr
Sunset Way
Ridgeview Dr
Village Vista Dr
Papa John's Pizza
Dog Sports Bar & Grill
King Soopers Marketplace
Foo Yung Express
Jimmy John's
Panda Express
Children's Hospital Colorado
W.168th Ave
W.169th Ave
W.170th Ave
W.170th Pl
W.171st Pl
125th Ave
Community Ditch
Coal Creek
Coal Creek Trail
E.County Line Rd
County Road 7
Sheridan Pkwy
Mountain View Blvd
Lookout Dr
Lookout Circle
Lookout Ridge
Lookout Crest
Viking Ct
Beech Ct
Reliance Ct
Cessna Dr
Piper Dr
Barrch Ct
Airport Dr
Eagle Tree Ln
Latigo Pl
Greatview Ln
Lariat Ln
Lariat Loop
Lariat Way
Lariat Dr
Jacquet Way
Jacquet Dr
Jacquet Ct
Cheyenne Dr
Cheyenne Ct
Cheyenne Trail
Cheyenne Ridge
Cheyenne Meadows Rd
Cheyenne Meadows Pkwy
Juniper Way
Juniper Ct
Juniper Circle
Northpark St
Northpark Dr
Northpark Ct
Northpark Circle
Northpark Trail
Northpark Way
Plumtree Ln
Plumtree Way
Buttercup Ln
Buttercup Circle
Buttercup Dr
Buttercup Ct
Forsythia St
Lilac St
Iris St
Maroon St
Peonies St
Poplar St
Oak St
East St
Fairway Pointe Dr
Eagle Dr
Eagle Ct
Redcliff Dr
Redcliff Ct
Redcliff Loop
Redcliff Way
Vista Dr
Vista Loop
Vista Ridge Dr
Vista Ridge Ct
Vista Ridge Trail
Vista Ridge Circle
Vista Ridge Loop
Vista Ridge Way
Vista Ridge Pl
Vista Ridge Pkwy
Jacquet Way
Jacquet Dr
Jacquet Ct
Jacquet Circle
Jacquet Loop
Jacquet Trail
Jacquet Pl
Jacquet Pkwy
Jacquet Ridge
Jacquet Ridge Dr
Jacquet Ridge Ct
Jacquet Ridge Trail
Jacquet Ridge Circle
Jacquet Ridge Loop
Jacquet Ridge Way
Jacquet Ridge Pl
Jacquet Ridge Pkwy
Jacquet Ridge Ridge
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Jacquet Ridge Ridge Trail
Jacquet Ridge Ridge Circle
Jacquet Ridge Ridge Loop
Jacquet Ridge Ridge Way
Jacquet Ridge Ridge Pl
Jacquet Ridge Ridge Pkwy
Jacquet Ridge Ridge Ridge
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COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: ERIE PKWY
CITY: ERIE
COUNTY: WELD

File Name : CR5ERIEPKWY22
Site Code : 00000005
Start Date : 1/12/2022
Page No : 1

Groups Printed- VEHICLES

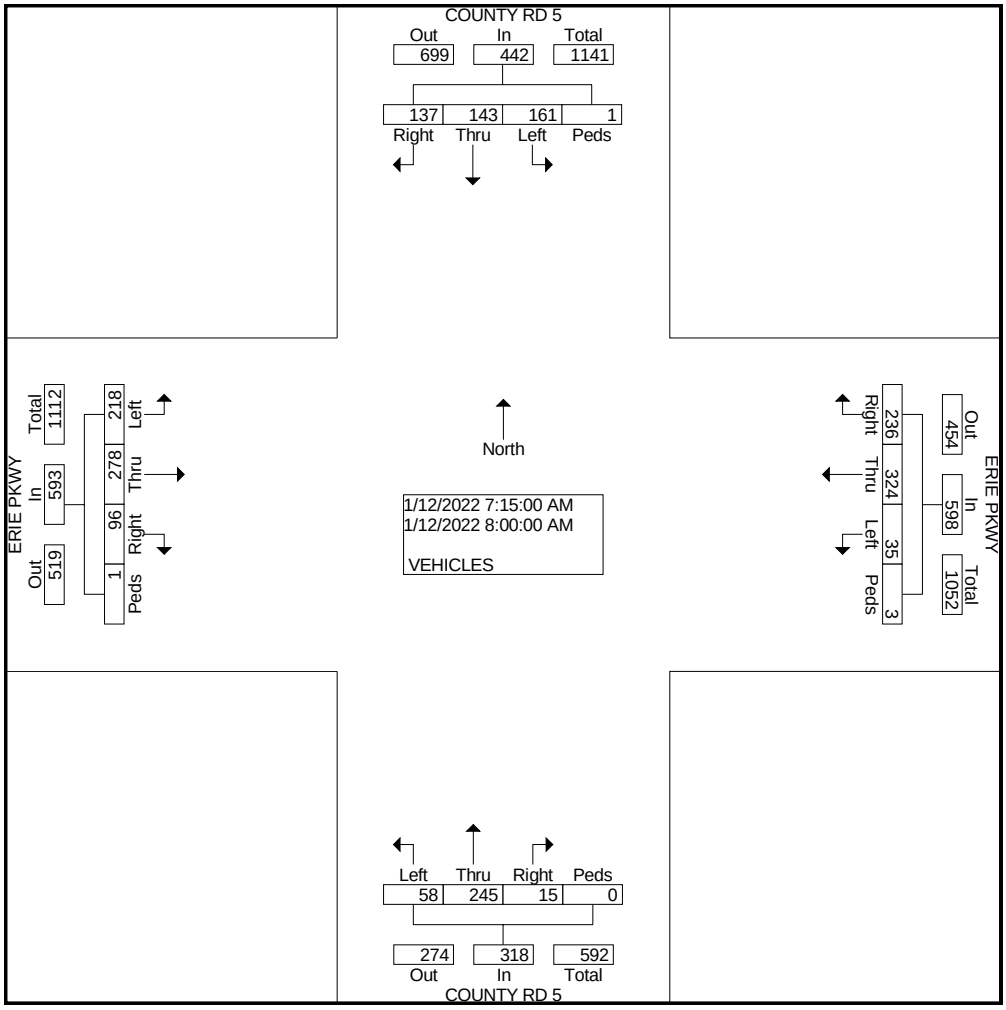
	COUNTY RD 5 Southbound				ERIE PKWY Westbound				COUNTY RD 5 Northbound				ERIE PKWY Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	18	10	2	0	20	52	16	0	2	5	2	0	3	60	5	0	195
06:45 AM	28	10	1	0	14	64	30	1	4	15	3	0	7	50	4	0	231
Total	46	20	3	0	34	116	46	1	6	20	5	0	10	110	9	0	426
07:00 AM	17	16	11	0	7	66	38	0	4	24	8	0	15	63	13	0	282
07:15 AM	33	25	27	0	7	76	74	0	12	79	0	0	55	65	19	0	472
07:30 AM	65	36	59	1	6	75	87	2	15	99	7	0	84	59	17	1	613
07:45 AM	34	40	40	0	8	95	31	0	18	26	5	0	31	78	31	0	437
Total	149	117	137	1	28	312	230	2	49	228	20	0	185	265	80	1	1804
08:00 AM	29	42	11	0	14	78	44	1	13	41	3	0	48	76	29	0	429
08:15 AM	51	29	17	0	17	94	36	0	19	25	1	0	24	60	20	0	393
Total	80	71	28	0	31	172	80	1	32	66	4	0	72	136	49	0	822
04:00 PM	25	19	19	1	0	68	31	5	26	28	12	1	28	82	24	0	369
04:15 PM	22	25	25	0	3	65	26	0	25	26	8	0	20	85	25	0	355
04:30 PM	41	32	37	2	4	67	26	0	25	34	10	0	30	83	35	0	426
04:45 PM	22	40	31	0	4	85	35	0	28	48	8	0	29	98	44	0	472
Total	110	116	112	3	11	285	118	5	104	136	38	1	107	348	128	0	1622
05:00 PM	33	39	28	0	3	79	29	1	35	45	3	0	29	110	27	0	461
05:15 PM	34	44	26	0	2	87	35	0	29	40	5	0	43	93	33	0	471
05:30 PM	45	27	27	0	5	74	39	0	26	38	3	0	37	86	28	0	435
05:45 PM	24	22	27	0	5	63	34	0	28	27	3	0	21	75	25	0	354
Total	136	132	108	0	15	303	137	1	118	150	14	0	130	364	113	0	1721
Grand Total	521	456	388	4	119	1188	611	10	309	600	81	1	504	1223	379	1	6395
Apprch %	38.1	33.3	28.3	0.3	6.2	61.6	31.7	0.5	31.2	60.5	8.2	0.1	23.9	58.0	18.0	0.0	
Total %	8.1	7.1	6.1	0.1	1.9	18.6	9.6	0.2	4.8	9.4	1.3	0.0	7.9	19.1	5.9	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: ERIE PKWY
CITY: ERIE
COUNTY: WELD

File Name : CR5ERIEPKWY22
Site Code : 00000005
Start Date : 1/12/2022
Page No : 2

	COUNTY RD 5 Southbound					ERIE PKWY Westbound					COUNTY RD 5 Northbound					ERIE PKWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	161	143	137	1	442	35	324	236	3	598	58	245	15	0	318	218	278	96	1	593	1951
Percent	36.4	32.4	31.0	0.2		5.9	54.2	39.5	0.5		18.2	77.0	4.7	0.0		36.8	46.9	16.2	0.2		
07:30 Volume	65	36	59	1	161	6	75	87	2	170	15	99	7	0	121	84	59	17	1	161	613
Peak Factor																					0.796
High Int.	07:30 AM					07:30 AM					07:30 AM					07:30 AM					
Volume	65	36	59	1	161	6	75	87	2	170	15	99	7	0	121	84	59	17	1	161	
Peak Factor					0.686					0.879					0.657					0.921	

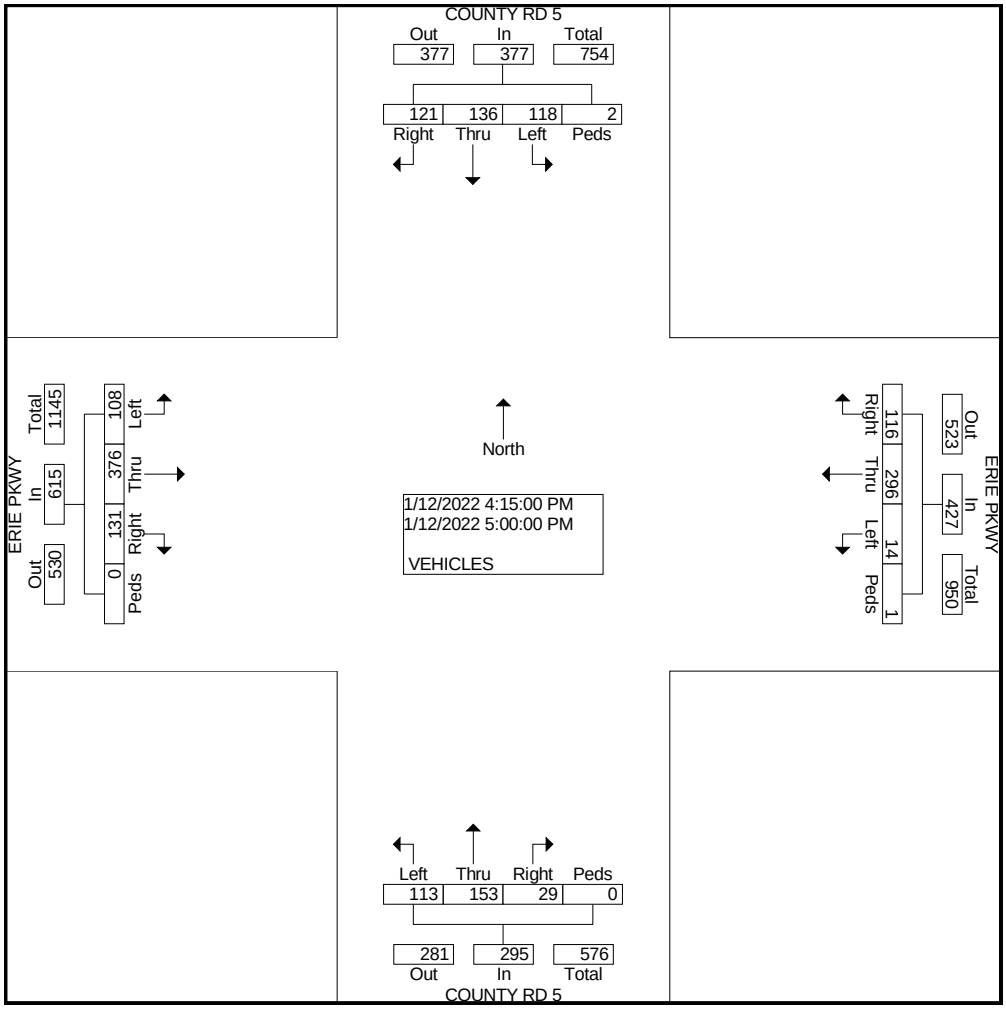


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: ERIE PKWY
CITY: ERIE
COUNTY: WELD

File Name : CR5ERIEPKWY22
Site Code : 00000005
Start Date : 1/12/2022
Page No : 3

	COUNTY RD 5 Southbound					ERIE PKWY Westbound					COUNTY RD 5 Northbound					ERIE PKWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	118	136	121	2	377	14	296	116	1	427	113	153	29	0	295	108	376	131	0	615	1714
Percent	31.3	36.1	32.1	0.5		3.3	69.3	27.2	0.2		38.3	51.9	9.8	0.0		17.6	61.1	21.3	0.0		
04:45 Volume	22	40	31	0	93	4	85	35	0	124	28	48	8	0	84	29	98	44	0	171	472
Peak Factor																					0.908
High Int.	04:30 PM					04:45 PM					04:45 PM					04:45 PM					
Volume	41	32	37	2	112	4	85	35	0	124	28	48	8	0	84	29	98	44	0	171	
Peak Factor					0.842					0.861					0.878					0.899	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: COUNTY RD 4
CITY: ERIE
COUNTY: WELD

File Name : CR5CR4
Site Code : 00000025
Start Date : 1/5/2022
Page No : 1

Groups Printed- VEHICLES

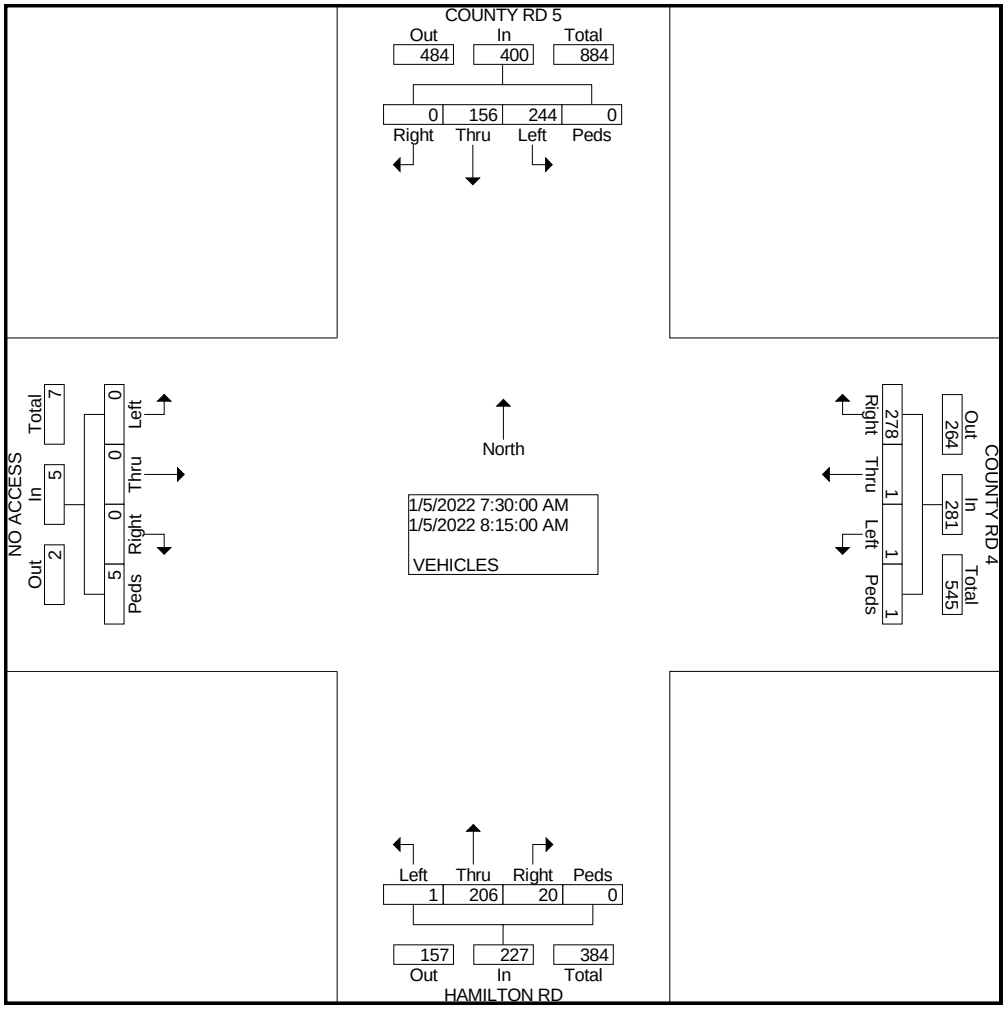
	COUNTY RD 5 Southbound				COUNTY RD 4 Westbound				HAMILTON RD Northbound				NO ACCESS Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	20	1	0	1	0	0	13	0	0	3	1	0	0	0	0	1	40
06:45 AM	22	4	0	0	0	0	58	0	0	9	4	0	0	0	0	1	98
Total	42	5	0	1	0	0	71	0	0	12	5	0	0	0	0	2	138
07:00 AM	33	12	0	0	1	0	28	0	0	28	6	0	0	0	0	0	108
07:15 AM	40	20	0	0	0	0	97	0	0	148	8	0	0	0	0	1	314
07:30 AM	54	57	0	0	0	1	100	1	0	120	9	0	0	0	0	1	343
07:45 AM	80	39	0	0	0	0	58	0	1	41	5	0	0	0	0	1	225
Total	207	128	0	0	1	1	283	1	1	337	28	0	0	0	0	3	990
08:00 AM	52	32	0	0	1	0	70	0	0	20	4	0	0	0	0	2	181
08:15 AM	58	28	0	0	0	0	50	0	0	25	2	0	0	0	0	1	164
Grand Total	359	193	0	1	2	1	474	1	1	394	39	0	0	0	0	8	1473
Apprch %	64.9	34.9	0.0	0.2	0.4	0.2	99.2	0.2	0.2	90.8	9.0	0.0	0.0	0.0	0.0	100.0	
Total %	24.4	13.1	0.0	0.1	0.1	0.1	32.2	0.1	0.1	26.7	2.6	0.0	0.0	0.0	0.0	0.5	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: COUNTY RD 4
CITY: ERIE
COUNTY: WELD

File Name : CR5CR4
Site Code : 00000025
Start Date : 1/5/2022
Page No : 2

	COUNTY RD 5 Southbound					COUNTY RD 4 Westbound					HAMILTON RD Northbound					NO ACCESS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	244	156	0	0	400	1	1	278	1	281	1	206	20	0	227	0	0	0	5	5	913
Percent	61.0	39.0	0.0	0.0		0.4	0.4	98.9	0.4		0.4	90.7	8.8	0.0		0.0	0.0	0.0	100.0		
07:30 Volume	54	57	0	0	111	0	1	100	1	102	0	120	9	0	129	0	0	0	1	1	343
Peak Factor																					0.665
High Int.	07:45 AM					07:30 AM					07:30 AM					08:00 AM					
Volume	80	39	0	0	119	0	1	100	1	102	0	120	9	0	129	0	0	0	2	2	
Peak Factor					0.840					0.689					0.440					0.625	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: COUNTY RD 5
E/W STREET: COUNTY RD 4
CITY: ERIE
COUNTY: WELD

File Name : CR5CR4PM
Site Code : 00000025
Start Date : 1/11/2022
Page No : 1

Groups Printed- VEHICLES

	COUNTY RD 5 Southbound				COUNTY RD 4 Westbound				HAMILTON RD Northbound				NO ACCESS Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	36	20	0	0	4	0	46	0	0	20	0	0	0	0	0	0	126
04:15 PM	52	23	0	0	1	0	50	1	0	10	2	1	0	0	0	1	141
04:30 PM	53	25	0	0	4	0	46	0	0	13	1	0	0	0	0	2	144
04:45 PM	63	24	0	0	3	0	42	0	0	23	2	0	0	0	0	1	158
Total	204	92	0	0	12	0	184	1	0	66	5	1	0	0	0	4	569
05:00 PM	95	31	0	2	4	0	96	0	0	25	1	0	0	0	0	0	254
05:15 PM	95	40	0	0	8	0	98	2	0	23	6	0	0	0	0	1	273
05:30 PM	98	34	0	0	5	0	90	0	0	24	7	0	0	0	0	1	259
05:45 PM	96	42	0	0	4	1	115	0	1	55	8	0	0	0	0	0	322
Total	384	147	0	2	21	1	399	2	1	127	22	0	0	0	0	2	1108
Grand Total	588	239	0	2	33	1	583	3	1	193	27	1	0	0	0	6	1677
Apprch %	70.9	28.8	0.0	0.2	5.3	0.2	94.0	0.5	0.5	86.9	12.2	0.5	0.0	0.0	0.0	100.0	
Total %	35.1	14.3	0.0	0.1	2.0	0.1	34.8	0.2	0.1	11.5	1.6	0.1	0.0	0.0	0.0	0.4	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

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CITY: ERIE
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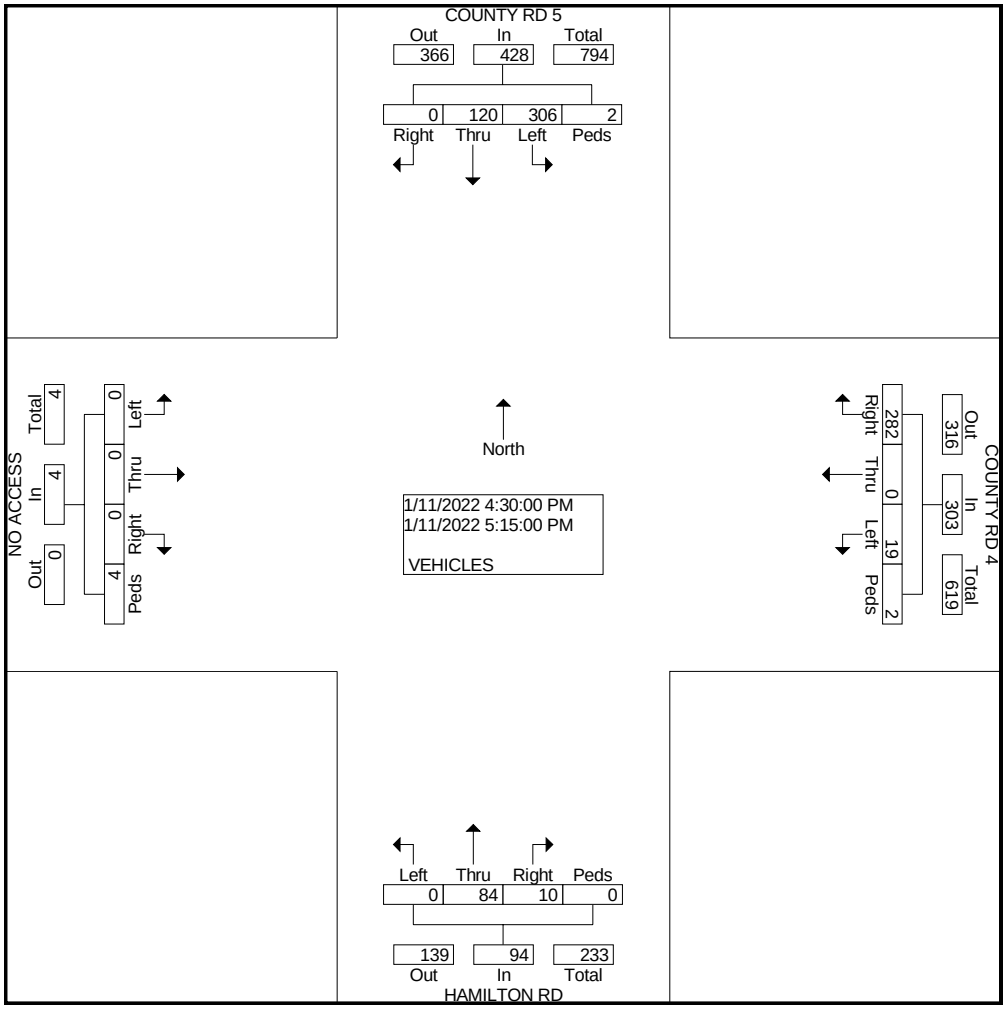
File Name : CR5CR4PM
Site Code : 00000025
Start Date : 1/11/2022
Page No : 2

	COUNTY RD 5 Southbound					COUNTY RD 4 Westbound					HAMILTON RD Northbound					NO ACCESS Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:15 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	306	120	0	2	428	19	0	282	2	303	0	84	10	0	94	0	0	0	4	4	829
Percent	71.5	28.0	0.0	0.5		6.3	0.0	93.1	0.7		0.0	89.4	10.6	0.0		0.0	0.0	0.0	100.0		
05:15 Volume	95	40	0	0	135	8	0	98	2	108	0	23	6	0	29	0	0	0	1	1	273
Peak Factor																					0.759
High Int.	05:15 PM					05:15 PM					05:15 PM					04:30 PM					
Volume	95	40	0	0	135	8	0	98	2	108	0	23	6	0	29	0	0	0	2	2	
Peak Factor					0.793					0.701					0.810					0.500	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: VISTA PKWY
E/W STREET: PARKDALE CIR
CITY: ERIE
COUNTY: BOULDER

File Name : VISTPARKDALE
Site Code : 00000020
Start Date : 1/12/2022
Page No : 1

Groups Printed- VEHICLES

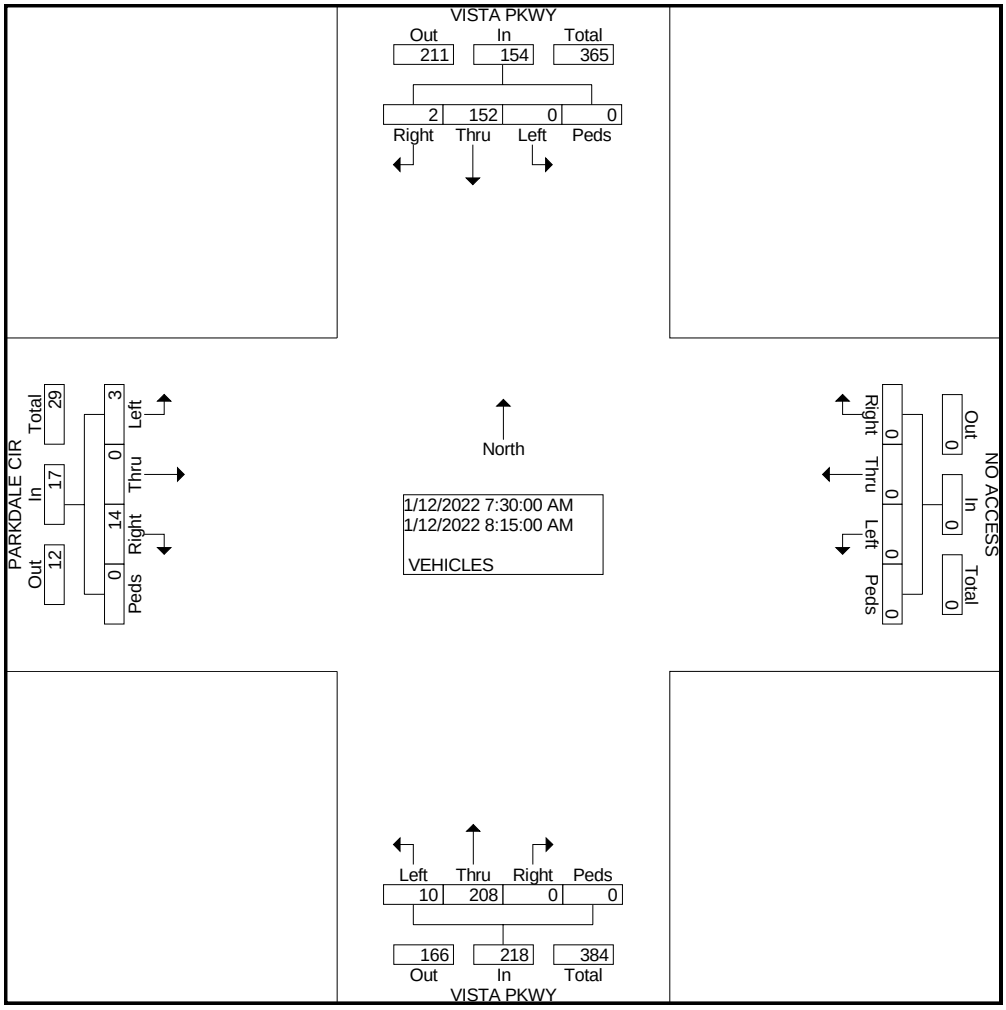
	VISTA PKWY Southbound				NO ACCESS Westbound				VISTA PKWY Northbound				PARKDALE CIR Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	11	0	0	0	0	0	0	0	12	0	0	0	1	1	0	25
06:45 AM	0	16	0	0	0	0	0	0	0	19	0	0	0	0	5	0	40
Total	0	27	0	0	0	0	0	0	0	31	0	0	0	1	6	0	65
07:00 AM	0	18	0	0	0	0	0	0	0	37	0	0	0	0	3	0	58
07:15 AM	0	24	0	1	0	0	0	0	1	36	2	0	3	0	9	0	76
07:30 AM	0	31	1	0	0	0	0	0	3	69	0	0	0	0	7	0	111
07:45 AM	0	46	0	0	0	0	0	0	2	62	0	0	0	0	3	0	113
Total	0	119	1	1	0	0	0	0	6	204	2	0	3	0	22	0	358
08:00 AM	0	45	1	0	0	0	0	0	2	42	0	0	2	0	4	0	96
08:15 AM	0	30	0	0	0	0	0	0	3	35	0	0	1	0	0	0	69
Total	0	75	1	0	0	0	0	0	5	77	0	0	3	0	4	0	165
04:00 PM	0	58	2	1	0	0	0	0	2	39	0	0	0	0	3	0	105
04:15 PM	0	43	0	0	0	0	0	0	6	36	0	0	0	0	3	0	88
04:30 PM	0	57	0	0	0	0	0	0	2	36	0	0	0	0	4	0	99
04:45 PM	0	63	1	0	0	0	0	0	6	64	0	0	1	0	3	0	138
Total	0	221	3	1	0	0	0	0	16	175	0	0	1	0	13	0	430
05:00 PM	0	53	0	0	0	0	0	0	3	64	0	0	0	0	2	0	122
05:15 PM	0	71	0	0	0	0	0	0	4	35	0	0	0	0	2	0	112
05:30 PM	0	43	1	0	0	0	0	0	5	45	0	0	0	0	7	0	101
05:45 PM	0	43	0	0	0	0	0	0	5	45	0	0	0	0	2	0	95
Total	0	210	1	0	0	0	0	0	17	189	0	0	0	0	13	0	430
Grand Total	0	652	6	2	0	0	0	0	44	676	2	0	7	1	58	0	1448
Apprch %	0.0	98.8	0.9	0.3	0.0	0.0	0.0	0.0	6.1	93.6	0.3	0.0	10.6	1.5	87.9	0.0	
Total %	0.0	45.0	0.4	0.1	0.0	0.0	0.0	0.0	3.0	46.7	0.1	0.0	0.5	0.1	4.0	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: VISTA PKWY
E/W STREET: PARKDALE CIR
CITY: ERIE
COUNTY: BOULDER

File Name : VISTPARKDALE
Site Code : 00000020
Start Date : 1/12/2022
Page No : 2

	VISTA PKWY Southbound					NO ACCESS Westbound					VISTA PKWY Northbound					PARKDALE CIR Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	0	152	2	0	154	0	0	0	0	0	10	208	0	0	218	3	0	14	0	17	389
Percent	0.0	98.7	1.3	0.0		0.0	0.0	0.0	0.0		4.6	95.4	0.0	0.0		17.6	0.0	82.4	0.0		
07:45 Volume	0	46	0	0	46	0	0	0	0	0	2	62	0	0	64	0	0	3	0	3	113
Peak Factor																					0.861
High Int.	07:45 AM										07:30 AM					07:30 AM					
Volume	0	46	0	0	46	0	0	0	0	0	3	69	0	0	72	0	0	7	0	7	
Peak Factor					0.837										0.757					0.607	

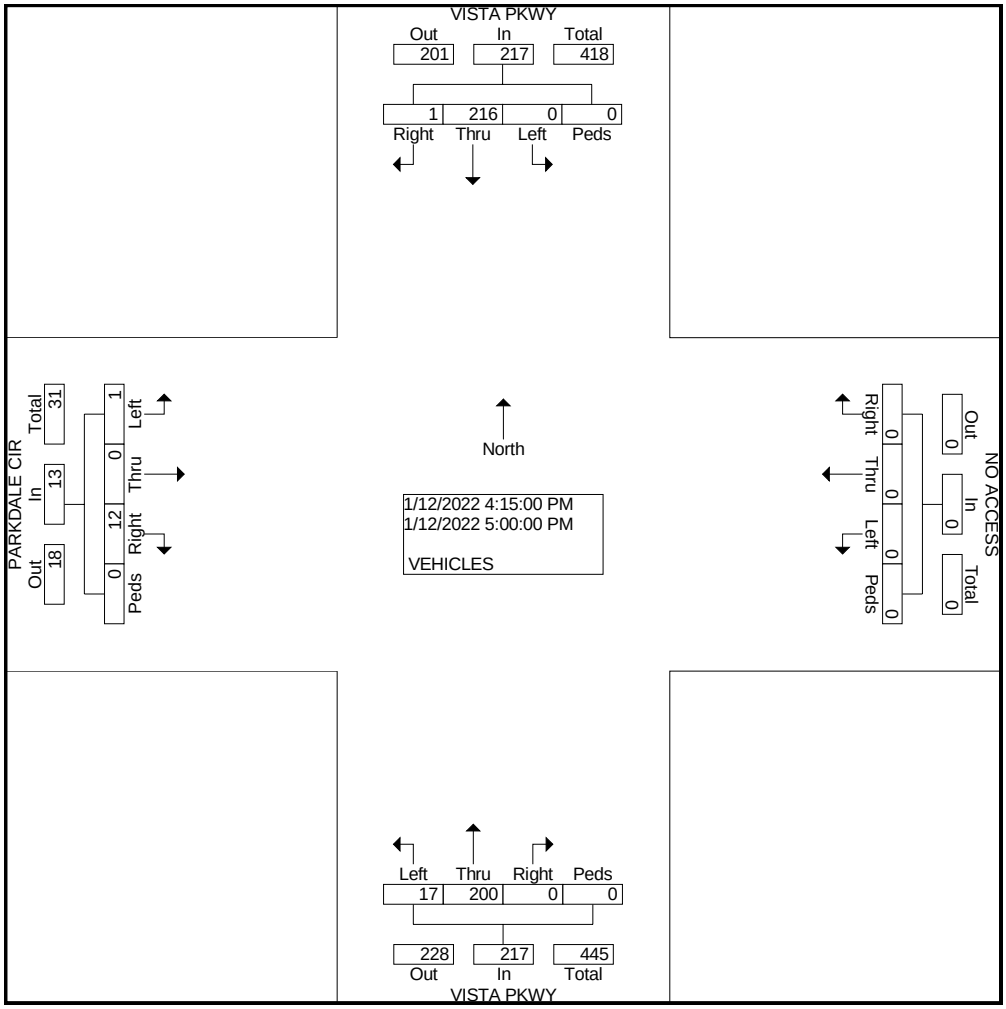


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: VISTA PKWY
E/W STREET: PARKDALE CIR
CITY: ERIE
COUNTY: BOULDER

File Name : VISTPARKDALE
Site Code : 00000020
Start Date : 1/12/2022
Page No : 3

	VISTA PKWY Southbound					NO ACCESS Westbound					VISTA PKWY Northbound					PARKDALE CIR Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	0	216	1	0	217	0	0	0	0	0	17	200	0	0	217	1	0	12	0	13	447
Percent	0.0	99.5	0.5	0.0		0.0	0.0	0.0	0.0		7.8	92.2	0.0	0.0		7.7	0.0	92.3	0.0		
04:45 Volume	0	63	1	0	64	0	0	0	0	0	6	64	0	0	70	1	0	3	0	4	138
Peak Factor																					0.810
High Int.	04:45 PM										04:45 PM					04:30 PM					
Volume	0	63	1	0	64	0	0	0	0	0	6	64	0	0	70	0	0	4	0	4	
Peak Factor					0.848										0.775					0.813	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: SHERIDAN PKWY
E/W STREET: E. BASELINE RD
CITY: ERIE
COUNTY: BOULDER

File Name : SHEREBASEAM
Site Code : 00000011
Start Date : 1/5/2022
Page No : 1

Groups Printed- VEHICLES

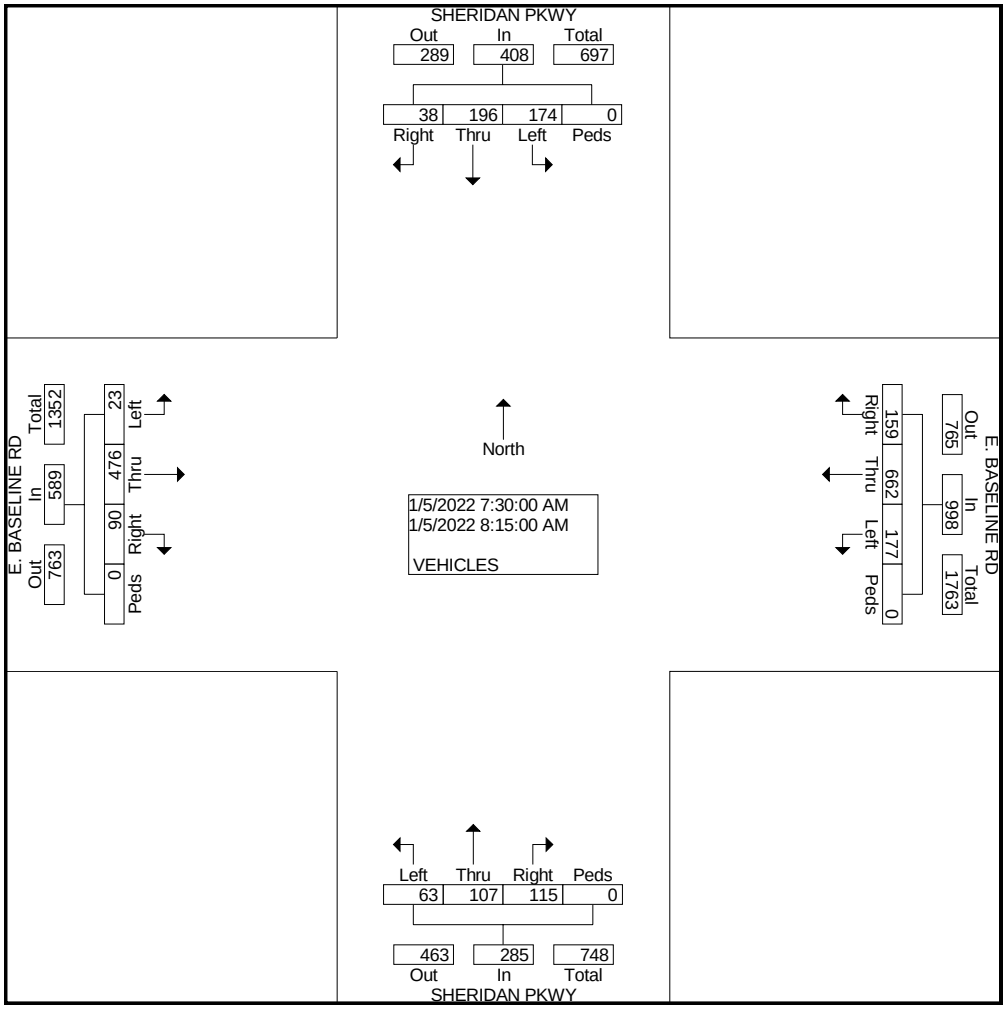
	SHERIDAN PKWY Southbound				E. BASELINE RD Westbound				SHERIDAN PKWY Northbound				E. BASELINE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	22	20	3	0	18	131	21	0	4	7	16	0	2	92	2	0	338
06:45 AM	41	19	5	0	38	139	23	0	5	15	15	0	1	76	8	0	385
Total	63	39	8	0	56	270	44	0	9	22	31	0	3	168	10	0	723
07:00 AM	28	24	2	0	31	131	14	0	6	23	25	0	1	104	5	0	394
07:15 AM	34	37	6	0	28	163	23	0	8	19	17	0	3	103	8	0	449
07:30 AM	39	46	7	0	60	172	31	0	12	16	23	0	3	120	17	0	546
07:45 AM	33	50	11	0	45	182	39	0	18	33	27	0	7	117	44	0	606
Total	134	157	26	0	164	648	107	0	44	91	92	0	14	444	74	0	1995
08:00 AM	64	59	13	0	44	162	48	0	21	33	30	0	8	123	20	0	625
08:15 AM	38	41	7	0	28	146	41	0	12	25	35	0	5	116	9	0	503
Grand Total	299	296	54	0	292	1226	240	0	86	171	188	0	30	851	113	0	3846
Apprch %	46.1	45.6	8.3	0.0	16.6	69.7	13.7	0.0	19.3	38.4	42.2	0.0	3.0	85.6	11.4	0.0	
Total %	7.8	7.7	1.4	0.0	7.6	31.9	6.2	0.0	2.2	4.4	4.9	0.0	0.8	22.1	2.9	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: SHERIDAN PKWY
E/W STREET: E. BASELINE RD
CITY: ERIE
COUNTY: BOULDER

File Name : SHEREBASEAM
Site Code : 00000011
Start Date : 1/5/2022
Page No : 2

	SHERIDAN PKWY Southbound					E. BASELINE RD Westbound					SHERIDAN PKWY Northbound					E. BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	174	196	38	0	408	177	662	159	0	998	63	107	115	0	285	23	476	90	0	589	2280
Percent	42.6	48.0	9.3	0.0		17.7	66.3	15.9	0.0		22.1	37.5	40.4	0.0		3.9	80.8	15.3	0.0		
08:00 Volume	64	59	13	0	136	44	162	48	0	254	21	33	30	0	84	8	123	20	0	151	625
Peak Factor																					0.912
High Int.	08:00 AM					07:45 AM					08:00 AM					07:45 AM					
Volume	64	59	13	0	136	45	182	39	0	266	21	33	30	0	84	7	117	44	0	168	
Peak Factor					0.750					0.938					0.848					0.876	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: SHERIDAN PKWY
E/W STREET: E. BASELINE RD
CITY: ERIE
COUNTY: BOULDER

File Name : SHEREBASEPM
Site Code : 00000011
Start Date : 1/11/2022
Page No : 1

Groups Printed- VEHICLES

	SHERIDAN PKWY Southbound				E. BASELINE RD Westbound				SHERIDAN PKWY Northbound				E. BASELINE RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	65	49	10	0	37	153	59	4	31	44	38	0	18	167	14	0	689
04:15 PM	68	33	13	0	38	149	52	0	27	47	35	0	11	216	20	0	709
04:30 PM	74	63	12	0	33	131	48	0	27	42	32	0	11	217	19	0	709
04:45 PM	60	49	18	0	33	154	54	0	24	58	29	0	16	205	27	0	727
Total	267	194	53	0	141	587	213	4	109	191	134	0	56	805	80	0	2834
05:00 PM	75	55	18	0	39	155	71	0	30	47	33	0	22	201	23	0	769
05:15 PM	58	57	10	0	33	172	49	0	13	43	29	0	16	189	18	0	687
05:30 PM	62	42	8	0	32	147	53	0	18	46	31	0	21	208	20	0	688
05:45 PM	54	42	14	0	26	151	46	0	10	43	34	0	12	165	13	0	610
Total	249	196	50	0	130	625	219	0	71	179	127	0	71	763	74	0	2754
Grand Total	516	390	103	0	271	1212	432	4	180	370	261	0	127	1568	154	0	5588
Apprch %	51.1	38.7	10.2	0.0	14.1	63.2	22.5	0.2	22.2	45.6	32.2	0.0	6.9	84.8	8.3	0.0	
Total %	9.2	7.0	1.8	0.0	4.8	21.7	7.7	0.1	3.2	6.6	4.7	0.0	2.3	28.1	2.8	0.0	

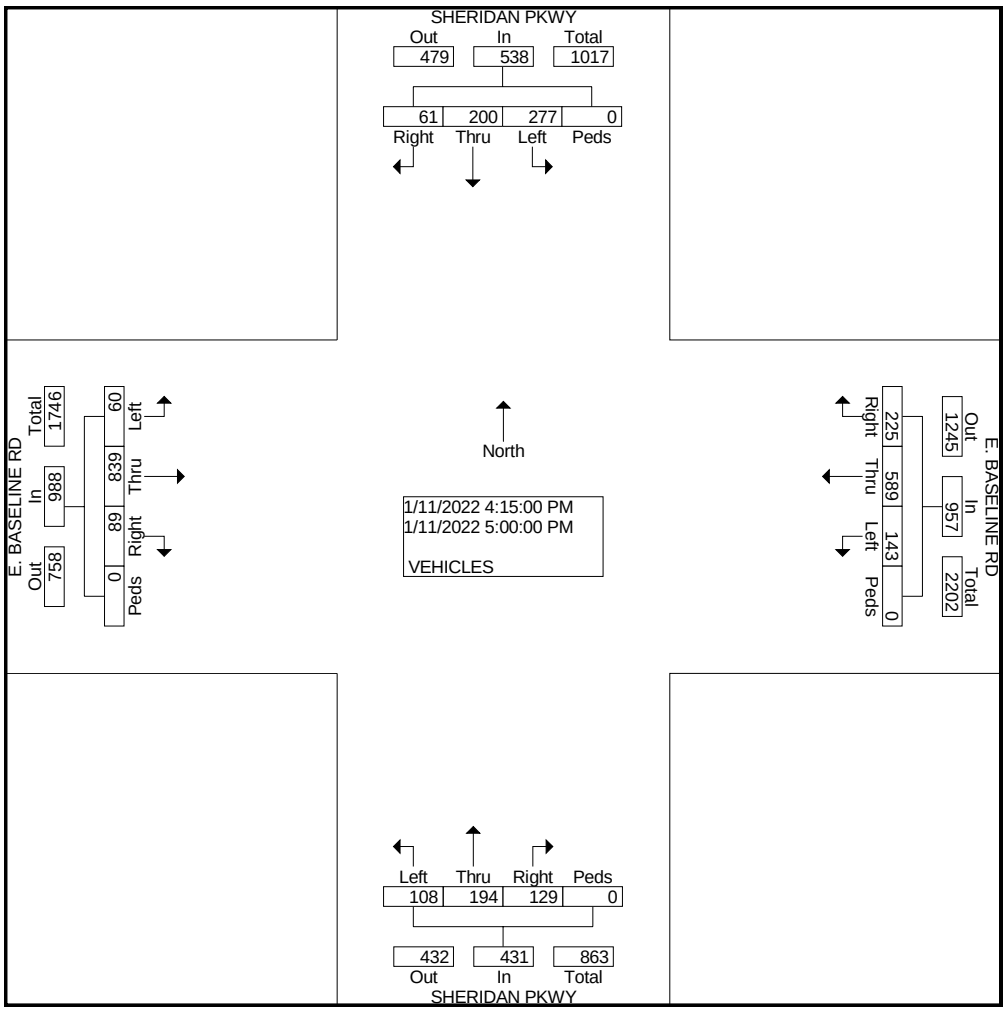
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: SHERIDAN PKWY
E/W STREET: E. BASELINE RD
CITY: ERIE
COUNTY: BOULDER

File Name : SHEREBASEPM
Site Code : 00000011
Start Date : 1/11/2022
Page No : 2

	SHERIDAN PKWY Southbound					E. BASELINE RD Westbound					SHERIDAN PKWY Northbound					E. BASELINE RD Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	277	200	61	0	538	143	589	225	0	957	108	194	129	0	431	60	839	89	0	988	2914
Percent	51.5	37.2	11.3	0.0		14.9	61.5	23.5	0.0		25.1	45.0	29.9	0.0		6.1	84.9	9.0	0.0		
05:00 Volume	75	55	18	0	148	39	155	71	0	265	30	47	33	0	110	22	201	23	0	246	769
Peak Factor																					0.947
High Int.	04:30 PM					05:00 PM					04:45 PM					04:45 PM					
Volume	74	63	12	0	149	39	155	71	0	265	24	58	29	0	111	16	205	27	0	248	
Peak Factor					0.903					0.903					0.971					0.996	



Location: COUNTY RD 4 E-O CR 5
City: ERIE
County: BOULDER
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Site Code: 220307
Station ID: 220307

Start Time	04-Jan-22 Tue	EAST	WEST							Total
12:00 AM		2	2							4
01:00		9	4							13
02:00		1	3							4
03:00		1	1							2
04:00		2	4							6
05:00		25	22							47
06:00		50	59							109
07:00		83	125							208
08:00		113	131							244
09:00		88	118							206
10:00		111	120							231
11:00		**130**	**156**							**286**
12:00 PM		171	156							327
01:00		168	153							321
02:00		150	129							279
03:00		183	168							351
04:00		**198**	**192**							**390**
05:00		178	159							337
06:00		135	96							231
07:00		98	46							144
08:00		57	64							121
09:00		38	19							57
10:00		12	8							20
11:00		2	0							2
Total		2005	1935							3940
Percent		50.9%	49.1%							
AM Peak	-	11:00	11:00	-	-	-	-	-	-	11:00
Vol.	-	130	156	-	-	-	-	-	-	286
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	198	192	-	-	-	-	-	-	390
Grand Total		2005	1935							3940
Percent		50.9%	49.1%							
ADT		ADT 3,940		AADT 3,940						

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: COUNTY RD 5 N-O CR 4
City: ERIE
County: BOULDER
Direction: NORTH/SOUTH

Site Code: 220305
Station ID: 220305

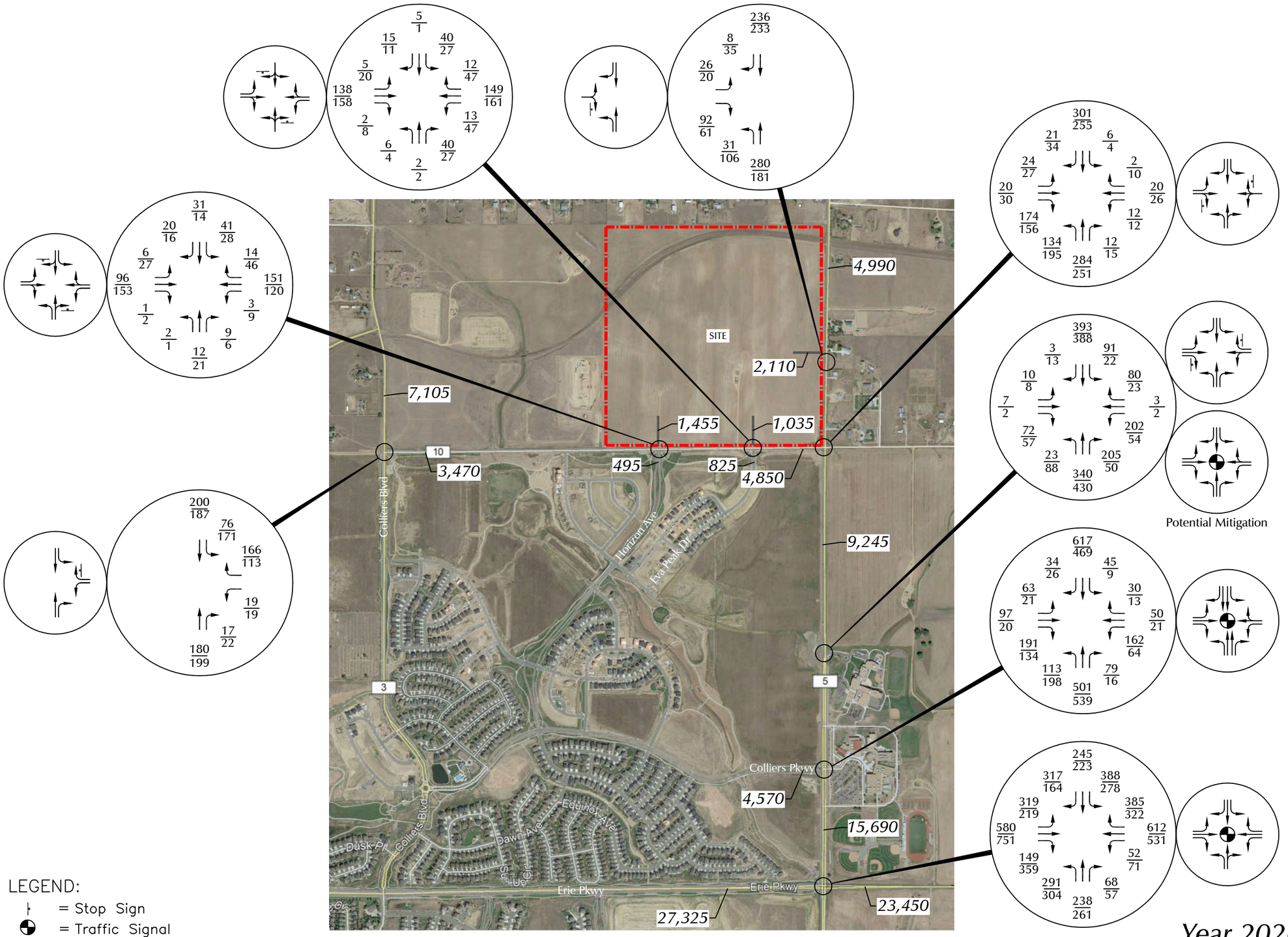
Start Time	04-Jan-22 Tue	NORTH	SOUTH							Total
12:00 AM		5	4							9
01:00		8	6							14
02:00		1	5							6
03:00		2	3							5
04:00		5	3							8
05:00		33	19							52
06:00		76	61							137
07:00		132	132							264
08:00		**157**	157							314
09:00		115	133							248
10:00		136	148							284
11:00		155	**165**							**320**
12:00 PM		192	183							375
01:00		189	166							355
02:00		188	146							334
03:00		213	220							433
04:00		**248**	**238**							**486**
05:00		220	213							433
06:00		181	132							313
07:00		129	73							202
08:00		70	111							181
09:00		33	42							75
10:00		19	13							32
11:00		2	4							6
Total		2509	2377							4886
Percent		51.4%	48.6%							
AM Peak	-	08:00	11:00	-	-	-	-	-	-	11:00
Vol.	-	157	165	-	-	-	-	-	-	320
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	248	238	-	-	-	-	-	-	486
Grand Total		2509	2377							4886
Percent		51.4%	48.6%							
ADT		ADT 4,886		AADT 4,886						

Location: VISTA PKWY E-O COUNTYLINE RD
City: ERIE
County: BOULDER
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Site Code: 220320
Station ID: 220320

Start Time	04-Jan-22 Tue	EAST	WEST							Total
12:00 AM		1	6							7
01:00		2	0							2
02:00		2	4							6
03:00		3	1							4
04:00		7	0							7
05:00		29	3							32
06:00		71	14							85
07:00		167	65							232
08:00		**170**	82							**252**
09:00		120	77							197
10:00		136	102							238
11:00		133	**111**							244
12:00 PM		150	143							293
01:00		141	142							283
02:00		136	112							248
03:00		165	180							345
04:00		**170**	**272**							**442**
05:00		132	252							384
06:00		111	141							252
07:00		68	82							150
08:00		60	64							124
09:00		35	44							79
10:00		14	21							35
11:00		10	6							16
Total		2033	1924							3957
Percent		51.4%	48.6%							
AM Peak	-	08:00	11:00	-	-	-	-	-	-	08:00
Vol.	-	170	111	-	-	-	-	-	-	252
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	170	272	-	-	-	-	-	-	442
Grand Total		2033	1924							3957
Percent		51.4%	48.6%							
ADT		ADT 3,957		AADT 3,957						



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

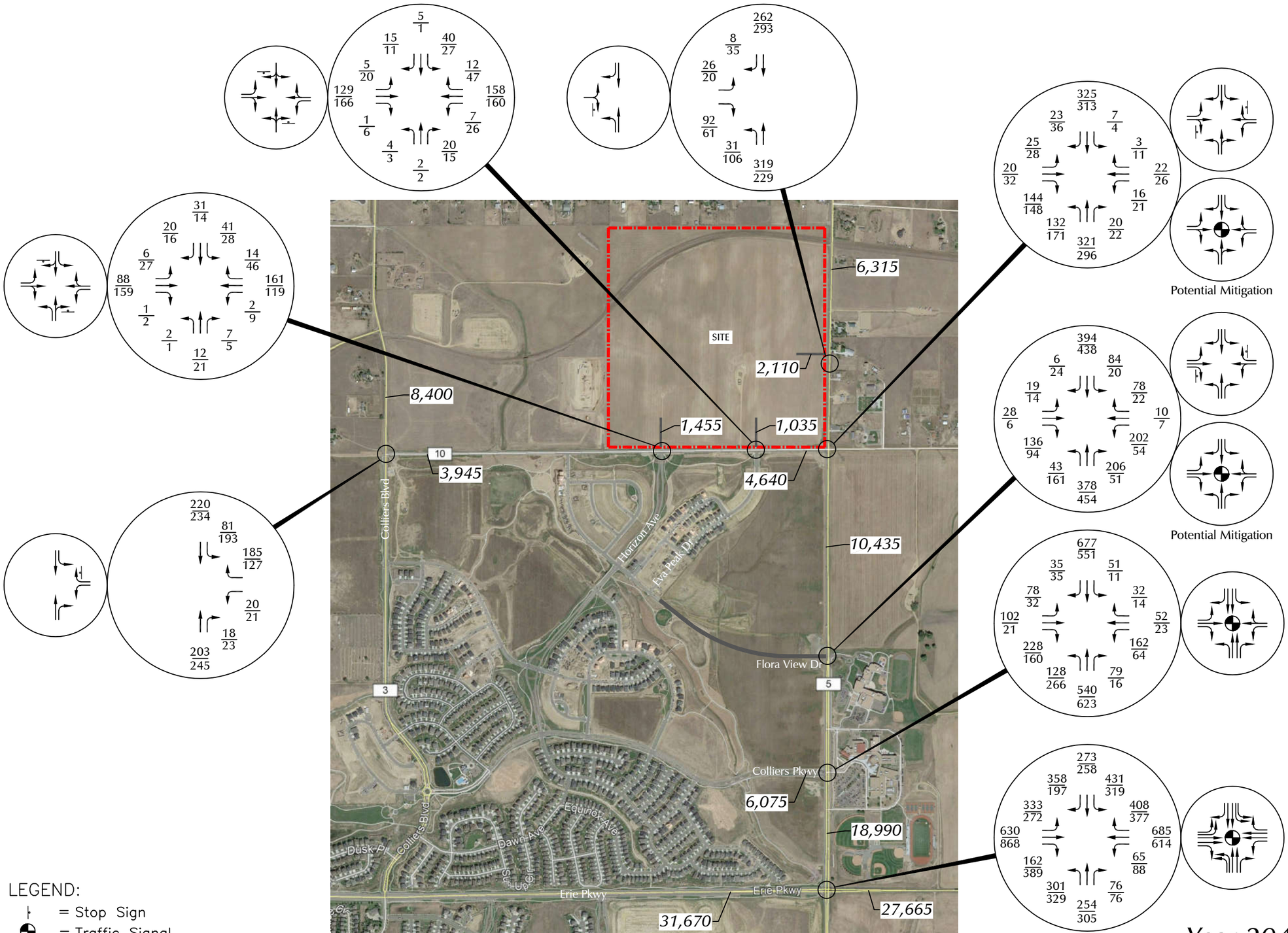
1,000 = Average Daily Traffic

TRANSPORTATION CONSULTANTS, INC.

Figure 8

Year 2026 Total Traffic, Lane Geometry and Traffic Control

Colliers Hill Filing 6 (LSC #200870)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

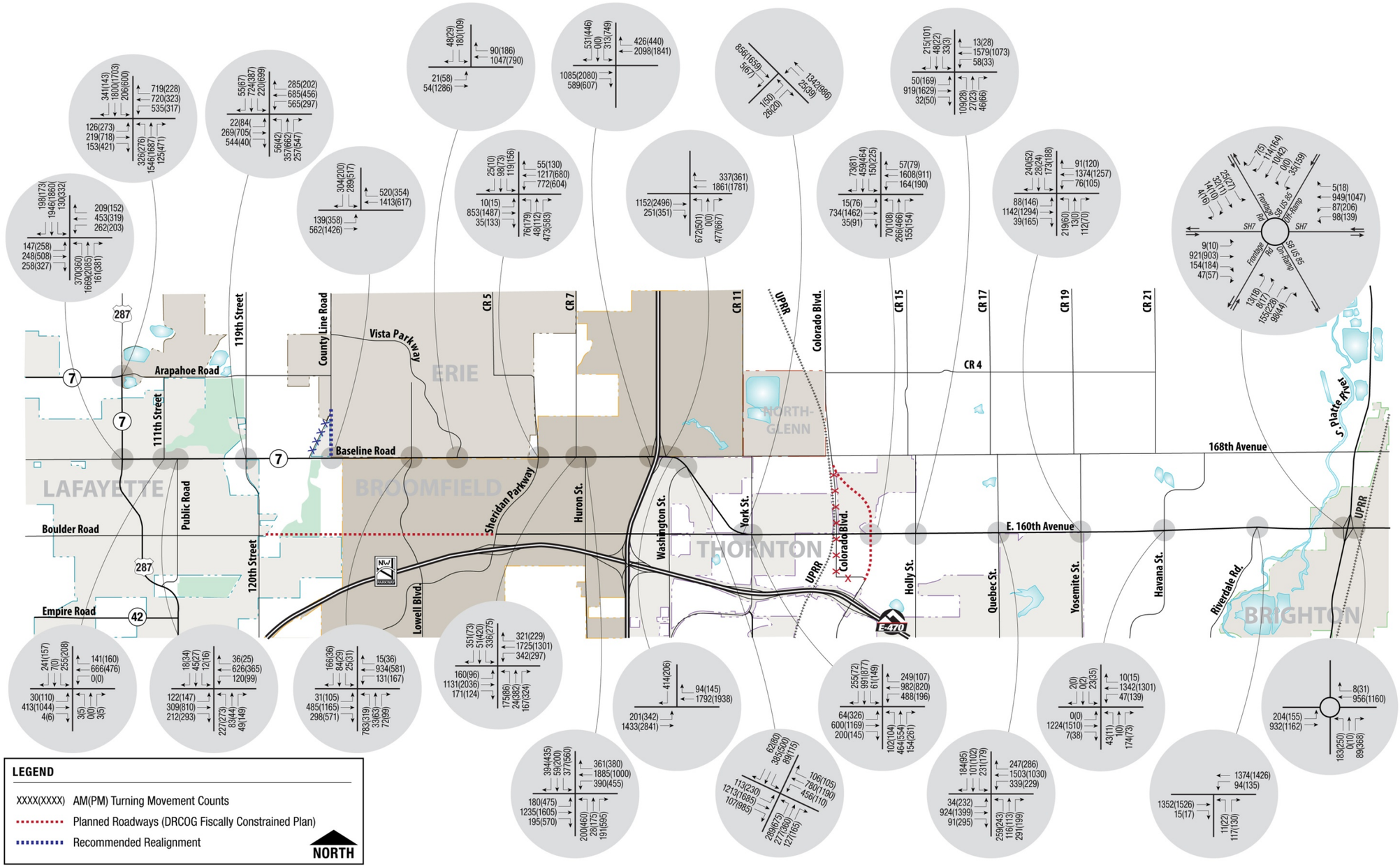
LSC TRANSPORTATION CONSULTANTS, INC.

Figure 9

Year 2040 Total Traffic, Lane Geometry and Traffic Control

Colliers Hill Filing 6 (LSC #200870)

Figure 4.10 2035 Recommended Alternative AM and PM Peak Hour Turning Movement Forecasts



LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	Average Vehicle Delay sec/vehicle	Operational Characteristics
A	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

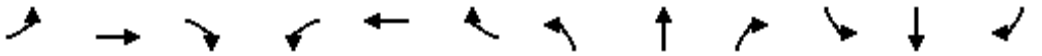
LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

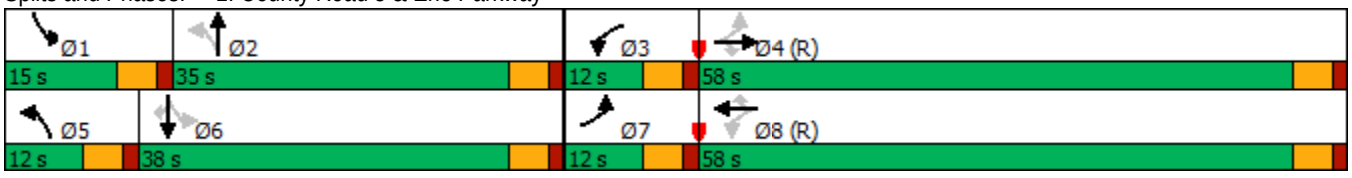


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	278	96	35	324	236	58	245	15	161	143	137
Future Volume (vph)	218	278	96	35	324	236	58	245	15	161	143	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1848	0	1770	1863	1583
Flt Permitted	0.411			0.549			0.619			0.226		
Satd. Flow (perm)	766	1863	1583	1023	1863	1583	1153	1848	0	421	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			268		2				156
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.88	0.92	0.92	0.92	0.92	0.88	0.92	0.88	0.92	0.88	0.88	0.88
Adj. Flow (vph)	248	302	104	38	352	268	63	278	16	183	163	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	302	104	38	352	268	63	294	0	183	163	156
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	12.0	58.0	58.0	12.0	58.0	58.0	12.0	35.0		15.0	38.0	38.0
Total Split (%)	10.0%	48.3%	48.3%	10.0%	48.3%	48.3%	10.0%	29.2%		12.5%	31.7%	31.7%
Maximum Green (s)	7.0	53.0	53.0	7.0	53.0	53.0	7.0	30.0		10.0	33.0	33.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	72.5	66.1	66.1	66.7	58.3	58.3	34.6	25.8		40.8	31.2	31.2
Actuated g/C Ratio	0.60	0.55	0.55	0.56	0.49	0.49	0.29	0.22		0.34	0.26	0.26
v/c Ratio	0.44	0.29	0.11	0.06	0.39	0.30	0.17	0.74		0.66	0.34	0.30
Control Delay	14.6	17.6	3.4	11.2	22.1	3.1	26.7	54.6		40.2	38.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	14.6	17.6	3.4	11.2	22.1	3.1	26.7	54.6		40.2	38.0	6.6
LOS	B	B	A	B	C	A	C	D		D	D	A
Approach Delay		14.2			13.7			49.7			29.0	
Approach LOS		B			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	3.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	0	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	18	0	237	167
Demand Flow Rate, veh/h	18	0	242	170
Vehicles Circulating, veh/h	168	245	3	11
Vehicles Exiting, veh/h	13	0	183	234
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	4.1	3.7
Approach LOS	-	-	A	A

Lane	Left	Left
Designated Moves	L	R
Assumed Moves	L	R
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	242	170
Cap Entry Lane, veh/h	1376	1364
Entry HV Adj Factor	0.981	0.981
Flow Entry, veh/h	237	167
Cap Entry, veh/h	1350	1338
V/C Ratio	0.176	0.125
Control Delay, s/veh	4.1	3.7
LOS	A	A
95th %tile Queue, veh	1	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	5	510	420	35
Future Vol, veh/h	40	10	5	510	420	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	11	5	554	457	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1021	457	495	0	-	0
Stage 1	457	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	262	604	1069	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	604	1069	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.4	0.1	0
HCM LOS	C		

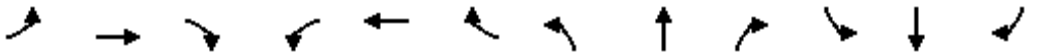
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1069	-	261	604	-	-
HCM Lane V/C Ratio	0.005	-	0.167	0.018	-	-
HCM Control Delay (s)	8.4	-	21.5	11.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0.1	-	-

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	278	206	20	244	156
Future Vol, veh/h	1	278	206	20	244	156
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	302	224	22	265	170
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.9	11.4	16.9
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	61%
Vol Thru, %	91%	0%	39%
Vol Right, %	9%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	226	279	400
LT Vol	0	1	244
Through Vol	206	0	156
RT Vol	20	278	0
Lane Flow Rate	246	303	435
Geometry Grp	1	1	1
Degree of Util (X)	0.364	0.428	0.633
Departure Headway (Hd)	5.33	5.077	5.24
Convergence, Y/N	Yes	Yes	Yes
Cap	676	707	691
Service Time	3.367	3.118	3.272
HCM Lane V/C Ratio	0.364	0.429	0.63
HCM Control Delay	11.4	11.9	16.9
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.7	2.2	4.5

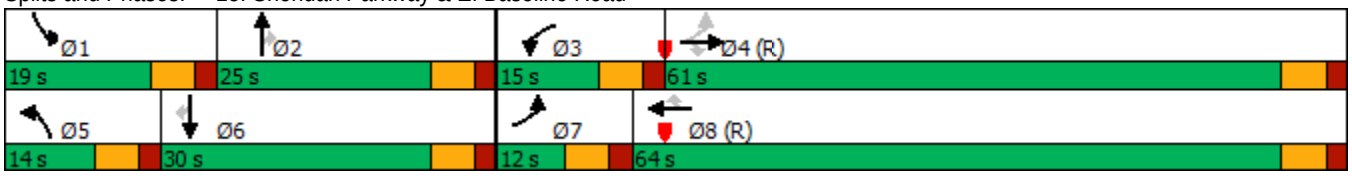


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	476	90	177	566	159	63	107	115	174	196	38
Future Volume (vph)	23	476	90	177	566	159	63	107	115	174	196	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.419			0.950			0.950			0.950		
Satd. Flow (perm)	780	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			173			136			136
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	517	98	192	615	173	68	116	125	189	213	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	517	98	192	615	173	68	116	125	189	213	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0
Total Split (s)	12.0	61.0	61.0	15.0	64.0	64.0	14.0	25.0	25.0	19.0	30.0	30.0
Total Split (%)	10.0%	50.8%	50.8%	12.5%	53.3%	53.3%	11.7%	20.8%	20.8%	15.8%	25.0%	25.0%
Maximum Green (s)	6.0	55.0	55.0	9.0	58.0	58.0	8.0	19.0	19.0	13.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	73.4	65.3	65.3	14.0	75.9	75.9	9.3	11.3	11.3	13.4	17.7	17.7
Actuated g/C Ratio	0.61	0.54	0.54	0.12	0.63	0.63	0.08	0.09	0.09	0.11	0.15	0.15
v/c Ratio	0.05	0.51	0.11	0.48	0.27	0.16	0.26	0.35	0.46	0.49	0.41	0.12
Control Delay	7.3	20.7	1.3	53.3	11.5	2.2	54.3	53.4	12.5	54.4	49.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	20.7	1.3	53.3	11.5	2.2	54.3	53.4	12.5	54.4	49.3	0.7
LOS	A	C	A	D	B	A	D	D	B	D	D	A
Approach Delay		17.2			18.1			37.0			47.0	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 43 (36%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 25.7		Intersection LOS: C	
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road

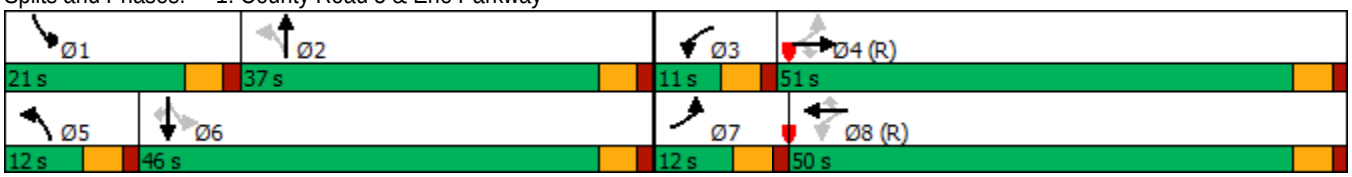


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	376	131	14	296	116	113	153	29	118	136	121
Future Volume (vph)	108	376	131	14	296	116	113	153	29	118	136	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1818	0	1770	1863	1583
Flt Permitted	0.468			0.486			0.649			0.291		
Satd. Flow (perm)	872	1863	1583	905	1863	1583	1209	1818	0	542	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155		8				132
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	396	142	15	312	126	123	166	32	128	148	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	396	142	15	312	126	123	198	0	128	148	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	12.0	51.0	51.0	11.0	50.0	50.0	12.0	37.0		21.0	46.0	46.0
Total Split (%)	10.0%	42.5%	42.5%	9.2%	41.7%	41.7%	10.0%	30.8%		17.5%	38.3%	38.3%
Maximum Green (s)	7.0	46.0	46.0	6.0	45.0	45.0	7.0	32.0		16.0	41.0	41.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	77.0	72.4	72.4	71.2	63.3	63.3	28.9	19.9		36.6	25.0	25.0
Actuated g/C Ratio	0.64	0.60	0.60	0.59	0.53	0.53	0.24	0.17		0.30	0.21	0.21
v/c Ratio	0.18	0.35	0.14	0.03	0.32	0.14	0.37	0.64		0.41	0.38	0.30
Control Delay	10.5	15.7	2.5	10.6	19.3	2.1	32.8	53.9		33.3	41.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	10.5	15.7	2.5	10.6	19.3	2.1	32.8	53.9		33.3	41.9	7.5
LOS	B	B	A	B	B	A	C	D		C	D	A
Approach Delay		11.9			14.2			45.8			28.1	
Approach LOS		B			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 22.0		Intersection LOS: C	
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	0	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	14	0	235	236
Demand Flow Rate, veh/h	14	0	239	241
Vehicles Circulating, veh/h	240	240	1	18
Vehicles Exiting, veh/h	19	0	253	222
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	4.1	4.2
Approach LOS	-	-	A	A

Lane	Left	Left
Designated Moves	L	R
Assumed Moves	L	R
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	239	241
Cap Entry Lane, veh/h	1378	1355
Entry HV Adj Factor	0.982	0.980
Flow Entry, veh/h	235	236
Cap Entry, veh/h	1353	1328
V/C Ratio	0.173	0.178
Control Delay, s/veh	4.1	4.2
LOS	A	A
95th %tile Queue, veh	1	1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	5	10	385	450	40
Future Vol, veh/h	35	5	10	385	450	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	5	11	418	489	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	929	489	532	0	-	0
Stage 1	489	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	297	579	1036	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	579	1036	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0.2	0
HCM LOS	C		

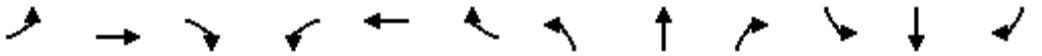
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1036	-	294	579	-	-
HCM Lane V/C Ratio	0.01	-	0.129	0.009	-	-
HCM Control Delay (s)	8.5	-	19.1	11.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	0	-	-

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	282	84	10	306	120
Future Vol, veh/h	19	282	84	10	306	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	307	91	11	333	130
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.5	9.3	16.8
HCM LOS	B	A	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	6%	72%
Vol Thru, %	89%	0%	28%
Vol Right, %	11%	94%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	94	301	426
LT Vol	0	19	306
Through Vol	84	0	120
RT Vol	10	282	0
Lane Flow Rate	102	327	463
Geometry Grp	1	1	1
Degree of Util (X)	0.153	0.434	0.642
Departure Headway (Hd)	5.379	4.78	4.993
Convergence, Y/N	Yes	Yes	Yes
Cap	671	746	713
Service Time	3.379	2.864	3.091
HCM Lane V/C Ratio	0.152	0.438	0.649
HCM Control Delay	9.3	11.5	16.8
HCM Lane LOS	A	B	C
HCM 95th-tile Q	0.5	2.2	4.7

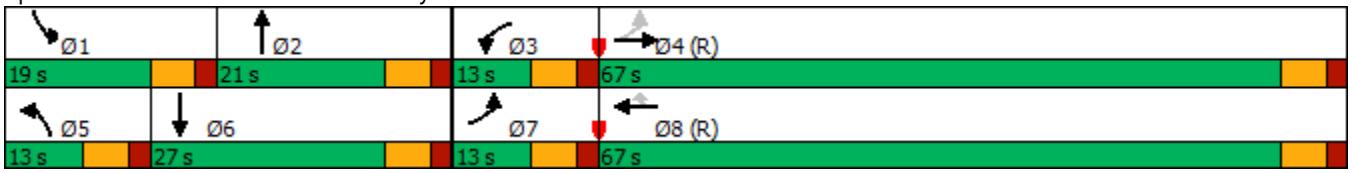


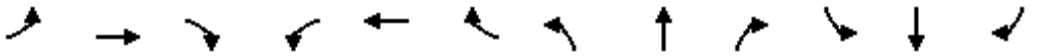
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	839	89	143	589	225	108	194	129	277	200	61
Future Volume (vph)	60	839	89	143	589	225	108	194	129	277	200	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.375			0.950			0.950			0.950		
Satd. Flow (perm)	699	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			245			191			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	883	97	155	640	245	117	211	140	301	217	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	883	97	155	640	245	117	211	140	301	217	66
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	13.0	67.0		13.0	67.0	67.0	13.0	21.0		19.0	27.0	
Total Split (%)	10.8%	55.8%		10.8%	55.8%	55.8%	10.8%	17.5%		15.8%	22.5%	
Maximum Green (s)	7.0	61.0		7.0	61.0	61.0	7.0	15.0		13.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	3.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	73.3	65.6	120.0	10.4	68.6	68.6	9.0	14.3	120.0	14.7	20.0	120.0
Actuated g/C Ratio	0.61	0.55	1.00	0.09	0.57	0.57	0.08	0.12	1.00	0.12	0.17	1.00
v/c Ratio	0.13	0.87	0.06	0.52	0.32	0.24	0.46	0.50	0.09	0.71	0.37	0.04
Control Delay	8.6	34.9	0.1	59.3	15.0	2.4	59.3	53.4	0.1	60.8	45.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	34.9	0.1	59.3	15.0	2.4	59.3	53.4	0.1	60.8	45.7	0.0
LOS	A	C	A	E	B	A	E	D	A	E	D	A
Approach Delay		30.0			18.6			39.0			48.3	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 31.0		Intersection LOS: C	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



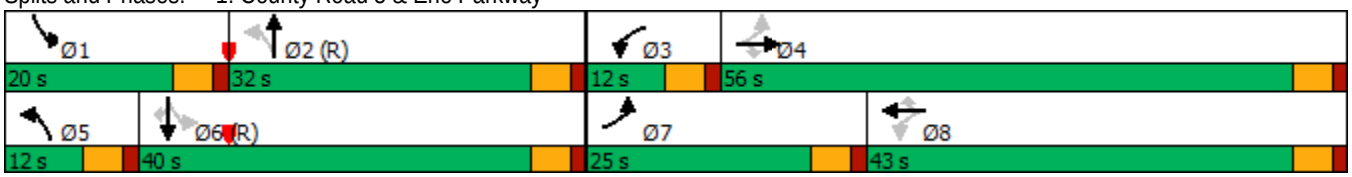


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	590	145	45	625	390	270	230	45	395	245	320
Future Volume (vph)	325	590	145	45	625	390	270	230	45	395	245	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1820	0	1770	1863	1583
Flt Permitted	0.091			0.257			0.508			0.230		
Satd. Flow (perm)	170	1863	1583	479	1863	1583	946	1820	0	428	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			386		7				343
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.88	0.95	0.95	0.95	0.95	0.88	0.95	0.90	0.95	0.88	0.90	0.88
Adj. Flow (vph)	369	621	153	47	658	443	284	256	47	449	272	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	621	153	47	658	443	284	303	0	449	272	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	25.0	56.0	56.0	12.0	43.0	43.0	12.0	32.0		20.0	40.0	40.0
Total Split (%)	20.8%	46.7%	46.7%	10.0%	35.8%	35.8%	10.0%	26.7%		16.7%	33.3%	33.3%
Maximum Green (s)	20.0	51.0	51.0	7.0	38.0	38.0	7.0	27.0		15.0	35.0	35.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	65.0	55.5	55.5	48.6	40.0	40.0	38.0	29.0		49.0	37.0	37.0
Actuated g/C Ratio	0.54	0.46	0.46	0.40	0.33	0.33	0.32	0.24		0.41	0.31	0.31
v/c Ratio	0.96	0.72	0.19	0.16	1.06	0.56	0.79	0.68		1.23	0.47	0.50
Control Delay	71.2	32.8	3.6	15.6	92.0	8.2	46.9	49.2		154.3	37.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.2	32.8	3.6	15.6	92.0	8.2	46.9	49.2		154.3	37.0	6.9
LOS	E	C	A	B	F	A	D	D		F	D	A
Approach Delay		41.3			56.5			48.1			75.4	
Approach LOS		D			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 56.1		Intersection LOS: E	
Intersection Capacity Utilization 101.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	25	43	272	208
Demand Flow Rate, veh/h	25	44	277	213
Vehicles Circulating, veh/h	222	264	42	27
Vehicles Exiting, veh/h	18	55	205	281
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.9	4.6	4.1
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	T	L	R
Assumed Moves	T	L	R
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	44	277	213
Cap Entry Lane, veh/h	1054	1322	1342
Entry HV Adj Factor	0.975	0.982	0.978
Flow Entry, veh/h	43	272	208
Cap Entry, veh/h	1028	1299	1313
V/C Ratio	0.042	0.210	0.159
Control Delay, s/veh	3.9	4.6	4.1
LOS	A	A	A
95th %tile Queue, veh	0	1	1

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	5	510	420	35
Future Vol, veh/h	40	10	5	510	420	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	11	5	554	457	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1021	457	495	0	-	0
Stage 1	457	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	262	604	1069	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	604	1069	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1069	-	261	604	-	-
HCM Lane V/C Ratio	0.005	-	0.167	0.018	-	-
HCM Control Delay (s)	8.4	-	21.5	11.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0.1	-	-

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	305	210	25	270	160
Future Vol, veh/h	5	305	210	25	270	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	332	228	27	293	174
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	13.2	12.1	20.1
HCM LOS	B	B	C

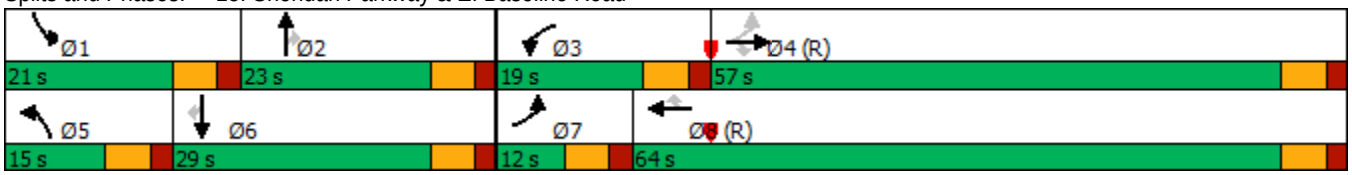
Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	2%	63%
Vol Thru, %	89%	0%	37%
Vol Right, %	11%	98%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	310	430
LT Vol	0	5	270
Through Vol	210	0	160
RT Vol	25	305	0
Lane Flow Rate	255	337	467
Geometry Grp	1	1	1
Degree of Util (X)	0.391	0.49	0.7
Departure Headway (Hd)	5.516	5.232	5.395
Convergence, Y/N	Yes	Yes	Yes
Cap	651	687	668
Service Time	3.565	3.281	3.435
HCM Lane V/C Ratio	0.392	0.491	0.699
HCM Control Delay	12.1	13.2	20.1
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.9	2.7	5.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	525	100	195	750	175	70	120	130	190	215	45
Future Volume (vph)	25	525	100	195	750	175	70	120	130	190	215	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.330			0.950			0.950			0.950		
Satd. Flow (perm)	615	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			190			191			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	571	109	212	815	190	76	130	141	207	234	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	571	109	212	815	190	76	130	141	207	234	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0
Total Split (s)	12.0	57.0	57.0	19.0	64.0	64.0	15.0	23.0	23.0	21.0	29.0	29.0
Total Split (%)	10.0%	47.5%	47.5%	15.8%	53.3%	53.3%	12.5%	19.2%	19.2%	17.5%	24.2%	24.2%
Maximum Green (s)	6.0	51.0	51.0	13.0	58.0	58.0	9.0	17.0	17.0	15.0	23.0	23.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	71.4	63.2	63.2	14.7	74.4	74.4	9.8	11.8	11.8	14.3	18.7	18.7
Actuated g/C Ratio	0.60	0.53	0.53	0.12	0.62	0.62	0.08	0.10	0.10	0.12	0.16	0.16
v/c Ratio	0.06	0.58	0.12	0.51	0.37	0.18	0.27	0.37	0.43	0.51	0.43	0.12
Control Delay	8.2	23.9	0.3	53.2	13.3	2.3	53.9	53.3	6.3	53.6	48.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	23.9	0.3	53.2	13.3	2.3	53.9	53.3	6.3	53.6	48.8	0.6
LOS	A	C	A	D	B	A	D	D	A	D	D	A
Approach Delay		19.6			18.6			34.4			46.0	
Approach LOS		B			B			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 43 (36%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 25.7		Intersection LOS: C	
Intersection Capacity Utilization 56.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road

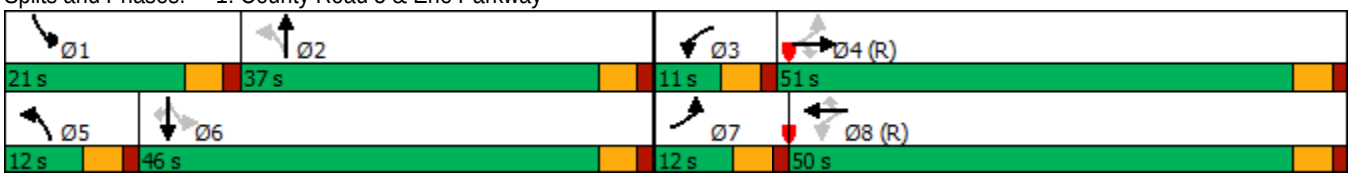


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	765	335	45	540	325	290	255	40	285	215	165
Future Volume (vph)	225	765	335	45	540	325	290	255	40	285	215	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.980				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1825	0	1770	1863	1583
Flt Permitted	0.157			0.083			0.600			0.195		
Satd. Flow (perm)	292	1863	1583	155	1863	1583	1118	1825	0	363	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			364			353		6				179
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	805	364	49	568	353	315	277	43	310	234	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	805	364	49	568	353	315	320	0	310	234	179
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	12.0	51.0	51.0	11.0	50.0	50.0	12.0	37.0		21.0	46.0	46.0
Total Split (%)	10.0%	42.5%	42.5%	9.2%	41.7%	41.7%	10.0%	30.8%		17.5%	38.3%	38.3%
Maximum Green (s)	7.0	46.0	46.0	6.0	45.0	45.0	7.0	32.0		16.0	41.0	41.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	65.1	56.2	56.2	56.6	48.0	48.0	36.5	27.5		48.4	36.4	36.4
Actuated g/C Ratio	0.54	0.47	0.47	0.47	0.40	0.40	0.30	0.23		0.40	0.30	0.30
v/c Ratio	0.72	0.92	0.39	0.26	0.76	0.42	0.81	0.76		0.87	0.41	0.30
Control Delay	32.1	49.1	3.7	18.3	39.5	4.1	48.2	53.8		51.0	34.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	32.1	49.1	3.7	18.3	39.5	4.1	48.2	53.8		51.0	34.8	5.2
LOS	C	D	A	B	D	A	D	D		D	C	A
Approach Delay		34.5			25.5			51.0			34.4	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 34.9		Intersection LOS: C	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	17	55	266	283
Demand Flow Rate, veh/h	17	56	271	289
Vehicles Circulating, veh/h	299	261	34	38
Vehicles Exiting, veh/h	28	44	282	279
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	3.9	4.5	4.6
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	T	L	R
Assumed Moves	T	L	R
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	56	271	289
Cap Entry Lane, veh/h	1057	1333	1327
Entry HV Adj Factor	0.978	0.982	0.979
Flow Entry, veh/h	55	266	283
Cap Entry, veh/h	1034	1309	1299
V/C Ratio	0.053	0.203	0.218
Control Delay, s/veh	3.9	4.5	4.6
LOS	A	A	A
95th %tile Queue, veh	0	1	1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	5	10	385	450	40
Future Vol, veh/h	35	5	10	385	450	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	5	11	418	489	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	929	489	532	0	-	0
Stage 1	489	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	297	579	1036	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	579	1036	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0.2	0
HCM LOS	C		

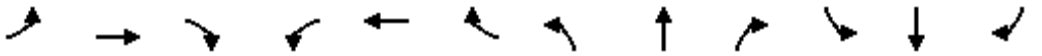
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1036	-	294	579	-	-
HCM Lane V/C Ratio	0.01	-	0.129	0.009	-	-
HCM Control Delay (s)	8.5	-	19.1	11.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	0	-	-

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	310	85	15	335	120
Future Vol, veh/h	25	310	85	15	335	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	337	92	16	364	130
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	13.1	9.7	20.5
HCM LOS	B	A	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	7%	74%
Vol Thru, %	85%	0%	26%
Vol Right, %	15%	93%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	335	455
LT Vol	0	25	335
Through Vol	85	0	120
RT Vol	15	310	0
Lane Flow Rate	109	364	495
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.509	0.719
Departure Headway (Hd)	5.555	5.037	5.232
Convergence, Y/N	Yes	Yes	Yes
Cap	645	721	692
Service Time	3.602	3.037	3.264
HCM Lane V/C Ratio	0.169	0.505	0.715
HCM Control Delay	9.7	13.1	20.5
HCM Lane LOS	A	B	C
HCM 95th-tile Q	0.6	2.9	6.1

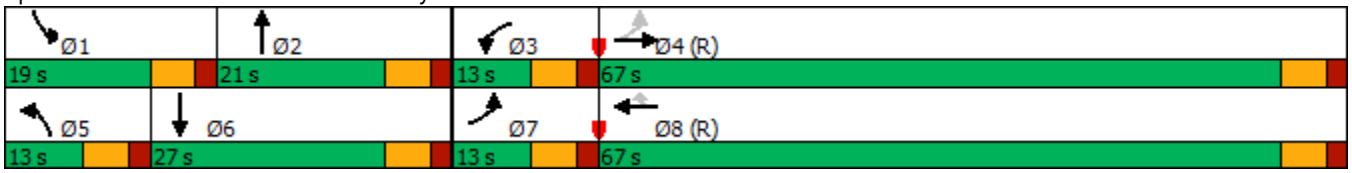


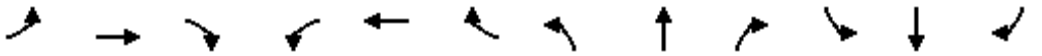
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	925	100	160	650	250	120	215	150	300	220	65
Future Volume (vph)	65	925	100	160	650	250	120	215	150	300	220	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.340			0.950			0.950			0.950		
Satd. Flow (perm)	633	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			272			191			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	974	109	174	707	272	130	234	163	326	239	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	974	109	174	707	272	130	234	163	326	239	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	13.0	67.0		13.0	67.0	67.0	13.0	21.0		19.0	27.0	
Total Split (%)	10.8%	55.8%		10.8%	55.8%	55.8%	10.8%	17.5%		15.8%	22.5%	
Maximum Green (s)	7.0	61.0		7.0	61.0	61.0	7.0	15.0		13.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	3.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	72.7	64.9	120.0	10.3	67.8	67.8	9.0	14.8	120.0	14.9	20.7	120.0
Actuated g/C Ratio	0.61	0.54	1.00	0.09	0.56	0.56	0.08	0.12	1.00	0.12	0.17	1.00
v/c Ratio	0.15	0.97	0.07	0.59	0.35	0.27	0.51	0.54	0.10	0.77	0.39	0.04
Control Delay	8.9	48.9	0.1	61.8	15.7	2.4	60.7	53.7	0.1	63.6	45.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	48.9	0.1	61.8	15.7	2.4	60.7	53.7	0.1	63.6	45.6	0.0
LOS	A	D	A	E	B	A	E	D	A	E	D	A
Approach Delay		41.8			19.5			38.9			49.8	
Approach LOS		D			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 35.4		Intersection LOS: D	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



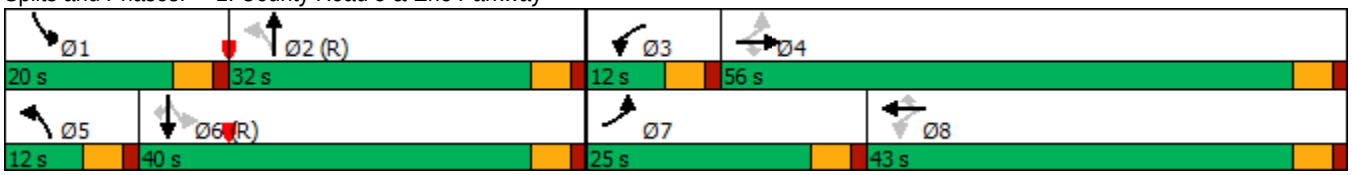


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	590	154	54	625	390	297	243	72	395	250	320
Future Volume (vph)	325	590	154	54	625	390	297	243	72	395	250	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.967				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1801	0	1770	1863	1583
Flt Permitted	0.091			0.257			0.497			0.163		
Satd. Flow (perm)	170	1863	1583	479	1863	1583	926	1801	0	304	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162			375		11				339
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.88	0.95	0.95	0.95	0.95	0.88	0.95	0.90	0.95	0.88	0.90	0.88
Adj. Flow (vph)	369	621	162	57	658	443	313	270	76	449	278	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	369	621	162	57	658	443	313	346	0	449	278	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	25.0	56.0	56.0	12.0	43.0	43.0	12.0	32.0		20.0	40.0	40.0
Total Split (%)	20.8%	46.7%	46.7%	10.0%	35.8%	35.8%	10.0%	26.7%		16.7%	33.3%	33.3%
Maximum Green (s)	20.0	51.0	51.0	7.0	38.0	38.0	7.0	27.0		15.0	35.0	35.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	65.0	55.5	55.5	48.6	40.0	40.0	38.0	29.0		49.0	37.0	37.0
Actuated g/C Ratio	0.54	0.46	0.46	0.40	0.33	0.33	0.32	0.24		0.41	0.31	0.31
v/c Ratio	0.96	0.72	0.20	0.20	1.06	0.57	0.88	0.78		1.36	0.48	0.50
Control Delay	71.2	32.8	3.6	16.0	92.0	8.9	58.1	54.7		205.9	37.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	71.2	32.8	3.6	16.0	92.0	8.9	58.1	54.7		205.9	37.2	7.1
LOS	E	C	A	B	F	A	E	D		F	D	A
Approach Delay		41.0			56.5			56.3			96.6	
Approach LOS		D			E			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 62.8		Intersection LOS: E	
Intersection Capacity Utilization 103.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	25	187	296	233
Demand Flow Rate, veh/h	25	191	302	238
Vehicles Circulating, veh/h	322	264	67	102
Vehicles Exiting, veh/h	18	105	280	353
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.9	5.2	4.9	4.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	T	T	LR	LR
Assumed Moves	T	T	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	25	191	302	238
Cap Entry Lane, veh/h	994	1054	1289	1244
Entry HV Adj Factor	0.991	0.979	0.980	0.981
Flow Entry, veh/h	25	187	296	233
Cap Entry, veh/h	985	1032	1264	1220
V/C Ratio	0.025	0.181	0.234	0.191
Control Delay, s/veh	3.9	5.2	4.9	4.6
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	15	5	127	45	14
Future Vol, veh/h	80	15	5	127	45	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	16	5	138	49	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	243	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	745	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	880	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1489	-	742	962
Mov Cap-2 Maneuver	-	-	-	-	742	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	785	-	-	1489	-
HCM Lane V/C Ratio	0.082	-	-	0.004	-
HCM Control Delay (s)	10	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	92	2	2	127	5	6
Future Vol, veh/h	92	2	2	127	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	2	2	138	5	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	243	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	745	954
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	744	954
Mov Cap-2 Maneuver	-	-	-	-	744	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	846	-	-	1490	-
HCM Lane V/C Ratio	0.014	-	-	0.001	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	4	2	119	10	6
Future Vol, veh/h	94	4	2	119	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	4	2	129	11	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	106	0	237	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1485	-	751	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1485	-	750	951
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	815	-	-	1485	-
HCM Lane V/C Ratio	0.021	-	-	0.001	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	7	8	101	20	22
Future Vol, veh/h	93	7	8	101	20	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	8	9	110	22	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	109	0	233	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1481	-	755	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1481	-	750	949
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	1481	-
HCM Lane V/C Ratio	0.054	-	-	0.006	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	5	3	94	15	9
Future Vol, veh/h	110	5	3	94	15	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	5	3	102	16	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	231	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1462	-	757	928
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	755	928
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	914	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	812	-	-	1462	-
HCM Lane V/C Ratio	0.032	-	-	0.002	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	111	8	6	72	25	17
Future Vol, veh/h	111	8	6	72	25	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	9	7	78	27	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	218	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	770	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	766	924
Mov Cap-2 Maneuver	-	-	-	-	766	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	927	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	823	-	-	1455	-
HCM Lane V/C Ratio	0.055	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	124	4	3	66	12	10
Future Vol, veh/h	124	4	3	66	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	4	3	72	13	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	215	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	773	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	771	911
Mov Cap-2 Maneuver	-	-	-	-	771	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	829	-	-	1445	-
HCM Lane V/C Ratio	0.029	-	-	0.002	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	44	17	527	426	52
Future Vol, veh/h	90	44	17	527	426	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	48	18	573	463	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1072	463	520	0	-	0
Stage 1	463	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	244	599	1046	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	240	599	1046	-	-	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.9	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1046	-	240	599	-	-
HCM Lane V/C Ratio	0.018	-	0.408	0.08	-	-
HCM Control Delay (s)	8.5	-	30	11.5	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	0.3	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	33	12	527	464	6
Future Vol, veh/h	17	33	12	527	464	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	36	13	573	504	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1107	508	511	0	-	0
Stage 1	508	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	233	565	1054	-	-	-
Stage 1	604	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	230	565	1054	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	0.2	0
HCM LOS	C		

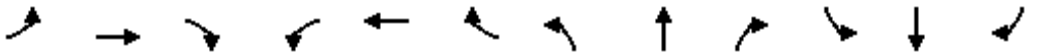
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1054	-	378	-	-
HCM Lane V/C Ratio	0.012	-	0.144	-	-
HCM Control Delay (s)	8.5	-	16.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	329	210	25	337	160
Future Vol, veh/h	5	329	210	25	337	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	358	228	27	366	174
Number of Lanes	1	0	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	14.5	12.9	17.6
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	1%	100%	0%
Vol Thru, %	89%	0%	0%	100%
Vol Right, %	11%	99%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	334	337	160
LT Vol	0	5	337	0
Through Vol	210	0	0	160
RT Vol	25	329	0	0
Lane Flow Rate	255	363	366	174
Geometry Grp	5	2	7	7
Degree of Util (X)	0.411	0.539	0.656	0.287
Departure Headway (Hd)	5.794	5.341	6.451	5.944
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	621	675	560	603
Service Time	3.842	3.389	4.194	3.686
HCM Lane V/C Ratio	0.411	0.538	0.654	0.289
HCM Control Delay	12.9	14.5	20.7	11.1
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	2	3.2	4.8	1.2

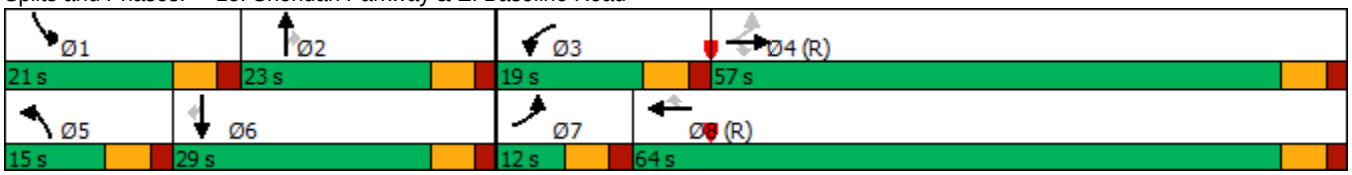


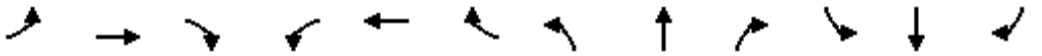
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	549	115	195	758	190	75	129	130	232	240	45
Future Volume (vph)	25	549	115	195	758	190	75	129	130	232	240	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.323			0.950			0.950			0.950		
Satd. Flow (perm)	602	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			207			191			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	597	125	212	824	207	82	140	141	252	261	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	597	125	212	824	207	82	140	141	252	261	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0	11.0	24.0	24.0
Total Split (s)	12.0	57.0	57.0	19.0	64.0	64.0	15.0	23.0	23.0	21.0	29.0	29.0
Total Split (%)	10.0%	47.5%	47.5%	15.8%	53.3%	53.3%	12.5%	19.2%	19.2%	17.5%	24.2%	24.2%
Maximum Green (s)	6.0	51.0	51.0	13.0	58.0	58.0	9.0	17.0	17.0	15.0	23.0	23.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	70.1	61.9	61.9	14.7	73.0	73.0	9.9	12.1	12.1	15.4	19.9	19.9
Actuated g/C Ratio	0.58	0.52	0.52	0.12	0.61	0.61	0.08	0.10	0.10	0.13	0.17	0.17
v/c Ratio	0.06	0.62	0.14	0.51	0.38	0.20	0.29	0.39	0.43	0.57	0.44	0.12
Control Delay	8.5	25.7	0.7	53.2	14.1	2.4	54.1	53.4	6.2	54.5	48.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	25.7	0.7	53.2	14.1	2.4	54.1	53.4	6.2	54.5	48.1	0.6
LOS	A	C	A	D	B	A	D	D	A	D	D	A
Approach Delay		20.9			18.8			35.2			46.8	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 43 (36%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



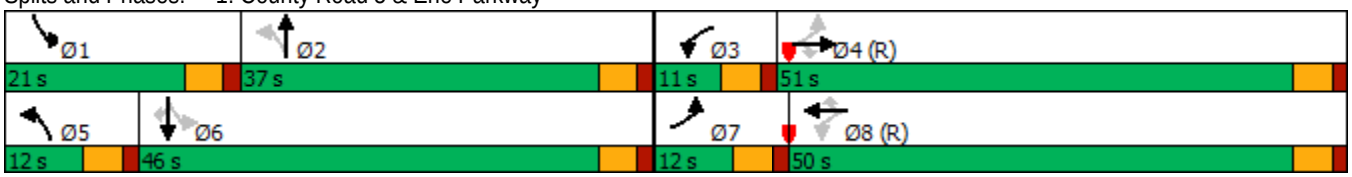


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	765	365	75	540	325	308	264	58	285	229	165
Future Volume (vph)	225	765	365	75	540	325	308	264	58	285	229	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1812	0	1770	1863	1583
Flt Permitted	0.153			0.084			0.578			0.173		
Satd. Flow (perm)	285	1863	1583	156	1863	1583	1077	1812	0	322	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			397			353		9				179
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		19.7			22.4			14.8			11.3	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	805	397	82	568	353	335	287	63	310	249	179
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	805	397	82	568	353	335	350	0	310	249	179
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0		10.0	23.0	23.0
Total Split (s)	12.0	51.0	51.0	11.0	50.0	50.0	12.0	37.0		21.0	46.0	46.0
Total Split (%)	10.0%	42.5%	42.5%	9.2%	41.7%	41.7%	10.0%	30.8%		17.5%	38.3%	38.3%
Maximum Green (s)	7.0	46.0	46.0	6.0	45.0	45.0	7.0	32.0		16.0	41.0	41.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0			11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	63.3	54.5	54.5	56.5	47.6	47.6	37.9	28.9		49.9	37.9	37.9
Actuated g/C Ratio	0.53	0.45	0.45	0.47	0.40	0.40	0.32	0.24		0.42	0.32	0.32
v/c Ratio	0.77	0.95	0.42	0.43	0.77	0.42	0.85	0.79		0.89	0.42	0.29
Control Delay	37.8	55.1	3.8	22.8	40.0	4.1	52.3	54.5		53.9	34.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.8	55.1	3.8	22.8	40.0	4.1	52.3	54.5		53.9	34.0	5.0
LOS	D	E	A	C	D	A	D	D		D	C	A
Approach Delay		38.1			25.9			53.4			35.4	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 37.1		Intersection LOS: D	
Intersection Capacity Utilization 91.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	5.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	17	151	342	365
Demand Flow Rate, veh/h	17	154	349	372
Vehicles Circulating, veh/h	432	261	117	88
Vehicles Exiting, veh/h	28	205	332	327
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.3	4.8	5.6	5.6
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	T	T	LR	LR
Assumed Moves	T	T	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	17	154	349	372
Cap Entry Lane, veh/h	888	1057	1225	1261
Entry HV Adj Factor	0.994	0.979	0.981	0.981
Flow Entry, veh/h	17	151	342	365
Cap Entry, veh/h	883	1035	1201	1237
V/C Ratio	0.019	0.146	0.285	0.295
Control Delay, s/veh	4.3	4.8	5.6	5.6
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	50	16	109	30	9
Future Vol, veh/h	135	50	16	109	30	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	54	17	118	33	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	201	0	326	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1371	-	668	869
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1371	-	659	869
Mov Cap-2 Maneuver	-	-	-	-	659	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	698	-	-	1371	-
HCM Lane V/C Ratio	0.061	-	-	0.013	-
HCM Control Delay (s)	10.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	5	7	122	3	4
Future Vol, veh/h	139	5	7	122	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	5	8	133	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	303	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1424	-	689	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1424	-	685	892
Mov Cap-2 Maneuver	-	-	-	-	685	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	790	-	-	1424	-
HCM Lane V/C Ratio	0.01	-	-	0.005	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	132	11	7	122	7	4
Future Vol, veh/h	132	11	7	122	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	143	12	8	133	8	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	298	149
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1425	-	693	898
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	689	898
Mov Cap-2 Maneuver	-	-	-	-	689	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	753	-	-	1425	-
HCM Lane V/C Ratio	0.016	-	-	0.005	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	22	25	115	14	15
Future Vol, veh/h	114	22	25	115	14	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	24	27	125	15	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	148	0	315	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1434	-	678	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1434	-	664	913
Mov Cap-2 Maneuver	-	-	-	-	664	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	835	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	773	-	-	1434	-
HCM Lane V/C Ratio	0.041	-	-	0.019	-
HCM Control Delay (s)	9.9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	112	17	10	130	10	6
Future Vol, veh/h	112	17	10	130	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	18	11	141	11	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	140	0	294	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1443	-	697	919
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	691	919
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	859	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	762	-	-	1443	-
HCM Lane V/C Ratio	0.023	-	-	0.008	-
HCM Control Delay (s)	9.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	91	27	19	123	17	11
Future Vol, veh/h	91	27	19	123	17	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	29	21	134	18	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	128	0	290	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	176	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1458	-	701	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1458	-	690	939
Mov Cap-2 Maneuver	-	-	-	-	690	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	-	-	1458	-
HCM Lane V/C Ratio	0.04	-	-	0.014	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	13	10	134	8	7
Future Vol, veh/h	89	13	10	134	8	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	14	11	146	9	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	272	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1479	-	717	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	711	951
Mov Cap-2 Maneuver	-	-	-	-	711	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	806	-	-	1479	-
HCM Lane V/C Ratio	0.02	-	-	0.007	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	28	49	397	469	95
Future Vol, veh/h	68	28	49	397	469	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	30	53	432	510	103

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1048	510	613	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	252	563	966	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	563	966	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.4	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	966	-	238	563	-	-
HCM Lane V/C Ratio	0.055	-	0.311	0.054	-	-
HCM Control Delay (s)	8.9	-	26.8	11.8	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	0.2	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	22	39	434	478	19
Future Vol, veh/h	12	22	39	434	478	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	24	42	472	520	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1087	531	541	0	-	0
Stage 1	531	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	239	548	1028	-	-	-
Stage 1	590	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	229	548	1028	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	566	-	-	-	-	-
Stage 2	574	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0.7	0
HCM LOS	C		

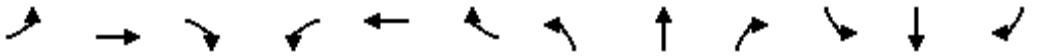
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1028	-	367	-	-
HCM Lane V/C Ratio	0.041	-	0.101	-	-
HCM Control Delay (s)	8.7	-	15.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	388	85	15	380	120
Future Vol, veh/h	25	388	85	15	380	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	422	92	16	413	130
Number of Lanes	1	0	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	1	0
HCM Control Delay	17.1	10.5	21.9
HCM LOS	C	B	C

Lane	NBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	6%	100%	0%
Vol Thru, %	85%	0%	0%	100%
Vol Right, %	15%	94%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	413	380	120
LT Vol	0	25	380	0
Through Vol	85	0	0	120
RT Vol	15	388	0	0
Lane Flow Rate	109	449	413	130
Geometry Grp	5	2	7	7
Degree of Util (X)	0.183	0.645	0.741	0.216
Departure Headway (Hd)	6.049	5.173	6.462	5.955
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	591	705	558	603
Service Time	4.109	3.173	4.206	3.698
HCM Lane V/C Ratio	0.184	0.637	0.74	0.216
HCM Control Delay	10.5	17.1	25.5	10.3
HCM Lane LOS	B	C	D	B
HCM 95th-tile Q	0.7	4.7	6.3	0.8

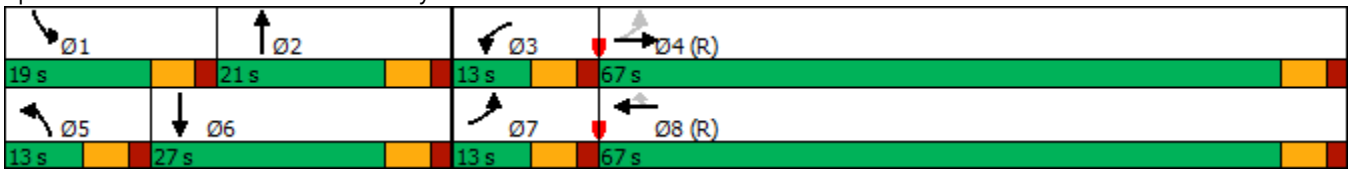


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	941	110	160	676	298	135	245	150	328	237	65
Future Volume (vph)	65	941	110	160	676	298	135	245	150	328	237	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.323			0.950			0.950			0.950		
Satd. Flow (perm)	602	1863	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			324			191			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	991	120	174	735	324	147	266	163	357	258	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	991	120	174	735	324	147	266	163	357	258	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	13.0	67.0		13.0	67.0	67.0	13.0	21.0		19.0	27.0	
Total Split (%)	10.8%	55.8%		10.8%	55.8%	55.8%	10.8%	17.5%		15.8%	22.5%	
Maximum Green (s)	7.0	61.0		7.0	61.0	61.0	7.0	15.0		13.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-3.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	3.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	72.4	64.6	120.0	9.9	67.1	67.1	9.0	15.5	120.0	15.0	21.5	120.0
Actuated g/C Ratio	0.60	0.54	1.00	0.08	0.56	0.56	0.08	0.13	1.00	0.12	0.18	1.00
v/c Ratio	0.16	0.99	0.08	0.62	0.37	0.32	0.57	0.58	0.10	0.83	0.41	0.04
Control Delay	9.2	53.9	0.1	63.6	16.2	2.4	62.9	54.4	0.1	68.6	45.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	53.9	0.1	63.6	16.2	2.4	62.9	54.4	0.1	68.6	45.4	0.0
LOS	A	D	A	E	B	A	E	D	A	E	D	A
Approach Delay		45.7			19.3			41.2			52.8	
Approach LOS		D			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 37.5		Intersection LOS: D	
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road

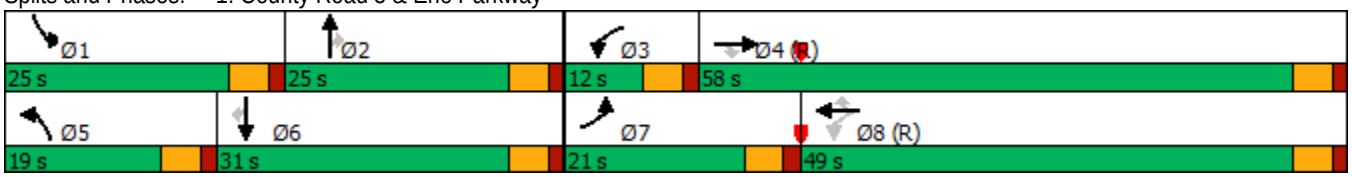


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	655	160	60	625	425	285	250	55	445	280	370
Future Volume (vph)	345	655	160	60	625	425	285	250	55	445	280	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.366			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	682	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			174			432			200			250
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	712	174	65	679	462	310	272	60	484	304	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	712	174	65	679	462	310	272	60	484	304	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	21.0	58.0	58.0	12.0	49.0	49.0	19.0	25.0	25.0	25.0	31.0	31.0
Total Split (%)	17.5%	48.3%	48.3%	10.0%	40.8%	40.8%	15.8%	20.8%	20.8%	20.8%	25.8%	25.8%
Maximum Green (s)	16.0	53.0	53.0	7.0	44.0	44.0	14.0	20.0	20.0	20.0	26.0	26.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	18.1	62.5	62.5	59.8	51.0	51.0	15.6	17.5	17.5	21.3	23.3	23.3
Actuated g/C Ratio	0.15	0.52	0.52	0.50	0.42	0.42	0.13	0.15	0.15	0.18	0.19	0.19
v/c Ratio	0.73	0.39	0.19	0.16	0.45	0.50	0.70	0.53	0.15	0.79	0.44	0.79
Control Delay	57.4	19.5	3.3	12.8	26.7	5.3	58.9	50.6	0.8	57.6	44.0	28.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	19.5	3.3	12.8	26.7	5.3	58.9	50.6	0.8	57.6	44.0	28.6
LOS	E	B	A	B	C	A	E	D	A	E	D	C
Approach Delay		28.5			17.8			50.0			44.3	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 33.1		Intersection LOS: C	
Intersection Capacity Utilization 60.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.5
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	25	43	299	230
Demand Flow Rate, veh/h	25	44	304	235
Vehicles Circulating, veh/h	244	291	42	27
Vehicles Exiting, veh/h	18	55	227	308
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	4.0	4.7	4.2
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	T	L	R
Assumed Moves	T	L	R
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	44	304	235
Cap Entry Lane, veh/h	1026	1322	1342
Entry HV Adj Factor	0.975	0.982	0.979
Flow Entry, veh/h	43	299	230
Cap Entry, veh/h	1000	1298	1314
V/C Ratio	0.043	0.230	0.175
Control Delay, s/veh	4.0	4.7	4.2
LOS	A	A	A
95th %tile Queue, veh	0	1	1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	10	5	615	510	35
Future Vol, veh/h	40	10	5	615	510	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	11	5	668	554	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	898	277	592	0	-	0
Stage 1	554	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	279	720	980	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	278	720	980	-	-	-
Mov Cap-2 Maneuver	278	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	0.1	0
HCM LOS	C		

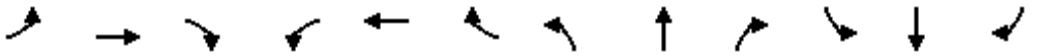
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	980	-	278	720	-	-
HCM Lane V/C Ratio	0.006	-	0.156	0.015	-	-
HCM Control Delay (s)	8.7	-	20.3	10.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	0	-	-

Intersection	
Intersection Delay, s/veh	30.5
Intersection LOS	D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	410	210	25	360	160
Future Vol, veh/h	5	410	210	25	360	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	446	228	27	391	174
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	21.9	14.4	44.7
HCM LOS	C	B	E

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	1%	69%
Vol Thru, %	89%	0%	31%
Vol Right, %	11%	99%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	415	520
LT Vol	0	5	360
Through Vol	210	0	160
RT Vol	25	410	0
Lane Flow Rate	255	451	565
Geometry Grp	1	1	1
Degree of Util (X)	0.448	0.718	0.924
Departure Headway (Hd)	6.307	5.728	6.002
Convergence, Y/N	Yes	Yes	Yes
Cap	572	636	610
Service Time	4.338	3.728	4.002
HCM Lane V/C Ratio	0.446	0.709	0.926
HCM Control Delay	14.4	21.9	44.7
HCM Lane LOS	B	C	E
HCM 95th-tile Q	2.3	6	11.8

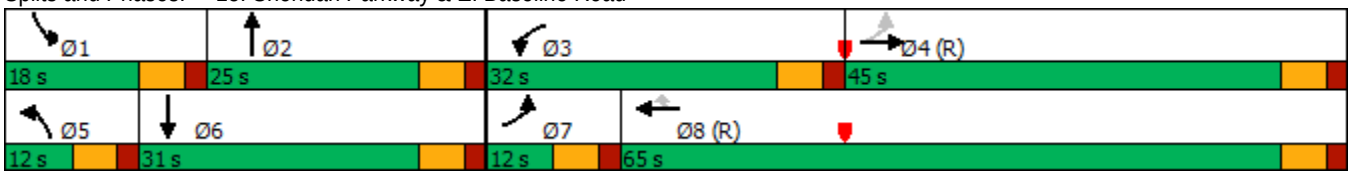


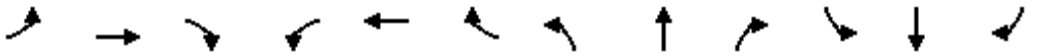
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	955	120	850	1390	220	100	160	525	215	265	60
Future Volume (vph)	50	955	120	850	1390	220	100	160	525	215	265	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.140			0.950			0.950			0.950		
Satd. Flow (perm)	261	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			239			520			245
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	1038	130	924	1511	239	109	174	571	234	288	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1038	130	924	1511	239	109	174	571	234	288	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	12.0	45.0		32.0	65.0	65.0	12.0	25.0		18.0	31.0	
Total Split (%)	10.0%	37.5%		26.7%	54.2%	54.2%	10.0%	20.8%		15.0%	25.8%	
Maximum Green (s)	6.0	39.0		26.0	59.0	59.0	6.0	19.0		12.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	49.8	41.0	120.0	37.2	70.8	70.8	8.0	13.2	120.0	13.5	18.8	120.0
Actuated g/C Ratio	0.42	0.34	1.00	0.31	0.59	0.59	0.07	0.11	1.00	0.11	0.16	1.00
v/c Ratio	0.25	0.86	0.08	0.87	0.72	0.23	0.48	0.45	0.36	0.60	0.52	0.04
Control Delay	14.9	45.3	0.1	49.5	21.6	2.3	61.4	53.3	0.6	57.7	49.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	45.3	0.1	49.5	21.6	2.3	61.4	53.3	0.6	57.7	49.6	0.1
LOS	B	D	A	D	C	A	E	D	A	E	D	A
Approach Delay		39.1			29.5			19.1			47.3	
Approach LOS		D			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 32.0		Intersection LOS: C	
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



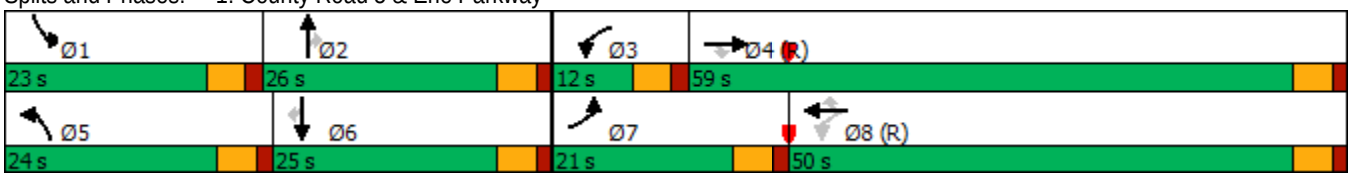


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	900	375	65	540	390	325	310	60	330	255	205
Future Volume (vph)	280	900	375	65	540	390	325	310	60	330	255	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.234			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	436	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			408			424			155			223
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		19.7			22.4			14.8			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	978	408	71	587	424	353	337	65	359	277	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	978	408	71	587	424	353	337	65	359	277	223
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	21.0	59.0	59.0	12.0	50.0	50.0	24.0	26.0	26.0	23.0	25.0	25.0
Total Split (%)	17.5%	49.2%	49.2%	10.0%	41.7%	41.7%	20.0%	21.7%	21.7%	19.2%	20.8%	20.8%
Maximum Green (s)	16.0	54.0	54.0	7.0	45.0	45.0	19.0	21.0	21.0	18.0	20.0	20.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	17.0	63.7	63.7	62.6	53.6	53.6	18.8	18.8	18.8	18.6	18.6	18.6
Actuated g/C Ratio	0.14	0.53	0.53	0.52	0.45	0.45	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.63	0.52	0.40	0.22	0.37	0.45	0.66	0.61	0.17	0.68	0.51	0.52
Control Delay	54.4	21.0	3.0	12.9	24.1	3.9	53.5	51.6	1.0	54.6	49.5	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	21.0	3.0	12.9	24.1	3.9	53.5	51.6	1.0	54.6	49.5	10.1
LOS	D	C	A	B	C	A	D	D	A	D	D	B
Approach Delay		22.7			15.5			48.1			41.4	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	4.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	17	55	288	311
Demand Flow Rate, veh/h	17	56	293	318
Vehicles Circulating, veh/h	328	283	34	38
Vehicles Exiting, veh/h	28	44	311	301
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	4.0	4.6	4.8
Approach LOS	-	A	A	A

Lane	Left	Left	Left
Designated Moves	T	L	R
Assumed Moves	T	L	R
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	56	293	318
Cap Entry Lane, veh/h	1034	1333	1327
Entry HV Adj Factor	0.978	0.982	0.979
Flow Entry, veh/h	55	288	311
Cap Entry, veh/h	1011	1309	1300
V/C Ratio	0.054	0.220	0.240
Control Delay, s/veh	4.0	4.6	4.8
LOS	A	A	A
95th %tile Queue, veh	0	1	1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	5	10	490	565	40
Future Vol, veh/h	35	5	10	490	565	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	5	11	533	614	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	903	307	657	0	-	0
Stage 1	614	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	277	689	926	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	274	689	926	-	-	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	0.2	0
HCM LOS	C		

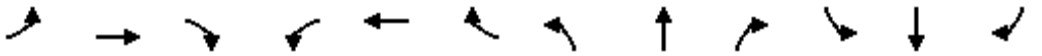
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	926	-	274	689	-	-
HCM Lane V/C Ratio	0.012	-	0.139	0.008	-	-
HCM Control Delay (s)	8.9	-	20.2	10.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	0	-	-

Intersection	
Intersection Delay, s/veh	37.4
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	415	85	15	450	120
Future Vol, veh/h	25	415	85	15	450	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	451	92	16	489	130
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	21.6	10.9	54.3
HCM LOS	C	B	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	6%	79%
Vol Thru, %	85%	0%	21%
Vol Right, %	15%	94%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	100	440	570
LT Vol	0	25	450
Through Vol	85	0	120
RT Vol	15	415	0
Lane Flow Rate	109	478	620
Geometry Grp	1	1	1
Degree of Util (X)	0.19	0.724	0.978
Departure Headway (Hd)	6.291	5.447	5.682
Convergence, Y/N	Yes	Yes	Yes
Cap	565	660	638
Service Time	4.387	3.524	3.74
HCM Lane V/C Ratio	0.193	0.724	0.972
HCM Control Delay	10.9	21.6	54.3
HCM Lane LOS	B	C	F
HCM 95th-tile Q	0.7	6.2	14.3

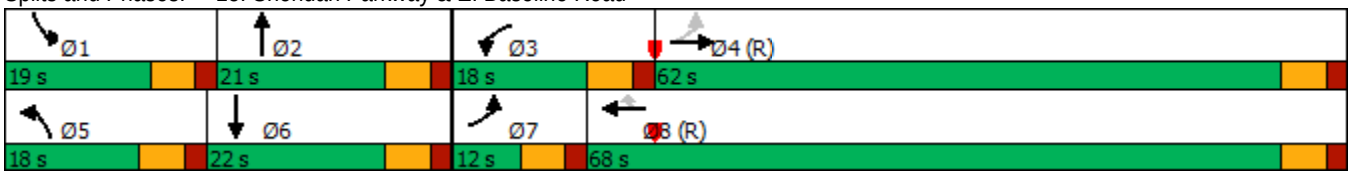


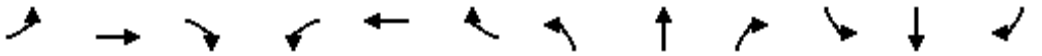
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1690	145	675	755	290	190	290	650	375	280	90
Future Volume (vph)	100	1690	145	675	755	290	190	290	650	375	280	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.310			0.950			0.950			0.950		
Satd. Flow (perm)	577	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			305			265			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.95	0.98	0.95	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1724	153	689	795	305	200	305	684	395	295	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	1724	153	689	795	305	200	305	684	395	295	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	12.0	62.0		18.0	68.0	68.0	18.0	21.0		19.0	22.0	
Total Split (%)	10.0%	51.7%		15.0%	56.7%	56.7%	15.0%	17.5%		15.8%	18.3%	
Maximum Green (s)	6.0	56.0		12.0	62.0	62.0	12.0	15.0		13.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	68.3	59.0	120.0	15.9	65.7	65.7	14.2	17.1	120.0	16.0	18.9	120.0
Actuated g/C Ratio	0.57	0.49	1.00	0.13	0.55	0.55	0.12	0.14	1.00	0.13	0.16	1.00
v/c Ratio	0.25	0.99	0.10	1.51	0.41	0.30	0.49	0.61	0.43	0.86	0.53	0.06
Control Delay	10.0	50.1	0.1	278.4	16.8	2.3	53.8	53.7	0.9	70.4	50.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	50.1	0.1	278.4	16.8	2.3	53.8	53.7	0.9	70.4	50.3	0.1
LOS	B	D	A	F	B	A	D	D	A	E	D	A
Approach Delay		44.1			115.1			23.3			54.3	
Approach LOS		D			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 63.3		Intersection LOS: E	
Intersection Capacity Utilization 98.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



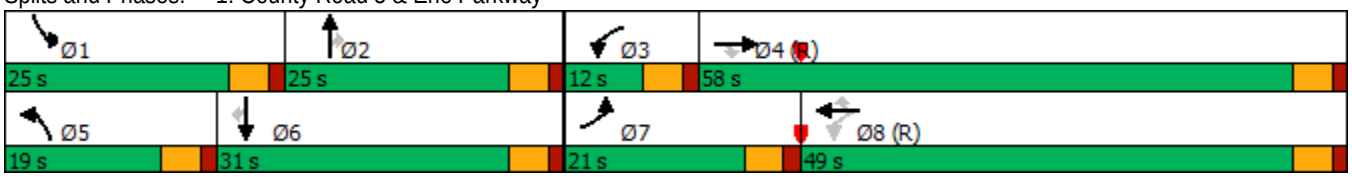


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	655	169	69	625	425	312	263	82	445	285	370
Future Volume (vph)	345	655	169	69	625	425	312	263	82	445	285	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.366			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	682	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			425			200			248
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	712	184	75	679	462	339	286	89	484	310	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	375	712	184	75	679	462	339	286	89	484	310	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	21.0	58.0	58.0	12.0	49.0	49.0	19.0	25.0	25.0	25.0	31.0	31.0
Total Split (%)	17.5%	48.3%	48.3%	10.0%	40.8%	40.8%	15.8%	20.8%	20.8%	20.8%	25.8%	25.8%
Maximum Green (s)	16.0	53.0	53.0	7.0	44.0	44.0	14.0	20.0	20.0	20.0	26.0	26.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	18.1	62.1	62.1	59.7	50.8	50.8	15.7	17.8	17.8	21.3	23.4	23.4
Actuated g/C Ratio	0.15	0.52	0.52	0.50	0.42	0.42	0.13	0.15	0.15	0.18	0.20	0.20
v/c Ratio	0.73	0.39	0.20	0.18	0.45	0.51	0.75	0.55	0.22	0.79	0.45	0.79
Control Delay	57.4	19.7	3.2	13.0	26.9	5.6	61.7	50.8	1.3	57.6	44.1	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	19.7	3.2	13.0	26.9	5.6	61.7	50.8	1.3	57.6	44.1	28.8
LOS	E	B	A	B	C	A	E	D	A	E	D	C
Approach Delay		28.4			17.9			49.8			44.4	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	5.0
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	25	187	323	255
Demand Flow Rate, veh/h	25	191	329	260
Vehicles Circulating, veh/h	344	291	67	102
Vehicles Exiting, veh/h	18	105	302	380
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.0	5.3	5.1	4.8
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	T	T	LR	LR
Assumed Moves	T	T	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	25	191	329	260
Cap Entry Lane, veh/h	972	1026	1289	1244
Entry HV Adj Factor	0.991	0.979	0.980	0.981
Flow Entry, veh/h	25	187	323	255
Cap Entry, veh/h	963	1004	1264	1220
V/C Ratio	0.026	0.186	0.255	0.209
Control Delay, s/veh	4.0	5.3	5.1	4.8
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	15	5	127	45	14
Future Vol, veh/h	80	15	5	127	45	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	16	5	138	49	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	243	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	745	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	880	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1489	-	742	962
Mov Cap-2 Maneuver	-	-	-	-	742	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	785	-	-	1489	-
HCM Lane V/C Ratio	0.082	-	-	0.004	-
HCM Control Delay (s)	10	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	92	2	2	127	5	6
Future Vol, veh/h	92	2	2	127	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	2	2	138	5	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	243	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	142	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	745	954
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	744	954
Mov Cap-2 Maneuver	-	-	-	-	744	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	846	-	-	1490	-
HCM Lane V/C Ratio	0.014	-	-	0.001	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	4	2	119	10	6
Future Vol, veh/h	94	4	2	119	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	4	2	129	11	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	106	0	237	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1485	-	751	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1485	-	750	951
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	815	-	-	1485	-
HCM Lane V/C Ratio	0.021	-	-	0.001	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	7	8	101	20	22
Future Vol, veh/h	93	7	8	101	20	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	8	9	110	22	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	109	0	233	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1481	-	755	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1481	-	750	949
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	1481	-
HCM Lane V/C Ratio	0.054	-	-	0.006	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	5	3	94	15	9
Future Vol, veh/h	110	5	3	94	15	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	5	3	102	16	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	125	0	231	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1462	-	757	928
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1462	-	755	928
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	914	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	812	-	-	1462	-
HCM Lane V/C Ratio	0.032	-	-	0.002	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	111	8	6	72	25	17
Future Vol, veh/h	111	8	6	72	25	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	9	7	78	27	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	130	0	218	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1455	-	770	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1455	-	766	924
Mov Cap-2 Maneuver	-	-	-	-	766	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	927	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	823	-	-	1455	-
HCM Lane V/C Ratio	0.055	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	124	4	3	66	12	10
Future Vol, veh/h	124	4	3	66	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	4	3	72	13	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	215	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	773	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	771	911
Mov Cap-2 Maneuver	-	-	-	-	771	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	829	-	-	1445	-
HCM Lane V/C Ratio	0.029	-	-	0.002	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	44	17	632	516	52
Future Vol, veh/h	90	44	17	632	516	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	48	18	687	561	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	941	281	618	0	-	0
Stage 1	561	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	262	716	958	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	716	958	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	958	-	257	716	-	-
HCM Lane V/C Ratio	0.019	-	0.381	0.067	-	-
HCM Control Delay (s)	8.8	-	27.4	10.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	33	12	632	554	6
Future Vol, veh/h	17	33	12	632	554	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	36	13	687	602	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	976	305	609	0	-	0
Stage 1	606	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	248	691	966	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	245	691	966	-	-	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	0.2	0
HCM LOS	B		

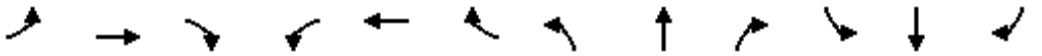
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	966	-	427	-	-
HCM Lane V/C Ratio	0.014	-	0.127	-	-
HCM Control Delay (s)	8.8	-	14.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Intersection Delay, s/veh	35.1
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	434	210	25	427	160
Future Vol, veh/h	5	434	210	25	427	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	472	228	27	464	174
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	35.5	17	42
HCM LOS	E	C	E

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	89%	0%	0%	0%	100%
Vol Right, %	11%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	5	434	427	160
LT Vol	0	5	0	427	0
Through Vol	210	0	0	0	160
RT Vol	25	0	434	0	0
Lane Flow Rate	255	5	472	464	174
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.501	0.012	0.851	0.936	0.326
Departure Headway (Hd)	7.064	7.718	6.493	7.262	6.752
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	511	467	561	501	532
Service Time	5.116	5.418	4.193	5.012	4.501
HCM Lane V/C Ratio	0.499	0.011	0.841	0.926	0.327
HCM Control Delay	17	10.5	35.8	52.9	12.8
HCM Lane LOS	C	B	E	F	B
HCM 95th-tile Q	2.8	0	9.1	11.3	1.4

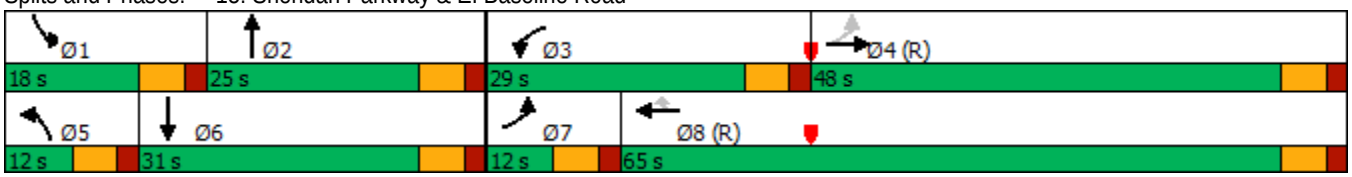


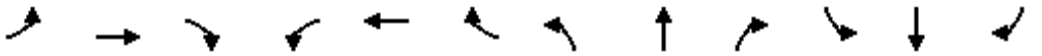
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	979	135	850	1398	235	105	169	525	257	290	60
Future Volume (vph)	50	979	135	850	1398	235	105	169	525	257	290	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.124			0.950			0.950			0.950		
Satd. Flow (perm)	231	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245			255			481			245
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	1064	147	850	1520	255	114	184	571	279	315	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1064	147	850	1520	255	114	184	571	279	315	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	12.0	48.0		29.0	65.0	65.0	12.0	25.0		18.0	31.0	
Total Split (%)	10.0%	40.0%		24.2%	54.2%	54.2%	10.0%	20.8%		15.0%	25.8%	
Maximum Green (s)	6.0	42.0		23.0	59.0	59.0	6.0	19.0		12.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-3.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		3.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	52.8	44.0	120.0	33.6	70.1	70.1	8.0	13.6	120.0	13.8	19.4	120.0
Actuated g/C Ratio	0.44	0.37	1.00	0.28	0.58	0.58	0.07	0.11	1.00	0.12	0.16	1.00
v/c Ratio	0.25	0.82	0.09	0.88	0.74	0.25	0.50	0.46	0.36	0.71	0.55	0.04
Control Delay	14.3	40.8	0.1	53.8	22.3	2.3	62.1	53.2	0.6	61.7	49.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	40.8	0.1	53.8	22.3	2.3	62.1	53.2	0.6	61.7	49.8	0.1
LOS	B	D	A	D	C	A	E	D	A	E	D	A
Approach Delay		34.9			30.5			19.8			49.9	
Approach LOS		C			C			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



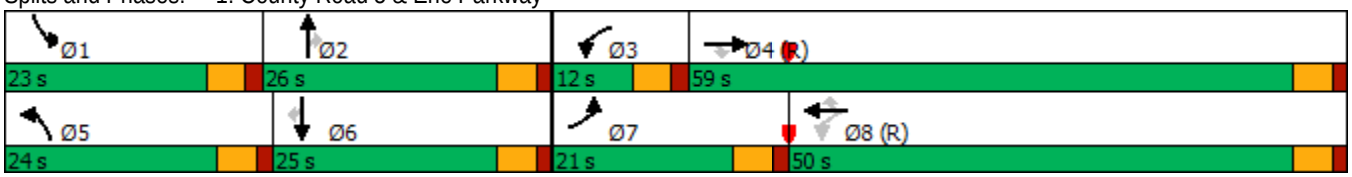


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	900	405	95	540	390	343	319	78	330	269	205
Future Volume (vph)	280	900	405	95	540	390	343	319	78	330	269	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	560		510	505		505	380		350	350		210
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.220			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	410	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			440			424			155			223
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		867			987			650			498	
Travel Time (s)		13.1			15.0			9.8			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	978	440	103	587	424	373	347	85	359	292	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	304	978	440	103	587	424	373	347	85	359	292	223
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	57.0	57.0	10.0	57.0	57.0	10.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	21.0	59.0	59.0	12.0	50.0	50.0	24.0	26.0	26.0	23.0	25.0	25.0
Total Split (%)	17.5%	49.2%	49.2%	10.0%	41.7%	41.7%	20.0%	21.7%	21.7%	19.2%	20.8%	20.8%
Maximum Green (s)	16.0	54.0	54.0	7.0	45.0	45.0	19.0	21.0	21.0	18.0	20.0	20.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	17.0	60.9	60.9	63.1	53.5	53.5	19.2	18.9	18.9	18.6	18.3	18.3
Actuated g/C Ratio	0.14	0.51	0.51	0.53	0.45	0.45	0.16	0.16	0.16	0.16	0.15	0.15
v/c Ratio	0.63	0.54	0.43	0.32	0.37	0.45	0.68	0.62	0.22	0.68	0.54	0.52
Control Delay	54.4	22.4	3.1	14.0	24.1	3.9	54.0	52.0	1.4	54.6	50.5	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	22.4	3.1	14.0	24.1	3.9	54.0	52.0	1.4	54.6	50.5	10.2
LOS	D	C	A	B	C	A	D	D	A	D	D	B
Approach Delay		23.1			15.5			47.6			41.9	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 29.2		Intersection LOS: C	
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: County Road 5 & Erie Parkway



Intersection	
Intersection Delay, s/veh	5.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	17	151	364	393
Demand Flow Rate, veh/h	17	154	371	401
Vehicles Circulating, veh/h	461	283	117	88
Vehicles Exiting, veh/h	28	205	361	349
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	4.4	4.9	5.8	5.8
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	T	T	LR	LR
Assumed Moves	T	T	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	17	154	371	401
Cap Entry Lane, veh/h	862	1034	1225	1261
Entry HV Adj Factor	0.994	0.979	0.981	0.981
Flow Entry, veh/h	17	151	364	393
Cap Entry, veh/h	857	1012	1201	1237
V/C Ratio	0.020	0.149	0.303	0.318
Control Delay, s/veh	4.4	4.9	5.8	5.8
LOS	A	A	A	A
95th %tile Queue, veh	0	1	1	1

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	135	50	16	109	30	9
Future Vol, veh/h	135	50	16	109	30	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	147	54	17	118	33	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	201	0	326	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1371	-	668	869
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1371	-	659	869
Mov Cap-2 Maneuver	-	-	-	-	659	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	698	-	-	1371	-
HCM Lane V/C Ratio	0.061	-	-	0.013	-
HCM Control Delay (s)	10.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	5	7	122	3	4
Future Vol, veh/h	139	5	7	122	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	5	8	133	3	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	303	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1424	-	689	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1424	-	685	892
Mov Cap-2 Maneuver	-	-	-	-	685	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	790	-	-	1424	-
HCM Lane V/C Ratio	0.01	-	-	0.005	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	132	11	7	122	7	4
Future Vol, veh/h	132	11	7	122	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	143	12	8	133	8	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	298	149
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1425	-	693	898
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	879	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	689	898
Mov Cap-2 Maneuver	-	-	-	-	689	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	753	-	-	1425	-
HCM Lane V/C Ratio	0.016	-	-	0.005	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	22	25	115	14	15
Future Vol, veh/h	114	22	25	115	14	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	124	24	27	125	15	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	148	0	315	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1434	-	678	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1434	-	664	913
Mov Cap-2 Maneuver	-	-	-	-	664	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	835	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	773	-	-	1434	-
HCM Lane V/C Ratio	0.041	-	-	0.019	-
HCM Control Delay (s)	9.9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	112	17	10	130	10	6
Future Vol, veh/h	112	17	10	130	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	18	11	141	11	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	140	0	294	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1443	-	697	919
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1443	-	691	919
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	859	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	762	-	-	1443	-
HCM Lane V/C Ratio	0.023	-	-	0.008	-
HCM Control Delay (s)	9.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	91	27	19	123	17	11
Future Vol, veh/h	91	27	19	123	17	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	29	21	134	18	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	128	0	290	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	176	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1458	-	701	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1458	-	690	939
Mov Cap-2 Maneuver	-	-	-	-	690	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	-	-	1458	-
HCM Lane V/C Ratio	0.04	-	-	0.014	-
HCM Control Delay (s)	9.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	13	10	134	8	7
Future Vol, veh/h	89	13	10	134	8	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	14	11	146	9	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	272	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1479	-	717	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	711	951
Mov Cap-2 Maneuver	-	-	-	-	711	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	855	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	806	-	-	1479	-
HCM Lane V/C Ratio	0.02	-	-	0.007	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	28	49	502	584	95
Future Vol, veh/h	68	28	49	502	584	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	30	53	546	635	103

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1014	318	738	0	-	0
Stage 1	635	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	235	678	864	-	-	-
Stage 1	490	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	221	678	864	-	-	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.8	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	864	-	221	678	-	-
HCM Lane V/C Ratio	0.062	-	0.334	0.045	-	-
HCM Control Delay (s)	9.4	-	29.3	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.4	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	22	39	539	593	19
Future Vol, veh/h	12	22	39	539	593	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	24	42	586	645	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1033	333	666	0	-	0
Stage 1	656	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	228	663	919	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	218	663	919	-	-	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.6	0
HCM LOS	C		

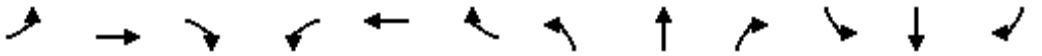
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	919	-	385	-	-
HCM Lane V/C Ratio	0.046	-	0.096	-	-
HCM Control Delay (s)	9.1	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	52.8
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	493	85	15	495	120
Future Vol, veh/h	25	493	85	15	495	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	536	92	16	538	130
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	41.8	12.4	68.7
HCM LOS	E	B	F

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	85%	0%	0%	0%	100%
Vol Right, %	15%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	25	493	495	120
LT Vol	0	25	0	495	0
Through Vol	85	0	0	0	120
RT Vol	15	0	493	0	0
Lane Flow Rate	109	27	536	538	130
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.215	0.055	0.91	1.058	0.238
Departure Headway (Hd)	7.349	7.507	6.287	7.081	6.573
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	491	480	579	511	545
Service Time	5.349	5.207	3.987	4.831	4.322
HCM Lane V/C Ratio	0.222	0.056	0.926	1.053	0.239
HCM Control Delay	12.4	10.6	43.4	82.6	11.4
HCM Lane LOS	B	B	E	F	B
HCM 95th-tile Q	0.8	0.2	11.1	16.1	0.9

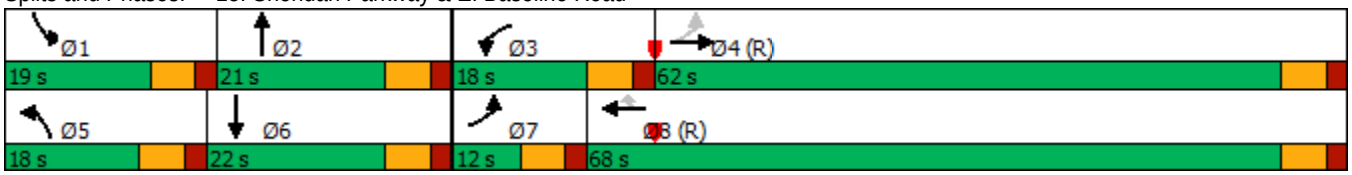


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	1706	155	675	781	338	205	320	650	403	297	90
Future Volume (vph)	100	1706	155	675	781	338	205	320	650	403	297	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	640		640	605		410	265		265	330		330
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.297			0.950			0.950			0.950		
Satd. Flow (perm)	553	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			356			264			191
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		3838			1350			756			732	
Travel Time (s)		47.6			16.7			11.5			11.1	
Peak Hour Factor	0.95	0.98	0.95	0.98	0.95	0.95	0.95	0.96	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1741	163	689	822	356	216	333	684	424	313	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	1741	163	689	822	356	216	333	684	424	313	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free			8			Free			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	11.0	24.0		11.0	24.0	24.0	11.0	24.0		11.0	24.0	
Total Split (s)	12.0	62.0		18.0	68.0	68.0	18.0	21.0		19.0	22.0	
Total Split (%)	10.0%	51.7%		15.0%	56.7%	56.7%	15.0%	17.5%		15.8%	18.3%	
Maximum Green (s)	6.0	56.0		12.0	62.0	62.0	12.0	15.0		13.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	-3.0	-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	68.1	59.0	120.0	15.6	65.5	65.5	14.3	17.4	120.0	16.0	19.0	120.0
Actuated g/C Ratio	0.57	0.49	1.00	0.13	0.55	0.55	0.12	0.14	1.00	0.13	0.16	1.00
v/c Ratio	0.26	1.00	0.10	1.54	0.43	0.35	0.53	0.65	0.43	0.93	0.56	0.06
Control Delay	10.2	52.5	0.1	290.8	17.1	2.4	54.5	54.9	0.9	79.1	50.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	52.5	0.1	290.8	17.1	2.4	54.5	54.9	0.9	79.1	50.9	0.1
LOS	B	D	A	F	B	A	D	D	A	E	D	A
Approach Delay		46.1			115.3			24.8			59.5	
Approach LOS		D			F			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 59 (49%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.54			
Intersection Signal Delay: 65.3		Intersection LOS: E	
Intersection Capacity Utilization 100.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 15: Sheridan Parkway & E. Baseline Road



Geosyntec consultants

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Memorandum

Date:	17 November 2020
To:	Richard Dean, Stratus Redtail Ranch, LLC. (Stratus)
From:	Jonathan Gillen, Geosyntec Consultants (Geosyntec)
Subject:	Summary of Soil Vapor Observations, Stratus Redtail Ranch 1 and Stratus Redtail Ranch 2
ec:	Jonathan Steeler; Roger Hollard; David Folkes; File

This memorandum provides a summary of recent soil vapor observations made at the Stratus Redtail Ranch 1 and Stratus Redtail Ranch 2 Properties (i.e., the Stratus 1 and Stratus 2 Properties). Observations were made on 12 November 2020 in response to Stratus' request on 10 November 2020.

On 6 November 2020, Stratus forwarded an electronic copy of the report titled *Property Development Environmental Review*, dated 5 November 2020 and authored by Pinyon Environmental, Inc. The report presents an independent third-party analysis, performed by Pinyon on behalf of the Town of Erie, of the environmental history, including previously performed remediation work, proposed remediation work, for the Stratus 1 and Stratus 2 properties. In the report, Pinyon summaries information presented in historical reports prepared for those properties, including the recent *Corrective Measures Design (CMD) Report, Revision 1*, dated 1 May 2020 and approved by the Colorado Department of Public Health and Environment (CDPHE) on 12 May 2020. The report includes the following conclusions and recommendations: (i) "… the CMD adequately addresses and mitigates potential concerns associated with future residential development that would occur outside the buffer area"; and (ii) recommendations related to soil vapor monitoring, sampling, and mitigation. Pinyon also points out that "Pinyon was not provided… soil gas data for…Parcel 2".

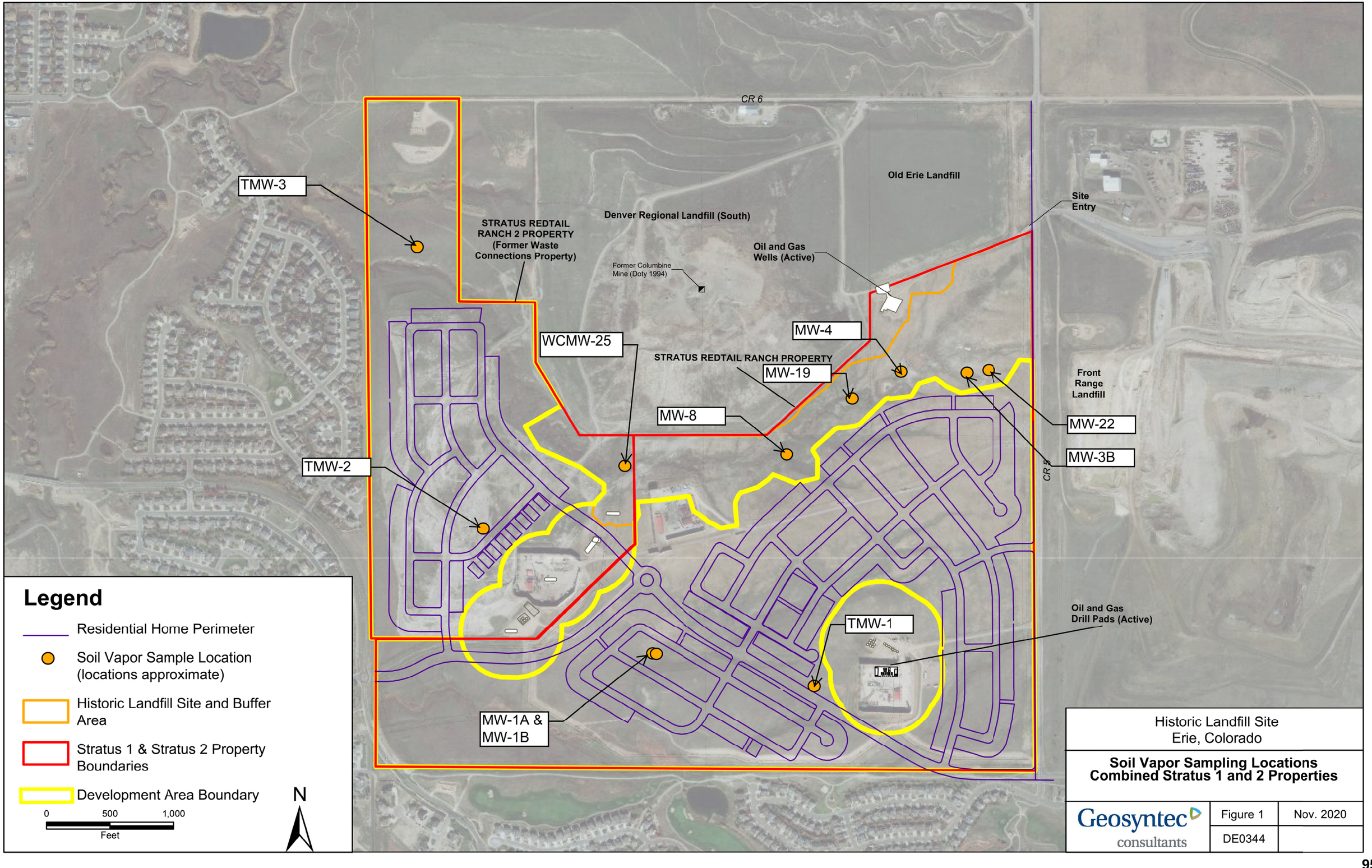
One 10 November 2020 and based on the conclusions and recommendations discussed above, Stratus requested that Geosyntec obtain additional soil vapor information from existing groundwater wells located within the Historical Landfill Area Buffer Zone, and at several additional locations around the Stratus 1 and Stratus 2 properties. Geosyntec, as part of efforts to collect data for additional characterization of the Stratus 1 and Stratus 2 properties, also obtained

methane (CH_4) and photoionization detector (PID) readings, which can be indicative of volatile organic compound (VOC) vapors at 11 locations. Five of these locations were located on the Stratus 1 and Stratus 2 properties outside of the Historical Landfill Area and roughly coincide with the location of future proposed developments. CH_4 and PID readings were obtained using a Landtec GEM 2000 and a MiniRAE 3000 PID, respectively. Readings were obtained at 5 second or 30 second intervals over a 5 minute period. Average CH_4 readings ranged from 0% by volume to 0.2% by volume with a maximum of 0.5% by volume. Average PID readings ranged from 0 parts per million (ppm) to 0.45 ppm, with a maximum of 2.3 ppm. Readings for each location were tabulated and are attached.

* * * *

Attachments:

Figure – Soil Vapor Reading locations
Tables – Soil Vapor Readings for 11 locations


CR 6
TMW-3
STRATUS REDTAIL RANCH 2 PROPERTY (Former Waste Connections Property)
Denver Regional Landfill (South)
Old Erie Landfill
Site Entry
Former Columbine Mine (Doty 1994)
Oil and Gas Wells (Active)
WCMW-25
MW-4
STRATUS REDTAIL RANCH PROPERTY
MW-19
Front Range Landfill
MW-8
MW-22
MW-3B
CR 5
TMW-2
TMW-1
Oil and Gas Drill Pads (Active)
MW-1A & MW-1B
Legend
Residential Home Perimeter
Soil Vapor Sample Location (locations approximate)
Historic Landfill Site and Buffer Area
Stratus 1 & Stratus 2 Property Boundaries
Development Area Boundary
0
500
1,000
Feet
N
Historic Landfill Site
Erie, Colorado
Soil Vapor Sampling Locations
Combined Stratus 1 and 2 Properties
Geosyntec consultants
Figure 1
Nov. 2020
DE0344

Location:	TMW-2			
Start Time:	GEM - 10:22, PID - 10:32			
End Time:	GEM - 10:27, PID - 10:37			
Initial PID Reading:	0.7 ppm			
Water Level:	Dry		50.18 TD - HB	
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:05	0.1	0.3	21.1	0.4
0:10	0.1	0.3	21.0	0
0:15	0.1	0.9	20.8	0
0:20	0.1	1.3	20.4	0
0:30	0.1	1.6	20.1	0
0:45	0.1	1.9	19.7	0
1:00	0.1	2.1	19.2	0
1:15	0.1	2.3	19.0	0
1:30	0.1	2.5	18.7	0
1:45	0.1	2.8	18.4	0
2:00	0.3	3.1	18.1	0
2:15	0.2	3.2	18.0	0
2:30	0	3.3	17.8	0
2:45	0.2	3.5	17.5	0
3:00	0.1	3.7	17.3	0
3:15	0	3.9	17.0	0
3:30	0.1	4.1	16.7	0
3:45	0.1	4.3	16.5	0
4:00	0.1	4.5	16.2	0
4:15	0.1	4.8	15.9	0
4:30	0.1	5.0	15.7	0
4:45	0	5.3	15.3	0
5:00	0.1	5.5	14.9	0

Location:	TMW-3			
Start Time:	GEM - 11:05, PID - 11:16			
End Time:	GEM - 11:10, PID - 11:21			
Initial PID Reading:	0.6 ppm			
Water Level:	Dry		45.16 TD - HB	
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:05	0.1	0.3	21.2	0.2
0:10	0	0.8	21.1	0.3
0:15	0.1	1.1	20.9	0.4
0:20	0.2	1.2	20.7	0.4
0:25	0.2	1.2	20.6	0.4
0:30	0.1	1.2	20.6	0.4
0:45	0.1	1.2	20.5	0.5
1:00	0.1	1.2	20.5	0.5
1:15	0.1	1.2	20.5	0.5
1:30	0.1	1.2	20.5	0.5
1:45	0.1	1.1	20.5	0.5
2:00	0.1	1.2	20.5	0.5
2:15	0.1	1.2	20.5	0.5
2:30	0.2	1.2	20.4	0.5
2:45	0.1	1.2	20.4	0.5
3:00	0.1	1.2	20.3	0.5
3:15	0.1	1.2	20.4	0.5
3:30	0.1	1.2	20.5	0.5
3:45	0	1.2	20.4	0.5
4:00	0.5	1.3	20.4	0.4
4:15	0.1	1.5	20.4	0.4
4:30	0.4	1.3	20.4	0.4
4:45	0.1	1.3	20.4	0.4
5:00	0.5	1.3	20.4	0.4

Location:	WCMW-25			
Start Time:	11:46			
End Time:	11:51			
Initial PID Reading:	2.3 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.1	0.8	21.0	0.2
1:00	0.3	1	20.8	0.2
1:30	0.2	1.1	20.6	0.2
2:00	0.2	1.2	20.5	0.2
2:30	0.1	1.2	20.5	0.1
3:00	0.1	1.2	20.5	0.1
3:30	0.2	1.3	20.4	0.1
4:00	0.1	1.3	20.4	0.1
4:30	0.1	1.3	20.3	0.1
5:00	0.1	1.3	20.4	0.1

Location:	TMW-1			
Start Time:	GEM - 12:59, PID - 13:10			
End Time:	GEM - 13:04, PID - 13:15			
Initial PID Reading:	0.2 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:05	0.2	0.3	21.1	0
0:10	0.2	0.6	21.1	0
0:15	0.2	0.8	20.9	0
0:20	0.2	0.8	20.9	0
0:25	0.2	0.8	20.8	0
0:30	0.2	0.8	20.8	0
0:45	0.2	0.8	20.8	0
1:00	0.2	0.8	20.8	0
1:15	0.2	0.8	20.8	0
1:30	0.2	0.8	20.8	0
1:45	0.2	0.8	20.7	0
2:00	0.2	0.8	20.7	0
2:15	0.2	0.8	20.8	0
2:30	0.2	0.8	20.8	0
2:45	0.2	0.8	20.8	0
3:00	0.2	0.8	20.8	0
3:15	0.2	0.8	20.8	0
3:30	0.2	0.8	20.8	0
3:45	0.2	0.8	20.8	0
4:00	0.2	0.8	20.8	0
4:15	0.2	0.8	20.8	0
4:30	0.2	0.8	20.8	0
4:45	0.2	0.8	20.8	0
5:00	0.2	0.8	20.9	0

Location:	MW-1B (Eastern Well)			
Start Time:	13:37			
End Time:	13:42			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	0.4	21.4	0
1:00	0.2	0.4	21.4	0
1:30	0.2	0.4	21.3	0
2:00	0.2	0.4	21.4	0
2:30	0.2	0.3	21.4	0
3:00	0.2	0.3	21.3	0
3:30	0.2	0.3	21.3	0
4:00	0.2	0.3	21.4	0
4:30	0.2	0.3	21.3	0
5:00	0.2	0.3	21.4	0

Location:	MW-1A (Western Well)			
Start Time:	13:51			
End Time:	13:56			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	1.9	20.5	0
1:00	0.2	2.0	20.4	0
1:30	0.2	2.2	20.1	0
2:00	0.2	2.3	20.2	0
2:30	0.2	2.3	20.1	0
3:00	0.2	2.4	20.0	0
3:30	0.2	2.4	20.0	0
4:00	0.2	2.4	20.0	0
4:30	0.2	2.5	20.0	0
5:00	0.2	2.5	20.0	0

Location:	MW-19			
Start Time:	15:26			
End Time:	15:31			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	1.1	21.2	0
1:00	0.2	1.1	21.2	0
1:30	0.2	1.1	21.2	0
2:00	0.2	1.1	21.1	0
2:30	0.2	1.1	21.1	0
3:00	0.2	1.1	21.1	0
3:30	0.2	1.1	21.1	0
4:00	0.2	1.1	21.2	0
4:30	0.2	1.1	21.1	0
5:00	0.2	1.1	21.1	0

Location:	MW-3B			
Start Time:	16:06			
End Time:	16:11			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	0.7	21.8	0
1:00	0.2	0.7	21.7	0
1:30	0.2	0.7	21.8	0
2:00	0.2	0.7	21.8	0
2:30	0.2	0.7	21.8	0
3:00	0.2	0.7	21.8	0
3:30	0.2	0.7	21.8	0
4:00	0.2	0.7	21.8	0
4:30	0.2	0.7	21.8	0
5:00	0.2	0.7	21.8	0

Location:	MW-8			
Start Time:	15:09			
End Time:	15:14			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.1	6.6	18.3	0
1:00	0	7.9	17.5	0
1:30	0	8.8	16.9	0
2:00	0	8.9	16.8	0
2:30	0	9.0	16.8	0
3:00	0	9.0	16.8	0
3:30	0	9.0	16.9	0
4:00	0	8.9	16.8	0
4:30	0	8.9	16.9	0
5:00	0	8.9	16.9	0

Location:	MW-4			
Start Time:	15:44			
End Time:	15:49			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	1.3	21.4	0
1:00	0.2	1.3	21.3	0
1:30	0.2	1.3	21.4	0
2:00	0.2	1.3	21.4	0
2:30	0.2	1.3	21.4	0
3:00	0.2	1.3	21.4	0
3:30	0.2	1.3	21.4	0
4:00	0.2	1.3	21.5	0
4:30	0.2	1.3	21.5	0
5:00	0.2	1.3	21.6	0

Location:	MW-22			
Start Time:	16:22			
End Time:	16:27			
Initial PID Reading:	0 ppm			
Time	**CH_4 %**	**CO_2 %**	**O_2 %**	**PID (ppm)**
0:30	0.2	0.7	22.0	0
1:00	0.2	0.7	21.9	0
1:30	0.2	0.7	21.9	0
2:00	0.2	0.7	21.9	0
2:30	0.2	0.7	21.9	0
3:00	0.2	0.7	21.9	0
3:30	0.2	0.7	22.0	0
4:00	0.2	0.7	22.0	0
4:30	0.2	0.7	22.0	0
5:00	0.2	0.7	22.0	0

Geotechnical Site Development Study
Redtail Ranch
Erie, Colorado

Stratus Redtail Ranch, LLC
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Project Number 160388
April 28, 2016
Updated March 23, 2021

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 PURPOSE 1
3.0 PROPOSED CONSTRUCTION 2
4.0 SITE CONDITIONS 2
5.0 FIELD EXPLORATION 2
6.0 LABORATORY TESTING 3
7.0 SUBSURFACE CONDITIONS 3
7.1 Fill 3
7.2 Natural Soil 3
7.3 Bedrock 3
7.4 Ground Water 4
8.0 GEOTECHNICAL CONCERNS 4
8.1 Existing Fill 4
8.2 Expansive Soils and Bedrock 4
8.3 Lignite and Coal Mines 4
8.4 Ground Water 5
9.0 SITE DEVELOPMENT 5
9.1 Overlot Grading 5
9.2 Overexcavation and Placement of Moisture Treated Fill 7
9.3 Slopes and Retaining Walls 9
9.4 Construction Excavation 9
9.5 Utility Construction 9
9.6 Subsurface Drainage 10
9.7 Surface Drainage 11
10.0 SITE CONCRETE AND CORROSIVITY 11
11.0 PRELIMINARY FOUNDATION DESIGN CONCEPTS 11
11.1 Straight Shaft Piers 11
11.2 Footings 12
11.3 Lateral Earth Pressures 12
11.4 Interior Floors (Basement Products) 12
11.5 First Floor Construction (Crawl Space Products) 12
11.6 Drain Systems 12
11.7 Backfill and Surface Drainage 12
12.0 PRELIMINARY STREET PAVEMENT DESIGN 13
13.0 FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION 14
14.0 GEOTECHNICAL RISK 14
15.0 LIMITATIONS 15

TABLE OF CONTENTS (cont'd)

ATTACHMENTS

SITE PLAN AND VICINITY MAP ..... FIGURE 1
TEST BORING LOGS ..... FIGURES 2 THROUGH 9
GENERALIZED BENCHING DETAIL ..... FIGURE 10
LABORATORY TEST RESULTS ..... APPENDIX A
SPECIFICATIONS FOR PLACEMENT OF FILL ..... APPENDIX B

1.0 EXECUTIVE SUMMARY

A. G. Wassenaar, Inc. (AGW) completed the geotechnical site development study for the proposed residential development at the subject site. The report was updated to include a revised site plan. The data collected during our field exploration and laboratory work and our analysis, opinions, and conclusions are presented. The purpose of our study is to provide design recommendations for planning and site development and preliminary design concepts for foundation systems and interior floor support, interior floor support, and streets.

The subsurface materials encountered in our test borings consist of fill, topsoil, and clay overlying sedimentary bedrock. Claystone and/or sandstone bedrock was encountered at depths ranging from 1 to 16 feet. Ground water was measured at depths ranging from 1 to 43 feet.

Site development considerations should include provisions for the presence of existing fill, expansive soils and shallow claystone bedrock, underground coal mines and lignite, and isolated locations of shallow ground water.

Based upon the results of this preliminary study, we anticipate that the structures will be founded on straight shaft piers drilled into competent bedrock. If the site is overexcavated and the excavated soils are placed as moisture treated fill using the recommendations presented in this report, it is likely that most of the structures could be founded on spread or pad-type footings bearing on the moisture treated fill below frost depth. Preliminary foundation design concepts are presented.

Floors and flatwork being considered for construction on-grade will require a specific risk analysis by the Client because of the potential for movement of the soils and bedrock encountered. Where the structures are founded upon straight shaft piers, engineered structural floors or modification of the floor supporting soils or bedrock can be anticipated. Where footings are constructed, slabs-on-grade may be possible depending on the expansion potential of the supporting materials and the Client's analysis of risk. Options for floor support are discussed.

Foundation subsurface drainage systems will be necessary for all below grade areas. Extensive drain systems will be required when foundations are within 4 feet of ground water. Water soluble sulfate test results indicate that site and foundation concrete should be designed for severe sulfate exposure. Preliminary pavement and other geotechnical-related recommendations are presented in the following report. We encourage the Client to read this report in its entirety and not to solely rely on the cursory information contained in this summary.

2.0 PURPOSE

This report presents the results of a geotechnical site development study for the proposed residential to be located northwest of Weld County Road 4 and Weld County Road 5 in Erie, Colorado. The study was conducted by AGW to assist in determining geotechnical design criteria for planning, site evaluation, and development considerations. Preliminary geotechnical design concepts are also presented for foundations, interior floor support, foundation drainage, and street construction.

Factual data gathered during the field and laboratory work are summarized on Figures 1 through 9 and in Appendix A. Our opinions and recommendations presented in this report are based on the data generated during our field exploration and laboratory testing, our understanding of the proposed project, and our experience with similar projects and geotechnical conditions. The information contained in the "Limited Subsurface Exploration Program, Preliminary Geotechnical Evaluation, 216 Acre Parcel – Red Tail Development, Erie, Colorado" by Ground Engineering, Job Number 15-3034, dated May 19, 2015, was considered during the preparation of this report.

This study was performed in general conformance with our Proposal Number 160388, dated February 29, 2016. This report is not intended to provide design criteria for individual foundations or street construction. Additional geotechnical studies will be required to provide final design criteria and construction recommendations.

3.0 PROPOSED CONSTRUCTION

We understand the proposed 216-acre development will include single-family residential structures and the associated utility and roadway infrastructure. Survey data provided by CWC Consulting Group indicate maximum cut depths of 7 feet and maximum fill depths of 10 feet at our test boring locations. Should the grading plans change, the contents of this report must be reviewed by AGW.

4.0 SITE CONDITIONS

The site is vacant with vegetation consisting of native grasses, cacti, and trees. The ground surface slopes moderately downwards to the southwest. The site is bounded by Weld County Road 5 on the east, Weld County Road 4 and a residential subdivision to the south, Vista Parkway and a residential subdivision to the west, and a landfill to the north. Numerous irrigation ponds and natural drainages were located on the site. The drainages generally flow from east to west. A haul road crosses the site along a ridge between the northern and central drainages. No bedrock outcrops were observed on the site. Oil and gas operations were present on the site in various locations. It is our understanding that this site is identified as being underlain by abandoned underground coal mines on the "Statewide Historic Underground Coal Mine Extents and Reported Coal Mine-Related Subsidence Events Map" available on the Colorado Geological Survey's website.

5.0 FIELD EXPLORATION

Subsurface conditions were explored by drilling 38 test borings at the approximate locations indicated on Figure 1. The test borings were advanced using a 4-inch diameter, continuous flight auger powered by track-mounted and buggy-mounted drill rigs. At frequent intervals, samples of the subsurface materials were obtained using a Modified California sampler which was driven into the soil by dropping a 140-pound hammer through a free fall of 30 inches. The Modified California sampler is a 2.5-inch outside diameter by 2-inch inside diameter device. The number of blows required for the sampler to penetrate 12 inches and/or the number of inches that the sampler is driven by 50 blows gives an indication of the consistency or relative density of the soils and bedrock materials encountered. Results of the penetration tests and locations of sampling are presented on

the "Test Boring Logs", Figures 2 through 9. Ground water measurements were made at the time of drilling and subsequent to drilling.

6.0 LABORATORY TESTING

The samples obtained during drilling were returned to the laboratory where they were visually classified by a geotechnical engineer. Laboratory testing was then assigned to specific samples to evaluate their engineering properties. The laboratory tests included swell-consolidation tests to evaluate the effect of wetting and loading on the selected samples. Gradation analysis and Atterberg limits tests were conducted to evaluate grain size distribution and plasticity. In addition, representative samples were tested for water soluble sulfates, pH, resistivity, and chlorides. The test results are summarized on Figures 2 through 9 and presented in Appendix A.

7.0 SUBSURFACE CONDITIONS

The subsurface materials encountered in our test borings consist of fill, topsoil, and clay overlying sedimentary bedrock. Claystone and/or sandstone bedrock was encountered at depths ranging from 1 to 16 feet. Ground water was measured at depths ranging from 1 to 43 feet. A more complete description of the subsurface conditions is shown on Figures 2 through 9.

7.1 Fill

Fill was encountered in Test Boring 9 and was 4 feet thick. A gravel pad was located in this area. The fill consisted of sand and was medium dense, silty, very clayey, with scattered gravel, and mottled brown. The existing fill is more fully discussed under "Geotechnical Concerns".

7.2 Natural Soil

Topsoil was found in 37 of the 38 test borings. The topsoil encountered consisted of sandy clay up to 1-foot thick. It was organic, moist, and dark brown.

Clay was found in 35 of the 38 test borings. The clay was medium stiff to very stiff, silty, sandy, slightly moist, and brown. The clay has high to very high expansion potential.

7.3 Bedrock

Claystone bedrock was encountered in all 38 test borings at depths ranging from 1 to 19 feet. The claystone was weathered to very hard, silty, with trace sand to very sandy, iron stained, with sandstone and lignite lenses, slightly moist to moist, and brown to gray to rust to olive. Lignite lenses ranging from ½-foot to 2-feet thick were encountered in five test borings at depths ranging from 12 to 40 feet. The claystone bedrock has high to very high expansion potential.

Sandstone bedrock was encountered in 18 of the 38 test borings at depths ranging from 2½ to 39 feet. The sandstone was firm to very hard, poorly cemented, clayey to very clayey, moist to wet, and brown to rust to gray to olive. The sandstone bedrock has low expansion potential.

Interbedded claystone and sandstone bedrock was encountered in six of the 38 test borings at depths ranging from 1 to 26 feet. This bedrock was hard to very hard, silty, iron stained, moist, and brown to gray to olive to rust. The claystone and sandstone portions of this bedrock should perform as previously discussed. As a mass, this bedrock has moderate expansion potential.

7.4 Ground Water

Ground water was measured at depths ranging from 12½ to 43 feet in six of the 38 test borings at the time of drilling. When we returned 4 to 7 days later, ground water was measured at depths ranging from 1 to 41½ feet in eleven of the 38 test borings. Test Borings 35 and 36 caved at depths of 17½ and 1 foot, respectively. Test Boring 28 was destroyed by others and could not be checked for ground water after drilling. Ground water was measured at a depth of 1 foot in Test Boring 2 which was located south of a pond. Ground water levels fluctuate with changing seasons and irrigation patterns and are expected to rise after construction is complete and landscape irrigation commences.

8.0 GEOTECHNICAL CONCERNS

8.1 Existing Fill

Fill was encountered in Test Boring 9 and was 4 feet thick. It is not known whether the fill encountered was placed as fill capable of supporting a structure or other structural elements. No records of this fill placement have been provided for our review. Unless documentation is provided that is deemed acceptable, with maps indicating original and as built topography, all the existing fill should be excavated prior to placement of new fill, structures, or other structural appurtenances. The excavated fill should be evaluated to determine its suitability for placement as new fill across the site.

8.2 Expansive Soils and Bedrock

Clay, claystone, and interbedded claystone and sandstone bedrock with moderate to very high expansion potential were encountered. We believe that the structures will be constructed near expansive materials should traditional methods of grading be employed. These structures will need to be supported upon straight shaft piers bottomed in bedrock. The interior floors for these structures will need to be supported structurally.

Alternatively, overexcavation and placement of a moisture treated fill to reduce swell potential may be considered. This may allow for shallow foundations and slab-on-grade construction or a reduction in the length of the straight shaft piers. Based upon the materials encountered, we have estimated that the entire site requires overexcavation if the Client desires to reduce the likelihood of foundations supported by straight shaft piers.

8.3 Lignite and Coal Mines

Lignite lenses ranging from ½-foot to 2-feet thick were encountered in five test borings at depths ranging from 12 to 40 feet. Lignite is a soft coal which is commonly found within the bedrock formation which underlies this site. It can be found in thin layers within claystone or in layers that are very soft and wet to relatively hard and dry. Our experience in areas underlain by this bedrock formation indicates that the presence and amount of lignite in the bedrock can be very erratic in

consistency and distribution, exhibiting itself in a random manner across the site. Since the material is not considered suitable for foundation support, its presence adds another level of uncertainty to the drilling of piers. Often lignite is encountered only in a portion of the piers for a structure. Where the lignite is wet, it must be cased to prevent caving and inflow of water. If it is encountered at the bottom of a long pier, it may not be possible to extend the pier through the lignite with currently available residential drill rigs. Additionally, placement of excavated lignite during the site grading process will require close monitoring and may require placement in non-structural areas or exporting from the site.

This site is identified as being underlain by abandoned underground coal mines on the "Statewide Historic Underground Coal Mine Extents and Reported Coal Mine-Related Subsidence Events Map" available on the Colorado Geological Survey's website. Western Environment and Ecology, Inc. issued the "Mine Subsidence Investigation, Pratt Property, Approximately 330 Acres in Section 29, Township 1 North, Range 68 West, Erie, Colorado, Project Number 655-001-01, dated September 19, 2014, for this site.

8.4 Ground Water

Ground water was encountered less than 15 feet beneath the existing ground surface in about 13% of the site. Ground water less than 15 feet below the site grading elevation will likely affect utility construction and some site grading operations. Ground water less than 10 feet below the site grading elevation will likely affect foundation excavations. In addition, ground water less than 5 feet below the existing or final ground surface will pose stabilization problems during site grading, foundation construction, and may cause problems during pavement construction. We recommend that foundations be constructed at least 4 feet above ground water level to reduce the potential for future water problems.

Site development should be planned to avoid or manage the ground water. Avoidance may entail raising the site grades to provide sufficient distance between the bottom of foundations and the ground water, allowing only at-grade construction (no basements) or other methods. Removing the ground water may entail the construction of drain systems and/or barriers that draw the ground water down sufficiently to allow below grade construction.

9.0 SITE DEVELOPMENT

9.1 Overlot Grading

We understand the fill materials to be used at the site will be from on-site cut areas. In general, suitable inorganic on-site or off-site soils may be used for structural fill. Existing fill should be excavated prior to placement of new fill. Topsoil, soil containing significant vegetation, organic debris or other deleterious material should be excavated and removed from the structural areas. Off-site material considered for new fill should be evaluated by AGW prior to importing to the site. Construction of the fill embankments throughout the site should consist of proper foundation preparation, constructing embankment benching where necessary, disposition of strippings, proper fill placement and compaction, and designing slopes in accordance with the recommendations

provided in this report and the applicable governing regulations. The following are general site grading recommendations:

1. It is recommended that we be retained on an essentially full-time basis to observe and test the fill placement. We should also be retained to provide observations and/or testing of the other items discussed below. The purpose of this observation and testing is to provide the Client with a greater degree of confidence that the work is being performed within the recommendations of this geotechnical study and the project specifications.
2. Existing fill was found in Test Boring 9. The fill was placed under unknown conditions. Therefore, we recommend that the fill be entirely excavated. The fill should be observed during excavation in order to determine whether the excavated material may be re-used in the structural areas as new fill. Excavation of isolated test pits (with or without density-compaction testing) will not provide enough information, in our opinion, to allow the fill to remain in place.
3. All topsoil and vegetation should be stripped and removed prior to fill placement. The vegetation, organic soils, or topsoil should be wasted from the site, placed in non-structural areas (e.g., parks, landscaping, tracts, etc.) and/or stockpiled for future use in revegetating the surface of exposed slopes. In no case should these materials be used in the structural areas or where the stability of slopes will be affected. If placed in lots, topsoil must be placed outside of the structure setbacks and should not be placed where the fill depths exceed 5 feet. If placed in depth across the back of lots, movements of fences and dry utilities should be expected.
4. Drainages should be specifically observed by AGW prior to fill placement. Vegetation found at the base of these areas must be removed. Soft or rutting soils should be removed to firm material or the subgrade stabilized, if necessary. The existing drainages tend to collect subsurface water after fill has been placed. Where the grading fill is more than 12 feet deep, a blanket or "burrito" drain should be constructed along the flow line of the drainages to a gravity daylight outfall.
5. Where the existing slopes are steeper than a 5:1 (horizontal:vertical), benching will be required for structural integrity of any fills (see Figure 10).
6. The stripped foundation areas should be observed by AGW prior to fill placement. Any soft soils found in these areas must be removed or stabilized as necessary prior to fill placement.
7. After the fill areas have been cleared, the exposed soils should be scarified to a minimum depth of 6 inches, brought to the proper moisture content, and then compacted according to Appendix B.
8. Should significant amounts of lignite be excavated by individual scrapers, it should be stockpiled or wasted. Significant layers of lignite must not be constructed within the grading fills.
9. The compaction and moisture content of the soils will be dependent upon material types and the depth and location of placement. The specifications outlined in Appendix B are based upon providing a fill with sufficient shear strength to support structures

and sufficient moisture to reduce the potential of swell of the expansive soil used in the fill.

10. Where fill depths exceed 20 feet, additional compactive effort will be necessary to limit settlement of the fill. Where fill depths exceed 25 feet, we recommend a granular fill (less than 35% passing the U. S. Standard Number 200 Sieve) be placed below the 25-foot depth. If this is not feasible, additional testing of the proposed deep fill material will be required to estimate settlements. In any case, monitoring of fills greater than 25 feet in depth will be necessary. Compaction and moisture content specifications are provided in Appendix B.
11. Particular attention should be paid to compaction of the exterior faces of slopes.
12. Placement and compaction of fill should continue to final overlot grade. We recommend that the lots not be left low or "dished-out" and that placement of fill not stop at foundation elevation.
13. Other specifications outlined in Appendix B should be followed.

9.2 Overexcavation and Placement of Moisture Treated Fill

Based on the expansion potential of the clay and claystone bedrock, we recommend that the site be overexcavated if the use of shallow foundations is desired. Our experience indicates that overexcavation and placement of a moisture treated fill would be most effectively performed using mass grading techniques. The ideal time to do this would be during site development operations. As some overexcavation beneath the roadways will likely be required, it would be advantageous to perform this overexcavation during site grading. The following recommendations should be followed in order to enable the placement of a moisture treated fill that could be used for slab and foundation support. These recommendations may be modified during construction if soil conditions differing from those anticipated are encountered.

1. The site should be excavated to a depth of at least 14 feet below the lowest foundation elevation for basement products and 16 feet below the bottom of footing elevation for crawl space products. The base of the excavation should extend, at a minimum, to a width of at least 5 feet beyond the foundation footprint (including any counterforts, covered porches, patios, decks, etc.). Excavations that do not extend to these minimums risk future foundation performance issues. It may be prudent to extend the base of the excavation to 5 feet outside of the front and rear setbacks in order to accommodate potential changes in structure dimension. Additionally, the street subgrade should be overexcavated to a depth of at least 5 feet which should extend to at least 1 foot beyond back of sidewalk (combination sidewalk) or back of curb (detached sidewalk). The excavation should be sloped following current OSHA regulations. We will not be responsible for testing near excavations that do not meet OSHA regulations. A licensed surveyor must verify the extents of the excavation prior to any fill placement.
2. Water flow into the overexcavation may occur in areas of shallow ground water. We believe that the water can be handled during construction by channeling the water in the excavation(s) and pumping from sumps. It may be prudent to provide permanent drains at the base of the overexcavation in these areas. However, if an

outfall for the drains cannot be found, they should not be constructed. The drain(s) should be sloped to a positive gravity outfall. Depending on the location of the inflow, chimney drains may be necessary to convey water from sidewall seepage areas to the drain. The configuration of these drains should be determined at the time of construction.

3. Where soft, rutting soils are found beneath planned fill areas, removal, in-place drying, or stabilization may be necessary. Stabilization prior to fill placement may be accomplished by placing crushed rock or equivalent material, which should be evaluated by AGW prior to use. The material should be spread across the area and worked into the underlying soft or loose soils with fully-loaded rubber-tired equipment. This procedure should continue until scraper-type equipment can be supported on the rock fill with no significant deflection or rutting. In some instances, a geogrid or geotextile stabilization fabric may be economical for use in conjunction with rock stabilization.
4. Should significant amounts of lignite be excavated by individual scrapers, it should be stockpiled or wasted. Significant layers of lignite must not be constructed within the grading fills.
5. Once the excavation depth and width have been verified, fill placement may begin. The bottom of the excavation should be scarified and moistened prior to fill placement. The fill, consisting of the excavated materials, should be placed in maximum 8-inch loose lifts. Moisture should be added and the lift processed. The use of a construction disc to mix and process each lift is suggested. Mixing should be performed until the moisture content is relatively uniform throughout the lift and the majority of the particles are less than 3 inches in dimension. Additional processing of the excavated claystone bedrock may be required due to the hardness of the material and low moisture content. The earthwork contractor should be made aware of the extra processing required. The fill should then be compacted as described in Appendix B.
6. Essentially full-time observation and testing of fill placement must be performed by AGW. Testing should include in-place moisture content and dry density. Swell-consolidation or other testing may also be performed at the discretion of AGW.
7. Placement and compaction of fill should continue to final overlot grade. We recommend that the lots not be left low or "dished-out" and that placement of fill not stop at foundation elevation. If the residences will not be constructed within two years of completion of the fill, additional effort may be necessary to help maintain the moisture within the fill. This may include the addition of more soil to blanket the compacted fill, the placement of mechanical or chemical barriers, or applying water periodically to the fill surface. We are available to discuss this with you.

It must be understood that while this method is used to reduce the likelihood of future heave, it is not free of risk of foundation movement. While future heave is less likely, the possibility of settlement induced by excess moisture is increased. Therefore, the control and removal of surface water at the site will continue to be very important.

Our experience indicates that clay materials of the type encountered at this site will likely exhibit an average swell of less than 2% under a surcharge load of 1,000 pounds per square foot (psf) when thoroughly mixed with water and processed with typical earthmoving equipment. It is anticipated that if this level of swell reduction is achieved, the foundations may be constructed by placing footings upon the fill. This level of swell should also provide for a low to moderate risk of basement slab movement. However, it must be understood that even with the procedures outlined above, there is a possibility that moderate to high measured swells may be found in the fill. This may require rework of portions of the fill or the use of pier foundations and structural support of interior floors. Additional drilling after the soil modification has been completed will be required to provide final foundation recommendations and basement slab risk assessments for each residence.

9.3 Slopes and Retaining Walls

Slope stability and retaining wall analyses were not conducted as part of this study. In areas where existing slopes exceed 5:1 (horizontal:vertical), benching prior to fill placement will be required (see Figure 10). Construction of conventional fill slopes should be limited to 3 to 1 or flatter. Cut slopes steeper than 2 to 1 should be evaluated for stability. Specific analysis will also be necessary if retaining walls are to be constructed.

9.4 Construction Excavation

In our opinion, the majority of the site grading, utility, and foundation excavations may be constructed using conventional earth-moving equipment for the Front Range area. Excavations deeper than 3 feet should be properly sloped or braced to prevent collapse of potentially caving soils. For planning purposes, fill and any soil influenced by ground water are "Type C" and the underlying bedrock is "Type A" according to OSHA regulations. A final determination of the soil type must be made by the Contractor's "Competent Person" (as defined by OSHA Regulation). Local, city, county, state, and federal (OSHA) regulations should be followed.

In areas of the site, the presence of ground water may be a significant constraint on construction excavation. It will be necessary to dewater all excavations constructed below the ground water level. Dewatering may include pumping from the work area or construction of well points. The excavation and utility contractor(s) must be made aware of the ground water conditions so that contract bidding will include the appropriate provisions.

9.5 Utility Construction

In our experience, utility excavations may be constructed using conventional earth-moving equipment for the Front Range area. All excavations should be sloped or shored in the interest of safety, following local and federal (OSHA) regulations. For planning purposes, OSHA soil type designations are discussed under "Construction Excavations". Final determination of the soil types must be made by the contractor's "Competent Person" (as defined by OSHA) at the time of construction.

In areas, the presence of ground water may be a constraint upon utility construction. It will be necessary to dewater all trenches constructed below the ground water level. A possible method for

dewatering would be to begin construction of the deeper (sewer) utilities at their outfall and to work upstream. Other methods include pumping from the trench in the work area or construction of well points along the trenches. The utility contractor must be made aware of the ground water conditions.

Trench backfill within all structural areas should, as a minimum, be compacted using the same methods and to the same specifications as required for overlot grading. This is especially important where utility lines and laterals are constructed beneath foundation, alley, and driveway areas. Trenches in streets should be compacted to the Town of Erie specifications. Observation and testing of fill placement must be performed during trench backfilling.

The choice of compaction equipment can have a significant effect on the performance of trench fills. It is our experience that utility trench backfills compacted with a compaction wheel attached to an excavator experience more settlement (both in area and magnitude) than those compacted with self-propelled equipment. While the contractor has control of the means and methods of construction, the Client should be aware of this issue.

9.6 Subsurface Drainage

The ground water encountered is anticipated to cause significant problems in areas of the site during development, especially if the overexcavation option is selected. As discussed under "Geotechnical Concerns", ground water should be avoided wherever possible. Additionally, clay soils and bedrock were encountered in the test borings drilled for this study. These types of material have a relatively low permeability and can develop a perched water condition. Perched water conditions generally occur after development and construction have taken place, when landscape irrigation and surface drainage conditions are changed.

For these reasons, an overall area drain (underdrain) should be considered for the site. In addition, the overall area drain could also provide for a discharge and collection point for individual foundation drains. If an area drain discharge is not available, the individual foundation drains will discharge collected water to the ground surface near each residence. Surface discharge can result in water recycling to the foundation drain and ponding of water where surface grading is not sufficient for water flow. Foundation drain discharge can also result in algae growth where water continually crosses sidewalks which become ice hazards on walkways and gutters in the winter months.

Typically, overall area drains can be designed and constructed with installation of the sanitary sewer system. However, the Town of Erie should be consulted to determine where an overall system is allowed. The civil engineering company contracted to design the infrastructure should be able to provide this design. We are available to assist in drain design. For the system to work, the area drain must be graded to a positive discharge point. If a permanent outfall for an area drain cannot be determined, the area drain should not be constructed.

If it is decided not to install an overall area drain, an alternative would be to establish points of positive gravity discharge for the gravel bedding beneath the sewer. We also recommend any basement or below grade area be provided with a perimeter subsurface drainage system sloped to

drain to a positive gravity discharge such as a sump or connected directly to the overall area drain system.

9.7 Surface Drainage

We recommend that provisions be made to divert surface runoff away from development areas. This may reduce potential problems associated with excess water in structure bearing soils. The site should be designed such that a 10% slope can be established near the structures after foundation construction. Slopes of at least 2% should be planned in landscaped areas once the water is away from the foundations.

10.0 SITE CONCRETE AND CORROSIVITY

Laboratory tests conducted on selected soil samples yielded water soluble sulfates ranging from less than 100 parts per million (ppm) to 5,160 ppm. Based upon these results and our experience in the area, the site soils and bedrock are assigned to possess severe (S2 or RS2) sulfate exposure per ACI 318 or ACI 332. We recommend the "ACI Manual of Concrete Practice", of the most recent edition be used for proper concrete mix design properties as they relate to these conditions.

The pH test results ranged from 7.8 to 8.8, resistivity test results at in-situ moisture ranged from 243 to 3,731 ohm·cm, and chloride test results ranged from 0.0002% to 0.0206%. These results are summarized on Figures 2 through 9 and on Table A-1 in Appendix A. The results of this testing should be used as an aid in choosing the construction materials in contact with these soils which will be resistant to the various corrosive forces. Manufacturer's representatives should be contacted regarding the specific corrosivity resistance for their products. In addition, local specifications should be consulted when selecting pipe materials.

11.0 PRELIMINARY FOUNDATION DESIGN CONCEPTS

The foundation recommendations for each structure are dependent upon the subsurface profile and engineering properties of the materials encountered at and near the depth of the proposed foundation. These are dependent upon the final configuration of and construction methods used during overlot grading at the site. The information in the following sections presents preliminary foundation concepts which must be finalized for each building site upon completion of the overlot grading operations. AGW should be retained to perform design level soil and foundation studies after completion of site grading.

11.1 Straight Shaft Piers

A possible foundation system for structures founded where moderately to highly expansive clay and/or claystone are at or near the bottom of the foundation excavations would be straight shaft piers drilled into bedrock. If soil modification is not employed, we believe that all the structures will require a pier foundation system. The piers will likely be designed for an end bearing pressure in the range of 20,000 to 30,000 psf, a minimum dead load pressure in the range of 20,000 to 30,000 psf, and a side shear in the range of 2,000 to 3,000 psf. Pier lengths on the order of 35 to 45 feet with

bedrock penetration from 16 to 22 feet can be anticipated. Casing of the piers should be anticipated in areas with shallow ground water.

11.2 Footings

If the site is overexcavated, spread footings or footing pad foundations may be possible. The footings must be founded below frost depth. The footings will likely be designed for maximum soil bearing pressures ranging from 1,000 to 3,000 pounds per square foot (psf). Minimum dead load pressure on the order of 700 to 1,000 psf will likely be required.

11.3 Lateral Earth Pressures

Foundation walls with fill on only one side will need to be designed for lateral earth pressures. For this site, lateral earth pressures calculated based upon equivalent fluid densities on the order of 50 to 75 pcf should be anticipated. The preliminary estimates are for properly placed and compacted fill at foundation walls. They should not be used for site retaining walls.

11.4 Interior Floors (Basement Products)

If the site is developed using traditional overlot grading techniques, it is likely that the structures be assessed with high to very high slab risk performance. If the site is overexcavated, it is likely that the sites will be assessed with a low to moderate slab risk performance. Slab-on-grade construction may be appropriate for full, unfinished basement construction on sites with low or moderate evaluations. Structural floors are generally recommended on sites with higher risk evaluations and for finished basements or any site where floor movement or cracking cannot be tolerated. If slab movement cannot be tolerated, structural floors should be constructed.

11.5 First Floor Construction (Crawl Space Products)

Some of the structures may be constructed over crawl spaces. Structural floors will be constructed in the living areas of the residences. For the garage areas, it is likely that there will be a low to moderate risk of garage slab movement after the site is overexcavated. If the site is not overexcavated, the risk of garage slab movement is very high.

11.6 Drain Systems

Drain systems will be required around the lowest excavation level for below grade spaces for each structure. Either interior or exterior drains may be used for most of the site. Where ground water is within 4 feet of the foundation, a more extensive drain system will be required. This may include gravel across the entire foundation, drain laterals, or combination interior and exterior drains. The drains must be led to a positive gravity outfall or sump. If an overall subdivision area drain is constructed, individual drains should be connected into this system if allowed by the jurisdiction.

11.7 Backfill and Surface Drainage

Foundation backfill should be moistened and compacted to reduce future settlement. The site grading should consider a slope of 10% away from the foundation at the completion of construction. All other drainage swales in landscaped areas should slope at a minimum of 2%.

12.0 PRELIMINARY STREET PAVEMENT DESIGN

Pavement design is based on the engineering properties of the subgrade and pavement materials, the assumed design traffic conditions, and the Town of Erie pavement regulations. Effective pavement structures are composed of various pavement materials bearing upon properly prepared subgrade soils. The following preliminary pavement recommendations are based upon the subsurface conditions encountered and our experience in the area.

It appears the proposed subgrade materials will likely be clay, claystone, sandstone, or fill constructed from these materials. Their AASHTO soils classifications are A-4, A-6, and A-7-6. The clays and claystone should be overexcavated to a depth of at least 5 feet below the subgrade elevation. The overexcavation should be performed during site grading prior to construction of utilities within the right-of-way. Overexcavation should cover the area from 1 foot beyond back of sidewalk (for attached sidewalk areas) or back of curb (for detached sidewalks). The excavated material may be placed as moisture treated fill (see Appendix B) within the right-of-way. This should result in a reduction in pavement thickness. All fill placed within 5 feet of the subgrade elevation should be placed as moisture treated fill.

Moisture treatment is the process of removing subgrade materials, adding moisture between 0 to 4% above optimum moisture content, and compacting the subgrade to at least 95% of Proctor maximum dry density. The Client should understand soils treated to 4% above optimum moisture content will have low support values and may be soft and yielding under load. Stabilization by chemical or mechanical means may be necessary to achieve a stable paving platform.

Based upon the subgrade soil classifications, we have estimated the relative strengths of the subgrade soils presented above in order to determine the preliminary pavement thicknesses. Based on this information and utilizing the design methodology determined from the pavement design regulations for the Town of Erie, the alternatives presented below were calculated. These preliminary thickness recommendations are based on a design life of 20 years. It should be emphasized that the design alternatives provided below are preliminary for the materials anticipated. The final design thicknesses could be more or less than indicated depending upon the materials sampled during the final pavement design.

Pavement Thickness Alternatives for Interior Streets

Street Type	HBP / ABC (in)	Concrete (in)
Collector	5.5 – 6.5 / 8.0 – 10.0	-
Locals	5.0 – 6.0 / 6.0 – 8.0	-
Alleys	-	6.0 – 8.0 *

HBP = Hot Bituminous Pavement, ABC = Aggregate Base Course, *8.0 if inverted

The above preliminary thickness recommendations are based on a design life of 20 years. It should be emphasized that the design alternatives provided above are preliminary for the materials anticipated. The final design thicknesses could be more or less than indicated depending upon the materials sampled during the final pavement design.

Proper surface and subsurface drainage is essential for adequate performance of pavements. It has been our experience that water from landscaped areas can infiltrate pavement subgrade soils and result in softening of the subgrade followed by pavement damage. Therefore, provisions should be made to maintain adequate drainage and/or contain runoff from such areas. The Town of Erie requires a pavement edge drain be installed behind the curb and gutter for all streets. In addition, water and irrigation lines should be thoroughly pressure tested for leaks prior to placement of pavement materials.

It must be reiterated that the information contained in this section is preliminary in nature. More detailed information will be required by the Town of Erie prior to issuance of a paving permit. Therefore, when overlot grading is complete at the site, a final pavement evaluation must be performed.

13.0 FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION

This report has been prepared for the exclusive use of Stratus Redtail Ranch, LLC for the purpose of providing geotechnical criteria for the proposed project. The data gathered and the conclusions and recommendations presented herein are based upon the consideration of many factors including, but not limited to, the type of structures proposed, the configuration of the structures, the proposed usage of the site, the configuration of surrounding structures, the geologic setting, the materials encountered, and our understanding of the level of risk acceptable to the Client. Therefore, the conclusions and recommendations contained in this report should not be considered valid for use by others unless accompanied by written authorization from AGW.

AGW should be contacted if the Client desires an explanation of the contents of this report. AGW should be retained to provide future geotechnical services for the site including, but not limited to, design level geotechnical studies, consultation during design, observation and testing during construction, and other geotechnically related services. Failure to contract with AGW for these services or selection of a firm other than AGW to provide these services will eliminate liability for AGW. We are available to discuss this with you.

14.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structures will perform as desired or intended. What the engineering recommendations presented in the preceding sections do constitute is our judgement of those measures that increase the chances for the structures and improvements performing satisfactorily. The Developer, Builder, and Owner must understand this concept of risk, as it is they who must ultimately decide what is an acceptable level of risk for the proposed development of the site.

15.0 LIMITATIONS

We believe the professional judgments expressed in this report are consistent with that degree of skill and care ordinarily exercised by practicing design professionals performing similar design services in the same locality, at the same time, at the same site and under the same or similar circumstances and conditions. No other warranty, express or implied, is made. In the event that any changes in the nature, design or location of the facility are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing. Because of the constantly changing state of the practice in geotechnical engineering, and the potential for site changes after our field exploration, this report must not be relied upon after a period of three years without AGW being given the opportunity to review and, if necessary, revise our findings.

The test borings drilled for this study were spaced to obtain an understanding of subsurface conditions for design purposes. Variations frequently occur from these conditions which are not indicated by the test borings. These variations are sometimes sufficient to necessitate modifications in the designs. If unexpected subsurface conditions are observed by any party during site development, we must be notified to review our recommendations.

Our scope of services for this project did not include, either specifically or by implication, any research, identification, testing, or assessment relative to past or present contamination of the site by any source, including biological (i.e., mold, fungi, bacteria, etc.). If such contamination were present, it is likely that the exploration and testing conducted for this report would not reveal its existence. If the Client is concerned about the potential for such contamination or pollution, additional studies should be undertaken. We are available to discuss the scope of such studies with you.

Our scope of services for this project did not include a local or global geological risk assessment. Therefore, issues such as mine subsidence, slope stability, faults, etc. were not researched or addressed as part of this study. If the Client is concerned about these issues, we are available to discuss the scope of such studies upon your request.

Sincerely,

A. G. Wassenaar, Inc.

COLORADO LICENSED
KATHLEEN ANN NOONAN
32156
PROFESSIONAL ENGINEER

Kathleen A. Noonan, M.S., P.E.
Senior Geotechnical Engineer

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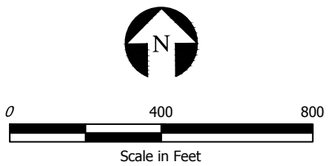
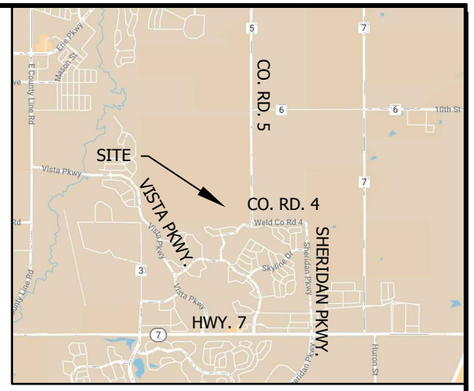
REDTAIL RANCH
ERIE, COLORADO





VICINITY MAP
NOT TO SCALE

NOTES:
1. TEST BORINGS ARE OVERLAID ON THE "REDTAIL RANCH PRELIMINARY SITE PLAN", PREPARED BY TERRACINA DESIGN, DATED FEBRUARY 17, 2021.
2. ALL LOCATIONS ARE APPROXIMATE.

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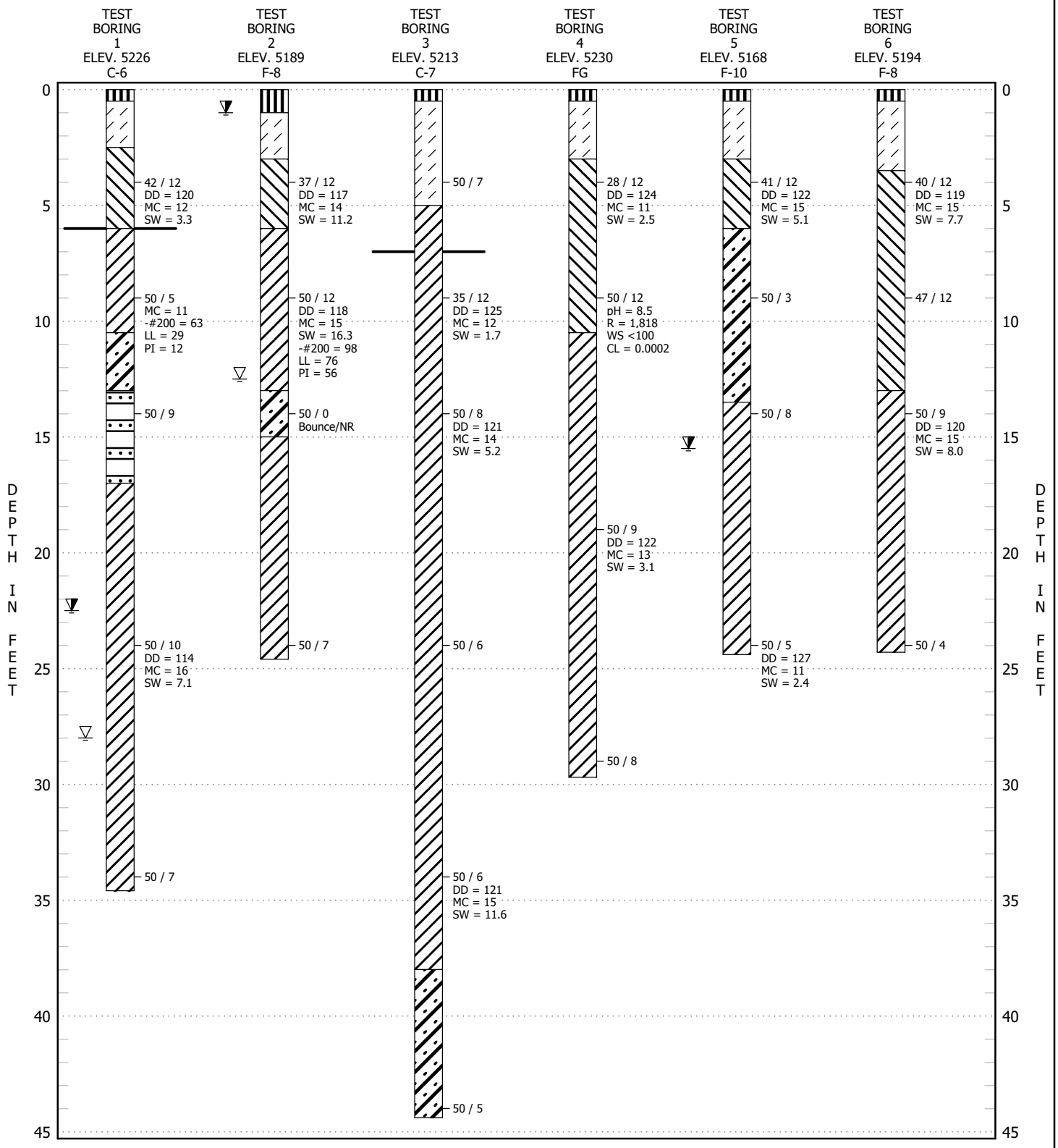
SITE PLAN AND VICINITY MAP	PROJECT NO. 160388 FIGURE 1

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

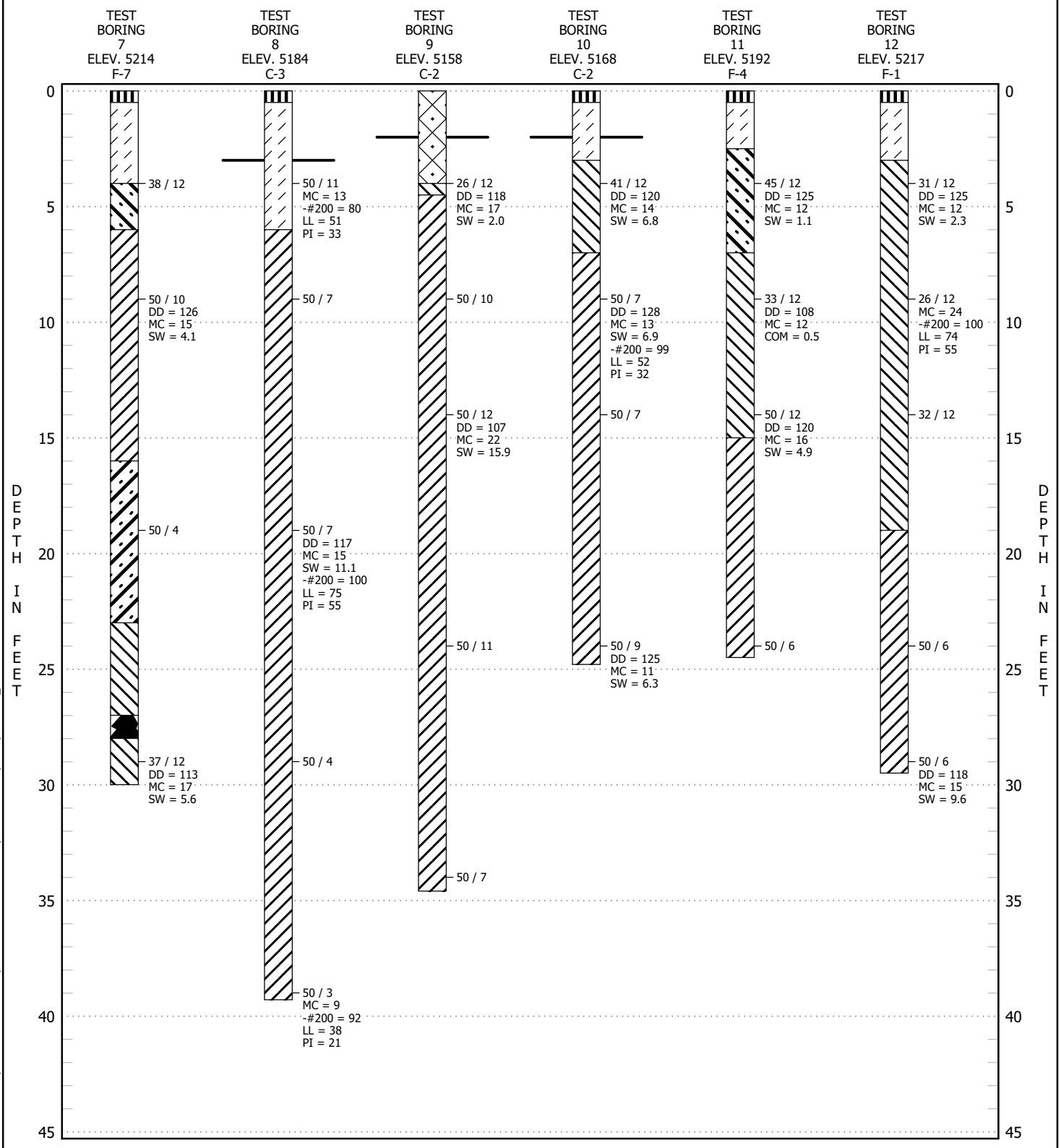
FIGURE 2

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

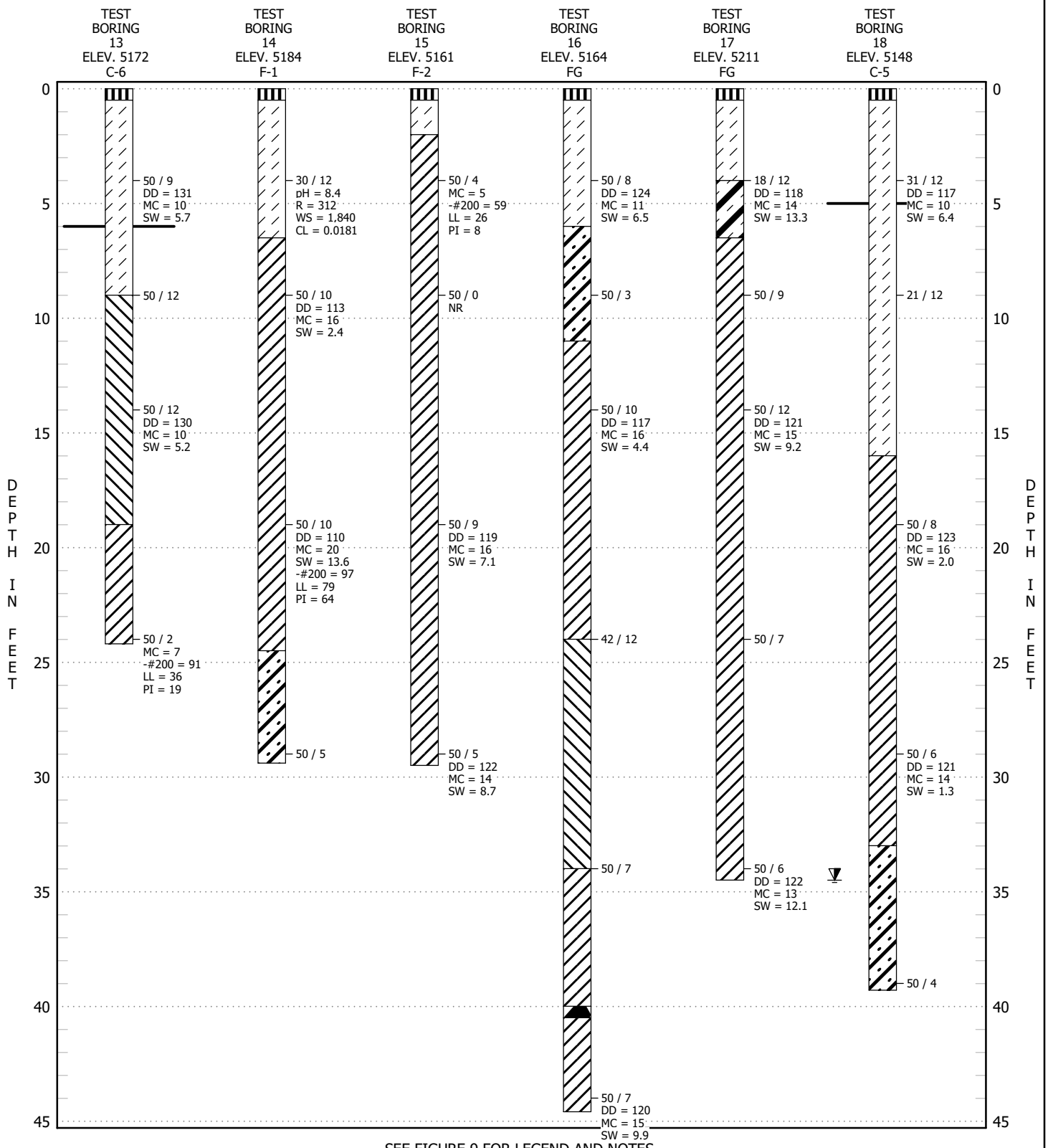
FIGURE 3

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

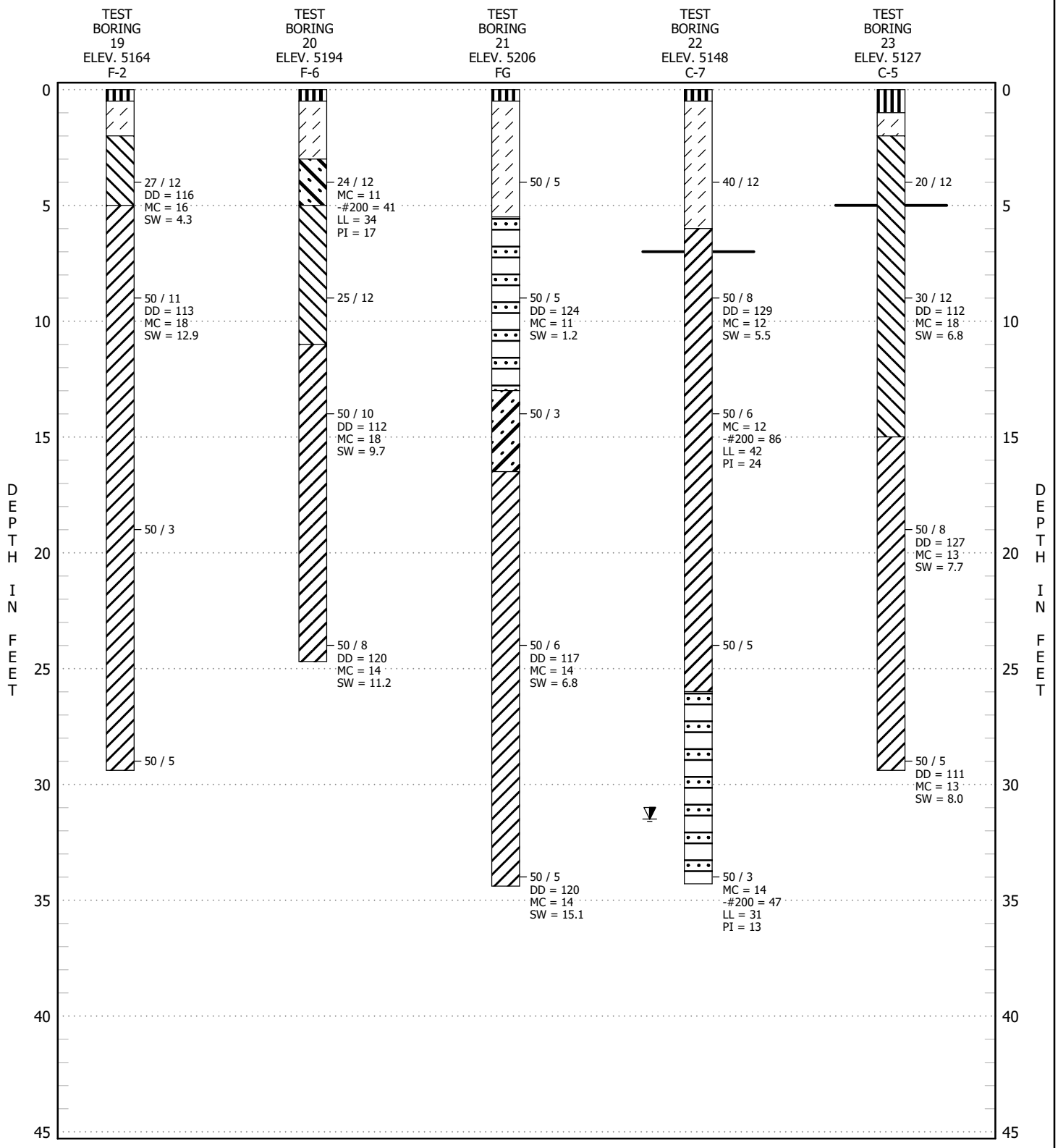
FIGURE 4

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

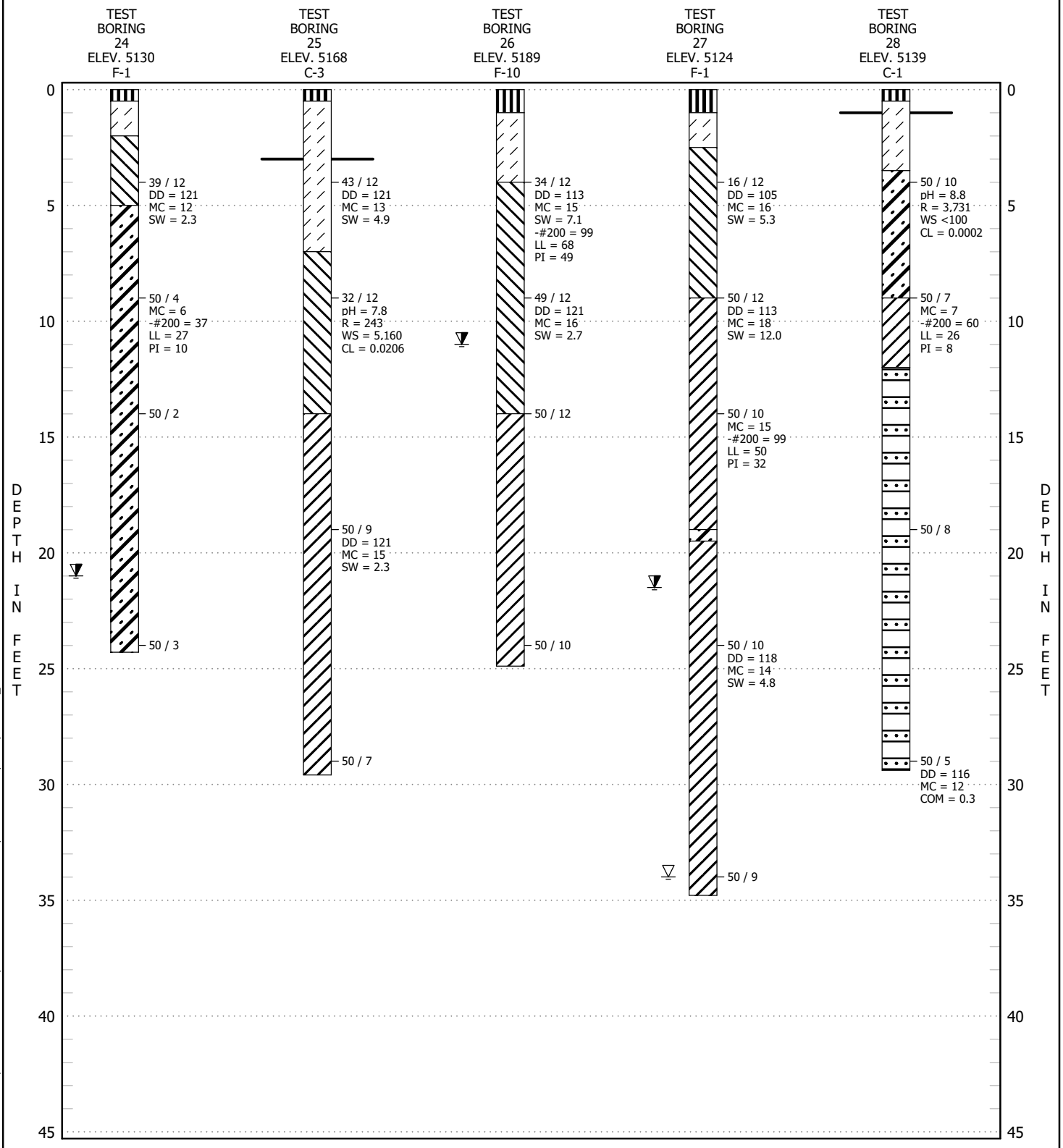
FIGURE 5

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

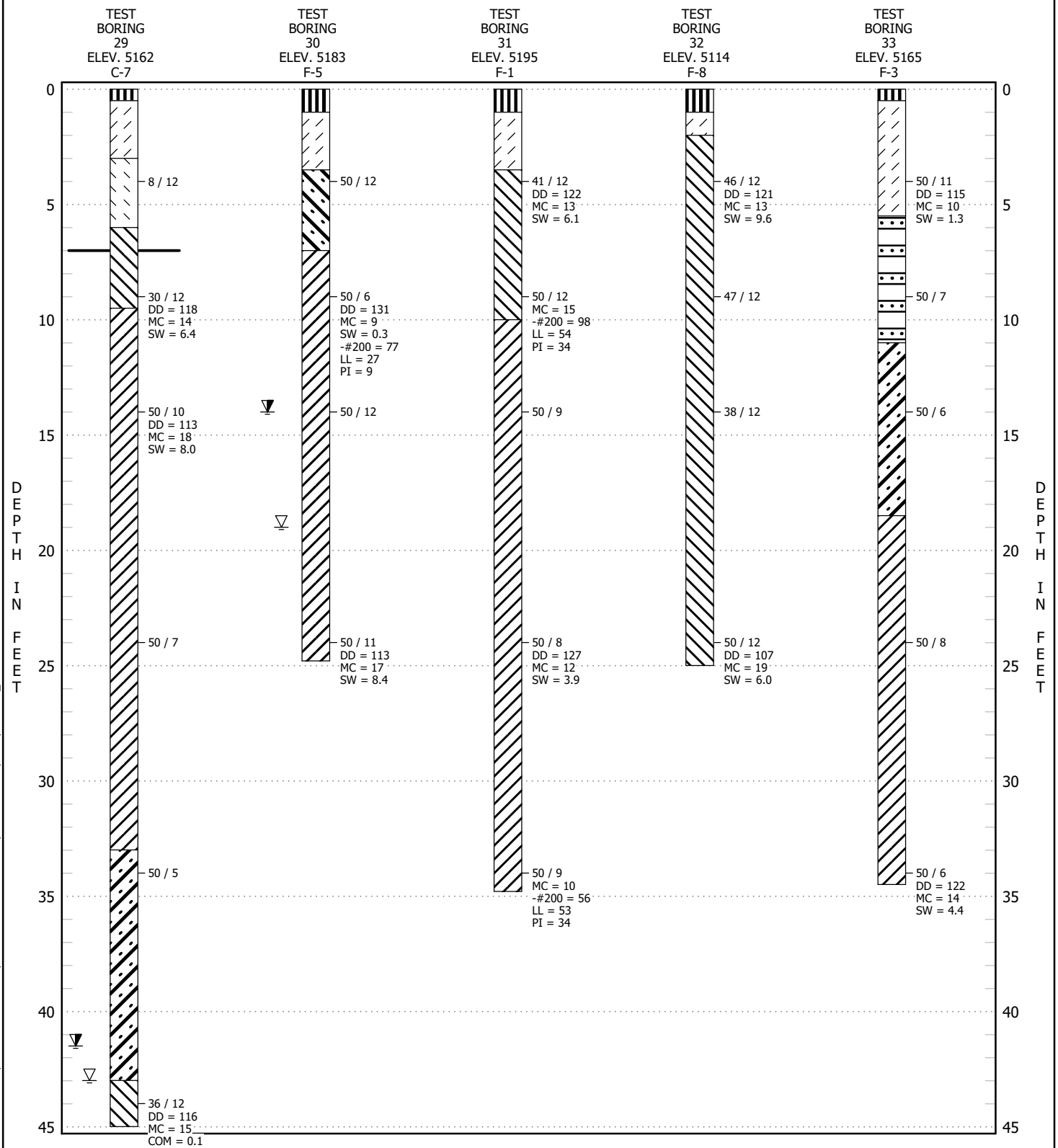
FIGURE 6

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

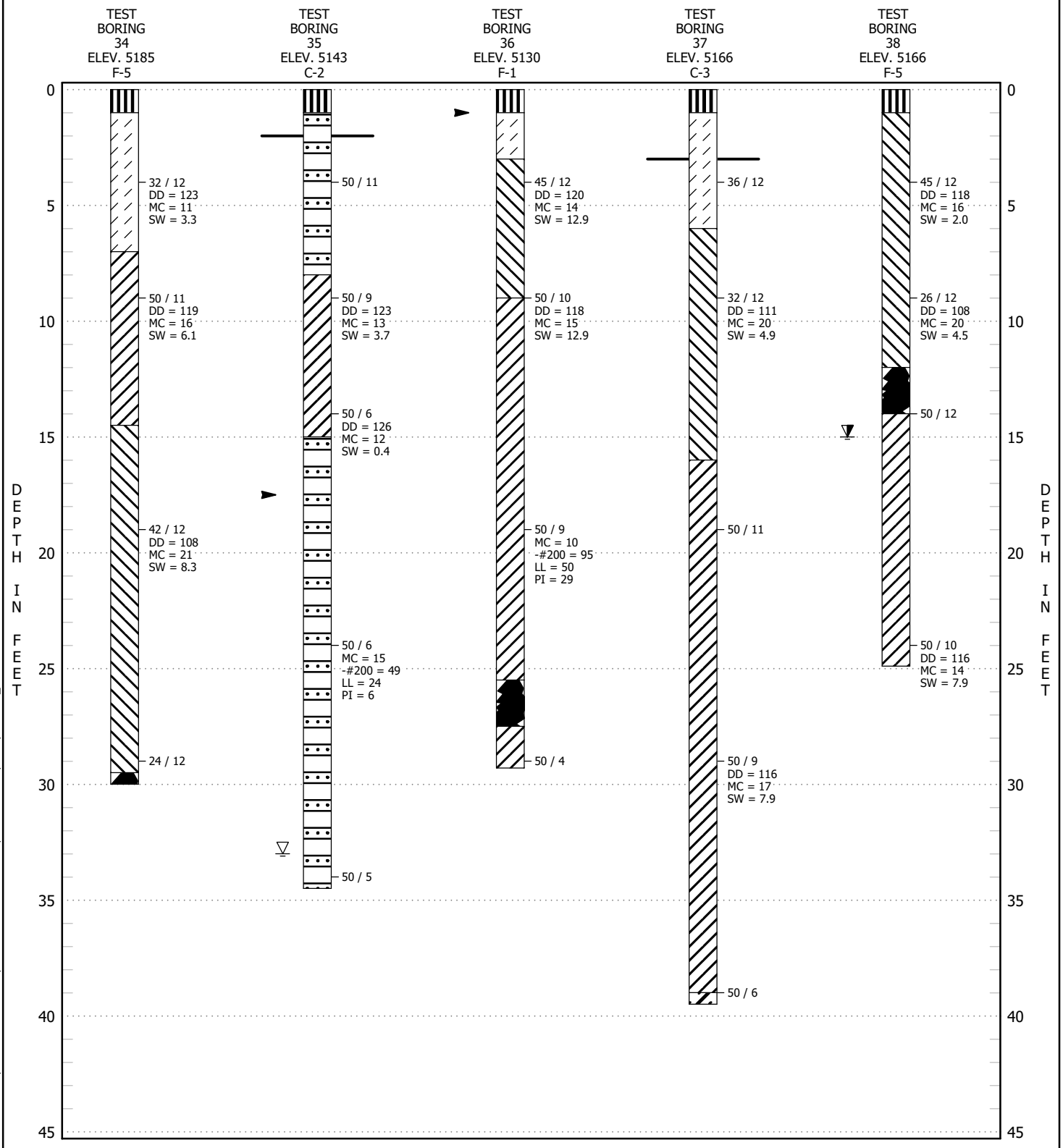
FIGURE 7

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

AGW
A.G. WASSENAAR, INC.

CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado



SEE FIGURE 9 FOR LEGEND AND NOTES

TEST BORING LOGS

FIGURE 8

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ

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CLIENT Stratus Redtail Ranch, LLC **PROJECT NAME** Redtail Ranch

PROJECT NUMBER 160388 **PROJECT LOCATION** Erie, Colorado

SOIL DESCRIPTIONS

- Topsoil, clay, sandy, organic
- Fill, sand, medium dense, silty, clayey
- Clay, medium stiff
- Clay, stiff to very stiff
- Clay (weathered claystone), medium stiff to stiff
- Claystone (Bedrock), firm to medium hard
- Claystone (Bedrock), hard to very hard
- Lignite, black
- Sandstone (Bedrock), firm to medium hard
- Sandstone (Bedrock), hard to very hard
- Claystone/Sandstone (Bedrock), interbedded, hard to very hard

ABBREVIATIONS

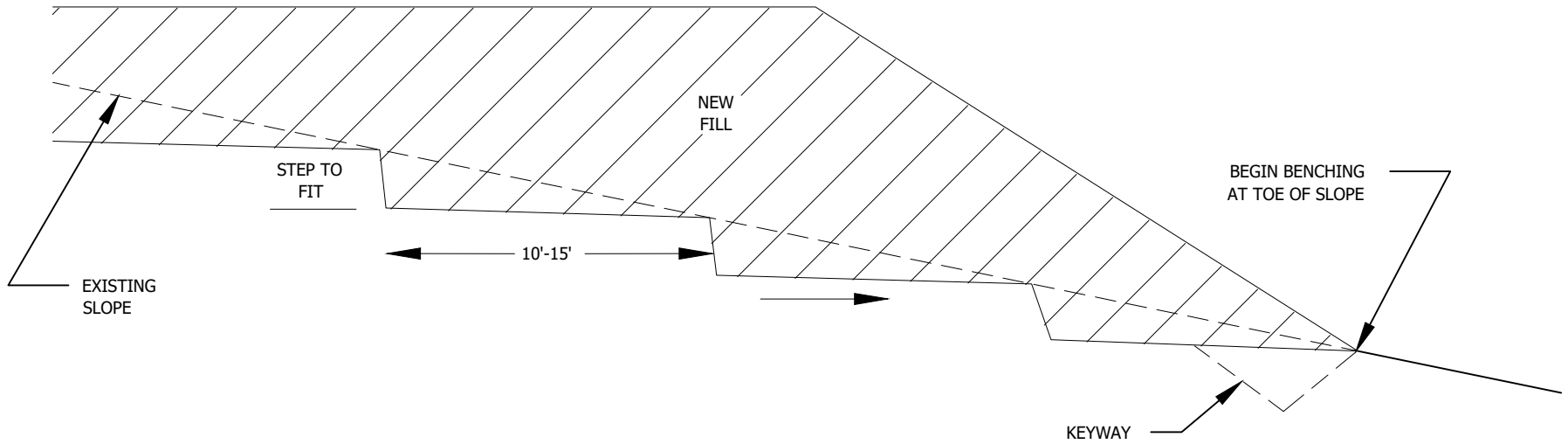
DD	Dry density of sample in pounds per cubic foot (pcf)
MC	Moisture content as a percentage of dry weight of soil (%)
SW	Percent swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Percent compression under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
UC	Unconfined compressive strength in pounds per square foot (psf)
-#200	Percent passing the Number 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
NV	No Value
pH	Acidity or alkalinity of sample in pH units
R	Resistivity in ohms.cm
WS	Water soluble sufates in parts per million (ppm)
CL	Chlorides in percent (%)
x/y	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler Y inches
x/y SS	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler Y inches
C-x	Depth of cut to grade (rounded to the nearest foot)
F-x	Depth of fill to grade (rounded to the nearest foot)
FG	Finished grade (rounded to the nearest foot)
NR	No sample recovered
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample
	Moderately to well cemented layer
—	Approximate depth of cut
	Depth at which practical drilling refusal was encountered
	Water level at time of drilling
	Caved depth at time of drilling
	Water level 4 to 11 day(s) after drilling
	Caved depth 4 to 11 day(s) after drilling

Notes:

1. Test borings were drilled April 1, 2016 to April 7, 2016.
2. Location of the test borings were staked by others at locations chosen by this firm.
3. The horizontal lines shown on the logs are to differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations and cut/fill depths were obtained from staking provided by others and have been rounded to the nearest foot.
5. Boring logs shown in this report are subject to the limitations, explanations, and conclusions of this report.

LEGEND AND NOTES
FIGURE 9

3/23/21 - U:\PROJECT FILES\2 - GEOTECHNICAL\160388 REDTAIL RANCH\TO BE SAVED\GINT\160388S_GT2016-04-29 REDTAIL RANCH SD.GPJ



NOTES:

1. BENCHING REQUIRED WHEN EXISTING SLOPE IS 5 : 1 (HORIZONTAL : VERTICAL) OR STEEPER
2. CONTINUE BENCHING UNTIL NATURAL SLOPE FLATTENS OR DAYLIGHTS
3. DRAINS MAY BE REQUIRED IF GROUND WATER IS ENCOUNTERED
4. ADDITIONAL EXCAVATION MAY BE REQUIRED BY AGW IF SLOPE INSTABILITY IS NOTED
5. A KEYWAY MAY BE REQUIRED BY AGW DEPENDING UPON SLOPE CONFIGURATION
6. NOT TO SCALE

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GENERALIZED BENCHING DETAIL	PROJECT NO. 160388 FIGURE 10

APPENDIX A
LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS.....TABLE A-1

SWELL-CONSOLIDATION TEST RESULTS .....FIGURES A-1 THROUGH A-42

GRADATION/ATTERBERG TEST RESULTS.....FIGURES A-43 THROUGH A-53

AGW
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TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
March 23, 2021

Project Number 160388
Redtail Ranch
Erie, Colorado

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
1	4	Claystone, sandy	120	12	3.3	9,300							
1	9	Claystone, very sandy		11			63	29	12				
1	24	Claystone, sandy	114	16	7.1	10,900							
2	4	Claystone, silty	117	14	11.2	13,700							
2	9	Claystone, trace sand	118	15	16.3	19,600	98	76	56				
3	9	Claystone, silty	125	12	1.7	3,400							
3	14	Claystone, silty	121	14	5.2	13,600							
3	34	Claystone, silty	121	15	11.6	22,500							
4	4	Claystone, silty	124	11	2.5	6,400							
4	9	Claystone, silty								8.5	1,818	<100	0.0002
4	19	Claystone, silty	122	13	3.1	7,800							
5	4	Claystone, silty	122	15	5.1	10,400							
5	24	Claystone, silty	127	11	2.4	8,800							
6	4	Claystone, silty	119	15	7.7	19,200							
6	14	Claystone, silty	120	15	8.0	20,800							
7	9	Claystone, silty	126	15	4.1	14,100							
7	29	Claystone, silty	113	17	5.6	7,800							
8	4	Clay, sandy		13			80	51	33				
8	19	Claystone	117	15	11.1	16,000	100	75	55				
8	39	Claystone, slightly sandy		9			92	38	21				
9	4	Claystone, silty	118	17	2.0	5,900							
9	14	Claystone, silty	107	22	15.9	22,600							
10	4	Claystone, silty	120	14	6.8	24,500							
10	9	Claystone, trace sand	128	13	6.9	20,000	99	52	32				

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A.G. WASSENAAR, INC.

TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
March 23, 2021

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
10	24	Claystone, silty	125	11	6.3	16,300							
11	4	Sandstone, clayey	125	12	1.1	3,600							
11	9	Claystone, silty	108	12	-0.5	NA							
11	14	Claystone, silty	120	16	4.9	12,500							
12	4	Claystone, silty	125	12	2.3	5,600							
12	9	Claystone		24			100	74	55				
12	29	Claystone, silty	118	15	9.6	26,500							
13	4	Clay, sandy	131	10	5.7	22,400							
13	14	Claystone, silty	130	10	5.2	10,800							
13	24	Claystone, slightly sandy		7			91	36	19				
14	4	Clay, sandy								8.4	312	1,840	0.0181
14	9	Claystone, silty	113	16	2.4	5,700							
14	19	Claystone, trace sand	110	20	13.6	21,000	97	79	64				
15	4	Claystone, very sandy		5			59	26	8				
15	19	Claystone, silty	119	16	7.1	14,100							
15	29	Claystone, silty	122	14	8.7	21,000							
16	4	Clay, sandy	124	11	6.5	16,800							
16	14	Claystone, silty	117	16	4.4	10,400							
16	44	Claystone, silty	120	15	9.9	16,800							
17	4	Clay (Weathered Claystone), silty	118	14	13.3	21,000							
17	14	Claystone, silty	121	15	9.2	18,000							
17	34	Claystone, silty	122	13	12.1	14,300							
18	4	Clay, sandy	117	10	6.4	18,300							
18	19	Claystone, silty	123	16	2.0	6,800							

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TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
March 23, 2021

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
18	29	Claystone, silty	121	14	1.3	6,100							
19	4	Claystone, silty	116	16	4.3	9,100							
19	9	Claystone, silty	113	18	12.9	25,100							
20	4	Sandstone, very clayey		11			41	34	17				
20	14	Claystone, silty	112	18	9.7	18,800							
20	24	Claystone, silty	120	14	11.2	28,900							
21	9	Claystone/Sandstone, silty	124	11	1.2	6,300							
21	24	Claystone, silty	117	14	6.8	17,100							
21	34	Claystone, silty	120	14	15.1	14,700							
22	9	Claystone, silty	129	12	5.5	17,400							
22	14	Claystone, sandy		12			86	42	24				
22	34	Claystone/Sandstone, silty		14			47	31	13				
23	9	Claystone, silty	112	18	6.8	8,200							
23	19	Claystone, silty	127	13	7.7	25,200							
23	29	Claystone, silty	111	13	8.0	6,900							
24	4	Claystone, silty	121	12	2.3	8,000							
24	9	Sandstone, very clayey		6			37	27	10				
25	4	Clay, sandy	121	13	4.9	23,300							
25	9	Claystone, silty								7.8	243	5,160	0.0206
25	19	Claystone, silty	121	15	2.3	15,000							
26	4	Claystone, trace sand	113	15	7.1	10,100	99	68	49				
26	9	Claystone, silty	121	16	2.7	9,300							
27	4	Claystone, silty	105	16	5.3	5,800							
27	9	Claystone, silty	113	18	12.0	10,700							

AGW
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TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
March 23, 2021

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
27	14	Claystone, trace sand		15			99	50	32				
27	24	Claystone, silty	118	14	4.8	8,400							
28	4	Sandstone, clayey								8.8	3,731	<100	0.0002
28	9	Claystone, very sandy		7			60	26	8				
28	29	Claystone/Sandstone, silty	116	12	-0.3	NA							
29	9	Claystone, silty	118	14	6.4	13,700							
29	14	Claystone, silty	113	18	8.0	15,200							
29	44	Claystone, silty	116	15	-0.1	NA							
30	9	Claystone, sandy	131	9	0.3	2,000	77	27	9				
30	24	Claystone, silty	113	17	8.4	14,400							
31	4	Claystone, silty	122	13	6.1	20,400							
31	9	Claystone, trace sand		15			98	54	34				
31	24	Claystone, silty	127	12	3.9	25,000							
31	34	Claystone, very sandy		10			56	53	34				
32	4	Claystone, silty	121	13	9.6	18,700							
32	24	Claystone, silty	107	19	6.0	10,000							
33	4	Clay, sandy	115	10	1.3	5,600							
33	34	Claystone, silty	122	14	4.4	15,900							
34	4	Clay, sandy	123	11	3.3	9,300							
34	9	Claystone, silty	119	16	6.1	13,100							
34	19	Claystone, silty	108	21	8.3	9,900							
35	9	Claystone, silty	123	13	3.7	12,300							
35	14	Claystone, silty	126	12	0.4	4,000							
35	24	Claystone/Sandstone, silty		15			49	24	6				

AGW
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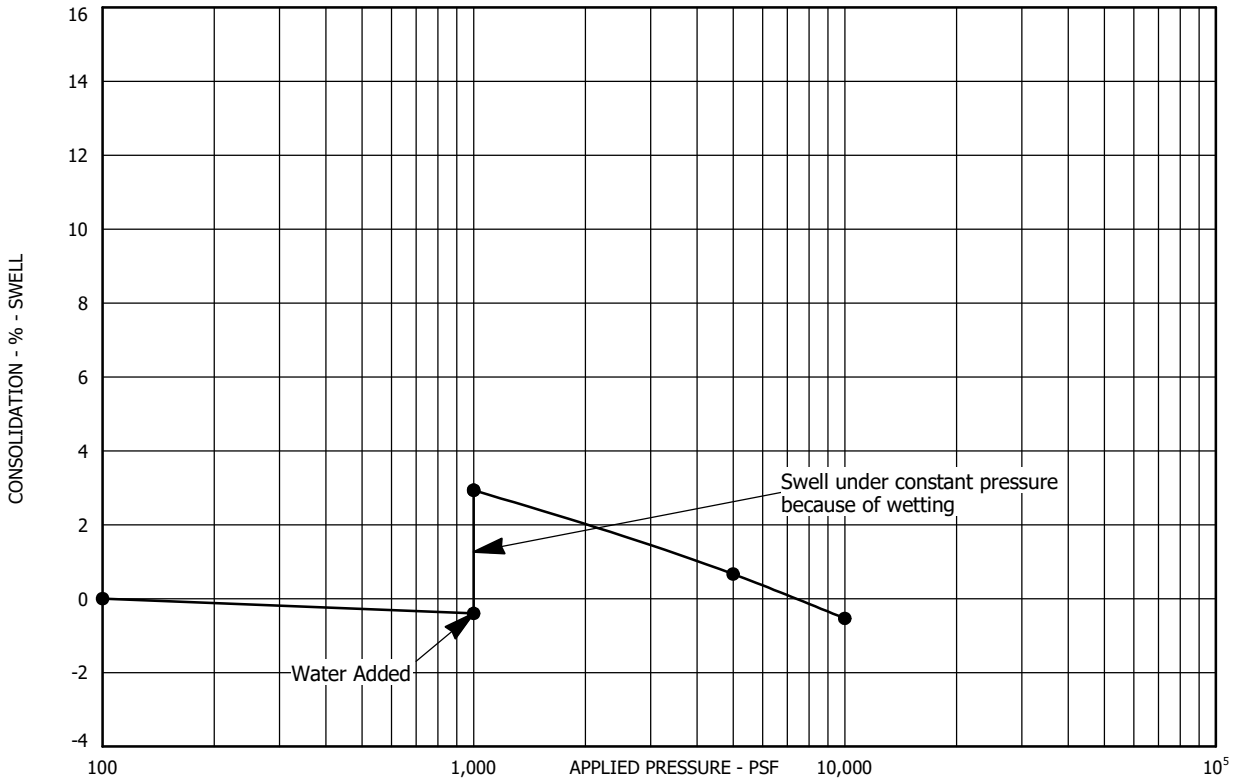
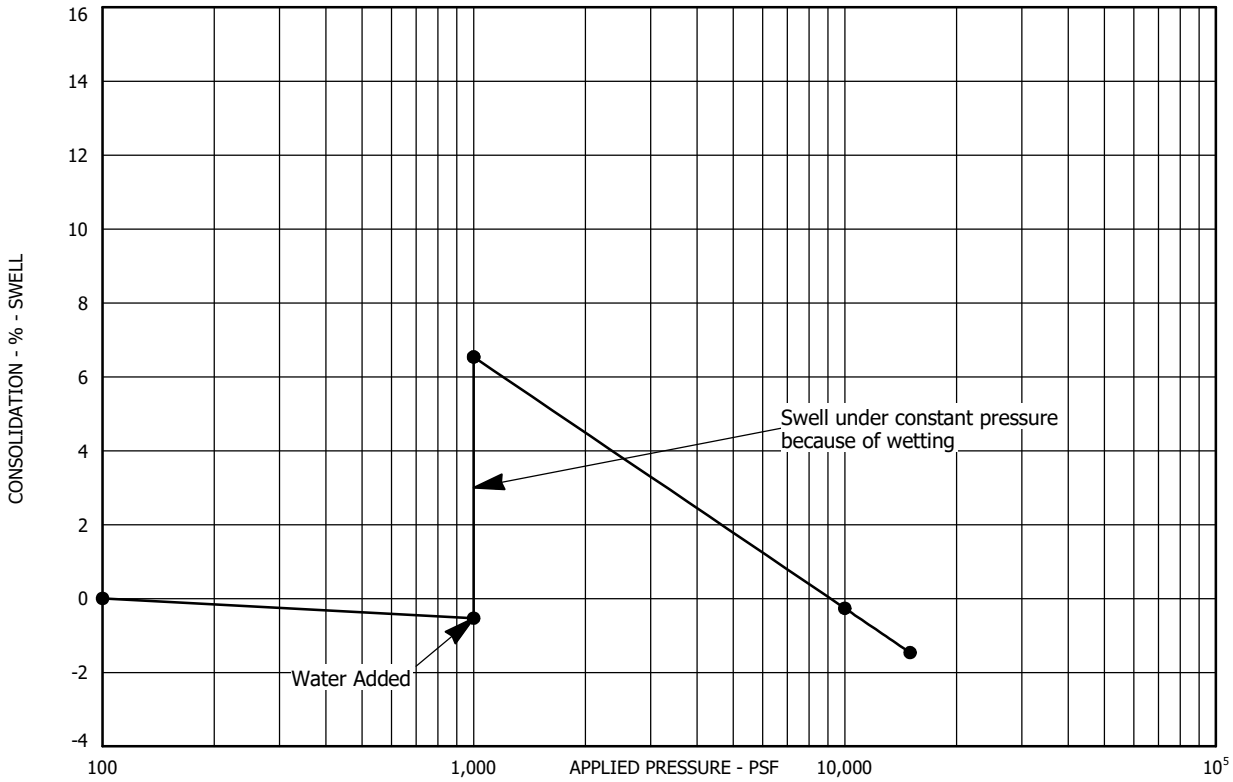
TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
March 23, 2021

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) [1]	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg Liquid Limit LL	Atterberg Plasticity Index PI	pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
36	4	Claystone, silty	120	14	12.9	21,700							
36	9	Claystone, silty	118	15	12.9	8,500							
36	19	Claystone, slightly sandy		10			95	50	29				
37	9	Claystone, silty	111	20	4.9	8,700							
37	29	Claystone, silty	116	17	7.9	17,000							
38	4	Claystone, silty	118	16	2.0	5,900							
38	9	Claystone, silty	108	20	4.5	6,200							
38	24	Claystone, silty	116	14	7.9	11,100							

Notes:
NA - Not Applicable
[1] Indicates percent swell or consolidation when wetted under a 1,000 psf load



Sample Location: Test Boring No. 1 at a depth of 4 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 120
Moisture Content (%): 12

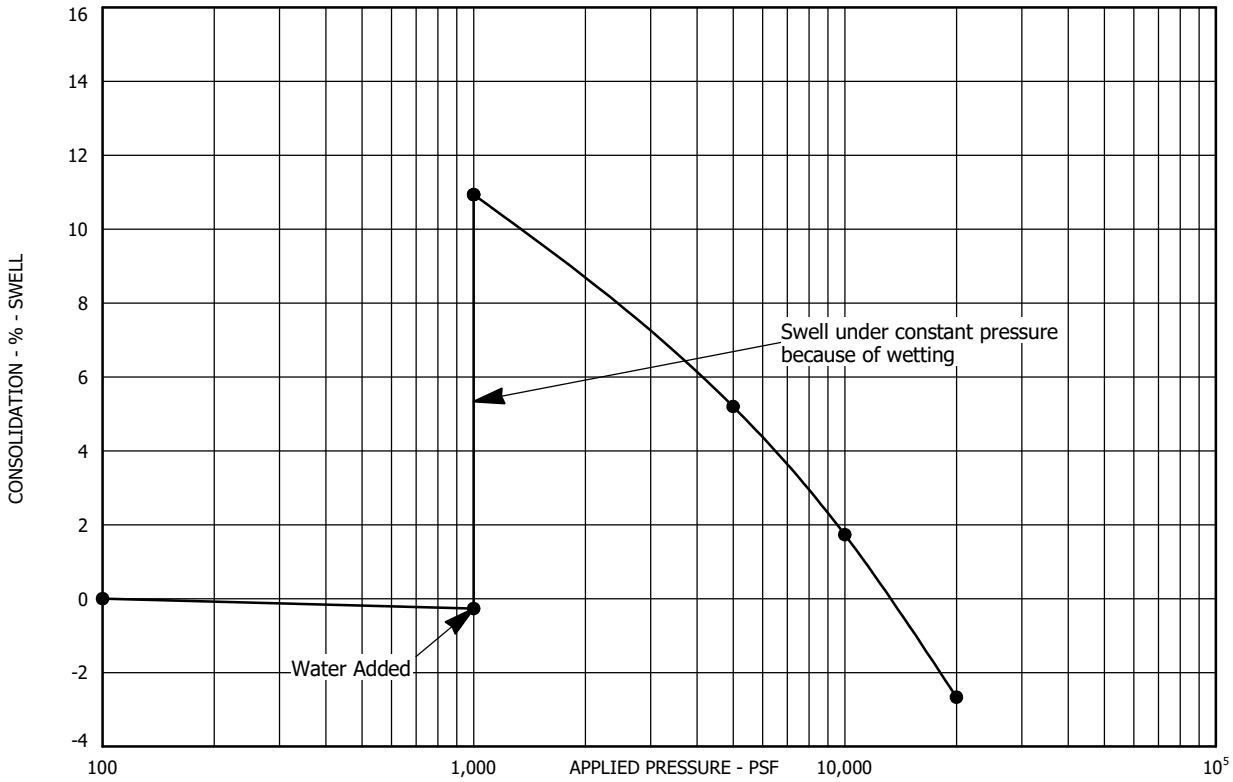


Sample Location: Test Boring No. 1 at a depth of 24 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 114
Moisture Content (%): 16

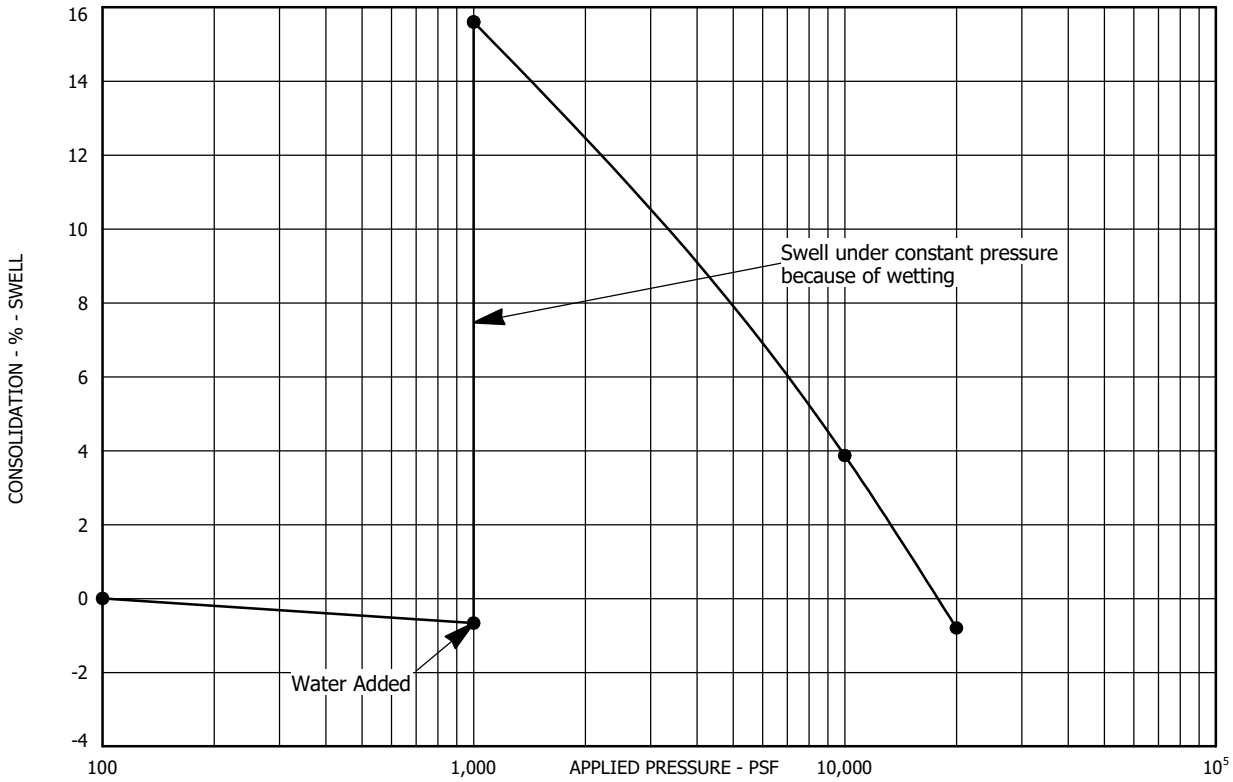
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-1

PROJECT NO. 160388



Sample Location: Test Boring No. 2 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 117
Moisture Content (%): 14

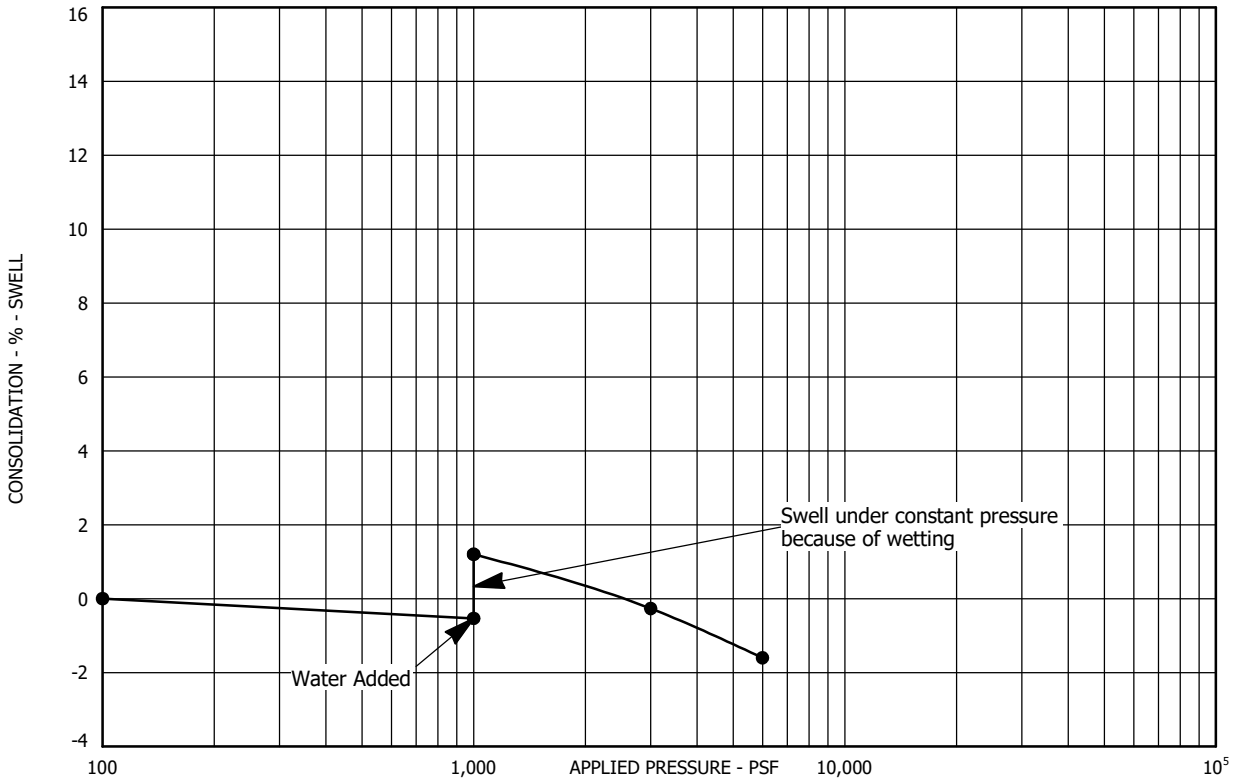


Sample Location: Test Boring No. 2 at a depth of 9 feet
Sample Description: Claystone, trace sand
Dry Unit Weight (pcf): 118
Moisture Content (%): 15

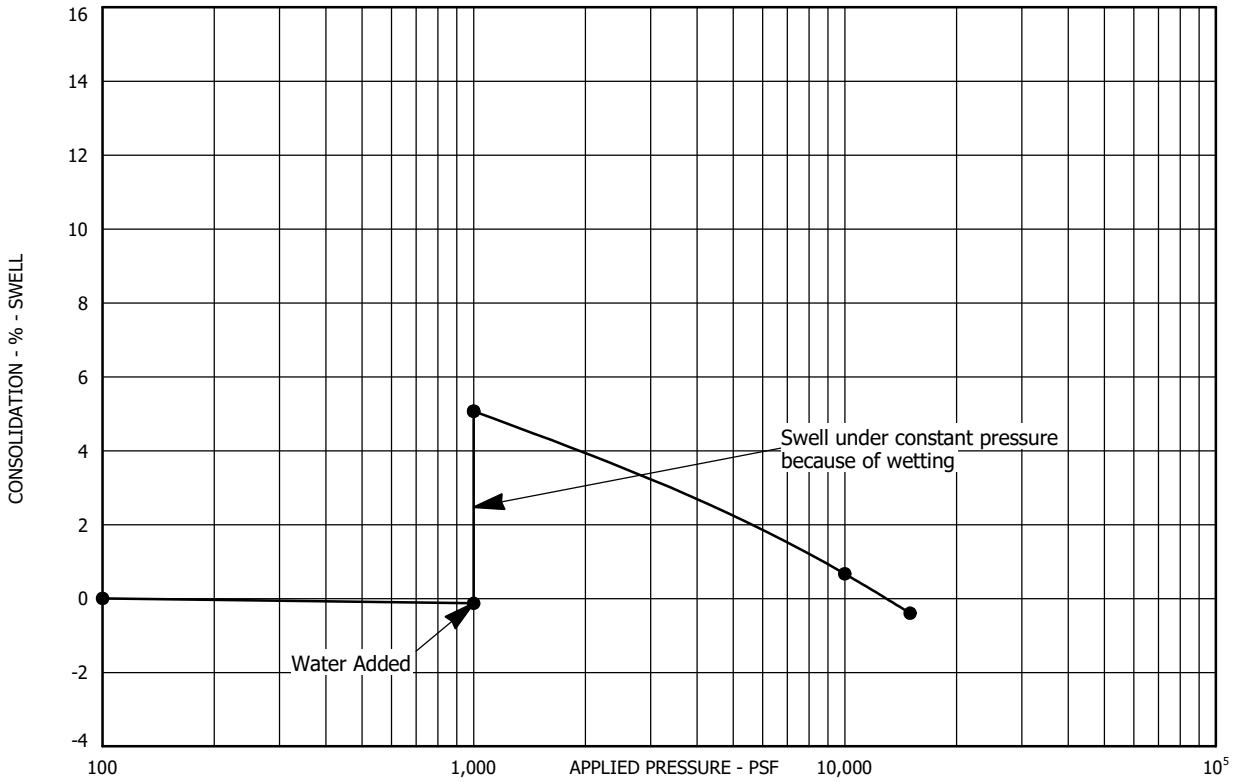
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-2

PROJECT NO. 160388



Sample Location: Test Boring No. 3 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 125
Moisture Content (%): 12

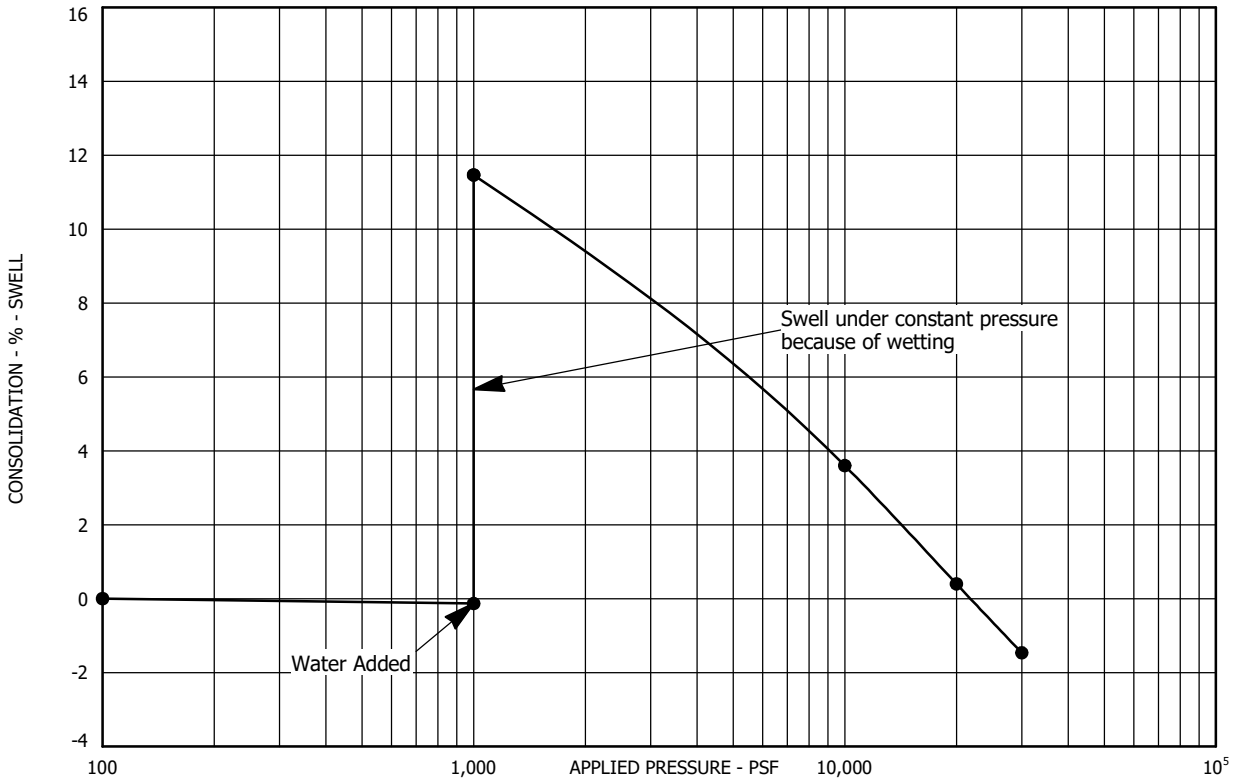


Sample Location: Test Boring No. 3 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 14

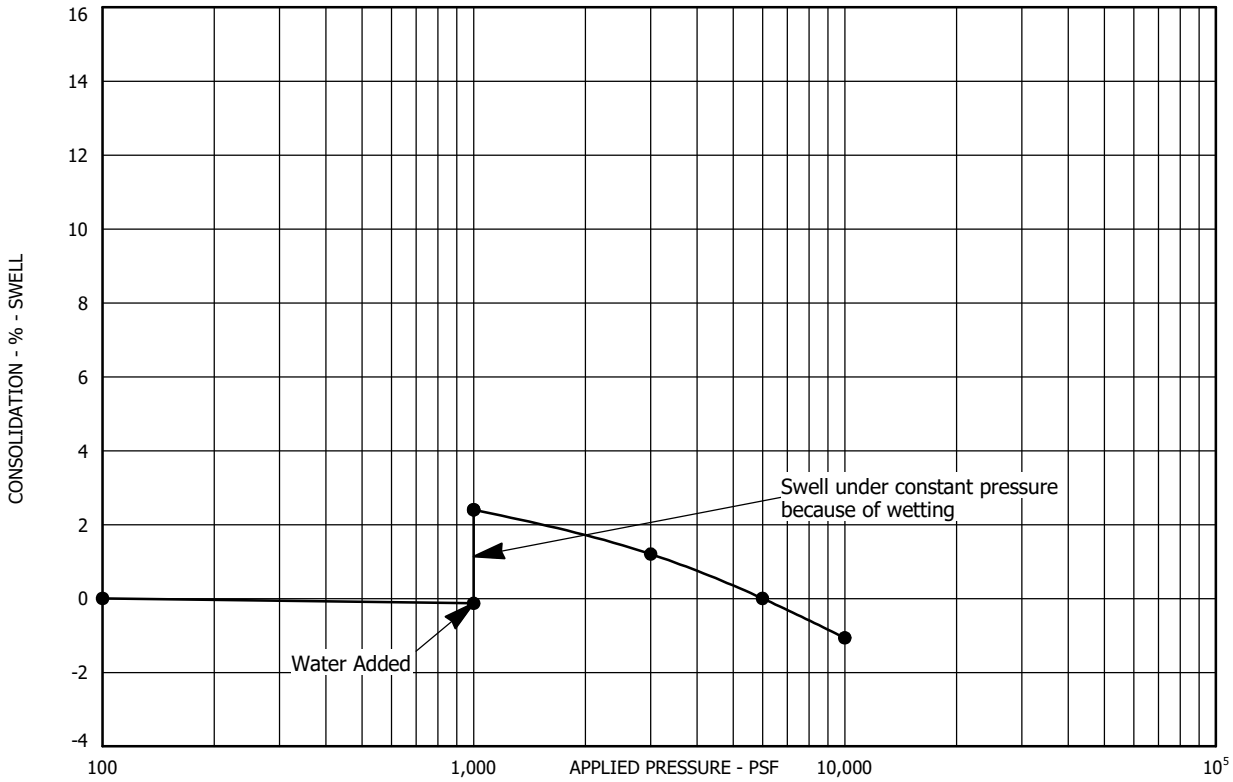
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-3

PROJECT NO. 160388



Sample Location: Test Boring No. 3 at a depth of 34 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 15

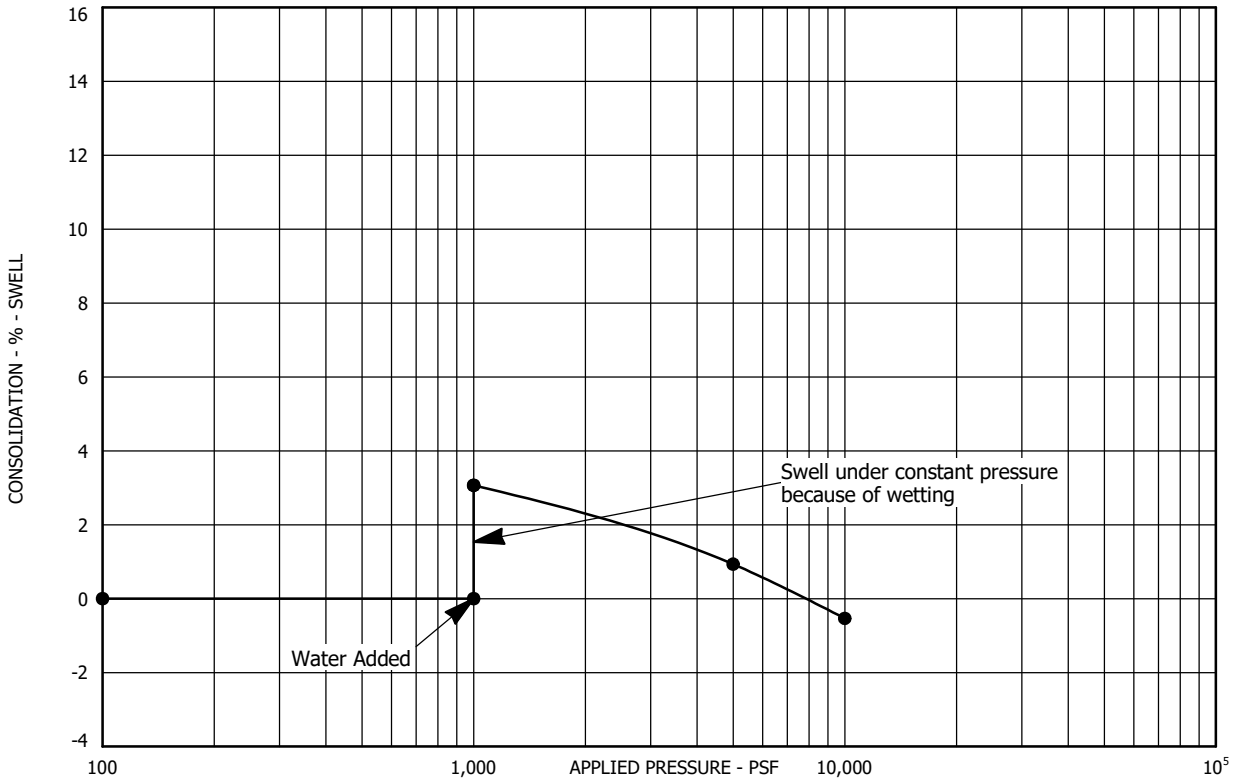


Sample Location: Test Boring No. 4 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 124
Moisture Content (%): 11

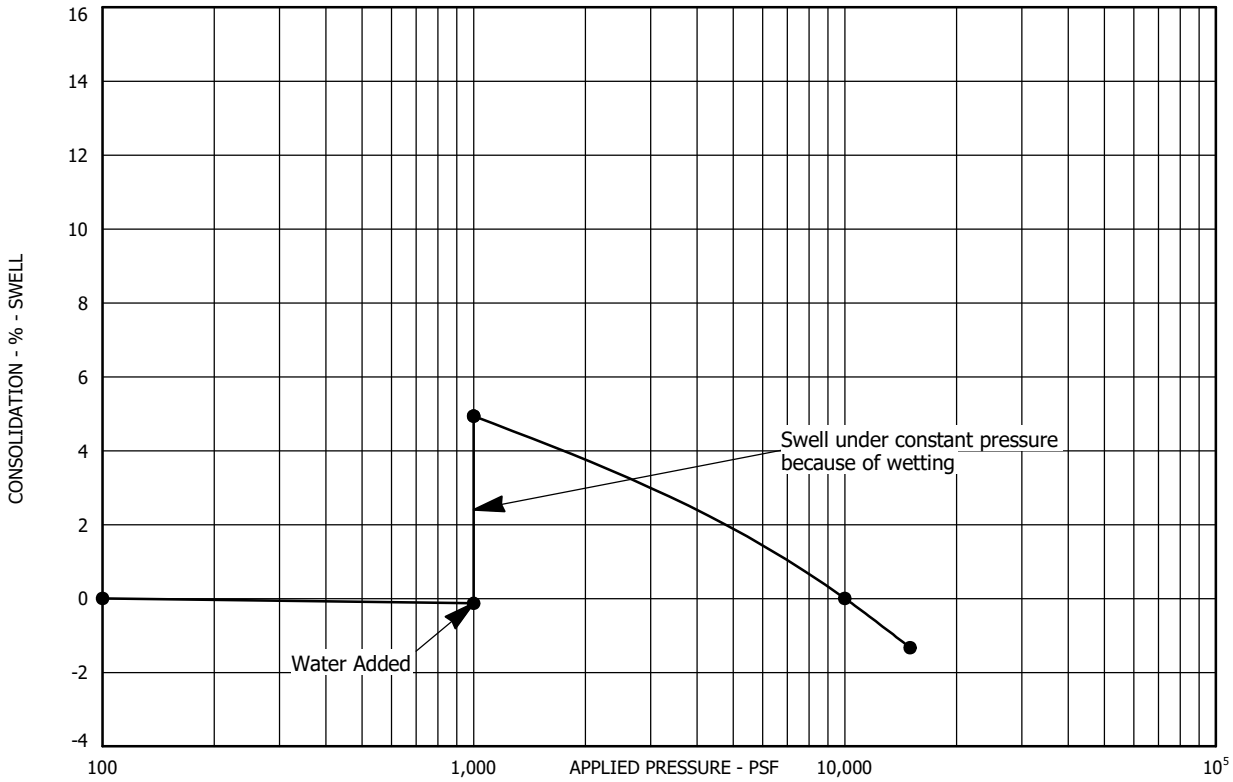
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-4

PROJECT NO. 160388



Sample Location: Test Boring No. 4 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 13

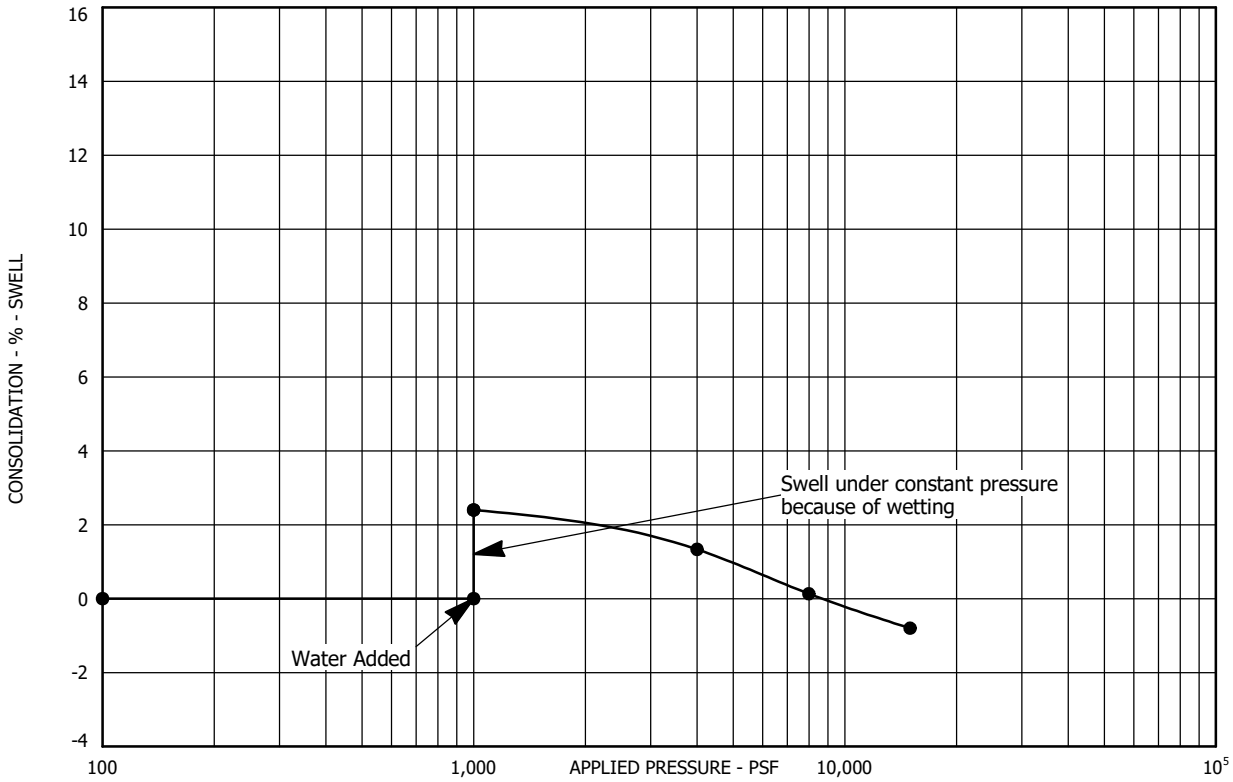


Sample Location: Test Boring No. 5 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 15

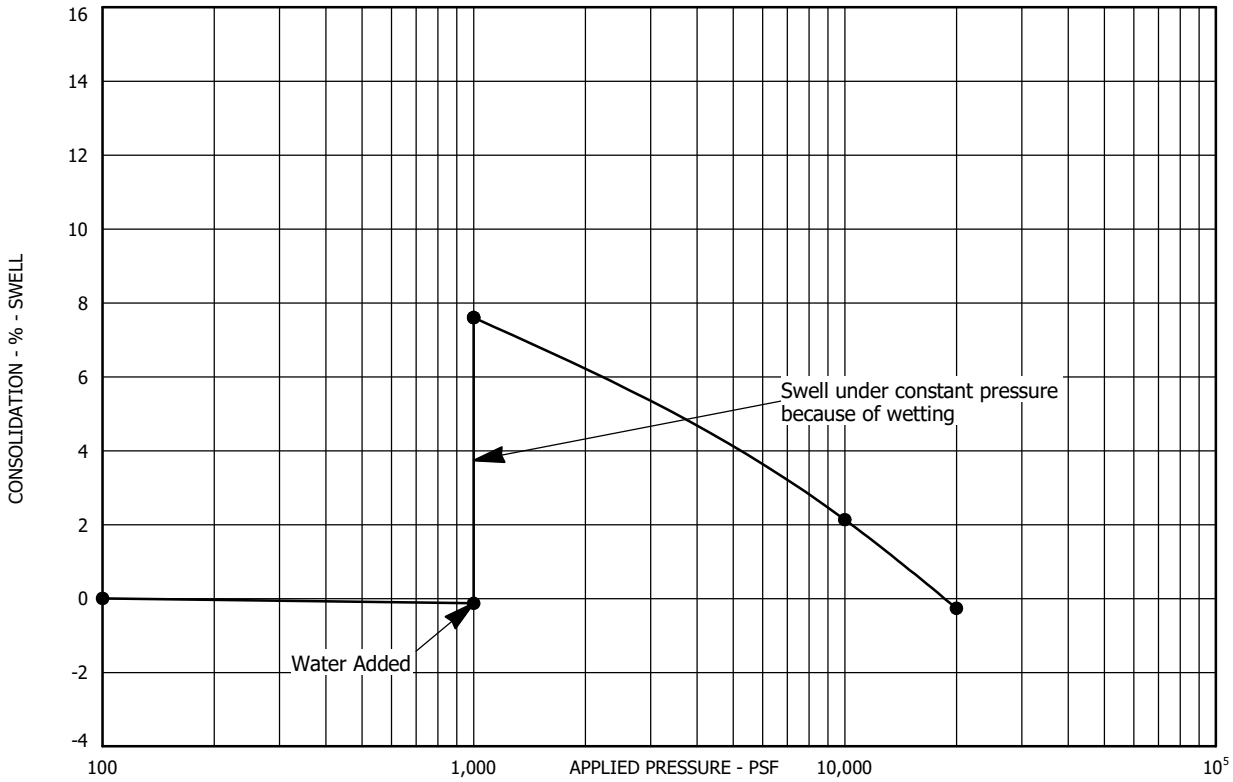
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-5

PROJECT NO. 160388



Sample Location: Test Boring No. 5 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 127
Moisture Content (%): 11

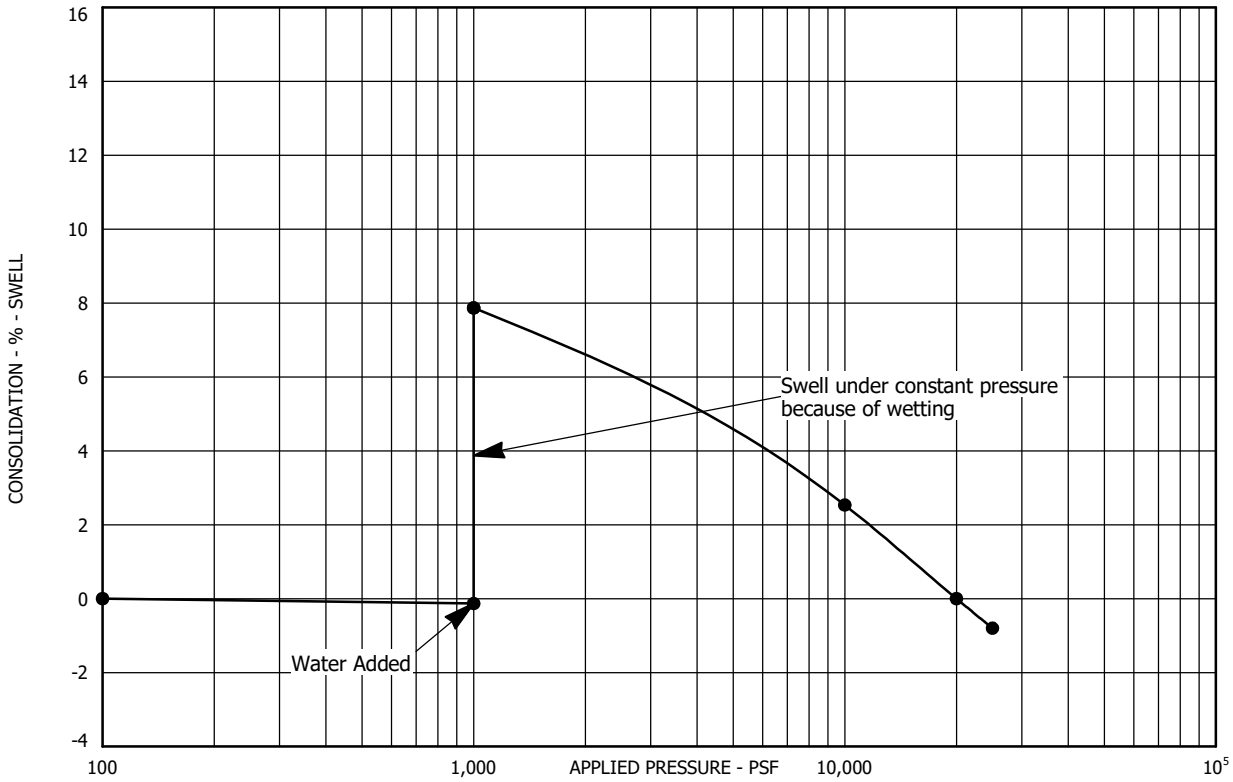


Sample Location: Test Boring No. 6 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 119
Moisture Content (%): 15

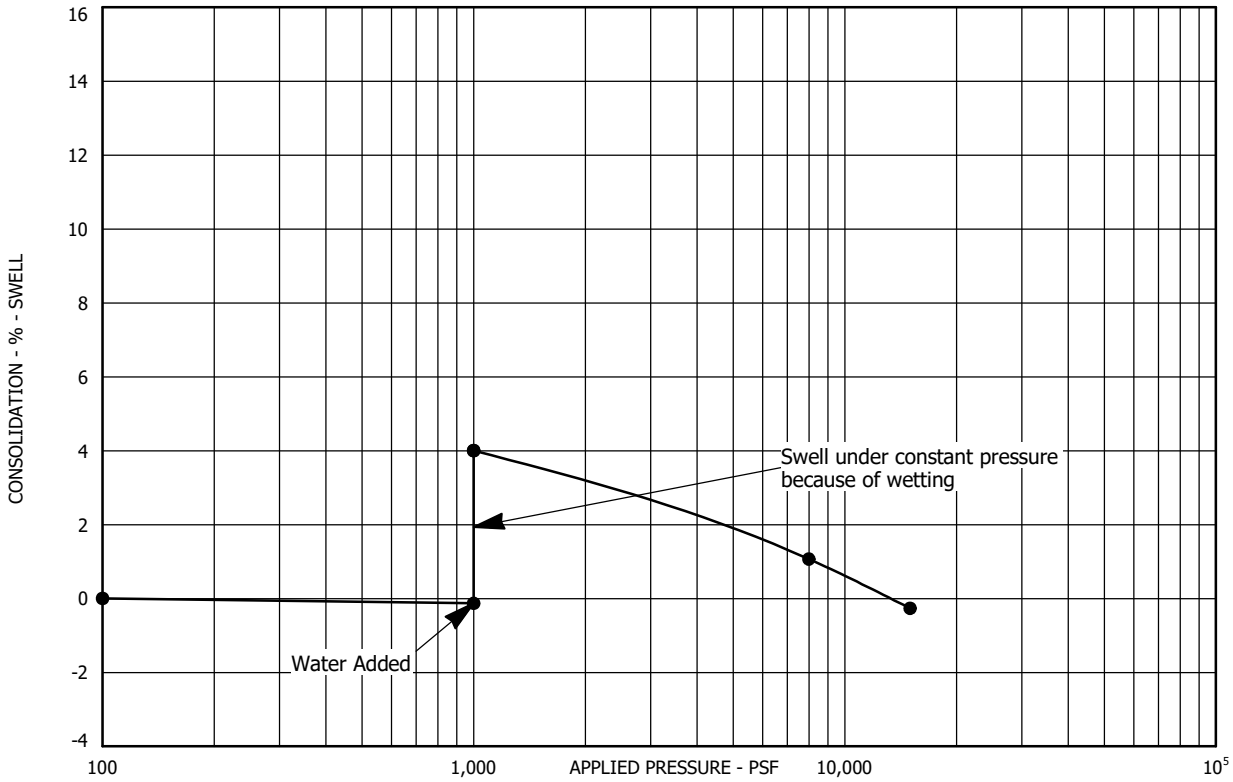
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-6

PROJECT NO. 160388



Sample Location: Test Boring No. 6 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 15

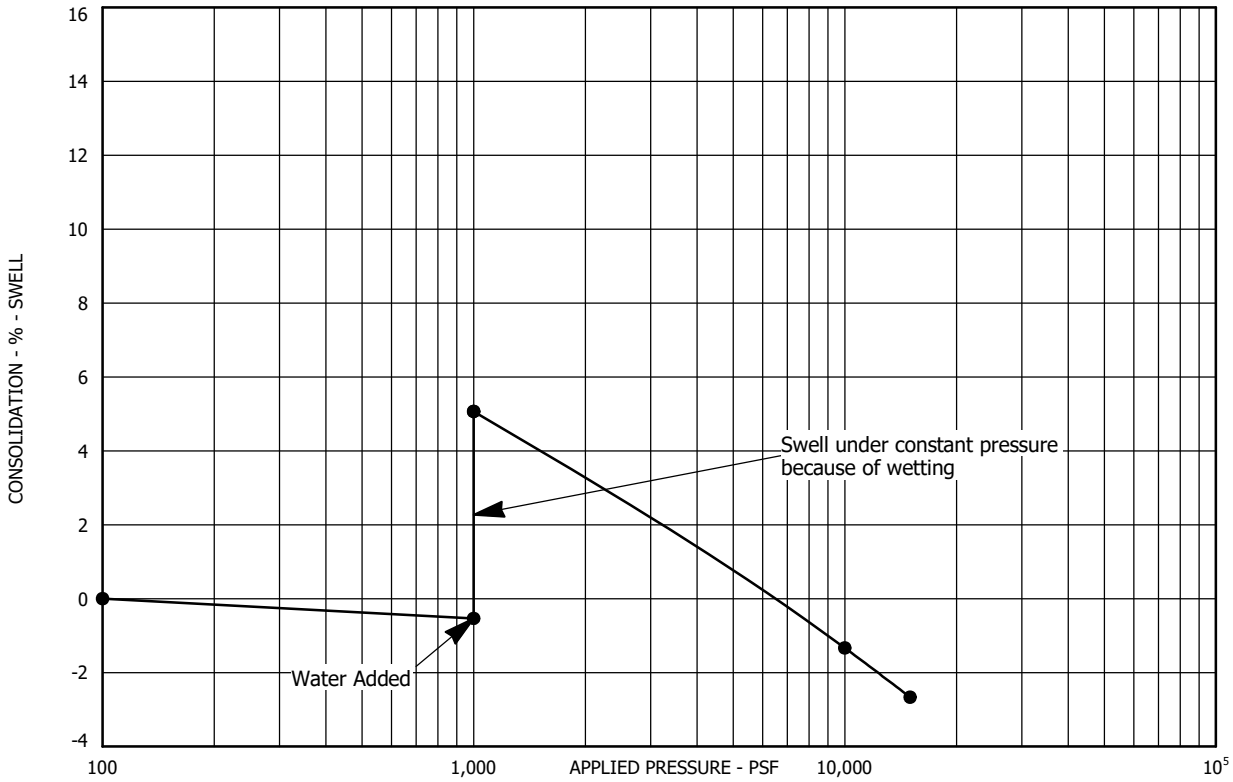


Sample Location: Test Boring No. 7 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 126
Moisture Content (%): 15

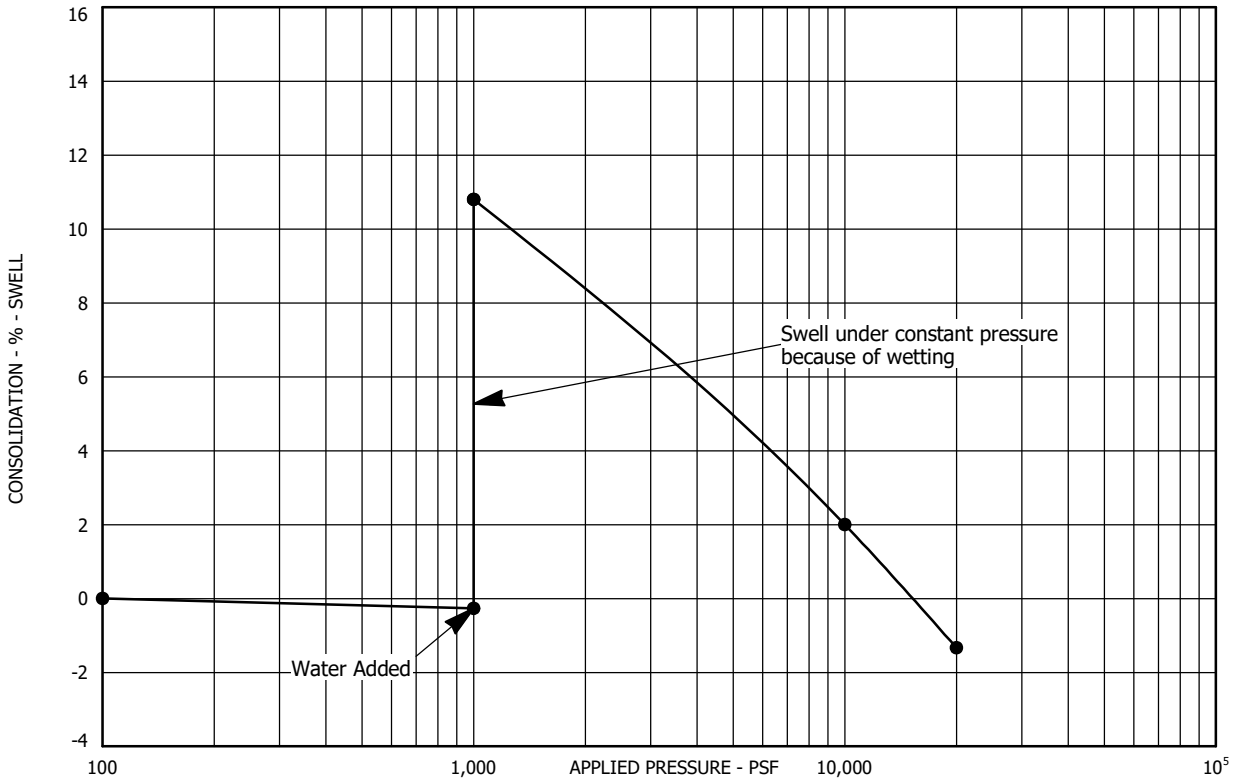
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-7

PROJECT NO. 160388



Sample Location: Test Boring No. 7 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 17

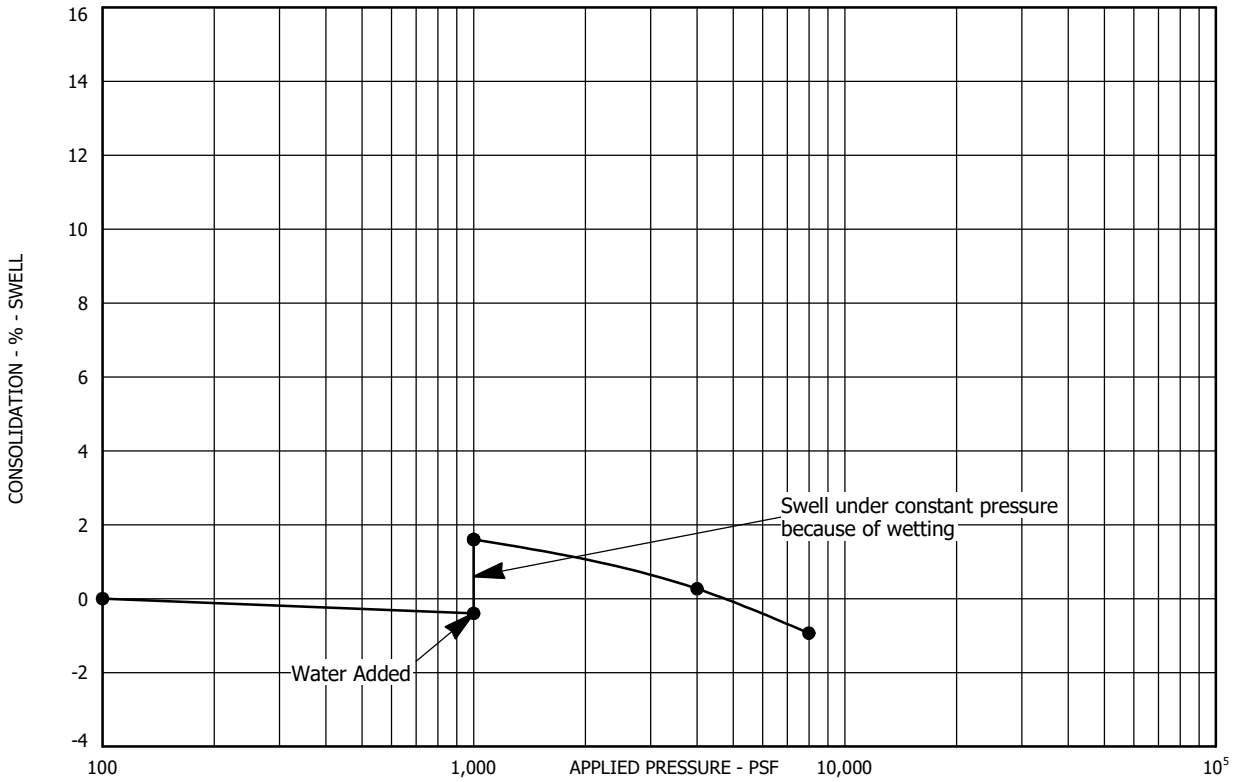


Sample Location: Test Boring No. 8 at a depth of 19 feet
Sample Description: Claystone
Dry Unit Weight (pcf): 117
Moisture Content (%): 15

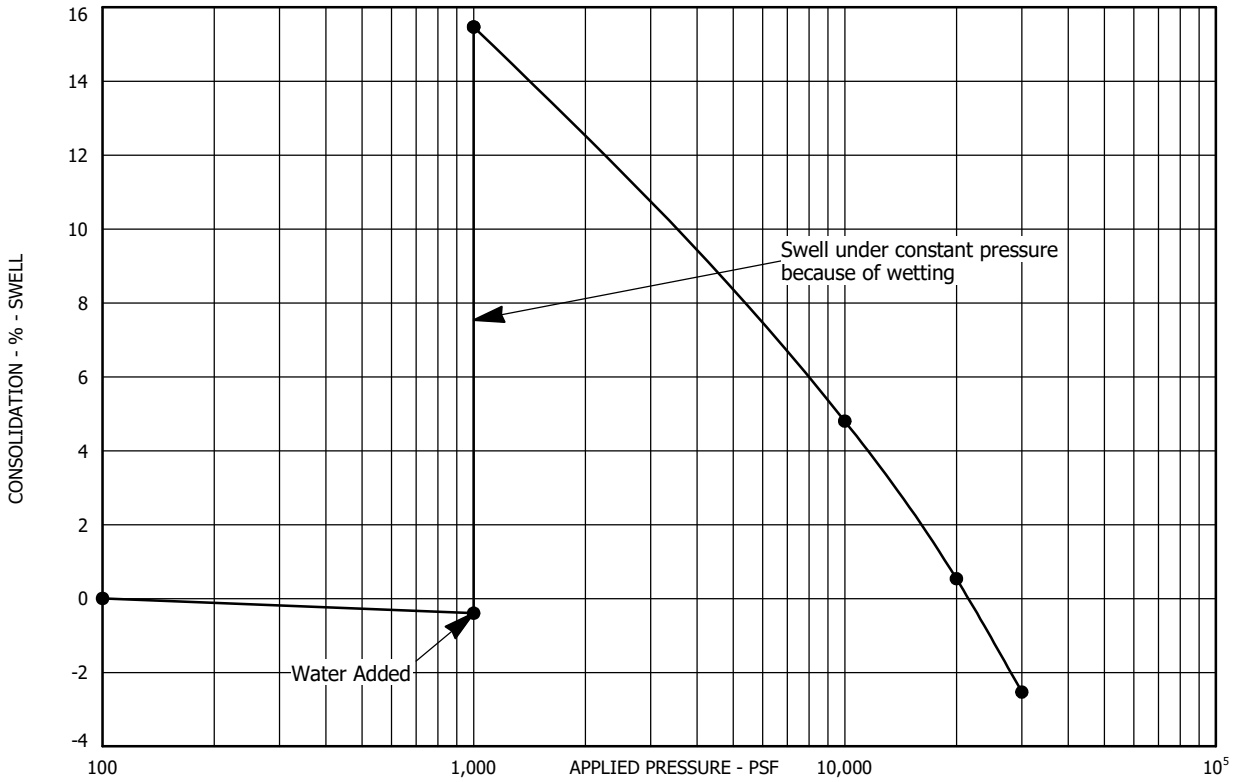
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-8

PROJECT NO. 160388



Sample Location: Test Boring No. 9 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 17

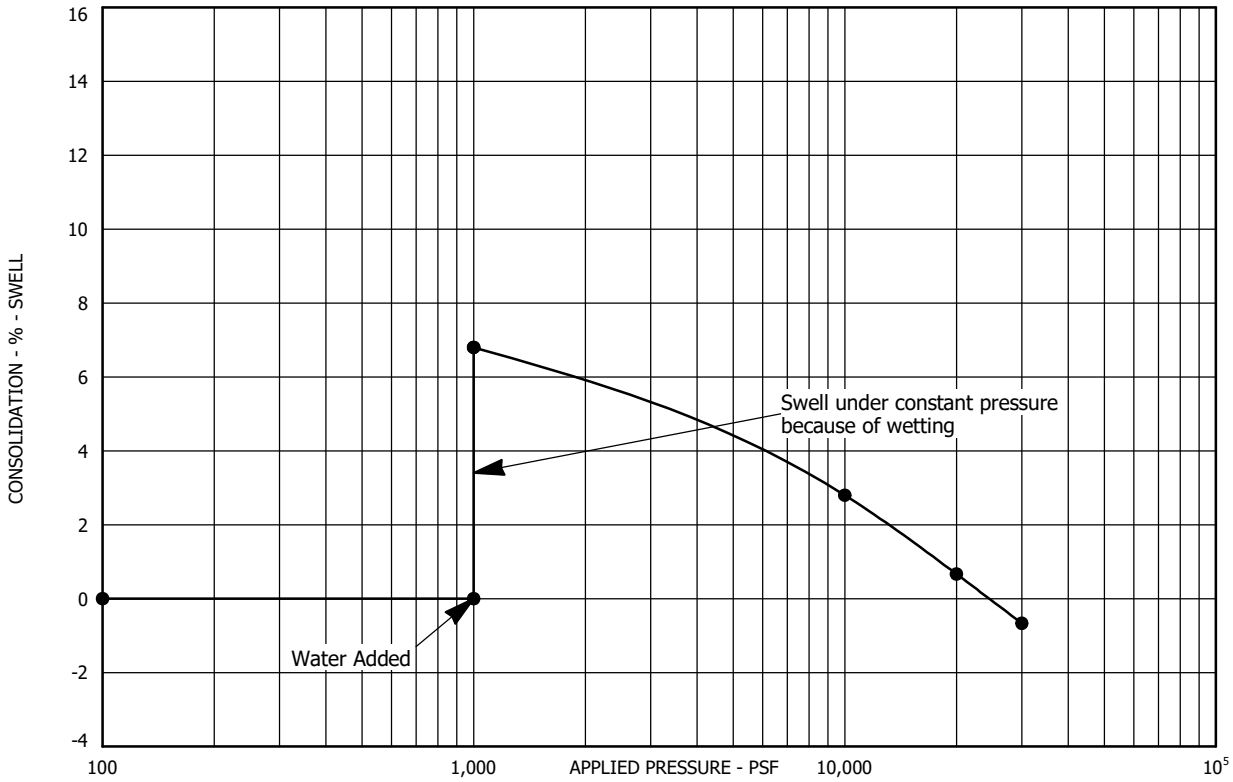


Sample Location: Test Boring No. 9 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 107
Moisture Content (%): 22

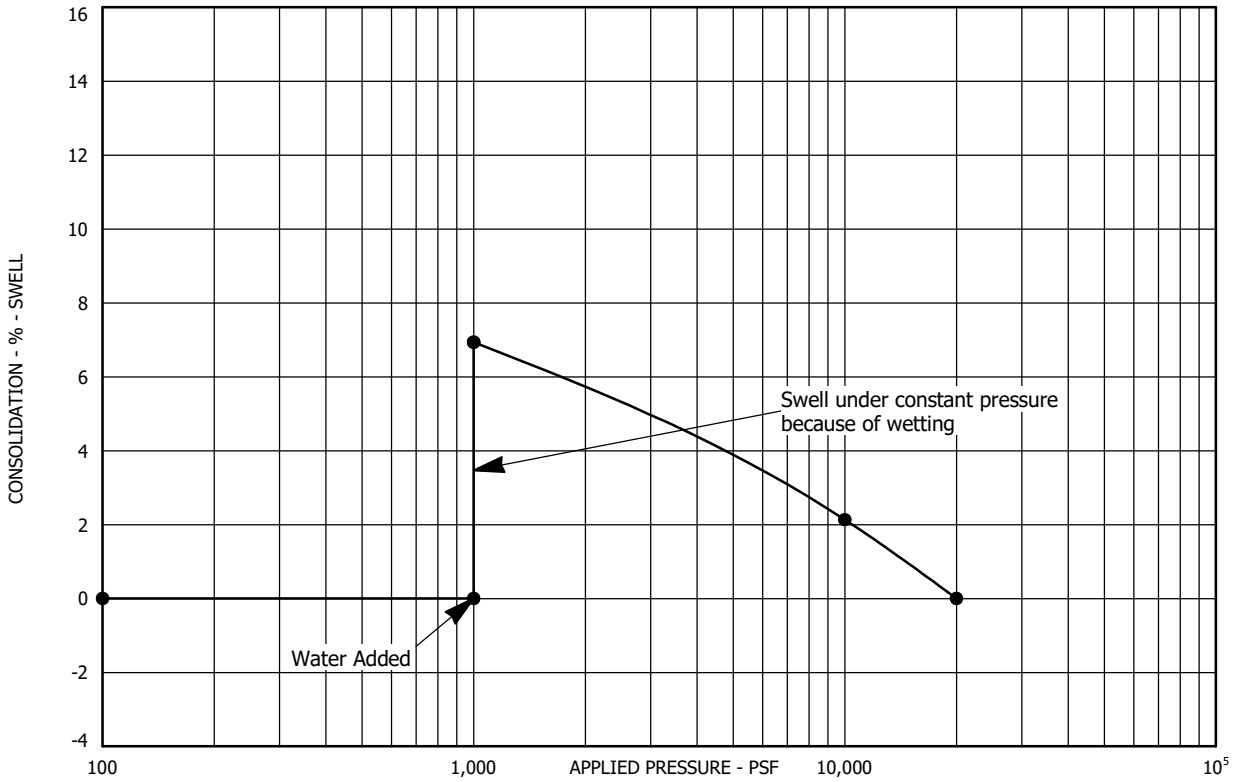
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-9

PROJECT NO. 160388



Sample Location: Test Boring No. 10 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 14

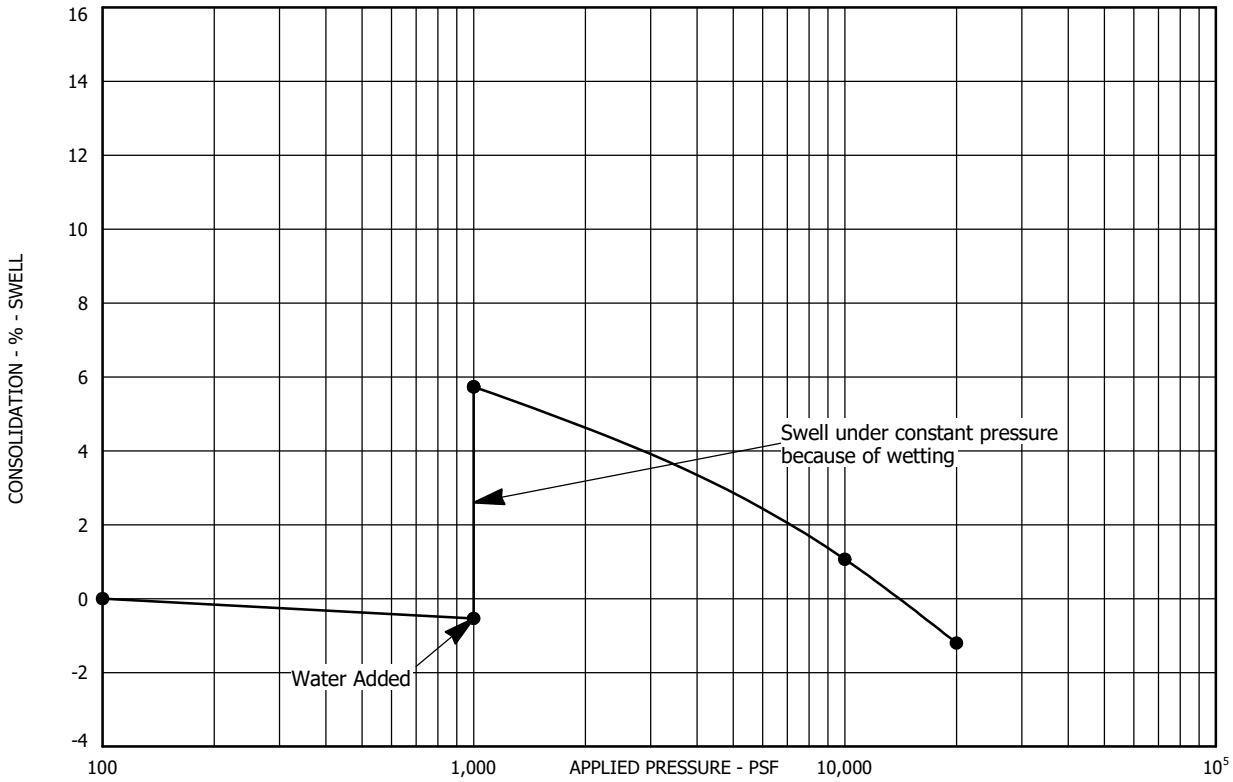


Sample Location: Test Boring No. 10 at a depth of 9 feet
Sample Description: Claystone, trace sand
Dry Unit Weight (pcf): 128
Moisture Content (%): 13

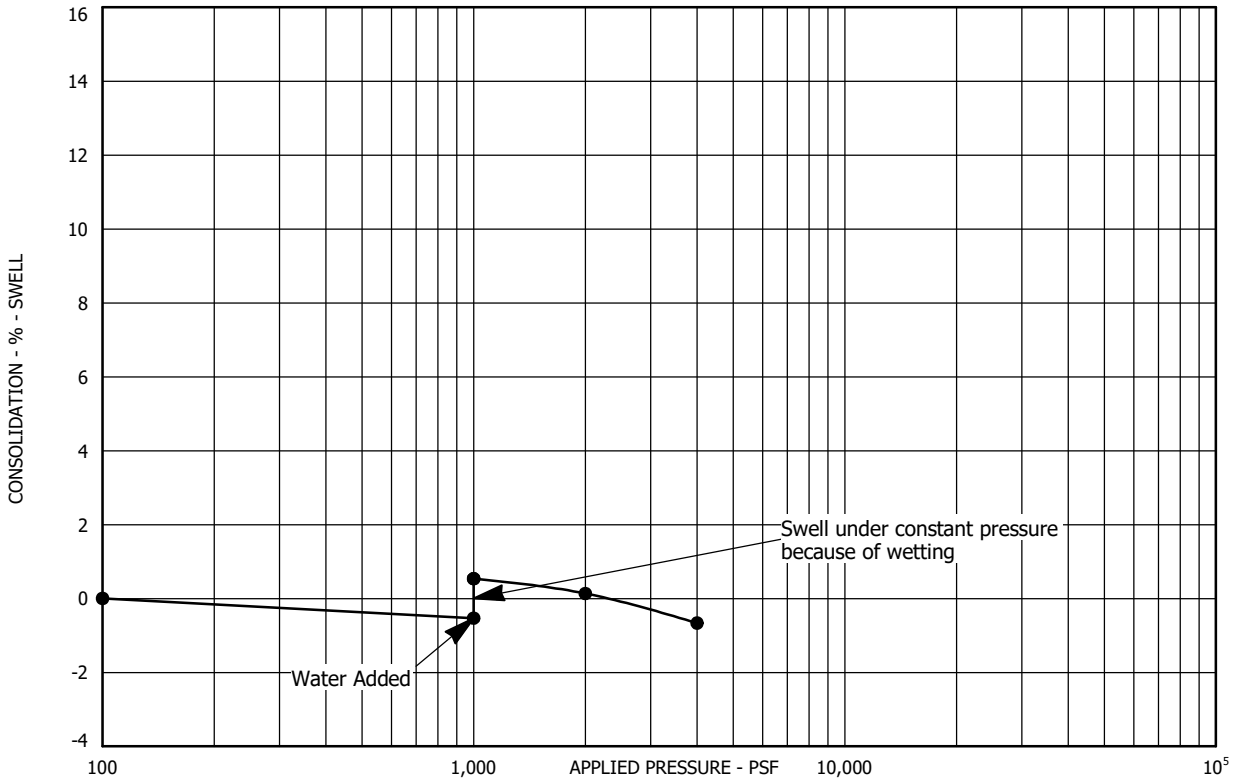
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-10

PROJECT NO. 160388



Sample Location: Test Boring No. 10 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 125
Moisture Content (%): 11

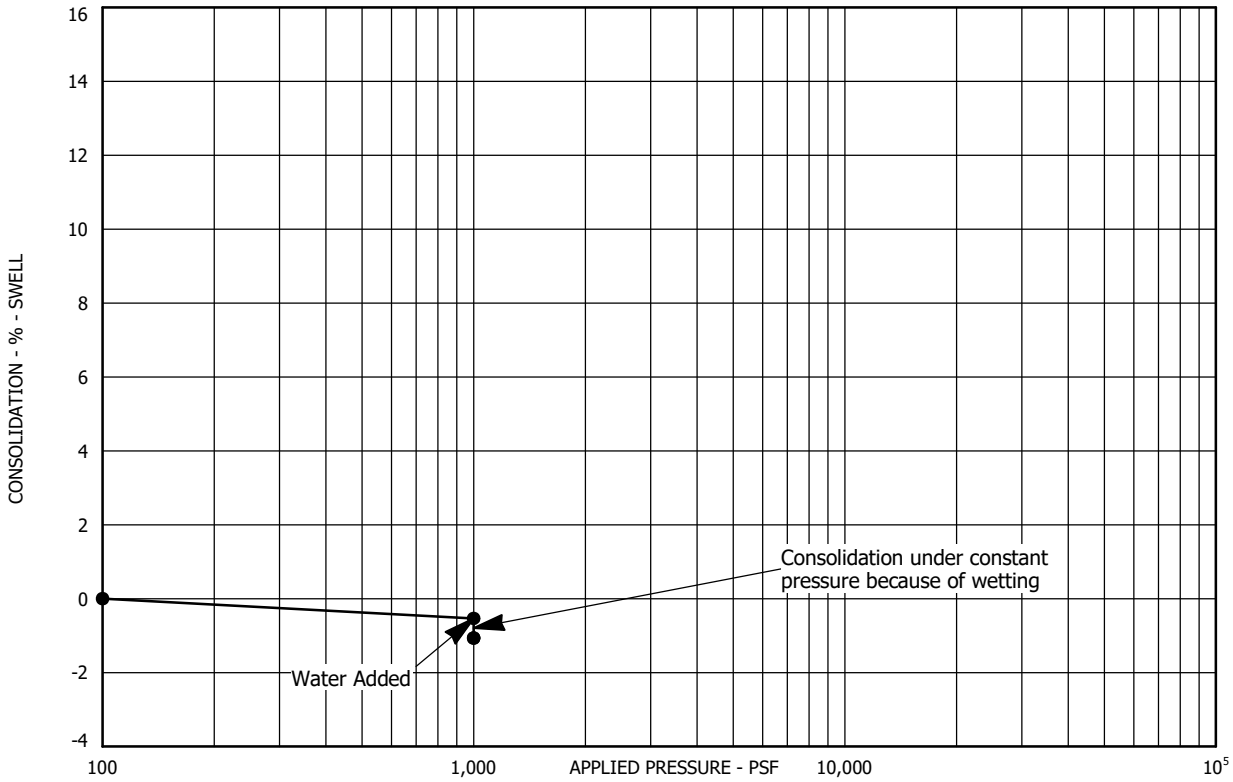


Sample Location: Test Boring No. 11 at a depth of 4 feet
Sample Description: Sandstone, clayey
Dry Unit Weight (pcf): 125
Moisture Content (%): 12

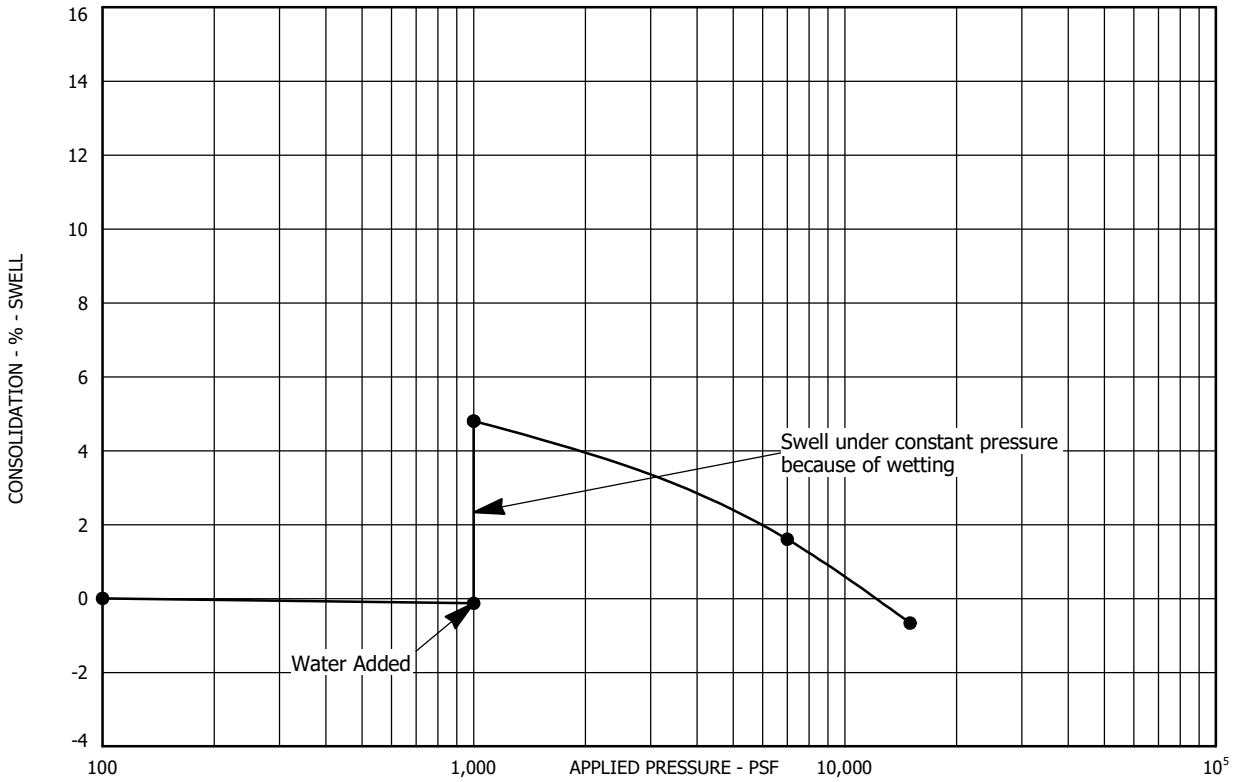
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-11

PROJECT NO. 160388



Sample Location: Test Boring No. 11 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 108
Moisture Content (%): 12

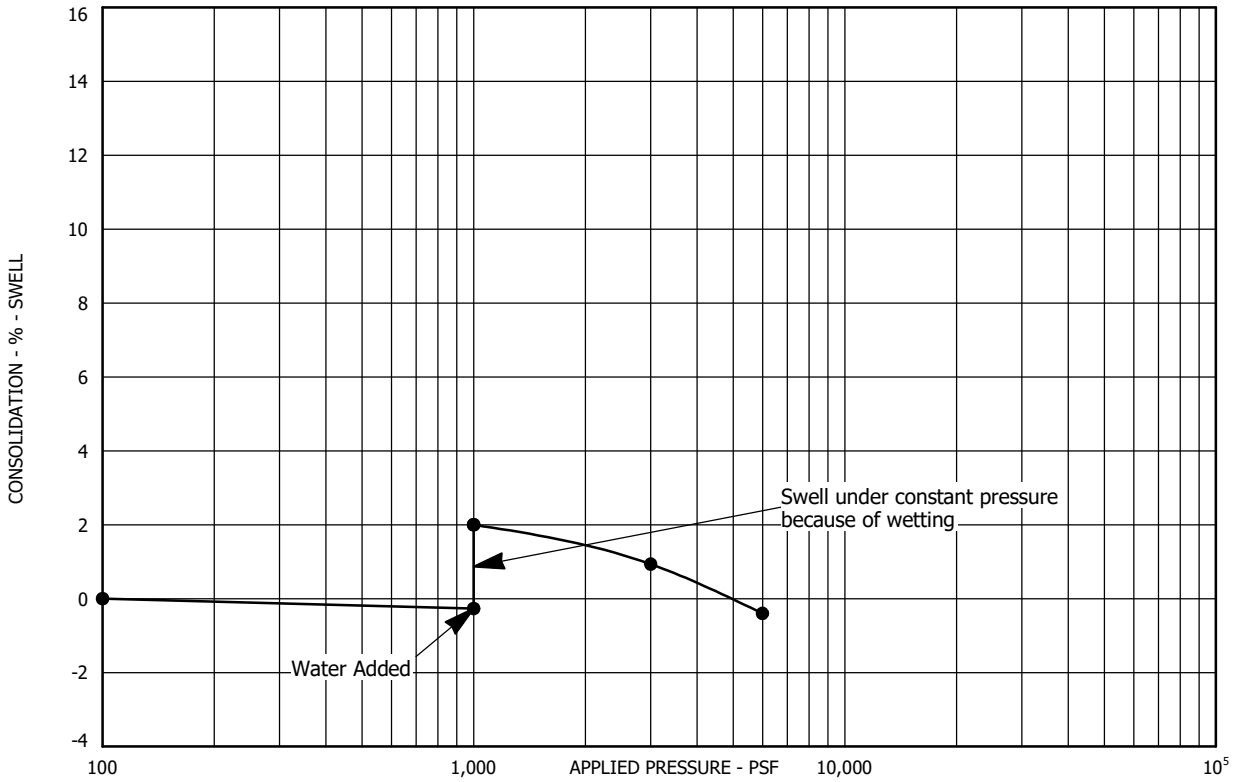


Sample Location: Test Boring No. 11 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 16

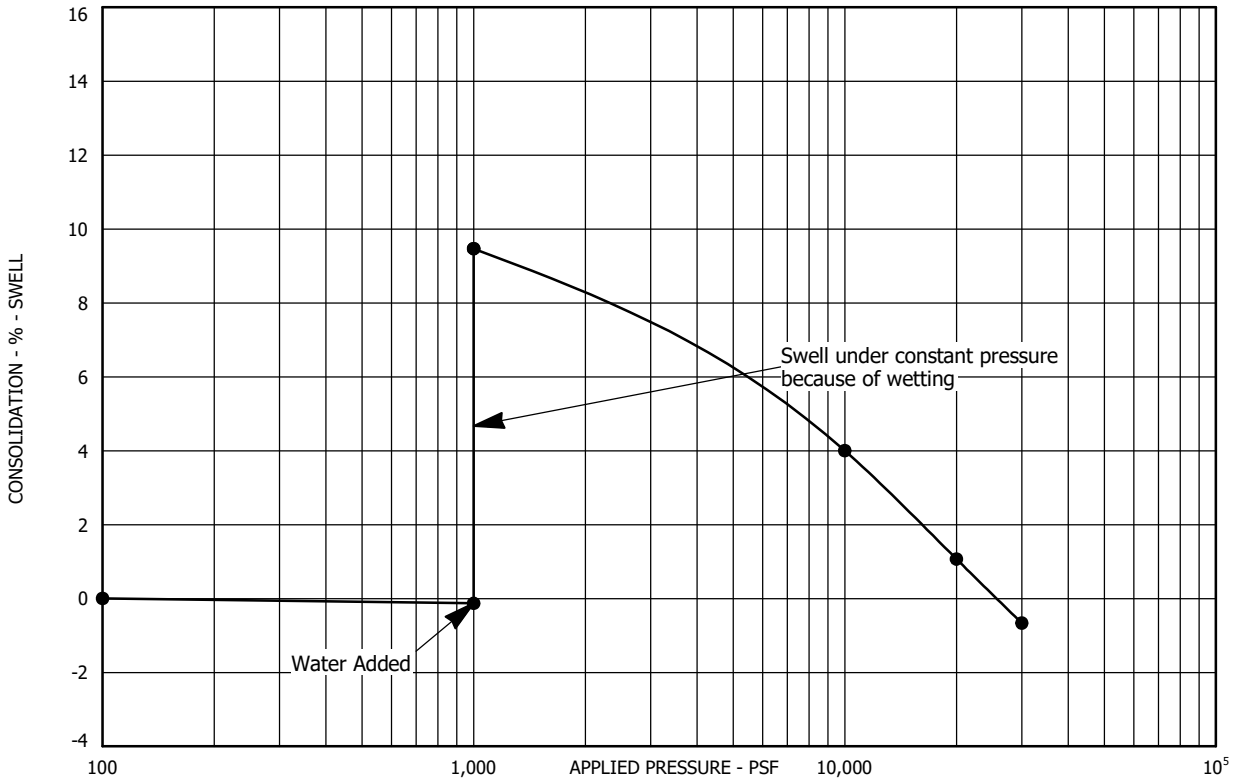
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-12

PROJECT NO. 160388



Sample Location: Test Boring No. 12 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 125
Moisture Content (%): 12

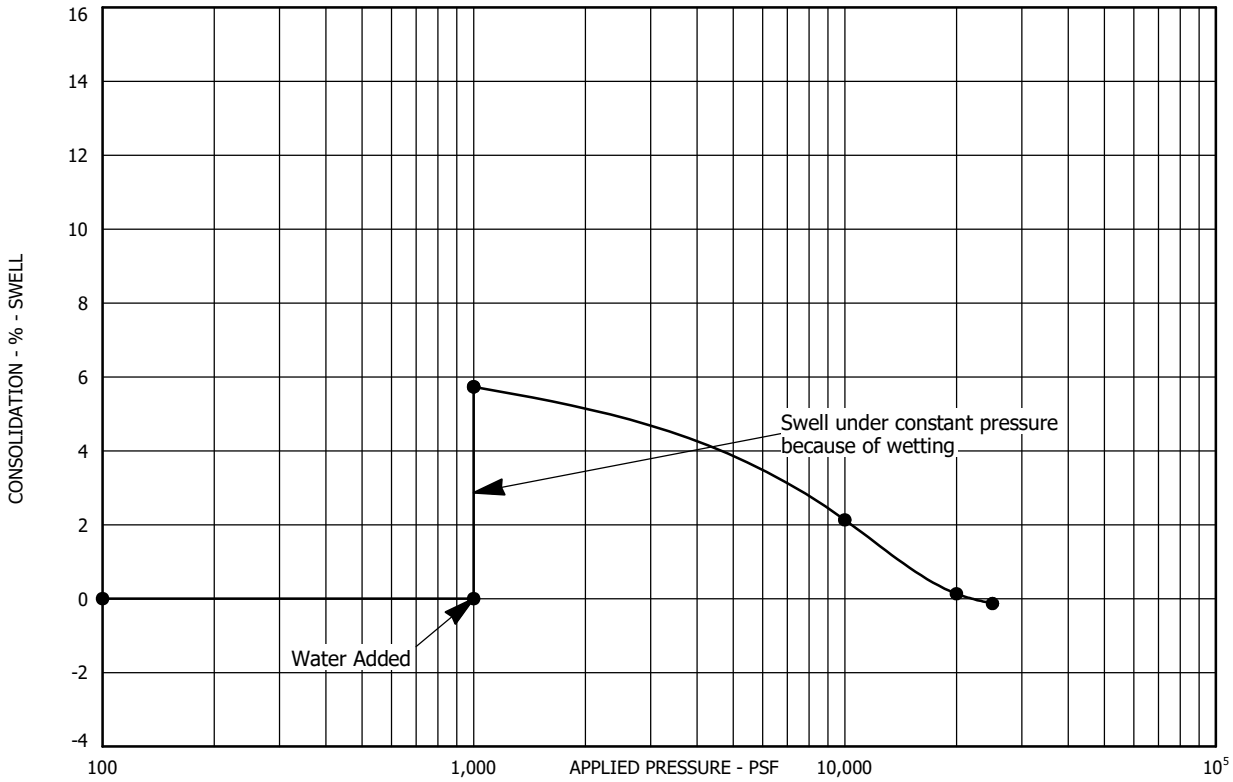


Sample Location: Test Boring No. 12 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 15

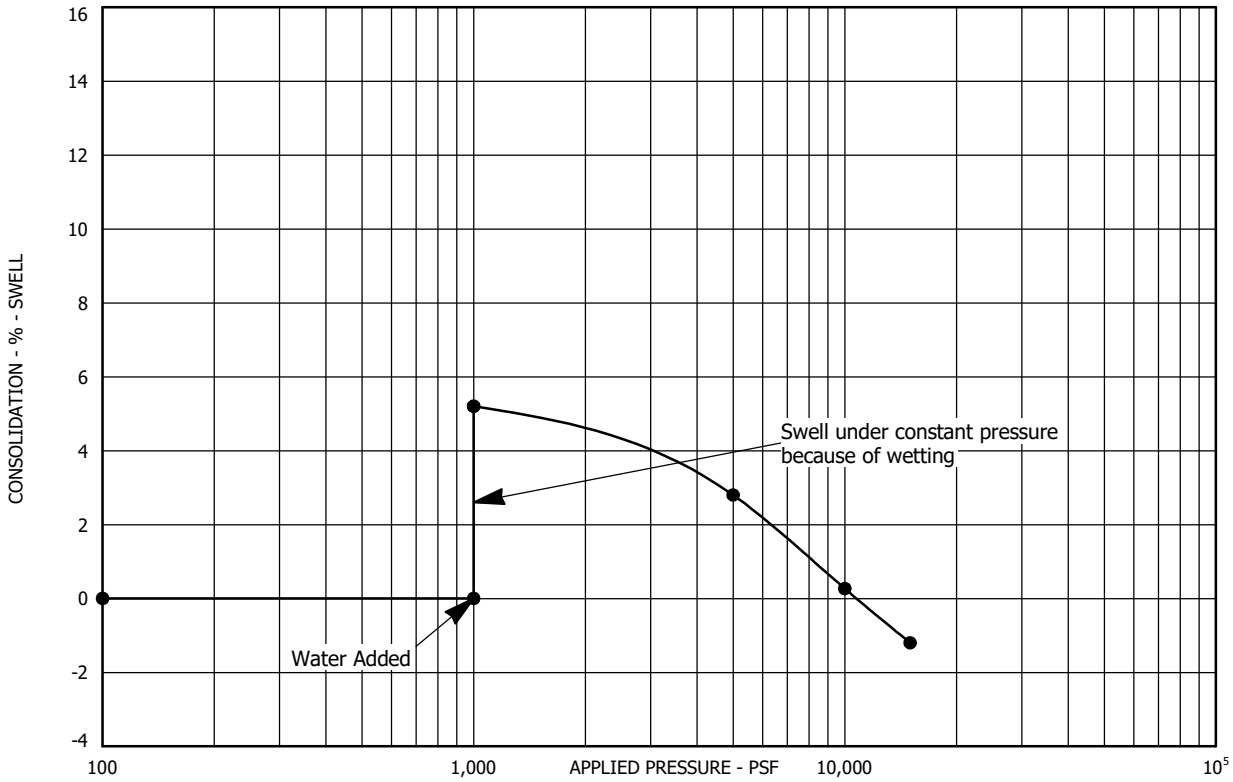
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-13

PROJECT NO. 160388



Sample Location: Test Boring No. 13 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 131
Moisture Content (%): 10

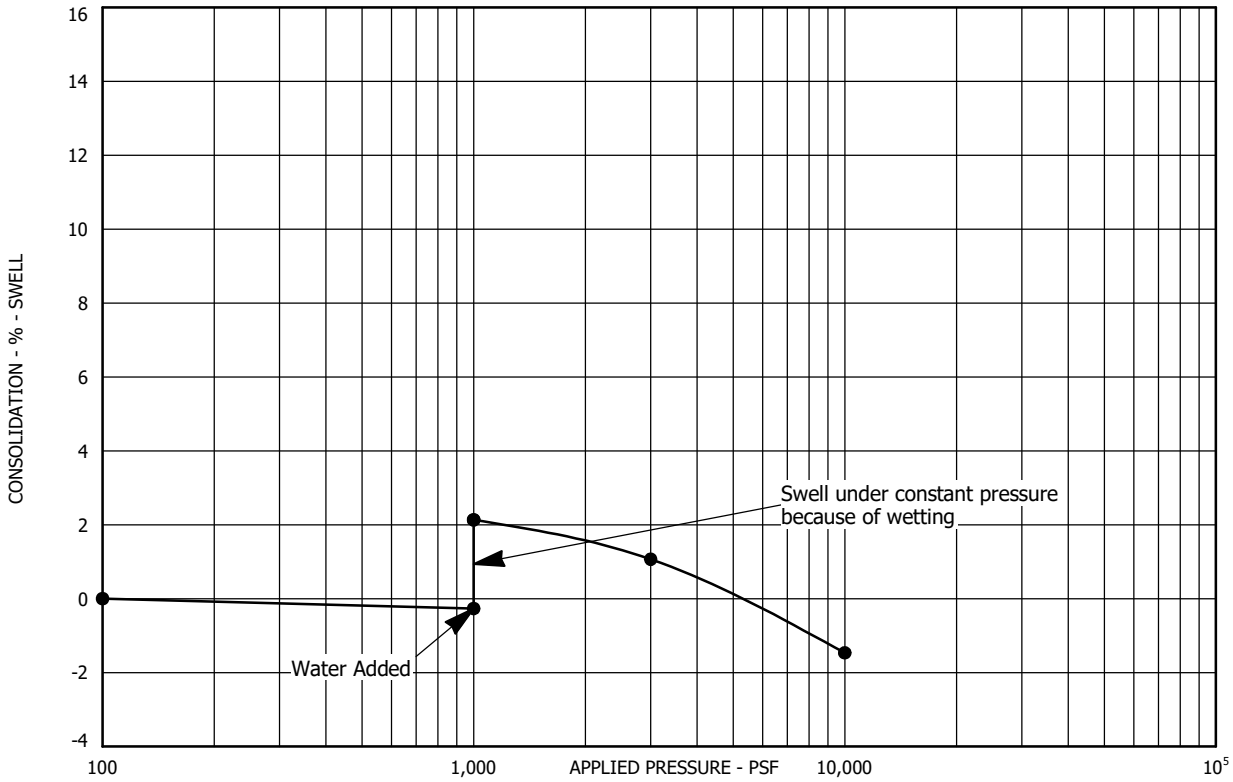


Sample Location: Test Boring No. 13 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 130
Moisture Content (%): 10

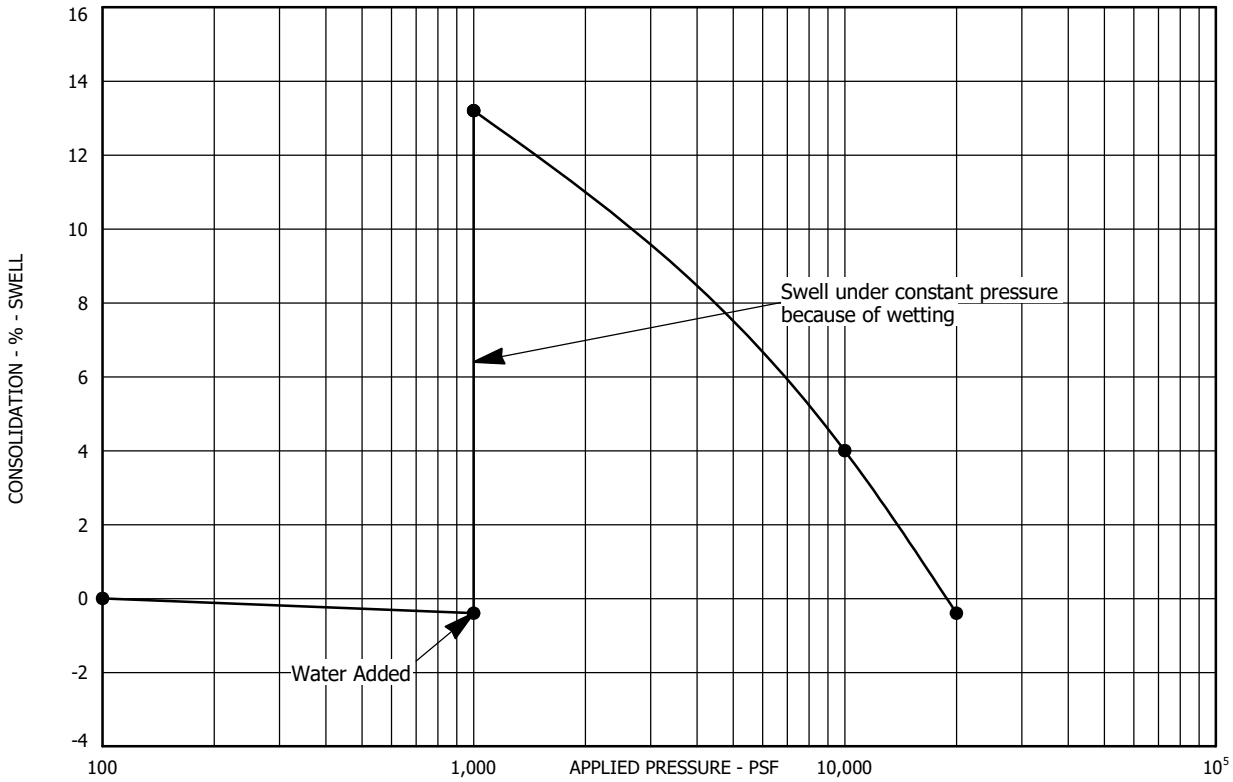
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-14

PROJECT NO. 160388



Sample Location: Test Boring No. 14 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 16

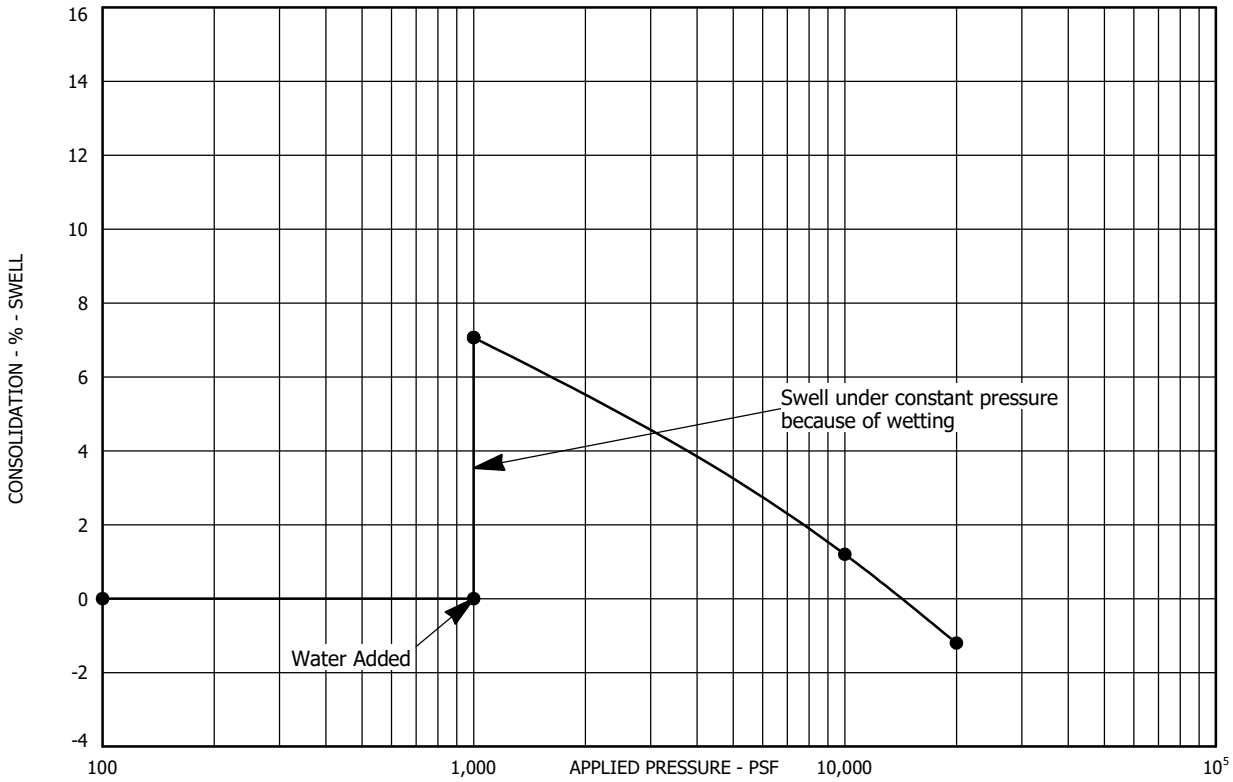


Sample Location: Test Boring No. 14 at a depth of 19 feet
Sample Description: Claystone, trace sand
Dry Unit Weight (pcf): 110
Moisture Content (%): 20

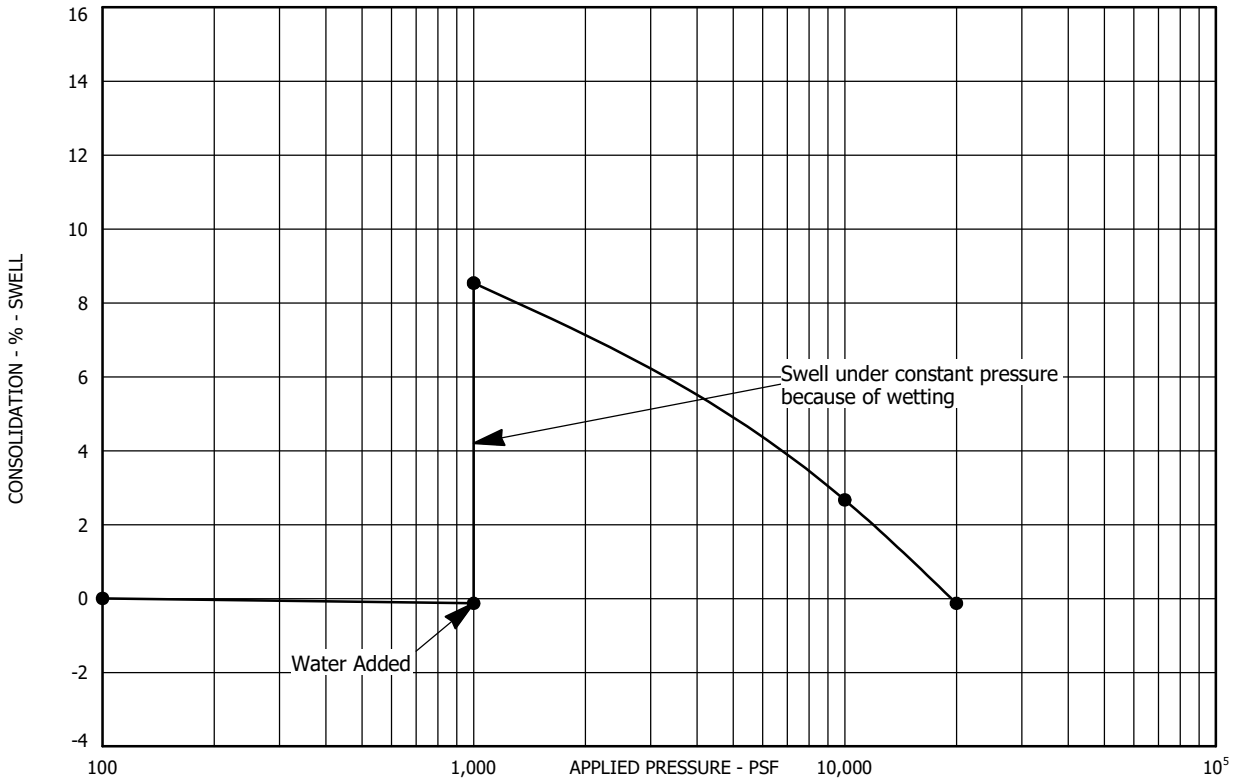
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-15

PROJECT NO. 160388



Sample Location: Test Boring No. 15 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 119
Moisture Content (%): 16

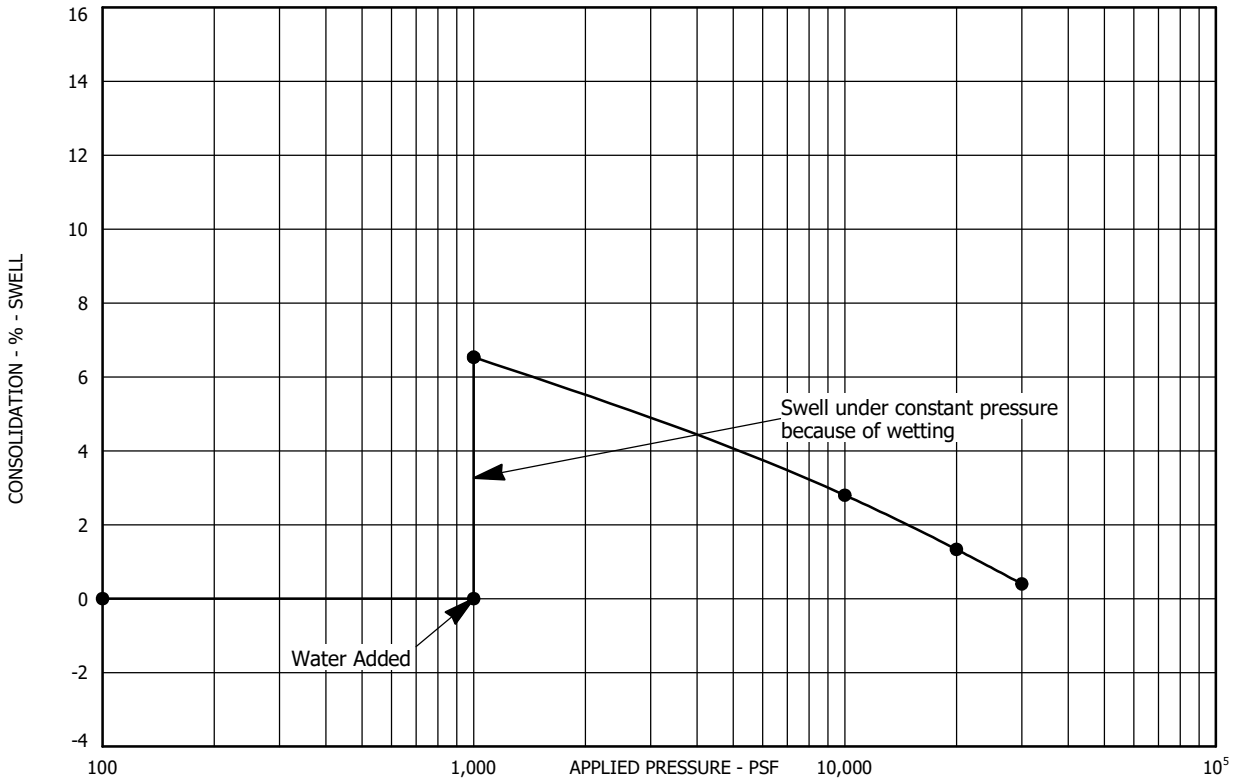


Sample Location: Test Boring No. 15 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 14

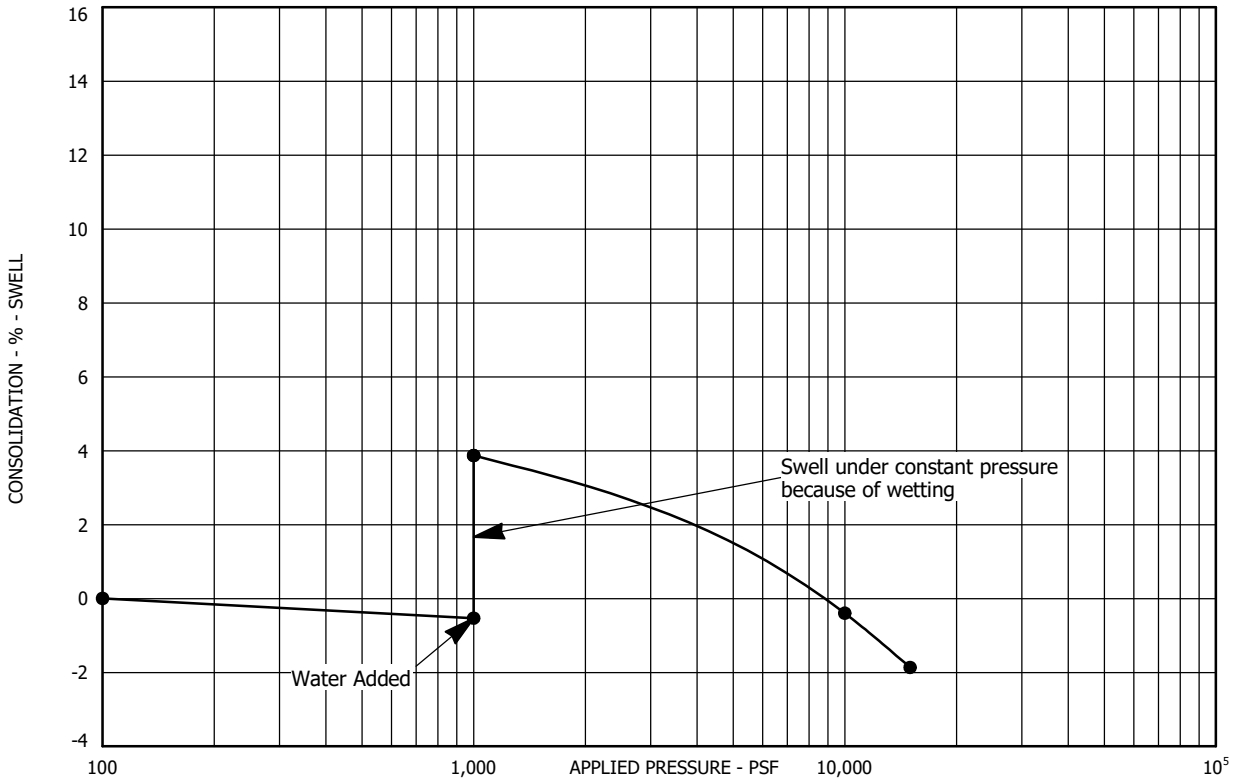
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-16

PROJECT NO. 160388



Sample Location: Test Boring No. 16 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 124
Moisture Content (%): 11

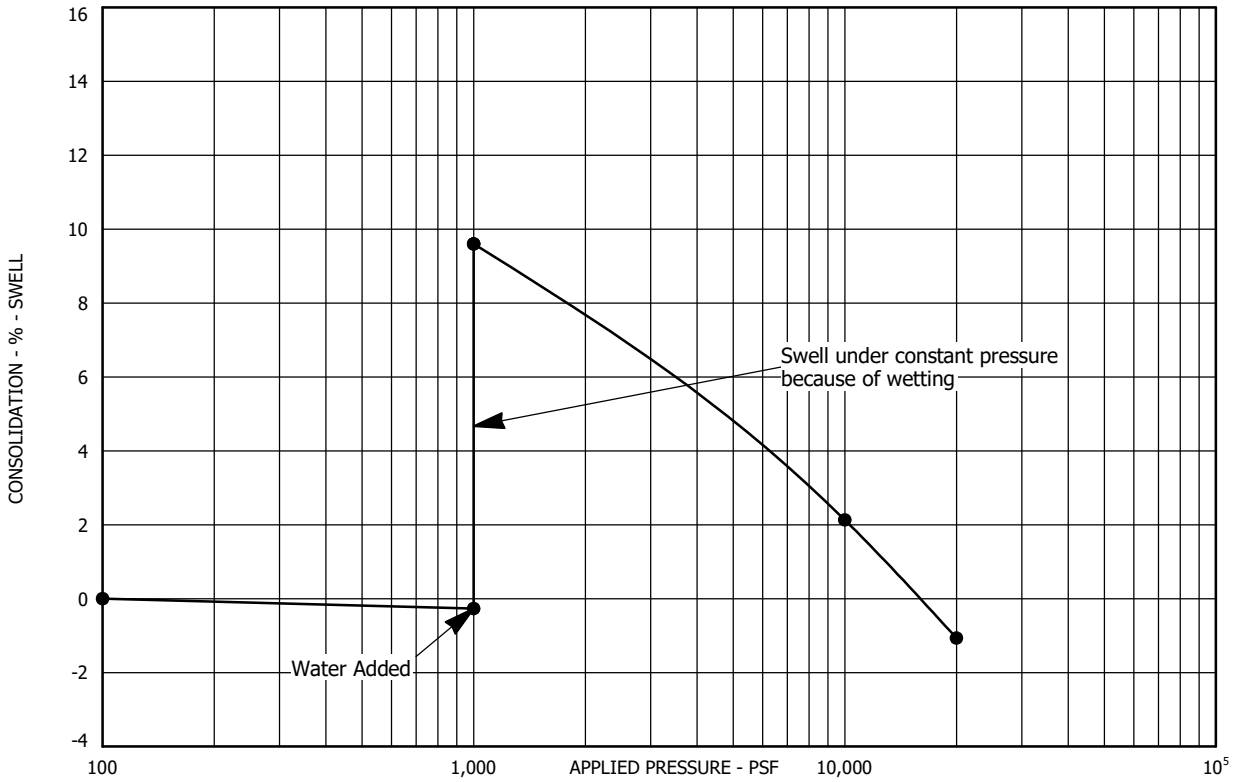


Sample Location: Test Boring No. 16 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 117
Moisture Content (%): 16

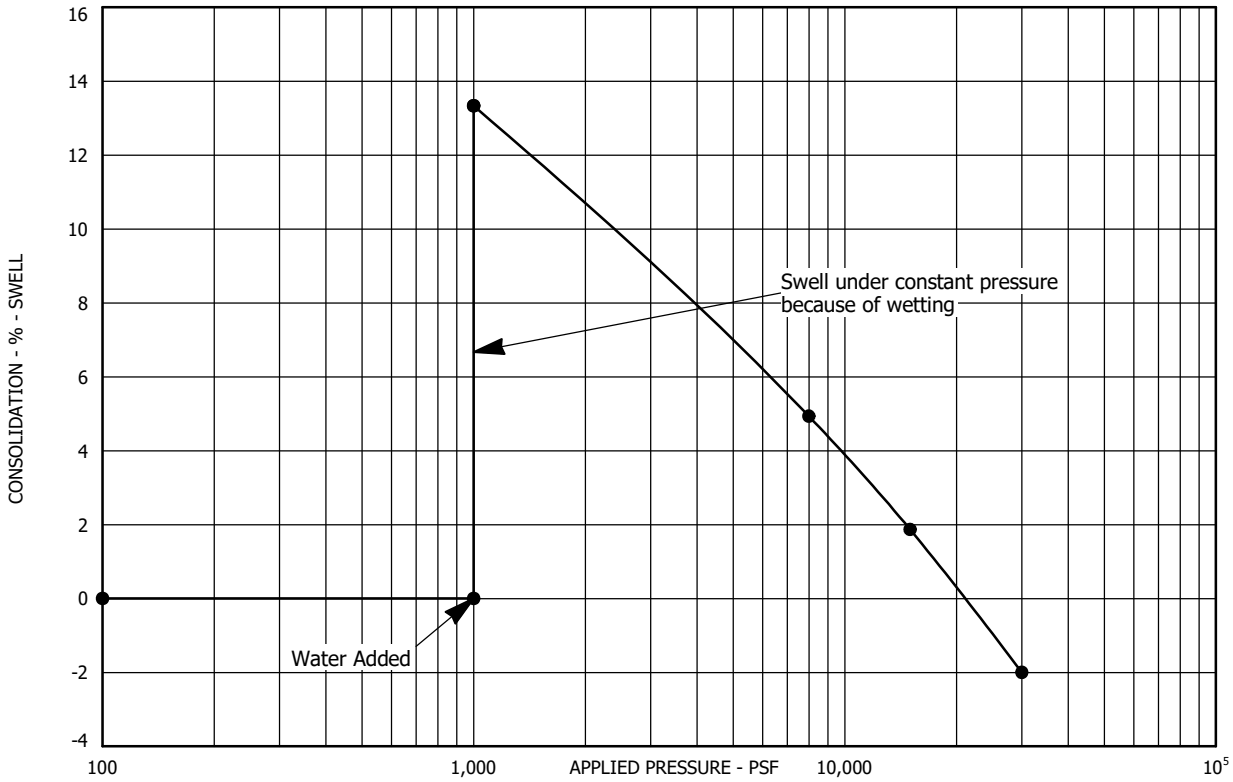
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-17

PROJECT NO. 160388



Sample Location: Test Boring No. 16 at a depth of 44 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 15

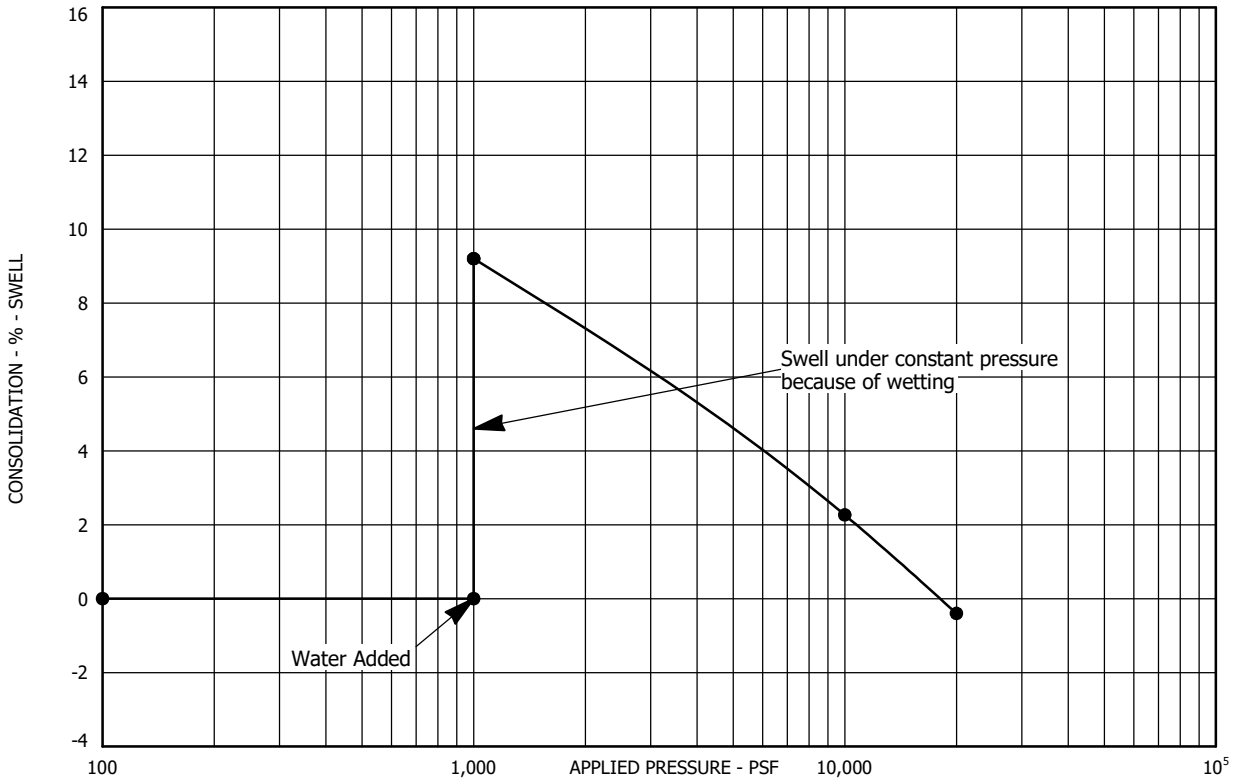


Sample Location: Test Boring No. 17 at a depth of 4 feet
Sample Description: Clay (Weathered Claystone), silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 14

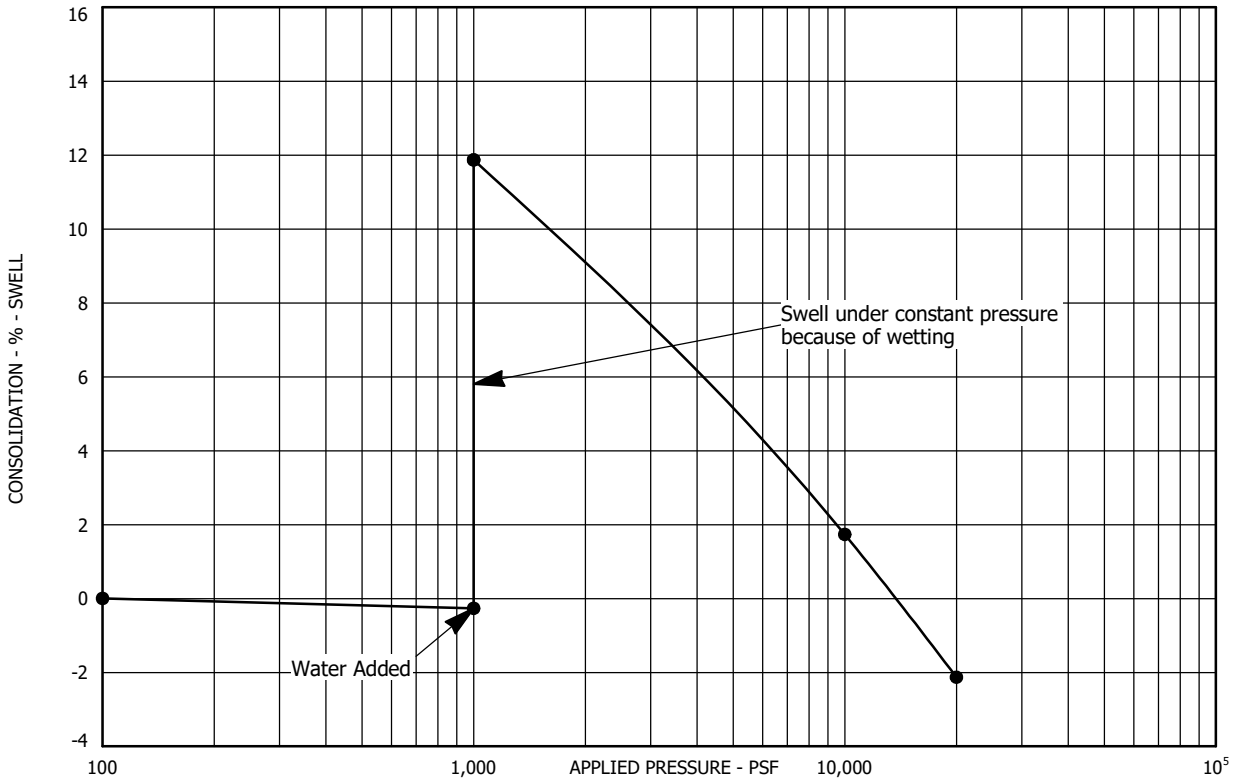
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-18

PROJECT NO. 160388



Sample Location: Test Boring No. 17 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 15

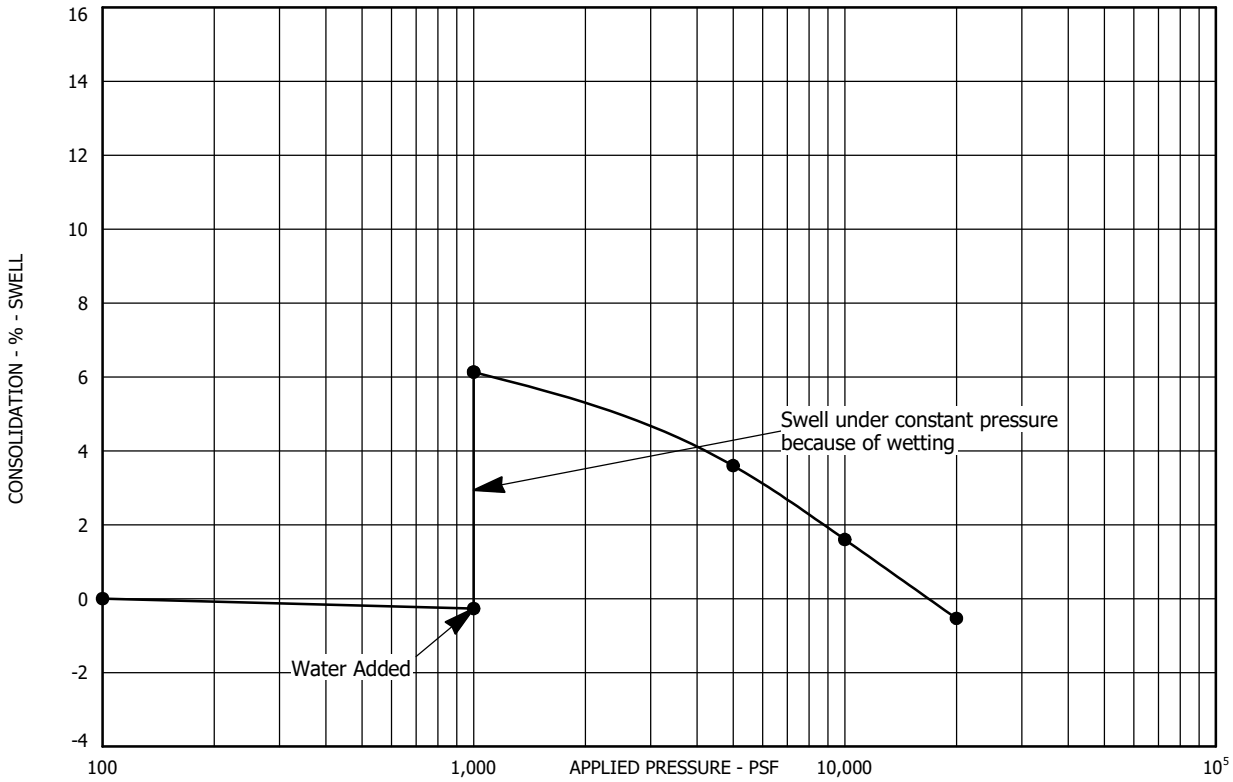


Sample Location: Test Boring No. 17 at a depth of 34 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 13

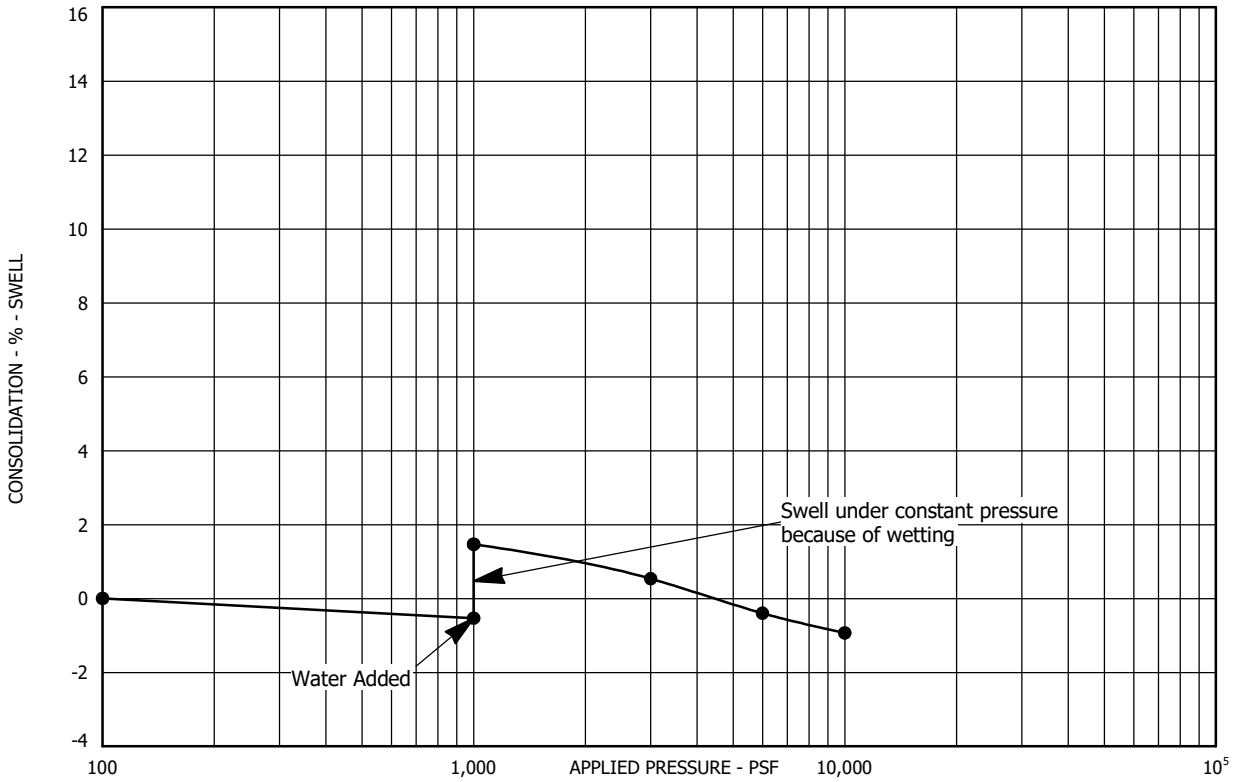
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-19

PROJECT NO. 160388



Sample Location: Test Boring No. 18 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 117
Moisture Content (%): 10

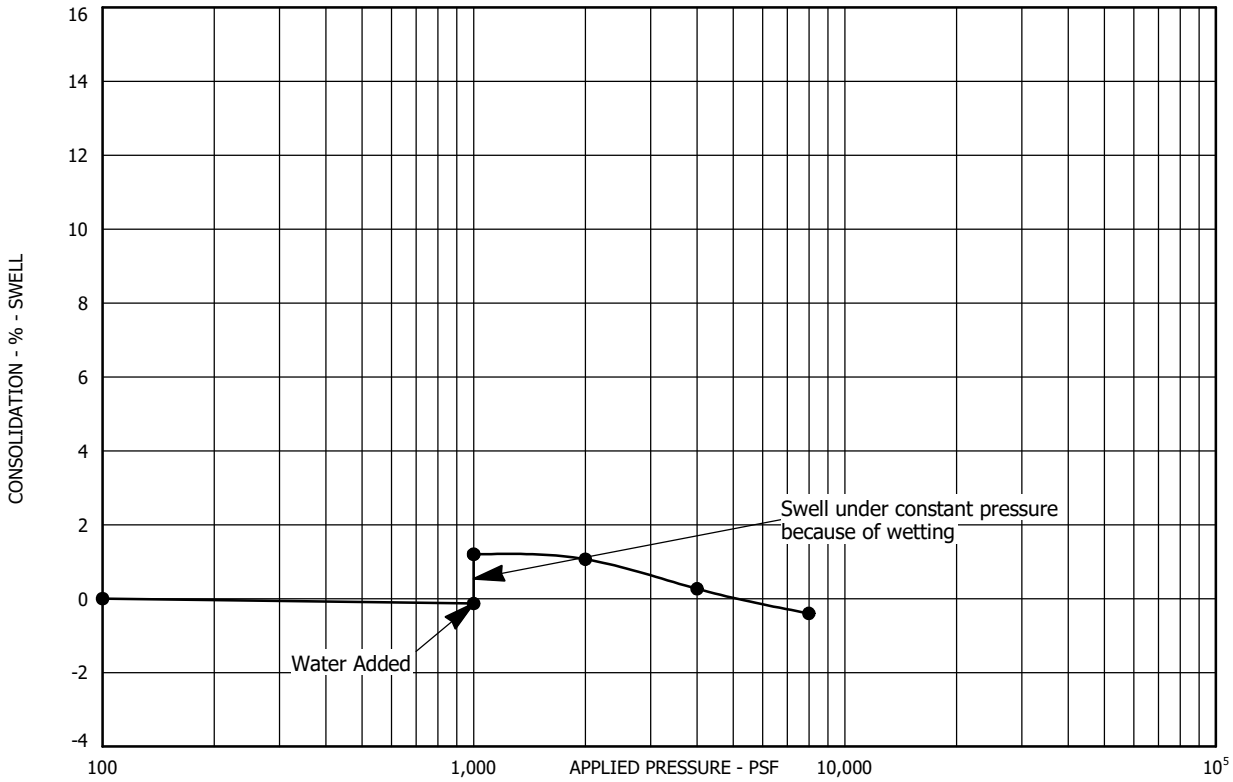


Sample Location: Test Boring No. 18 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 123
Moisture Content (%): 16

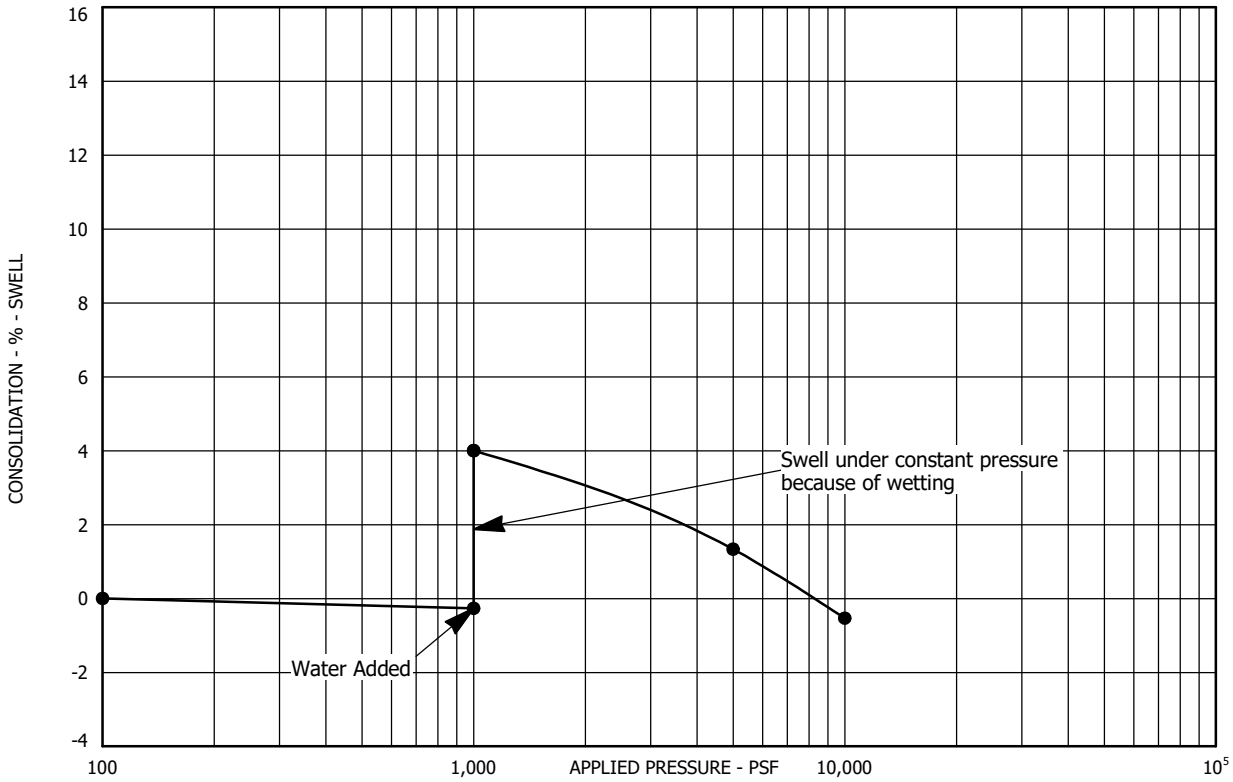
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-20

PROJECT NO. 160388



Sample Location: Test Boring No. 18 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 14

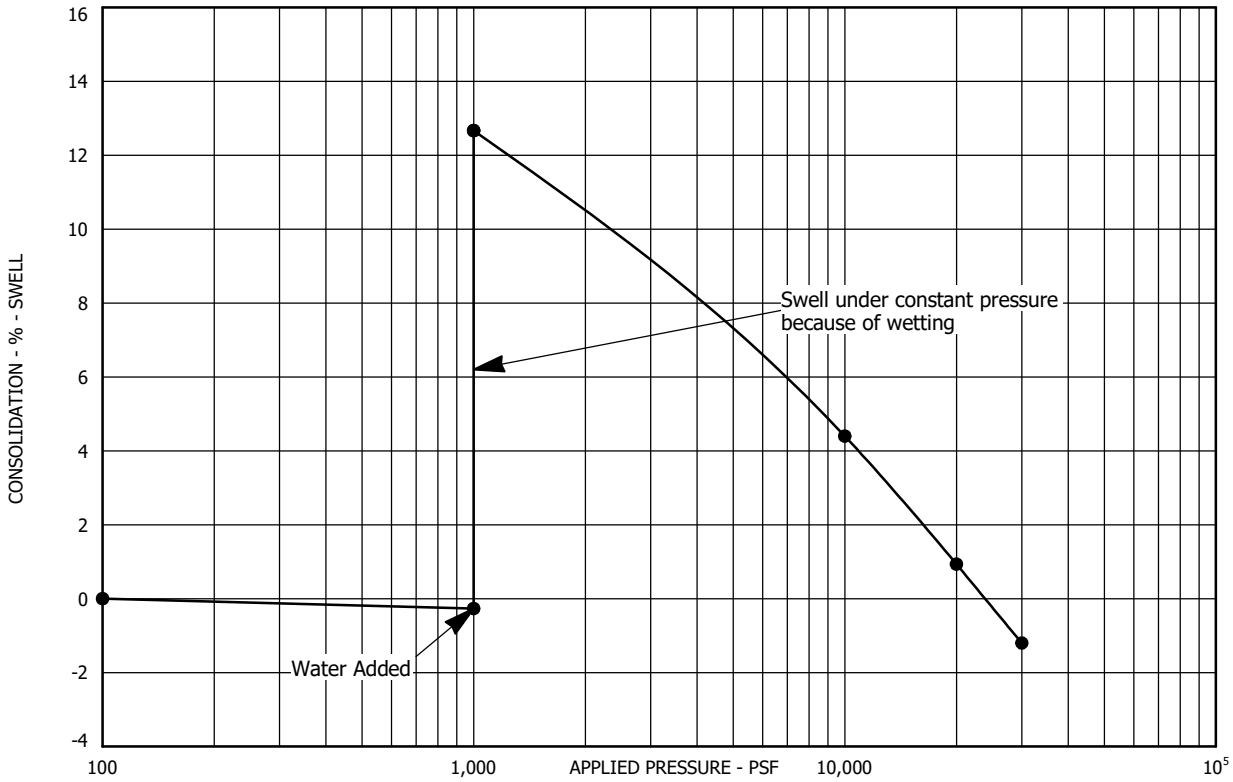


Sample Location: Test Boring No. 19 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 116
Moisture Content (%): 16

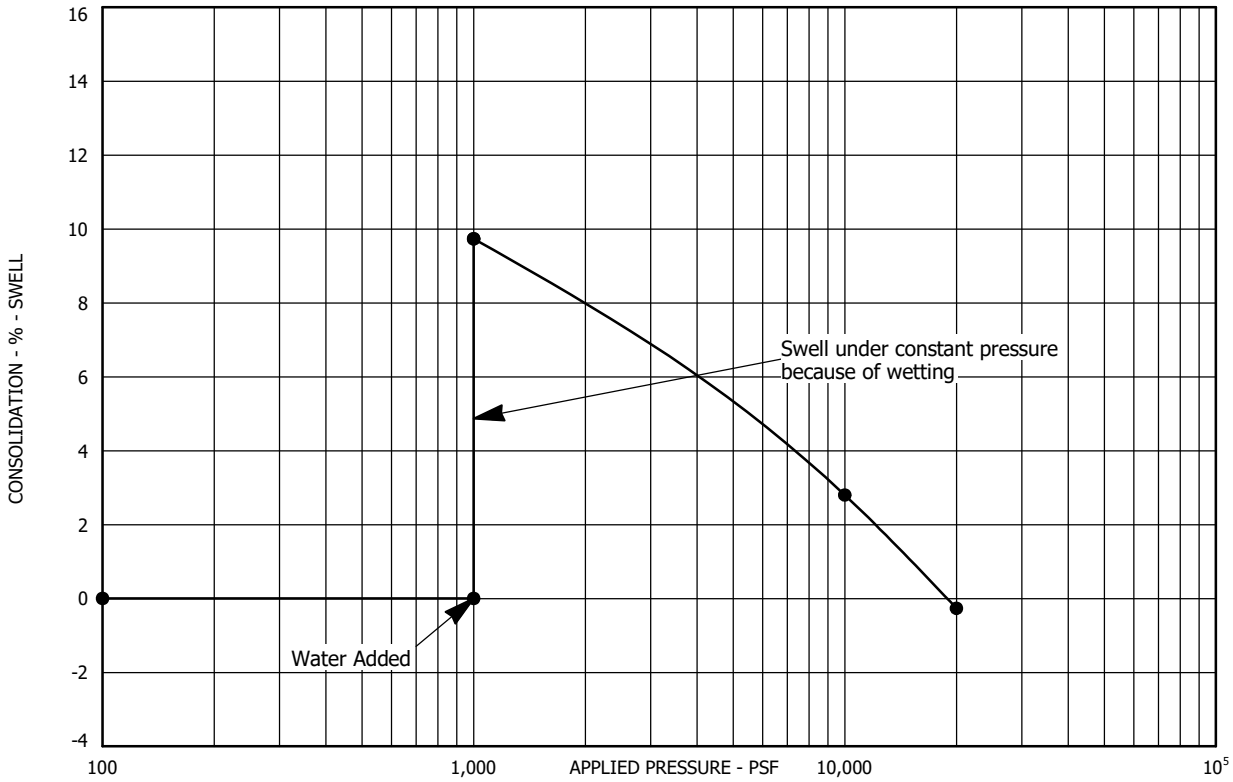
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-21

PROJECT NO. 160388



Sample Location: Test Boring No. 19 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 18

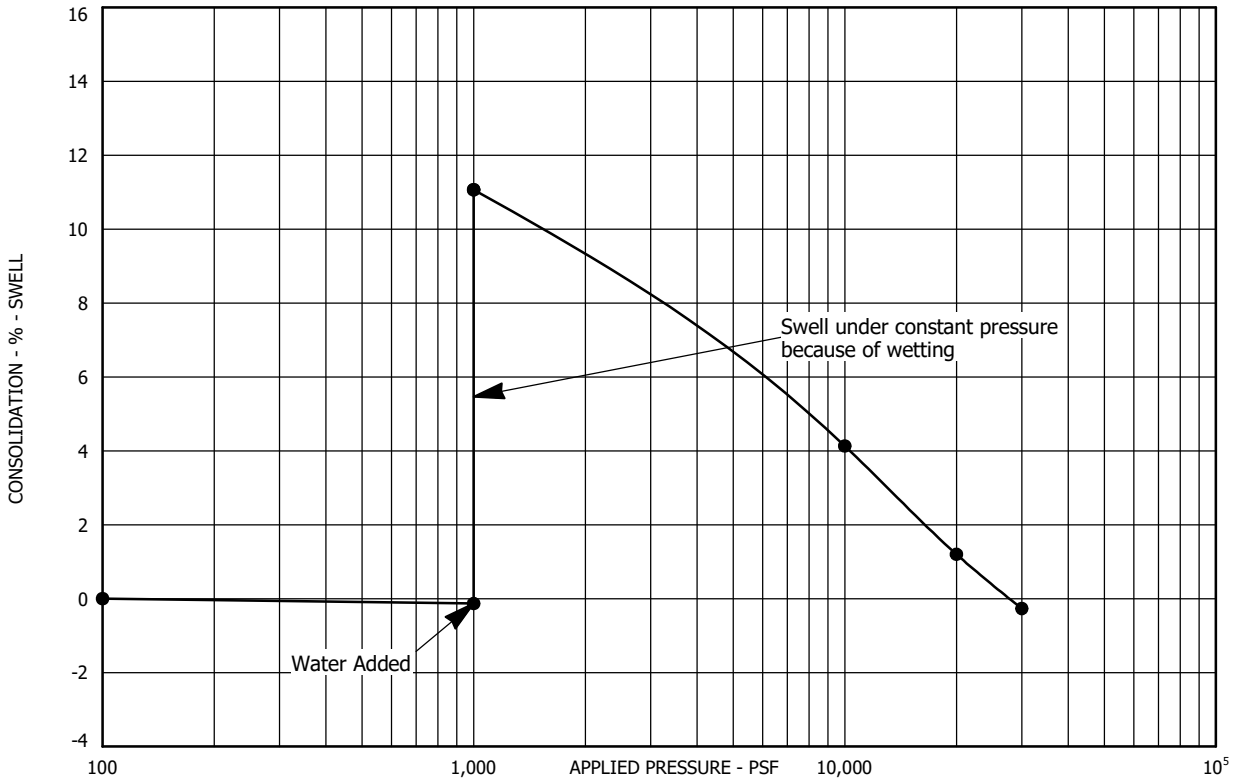


Sample Location: Test Boring No. 20 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 112
Moisture Content (%): 18

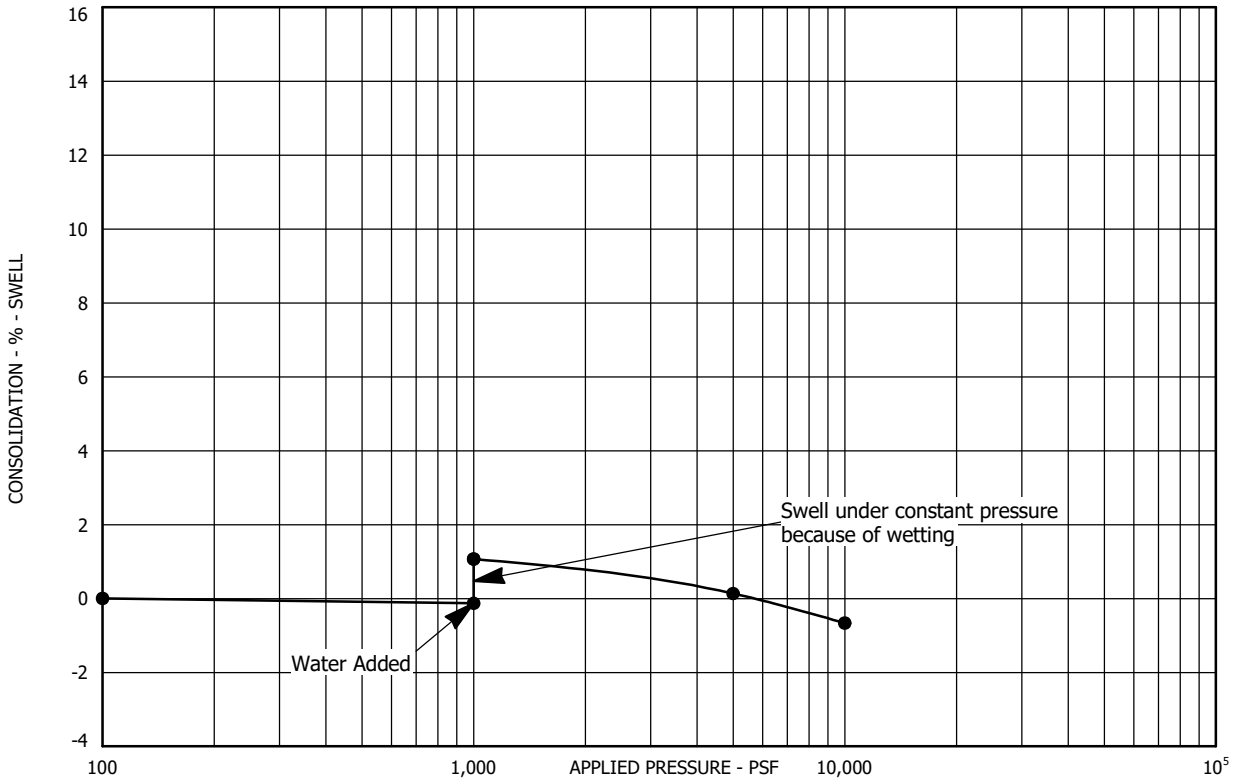
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-22

PROJECT NO. 160388



Sample Location: Test Boring No. 20 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 14

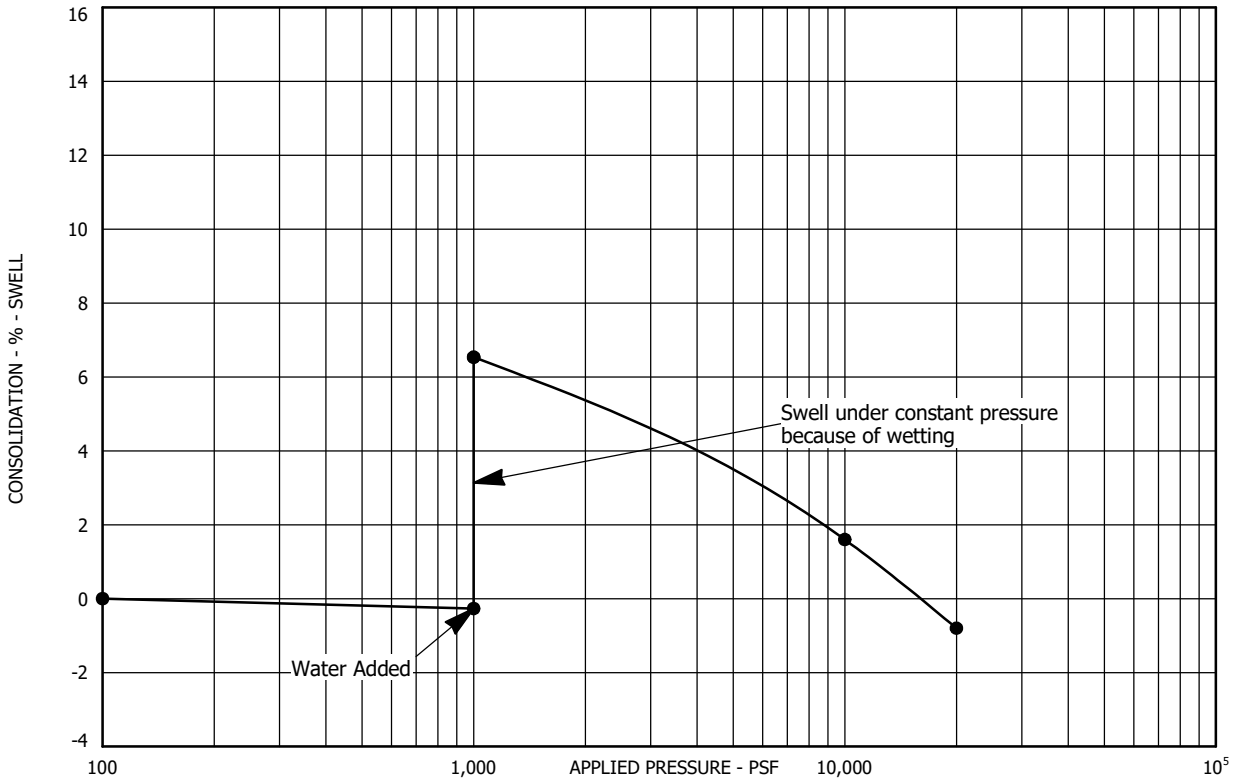


Sample Location: Test Boring No. 21 at a depth of 9 feet
Sample Description: Claystone/Sandstone, silty
Dry Unit Weight (pcf): 124
Moisture Content (%): 11

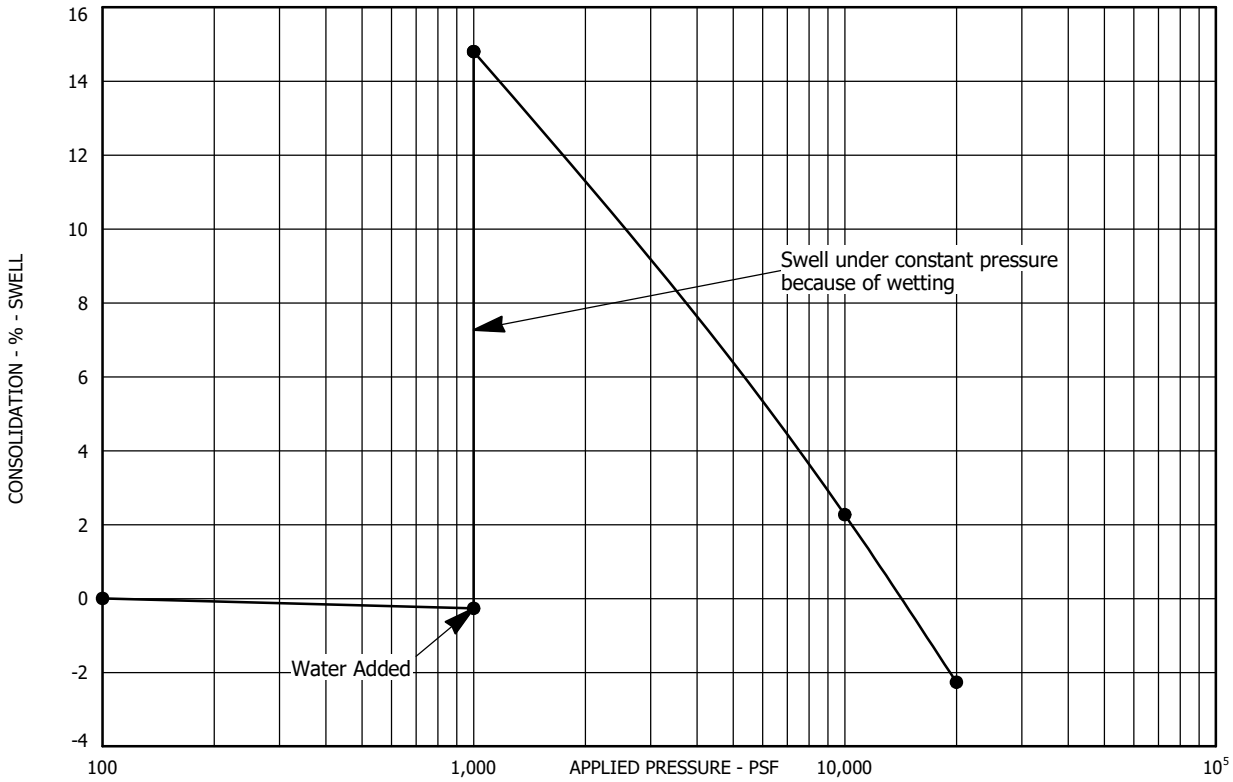
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-23

PROJECT NO. 160388



Sample Location: Test Boring No. 21 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 117
Moisture Content (%): 14

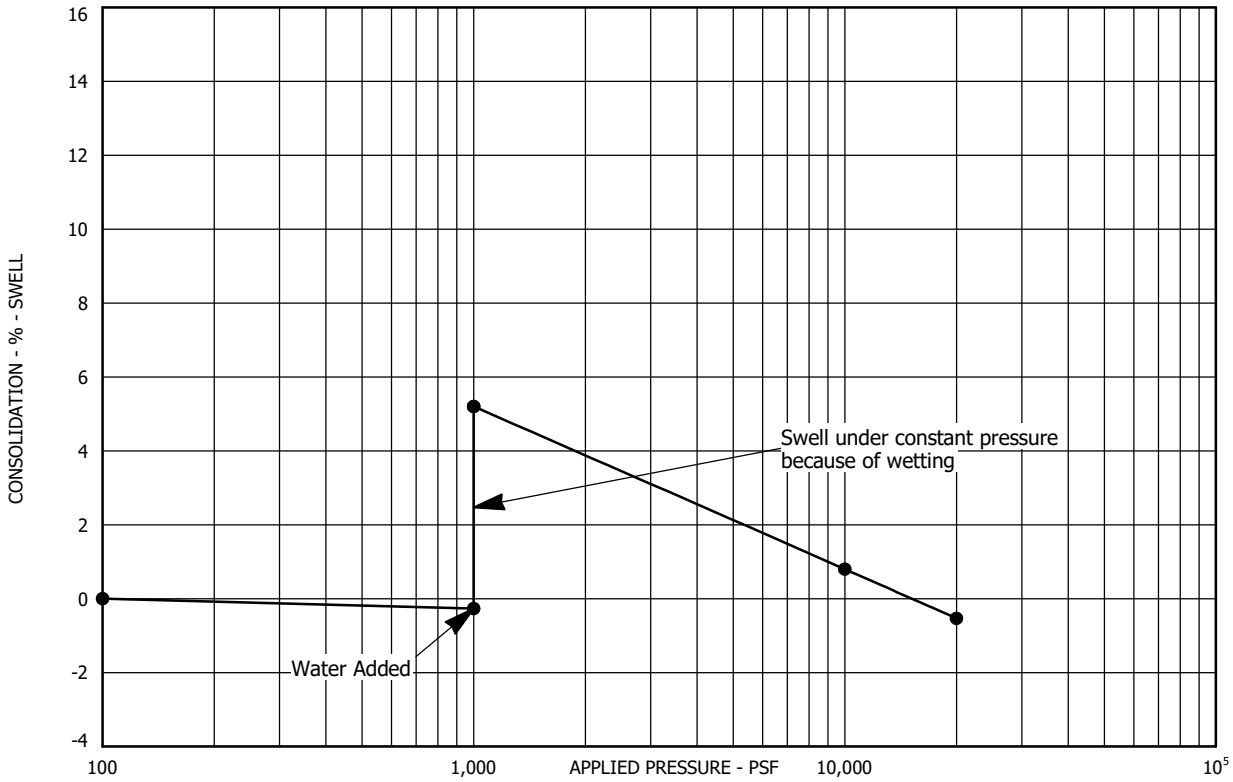


Sample Location: Test Boring No. 21 at a depth of 34 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 14

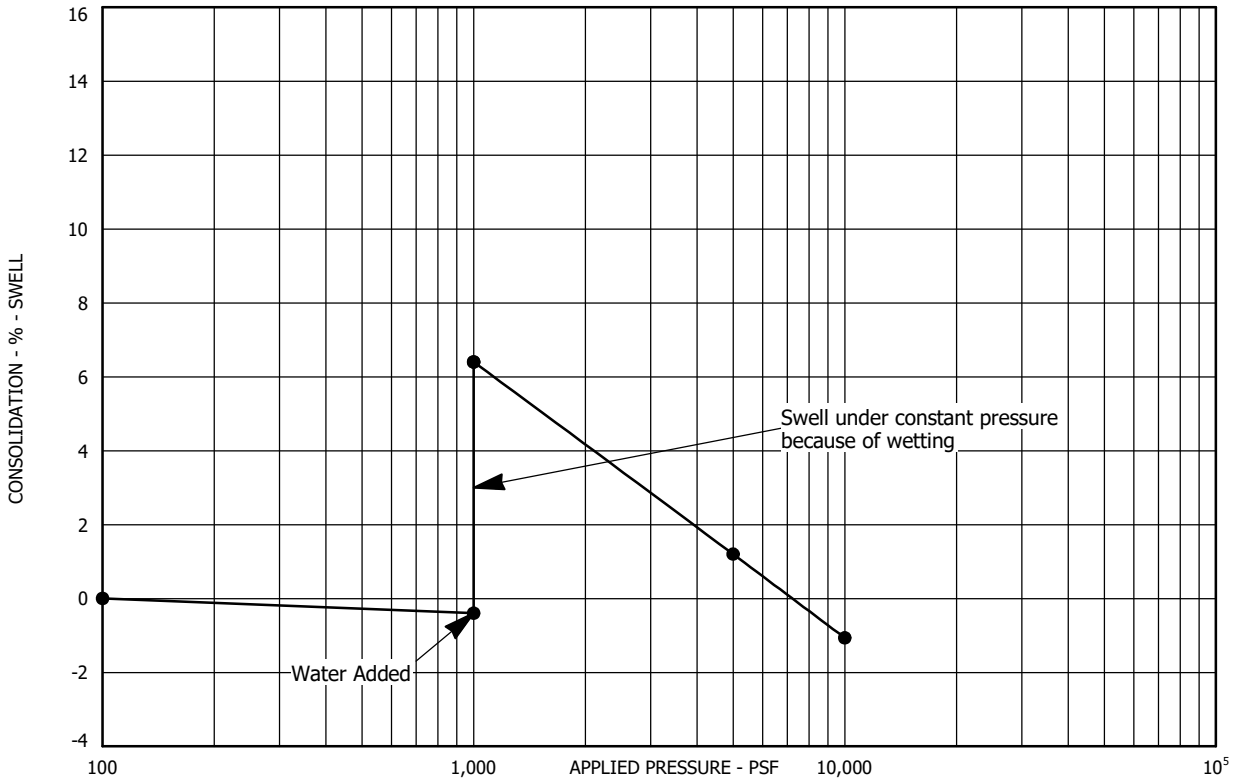
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-24

PROJECT NO. 160388



Sample Location: Test Boring No. 22 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 129
Moisture Content (%): 12

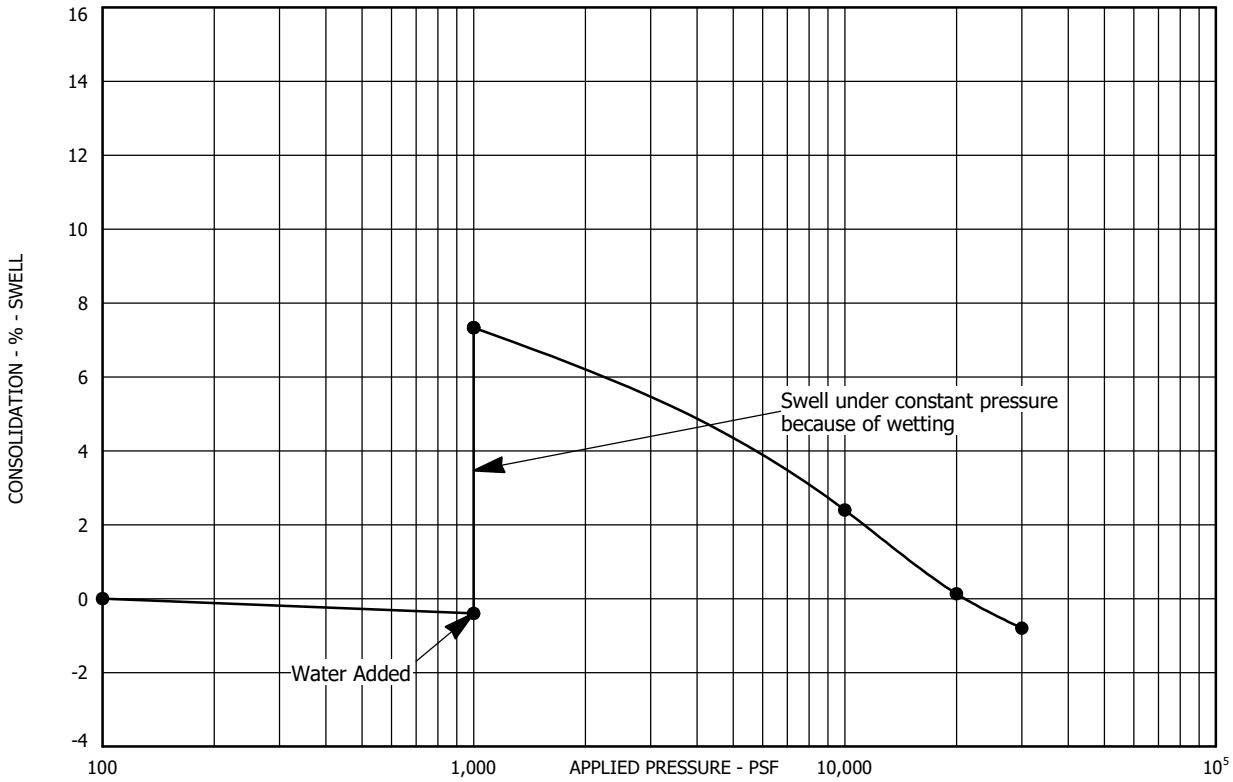


Sample Location: Test Boring No. 23 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 112
Moisture Content (%): 18

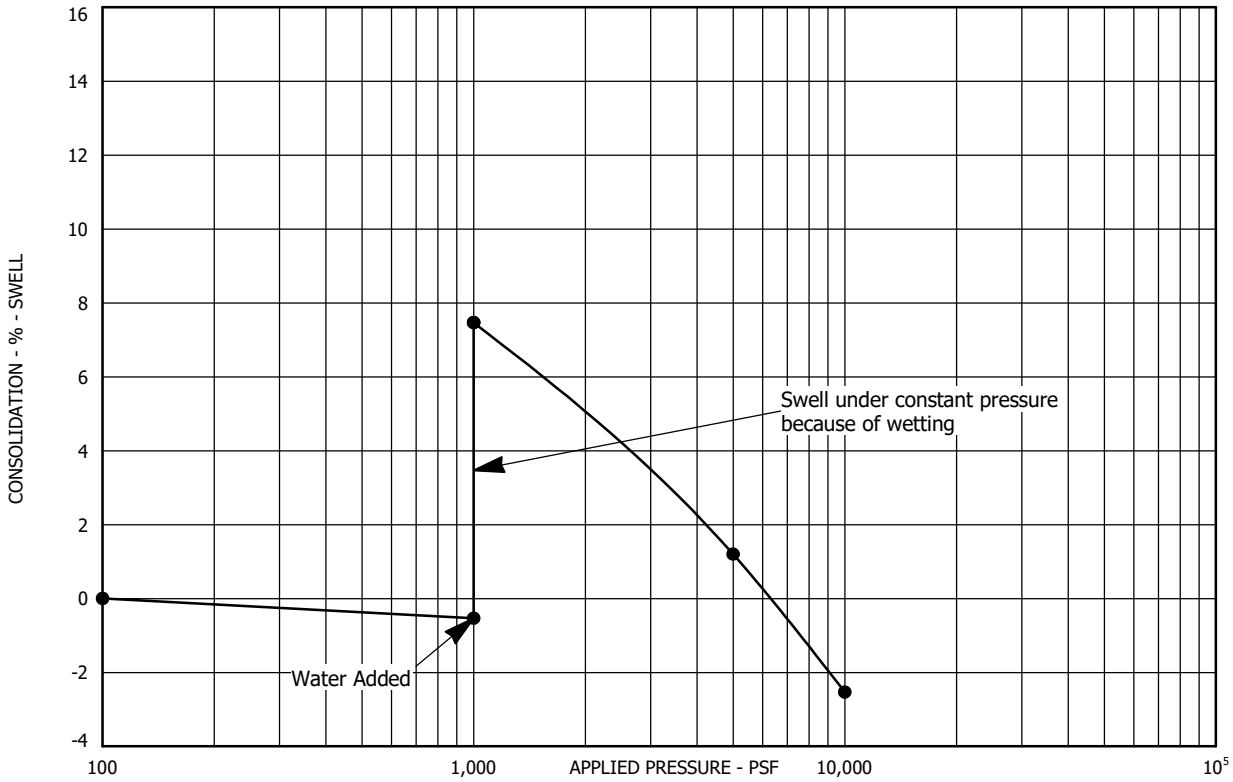
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-25

PROJECT NO. 160388



Sample Location: Test Boring No. 23 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 127
Moisture Content (%): 13

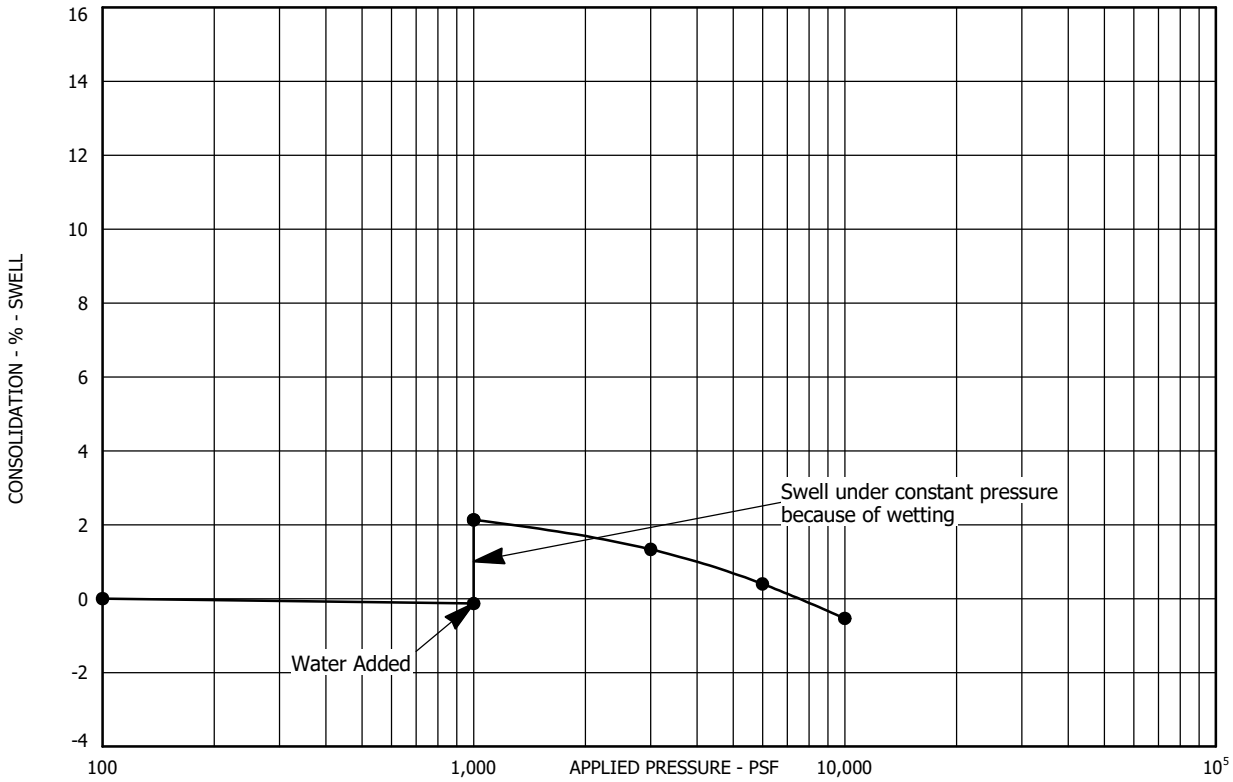


Sample Location: Test Boring No. 23 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 111
Moisture Content (%): 13

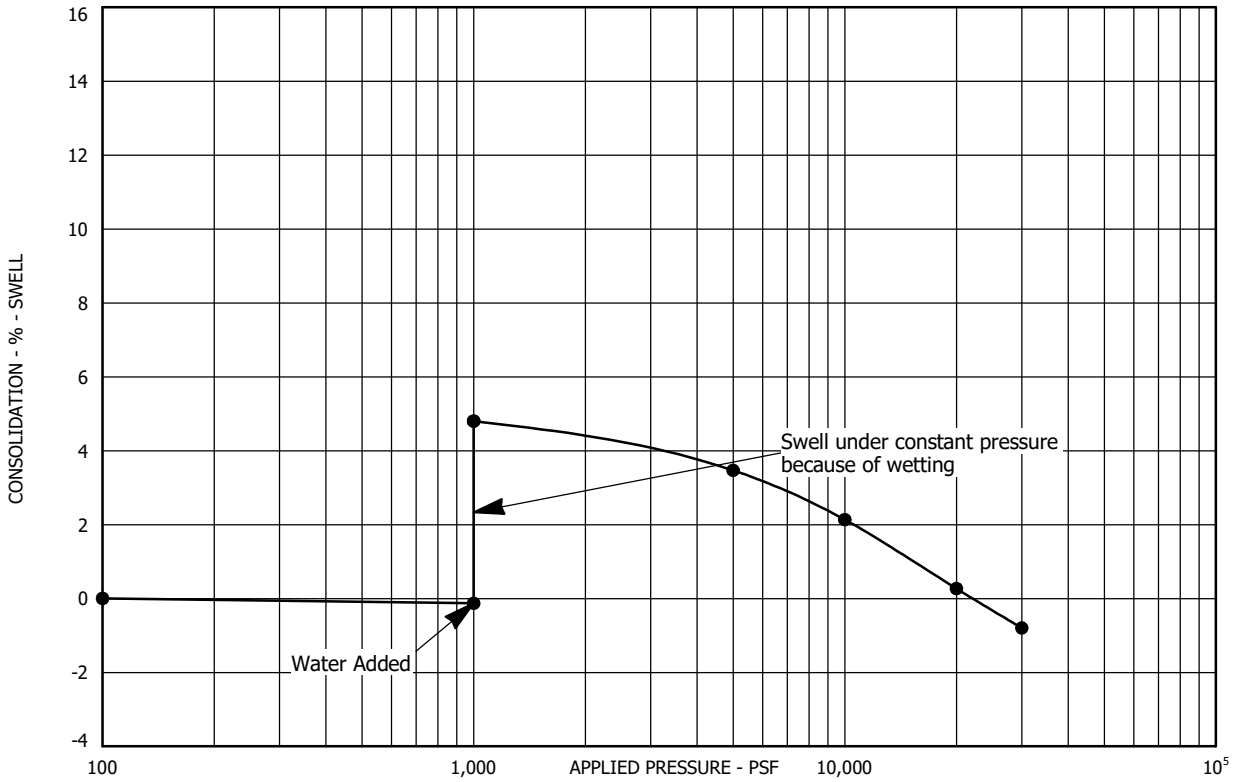
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-26

PROJECT NO. 160388



Sample Location: Test Boring No. 24 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 12

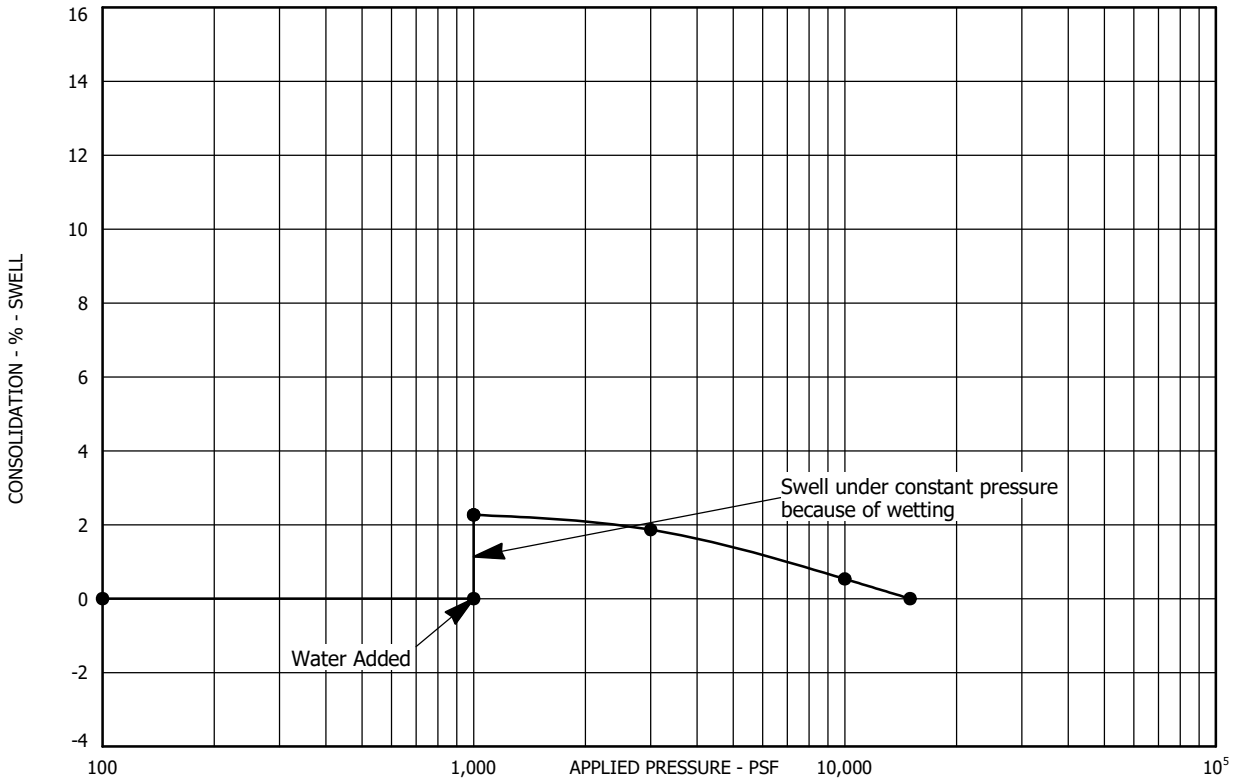


Sample Location: Test Boring No. 25 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 121
Moisture Content (%): 13

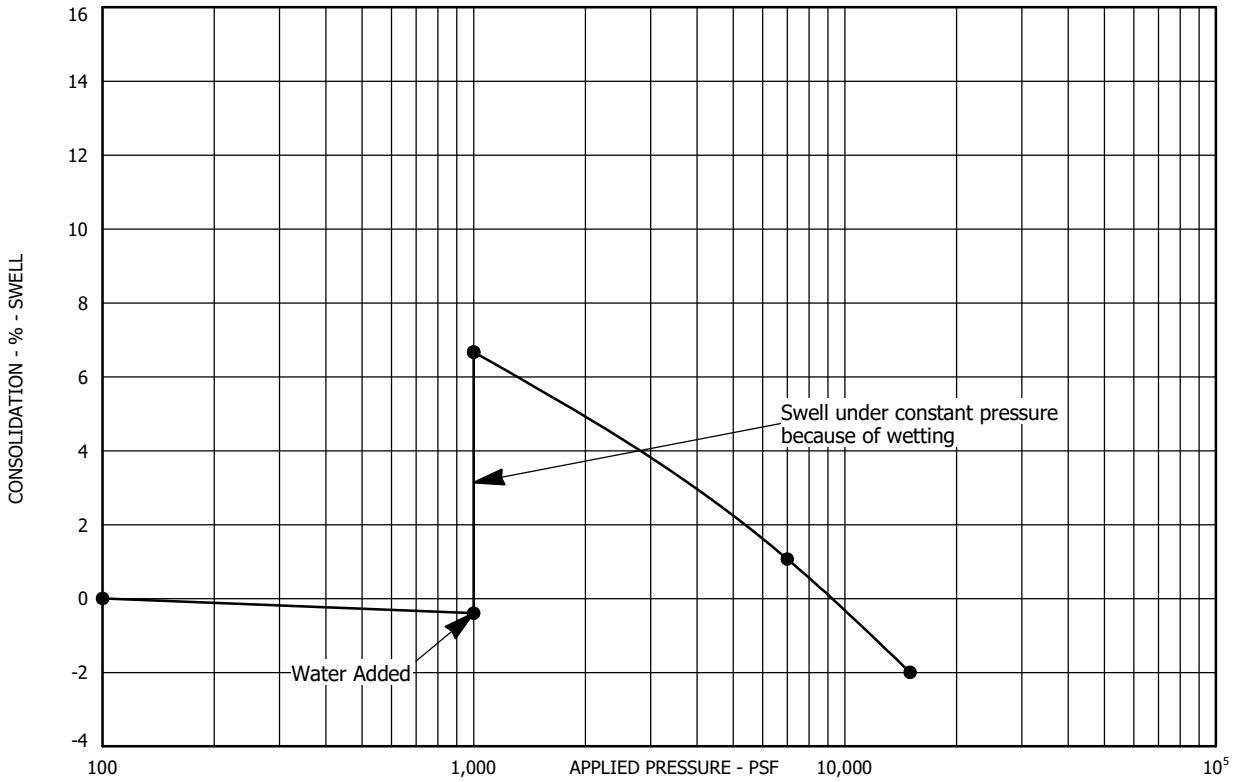
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-27

PROJECT NO. 160388



Sample Location: Test Boring No. 25 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 15

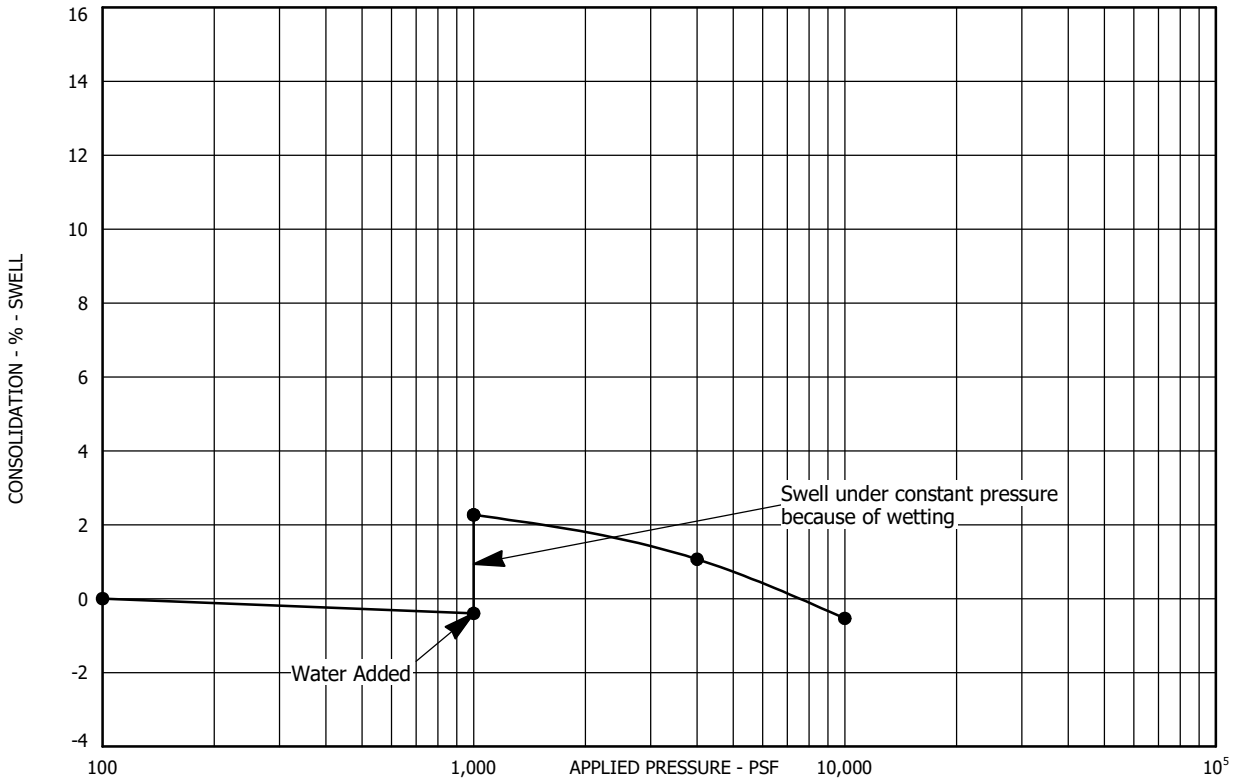


Sample Location: Test Boring No. 26 at a depth of 4 feet
Sample Description: Claystone, trace sand
Dry Unit Weight (pcf): 113
Moisture Content (%): 15

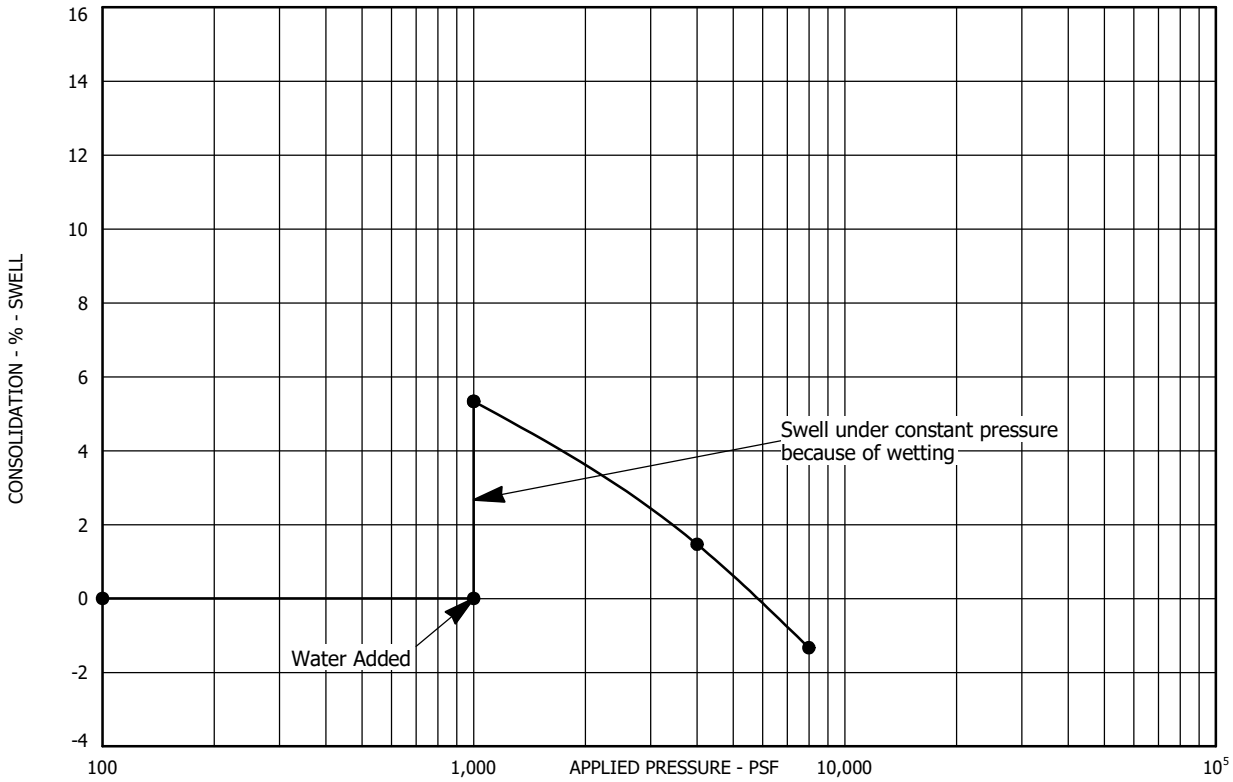
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-28

PROJECT NO. 160388



Sample Location: Test Boring No. 26 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 16

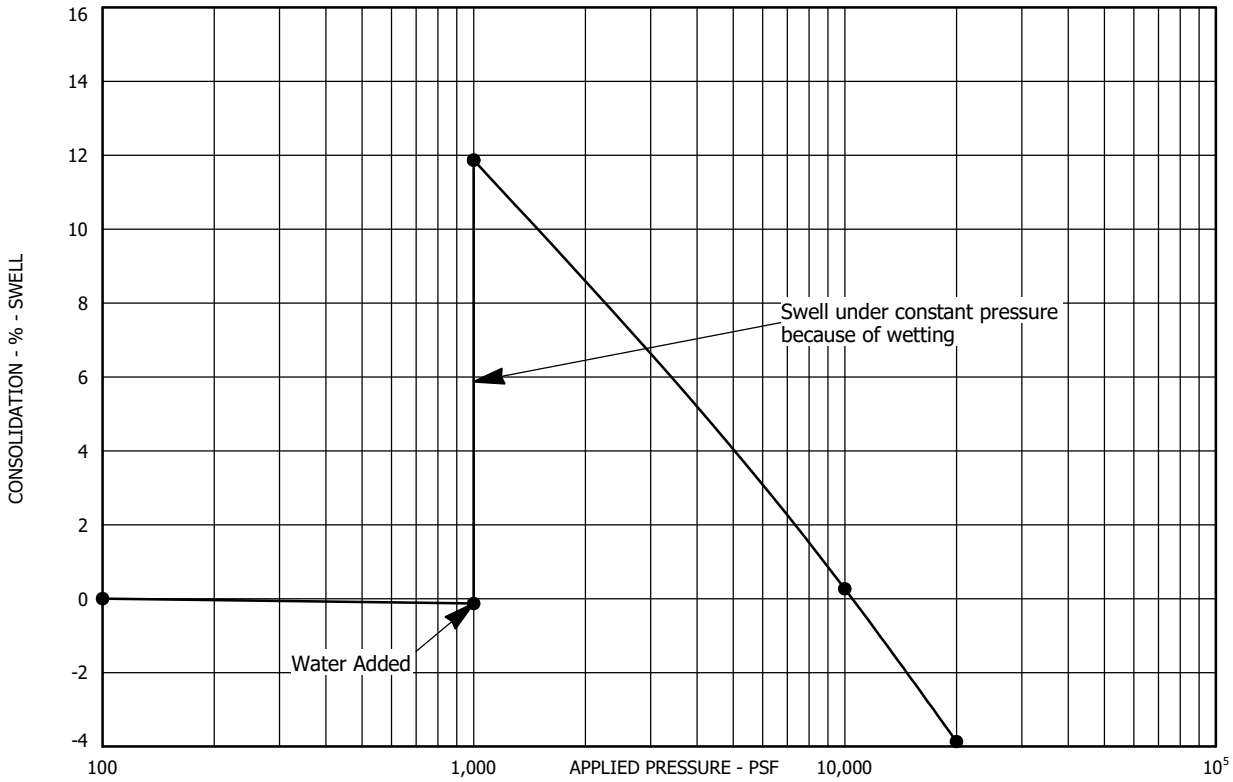


Sample Location: Test Boring No. 27 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 105
Moisture Content (%): 16

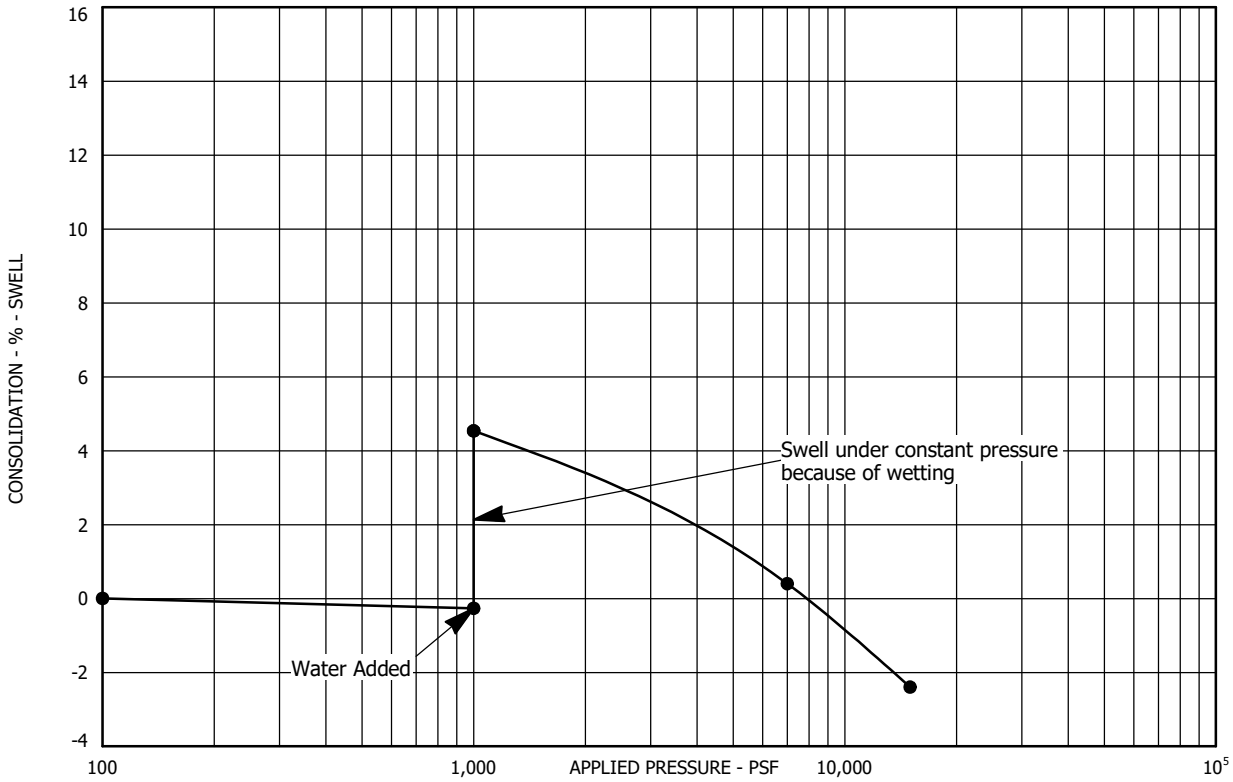
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-29

PROJECT NO. 160388



Sample Location: Test Boring No. 27 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 18

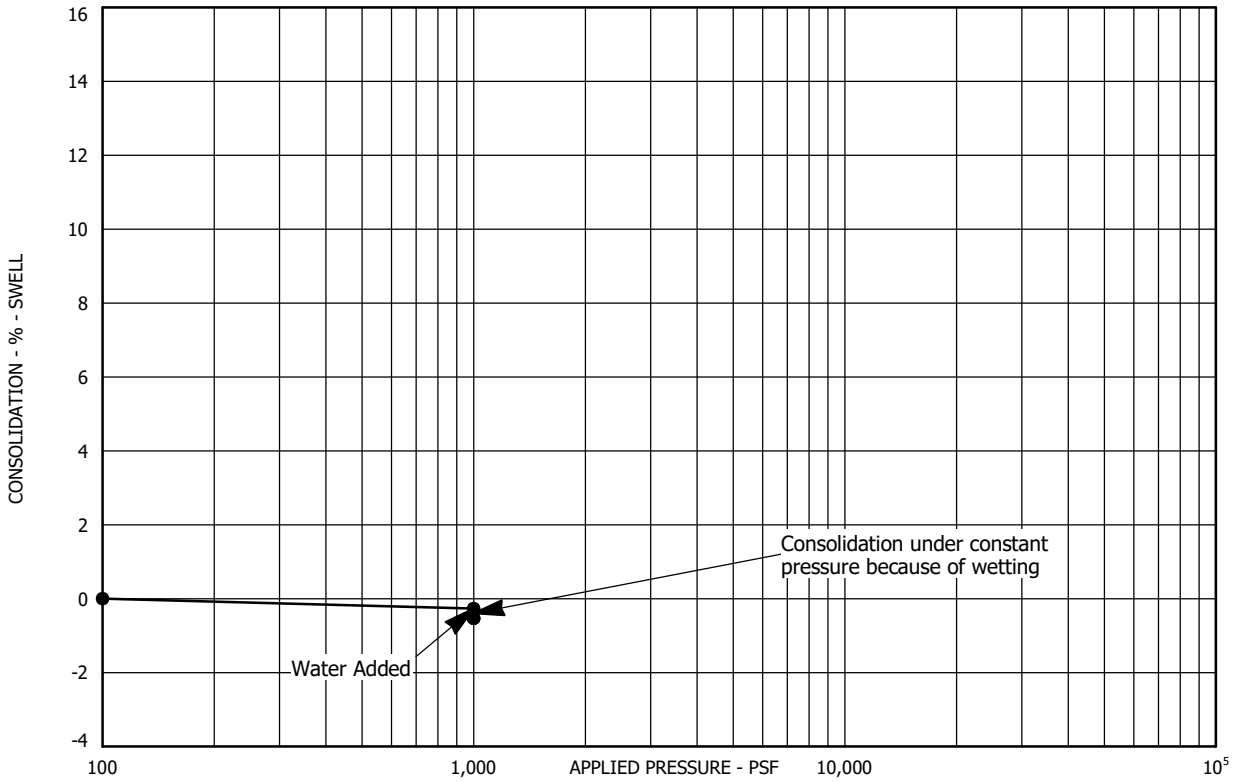


Sample Location: Test Boring No. 27 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 14

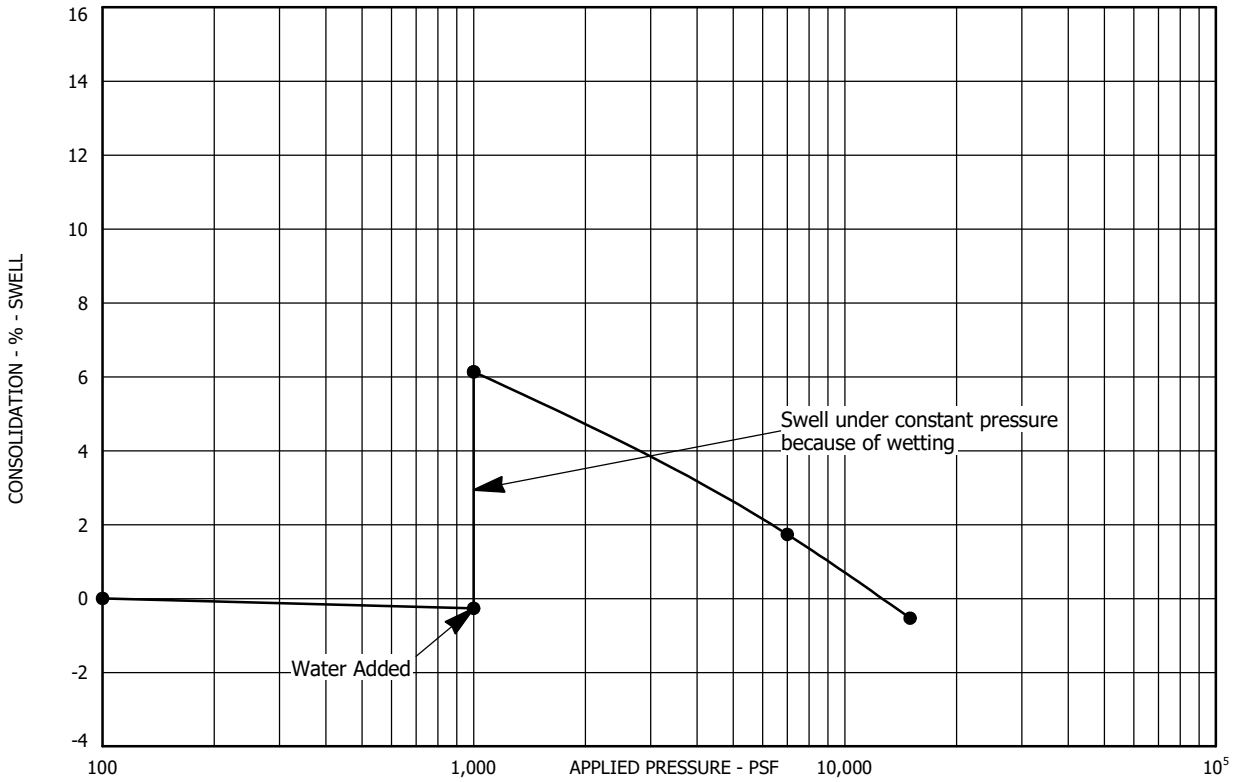
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-30

PROJECT NO. 160388



Sample Location: Test Boring No. 28 at a depth of 29 feet
Sample Description: Claystone/Sandstone, silty
Dry Unit Weight (pcf): 116
Moisture Content (%): 12

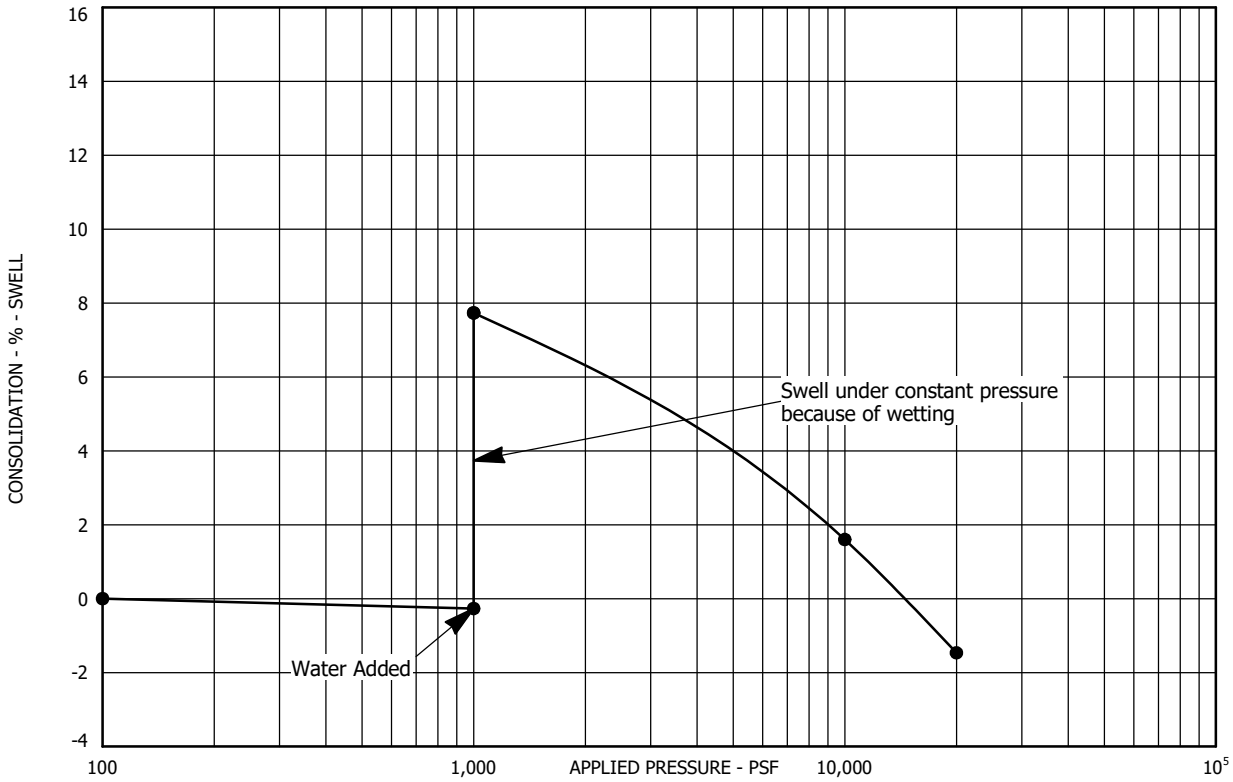


Sample Location: Test Boring No. 29 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 14

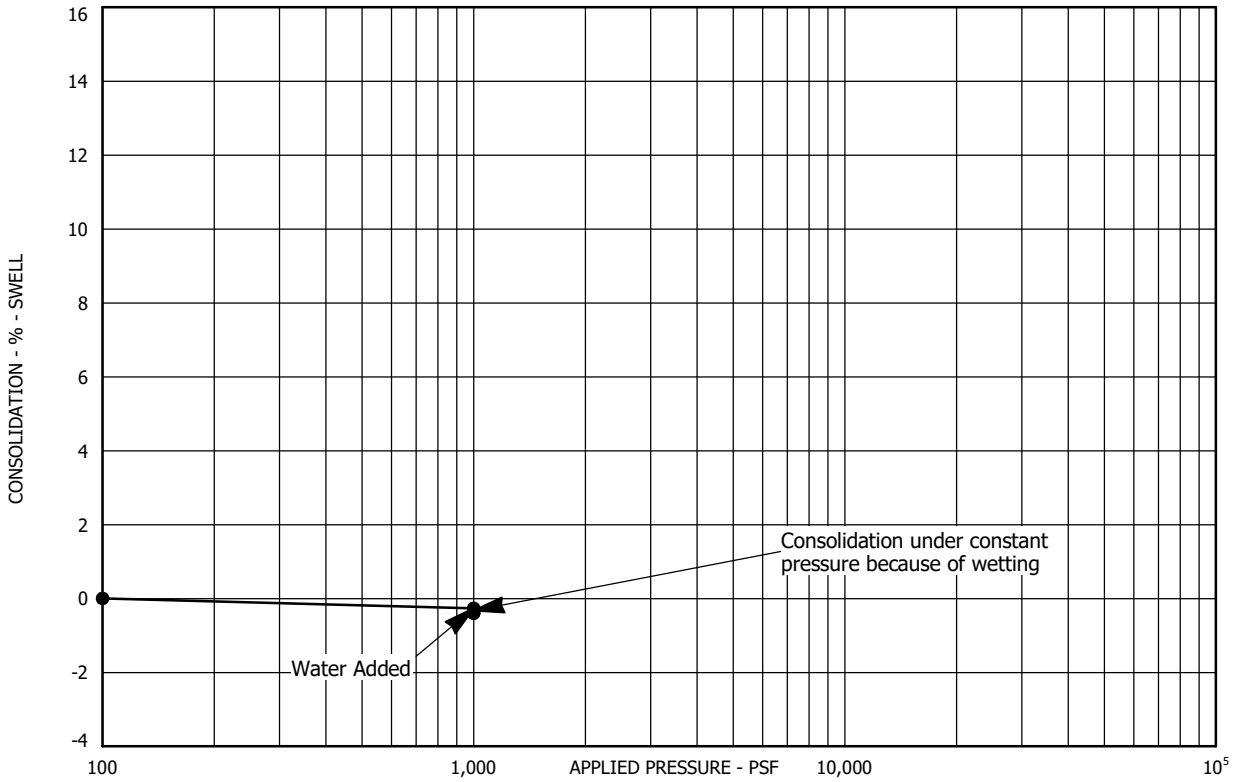
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-31

PROJECT NO. 160388



Sample Location: Test Boring No. 29 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 18

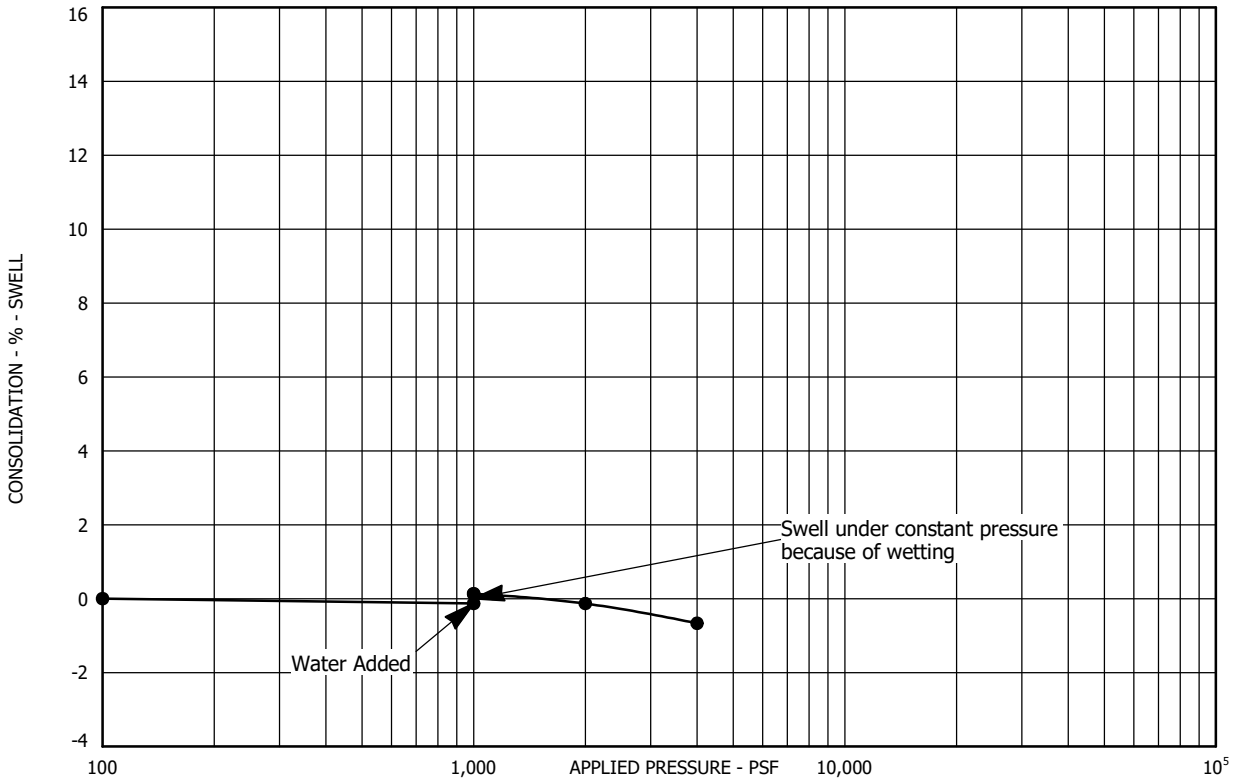


Sample Location: Test Boring No. 29 at a depth of 44 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 116
Moisture Content (%): 15

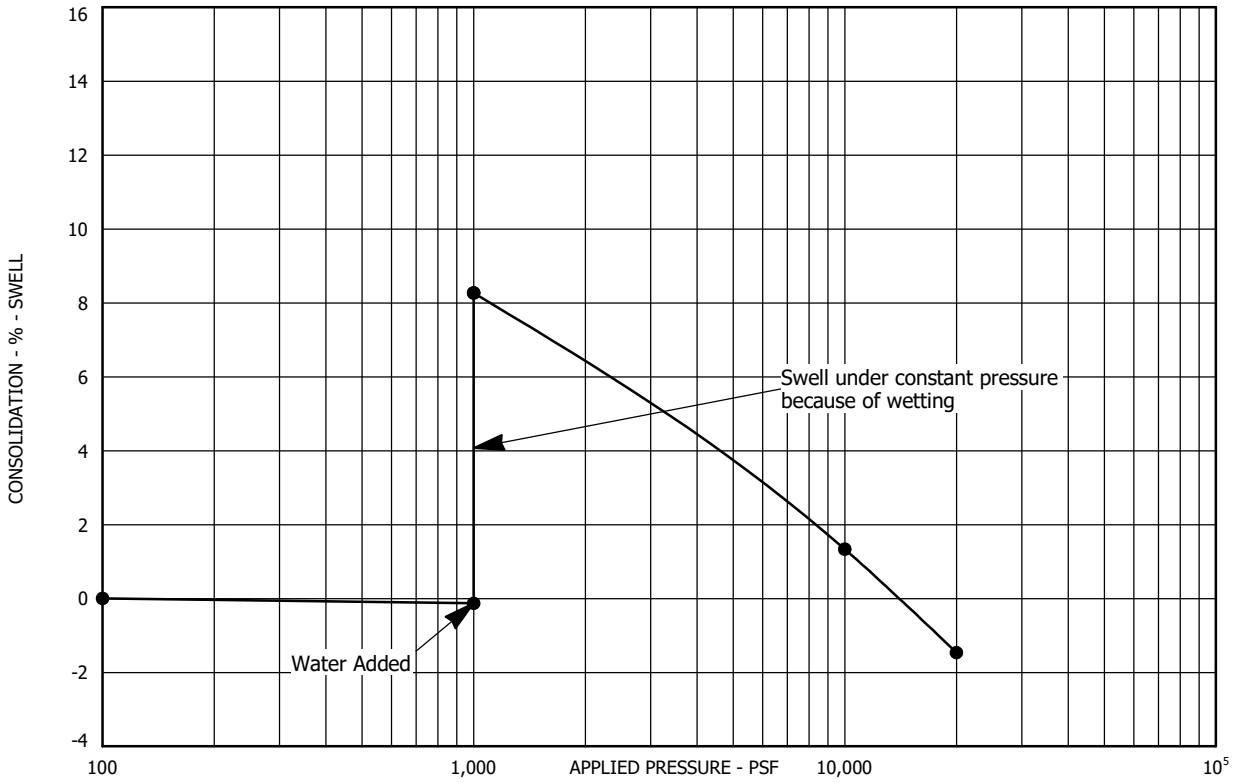
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-32

PROJECT NO. 160388



Sample Location: Test Boring No. 30 at a depth of 9 feet
Sample Description: Claystone, sandy
Dry Unit Weight (pcf): 131
Moisture Content (%): 9

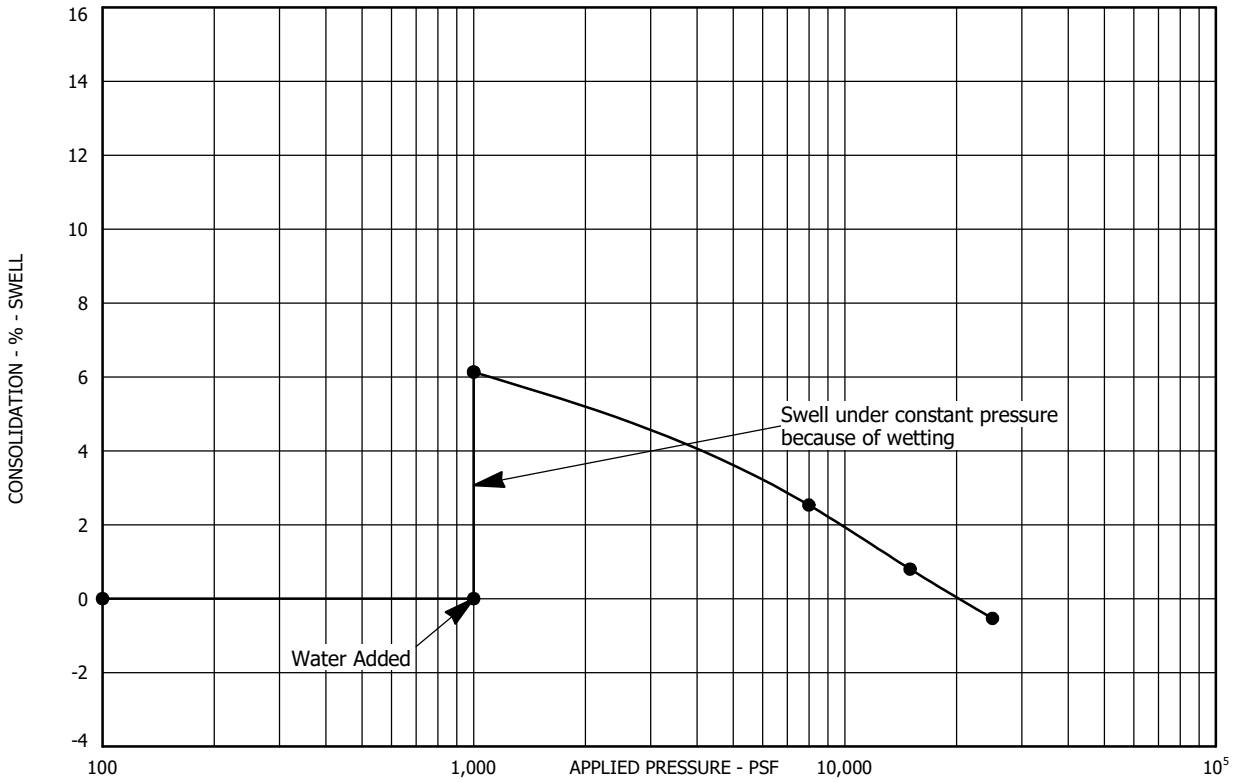


Sample Location: Test Boring No. 30 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 113
Moisture Content (%): 17

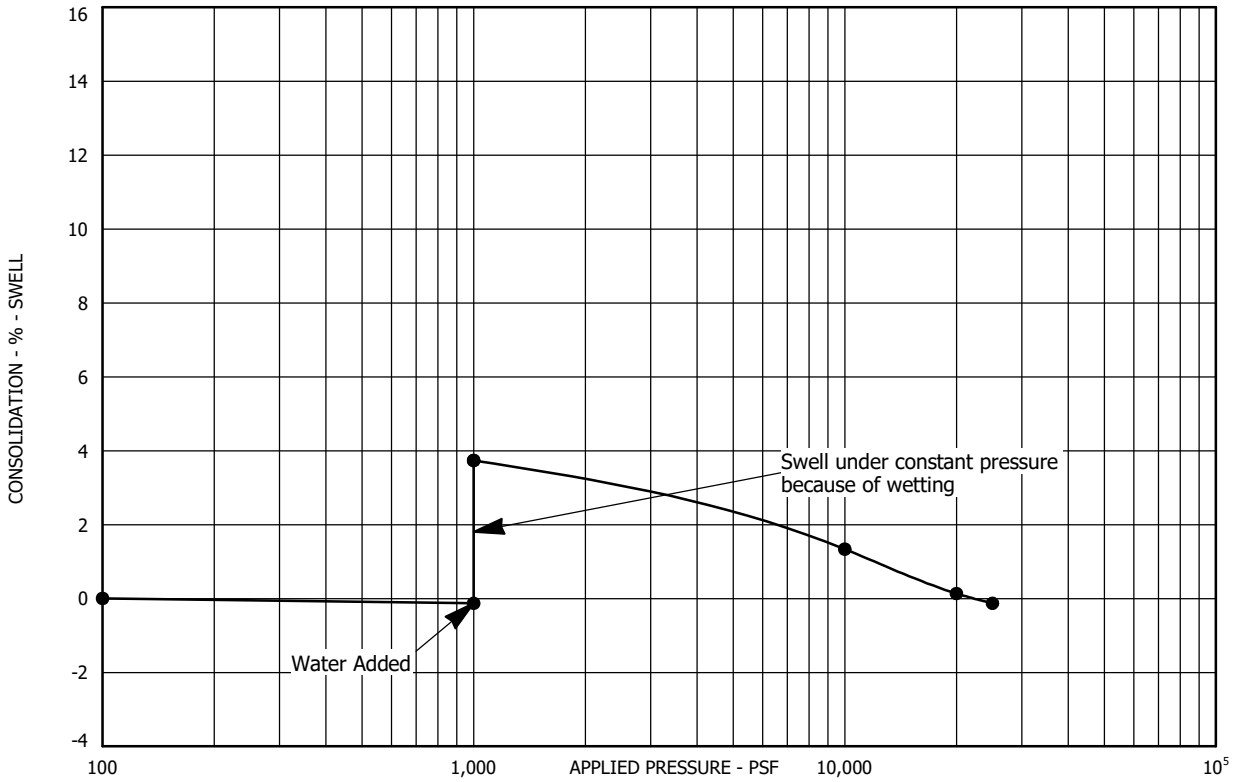
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-33

PROJECT NO. 160388



Sample Location: Test Boring No. 31 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 13

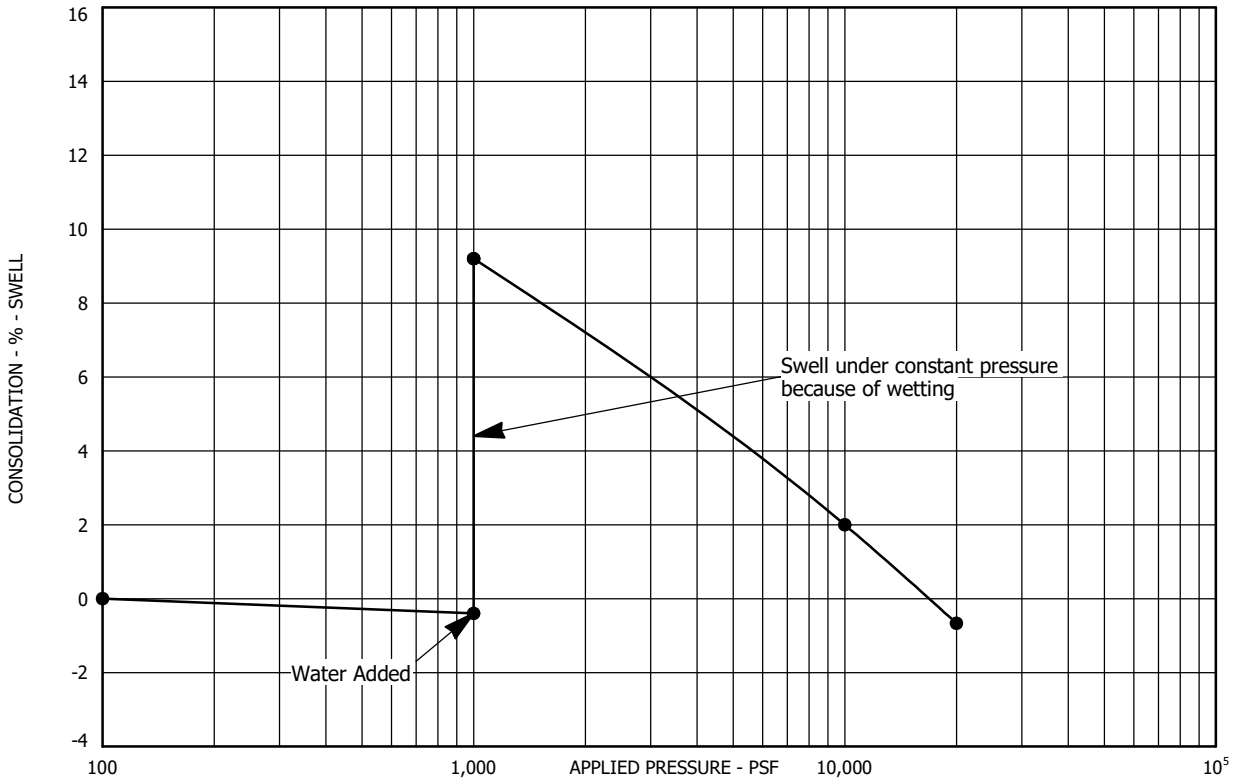


Sample Location: Test Boring No. 31 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 127
Moisture Content (%): 12

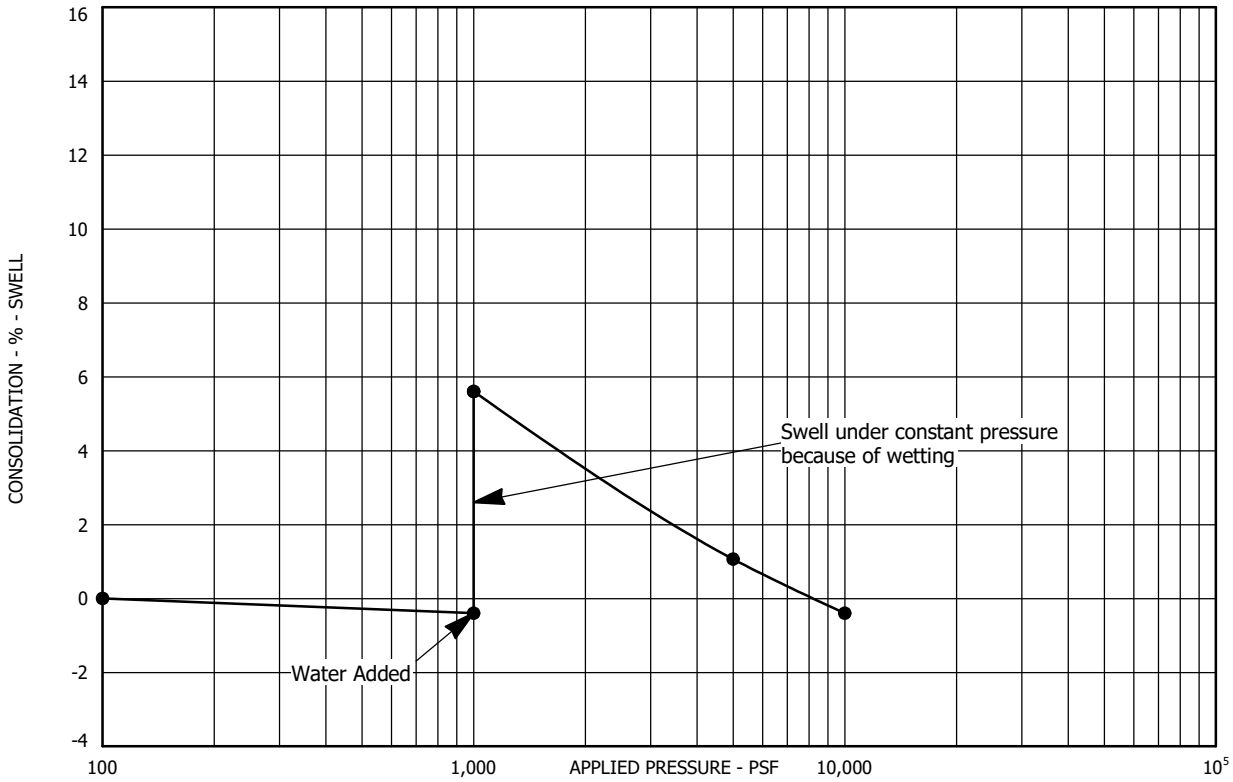
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-34

PROJECT NO. 160388



Sample Location: Test Boring No. 32 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 121
Moisture Content (%): 13

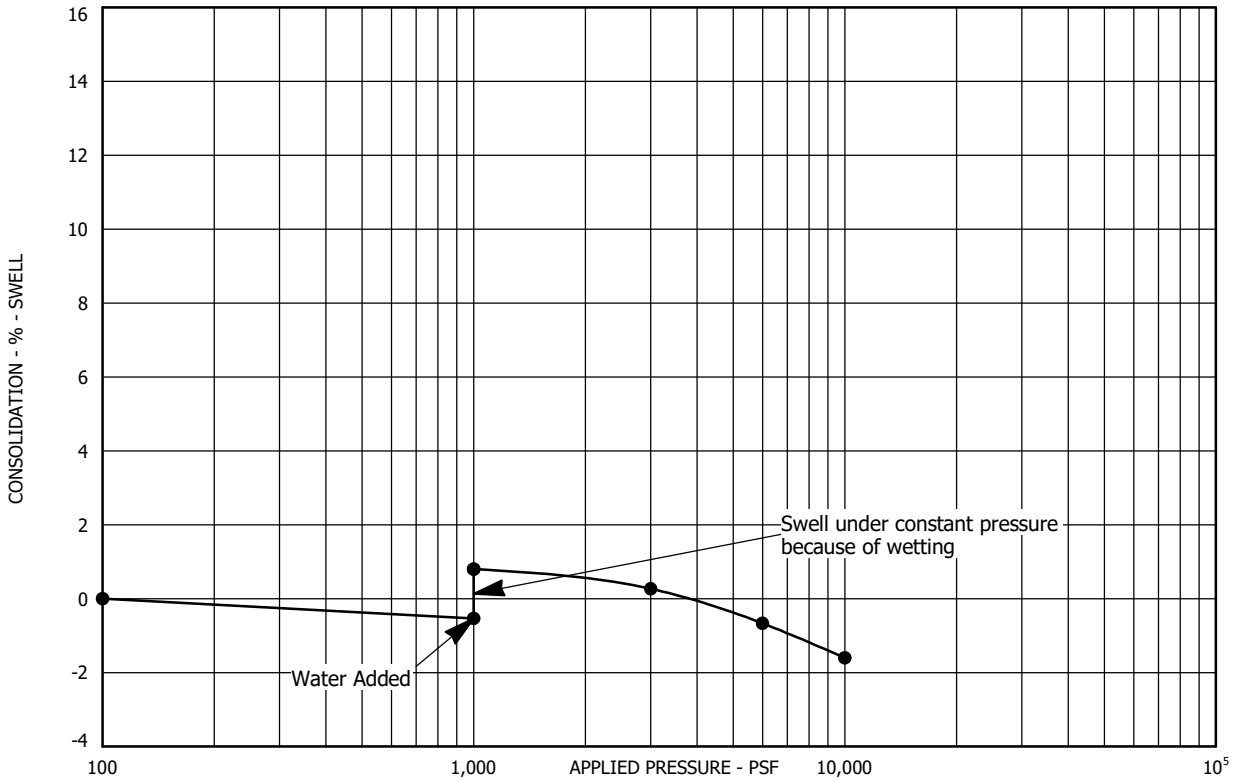


Sample Location: Test Boring No. 32 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 107
Moisture Content (%): 19

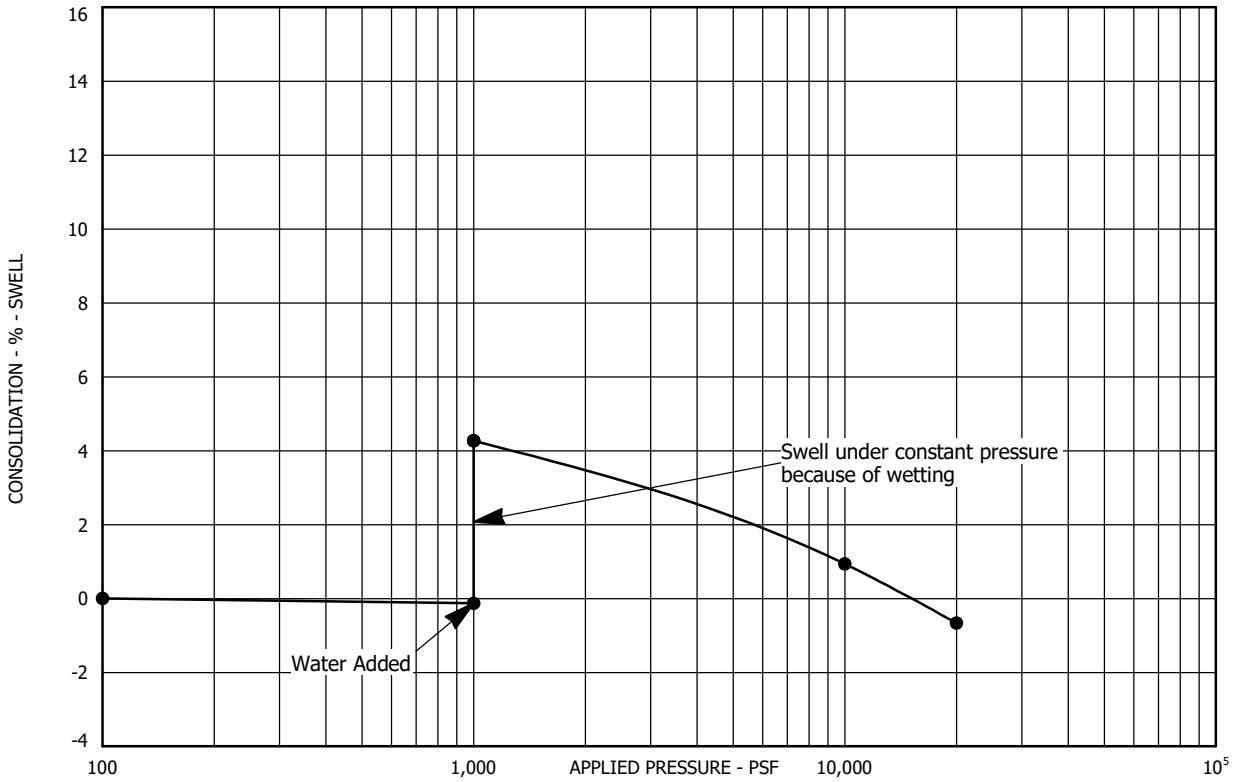
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-35

PROJECT NO. 160388



Sample Location: Test Boring No. 33 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 115
Moisture Content (%): 10

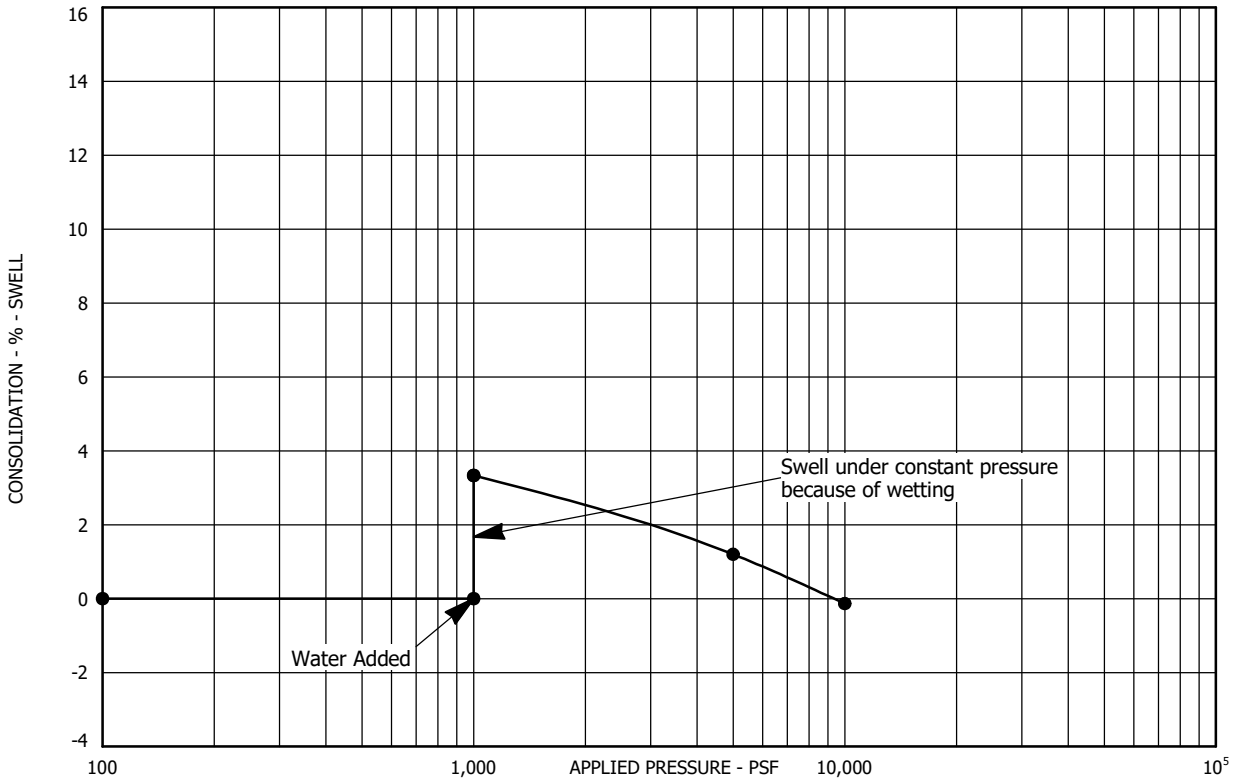


Sample Location: Test Boring No. 33 at a depth of 34 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 122
Moisture Content (%): 14

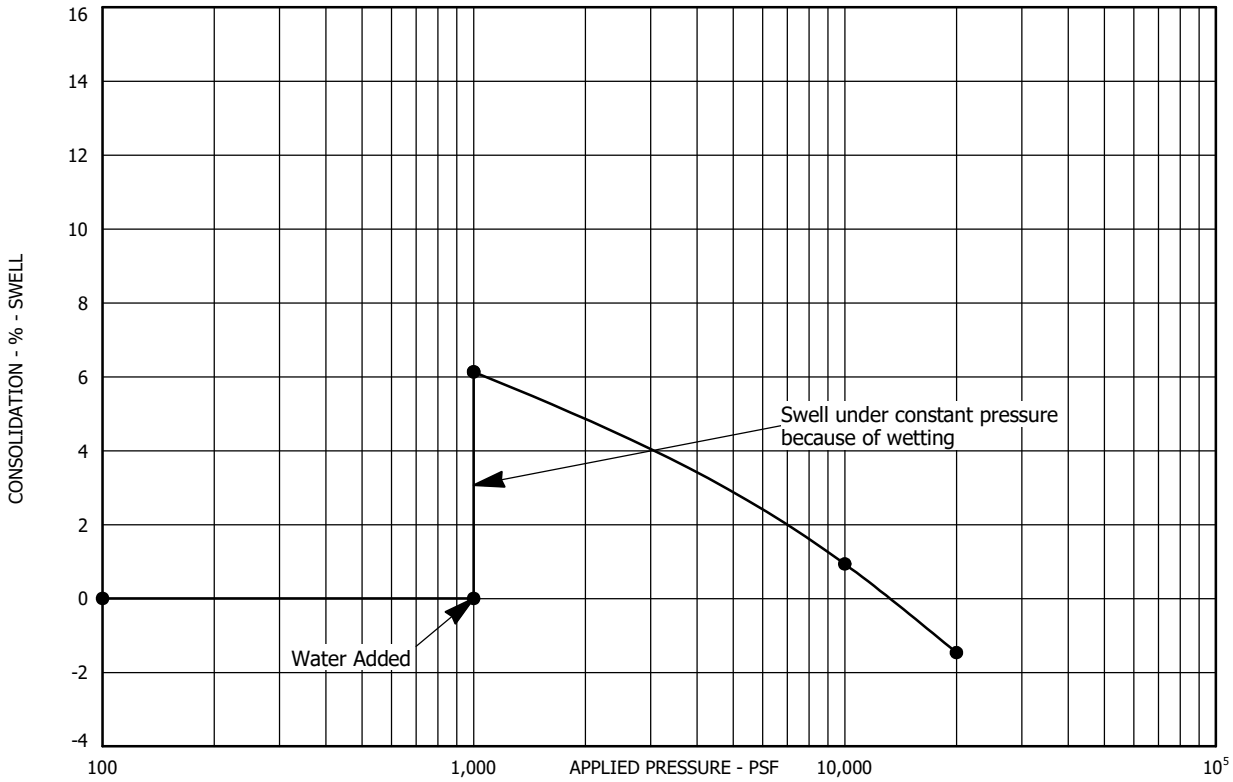
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-36

PROJECT NO. 160388



Sample Location: Test Boring No. 34 at a depth of 4 feet
Sample Description: Clay, sandy
Dry Unit Weight (pcf): 123
Moisture Content (%): 11

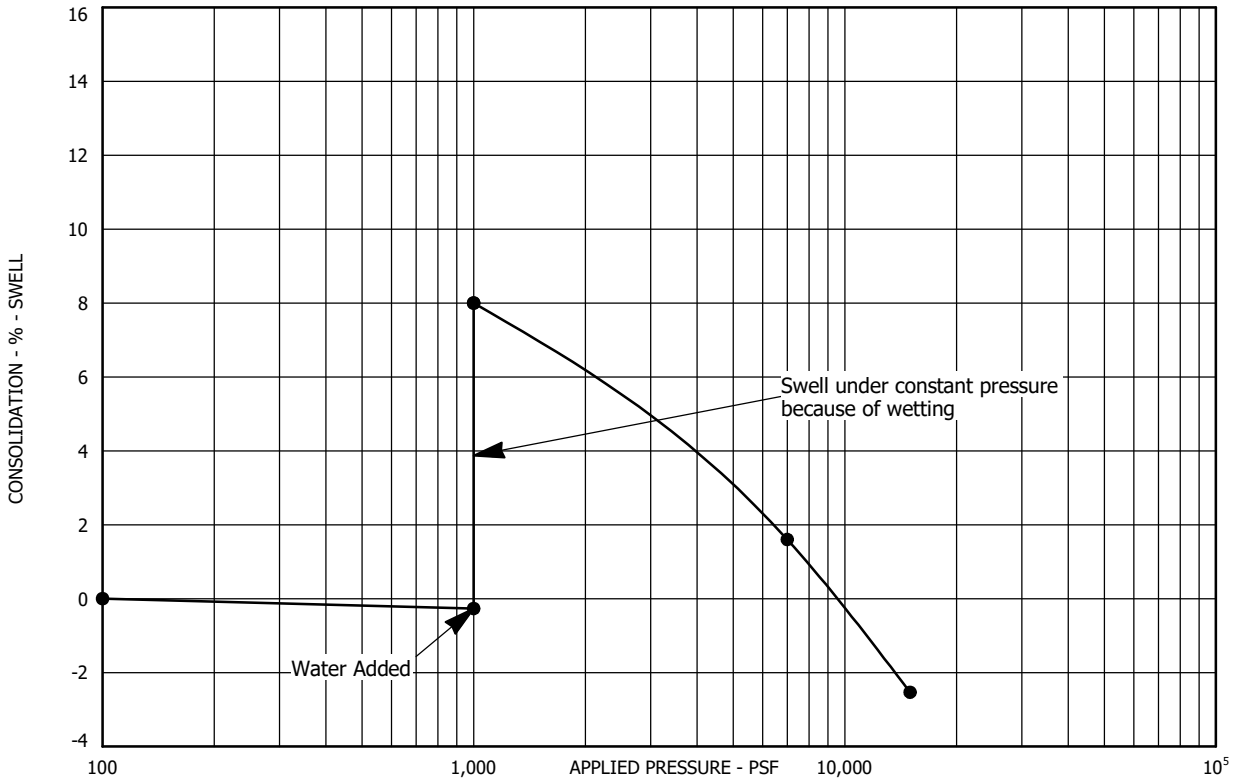


Sample Location: Test Boring No. 34 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 119
Moisture Content (%): 16

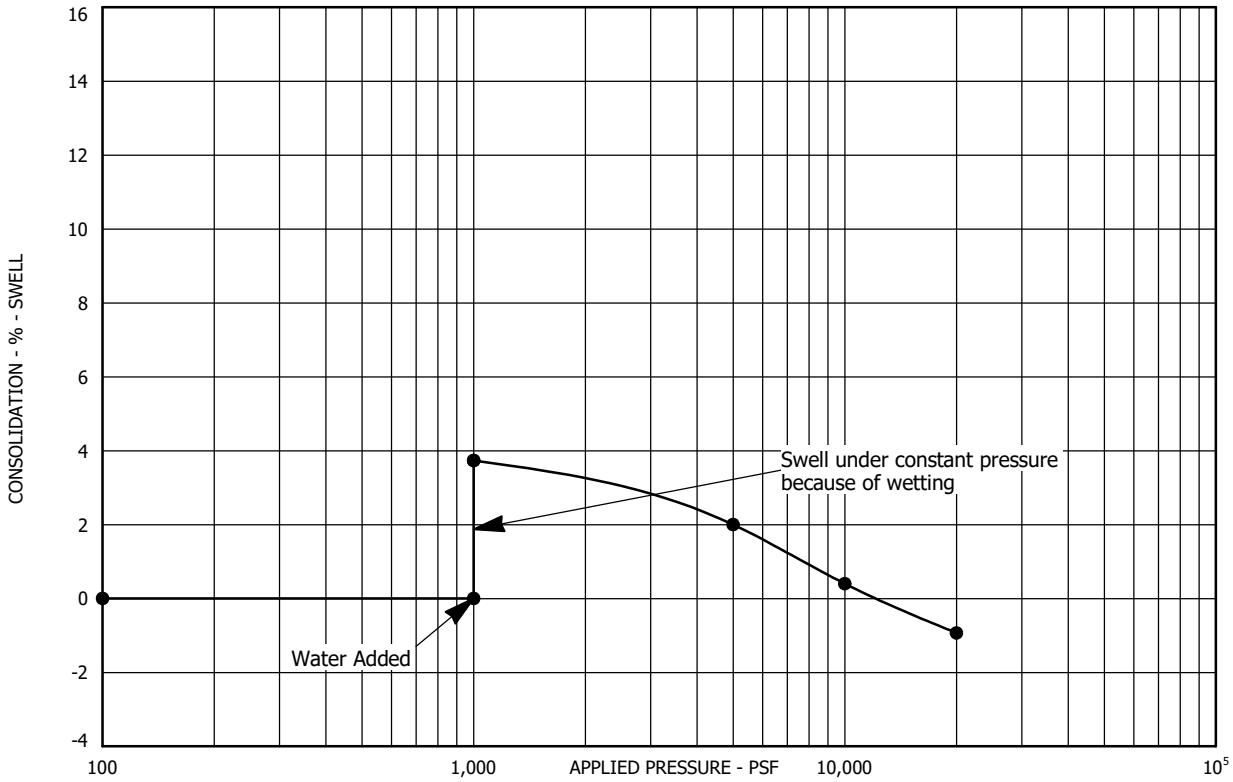
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-37

PROJECT NO. 160388



Sample Location: Test Boring No. 34 at a depth of 19 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 108
Moisture Content (%): 21

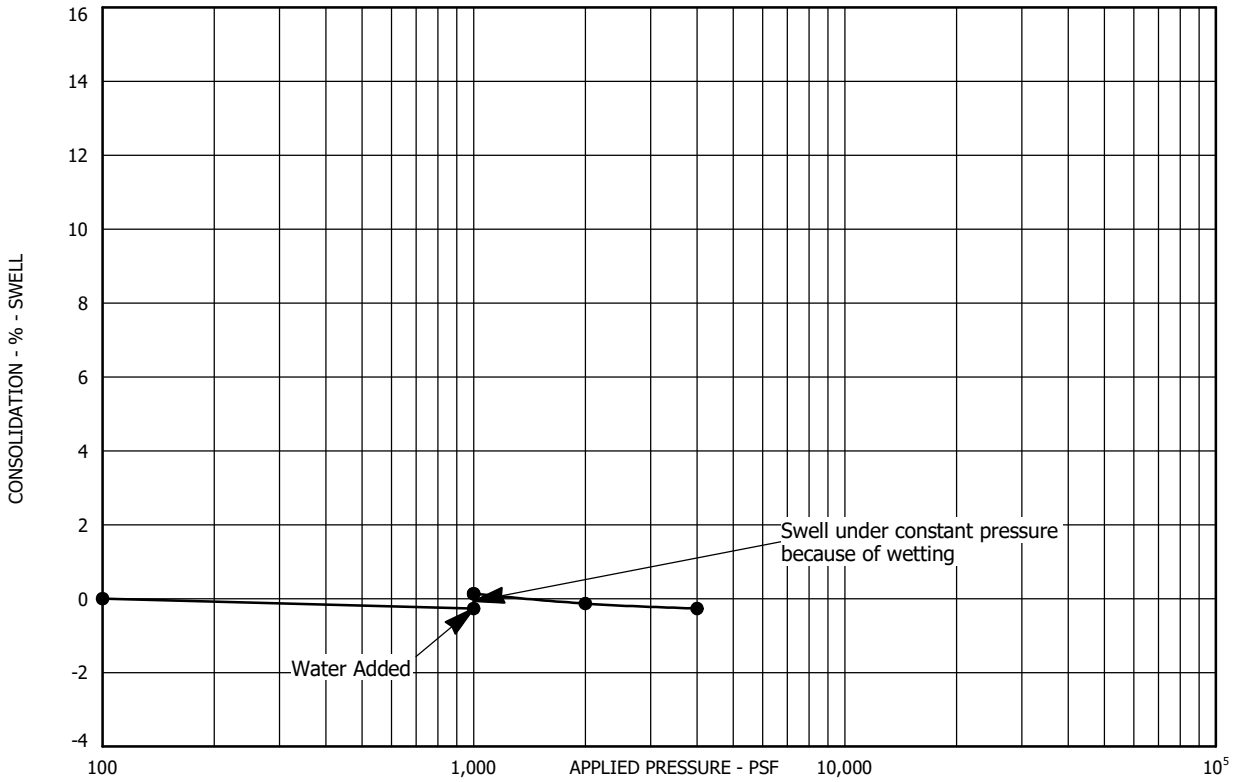


Sample Location: Test Boring No. 35 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 123
Moisture Content (%): 13

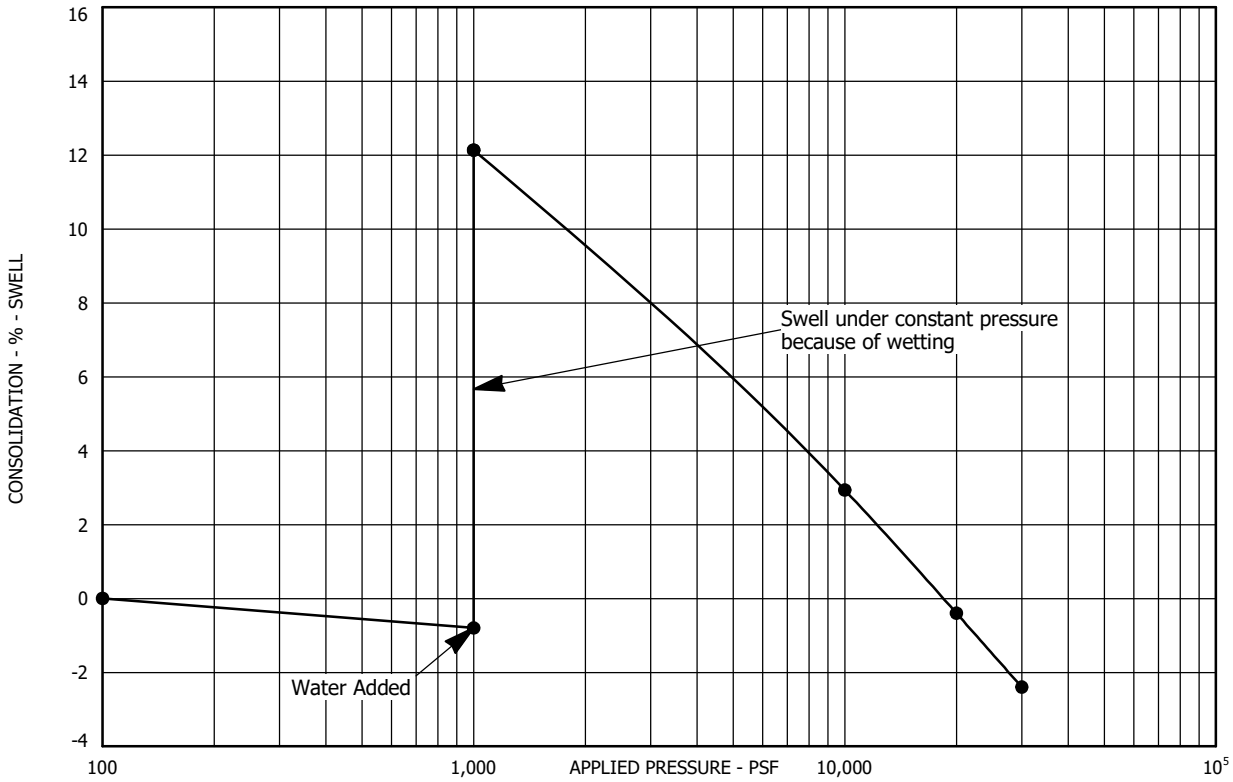
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-38

PROJECT NO. 160388



Sample Location: Test Boring No. 35 at a depth of 14 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 126
Moisture Content (%): 12

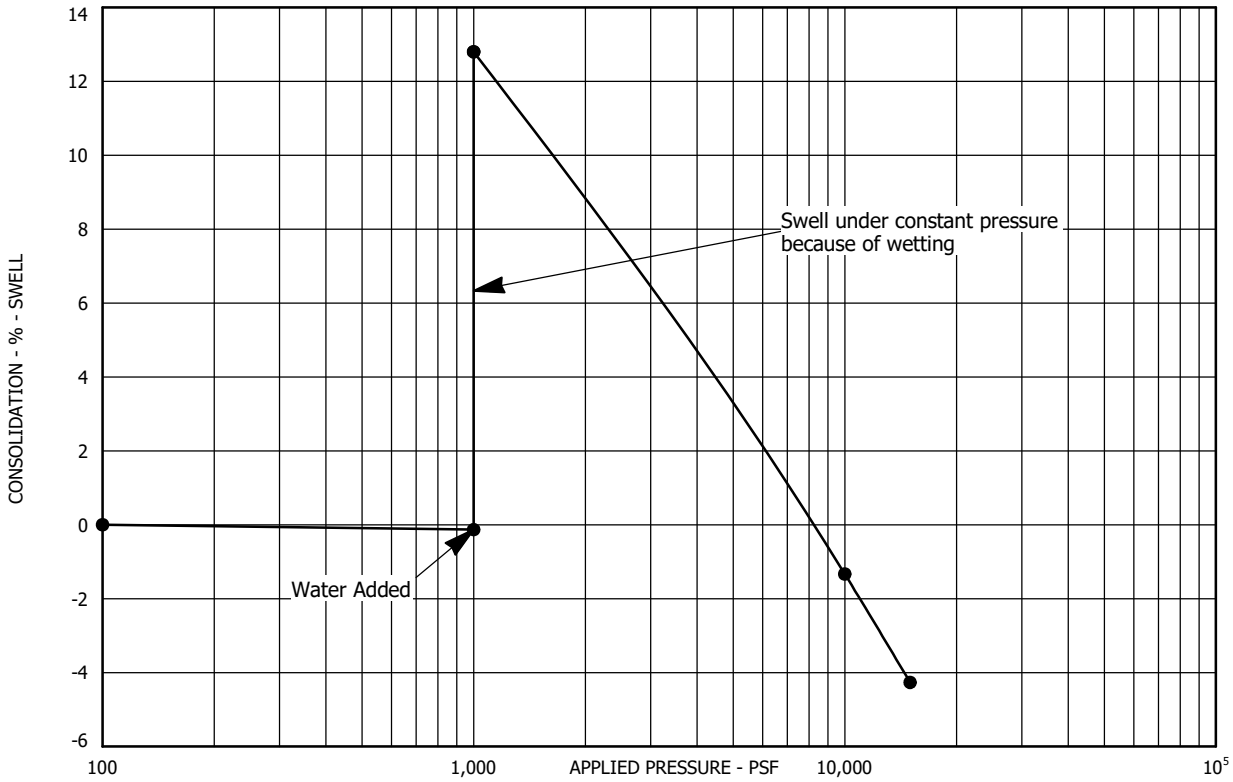


Sample Location: Test Boring No. 36 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 120
Moisture Content (%): 14

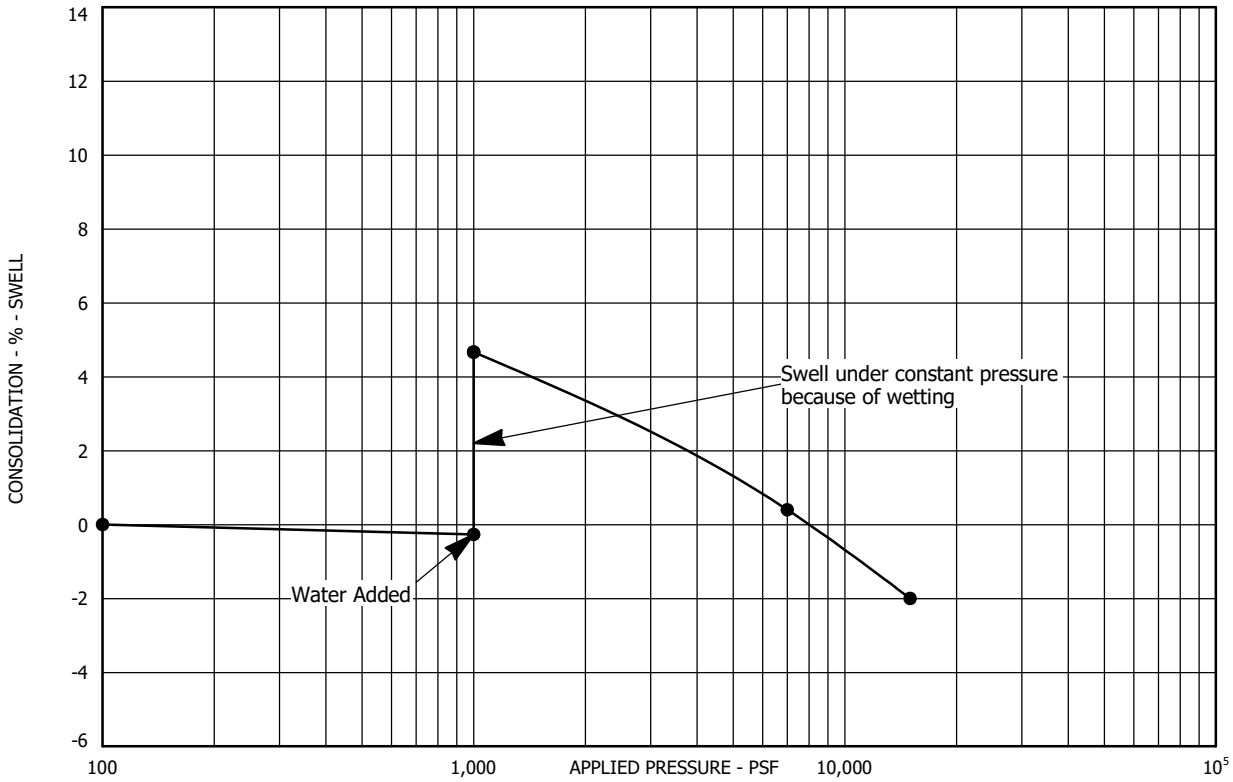
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-39

PROJECT NO. 160388



Sample Location: Test Boring No. 36 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 15

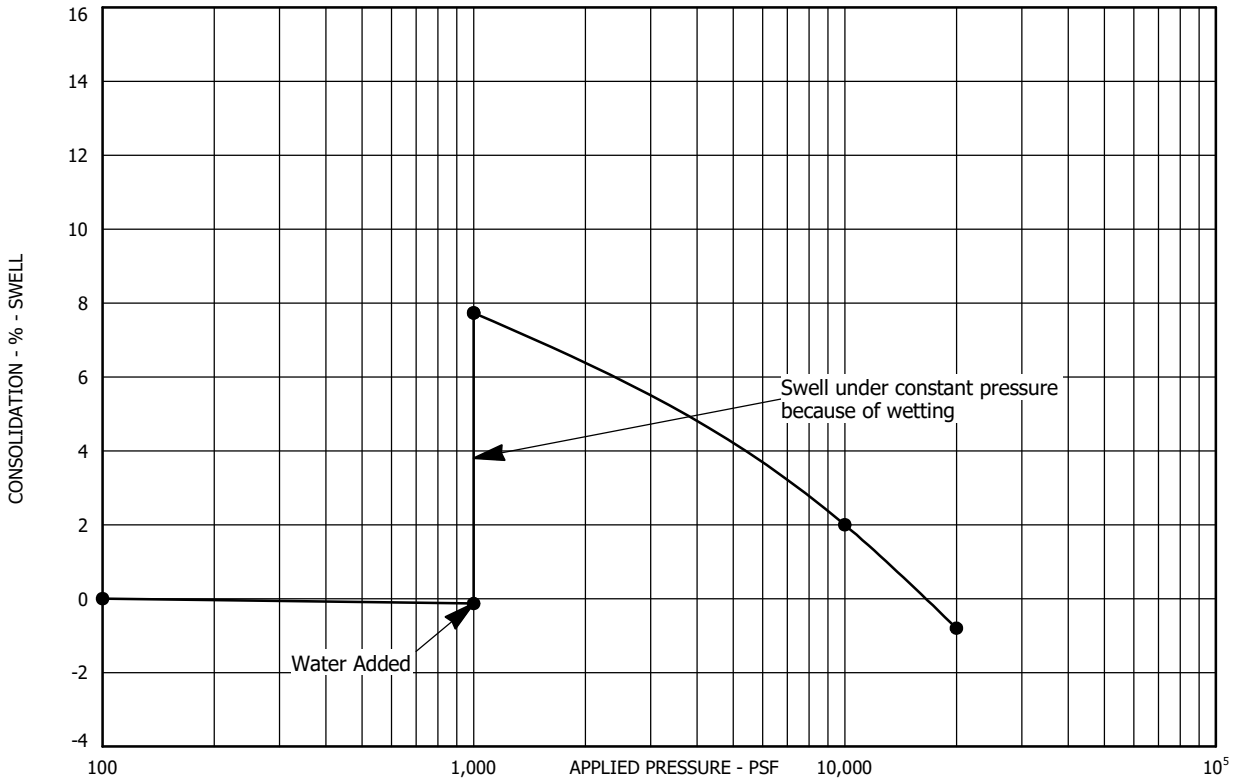


Sample Location: Test Boring No. 37 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 111
Moisture Content (%): 20

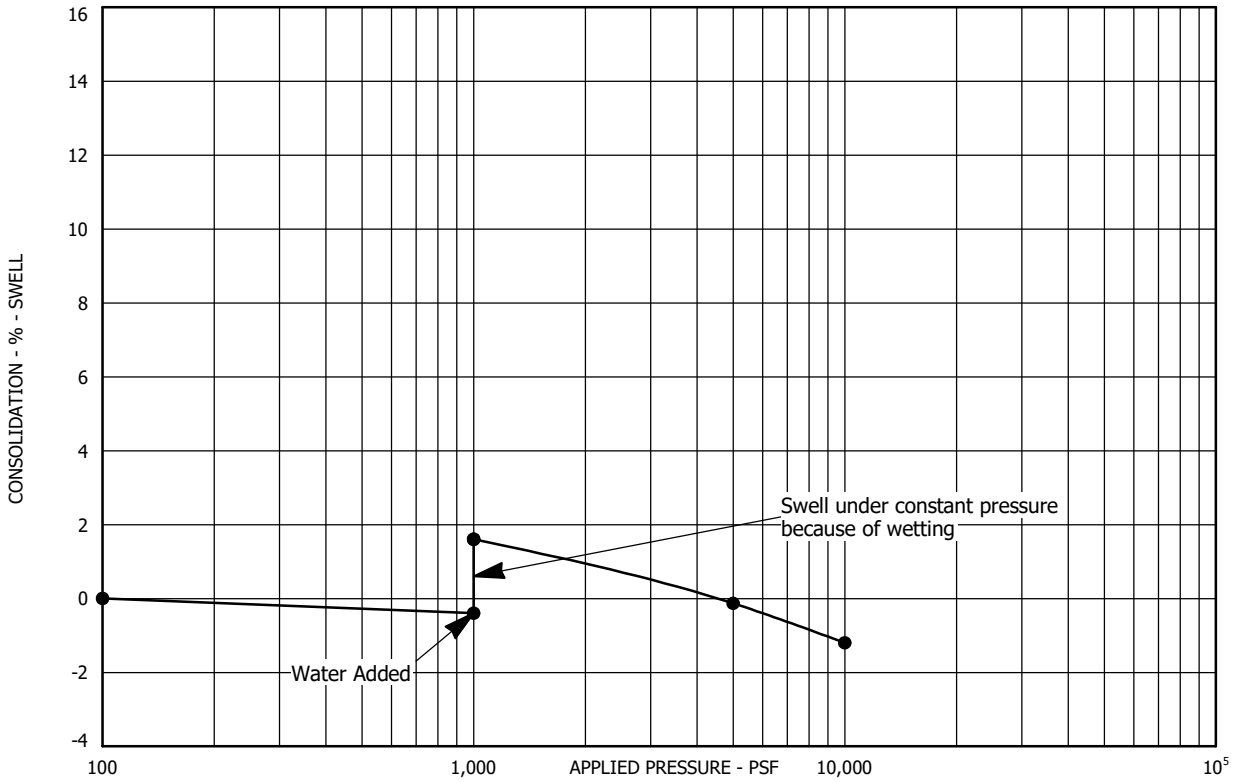
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-40

PROJECT NO. 160388



Sample Location: Test Boring No. 37 at a depth of 29 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 116
Moisture Content (%): 17

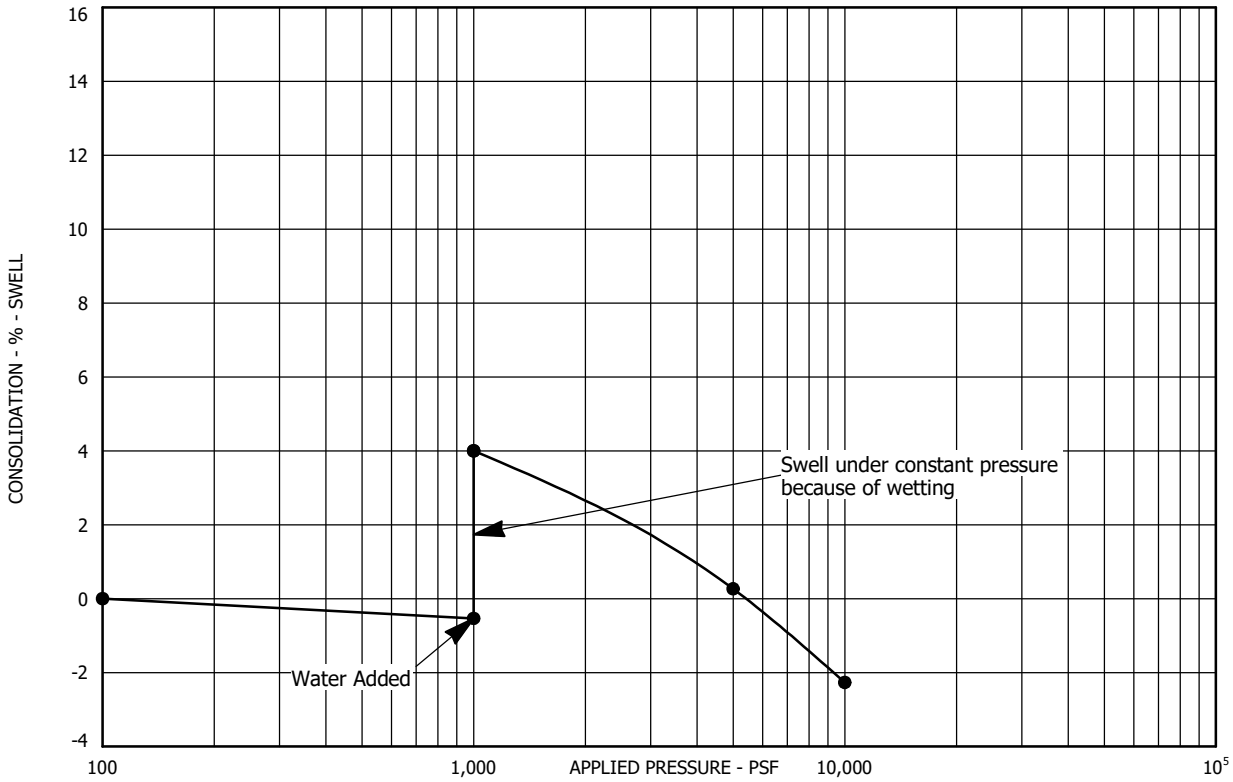


Sample Location: Test Boring No. 38 at a depth of 4 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 118
Moisture Content (%): 16

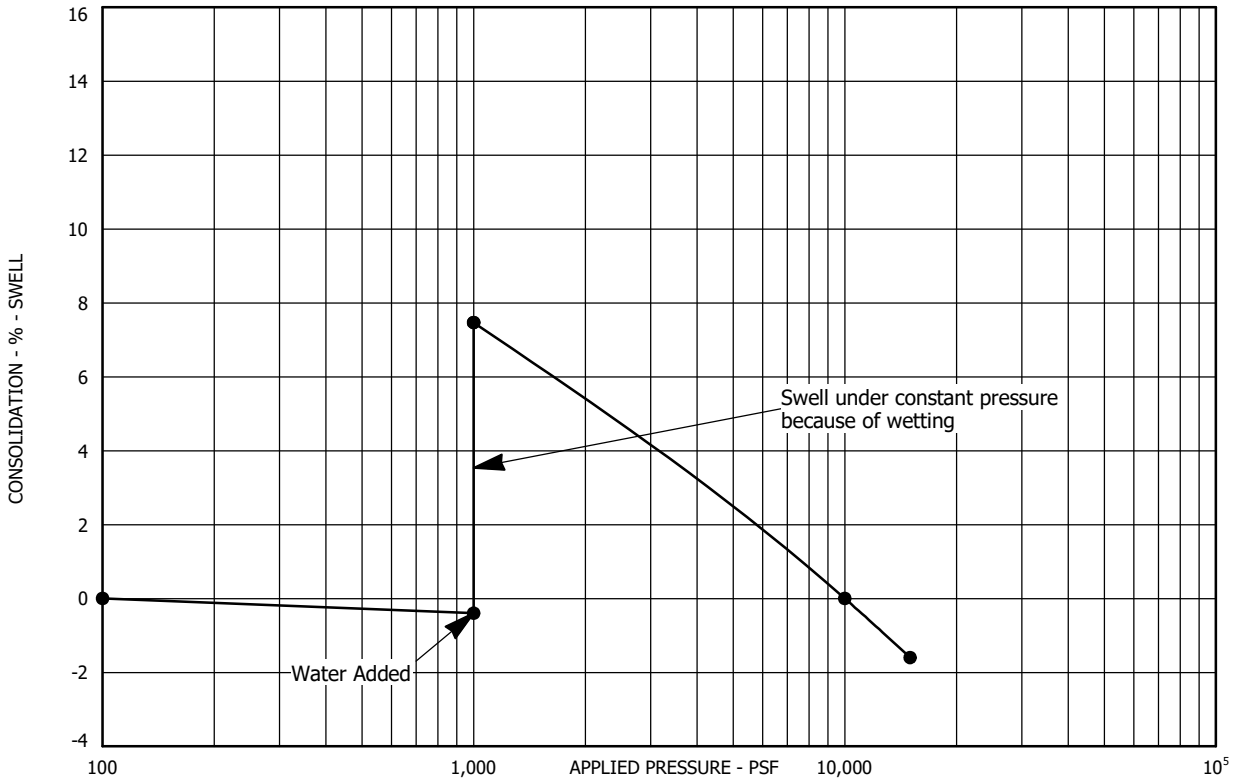
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-41

PROJECT NO. 160388



Sample Location: Test Boring No. 38 at a depth of 9 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 108
Moisture Content (%): 20



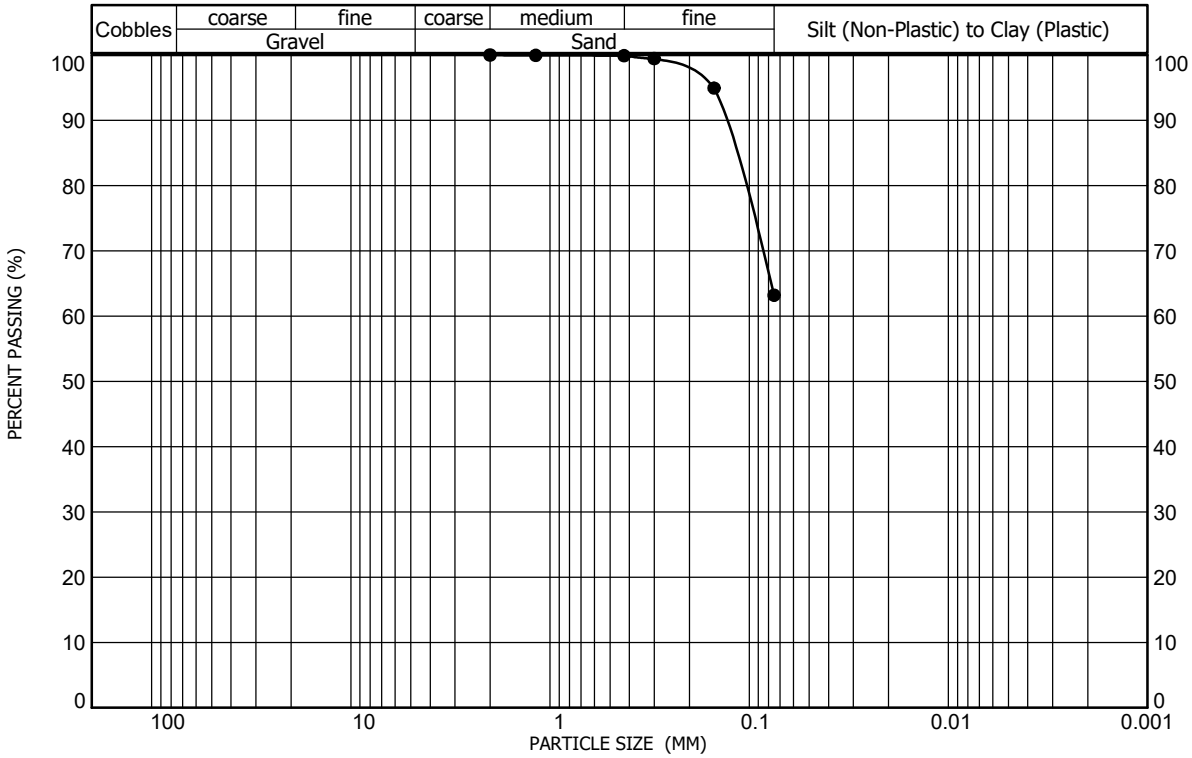
Sample Location: Test Boring No. 38 at a depth of 24 feet
Sample Description: Claystone, silty
Dry Unit Weight (pcf): 116
Moisture Content (%): 14

SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-42

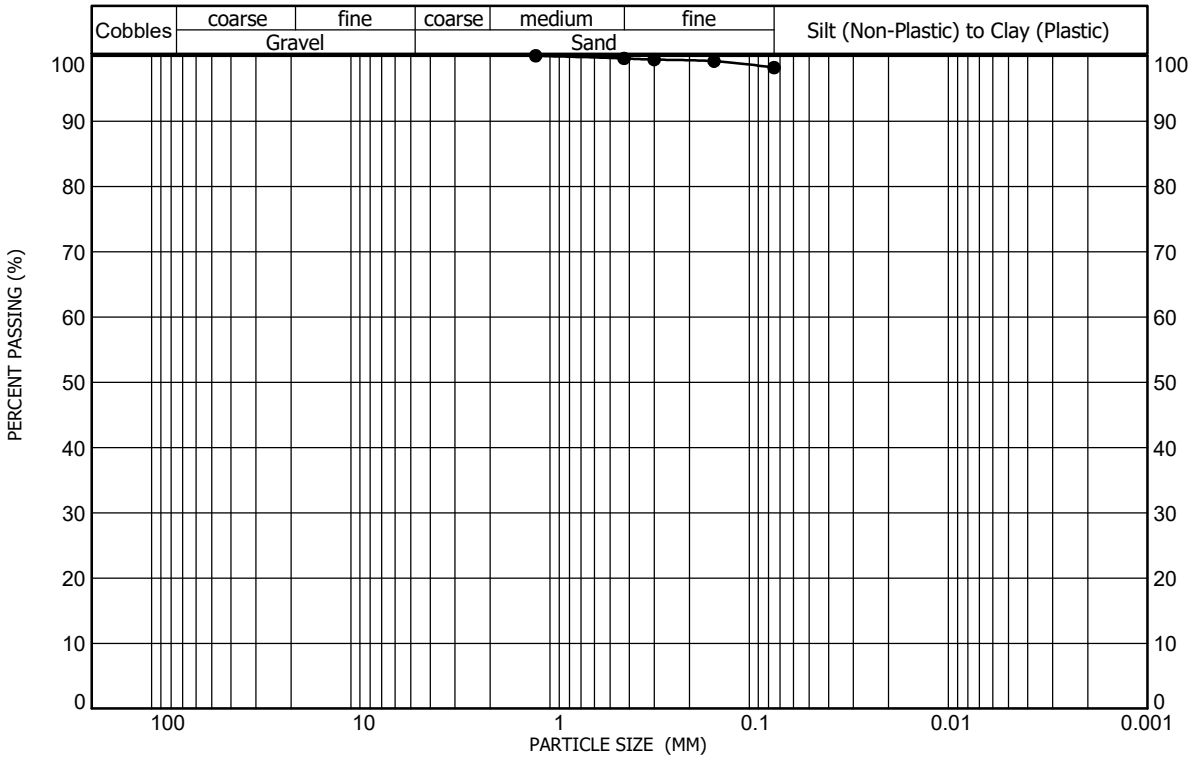
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 1 at a depth of 9 feet
Sample Description: Claystone, very sandy
Classification: A-6(5), SANDY LEAN CLAY(CL)

Gravel (%): 0 Sand (%): 37 Clay/Silt (%): 63
Liquid Limit: 29 Plasticity Index: 12



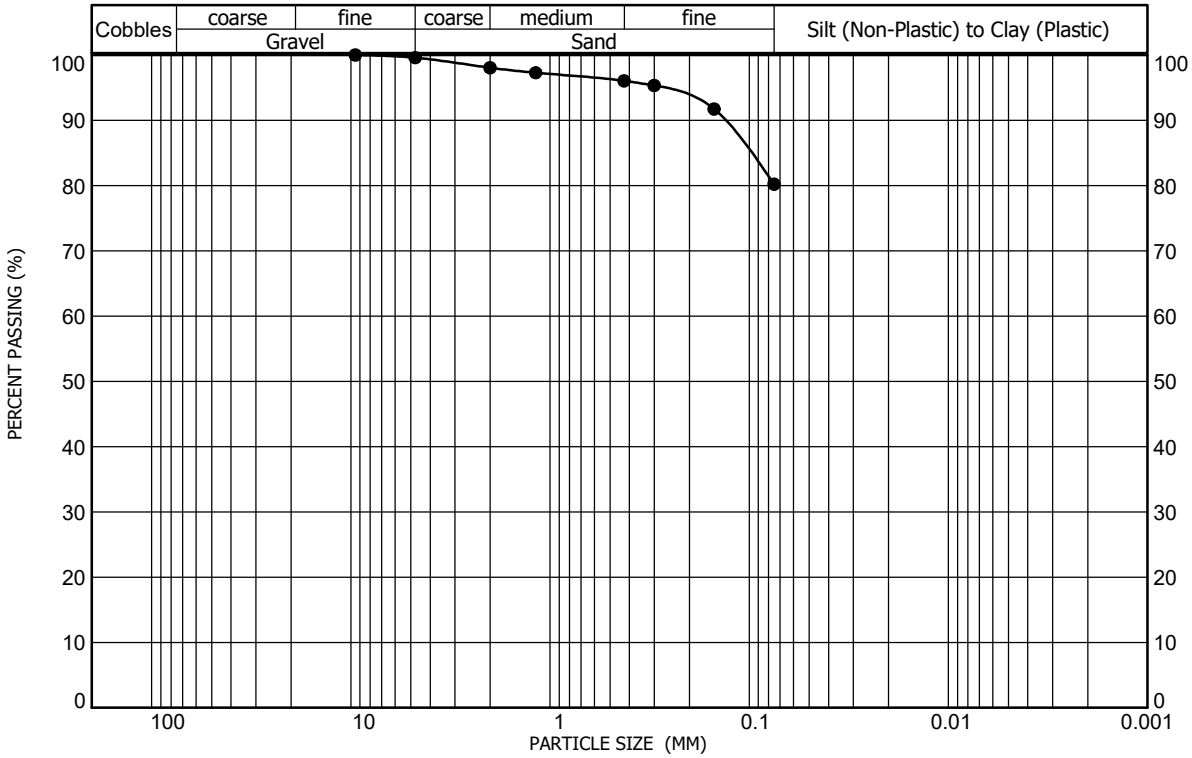
Sample Location: Test Boring No. 2 at a depth of 9 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(62), FAT CLAY(CH)

Gravel (%): 0 Sand (%): 2 Clay/Silt (%): 98
Liquid Limit: 76 Plasticity Index: 56

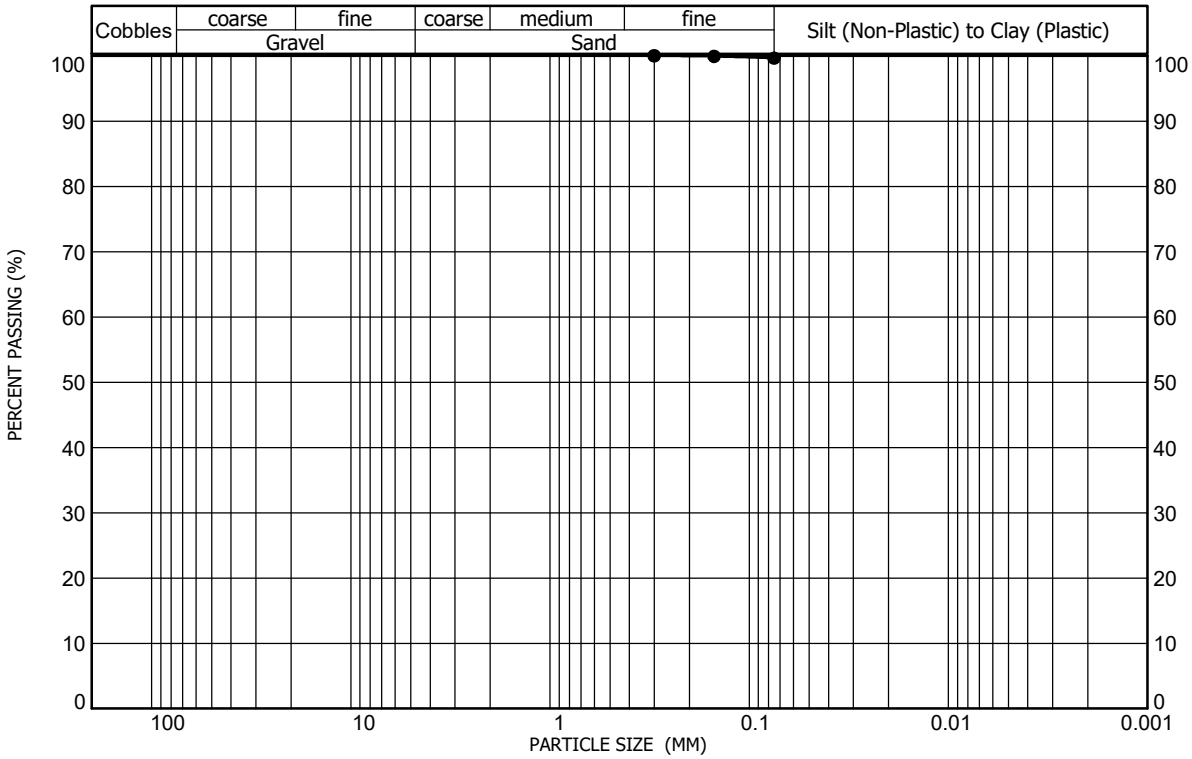
GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-43

PROJECT NO. 160388



Sample Location Test Boring No. 8 at a depth of 4 feet — Gravel (%) 0 — Liquid Limit 51
Sample Description Clay, sandy — Sand (%) 19 — Plasticity Index 33
Classification A-7-6(26), FAT CLAY with SAND(CH) — Clay/Silt (%) 80



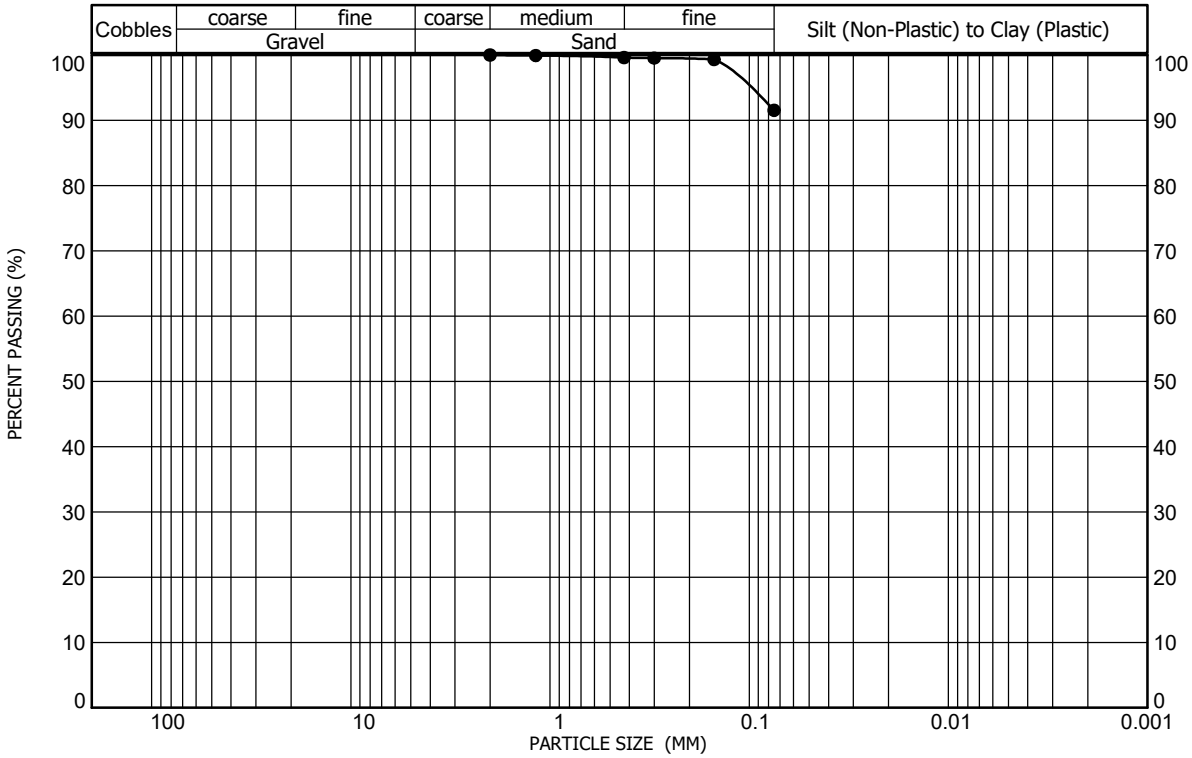
Sample Location Test Boring No. 8 at a depth of 19 feet — Gravel (%) 0 — Liquid Limit 75
Sample Description Claystone — Sand (%) 0 — Plasticity Index 55
Classification A-7-6(63), FAT CLAY(CH) — Clay/Silt (%) 100

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-44

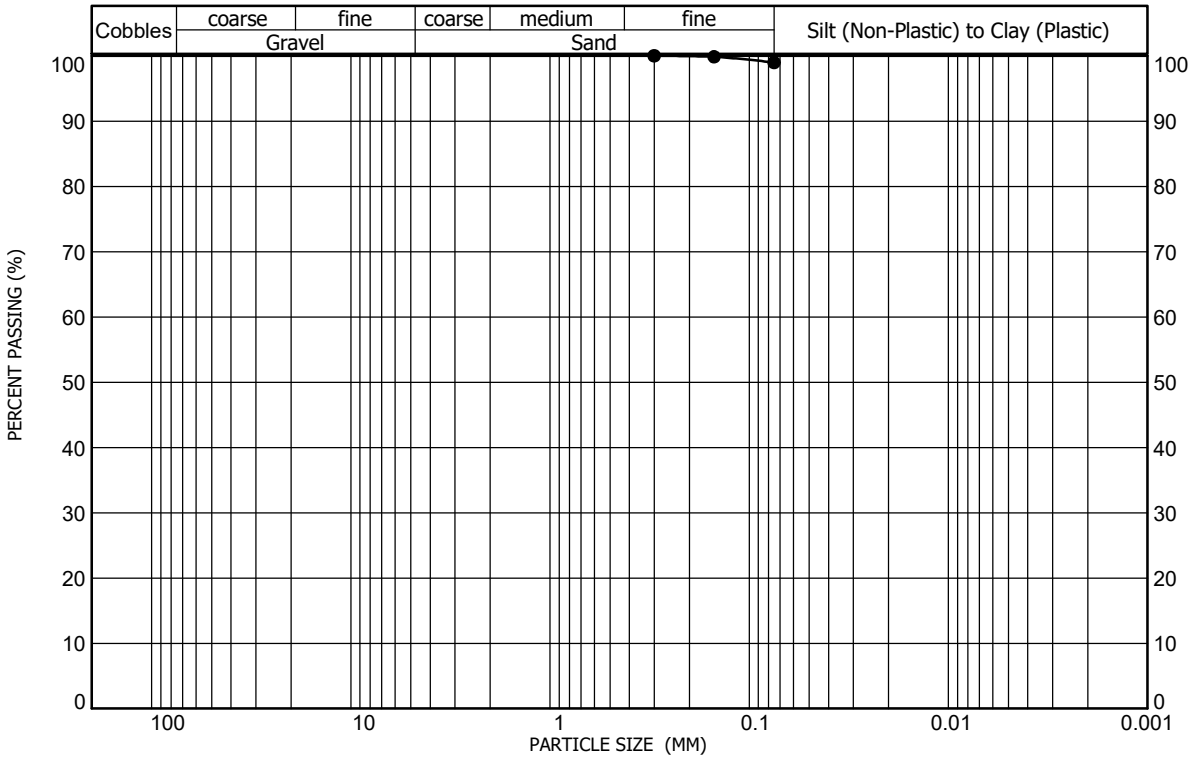
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 8 at a depth of 39 feet
Sample Description: Claystone, slightly sandy
Classification: A-6(19), LEAN CLAY(CL)

Gravel (%): 0 | Sand (%): 8 | Clay/Silt (%): 92
Liquid Limit: 38 | Plasticity Index: 21



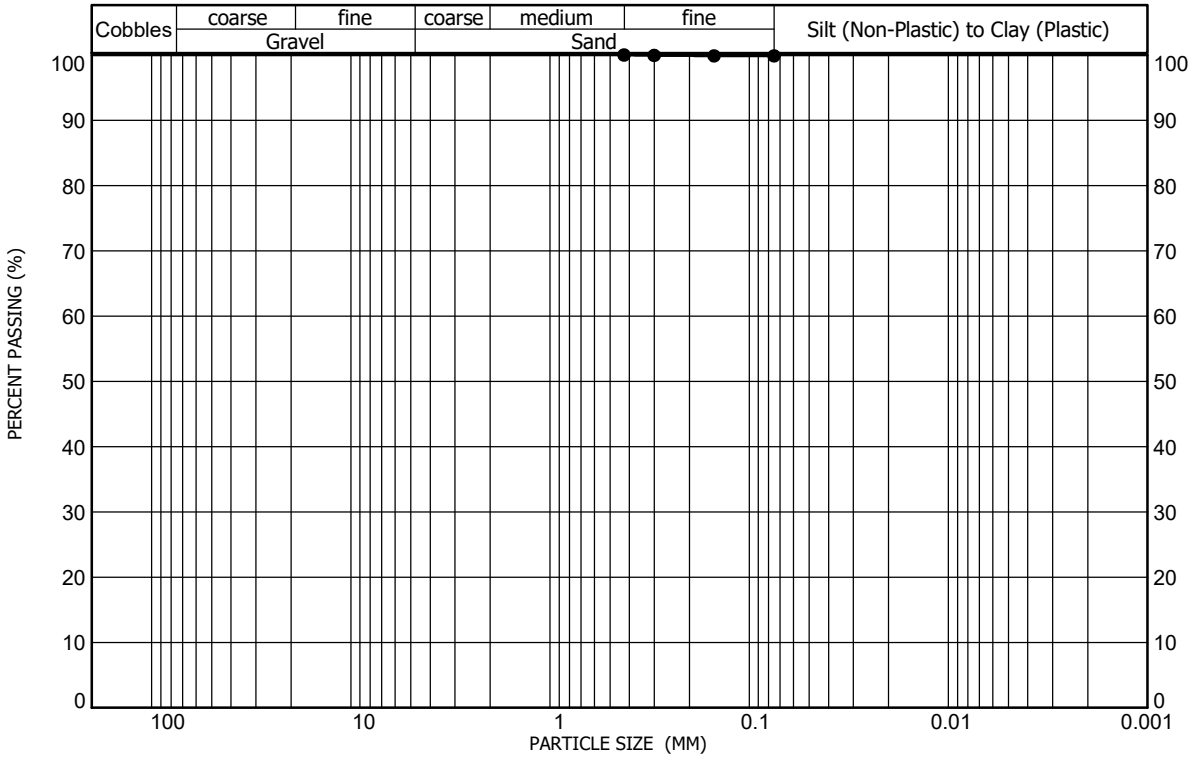
Sample Location: Test Boring No. 10 at a depth of 9 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(35), FAT CLAY(CH)

Gravel (%): 0 | Sand (%): 1 | Clay/Silt (%): 99
Liquid Limit: 52 | Plasticity Index: 32

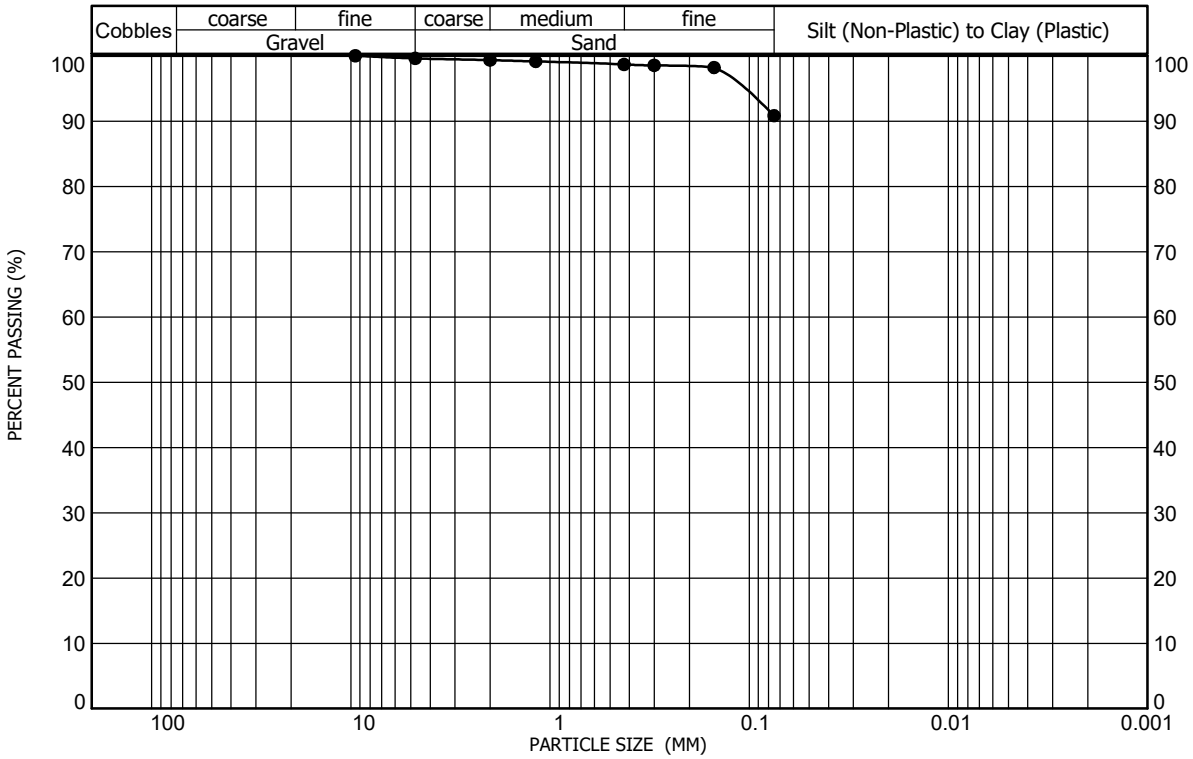
GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-45

PROJECT NO. 160388



Sample Location Test Boring No. 12 at a depth of 9 feet — Gravel (%) 0 — Liquid Limit 74
Sample Description Claystone — Sand (%) 0 — Plasticity Index 55
Classification A-7-6(62), FAT CLAY(CH) — Clay/Silt (%) 100



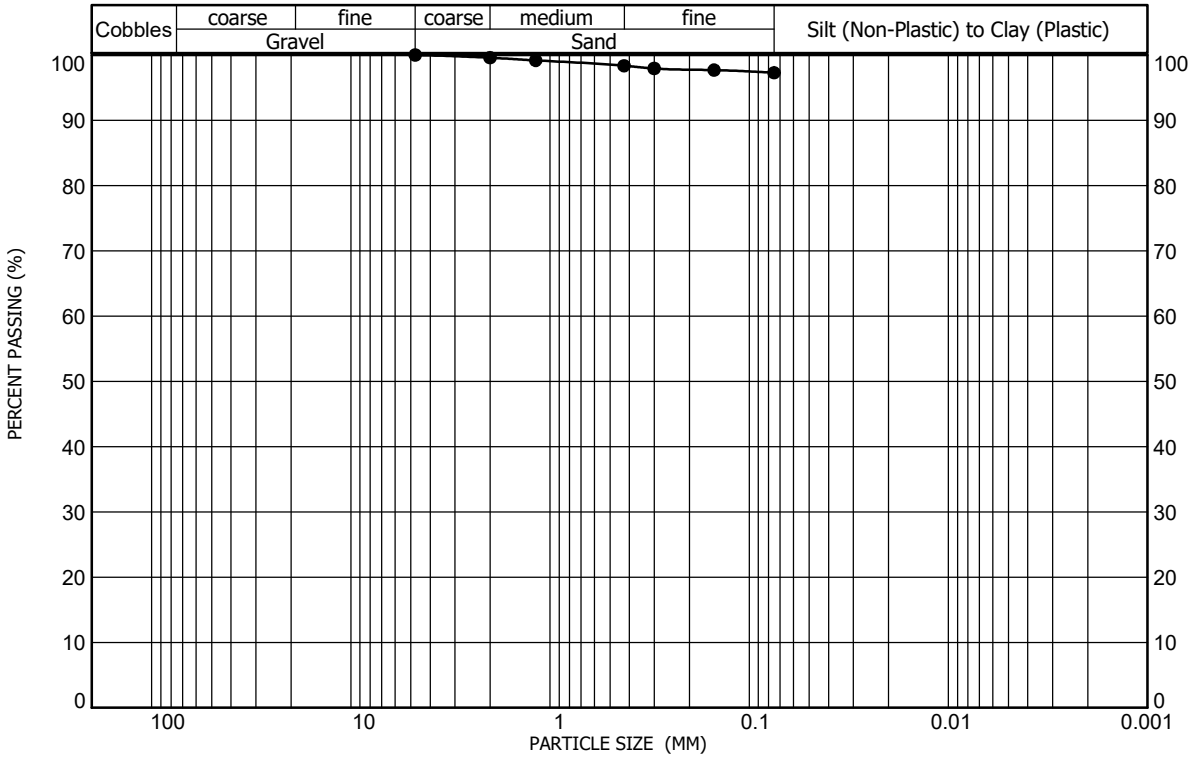
Sample Location Test Boring No. 13 at a depth of 24 feet — Gravel (%) 0 — Liquid Limit 36
Sample Description Claystone, slightly sandy — Sand (%) 9 — Plasticity Index 19
Classification A-6(17), LEAN CLAY(CL) — Clay/Silt (%) 91

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-46

PROJECT NO. 160388

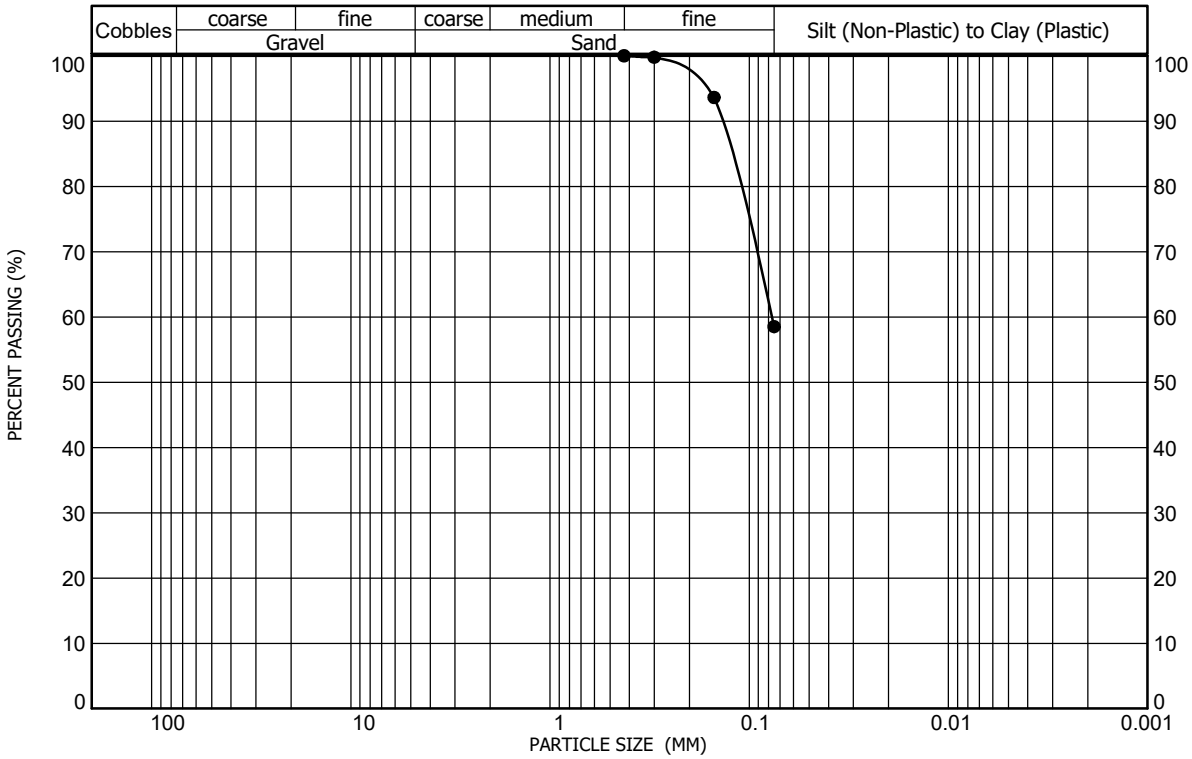
AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 14 at a depth of 19 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(69), FAT CLAY(CH)

Gravel (%): 0 | Sand (%): 3 | Clay/Silt (%): 97

Liquid Limit: 79 | Plasticity Index: 64



Sample Location: Test Boring No. 15 at a depth of 4 feet
Sample Description: Claystone, very sandy
Classification: A-4(2), SANDY LEAN CLAY(CL)

Gravel (%): 0 | Sand (%): 41 | Clay/Silt (%): 59

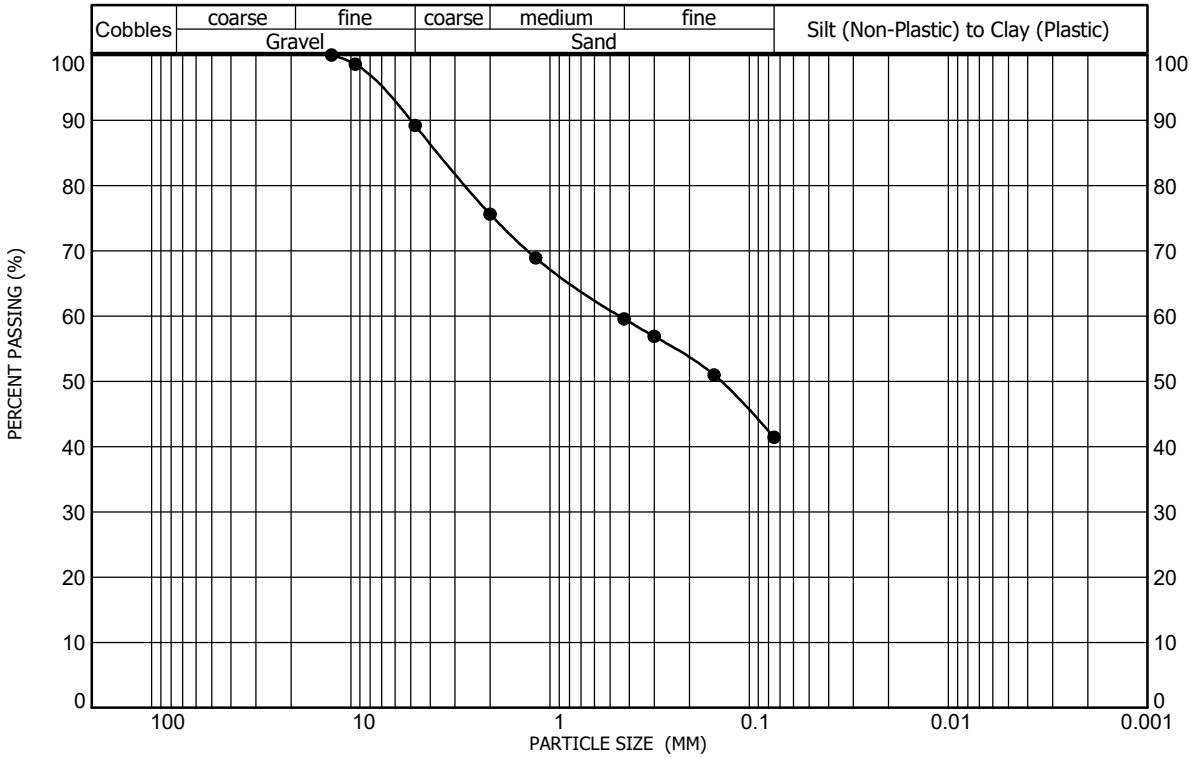
Liquid Limit: 26 | Plasticity Index: 8

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-47

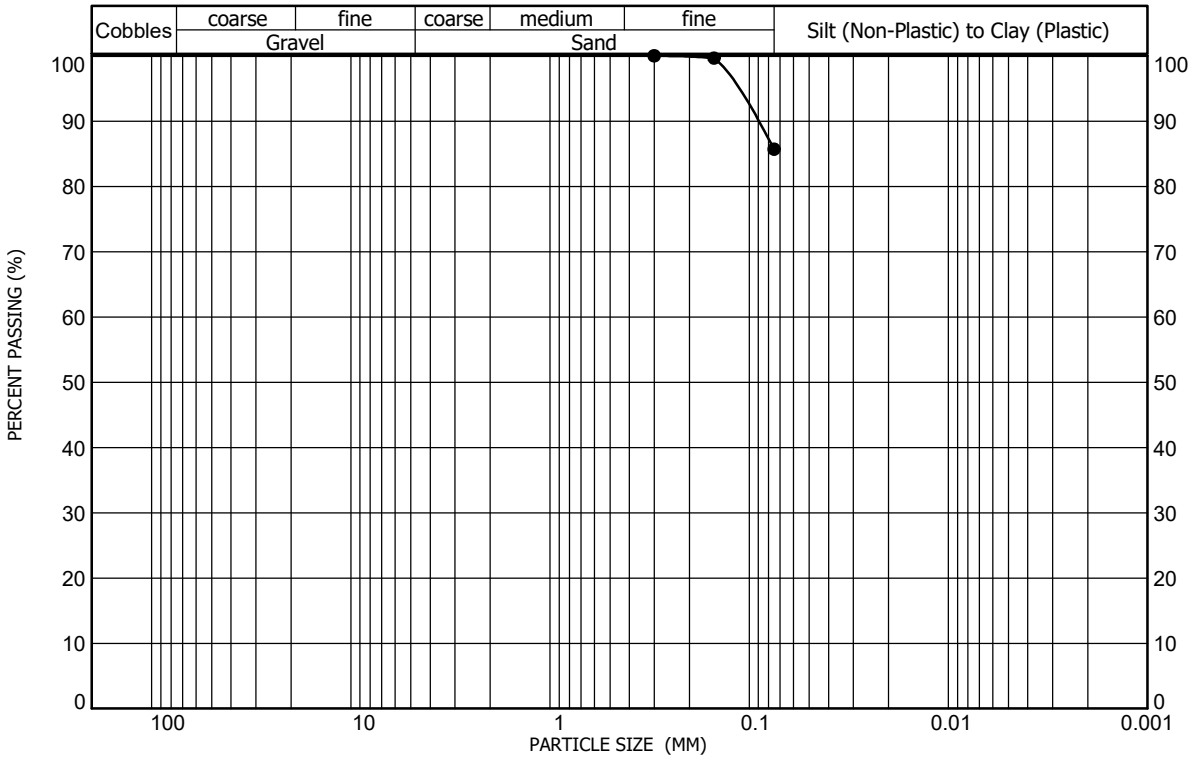
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 20 at a depth of 4 feet
Sample Description: Sandstone, very clayey
Classification: A-6(3), CLAYEY SAND(SC)

Gravel (%): 11 Sand (%): 48 Clay/Silt (%): 41
Liquid Limit: 34 Plasticity Index: 17



Sample Location: Test Boring No. 22 at a depth of 14 feet
Sample Description: Claystone, sandy
Classification: A-7-6(21), LEAN CLAY(CL)

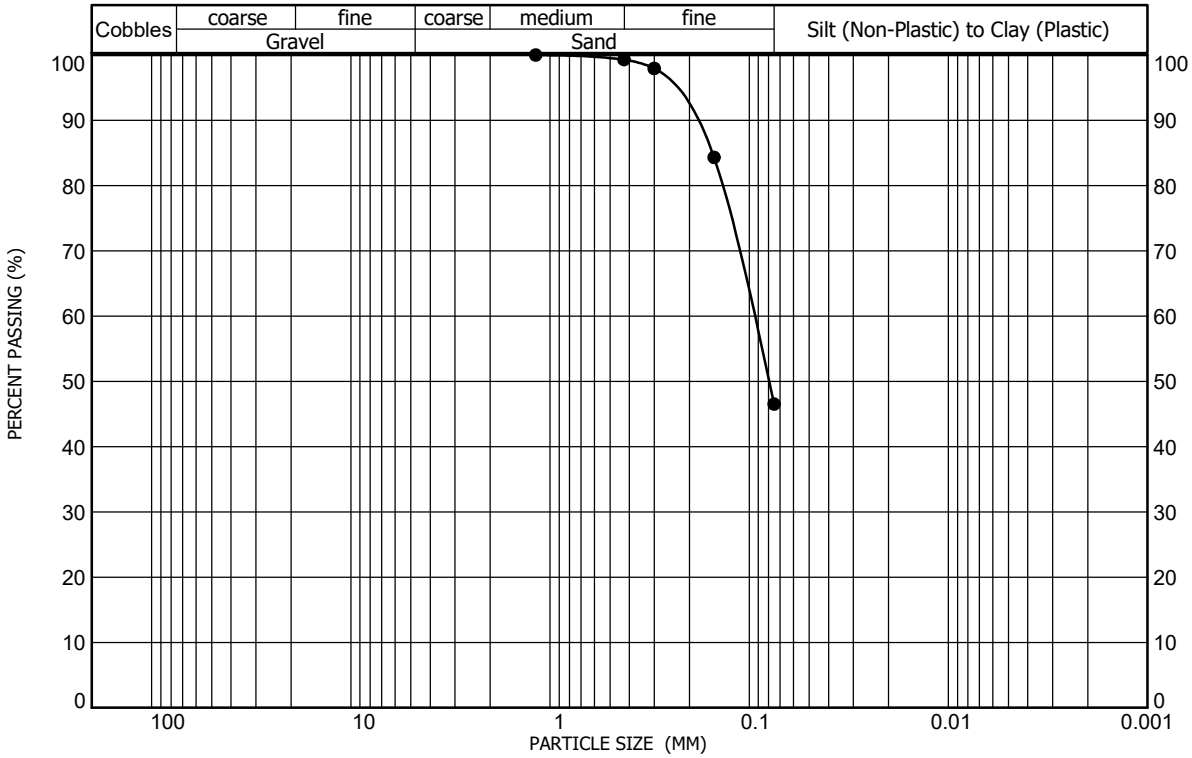
Gravel (%): 0 Sand (%): 14 Clay/Silt (%): 86
Liquid Limit: 42 Plasticity Index: 24

GRADATION AND ATTERBERG TEST RESULTS

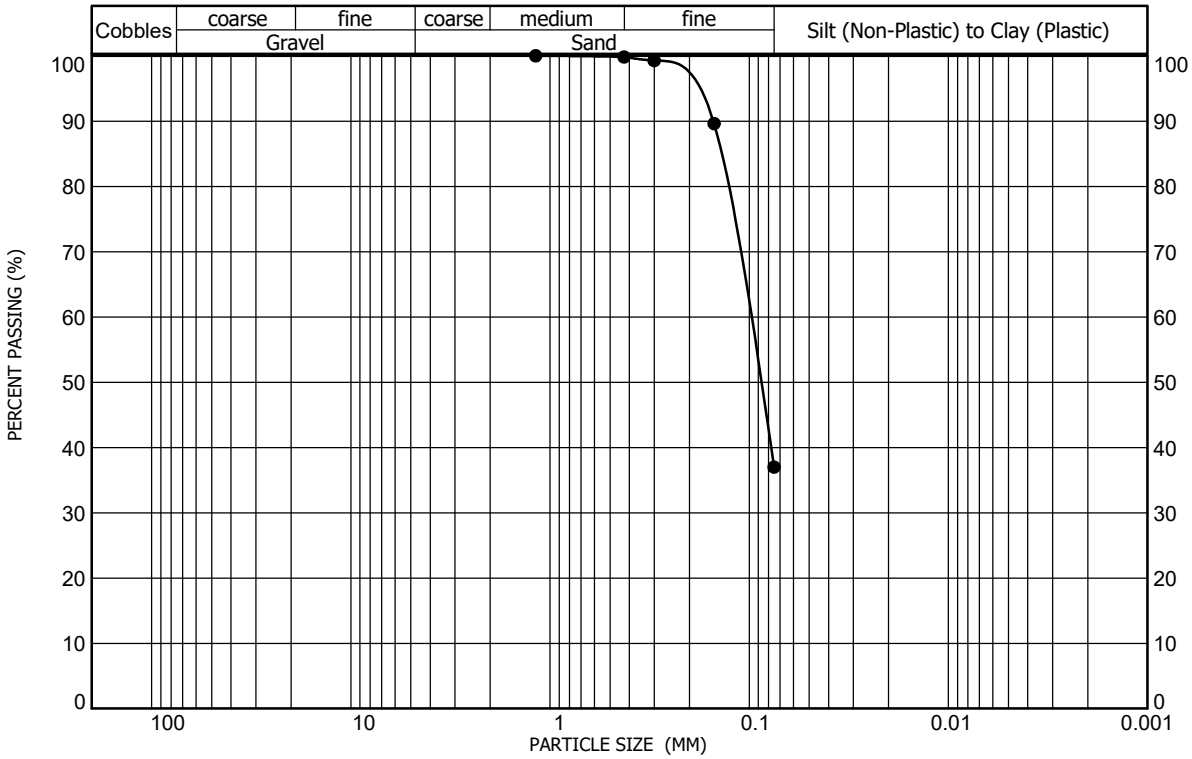
FIGURE A-48

PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 22 at a depth of 34 feet
Sample Description: Claystone/Sandstone, silty
Classification: A-6(3), CLAYEY SAND(SC)
Gravel (%): 0
Sand (%): 53
Clay/Silt (%): 47
Liquid Limit: 31
Plasticity Index: 13



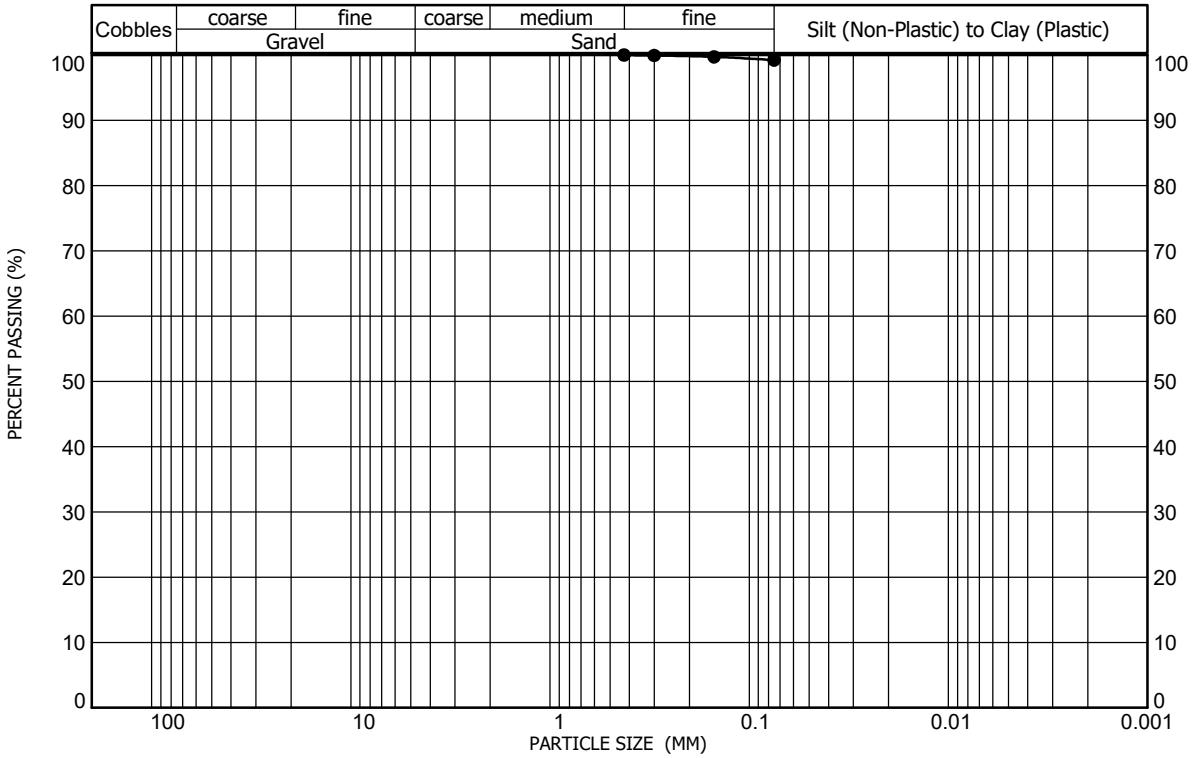
Sample Location: Test Boring No. 24 at a depth of 9 feet
Sample Description: Sandstone, very clayey
Classification: A-4(0), CLAYEY SAND(SC)
Gravel (%): 0
Sand (%): 63
Clay/Silt (%): 37
Liquid Limit: 27
Plasticity Index: 10

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-49

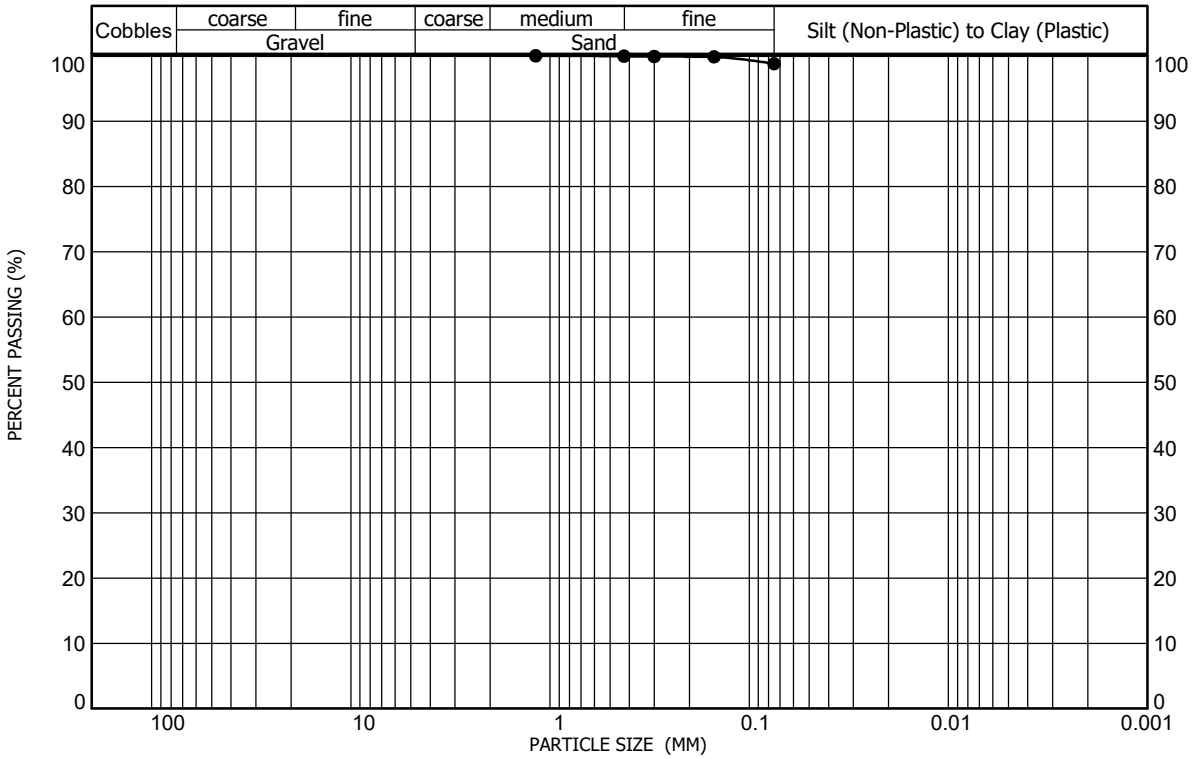
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 26 at a depth of 4 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(55), FAT CLAY(CH)

Gravel (%): 0 | Sand (%): 1 | Clay/Silt (%): 99
Liquid Limit: 68 | Plasticity Index: 49



Sample Location: Test Boring No. 27 at a depth of 14 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(34), FAT CLAY(CH)

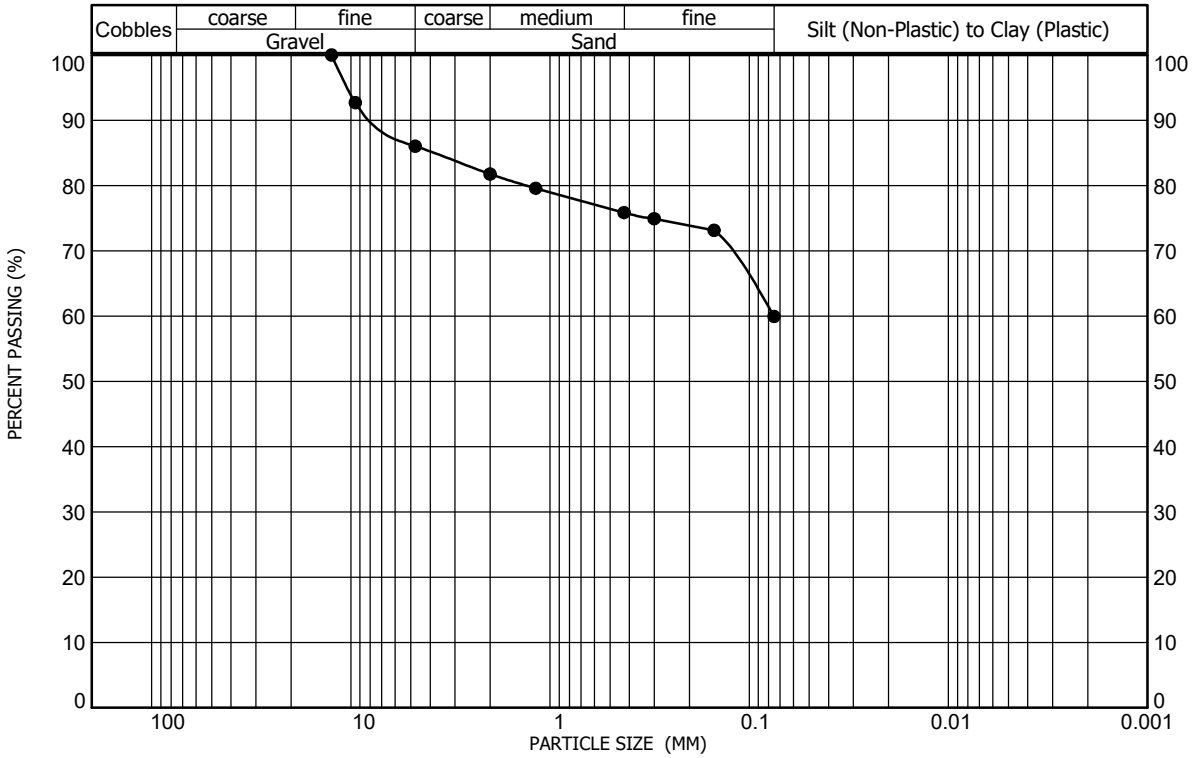
Gravel (%): 0 | Sand (%): 1 | Clay/Silt (%): 99
Liquid Limit: 50 | Plasticity Index: 32

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-50

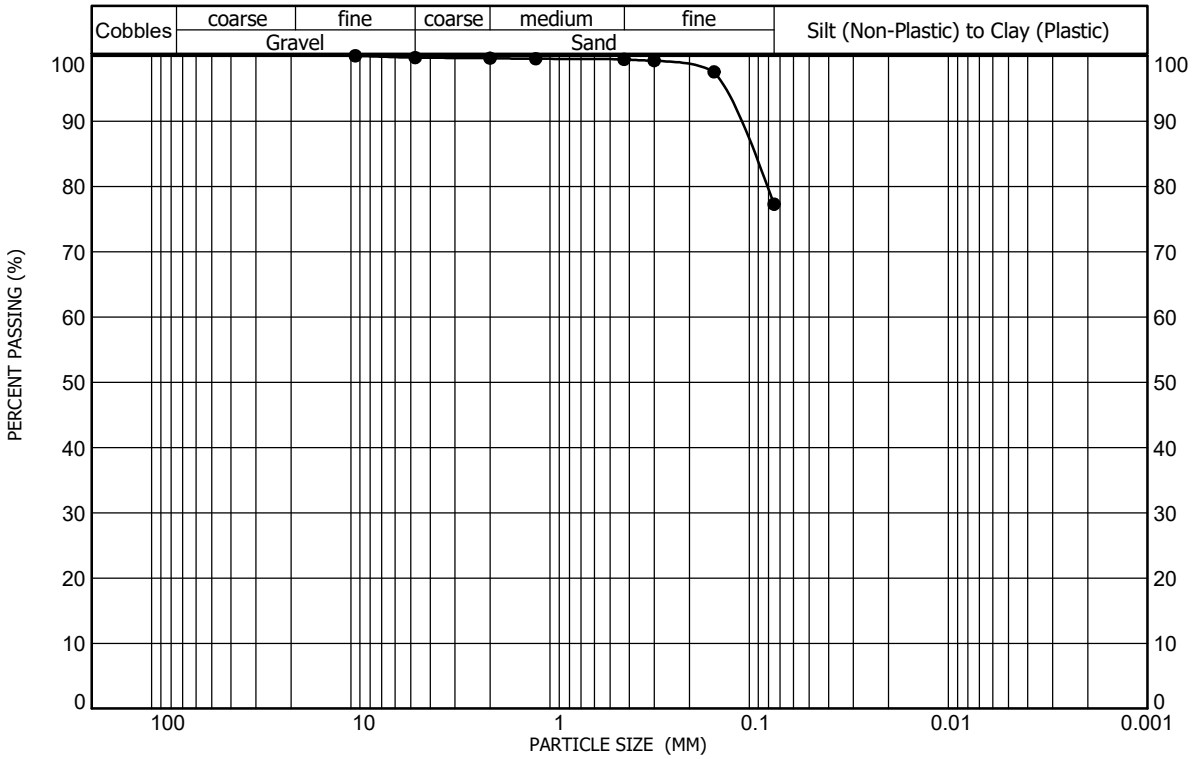
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 28 at a depth of 9 feet
Sample Description: Claystone, very sandy
Classification: A-4(2), SANDY LEAN CLAY(CL)

Gravel (%): 14 Liquid Limit: 26
Sand (%): 26 Plasticity Index: 8
Clay/Silt (%): 60



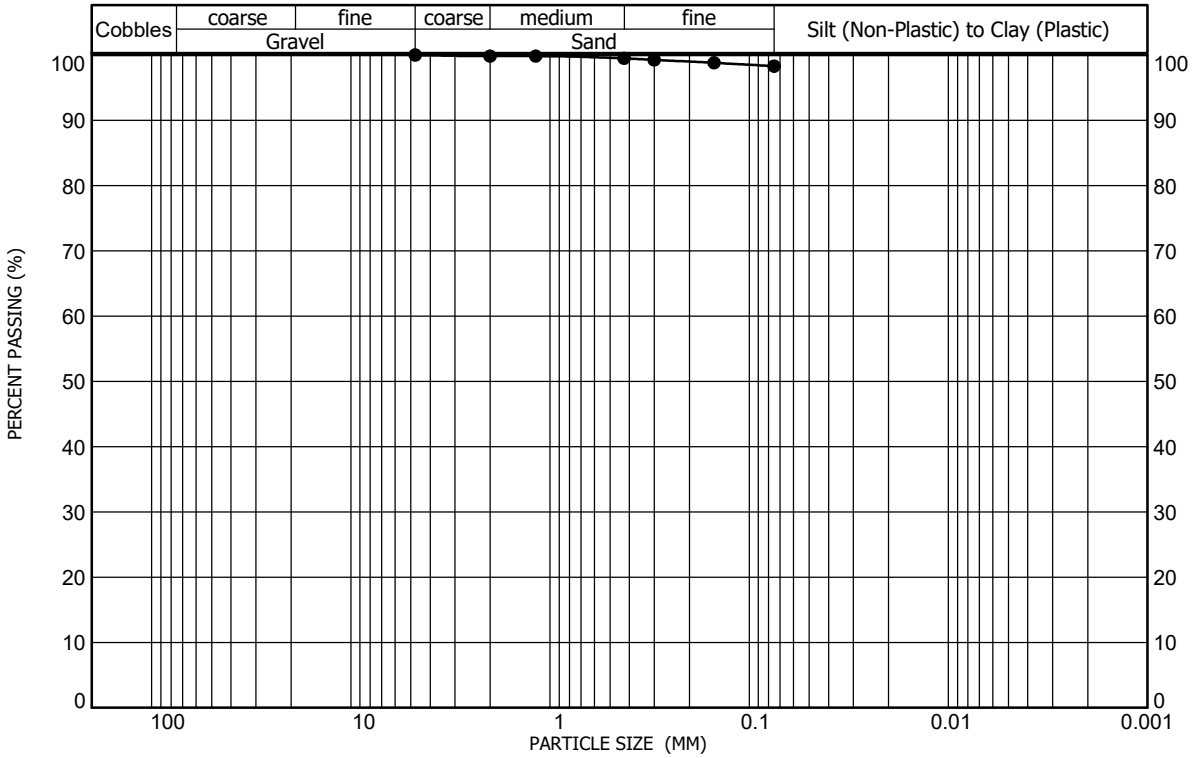
Sample Location: Test Boring No. 30 at a depth of 9 feet
Sample Description: Claystone, sandy
Classification: A-4(5), LEAN CLAY with SAND(CL)

Gravel (%): 0 Liquid Limit: 27
Sand (%): 22 Plasticity Index: 9
Clay/Silt (%): 77

GRADATION AND ATTERBERG TEST RESULTS

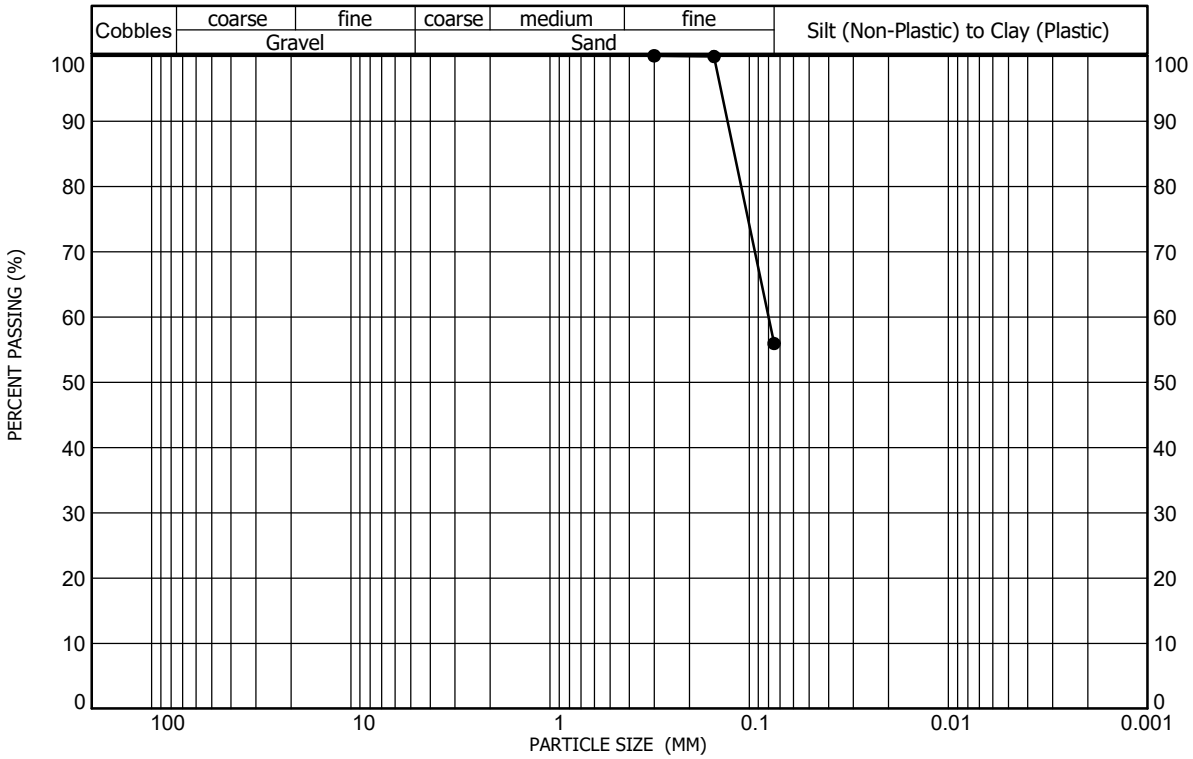
FIGURE A-51

PROJECT NO. 160388



Sample Location: Test Boring No. 31 at a depth of 9 feet
Sample Description: Claystone, trace sand
Classification: A-7-6(37), FAT CLAY(CH)

Gravel (%): 0 | Sand (%): 2 | Clay/Silt (%): 98
Liquid Limit: 54 | Plasticity Index: 34



Sample Location: Test Boring No. 31 at a depth of 34 feet
Sample Description: Claystone, very sandy
Classification: A-7-6(15), SANDY FAT CLAY(CH)

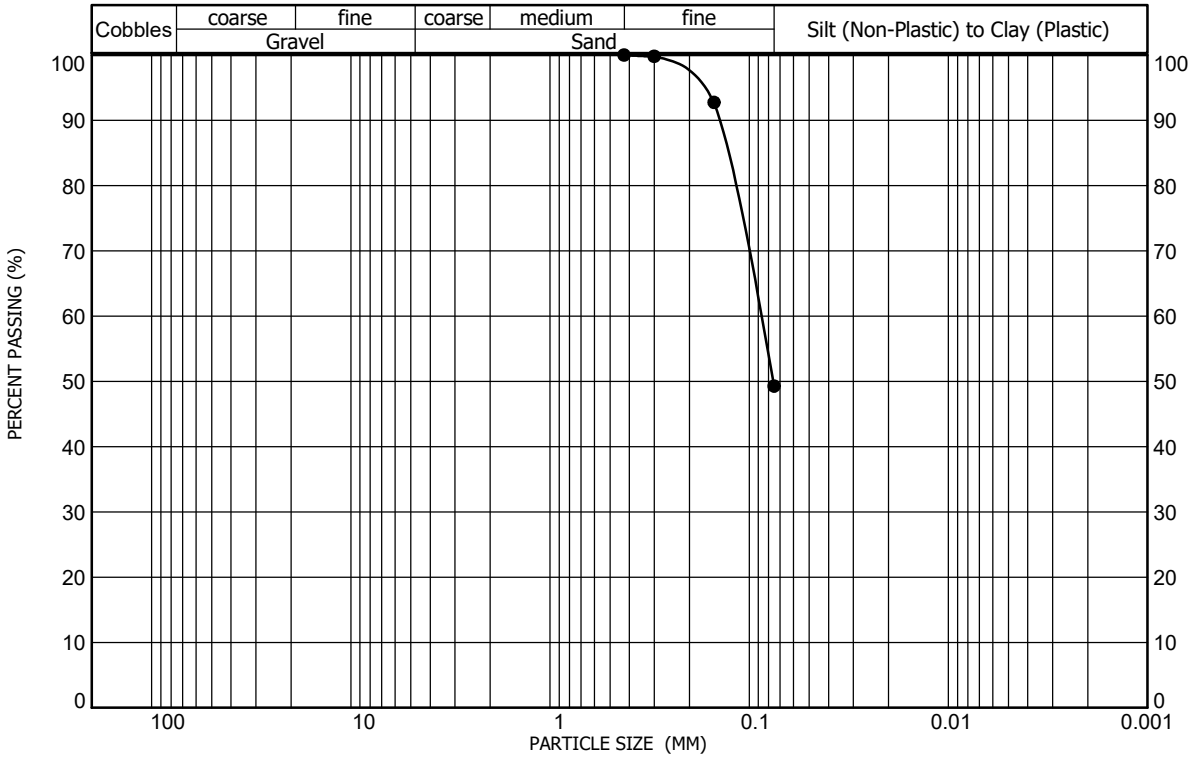
Gravel (%): 0 | Sand (%): 44 | Clay/Silt (%): 56
Liquid Limit: 53 | Plasticity Index: 34

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-52

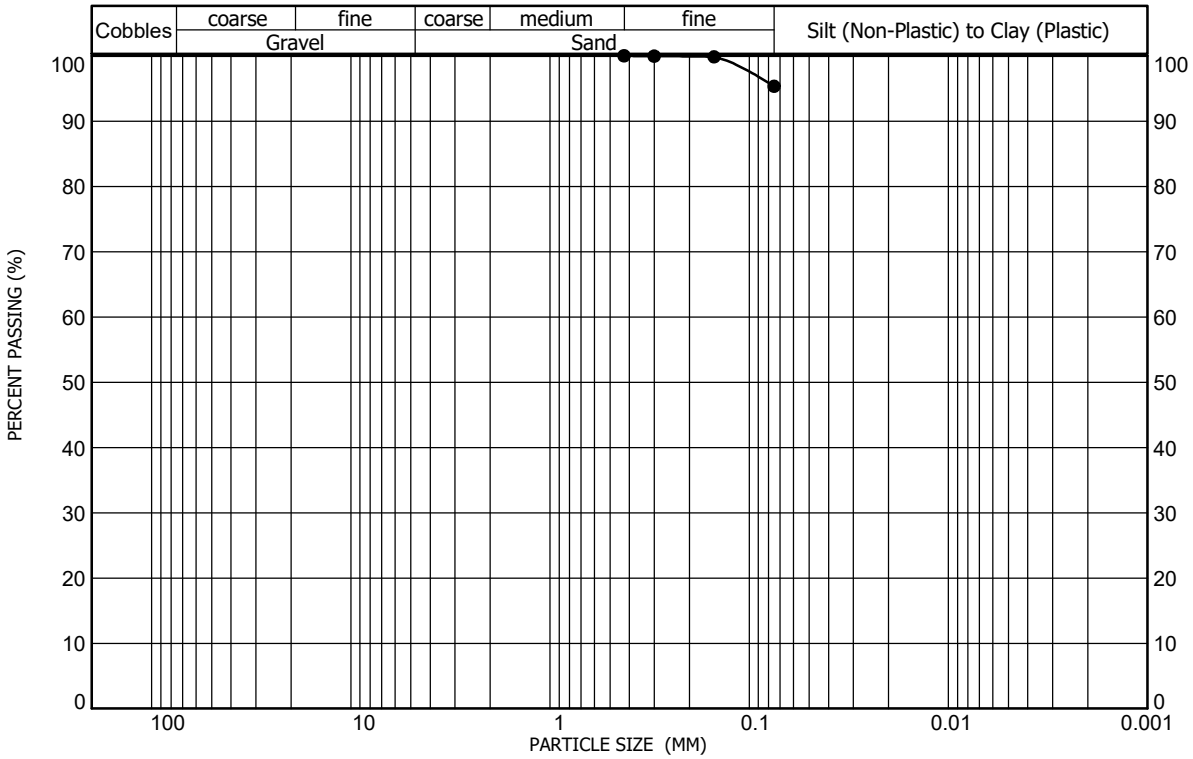
PROJECT NO. 160388

AGW
A.G. WASSENAAR, INC.



Sample Location: Test Boring No. 35 at a depth of 24 feet
Sample Description: Claystone/Sandstone, silty
Classification: A-4(0), SILTY, CLAYEY SAND(SC-SM)

Gravel (%): 0 | Sand (%): 51 | Clay/Silt (%): 49
Liquid Limit: 24 | Plasticity Index: 6



Sample Location: Test Boring No. 36 at a depth of 19 feet
Sample Description: Claystone, slightly sandy
Classification: A-7-6(30), FAT CLAY(CH)

Gravel (%): 0 | Sand (%): 5 | Clay/Silt (%): 95
Liquid Limit: 50 | Plasticity Index: 29

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-53

PROJECT NO. 160388

APPENDIX B
SPECIFICATIONS FOR PLACEMENT OF FILL

APPENDIX B
SPECIFICATIONS FOR PLACEMENT OF FILL

General

AGW, as the Client's representative, should observe fill placement and conduct tests to determine if the materials placed, methods of placement, and compaction are in reasonable conformance with these specifications. Specifications presented in this Appendix are general in nature. They should be used for construction except where specifically superseded by those presented in the attendant geotechnical study.

For the purpose of this specification, structural areas include those areas that will support constructed appurtenances (e.g., foundations, slabs, flatwork, pavements, etc.) and fill embankments or slopes that support significant fills or constructed appurtenances. Structural areas will be as defined by AGW.

Fill Material

Fill material should consist of on or off-site soils which are relatively free of vegetable matter and rubble. Off-site materials should be evaluated by AGW prior to importation. No organic, frozen, perishable, rock greater than 6 inches, or other unsuitable material should be placed in the fill. For the purpose of this specification, cohesive soil is defined as a mixture of clay, sand, and silt with more than 35% passing a U. S. Standard #200 sieve and a Plasticity Index of at least 11. These materials will classify as an A-6 or A-7 by the AASHTO Classification system. Granular soils are all materials which do not classify as cohesive.

Preparation of Fill Subgrade

Vegetation, organic topsoil, any existing fill, and any other deleterious materials should be removed from the fill area. The area to be filled should then be scarified, moistened or dried as necessary, and compacted to the moisture content and compaction level specified below prior to placement of subsequent layers of fill.

Placement of Fill Material

The materials should be delivered to the fill in a manner which will permit a well and uniformly compacted fill. Before compacting, the fill material should be properly broken down, mixed, and spread in approximately horizontal layers not greater than 8 inches in loose thickness.

Moisture Control

The material must contain uniformly distributed moisture for proper compaction. The Contractor will be required to add moisture to the materials if, in the opinion of AGW, sufficient and uniform moisture is not present in the fill. If the fill materials are too wet for proper compaction, aerating and/or mixing with drier materials will be required.

Moisture content should be controlled as a percentage deviation from optimum. Optimum moisture content is defined as the moisture content corresponding to the maximum density of a laboratory compacted sample performed according to ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The moisture content specifications for the various areas are as follows:

		Cohesive Soils	Granular Soils
1.	Beneath Structural Areas:	0 to +4%	−2 to +2%
2.	Beneath Non-Structural Areas:	−3 to +3%	−3 to +3%
3.	Moisture Treated Fill:	0 to +4%	−2 to +2%

Compaction

When the moisture content and conditions of each layer spread are satisfactory, the fill should be compacted. Laboratory moisture-density tests should be performed on typical fill materials to determine the maximum density. Field density tests must then be made to determine fill compaction. The compaction standard to be utilized in determining the maximum density is ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The following compaction specifications should be followed for each area:

1.	Beneath Structural Areas:	95% of Maximum Dry Density
2.	Beneath Non-Structural Areas:	90% of Maximum Dry Density
3.	Moisture Treated Fill:	95% of Maximum Dry Density

If the fill contains less than 10% passing the No. 200 sieve, it may be necessary to control compaction based on relative density (ASTM D2049). If this is the case, then compaction around the structures and beneath walkway or other slabs should be to at least 70% relative density, and compaction beneath foundations and vehicle supporting should be to at least 80% relative density.

Deep Fills

In areas where fill depths exceed 20 feet beneath structural areas, additional compaction considerations will be required to reduce fill settlement. Fill placed within 20 feet of final overlot grade should be compacted as required above. Deeper fills should be compacted to 100% of maximum dry density at a moisture content of ±2% of optimum moisture content. Relative density of at least 85% will be required when necessary.

Responsibility

Any mention of essentially full-time testing and observation does not mean AGW will accept responsibility for future fill performance. AGW shall not be responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by Client's contractor. Performance of construction observation services does not constitute a warranty or guarantee of any type, since even with diligent observation, some construction defects, deficiencies or omissions in the Contractor's work may occur undetected. Client shall hold its contractor solely responsible for the quality and completion of the project, including construction in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the contractor or any subcontractor.

Redtail Ranch Neighborhood Meeting

Date: April 21, 2021 (6-7pm)

Microsoft Teams Virtual Meeting

Attendees:

- Roger Hollard (Stratus)
- Richard Dean (Stratus)
- Christian Dean (Stratus)
- Layla Rosales (Terracina Design)
- Anthony Files (Terracina Design)
- Brett (CWC Consulting)
- Jill Repella (Cornerstone Insight)

- Chuck VPHOA
- Wendy
- Geoff Deakin
- Nina
- Bateman, Sara
- Tiffany Taskey
- Spen Kellogg
- Paul & Amy Erdman
- Joseph Zintel
- Hansford Cutlip
- Kim McConnell
- Jmac
- Michael Pierce
- Arnold Slabbekoorn
- Cassie
- Erin Perrott
- Geri Nelson
- Tom Ventker
- Krista
- Tracie
- Jennie
- Dr. Stoll
- Tim
- Marc Liebman
- Whitney Barnett
- George
- Kevin Reusch
- Don Kenchel
- Kathryn Fuhrman

Call in Numbers:

1 303 666 7166

1 303 666 7783

1 303 807 7087

1 303 870 7888

1 303 887 3942

1 303 927 9555

1 720 244 0279

1 720 256 7179

1 720 346 8475

1 720 376 3121

1 720 684 7170

1 936 499 9200

1 936 499 9232

Meeting Notes:

- Tim: What is the estimated time frame for this project?
- Roger: We estimate it will take 2-2.5 years to get approval for the project.
- Dr.Stoll: how long will there be construction traffic flow and where will it go?
- Roger: we will work with the town to see what is best for traffic flow, but it will probably be directed from the north.
- Paul and Nina: Will there be a roundabout or traffic light at the intersection of WCR4 and WCR5.
- Roger: We do not have an answer for that yet, but we will work with the town to see what the town will want.
- Arnold Slabbekoorn: Will there be a traffic sign on WCR4? I think the traffic study is off and there will be a much higher volume than you have calculated for that intersection. What improvements will be made to CR5?
- Roger: We will assess the traffic study as the project goes on. We will make improvements to the west side of the road and some of the east side, but we will enhance the road, gutters and sidewalks and will become a 4-lane road eventually.
- Chuck: Who owns the pocket parks? Will there be any improvements to Bonanza Street?
- Roger: the open spaces will be dedicated to the town. The pocket parks will be maintained by the HOA or the Redtail Ranch Metro District. We are not sure about Bonanza Street yet.
- Jennie: What are the plans for the privacy buffer by the duplexes?

- Roger: there will be no aggressive screening because of easements that do not allow trees but there will be some groups of trees for screening. It is too early to look at the landscaping detail of what exactly will be there.
- Tiffany: will there be any buffer from the road and houses at the entrance of WCR4 and WCR5?
- Layla: as of now there is no plan for a buffer, that part of the road is located in a ROW on Vista Ridge property.
- Richard Raddcliff: will vista parkway be connected to bonanza?
- Roger: it is unknow if it will connect with bonanza as of now, originally in 2007 they wanted to connect it to bonanza but as of now we are not sure, but it is still a possibility.
- Don Kenchel: I am concerned about the traffic volume along WCR 4 to Baseline.
- Roger: waste connection has been talking about re-routing their traffic to the north but pedestrian traffic will increase.
- Tim: has there been any litigation against the town or anyone about pushing this project forward?
- Roger: No there has not been any and we do not intend or want to sue anybody.

Meeting Chat Notes:

- Tom Ventker: Feels like Groundhogs day about it closing. Been hearing it for 10 years.
- Tiffany Taskey: It was not zoned residential when they fracked on it...
- Tom Ventker : Susan Pratt said that it was Farmland for more than 70 years
- Kim McConnel: 150 feet is VERY little…Setbacks MUST increase.
- Tom Ventker: 350 feet is much too small a setback.
- Tom Ventker: Your density calculation is very misleading as it is including land that can't be developed such as where the inert solids are and where the O&G is located and the wetlands.
- Kim McConnel: Even our mayor insists that this is not actually low density.
- Tom Ventker: If the Town is taking over the wetlands, then that land should NOT be included in the density calculation. Please confirm that it has been excluded.
- Erin Perrott: Vista Parkway will be a disaster
- Tom Ventker: WHO from the Town is requesting the connector road to meet County Rd 4.
- Tom Ventker: Was an option to relocate the Connector Road to the north ever presented to the Town?
- Dr Stoll: Please address the construction traffic flow> Please avoid Vista Ridge Parkway
- Arnold Slabbekoorn: in 2007 we did not have a large oil and gas fracking site and new landfill, so this needs adjusted in terms of density by Town
- Tom Ventker: I am not sure what the $ you have spent has to do with this. It feels like you are conveying that because you spent so much money, you should be allowed to move forward with this development. The $5 million spent on remediation seems to be a risk you took on, as you were made aware of what was on the site, based on information provided before the land purchase. The tone and use of words "our day in court" don't sound like someone who is sensitive to the neighbors or wanting to collaborate, but rather to litigate.
- Kim McConnell: A developer who buys a parcel of land takes on whatever known and unknown costs arise. That has always been a part of the process and the risk associated with

development. Because Stratus has invested millions in this property is not a reason that this must continue.

- Don Kenchel: What studies have been done regarding the added residential traffic in/out on Cty Rd 4 and Sheridan and Hwy 7. It is already hard enough to get out onto Hwy 7 without the added volume.
- Joseph Zintel: I believe that the Erie official wanted a faster way from air park to King Sooner. He is no longer an official
- Kim McConnell: Currently the property Stratus owns at NW section is NOT zoned residential. I believe it will take a public vote by the town to change that zoning.
- Slabbekoorn, Arnold: They need to redirect that connection north on WCR5
- Tom Ventker: The entrance to Redtail will be much better served to be further north
- Tom Ventker: Can Stratus tell us who from the Town of Erie requested the entrance at County Road 4?
- Kim McConnell: All of us need to email the Board of Trustees and the Planning Commission and express our thoughts...displeasure. The final decisions will happen through those two groups. The BOT are elected officials and need to represent the best interests of the citizens of the town.
- Slabbekoorn, Arnold: Then they will have to go to Court with Eggs Ranch as they have a legal agreement not to have that traffic over CR7
- Kim McConnell: Large amount of discussion on traffic. There is also the unknown contaminants that lie beneath the soil that will be unearthed during dev't. There is no way that they know they have found all contaminants.
- Tom Ventker: What is the status of the ongoing lawsuits you mentioned? When are they expected to be resolved?

Email Questions/Concerns:

David Andree <ddandree@gmail.com>

Fri, Apr 9, 5:28 AM (12 days ago)

to me

Where is this in relation to the dump?

Redtail Ranch <redtailrancherie@gmail.com>

Tue, Apr 13, 11:50 AM (8 days ago)

to David

The project is just west of County Road 5 and the Front Range Landfill is on the east side of County Road 5.

Please let us know if you have any other questions or have a problem with the links that were sent.

David Andree

Tue, Apr 13, 11:59 AM (8 days ago)

to me

Thank you!

Joseph Zintel <jczintel@comcast.net>

Fri, Apr 16, 12:54 PM (5 days ago)

to RedtailRanchErie, bldfax

We recently received a meeting notice from Terracina Design announcing a teleconference meeting April 21 regarding the proposed Red Tail Ranch development in Erie.

I don't know why another meeting is necessary when the concerns raised several years ago at the first presentation have not been addressed.

Those concerns remain unanswered:

1, The road on the South side of the property presents a nuisance to the adjoining property residents. The North side of the property would offend no one. The proposed road is next to a hiking path, frequently used by walkers joggers bicyclists and children. a reasonable setback needs to be maintained with the exception for intersections.

The County Road 4 connection is required by the 2007 annexation agreement and is intended to provide an additional transportation coordidor. The road was curved north as possible to move it away from properties to the south

2, Traffic on Sheridan is already excessive and can little stand additional traffic from a new development.

Improvement to road network based on Traffic Study and Town requirements

3,Traffic along County road 5 is already a drag strip to the High School and is already unsafe for bicycle traffic to the single track bicycle park. More traffic will only make the condition worse.

Improvement to CR5 based on Traffic Study and Town requirements

4, The property was underwater during the rains of September 2013 suggesting that when the flood planes are redefined the proposed homes will be in the flood plain and difficult to insure. Retention ponds were included in one revision but later plans show the retention ponds to be much smaller. The 200 page Drainage Report was prepared in 2001 and does not address the more recent flooding nor the impact of the added solid surface paving.

The drainage improvements will be constructed to code as approved by the Towm. The 2013 event was an unusual event and has been ranked as a 500-1000 year storm event (probability of occurance is once in 500-1000 years)

5, Hazardous Materials buried legally and illegally on the property have been identified and remediated to some extent. There is no guarantee that all of it has been found. Construction will likely uncover more.

The Owner had spent approximately $5m remediating the hazardous contamination and has recieved clearance from the EPA and has recieved an approved capping and followup plan from CDPHE to manage the remaining area

6, The Common Areas suitable for residents enjoyment is insufficient and unusable . I was amused to read recently that a large space had been added to the development for the residents enjoyment. THIS AREA IS A SWAMP unfit for anything but snakes and salamanders.

Providing trails and preserving the natural features of the existing drainage channel.

Since the original heads up meeting, other concerns have become evident.

1, There is no lighting plan. The residences immediately South of the proposed development are all laid out such that the backs of these houses are facing the development. We do not want street lights in the front and the back of our houses.

Will be design in compliance with the town's dark sky requireemnts

2, The addition of additional property from the closing landfill to attain the required maximum density of 2 dwellings per acre is a sham and completely against the intent of the density requirement. The sale of the dump property to the developer should not be allowed by the town. Likewise the swamp and the Oilfield surface and other dangerous or unfit areas area should be deleted from the planning boards calculations.

That portion of the property is not included win this application Project is complying with regulations and calculated as a gross density in accordance with the Annexation agreement.

3, We have been assured by the developer that no matter what, there cannot be any more drilling on the property because of the way the surface agreement is written. In that case, I would like to see the words "unless both parties agree" deleted from the agreement. Agreements of this type are readily revised.

All oil gas drilling that was permitted has been completed. The Property owner will not agree to additonal drillig.

Joseph C Zintel

1761 Crestview LN

Erie CO 80516

303-562-2295

jczintel@comcast.net

Bateman, Sara <SBATEMAN@prologis.com>

Mon, Apr 19, 12:45 PM (2 days ago)

to RedtailRanchErie@gmail.com, Sara

Hello~

I would like a link to the video call this week and would like to request the documents provided on the sharepoint site be made available in at an accessible link (next time, can you send a site that is easier to type in?). The below is what I received upon typing in the URL address provided in the mailout. Ideally, I would like to review the documents in advance so I can ask informed questions.

My main concern is the set-back from the current home….. I'm near the south west corner and the road does not appear to be set-back. Is the project considering privacy fencing for the homeowners where the backyards are now exposed (currently 3 rail split fence) to more than minimal walking traffic on the path. There was initially a park right by the toxic area – has that been moved and what are the plans to keep our children safe and away from it? What about the increased traffic on CR5 and the impact with the large trucks going to the dump? I'm assuming many of these questions are included in the documents.

Thanks~

Sara Bateman | Property Accounting Manage

1800 Wazee Street, Suite 500 | Denver | Colorado | 80202 | United States of America

Direct +1 (303) 567-5296 | SBATEMAN@prologis.com

www.prologis.com | Follow us on LinkedIn and Twitter

Bateman, Sara <SBATEMAN@prologis.com>

Mon, Apr 19, 12:45 PM (2 days ago)

to RedtailRanchErie@gmail.com, Sara

I wanted to say thank you for presenting this information to the community tonight. It was really helpful to see.

From the image below, what is the distance from the home to the road, rather than to the next homesite? My home is the red dot and I'm very concerned about the traffic, noise, and safety impact of the road. I feel that my property backyard is extremely exposed with this plan.

Also, in regards to the road, it will become a speedway for people – has a round-about or other speed reducing items been considered along that route to encourage decreased speeds?

Redtail Ranch

1:54 PM (2 minutes ago)

to Sara

Sara,

Sorry for the delay. Based on the plan the road is planned approximately 90-95' from your back fence line. The distance is approximate and based on aerial data so it may vary at finished design. The traffic mitigation measures at CR4 and CR5 have not been determined but we will work with the town on the best option for the intersection. Please let us know if you have any additional questions or concerns.

Thanks for your email and question.

Joseph Zintel

Sun, Apr 25, 5:03 PM (5 days ago)

Please email slides from the April 21 Presentation. The plan presented is not the same as the one presented by the planning board of erie. Especially interested

Redtail Ranch <redtailrancherie@gmail.com>

Mon, Apr 26, 11:37 AM (4 days ago)

to Joseph

Joseph,

Below is a link to the Redtail Ranch Presentation and submittal documents for the project. Please let us know if you have any other questions or concerns.

Thanks,

https://terracinadesign-my.sharepoint.com/:f:/p/afiles/Egoa_ecyPA9Bl_7QQvrUCT0BIf3QMqm39lKf8x9Yz_Ho1g?e=BELcKV

TOWN OF ERIE
AFFIDAVIT OF NOTICE POSTING

(REDTAIL RANCH, PLANNING COMMISSION)

JANUARY 17, 2023

EAST SIDE VISTA PARKWAY

WEST SIDE COUNTY ROAD 5

I, ANTHONY FILES ATTEST THAT NOTICE WAS POSTED IN ACCORDANCE WITH THE ERIE MUNICIPAL CODE, TITLE 10, – "UNIFIED DEVELOPMENT CODE AND DESIGN GUIDELINES," AT LEAST 15 DAYS BEFORE THE SCHEDULED HEARING TO BE HELD ON THE 28 DAY OF DECEMBER , 2023 A.D. THE PHOTO, ABOVE, IS A TRUE AND CORRECT PHOTO OF THE NOTICE SO POSTED.

(SIGNATURE OF PERSON LISTED ABOVE)

STATE OF COLORADO)
) ss.
COUNTY OF Arapahoe)

ACKNOWLEDGED BEFORE ME THIS 29 DAY OF December, 2023 BY Anthony Files
AS Representative.

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC

MY COMMISSION EXPIRES: 2-25-2025

DONALD LUKE VALDEZ
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214007823
MY COMMISSION EXPIRES 02/25/2025

PUBLIC HEARING NOTICE
AFFECTING THIS PROPERTY
Planning Commission
1-17-2024
6:30pm
Redtail Ranch
Preliminary Plat
INFORMATION: 303-926-2770

PUBLIC HEARING NOTICE
AFFECTING THIS PROPERTY
Planning Commission
1-17-2024
6:30pm
Redtail Ranch
Preliminary Plat
INFORMATION: 303-926-2770

TOWN OF ERIE

AFFIDAVIT OF MAILING - PUBLIC HEARING NOTICE

I, ANTHONY FILES, as the applicant/representative for the REDTAIL RANCH (*project name & application type*), hereby attest that on this 28 day of DECEMBER, 20 23, a true and correct copy of the Town of Erie Public Hearing Notice for the public hearing with the PLANNING COMMISSION (*Planning Commission or Board of Trustees*) scheduled for JANUARY 17,2024 (*public hearing date*), marked as Exhibit "A" attached hereto and by reference incorporate herein, was mailed to those referenced in Exhibit "B" in accordance with the requirements of the Unified Development Code of the Town of Erie.

I further attest that the addresses shown in Exhibit "B" are true and correct addresses as determined from the records of the associated County Property Portal Records Search and that said Notices were placed in the United States Mail with the appropriate postage affixed thereon.

Applicant/Representative's Signature

12/29/23
Date

STATE OF COLORADO)
) ss.
COUNTY OF Arapahoe)

ACKNOWLEDGED BEFORE ME THIS 29 DAY OF December, 2023 BY Anthony Files AS applicant/representative.

WITNESS MY HAND AND OFFICIAL SEAL:

NOTARY PUBLIC

MY COMMISSION EXPIRES: 2-25-2025

DONALD LUKE VALDEZ
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20214007823
MY COMMISSION EXPIRES 02/25/2025

EXHIBIT A

Planning & Development Department

TOWN OF ERIE PUBLIC HEARING NOTICE

December 29, 2023

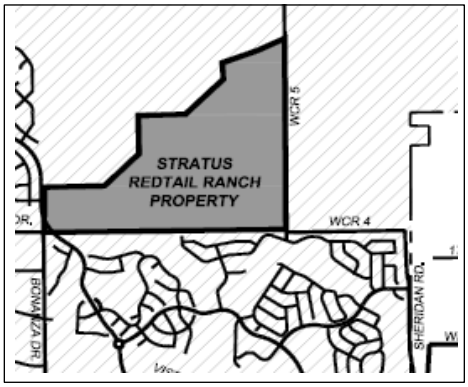
The Town of Erie Planning & Development Department has scheduled the following item for consideration:

Applicant/Developer: Stratus Redtail Ranch LLC

Project Description: Redtail Ranch Subdivision Preliminary Plat to create 587 residential lots and 32 tracts

Legal Description: Being a Part of Section 29, Township 1 North, Range 68 West of the 6th Meridian, Town of Erie, County of Weld, State of Colorado

Location: Northwest Corner of Weld County Road 4 and Weld County Road 5



Planner: Harry Brennan

Board or Commission: Planning Commission

Hearing For: Redtail Ranch Subdivision Preliminary Plat

Date of Hearing: January 17, 2024

Time: 6:30 PM

Place: Planning Commission meetings will be held in person in the Town Hall Board Room, 645 Holbrook Street (lower level, northeast entrance) **UNLESS** otherwise noted in the **Town Calendar on the Town's website**. You can access the Town Calendar by going to the Town's website, www.erieco.gov and scrolling to the bottom of the page to "Events & Meetings". Select the "Planning Commission Meeting" in the box or click "View All" for more information, dates, and access to the meeting agenda. Please note: Public Comment can be given both in person and via Zoom (please see the Town Calendar at www.erieco.gov for Zoom information).

This letter is your notice of the above referenced hearing(s). We are sending you this notice as required by Erie Municipal Code Title X, Chapter 7.2.F.4.a. or as a referral agency of the Town. Copies of the application and support material for this project are on file and available for public inspection. Applicant materials are typically posted to the Town of Erie Agenda Center, online at https://erie.legistar.com, the Friday before the public hearing date. Public comment is welcome during public hearings; or, you may send email comments planningapplication@erieco.gov; or, written comments to Town of Erie - Planning, P.O. Box 750, Erie, CO 80516-0750. If you have any questions, please call Planning at 303-926-2770.

EXHIBIT B

Owner	Mail Address 1	Mail City	State	Mail Zip Code
1868 CRESTVIEW LANE LLC	84 HIGHLAND RD	RYE	NY	105801706
ALLEN ADAM	1813 PARKDALE CIR N	ERIE	CO	805162420
ANDREE DAVID D	1854 PARKDALE CIR N	ERIE	CO	805162404
BANKS TARA	1243 CATALPA PL	ERIE	CO	805164615
BARNETT WHITNEY B W	1315 CATALPA PL	ERIE	CO	805164613
BATEMAN RICHARD	1841 CRESTVIEW LN	ERIE	CO	805164026
BELYEA AMI K	1643 ALPINE DR	ERIE	CO	805164020
BERG STEVEN S	900 TAYLOR LN	ERIE	CO	805162413
BISIAR JULIA FLEMING	1759 ALPINE DR	ERIE	CO	805164016
BLACK KRISTIN A REVOCABLE TRUST	12279 PENNSYLVANIA ST	THORNTON	CO	802413113
BLACKMON WILLIAM HOWARD	1865 ALPINE DR	ERIE	CO	805164014
BOLINGER GRANT S	1831 CRESTVIEW LN	ERIE	CO	805164026
BURKE BRIAN C	1812 PARKDALE CIR N	ERIE	CO	805162404
BURNHAM BENJAMIN J	1386 CATALPA PL	ERIE	CO	805164759
CARRASCO ESTHER	2012 ALPINE DR	ERIE	CO	805164682
CARTER CULLEN ANDREW	2097 PRIMEROSE LN	ERIE	CO	805164004
CERNELIC DONALD E	275 VIKING CT	ERIE	CO	805168119
CHRISTENSEN RYAN	1682 CRESTVIEW LN	ERIE	CO	805164025
CHRISTIAN BRADLEY W	1373 CATALPA PL	ERIE	CO	805164613
CLARK CORY W	1847 ALPINE DR	ERIE	CO	805164014
CONWAY TAYLOR B TRUST	6802 BASELINE RD	BOULDER	CO	803033144
CRENSHAW TYLER	1591 ALPINE DR	ERIE	CO	805164022
CROOKSHANK JASON R	1623 ALPINE DR	ERIE	CO	805164020
D ARCY THEODORE B	2084 PRIMROSE LN	ERIE	CO	805164003
DELATORRE ROSE A	1979 ALPINE DR	ERIE	CO	805164679
DENVER REGIONAL LANDFILL INC	3 WATERWAY SQUARE PL APT STE110	THE WOODLANDS	TX	773803487
DIETERICH PETER A	1916 ALPINE DR	ERIE	CO	805164683
DUNLAP TROY M	933 TAYLOR LN	ERIE	CO	805162412
DUNSCOMB MATTHEW B	1213 CATALPA PL	ERIE	CO	805164615
DUTTON ROBERT E	1369 CATALPA PL	ERIE	CO	805164613
ELLIOTT CHRISTOPHER PHILIP,	261 COMMANDER CIR	ERIE	CO	805168147
EMBLER MICHAEL S	1880 ALPINE DR	ERIE	CO	805164015
EMERSON JOHN P	1600 ALPINE DR	ERIE	CO	805164021
EMU TRUST	1403 CATALPA PL	ERIE	CO	805164605
ENGELHARDT BRIAN	1616 ALPINE DR	ERIE	CO	805164021
ERDMAN PAUL	1580 ALPINE CT	ERIE	CO	805164024
ERIE TOWN OF	PO BOX 750	ERIE	CO	805160750
ERIE TOWN OF	PO BOX 750	ERIE	CO	805160750
ERIE TOWN OF	PO BOX 9	ERIE	CO	805160098
EVANS LISA LAWSON	1946 ALPINE DR	ERIE	CO	805164683
FILIAGGI MICHAEL THOMAS	1046 GREENS PL	ERIE	CO	805164703
FIOCCA JOSEPH	1632 CRESTVIEW LN	ERIE	CO	805164025
FLATIRON DEVELOPMENT AND CUSTON HOMES LLC	1391 US HIGHWAY 287	BROOMFIELD	CO	800202273
FONTAINE VALERI A	1635 CRESTVIEW LN	ERIE	CO	805164030
FOSTER RORY A	1645 CRESTVIEW LN	ERIE	CO	805164030
FREDA PAUL D	1955 ALPINE DR	ERIE	CO	805164679
FRONT RANGE LANDFILL INC	3 WATERWAY SQUARE PL STE 110	THE WOODLANDS	TX	773803488
GALLAGHER RODNEY P	2002 ALPINE DR	ERIE	CO	805164682
GALLANT TOOT FAMILY TRUST	918 TAYLOR LN	ERIE	CO	805162413
GAMBOU MARRION DAVID	1899 ALPINE DR	ERIE	CO	805164013
GIRDNER DANIEL J	1613 ALPINE DR	ERIE	CO	805164020
GOLDSMITH ROBERT G	2074 PRIMROSE LN	ERIE	CO	805164003
GOODSON RODNEY S	1992 ALPINE DR	ERIE	CO	805164683
GRAHAM DAVID A	1257 CATALPA PL	ERIE	CO	805164615
GUVEN SOMI	1081 GREENS PL	ERIE	CO	805164703
HANSON LYDIA L	1750 CRESTVIEW LN	ERIE	CO	805164029
HARRINGTON SEAN	1043 GREENS PL	ERIE	CO	805164703
HARRIS BRIAN L	1827 PARKDALE CIR N	ERIE	CO	805162420
HAUBERT DENNIS A SR REVOCABLE TRUST C/O DENNIS A HAUBERT SR	1590 ALPINE DR	ERIE	CO	805164023
HELART T R	1892 PARKDALE CT	ERIE	CO	805162410
HERGERT JUDITH ANN LIVING TRUST	205 PELICAN COVE	WINDSOR	CO	805506123
HERRERA ARTHUR E	4664 S SAGEWOOD LN	ONTARIO	CA	917627352
HGC COLORADO NATIONAL LLC	13873 PARK CENTER RD STE 203N	HERNDON	VA	201713223
HODGERT DAVID	1792 CRESTVIEW LN	ERIE	CO	805164029
JACKSON DOUGLAS	1229 CATALPA PL	ERIE	CO	805164615
JANES KATIE M B	1730 CRESTVIEW LN	ERIE	CO	805164029
JENNINGS JAMES H II	1866 PARKDALE CIR N	ERIE	CO	805162404
JOHNSON MARK A	1887 ALPINE DR	ERIE	CO	805164013
JUNGMAN MICHAEL D	1863 PARKDALE CIR N	ERIE	CO	805162420
KASENBERG JASON T	1769 ALPINE DR	ERIE	CO	805164016
KEIL BRYAN	1771 CRESTVIEW LN	ERIE	CO	805164028
KENCHEL DON S	1741 CRESTVIEW LN	ERIE	CO	805164028
KILLIAN MICHAEL	1789 ALPINE DR	ERIE	CO	805164016
KING NORMA C	1417 CATALPA PL	ERIE	CO	805164605
KOENIG STEVE A	1781 CRESTVIEW LN	ERIE	CO	805164028

KONJA LEADYA	1665 CRESTVIEW LN	ERIE	CO	805164030
KRAMER BETH A LIFETIME TRUST	1090 GREENS PL	ERIE	CO	805164703
KRAUS BEAU B	285 VIKING CT	ERIE	CO	805168119
KUECKE RICHARD CHARLES JR	1329 CATALPA PL	ERIE	CO	805164613
LADTKOW CASEY M	1811 CRESTVIEW LN	ERIE	CO	805164026
LANG TRAVIS WALKER	1361 CATALPA PL	ERIE	CO	805164613
LAURA ANTHONY A	2085 DRIVER LN	ERIE	CO	805164707
LIBERATORE JACOB A	1711 CRESTVIEW LN	ERIE	CO	805164028
LIEBL VERNIE R	3534 WILLETT DR APT 912	LARAMIE	WY	820725148
LUND LAVERN KENNETH	1036 GREENS PL	ERIE	CO	805164703
LYNCH DANIEL	2020 ALPINE DR	ERIE	CO	805164682
MAHAFFEY KRISTOPHER	285 COMMANDER DR	ERIE	CO	805168126
MATTINGLY SEAN KRIEGHOFF	1956 ALPINE DR	ERIE	CO	805164683
MCADAMS JOHN D	1869 PARKDALE CIR N	ERIE	CO	805162420
MCCONNELL ASHLEY KIM REVOCABLE TRUST	1701 CRESTVIEW LN	ERIE	CO	805164028
MCFARLAND SALLY J	27 WESTBROOK HEIGHTS RD	WESTBROOK	CT	064981957
MERRITT MICHAEL	1885 PARKDALE CT	ERIE	CO	805162410
MOLLER NATHANIEL CLINTON	1807 ALPINE DR	ERIE	CO	805164014
MOORE JOHN C G	905 TAYLOR LN	ERIE	CO	805162412
MOORE MICHAEL M	1655 CRESTVIEW LN	ERIE	CO	805164030
MORRONE MARC A	1856 CRESTVIEW LN	ERIE	CO	805164027
NELSON STEVEN P	1371 CATALPA PL	ERIE	CO	805164613
NEWTON-MAVROGIANES JOINT REV TRUST	1569 ALPINE CT	ERIE	CO	805164024
NORRIS LEANNE M	1672 CRESTVIEW LN	ERIE	CO	805164025
OCONNOR BRIAN	1835 N PARKDALE CIR	ERIE	CO	805162420
ODAY HEATHER	919 TAYLOR LN	ERIE	CO	805162412
ODOWD SEAN R	1345 CATALPA PL	ERIE	CO	805164613
PAUL EVAN W	1780 CRESTVIEW LN	ERIE	CO	805164029
PERRY BERNARD T	1819 PARKDALE CIR N	ERIE	CO	805162420
PETERSEN JOINT TRUST	1602 CRESTVIEW LN	ERIE	CO	805164025
PHELPS RANDY	507 10TH ST	GRUNDY CENTER	IA	506381245
PIPPEN SEAN	1760 CRESTVIEW LN	ERIE	CO	805164029
PITTS DONALD L	934 TAYLOR LN	ERIE	CO	805162413
POPE CHARLES JEFFREY	1791 CRESTVIEW LN	ERIE	CO	805164028
QUISUMBING BERNARD	1806 CRESTVIEW LN	ERIE	CO	805164027
RADCLIFFE RICHARD A	270 COMMANDER DR	ERIE	CO	805168127
RAZO CHRISTOPHER	1615 CRESTVIEW LN	ERIE	CO	805164069
RHEIN BRADLEY E	1642 CRESTVIEW LN	ERIE	CO	805164025
ROCKY MOUNTAIN INVESTMENT GROUP LLC	1635 FOXTRAIL DR	LOVELAND	CO	805389086
RODRIGUEZ RODNEY D	1603 ALPINE DR	ERIE	CO	805164020
ROHRER MELISSA M	1581 ALPINE CT	ERIE	CO	805164024
RUBLE RODNEY M	2077 PRIMROSE LN	ERIE	CO	805164004
SAELER MATTHEW A	1842 CRESTVIEW LN	ERIE	CO	805164027
SALAZAR NATHAN J	1799 ALPINE DR	ERIE	CO	805164016
SALIMENO KIRT A	1884 PARKDALE CT	ERIE	CO	805162410
SANDERS CORY	1301 CATALPA PL	ERIE	CO	805164613
SARGENT CHANTEL S	1896 ALPINE DR	ERIE	CO	805164015
SCHAEFER JEFFREY A	1199 CATALPA PL	ERIE	CO	805164614
SCHILLING TYLER	1731 CRESTVIEW LN	ERIE	CO	805164028
SCHWARTZ MATTHEW A	2030 ALPINE DR	ERIE	CO	805164682
SCURRY CYNTHIA D	1359 CATALPA PL	ERIE	CO	805164613
SHORTER REBECCA B REVOCABLE TRUST	1855 PARKDALE CIR N	ERIE	CO	805162420
SKURNIK COLIN	2087 PRIMROSE LN	ERIE	CO	805164004
SLABBEKOORN GAVIN FAMILY TRUST	1721 CRESTVIEW LN	ERIE	CO	805164028
SMITH AMY MACHACEK	1720 CRESTVIEW LN	ERIE	CO	805164029
SONMORE TIMOTHY J	1605 CRESTVIEW LN	ERIE	CO	805164030
SOUCIE SARINA	1271 CATALPA PL	ERIE	CO	805164615
STAEHLIN JACOB L	1779 ALPINE DR	ERIE	CO	805164016
STOLL AMY C REVOCABLE TRUST	1069 GREENS PL	ERIE	CO	805164703
STONEBACK BRET L	290 COMMANDER DR	ERIE	CO	805168127
STOWELL JEREMY	1662 CRESTVIEW LN	ERIE	CO	805164025
STRATUS REDTAIL RANCH 2 LLC	8480 E ORCHARD RD STE 1100	GREENWOOD VILLAGE	CO	801115015
STRATUS REDTAIL RANCH LLC	1842 MONTANE DR E	GOLDEN	CO	804019123
STRATUS REDTAIL RANCH LLC	3 WATERWAY SQUARE PL STE 110	THE WOODLANDS	TX	773803488
SWANSON VALERIE J	1093 GREENS PL	ERIE	CO	805164703
TASKEY TEDD M	1909 ALPINE DR	ERIE	CO	805164042
TAYLOR FAMILY TRUST	1841 PARKDALE CIR N	ERIE	CO	805162420
TELLE DAVID A	1890 ALPINE DR	ERIE	CO	805164015
TENDHA CHIME	1926 ALPINE DR	ERIE	CO	805164683
THOMAS SEYMOUR CURTIS E	1287 CATALPA PL	ERIE	CO	805164615
TOBIAS DOUGLAS K	250 COMMANDER DR	ERIE	CO	805168127
TUZ FAMILY REVOCABLE TRUST	1560 ALPINE CT	ERIE	CO	805164024
VALENTA MICHAEL LIVING TRUST	1068 GREENS PL	ERIE	CO	805164703
VAN WOUDENBERG CHRISTIAAN	1821 CRESTVIEW LN	ERIE	CO	805164026
VISTA POINTE HOME OWNERS ASSOC C/O MSI LLC	11002 BENTON ST	WESTMINISTER	CO	800203200
VOSSELLER SUZZETTE	1877 PARKDALE CT	ERIE	CO	805162410
WALDROP DALTON S	2825 IRONWOOD CIR	ERIE	CO	805167949

WATTERS CRAIG N	1856 PARKDALE CIR S	ERIE	CO	805162407
WEBER ANDREW ROBERT	1849 PARKDALE CIR N	ERIE	CO	805162420
WELD COUNTY	1150 O ST	GREELEY	CO	806319596
WELTY KEVIN D	1822 PARKDALE CIR N	ERIE	CO	805162404
WERO JULIA LF	1626 ALPINE DR	ERIE	CO	805164021
WILLIAMS ROBERT D	1827 ALPINE DR	ERIE	CO	805164014
WITTEN DARRIN	2103 PRIMROSE LN	ERIE	CO	805164008
WRIGHT STACY T	2094 PRIMROSE LN	ERIE	CO	805164003
WWD LIMITED LIABILITY CO	PO BOX 1937	LONGMONT	CO	805021937
YOUNGMAN KIRK E	1235 CATALPA PL	ERIE	CO	805164615
ZINTEL JOSEPH C	1761 CRESTVIEW LN	ERIE	CO	805164028
ZORGDRAGER COGAN REVOCABLE TRUST	1770 CRESTVIEW LN	ERIE	CO	805164029

TOWN OF ERIE
AFFIDAVIT OF NOTICE POSTING

REDTAIL RANCH – TOWN COUNCIL MEETING

VISTA PKWY

WCR5

I, ___CHASE SKELTON___, ATTEST THAT NOTICE WAS POSTED IN ACCORDANCE WITH THE ERIE MUNICIPAL CODE, TITLE 10, – "UNIFIED DEVELOPMENT CODE AND DESIGN GUIDELINES," AT LEAST 15 DAYS BEFORE THE SCHEDULED HEARING TO BE HELD ON THE __23___ DAY OF ___APRIL_____, 2024___ A.D. THE PHOTO, ABOVE, IS A TRUE AND CORRECT PHOTO OF THE NOTICE SO POSTED.

_____

(SIGNATURE OF PERSON LISTED ABOVE)

STATE OF COLORADO)
) ss.
COUNTY OF Arapahoe)

ACKNOWLEDGED BEFORE ME THIS 5th DAY OF April, 2024 BY CHASE SKELTON
AS _____.

WITNESS MY HAND AND OFFICIAL SEAL

_____
Tera Lynn Humphrey
NOTARY PUBLIC

MY COMMISSION EXPIRES: 6/08/2026

TERA LYNN HUMPHREY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20224022639
MY COMMISSION EXPIRES JUNE 8, 2026

TOWN OF ERIE

AFFIDAVIT OF MAILING - PUBLIC HEARING NOTICE

I, Chase Skelton, as the applicant/representative for the REDTAIL RANCH (*project name & application type*), hereby attest that on this 5 day of APRIL, 20 24, a true and correct copy of the Town of Erie Public Hearing Notice for the public hearing with the TOWN COUNCIL (*Planning Commission or Board of Trustees*) scheduled for APRIL 23, 2024 (*public hearing date*), marked as Exhibit "A" attached hereto and by reference incorporate herein, was mailed to those referenced in Exhibit "B" in accordance with the requirements of the Unified Development Code of the Town of Erie.

I further attest that the addresses shown in Exhibit "B" are true and correct addresses as determined from the records of the associated County Property Portal Records Search and that said Notices were placed in the United States Mail with the appropriate postage affixed thereon.

Applicant/Representative's Signature

4/5/2024
Date

STATE OF COLORADO)
) ss.
COUNTY OF Arapahoe)

ACKNOWLEDGED BEFORE ME THIS 5th DAY OF April, 20 24 BY Chase Skelton AS _____.

WITNESS MY HAND AND OFFICIAL SEAL:

TERA LYNN HUMPHREY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20224022639
MY COMMISSION EXPIRES JUNE 8, 2026

Tera Lynn Humphrey
NOTARY PUBLIC

MY COMMISSION EXPIRES: 6/08/2026

EXHIBIT B					
NAME	**ADDRESS 1**	**ADDRESS 2**	**CITY**	**STATE**	**ZIPCODE**
1868 CRESTVIEW LANE LLC	84 HIGHLAND RD		RYE	NY	10580
ALLEN ADAM	1813 PARKDALE CIR N		ERIE	CO	80516
ANDREE DAVID D	1854 PARKDALE CIR N		ERIE	CO	80516
BANKS TARA	1243 CATALPA PL		ERIE	CO	80516
BARNETT WHITNEY B W	1315 CATALPA PL		ERIE	CO	80516
BATEMAN RICHARD	1841 CRESTVIEW LN		ERIE	CO	80516
BECK NICHOLE	1356 CATALPA PL		ERIE	CO	80516
BELYEA AMI K	1643 ALPINE DR		ERIE	CO	80516
BERG STEVEN S	900 TAYLOR LN		ERIE	CO	80516
BISIAR JULIA FLEMING	1759 ALPINE DR		ERIE	CO	80516
BLACK KRISTIN A REVOCABLE TRUST	12279 PENNSYLVANIA ST		THORNTON	CO	80241
BLACKMON WILLIAM HOWARD	1865 ALPINE DR		ERIE	CO	80516
BOLINGER GRANT S	1831 CRESTVIEW LN		ERIE	CO	80516
BURKE BRIAN C	1812 PARKDALE CIR N		ERIE	CO	80516
BURNHAM BENJAMIN J	1386 CATALPA PL		ERIE	CO	80516
CARRASCO ESTHER	2012 ALPINE DR		ERIE	CO	80516
CARTER CULLEN ANDREW	2097 PRIMEROSE LN		ERIE	CO	80516
CERNELIC DONALD E	275 VIKING CT		ERIE	CO	80516
CHRISTENSEN RYAN	1682 CRESTVIEW LN		ERIE	CO	80516
CHRISTIAN BRADLEY W	1373 CATALPA PL		ERIE	CO	80516
CLARK CORY W	1847 ALPINE DR		ERIE	CO	80516
CONWAY TAYLOR B TRUST	6802 BASELINE RD		BOULDER	CO	80303
COOK CHARMAINE	1845 PARKDALE CIR S		ERIE	CO	80516
CRENSHAW TYLER	1591 ALPINE DR		ERIE	CO	80516
CROOKSHANK JASON R	1623 ALPINE DR		ERIE	CO	80516
CUMMINGS DAVID J	1636 ALPINE DR		ERIE	CO	80516
D ARCY THEODORE B	2084 PRIMROSE LN		ERIE	CO	80516
DE BACA AND MORTIMER TRUST	1615 CRESTVIEW LN		ERIE	CO	80516
DEAKIN GEOFFREY	1372 CATALPA PL		ERIE	CO	80516
DELATORRE ROSE A	1979 ALPINE DR		ERIE	CO	80516
DENVER REGIONAL LANDFILL INC	3 WATERWAY SQUARE PL APT STE110		THE WOODLANDS	TX	77380
DIETERICH PETER A	1916 ALPINE DR		ERIE	CO	80516
DUNLAP TROY M	933 TAYLOR LN		ERIE	CO	80516
DUNSCOMB MATTHEW B	1213 CATALPA PL		ERIE	CO	80516
DUTTON ROBERT E	1369 CATALPA PL		ERIE	CO	80516
ELLIOTT CHRISTOPHER PHILIP	261 COMMANDER CIR		ERIE	CO	80516
EMBLER MICHAEL S	1880 ALPINE DR		ERIE	CO	80516
EMERSON JOHN P	1600 ALPINE DR		ERIE	CO	80516
EMU TRUST	1403 CATALPA PL		ERIE	CO	80516
ENGELHARDT BRIAN	1616 ALPINE DR		ERIE	CO	80516
ERDMAN PAUL	1580 ALPINE CT		ERIE	CO	80516
ERIE TOWN OF	PO BOX 9		ERIE	CO	80516
ERIE TOWN OF	PO BOX 750		ERIE	CO	80516
EVANS LISA LAWSON	1946 ALPINE DR		ERIE	CO	80516
FILIAGGI MICHAEL THOMAS	1046 GREENS PL		ERIE	CO	80516
FIOCCA JOSEPH	1632 CRESTVIEW LN		ERIE	CO	80516
FLATIRON DEVELOPMENT AND CUSTON HOMES LLC	1391 US HIGHWAY 287		BROOMFIELD	CO	80516
FONTAINE VALERI A	1635 CRESTVIEW LN		ERIE	CO	80516
FOSTER RORY A	1645 CRESTVIEW LN		ERIE	CO	80516
FREDA PAUL D	1955 ALPINE DR		ERIE	CO	80516
FRONT RANGE LANDFILL INC	3 WATERWAY SQUARE PL STE 110		THE WOODLANDS	TX	77380
GALLAGHER RODNEY P	2002 ALPINE DR		ERIE	CO	80516
GALLANT TOOT FAMILY TRUST	918 TAYLOR LN		ERIE	CO	80516
GAMBOU MARRION DAVID	1899 ALPINE DR		ERIE	CO	80516
GERHARD LOGAN STODDARD	2101 DRIVER LN		ERIE	CO	80516
GIRDNER DANIEL J	1613 ALPINE DR		ERIE	CO	80516
GOLDSMITH ROBERT G	2074 PRIMROSE LN		ERIE	CO	80516
GONZALES STEPHEN	1693 ALPINE DR		ERIE	CO	80516
GOODSON RODNEY S	1992 ALPINE DR		ERIE	CO	80516
GRAHAM DAVID A	1257 CATALPA PL		ERIE	CO	80516
GUVEN SOMI	1081 GREENS PL		ERIE	CO	80516
HANSON LYDIA L	1750 CRESTVIEW LN		ERIE	CO	80516
HARRINGTON SEAN	1043 GREENS PL		ERIE	CO	80516
HARRIS BRIAN L	1827 PARKDALE CIR N		ERIE	CO	80516
HAUBERT DENNIS A SR REVOCABLE TRUST	C/O DENNIS A HAUBERT SR	1590 ALPINE DR	ERIE	CO	80516
HELART T R	1892 PARKDALE CT		ERIE	CO	80516
HERGERT JUDITH ANN LIVING TRUST	205 PELICAN COVE		WINDSOR	CO	80550
HERRERA ARTHUR E	4664 S SAGEWOOD LN		ONTARIO	CA	91762
HGC COLORADO NATIONAL LLC	13873 PARK CENTER RD STE 203N		HERNDON	VA	20171
HODGERT DAVID	1792 CRESTVIEW LN		ERIE	CO	80516
JACKSON DOUGLAS	1229 CATALPA PL		ERIE	CO	80516
JANES KATIE M B	1730 CRESTVIEW LN		ERIE	CO	80516
JENNINGS JAMES H II	1866 PARKDALE CIR N		ERIE	CO	80516
JOHNSON MARK A	1887 ALPINE DR		ERIE	CO	80516
JUNGMAN MICHAEL D	1863 PARKDALE CIR N		ERIE	CO	80516
KASENBERG JASON T	1769 ALPINE DR		ERIE	CO	80516
KEIL BRYAN	1771 CRESTVIEW LN		ERIE	CO	80516
KENCHEL DON S	1741 CRESTVIEW LN		ERIE	CO	80516
KILLIAN MICHAEL	1789 ALPINE DR		ERIE	CO	80516
KING NORMA C	1417 CATALPA PL		ERIE	CO	80516
KOENIG STEVE A	1781 CRESTVIEW LN		ERIE	CO	80516
KONJA LEADYA	1665 CRESTVIEW LN		ERIE	CO	80516
KRAMER BETH A LIFETIME TRUST	1090 GREENS PL		ERIE	CO	80516
KRAUS BEAU B	285 VIKING CT		ERIE	CO	80516
KUECKE RICHARD CHARLES JR	1329 CATALPA PL		ERIE	CO	80516
KUTTA MATTHEW GEORGIA	1707 ALPINE DR		ERIE	CO	80516

LADTKOW CASEY M	1811 CRESTVIEW LN		ERIE	CO	80516
LANG TRAVIS WALKER	1361 CATALPA PL		ERIE	CO	80516
LAURA ANTHONY A	2085 DRIVER LN		ERIE	CO	80516
LIBERATORE JACOB A	1711 CRESTVIEW LN		ERIE	CO	80516
LIEBL VERNIE R	3534 WILLETT DR APT 912		LARAMIE	WY	82072
LUND LAVERN KENNETH	1036 GREENS PL		ERIE	CO	80516
LYNCH DANIEL	2020 ALPINE DR		ERIE	CO	80516
MACE SACHA V	1402 CATALPA PL		ERIE	CO	80516
MAESTAS ALFRED DENNIS	1855 PARKDALE CIR N		ERIE	CO	80516
MAHAFFEY KRISTOPHER	285 COMMANDER DR		ERIE	CO	80516
MATTINGLY SEAN KRIEGHOFF	1956 ALPINE DR		ERIE	CO	80516
MCADAMS JOHN D	1869 PARKDALE CIR N		ERIE	CO	80516
MCCONNELL ASHLEY KIM REVOCABLE TRUST	1701 CRESTVIEW LN		ERIE	CO	80516
MCDANIEL JOAN V	884 TAYLOR LN		ERIE	CO	80516
MCFARLAND SALLY J	27 WESTBROOK HEIGHTS RD		WESTBROOK	CT	64981
MERRITT MICHAEL	1885 PARKDALE CT		ERIE	CO	80516
MOLLER NATHANIEL CLINTON	1807 ALPINE DR		ERIE	CO	80516
MOORE JOHN C G	905 TAYLOR LN		ERIE	CO	80516
MOORE MICHAEL M	1655 CRESTVIEW LN		ERIE	CO	80516
MORRONE MARC A	1856 CRESTVIEW LN		ERIE	CO	80516
MOSS SHAWN P	1673 ALPINE DR		ERIE	CO	80516
NELSON STEVEN P	1371 CATALPA PL		ERIE	CO	80516
NEWTON-MAVROGIANES JOINT REV TRUST	1569 ALPINE CT		ERIE	CO	80516
NORRIS LEANNE M	1672 CRESTVIEW LN		ERIE	CO	80516
OCONNOR BRIAN	1835 N PARKDALE CIR		ERIE	CO	80516
ODAY HEATHER	919 TAYLOR LN		ERIE	CO	80516
ODOWD SEAN R	1345 CATALPA PL		ERIE	CO	80516
PAUL EVAN W	1780 CRESTVIEW LN		ERIE	CO	80516
PERRY BERNARD T	1819 PARKDALE CIR N		ERIE	CO	80516
PETERSEN JOINT TRUST	1602 CRESTVIEW LN		ERIE	CO	80516
PHELPS RANDY	507 10TH ST		GRUNDY CENTER	IA	50638
PIPPEN SEAN	1760 CRESTVIEW LN		ERIE	CO	80516
PITTS DONALD L	934 TAYLOR LN		ERIE	CO	80516
POPE CHARLES JEFFREY	1791 CRESTVIEW LN		ERIE	CO	80516
QUISUMBING BERNARD	1806 CRESTVIEW LN		ERIE	CO	80516
RADCLIFFE RICHARD A	270 COMMANDER DR		ERIE	CO	80516
RHEIN BRADLEY E	1642 CRESTVIEW LN		ERIE	CO	80516
RODRIGUEZ RODNEY D	1603 ALPINE DR		ERIE	CO	80516
ROHRER MELISSA M	1581 ALPINE CT		ERIE	CO	80516
RUBLE RODNEY M	2077 PRIMROSE LN		ERIE	CO	80516
SAELER MATTHEW A	1842 CRESTVIEW LN		ERIE	CO	80516
SALAZAR NATHAN J	1799 ALPINE DR		ERIE	CO	80516
SALIMENO KIRT A	1884 PARKDALE CT		ERIE	CO	80516
SANDERS CORY	1301 CATALPA PL		ERIE	CO	80516
SARGENT CHANTEL S	1896 ALPINE DR		ERIE	CO	80516
SCHAEFER JEFFREY A	1199 CATALPA PL		ERIE	CO	80516
SCHILLING TYLER	1731 CRESTVIEW LN		ERIE	CO	80516
SCHWARTZ MATTHEW A	2030 ALPINE DR		ERIE	CO	80516
SCURRY CYNTHIA D	1359 CATALPA PL		ERIE	CO	80516
SKURNIK COLIN	2087 PRIMROSE LN		ERIE	CO	80516
SLABBEKOORN GAVIN FAMILY TRUST	1721 CRESTVIEW LN		ERIE	CO	80516
SMITH AMY MACHACEK	1720 CRESTVIEW LN		ERIE	CO	80516
SONMORE TIMOTHY J	1605 CRESTVIEW LN		ERIE	CO	80516
SOUCIE SARINA	1271 CATALPA PL		ERIE	CO	80516
STAEHLIN JACOB L	1779 ALPINE DR		ERIE	CO	80516
STAEHLIN JACOB L	1779 ALPINE DR		ERIE	CO	80516
STOLL AMY C REVOCABLE TRUST	1069 GREENS PL		ERIE	CO	80516
STONEBACK BRET L	290 COMMANDER DR		ERIE	CO	80516
STOWELL JEREMY	1662 CRESTVIEW LN		ERIE	CO	80516
SWANSON VALERIE J	1093 GREENS PL		ERIE	CO	80516
TASKEY TEDD M	1909 ALPINE DR		ERIE	CO	80516
TAYLOR FAMILY TRUST	1841 PARKDALE CIR N		ERIE	CO	80516
TELLE DAVID A	1890 ALPINE DR		ERIE	CO	80516
TENDHA CHIME	1926 ALPINE DR		ERIE	CO	80516
THOMAS SEYMOUR CURTIS E	1287 CATALPA PL		ERIE	CO	80516
TOBIAS DOUGLAS K	250 COMMANDER DR		ERIE	CO	80516
TUZ FAMILY REVOCABLE TRUST	1560 ALPINE CT		ERIE	CO	80516
VALENTA MICHAEL LIVING TRUST	1068 GREENS PL		ERIE	CO	80516
VAN WOUDENBERG CHRISTIAAN	1821 CRESTVIEW LN		ERIE	CO	80516
VISTA POINTE HOME OWNERS ASSOC	C/O MSI LLC	11002 BENTON ST	WESTMINISTER	CO	80020
VOSSELLER SUZZETTE	1877 PARKDALE CT		ERIE	CO	80516
WALDROP DALTON S	2825 IRONWOOD CIR		ERIE	CO	80516
WATTERS CRAIG N	PO BOX 296		LOUISVILLE	CO	80027
WEBER ANDREW ROBERT	1849 PARKDALE CIR N		ERIE	CO	80516
WELD COUNTY	1150 O ST		GREELEY	CO	80631
WELTY KEVIN D	1822 PARKDALE CIR N		ERIE	CO	80516
WERO JULIA LF	1626 ALPINE DR		ERIE	CO	80516
WIESNER MICHAEL A	1852 PARKDALE CIR S		ERIE	CO	80516
WILLIAMS ROBERT D	1827 ALPINE DR		ERIE	CO	80516
WILSON JOSEPH TIMOTHY	1717 ALPINE DR		ERIE	CO	80516
WITTEN DARRIN	2103 PRIMROSE LN		ERIE	CO	80516
WOLFE SALLY A	1870 ALPINE DR		ERIE	CO	80516
WRIGHT STACY T	2094 PRIMROSE LN		ERIE	CO	80516
WWD LIMITED LIABILITY CO	PO BOX 1937		LONGMONT	CO	80502
YOUNGMAN KIRK E	1235 CATALPA PL		ERIE	CO	80516
ZHANG ZHAOXI	1967 ALPINE DR		ERIE	CO	80516
ZINTEL JOSEPH C	1761 CRESTVIEW LN		ERIE	CO	80516
ZORGDRAGER COGAN REVOCABLE TRUST	1770 CRESTVIEW LN		ERIE	CO	80516

TOWN OF ERIE
AFFIDAVIT OF NOTICE POSTING

REDTAIL RANCH – TOWN COUNCIL

I, *(CHASE SKELTON)*, ATTEST THAT NOTICE WAS POSTED IN ACCORDANCE WITH THE ERIE MUNICIPAL CODE, TITLE 10, – "UNIFIED DEVELOPMENT CODE AND DESIGN GUIDELINES," AT LEAST 15 DAYS BEFORE THE SCHEDULED HEARING TO BE HELD ON THE 25 DAY OF JUNE, 2024 A.D. THE PHOTO, ABOVE, IS A TRUE AND CORRECT PHOTO OF THE NOTICE SO POSTED.

(SIGNATURE OF PERSON LISTED ABOVE)

STATE OF COLORADO)
) ss.
COUNTY OF Denver)

ACKNOWLEDGED BEFORE ME THIS 6 DAY OF June, 2024 BY Chase Skelton
AS _____.

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC

MY COMMISSION EXPIRES: May 06, 2026

MICHELLE ANDERSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20064007283
MY COMMISSION EXPIRES MAY 06, 2026

TOWN OF ERIE

AFFIDAVIT OF MAILING - PUBLIC HEARING NOTICE

I, CHASE SKELTON, as the applicant/representative for the REDTAIL RANCH (*project name & application type*), hereby attest that on this 6 day of MAY, 20 24, a true and correct copy of the Town of Erie Public Hearing Notice for the public hearing with the TOWN COUNCIL (*Planning Commission or Board of Trustees*) scheduled for 6/25/2024 (*public hearing date*), marked as Exhibit "A" attached hereto and by reference incorporate herein, was mailed to those referenced in Exhibit "B" in accordance with the requirements of the Unified Development Code of the Town of Erie.

I further attest that the addresses shown in Exhibit "B" are true and correct addresses as determined from the records of the associated County Property Portal Records Search and that said Notices were placed in the United States Mail with the appropriate postage affixed thereon.

Applicant/Representative's Signature

Date 6/6/24

STATE OF COLORADO)

) ss.

COUNTY OF Denver)

ACKNOWLEDGED BEFORE ME THIS 6 DAY OF June, 2024 BY Chase Skelton AS _____.

WITNESS MY HAND AND OFFICIAL SEAL:

NOTARY PUBLIC

MY COMMISSION EXPIRES: May 06, 2026

MICHELLE ANDERSON
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20064007283
MY COMMISSION EXPIRES MAY 06, 2026

EXHIBIT B

Owner	Mail Address 1	Mail Address 2	Mail City	State	Mail Zip Code
1868 CRESTVIEW LANE LLC	84 HIGHLAND RD		RYE	NY	105801706
ALLEN ADAM	1813 PARKDALE CIR N		ERIE	CO	805162420
ANDREE DAVID D	1854 PARKDALE CIR N		ERIE	CO	805162404
BANKS TARA	1243 CATALPA PL		ERIE	CO	805164615
BARNETT WHITNEY B W	1315 CATALPA PL		ERIE	CO	805164613
BATEMAN RICHARD	1841 CRESTVIEW LN		ERIE	CO	805164026
BELYEA AMI K	1643 ALPINE DR		ERIE	CO	805164020
BERG STEVEN S	900 TAYLOR LN		ERIE	CO	805162413
BISIAR JULIA FLEMING	1759 ALPINE DR		ERIE	CO	805164016
BLACK KRISTIN A REVOCABLE TRUST	12279 PENNSYLVANIA ST		THORNTON	CO	802413113
BLACKMON WILLIAM HOWARD	1865 ALPINE DR		ERIE	CO	805164014
BOLINGER GRANT S	1831 CRESTVIEW LN		ERIE	CO	805164026
BRAYTENBAH MELANIE	1633 ALPINE DR		ERIE	CO	805164020
BURKE BRIAN C	1812 PARKDALE CIR N		ERIE	CO	805162404
BURNHAM BENJAMIN J	1386 CATALPA PL		ERIE	CO	805164759
CARRASCO ESTHER	2012 ALPINE DR		ERIE	CO	805164682
CARTER CULLEN ANDREW	2097 PRIMEROSE LN		ERIE	CO	805164004
CERNELIC DONALD E	275 VIKING CT		ERIE	CO	805168119
CHRISTENSEN RYAN	1682 CRESTVIEW LN		ERIE	CO	805164025
CHRISTIAN BRADLEY W	1373 CATALPA PL		ERIE	CO	805164613
CLARK CORY W	1847 ALPINE DR		ERIE	CO	805164014
CONWAY TAYLOR B TRUST	6802 BASELINE RD		BOULDER	CO	803033144
CRENSHAW TYLER	1591 ALPINE DR		ERIE	CO	805164022
CROOKSHANK JASON R	1623 ALPINE DR		ERIE	CO	805164020
D ARCY THEODORE B	2084 PRIMROSE LN		ERIE	CO	805164003
DE BACA AND MORTIMER TRUST	1615 CRESTVIEW LN		ERIE	CO	805164069
DELATORRE ROSE A	1979 ALPINE DR		ERIE	CO	805164679
DENVER REGIONAL LANDFILL INC	3 WATERWAY SQUARE PL APT STE110		THE WOODLANDS	TX	773803487
DIETERICH PETER A	1916 ALPINE DR		ERIE	CO	805164683
DUNLAP TROY M	933 TAYLOR LN		ERIE	CO	805162412
DUNSCOMB MATTHEW B	1213 CATALPA PL		ERIE	CO	805164615
DUTTON ROBERT E	1369 CATALPA PL		ERIE	CO	805164613
ELLIOTT CHRISTOPHER PHILIP	261 COMMANDER CIR		ERIE	CO	805168147
EMBLER MICHAEL S	1880 ALPINE DR		ERIE	CO	805164015
EMERSON JOHN P	1600 ALPINE DR		ERIE	CO	805164021
EMU TRUST	1403 CATALPA PL		ERIE	CO	805164605
ENGELHARDT BRIAN	1616 ALPINE DR		ERIE	CO	805164021
ERDMAN PAUL	1580 ALPINE CT		ERIE	CO	805164024
ERIE TOWN OF	PO BOX 9		ERIE	CO	805160098
ERIE TOWN OF	PO BOX 750		ERIE	CO	805160750
EVANS LISA LAWSON	1946 ALPINE DR		ERIE	CO	805164683
FILIAGGI MICHAEL THOMAS	1046 GREENS PL		ERIE	CO	805164703
FIOCCA JOSEPH	1632 CRESTVIEW LN		ERIE	CO	805164025
FLATIRON DEVELOPMENT AND CUSTON HOMES LLC	1391 US HIGHWAY 287		BROOMFIELD	CO	800202273
FONTAINE VALERI A	1635 CRESTVIEW LN		ERIE	CO	805164030
FOSTER RORY A	1645 CRESTVIEW LN		ERIE	CO	805164030
FREDA PAUL D	1955 ALPINE DR		ERIE	CO	805164679
FRONT RANGE LANDFILL INC	3 WATERWAY SQUARE PL STE 110		THE WOODLANDS	TX	773803488
GALLAGHER RODNEY P	2002 ALPINE DR		ERIE	CO	805164682
GALLANT TOOT FAMILY TRUST	918 TAYLOR LN		ERIE	CO	805162413
GAMBOU MARRION DAVID	1899 ALPINE DR		ERIE	CO	805164013
GIRDNER DANIEL J	1613 ALPINE DR		ERIE	CO	805164020
GOLDSMITH ROBERT G	2074 PRIMROSE LN		ERIE	CO	805164003
GOODSON RODNEY S	1992 ALPINE DR		ERIE	CO	805164683
GRAHAM DAVID A	1257 CATALPA PL		ERIE	CO	805164615
GUVEN SOMI	1081 GREENS PL		ERIE	CO	805164703
HANSON LYDIA L	1750 CRESTVIEW LN		ERIE	CO	805164029
HARRINGTON SEAN	1043 GREENS PL		ERIE	CO	805164703
HARRIS BRIAN L	1827 PARKDALE CIR N		ERIE	CO	805162420
HAUBERT DENNIS A SR REVOCABLE TRUST	C/O DENNIS A HAUBERT SR	1590 ALPINE DR	ERIE	CO	805164023
HELART T R	1892 PARKDALE CT		ERIE	CO	805162410
HERGERT JUDITH ANN LIVING TRUST	205 PELICAN COVE		WINDSOR	CO	805506123
HERRERA ARTHUR E	4664 S SAGEWOOD LN		ONTARIO	CA	917627352
HGC COLORADO NATIONAL LLC	13873 PARK CENTER RD STE 203N		HERNDON	VA	201713223
HODGERT DAVID	1792 CRESTVIEW LN		ERIE	CO	805164029
JACKSON DOUGLAS	1229 CATALPA PL		ERIE	CO	805164615
JANES KATIE M B	1730 CRESTVIEW LN		ERIE	CO	805164029
JENNINGS JAMES H II	1866 PARKDALE CIR N		ERIE	CO	805162404
JOHNSON MARK A	1887 ALPINE DR		ERIE	CO	805164013
JUNGMAN MICHAEL D	1863 PARKDALE CIR N		ERIE	CO	805162420
KASENBERG JASON T	1769 ALPINE DR		ERIE	CO	805164016

KEIL BRYAN	1771 CRESTVIEW LN		ERIE	CO	805164028
KENCHEL DON S	1741 CRESTVIEW LN		ERIE	CO	805164028
KILLIAN MICHAEL	1789 ALPINE DR		ERIE	CO	805164016
KING NORMA C	1417 CATALPA PL		ERIE	CO	805164605
KOENIG STEVE A	1781 CRESTVIEW LN		ERIE	CO	805164028
KONJA LEADYA	1665 CRESTVIEW LN		ERIE	CO	805164030
KRAMER BETH A LIFETIME TRUST	1090 GREENS PL		ERIE	CO	805164703
KRAUS BEAU B	285 VIKING CT		ERIE	CO	805168119
KUECKE RICHARD CHARLES JR	1329 CATALPA PL		ERIE	CO	805164613
LADTKOW CASEY M	1811 CRESTVIEW LN		ERIE	CO	805164026
LANG TRAVIS WALKER	1361 CATALPA PL		ERIE	CO	805164613
LAURA ANTHONY A	2085 DRIVER LN		ERIE	CO	805164707
LIBERATORE JACOB A	1711 CRESTVIEW LN		ERIE	CO	805164028
LIEBL VERNIE R	3534 WILLETT DR APT 912		LARAMIE	WY	820725148
LUND LAVERN KENNETH	1036 GREENS PL		ERIE	CO	805164703
LYNCH DANIEL	2020 ALPINE DR		ERIE	CO	805164682
MAESTAS ALFRED DENNIS	1855 PARKDALE CIR N		ERIE	CO	805162420
MATTINGLY SEAN KRIEGHOFF	1956 ALPINE DR		ERIE	CO	805164683
MCADAMS JOHN D	1869 PARKDALE CIR N		ERIE	CO	805162420
MCCONNELL ASHLEY KIM REVOCABLE TRUST	1701 CRESTVIEW LN		ERIE	CO	805164028
MCFARLAND SALLY J	27 WESTBROOK HEIGHTS RD		WESTBROOK	CT	064981957
MERRITT MICHAEL	1885 PARKDALE CT		ERIE	CO	805162410
MOLLER NATHANIEL CLINTON	1807 ALPINE DR		ERIE	CO	805164014
MOORE JOHN C G	905 TAYLOR LN		ERIE	CO	805162412
MOORE MICHAEL M	1655 CRESTVIEW LN		ERIE	CO	805164030
MORRONE MARC A	1856 CRESTVIEW LN		ERIE	CO	805164027
NELSON STEVEN P	1371 CATALPA PL		ERIE	CO	805164613
NEWTON-MAVROGIANES JOINT REV TRUST	1569 ALPINE CT		ERIE	CO	805164024
NORRIS LEANNE M	1672 CRESTVIEW LN		ERIE	CO	805164025
OCONNOR BRIAN	1835 N PARKDALE CIR		ERIE	CO	805162420
ODAY HEATHER	919 TAYLOR LN		ERIE	CO	805162412
ODOWD SEAN R	1345 CATALPA PL		ERIE	CO	805164613
PAUL EVAN W	1780 CRESTVIEW LN		ERIE	CO	805164029
PERRY BERNARD T	1819 PARKDALE CIR N		ERIE	CO	805162420
PETERSEN JOINT TRUST	1602 CRESTVIEW LN		ERIE	CO	805164025
PIPPEN SEAN	1760 CRESTVIEW LN		ERIE	CO	805164029
PITTS DONALD L	934 TAYLOR LN		ERIE	CO	805162413
POPE CHARLES JEFFREY	1791 CRESTVIEW LN		ERIE	CO	805164028
QUISUMBING BERNARD	1806 CRESTVIEW LN		ERIE	CO	805164027
RADCLIFFE FAMILY TRUST	270 COMMANDER DR		ERIE	CO	805168127
RHEIN BRADLEY E	1642 CRESTVIEW LN		ERIE	CO	805164025
RODRIGUEZ RODNEY D	1603 ALPINE DR		ERIE	CO	805164020
ROHRER MELISSA M	1581 ALPINE CT		ERIE	CO	805164024
RUBLE RODNEY M	2077 PRIMROSE LN		ERIE	CO	805164004
SAELER MATTHEW A	1842 CRESTVIEW LN		ERIE	CO	805164027
SALAZAR NATHAN J	1799 ALPINE DR		ERIE	CO	805164016
SALIMENO KIRT A	1884 PARKDALE CT		ERIE	CO	805162410
SANDERS CORY	1301 CATALPA PL		ERIE	CO	805164613
SARGENT CHANTEL S	1896 ALPINE DR		ERIE	CO	805164015
SCHAEFER JEFFREY A	1199 CATALPA PL		ERIE	CO	805164614
SCHILLING TYLER	1731 CRESTVIEW LN		ERIE	CO	805164028
SCHWARTZ MATTHEW A	2030 ALPINE DR		ERIE	CO	805164682
SCURRY CYNTHIA D	1359 CATALPA PL		ERIE	CO	805164613
SKURNIK COLIN	2087 PRIMROSE LN		ERIE	CO	805164004
SLABBEKOORN GAVIN FAMILY TRUST	1721 CRESTVIEW LN		ERIE	CO	805164028
SMITH AMY MACHACEK	1720 CRESTVIEW LN		ERIE	CO	805164029
SONMORE TIMOTHY J	1605 CRESTVIEW LN		ERIE	CO	805164030
SOUCIE SARINA	1271 CATALPA PL		ERIE	CO	805164615
STAEHLIN JACOB L	1779 ALPINE DR		ERIE	CO	805164016
STINAR COREY		285 COMMANDER DR	ERIE	CO	805168126
STOLL AMY C REVOCABLE TRUST	1069 GREENS PL		ERIE	CO	805164703
STONEBACK BRET L	290 COMMANDER DR		ERIE	CO	805168127
STOWELL JEREMY	1662 CRESTVIEW LN		ERIE	CO	805164025
STRATUS REDTAIL RANCH LLC	3 WATERWAY SQUARE PL STE 110		THE WOODLANDS	TX	773803488
STRATUS REDTAIL RANCH LLC	1842 MONTANE DR E		GOLDEN	CO	804019123
SWANSON VALERIE J	1093 GREENS PL		ERIE	CO	805164703
TASKEY TEDD M	1909 ALPINE DR		ERIE	CO	805164042
TAYLOR FAMILY TRUST	1841 PARKDALE CIR N		ERIE	CO	805162420
TELLE DAVID A	1890 ALPINE DR		ERIE	CO	805164015
TENDHA CHIME	1926 ALPINE DR		ERIE	CO	805164683
THOMAS SEYMOUR CURTIS E	1287 CATALPA PL		ERIE	CO	805164615
TOBIAS DOUGLAS K	250 COMMANDER DR		ERIE	CO	805168127
TUZ FAMILY REVOCABLE TRUST	1560 ALPINE CT		ERIE	CO	805164024

VALENTA MICHAEL LIVING TRUST	1068 GREENS PL		ERIE	CO	805164703
VAN WOUDENBERG CHRISTIAAN	1821 CRESTVIEW LN		ERIE	CO	805164026
VISTA POINTE HOME OWNERS ASSOC	C/O MSI LLC	11002 BENTON ST	WESTMINISTER	CO	800203200
VOSSELLER SUZZETTE	1877 PARKDALE CT		ERIE	CO	805162410
WALDROP DALTON S	2825 IRONWOOD CIR		ERIE	CO	805167949
WATTERS CRAIG N	PO BOX 296		LOUISVILLE	CO	800270296
WEBER ANDREW ROBERT	1849 PARKDALE CIR N		ERIE	CO	805162420
WELD COUNTY	1150 O ST		GREELEY	CO	806319596
WELTY KEVIN D	1822 PARKDALE CIR N		ERIE	CO	805162404
WERO JULIA LF	1626 ALPINE DR		ERIE	CO	805164021
WILLIAMS ROBERT D	1827 ALPINE DR		ERIE	CO	805164014
WITTEN DARRIN	2103 PRIMROSE LN		ERIE	CO	805164008
WRIGHT STACY T	2094 PRIMROSE LN		ERIE	CO	805164003
WWD LIMITED LIABILITY CO	PO BOX 1937		LONGMONT	CO	805021937
YOUNGMAN KIRK E	1235 CATALPA PL		ERIE	CO	805164615
ZHANG ZHAOXI	1967 ALPINE DR		ERIE	CO	805164679
ZINTEL JOSEPH C	1761 CRESTVIEW LN		ERIE	CO	805164028
ZORGDRAGER COGAN REVOCABLE TRUST	1770 CRESTVIEW LN		ERIE	CO	805164029

TOWN OF ERIE
PLANNING COMMISSION
RESOLUTION NO. P24-01

A Resolution of the Planning Commission of the Town of Erie Recommending that the Town Council Approve the Redtail Ranch Preliminary Plat with Conditions

WHEREAS, Stratus, LLC, 8480 E. Orchard Rd., Suite 1100, Greenwood Village, CO ("Applicant") filed an application (the "Application") for approval of a preliminary plat (the "Redtail Ranch Preliminary Plat") for the real property legally described as a parcel of land located in the Section 29, Township 1 North, Range 68 West of the 6th Meridian, Town of Erie, County of Weld, State of Colorado (the "Property");

WHEREAS, on January 17, 2024, the Planning Commission held a properly-noticed public hearing on the Application; and

WHEREAS, upon consideration of the Application and supporting documentation, the recommendation of Town staff and any public comment received at the public hearing, the Planning Commission wishes to recommend that the Town Council approve the Redtail Ranch Preliminary Plat with a condition.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF ERIE, COLORADO, THAT:

Section 1. Findings of Fact.

a. The Redtail Ranch Preliminary Plat is in substantial compliance with Title 10 of the Erie Municipal Code (the "UDC").

b. Specifically, the Application satisfies the following criteria set forth in Section 10.7.7(D)(2) of the UDC:

i. The subdivision is generally consistent with the Town's Comprehensive Plan;

ii. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located;

iii. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife

habitat, and otherwise accomplishes the purposes and intent of the UDC;

iv. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of the UDC that have not otherwise been modified or waived pursuant to this Chapter or the UDC;

v. The subdivision complies with all applicable regulations, standards, requirements or plans of the federal or state governments and other relevant jurisdictions, including without limitation wetlands, water quality, erosion control, and wastewater regulations;

vi. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated;

vii. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features;

viii. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated;

ix. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development; and

x. The proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

c. The Redtail Ranch Preliminary Plat will preserve the public health, safety and welfare.

Section 2. Decision. Based on the foregoing Findings of Fact, the Planning Commission recommends approval to the Town Council for the Redtail Ranch Preliminary Plat, subject to the following condition:

a. Applicant shall make technical corrections to the Preliminary Plat and documents as directed by Town staff.

ADOPTED this 17th day of January, 2024.

Tim Burns, Chair

ATTEST:

Melinda Helmer, Secretary

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Meeting Minutes

Wednesday, January 17, 2024

6:30 PM

In Person Meeting
Virtual Link for Viewing & Public Comment Only:
Council Chambers
https://bit.ly/17Jan24PCMtg

Planning Commission

I. CALL TO ORDER & PLEDGE OF ALLEGIANCE TO FLAG

Chair Burns called the January 17, 2024 Planning Commission Meeting to order at 6:30pm.

II. ROLL CALL

Roll Call:
Commissioner Braudes - present
Commissioner Dreckman - present
Commissioner Baham - present
Commissioner Hemphill - present
Commissioner Booth - present
Vice Chair Laws - present
Chair Burns - present

A quorum was present.

III. APPROVAL OF THE AGENDA

Commissioner Dreckman moved to approve the agenda of the January 17, 2024 Planning Commission Meeting. The motion, seconded by Commissioner Braudes, carried with the following roll call vote:
Commissioner Braudes - yes
Commissioner Dreckman - yes
Commissioner Baham - yes
Commissioner Hemphill - yes
Commissioner Booth - yes
Vice Chair Laws - yes
Chair Burns - yes

Motion passes unanimously.

IV. APPROVAL OF MINUTES

24-044 Approval of the December 6, 2023 Planning Commission Meeting Minutes

Attachments: December 6, 2023 Planning Commission Meeting Minutes

Commissioner Braudes moved to approve the Meeting Minutes of the December 6, 2023 Planning Commission Meeting. The motion, seconded by Vice Chair Laws, carried with the following roll call vote:
Commissioner Braudes - yes
Commissioner Dreckman - yes
Commissioner Baham - yes
Commissioner Hemphill - yes
Commissioner Booth - yes
Vice Chair Laws - yes
Chair Burns - yes

Motion passes unanimously.

V. PUBLIC COMMENTS

No public comment

VI. GENERAL BUSINESS

23-571 PUBLIC HEARING: A Resolution of the Planning Commission of the Town of Erie Recommending that the Town Council Approve the Redtail Ranch Preliminary Plat with Conditions

Attachments: PC Resolution
Staff Report
Staff Presentation
Proposed Preliminary Plat
Application and Narrative
Additional Application Materials Part 1
Additional Application Materials Part 2
Neighborhood Meeting Summary
Public Hearing Notices
Applicant Presentation

Chair Burns announced Agenda Item 23-571: Public Hearing for Resolution of the Planning Commission of the Town of Erie Recommending that the Town Council Approve the Redtail Ranch Preliminary Plat with Conditions.

Chair Burns opened the Public Hearing at 6:35 pm and turned it over to staff.

Chris LaRue, Principal Planner gave a presentation to the Commission on the Redtail Ranch Preliminary Plat.

The applicant, Layla Rosales of Terracina Design also provided a presentation and background of the project to the Commission.

Chair Burns opened up the Public Comment portion of the Public Hearing at 7:04 pm.

Public comment was taken from the following:

Arnold Slabbekoorn, 1721 Crestview Lane, Erie, CO gave comment regarding the following:
- **Contamination/Health Safety**
- **Soil contamination clean-up**
- **Recognizing Land Use restrictions**
- **Meeting Open Space requirements**
- **Active wells in proximity to proposed development**
- **Contamination monitoring**
- **Maintenance of land fill area**
- **Impacts on Traffic and Transportation**

Sean Harrington, 1043 Greens Place, Erie, CO gave comment regarding the following:
- **Concerns over the Traffic Study and Traffic, especially regarding Vista Ridge**

• Concerned over possible vehicular connection between Bonanza Dr. and Vista Parkway

Paul and Nina Freda, 1955 Alpine Drive, Erie, CO gave comment regarding the following:
• The need for fencing at corner of the development at CR 4 and CR 5
• No vehicular entrance to Red Tail Ranch at the intersection of CR 4 and CR 5

Christiaan van Woudenberg, 1821 Crestview Lane, Erie, CO gave comment regarding the following:
• Length of application process
• Feasibility of project if current Oil & Gas regulations were enforced
• Landfill activity near proposed Red Tail Ranch entrances
• Subject property being used as a landfill
• Meeting Open Space Regulations
• Density and how it's calculated
• Environmental concerns and concerns for the Environmental Study
• Health and safety. Plugging and abandoning Oil and Gas facilities before any residential use occurs.

Mandy Cox, 1824 Alpine Drive, Erie, CO gave comment regarding the following:
• With the addition of Red Tail Ranch, concerns over the effects all of the development in the Vista Ridge area as it relates to traffic and the health and safety of pedestrians, especially children, walking around the area or to school.

Dr. Jordan Stoll, 1069 Greens Place, Erie, CO gave comment regarding the following:
• Concerns over increased traffic and over vehicular connection between Bonanza Dr. and Vista Parkway
• Keeping the residential atmosphere in the area
• Construction traffic re-routed from Vista Ridge

Chair Burns closed the Public Comment portion of the Public Hearing at 7:19 pm.

Chair Burns brought it back to the Commission for questions/comments of the applicant and staff.
Some questions/comments included the following:
• Use and width of existing access road to Oil and Gas operations.
• Concerned over possible vehicular connection between Bonanza Dr. and Vista Parkway
• Fencing along the subdivision at the CR 4 and CR 5 intersection.
• Gross acreage and density calculation
• Oil and Gas setback requirements from 350 feet versus 500 feet
• Recommendation that the applicant utilize a more secure type of fencing for environmental areas.
• Environmental factors to include prevailing wind directions causing nuisance smells in relation to the proposed development.
• Legal time limitation for when Public Hearings occur after required Public/Neighborhood Meetings
• Control of diversification of income and the affect on housing stock and affordability
• Potential spine Trail connection to the north of the subject property
• Control over decommissioned well-sites
• Discussion over measures for remediation if other contaminated areas are

discovered.
- Current and future conditions of CR 5 which currently is a collector road having a 35mph to 40 mph speed limit.
- Effects of poor quality of ephemeral drainage from the North.
- Trail access to schools in the area for safe passage
- Oil and gas concerns over possible effects of the new Draco Pad in the area
- Oil and Gas setback requirements from 350 feet versus 500 feet and process involved with application processing.
- Time frame for completing CR 5 widening that adjoins the subject property.
- Single stop for new road connecting on County Road 5
- Status of CR 5 improvements for the portion of the subject property adjoining landfill property
- Implementation of the Pinion Report
- Implementation of monitoring
- Possible past land disturbance and future land disturbance causing elevated values of contamination.
- Meeting Open Space Regulations and restricting activity in contaminated/landfill areas
- Process of this development review with the application, if approved by Planning Commission, ending up as a consent agenda item for the Town Council.
- Traffic study having only the analyzation of private transit, not public.
- Indication of trails and trail connections, especially the spine trail, on project plans and how they represented moving toward final approval.
- Levels of service included within the Engineering report concerning expected water usage and water pressure.
- Implementation of all recommendations, including ones in the Pinion Report, for the subject application.
- Age of the traffic study and should there be an updated/new study.
- The meaning of Metro District oversight/monitoring
- Concerns over missing drums containing hazardous materials.
- Concerns over traffic analysis taking into account the impact of townhouse development.
- Possible future traffic signalization.
- The landscape median along Parkway is a positive addition to the area.
- Air monitoring possibilities for this proposed development.
- Possible prior agreement between the Board of Trustees and developer regarding soil capping before construction begins.
- Possibility of run-off/pollution from the activity of capping of the closed Denver Regional Landfill proposed for 2024.
- Control of the capping process
- Details regarding the landfill contamination and soil capping to include the area, depth of soil removal, and depth of capping.
- Land disturbance of the proposed development affecting any soil capping.
- Concerns regarding the Pinion Report remediation details and recommended construction restrictions and any other existing studies regarding settling of soil substance from mining activities and limitations over the size of structure that can be constructed in a given area.
- Existing active wells, especially the one in the middle of the proposed development, and the length of time they will be in operation.
- Implications of Oil and Gas setback requirements from 350 feet versus 500 feet
- Staff report mentioning the future configuration of the intersection of CR 5 and CR 4 with possible re-alignment of CR 4 and the timeframe for any proposed intersection improvements.

• Grade differential between existing along CR 5 and the back of proposed houses and the space available to make any future road improvements allowing for different modes of transportation and the inclusion of a multi-use path/walk in the area.

Chair Burns closed the Public Hearing at 8:53 pm.

Commissioner Booth moved to approve Resolution P24-01: Redtail Ranch Preliminary Plat with Conditions. The motion, seconded by Commissioner Dreckman, carried with the following roll call vote:

Commissioner Braudes - yes
Commissioner Dreckman - yes
Commissioner Baham - yes
Commissioner Hemphill - yes
Commissioner Booth - yes
Vice Chair Laws - yes
Chair Burns - yes

The motion passes unanimously.

VII. STAFF REPORTS

Kelly Driscoll, Planning Manager had nothing to report.

VIII. COMMISSIONER REPORTS AND DISCUSSION ITEMS

Commissioner Hemphill announced he will not be in attendance at the February 21, 2024 Planning Commission meeting.

IX. ADJOURNMENT

Commissioner Braudes moved to adjourn the January 17, 2024 Planning Commission Meeting. The motion, seconded by Vice Chair Laws, carried with all voting in favor thereof.

Chair Burns adjourned the January 17, 2024 Planning Commission Meeting at 8:56 pm.

Town Council

Board Meeting Date: 6/25/2024

File #: 24-295, **Version:** 1

SUBJECT:
Public Works Monthly Report

DEPARTMENT: Public Works

PRESENTER(S): Todd Fessenden, Public Works Director

STAFF RECOMMENDATION:
For information only.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Public Works Monthly Report includes Capital Improvement Project updates, Engineering and development-related information, and other significant Public Works related activity.

COUNCIL PRIORITY(S) ADDRESSED:
- ✓ Safe and Healthy Community
- ✓ Effective Governance
- ✓ Environmentally Sustainable
- ✓ Fiscally Responsible

ATTACHMENT(S):
1. Public Works Monthly Report

PUBLIC WORKS
MONTHLY REPORT

Review of May 2024

HIGHLIGHTS

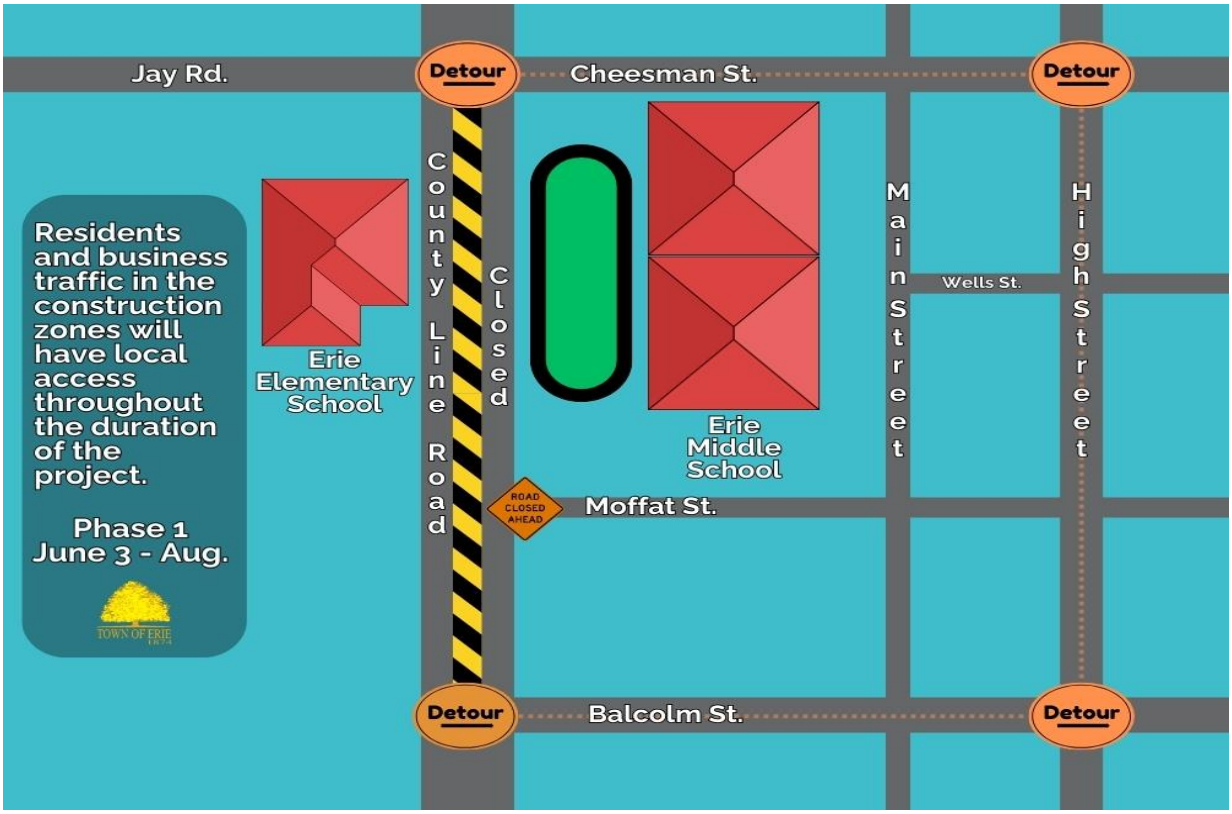
- Public Works Director candidate interviews throughout June.
- 2025 Capital Improvements Budget Requests Submitted
- Utility Rate and Fee Study at roughly 70% complete

CAPITAL IMPROVEMENT PROJECTS

County Line Road Improvements

This project is underway. Xcel threw us another curveball by demanding additional shutdowns north of Cheesman for utility vaults that we had planned to defer to minimize impacts along this stretch of County Line Road. Public Works and Communications worked closely to develop a closure map for the project that is easy to understand and in a format we can use for future projects. See the current phase 1 map below.

Next Steps: Continue to coordinate with Xcel to minimize impacts of their late changes and ensure access for businesses and residents.



Erie (EIK) Taxiway and Ramp Improvements

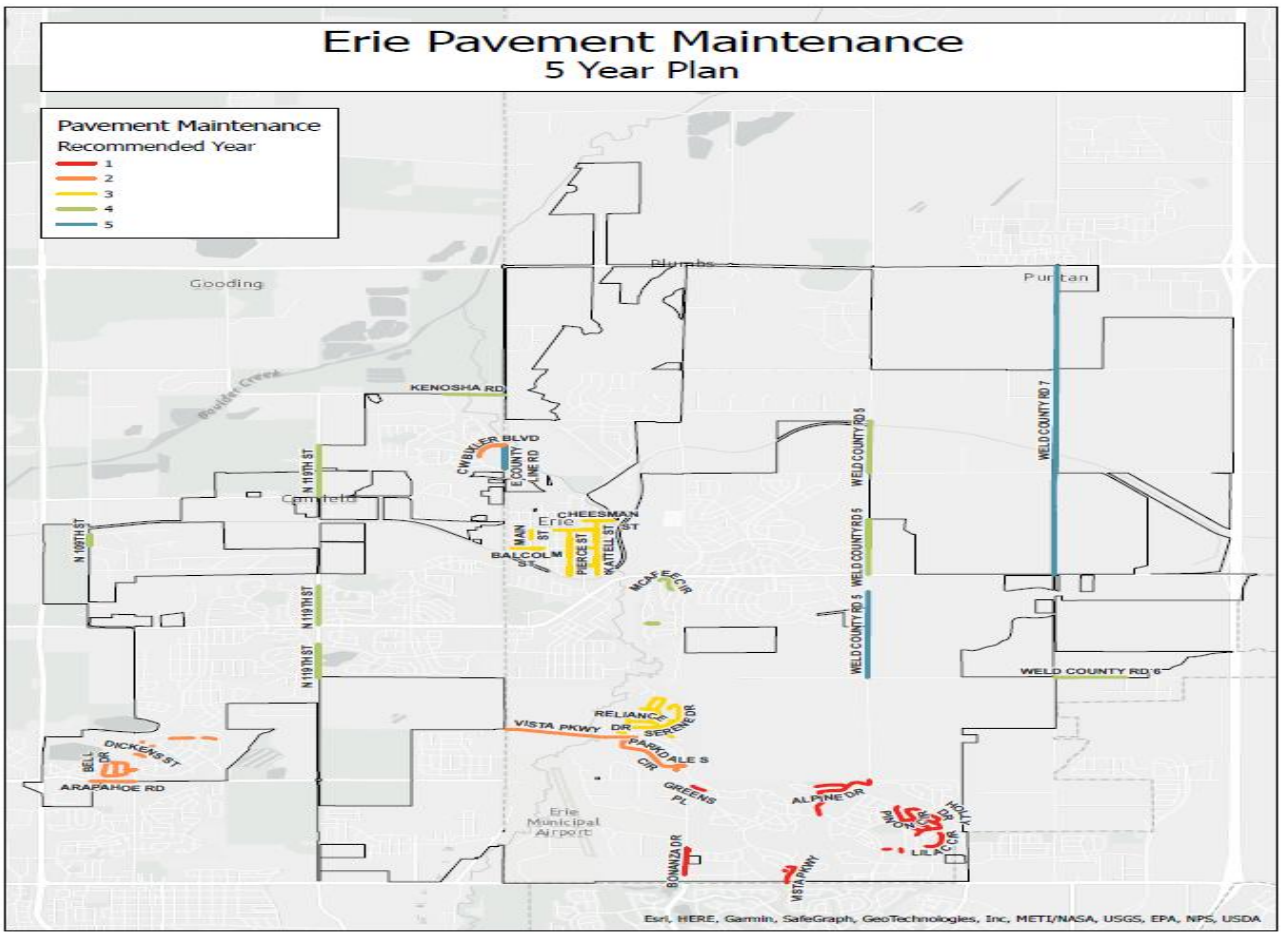
This project has been bid and is ready for award. The low bid was within existing budgets and grant funds from FAA/CDOA.

Next Steps:
Award bid late June/Early July.

Annual Streets Maintenance

Great news! Bids came in much lower than anticipated based on prior years' pricing. We are expanding this year's program beyond Vista Ridge into Vista Pointe and Arapahoe Ridge. This allows us to move into year two of our five-year plan.

Next Steps:
Award first bid package late June, and second in July.



ENGINEERING, STREETS & MAINTENANCE

What's Going On (no new information from April report due to timing)

- The month of April saw 26 current projects referred to Engineering for review. Of those referrals, 11 were for commercial or mixed-use projects and the remaining 15 were for residential projects.
- Five projects were scheduled or set to be scheduled for Council review.

What's Going Up:

- The Engineering Division was engaged in 26 land use and 46 development projects in warranty or construction during the month of April.
- Of those projects, the team will closely monitor all the County Line Road Improvements, Coal Creek Improvements, and the Lagoon to Wetlands Conversion Project and development projects with public impact.

Collaborative Projects:

- Hwy 7 & 119th Intersection Improvements – City of Lafayette/CDOT
- Hwy 7 Preliminary Corridor Design – CDOT
- US287 Bus Rapid Transit – Phase 2 – Mobility and Safety
- 111th and Arapahoe Improvements – City of Lafayette
- Neighborhood Speed Mitigation Program (NSMP) – Communications Department, EPD
- Central Square Software Implementation – Townwide collaboration
- Comprehensive Plan, Plan Map, Zoning Map Amendments and Transportation Master Plan
- I-25 Gateway Planning – Planning & Development, Economic Devleopment
- Rate & Fee Study – Utilities, Public Works, Finance
- NISP Pipeline Conveyance Study – Lafayette and Left Hand Water District

Major Street Projects in 2024

- County Line Road between Telleen and Cheesman for Safer Mainstreets Project – CLR closed Moffatt to Cheesman during school summer break, intermittent closures Moffat to Teleen after. We will maintain access to all businesses during the project.
- WCR 5 Partial closures related to Sunset development and road widening – Ongoing
- Streets rehabilitation projects was intended to focus on Vista Ridge, however due to bids coming in much lower than expected we will look to add additional work and avoid County Line Road and Old Town.

GIS & ADMINISTRATION

- Success! Our enterprise software system, Central Square, went live at the end of May. This is the culmination of years of work by virtually every department in the Town and was led by staff in GIS, IT and Building. This was a massive lift and is a big step forward for the Town.
- Administration has been busy working on 2025 Budget, Water Court Cases, FBO Agreements, Boulder Creek Horizontal Well construction defect negotiations, future North Water Plant design, NISP Conveyance alignments and fleet procurement.

FACILITIES MANAGEMENT

- Town Hall Expansion continues on schedule. Completing exterior finishes continues as the major activity.

Town Council

Board Meeting Date: 6/25/2024

File #: 24-304, **Version:** 1

SUBJECT: Staff Report
Planning & Development Monthly Report - May 2024

DEPARTMENT: Planning & Development

PRESENTER(S): Sarah Nurmela AICP, Director of Planning & Development

STAFF RECOMMENDATION:
Informational Only

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Planning & Development Monthly Report includes updates from all divisions within the Planning & Development Department, including Planning, Building, Housing and Transportation.

Updates and information include land use application and building permit activity as well as interdepartmental and intergovernmental efforts.

ATTACHMENT(S):
1. Planning & Development Monthly Report - May 2024

PLANNING & DEVELOPMENT MONTHLY REPORT

Review of May 2024

STAFF HIGHLIGHTS

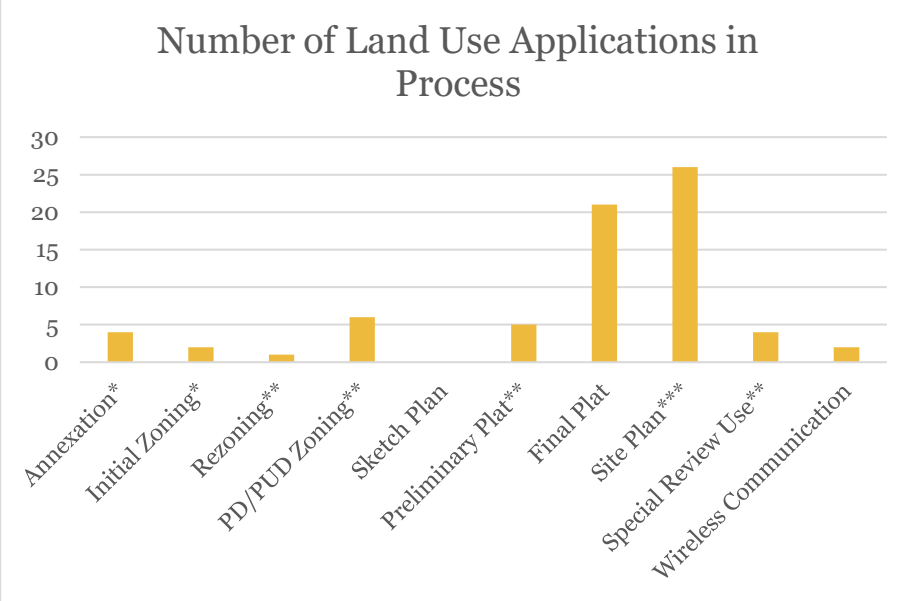
- The Building Inspection team is expanding capacity with an additional employee training for their drone pilot license. This will result in four out of five inspectors having their license for roof inspection purposes.
- All Planning and Building Division staff attended training the week of May 20-24 to prepare for implementing the new Central Square permitting and project management system on May 28th.
- John Firouzi accepted the Town's offer to serve as Transportation & Mobility Manager. John brings significant experience and expertise to the position and started June 17.

PLANNING DIVISION

Current Planning

Land Use Applications

Planning had a total of 71 land use applications in process in May; the graph illustrates the breakdown of applications by type. The land use application project type details can be found in the Development Application List on the Town website along with a map of current projects.



***BOT review ** PC & BOT review *** PC review – Projects 25,000 square feet or greater**

Note: Land use applications for Sketch Plan, Site Plan (under 25,000 square feet) and Final Plat are approved administratively. Projects within a PD zone district also have an administrative approval depending on their specific land use requirements.

Pre-Application Meetings

In addition to the land use applications listed above, Planning staff also meets with potential developers in pre-application meetings to discuss a concept or idea for development. Planning provides guidance on Code requirements and what formal land use applications apply. In May 2024, the Planning staff held 4 Pre-application meetings for the following projects/properties:

1. **Erie Highlands Filing 17:** Various Commercial Uses
2. **Old Town – Main Street Subdivision:** Final Plat – Residential Lots
3. **Sierra Vista:** Rezoning of parcels
4. **Sunset Filing 2:** Final Plat – Residential Lots

Strategic Planning

Elevate Erie

- Elevate Erie community engagement meetings on land use scenarios ended on May 13th. Using this feedback, staff will draft the Town's future land use map. The project website includes the scenarios information, past outreach summaries, and an opportunity to provide additional feedback or ask questions: https://erieco.us/comp-plan-and-tmp.

Multi-Department Projects

Other Town departments and other jurisdictions rely on the participation of Planning staff in their projects. Below is a list of the projects Planning participated in during May 2024.

- **Current Planning**
    - Current Planning staff have begun utilizing Central Square for land use application tracking and review processes.
- **Long Range/Strategic Planning**
    - Long Range Planning is adjusting the future land use map based on community and stakeholder feedback on scenarios that was received through the community engagement meetings and is drafting Comprehensive Plan sections.
- **Economic Development and Interdepartmental**
    - In advance of the planned ballot issue on marijuana excise tax collection, Planning staff is working with Legal, Economic Development, the Town Clerk's Office and Police departments on a draft retail marijuana ordinance.

BUILDING DIVISION

Building Activity

What's Going On

- The new Central Square permitting software system and customer service portal is up and running as of Tuesday, May 28. The new permitting software transition enhances our internal and external customer service and streamlines the permitting processes. However, it has created a temporary adjustment period with increased customer communications (phone calls & emails) for transition assistance.

What's Going Up

- King Soopers at Nine Mile – late 2024 anticipated opening
- Town Hall Expansion and Renovation
- Valvoline Service Center
- Little Sunshine Playhouse (daycare)
- Chase Bank branch
- Westerly Amenity Center and Pool
- Colliers Hill Clubhouse and Pool

Summary of this month's Permit and Inspection Activity:

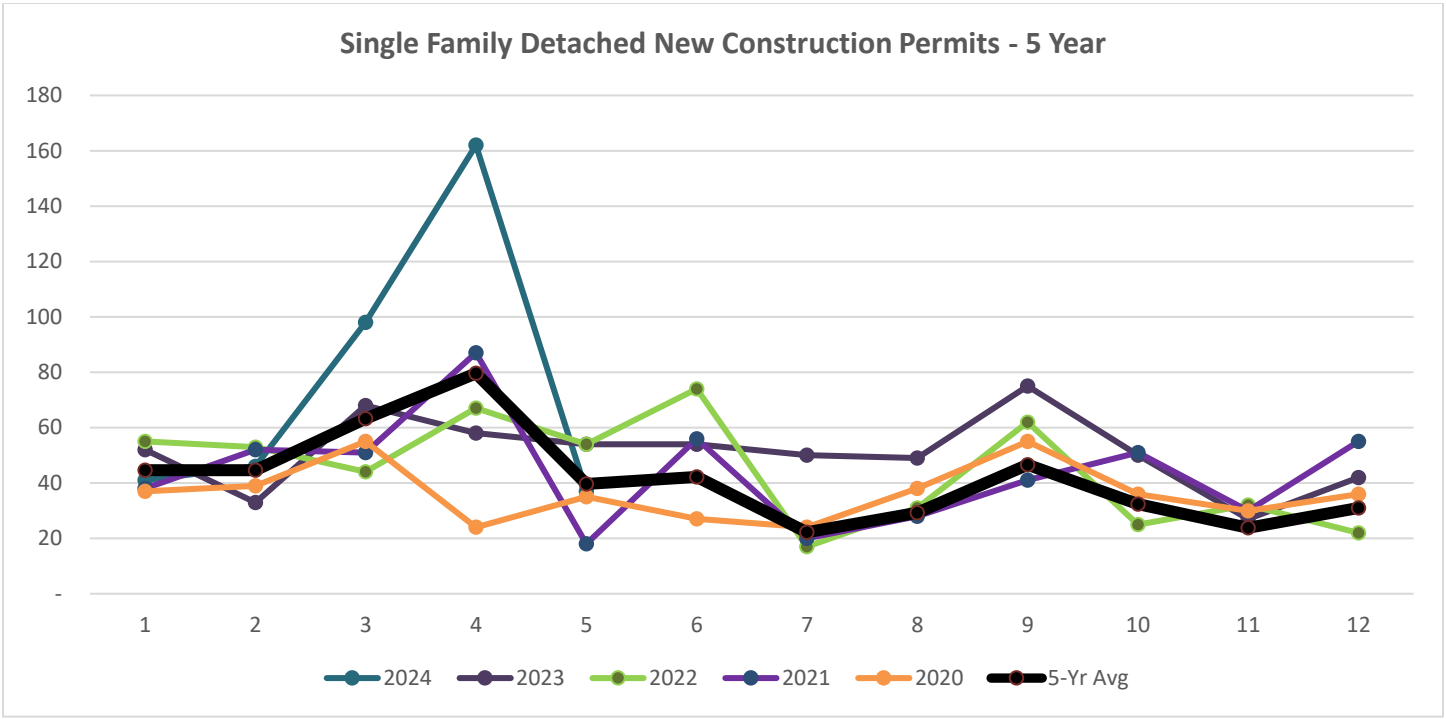
- 319 Total Building Permits issued (2,090 YTD) – 82 re-roof permits (25% - 740 YTD) and 41 single-family dwellings (detached, attached, and townhomes - 428 YTD).
- 2,359 inspections performed - 108 per business day | 22 per inspector per day: 5 inspectors.
- 59 Certificates of Occupancy issued - 57 Residential and 2 Commercial.

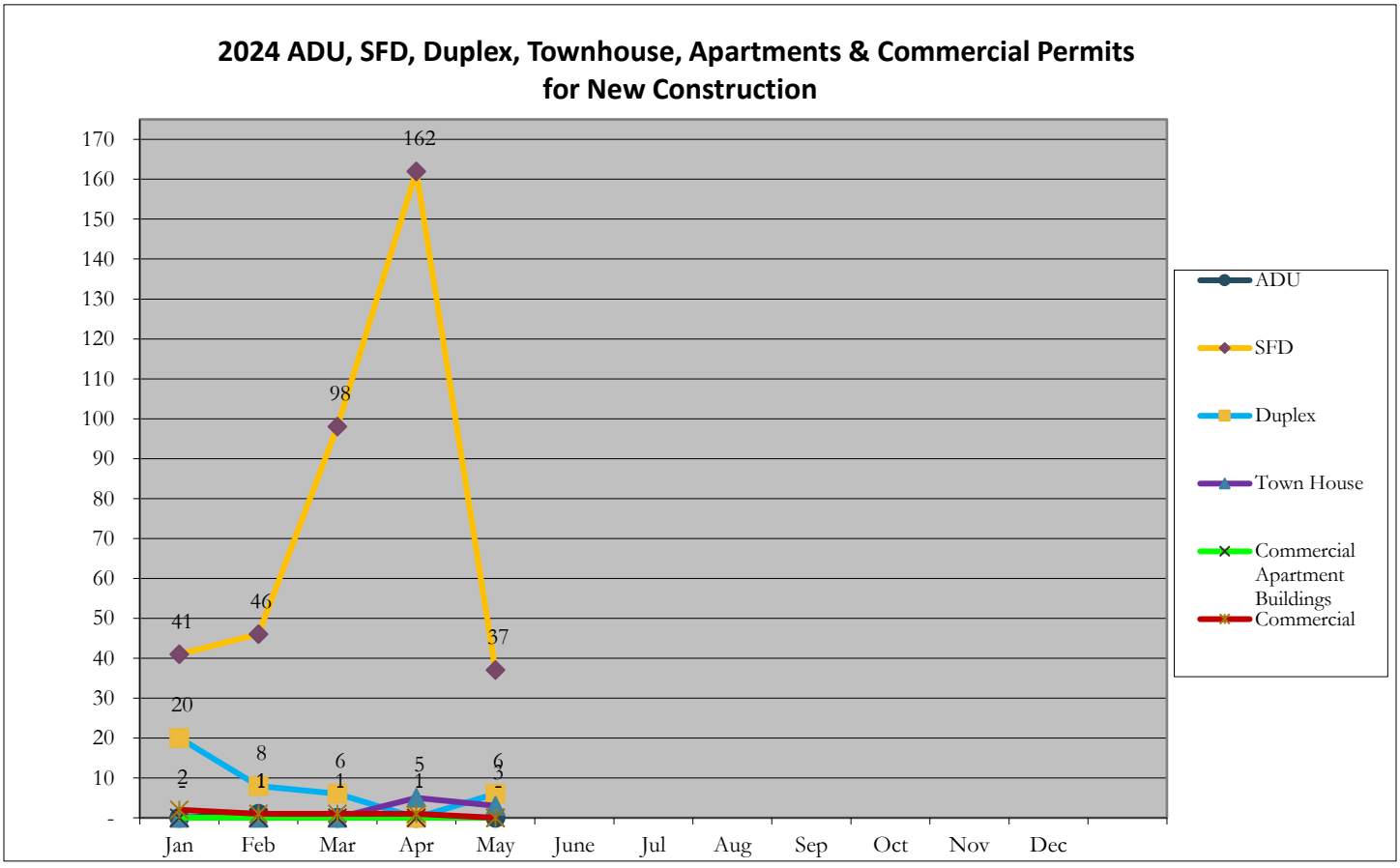
Commercial Project Permit Applications in Plan Review Queue:

- 431 Ambrose – Boulder Creek Builders Leasing Office
- 2920 Arapahoe Road – Valvoline Service Center
- 720 Austin – Erie Animal Hospital
- 480 Cheesman – Children's World Montessori
- 680 Commons Drive – Bellco Credit Union

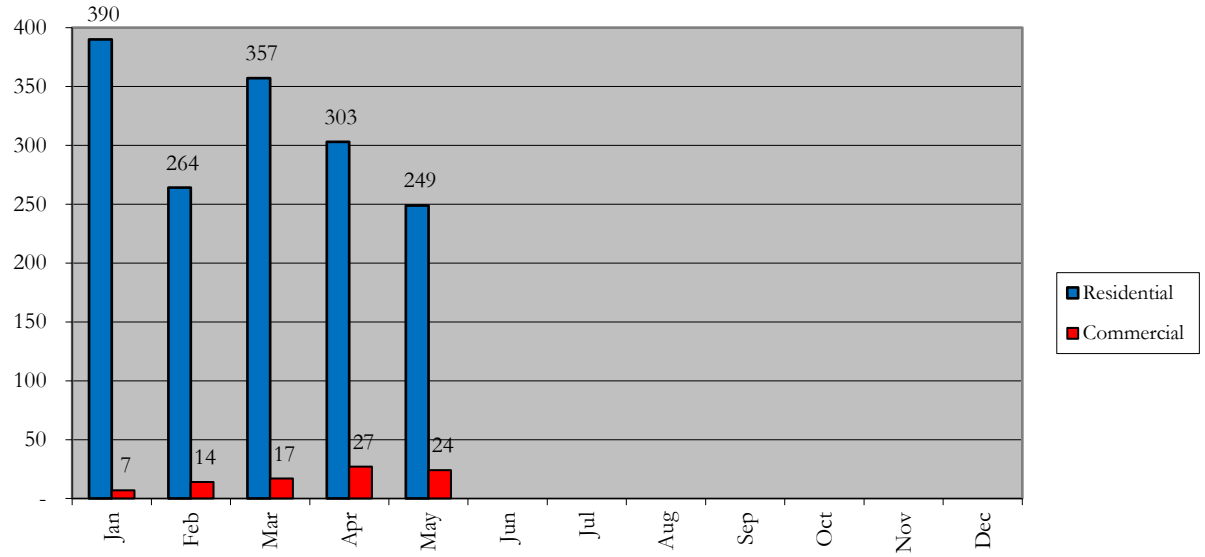
Projects in Support of other Town Departments

- Marcie Weatherly, Residential Plan Reviewer, continues to be the instrumental "problem-solver" throughout the implementation and "go-live" process for the new Central Square permitting software and customer service portal that was implemented on May 28th.

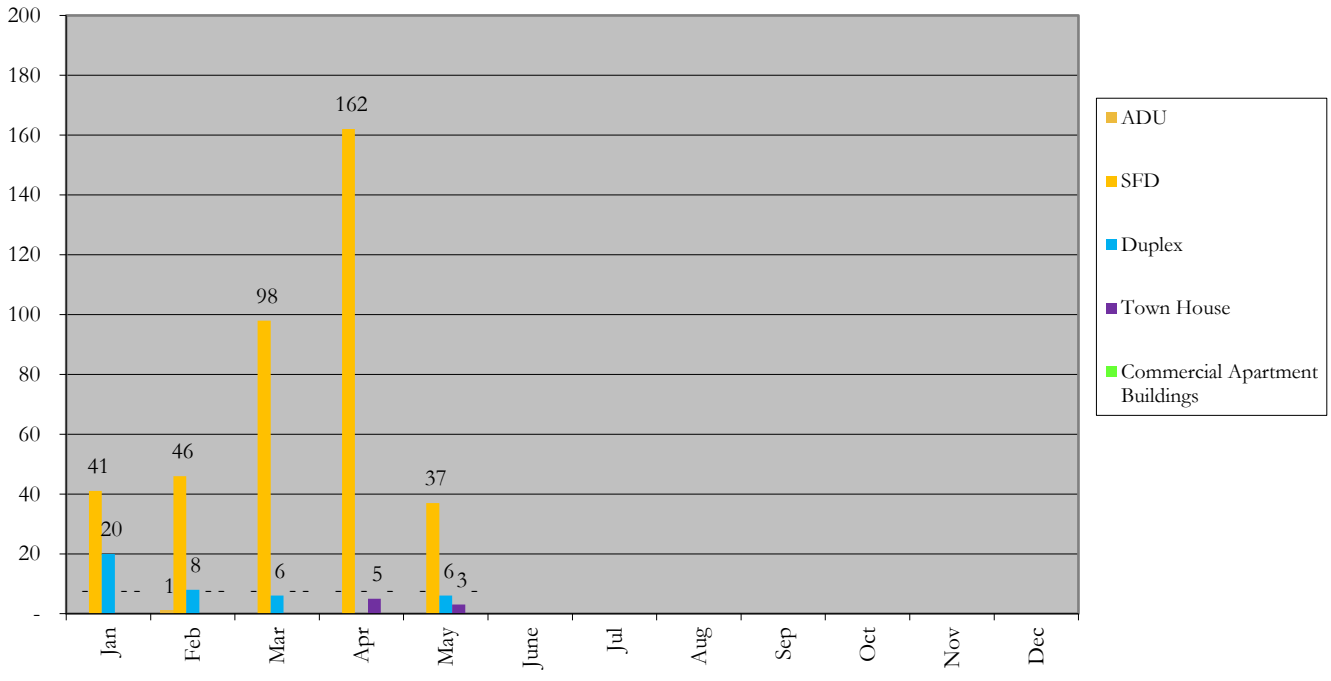

Single Family Detached New Construction Permits - 5 Year
180
160
140
120
100
80
60
40
20
-
1
2
3
4
5
6
7
8
9
10
11
12
2024
2023
2022
2021
2020
5-Yr Avg


2024 ADU, SFD, Duplex, Townhouse, Apartments & Commercial Permits for New Construction
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
-
162
98
46
41
37
20
8
6
5
6
2
1
1
1
3
-
Jan
Feb
Mar
Apr
May
June
Jul
Aug
Sep
Oct
Nov
Dec
ADU
SFD
Duplex
Town House
Commercial Apartment Buildings
Commercial

2024 Total All Other Permits



2024 Total New Dwelling Units



All Permit Types by Month

2023	*Residential Permits**	*Commercial Permits**	*All Permit Types**	*New Dwellings Permits*
Jan	390	7	460	61
Feb	264	14	334	55
Mar	357	17	479	104
Apr	303	27	498	167
May	249	24	319	46
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
TOTAL	**1,563**	**89**	**2,090**	**433**

** Includes: Mechanical, Electrical, Plumbing, Roofing, Decks, and Fence permits.*

Detached Single Family New Construction Building Permit Trends

	2020	*2021*	*2022*	*2023*	*2024*	*5-Yr. Avg*	*2024 Month to Avg*	*Cum Yr. to Avg*
Jan	37	38	55	52	41	46	-5	-5
Feb	39	52	53	33	46	44	2	-3
Mar	55	51	44	68	98	63	35	32
Apr	24	87	67	58	162	80	82	50
May	35	18	54	54	37	40	-3	47
Jun	27	56	74	54		53		
Jul	24	20	17	50		28		
Aug	38	28	31	49		37		
Sep	55	41	62	75		58		
Oct	36	51	25	50		41		
Nov	30	30	32	27		30		
Dec	36	55	22	42		39		
TOTAL	**436**	**527**	**536**	**612**	**384**	**559**	**111**	**121**

AFFORDABLE HOUSING DIVISION

- **Inclusionary Housing** - Continued outreach to developers to get feedback on our initial thinking about the Inclusionary Housing Ordinance outline.
- **Cheesman Street Residences** – Demolition of structures was completed in May. Several meetings were held with direct neighbors to the site to provide updates on alleyway design, parking concerns and schedule for demolition of structures on our site.
- **Page Property** – The report prepared by CU Denver grad student Blake Wedekind was presented to OSTAB on May 13th. The Project Management Team continues to meet weekly to coordinate internal department collaboration needed to advance the project. An environmental consultant was engaged to help assess environmental issues that may have additional impact on decision-making about most appropriate locations for the differing uses proposed for the site.

TRANSPORTATION DIVISION

- **RTD Annexation** – Weld County Commissioners considered and passed a resolution on June 3rd supporting the election on annexation. The RTD Board Committee considered the passed resolution on June 11th and is now working with Weld County to coordinate the election.
- **Transportation Mobility Plan (TMP)** – The draft of the TMP is currently with staff for review and editing.
- **Flex Ride Service Plan** – The Service Operations Plan in draft form is with staff for review and editing. Branding and marketing of Flex Ride service is underway with the Communications Department.

Division Leads

Kelly Driscoll - Planning
Ed Kotlinksi – Building
MJ Adams – Affordable Housing
Miguel Aguilar - Transportation

File #: 24-319, **Version:** 1

SUBJECT: Staff Report
Environmental Services Monthly Report - May 2024

DEPARTMENT: Environmental Services

PRESENTER: David Frank, Director of Environmental Services

STAFF RECOMMENDATION:
Informational Only

SUMMARY AND BACKGROUND OF SUBJECT MATTER:
The Environmental Services Monthly Report includes updates from all divisions within the Environmental Services Department, including Sustainability and Environmental Regulation.

ATTACHMENT:
1. Environmental Services Monthly Report - May 2024

ENVIRONMENTAL SERVICES MONTHLY REPORT

Review of May 2024

HIGHLIGHTS

- The Sustainability Division is working to update the Town-wide greenhouse has inventory for 2023. This will be the second Town-wide inventory; the first inventory was completed in late 2022 for 2021 emissions.
- The Energy & Environment Division is adding a new position, Environmental Analyst, in July. The position will assist with oil and gas regulation, spill/release remediation, mine subsidence, air quality, and other environmental challenges faced by the Town.

CAPITAL IMPROVEMENT PROJECTS

North Water Reclamation Facility

Conversations continue with Iconergy and potential funding organizations (DOLA) to develop a solar garden at the NWRF as well as microgrid system at the Erie Community Center. Discussion for the NWRF project has transitioned to flotovoltaics (floating solar) due to space limitations on site and the potential need to expand the facility as the Town grows.

Streetlight Acquisition

Negotiations to purchase Town streetlights from Xcel Energy and United Power continue. Purchasing Xcel streetlights is moving along and may be finished as early as Q3 2024. United Power recently provided good news that they will move forward with a kWh rate structure for purchased lights instead of their previously proposed lumen-based rate, which was confusing and expensive. The Town is working with consultant Tanko to establish a Streetlight Master Plan to guide streetlight related development moving forward.

Solar at Lynn R. Morgan WTP

The Town engaged Burns and McDonnell to assess the feasibility of solar PV at the Lynn R. Morgan Water Treatment Facility. Initial project proposal was received in late May and grant opportunities are being explored. This project would qualify for 40% direct pay incentives through the federal Inflation Reduction Act (IRA) due to the Treatment Facility operating in an energy burdened area.

OIL & GAS

News & Notes

Erie 1-24

The contractor is finishing work on the Final Reclamation at the Erie 1-24, including site seeding and landscaping. Some concrete repairs are necessary, to begin approximately the week of June 24, and during this process the operator will need to block off the sections of concrete being repaired. The contractor is currently applying for the Erie ROW permit required for those areas and will do that work as the permit is issued.

Arapahoe 2-26

Work to plug and abandon the well is completed with progress moving on site reclamation. No spills or previous releases have been reported.

Spills & Releases

Operators reported 125 spills/releases during the month of May 2024, state-wide. None of these occurred within the municipal boundary of Erie.

Inspections

ECMC Inspectors visited 7 oil and gas wells at 2 locations in Erie during the month of May 2024.

- **SRC PRATT (KP KAUFFMAN) 5/15/2024**
  - **SRC PRATT 29SD**
  - **SRC PRATT 31-29D**
  - **SRC PRATT 41-29D**
  - **SRC PRATT 42-29D**
  - **SRC PRATT 32-29D**
  - **M E DRIER 1**
- **UPRR 43 PAN AM B 4 (KP KAUFFMAN) 5/31/2024**

No Notices of Alleged Violation (NOAV) or Corrective Actions (CA) were issued during inspections. The inspection of the SRC Pratt location was in response to apparent fugitive emissions reported to Town staff by a resident on 5/9/2024. When responding to the resident concern, staff observed KP Kauffman personnel arrive and shut in all valves on-site. Valves remained shut at the time of ECMC inspection on 5/15/2024.

So far in 2024, inspections have occurred at 26 of the 137 total active wells (those designated producing, shut-in, or temporarily abandoned) within Erie (19%).

AIR QUALITY MONITORING

BoulderAIR

The BoulderAIR ECC monitoring station reported the following events where measured values exceeded their “alert” thresholds.

- 5 days included measurements of ozone concentrations exceeding the alert threshold of 70 ppb, with the highest reported 10-minute average value being 72.13 ppb. No occurrence of ozone above 70 ppb for an 8 hour duration (Federal violation standard) were measured in May.

Elevated ozone is of major concern across the region and will become more common as the weather warms and the area sees increased UV radiation during summer. The Northern Front Range is currently considered to be in Severe violation of Federal Air Quality Standards for ozone concentrations, with an attainment deadline of July 20, 2027. More information is available from CDPHE here: https://cdphe.colorado.gov/ozone-pollution-and-your-health

- 4 measurements of PM2.5 concentrations exceeding the alert threshold of 35.0 µg/m3, with the highest reported value being 102.3 µg/m3 (274% the National Ambient Air Quality Standard for 24-hour exposure of 35.0 µg/m3), though the measured event was less than 5 minutes in duration. While no observations approached the 24-hour primary 24-hour standard, high PM2.5 measurements have been frequent since the BoulderAIR station was installed. When compared to the other BoulderAIR monitoring stations in the region, Erie's (ECC) PM2.5 measurements are similar to those at Longmont's Union Reservoir (LUR), higher than those at Broomfield's Soaring Eagle (BSE), and considerably lower than measurements in Commerce City (CCF).

Ajax/CSU

One canisters trigger event to collect samples due to elevated PID sensor readings this month on May 31st at the Landfill South Station. Analysis of the event is in process.

A reminder that residents of Erie can rent an air quality sample canister free-of-charge from Town Hall.

LANDFILL TASK FORCE

The second meeting was held on May 29, 2024, with the focus of discussions on potential entrance locations and preferred haul routes. The meetings continue to generate significant interest from residents and are well attended. An on-site tour with Taskforce members to visit potential entrance locations and assess preferred haulage routes is scheduled for late June. While a consensus recommendation was not reached by the Task Force in the May meeting, the dialogue was very productive and the topic will continue at the next meeting, scheduled for June 26th.

A full meeting summary will be available on the Landfill Task Force Website (www.erieco.us/LandfillTaskForce) once comments and edits from Task Force Members are complete.

SUSTAINABILITY & WATER CONSERVATION

General Updates

Eryka Thorley and David Frank attended the annual Colorado Community for Climate Action Retreat in early June. Members of this organization now include 43 counties and local governments across the state, representing over 25% of the state's population. The meeting focused on legislation efforts in 2024 as well as new potential focus areas for this climate action centered organization.

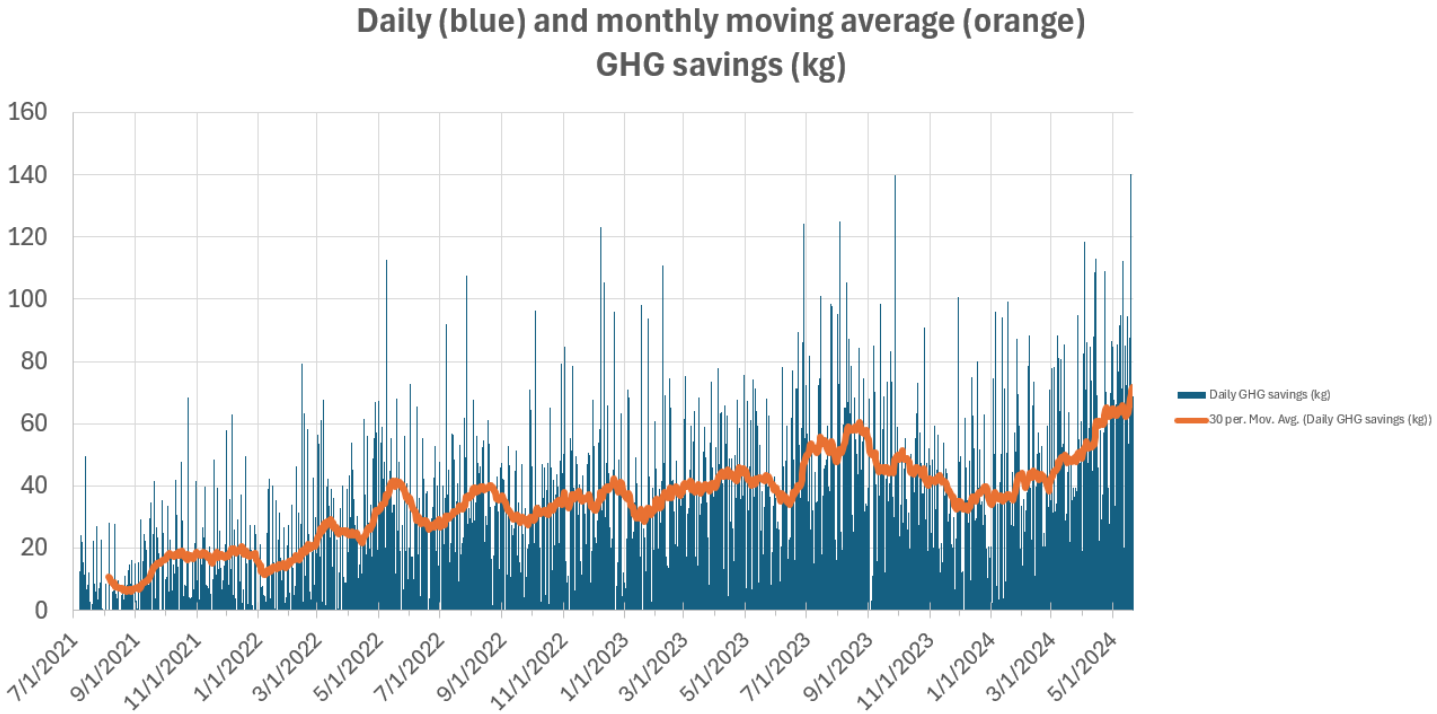
The Sustainability Division is working with Communications to establish engagement materials for our Pierce Street office including a historical timeline of the building as well as net zero details regarding the building renovation, solar, air source heat pump, heat pump hot water heater, etc. These materials will support external outreach at the building as well as the upcoming 150th celebration that will highlight Sustainability efforts with four separate topic-based presentations in the month of August.

Sustainability's 150th celebrations will include four weekly presentations covering topics such as the history of 625 Pierce Street (where the Division is based), waste diversion strategies, water conservation techniques and

beneficial electrification efforts. These presentations will be hosted on Thursday evenings with further details coming soon.

Air Quality & Transportation

- The Boulder County Regional Transportation Electrification cohort is in the initial launch of their recently awarded Department of Transportation CFI grant ($4.9 million) to which Erie committed as a project partner along with many other Boulder County municipalities. Partner MOU's are in the development process.
- Indoor air quality rebates continue including radon systems and air purifiers.
- The Sustainability Division and Grants Team are exploring EV grant opportunities from the state to support vehicle procurement as well as EV infrastructure. These grants are due in late June.



The above ChargePoint Town of Erie graph (22 ports of Level 2 charging) outlines the greenhouse gas savings per day (in blue) so far since July 2021 at Town of Erie ChargePoint EV charging stations. The 30-day moving average of the total savings (in orange), shows a clear increase in savings over time. Since January 1st, 2024, Town of Erie EV charging stations avoided 7,175 kg of Co2 or avoiding 32,287.5 miles of driving an average gas consuming vehicle.

Energy & Efficiency

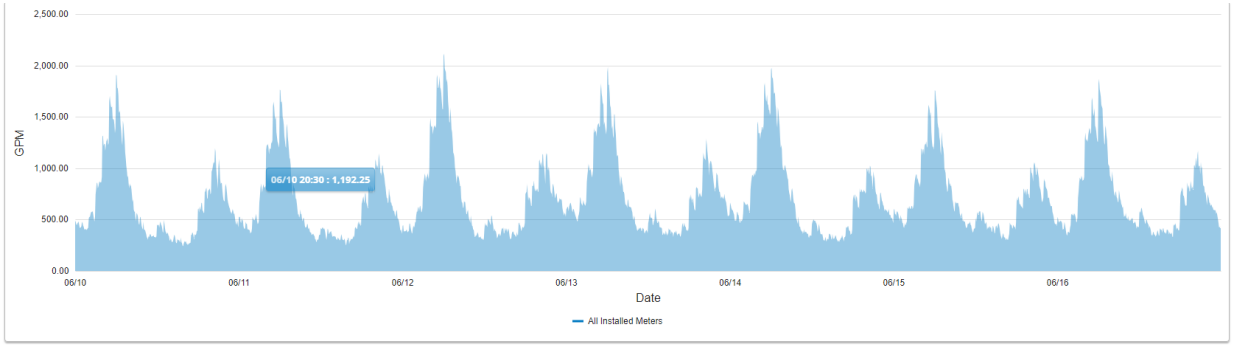
- Energy Efficiency rebates continue to support residents with $13,175 is rebates processed as of June 17th. Sustainability continues to increase rebate opportunities such as the recent electric lawnmower addition.
- The Sustainability Division was accepted by the Partners In Energy program to begin development on a Beneficial Electrification Plan for the Town of Erie. This effort will begin in late May and run for 6-9 months. Both Louisville and Superior have completed similar plans identifying and outlining how to decarbonize their built environment.
- The Sustainability Division and the Building Division continue to participate in the Regional Energy Code Cohort. Climate Pollution Reduction Implementation Grant championed by the Denver Regional Council of Governments (DRCOG). If awarded, this grant will bring just shy of $200 million for building electrification to the Colorado Front Range corridor, including Erie.

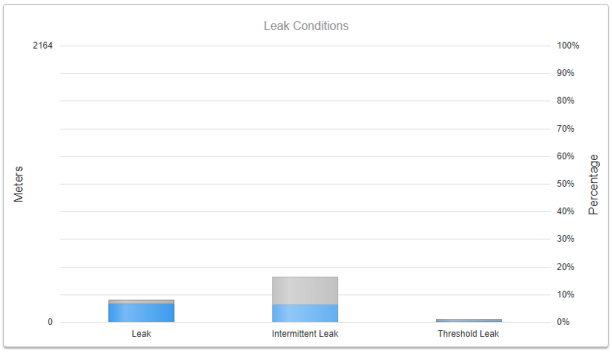
Outreach & Education

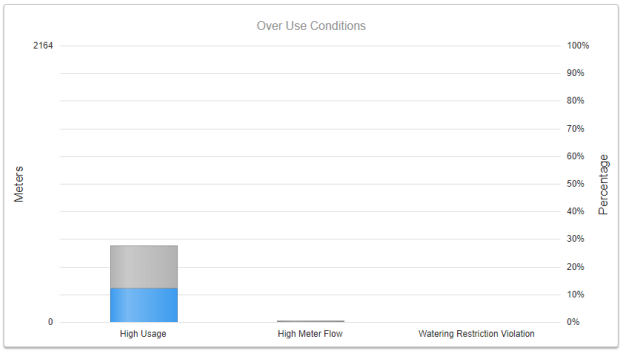
- The Sustainability Division will again be participating in Ecotoberfest, a collaborative event with Louisville, Lafayette and Superior that showcases sustainability in the Front Range. This year's event is Oct. 5 from 2-6 p.m. at the Louisville Community Park. If you are interested in being a vendor at this event, please email sustainableerie@erico.gov for more details.

Water Conservation

- Waterwise Landscaping Ordinance development with Western Resource Advocates and WaterNow Alliance – official meetings begin in July.
- Moving forward with design firm Kimley Horn for Leon A. Wurl Service Center 24,000 square foot turf replacement project.
- Town of Erie Turf Replacement Rebate Program:
    - 47 total projects in pipeline or completed.
    - Project pipeline represents $57,103 in potential rebates.
    - 10 projects completed to date with 14,044 sq. ft. of turf replaced and $12,153 spent on rebates
- Water Efficiency Rebates – 109 rebates provided to residents so far in 2024.
- Resource Central programming is off a great start with irrigation assessments just beginning now:
    - 87 of 100 Garden in a Box subscriptions have been purchased.
    - 20 active applicants in the Lawn Replacement program.
    - 5 Slow the Flow appointments completed, 33 scheduled.







Leak Count

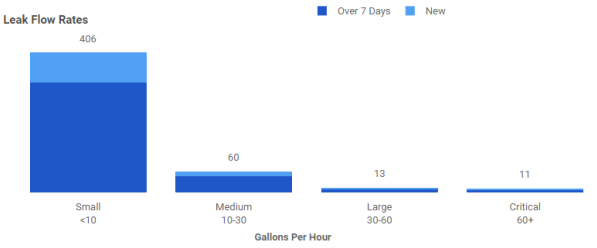
490

Out of 11,998 Meters

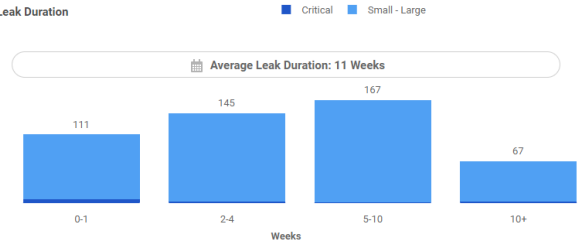
379 77%
Without EyeOnWater

111 23%
With EyeOnWater

Leak Flow Rates



Leak Duration



Take Action

View customers with leaks or Export data.

View | Export

TOWN OF ERIE

645 Holbrook Street
Erie, CO 80516

Town Council

Board Meeting Date: 6/25/2024

File #: 24-322, **Version:** 1

Subject:
Finance Sales Tax Monthly Report
Department: Finance

Presenter(s): Cassie Bethune, Finance Manager

Staff Recommendation:
Information Only

Summary and Background of Subject Matter:
The Finance Sales Tax Monthly Report provides an update on vehicle and non-vehicle sales tax including the breakdown between economic zones.

Board Priority(s) Addressed:
- ✓ Prosperous Economy
- ✓ Effective Governance
- ✓ Fiscally Responsible

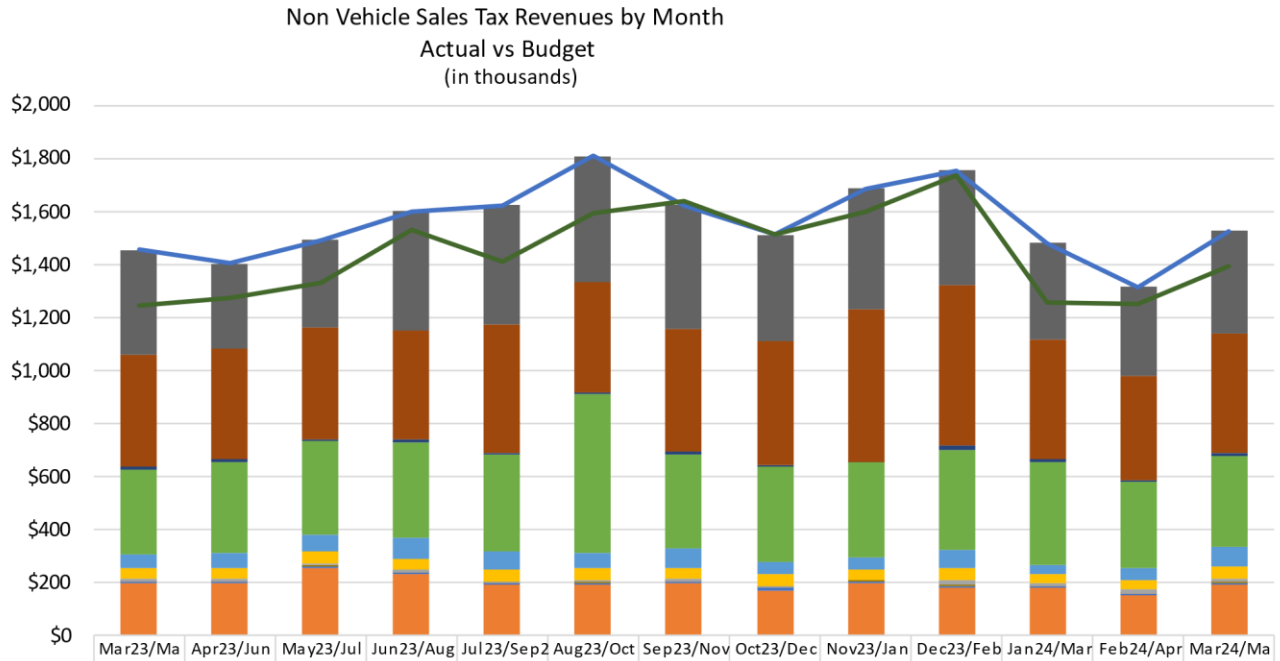
Attachment:
1. Finance Sales Tax Monthly Report

Monthly Sales Tax Update

May 2024 Receipts

Monthly Highlights (non-vehicle sales tax):

- There is a two-month delay between tax filing and receipts. The State collects sales tax on the Town's behalf and remits to the Town on a monthly basis.
- Total non-vehicle Sales Tax receipts for May 2024 (March filing month) was **$1.525 million,** which exceeds the monthly budget of $1.393 million by $132K, or 9.5%.
- **$210K (16.0%) increase** from April 2024 receipts (February sales).
- **$71K (4.9%) increase** compared to May 2023 receipts, mainly due to increased growth in Internet Sales and in the Historic Downtown Erie zones.
- Excluding new and missing taxpayers, April sales tax receipts increased $76K, or 6.0% compared to May 2023.



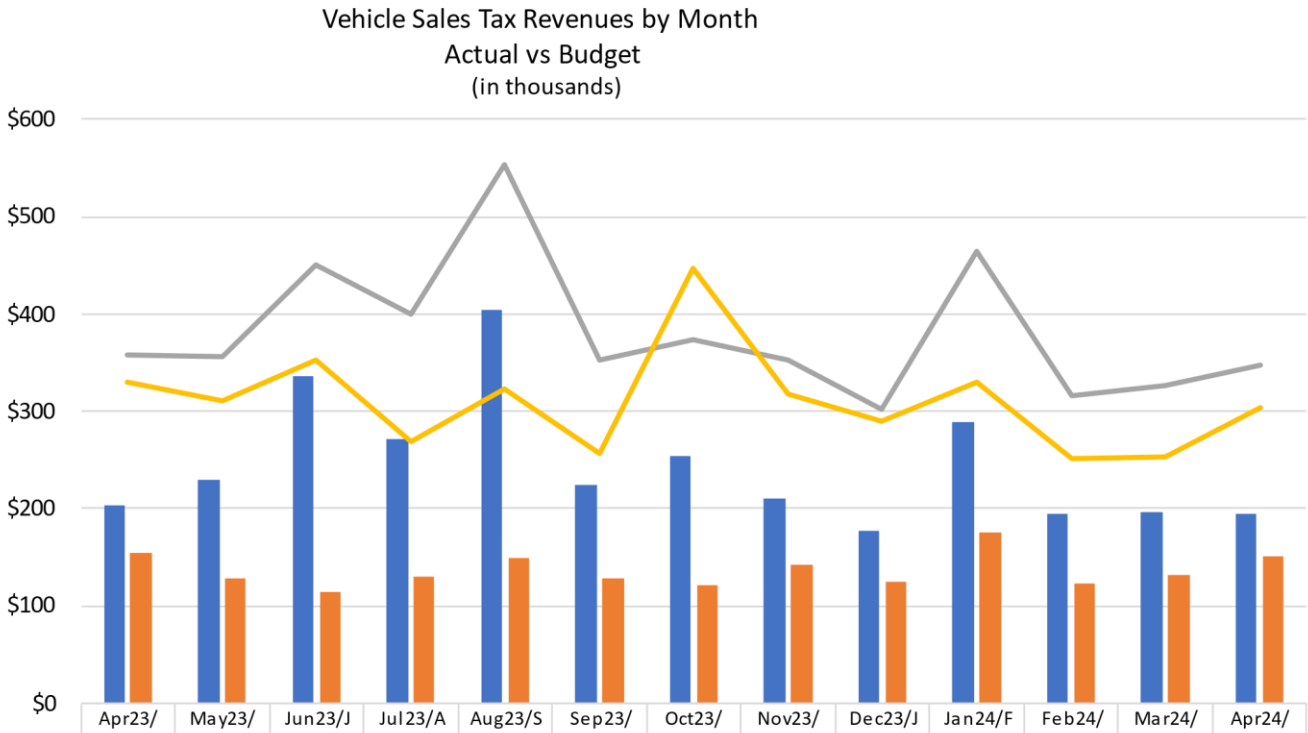
	Mar23/May23	Apr23/Jun23	May23/Jul23	Jun23/Aug23	Jul23/Sep23	Aug23/Oct23	Sep23/Nov23	Oct23/Dec23	Nov23/Jan24	Dec23/Feb24	Jan24/Mar24	Feb24/Apr24	Mar24/May24
10 - All Others	$397	$318	$330	$452	$452	$477	$468	$402	$453	$431	$363	$334	$386
09 - Internet Sales	$417	$416	$424	$408	$484	$413	$459	$464	$575	$607	$454	$393	$449
08 - Erie - Other	$13	$14	$5	$11	$6	$8	$11	$8	$5	$14	$8	$5	$10
07 - Vista Ridge/Hwy 7	$324	$343	$353	$359	$365	$601	$356	$360	$358	$376	$388	$329	$343
06 - Historic Downtown Erie	$51	$58	$62	$82	$68	$57	$72	$45	$42	$70	$37	$42	$75
05 - Erie Parkway	$39	$40	$45	$40	$44	$43	$43	$43	$40	$47	$34	$36	$47
04 - Austin Industrial Park	$9	$7	$7	$8	$6	$7	$7	$7	$5	$16	$7	$15	$9
03 - Airport	$3	$3	$3	$3	$3	$5	$4	$4	$4	$3	$3	$2	$5
02 - County Line Rd (North of Telleen)	$6	$7	$8	$7	$5	$8	$7	$7	$6	$4	$6	$4	$7
01 - Arapahoe & 287	$196	$196	$254	$230	$191	$190	$196	$172	$197	$184	$180	$154	$193
Non-Vehicle Sales Tax Total	$1,454	$1,402	$1,493	$1,601	$1,623	$1,809	$1,623	$1,512	$1,684	$1,754	$1,481	$1,315	$1,525
Non-Vehicle Budgeted Sales Tax	$1,247	$1,273	$1,329	$1,528	$1,410	$1,591	$1,636	$1,512	$1,598	$1,735	$1,254	$1,248	$1,393

Monthly Sales Tax Update

May 2024 Receipts

Monthly Highlights (vehicle sales tax):

- Vehicle sales tax receipts have a one-month delay. The counties collect taxes and remit to the Town on a monthly basis.
- Total vehicle Sales Tax receipts for May 2024 (April sales) was **$346K,** which is more than the monthly budget of $303K by $44K, or 14.4%.
- **$19K (5.9%) increase** from April 2024 receipts (March sales).
- **$11K (3.1%) decrease** compared to May 2023 receipts.
- Total vehicle sales tax receipts YTD are **$1.4M**, which exceeds the monthly budget to date of $1.1K by $317K, or 28%.
- The budget per month is based on monthly trends from the prior year.

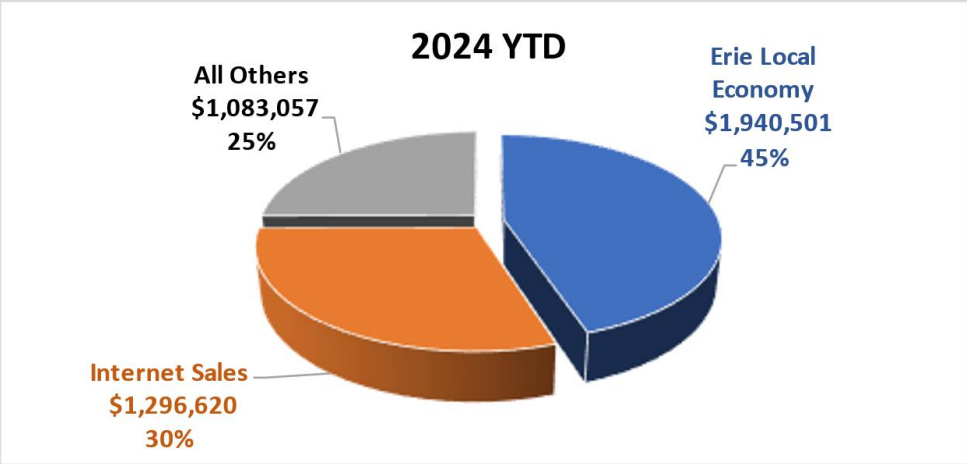


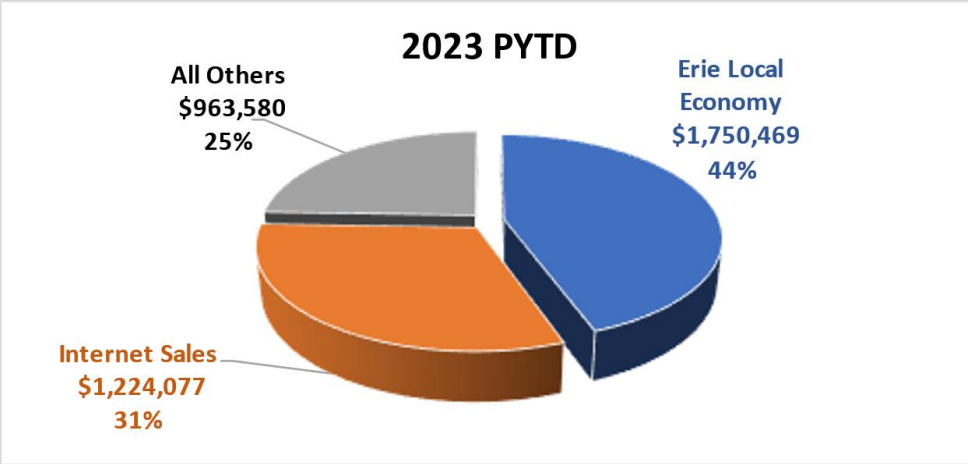
	Apr23/ May23	May23/ Jun23	Jun23/Jul23	Jul23/Aug23	Aug23/Sep23	Sep23/ Oct23	Oct23/ Nov23	Nov23/ Dec23	Dec23/Jan24	Jan24/Feb24	Feb24/ Mar24	Mar24/ Apr24	Apr24/ May24
Weld County	$203	$229	$335	$271	$404	$225	$254	$210	$177	$289	$194	$196	$195
Boulder County	$154	$128	$115	$129	$149	$128	$121	$142	$125	$175	$122	$131	$151
Vehicle Sales Tax Total	$357	$357	$450	$400	$553	$353	$374	$352	$302	$464	$316	$327	$346
Vehicle Budgeted Sales Tax	$329	$311	$353	$269	$323	$257	$447	$317	$289	$330	$251	$252	$303

Monthly Sales Tax Update

May 2024 Receipts

Non-vehicle Sales tax breakdown by Local Economy vs. Others





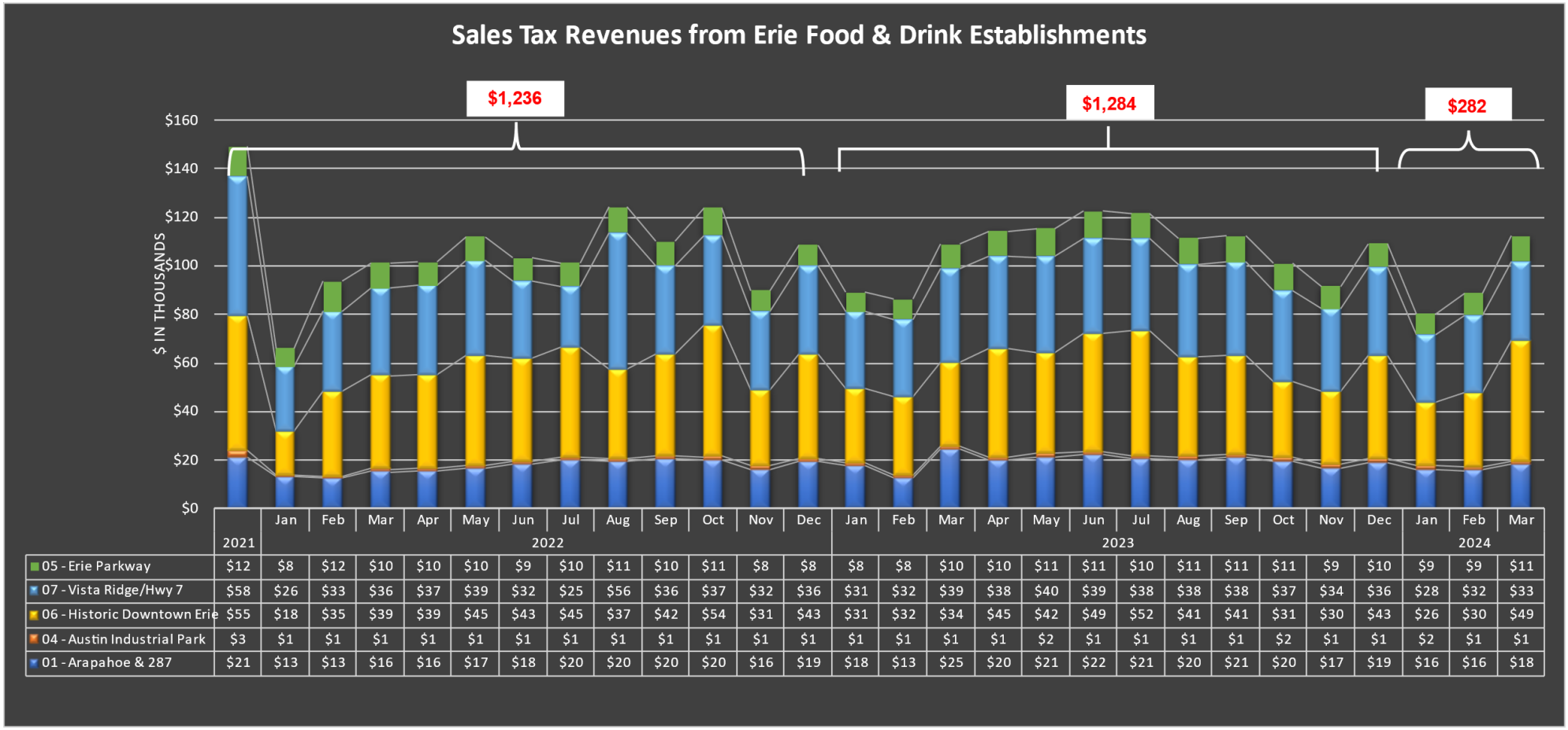
- 45% of the total non-vehicle sales tax receipts as of May 2024 (March sales) are generated from within Erie, compared to 44% in 2023.
- The "All Others" category includes sales tax generated from vendors outside of Erie, utilities, and cable companies. This category makes up 25% in 2024, the same as in 2023.
- Internet sales continues to make up a significant portion of Erie's total non-vehicle sales tax revenues. 30% of the 2024 non-vehicle tax receipts come from internet sales, compared to 31% in 2023.
- Of the $1.525 million of non-vehicle sales tax receipts in May 2024 (March sales), $687k (45.0%) comes from the top 10 taxpayers, compared to $680k (46.8%) in May 2023.
- Overall, we've seen an increase in the Erie local economy over the last year, and we expect it to continue to grow as more businesses come online such as King Soopers at Nine Mile.

Monthly Sales Tax Update

May 2024 Receipts

Food and Drinks Establishments Sales tax breakdown by Economic Zone

Sales tax from food and drink establishments make up 14.5% of the non-vehicle sales tax generated from businesses within Erie and 6.5% of the total non-vehicle sales tax including internet and other sales. May 2024 sales tax receipts (March sales) from these establishments are $112K, which is about $23K (25.7%) higher than the prior month and $3K (3.1%) higher than May 2023 receipts (March sales).

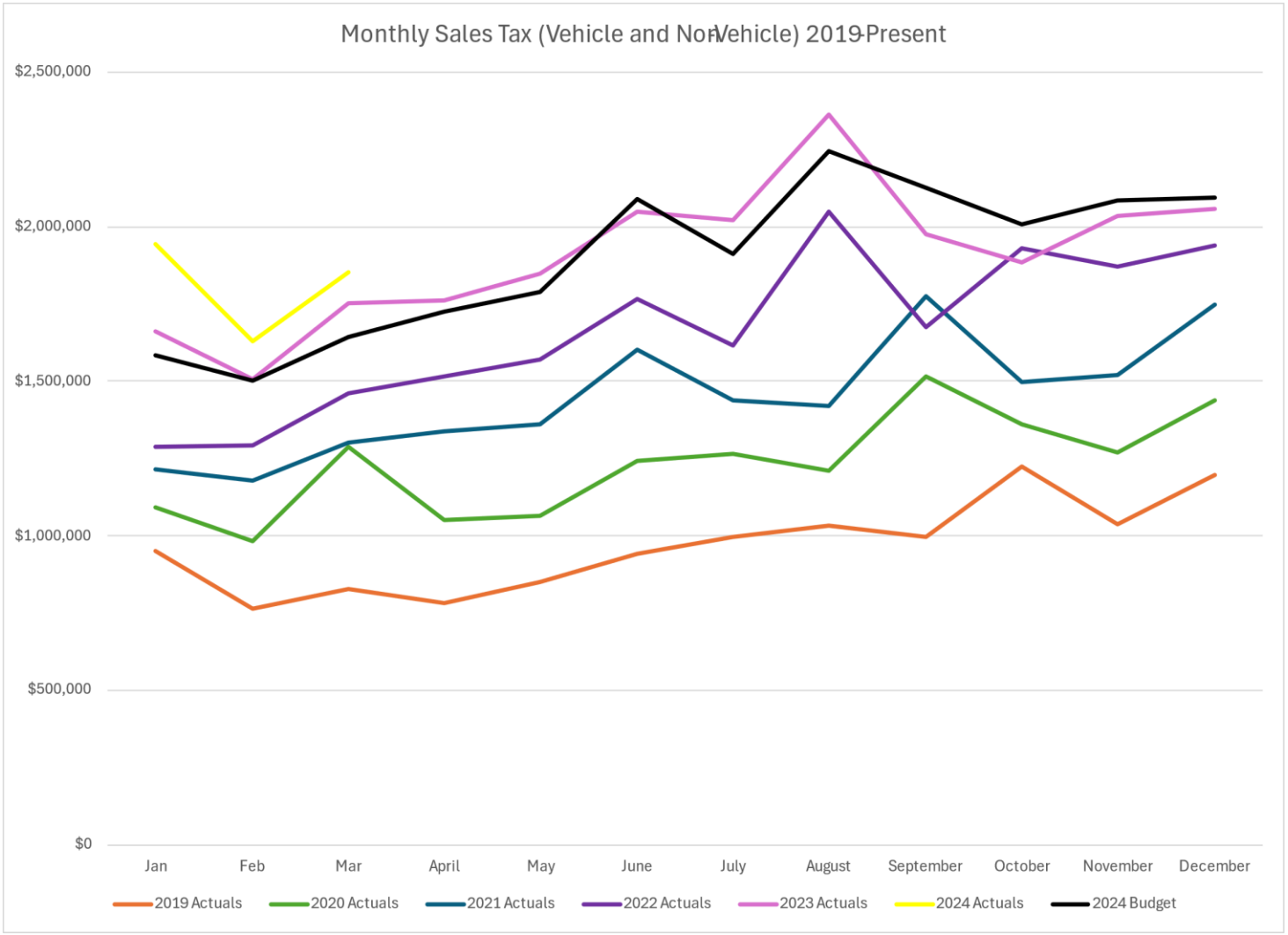


	2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
		2022												2023												2024		
05 - Erie Parkway	$12	$8	$12	$10	$10	$10	$9	$10	$11	$10	$11	$8	$8	$8	$8	$10	$10	$11	$11	$10	$11	$11	$11	$9	$10	$9	$9	$11
07 - Vista Ridge/Hwy 7	$58	$26	$33	$36	$37	$39	$32	$25	$56	$36	$37	$32	$36	$31	$32	$39	$38	$40	$39	$38	$38	$38	$37	$34	$36	$28	$32	$33
06 - Historic Downtown Erie	$55	$18	$35	$39	$39	$45	$43	$45	$37	$42	$54	$31	$43	$31	$32	$34	$45	$42	$49	$52	$41	$41	$31	$30	$43	$26	$30	$49
04 - Austin Industrial Park	$3	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$2	$1	$1	$1	$1	$2	$1	$1	$2	$1	$1
01 - Arapahoe & 287	$21	$13	$13	$16	$16	$17	$18	$20	$20	$20	$20	$16	$19	$18	$13	$25	$20	$21	$22	$21	$20	$21	$20	$17	$19	$16	$16	$18

Monthly Sales Tax Update

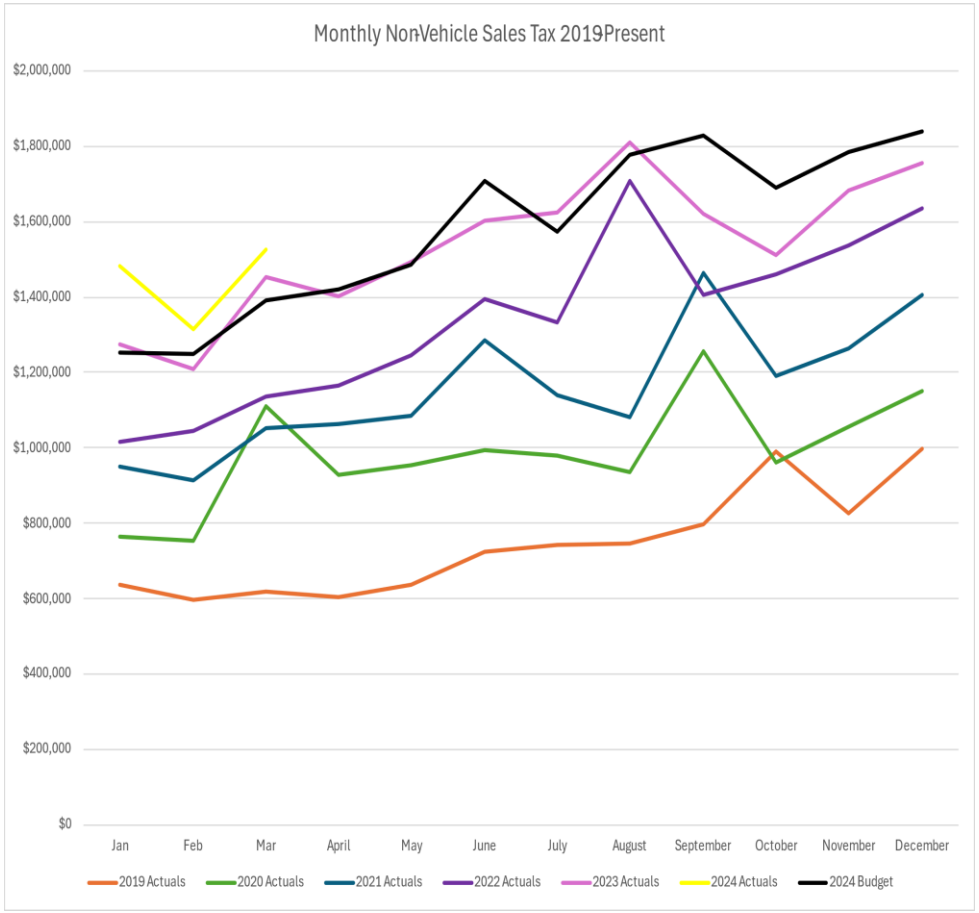
May 2024 Receipts

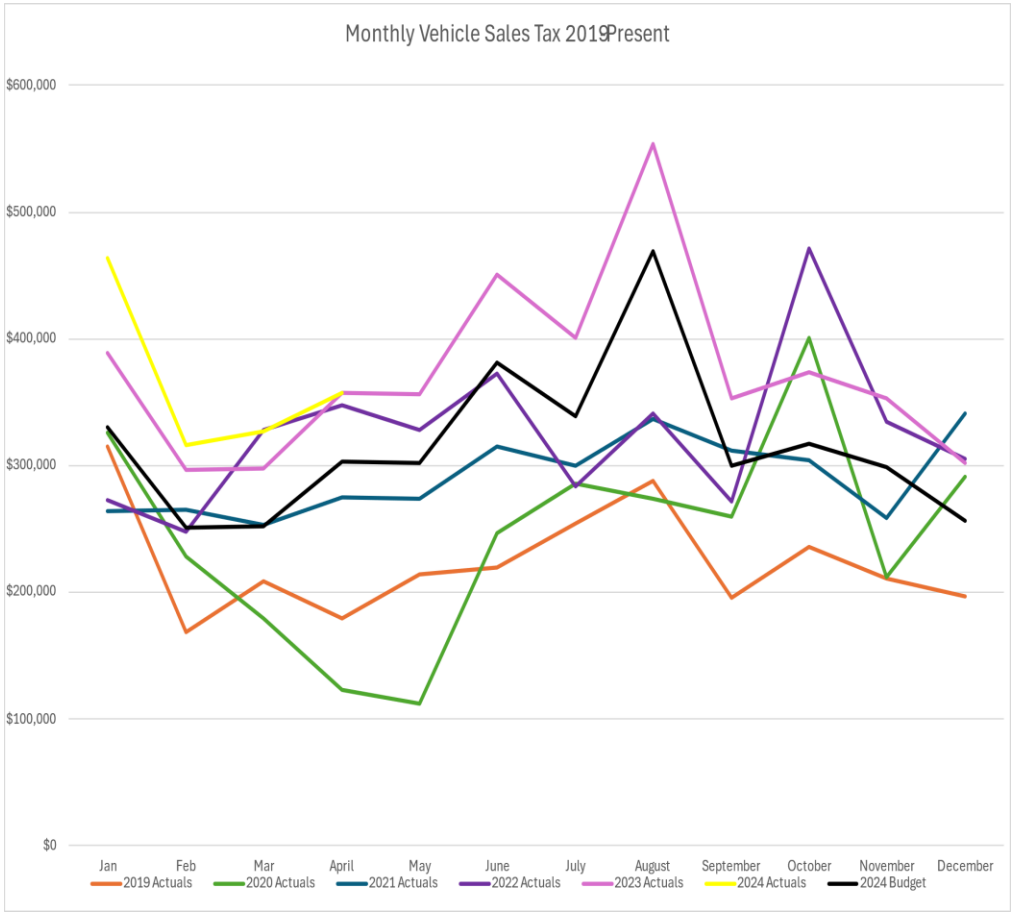
Below are monthly comparisons of how the Town's sales tax has performed over the last five years and what we projected (budgeted) in 2024. The first graph combines Non-Vehicle and Vehicle Sales Tax, whereas the second and third graphs separate out Vehicle Sales Tax and Non-Vehicle Sales Tax.



Monthly Sales Tax Update

May 2024 Receipts





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Second Amendment to Agreement for Professional Services

This Second Amendment to Agreement for Professional Services (the "Second Amendment") is made and entered into this ____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516 (the "Town"), and Wold Architects and Engineers, an independent contractor with a principal place of business at 1553 Platte Street, Suite 201, Denver, CO 80202 ("Wold") (each a "Party" and collectively the "Parties").

Whereas, on June 14, 2022, the Parties entered into an Agreement for Professional Services (the "Agreement") for the Town Hall Expansion Design and;

Whereas, on May 9, 2023, the Town Council approved the First Amendment to the Agreement for additional services needed to complete final design and;

Whereas, additional services are needed to complete design for the Town Hall Addition Garden Level and the Parties wish to amend the Agreement as set forth herein.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Scope of Work. Exhibit A to the Agreement is hereby amended by the inclusion of the following additional items in the Scope of Work.

- Complete Design Services through Construction Administration for approximately 3,640 square feet of previously shelled, unfinished space in the Garden Level of the Town Hall Addition including the interior finishes, mechanical, electrical, and technology/low voltage design

2. Compensation. Exhibit B to the Agreement is hereby amended to increase the maximum amount of compensation to $1,056,346, allocated as follows:

Original Contract Amount:	$ 833,633
1st Amendment:	$ 200,213
2nd Amendment:	$ 22,500
Total New Contract Amount	$1,056,346

3. Remainder of Agreement. Except as expressly modified herein, the Agreement shall remain in full force and effect.

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In Witness Whereof, the Parties have executed this Second Amendment as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Wold Architects and Engineers

DocuSigned by:
_____
7EEF4BBBCAAD49B...
Roger Schroepfer, Partner

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of Wold Architects and Engineers.

My commission expires:

(Seal)

_____
Notary Public

DocuSign Envelope ID: 2C2FAF93-AD60-4BB6-822A-62693EDAF124

Agreement for Professional Services
(Schofield Farms Concept Design and Construction Drawings)

This Agreement for Professional Services (the "Agreement") is made and entered into this _____ day of _____, 2024 (the "Effective Date"), by and between the Town of Erie, a Colorado municipal corporation with an address of 645 Holbrook Street, P.O. Box 750, Erie, CO 80516, (the "Town"), and Wenk Associates, Inc., an independent contractor with a principal place of business at 1130 31st Street, Suite 101, Denver, CO 80205 ("Contractor") (each a "Party" and collectively the "Parties").

Whereas, the Town requires professional services; and

Whereas, Contractor has held itself out to the Town as having the requisite expertise and experience to perform the required professional services.

Now Therefore, for the consideration hereinafter set forth, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

I. Scope of Services

A. Contractor shall furnish all labor and materials required for the complete and prompt execution and performance of all duties, obligations, and responsibilities which are described or reasonably implied from the Scope of Services set forth in **Exhibit A**, attached hereto and incorporated herein by this reference.

B. A change in the Scope of Services shall not be effective unless authorized as an amendment to this Agreement. If Contractor proceeds without such written authorization, Contractor shall be deemed to have waived any claim for additional compensation, including a claim based on the theory of unjust enrichment, quantum merit or implied contract. Except as expressly provided herein, no agent, employee, or representative of the Town is authorized to modify any term of this Agreement, either directly or implied by a course of action.

II. Term and Termination

A. This Agreement shall commence on the Effective Date, and shall continue until Contractor completes the Scope of Services to the satisfaction of the Town, or until terminated as provided herein.

B. Either Party may terminate this Agreement upon 30 days advance written notice. The Town shall pay Contractor for all work previously authorized and completed prior to the date of termination. If, however, Contractor has substantially or materially breached this Agreement, the Town shall have any remedy or right of set-off available at law and equity.

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III. Compensation

In consideration for the completion of the Scope of Services by Contractor, the Town shall pay Contractor $385,247. This amount shall include all fees, costs and expenses incurred by Contractor, and no additional amounts shall be paid by the Town for such fees, costs and expenses. Contractor may submit periodic invoices, which shall be paid by the Town within 30 days of receipt.

IV. Professional Responsibility

A. Contractor hereby warrants that it is qualified to assume the responsibilities and render the services described herein and has all requisite corporate authority and professional licenses in good standing, required by law. The work performed by Contractor shall be in accordance with generally accepted professional practices and the level of competency presently maintained by other practicing professional firms in the same or similar type of work in the applicable community. The work and services to be performed by Contractor hereunder shall be done in compliance with applicable laws, ordinances, rules and regulations.

B. The Town's review, approval or acceptance of, or payment for any services shall not be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. Because the Town has hired Contractor for its professional expertise, Contractor agrees not to employ subcontractors to perform any work under this Agreement, except as expressly set forth in the Scope of Services.

D. Contractor shall at all times comply with all applicable law, including without limitation all current and future federal, state and local statutes, regulations, ordinances and rules relating to: the emission, discharge, release or threatened release of a Hazardous Material into the air, surface water, groundwater or land; the manufacturing, processing, use, generation, treatment, storage, disposal, transportation, handling, removal, remediation or investigation of a Hazardous Material; and the protection of human health, safety or the indoor or outdoor environmental, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601, *et seq*. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. § 1801, *et seq*.; the Resource Conservation and Recovery Act, 42 U.S.C. § 6901, *et seq*. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. § 2601, *et seq*.; the Clean Water Act, 33 U.S.C. § 1251, *et seq*.; the Clean Air Act, 42 U.S.C. § 7401, *et seq*.; the Occupational Safety and Health Act, 29 U.S.C. § 651, *et seq*.; all applicable environmental statutes of the State of Colorado; and all other federal, state or local statutes, laws, ordinances, resolutions, codes, rules, regulations, orders or decrees regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic or dangerous waste, substance or material, as now or at any time hereafter in effect.

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V. Ownership

Any materials, items, and work specified in the Scope of Services, and any and all related documentation and materials provided or developed by Contractor shall be exclusively owned by the Town. Contractor expressly acknowledges and agrees that all work performed under the Scope of Services constitutes a "work made for hire." To the extent, if at all, that it does not constitute a "work made for hire," Contractor hereby transfers, sells, and assigns to the Town all of its right, title, and interest in such work. The Town may, with respect to all or any portion of such work, use, publish, display, reproduce, distribute, destroy, alter, retouch, modify, adapt, translate, or change the Work Product without providing notice to or receiving consent from Contractor; provided that Contractor shall have no liability for any work that has been modified by the Town.

VI. Independent Contractor

Contractor is an independent contractor. Notwithstanding any other provision of this Agreement, all personnel assigned by Contractor to perform work under the terms of this Agreement shall be, and remain at all times, employees or agents of Contractor for all purposes. Contractor shall make no representation that it is a Town employee for any purposes.

VII. Insurance

A. Contractor agrees to procure and maintain, at its own cost, a policy or policies of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by Contractor pursuant to this Agreement. At a minimum, Contractor shall procure and maintain, and shall cause any subcontractor to procure and maintain, the insurance coverages listed below, with forms and insurers acceptable to the Town.

1. Worker's Compensation insurance as required by law.

2. Commercial General Liability insurance with minimum combined single limits of $1,000,000 each occurrence and $2,000,000 general aggregate. The policy shall be applicable to all premises and operations, and shall include coverage for bodily injury, broad form property damage, personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision, and shall include the Town and the Town's officers, employees, and contractors as additional insureds. No additional insured endorsement shall contain any exclusion for bodily injury or property damage arising from completed operations.

3. Professional liability insurance with minimum limits of $1,000,000 each claim and $2,000,000 general aggregate.

DocuSign Envelope ID: 2C2FAF93-AD60-4BB6-822A-62693EDAF124

B. Such insurance shall be in addition to any other insurance requirements imposed by law. The coverages afforded under the policies shall not be canceled, terminated or materially changed without at least 30 days prior written notice to the Town. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Any insurance carried by the Town, its officers, its employees or its contractors shall be excess and not contributory insurance to that provided by Contractor. Contractor shall be solely responsible for any deductible losses under any policy.

C. Contractor shall provide to the Town a certificate of insurance as evidence that the required policies are in full force and effect. The certificate shall identify this Agreement.

VIII. Indemnification

A. Contractor agrees to indemnify and hold harmless the Town and its officers, insurers, volunteers, representative, agents, employees, heirs and assigns from and against all claims, liability, damages, losses, expenses and demands, including reasonable attorney fees, on account of injury, loss, or damage, including without limitation claims arising from bodily injury, personal injury, sickness, disease, death, property loss or damage, or any other loss of any kind whatsoever, which arise out of or are in any manner connected with this Agreement if such injury, loss, or damage is caused in whole or in part by, the omission, error, professional error, mistake, negligence, or other fault of Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor, or which arise out of a worker's compensation claim of any employee of Contractor or of any employee of any subcontractor of Contractor; provided that Contractor's liability under this indemnification provision shall be to the fullest extent of, but shall not exceed, that amount represented by the degree or percentage of negligence or fault attributable to Contractor, any subcontractor of Contractor, or any officer, employee, representative, or agent of Contractor or of any subcontractor of Contractor.

B. If Contractor is providing architectural, engineering, surveying or other design services under this Agreement, the extent of Contractor's obligation to indemnify and hold harmless the Town may be determined only after Contractor's liability or fault has been determined by adjudication, alternative dispute resolution or otherwise resolved by mutual agreement between the Parties, as provided by C.R.S. § 13-50.5-102(8)(c).

IX. Miscellaneous

A. *Governing Law and Venue*. This Agreement shall be governed by the laws of the State of Colorado, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.

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B. *No Waiver*. Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by the Town shall not constitute a waiver of any of the other terms or obligation of this Agreement.

C. *Integration*. This Agreement constitutes the entire agreement between the Parties, superseding all prior oral or written communications.

D. *Third Parties*. There are no intended third-party beneficiaries to this Agreement.

E. *Notice*. Any notice under this Agreement shall be in writing, and shall be deemed sufficient when directly presented or sent pre-paid, first class U.S. Mail to the Party at the address set forth on the first page of this Agreement.

F. *Severability*. If any provision of this Agreement is found by a court of competent jurisdiction to be unlawful or unenforceable for any reason, the remaining provisions hereof shall remain in full force and effect.

G. *Modification*. This Agreement may only be modified upon written agreement of the Parties.

H. *Assignment*. Neither this Agreement nor any of the rights or obligations of the Parties shall be assigned by either Party without the written consent of the other.

I. *Governmental Immunity*. The Town and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities or protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the Town and its officers, attorneys or employees.

J. *Rights and Remedies*. The rights and remedies of the Town under this Agreement are in addition to any other rights and remedies provided by law. The expiration of this Agreement shall in no way limit the Town's legal or equitable remedies, or the period in which such remedies may be asserted, for work negligently or defectively performed.

K. *Subject to Annual Appropriation*. Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the Town not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt or liability beyond the current fiscal year.

L. *Force Majeure*. No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this

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Agreement due to acts of God, floods, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.

In Witness Whereof, the Parties have executed this Agreement as of the Effective Date.

Town of Erie, Colorado

_____
Justin Brooks, Mayor

Attest:

_____
Debbie Stamp, Town Clerk

Contractor

By: DocuSigned by: Nicole Horst 82249C41B2E1419...

State of Colorado)
) ss.
County of _____)

The foregoing instrument was subscribed, sworn to and acknowledged before me this ___ day of _____, 2024, by _____ as _____ of _____.

My commission expires:

(Seal)

_____
Notary Public

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Exhibit A
Scope of Services

Contractor's Duties

The scope of work builds on the 2018 Schofield Farm & Open Space Master Plan Report based on current program, drainage, parking, and circulation desired for the Site. During the term of this Agreement, Contractor shall perform the following duties, as directed by the Town:

Phase 1: Startup and Concept Refinement

Task 1: Data Collection:

- Provide Site Survey (by Flatirons, Inc.)
- Review drainage issues and potential based on JVA's Drainage Plan (Drainage Plan under a sperate contract with the Town). (With JVA Consulting Engineers).
- Review ditch company requirements and water rights standings.
- USACE classification/process understanding (for potential trails on dam).
- Utility review and opportunities/constraints understanding.
- Review Historical classification and significance (formal and informal/social values).
- Identify environmental considerations, opportunities, and constraints. (by Birch Ecology).
- Wetlands mapping (by Birch Ecology).
- Review existing Phase 1 Environmental Report and identify opportunities and constraints (by Birch Ecology).
- Identify Mile High Flood District access requirements and applicable standards.
- Develop a Stakeholder List outreach strategy (outreach performed by the Town).
- Develop information for distribution to surrounding Homeowners' Association(s) (distribution performed by the Town).
- Coordinate with Erie Makers' Space, identify utility, access/circulation, and visibility needs.
- Coordinate with current property lessee (farmer), identify access/circulation, storage/staging, irrigation, and other requirements.

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- Coordinate with Town of Erie Parks Operations to identify goals, objectives, and concerns.
- Coordinate with Town of Erie Parks Event Planner to identify programmatic goals, spatial requirements, technical event requirements/logistics, and parking/access needs/
- Coordinate with Boulder County to identify potential shared use of Prince Reservoir for items such as an overlook from the Schofield site, edge improvements, and trail connection.
- Coordinate with Erie Police Department to identify security, emergency access, visibility, and other needs.
- Coordinate with Mountain View Fire Rescue to identify access, addressing, circulation, and fire hydrant requirements.
- Regular Coordination with Town of Erie Parks & Recreation Project Manager(s).

Task 2: Program Establishment:

- Identify Parking needs, traffic impacts, and triggers for requiring improvements to 111th St.
- Precedents Study (scale, character, and program).
- Program Vicinity study (identify similar venues with a radius as determined in coordination with the TOE)
- Formalize Goals/Objectives for program areas included in this scope of work.
- Establish drainage goals/criteria/strategy to be included with this scope of work.

Task 3: Site-wide Concept Plan:

- Coordinate with drainage study/large scale drainage goals to identify impact and inclusions in the scope of this project.
- Establish final program/refine existing master plan for entire property.
- Determine parking and traffic needs and incorporate potential improvements in the Concept Plan.
- Determine water quality needs and incorporate into the Concept Plan.
- Evaluate layout, program options, and circulation with the Town.
- Finalize preferred Concept to guide next phases.

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- Develop detailed phasing plan with ROM cost opinion, including:
  - Program Plan
  - Layout Plan
  - Over-lot grading plan
  - Conceptual utility plan
  - Circulation diagram
  - Access diagram
  - Irrigation strategy (for raw water and potable water by area)

Phase 1 Meetings:

- Weekly Check-In with Parks PM (up to 4)
- Weekly Check-In with Core Design Team (up to 4)
- Up to (2) Meetings with Stakeholders

Phase 2, Package A: Trailhead, Drainage, Trails, & Waypoints.

Task 1: Schematic Design (SD, 30% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plan
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the Town for Review

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Task 2: Design Development (DD, 60% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation: Mainline with sized Point of Connection
    - Electrical: One line diagram, 60% plan
  - Sections
  - Details
- Opinion of Probable Construction Costs
- Outline Specifications
- Written responses to 30% Comments
- (1) Submittal to the Town for Review

Task 3: Construction Documents (90% CD and 100%/For Construction)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation
    - Electrical
  - Details
- Opinion of Probable Construction Costs
- Specifications
- Written responses to 60% and 90% Comments
- (2) Submittals (90% and 100%) to the Town for Review

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Task 4: Bid Assistance:

- Bid tab
- Review of contractor's bids
- Attendance at pre-bid meeting
- Respond to RFI's
- Issue addenda

Task 5: Construction Observation (CO):

CO services are not included, contractor to scope CO when program/inclusions are finalized after the 60% CD submittal as an additional service or under a new contract with the Town.

Phase 2, Package A Meetings:

- Bi-Weekly Check-In with Parks PM (up to 8)
- Bi-Weekly Check-In with Core Design Team (up to 8)
- Meeting total with TOE Departments or Reviewers (Public Works, Other)

Phase 2, Package B: Event/Multi-Use Areas, Landscaping Around Buildings, and Staff Parking:

Task 1: Schematic Design (SD, 30% Construction Documents)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plans
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the Town for Review

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Task 2: Design Development (DD, 60% Construction Documents)

- Drawings:
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    - Electrical: One line diagram, 60% plan
  - Sections
  - Details
- Opinion of Probable Construction Costs
- Outline Specifications
- Written responses to 30% Comments
- (1) Submittal to the Town for Review

Task 3: Construction Documents (90% CD and 100%/For Construction)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting
    - Irrigation
    - Electrical
  - Details
- Opinion of Probable Construction Costs
- Specifications
- Written responses to 60% and 90% Comments
- (2) Submittals (90% and 100%) to the Town for Review

Task 4: Bid Assistance:

- Bid tab
- Review of contractor's bids
- Attendance at pre-bid meeting
- Respond to Contractor's RFI's
- Issue addenda

DocuSign Envelope ID: 2C2FAF93-AD60-4BB6-822A-62693EDAF124

Task 5: Construction Observation (CO):

CO services are not included, contractor to scope CO when program/inclusions are finalized after the 60% CD submittal as an additional service or under a new contract with the Town.

Phase 2, Package B Meetings:

- Bi-Weekly Check-In with Parks PM (up to 6, assumes 4 week overlap with Package A)
- Bi-Weekly Check-In with Core Design Team (up to 6, assumes 4 week overlap with Package A
- (1) Meeting total with TOE Departments or Reviewers (Public Works, Other)

Phase 3: West/Other Improvements

Task 1: SD (30% CD)

- Drawings:
  - Plans:
    - Existing Conditions
    - Demolition
    - Grading
    - Layout
    - Utilities
    - Planting Concept
    - Irrigation: Hydrozone plans
    - Electrical: concept with product cutsheets
  - Sections
  - Sketch details
- Opinion of Probable Construction Costs
- (1) Submittal to the TOE for Review

Task 2: Phasing Plan

- Graphic Phasing Plan
- Descriptions of Phases/inclusions
- Summary of Costs by Phase

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Tasks 2-5, Design Development, Construction Documents, Bid Assistance, and Construction Observation:

Design services beyond SD are not included, contractor to scope additional tasks to completion after program and inclusions are determined in the SD Phase as an additional service or under a new contract with the Town.

Phase 3 Meetings:

- Bi-Weekly Check-In with Parks PM (up to 3)
- Bi-Weekly Check-In with Core Design Team (up to 3)
- (1) Meeting total with TOE Departments or Reviewers (Public Works, Other)
- (1) Meeting with Recreation Staff

Contractor's Deliverables

In performance of the duties described above, Contractor shall deliver the following items to the Town, during the timeframes established by the Town:

- Sitewide Concept Plan Refinement
- Construction Drawings for two sub-areas
- Schematic Design for a third sub-area

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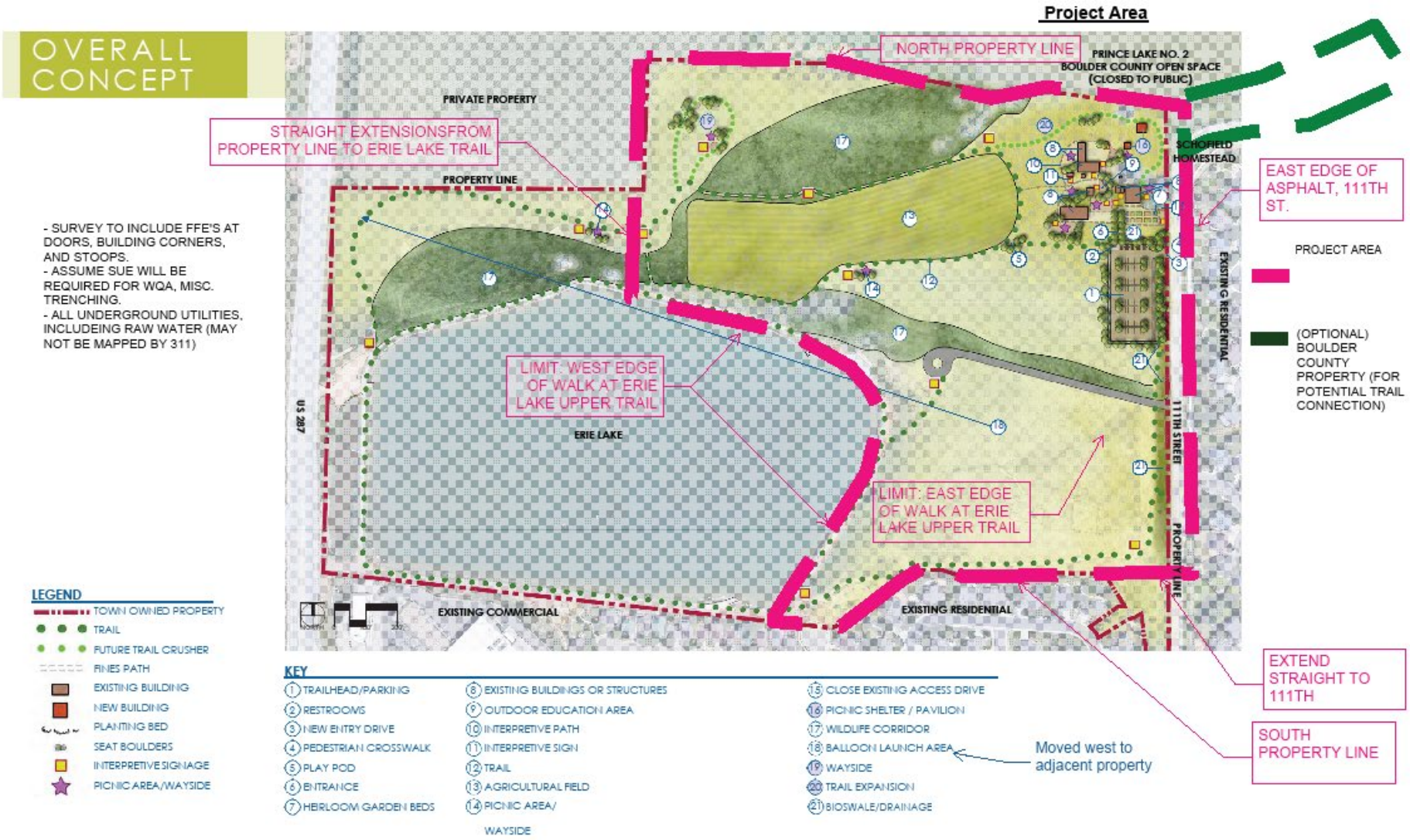
OVERALL CONCEPT



#DiscoverSchofield

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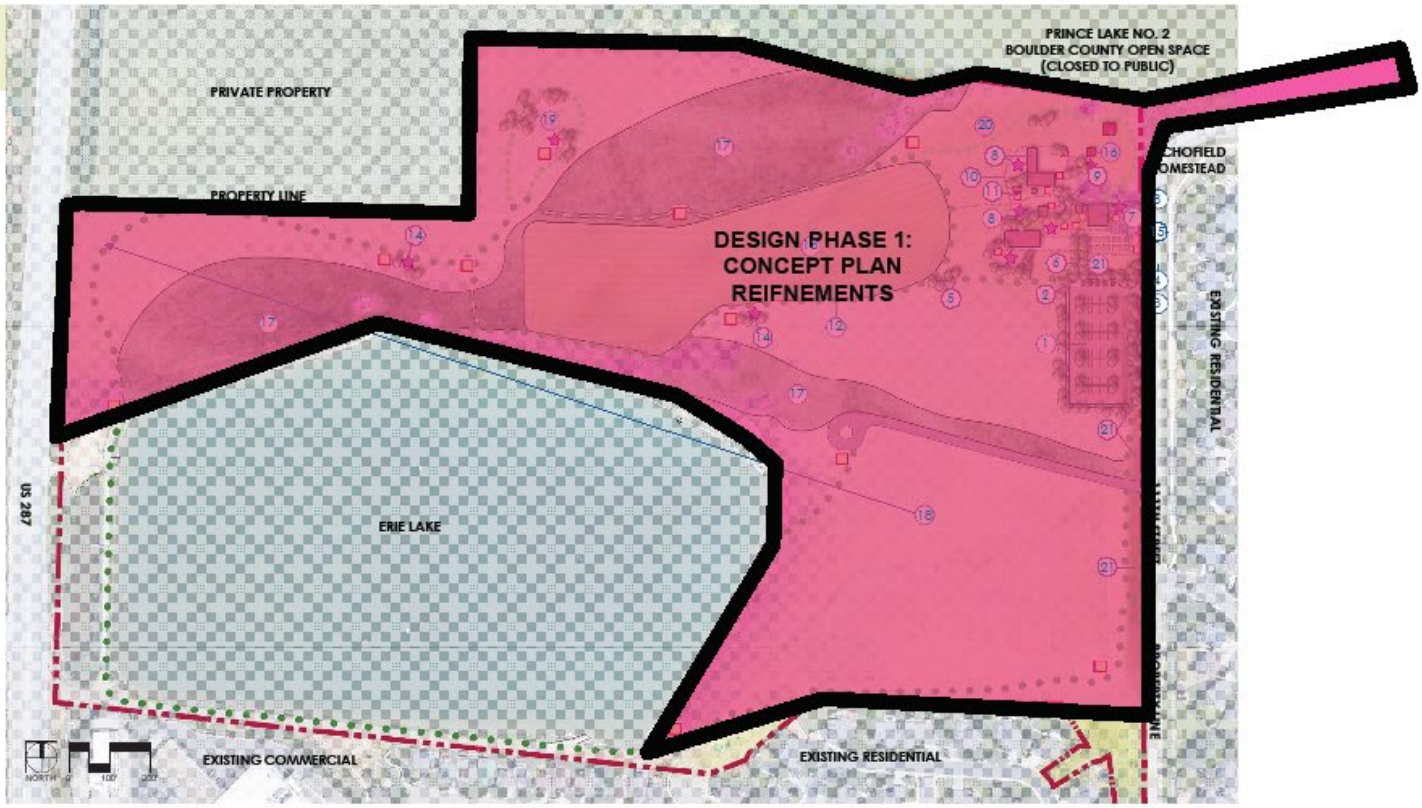
OVERALL CONCEPT

DESIGN PHASES DIAGRAM



LEGEND

- TOWN OWNED PROPERTY
- TRAIL
- FUTURE TRAIL CRUSHER FINES PATH
- EXISTING BUILDING
- NEW BUILDING
- PLANTING BED
- SEAT BOULDERS
- INTERPRETIVE SIGNAGE
- PICNIC AREA/WAYSIDE

KEY

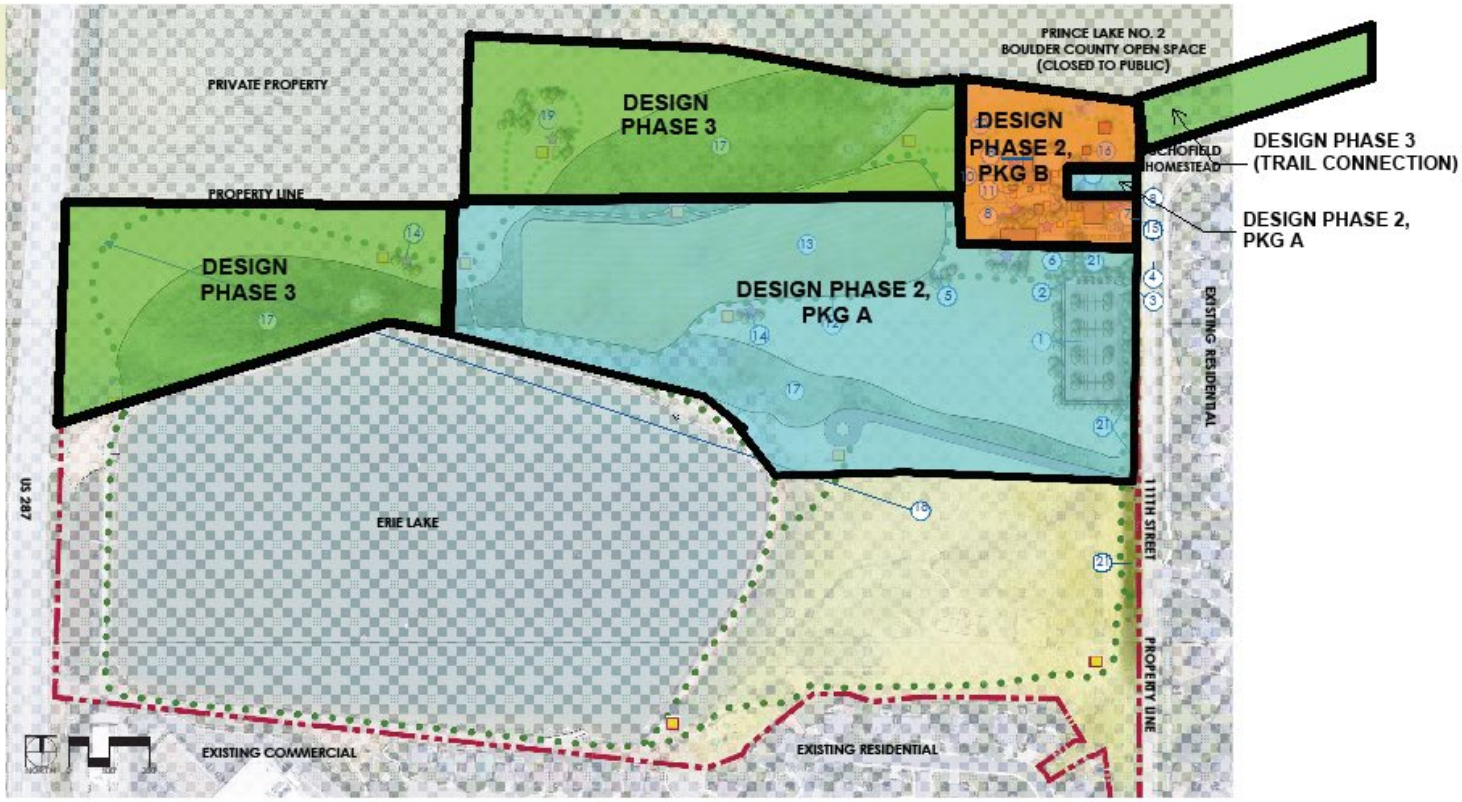
1. TRAILHEAD/PARKING
2. RESTROOMS
3. NEW ENTRY DRIVE
4. PEDESTRIAN CROSSWALK
5. PLAY POD
6. ENTRANCE
7. HEIRLOOM GARDEN BEDS
8. EXISTING BUILDINGS OR STRUCTURES
9. OUTDOOR EDUCATION AREA
10. INTERPRETIVE PATH
11. INTERPRETIVE SIGN
12. TRAIL
13. AGRICULTURAL FIELD
14. PICNIC AREA/ WAYSIDE
15. CLOSE EXISTING ACCESS DRIVE
16. PICNIC SHELTER / PAVILION
17. WILDLIFE CORRIDOR
18. BALLOON LAUNCH AREA — Moved west to adjacent property
19. WAYSIDE
20. TRAIL EXPANSION
21. BIOSWALE/DRAINAGE

#DiscoverSchofield

DocuSign Envelope ID: 2C2FAF93-AD60-4BB6-822A-62693EDAF124

OVERALL CONCEPT

DESIGN PHASES DIAGRAM



LEGEND

- TOWN OWNED PROPERTY
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- FUTURE TRAIL CRUSHER
- FINES PATH
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16. PICNIC SHELTER / PAVILION
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18. BALLOON LAUNCH AREA — Moved west to adjacent property
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20. TRAIL EXPANSION
21. BIOSWALE/DRAINAGE

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Schofield Farm
EXHIBIT F: Team Fees
22-May-24

	Wenk LA	JVA- Civil	JVA- Structural (Allowance)	Rocksol- Traffic	Rocksol Geotech	Birch Ecology Environmental	Flatirons Survey	enLighten Site Lighting / Elec	HydroSystems Irrigation	Topographic SUE	Total
Schofield Farm											
Phase 1: Sitewide Concept Design	$ 21,320.00	$ 5,500.00	n/a	$ 9,330.00	$ 17,890.00	$ 10,152.00	$ 21,900.00	$ 6,980.00	$ 2,895.00	n/a	$ 95,967.00
Phase 2 Pkg A: Trailhead, trails, Waypoints, Drainage	$ 70,610.00	$ 47,500.00	$ 5,000.00	$ 4,410.00	n/a	$ 3,145.00	n/a	$ 7,340.00	$ 4,475.00	$ 11,050.00	$ 153,530.00
Phase 2 Pkg B: Landscape areas, staff parking	$ 63,275.00	$ 23,000.00	$ 5,000.00	n/a	n/a	n/a	n/a	$ 8,420.00	$ 3,275.00	n/a	$ 102,970.00
Phase 3: West Areas	$ 29,280.00	$ 3,500.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$ 32,780.00
Subtotal	$ 184,485.00	$ 79,500.00	$ 10,000.00	$ 13,740.00	$ 17,890.00	$ 13,297.00	$ 21,900.00	$ 22,740.00	$ 10,645.00	$ 11,050.00	*$ 385,247.00*
									Grand Total:		*$385,247.00*