Print Form

TOWN OF ERIE
Community Development Department – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Fax: 303.926.2706 – Web: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed.

STAFF USE ONLY

FILE NAME: Erie Commons F-3 1st Amend. L-1A B-7

FILE NO: MS-000803-2016 DATE SUBMITTED: 7-26-16 FEES PAID: $2,000

PROJECT/BUSINESS NAME: Medical Office Building with Urgent Care

PROJECT ADDRESS: 101 Erie Parkway

PROJECT DESCRIPTION: Subdivide parcel A-3 into two commercial lots.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: Erie Commons

Filing #: 3 Lot #: 1A-1 Block #: 1 Section: 19 Township: 1N Range: 68W

OWNER (*attach separate sheets if multiple*)

Name/Company: Boulder Community Health
Contact Person: Darryl Brown
Address: 4141 Arapahoe, Suite 206
City/State/Zip: Boulder, CO 80303
Phone: 303-415-7005 Fax:
E-mail: dbrown@bch.org

AUTHORIZED REPRESENTATIVE

Company/Firm:
Contact Person:
Address:
City/State/Zip:
Phone: Fax:
E-mail:

MINERAL RIGHTS OWNER (*attach separate sheets if multiple*)

Name/Company: See attached title commitment
Address:
City/State/Zip:

MINERAL LEASE HOLDER (*attach separate sheets if multiple*)

Name/Company: See attached title commitment
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: PD
Proposed Zoning: PD
Gross Acreage: 6.10 acres
Gross Site Density (du/ac): 0
Lots/Units Proposed: 0
Gross Floor Area: 70,000 +/-

SERVICE PROVIDERS

Electric: United Power
Metro District: Erie Commons Metro District No. 1
Water *(if other than Town):*
Gas: Excel
Fire District: Mountain View Fire
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
☐ Deannexation	$ 1000.00	☐ Final Plat	$ 2000.00 + 20.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☑ Minor Subdivision Plat	$ 2000.00
☐ Major	$ 3000.00	☐ Minor Amendment Plat	$ 1000.00 + 10.00 per lot
☐ Minor	$ 1200.00	☐ Road Vacation (constructed)	$ 1000.00
ZONING/REZONING		☐ Road Vacation (paper)	$ 100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	☐ Residential	$ 1400.00 + 10.00 per unit
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2200.00
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
SPECIAL REVIEW USE		☐ Amendment (major)	$ 1100.00
☐ Major	$ 1000.00	☐ Amendment (minor)	$ 350.00
☐ Minor	$ 400.00	**VARIANCE**	$ 600.00
☐ Oil & Gas	$ 1200.00	**SERVICE PLAN**	$ 10,000.00

*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 Chapter 7 (Section 7.2.B.5) of the Unified Development Code (UDC) of the Town of Erie, 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: [signature], on behalf of Boulder County Parks Date: 4/17/17

Owner: (Daryl Brown) Date:

Applicant: Date:

STATE OF COLORADO)
) ss.
County of Boulder)

The foregoing instrument was acknowledged before me this 17th day of April, 2020 by Daryl Brown.

TERESA ANN PEACE-ABTS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19944017161
MY COMMISSION EXPIRES 04/17/2020

My commission expires: _____.
Witness my hand and official seal.

[signature]
Notary Public

Written Narrative
Minor Subdivision

PEH ARCHITECTS

1319 Spruce Street Suite 207
Boulder, Colorado 80302
303-442-0408

MEMORANDUM

Date: July 25, 2016
REVISED 11/1/16

To: Town of Erie
Community Development Department
645 Holbrook Street
Erie, CO 80516

From: Peter E. Heinz, AIA, Principal
PEH ARCHITECTS

Re: Medical Office Building with Urgent Care
101 Erie Parkway
Erie, CO 80516
PEH 2016.10

This letter is the written narrative to accompany the PD Amendment to the Erie Commons property.

a. General project concept and purpose of the request;
This proposed Minor Subdivision submittal seeks to subdivide parcel A-3 into two commercial lots. Lot 1 of the two lots is concurrently seeking Site Plan Review for the development of a Medical Office Building with urgent care, while the Lot 2 currently does not have development plans in place.

b. The total land area to be subdivided;
The total land area to be subdivided is 6.1 acres.

c. The total number of lots, and if residential the proposed density;
The existing parcel is to be subdivided into two lots. There are no proposed residential lots included.

d. If non-residential, the total square footage of floor area proposed;
Lot 1 is proposing a 40,987 square foot building. Lot 2 is not currently seeking site development.

e. The total land area to be preserved as open space;
Open space, comprising of planted area, existing vegetation, and trails/sidewalks, is proposed at roughly 57,137 square feet.

f. A brief description regarding the phasing of the proposed subdivision;
The subdivision has been submitted concurrently with a Site Plan Review and Easement Vacation submittal. Upon approval of all three submittals, the developer's intention is to proceed with building permit submittal for lot 1 towards late summer of 2017. Development of Lot 2 has not been established.

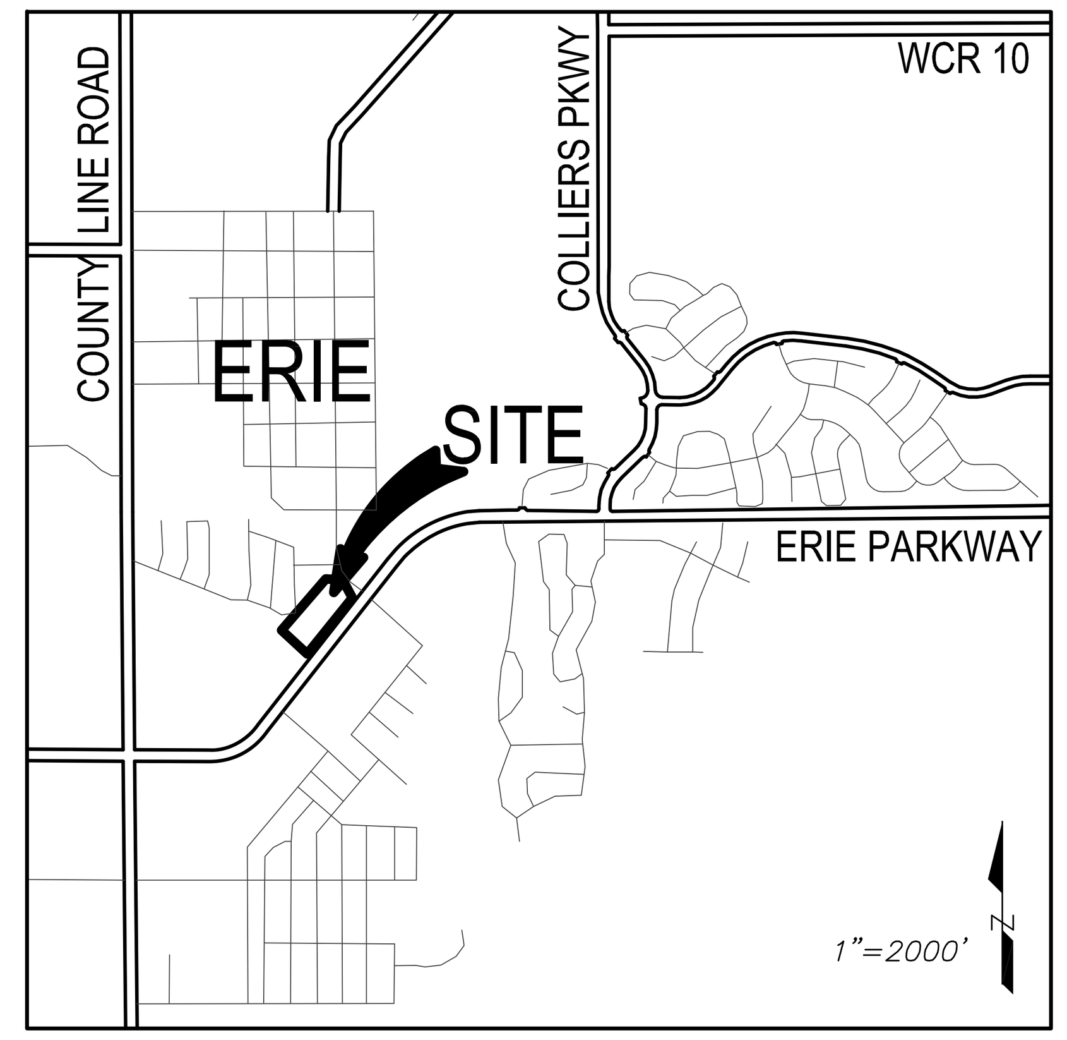
g. A brief description regarding the availability and adequacy of existing infrastructure and other necessary services including schools, fire protection, water/sewer service, and utility providers;
The area around the proposed new parcel have already been significantly developed, and existing utilities are already available. Sanitary sewer is available in Maxwell Avenue to the north and in Briggs Street to the east. Storm sewer is available in Maxwell Street to the north, and in the residential neighborhood to the northwest. Water is available in Maxwell Street to the north and Briggs Street to the east. Gas is available in the right-of-way of Erie Parkway to the south. Power is available in Maxwell Street to the north. Protection Mountain View Fire department and Erie Police department are both within 1 mile of the property.

h. A brief description regarding the location, function and ownership/maintenance of public and private open spaces, parks, trails, common areas, common buildings;
The property abuts Town of Erie rights-of-way with Maxwell Avenue on the north, Briggs Street on the northeast, and Erie Parkway on the southeast. Maintenance of the sidewalk and landscaping within those adjacent rights-of-way will be by the property owner. Sidewalks, trails and open space internal to the property will be maintained by the property owner.

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.
The property is within the Erie Commons Development, in which a set of covenants already exist. There is an existing 30' landscape easement adjacent to Erie Parkway. The property has several internal utility easements for sanitary sewer, storm sewer, water and dry utilities. Concurrent with this submittal is a vacation of several unused utility easements.

ERIE COMMONS FILING NO. 3, 3RD AMENDMENT, LOT 1A1 AND LOT 2, BLOCK 1

AN AMENDMENT OF "ERIE COMMONS FILING NO. 3 1ST AMENDMENT, LOT 1A, BLOCK 1"
LOCATED IN THE NORTHWEST QUARTER OF SECTION 19, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M.,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
6.10 ACRES – 2 LOTS
MINOR SUBDIVISION MS–000803–2016



VICINITY MAP

DEDICATION STATEMENT:

KNOW BY ALL MEN THESE PRESENTS THAT THE UNDERSIGNED, BEING ALL THE OWNERS, MORTGAGEES OR LIENHOLDERS OF CERTAIN LANDS IN THE TOWN OF ERIE, COUNTY OF WELD, COLORADO, DESCRIBED AS FOLLOWS:

LOT 1A, BLOCK 1 OF "ERIE COMMONS FILING NO. 3 1ST AMENDMENT, LOT 1A, BLOCK 1" AS RECORDED 03/05/2008 AT RECEPTION NO. 3539779 IN THE RECORDS OF WELD COUNTY, CONTAINING 6.10 ACRES, MORE OR LESS.

HAVE BY THESE PRESENTS LAID OUT, PLATTED AND SUBDIVIDED THE SAME INTO LOTS AND EASEMENTS, AS SHOWN HEREON, UNDER THE NAME AND SUBDIVISION OF "ERIE COMMONS FILING NO. 3 3RD AMENDMENT, LOT 1A1 AND LOT 2, BLOCK 1". THE EASEMENTS SHOWN HEREON ARE DEDICATED AND CONVEYED TO THE TOWN OF ERIE, COLORADO, IN FEE SIMPLE ABSOLUTE, WITH MARKETABLE TITLE, FOR PUBLIC USES AND PURPOSES AS SHOWN HEREON.

EXECUTED THIS _____ DAY OF ______________________, A.D. 20___.

BOULDER COMMUNITY HEALTH, A COLORADO NONPROFIT CORPORATION

____
BY:
AS:

ACKNOWLEDGMENT

STATE OF COLORADO)
) SS
COUNTY OF _________________)

ACKNOWLEDGED BEFORE ME THIS _______ DAY OF _______________, 20___ BY _______ DAY OF _____________________ A.D., 20___ BY ____________________ AS _______________________ OF BOULDER COMMUNITY HEALTH, A COLORADO NONPROFIT CORPORATION.

WITNESS MY HAND AND OFFICIAL SEAL.
MY COMMISSION EXPIRES _________________.

____
NOTARY PUBLIC

LAND SUMMARY CHART		
TYPE	AREA	% OF TOTAL AREA
LOTS	6.10 Ac.	100.0%
TOTAL	6.10 Ac.	100.0%

NOTES:

1) NOTICE: 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) THE PURPOSE OF THIS AMENDMENT IS TO FURTHER SUBDIVIDE EXISTING LOT INTO TWO LOTS. NO ADDITIONAL RIGHT OF WAY IS DEDICATED BY THIS AMENDMENT.

3) BEARINGS ARE BASED ON THE NORTHERLY LINE OF THE NORTHWESTERLY QUARTER OF SECTION 19, ASSUMED N89°30'18"W. MONUMENTS DESCRIBED HEREON.

4) DUE TO THE PROXIMITY OF THE PROPERTY TO THE ERIE MUNICIPAL AIRPORT, THERE WILL BE AIRCRAFT PASSING OVER THE PROPERTY. AIRCRAFT PASSAGE MAY RESULT IN NOISE AND OTHER IMPACTS ON THE PROPERTY. AIRCRAFT MAY CROSS PROPERTY AT LOW ALTITUDE IN ACCORDANCE WITH FAA REGULATIONS. THE FREQUENCY OF AIRCRAFT PASSING OVER THE PROPERTY MAY INCREASE IN THE FUTURE. THE OWNERS, THEIR HEIRS, SUCCESSORS AND ASSIGNS, SPECIFICALLY ACKNOWLEDGE THE RIGHT OF PASSAGE OVER THE PROPERTY FOR AIRCRAFT AND AGREE TO HOLD HARMLESS THE TOWN OF ERIE FOR AIRCRAFT OPERATIONS. SEE PERMANENT AVIGATION EASEMENT AGREEMENT RECORDED 11/19/2007 AT RECEPTION NO. 3518318 IN THE RECORDS OF WELD COUNTY, COLORADO.

5) A PORTION OF SUBJECT PROPERTY IS LOCATED IN SHADED ZONE X (AREAS OF 0.2% ANNUAL CHANCE FLOOD) PER FLOOD INSURANCE RATE MAP PANEL NUMBER 08013C0441J WITH A REVISION DATE OF 12/18/2012.

6) THE UNITED STATES ELECTRIC EASEMENT IS A RESTRICTED AREA AND ALL CONSTRUCTION ACTIVITIES WITHIN SAID EASEMENT SHOULD BE COORDINATED WITH WESTERN AREA POWER ADMINISTRATION, P.O. BOX 3700, LOVELAND, COLORADO 80539–3003.

7) A BLANKET CROSS ACCESS EASEMENT, SHARED ACCESS EASEMENT, PUBLIC ACCESS EASEMENT AND EMERGENCY VEHICLE ACCESS EASEMENT EXISTS OVER LOTS 1A1 AND 2.

8) "ERIE COMMONS FILING NO. 3" FINAL PLAT WAS RECORDED 04/13/2006 AT RECEPTION NO. 3379066. "ERIE COMMONS FILING NO. 3 1ST AMENDMENT" PLAT WAS RECORDED 03/05/2008 AT RECEPTION NO. 3539779. "ERIE COMMONS FILING NO. 3 2ND AMENDMENT" PLAT WAS RECORDED 06/04/2015 AT RECEPTION NO. 4112995.

9) ALL DISTANCES ARE U.S. SURVEY FEET.

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS PLAT IS TO BE KNOWN AS "ERIE COMMONS FILING NO. 3, 3RD AMENDMENT, LOT 1A1 AND LOT 2, BLOCK 1" AND IS APPROVED AND ACCEPTED BY RESOLUTION NO. ____________, PASSED AND ADOPTED AT THE REGULAR (SPECIAL) MEETING OF THE BOARD OF TRUSTEES OF ERIE, COLORADO, HELD ON THE _______ DAY OF ____________________, 20___.

____
MAYOR

ATTEST:

____
TOWN CLERK

COMMUNITY DEVELOPMENT AND PUBLIC WORKS APPROVAL CERTIFICATE

THIS PLAT IS HEREBY APPROVED BY THE TOWN OF ERIE COMMUNITY DEVELOPMENT DIRECTOR AND PUBLIC WORKS DIRECTOR ON THIS _______ DAY OF ____________________, 20___.

____
COMMUNITY DEVELOPMENT DIRECTOR

____
PUBLIC WORKS DIRECTOR

TITLE VERIFICATION CERTIFICATE:

I, ________________________________, AN AUTHORIZED REPRESENTATIVE OF FIDELITY NATIONAL TITLE COMPANY, A TITLE INSURANCE COMPANY LICENSED TO DO BUSINESS IN THE STATE OF COLORADO, HAVE MADE AN EXAMINATION OF THE TITLE OF ALL LANDS HEREIN SHOWN UPON THE PLAT AND THAT THE TITLE OF SUCH LANDS IS IN THE DEDICATOR(S), FREE AND CLEAR OF ALL LIENS, TAXES AND ENCUMBRANCES, EXCEPT THOSE SET FORTH IN FIDELITY NATIONAL TITLE COMPANY COMMITMENT NO. _______________ WITH AN EFFECTIVE DATE OF ______________ AT _____ __.M.

________________________________ ________
BY: DATE
AS:

ACKNOWLEDGMENT

STATE OF COLORADO)
) SS
COUNTY OF _________________)

ACKNOWLEDGED BEFORE ME THIS _______ DAY OF _______________, 20___ BY __________________ AS ________________________________

WITNESS MY HAND AND OFFICIAL SEAL.
MY COMMISSION EXPIRES _________________.

____
NOTARY PUBLIC

SURVEYOR'S CERTIFICATE

I, BO BAIZE, 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 JULY 07, 2017, 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___.

____
BO BAIZE, COLORADO PLS NO. 37990
FOR AND ON BEHALF OF HURST AND ASSOCIATES, INC.

CLERK AND RECORDER'S CERTIFICATE

STATE OF COLORADO)
)SS
COUNTY OF WELD)

I HEREBY CERTIFY THAT THIS PLAT WAS FILED IN MY OFFICE THIS _______ DAY OF _____________________, 20___. AND WAS RECORDED AT RECEPTION NO. _________________.

____
CLERK AND RECORDER

APPLICANT/DEVELOPER:

BOULDER COMMUNITY HEALTH
4141 ARAPAHOE, SUITE 206
BOULDER, CO 80303

ENGINEER/SURVEYOR:

HURST & ASSOCIATES, INC.
2500 BROADWAY, SUITE B
BOULDER, CO 80304

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
–	Original	07/22/16	Bo
1	Edits per Town, adjust easement, add monument info	10/26/16	Bo
2	Change title, edits per Town	12/09/16	Bo
3	Change ownership	04/11/17	Bo
4	Adjust layout, edits per Town	08/09/17	Bo
5	30' easements	09/18/17	Bo

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

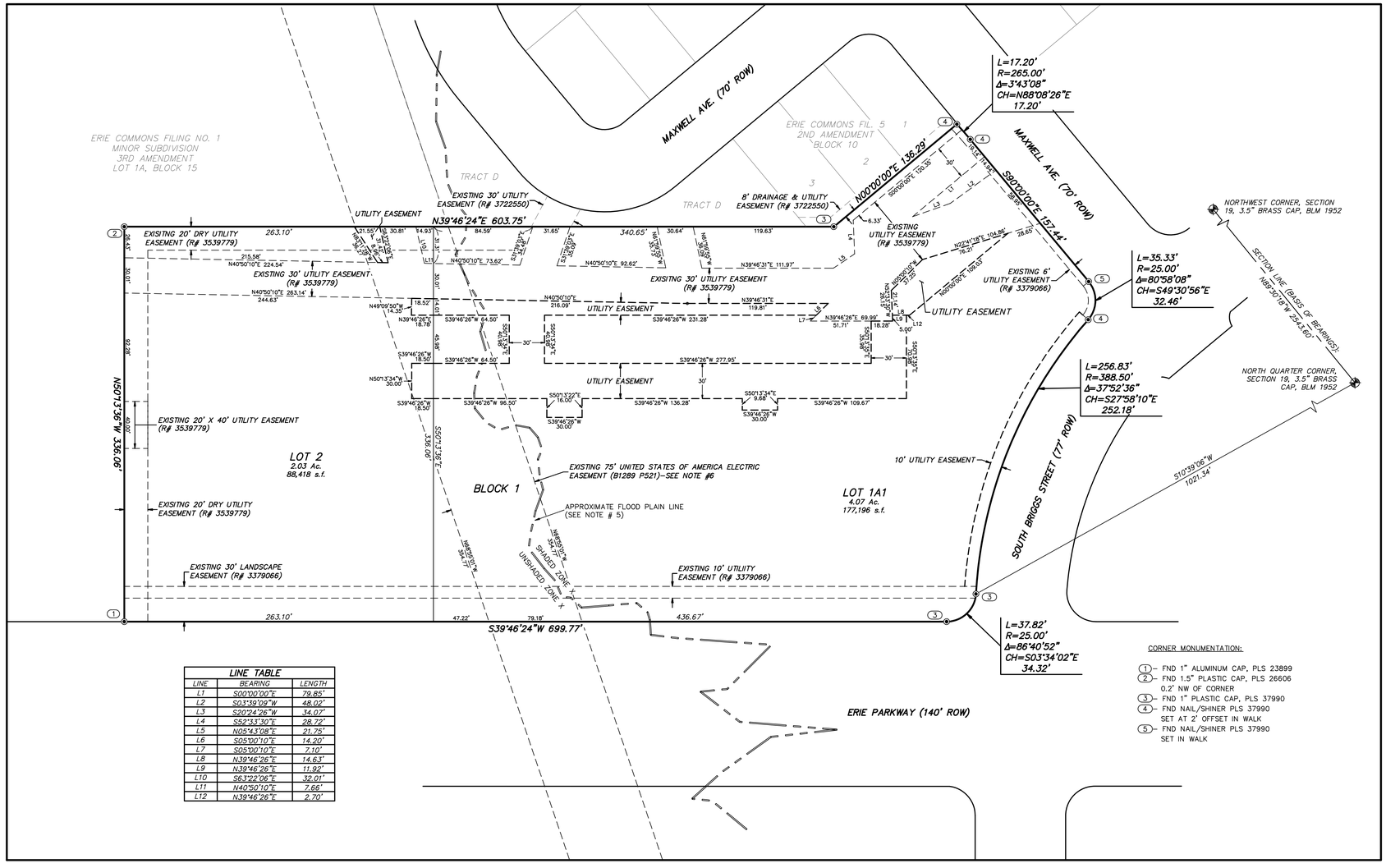
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMENDMENT PLAT
ERIE, COLORADO

DRAWN BY: BO
DESIGNED BY:
APPROVED BY: JJ
JOB NUMBER: 2547-01
DATE: 09/18/17
SCALE: N/A
SHEET NO: 1 OF 2
FILE LOCATION: G:\202045\SURVEY\FILING 3\EC FIL3 2ND AMEND PLAT

ERIE COMMONS FILING NO. 3, 3RD AMENDMENT, LOT 1A1 AND LOT 2, BLOCK 1

AN AMENDMENT OF "ERIE COMMONS FILING NO. 3 1ST AMENDMENT, LOT 1A, BLOCK 1"
LOCATED IN THE NORTHWEST QUARTER OF SECTION 19, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M.,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
6.10 ACRES – 2 LOTS
MINOR SUBDIVISION MS–000803–2016



LINE TABLE		
LINE	BEARING	LENGTH
L1	S00°00'00"E	79.85'
L2	S03°39'09"W	48.02'
L3	S20°24'26"W	34.07'
L4	S52°33'30"E	28.72'
L5	N05°43'08"E	21.76'
L6	S05°00'10"E	14.20'
L7	S05°00'10"E	7.10'
L8	N39°46'26"E	14.63'
L9	N39°46'26"E	11.92'
L10	S63°22'06"E	32.01'
L11	N40°50'10"E	7.66'
L12	N39°46'26"E	2.70'

CORNER MONUMENTATION:

1 – FND 1" ALUMINUM CAP, PLS 23899
2 – FND 1.5" PLASTIC CAP, PLS 26606 0.2' NW OF CORNER
3 – FND 1" PLASTIC CAP, PLS 37990
4 – FND NAIL/SHINER PLS 37990 SET AT 2' OFFSET IN WALK
5 – FND NAIL/SHINER PLS 37990 SET IN WALK

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

SURVEYORS STAMP:

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

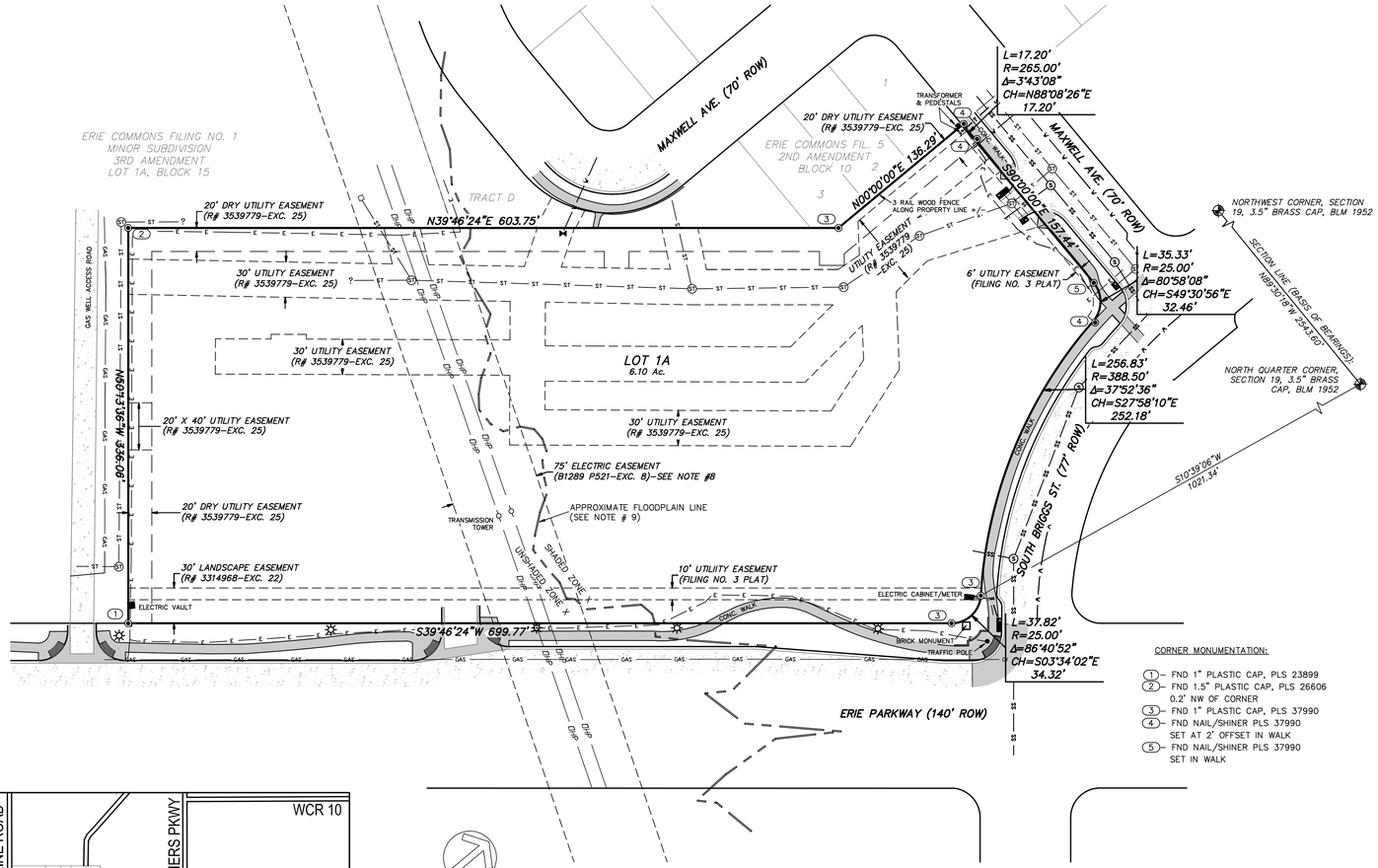
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMENDMENT PLAT
ERIE, COLORADO

DRAWN BY: BO
DESIGNED BY:
APPROVED BY: JJ
JOB NUMBER: 2547-01
DATE: 09/18/17
SCALE: 1"=50'
SHEET NO: 2 OF 2
FILE LOCATION: G:\2200\04SURVEY\FILING 3\SEC FIL3 2ND AMEND PLAT

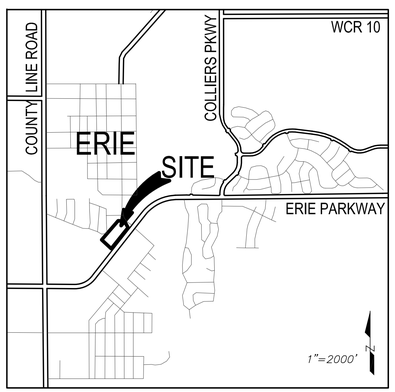
ALTA/NSPS LAND TITLE SURVEY
"ERIE COMMONS FILING NO. 3, 1ST AMENDMENT, LOT 1A, BLOCK 1"

LOCATED IN THE NORTHWEST QUARTER OF SECTION 19,
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO



CORNER MONUMENTATION:

1 – FND 1" PLASTIC CAP, PLS 23899
2 – FND 1.5" PLASTIC CAP, PLS 26606
0.2' NW OF CORNER
3 – FND 1" PLASTIC CAP, PLS 37990
4 – FND NAIL/SHINER PLS 37990
SET AT 2' OFFSET IN WALK
5 – FND NAIL/SHINER PLS 37990
SET IN WALK



VICINITY MAP

0 30 60 120
1 inch = 60 ft.

LEGEND

- Water Valve
- Storm Sewer Manhole
- 5' Inlet
- 10' Inlet
- Light Post
- Water Line
- Sanitary Sewer Line
- Storm Sewer Line
- Gas Line
- Telephone Line
- Electric Line
- Overhead Powerline
- Concrete
- Asphalt

PARCEL DESCRIPTION (FROM COMMITMENT):

LOT 1A, BLOCK 1,
ERIE COMMONS FILING NO. 3 1ST AMENDMENT,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

COMMITMENT NOTES:

THIS SURVEY IS BASED UPON TITLE COMMITMENT NO. 099-F0545029-017-MAL, AMENDMENT NO. 2, PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, WITH AN EFFECTIVE DATE OF JULY 12, 2016 AT 7:00 A.M.. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH OR EASEMENT RESEARCH BY HURST & ASSOCIATES. RATHER, ALL INFORMATION REGARDING TITLE AND EASEMENT MATTERS SHOULD BE OBTAINED FROM THE TITLE COMMITMENT. UNLESS OTHERWISE NOTED, ALL EXCEPTIONS LISTED AFFECT THE SUBJECT BY BEING INCLUDED IN DESCRIPTIONS CONTAINED IN DOCUMENT.

(EXCEPTIONS 1 THROUGH 8 ARE STANDARD EXCEPTIONS AND CANNOT BE SHOWN)

SCHEDULE B SECTION 2 EXCEPTIONS

EXC. NO.	DOCUMENT	DATE	RECEPTION NO.	NOTES
8	EASEMENT DEED	12/22/1950	BOOK 1289 PAGE 521	SHOWN, SEE GENERAL NOTE 8
9	MINERAL DEED	11/30/1972	1602712	NOTHING TO SHOW
10	OIL & GAS LEASE & RELATED DOCS	11/01/1988 12/06/2000 09/26/2003 04/21/2006	2160408 2811262 3110510 3381086	NOTHING TO SHOW
11	AGREEMENT	11/17/2000	2807515	NOTHING TO SHOW
12	DEED ASSIGNMENT REQUEST	11/17/2000 11/17/2000 05/28/2002	2807516 2807517 2954713	NOTHING TO SHOW
13	ORDINANCE #769 ANNEXATION	04/22/2002	2944813 2944814	NOTHING TO SHOW
14	ANNEXATION AGREEMENT & FIRST AMENDMENT	04/22/2002 07/26/2004	2944815 3202494	NOTHING TO SHOW
15	ERIE COMMONS DEVELOPMENT GUIDE & AMENDMENT NO. 5	04/22/2002 09/20/2010	2944816 3719635	NOTHING TO SHOW; SEE GENERAL NOTE 6
16	ORDINANCE NO. 770	10/03/2002	2993170	NOTHING TO SHOW
17	GENERAL DISCLOSURE	12/04/2003	3132240	NOTHING TO SHOW
18	ORDER & DECREE	01/09/2004	3142951	DOES NOT AFFECT; PARCEL DESCRIBED IS S. OF PROPERTY
19	ORDER & DECREE AMENDMENT	01/09/2004 01/25/2005	3142952 3255913	NOTHING TO SHOW
20	GDP AMENDMENT NO. 1 GDP AMENDMENT NO 2	09/16/2004 08/23/2006	3219273 3413825	NOTHING TO SHOW; SEE GENERAL NOTE 6
21	CONSENT AND WAIVER CONSENT AND SUA	01/13/2005 01/13/2005	3252947 3252948	NOTHING TO SHOW
22	GRANT OF PERMANENT PUBLIC ACCESS ESMT	08/19/2005	3314968	SHOWN
23	ERIE COMMONS FIL 3 DEVELOPMENT AGMT	04/13/2006	3379064	NOTHING TO SHOW
24	LANDSCAPING CONST & MAINT AGMT	05/18/2006	3388959	NOTHING TO SHOW
25	ERIE COMMONS FIL. NO. 3 1ST AMENDMENT, LOT 1A, BLOCK 1 PLAT	03/05/2008	3539779	EASEMENTS SHOWN; BLANKET CROSS ACCESS EASEMENT, SHARED ACCESS EASEMENT, PUBLIC ACCESS EASEMENT & EMERGENCY VEHICLE ACCESS EASEMENT ACROSS PROPERTY
26	AVIGATION EASEMENT	09/16/2004	3219272	CANNOT SHOW; BLANKET IN NATURE
27	GENERAL DISCLOSURE	01/31/2005	3257392	NOTHING TO SHOW
28	SITE PLAN AGREEMENT	03/05/2008	3539825	NOTHING TO SHOW, SEE DOCUMENT FOR PROPOSED LAYOUT AND AFFECTS
29	MASTER DECLARATION FIRST AMENDMENT	03/03/2005 09/02/2010	3265467 3716102	NOTHING TO SHOW

NOTE: ERIE COMMONS FILING NO. 3 FINAL PLAT RECORDED 04/13/2006 AT RECEPTION NO. 3379066 ALSO AFFECTS SUBJECT PROPERTY. EASEMENTS ON PLAT ARE SHOWN ON THIS SURVEY.

GENERAL NOTES:

1. NOTICE: 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. BEARINGS ARE BASED ON THE NORTHWESTERLY LINE OF LOT 1, BLOCK 5, BEING N39°46'24"E, 1,225.97 FEET BETWEEN 1" PLASTIC CAPS (PLS 37990). BEARING TO MATCH ERIE COMMONS FILING NO. 4 PLAT.

3. PROPERTY CORNERS ARE DESCRIBED HEREON.

4. NO BUILDINGS EXISTING ON THE SURVEYED PROPERTY. UNLESS OTHERWISE SHOWN, PROPERTY IS UNDEVELOPED, CURRENTLY BEING NATIVE GRASSES AND AREAS OF LANDSCAPING ADJACENT TO ROADWAYS AND WALKS.

5. GROSS LAND AREA: 6.10 ACRES.

6. ERIE COMMONS DEVELOPMENT GUIDE AMENDMENT NO. 2 RECORDED AT RECEPTION NO. 3719635 AND ERIE COMMONS GENERAL DEVELOPMENT PLAN AMENDMENT NO. 2 RECORDED AT RECEPTION NO. 3413825 (EXCEPTION NO. 15) SHOWS PROPERTY TO HAVE LAND USE AS "COMMERCIAL" AND PLANNING AREA AS "OLD TOWN COMMERCIAL".

7. THE FOLLOWING NOTE IS ON THE ERIE COMMONS FILING NO. 3 1ST AMENDMENT PLAT: DUE TO THE PROXIMITY OF THE PROPERTY TO THE ERIE MUNICIPAL AIRPORT, THERE WILL BE AIRCRAFT PASSING OVER THE PROPERTY. AIRCRAFT PASSAGE MAY RESULT IN NOISE AND OTHER IMPACTS ON THE PROPERTY. AIRCRAFT MAY CROSS PROPERTY AT LOW ALTITUDE IN ACCORDANCE WITH FAA REGULATIONS. THE FREQUENCY OF AIRCRAFT PASSING OVER THE PROPERTY MAY INCREASE IN THE FUTURE. THE OWNERS, THEIR HEIRS, SUCCESSORS AND ASSIGNS, SPECIFICALLY ACKNOWLEDGE THE RIGHT OF PASSAGE OVER THE PROPERTY FOR AIRCRAFT AND AGREE TO HOLD HARMLESS THE TOWN OF ERIE FOR AIRCRAFT OPERATIONS.

8. THE ELECTRIC EASEMENT IS A RESTRICTED AREA AND ALL CONSTRUCTION ACTIVITIES WITHIN SAID EASEMENT SHOULD BE COORDINATED WITH WESTERN AREA POWER ADMINISTRATION, P.O. BOX 3700, LOVELAND, COLORADO 80539-3003.

9. A PORTION OF SUBJECT PROPERTY IS LOCATED IN SHADED ZONE X (AREAS OF 0.2% ANNUAL CHANCE FLOOD) PER FLOOD INSURANCE RATE MAP PANEL NUMBER 08013C0441J WITH A REVISION DATE OF 12/18/2012.

10. ALL CURB ALONG RIGHT OF WAY IS VERTICAL CURB EXCEPT WHERE NOTED.

11. DUE TO HIGH GRASSES, ADDITIONAL ABOVE GROUND UTILITIES MAY EXIST THAT WERE NOT OBSERVED. IRRIGATION CONTROL AND VALVE BOXES ARE NOT SHOWN.

12. THERE IS NO POSTED ADDRESS ON PROPERTY.

13. UNDERGROUND UTILITY LOCATIONS BASED ON FIELD LOCATES BY SITEWISE, LLC MARKED ON 07/10/17 AND CONSTRUCTION PLANS.

14. ALL LINEAR DISTANCES IN U.S. SURVEY FEET.

SURVEY CERTIFICATION:

CERTIFIED TO:

BOULDER COMMUNITY HEALTH
PAT TACKWELL
FIDELITY NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1-4, 8 & 11 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED 07/21/17.

DATE OF PLAT OR MAP: 08/08/17

COLORADO LICENSED BO BAIZE 37990 PROFESSIONAL LAND SURVEYOR 08/08/17

FOR AND ON BEHALF OF HURST AND ASSOCIATES:
BO BAIZE, COLORADO PLS NO. 37990
EMAIL ADDRESS: bo@hurst-assoc.com

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
–	Original Survey	10/25/16	Bo
1	Add buried utilities	07/21/17	Bo

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

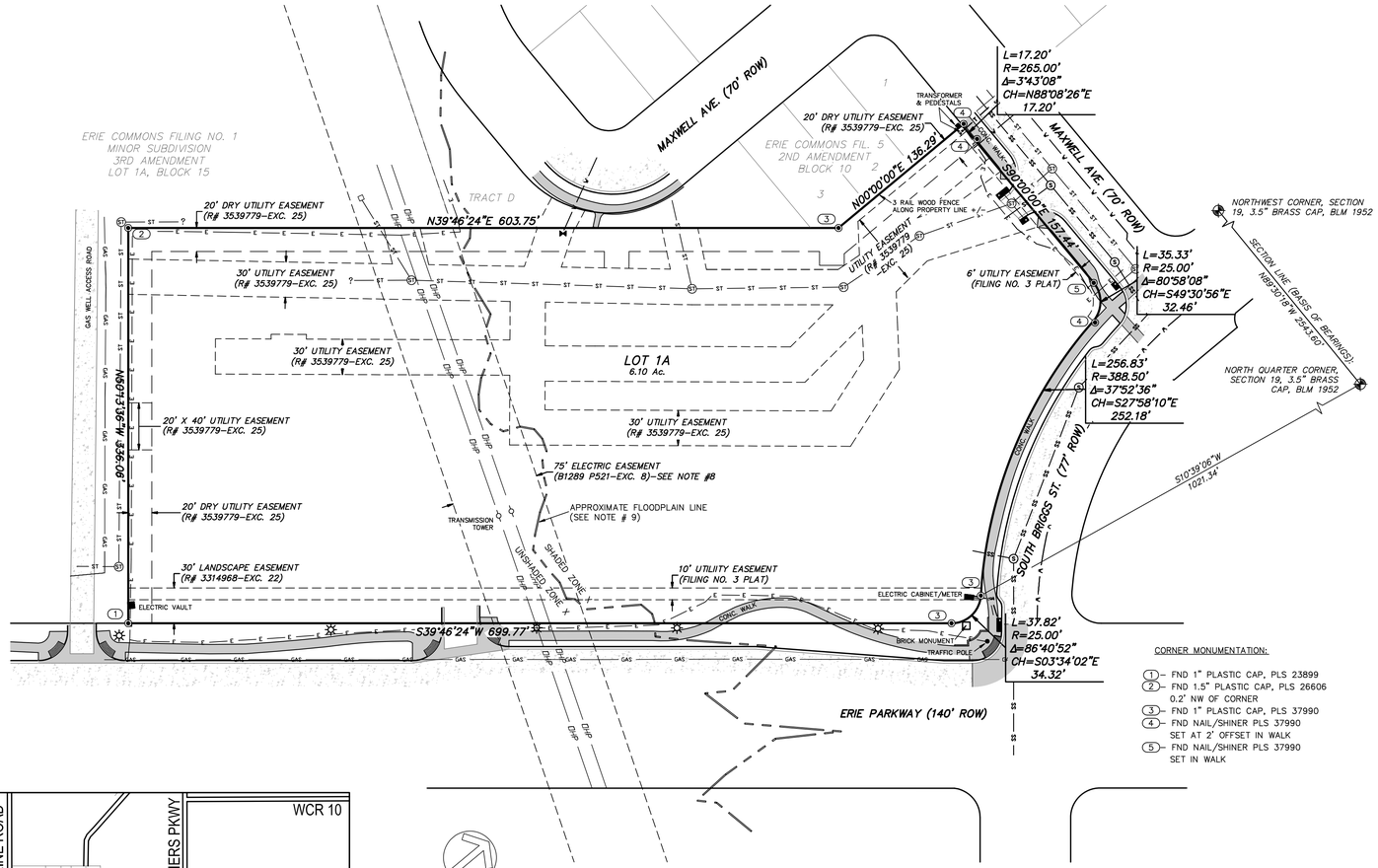
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ALTA/NSPS LAND TITLE SURVEY
LOT 1A, BL. 1, "ERIE COMMONS
FILING NO. 3, 1ST AMENDMENT
ERIE, COLORADO

DRAWN BY: BO
DESIGNED BY:
APPROVED BY:
JOB NUMBER: 2547-01
DATE: 08/08/17
SCALE: 1"=60'
SHEET NO: 1 OF 1
FILE LOCATION: G:\2547\ISSURVEY\ERIE FIL 3 1ST AMEND LOT 1 ALTA-rev Jul 2017

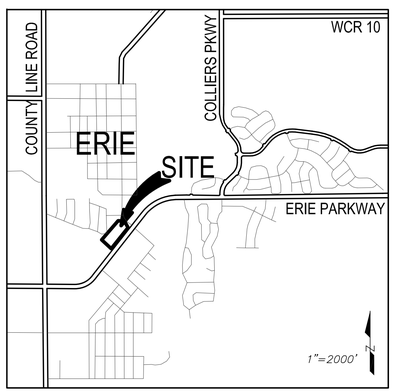
ALTA/NSPS LAND TITLE SURVEY
"ERIE COMMONS FILING NO. 3, 1ST AMENDMENT, LOT 1A, BLOCK 1"

LOCATED IN THE NORTHWEST QUARTER OF SECTION 19,
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO



CORNER MONUMENTATION:

1 – FND 1" PLASTIC CAP, PLS 23899
2 – FND 1.5" PLASTIC CAP, PLS 26606
0.2' NW OF CORNER
3 – FND 1" PLASTIC CAP, PLS 37990
4 – FND NAIL/SHINER PLS 37990
SET AT 2' OFFSET IN WALK
5 – FND NAIL/SHINER PLS 37990
SET IN WALK



VICINITY MAP

0 30 60 120
1 inch = 60 ft.

LEGEND

- Water Valve
- Storm Sewer Manhole
- 5' Inlet
- 10' Inlet
- Light Post
- Water Line
- Sanitary Sewer Line
- Storm Sewer Line
- Gas Line
- Telephone Line
- Electric Line
- Overhead Powerline
- Concrete
- Asphalt

PARCEL DESCRIPTION (FROM COMMITMENT):

LOT 1A, BLOCK 1,
ERIE COMMONS FILING NO. 3 1ST AMENDMENT,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

COMMITMENT NOTES:

THIS SURVEY IS BASED UPON TITLE COMMITMENT NO. 099-F0545029-017-MAL, AMENDMENT NO. 2, PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, WITH AN EFFECTIVE DATE OF JULY 12, 2016 AT 7:00 A.M.. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH OR EASEMENT RESEARCH BY HURST & ASSOCIATES. RATHER, ALL INFORMATION REGARDING TITLE AND EASEMENT MATTERS SHOULD BE OBTAINED FROM THE TITLE COMMITMENT. UNLESS OTHERWISE NOTED, ALL EXCEPTIONS LISTED AFFECT THE SUBJECT BY BEING INCLUDED IN DESCRIPTIONS CONTAINED IN DOCUMENT.

(EXCEPTIONS 1 THROUGH 8 ARE STANDARD EXCEPTIONS AND CANNOT BE SHOWN)

SCHEDULE B SECTION 2 EXCEPTIONS

EXC. NO.	DOCUMENT	DATE	RECEPTION NO.	NOTES
8	EASEMENT DEED	12/22/1950	BOOK 1289 PAGE 521	SHOWN, SEE GENERAL NOTE 8
9	MINERAL DEED	11/30/1972	1602712	NOTHING TO SHOW
10	OIL & GAS LEASE & RELATED DOCS	11/01/1988 12/06/2000 09/26/2003 04/21/2006	2160408 2811262 3110510 3381086	NOTHING TO SHOW
11	AGREEMENT	11/17/2000	2807515	NOTHING TO SHOW
12	DEED ASSIGNMENT REQUEST	11/17/2000 11/17/2000 05/28/2002	2807516 2807517 2954713	NOTHING TO SHOW
13	ORDINANCE #769 ANNEXATION	04/22/2002	2944813 2944814	NOTHING TO SHOW
14	ANNEXATION AGREEMENT & FIRST AMENDMENT	04/22/2002 07/26/2004	2944815 3202494	NOTHING TO SHOW
15	ERIE COMMONS DEVELOPMENT GUIDE & AMENDMENT NO. 5	04/22/2002 09/20/2010	2944816 3719635	NOTHING TO SHOW; SEE GENERAL NOTE 6
16	ORDINANCE NO. 770	10/03/2002	2993170	NOTHING TO SHOW
17	GENERAL DISCLOSURE	12/04/2003	3132240	NOTHING TO SHOW
18	ORDER & DECREE	01/09/2004	3142951	DOES NOT AFFECT; PARCEL DESCRIBED IS S. OF PROPERTY
19	ORDER & DECREE AMENDMENT	01/09/2004 01/25/2005	3142952 3255913	NOTHING TO SHOW
20	GDP AMENDMENT NO. 1 GDP AMENDMENT NO 2	09/16/2004 08/23/2006	3219273 3413825	NOTHING TO SHOW; SEE GENERAL NOTE 6
21	CONSENT AND WAIVER CONSENT AND SUA	01/13/2005 01/13/2005	3252947 3252948	NOTHING TO SHOW
22	GRANT OF PERMANENT PUBLIC ACCESS ESMT	08/19/2005	3314968	SHOWN
23	ERIE COMMONS FIL 3 DEVELOPMENT AGMT	04/13/2006	3379064	NOTHING TO SHOW
24	LANDSCAPING CONST & MAINT AGMT	05/18/2006	3388959	NOTHING TO SHOW
25	ERIE COMMONS FIL. NO. 3 1ST AMENDMENT, LOT 1A, BLOCK 1 PLAT	03/05/2008	3539779	EASEMENTS SHOWN; BLANKET CROSS ACCESS EASEMENT, SHARED ACCESS EASEMENT, PUBLIC ACCESS EASEMENT & EMERGENCY VEHICLE ACCESS EASEMENT ACROSS PROPERTY
26	AVIGATION EASEMENT	09/16/2004	3219272	CANNOT SHOW; BLANKET IN NATURE
27	GENERAL DISCLOSURE	01/31/2005	3257392	NOTHING TO SHOW
28	SITE PLAN AGREEMENT	03/05/2008	3539825	NOTHING TO SHOW, SEE DOCUMENT FOR PROPOSED LAYOUT AND AFFECTS
29	MASTER DECLARATION FIRST AMENDMENT	03/03/2005 09/02/2010	3265467 3716102	NOTHING TO SHOW

NOTE: ERIE COMMONS FILING NO. 3 FINAL PLAT RECORDED 04/13/2006 AT RECEPTION NO. 3379066 ALSO AFFECTS SUBJECT PROPERTY. EASEMENTS ON PLAT ARE SHOWN ON THIS SURVEY.

GENERAL NOTES:

1. NOTICE: 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. BEARINGS ARE BASED ON THE NORTHWESTERLY LINE OF LOT 1, BLOCK 5, BEING N39°46'24"E, 1,225.97 FEET BETWEEN 1" PLASTIC CAPS (PLS 37990). BEARING TO MATCH ERIE COMMONS FILING NO. 4 PLAT.

3. PROPERTY CORNERS ARE DESCRIBED HEREON.

4. NO BUILDINGS EXISTING ON THE SURVEYED PROPERTY. UNLESS OTHERWISE SHOWN, PROPERTY IS UNDEVELOPED, CURRENTLY BEING NATIVE GRASSES AND AREAS OF LANDSCAPING ADJACENT TO ROADWAYS AND WALKS.

5. GROSS LAND AREA: 6.10 ACRES.

6. ERIE COMMONS DEVELOPMENT GUIDE AMENDMENT NO. 2 RECORDED AT RECEPTION NO. 3719635 AND ERIE COMMONS GENERAL DEVELOPMENT PLAN AMENDMENT NO. 2 RECORDED AT RECEPTION NO. 3413825 (EXCEPTION NO. 15) SHOWS PROPERTY TO HAVE LAND USE AS "COMMERCIAL" AND PLANNING AREA AS "OLD TOWN COMMERCIAL".

7. THE FOLLOWING NOTE IS ON THE ERIE COMMONS FILING NO. 3 1ST AMENDMENT PLAT: DUE TO THE PROXIMITY OF THE PROPERTY TO THE ERIE MUNICIPAL AIRPORT, THERE WILL BE AIRCRAFT PASSING OVER THE PROPERTY. AIRCRAFT PASSAGE MAY RESULT IN NOISE AND OTHER IMPACTS ON THE PROPERTY. AIRCRAFT MAY CROSS PROPERTY AT LOW ALTITUDE IN ACCORDANCE WITH FAA REGULATIONS. THE FREQUENCY OF AIRCRAFT PASSING OVER THE PROPERTY MAY INCREASE IN THE FUTURE. THE OWNERS, THEIR HEIRS, SUCCESSORS AND ASSIGNS, SPECIFICALLY ACKNOWLEDGE THE RIGHT OF PASSAGE OVER THE PROPERTY FOR AIRCRAFT AND AGREE TO HOLD HARMLESS THE TOWN OF ERIE FOR AIRCRAFT OPERATIONS.

8. THE ELECTRIC EASEMENT IS A RESTRICTED AREA AND ALL CONSTRUCTION ACTIVITIES WITHIN SAID EASEMENT SHOULD BE COORDINATED WITH WESTERN AREA POWER ADMINISTRATION, P.O. BOX 3700, LOVELAND, COLORADO 80539-3003.

9. A PORTION OF SUBJECT PROPERTY IS LOCATED IN SHADED ZONE X (AREAS OF 0.2% ANNUAL CHANCE FLOOD) PER FLOOD INSURANCE RATE MAP PANEL NUMBER 08013C0441J WITH A REVISION DATE OF 12/18/2012.

10. ALL CURB ALONG RIGHT OF WAY IS VERTICAL CURB EXCEPT WHERE NOTED.

11. DUE TO HIGH GRASSES, ADDITIONAL ABOVE GROUND UTILITIES MAY EXIST THAT WERE NOT OBSERVED. IRRIGATION CONTROL AND VALVE BOXES ARE NOT SHOWN.

12. THERE IS NO POSTED ADDRESS ON PROPERTY.

13. UNDERGROUND UTILITY LOCATIONS BASED ON FIELD LOCATES BY SITEWISE, LLC MARKED ON 07/10/17 AND CONSTRUCTION PLANS.

14. ALL LINEAR DISTANCES IN U.S. SURVEY FEET.

SURVEY CERTIFICATION:

CERTIFIED TO:

BOULDER COMMUNITY HEALTH
PAT TACKWELL
FIDELITY NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1-4, 8 & 11 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED 07/21/17.

DATE OF PLAT OR MAP: 08/08/17

COLORADO LICENSED BO BAIZE 37990 PROFESSIONAL LAND SURVEYOR 08/08/17

FOR AND ON BEHALF OF HURST AND ASSOCIATES:
BO BAIZE, COLORADO PLS NO. 37990
EMAIL ADDRESS: bo@hurst-assoc.com

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

REVISIONS

NO.	DESCRIPTION	DATE	BY
–	Original Survey	10/25/16	Bo
1	Add buried utilities	07/21/17	Bo

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

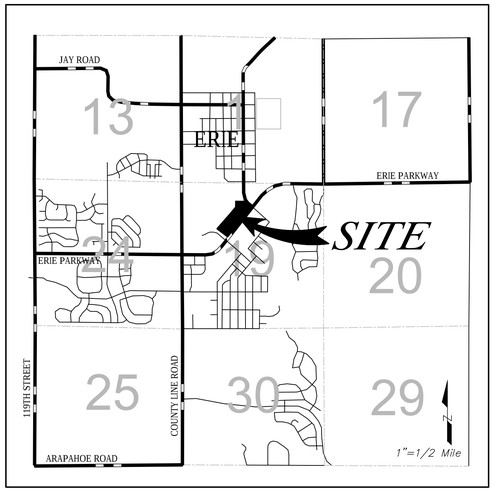
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ALTA/NSPS LAND TITLE SURVEY
LOT 1A, BL. 1, "ERIE COMMONS
FILING NO. 3, 1ST AMENDMENT
ERIE, COLORADO

DRAWN BY: BO
DESIGNED BY:
APPROVED BY:
JOB NUMBER: 2547-01
DATE: 08/08/17
SCALE: 1"=60'
SHEET NO: 1 OF 1
FILE LOCATION: G:\2547\ISSURVEY\ERIE FIL 3 1ST AMEND LOT 1 ALTA-rev Jul 2017

ERIE COMMONS FILING NO. 3 3RD AMENDMENT, LOT 1A1 AND LOT 2

AN AMENDMENT OF ERIE COMMONS FILING NO. 3, 1ST AMENDMENT, LOT 1A, BLOCK 1
LOCATED IN THE NORTHWEST QUARTER OF SECTION 19, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M.,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
6.10 ACRES – 2 LOTS
MS–000803–2016



VICINITY MAP

Sheet List Table	
Sheet Number	Sheet Title
C1.0	25471–COVER
C2.0	25471–NOTES
C3.0	25471–MU
C4.0	25471–OG
C5.0	25471–OG–PLAZA
C6.0	25471–MD
C7.0	25471–SWMP
C8.0	25471–SIGN
C9.0	25471–INTRA STORM – P&P – 1
C10.0	25471–INTRA SAN – P&P – 1
C11.0	25471–INTRA SAN – P&P – 2
C12.0	25471–INTRA WATER – P&P – 1
C13.0	25471–INTRA WATER – P&P – 2
C14.0	STREET & SIDEWALK DETAILS
C15.0	SANITARY SEWER DETAILS
C16.0	WATER DETAILS 1 OF 2
C17.0	WATER DETAILS 2 OF 2
C18.0	STORM SEWER DETAILS
C19.0	STORM & EROSION DETAILS

SEE GEOTECHNICAL REPORT FOR PAVEMENT DESIGN

All work shall be constructed by the Town of Erie STANDARDS AND SPECIFICATIONS. This drawing has been reviewed and found to be in general compliance with these STANDARDS AND SPECIFICATIONS and other Town requirements. THE ENGINEERING DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

Accepted by : _____ _____
Town Engineer Date

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
RMS, ELECTRIC, TELEPHONE, CATV, AND PARAMOUNT CENTER PARKING LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSEN 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

COVER SHEET

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 2547-CV
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C1.0

LAST SAVED: 9/20/2017 9:39 AM
G:\25471\CONST\25471–CV.dwg

GENERAL NOTES – CONSTRUCTION

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST ”STANDARDS AND SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS” BY THE TOWN OF ERIE. COPIES OF THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS MAY BE OBTAINED FROM THE TOWN OF ERIE WEB SITE. CONTRACTOR SHALL HAVE A SET ON SITE AT ALL TIMES.
2. THE OWNER SHALL SCHEDULE A PRE–CONSTRUCTION MEETING WITH THE TOWN OF ERIE ENGINEERING STAFF PRIOR TO THE START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE THE OWNER, HIS ENGINEER, THE TOWN OF ERIE ENGINEERING STAFF, REPRESENTATIVES OF THE CONTRACTORS AND OTHER AFFECTED AGENCIES. PLANS SIGNED AND ACCEPTED BY THE TOWN OF ERIE WILL BE DISTRIBUTED AT THE PRECONSTRUCTION MEETING. CONTRACTOR SHALL HAVE (1) COPY OF THE SIGNED PLANS ON SITE AT ALL TIMES.
3. THE TOWN OF ERIE, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. THE OWNER AND DESIGN ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT. REPORT ALL DISCREPANCIES TO THE DESIGN ENGINEER IMMEDIATELY.
4. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY/ALL WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK SITE FROM ADJACENT PRIVATE PROPERTY OWNERS. A COPY OF ALL AGREEMENTS SHALL BE PROVIDED TO THE TOWN. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN OF ERIE ENGINEERING STAFF. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO TOWN STANDARDS AND SPECIFICATIONS. INSPECTIONS AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE TOWN ENGINEERING STAFF OF THE CONTRACTORS” CONTRACTUAL COMMITMENT. REQUESTS FOR INSPECTION BY THE TOWN OF ERIE SHALL BE MADE BY THE CONTRACTOR A MINIMUM OF TWENTYFOUR (24) HOURS IN ADVANCE.
6. CONSTRUCTION WATER IS AVAILABLE TO THE CONTRACTOR AS ESTABLISHED IN THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE TOWN OF ERIE REGARDING CURRENT REGULATIONS, FEES AND REQUIRED AGREEMENTS RELATED TO THE PROVISION OF CONSTRUCTION WATER.
7. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE AFFECTED UTILITY COMPANIES AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER, PHONE NUMBER 811, THREE (3) BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION.
8. UTILITIES IN THE AREA OF CONSTRUCTION ARE APPROXIMATE ONLY. THEY HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE BEST AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL CONTACT ALL RESPECTIVE UTILITIES AND HAVE ALL UTILITIES FIELD–LOCATED PRIOR TO CONSTRUCTION. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TOWN OF ERIE ENGINEERING STAFF AND DESIGN ENGINEER PRIOR TO PROCEEDING.
9. THE CONTRACTOR SHALL NOTIFY TOWN OF ERIE ENGINEERING STAFF OF ANY PROBLEM IMPACTING WATER AND WASTE WATER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE TOWN OF ERIE ENGINEERING STAFF.
10. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE SPECIFICATIONS AND PERMITS NECESSARY TO PERFORM THE PROPOSED WORK.
11. AS–BUILT DRAWINGS AS REQUIRED IN THE SPECIFICATIONS, ARE TO BE SUBMITTED BY THE OWNER/DEVELOPER PRIOR TO SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE CONSTRUCTION.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ANY EXISTING SIGNS, STRUCTURES, FENCES, ETC., ENCOUNTERED ON THE JOB AND RESTORING THEM TO THEIR ORIGINAL CONDITION.
13. THE CONTRACTOR IS RESPONSIBLE FOR:
    - A. NOTIFYING THE TOWN OF ERIE UTILITY CUSTOMERS OF POTENTIAL SERVICE OUTAGES, AND COORDINATE WITH THE TOWN OF ERIE FOR DETERMINATION OF MINIMUM TIME REQUIREMENT.
    - B. NOTIFYING THE TOWN OF ERIE ENGINEERING STAFF IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START–UP. THE CONTRACTOR SHALL NOTIFY THE TOWN OF ERIE FORTY–EIGHT (48) HOURS PRIOR TO RESTART.
    - C. IN THE EVENT OF AN AFTER HOURS EMERGENCY, CALL 303–441–4444.
    - D. NOTIFYING THE MOUNTAIN VIEW FIRE PROTECTION DISTRICT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE A MINIMUM OF FORTY–EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
14. PRIOR TO INSTALLATION OF UTILITY MAINS, ROAD CONSTRUCTION MUST HAVE COMPLETED THE OVER LOT GRADING STAGE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. A CONSTRUCTION DEWATERING PERMIT MUST BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS OR EROSION OF ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE USE OF ANY SANITARY SEWER TO DISPOSE OF TRENCH WATER WILL NOT BE PERMITTED. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE TOWN OF ERIE, AND THE DESIGN ENGINEER AT THE TIME OF THE OCCURRENCE
16. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO RESOLVE CONSTRUCTION PROBLEMS WITH THE TOWN OF ERIE DUE TO CHANGED CONDITIONS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE TOWN OF ERIE, PROPOSED ALTERATIONS TO THE SIGNED CONSTRUCTION PLANS INVOLVES SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE TOWN OF ERIE FOR REVIEW, PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
17. DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE TOWN OF ERIE OR THE DESIGN ENGINEER EXERCISE NO CONTROLS OVER THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE DESIGN ENGINEER OR THE TOWN. THE TOWN OF ERIE ENGINEERING STAFF, OR ANY CONTRACTED ENGINEER, ARE NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.
18. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
19. REGULAR WORK HOURS ARE SEVEN (7) A.M. UNTIL SEVEN (7) P.M. OR DUSK (WHICHEVER OCCURS FIRST) OF THE SAME DAY, MONDAY THROUGH FRIDAY. THE CONTRACTOR WILL NOT PERMIT OVERTIME WORK OUTSIDE OF REGULAR WORKING HOURS OR THE PERFORMANCE OF WORK ON SATURDAY, SUNDAY OR ANY LEGAL HOLIDAY WITHOUT RECEIVING WRITTEN CONSENT FROM THE PUBLIC WORKS DIRECTOR. REQUESTS FOR WEEKEND WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN OF ERIE NO LATER THAN WEDNESDAYS AT 3:30PM FOR SUBSEQUENT WEEKEND AND REQUESTS FOR HOLIDAY WORK APPROVAL MUST BE SUBMITTED, IN WRITING TO THE TOWN OF ERIE NO LATER THAN 7:00AM–2 BUSINESS DAYS PRIOR TO THE HOLIDAY. ALL EXPENSES INCURRED BY THE TOWN SHALL BE REIMBURSED AT A RATE TO BE DETERMINED BY DIRECTOR OF FINANCE.
20. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FOR ANY PROJECT DISTURBING OVER ONE ACRE FROM BOTH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND THE TOWN OF ERIE.
21. EACH TYPE OF CONSTRUCTION SHALL BE COMPLETED BY A CONTRACTOR THAT HAS DEMONSTRATED ACCEPTABLE QUALIFICATIONS TO THE TOWN AND IS A LICENSED CONTRACTOR IN THE TOWN OF ERIE.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION. ALL TRAFFIC CONTROLS SHALL CONFORM TO THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITIONS. A PLAN SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
23. ALL BACKFILL SHALL CONFORM TO THE TRENCH DETAIL LOCATED IN THE TOWN OF ERIE STANDARDS & SPECIFICATIONS.
24. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS.
25. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
26. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE TOWN OF ERIE STANDARD SPECIFICATIONS.
27. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE EVERY MEASURE NECESSARY TO COMPLY WITH ANY STATE, COUNTY OR TOWN DUST CONTROL ORDINANCE.
28. CONSTRUCTION VEHICLES SHALL USE TRUCK ROUTES DESIGNATED BY THE TOWN.
29. THE OWNER/DEVELOPER WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE IMPROVEMENTS BY THE TOWN OF ERIE. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE OWNER/CONTRACTOR TO THE SATISFACTION OF THE TOWN OF ERIE AT NO EXPENSE TO THE TOWN.
30. THE SOILS ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE SOILS ENGINEER'S PURVIEW.

GENERAL NOTES – STORM DRAIN

1. EXCEPT WHERE NOTED, ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE, CLASS III AND SHALL CONFORM TO REQUIREMENTS OF ASTM C76. ALL RCP SHALL HAVE RUBBER GASKETED JOINTS AND SHALL CONFORM TO REQUIREMENTS OF ASTM C443, AND SHALL PROVIDE WATERTIGHT PERFORMANCE CHARACTERISTICS.
2. TONGUE AND GROOVE JOINTS SHALL NOT BE ALLOWED.
3. THE MINIMUM COVERAGE FOR ALL STORM DRAINAGE PIPES SHALL BE 1.5 FEET FOR CLASS III PIPE AND 1 FOOT FOR CLASS IV PIPE.
4. BEDDING MATERIAL SHALL CONFORM TO TOWN OF ERIE STANDARDS AND SPECIFICATIONS.
5. ALL MANHOLES SHALL BE CONCRETE AND CONFORM TO CDOT STANDARD M–604–20.
6. THE MINIMUM MANHOLE DIAMETER SHALL BE AS SPECIFIED BELOW:

PIPE DIAMETER	MANHOLE SIZE
15” TO 18”	4’ DIAMETER
21” TO 42”	5’ DIAMETER
48” TO 54”	6’ DIAMETER
60” AND LARGER	BOX BASE MANHOLE

7. ALL STREET INLETS SHALL BE CURB OPENING TYPE R, CONFORMING TO CDOT STANDARD M–604–12, EXCEPT WHERE OTHERWISE NOTED.
8. ALL INLET ACCESS COVERS SHALL HAVE THE WORDS “NO DUMPING – DRAINS TO RIVERS” AND “STORM SEWER” CAST INTO THE COVER PER TOWN OF ERIE STANDARD DETAIL.
9. ALL END SECTIONS SHALL CONFORM TO CDOT STANDARD M–603–10.
10. WHERE RIPRAP IS CALLED FOR ON THE PLANS FOR EROSION CONTROL, IT SHALL CONFORM TO THE URBAN STORM DRAINAGE CRITERIA MANUAL SPECIFICATIONS (LATEST REVISION).

GENERAL NOTES – GRADING

1. ALL CONSTRUCTION ACTIVITIES THAT DISTURBS ONE OR MORE ACRES OF LAND, AS WELL AS ACTIVITIES THAT DISTURB LESS THAN ONE ACRE OF LAND, BUT IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT, MUST COMPLY WITH BOTH LOCAL AND STATE REGULATIONS REGARDING STORMWATER DRAINAGE ON CONSTRUCTION SITES. OWNERS OR CONTRACTORS MUST OBTAIN A COLORADO STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) AND EITHER A PUBLIC IMPROVEMENT PERMIT OR A GRADING AND STORMWATER QUALITY PERMIT FROM THE TOWN OF ERIE. CONTRACTOR SHALL:
    - A. MAINTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN (SWMP) ONSITE AT ALL TIMES. THE SWMP MUST BE MAINTAINED AND MADE AVAILABLE TO TOWN OF ERIE INSPECTORS UPON REQUEST.
    - B. INSTALL AND MAINTAIN EROSION, SEDIMENT, AND MATERIALS MANAGEMENT CONTROL BMPS AS SPECIFIED IN THE SWMP.
    - C. INSPECT ALL BEST MANAGEMENT PRACTICES (BMPS) AT LEAST EVERY FOURTEEN (14) DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE RUNOFF.
    - D. MAINTAIN INSPECTION AND MAINTENANCE RECORDS OF BMPS ONSITE WITH THE SWMP. COPIES OF THESE REPORTS SHALL BE PROVIDED TO THE TOWN OF ERIE ENGINEERING STAFF.
    - E. BASED ON INSPECTIONS PERFORMED BY THE PERMIT HOLDER OR BY TOWN PERSONNEL, MODIFICATIONS TO THE SWMP WILL BE NECESSARY IF AT ANY TIME THE SPECIFIED BMPS DO NOT MEET THE OBJECTIVES OF THE PERMIT. ALL MODIFICATIONS SHALL BE COMPLETED AS SOON AS PRACTICABLE AFTER THE REFERENCED INSPECTION, AND SHALL BE RECORDED ON THE OWNER'S COPY OF THE SWMP.
    - F. THE OPERATOR SHALL AMEND THE SWMP WHENEVER THERE IS A SIGNIFICANT CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR DISCHARGE OF POLLUTANTS TO THE RECEIVING WATERS, OR IF THE SWMP PROVES TO BE INEFFECTIVE IN ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
    - G. INSTALLATION AND MAINTENANCE OF BMPS SHALL BE SUPERVISED BY PERSONNEL CERTIFIED IN EROSION AND SEDIMENT CONTROL.
2. ALL SITE GRADING (EXCAVATION, EMBANKMENT, AND COMPACTION) SHALL CONFORM TO THE RECOMMENDATIONS OF THE LATEST SOILS INVESTIGATION FOR THIS PROPERTY AND SHALL FURTHER BE IN CONFORMANCE WITH THE TOWN OF ERIE ”STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS”, LATEST EDITION.
3. ALL GRADING AND FILLING OPERATIONS SHALL BE OBSERVED, INSPECTED AND TESTED BY A LICENSED SOILS ENGINEER. ALL TEST RESULTS SHALL BE SUBMITTED TO THE TOWN OF ERIE ENGINEERING STAFF.
4. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID ANY DAMAGE TO EXISTING FOLIAGE THAT LIES IN THE PROJECT AREA UNLESS DESIGNATED FOR REMOVAL AND SHALL BE LIABLE FOR SUCH DAMAGE AT HIS/HER EXPENSE.
5. TOPSOIL SHALL BE STOCKPILED TO THE EXTENT PRACTICABLE ON THE SITE FOR USE ON AREAS TO BE RE–VEGETATED. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS.
6. TEMPORARY VEGETATION SHALL BE INSTALLED ON ALL DISTURBED AREAS WHERE PERMANENT SURFACE IMPROVEMENTS ARE NOT SCHEDULED FOR IMMEDIATE INSTALLATION. SEEDING WILL BE DONE ACROSS THE SLOPE FOLLOWING THE CONTOURS. VEGETATION SHALL CONFORM TO THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS. PROJECT SCHEDULING SHOULD TAKE ADVANTAGE OF SPRING OR FALL PLANTING SEASONS FOR NATURAL GERMINATION. SEEDED AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE TOWN OF ERIE'S STANDARDS AND SPECIFICATIONS.
7. AT ALL TIMES, A WATER TRUCK SHALL BE ON–SITE AND THE PROPERTY SHALL BE MAINTAINED AND/OR WATERED TO PREVENT WIND–CAUSED EROSION. EARTHWORK OPERATIONS SHALL BE DISCONTINUED WHEN FUGITIVE DUST SIGNIFICANTLY IMPACTS ADJACENT PROPERTY. IF EARTHWORK IS COMPLETE OR DISCONTINUED AND DUST FROM THE SITE CONTINUES TO CREATE PROBLEMS, THE OWNER/DEVELOPER SHALL IMMEDIATELY INSTITUTE MITIGATIVE MEASURES AND SHALL CORRECT DAMAGE TO ADJACENT PROPERTY.
8. FILL SLOPES SHALL BE COMPACTED BY MEANS OF SHEEPSFOOT COMPACTOR OR OTHER SUITABLE EQUIPMENT. COMPACTING SHALL CONTINUE UNTIL SLOPES ARE STABLE AND THERE IS NOT AN APPRECIABLE AMOUNT OF LOOSE SOIL ON THE SLOPES.
9. TEMPORARY CUT/FILL SLOPES SHALL ABIDE BY THE SOILS REPORT. PERMANENT SLOPES SHALL BE AS SHOWN ON PLANS.
10. DEPTH OF MOISTURE–DENSITY CONTROL SHALL BE FULL DEPTH ON ALL EMBANKMENT AND SIX (6) INCHES ON THE BASE OF CUTS AND FILLS.
11. OUTLET SIDES OF ALL STORM PIPES SHALL BE GRADED TO DRAIN AND SHALL HAVE SUFFICIENT EROSION PROTECTION.
12. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE SITE GEOTECHNICAL ENGINEER WHEN THE GRADING OPERATION IS READY FOR EACH OF THE FOLLOWING INSPECTIONS:
    - A. INITIAL INSPECTION WHEN THE PERMITTEE IS READY TO BEGIN WORK, BUT NOT LESS THAN TWO (2) DAYS BEFORE ANY GRADING OR GRUBBING IS STARTED.
    - B. AFTER THE NATURAL GROUND OR BEDROCK IS EXPOSED AND PREPARED TO RECEIVE FILL, BUT BEFORE FILL IS PLACED.
    - C. EXCAVATION INSPECTION AFTER THE EXCAVATION IS STARTED BUT BEFORE THE VERTICAL DEPTH OF THE EXCAVATION EXCEEDS TEN (10) FEET.
    - D. FILL INSPECTION AFTER THE FILL PLACEMENT IS STARTED, BUT BEFORE THE FILL EXCEEDS TEN (10) FEET.

GENERAL NOTES – SEWER

1. THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING SEWERS TO BE CONNECTED TO PRIOR TO CONSTRUCTION STAKING.
2. CONNECTION TO EXISTING TOWN OF ERIE LINES WILL BE PERMITTED UPON SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE NEW SANITARY SEWER SYSTEM. EXISTING PIPE AT THE POINT OF CONNECTION SHALL NOT BE ”BROKEN OUT” UNTIL THE NEW SYSTEM IS ACCEPTED. IF CONNECTING TO AN EXISTING MANHOLE, THE NEW LINE SHALL BE PLUGGED UNTIL THE NEW SYSTEM IS ACCEPTED.
3. MINIMUM VERTICAL SEPARATIONS BETWEEN ALL UTILITY PIPES SHALL BE EIGHTEEN (18) INCHES. IF VERTICAL SEPARATIONS ARE LESS THAN EIGHTEEN (18) INCHES, THE UTILITY PIPES SHALL BE REINFORCED AND PROTECTED AS REQUIRED BY CURRENT TOWN STANDARD SPECIFICATIONS.
4. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITH LESS THAN ONE AND ONE–HALF (1½) FEET OF VERTICAL SEPARATION, SEWER LINE JOINTS SHALL BE CONCRETE ENCASED. FOR PERPENDICULAR CROSSINGS, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
5. ALL SANITARY SEWER SERVICES AND WATER SERVICES ARE TO BE TEN (10) FEET APART.
6. SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHTS OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A GREEN PAINTED WOOD POST UNTIL CURB AND GUTTER IS IN PLACE. WHEN CURB AND GUTTER IS IN PLACE THE LATERALS SHALL BE MARKED ON THE CONCRETE CURB FACE WITH AN “S” or ”X”.
7. THE LENGTH OF SANITARY SEWER LINE IS THE HORIZONTAL DISTANCE BETWEEN CENTER OF MANHOLE TO CENTER OF MANHOLE. THEREFORE, THE DISTANCES INDICATED ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND MANHOLE DIMENSIONS.
8. SERVICE LINE CONNECTIONS TO DEAD END MANHOLES THAT HAVE NO FURTHER POSSIBILITY OF EXTENSION SHALL BE ALLOWED AND SHALL HAVE A MINIMUM DROP OF 0.75 X MAIN DIAMETER. SERVICE LINE CONNECTINGS TO IN–LINE MANHOLES ARE NOT PERMITTED. MINIMUM SERVICE LINE SLOPE; 4 INCHES=2%; 6 INCHES= 1%; 8 INCHES=0.4%.
9. ALL FOUR (4) THROUGH FIFTEEN (15) INCH SANITARY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) AND SHALL BE IN ACCORDANCE WITH ASTM D–3034–SDR35, ”STANDARD SPECIFICATION FOR PVC SEWER PIPE AND FITTINGS”. ANY SANITARY SEWER HAVING A DEPTH IN EXCESS OF FIFTEEN (15) FEET SHALL BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT.
10. BEDDING MATERIAL SHALL CONFORM TO TOWN OF ERIE STANDARDS AND SPECIFICATIONS.
11. WARNING TAPE SHALL BE INSTALLED 12” MINIMUM AND 18” MAXIMUM ABOVE SEWER PIPE.
12. PRECAST CONCRETE MANHOLE SECTIONS SHALL BE IN ACCORDANCE WITH ASTM C–478. MANHOLE STEPS SHALL BE POLYPROPYLENE COVERED STEEL CONFORMING TO ASTM. D–4101 AND ASTMA–615. CAST IRON RING AND COVER SHALL CONFORM TO ASTM A–48.
13. MANHOLES SHALL BE A MINIMUM FOUR (4) FOOT DIAMETER AND CONSTRUCTED PER THE STANDARDS AND SPECIFICATIONS.
14. THE CONTRACTOR SHALL TAKE CARE TO PROPERLY SHAPE ALL MANHOLE INVERTS AND BENCHES IN ACCORDANCE WITH THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS, TO PROMOTE SMOOTH FLOW THROUGH THE MANHOLE. INVERTS OF LINES INTERSECTING AT 90 DEGREES AND AT HIGHLY DIVERGENT OR FLAT SLOPES ARE ESPECIALLY CRITICAL. MANHOLE INVERTS SHALL BE CONSTRUCTED WITH A SMOOTH TROWEL FINISH, AND BENCH FINISHED WITH A LIGHT BROOMED, NON–SKID, FINISH.
15. SEWER TEES AND/OR WYES SHALL BE STAKED BY A SURVEY CREW. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER ”ASCONSTRUCTED” LOCATION OF TEES AND WYES. ALL SERVICE LINES ARE FOUR (4) INCH UNLESS OTHERWISE NOTED.
16. THE CONTRACTOR, AT THE OWNER'S EXPENSE, WILL MAKE ALL SEWER SERVICE TAPS.
17. PRIOR TO BACKFILL THE TOWN OF ERIE ENGINEERING STAFF SHALL INSPECT ALL SANITARY SEWER MAINS AND SERVICE EXTENSIONS.
18. MANHOLE RIMS SHALL BE SET AT AN ELEVATION RELATIVE TO THE PAVEMENT, IN ACCORDANCE WITH THE TOWN OF ERIE STANDARDS. WHETHER THE MANHOLE IS AT PAVED OR UNPAVED GRADE, A MINIMUM OF ONE (1) AND A MAXIMUM OF FOUR (4) CONCRETE RINGS SHALL BE USED TO ADJUST THE RIM ELEVATION TO FINAL GRADE. THE MAXIMUM ACCEPTABLE VERTICAL ADJUSTMENT UTILIZING CONCRETE RINGS IS EIGHTEEN (18) INCHES.
19. SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE NEW SANITARY SEWER MAINS IS CONTINGENT UPON COMPLETION OF ITEMS LISTED IN THE TOWNS STANDARDS AND SPECIFICATIONS.

GENERAL NOTES – WATER

1. AT ALL POINTS OF CONNECTION OF NEW WATER MAINS TO EXISTING MAINS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATING AND VERIFYING LOCATION OF THE EXISTING LINES PRIOR TO ANY CONSTRUCTION.
2. EXCEPT IN CASE OF AN EMERGENCY, VALVES ON THE TOWN OF ERIE WATER SYSTEM SHALL BE OPERATED BY OR UNDER THE DIRECTION OF THE APPROPRIATE TOWN OF ERIE PERSONNEL. THE CONTRACTOR SHALL GIVE THE TOWN OF ERIE ENGINEERING STAFF 48 HOURS NOTICE TO ARRANGE FOR OPERATING VALVES. BOTH THE CONTRACTOR AND THE APPROPRIATE TOWN OF ERIE PERSONNEL SHALL BE PRESENT WHEN THE VALVES ARE OPERATED.
3. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITH LESS THAN ONE AND ONE–HALF (1½) FEET OF VERTICAL SEPARATION, SEWER LINE JOINTS SHALL BE CONCRETE ENCASED. FOR PERPENDICULAR CROSSINGS, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
4. ALL WATER LINES SHALL HAVE A MINIMUM OF FOUR AND ONE–HALF (4½) FEET OF COVER AND BE LOCATED A MINIMUM OF TEN (10) FEET FROM THE SANITARY SEWER AND THREE (3) FEET FROM THE EDGE OF CONCRETE CURB AND GUTTER PAN.
5. CHANGES IN DIRECTION OF WATERLINE PIPE SHALL REQUIRE BENDS IN ALL INSTANCES. AXIAL DEFLECTION AT THE JOINTS SHALL NOT BE ALLOWED.
6. WHEN IT IS NECESSARY TO DEPRESS WATER LINES AT UTILITY CROSSINGS, A MINIMUM CLEARANCE OF ONE AND ONE–HALF (1–1/2) FEET SHALL BE MAINTAINED BETWEEN OUTSIDES OF PIPE.
7. DISTANCES FOR WATER LINES ARE THE HORIZONTAL DISTANCE BETWEEN THE CENTERS OF THE FITTINGS. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING DIMENSIONS.
8. ALL WATER LINE VALVES SHALL BE SET ADJACENT TO THE TEE, EXCEPT FOR POINTS THAT FALL IN THE FLOW LINE OF A CONCRETE CROSS PAN. IN WHICH CASE, THE VALVE SHALL BE LOCATED SO THAT SURFACE DRAINAGE DOES NOT INFILTRATE THE VALVE BOX. VALVE BOXES SHALL BE SET AT AN ELEVATION IN ACCORDANCE WITH TOWN PAVING REQUIREMENTS.
9. ALL WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC) PRESSURE PIPE UNLESS SPECIFIED OTHERWISE. NOMINAL PVC PIPE SIZES 6–INCH THROUGH 12–INCH SHALL CONFORM TO ALL REQUIREMENTS OF AWWA STANDARD C–900, PRESSURE CLASS 150 (DR18). NOMINAL PVC PIPE SIZES 16–INCH THROUGH 24–INCH SHALL CONFORM TO ALL REQUIREMENTS OF AWWA STANDARD C–905, PRESSURE CLASS 165 (DR25). ALL PVC PIPES SHALL HAVE OUTSIDE DIAMETERS EQUIVALENT TO CAST IRON PIPE.
10. FIRE HYDRANT ASSEMBLY INCLUDES THE FIRE HYDRANT, SIX (6) INCH VALVE, AND SIX (6) INCH PIPE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS.
11. ALL FITTINGS SHALL BE MADE FROM DUCTILE IRON, FURNISHED WITH MECHANICAL JOINT ENDS OR INTEGRAL RESTRAINED JOINTS, AND SHALL HAVE A PRESSURE RATING OF 350 PSI.
12. POLYETHYLENE WRAPPING SHALL BE INSTALLED AROUND ALL DUCTILE IRON PIPES, FITTINGS, VALVES, FIRE HYDRANT BARRELS AND ROD AND CLAMPS. THE POLYETHYLENE SHALL HAVE A MINIMUM THICKNESS OF EIGHT (8) MILS, IN ACCORDANCE WITH AWWA STANDARD C–105.
13. ALL WATER LINE PIPE SHALL BE PROVIDED WITH A MINIMUM GAGE SIZE OF 12 SINGLE STRAND INSULATED COPPER WIRE. SPLICES IN TRACER WIRE SHALL BE CAPPED IN WATER PROOF GEL CAP TYPE CONNECTORS SUITED FOR DIRECT BURY APPLICATION (3M TYPE DBY–6 LOW VOLTAGE OR EQUAL). WIRE SHALL BE ATTACHED TO TOP OF WATER LINE WITH 2–INCH WIDE PVC TAPE @ 5–FT INTERVALS ALONG PIPE. TRACER WIRE SHALL EXTEND TO THE SURFACE AND BE COILED IN A LOCATE BOX AT THE BACKSIDE OF EITHER EACH FIRE HYDRANT OR VALVE. UNDER THE SUPERVISION OF TOWN OF ERIE ENGINEERING STAFF, TEST SHALL BE MADE BY THE CONTRACTOR @ THE COMPLETION OF CONSTRUCTION TO INSURE THAT THE TRACER WIRES CARRY A CONTINUOUS CURRENT BETWEEN ALL ACCESS POINTS.
14. WARNING TAPE SHALL BE INSTALLED 12” MINIMUM AND 18” MAXIMUM ABOVE WATER PIPE.
15. BEDDING MATERIAL SHALL CONFORM TO TOWN OF ERIE STANDARDS AND SPECIFICATIONS.
16. VALVES SHALL OPEN COUNTER CLOCKWISE. VALVES 12–INCH AND SMALLER SHALL BE RESILIENT SEAT GATE VALVES. LARGER VALVES SHALL BE BUTTERFLY VALVES.
17. VALVE BOXES SHALL BE RAISED TO ONE–FOURTH (1/4) INCH BELOW GRADE AFTER COMPLETION OF SURFACE PAVING OR FINAL GRADING. VALVE BOXES IN NON–PAVED AREAS SHALL HAVE A CONCRETE COLLAR AROUND THE VALVE LID IN ACCORDANCE WITH THE DETAIL.
18. ALL SERVICE LINE TAPS SHALL HAVE DOUBLE STRAP BRASS TAPPING SADDLES. (ROMAC 202B OR APPROVED EQUAL).
19. ALL RESIDENTIAL WATER TAPS SHALL BE THREE–QUARTER (3/4) INCH OR AS REQUIRED BY THE CURRENT BUILDING CODE.
20. ALL WATER SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHT OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A BLUE PAINTED WOOD POST UNTIL CURB AND GUTTER IS IN PLACE. WHEN CURB AND GUTTER IS IN PLACE THE LATERALS SHALL BE MARKED ON THE CONCRETE CURB FACE WITH A “V” or “W”.
21. CONCRETE THRUST BLOCKS AND/OR ”MEGA–LUG” MECHANICAL RESTRAINTS ARE REQUIRED AT ALL MECHANICAL FITTINGS. THRUST BLOCKS MAY NOT BE REQUIRED IF PIPE RESTRAINT IS PROVIDED IN ACCORDANCE WITH RESTRAINED PIPE DETAIL.
22. NO WORK SHALL BE BACKFILLED (INCLUDING BEDDING MATERIAL ABOVE THE SPRING LINE OF THE PIPE) UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FOR BACKFILLING BY THE TOWN OF ERIE ENGINEERING STAFF.
23. ONLY ONE CONNECTION TO THE EXISTING WATER DISTRIBUTION SYSTEM SHALL BE MADE UNTIL ALL HYDROSTATIC TESTING, CHLORINATION AND FLUSHING HAS BEEN COMPLETED.
24. DISINFECTION AND HYDROSTATIC TESTING SHALL BE DONE IN THE PRESENCE OF A TOWN OF ERIE ENGINEERING STAFF. CONTACT THE TOWN OF ERIE DEPARTMENT OF PUBLIC WORKS, FORTY–EIGHT (48) HOURS PRIOR TO DISINFECTING AND/OR TESTING.
25. DISINFECTION AND FLUSHING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLORADO DEPARTMENT OF HEALTH AND THE PROCEDURE SET FORTH IN AWWA C651, ”STANDARD FOR DISINFECTING WATER MAINS”. THE CHLORINATION OF THE WATER LINE SHALL BE PERFORMED PRIOR TO THE HYDROSTATIC TESTING. ALL VALVES, FIRE HYDRANTS AND OTHER APPURTANCES SHALL BE OPERATED WHILE PIPELINE IS FILLED WITH THE CHLORINATING AGENT TO INSURE THAT HIGH CHLORINE CONTACT IS MADE WITH ALL INTERNAL SURFACES.
26. ALL WATER LINES SHALL BE HYDROSTATIC TESTED. PRESSURE AND LEAKAGE TESTS SHALL BE CONDUCTED ACCORDING TO THE APPLICABLE SECTIONS OF AWWA C600/605 TO A MINIMUM PRESSURE OF ONE HUNDRED AND FIFTY (150) POUNDS PER SQUARE (PSI) INCH AT THE LOW POINT OF THE SECTION BEING TESTED FOR THE DURATION OF TWO (2) HOURS. THE MAXIMUM LENGTH OF LINE TO BE TESTED SHALL BE ONE THOUSAND (1,000) FEET. ALL JOINTS IN CONNECTIONS ARE TO BE WATERTIGHT WITHIN TOLERANCES ALLOWED BY THE SPECIFICATIONS IN AWWA C600/605. ANY LEAKAGE THAT IS DISCOVERED BY OBSERVATION OR TESTS SHALL BE LOCATED AND MADE WATERTIGHT BY THE CONTRACTOR. PRESSURE AND LEAKAGE TESTS SHALL NOT BE CONDUCTED UNTIL THE LINE HAS PASSED ALL REQUIRED DISINFECTION TESTS.
27. SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE NEW WATER LINES ARE CONTINGENT UPON RECEIVING COPIES OF:
    - A. WATER TRENCH COMPACTION TEST RESULTS
    - B. HYDRO STATIC TESTING OF 100% OF THE SYSTEM
    - C. HEALTH DEPARTMENT TESTS. (CHLORINE AND/OR CLEAR WATER AS REQUIRED)
28. ALL METER PITS AND CURB STOPS SHALL BE PROTECTED AT THE TIME OF INSTALLATION WITH A MINIMUM OF THREE (3) T–POSTS AND ORANGE SAFETY FENCE. THE T–POST AND SAFETY FENCE SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL THE LANDSCAPING IS INSTALLED.
29. ALL WATER VAULTS SHALL BE WATER TIGHT. CONTRACTOR SHALL SEAL VAULTS TO ENSURE SURFACE WATER DOES NOT INFILTRATE INTO THE VAULTS. VAULT LIDS SHALL BE PLACED TO ENSURE THAT SURFACE WATER DOES NOT FLOW INTO THE VAULTS.

GENERAL NOTES – ROADWAY

1. ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PREPARE THE SUBGRADE BY SCARIFYING THE UPPER ONE (1) FOOT OF THE SUBGRADE IN CUT AREAS OR AREAS WITH LITTLE OR NO FILL, UNLESS SPECIFIED IN THE SOILS REPORT. THE WORK SHALL CONFORM TO THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
3. PAVEMENT SHALL NOT BE CONSTRUCTED UNTIL ALL UNDERGROUND UTILITIES HAVE BEEN INSTALLED, TESTED AND ACCEPTED BY THE TOWN OF ERIE ENGINEERING STAFF.
4. IT SHALL BE THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO SUPERVISE AND CERTIFY THAT PROPER COMPACTION HAS BEEN OBTAINED BY SUBCONTRACTORS AND AGENCIES CONCERNING UTILITY LINE BACKFILL INCLUDING, BUT NOT LIMITED TO, SEWER, WATER, ELECTRICAL, GAS AND LANDSCAPE IRRIGATION LINES AND ACCEPTED BY THE TOWN OF ERIE ENGINEERING STAFF AND THE SOILS ENGINEER.
5. STREET PAVING SHALL NOT START UNTIL:
    - a. A SOILS REPORT AND PAVEMENT DESIGN IS ACCEPTED BY THE TOWN OF ERIE ENGINEERING STAFF.
    - b. ALL STREETS ARE COMPACTED IN ACCORDANCE WITH THE SOILS REPORT AND THE TOWN OF ERIE SPECIFICATIONS.
    - c. ALL COMPACTION TEST REPORTS HAVE BEEN SUBMITTED TO THE TOWN ENGINEERING STAFF PRIOR TO PROOF ROLLS.
    - d. PROOF ROLLS ARE PERFORMED USING A LOADED SINGLE AXLE 2000 GALLON WATER TRUCK AND MONITORED BY THE TOWN OF ERIE ENGINEERING STAFF.
6. THE OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL UTILITY MANHOLE COVERS AND ACCESS LIDS TO GRADE.
7. ALL CONCRETE SHALL BE A MINIMUM OF CLASS B, IN CONFORMANCE WITH CDOT STANDARDS.
8. ALL CONCRETE EDGES MUST BE ROUNDED TO A FOURTH (1/4) INCH RADIUS, EXCEPT WHERE SHOWN OTHERWISE ON DRAWINGS.
9. ONE HALF (1/2) INCH EXPANSION JOINTS SHALL BE INSTALLED AT ALL CURB RETURNS, CURB CUTS AND EXISTING STRUCTURES. CONTROL JOINTS SHALL BE INSTALLED PER THE TOWNS STANDARDS AND SPECIFICATIONS.
10. BEFORE PLACING OF ASPHALT THE SUBGRADE SHALL RECEIVE A GROUND STERILANT APPLIED AT A RATE IN ACCORDANCE TO MANUFACTURERS RECOMMENDATIONS.
11. TACK COAT SHALL BE USED PRIOR TO OVERLAY, (CSS–1H), 50:50 DILUTION, 0.10 GAL/SY. ALL EDGES ABUTTING NEW PAVEMENT SHALL BE TACKED.
12. WHEN IT IS REQUIRED TO MATCH EXISTING PAVEMENT, EXISTING PAVEMENT SHALL BE SAW CUT IN A MANNER TO AFFECT A SMOOTH, VERTICAL STRAIGHT CUT EDGE. T PATCH MILLING MUST BE DONE PER STANDARD DETAILS.
13. ALL SAWCUT EDGES OF EXISTING PAVEMENT SHALL BE CLEAN AND COATED WITH TACK COAT PRIOR TO PLACING NEW PAVEMENT ADJACENT TO THE EXISTING PAVEMENT.
14. ALL ASPHALT SHALL BE ONE FOURTH (1/4) INCH ABOVE CONCRETE EDGES, MANHOLE COVERS AND ACCESS LIDS.
15. SIGNAGE AND STRIPING SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, THE COLORADO DEPARTMENT OF TRANSPORTATION M&S STANDARDS, AND THE TOWN OF ERIE STANDARD DESIGN CRITERIA AND STANDARD CONSTRUCTION REQUIREMENTS.
16. THE PURCHASE AND INSTALLATION OF STREET NAME SIGNS SHALL BE THE RESPONSIBILITY OF THE OWNER/CONTRACTOR. THE OWNER/CONTRACTOR SHALL SECURE THE APPROVAL OF THE TOWN OF ERIE ENGINEERING STAFF FOR TYPE AND LOCATION OF THE STREET NAME SIGNS PRIOR TO INSTALLATION.
17. ALL NEW ROADWAY SECTIONS SHALL HAVE SUBGRADE PREPARATION AND INITIAL ASPHALT PAVEMENT PLACED WITH A 1% CROWN. FINAL OVERLAY IS TO BE PLACED WITH A 2% CROWN. SEE DETAIL ST7 IN THE “STANDARD DETAILS–STREET” FOR MORE INFORMATION.
18. DETERMINATION OF CROWN FOR CUL DE SAC PAVING SHALL BE EVALUATED ON A CASE BY CASE BASIS.

LAST SAVED: 7/18/2017 11:01 AM

G:\25471\CONST\25471-NOTES.dwg

SCALE VERIFICATION
BAR IS ONE INCH
ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET
ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG
CALL THE UTILITY NOTIFICATION
CENTER OF COLORADO (U.N.C.C.)
811
GAS, ELECTRIC, TELEPHONE, CATV AND
PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

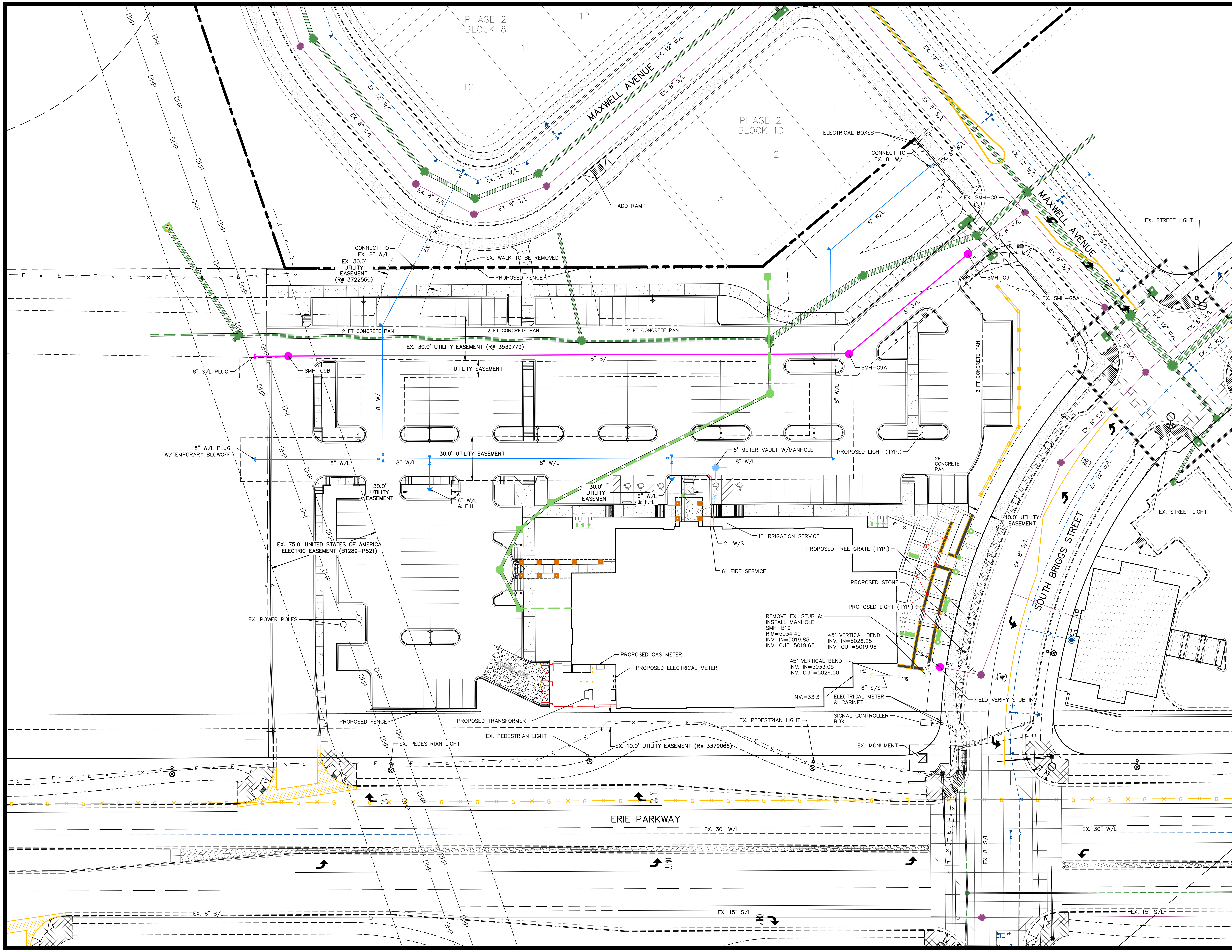
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

CONSTRUCTION NOTES

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 25471-NOTES
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C2.0



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Stormline
- Water Service
- Sewer Service
- Fire Service
- Existing Gas Line
- Ex. Underground Electric
- Ex. Overhead Electric
- Existing Fiber Optic
- Existing Telephone Line
- Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- Plug
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Proposed Light
- Existing Pedestrian Light
- Existing Street Light
- Install Handicap Ramp

SCALE: 1" = 30'

0 30' 60'

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.)
811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED PROFESSIONAL ENGINEER JOHN W. JORGENSON 22730

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

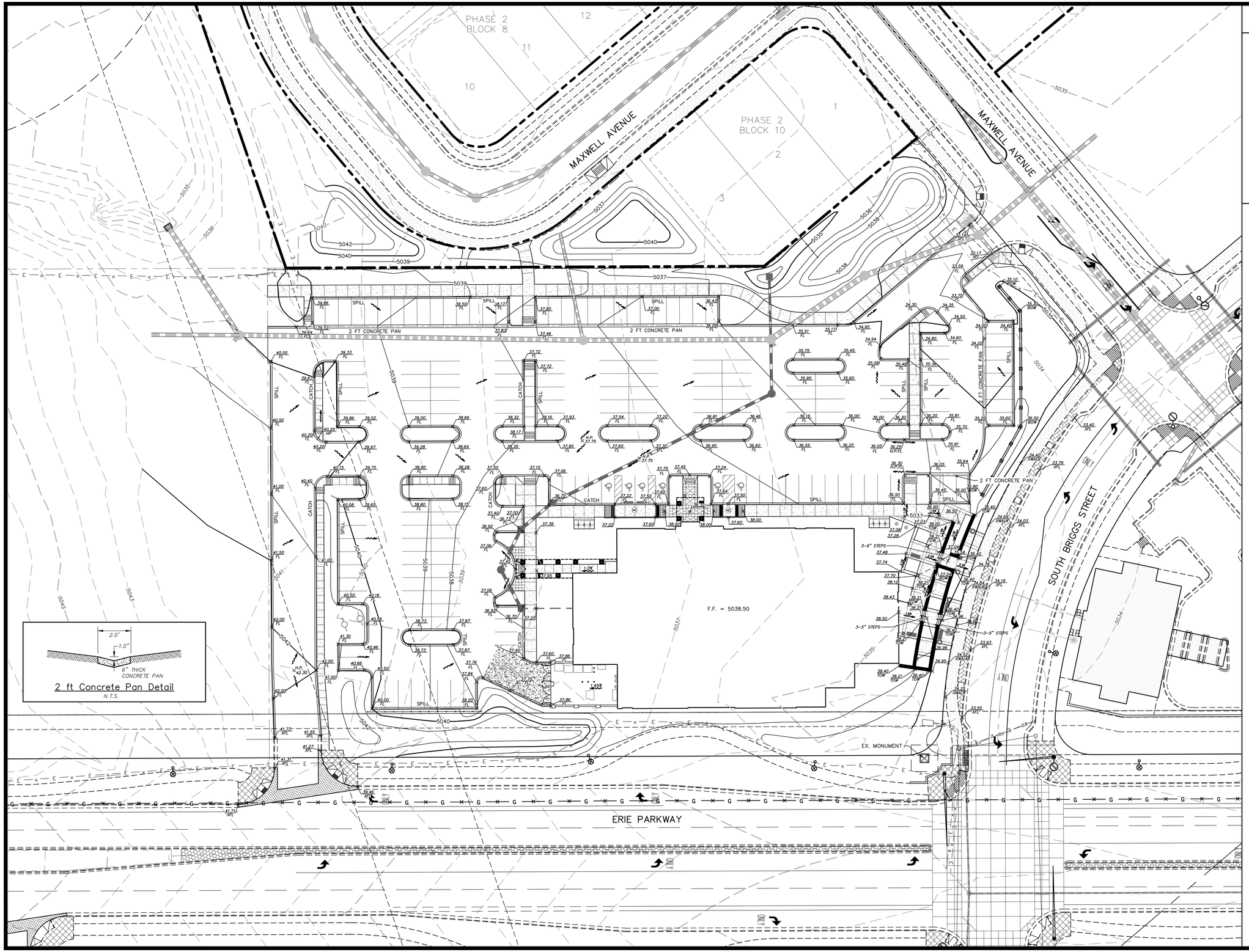
ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

MASTER UTILITY PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 25471-MU
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: 1"=30'
SHEET NO: C3.0

LAST SAVED: 9/26/2017 1:17 PM
G:\25471\CONST\25471-MU.dwg



LEGEND

- Existing Contours
- Proposed Contours
- Flow Arrow
- Stormline
- Manhole
- Type 'R' Inlet
- Grated Inlet
- BoW Bottom of Wall
- ToW Top of Wall
- FL Flowline of Curb
- BoC Back of Curb
- BW Back of Walk

SCALE: 1" = 30'

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
RMS, ELECTRIC, TELEPHONE, CATV AND PARADISE CANYON PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

GRADING PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	2547-GG
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=30'
SHEET NO:	C4.0

LAST SAVED: 9/25/2017 8:27 PM
G:\25471\CONST\25471-GG.dwg

LAST SAVED: 9/25/2017 8:25 PM

G:\25471\CONST\25471-OG-PLAZA.dwg

F.F. = 5038.50

SPILL

BENCH

3–6" STEPS

3–6.7" STEPS

3–6.3" STEPS

SOUTH BRIGGS STREET

ONLY

ONLY

LEGEND

- Existing Contours
- Proposed Contours
- Flow Arrow
- Stormline
- Manhole
- Type 'R' Inlet
- Grated Inlet
- BoW — Bottom of Wall
- ToW — Top of Wall
- FL — Flowline of Curb
- BoC — Back of Curb
- BW — Back of Walk

0 10' 20'

SCALE: 1" = 10'

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811

PAYS, ELECTRIC, TELEPHONE, CATV, AND PIPELINE COMPANIES FACILITY LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST

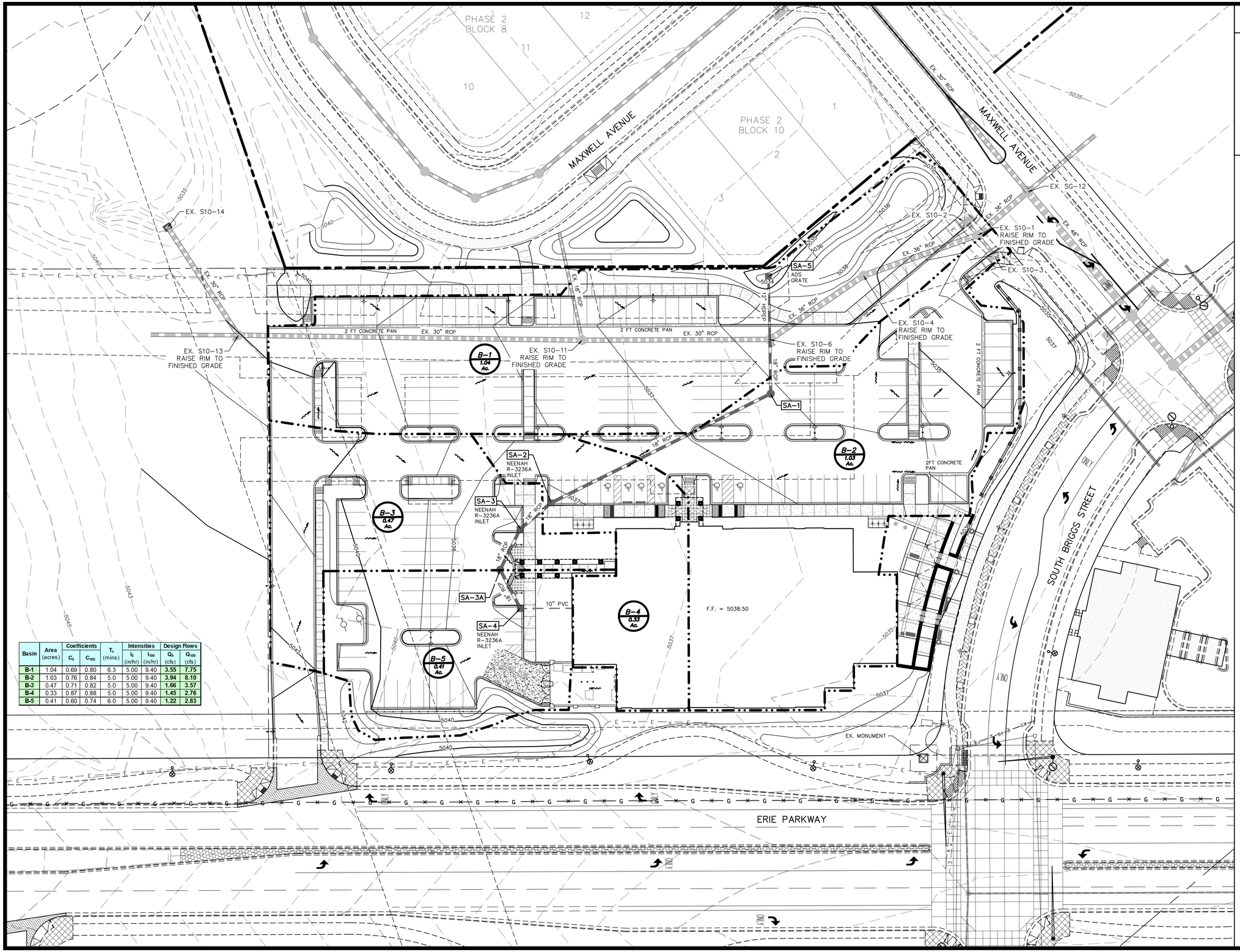
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

PLAZA GRADING PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	25471-OG-PLAZA
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=10'
SHEET NO:	C5.0



Basin	Area (acres)	Coefficients C_5	Coefficients C_{100}	T_c (mins)	Intensities I_5 (in/hr)	Intensities I_{100} (in/hr)	Design Flows Q_5 (cfs)	Design Flows Q_{100} (cfs)
B-1	1.04	0.69	0.80	6.3	5.00	9.40	**3.55**	**7.75**
B-2	1.03	0.76	0.84	5.0	5.00	9.40	**3.94**	**8.10**
B-3	0.47	0.71	0.82	5.0	5.00	9.40	**1.66**	**3.57**
B-4	0.33	0.87	0.88	5.0	5.00	9.40	**1.45**	**2.76**
B-5	0.41	0.60	0.74	6.0	5.00	9.40	**1.22**	**2.83**

LEGEND

- Existing Contours
- Proposed Contours
- Flow Arrow
- B1 — Basin Designation
- SA-100 — Structure Number
- Basin Boundary
- Major Basin Boundary

SCALE: 1" = 30'

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
PLEASE ELECTRIC, TELEPHONE, CATV AND PIPELINE OWNERS FOR FIELD LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
MASTER DRAINAGE PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

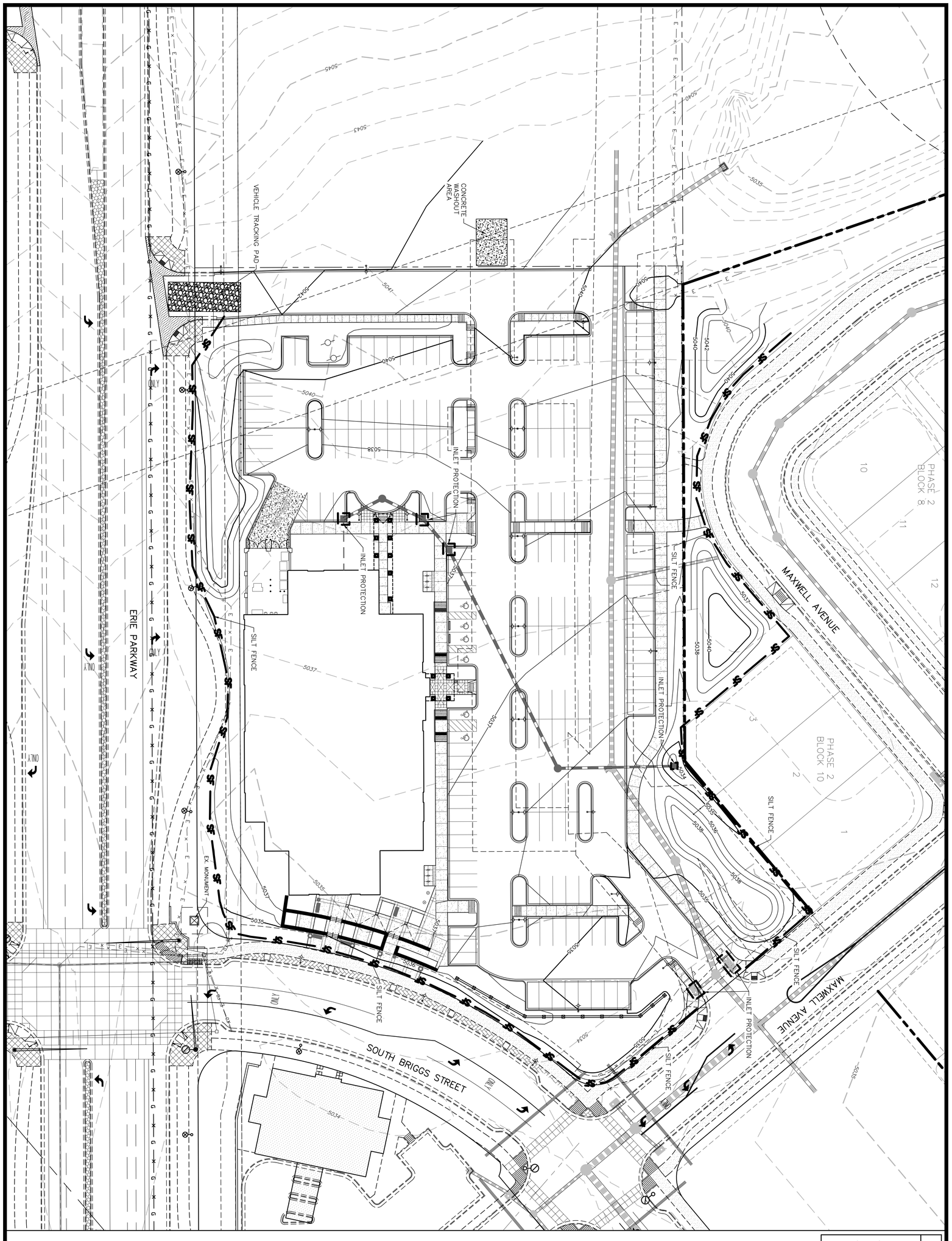
DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	2547-MD
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=30'
SHEET NO:	C6.0

LAST SAVED: 9/28/2017 1:16 PM

G:\2547\CONST\2547-MD.dwg

G:\25471\CONST\25471-SWMP.dwg

LAST SAVED: 9/25/2017 8:25 PM



SEE SHEET 19 FOR EROSION CONTROL DETAILS

0 30' 60'
SCALE: 1" = 30'

LEGEND

- Existing Contours
- Proposed Contours
- Erosion Control Bales or Inlet Protection
- Silt Fence
- Storm line

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	25471-SWMP
APPROVED BY:	JJ
JOB NUMBER:	25471-010
DATE:	09/29/17
SCALE:	1"=30'
SHEET NO:	C7.0

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

STORMWATER MANAGEMENT PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

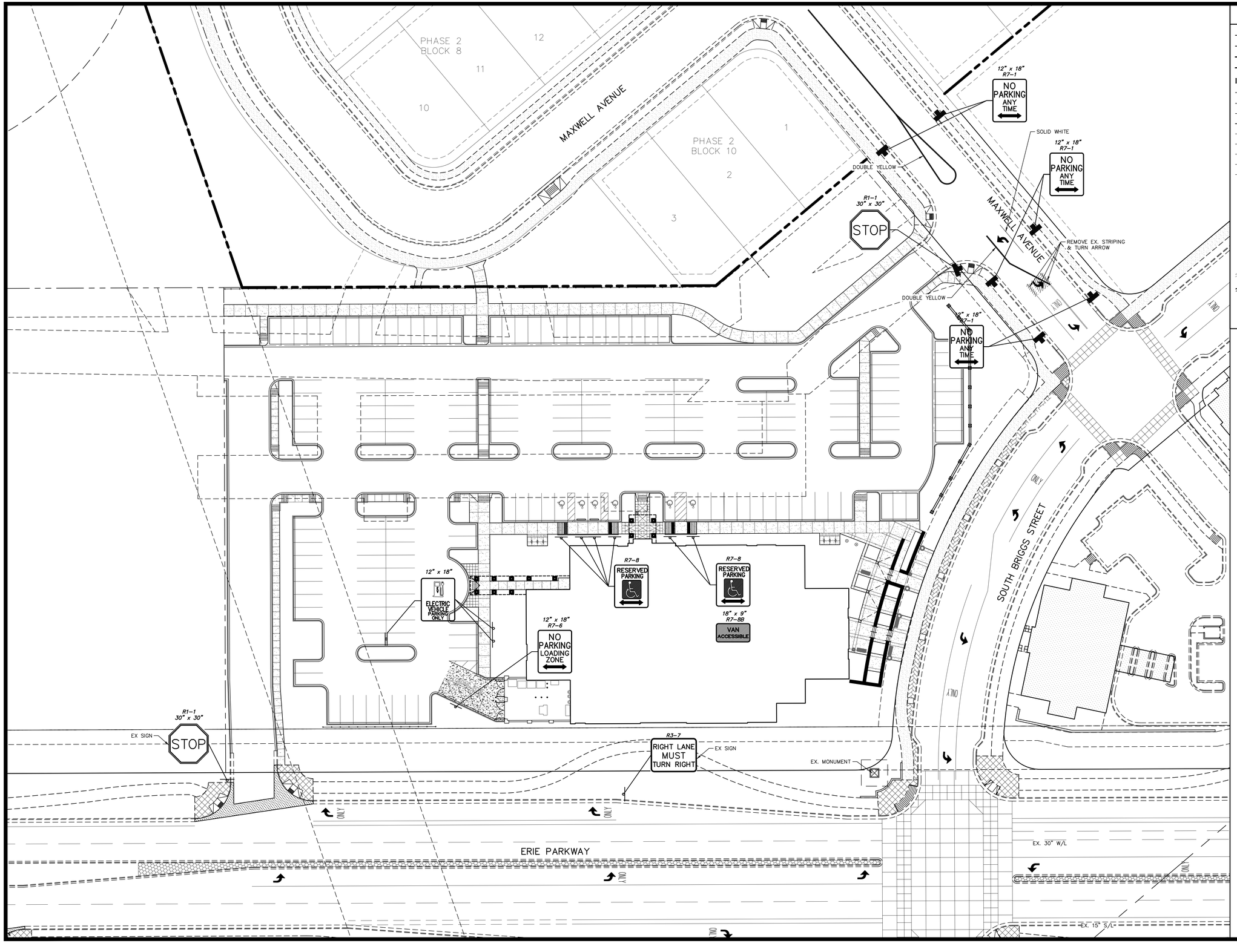
COLORADO LICENSED JOHN W. HURST 22730 PROFESSIONAL ENGINEER

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

72 HOURS BEFORE YOU DIG
CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.)
811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

SCALE VERIFICATION
THIS LINE IS 1 INCH LONG ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Stormline
- W — Water Service
- S — Sewer Service
- FS — Fire Service
- G — Existing Gas Line
- E — Ex. Underground Electric
- OHE — Ex. Overhead Electric
- FO — Existing Fiber Optic
- T — Existing Telephone Line
- TV — Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- Plug
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Street Light
- Install Handicap Ramp

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING.

IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811

PLEASE CALL FOR ELECTRIC, TELEPHONE, CATV, AND PIPELINE LOCATIONS WITHIN YOUR PROPERTY

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSEN
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

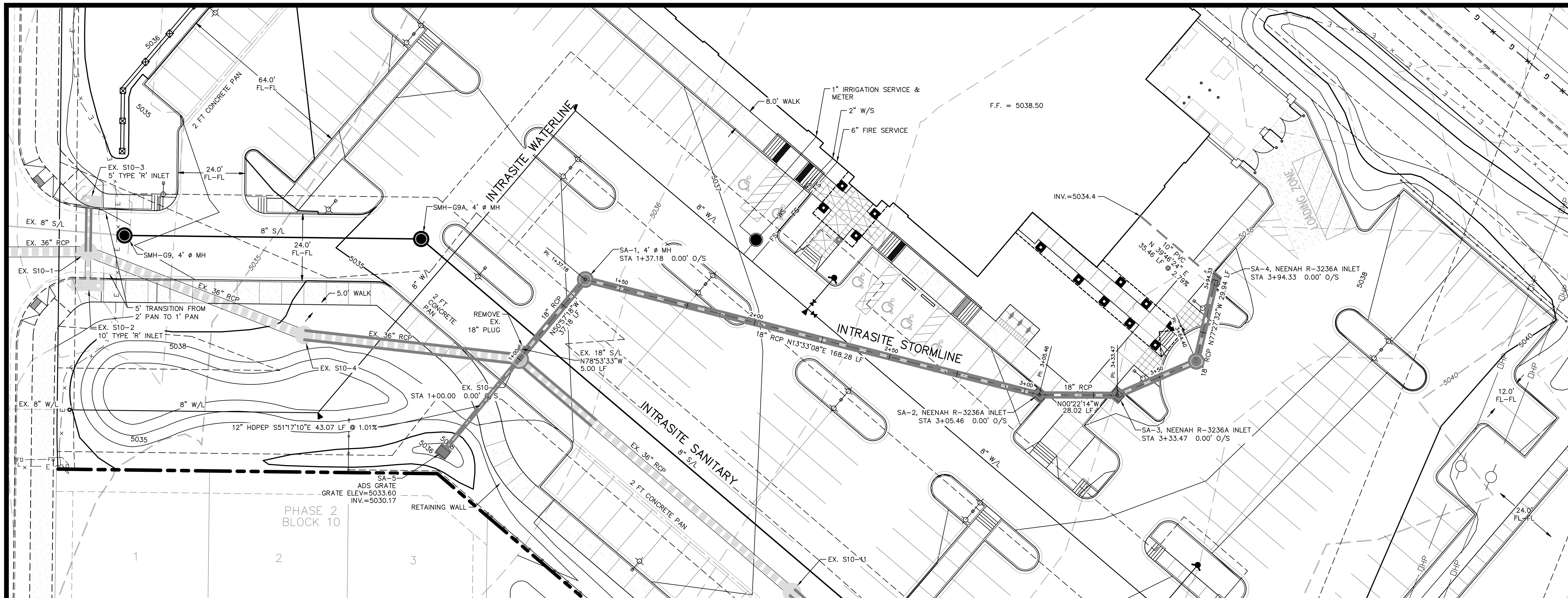
SIGNING & STRIPING PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	2547-SIGN
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=30'
SHEET NO:	C□.0

LAST SAVED: 9/25/2017 5:59 PM

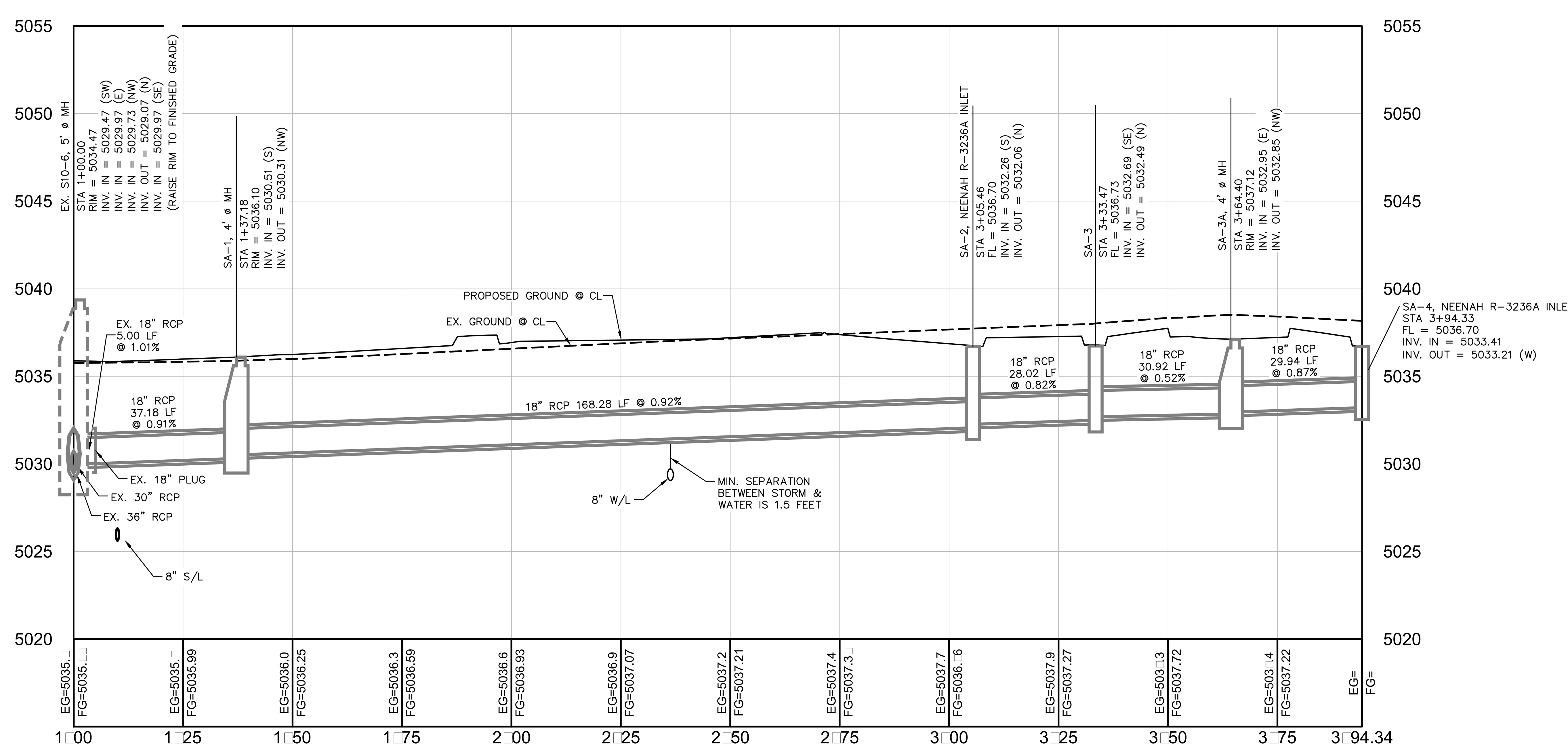
G:\2547\CONST\2547I-SIGN.dwg



LEGEND

Symbol	Description
	Proposed Waterline
	Existing Waterline
	Proposed Sewerline
	Existing Sewerline
	Proposed Stormline
	Existing Stormline
W	Water Service
S	Sewer Service
FS	Fire Service
G	Existing Gas Line
E	Ex. Underground Electric
OHE	Ex. Overhead Electric
FO	Existing Fiber Optic
T	Existing Telephone Line
TV	Existing Cable TV Line
	Thrust Block
	Water Valve
	Fire Hydrant
	Plug
	Manhole
	Type 'R' Inlet
	Existing Contours
	Proposed Contours
	Street Light
HC	Install Handicap Ramp

A - STORM PROFILE
SCALE: H 1" = 20' V 1" = 5'
START STA: 1+00.00 END STA: 3+94.34



SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1			XX

COLORADO LICENSED
JOHN W. JORGENSEN
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

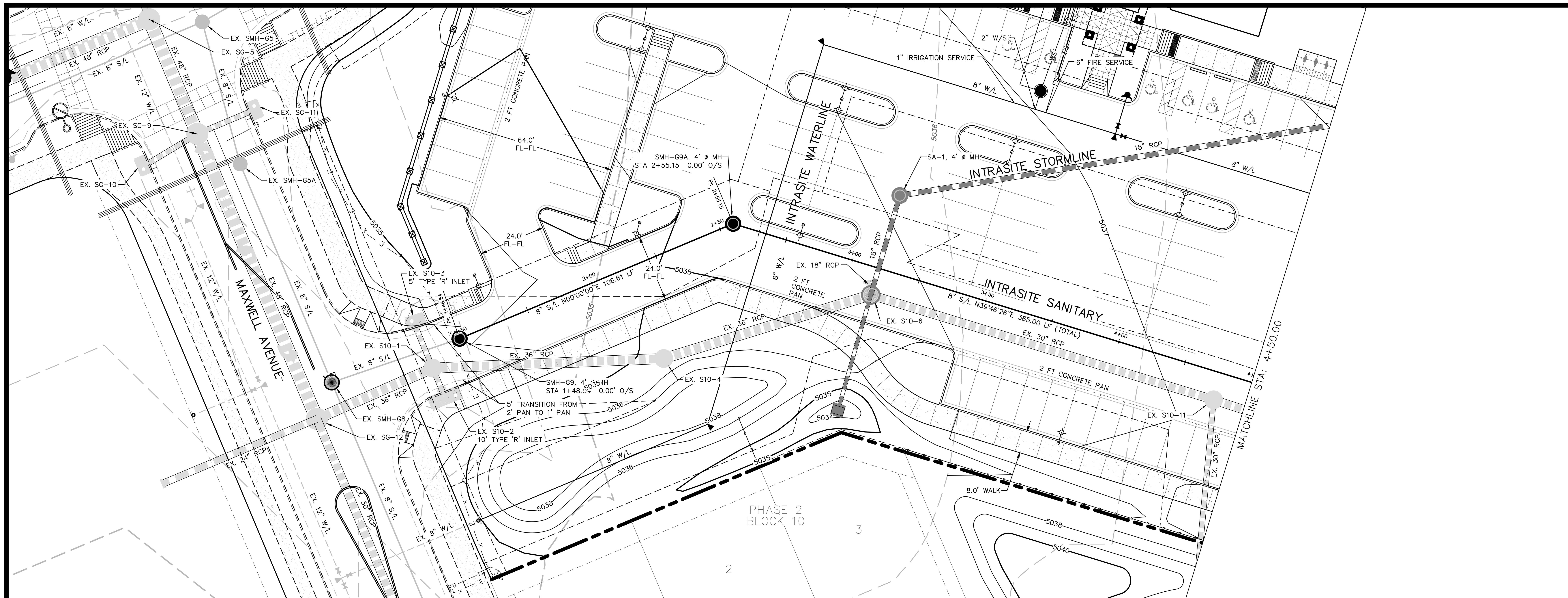
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
INTRASITE STORMLINE
STA: 1+00 - 4+00
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 25471-INTRA STORM
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: 1"=20'
SHEET NO: C9.0

0 20' 40'
SCALE: 1" = 20'

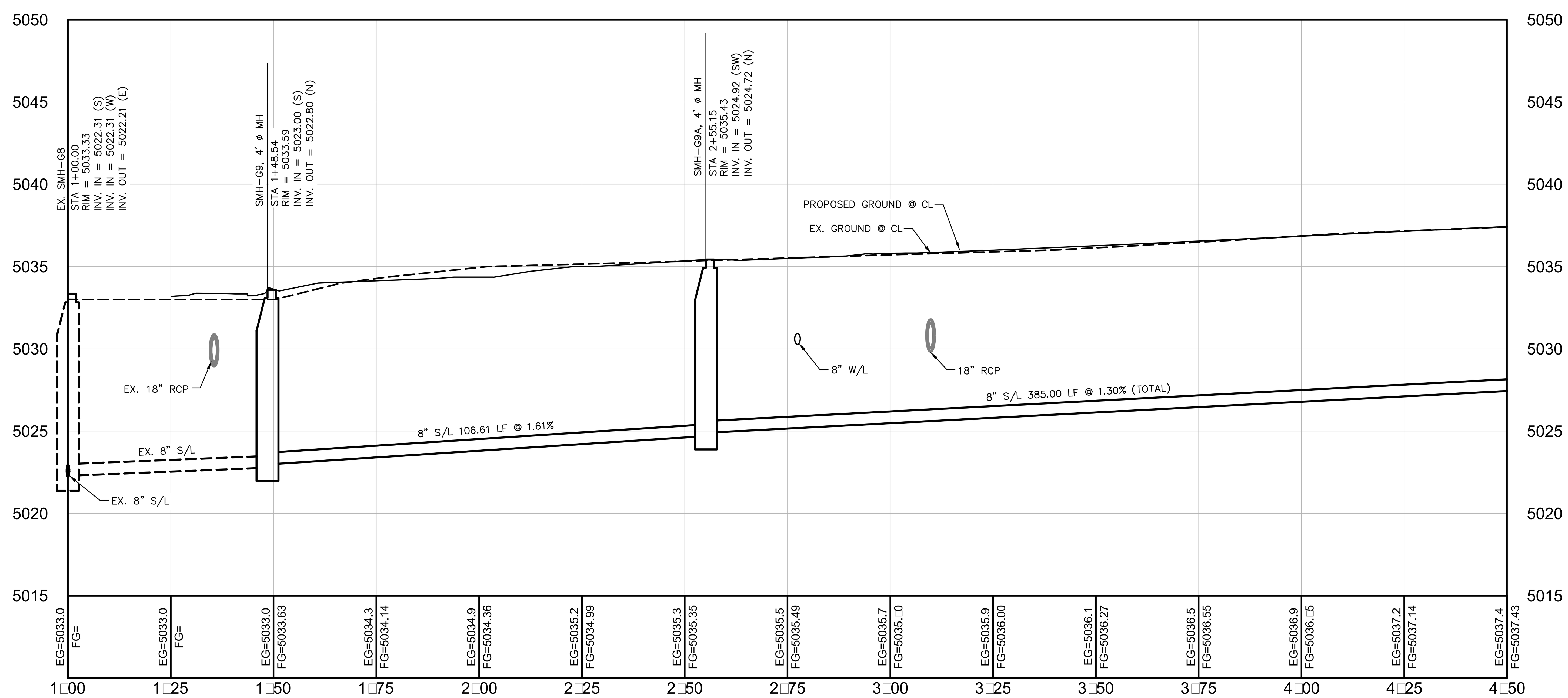
LAST SAVED: 9/25/2017 8:25 PM
G:\2547\CONST\25471-INTRA STORM.dwg



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Proposed Stormline
- Existing Stormline
- Water Service
- Sewer Service
- Fire Service
- Existing Gas Line
- Ex. Underground Electric
- Ex. Overhead Electric
- Existing Fiber Optic
- Existing Telephone Line
- Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- *Plug*
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Street Light
- Install Handicap Ramp

A□□□□ □□□- SANITARY PROFILE
SCALE: □H□1" = 20' □V□1" = 5'
START STA: 1□00.00□END STA: 4□50.00



0 20' 40'
SCALE: 1" = 20'

LAST SAVED: 9/21/2017 12:26 PM

G:\2547\CONST\2547-INTRA SAN.dwg

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

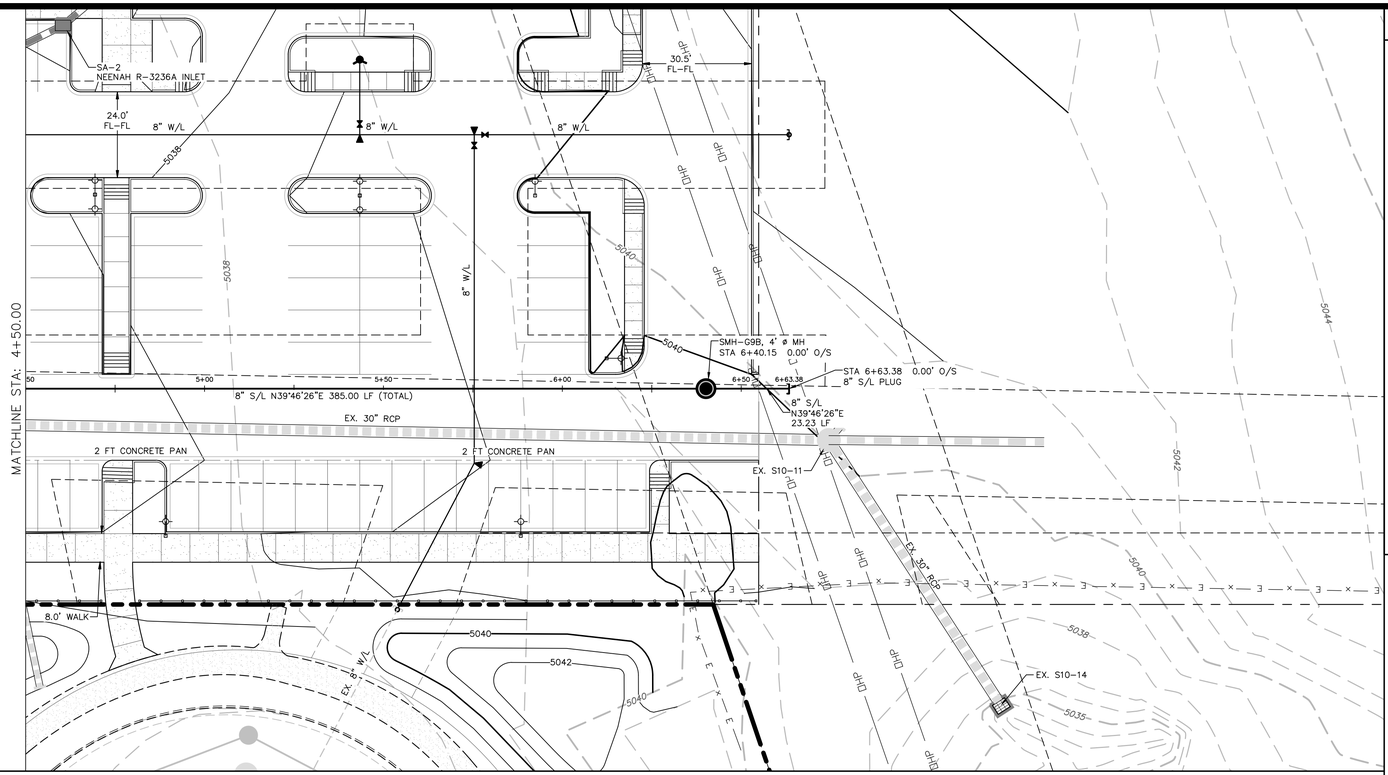
COLORADO LICENSED PROFESSIONAL ENGINEER JOHN W. JORGENSEN 22730

HURST CIVIL ENGINEERING PLANNING SURVEYING

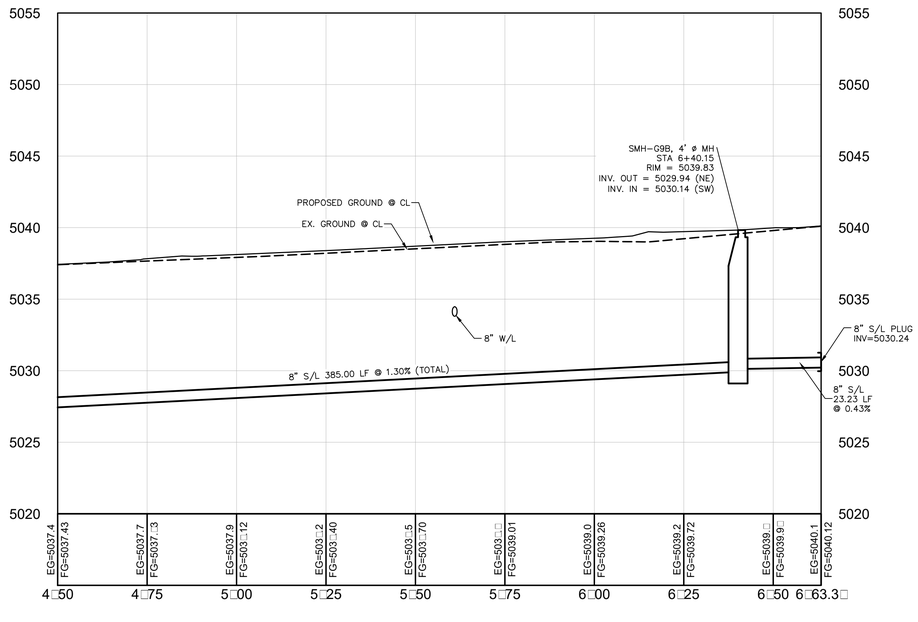
HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
INTRASITE SANITARY
STA: 1+00 - 4+50
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 2547-INTRA SAN
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: 1"=20'
SHEET NO: C10.0



A□□□□ □□□- SANITARY PROFILE
SCALE: □H□1" = 20' □V□1" = 5'
START STA: 4□50.00□END STA: 6□63.3□



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Proposed Stormline
- Existing Stormline
- Water Service
- Sewer Service
- Fire Service
- Existing Gas Line
- Ex. Underground Electric
- Ex. Overhead Electric
- Existing Fiber Optic
- Existing Telephone Line
- Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- Plug
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Street Light
- Install Handicap Ramp

0 20' 40'
SCALE: 1" = 20'

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
PLEASE CALL FOR ELECTRIC, TELEPHONE, CATV, AND PARKING LOT/PRIVATE UTILITY LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

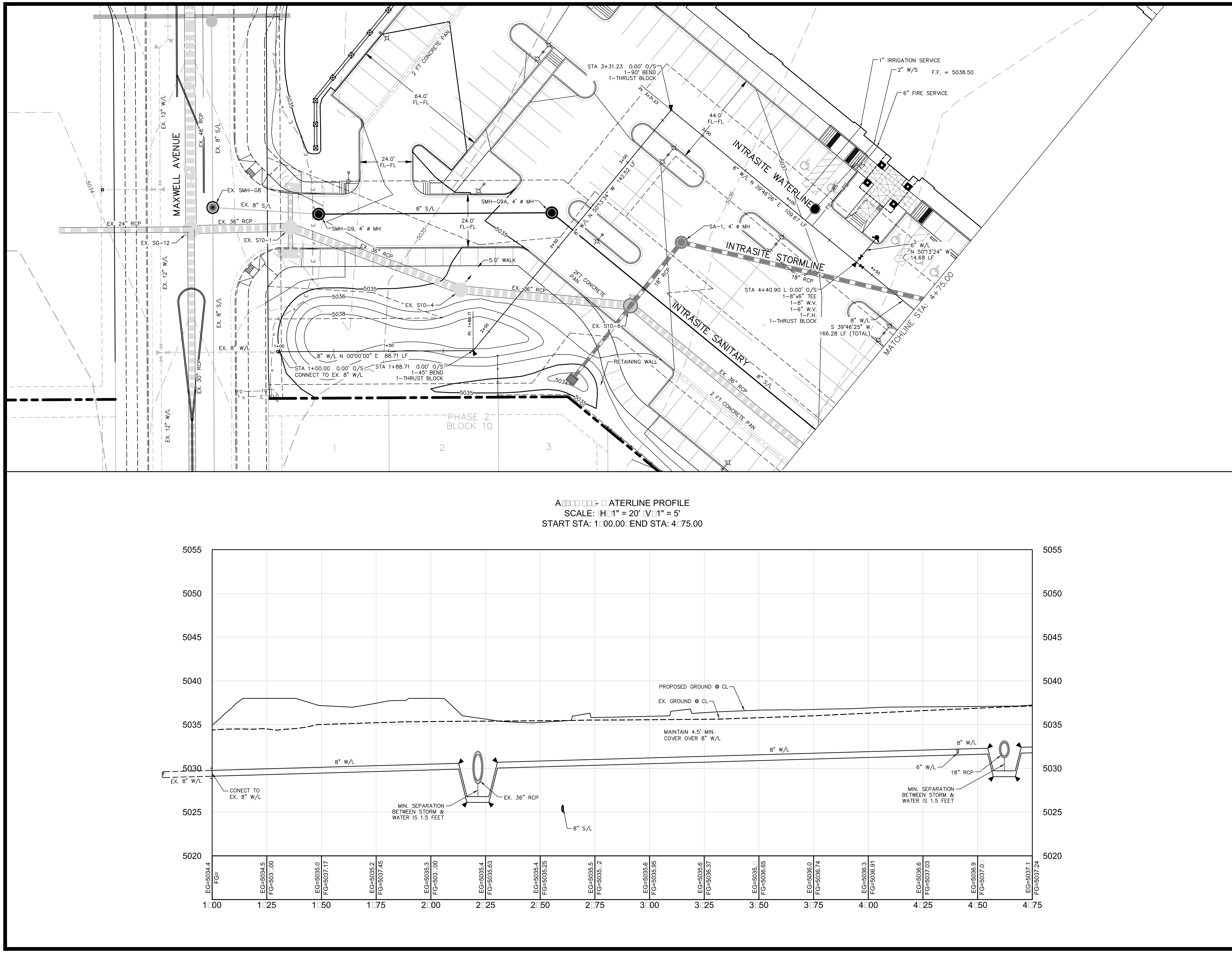
HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
INTRASITE SANITARY
STA: 4+500 - 6+45.15

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	2547-INTRA SAN
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=20'
SHEET NO:	C11.0

LAST SAVED: 9/21/2017 12:26 PM
G:_25471\CONST\25471-INTRA SAN.dwg



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Proposed Stormline
- Existing Stormline
- Water Service
- Sewer Service
- Fire Service
- Existing Gas Line
- Ex. Underground Electric
- Ex. Overhead Electric
- Existing Fiber Optic
- Existing Telephone Line
- Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- Plug
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Street Light
- Install Handicap Ramp

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG, CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED PROFESSIONAL ENGINEER
JOHN W. JORGENSON 22730

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

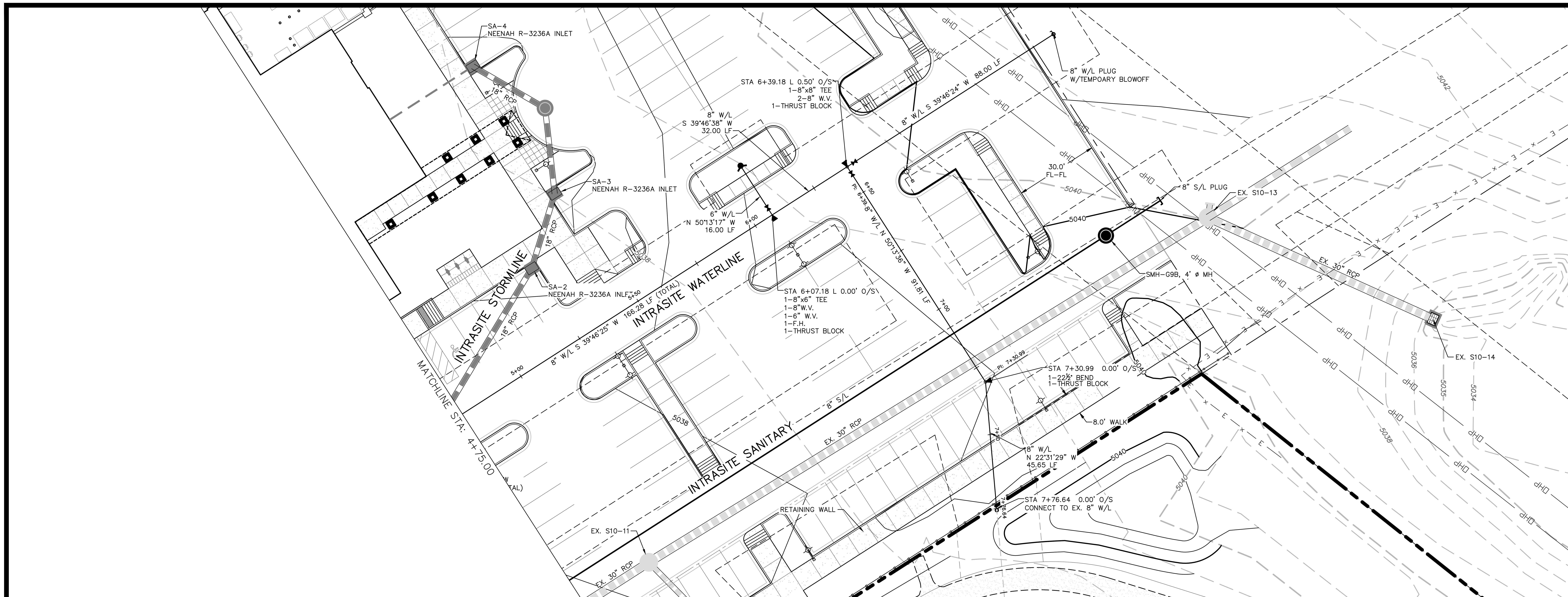
ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

INTRASITE WATERLINE
STA: 1+00 - 4+75
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 2547-INTRA WATER
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: 1"=20'
SHEET NO: C12.0

SCALE: 1" = 20'

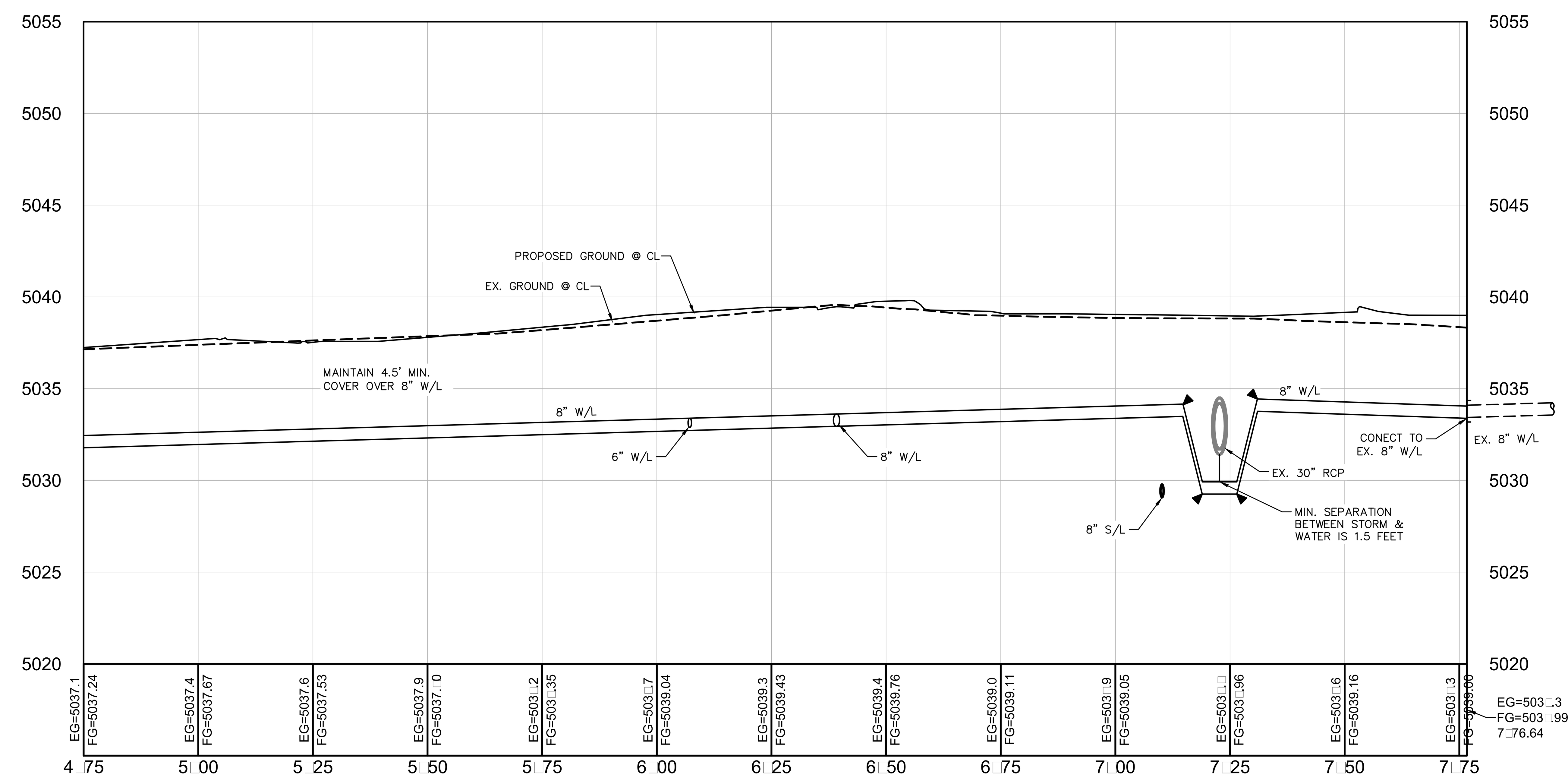
LAST SAVED: 9/20/2017 12:16 PM
G:\25471\CONST\25471-INTRA WATER.dwg



LEGEND

- Proposed Waterline
- Existing Waterline
- Proposed Sewerline
- Existing Sewerline
- Proposed Stormline
- Existing Stormline
- Water Service
- Sewer Service
- Fire Service
- Existing Gas Line
- Ex. Underground Electric
- Ex. Overhead Electric
- Existing Fiber Optic
- Existing Telephone Line
- Existing Cable TV Line
- Thrust Block
- Water Valve
- Fire Hydrant
- Plug
- Manhole
- Type 'R' Inlet
- Existing Contours
- Proposed Contours
- Street Light
- Install Handicap Ramp

A[illegible] [illegible]- [illegible]ATERLINE PROFILE
SCALE: [illegible]H[illegible]1" = 20' [illegible]V[illegible]1" = 5'
START STA: 4[illegible]75.00[illegible]END STA: 7[illegible]76.64



SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.)
811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1			XX

COLORADO LICENSED PROFESSIONAL ENGINEER
JOHN W. JORGENSEN
22730

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1

INTRASITE WATERLINE
STA: 4+75 - 7+53.35

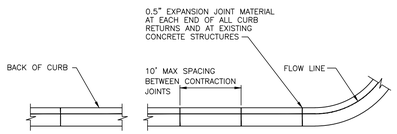
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB
DESIGNED BY: JJ
DRAWING NAME: 25471-INTRA WATER
APPROVED BY: JJ
JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: 1"=20'
SHEET NO: C13.0

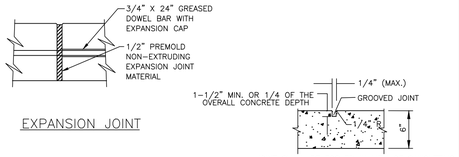
0 20' 40'
SCALE: 1" = 20'

LAST SAVED: 9/20/2017 12:16 PM

G:\25471\CONST\25471-INTRA WATER.dwg



LAYOUT



EXPANSION JOINT

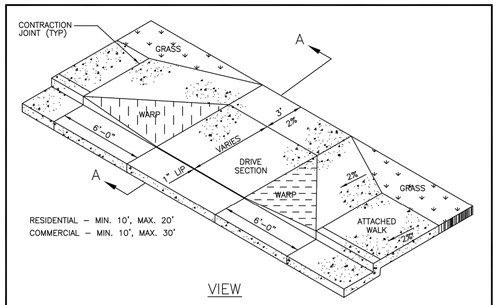
CONTRACTION JOINT

NOTES:

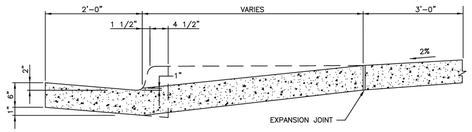
1. **EXPANSION JOINT MATERIAL SHALL BE NON-EXTRUDING AND RESILIENT TYPE TO MEET AASHTO SPEC. M-213.**
2. **ANY OVER-EXCAVATION SHALL BE REPLACED BY GRANULAR BACKFILL COMPACTED TO 95% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698.**

The Town of ERIE COLORADO

DRAWING TITLE: **CURB AND GUTTER JOINT DETAIL**
DRAWING NUMBER: **SW1**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2010**



VIEW



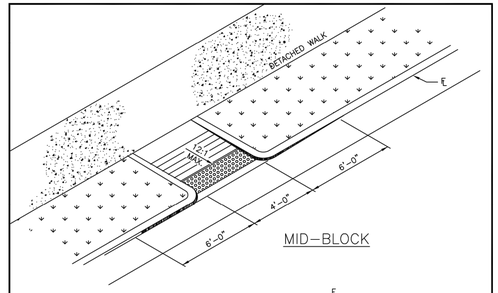
SECTION A–A

NOTES:

1. CONTRACTION JOINTS ARE REQUIRED AT EACH SIDE OF WARPED SECTION AND EVERY 10' ALONG THE DRIVE SECTION. SEE DETAILS ON DRAWING SW1 FOR CONSTRUCTION JOINT DETAILS.
2. CHAMFER FRONT EDGE OF CURB AND DRIVE SECTION AS SHOWN IN SECTION A–A.
3. SIDEWALK THICKNESS SHALL BE 6" AT DRIVEWAY.

The Town of ERIE COLORADO

DRAWING TITLE: DRIVE CUT–ATTACHED WALK
DRAWING NUMBER: SW4B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2006



MID–BLOCK

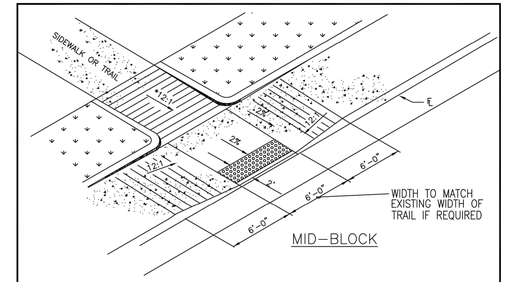
TYPICAL RAMP SECTION

NOTES:

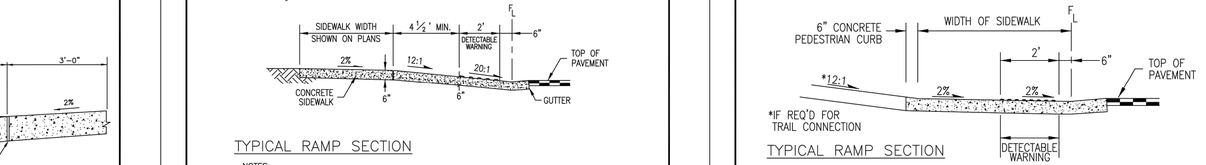
1. THERE SHALL BE NO LIP WHERE THE RAMP MEETS THE GUTTER.
2. CURB RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTIONS AND AT "T" INTERSECTIONS WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB.
3. RAMP SURFACE SHALL HAVE A COARSE BROOM FINISH WITH GROOVES PLACED PERPENDICULAR TO THE SLOPE AT 8" INTERVALS, 1/2" DEPTH.
4. CURB RAMPS SHALL BE POURED MONOLITHICALLY WITH THE CURB, GUTTER AND APRON.
5. RAMP DIMENSIONS SHALL BE SPECIFIED ON THE CONSTRUCTION PLANS, RAMP AND WING SLOPES SHALL NOT BE STEEPER THAN 12:1.
6. RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1. THE DETECTABLE WARNING AREA SLOPE SHALL NOT BE STEEPER THAN 20:1.
7. DETECTABLE WARNINGS SHALL BE EAST JORDON IRON WORKS 7005 SERIES DETECTABLE WARNING PLATES OR APPROVED EQUAL.

The Town of ERIE COLORADO

DRAWING TITLE: CURB RAMP MID BLOCK TYPE 3 DETACHED SIDEWALK
DRAWING NUMBER: SW10B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 1/2015



MID–BLOCK



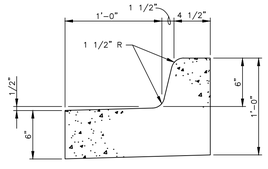
TYPICAL RAMP SECTION

NOTES:

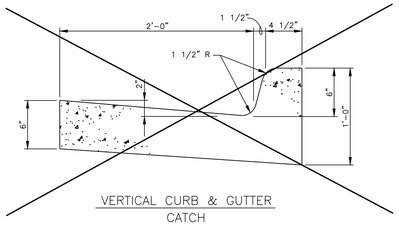
1. THERE SHALL BE NO LIP WHERE THE RAMP MEETS THE GUTTER.
2. CURB RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTIONS AND AT "T" INTERSECTIONS WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB.
3. RAMP SURFACE SHALL HAVE A COARSE BROOM FINISH WITH GROOVES PLACED PERPENDICULAR TO THE SLOPE AT 8" INTERVALS, 1/2" DEPTH.
4. CURB RAMPS SHALL BE POURED MONOLITHICALLY WITH THE CURB, GUTTER AND APRON.
5. RAMP DIMENSIONS SHALL BE SPECIFIED ON THE CONSTRUCTION PLANS, RAMP AND WING SLOPES SHALL NOT BE STEEPER THAN 12:1.

The Town of ERIE COLORADO

DRAWING TITLE: CURB RAMP MID BLOCK TYPE 2 ATTACHED SIDEWALK
DRAWING NUMBER: SW10C
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 1/2015



MEDIAN CURB & GUTTER
SPILL



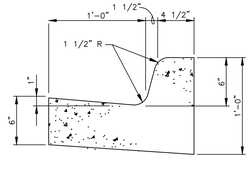
VERTICAL CURB & GUTTER
CATCH

NOTES:

1. SUBGRADE TO BE COMPACTED TO 95% MODIFIED PROCTOR.

The Town of ERIE COLORADO

DRAWING TITLE: **VERTICAL CURB SECTION**
DRAWING NUMBER: **SW12**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2010**



VERTICAL CURB & GUTTER
CATCH

NOTES:

1. SUBGRADE TO BE COMPACTED TO 95% MODIFIED PROCTOR.

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811

AVAIL ELECTRIC, TELEPHONE, CATV AND PARKING CUSTOM PULLER LOCATING

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
STREET & SIDEWALK DETAILS

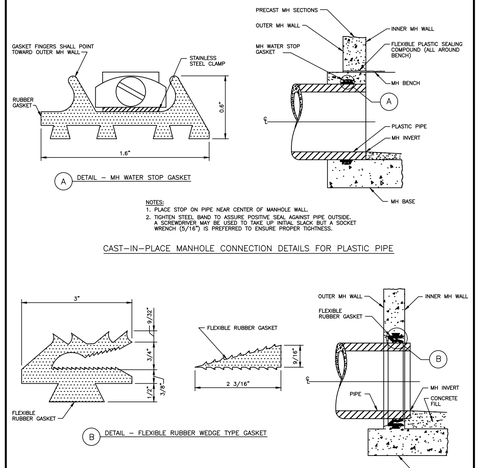
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	DESIGNED BY:	DRAWING NAME:	APPROVED BY:
EEB	JJ	CONST. DET	JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C14.0

LAST SAVED: 9/22/2017 10:43 AM

G:\25471\CONST\25471-DET.dwg



A DETAIL – MH WATER STOP GASKET

NOTES:
1. PLACE STOP ON PIPE NEAR CENTER OF MANHOLE WALL.
2. TIGHTEN STEEL BAND TO ASSURE POSITIVE SEAL AGAINST PIPE OUTSIDE. A SCREWDRIVER MAY BE USED TO TAKE UP INITIAL SLACK BUT A SOCKET WRENCH (5/16") IS PREFERRED TO ENSURE PROPER TIGHTNESS.

CAST–IN–PLACE MANHOLE CONNECTION DETAILS FOR PLASTIC PIPE

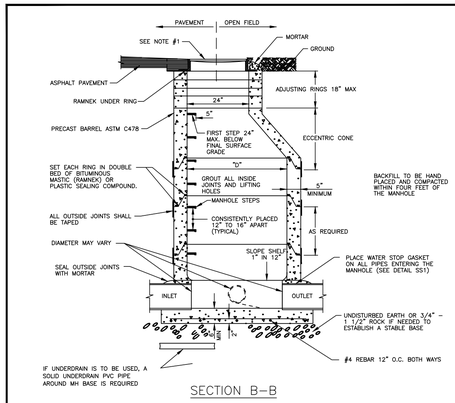
B DETAIL – FLEXIBLE RUBBER WEDGE TYPE GASKET

NOTE:
1. ALL MATERIAL SPECIFICATIONS AND INSTALLATION REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

PRECAST MANHOLE CONNECTION DETAILS FOR ANY TYPE OF PIPE

The Town of ERIE COLORADO

DRAWING TITLE: **MH/PIPE WATER STOP GASKET**
DRAWING NUMBER: **SS1**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**

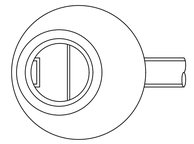


SECTION B–B

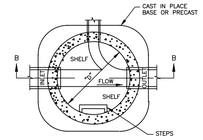
NOTES:
1. FINAL GRADE OF MANHOLE COVERS SHALL BE 1/4" LOWER THAN FINAL STREET.
2. ALL CHANNELS FLOWING INTO THE MAIN STREAM OF THE SEWER SHALL BE HAND FORMED INTO THE FLOW.
3. STEPS SHOULD BE PLACED OVER THE SHELF, NOT OVER THE FLOW. NO STEPS ALLOWED IN THE ADJUSTING RING AREA.
4. PRECAST CONCRETE SECTIONS SHALL CONFORM TO ASTM C–478.
5. BLOCK–OUTS, WHEN APPROVED, SHALL EXTEND A MAX. OF 6" PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED AND SEALED.
6. BENCH MUST HAVE A BRUSHED, NON–SKID SURFACE.
7. BENCH IS TO BE EVEN WITH TOP OF PIPES
8. A MINIMUM OF 0.2' AND MAXIMUM OF 2' FALL REQUIRED FROM INLET TO OUTLET
9. MANHOLES NOT IN ASPHALT OR CONCRETE SHALL BE RAISED 6" ABOVE FINAL GRADE AND A CONCRETE COLLAR INSTALLED WITH A GREEN CARSONITE POST

The Town of ERIE COLORADO

DRAWING TITLE: **STANDARD MANHOLE**
DRAWING NUMBER: **SS3A (1 OF 2)**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2010**



ECCENTRIC CONE PLAN VIEW



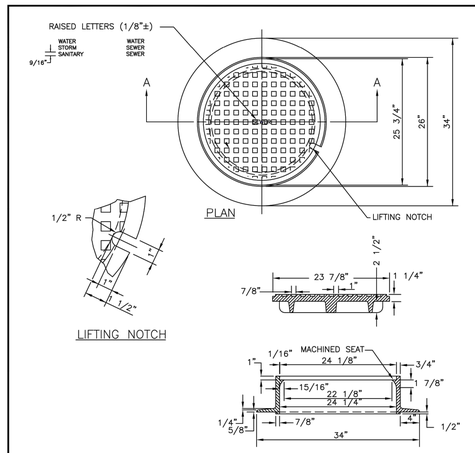
BASE PLAN VIEW

PIPE I.D.	MANHOLE I.D.	RING & COVER
18" & SMALLER	4'–0"▲	24"
21" TO 48"	5'–0"	30"
54"	6'–0"	30", 36" W/ 24"
60" & LARGER	SPECIAL DESIGN	INNER COVER

▲ WHENEVER MORE THAN A TWO WAY MANHOLE OF MAX. PIPE I.D. IS REQUIRED, THE MANHOLE SHOULD BE INCREASED TO LARGER DIA., EG. 18"x18"x18", REQUIRES 5'–0" I.D.

The Town of ERIE COLORADO

DRAWING TITLE: **STANDARD MANHOLE**
DRAWING NUMBER: **SS3B (2 OF 2)**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**



1. CASTING SPECIFICATIONS: ASTM A–48 WITH A MINIMUM TENSILE STRENGTH OF 25 KSI (CLASS 25)
2. ALL CASTINGS TO BE DIPPED IN ASPHALT BASE PAINT (OR APPROVED EQUAL)
3. CASTINGS SHALL BE AS SPECIFIED BELOW OR APPROVED EQUAL:

MANUFACTURERS	CAT. #
NEENAH	R–1706
CASTINGS, INC.	MH–400–24 C.I.
HUTCHINSON FDRY. & STL. INC.	MH–400

4. ALL NEW MANHOLES MUST INCLUDE A PLASTIC OR VINYL TAG ATTACHED TO THE TOP STEP STATING THE FOLLOWING "CAUTION CONFINED SPACE; ENTRY PERMIT REQUIRED.

The Town of ERIE COLORADO

DRAWING TITLE: **24" MANHOLE RING AND COVER**
DRAWING NUMBER: **SS6**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **1/2015**

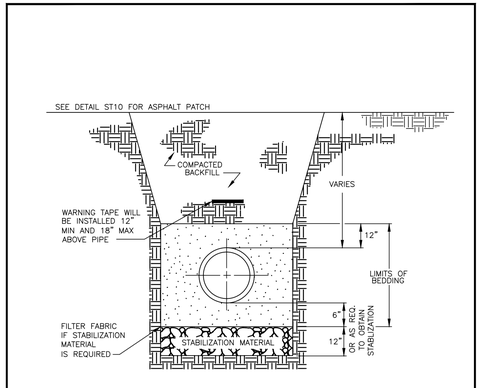
SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
ALSO, ELECTRIC, TELEPHONE, CATV, AND PRIVATELY OWNED FACILITIES LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

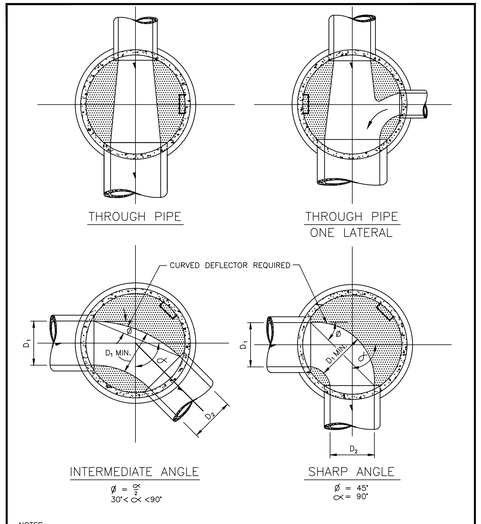


NOTES:

1. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
3. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
4. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
5. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
6. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 P.S.I. CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.

The Town of ERIE COLORADO

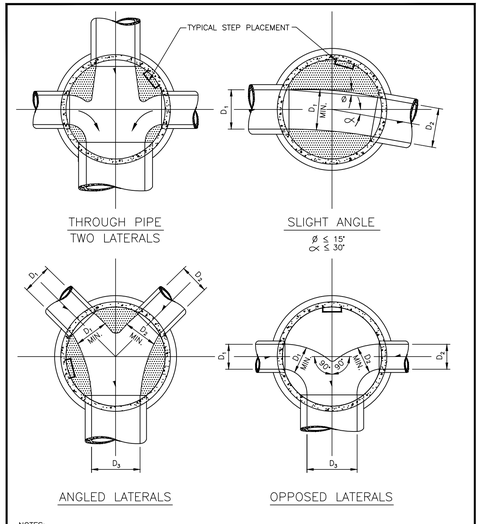
DRAWING TITLE: **SANITARY SEWER TRENCH DETAIL**
DRAWING NUMBER: **SS8**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2012**



NOTES:
1. DETAILS SHOWN ARE TYPICAL ONLY FOR INSTALLATIONS WITH ALL INVERTS AT SAME RELATIVE ELEVATION.
2. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, ETC. SPECIAL BASE/CHANNEL DETAILS SHALL BE SHOWN ON PLANS.
3. CHANNELIZATION DETAILS & STEP PLACEMENT TYPICAL FOR BOTH STORM AND SANITARY SEWER MH'S.
4. THE MINIMUM VERTICAL DROP THRU MANHOLE BASE SHALL BE 0.20 FOOT.
5. FOR VERTICAL DROPS IN EXCESS OF 1.5 FEET AN OUTSIDE DROP MANHOLE IS REQUIRED.

The Town of ERIE COLORADO

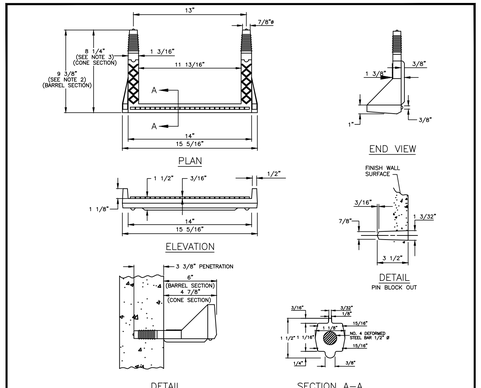
DRAWING TITLE: **TYPICAL MH BASE CHANNELIZATION (1 OF 2)**
DRAWING NUMBER: **SS11A**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**



NOTES:
1. DETAILS SHOWN ARE TYPICAL ONLY FOR INSTALLATIONS WITH ALL INVERTS AT SAME RELATIVE ELEVATION.
2. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, ETC. SPECIAL BASE/CHANNEL DETAILS SHALL BE SHOWN ON PLANS.
3. CHANNELIZATION DETAILS & STEP PLACEMENT TYPICAL FOR BOTH STORM AND SANITARY SEWER MH'S.
4. THE MINIMUM VERTICAL DROP THRU MANHOLE BASE SHALL BE 0.20 FOOT.
5. FOR VERTICAL DROPS IN EXCESS OF 1.5 FEET AN OUTSIDE DROP MANHOLE IS REQUIRED.

The Town of ERIE COLORADO

DRAWING TITLE: **TYPICAL MH BASE CHANNELIZATION (2 OF 2)**
DRAWING NUMBER: **SS11B**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**



POLYPROPYLENE REINFORCED PLASTIC STEP

NOTES:
1. ASTM SPECIFICATIONS:
   A. ASTM C–478
   B. ASTM A–615 GRADE 60 (STEEL REBAR).
   C. ASTM 2146–69, TYPE III, GRADE 16906 (POLYPROPYLENE).
2. STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURES SHALL HAVE A 9 3/8 INCH LEG AND SHALL PROJECT FROM THE WALL 6 INCHES.
3. STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8 1/4 INCH LEG AND SHALL PROJECT FROM THE WALL 4 7/8 INCHES.
4. ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3 3/8 INCHES.
5. STEPS SHALL BE INSTALLED BY THE "PRESS–FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN, FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GROUTED IN PLACE.
6. INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 LB. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
7. PINS MUST BE SMOOTH AND CONTINUOUSLY TAPERED. DIMENSIONS OF THE PIN AND THE INSERTED PORTION OF THE MANHOLE STEP ARE TYPICAL ONLY. W.M.D. INSTALLATIONS REQUIRE A MATCHED COMBINATION OF A TAPERED INSERT PIN AND MANHOLE STEP, AS RECOMMENDED OR REQUIRED BY SPECIFIC MANUFACTURER OF THE STEP TO BE USED.
8. THIS STEP CAN ALSO BE USED IN TOE POCKET INSTALLATIONS PROVIDED 5" TOE CLEARANCE IS ALLOWED.

The Town of ERIE COLORADO

DRAWING TITLE: **MANHOLE STEPS**
DRAWING NUMBER: **SS12**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

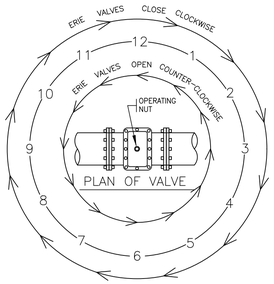
ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
SANITARY DETAILS

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	DESIGNED BY:	DRAWING NAME:	APPROVED BY:
EB	JJ	CONST. DET	JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C15.0

LAST SAVED: 9/22/2017 10:43 AM
G:\2547\1\CONST\2547-DET.dwg

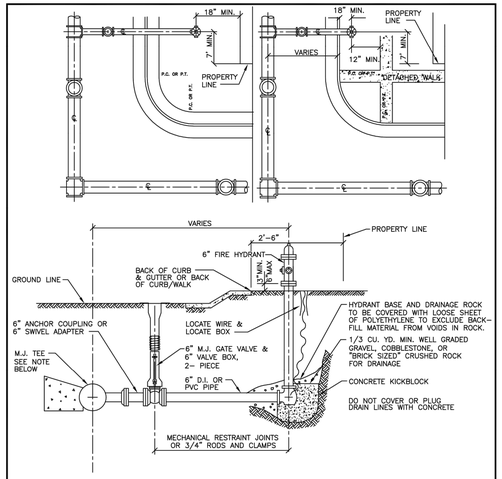


NOTE:
NORMALLY VALVES WITH A BLACK OPERATING NUT INDICATE A STANDARD ERIE VALVE. (OPEN LEFT)

VALVE OPENING & CLOSING PROCEDURE

The Town of ERIE COLORADO

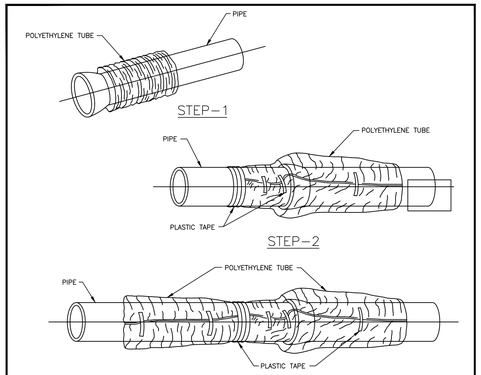
DRAWING TITLE: **VALVE OPERATION**
DRAWING NUMBER: **W1**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2009**



NOTES:
1. ALTERNATE TO THE ABOVE: FASTEN M.J. VALVE DIRECTLY TO A M.J. ANCHOR TEE (ALSO CALLED SWIVEL TEE)
2. NO HORIZONTAL OR VERTICAL BENDS ARE ALLOWED IN FIRE HYDRANT BRANCH OR SPRINKLER LINES
3. MAXIMUM OF ONE FIRE HYDRANT EXTENSION
4. CONTRACTOR TO TAKE CARE NOT TO BLOCK WEEP HOLES
5. ALL DUCTILE IRON PIPE TO BE POLYETHYLENE WRAPPED

The Town of ERIE COLORADO

DRAWING TITLE: FIRE HYDRANTS, MAINS & VALVES
DRAWING NUMBER: W7
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2010



FIELD INSTALLATION-POLYETHYLENE WRAP

STEP-1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH.

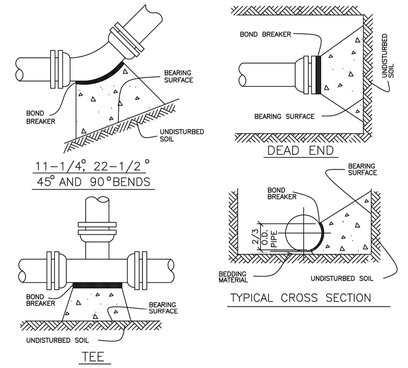
STEP-2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END.

STEP-3 ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL AND SHOULD BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS.

NOTE: ALL RODDING TO BE ENCASED IN POLYETHYLENE SEPARATED FROM THE PIPE

The Town of ERIE COLORADO

DRAWING TITLE: **POLYETHYLENE WRAP**
DRAWING NUMBER: **W9**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**



NOTES:
1. SEE THRUST BLOCKING CHART FOR MINIMUM BEARING SURFACE AREAS
2. BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER
   4",6",8" AND 12" WATER HAMMER=110 P.S.I.
   16",20" AND 24" WATER HAMMER =70 P.S.I.
3. BASED ON 3,000 pfs SOIL BEARING CAPACITY
4. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE

The Town of ERIE COLORADO

DRAWING TITLE: THRUST BLOCK
DRAWING NUMBER: W14A
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
ALL ELECTRIC, TELEPHONE, CATV, AND PIPELINE COMPANY FACILITY LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
WATER DETAILS

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY: EB | DESIGNED BY: JJ | DRAWING NAME: CONST DET | APPROVED BY: JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C16.0

TABLE OF BEARING AREAS IN SQ. FT. FOR CONCRETE THRUST BLOCKING

FOR 100 P.S.I. INTERNAL STATIC PRESSURE AND 1,000 LBS. PER SQUARE FOOT SOIL BEARING CAPACITY.

SIZE	BENDS				TEES *	GATE VALVES	DEAD ENDS	CROSS W/ 1 BRANCH PLUGGED	CROSS W/ 2 BRANCHES PLUGGED
	90°	45°	22-1/2°	11-1/4°					
3	1.0	0.6	0.3	1.0	0.7	0.5	0.7	0.7	0.7
4	1.8	1.0	0.5	1.0	1.3	0.5	1.3	1.3	1.3
6	4.0	2.2	1.1	1.0	2.8	0.7	2.8	2.8	2.8
8	7.1	3.8	2.0	1.0	5.0	2.4	5.0	5.0	5.0
10	11.1	6.0	3.0	1.5	7.8	4.5	7.8	7.8	7.8
12	16.0	8.6	4.4	2.2	11.3	7.3	11.3	11.3	11.3
14	21.7	11.8	6.0	3.0	15.4	11.0	15.4	15.4	15.4
15	25.0	13.5	7.0	3.5	17.6		17.6	17.6	17.6
16	28.4	15.3	8.0	4.0	20.0		20.0	20.0	20.0
18	36.0	19.4	10.0	5.0	25.4		25.4	25.4	25.4
20	44.2	24.0	12.2	6.1	31.4		31.4	31.4	31.4
21	49.0	26.5	13.5	6.8	34.6		34.6	34.6	34.6
22	54.0	29.0	14.8	7.4	38.0		38.0	38.0	38.0
24	64.0	34.5	17.7	8.8	45.0		45.0	45.0	45.0
30	100.0	54.0	27.6	13.8	71.0		71.0	71.0	71.0
36	144.0	78.0	40.0	20.0	102.0		102.0	102.0	102.0

SPECIAL DESIGN

* SIZE IS BRANCH SIZE

AREAS GIVEN IN TABLE ARE BASED UPON AN INTERNAL STATIC PRESSURE OF 100 P.S.I. AND A SOIL BEARING CAPACITY OF 1,000 LBS. PER SQUARE FOOT. BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING THE TABULATED VALUES BY A CORRECTION FACTOR "F".

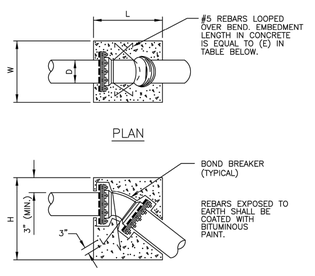
$$F = \frac{\text{ACTUAL SPECIFIED TEST PRESSURE IN HUNDRED OF LBS.}}{\text{ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LBS.}}$$

EXAMPLE: TO FIND BEARING AREA FOR 8" - 90° BEND WITH A STATIC INTERNAL PRESSURE OF 150 P.S.I. AND WITH A SOIL BEARING CAPACITY OF 3,000 LBS. PER SQUARE FOOT.

F = 1.5 ÷ 3 = 0.5 TABULATED VALUE = 7.1 SQUARE FOOT.
0.5 x 7.1 = 3.56 SAY 4 SQUARE FEET OF 2 FOOT LONG BY 2 FOOT HIGH.

The Town of ERIE COLORADO

DRAWING TITLE: THRUST BLOCKING CHART
DRAWING NUMBER: W14B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



SIZE OF PIPE (D)	11 1/4 DEG.					22 1/2 DEG.					45 DEG.				
	L"	W"	H"	E"	VOL	L"	W"	H"	E"	VOL	L"	W"	H"	E"	VOL
4"	12	24	24	12	4	12	34	34	12	8	22	37	32	22	15
6"	18	32	27	18	9	15	52	40	15	18	28	64	32	28	33
8"	21	40	33	21	16	22	61	40	22	31	35	64	45	35	58
10"	24	50	36	24	25	30	59	48	30	49	42	72	52	42	90
12"	31	56	36	31	36	36	70	48	36	70	45	80	62	45	129

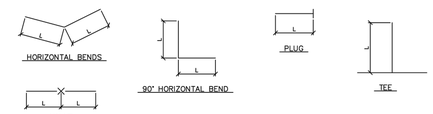
NOTES:
1. THRUST BLOCKING SHALL BE CAST AGAINST UNDISTURBED EARTH. FORMS SHALL BE USED AS REQUIRED TO OBTAIN ADEQUATE BEARING AND TO CONFINE THE CONCRETE. THRUST BLOCKING SHALL BEAR ON THE FITTING OR END CAP ONLY AND SHOULD NOT BE ALLOWED TO SPILL OVER THE JOINT OR AGAINST THE PIPE.
2. VOLUME IS IN CUBIC FEET.
3. ALL CONCRETE TO BE 4000 P.S.I. MIN.
4. BLOCKS TO BE CENTERED HORIZONTALLY ON THE BEND.
5. DESIGN BASED ON A TEST PRESSURE OF 150 P.S.I. AND SAFETY FACTOR (S_f) OF 1.5
6. $V_g = \frac{S_f \cdot PA \cdot \sin\theta}{W_m}$
7. W_m= 140 # / FT^3
8. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING THE ACTUAL SITE CONDITIONS WITH RESPECT TO THE ASSUMPTIONS LISTED ABOVE.

The Town of ERIE COLORADO

DRAWING TITLE: UPPER VERTICAL THRUST BLOCK
DRAWING NUMBER: W15
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015

ROD DIAMETER, GRADE & LENGTH OF RESTRAINED PIPE

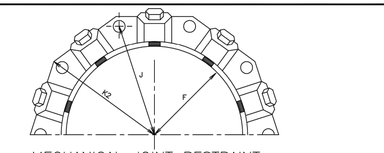
PIPE SIZE	4"			6"			8"			12"			16"			20"			24"		
FITTING	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G	D	L	G
90° BEND, TEE, PLUG	3/4"	30"	MS	3/4"	45"	MS	3/4"	60"	MS	3/4"	86"	MS	1"	108"	HS	1 1/4"	132"	HS	–	155"	–
VALVE	–	–	–	–	–	–	–	–	–	–	–	–	1"	108"	HS	1 1/4"	132"	HS	–	155"	–
45° BEND	3/4"	9"	MS	3/4"	13"	MS	3/4"	18"	MS	3/4"	25"	MS	1"	32"	MS	3/4"	39"	HS	–	45"	–
22 1/2° BEND	3/4"	1"	MS	3/4"	4"	MS	3/4"	5"	MS	3/4"	7"	MS	3/4"	8"	MS	3/4"	10"	MS	–	12"	–
11 1/4° BEND	–	–	–	–	–	–	3/4"	1"	MS	3/4"	2"	MS	3/4"	2"	MS	3/4"	3"	MS	–	3"	–

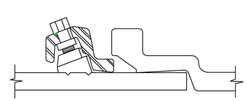


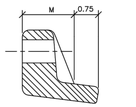
NOTES:
1. LENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
2. CLAMPS AND RODS NOT ALLOWED FOR 24" & LARGER PIPES.
3. D=DIAMETER, L=LENGTH, G=GRADE, MS=MILD STEEL, HS=HIGH STRENGTH.
4. MIN 4.5' GROUND COVER REQD.
5. BASED ON 150 PSI INTERNAL PRESSURE.
6. MS = MILD STEEL ROD ASTM A 36.
7. HS = HIGH STRENGTH ROD ASTM A 193 GRADE B7.
8. NUTS SHALL BE ASTM A 307 GRADE A OR B HEXAGON HEAVY SERIES. HS NUTS SHALL CONFORM TO MS-22.
9. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE RESTRAINED TOGETHER.
10. LENGTH OF RESTRAINED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT RESTRAINT FOR MEGALUGS.
11. TEES & CROSSES MUST BE RESTRAINED IN ALL APPLICABLE DIRECTIONS.
12. 12" AND SMALLER IN LINE VALVES AND TEES SHALL HAVE A MECHANICAL JOINT RESTRAINT DEVICE ON EACH SIDE OF THE FITTING OR VALVE.
13. A SECOND VALVE WILL BE REQD TO BE CLOSED WHEN EXCAVATING NEXT TO A EXIST VALVE.
14. WHEN REDUCERS ARE USED ON VALVE INSTALLATIONS THE LENGTH OF RESTRAINT SHALL BE BASED ON THE SIZE OF THE PIPE NOT THE SIZE OF THE VALVE.
15. ALL REDUCERS/INCREASERS SHALL HAVE MECHANICAL RESTRAINT DEVICES ON EACH SIDE OF FITTING.
16. PIPE JOINT RESTRAINT MAY BE ACCOMPLISHED USING HARNESS RODS, MECHANICAL JOINT RESTRAINT OR RESTRAINED JOINT PIPE AND FITTINGS.
17. AN ANALYSIS OF THE NECESSARY RESTRAINT LENGTH FOR PIPE LARGER THAN 24" SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPT FOR REVIEW AND APPROVAL ON A CASE BY CASE BASIS.

The Town of ERIE COLORADO

DRAWING TITLE: RESTRAINED PIPE LENGTHS
DRAWING NUMBER: W16
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015







DIMENSIONS

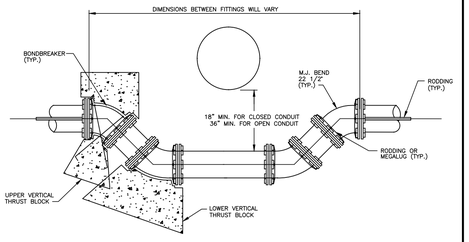
	NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
PVC DI	4"	2	2					PVC DI
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	
	4"	4	2					
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	

NOTES:
1. DIMENSIONS FOR 16" AND 20" D.I. PIPE NOT SHOWN.
2. OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.

The Town of ERIE COLORADO

DRAWING TITLE: MECHANICAL JOINT RESTRAINT DETAIL
DRAWING NUMBER: W17
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009

LAST SAVED: 9/22/2017 10:43 AM
G:\2547\CONST\2547-DET.dwg



NOTES:

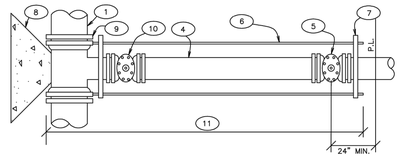
1. LOWERING OF THIS TYPE WILL BE RESTRAINED BY MEANS OF THRUST BLOCKING AND MEGALUGS OR RODDING.
2. FOR SIZING INFORMATION OF THRUST BLOCKS REFER TO THRUST BLOCK DETAILS.
3. WHEN RESTRAINING PIPE BY MEANS OF RODDING JOINTS, 3/4 " TIE RODS, NUTS, AND WASHERS WILL BE USED AND ARE TO BE MADE OF "COR-TEN" STEEL AS PER A.S.T.M. A242.
4. FOR FURTHER INFORMATION ON RODDING OF JOINTS REFER TO TABLE 1.
5. ALL METALLIC PIPE, FITTINGS, AND APPURTENANCES WILL BE WRAPPED IN POLYETHYLENE.
6. REQUIREMENTS FOR LARGER THAN 12" DIAMETER PIPE WILL BE DETERMINED ON A CASE BY CASE BASIS.
7. LENGTH OF EXTENSION OF PIPE AND RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THE ENGINEERING STANDARDS.
8. CATHODIC PROTECTION SHALL BE AS REQUIRED IN ACCORDANCE WITH THE ENGINEERING STANDARDS.
9. A BORED CROSSING MAY BE REQUIRED BY THE ENGINEER.

TABLE 1

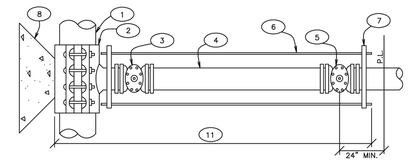
Pipe Size	Test Pressure	Minimum number of Tie Rods
10" and less	150	2
	200	2
12"	150	2
	200	4

The Town of ERIE COLORADO

DRAWING TITLE: **12" OR SMALLER WATERLINE, LOWERING DTL. FOR UTILITY CROSSINGS**
DRAWING NUMBER: **W27**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2011**



FIRELINE OR DOMESTIC CONNECTION WITH MAIN EXTENSION

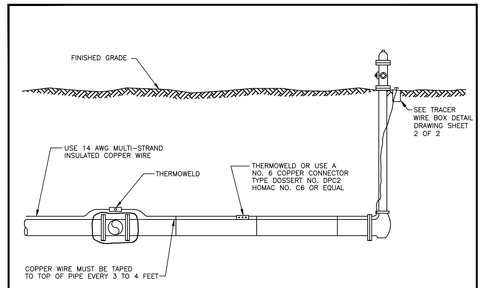


FIRELINE OR DOMESTIC CONNECTION

1. EXISTING MAIN
2. TAPPING SLEEVE
3. TAPPING VALVE
4. DOUBLE SPIGOT PIPE
5. PROPERTY LINE VALVE
6. TIE RODS (MEGALUGS MAY BE USED IN PLACE OF RODDING.)
7. PIPE CLAMP
8. CONCRETE KICKBLOCK
9. M.J. ANCHORING TEE (SWIVEL TEE WHERE APPLICABLE)
10. M.J. VALVE
11. POLYETHYLENE WRAPPED

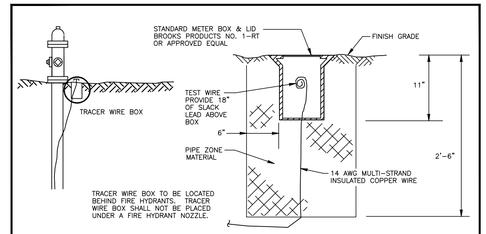
The Town of ERIE COLORADO

DRAWING TITLE: **2" AND LARGER DOMESTIC AND FIRELINE CONNECTIONS**
DRAWING NUMBER: **W31**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** REV. DATE: **01/2009**

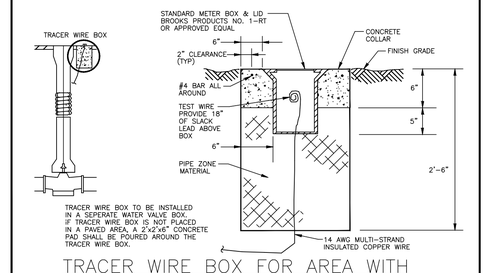


The Town of ERIE COLORADO

DRAWING TITLE: **TRACER WIRE**
DRAWING NUMBER: **W32A (1 OF 2)**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2009**



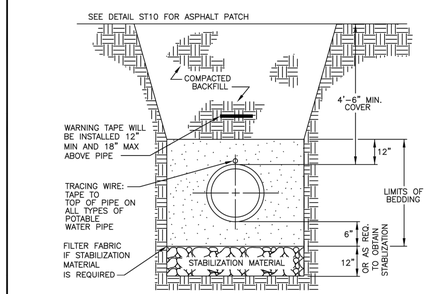
TRACER WIRE BOX AT FIRE HYDRANT



TRACER WIRE BOX FOR AREA WITH NO FIRE HYDRANT

The Town of ERIE COLORADO

DRAWING TITLE: **TRACER WIRE**
DRAWING NUMBER: **W32B (2 OF 2)**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2009**

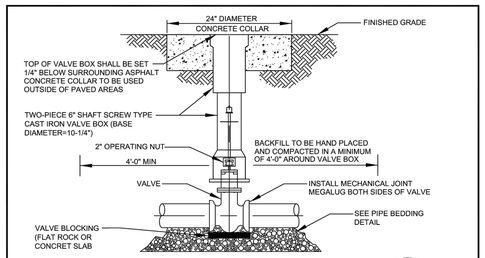


NOTES:

1. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. 14 AWG, STRANDED COPPER WIRE SHALL BE INSTALLED AS TRACING WIRE ABOVE ALL POTABLE WATER PIPES. THE WIRE SHALL BE CONNECTED AND COME TO THE SURFACE BEHIND THE FIRE HYDRANTS IN A TEST BOX.
3. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
4. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
5. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
6. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.

The Town of ERIE COLORADO

DRAWING TITLE: WATER TRENCH DETAIL
DRAWING NUMBER: W35
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



POTABLE VALVE BOX COVER PLAN

FIRE VALVE BOX COVER PLAN

NON-POTABLE VALVE BOX COVER PLAN

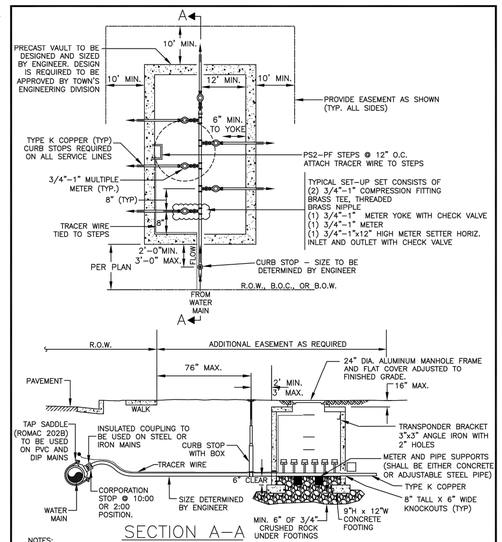
POTABLE & FIRE VALVE BOX COVER ELEVATION

NON-POTABLE VALVE BOX COVER ELEVATION

NOTES:
1. POTABLE & FIRE VALVE BOX LID RESTS INSIDE THE UPPER VALVE BOX SECTION.
2. NON-POTABLE VALVE BOX LID SLIDES OVER THE TOP OF THE UPPER VALVE BOX SECTION.
3. NON-POTABLE, WATER OR FIRE CAST IN TOP OF APPROPRIATE VALVE BOX COVER.
4. VALVE BOX SHALL NOT BE SUPPORTED BY WATER LINE.
5. VALVE BOX TO BE PLUMB AND CENTERED OVER NUT.
6. UTILIZING A VALVE BOX ALIGNMENT DEVICE IS OPTIONAL.
7. IF 2" OPERATING NUT IS MORE THAN 6' BELOW FINISHED GRADE, A VAULT NUT EXTENDER SHALL BE INSTALLED TO PUT THE VALVE NUT AT AN ELEVATION OF 4' BELOW FINISHED GRADE.

The Town of ERIE COLORADO

DRAWING TITLE: STANDARD VALVE AND BOX
DRAWING NUMBER: W38
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 1/2015



SECTION A-A

NOTES:
1. METER VAULT SHALL BE DESIGNED FOR AASHTO HS-20 LOADING AND IN ACCORDANCE WITH ASTM C858. CONCRETE FC=4000 PSI
2. BURY VAULT 16" MAX BELOW SURFACE. ADJUST MANHOLE COVER TO GRADE WITH CONCRETE GRADE RINGS WITH RAMNEK.
3. ENGINEER DESIGN OF VAULT IS REQUIRED.
4. ANY VARIATION OF THIS DETAIL SHALL BE APPROVED BY THE TOWN OF ERIE ENGINEERING DIVISION.
5. TRANSPONDER BRACKET TO BE MOUNTED INSIDE NEAR LID.

The Town of ERIE COLORADO

DRAWING TITLE: 3/4"-1" MULTIPLE METERS IN PRE CAST VAULT (TYP)
DRAWING NUMBER: W12B
DRAWN BY: S. ELKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2017

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
ALSO, ELECTRIC, TELEPHONE, CATV, AND PRIVATELY OWNED UTILITY FACILITY LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

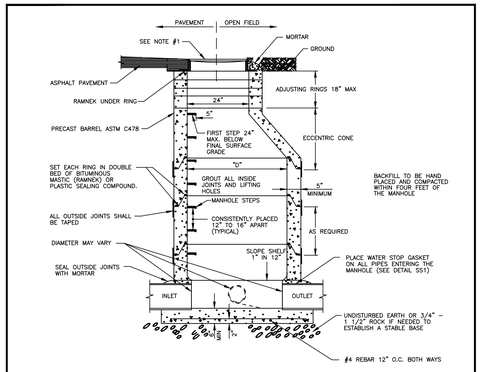
ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
WATER DETAILS

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	DESIGNED BY:	DRAWING NAME:	APPROVED BY:
EB	JJ	CONST DET	JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C17.0

LAST SAVED: 9/22/2017 10:43 AM
G:\2547\CONST\2547-DET.dwg



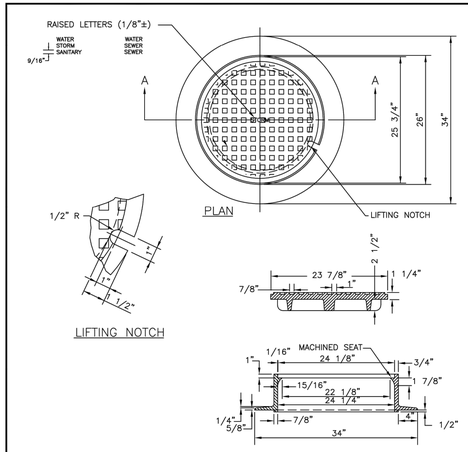
SECTION B–B

NOTES:

1. FINAL GRADE OF MANHOLE COVERS SHALL BE 1/4" LOWER THAN FINAL STREET.
2. STEPS SHOULD NOT BE PLACED OVER THE FLOW. NO STEPS ALLOWED IN THE ADJUSTING RING AREA.
3. PRECAST CONCRETE SECTIONS SHALL CONFORM TO ASTM C-478.
4. BLOCK-OUTS, WHEN APPROVED, SHALL EXTEND A MAX. OF 6" PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED AND SEALED.
5. MANHOLES NOT IN ASPHALT OR CONCRETE SHALL BE RAISED 6" ABOVE FINAL GRADE AND A CONCRETE COLLAR INSTALLED WITH A GREEN CARSONITE POST

The Town of ERIE COLORADO

DRAWING TITLE: **STANDARD MANHOLE**
DRAWING NUMBER: **STM8**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2012**



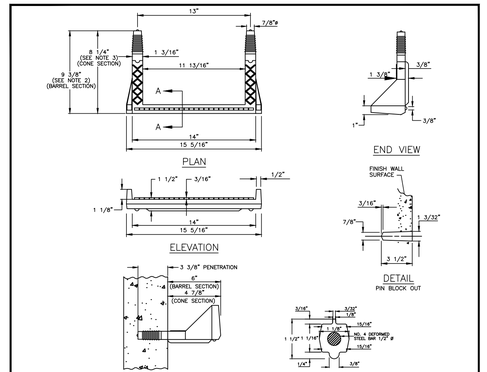
1. CASTING SPECIFICATIONS: ASTM A-48 WITH A MINIMUM TENSILE STRENGTH OF 25 KSI (CLASS 25)
2. ALL CASTINGS TO BE DIPPED IN ASPHALT BASE PAINT (OR APPROVED EQUAL)
3. CASTINGS SHALL BE AS SPECIFIED BELOW OR APPROVED EQUAL:

MANUFACTURERS	CAT. #
NEENAH	R-1706
CASTINGS, INC.	MH-400-24 C.I.
HUTCHINSON FDRY. & STL. INC.	MH-400

4. ALL NEW MANHOLES MUST INCLUDE A PLASTIC OR VINYL TAG ATTACHED TO THE TOP STEP STATING THE FOLLOWING "CAUTION CONFINED SPACE; ENTRY PERMIT REQUIRED.

The Town of ERIE COLORADO

DRAWING TITLE: **24" MANHOLE RING AND COVER**
DRAWING NUMBER: **STM8A**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **1/2015**



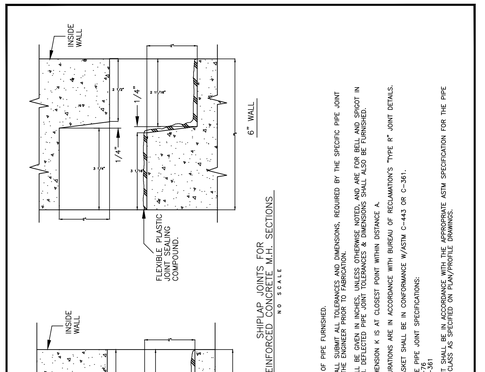
POLYPROPYLENE REINFORCED PLASTIC STEP

NOTES:

1. ASTM SPECIFICATIONS:
   A. ASTM C-478
   B. ASTM A-615 GRADE 60 (STEEL, REBAR).
   C. ASTM D 2146-69, TYPE III, GRADE 16906 (POLYPROPYLENE).
2. STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURES SHALL HAVE A 9 3/8 INCH LEG AND SHALL PROJECT FROM THE WALL 6 INCHES.
3. STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8 1/4 INCH LEG AND SHALL PROJECT FROM THE WALL 4 7/8 INCHES.
4. ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3 3/8 INCHES.
5. STEPS SHALL BE INSTALLED BY THE "PRESS-FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN, FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GROUTED IN PLACE.
6. INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 LB. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
7. PINS MUST BE SMOOTH AND CONTINUOUSLY TAPERED. DIMENSIONS OF THE PIN AND THE INSERTED PORTION OF THE MANHOLE STEP ARE TYPICAL ONLY. W.M.D. INSTALLATIONS REQUIRE A MATCHED COMBINATION OF A TAPERED INSERT PIN AND MANHOLE STEP, AS RECOMMENDED OR REQUIRED BY SPECIFIC MANUFACTURER OF THE STEP TO BE USED.
8. THIS STEP CAN ALSO BE USED IN TOE POCKET INSTALLATIONS PROVIDED 5" TOE CLEARANCE IS ALLOWED.

The Town of ERIE COLORADO

DRAWING TITLE: **MANHOLE STEPS**
DRAWING NUMBER: **STM9**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **06/2004**

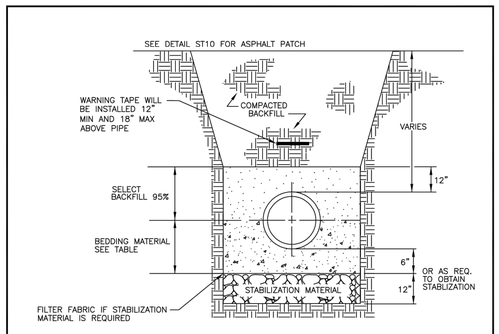


NOTES:

1. T= WALL THICKNESS OF PIPE FURNISHED.
2. THE CONTRACTOR SHALL SUBMIT ALL TOLERANCES AND DIMENSIONS, REQUIRED BY THE SPECIFIC PIPE JOINT CONCERNING POSITION, DEFLECTED PIPE JOINT TOLERANCES & DIMENSIONS SHALL ALSO BE FURNISHED.
3. ALL DIMENSIONS SHALL BE GIVEN IN INCHES, UNLESS OTHERWISE NOTED, AND ARE FOR BELL AND SPIGOT IN CONCENTRIC POSITION.
4. JOINT CLEARANCE DIMENSION K IS AT CLOSEST POINT WITHIN DISTANCE A.
5. THESE JOINT CONFIGURATIONS ARE IN ACCORDANCE WITH BUREAU OF RECLAMATION'S "TYPE R" JOINT DETAILS.
6. RUBBER O-RING GASKET SHALL BE IN CONFORMANCE W/ASTM C-443 OR C-361.
7. APPLICABLE CONCRETE PIPE JOINT SPECIFICATIONS:
   A. ASTM C-76
   B. ASTM C-361
8. STEEL REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE APPROPRIATE ASTM SPECIFICATION FOR THE PIPE SIZE AND STRENGTH CLASS AS SPECIFIED ON PLAN/PROFILE DRAWINGS.

The Town of ERIE COLORADO

DRAWING TITLE: **CONCRETE PIPE JOINTS – SHIPLAP**
DRAWING NUMBER: **STM11A (1 OF 2)**
DRAWN BY: **D. JENKINS** APPROVED BY: **G. BEHLEN** DATE: **01/2012**



BEDDING MATERIAL GRADATION	
SIEVE SIZE	% BY WEIGHT
3/4"	90 – 100
3/8"	20 – 55
NO. 4	0 – 10
NO. 8	0 – 5

NOTES:

1. FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
3. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
4. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO THE HORIZONTAL CENTERLINE OF THE PIPE. SEE TABLE FOR BEDDING MATERIAL GRADATION.
5. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
6. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 P.S.I. CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.

The Town of ERIE COLORADO

DRAWING TITLE: STORM SEWER TRENCH DETAIL
DRAWING NUMBER: STM12
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2012

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811

ALL ELECTRIC, TELEPHONE, CATV, AND PIPELINE COMPANY FACILITY LOCATIONS

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
STORM SEWER DETAILS

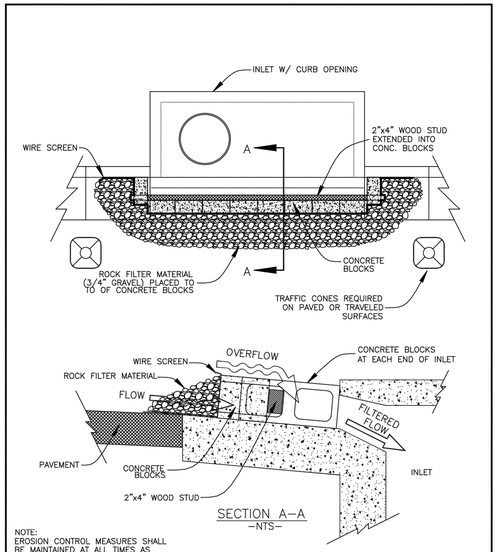
Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	DESIGNED BY:	DRAWING NAME:	APPROVED BY:
EB	JJ	CONST. DET	JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: N/A
SHEET NO: C18.0

LAST SAVED: 9/22/2017 10:43 AM

G:\25471\CONST\25471-DET.dwg

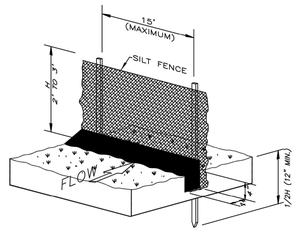


SECTION A–A
–NTS–

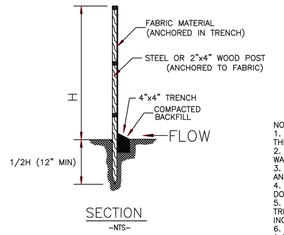
NOTE:
EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE CITY ENGINEER

The Town of ERIE COLORADO

DRAWING TITLE: CURB INLET GRAVEL FILTER
DRAWING NUMBER: STM3
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



SILT FENCE INSTALLATION
–NTS–



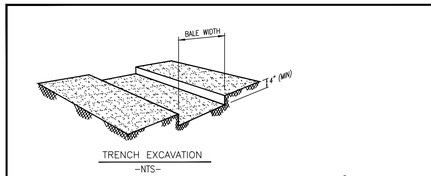
SECTION
–NTS–

FOR SINGLE LOT EROSION CONTROL SEE SHEET STM8

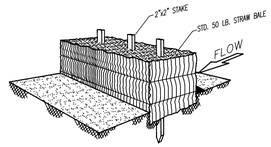
NOTES:
1. INSTALL SILT FENCE PARALLEL TO THE CONTOUR OF THE LAND.
2. EXTEND ENDS UPSLOPE TO ALLOW WATER TO POND BEHIND FENCE.
3. EXCAVATE A TRENCH 4 INCHES WIDE AND 4 INCHES DEEP.
4. INSTALL FENCE WITH POSTS ON THE DOWNSLOPE SIDE.
5. PLACE 8 INCHES OF FABRIC IN THE TRENCH, EXTENDING THE BOTTOM 4 INCHES TOWARD THE UPSLOPE SIDE.
6. JOIN SILT FENCE SECTIONS BY USING A WRAP JOINT.
7. BACKFILL TRENCH WITH SOIL MATERIALS AND COMPACT.
8. INSPECT AT LEAST WEEKLY AND AFTER EACH STORM EVENT, REPAIRING AS NEEDED AND REMOVING SEDIMENT DEPOSITS WHEN THEY REACH ONE–HALF THE FENCE HEIGHT.

The Town of ERIE COLORADO

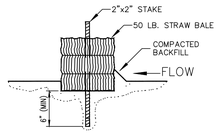
DRAWING TITLE: SILT FENCE EROSION BARRIER
DRAWING NUMBER: STM4
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



TRENCH EXCAVATION
–NTS–



STRAW BALE INSTALLATION
–NTS–

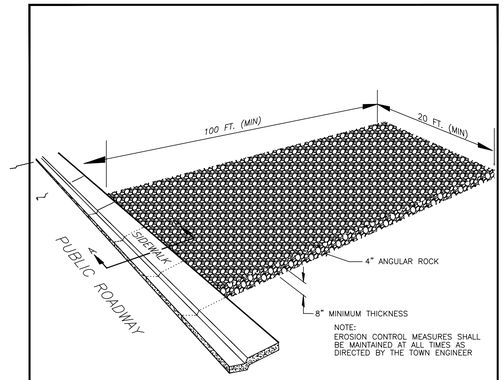


SECTION
–NTS–

NOTE: EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL LANDSCAPING IS COMPLETED.

The Town of ERIE COLORADO

DRAWING TITLE: STRAW BALE EROSION BARRIER
DRAWING NUMBER: STM5
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



NOTE:
EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE TOWN ENGINEER

SECTION A–A
–NTS–

NOTES:
1. ALL ROCK TO BE REMOVED UPON COMPLETION OF CONSTRUCTION
2. PUBLIC ROADWAY TO BE KEPT CLEAN AND FREE OF MUD, DIRT AND DEBRIS AT ALL TIMES

The Town of ERIE COLORADO

DRAWING TITLE: TRACKING CONTROL PAD– CRUSHED ROCK
DRAWING NUMBER: STM6A
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 1/2013

CONSTRUCTION SEQUENCE FOR EROSION & SEDIMENT CONTROL PRACTICES FOR SINGLE LOT

1. INSTALL PERIMETER EROSION AND SEDIMENT CONTROLS
IDENTIFY THE AREAS WHERE SEDIMENT LADEN RUNOFF COULD LEAVE THE CONSTRUCTION SITE, AND INSTALL PERIMETER CONTROLS TO MINIMIZE THE POTENTIAL FOR OFF-SITE SEDIMENTATION. IT'S IMPORTANT THAT PERIMETER CONTROLS ARE IN PLACE BEFORE ANY LOT EXCAVATION ACTIVITIES BEGIN.

PREFERRED METHODS
- PROTECT DOWN-SLOPE AREAS WITH VEGETATIVE FILTER STRIPS
- PROTECT DOWN-SLOPE AREAS WITH SILT FENCES AND OTHER APPROPRIATE PRACTICES
- INSTALL STABLE CONSTRUCTION TRAFFIC ENTRANCE

2. PREPARE THE SITE FOR CONSTRUCTION
PREPARE THE SITE FOR CONSTRUCTION AND FOR INSTALLATION OF UTILITIES. NOTIFY ALL CONTRACTORS (ESPECIALLY THE EXCAVATION CONTRACTOR) OF AREAS TO BE PROTECTED.

PREFERRED METHOD
- SALVAGE AND STOCKPILE TOPSOIL OR SUBSOIL

3. BUILD STRUCTURE(S) AND CONNECT UTILITIES
CONSTRUCT THE HOME AND CONNECT THE UTILITIES.

4. MAINTAIN CONTROL PRACTICES
MAINTAIN ALL EROSION AND SEDIMENT CONTROL PRACTICES UNTIL CONSTRUCTION IS COMPLETED AND THE LOT IS STABILIZED.

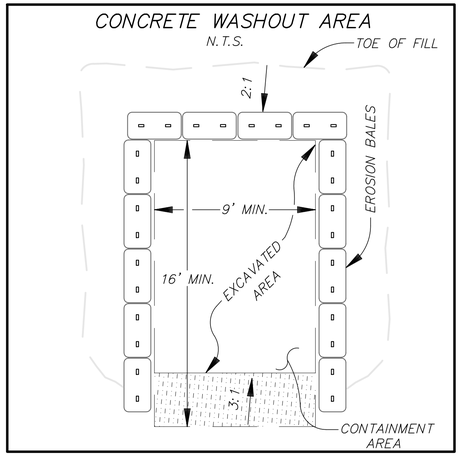
5. RE-VEGETATE BUILDING SITE
IMMEDIATELY AFTER ALL OUTSIDE CONSTRUCTION ACTIVITIES ARE COMPLETED, STABILIZE THE LOT WITH SOD, SEED AND/OR MULCH.

METHODS
- REDISTRIBUTE THE STOCKPILED SUBSOIL AND TOPSOIL
- SEED OR SOD BARE AREAS
- MULCH NEWLY SEEDED AREAS

6. REMOVE REMAINING TEMPORARY CONTROL MEASURES
ONCE THE SOD AND/OR VEGETATION IS WELL ESTABLISHED, REMOVE ANY REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES.

The Town of ERIE COLORADO

DRAWING TITLE: EROSION CONTROL SEQUENCE SINGLE LOT
DRAWING NUMBER: STM7
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
ALSO, ELECTRIC, TELEPHONE, CATV, AND PRIVATE UTILITY LINES LOCATIONS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED JOHN W. JORGENSON 22730 PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2500 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
STORM & EROSION DETAILS

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	DESIGNED BY:	DRAWING NAME:	APPROVED BY:
CT	JJ	CONST. DET	JJ

JOB NUMBER: 2547-010
DATE: 09/29/17
SCALE: VALUE
SHEET NO: C19.0

LAST SAVED: 9/22/2017 10:43 AM
G:\25471\CONST\25471-DET.dwg

CTL | THOMPSON INCORPORATED

GEOTECHNICAL INVESTIGATION
PROPOSED MEDICAL OFFICE BUILDING
101 ERIE PARKWAY
LOTS 1 AND 2, BLOCK 1
ERIE COMMONS, FILING NO. 3, 2ND AMENDMENT
ERIE, COLORADO

Prepared For:

PEH ARCHITECTS
1319 Spruce Street, Suite 207
Boulder, Colorado 80302

Attention: Nathan Pillatzke, AIA

Project No. DN48,617-125

October 28, 2016

1971 West 12th Avenue | Denver, Colorado 80204 | Phone: 303-825-0777 | Fax: 303-825-4252 | www.ctlt.com

TABLE OF CONTENTS

SCOPE

This report presents the results of our Geotechnical Investigation for the Medical Office Building development planned at 101 Erie Parkway in Erie, Colorado (Fig. 1). The purpose of our investigation was to evaluate the subsurface conditions and provide geotechnical design criteria for the project. In addition, this report contains preliminary recommendations for developing the adjoining parcel to the southwest. The scope was described in a Service Agreement (DN 16-0455) dated September 21, 2016. Evaluation of the property for the possible presence of potentially hazardous materials (Environmental Site Assessment) was not included in our scope.

This report is based on conditions found in our exploratory borings, results of field and laboratory tests, engineering analysis of field and laboratory data, and our experience with similar conditions and projects. The report contains descriptions of the subsurface conditions found in our exploratory borings, discussion of foundation, floor and pavement support alternatives, and recommended design and construction criteria for site development, foundations, floor systems, pavements, and drainage. The recommendations presented in the report are based on the construction as currently planned. Revisions to the planned construction could affect our recommendations. If the construction will differ from the descriptions herein, we should be contacted to review our recommendations and determine if revisions are needed. A brief summary of our conclusions and recommendations follows, with more detailed discussion and design criteria presented in the report.

SUMMARY OF CONCLUSIONS

1. Strata found in our borings generally consisted of about 18 to 23 feet of silty to clayey sand and gravel with sandy clay underlain by weathered and comparatively unweathered claystone and sandstone bedrock. Testing indicates the soils below 3 feet are low swelling or non-expansive. Some samples from 1 and 2 feet depth were highly expansive. The claystone bedrock is expansive but below groundwater and at depths unlikely to influence performance of the planned construction.

2. Water was measured in six deeper borings at depths of about 11.5 to 13.5 feet below grade. We understand no basement is planned. Groundwater is not expected to influence the proposed construction. Water levels may fluctuate seasonally and rise in response to precipitation and landscape irrigation.

3. Our investigation revealed low swelling and non-expansive materials at anticipated foundation depths. We believe footing foundations can be used with relatively low risk of differential movement provided they are constructed below surficial, dry expansive clay. We recommend the upper 4 feet soil be sub-excavated and reworked at higher moisture content to reduce swell and control risk of heave to tolerable levels. Mat foundations can also be used and may be a good choice for heavily loaded, sensitive or vibrating equipment. Design and construction criteria for footing and mat foundations are presented in the report.

4. Swell of the upper soils may cause slab-on-grade floors to heave. If slab-on-grade floors are chosen, we recommend removal of at least 48 inches of the upper soils and reworking them as moisture conditioned, compacted fill. We judge slab-on-grade floors can then be used with potential movements of about 1 inch or less. Structural floors should be used where movement is not tolerable.

5. Surface automobile parking areas can be paved using full-depth sections consisting of at least 5.5 inches of hot-mix asphalt or portland cement concrete. Access drives and truck/fire lanes should have at least 6 inches of asphalt or concrete. Equivalent composite sections and pavement discussion are presented in the report.

6. Surface drainage should be designed and maintained to provide for the rapid removal of runoff away from the building, flatwork, pavements and detention areas to reduce potential subsurface wetting. Water should not be allowed to pond adjacent to the building or in flatwork and pavement areas. Conservative irrigation practices should be employed to avoid excessive subsurface wetting.

SITE CONDITIONS

The site consists of two adjoining parcels located on the southwest corner of Erie Parkway and Briggs Street in Erie, Colorado (Fig. 1 and Photo 1). The new Medical Office Building is planned at 101 Erie Parkway on Lot 1, Block 1 of Erie Commons, Filing No. 3, 2nd Amendment. Lot 1 contains about 3.9 acres. Lot 2 is an approximate 2.2-acre parcel to the southwest of Lot 1, and may be developed in the future. An

overhead power transmission line is present between the lots. The ground surface is covered with grasses, weeds, bushes and rodent burrows, and slopes gently to the northeast toward Coal Creek, which is about ¼-mile east. The property is bordered by a residential development to the northwest, Briggs Street to the northeast, Erie Parkway to the southeast, and vacant land to the west and southwest. An oil/gas facility is present to the west, and the access drive borders Lot 2 on the southwest side. Landscaping with irrigated grass and trees is present in the right-of-way along the southeast side. Erie Community Park is further west, office development is northeast across Briggs Street, and residential development is further southeast. The Garfield Mine extent is mapped about 500 feet west of the site at depths ranging from 50 to 100 feet, implying nil risk of ground subsidence due to undermining.

Photo 1 – Google Earth© Aerial Site Photo, October 2015

PROPOSED CONSTRUCTION

Plans indicate the new medical office building will be constructed in the eastern part of Lot 1 and parking lots/access drives will be northwest and southwest of the building (Fig. 1). Landscaping, sidewalks, trash receptacle and plaza areas with over-

head canopies will surround the building. The building will be a two-story structure with a footprint of about 23,500 square feet and no below-grade areas. Relatively light foundation loads are expected, except moderate loads may be present in mechanical areas. A tower will be at the northwest-central, main entrance. Access to the development will be provided from Erie Parkway at the southern corner of Lot 1 and Maxwell Avenue at the north end. The parking lot will have 177 parking stalls. Landscaping will be provided around the building and the perimeter of the site, with some islands in the parking lot. Lot 2 may be developed in the future. We anticipate cut/fill up to about 5 feet will be needed to achieve construction grades and install foundations.

PREVIOUS INVESTIGATION

We performed a Geotechnical Investigation for the bank development across Briggs Street to the northeast under our Job No. 39,669 (report dated October 22, 2004). We identified predominantly low swelling soils and recommended footing foundations and slab-on-grade floors. Groundwater was found at depths of 8.5 to 9.5 feet below grade. Pertinent information from the previous investigation was considered in preparation of this report.

INVESTIGATION

We investigated subsurface conditions on September 30, 2016 by drilling and sampling 11 exploratory borings at the approximate locations shown on Fig. 1. Five deep borings were drilled for the medical office building, five were in pavement areas, and one was near the center of Lot 2. Prior to drilling, we contacted the Utility Notification Center of Colorado and local sewer and water districts to identify locations of buried utilities. The borings were drilled to depths of 5 to 35 feet below existing grades using 4-inch diameter, continuous-flight solid-stem auger and a truck-mounted CME-45 drill rig.

Samples of the subsoils were obtained at 2 to 5-foot intervals using a 2.5-inch diameter (O.D.) modified California barrel sampler driven by blows from an automatic

140-pound hammer falling 30 inches. Our field representative was present to observe drilling operations, log the strata encountered and obtain samples for examination and laboratory tests. Upon completion of drilling, hand-slotted PVC pipe was inserted in the deep holes to allow delayed groundwater measurements. The PVC pipe was removed and the holes were backfilled after groundwater level was measured five days later. Approximate boring elevations were determined by level survey relative the temporary benchmark shown on Fig. 1 (storm sewer manhole in Briggs Street, assumed elevation 100.0 feet). Summary logs of the exploratory borings including results of field penetration resistance tests and a portion of the laboratory data are presented in Appendix A.

Samples were returned to our laboratory where they were examined and testing was assigned. Laboratory tests included moisture content, dry density, percent silt and clay-sized particles (passing No. 200 sieve), Atterberg limits, unconfined compression, standard Proctor (ASTM D 698), swell-consolidation and water-soluble sulfate concentration. Swell-consolidation tests were performed by wetting samples under approximate overburden pressures. Laboratory test results are presented in Appendix B and summarized in Table B-I.

SUBSURFACE CONDITIONS

Strata encountered in our exploratory borings generally consisted of about 18 to 23 feet of silty to clayey sand and gravel with sandy clay underlain by weathered and comparatively unweathered claystone and sandstone bedrock to the maximum explored depth of 35 feet. Some pertinent engineering characteristics of the soil and bedrock are described in the following paragraphs.

Overburden soils near the surface predominantly consisted of silty to very clayey sand with sandy to very sandy, silty to very silty clay layers which were mostly identified at intermediate-depth. Dry, highly expansive clay was found above a depth of 4 feet in several borings. These soils graded to slightly silty to clayey sand and gravel at-depth. Based on the results of field penetration resistance tests, the clay was stiff to very stiff,

the sand was loose to dense and the sand/gravel was medium dense to very dense. Four soil samples compressed 0.3 to 1.2 percent, one did not swell, and ten swelled 0.4 to 7.1 percent. All of the higher swelling samples were obtained at 1 or 2 feet depth. Three clay samples exhibited unconfined compressive strengths of about 2,000 to 6,000 psf. Two very sandy clay samples contained 53 and 54 percent silt and clay-sized particles and showed moderate plasticity with liquid limits of 28 and plasticity indices of 15 and 16. Five sand/gravel samples had 8 to 42 percent fines and two showed low plasticity with liquid limits of 25 and plasticity indices of 12 and 13. We obtained bulk samples of the sandy clay and clayey sand soils within 5 feet of the ground surface in (S-1 through S-5) and formed a composite sample. The sample contained 48 percent fines and had a liquid limit and plasticity index of 23 and 10, respectively. The composite sample was subjected to a standard Proctor moisture-density relationship. The tests indicated a maximum dry density of 116.5 pounds per cubic foot at optimum moisture content of 13.0 percent (Fig. B-13).

Claystone bedrock was found below sand/gravel in all deep borings at depths of about 18 to 23 feet below grade. The upper 2.5 to 5 feet of claystone was judged to be weathered in three borings. Sandstone bedrock was found below claystone in TH-1 and TH-6 at depths of about 32 and 31 feet, respectively. The comparatively unweathered bedrock was hard to very hard. Two claystone samples swelled 0.2 and 2.4 percent when wetted. A hard claystone sample had an unconfined compressive strength of about 5,600 psf.

Groundwater

Groundwater was encountered during drilling in the six deep borings at depths of about 11 to 13 feet below grade. When the holes were checked about five days after drilling on October 5, 2016, water was measured at depths of about 11.5 to 13.5 feet. Groundwater is not expected to influence the proposed construction. Water levels may fluctuate seasonally and rise in response to precipitation and landscape irrigation.

Seismicity

The soils are not expected to respond unusually to seismic activity. According to the 2012 International Building Code (Standard Penetration Resistance method) and based upon the results of our investigation, we judge the site classifies as Seismic Site Class C.

SITE DEVELOPMENT

Sub-Excavation

High swelling materials predominate near the surface. Potential ground heave could be as much as about 3 inches with typical post-construction wetting. To use footing foundations, we recommend sub-excavating at least 4 feet below the existing grades to reduce potential heave to acceptable levels.

The existing soils can be reused in new fill. Sub-excavation should extend at least 5 feet outside the lateral extent of foundations. A conceptual sub-excavation profile is shown on Fig. 2. Provided that sub-excavation is successful, we estimate potential movements of about 1 inch or less. Differential movements should also be substantially reduced.

Sub-excavation fill should be placed in loose lifts no thicker than 8 inches, moisture conditioned and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). Clay fill should be moisture conditioned to between 0 and 3 percent above optimum moisture content. Sand fill should be moisture conditioned to within 2 percent of optimum moisture content. Our field representative should observe and test compaction of fill during placement.

Sub-excavation has been used in the Denver area with satisfactory performance for the large majority of the sites where this ground modification method has been

completed. The base of the sub-excavation across a building should be at a uniform elevation. The extent and depth of sub-excavation should be surveyed and an “as-built” plan of the sub-excavated areas should be prepared. We have seen isolated instances where settlement of sub-excavation fill has led to damage to buildings supported on shallow foundations. In most cases, the settlement was caused by wetting associated with poor surface drainage and/or poorly compacted fill placed at the horizontal limits of the sub-excavation. Special precautions should be taken for compaction of fill at corners, access ramps and edges of the sub-excavation due to equipment access constraints. The contractor should have the appropriate equipment to reach and compact these areas.

The excavation contractor should be chosen based on experience with sub-excavation and processing high moisture content clay fills, and has the necessary mixing and compaction equipment. The contractor should provide a construction disc to break down fill materials. The operation will be relatively slow. Soil chunks should be broken down to about 3 inches and less.

For pavements, we recommend at least 2 feet of sub-excavation, moisture-conditioning and re-compaction below existing grades to reduce potential heave and improve performance compared to doing nothing.

Excavation

We believe the soils encountered in our exploratory borings can generally be excavated with conventional, heavy-duty excavation equipment. We recommend the owner and the contractor become familiar with applicable local, state and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards. We anticipate the clay and sand will classify as Type B and C soils, respectively which require maximum slope inclinations of 1:1 and 1.5:1 (horizontal:vertical) for temporary excavations in dry conditions. Flatter slopes will be required below groundwater or if seepage is present. The contractor’s “competent person” should review excavation

conditions and refer to OSHA Standards when worker exposure is anticipated. Stockpiles and equipment should not be placed within horizontal distance equal to one-half the excavation depth, from the edge of the excavation. A Registered Professional Engineer should design excavations greater than 20 feet deep.

Fill and Backfill

The on-site soils are suitable for reuse as new fill, provided they are free of debris, vegetation/organics and other deleterious materials. Soil particles larger than 3 inches in diameter should not be used for fill unless broken down. Imported fill should ideally consist of soil having a maximum particle size of 3 inches, less than 50 percent passing the No. 200 sieve, a liquid limit less than 35 and a plasticity index less than 20. Potential fill materials should be submitted to our office for approval prior to importing to the site.

Prior to fill placement, the ground surface should be scarified to a depth of at least 8 inches, moisture conditioned, and compacted to the criteria below. Subsequent fill should be placed in thin (8 inches or less) loose lifts, moisture conditioned to within 2 percent of optimum moisture content for sand and between 0 and 3 percent above optimum moisture content for clay, and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698).

Water and sewer lines are often constructed beneath slabs and pavements. Compaction of utility trench backfill can have a significant effect on the life and serviceability of floor slabs, pavements and exterior flatwork. We recommend utility trench backfill be placed and compacted as outlined above. Our experience indicates use of self-propelled compactors results in more reliable performance compared to fill compacted by a sheepsfoot wheel attachment on a backhoe or trackhoe. The placement and compaction of utility trench backfill should be observed and tested by a representative of our firm during construction.

Our experience indicates fill and backfill can settle, even if properly compacted to criteria provide above. Factors that influence the amount of settlement are depth of fill, material type, degree of compaction, amount of wetting and time. The degree of compression of fill under its own weight will likely range from low for granular soils (½ percent or less) to moderate for clay/sand mixtures (1 to 2 percent).

Permanent slopes should be stable at inclinations of 3:1 (horizontal to vertical) or flatter. Use of flatter slopes (4:1) is preferable to control erosion. Shallower slopes can decrease erosion from run-off and sheet-flow. Seeding and re-vegetation can also be used to reduce erosion.

Dewatering/Stabilization

If groundwater is encountered during deep utility construction, temporary dewatering may be required. Dewatering can likely be accomplished by sloping excavations to temporary sumps and removing the water by pumping. The sumps should bottom several feet below the bottom of the excavations so that water is drawn down through the soils rather than up through the bottom of the excavation. Stabilization of soft soils may be needed in excavation bottoms. If loose or soft soils are encountered during construction, they should be removed and replaced with compacted fill or stabilized. Stabilization can likely be accomplished by crowding 1.5-inch to 3-inch nominal size crushed rock into the soft subsoils until the base of the excavation does not deform significantly when compactive effort (a full-sized loader with full load) is applied.

FOUNDATIONS

Relatively light foundation loads are anticipated for a building of the planned size and configuration. We assume the maximum tolerable movement to be a total post-construction movement of 1 inch, with maximum differential movement of about ¾-inch between columns. Our investigation revealed predominantly low swelling or non-expansive materials below a depth of 4 feet. We believe footing foundations can be

used with relatively low risk of differential movement if constructed more than 4 feet below existing grades or on new, low swelling fill placed and compacted as described previously in Sub-Excavation. Mat foundations can also be used and may be a good choice for heavily loaded, sensitive or vibrating equipment. Design and construction criteria for footing and mat foundations are presented below.

1. The footings should be constructed on firm, undisturbed, stable, low swelling or non-expansive natural soils or similar new fill. If soft/loose soils are exposed in footing excavations or are the result of the excavation/forming process, these soils should stabilized, or removed and recompacted as recommended in Fill and Backfill. Dry, expansive soils should be reworked.

2. Footings should be designed for a maximum allowable soil pressure of 2,500 psf and a minimum deadload pressure of 800 psf. Lateral earth pressures can be calculated based on equivalent fluid density using at least 50 pcf for the active case. For the at-rest case, where essentially no lateral movement is allowed, we suggest using at least 65 pcf. Footing translation can be resisted using an equivalent fluid density of 275 pcf for the passive case, providing backfill is similar to the site soils, is well compacted and remains in-place. The coefficient of friction for sliding may be taken as 0.35. These values have not been factored. The structural engineer should apply appropriate factors of safety in design.

3. For mat design, we recommend a modulus of subgrade reaction (K_s) of 100 pounds per cubic foot. The actual K_s is probably higher. The distributed mat bearing pressure should not exceed 2,500 psf on natural soil.

4. If interrupted footings are necessary to maintain deadload, a 4-inch (or thicker) continuous void should be constructed below grade beams or foundation walls, between the pads. Where footings and interior foundation drains are planned in crawl space areas, the structural engineer should detail the placement of void form within the footings to allow water in the wall backfill to pass beneath the footing into the interior drain (Fig. 4).

5. Footings should have a minimum width of 16 inches. Foundations for isolated columns should have minimum dimensions of 18 inches by 18 inches. Larger sizes may be required depending upon the loads and structural system used.

6. Foundation walls should be well-reinforced. We recommend reinforcement sufficient to span an unsupported distance of at least 10 feet. Reinforcement should be designed by the structural engineer considering lateral earth pressure on wall performance.

7. Exterior footings must be protected from frost action. Normally, 3 feet of frost cover is assumed in the area.

8. The completed foundation excavation should be observed by a representative of our firm to confirm subsurface conditions are as anticipated from our borings. Our representative should observe and test moisture and compaction of the fill and backfill.

9. Excessive wetting of foundation soils during and after construction can cause heave or softening and settlement of foundation soils and result in footing and slab movements. Proper surface drainage around the building is critical to control wetting.

FLOOR SYSTEMS

Upon wetting, the expansive soils can heave and damage slab-on-grade floors. This heave cannot be resisted by concentrating slab loads. This heave can result in up to several inches of differential slab movement. Heave will deform and crack floor slabs and can damage interior partitions. In order to reduce potential slab movements to 1 inch or less, we recommend reworking the natural soils within 4 feet of the existing ground surface as discussed in Sub-Excavation. It is likely there will be distress to finishes if a slab-on-grade floor is used.

Structural Floor

To our knowledge, there are no soil treatments combined with slab-on-grade floors that will result in the same reduction in risk of floor movement (relative to the risk inherent for a floor slab placed directly on the natural soils), as would be provided by a structural floor. If floor movement is not tolerable, we recommend a structurally supported floor be installed.

A structural floor is supported by the foundation system. Design and construction issues associated with structural floors include ventilation and lateral loads. Where structurally supported floors are installed over a crawl space, the required air space depends on the materials used to construct the floor and the potential expansion of the underlying soils. Building codes require a clear space of 18 inches between exposed earth and untreated wood floor components. For non-organic floor systems, we recommend a minimum clear space of 8 inches. This minimum clear space should be maintained between any point on the underside of the floor system (including beams and floor drain traps) and the soils.

Where structurally supported floors are used, utility connections including water, gas, air duct, and exhaust stack connections to floor supported appliances should be capable of absorbing some deflection of the floor. Plumbing that passes through the floor should ideally be hung from the underside of the structural floor and not lain on the bottom of the excavation. It is prudent to maintain the minimum clear space below all plumbing lines. This configuration may not be achievable for some parts of the installation. If trenching below the lines is necessary, we recommend sloping these trenches so they discharge to the perimeter drain system.

Control of humidity in crawl spaces is important for indoor air quality and performance of wood floor systems. We believe the best current practices to control humidity involve the use of a vapor retarder or vapor barrier (10 mil minimum) placed on the soils below accessible subfloor areas. The vapor retarder/barrier should be sealed at joints and attached to concrete foundation elements. The Moisture Management Task Force of Metro Denver[1] has compiled additional discussion and recommendations regarding best practices for the control of humidity in below-grade, under-floor spaces.

[1]"Guidelines for Design and Construction of New Homes with Below-Grade Under-Floor Spaces," Moisture Management Task Force, October 30, 2003.

Slab-On-Grade Floor

We estimate potential movements of about 1 inch or less for slab-on-grade floors built on new moisture conditioned, compacted fill. Slabs-on-grade are suitable, provided a low risk of distress is acceptable to the owner. Most owners choose slab-on-grade floors for sites with non-expansive or low swelling subgrade.

Where conventional slabs-on-grade are used, we recommend the following design and construction criteria. These recommendations will not prevent movement. Rather, they tend to reduce damage if movement occurs.

1. Slabs should be placed directly on properly moisture conditioned, well-compacted fill. The 2012 International Building Code (IBC) requires a vapor retarder be placed between the base course or subgrade soils and the concrete slab-on-grade floor. The merits of installation of a vapor retarder below floor slabs depend on the sensitivity of floor coverings and building use to moisture. A properly installed vapor retarder (10 mil minimum) is more beneficial below concrete slab-on-grade floors where floor coverings, painted floor surfaces or products stored on the floor will be sensitive to moisture. The vapor retarder is most effective when concrete is placed directly on top of it, rather than placing a sand or gravel leveling course between the vapor retarder and the floor slab. The placement of concrete on the vapor retarder may increase the risk of shrinkage cracking and curling. Use of concrete with reduced shrinkage characteristics including minimized water content, maximized coarse aggregate content, and reasonably low slump will reduce the risk of shrinkage cracking and curling. Considerations and recommendations for the installation of vapor retarders below concrete slabs are outlined in Section 3.2.3 of the 2006 report of American Concrete Institute (ACI) Committee 302, “Guide for Concrete Floor and Slab Construction (ACI 302.R1-04)”.

2. Slab-bearing partition walls should be designed and constructed to allow at least 2 inches of slab movement. If the slip joint is provided at the top of partitions, the connection between slab-supported partitions and foundation-supported walls should be detailed to allow differential movement. The owner should monitor partition voiding and other connections, and re-establish the gap when it closes to less than ½-inch. Masonry or other load bearing walls should be supported by the foundation system.

3. Plumbing and utilities that pass through the slabs should be isolated from the slabs and constructed with flexible couplings. Utilities, as well as electrical and mechanical equipment should be constructed with sufficient flexibility to allow for movement.

4. HVAC systems supported by the slabs (if any) should be provided with flexible connections capable of withstanding at least 2 inches of movement.

5. Exterior flatwork and sidewalks should be separated from the structures. These slabs should be detailed to function as independent units. Movement of these slabs should not be transmitted to the foundations.

6. The American Concrete Institute (ACI) recommends frequent control joints be provided in slabs to reduce problems associated with shrinkage cracking and curling. To reduce curling, the concrete mix should have a high aggregate content and a low slump. If desired, a shrinkage compensating admixture could be added to the concrete to reduce the risk of shrinkage cracking. We can perform a mix design or assist the design team in selecting a pre-existing mix.

Exterior Flatwork

We recommend exterior flatwork and sidewalks be isolated from foundations to reduce the risk of transferring heave, settlement or freeze-thaw movement to the structure. One alternative would be to construct the inner edges of the flatwork on haunches or steel angles bolted to the foundation walls and detailing the connections such that movement will cause less distress to the building, rather than tying the slabs directly into the building foundation. Construction on haunches or steel angles and reinforcing the sidewalks and other exterior flatwork will reduce the potential for differential settlement and better allow them to span across wall backfill. Frequent control joints should be provided to reduce problems associated with shrinkage. Panels that are approximately square perform better than rectangular areas.

SUBSURFACE DRAINAGE (CRAWL SPACE CONSTRUCTION)

Water from surface irrigation of lawns and landscaping frequently flows through relatively permeable backfill placed adjacent to a building and collects on the surface of

less permeable soils occurring at the bottom of foundation excavations. This process can cause wet or moist crawl space conditions after construction.

Foundation drains are typically not installed for buildings where no below-grade construction is planned. Installation of these drains can help control accumulation of moisture around footings, and help to control excessive wetting. Drains do not eliminate wetting. Installation of drains would be a benefit in areas where the ground surface next to the building will not be paved. If a crawl space is selected, a drain system should be considered around the perimeter (Figs. 3 and 4). The drain should consist of a 4-inch diameter, perforated or slotted pipe encased in free-draining gravel. The drain should lead to a positive gravity outlet, such as a subdrain located beneath the sewer, or to a sump where water can be removed by pumping. Sump pumps must be maintained by the owner or property manager.

PAVEMENTS

Our investigation indicates pavement subgrade will likely expose dry, expansive soils if near existing elevations. Pavements can experience heave due to expansive clay, or settlement due to compression of trench backfill. To reduce potential heave in the private parking lot and access drives, we recommend sub-excavation to at least 2 feet below existing grade to reduce risk of distress caused by swelling subgrade. We recommend the pavement subgrade be proof-rolled to disclose soft areas. Soft/loose areas should be stabilized. Subgrade areas that pass proof-roll should be stable enough to pave.

Pavement areas will be used for automobile parking, access drives and truck/fire lanes. Our investigation indicates pavement subgrade will likely consist of sandy clay and clayey sand. We drilled five shallow borings (S-1 through S-4) in pavement areas for pavement design. Bulk samples were obtained within the upper 5 feet of each boring and formed into a composite sample. The sample was tested to classify the pavement subgrade and evaluate index properties for the soils that will influence pavement de-

sign. The sample contained 48 percent silt and clay-sized particles and showed a liquid limit of 23 and plasticity index of 10. The sample classifies as A-4 with a Group Index of 2 based on criteria established by the American Association of State Highway and Transportation Officials (AASHTO). The material is considered to be relatively poor subgrade.

We provided pavement alternatives for full-depth portland cement concrete and composite section consisting of asphalt over aggregate base course below. The sections assume compacted subgrade with similar engineering characteristics to the soils we tested.

SUMMARY OF RECOMMENDED MINIMUM PAVEMENT ALTERNATIVES

Anticipated Traffic Type	Hot-Mix Asphalt (HMA)	Hot-Mix Asphalt + Aggregate Base Course (HMA +ABC)	Portland Cement Concrete (PCC)
Automobile Parking	5.5” HMA	3.5” HMA + 6” ABC	5.5” PCC
Access Drives and Fire/Truck Lanes	6” HMA	4” HMA + 6” ABC or 3.5” HMA + 8” ABC	6” PCC

Based on swell and classification test results, expansive subgrade may be an issue for pavements. The effects of expansive subgrade can be controlled by constructing a thicker total pavement “section” (pavement and moisture treated fill zone). The goal is to achieve more uniform movement and lower potential differential movement. To create a moisture conditioned soil zone, we recommend sub-excavation to a depth of at least 2 feet below existing grade and placing the material as moistened, properly compacted fill. We recommend fill be moisture conditioned and compacted as described in Fill and Backfill. Moisture conditioning to above optimum can produce a softer subgrade than the same soil in a drier state. We recommend proof-rolling the pavement subgrade to disclose soft/loose soils. Areas which pass the proof-roll should be stable enough to pave.

The design of a pavement system is as much a function of paving materials as support characteristics of the subgrade. If the pavement system is constructed of inferi-

or material, then the life and serviceability of the pavement will be substantially reduced. Materials and placement methods should conform to the requirements of the Town of Erie. All materials planned for construction should be tested to confirm their compliance with project specifications.

Control joints should separate concrete pavements into panels with patterns and spacing as recommended by ACI. No de-icing salts should be used on paving concrete for at least one year after placement. Routine maintenance, such as sealing and repair of cracks and overlays at 5 to 7-year intervals, are necessary to achieve long-term performance of an asphalt system. We recommend application of a rejuvenating sealant such as fog seal after the first year. Deferring maintenance usually results in accelerated deterioration of pavements leading to higher future maintenance costs.

A primary cause of early pavement deterioration is water infiltration into the pavement system. The addition of moisture usually results in softening of the subgrade and eventual failure of the pavement. We recommend drainage be designed for rapid removal of surface runoff. Curb and gutter should be backfilled and the backfill compacted to reduce ponding adjacent to the pavements. Final grading of the subgrade should be carefully controlled so that design cross-slope is maintained and low spots in the subgrade which could trap water are eliminated. A seal should be provided between curb and pavement and at all joints to reduce moisture infiltration. Landscaped areas and detention ponds in pavements should be avoided.

Recommended material properties and construction criteria for pavements are provided in Appendix C. These criteria were developed from analysis of the field and laboratory data and our experience. If the materials cannot meet these recommendations, then the pavement design should be re-evaluated based upon available materials. All material and construction requirements of the Town of Erie should be followed. All materials planned for construction should be submitted and the applicable laboratory tests performed to verify compliance with the specifications.

CONCRETE

Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentrations of 0.25 and 0.36 percent in two samples from this site. For this level of sulfate concentration, ACI indicates concrete shall be made with ASTM C150 Type V cement, or an ASTM C595 or C1157 hydraulic cement meeting high sulfate-resistant hydraulic cement (HS) designation and shall have a specified minimum compressive strength of 3000 psi at 28 days. Alternative combination of cements and supplementary cementitious materials, such as Class F fly ash, shall be permitted with acceptable test records for sulfate durability.

Superficial damage may occur to the exposed surfaces of highly permeable concrete. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high water tables. Concrete should have a total air content of 6% +/- 1.5%. We recommend all foundation walls and grade beams in contact with the subsoils (including the inside and outside faces of garage and crawl space grade beams) be damp-proofed.

The use of sulfate resistant concrete is most appropriate for foundation elements. Surface flatwork (such as sidewalks) is usually constructed with a mix that exhibits moderate resistance to sulfate attack. We have rarely seen instances of sulfate attack on surface flatwork.

The risk of poor finish quality often associated with retardation of set and plastic shrinkage cracking caused by the use of Type V cement, fly ash, and/or low water-to-cementitious material ratios is probably greater than the risk of sulfate attack in concrete flatwork. Concrete containing Type II cement and at least 564 pounds of cementitious materials per cubic yard provides better resistance to sulfate attack than the concrete that has typically been used in the past, yet results in minimal finishing problems. This approach may be considered for sites where high sulfate levels are found. A minimum

compressive strength of 4,000 psi, a maximum water-to-cementitious material ratio of 0.45, and a total air content of 6.5 percent ± 1.5 percent will provide some sulfate resistance, as well as some protection against surface damage due to freeze-thaw cycles. We advocate all below-grade walls in contact with the subsoils be damp-proofed.

SURFACE DRAINAGE

Performance of foundations, pavements and flatwork is influenced by the moisture conditions existing within the foundation or subgrade soils. Overall surface drainage should be designed, constructed, and maintained to provide rapid removal of surface water runoff away from the proposed building and off of pavements and flatwork. Final grading of pavement subgrade should be carefully controlled so that the designed slopes are maintained and low spots in the subgrade that could trap water are eliminated. We recommend the following precautions be observed during construction and maintained at all times after construction is completed.

1. Wetting or drying of open foundation, utility and earthwork excavations should be avoided.

2. Positive drainage should be provided away from the building. We recommend a minimum slope of at least 5 percent in the first 5 to 10 feet away from the foundations in landscaped areas. Paved surfaces should be sloped to drain away from the building. A minimum slope of 2 percent is suggested. More slope is desirable. Concrete curbs and sidewalks may "dam" surface runoff adjacent to the building and disrupt proper flow. Use of "chase" drains or weep holes at low points in the curb should be considered to promote proper drainage.

3. Backfill around foundations should be moistened and compacted according to criteria presented in Fill and Backfill. Areas behind curb and gutter should be backfilled and well compacted to reduce ponding of surface water. Seals should be provided between the curb and pavement to reduce infiltration.

4. Landscaping should be carefully designed to minimize irrigation. Plants used close to foundation walls should be limited to those with low moisture requirements. Irrigation should be limited to the minimum amount suffi-

cient to maintain vegetation. Application of more water will increase likelihood of slab and foundation movements and associated damage. Landscaped areas should be adequately sloped to direct flow away from the building and improvements. Use of area drains can assist draining areas that cannot be provided with adequate slope.

5. Impervious plastic membranes should not be used to cover the ground surface immediately surrounding foundations. These membranes tend to trap moisture and prevent normal evaporation from occurring. Geotextile fabrics can be used to control weed growth and allow evaporation.

6. Roof drains should be directed away from the building and discharge beyond backfill zones or into appropriate storm sewer or detention area. Downspout extensions and splash blocks should be provided at all discharge points. Roof drains can also be connected to buried, solid pipe outlets. Roof drains should not be directed below slab-on-grade floors. Roof drain outlets should be maintained.

CONSTRUCTION OBSERVATIONS

This report has been prepared for the exclusive use of PEH Architects and your design team for the purpose of providing geotechnical design and construction criteria for the proposed project. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of structure proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice evolve in the area of geotechnical engineering. The recommendations provided are appropriate for about three years. If the project is not constructed within about three years, we should be contacted to determine if we should update this report.

We recommend that CTL | Thompson, Inc. provide construction observation services to allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation, primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the structure and improvements will perform satisfactorily. It is critical that all recommendations in this report are followed during construction. Owners or property managers must assume responsibility for maintaining the structure and use appropriate practices regarding drainage and landscaping. Improvements after construction should be completed in accordance with recommendations provided in this report and may require additional soil investigation and consultation.

LOT 2 DEVELOPMENT

We drilled TH-6 near the center of Lot 2 to evaluate the subsurface conditions to assist in planning of site development for future use. Strata consisted of 10 feet of silty to clayey sand, 7.5 feet of sandy clay and 5.5 feet of silty sand and gravel underlain by weathered claystone and comparatively unweathered claystone and sandstone bedrock to 35 feet. Water was measured at 13 feet below grade. Similar to the MOB site, you should assume the upper 4 feet of soil is expansive. Site development will likely require similar concepts as those discussed in this report to allow use of shallow foundations and slab floors. If basements are planned, we recommend providing at least 3 feet, and preferably 5 feet, of separation between basement excavations and groundwater.

The discussions of site development and foundations/floor systems are intended for planning purposes only. Additional, site-specific investigations will be necessary to design structures, pavements and improvements.

LIMITATIONS

Our borings were spaced to obtain a reasonably accurate picture of subsurface conditions for the 101 Erie Parkway Medical Office Building project. The borings are representative of conditions encountered only at the location drilled. Subsurface variations not indicated by our borings are possible.

We believe this investigation was conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing under similar conditions. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this report, or in the analysis of the influence of the subsurface conditions on the design of the building or any other aspect of the proposed construction, please call.

CTL | THOMPSON, INC.

Christina Pacheco
Engineering Intern

Reviewed by:

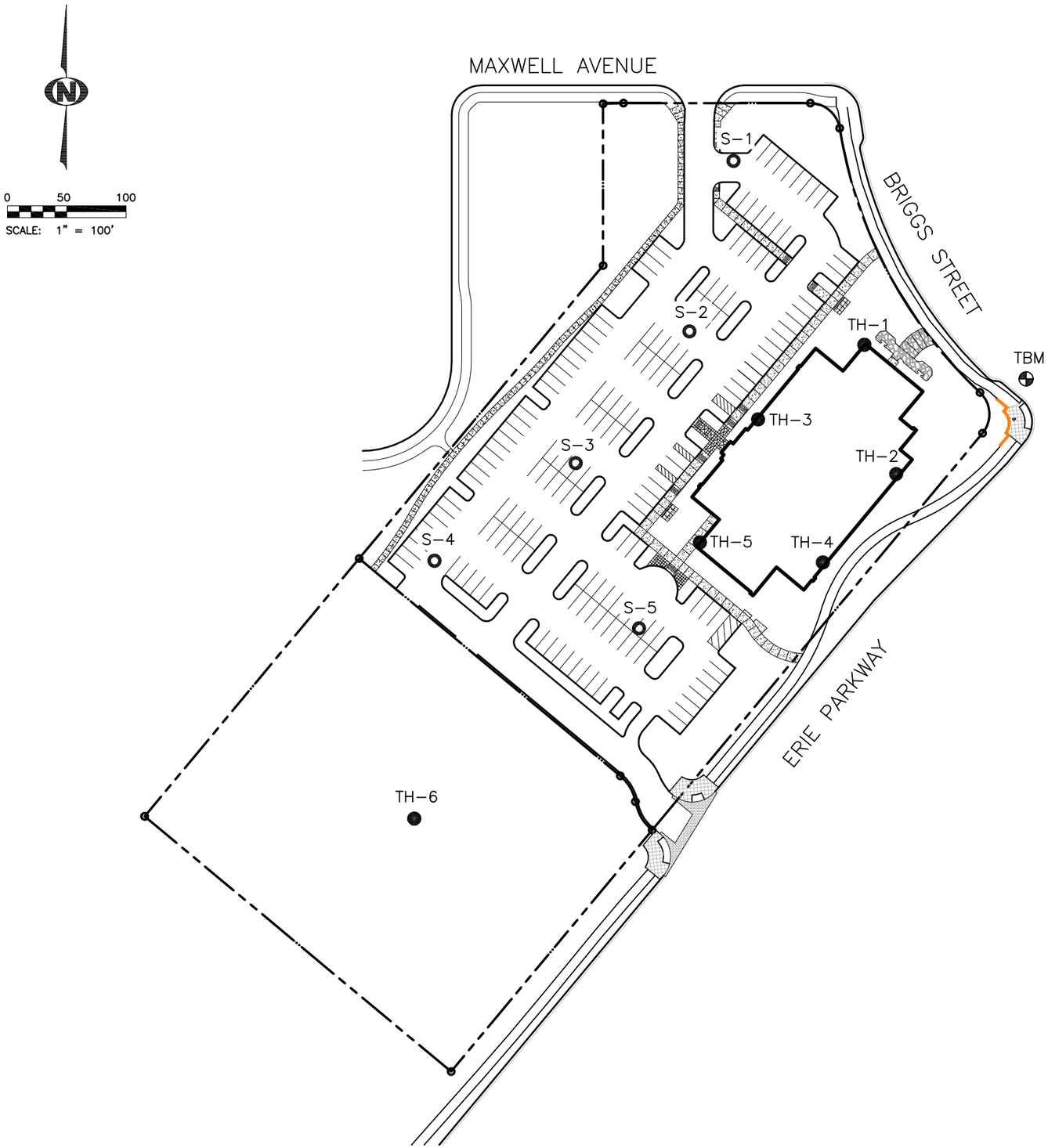
COLORADO LICENSED BENNY I. LUJAN 46531 10/28/16 PROFESSIONAL ENGINEER

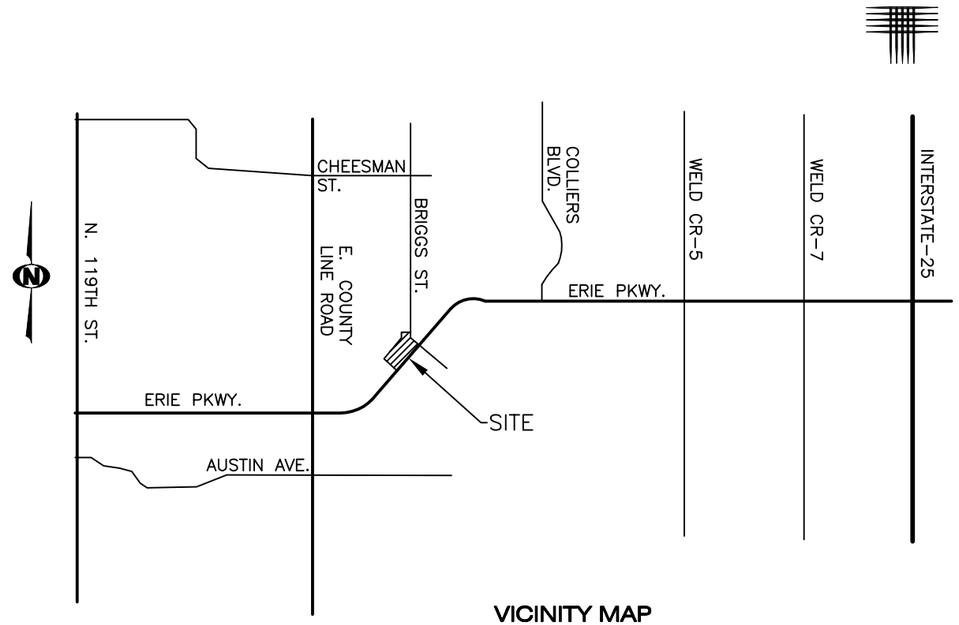
Benny I. Lujan, P.E.
Project Manager

David A. Glater, P.E., C.P.G.
Principal Geological Engineer

CP:BIL:DAG/bil/nn
(3 copies)

Via e-mail: npillatzke@pearchitects.com





VICINITY MAP
NOT TO SCALE

LEGEND:

TH-1 ●	APPROXIMATE LOCATION OF EXPLORATORY BORING
S-1 ○	APPROXIMATE LOCATION OF PAVEMENT BORING
TBM ⊕	TEMPORARY BENCHMARK: EXISTING STORM SEWER MANHOLE RIM (ASSUMED ELEVATION = 100.0')

PEH ARCHITECTS
101 ERIE PARKWAY MEDICAL OFFICE BUILDING
Project No. DN48,617-125

Locations of Exploratory Borings

Fig. 1

PHASE III DRAINAGE REPORT
BCH URGENT CARE
ERIE, COLORADO

Prepared For:
PEH Architects
1319 Spruce St
Suite 207
Boulder, CO 80302

Prepared By:
Hurst & Associates, Inc.
2500 Broadway
Suite B
Boulder, Colorado 80304

Job Number 2547-01
October 24th, 2016
July 19, 2017

TABLE OF CONTENTS

INTRODUCTION

BCH Urgent Care a proposed medical facility site located on 3.93 acres at the southwest corner of Erie Parkway and Briggs Street in the Town of Erie. The site is located in the northwest quarter of Section 19, Township 1 North, Range 68 West of the 68th Principal Meridian, Town of Erie, County of Weld, State of Colorado. Erie Commons development is south of the property while "Old Town" Erie lies to the north of the property.

EXISTING CONDITIONS

The 3.93 acre site is bounded by Maxwell Avenue on the northwest, Briggs Street on the northeast and Erie Parkway on the southeast. The site generally drains from the southwest to northeast at slopes of 2% to 3%. The site currently is barren field. There is an existing storm sewer system that traverses the west side of the site with stubs servicing both our property and future sites to the south.

DRAINAGE CONCEPT

The drainage concept for this development is to convey the storm runoff via streets, inlets, and storm pipes to an existing storm sewer system. This storm sewer system traverses north and releases directly into an existing drainage way. Water Quality for the site was accounted for during the construction of Erie Commons Filing 5 and no additional water quality will be added. The flows from a major storm event will be conveyed directly to the north of the site to an existing drainage way. All pipes and facilities on the site will be sized to handle the 5-yr storm event.

HYDROLGIC/HYDRAULIC ANALYSIS

The existing storm sewer system that traverses the site was designed using a 5 year minor storm recurrence interval and a 100 year major storm recurrence interval. The rational method was utilized to determine the peak runoff rates of the developed basins. The drainage basins were defined by the proposed grading and inlet locations. The times of concentration of each basin, the runoff coefficients of each basin, and the intensity-duration-frequency curves for the Town of Erie were used to determine the peak runoff rates. See **Appendix A.**

The capacity of the existing storm sewer system that is being utilized for this site was analyzed in *Final Drainage Report, Erie Commons Filing No.3, Lot 1, Block 1* completed on

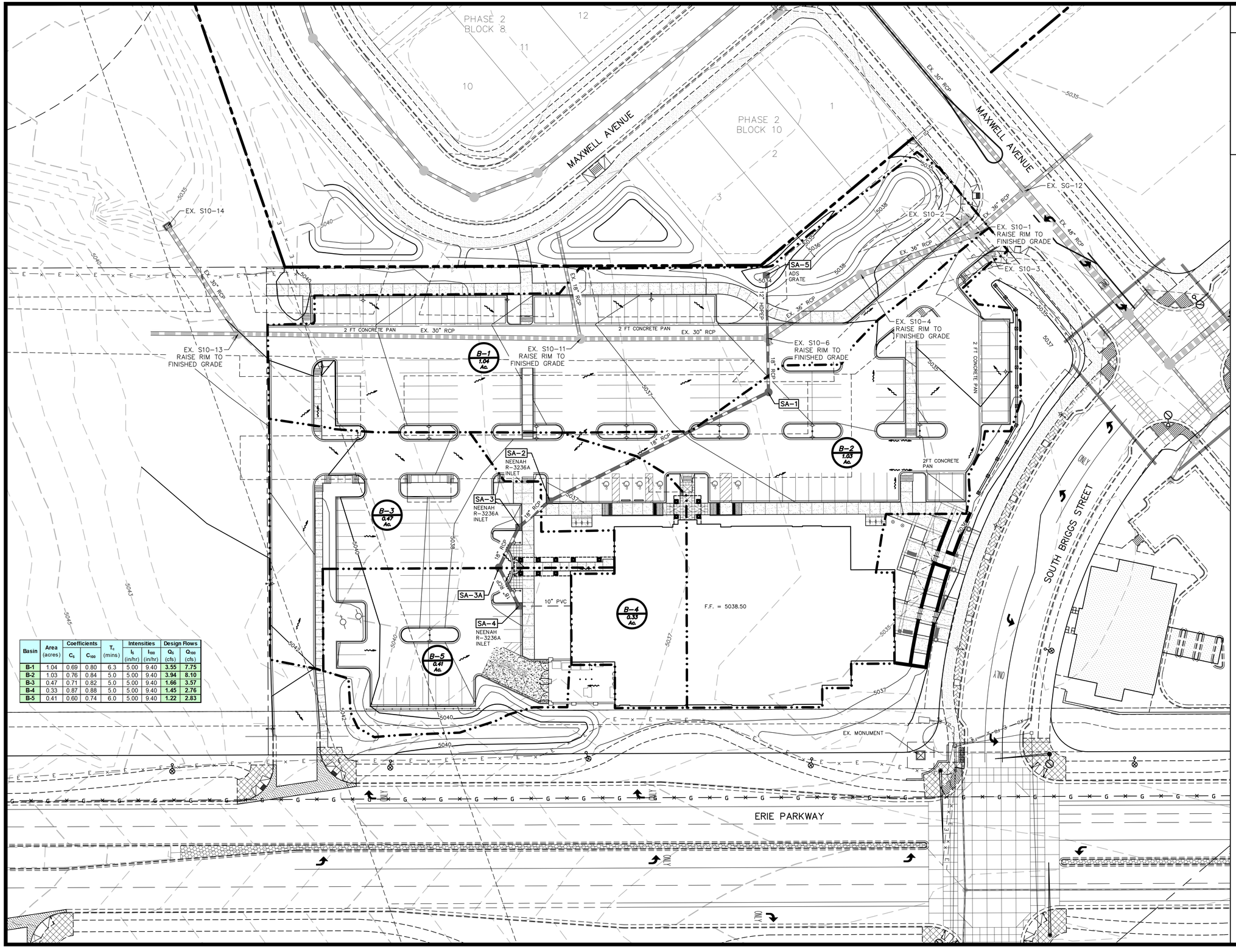
November 5, 2007. The BCH Urgent Care site will be utilizing three structures from the existing storm sewer system as entry points into the storm sewer system for their developed storm runoff. Two of the structures are storm inlets on the north side of the site at the drive entrance into the site off of Maxwell Avenue. Structure S10-2 is an existing 10' Type 'R' Inlet, structure S10-3 is an existing 5' Type 'R' Inlet and structure S10-6 is an existing Manhole with and 18" stub. In this report a Hydraflow analysis was performed for the exiting storm sewer. The design points of concern are S10-2 which correlates to Pipe 40 in the report, S10-3 which is pipe 41 and S10-6 which is Pipe 44. By knowing the total amount of storm runoff that we can add to the storm sewer system we can determine if we will surcharge the system. In the Hydraflow analysis, Pipe 44 which is S10-6 is allowed 6.52 cfs while our design flow at this structure is 4.02 cfs. Pipe 40 or S10-2 is allowed 9.41 cfs from the Hydraflow analysis while our design is for 3.35 cfs. Pipe 41 or S10-3 is allowed 2.41 cfs, but our design calls for 3.94 cfs. Normally this excess 1.5 cfs would be problematic, but sense we are under capacity at our other 2 structures by 8.56 cfs we will not be harming the system. Also, S10-3 and Pipe 41 have the capacity for the extra flows. See **Appendix B** for the Hydraflow analysis and **Appendix A** Pipe Analysis.

EROSION CONTROL/WATER QUALITY

Erosion protection and stormwater management plan will be required during construction. Erosion bales, track pads, sediment traps, and silt fencing will be used to control erosion during construction. All disturbed areas will be seeded and mulched to prevent erosion.

MAINTENANCE

All area inlets and storm sewer will require periodic maintenance by the Owner's Association. These facilities are privately owned and are not to be maintained by the Town of Erie.



Basin	Area (acres)	Coefficients C_5	Coefficients C_{100}	T_c (mins)	Intensities I_5 (in/hr)	Intensities I_{100} (in/hr)	Design Flows Q_5 (cfs)	Design Flows Q_{100} (cfs)
B-1	1.04	0.69	0.80	6.3	5.00	9.40	**3.55**	**7.75**
B-2	1.03	0.76	0.84	5.0	5.00	9.40	**3.94**	**8.10**
B-3	0.47	0.71	0.82	5.0	5.00	9.40	**1.66**	**3.57**
B-4	0.33	0.87	0.88	5.0	5.00	9.40	**1.45**	**2.76**
B-5	0.41	0.60	0.74	6.0	5.00	9.40	**1.22**	**2.83**

LEGEND

- Existing Contours
- Proposed Contours
- Flow Arrow
- B1 — Basin Designation
- SA-100 — Structure Number
- Basin Boundary
- Major Basin Boundary

0 30' 60'
SCALE: 1" = 30'

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

72 HOURS BEFORE YOU DIG CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.) 811
PAYS: ELECTRIC, TELEPHONE, CATV, AND PIPELINE OWNERS/OPERATORS/AGENTS

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	MINOR SUBDIVISION SUBMITTAL	11/01/16	XX

COLORADO LICENSED
JOHN W. JORGENSON
22730
PROFESSIONAL ENGINEER

HURST & ASSOCIATES, INC.
2560 Broadway, Suite B
Boulder, CO 80304
303.449.9105

HURST
CIVIL ENGINEERING
PLANNING
SURVEYING

ERIE COMMONS FILING NO. 3
3RD AMEND, LOT 1A-1, BLOCK 1
MASTER DRAINAGE PLAN

Prepared for:
BOULDER COMMUNITY HEALTH

DRAWN BY:	EB
DESIGNED BY:	JJ
DRAWING NAME:	2547-MD
APPROVED BY:	JJ
JOB NUMBER:	2547-010
DATE:	09/29/17
SCALE:	1"=30'
SHEET NO:	C6.0

LAST SAVED: 9/20/2017 12:25 PM
G:\2547\CONST\2547-MD.dwg

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

November 1, 2016

Mr. Peter E. Heinz
PEH Architects
1319 Spruce Street, Suite 207
Boulder, CO 80302

Re: Erie Commons MOB
Traffic Impact Analysis
Erie, CO
LSC #161060

Dear Mr. Heinz:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Erie Commons MOB development. As shown on Figure 1, the site is located north of Erie Parkway, west of S. Briggs Street, and south of Maxwell Avenue in Erie, Colorado.

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 a medical office building with about 40,987 square feet on Lot 1 and a medical office building with about 15,000 square feet and specialty retail space of about 15,000 square feet on Lot 2. Access is proposed from one existing right-in/right-out access to Erie Parkway and one existing full movement access to Maxwell Avenue 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, minor arterial roadway south of the site. The intersections with Powers Street and S. Briggs Street are signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 40 mph. The 2030 Roadway System Plan in the *Town of Erie Master Transportation Plan* shows Erie Parkway as a four-lane principal arterial. The *Buildout Roadway Network* shows a six-lane principal arterial.

- **S. Briggs Street** is a north-south, two-lane roadway east of the site. The intersection with Erie Parkway is signalized. The posted speed limit is 25 mph.

- **E. County Line Road** is a north-south, two-lane arterial roadway west of the site. The intersection with Maxwell Avenue is stop-sign controlled. The posted speed limit is 45 mph. The 2030 Roadway System Plan in the *Town of Erie Master Transportation Plan* shows County Line Road as a four-lane principal arterial. The Buildout Roadway Network shows a six-lane principal arterial.

- **Maxwell Avenue** is an east-west, two-lane collector roadway north of the site, connecting E. County Line Road with S. Briggs Street.

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, posted speed limits, and 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 June and September, 2016. All volumes from June were balanced as appropriate to be consistent with the September volumes. The Blue Mountain Montessori Pre-School on Briggs Street was out of session when the June traffic counts were conducted. The trip generation potential from a 60-student pre-school was included in the 2020 and 2035 background traffic estimates.

2020 and 2035 Background Traffic

Figure 4 shows the estimated 2020 background traffic and Figure 5 shows the estimated 2035 background traffic. The projected 2020 and 2035 background traffic volumes are based on an annual growth rate of four percent for the peak direction Erie Parkway through movements and five percent for the off-peak direction Erie Parkway through movements. Three percent annual growth was assumed for County Line Road. Low growth was assumed on all side roads with higher growth assumed on Briggs Street north of Erie Parkway consistent with prior studies in the area. Both scenarios also assume buildout of the undeveloped mixed-use parcel south of Erie Parkway between Briggs Street and Powers Street.

Existing, 2020, and 2035 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 3, 4, and 5 were analyzed as appropriate to determine the existing, 2020, and 2035 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Erie Parkway/S. Briggs Street:** This signalized intersection currently operates at an overall LOS "A" during both morning and afternoon peak-hours and is expected to operate at LOS "B" or better through 2020. By 2035, this intersection is expected to operate at an overall LOS "C" or better during both peak-hours.

- **County Line Road/Maxwell Avenue:** All movements at this unsignalized intersection currently operate at LOS "C" or better. By 2020, all movements are expected to operate at LOS "D" or better. In 2035, the westbound left movement is expected to operate at LOS "D" during both peak-hours assuming County Line Road is widened to four lanes.

- **Briggs Street/Maxwell Avenue/Existing Driveway:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both peak-hours. By 2020, all movements are expected to operate at LOS "C" or better and will continue to do so through 2035.

- **Maxwell Avenue/Maxwell Circle:** All movements at this unsignalized all-way stop-sign controlled intersection currently operate at LOS "A" during both peak-hours and are expected to do so through 2035.

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, 9th Edition, 2012* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The proposed land use is projected to generate about 2,688 vehicle-trips on the average week-day, 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 128 vehicles would enter and about 47 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 74 vehicles would enter and about 167 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 based on directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

2020 and 2035 TOTAL TRAFFIC

Figure 8 shows the 2020 total traffic which is the sum of the 2020 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 7). Figure 8 also shows the recommended 2020 lane geometry and traffic control.

Figure 9 shows the 2035 total traffic which is the sum of 2035 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figure 7). Figure 9 also shows the recommended 2035 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8 and 9 were analyzed to determine the 2020 and 2035 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Erie Parkway/S. Briggs Street:** This signalized intersection is expected to operate at an overall LOS "B" during both peak-hours through 2020. By 2035, this intersection is expected to operate at an overall LOS "C" during both peak-hours.

- **County Line Road/Maxwell Avenue:** All movements at this unsignalized intersection are expected to operate at LOS "D" or better during both peak-hours through 2035.

- **Briggs Street/Maxwell Avenue/Existing Driveway:** All movements at this unsignalized intersection are expected to operate at LOS "D" or better through 2035 with the addition of site traffic.

- **Maxwell Avenue/Maxwell Circle:** All movements at this unsignalized all-way stop-sign controlled intersection are expected to operate at LOS "A" during both peak-hours through 2035, with or without the addition of site traffic.

- **Erie Parkway/RIRO Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both peak-hours through 2035.

- **Maxwell Avenue/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both peak-hours through 2035.

MAXWELL AVENUE ACCESS LOCATION

A back-to-back left-turn lane should be provided on Maxwell Avenue between Briggs Street and the site access. This configuration is shown on Figure 2 with storage for two vehicles making the eastbound left-turn movement onto Briggs Street and storage for one vehicle making the westbound left-turn movement into the site. The capacity analysis worksheets show the 95th percentile queue length for both of these movements is expected to be less than one vehicle. This back-to-back left-turn configuration is intended to prevent blockage of through or right-turning traffic by vehicles waiting to turn left.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The proposed land use is projected to generate about 2,688 net external vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 128 vehicles would enter and about 47 vehicles

would exit the site. During the afternoon peak-hour, about 74 vehicles would enter and about 167 vehicles would exit.

Projected Levels of Service

2. All movements at the intersections analyzed are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2035.

Conclusions

3. The impact of the Erie Commons MOB development site can be accommodated by the existing and proposed roadway network.

Recommendations

4. The access point approaches to the existing roadway system should be stop-sign controlled.

5. It is likely that protected/permitted phasing will be necessary by 2035 for the two left-turn movements from Erie Parkway to either side of Briggs Street.

6. A back-to-back left-turn lane should be provided on Maxwell Avenue between Briggs Street and the site access. This configuration is shown on Figure 2 with storage for two vehicles making the eastbound left-turn movement onto Briggs Street and storage for one vehicle making the westbound left-turn movement into the site. The capacity analysis worksheets show the 95th percentile queue length for both of these movements is expected to be less than one vehicle. This back-to-back left-turn configuration is intended to prevent blockage of through or right-turning traffic by vehicles waiting to turn left.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Erie Commons MOB 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

11-1-16

CSM/wc

Enclosures: Tables 1 and 2
Figures 1 - 9
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

Y:\LSC\Projects\2016\161060-ErieCommonsMOB\Report\ErieCommonsMOB-110116.wpd

Table 1
Intersection Levels of Service Analysis
Erie Commons MOB
Erie, CO
LSC #161060; November, 2016

Intersection Location	Traffic Control	Existing Traffic		2020 Background Traffic		2020 Total Traffic		2035 Background Traffic		2035 Total Traffic	
		Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM
Brigg Street/Maxwell Avenue/Existing Driveway	TWSC										
NB Left		A	A	A	A	A	A	A	A	A	A
EB Left		B	B	C	B	D	C	C	C	C	C
EB Through/Right		B	A	B	B	B	B	B	B	B	B
WB Approach		B	B	C	C	C	C	B	C	C	D
SB Left		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		14.0	12.7	17.5	15.3	25.0	18.8	15.9	19.5	20.1	25.2
Maxwell Avenue/Maxwell Circle	AWSC										
NB Approach		A	A	A	A	A	A	A	A	A	A
WB 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		7.2	7.2	7.3	7.2	7.4	7.5	7.3	7.3	7.4	7.5
Erie Parkway/S. Briggs Street	Signalized										
SEB Left		C	C	C	C	C	C	C	C	C	C
SEB Through/Right		D	C	C	C	C	C	C	C	C	C
NWB Left		D	D	C	C	C	C	C	C	C	C
NWB Through/Right		C	C	C	C	C	C	C	C	C	C
NEB Left		A	A	B	A	B	B	B	B	C	C
NEB Through		A	A	A	A	A	A	B	C	B	C
NEB Right		A	A	A	A	A	A	A	B	A	B
SWB Left		A	A	A	B	A	B	A	C	A	C
SWB Through		A	A	A	A	A	A	C	B	C	B
SWB Right		A	A	A	A	A	A	B	B	B	B
Entire Intersection Delay (sec /veh)		8.6	7.7	11.6	11.4	12.1	12.1	19.2	24.5	20.4	26.5
Entire Intersection LOS		A	A	B	B	B	B	B	C	C	C
County Line Road/Maxwell Avenue	TWSC										
WB Left		C	C	D	C	D	C	D	D	D	D
WB Right		B	B	B	B	B	B	B	B	B	B
SB Left		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		21.8	16.9	26.4	18.9	28.8	19.7	28.5	27.5	30.6	28.8
Erie Parkway/RIRO Site Access	TWSC										
SEB Approach		--	--	--	--	B	B	--	--	C	B
Critical Movement Delay		--	--	--	--	12.6	11.2	--	--	17.7	14.9
Maxwell Avenue/Site Access	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Approach		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	9.2	9.2	--	--	9.1	9.3

Table 2
ESTIMATED TRAFFIC GENERATION
Erie Commons MOB
Erie, CO
LSC #161060; November, 2016

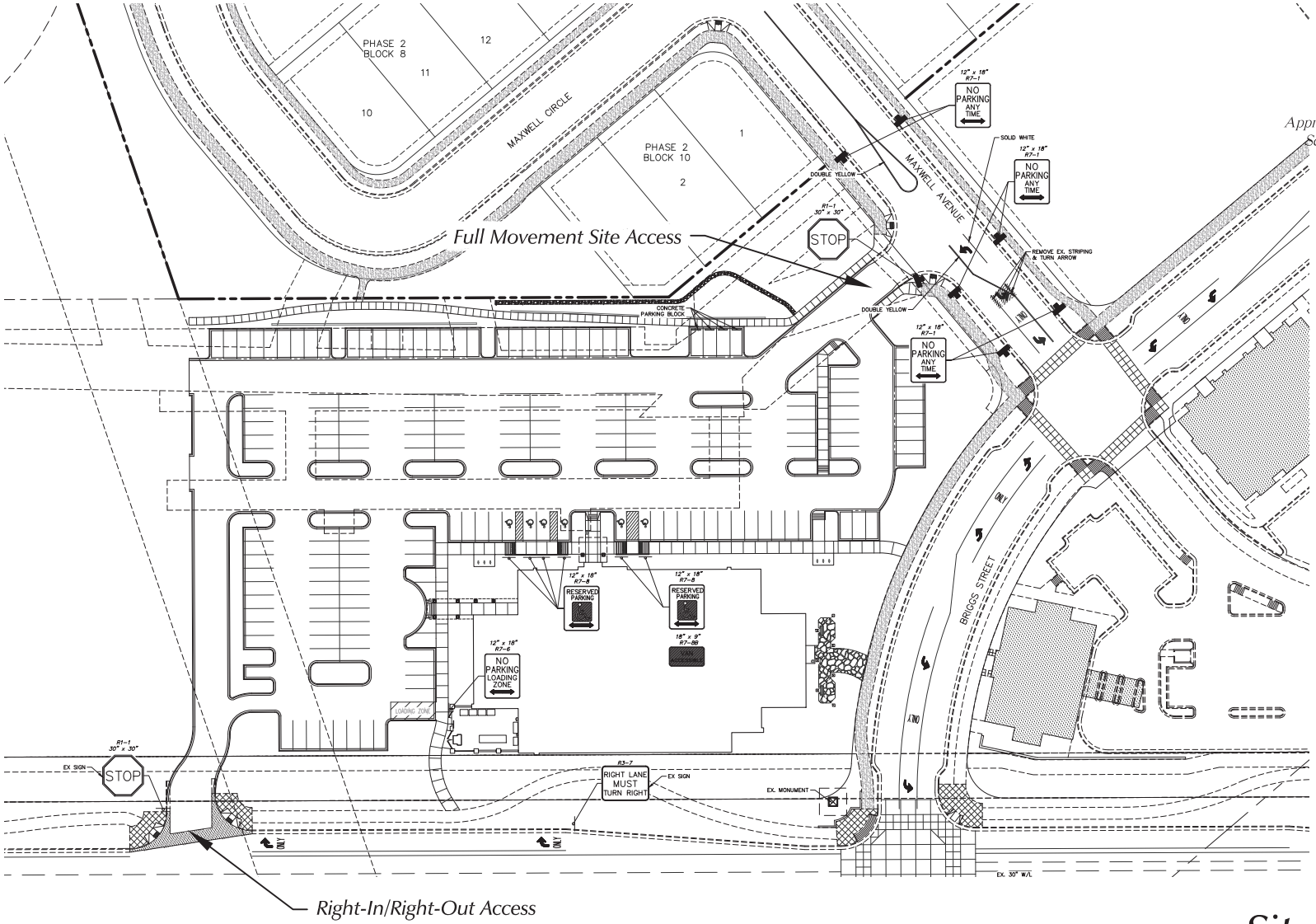
Land Use Description	Trip Generation Units	Trip Generation Rates [1] Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Total Trips Generated Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out
Lot 1											
Medical Office Building [2]	40.987 KSF [3]	36.13	1.888	0.502	1.000	2.570	1,481	77	21	41	105
Lot 2											
Medical Office Building	15.00 KSF	36.13	1.888	0.502	1.000	2.570	542	28	8	15	39
Specialty Retail [4]	15.00 KSF	44.32	1.518	1.192	1.192	1.518	665	23	18	18	23
							1,207	51	26	33	62
					Total Trips Generated =		**2,688**	**128**	**47**	**74**	**167**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 9th Edition, 2012.
(2) ITE Land Use No. 720 - Medical-Dental Office Building
(3) KSF = 1,000 square feet
(4) ITE Land Use 826 - Specialty Retail Center - AM rates are not available so the PM rates were reversed.

Figure 1

Vicinity Map

Erie Commons MOB (LSC #161060)



Approximate Scale
Scale: NTS

Figure 2

Site Plan

Erie Commons MOB (LSC #161060)

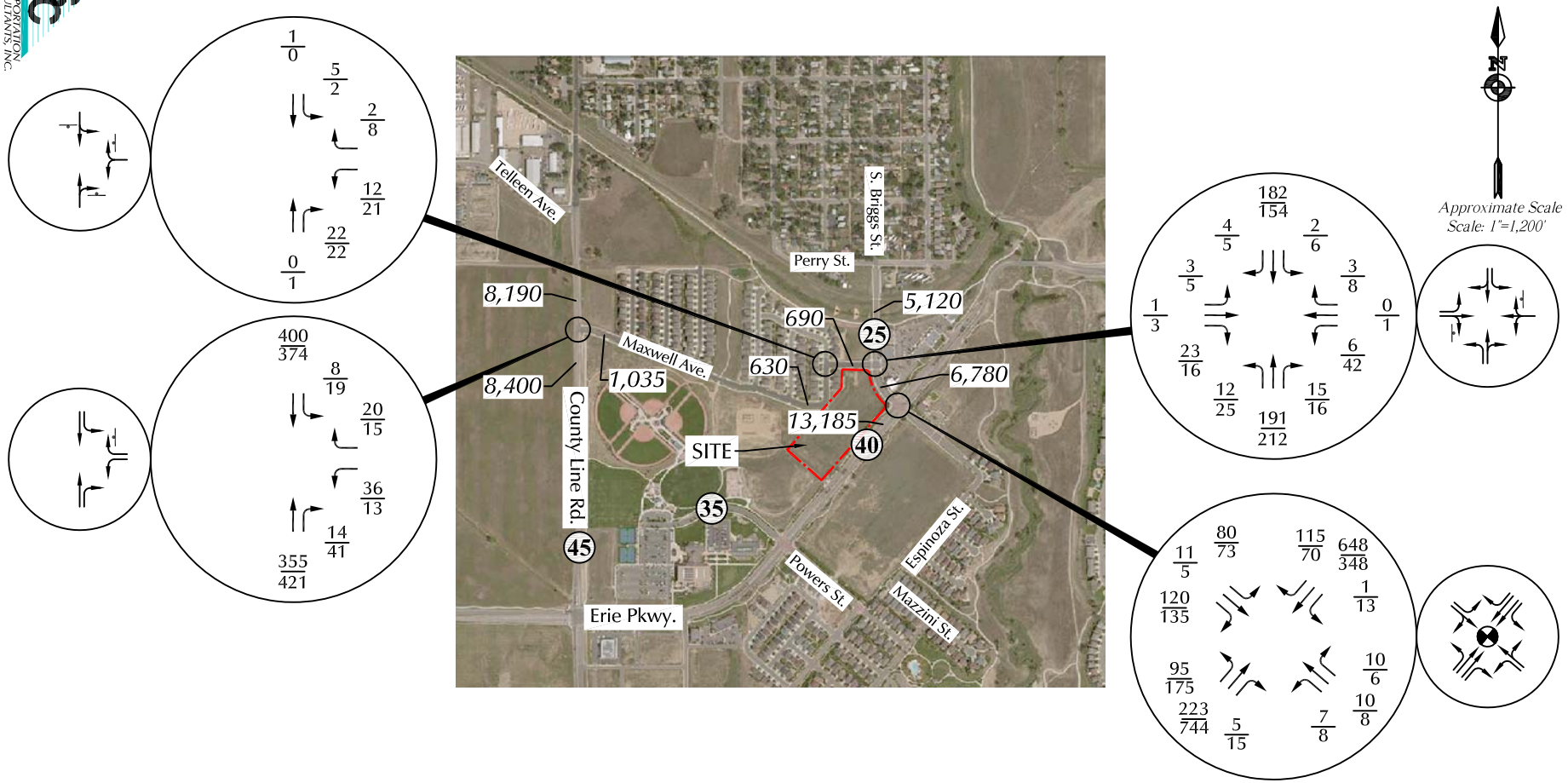
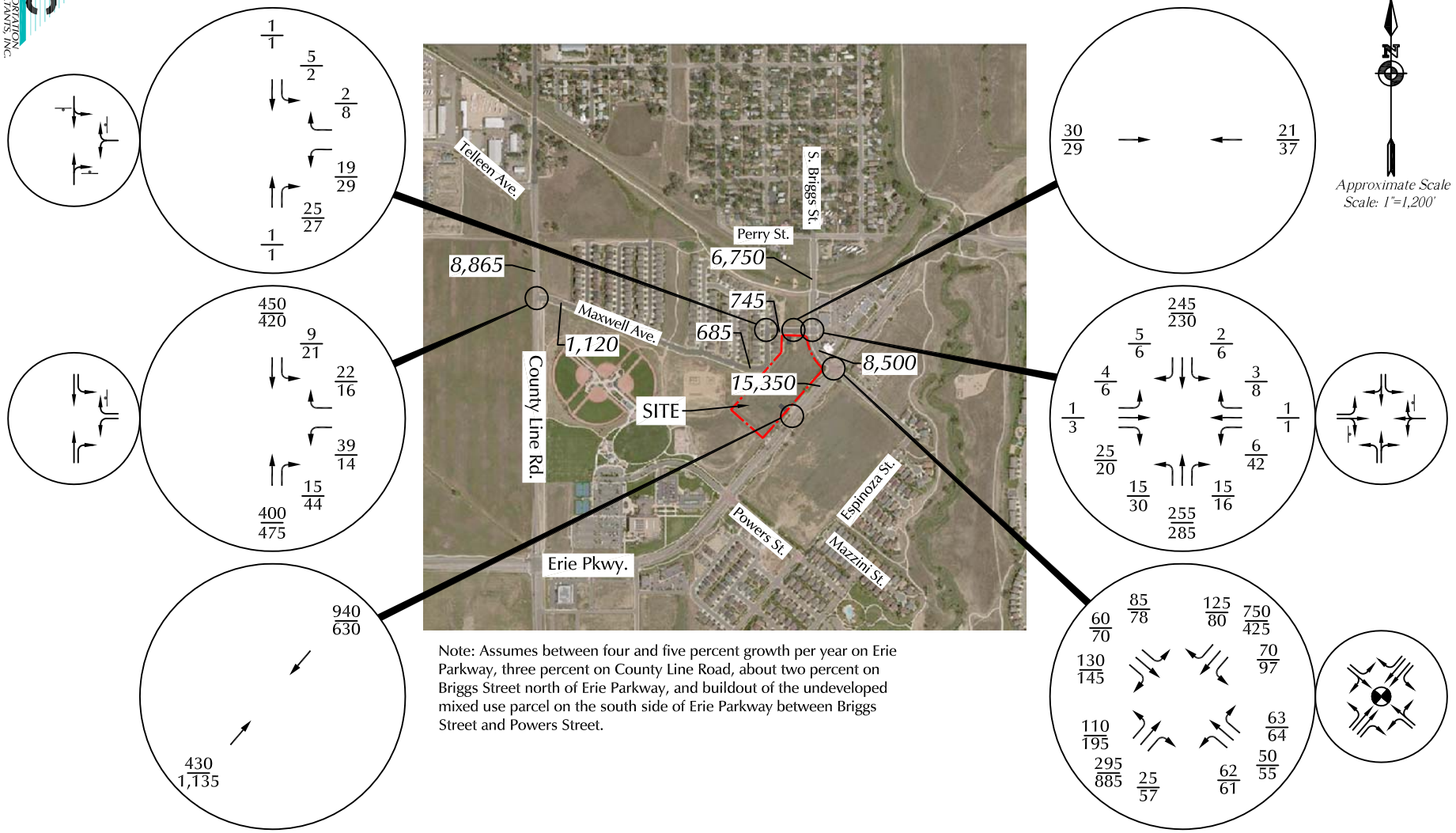


Figure 3

Existing Traffic, Lane Geometry and Traffic Control

Erie Commons MOB (LSC #161060)



Note: Assumes between four and five percent growth per year on Erie Parkway, three percent on County Line Road, about two percent on Briggs Street north of Erie Parkway, and buildout of the undeveloped mixed use parcel on the south side of Erie Parkway between Briggs Street and Powers Street.

LEGEND:

= Stop Sign

= Traffic Signal

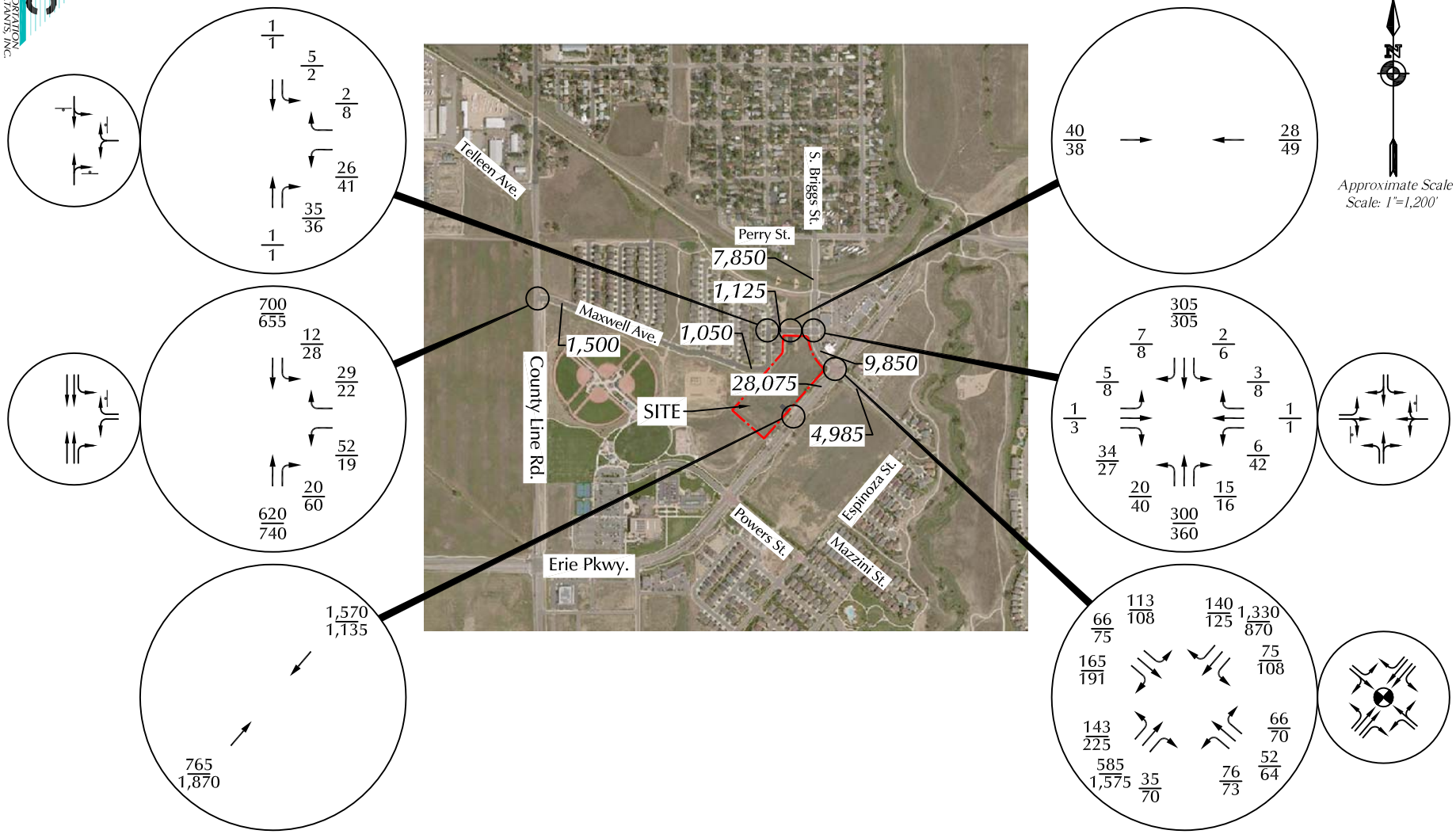
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 4

Year 2020 Background Traffic, Lane Geometry and Traffic Control

Erie Commons MOB (LSC #161060)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 5

Year 2035 Background Traffic, Lane Geometry and Traffic Control

Erie Commons MOB (LSC #161060)

N

Approximate Scale
Scale: 1"=1,200'

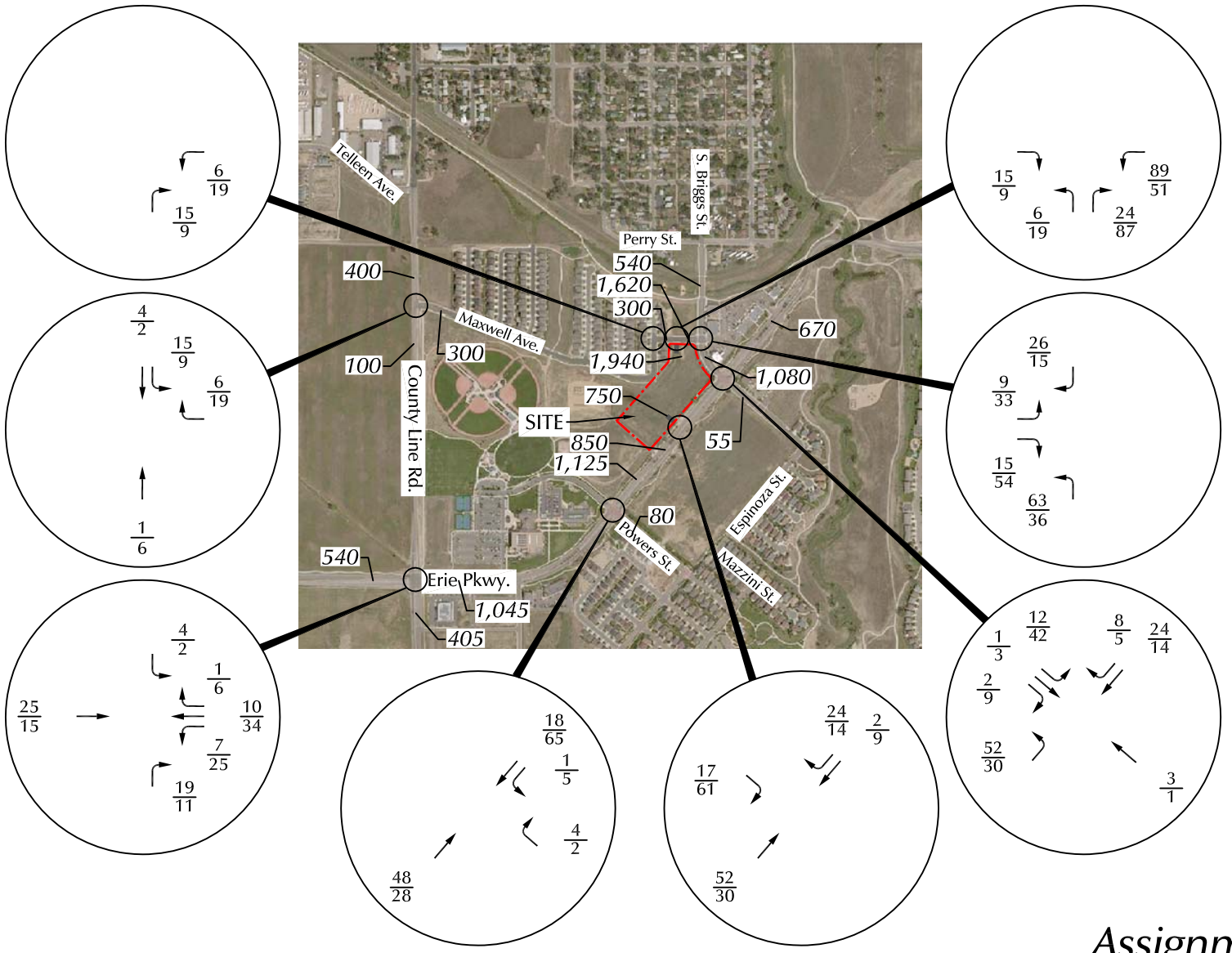
LEGEND:

25% = Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

Erie Commons MOB (LSC #161060)



LEGEND:

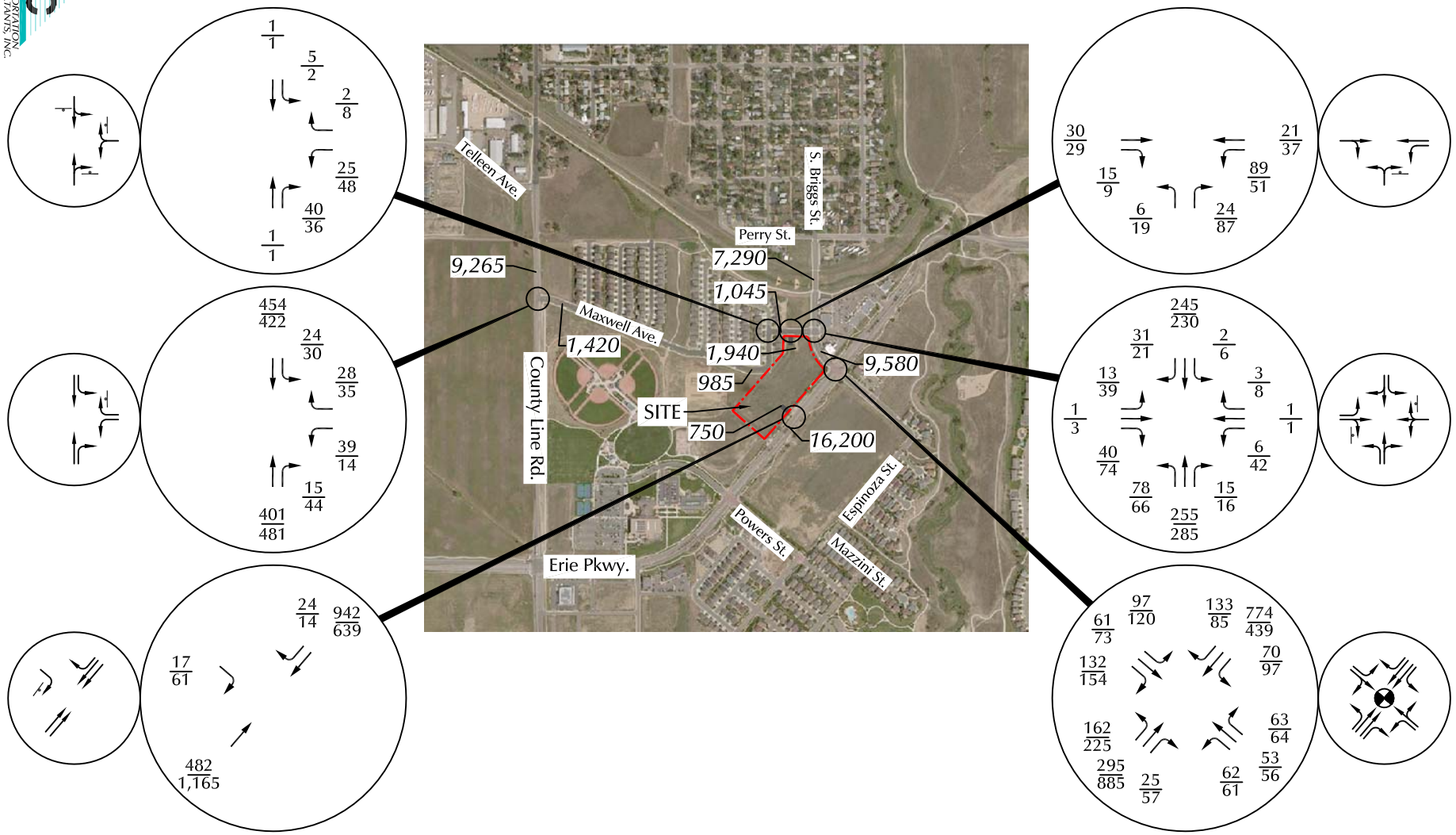
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 7

Assignment of Site-Generated Traffic

Erie Commons MOB (LSC #161060)



LEGEND:

= Stop Sign

= Traffic Signal

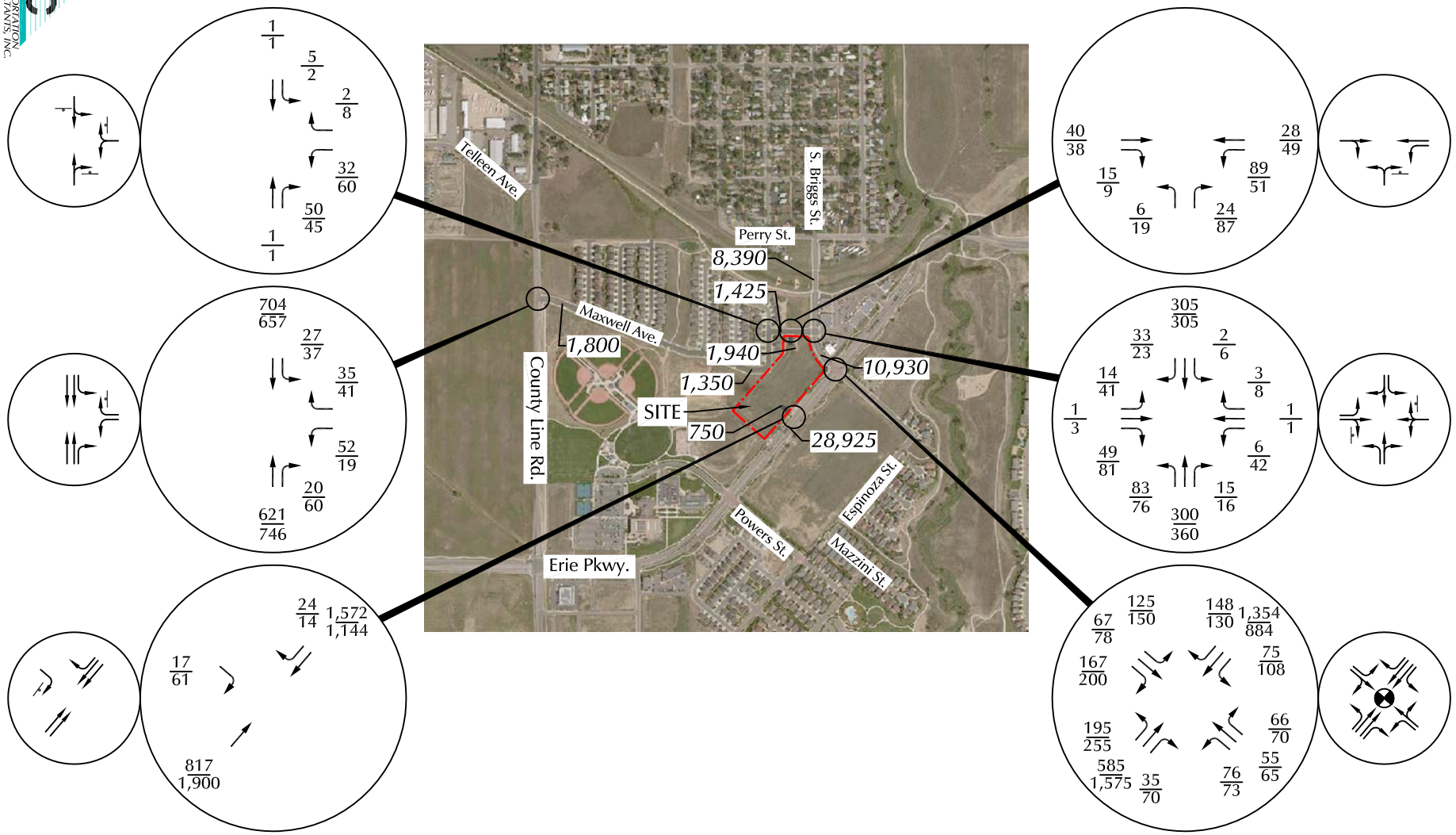
26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Figure 8

Year 2020 Total Traffic, Lane Geometry and Traffic Control

Erie Commons MOB (LSC #161060)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 9

Year 2035 Total Traffic, Lane Geometry and Traffic Control

Erie Commons MOB (LSC #161060)