

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

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

Whereas, the Town requires professional services; and

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

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

I. Scope of Services

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

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

II. Term and Termination

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

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

III. Compensation

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

IV. Professional Responsibility

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

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

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

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

V. Ownership

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

VI. Independent Contractor

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

VII. Insurance

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

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

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

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

VIII. Indemnification

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

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

IX. Miscellaneous

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

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

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

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

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

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

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

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

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

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

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

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

Exhibit A Scope of Services

Contractor's Duties

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

Task 1 – Geotechnical Investigation

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

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

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

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

Task 2 – Geotechnical Analysis

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

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

Task 3 – Alternatives Analysis

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

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

Task 4 – Design Report

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

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

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

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

Task 5 – 30% Design

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

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

Task 6 – 60% Design

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

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

Task 7 – 90% Design

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

Task 8 – Final Design Issued for Construction

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

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

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

Task 9 - Project Management/Administration

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

Contractor's Deliverables

Contractor shall deliver the following items to the Town:

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

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

Assumptions and Exclusions

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

- All existing site features above ground (structures, roads, edge of riprap, concrete slabs, etc.).
- The Town will provide prompt reviews and only one iteration of review will occur for deliverables to go from draft to final.