AGENDA ITEM SUMMARY
City Council
August 20, 2019

STAFF

Mark Kempton, Water Production Manager
Eric Potyondy, Legal

SUBJECT

Resolution 2019-087 Authorizing the City Manager to Execute an Agreement for Funding Improvements to the Munroe Canal Diversion Structure.

EXECUTIVE SUMMARY

The purpose of this item is to approve an intergovernmental agreement between the City of Fort Collins, Northern Colorado Water Conservancy District, North Poudre Irrigation Company (NPIC), East Larimer County Water District (ELCO), the Fort Collins-Loveland Water District (FCLWD), and North Weld County Water District. The purpose of the agreement is to fund improvements to the Munroe Canal Diversion Structure on the Cache la Poudre River. The Structure is located approximately one mile west (upstream) of Gateway Natural Area on the Cache la Poudre River. The improvement project will upgrade the Structure to prevent debris from flowing into the Structure and to safeguard the Structure from adjacent vehicular traffic. The Structure delivers Poudre River water to the City’s Water Treatment Facility for treatment and is an integral part of the City’s Fort Collins Utilities water supply system. The total estimated cost to the City is $133,250 which is one-sixth of the total design and construction cost of $799,500.

STAFF RECOMMENDATION

Staff recommends adoption of the Resolution.

BACKGROUND / DISCUSSION

Northern Water, which owns the Structure, is planning to perform upgrades in October 2019. The upgrades include covering both sides of the open Structure with a concrete roof to prevent debris or vehicles from entering and plugging up the downstream tunnel.

In 2012, the High Park Fire burned the drainage basin immediately upstream of the Structure, leaving it susceptible to debris flows after severe rain events. In July 2013, a rainstorm over the basin caused a large debris flow which entered the Structure and filled the downstream tunnel with debris and soil for a distance of over 300 feet. The cleanup took several weeks, cost thousands of dollars, and resulted in an inability to divert Poudre River water at the Structure for several weeks. Fortunately, the City was able to continue to divert water from the Poudre River through the City’s Poudre River Pipeline for deliver to the City’s Water Treatment Facility for treatment. That event also impacted the Tri-Districts, two of which (ELCO and FCLWD) supply treated water to portions of Fort Collins and the Growth Management Area.

The upstream basin has been treated with several post-wildfire mitigation projects; however, due to the severity of the burned area and the steep nature of the basin, debris flow risks remain. To protect the long-term health of the Structure and to ensure a continuous Poudre River water supply from the Structure, the proposed improvements will prevent future debris flows from entering the tunnel and thus will help ensure continued water supplies to the City’s Water Treatment Facility. An overview of the proposed improvements can be found in Attachment 3.
The design and construction costs of the proposed improvements will be shared between Northern Water (the owner of the Structure), NPIC (the operator and a user of the Structure), and the Pleasant Valley Pipeline Enterprise (a user of the Structure, of which the City is a 50% owner in conjunction with the Tri-Districts). Northern Water will coordinate the design and construction of the project and will act as the contract administrator and project manager.

CITY FINANCIAL IMPACTS

The total design and construction cost, including a contingency of $62,500, is $799,500. The City is responsible for one-sixth of the total cost which amounts to $133,250. Existing appropriated Fort Collins Utilities Replacement and/or Minor Capital funds will be used for the City’s portion of the project costs. The rationale for the funding arrangements and processes to share potential cost overruns are described in the agreement.

BOARD / COMMISSION RECOMMENDATION

At its July 18, 2019, meeting, the Water Board voted unanimously to recommend approval of the agreement. (Attachment 2)

PUBLIC OUTREACH

No public outreach has been performed at this time. Northern Water, the project sponsor and manager will be performing all public outreach on this project. City staff will work closely with Northern Water staff to inform the public about the proposed improvements. The biggest impact to the public will likely be traffic control around the project site, which will be coordinated directly with the Colorado Department of Transportation.

ATTACHMENTS

1. Location map (PDF)
2. Water Board Minutes, July 18, 2019 (draft) (PDF)
3. Background - City Council Munroe IGA, August 2019 (PDF)
Munroe Tunnel Vicinity Maps

Vicinity Map & Canal Facts

Munroe Canal Facts
- 12.6-miles Long
- 250-cfs Capacity
- Delivers Water to the Pleasant Valley Pipeline and North Poudre Irrigation Company
- Located within burn area of High Park Fire (June 2012)

Vicinity Map

Diversion Structure

North
Board Member Bruxvoort moved that Water Board recommend the Utilities Executive Director adopt the NCDID, Buckingham/Lincoln Outfall, and Stone Creek Stormwater master plan updates.

Board Member Ortman seconded the motion.
Discussion on the motion: None
Vote on the Motion: It passed unanimously, 8-0

- **Intergovernmental Agreement with Northern Water for Improvements to the Munroe Canal Inlet Structure**  
  *(Attachments available upon request)*  
  Water Production Manager Mark Kempton shared that the project protects the Munroe Canal Inlet Structure from debris flows and vehicle accidents. The structure is part of the Pleasant Valley (PV) Pipeline system and is owned by Northern Water. North Poudre Irrigation Company operates and maintains it. The City of Fort Collins and the Tri-Districts (East Larimer County Water District, Fort Collins-Loveland Water District, North Weld County Water District) pull water from it through the PV Pipeline. It is located within the High Park Fire burn area. The High Park Fire in June 2012 burned 87,415 acres of the Poudre River Watershed. In July 2013 a storm caused wildfire debris to fill the entire basin intake. To protect the diversion, Northern Water has designed a steel grate, beams headworks cover and a corrugated steel flume cover with an access hatch. The project is scheduled to start in October and work into early spring 2020. Cost estimate is $800,000. As a Tri-District participant of the PV Pipeline, Fort Collins would contribute a sixth of the cost.

Discussion Highlights: Board members commented on and inquired about various related topics including whether the flume could be diverted under the tunnel without a huge open pit at the bottom of the drainage (the tunnel contains a large partial flume; a large flume is needed to measure the amount of water that flows through); the life expectancy of the corrugated steel (the bridge-like corrugated steel structures could last 50 plus years or more if maintained well); why concrete wasn’t used instead (concrete is more expensive and would take longer to place); what would occur if the debris flow was heavier than planned (Mr. Kempton assumed they took into account a safety factor for taking on additional load; the structures are designed to take on more than 3 feet of cover and have actual truck loadings and various weights on it).

Board Member Brett moved that the Water Board recommend City Council
adopt the resolution authorizing the City Manager to execute an agreement between the City of Fort Collins, the East Larimer County Water District, the Fort Collins-Loveland Water District, the North Weld County Water District, Norther Colorado Water Conservancy District, and North Poudre Irrigation Company regarding improvements to the Monroe Canal Diversion Structure.

Board Member Bruxvoort seconded the motion.
Discussion on the Motion: None
Vote on the Motion: It passed unanimously, 8-0

7. OTHER BUSINESS
   a. Chairperson Brown and Ms. Connor discussed a scheduling conflict. The August 15 Water Board regular meeting falls on the same day as the City’s employee and volunteer appreciation event, which the Water Board has been invited to. Ms. Connor will check with Northern Water on rescheduling date options. Board Member Ortman asked that Ms. Connor not schedule Northern’s presentation during the October regular meeting, because she will be out of town. The board agreed to cancel the August regular meeting and receive the regular staff reports via email.

8. BOARD MEMBER REPORTS
   None.

9. ADJOURNMENT
   7:30 p.m.
Project Purpose

Protect diversion structure from debris flows and vehicle accidents
Munroe Canal Facts

- 12.6-miles Long
- 250-cfs Capacity
- Delivers Water to the Pleasant Valley Pipeline and North Poudre Irrigation Company
- Located within burn area of High Park Fire (June 2012)
**Project Background**

**High Park Fire Facts**
- Located in Foothills west of Fort Collins
- Started June 9, 2012 (Lightning Strike)
- Burned for almost 1-month
- Burned about 87,415-acres (Poudre River Watershed)
High Park Fire

Post-Wildfire Debris Flow

- July 2013 Storm
- 31-Acre Drainage Basin
High Park Fire

Cleanup of post-wildfire debris flow
High Park Fire

Cleanup of post-wildfire debris flow

July 2013 Debris Flow Cleanup

July 2013 Debris Flow Cleanup
Project Purpose

Protect diversion structure from debris flows and vehicle accidents

November 2018, View Looking East
Project Purpose

Protect diversion structure from debris flows and vehicle accidents

November 2018, View Looking West
Design Criteria

- Improve Debris Flow Protection
- Improve Traffic Protection
- Adequate Structural Capacity
- Preserve Hydraulic Capacity (250-cfs)
- Preserve Flow Measurement Capabilities
- Preserve Access for Maintenance
- Limit Confined Space Challenges
- Address Construction Constraints (limited space)
Concept Design

- Headworks Cover
- Traffic Protection
- Flow Measurement
- Flume Cover
- Diversion Structure

North

Poudre River
Concept Design

Headworks Cover
Concept Design

- **Headworks Cover**

- **Cover**
  - Steel Grate & Beams (galvanized)
  - Removable to preserve equipment access
Concept Design

Flume Cover
Concept Design

Flume Cover Option 2

Arch Cover
- Concrete or Corrugated Steel
- Founded outside flume walls and lower elevation
- Doesn’t load existing structure
- Minimizes backfill
- Provides headroom/clearance inside
Concept Design

Flume Cover Option 2
Concept Design

Flume Cover Option 2
<table>
<thead>
<tr>
<th>Activity</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F M A</td>
<td>J A S O N D J F M A M J</td>
</tr>
<tr>
<td>J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Canal Outage**
Cost Estimate: ~$800,000 ($120K Design & $680K Construction)

Funding: Cost Sharing Agreement negotiations are in progress with Northern Water (1/3), NPIC (1/3), and Pleasant Valley Pipeline Participants (1/3).
4.5 - Develop strategies to improve the community’s climate resiliency
4.6 - Provide a reliable, high-quality water supply.

5.5 - Address water, wastewater and stormwater infrastructure needs for the protection of people, property and the environment.
RESOLUTION 2019-087
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT FOR
FUNDING IMPROVEMENTS TO THE MUNROE CANAL DIVERSION STRUCTURE

WHEREAS, the diversion structure for the Munroe Canal, also known as the North Poudre Supply Canal (“Structure”), diverts water from the Cache la Poudre River upstream of the canyon mouth and delivers water to, among other locations, the Pleasant Valley Pipeline for delivery to the City’s Water Treatment Facility; and

WHEREAS, various other entities also have interests in the Structure, including: the Northern Colorado Water Conservancy District (“Northern Water”), which owns the Structure; the North Poudre Irrigation Company (“North Poudre”), which operates and maintains the Structure pursuant to agreements with Northern Water; and the East Larimer County Water District, the Fort Collins-Loveland Water District, and the North Weld County Water District (collectively, “Tri-Districts”), which, similar to the City, use the Structure and the Pleasant Valley Pipeline to deliver water to their Soldier Canyon Filter Plant; and

WHEREAS, the City, Northern Water, North Poudre, and the Tri-Districts (collectively, “Parties”) have evaluated the Structure and determined that various improvements to it are needed to, among other reasons, prevent debris from flowing into it and to safeguard it from adjacent vehicular traffic; and

WHEREAS, such improvements to the Structure will benefit ratepayers of the City’s water utility by, among other reasons, improving the reliance and reliability of the Structure, and reducing the risk of future water supply disruptions and additional costs; and

WHEREAS, staff from the Parties have negotiated an agreement for funding such improvements to the Structure, as set forth in the draft Agreement attached hereto as Exhibit “A”.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FORT COLLINS as follows:

Section 1. That the City Council hereby makes and adopts the determinations and findings contained in the recitals set forth above.

Section 2. That the City Council hereby authorizes the City Manager to execute an agreement substantially in the form of Exhibit “A”, with such modifications and additional terms and conditions as the City Manager, in consultation with the City Attorney, determines to be necessary and appropriate to protect the interests of the City or effectuate the purposes of this Resolution.
Passed and adopted at a regular meeting of the Council of the City of Fort Collins this 20th day of August, A.D. 2019.

______________________________
Mayor

ATTEST:

____________________________________
City Clerk
AGREEMENT FOR FUNDING IMPROVEMENTS TO THE MUNROE CANAL DIVERSION STRUCTURE

THIS AGREEMENT ("Agreement") is entered into this _____ day of ____________, 2019 ("Effective Date") by and among the Northern Colorado Water Conservancy District ("Northern Water"), a quasi-municipal entity and political subdivision of the State of Colorado whose address is 220 Water Avenue, Berthoud, Colorado 80513, the North Poudre Irrigation Company ("NPIC"), a Colorado mutual ditch and reservoir company whose address is 3729 Cleveland Avenue, Wellington, Colorado 80549, the City of Fort Collins ("Fort Collins"), a municipal corporation of the State of Colorado whose address is 300 LaPorte Avenue, Fort Collins, Colorado 80521, the Fort Collins-Loveland Water District, acting by and through the Fort Collins-Loveland Water District Enterprise, the North Weld County Water District, acting by and through the North Weld County Water District Enterprise, the East Larimer County Water District, acting by and through the East Larimer County Water District Water Activity Enterprise, water activity enterprises of special districts organized under Title 32, Article 1, Colorado Revised Statutes (collectively, the "Tri-Districts") whose addresses are set forth in Paragraph 15 below. The parties to this Agreement may be referenced individually herein as a “Party” or, collectively, as “the Parties”.

RECITALS

WHEREAS, the Parties propose to plan, design, and construct improvements to a portion of the Munroe Canal, also known as the North Poudre Supply Canal and Diversion Works, as more specifically depicted on Appendix A attached hereto and incorporated herein by this reference; and

WHEREAS, the improvements are necessary for the purpose of upgrading and protecting the Munroe Canal Diversion Structure, open channel, and Parshall flume to prevent debris from flowing into the Munroe Canal Diversion Structure and to safeguard the structure from adjacent vehicular traffic; and

WHEREAS, the Munroe Canal Diversion Structure is a water diversion and distribution facility that is owned by Northern Water as part of Northern Water's Colorado-Big Thompson Project, a federal reclamation project, and

WHEREAS, the Munroe Canal Diversion Structure is operated and maintained by NPIC pursuant to the Operating Agreement executed on December 9, 1987, and the Amendment to Operating Agreement executed on February 11, 2005; and

WHEREAS, the Tri-Districts and Fort Collins are participants in the Pleasant Valley Pipeline, which delivers water from the Cache la Poudre River through the Munroe Canal Diversion Structure and the Munroe Canal for delivery to municipal water suppliers; and

WHEREAS, the Parties have agreed to share in the costs necessary for the improvement and protection of these structures; and
WHEREAS, pursuant to discussions with the Parties, Northern Water has begun developing preliminary designs for the improvements necessary to protect these structures; and

WHEREAS, the purpose of this Agreement is to set forth the terms and conditions under which the Parties agree to complete the work required to improve the Munroe Canal Diversion Structure, open channel, and Parshall flume (“Project”), and the allocation of costs necessary for the completion and implementation of the Project.

NOW THEREFORE, in consideration of the promises and mutual covenants and agreements set forth herein, the Parties covenant and agree as follows:

AGREEMENT

1. Definitions.

   a. Design Costs. All costs associated with the design, engineering, review, and permitting necessary for the development of the Project.

   b. Construction Costs. All costs for labor, materials, and equipment required for the construction of the Project incurred by the contractor mutually selected by the Parties.

   c. Project Management and Construction Administration Costs. All costs associated with construction management services performed by Northern Water and Consultants for contract administration and field inspections necessary during the construction phase of the Project.

   d. Total Maximum Project Costs. All Design Costs, Construction Costs, and Project Management and Construction Administration Costs necessary for the completion and implementation of the Project, excluding any preliminary planning and design costs incurred by Northern Water prior to the Effective Date of this Agreement.

2. Allocation of Costs. To improve the Munroe Canal Diversion Structure, open channel, and Parshall flume for the mutual benefit of the Parties, Northern Water, NPIC, the Tri-Districts, and Fort Collins agree to share in the Total Maximum Project Costs as set forth below:

   a. Northern Water has previously incurred conceptual-level preliminary design costs for the Project, which costs shall be borne by Northern Water alone and shall not be deemed part of the “Total Maximum Project Costs.”

   b. The Design Costs are $128,000.
c. The Engineer’s Opinion of Probable Construction Cost, based on the 90% Design Submittal (dated June 27, 2019), is $524,000.

d. Project Management and Construction Administration costs are estimated to be $85,000.

e. A contingency of $62,500 is recommended for budgeting.

f. As of the Effective Date of this Agreement, the estimated Total Maximum Project Cost is not anticipated to exceed a maximum of $799,500. The Parties will share in the Total Maximum Project Costs in the following proportions, subject to the terms of Paragraphs 3 and 4 of this Agreement.

   i. Northern Water shall be responsible for one-third of the Total Maximum Project Costs, which as of the Effective Date of this Agreement is estimated to total a maximum of $266,500.

   ii. NPIC shall be responsible for one-third of the Total Maximum Project Costs, which as of the Effective Date of this Agreement is estimated to total a maximum of $266,500.

   iii. The Tri-Districts, collectively, shall be responsible for one-sixth of the Total Maximum Project Costs, which as of the Effective Date of this Agreement is estimated to total a maximum of $133,250.

   iv. Fort Collins shall be responsible for one-sixth of the Total Maximum Project Costs, which as of the Effective Date of this Agreement is estimated to total a maximum of $133,250.

3. **Construction Bids.** Northern Water shall be responsible for soliciting bids for the construction and completion of the Project. After receiving the construction bids, Northern Water shall determine whether the estimated Total Maximum Project Cost stated in paragraph 2.f will be exceeded. If the maximum Total Maximum Project Cost in Paragraph 2.f is not exceeded, then Northern Water shall select a contractor for the Project and notify the Parties of the anticipated date that construction shall begin.

4. **Exceedance of estimated Total Maximum Project Costs.** In the event that the construction bids received by Northern Water indicate that the Total Maximum Project Costs may be greater than the amount stated in Paragraph 2.f, Northern Water shall promptly notify all other Parties in writing. Upon receiving such notice, other Parties (the “Withdrawing Parties”) shall have the right to withdraw from participation in the Project by giving written notice to Northern Water within seven (7) days following receipt of such notice.
a. In the event that NPIC, Fort Collins, and the Tri-Districts elect to withdraw from the Project as a result of the construction bids exceeding the Total Maximum Project Costs stated in Paragraph 2.f, this Agreement shall terminate, and Northern Water shall not be obligated under this Agreement to complete the Project.

b. Any Party that desires to continue with the completion of the Project and does not elect to withdraw from this Agreement in accordance with Paragraph 4.a (“Participating Parties”) shall be contacted by Northern Water prior to Northern Water’s entering into a contract with the selected contractor to discuss their contribution of additional funds for the completion of the Project and, to the extent necessary, the amendment of Paragraph 2.f hereof to reflect the new Total Maximum Project Costs of this Project. By electing to complete the Project, the Participating Parties agree to contribute additional funds such that the construction of the Project is fully funded.

5. Payment of Total Maximum Project Costs. Within thirty (30) days of the date a contract is awarded for the construction of this Project, all Participating Parties shall pay to Northern Water the full amount of their respective Total Maximum Project Costs set forth in Paragraph 2.f, as such amount may be amended in accordance with Paragraph 4.b. In the alternative, upon the consent of Northern Water, which consent shall not be unreasonably withheld, any Party may remit the required payment to Northern Water in two installments of fifty percent (50%) of its share of the Total Maximum Project Costs set forth in Paragraph 2.f, the first installment of which shall be due within thirty (30) days of the award of a contract for this Project’s construction, and the second of which shall be due sixty (60) days thereafter. All funds shall be deposited by Northern Water into an account established for the purpose of funding this Project. If, at the time of completion of the Project, any funds contributed by the Parties remain in the account established pursuant to this Paragraph, Northern Water shall reimburse the Parties in accordance with their proportion of the contributions of the Total Maximum Project Costs.

6. Records of Expenditures. Northern Water shall maintain a record with an itemized breakdown of the expenses incurred in relation to the Project. This record shall include a section entitled “Design Costs,” a section entitled “Construction Costs,” and a section entitled “Total Maximum Project Costs,” which shall document the expenses incurred by Northern Water in the design, construction, and completion of the Project. Northern Water shall submit a copy of this record to the Parties on a monthly basis until the Project is completed, along with a statement of the remaining funds contributed by the Parties.

7. Construction. The Parties hereby mutually agree to the construction of the Project, as shown generally in Appendix A. Northern Water, or its consultants, contractors, agents, or assigns, shall perform all construction activity required to improve the Munroe Canal Diversion Structure as shown on the attached Appendix A. All design, construction, review, testing, and timing of work shall be at Northern Water’s sole discretion, provided that in no event shall such construction
result in the inability to obtain water through the Munroe Canal Diversion Structure during the period of October 1, 2020 through November 30, 2020.

a. **No Liability.** In the event construction of the Project results in either NPIC’s inability to deliver water, or a delay in NPIC’s ability to deliver water, through the Munroe Canal Diversion Structure to either Fort Collins or the Tri-Districts under its separate agreements with those parties, such event shall not be a breach of those agreements. Fort Collins and the Tri-Districts hereby agree that neither NPIC nor Northern Water shall be liable for such inability to deliver or any delay in delivery of water to Fort Collins or the Tri-Districts. Fort Collins and the Tri-Districts acknowledge and accept that construction of the Project presents risks to the delivery of water through the Munroe Canal Diversion Structure and further agree that, in the event that water deliveries are delayed or cannot be completed due to the construction of the Project, they shall pursue any claims against the contractor for the Project pursuant to the terms of the construction agreement.

8. **Ownership.** Northern Water shall retain complete ownership of the Munroe Canal Diversion Structure and any easements associated therewith, including the improvements constructed pursuant to this Agreement.

9. **Notice.** Northern Water shall notify the Parties in writing fourteen (14) days prior to initiating construction of the Project and fourteen (14) days following the date that the Project has been completed.

10. **Appropriations.** The respective financial obligations of the Parties under this Agreement that are payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available for use.

11. **Term of Agreement.** The term of this Agreement shall commence on the Effective Date and, except as provided in Paragraph 4 above, shall terminate upon Northern Water’s notice to the Parties, pursuant to Paragraph 8, that the Project has been completed.

12. **Default.** Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event any Party should fail or refuse to perform according to the material terms of this Agreement, such Party may be declared in default thereof by the other Parties by a written notice.

13. **Remedies.** In the event a Party has been declared in default hereof, such defaulting Party shall be allowed a period of thirty (30) days within which to correct, or commence correcting, said default. In the event that the default has not been corrected or begun to be corrected, or the defaulting Party has ceased to pursue the correction with due diligence, the non-defaulting Parties may seek damages and avail themselves of any other remedy at law or equity.
14. Laws, Regulations and Permits. Each Party shall comply with all applicable federal, state and local codes, statutes, rules, regulations, ordinances, permits and orders in its operations under this Agreement.

15. Assignment. Neither this Agreement nor any Party's rights, obligations, duties or authority hereunder may be assigned in whole or in part without the prior written consent of the other Parties.

16. Notice. All notices or invoices required to be given under this Agreement shall be made in writing, and shall be deemed to have been given (a) when delivered personally to the other Party to whom addressed; or (b) upon receipt when sent by United States mail, postage prepaid, as certified or registered mail, properly addressed as follows; or (c) upon confirmation when sent by email and receipt is confirmed by return email.

a. If to Northern Water, to:
   Northern Colorado Water Conservancy District
   Attn: Amy Johnson
   220 Water Ave.
   Berthoud, CO 80513
   Facsimile: 877-851-0015
   Email: ajohnson@northernwater.org

   With a copy to:
   Trout Raley
   Peggy E. Montano, Esq.
   Lisa M. Thompson, Esq.
   1120 Lincoln St., Ste. 1600
   Denver, CO 80203
   Facsimile: 303-832-4465
   Email: pmontano@troutlaw.com
   lthompson@troutlaw.com

b. If to North Poudre Irrigation Company, to:
   North Poudre Irrigation Company
   Attn: Loren Maxey, President
   3729 Cleveland Ave.
   Wellington, CO 80549
   Email: info@npicwater.com
With a copy to:
Hoskin Farina & Kampf P.C.
Attn: John P. Justus
Post Office Box 40
Grand Junction, Colorado 81502
Email: jjustus@hfak.com

c. If to the Tri-Districts, to:
Fort Collins-Loveland Water District
Attn: District Manager
5150 Snead Drive
Fort Collins, CO 80525
Email: chrism@fclwd.com

With a copy to:
Collins Cockrel & Cole, P.C.
Attn: Robert G. Cole
390 Union Boulevard, Ste. 400
Denver, CO 80228-1556
Email: rcole@cccfirm.com

AND

North Weld County Water District
Attn: District Manager
32825 CR 39
P.O. Box 56
Lucerne, CO 80646
Email: water@nwcwd.org

With a copy to:
Hasler, Fonfara and Goddard LLP
Attn: Joseph H. Fonfara
125 S. Howes Street, 6th Floor (Zip Code: 80521)
P.O. Box 2267
Fort Collins, CO 80522
Email: JoeF@HFGLawfirm.com

AND

East Larimer County Water District
Attn: District Manager
232 S. Link Lane (Zip Code: 80524)
P.O. Box 2044
Fort Collins, CO 80522
Email: mikes@elcowater.org
With a copy to:
Hasler, Fonfara and Goddard LLP
Attn: Joseph H. Fonfara
125 S. Howes Street, 6th Floor (Zip Code: 80521)
P.O. Box 2267
Fort Collins, CO 80522
Email: JoeF@HFGLawfirm.com

d. If to City of Fort Collins, to:
City of Fort Collins
Attn: Mark Kempton, PE, CWP
Director of Plant Operations
4316 LaPorte Avenue
Fort Collins, CO 80521
Email: mkempton@fcgov.com

With a copy to:
Fort Collins City Attorney’s Office
Attn: Eric Potyondy
300 LaPorte Avenue
Fort Collins, CO 80521
Email: epotyondy@fcgov.com

or to such other persons or addresses as the foregoing addressees may have designated by written
notice.

17. **Other Agreements.** Except as specifically addressed herein with respect to the Project as it
relates to the maintenance, repair, and replacement of the North Poudre Supply Canal and Diversion
Works, the Parties other agreements, regarding the operation and maintenance of the North Poudre Supply
Canal and Diversion Works are not modified or otherwise amended by this agreement.

18. **Entire Agreement.** This Agreement and the attached Appendices constitutes the entire
agreement among the Parties regarding the construction project described herein and may be modified only
by an instrument in writing executed by all Parties hereto.

19. **Governing Law.** This Agreement shall be interpreted in accordance with, and be
governed by, the law of the State of Colorado.
20. **Governmental Immunity.** Nothing in this Agreement shall constitute a waiver, in whole or in part, of the governmental immunities, rights, or protections provided to any Party by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 to -120, or any successor or similar statutes of the State of Colorado.

21. **Force Majeure.** If any Party is prevented or restricted from carrying out all or any of its obligations resulting from this Agreement from any cause beyond the reasonable control of that Party including, without limiting the generality of the foregoing, floods, fire, war, civil war, civil violence, riots, insurrection, acts of sabotage, acts of God, explosions, then the Party so affected shall be relieved of such obligations hereunder during the period that such event and its consequences continue plus a reasonable time following the conclusion of the event in order to resume carrying out the obligations, and shall be under no liability for any delay or failure in the performance of such obligations.

22. **Severability.** If any provision of this Agreement shall be held invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and there shall be deemed substituted for the affected provision a valid and enforceable provision as similar as possible to the affected provision.

23. **Counterparts.** This Agreement may be executed in one or more counterparts, each of which when so executed shall be deemed an original, and such counterparts together shall constitute one and the same instrument.

24. **Headings for Convenience.** The headings and captions in this Agreement are for convenience only and shall not be considered in interpreting the provisions hereof.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the day and year first above written.

NORTHERN COLORADO WATER CONSERVANCY DISTRICT

By: ________________________________

Title: ________________________________

NORTH POUDRE IRRIGATION COMPANY

By: ________________________________

Title: ________________________________
CITY OF FORT COLLINS

By: ________________________________
Title: _______________________________

Approved as to Form:
By: ________________________________
   Eric Potyondy
   Assistant City Attorney

FORT COLLINS-LOVELAND WATER DISTRICT, acting by and through the Fort Collins-Loveland Water District Enterprise

By: ________________________________
Title: _______________________________

NORTH WELD COUNTY WATER DISTRICT, acting by and through the North Weld County Water District Enterprise

By: ________________________________
Title: _______________________________

EAST LARIMER COUNTY WATER DISTRICT, acting by and through the East Larimer County Water District Water Activity Enterprise

By: ________________________________
Title: _______________________________
GENERAL NOTES:

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.

2. THE PROJECT PLANS AND SPECIFICATIONS ARE INTENDED TO PROVIDE THE COMPLETE PROJECT IN A COMPLETE AND OPERABLE CONDITION. THE CONTRACTOR SHALL EXAMINE AND INSTALL ALL MATERIALS AND PROVIDE ALL LABOR NECESSARY TO COMPLETE THE PROJECT IN A NEAT AND WORKMANLIKE MANNER, INCLUDING ALL INCIDENTALS NEEDED TO COMPLETE THE WORK, WITHOUT ADDITIONAL COST TO THE OWNER.

3. UPON COMPLETION OF CONSTRUCTION, THE SITE SHALL BE CLEARLY AND RESTORED TO A CONDITION EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED BEFORE CONSTRUCTION, UP TO THE GRADES AND CONDITION AS REQUIRED ON THESE PLANS, SPECIFICATIONS, AND CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF PRIVATE AND PUBLIC EASEMENTS AS REQUIRED ON THESE PLANS, SPECIFICATIONS, AND CONTRACT.

4. LITHOS AND MERRICK, A COMPANY ARE NOT RESPONSIBLE FOR CONSTRUCTION DEVIATIONS, METHODS, TECHNIQUES, SEQUENCES OR PROCESSES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONUNCTION WITH THE WORK. LITHOS AND MERRICK WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO FOLLOW WITH THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

5. THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES SHALL HAVE EACH OF THE FOLLOWING:
   a. THE NOTICE OF INTENT (NOI)
   b. ONE (1) COPIES OF THE PROPOSED GRADE LINE
   c. ONE (1) COPY OF THE APPROPRIATE PLANS AND SPECIFICATIONS
   d. A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB.
   e. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE NORTHERN COLORADO WASTEWATER DISTRICT STANDARDS AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS OR ANY APPLICABLE STANDARDS, THE MOST RESTRICTIVE STANDARD SHALL APPLY.

6. THE SURVEY AND TOPOGRAPHIC INFORMATION ON THESE PLANS IS TAKEN FROM FIELD SURVEY PREPARED BY HERRICK & COMPANY DATED APRIL 4, 2019.

7. THE CONTRACTOR SHALL CALL THE NATIONAL UTILITY CONTACT NUMBER (811) OR LOCAL UTILITY LOCATE SERVICE, TO REQUEST LOCATES OF ALL UNDERGROUND UTILITIES AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITIES. THE UTILITIES SHOWN ON THE PLANS ARE FROM THE BEST AVAILABLE INFORMATION AND MAY NOT INCLUDE ALL UTILITIES THAT EXIST ON THE PROJECT SITE. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE BEGINNING NEW CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OWNERSHIP AND UTILITIES UTILIZED, INCLUDING DEPTH.


10. THE CONTRACTOR SHALL CALL THE NATIONAL UTILITY CONTACT NUMBER (811) OR LOCAL UTILITY LOCATE SERVICE, TO REQUEST LOCATES OF ALL UNDERGROUND UTILITIES AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITIES. THE UTILITIES SHOWN ON THE PLANS ARE FROM THE BEST AVAILABLE INFORMATION AND MAY NOT INCLUDE ALL UTILITIES THAT EXIST ON THE PROJECT SITE. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE BEGINNING NEW CONSTRUCTION. THE UTILITIES SHOWN ON THE PLANS ARE FROM THE BEST AVAILABLE INFORMATION AND MAY NOT INCLUDE ALL UTILITIES THAT EXIST ON THE PROJECT SITE. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE BEGINNING NEW CONSTRUCTION.

11. TRAFFIC CONTROL, STANDARDS FOR THIS PROJECT SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION. A TRAFFIC CONTROL PLAN APPROVED BY THE LOCAL ENTITY STREET INSPECTOR.

12. INSTALL SEPARATION AND DESIGN CONTROL MEASURES PRIOR TO INITIATING ANY WORK ON THE PROJECT SITE. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER.


14. INSTALL SEPARATION AND DESIGN CONTROL MEASURES PRIOR TO INITIATING ANY WORK ON THE PROJECT SITE. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER.

15. ALL WASTE MATERIALS SHALL BE PROPERLY DISPOSED OF IN AN APPROVED LANDFILL PERMITTED TO ACCEPT THAT PARTICULAR TYPE OF WASTE.


CONTRACTOR MAY REMOVE CONCRETE BLOCKS AND SOIL DIVERSION BERM AS NECESSARY FOR ACCESS TO THE WORK. BLOCKS AND BERM TO BE REPLACED AND RESTORED TO EXISTING CONDITIONS WHEN COMPLETE.

ROCK STACK TO BE SALVAGED. COORDINATION WITH OWNER REQUIRED, SEE NOTE 1.
NOTES:
1. PROVIDE NEW CONSTRUCTION FOR CHAIN LINK FENCING. UPLIFT EXISTING REINFORCED FENCE AS MUCH AS POSSIBLE.
2. CHAIN LINK FENCING AND GATES TO BE IN ACCORDANCE WITH CITY OF FREDERICK PLANS NO. #360-1. USE 2.5" STL. STRESS BENDING FENCE TO BE 6' HIGH, TO MATCH EXISTING. ADD 12" GATE AND NEW 2' VALVES/GATE
NOTES:

1. FLUME COVER SHALL BE AN APPROVED ENGINEERED AND PRE-FABRICATED, SEGMENTAL, CORRUGATED, GALVANIZED STEEL ARCH (OR ALTERNATE AS APPROVED) MEETING THE SPECIFIED REQUIREMENTS AND DIMENSIONS AND TOLERANCES. THE REFERENCE DESIGN PRESENTED IN THESE DRAWINGS IS BASED ON A CONTECH BRIDGECOR COVER WITH A 11'-1" RISE AND A 26'-3" SPAN AND IS AN ACCEPTABLE OPTION.

2. THE CONTRACTOR PROPOSED FLUME COVER AND ASSOCIATED COMPONENTS SHALL BE RATED FOR AASHTO HS-20 LIVE LOADS AND APPROPRIATE DEAD LOADS PER AASHTO LRFD BRIDGE SPECIFICATIONS.

3. CORROSION PROTECTIVE ASPHALTIC COATING SHALL BE FIELD APPLIED TO THE FULL EXTERIOR OF THE FLUME COVER AND BULKHEADS FOLLOWING ASSEMBLY AS SPECIFIED.

4. CONCRETE ACCESS STAIRWELL SHALL BE DESIGNED BY THE CONTRACTOR, SUBJECT TO ENGINEER APPROVAL, TO ACCOMMODATE CONTRACTOR PROPOSED ENGINEERED AND PRE-FABRICATED ACCESS STAIRS AND HATCH, AND MEET THE SPECIFIED REQUIREMENTS.

5. PROTECT IN PLACE THE EXISTING CDOT GUARDRAIL AND TELECOMMUNICATION UTILITY AS SHOWN ON THIS SHEET.

6. TO THE EXTENT POSSIBLE, REMOVE AND REUSE THE EXISTING FENCE LINE AS SHOWN ON THIS SHEET. ANY ADDITIONAL FENCING OR FENCING THAT CANNOT BE REUSED SHALL BE REPLACED OR FURNISHED IN KIND. THE LOCATION OF THE FINAL PLACEMENT OF FENCING SHALL BE AS SHOWN.

7. DETERMINE THE EXTENT OF THE EXISTING ROCK WALL AND CONCRETE WALL THAT WILL NEED TO BE REMOVED. ANY REMOVED MATERIAL SHALL BE STOCKPILED ON-SITE IN SEPARATE STOCKPILES FOR FUTURE HAUL OFF BY THE OWNER.

8. EXISTING GUARDRAIL SHALL BE REMOVED TO THE NEAREST POST. FINAL PLACEMENT OF THE EXISTING GUARDRAIL SHALL MAINTAIN A MAXIMUM DISTANCE OF 6-INCHES BETWEEN THE NEAREST GUARDRAIL POST AND FLUME BRIDGE STRUCTURE.
NOTES:
1. THE COVER FOUNDATION SHALL EXTEND THROUGH EXISTING BACKFILL MATERIAL AND BEAR ON COMPETENT BEDROCK. SPECIFIC BEDROCK ELEVATIONS ARE UNKNOWN. BEDROCK FOUNDATION ELEVATIONS SHOWN ARE APPROXIMATE. SEE COVER SECTION DRAWINGS FOR APPROXIMATE MAXIMUM FOUNDATION DEPTHS.
2. THE CONCRETE ACCESS STAIRWELL SHALL HAVE ONE HANDRAIL INSTALLED ACCORDING TO OSHA REGULATIONS. THE CONTRACTOR SHALL DETERMINE THE SIDE OF THE ACCESS STAIRWELL THAT THE HANDRAIL IS PLACED.
NOTES:
1. THE COVER SHALL HAVE A MINIMUM OF 2'-3" OF ZONE A OVERBURDEN MEASURED FROM THE INSIDE OF THE CORRUGATION.
2. ZONE A BACKFILL IS DEFINED AS THE MINIMUM AMOUNT OF BACKFILL REQUIRED PER THE COVER MANUFACTURER SPECIFICATIONS. ZONE B BACKFILL IS DEFINED AS ANY ADDITIONAL BACKFILL TO ATTAIN THE FINAL DESIGN GRADE AS SPECIFIED ON SHEET C-4.
3. ZONE A LATERAL EXTENTS SHALL BE A MINIMUM OF 8 FEET HORIZONTAL FROM THE BOTTOM OF THE FLUME COVER ARCH FOR COMPACTED SOIL OR 6 FEET IF FLOWFILL IS UTILIZED.
4. THE MINIMUM BACKFILL EXTENTS FOR EXCAVATIONS WITHIN BEDROCK SHALL BE TO THE BEDROCK SURFACE AS SHOWN. THE MINIMUM BACKFILL EXTENTS FOR EXCAVATIONS WITHIN SOIL SHALL BE THE LATERAL EXTENTS AS STATED IN NOTE 3.
5. THE MINIMUM FOUNDATION DEPTHS PRESENTED MAY BE CONSTRUCTED AT HIGHER (MORE SHALLOW) ELEVATIONS IF COMPETENT BEDROCK IS ENCOUNTERED ACROSS THE ENTIRE FOUNDATION WIDTH, AS DETERMINED BY THE ENGINEER.
6. VERTICAL CLEARANCES FROM THE TOP OF THE RECYCLED ASPHALT TO THE COVER’S INSIDE CORRUGATION SHALL BE A MINIMUM OF 6'-8" FOR A WIDTH OF 2'-0" MEASURED FROM THE OUTSIDE OF THE FLUME STRUCTURE BETWEEN APPROXIMATE STATIONS 6+26 AND 6+60. THE ONLY EXCEPTION TO THE MINIMUM CLEARANCES IS AT THE STILLING WELL STRUCTURE.
**FLUME COVER DETAILS**

**NOTES:**
1. THE COVER FOUNDATION PRESENTED IN DETAIL 1 OF THIS SHEET IS FOR REFERENCE BASED ON THE MANUFACTURER DESIGN. THE FOUNDATION SHALL BE DESIGNED BY THE MANUFACTURER. ALL SHOP DRAWINGS OF THE FOUNDATION AND CONNECTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. ALL CONCRETE EXTENDING PAST THE MINIMUM 2-FOOT FOUNDATION DEPTH WILL BE UNREINFORCED. COVER FOUNDATION CONCRETE SHALL HAVE A MINIMUM 28-DAY COMpressive STRENGTH OF 4000 PSI.
3. ALL REINFORCEMENT FOR COVER FOUNDATIONS SHALL HAVE A MINIMUM YIELD STRENGTH OF 60 KSI.
4. AT BULKHEAD LOCATIONS, L-BRACKETS IN ACCORDANCE WITH SPECIFICATIONS SHALL BE BOLTED 6 FEET ON CENTER AROUND THE INSIDE OF THE COVER AS A MEANS OF MOUNTING THE GALVANIZED STEEL PLATE BULKHEAD TO THE COVER.
5. THE GALVANIZED STEEL PLATE BULKHEAD SHALL BE A MINIMUM OF 5/8-INCH THICK, HAVE A YIELD STRENGTH OF 50 KSI, AND SHALL HAVE AN ASPHALTIC CORROSION PROTECTION COATING APPLIED TO THE EXTERIOR.
6. ONCE THE BULKHEAD IS MOUNTED TO THE L-BRACKETS ON THE COVER, BACKFILL, IN ACCORDANCE WITH PROJECT SPECIFICATIONS, SHALL BE PLACED ON THE OUTSIDE OF THE COVER UP TO THE FINAL GRADE LINE.
7. THE FLUME BRIDGE AND ALL ASSOCIATED COMPONENTS PRESENTED HEREIN SHALL BE ALUMINUM AND DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE REFERENCED DESIGN PRESENTED IN THESE DRAWINGS IS BASED ON A PREFABRICATED PEDESTRIAN BRIDGE OPTION MANUFACTURED BY CMI MANTLE.
8. THE FLUME BRIDGE SHALL BE DESIGNED TO WITHSTAND AASHTO PEDESTRIAN LIVE LOADING.
9. THE FLUME BRIDGE SHALL FOLLOW OSHA REGULATIONS FOR ACCESS BRIDGES.
10. THE FLUME BRIDGE SHALL REST ON A CAST IN PLACE OR PRECAST FOOTING.
11. CONCRETE COVER AND SLAB FOR THE STAIRWELL ARE PRECAST, CONTRACTOR SHALL SUBMIT REINFORCEMENT LAYOUT AND SCHEDULE FOR ENGINEER APPROVAL.

**CONCRETE STAIRWELL COVER AND FOUNDATION SECTION**

**SCALE:** 1" = 0.5"
1. The elevation of the access stairwell hatch and surrounding collar shall be a minimum of 3 inches above the concrete stairwell cover and on sloped away from the hatch to prevent ponding on top of or around the hatch.

2. A concrete collar shall be poured around the hatch to prevent surface runoff or infiltrating around the perimeter of the access stairwell.

3. The structures and connections associated with the access adit and the access stairwell shall be designed for AASHTO HS-20 live loads and associated dead loads.

4. The access adit and cover openings support design shown is for reference only. Pre-cast or cast-in-place concrete or pre-engineered and pre-fabricated corrugated steel plate arch structures are acceptable access adits. These and other proposed access adit structure designs are subject to engineer approval.

5. L-sections associated with the stilling well cover shall be aluminum have a minimum yield strength of 36 ksi.

6. All metals associated with the prefabricated stairs shall be aluminum.

7. The contractor shall submit a design for the aluminum stair case to be approved by the engineer.
NOTES:
1. SAW CUT BEAM POCKET INTO TOP OF EXISTING CONCRETE WALL SEE DETAIL 10, SHEET C-13, AND INSERT GALVANIZED STEEL PLATE LINING.
2. REMOVABLE BEAMS SHALL BE GALVANIZED STEEL W10X45 SECTIONS WITH A MINIMUM YIELD STRENGTH OF 50 KSI.
3. REMOVABLE GALVANIZED STEEL GRATING SHALL BE A SIZE 15W4 WITH A MINIMUM YIELD STRENGTH OF 36 KSI. REMOVABLE STEEL GRATING HAS A LOADING RATING OF 100 PSF.
4. THE REMOVABLE GRATING SHALL BE DIVIDED INTO THREE SEPARATE PANELS ALONG THE LONGEST DIMENSION OF THE HEADWORKS OPENING WITH WIDTHS SPECIFIED HEREIN.
5. THE PICK WEIGHT OF THE REMOVABLE STEEL GRATING AND STEEL BEAMS ARE APPROXIMATELY 1550 LBS AND 850 LBS.
6. SAW CUT NOTCH FOR GRATE INTO TOP OF EXISTING CONCRETE WALL AND INSTALL SEATING BRACKET ALONG FULL LENGTH OF GRATE (SEE DETAIL 10, C-13).
NOTES:
1. ALL METALS PRESENTED ON THIS SHEET SHALL HAVE A MINIMUM YIELD STRENGTH OF 36 KSI UNLESS OTHERWISE SPECIFIED IN THE PROJECT SPECIFICATIONS AND BE GALVANIZED STEEL.
2. BEAM POCKET CONCRETE ANCHORS SHALL BE COUNTERSUNK AND EXTEND A MINIMUM OF 2-INCHES BELOW THE BASE OF THE STEEL PLATE.
3. WELD CONNECTIONS BETWEEN THE STEEL PLATES OF THE BEAM POCKET SHALL BE COATED IN THE FIELD WITH AN ASPHALTIC COATING TO PROVIDE CORROSION RESISTANCE.
4. EACH PANEL OF STEEL GRATING OVER THE HEADWORKS STRUCTURE SHALL HAVE A MINIMUM OF 4 D-RINGS THAT ARE WELDED TO THE GRATING. EACH D-RING SHALL BE RATED TO A MINIMUM OF 1000 POUNDS. SEE SHEET C-12 FOR D-RING PLACEMENT.
GENERAL REQUIREMENTS

1. Identification: All inspections, evaluations, and tests will be performed before installing work.

2. Compliance: All work shall be performed in accordance with the drawings and specifications as required.

3. Construction: All work shall be performed in accordance with the requirements of the 2019 International Building Code and the 2019 International Residential Code as applicable.

4. Submittals: Provide manufacturers' EC reports and a list of all proposed materials to be included for design/field fabrication.

5. Material: Where material cannot be determined, it shall be the duty of the inspector to judge the suitability of any component.

6. Pipes: All work shall include inspection and testing, including but not limited to pipes, valves, and fittings. All materials shall be approved by the appropriate authority.

7. Electrostatic Discharge: All materials shall be handled in a manner that prevents electrostatic discharge.

8. Construction: All work shall be performed in accordance with the approved drawings and specifications.

9. Any deviation from the approved set of structural drawings shall be approved by the engineer-in-charge.

10. Concrete: All materials shall be in accordance with the approved drawings and specifications.

11. Site Access: Access to the site shall be approved by the engineer-in-charge.

12. Inspection: All materials shall be approved by the engineer-in-charge.

SCHEDULE OF SPECIAL INSPECTION

TABLE 1 - REQUIRED SPECIAL INSPECTIONS AND TESTS (IBC 2018)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CONSTRUCTION COMPONENT</th>
<th>SPECIAL INSPECTION</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CONCRETE CONSTRUCTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

SCHEDULE OF SPECIAL INSPECTION

TABLE 1 - REQUIRED SPECIAL INSPECTIONS AND TESTS (IBC 2018)

<table>
<thead>
<tr>
<th>SEQUENCE</th>
<th>TYPE</th>
<th>CONSTRUCTION COMPONENT</th>
<th>SPECIAL INSPECTION</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>CONCRETE CONSTRUCTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

FOOTINGS: CONSTRUCTION APPROVAL

1. Foundation: The foundation shall be constructed in accordance with the approved drawings and specifications.

2. Subgrade and Backfill: All backfill materials shall be approved by the engineer-in-charge.

3. Footings: The footing shall be constructed in accordance with the approved drawings and specifications.

4. Excavation: The excavation shall be in accordance with the approved drawings and specifications.

5. CIP: The CIP shall be in accordance with the approved drawings and specifications.

6. Rebar: The rebar shall be in accordance with the approved drawings and specifications.

7. Concrete Mix: The concrete mix shall be in accordance with the approved drawings and specifications.

8. Concrete: The concrete shall be in accordance with the approved drawings and specifications.

9. Dewatering: The dewatering shall be in accordance with the approved drawings and specifications.
CONCRETE MATERIALS

1. MATERIALS

   a. Materials listed in accordance with AASHTO A-100. Type I
   b. Aggregate: AASHTO A-23.1
   c. Fine Aggregate: AASHTO A-23.1

2. CONCRETE SPECIFICATIONS

   a. Concrete specimens shall be prepared in the following: 1.00 cu ft, 2.00 cu ft, and 3.00 cu ft sizes. In order to prevent segregation of concrete, specimens shall be prepared using a minimum of two, 1.00 cu ft, and two, 2.00 cu ft, or three, 2.00 cu ft, castings. Specimens shall be cured in accordance with AASHTO A-107.1-97.

   b. Compression strength tests shall be performed on concrete specimens in accordance with AASHTO T-158-96. Specimens shall be tested at 28 days after casting. The average compressive strength of the concrete specimens shall be determined in accordance with AASHTO A-107-97.

   c. Concrete specimens shall be tested for modulus of elasticity in accordance with AASHTO A-101.5-97. Specimens shall be tested at 28 days after casting. The average modulus of elasticity of the concrete specimens shall be determined in accordance with AASHTO A-101-97.

   d. Concrete specimens shall be tested for split tensile strength in accordance with AASHTO A-104. Specimens shall be tested at 28 days after casting. The average split tensile strength of the concrete specimens shall be determined in accordance with AASHTO A-104-97.

3. CONCRETE MIXTURES

   a. Concrete mixtures shall be designed in accordance with AASHTO A-200. Specimens shall be designed in accordance with AASHTO A-200. Specimens shall be cast in accordance with AASHTO A-105. Specimens shall be cured in accordance with AASHTO A-107.1-97.

   b. Concrete mixtures shall be tested for workability in accordance with AASHTO A-213. Specimens shall be tested at the time of casting. The average workability of the concrete mixtures shall be determined in accordance with AASHTO A-213-97.

   c. Concrete mixtures shall be tested for density in accordance with AASHTO A-116. Specimens shall be tested at the time of casting. The average density of the concrete mixtures shall be determined in accordance with AASHTO A-116-97.

4. CONCRETE QUALITY CONTROL

   a. Concrete quality control shall be performed in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100.

   b. Concrete quality control shall be performed in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100. Specimens shall be quality controlled in accordance with AASHTO A-100.
MUNROE CANAL DIVERSION
STRUCTURE IMPROVEMENTS

65420199
LARIMER COUNTY, CO

NOTE:

1. SHEET NO. 20 FOR SHEET NO. 21 SHEET DETAILS SPECIFIED AND ENCLOSED ON SHEET.
2. FOR DESIGN DEVELOPMENT DESIGN, ALL THE LISTS OF END LENSEN.
3. ALL SCAFFS MUST BE COAT BY HAND LENSEN ON SHEET.
4. THE SCAFFS ON HAND LENSEN MUST BE FITTED WITH LEAST 1/2" CONCRETE GUTTER SHEET.
5. SCAFFS ARE ALL HORIZONTAL WALLS. THE HORIZONTAL WALLS MUST BE FITTED WITH LEAST 1/2" CONCRETE GUTTER SHEET.
6. SHEET DETAILS SPECIFIED CONCRETE COVER MORE SPACED DUE TO GATE OF VERTICAL. SHEET DETAILS SPECIFIED CONCRETE COVER MORE SPACED DUE TO GATE OF VERTICAL. SHEET DETAILS SPECIFIED CONCRETE COVER MORE SPACED DUE TO GATE OF VERTICAL.