

**TOWN OF CASTLE ROCK
SERVICES AGREEMENT
(WISE Local Infrastructure Design and Bid Phase Services)**

DATE: _____, 2015.

PARTIES: **TOWN OF CASTLE ROCK**, a Colorado municipal corporation, 100 N. Wilcox Street, Castle Rock, Colorado 80104 (“Town”).

BURNS & McDONNELL ENGINEERING COMPANY, INC., a Missouri corporation, 9785 Maroon Circle, Suite 400, Centennial, Colorado 80112 (“Consultant”).

RECITALS:

- A. The Town issued a Request for Proposals from qualified contractors with expertise in water distribution system infrastructure design and bid phase services.
- B. Consultant timely submitted its proposal.
- C. Town wishes to engage Consultant to provide the services more fully described in the following Agreement and Exhibits.

TERMS:

Section 1. Scope of Services. Consultant shall provide design and bid phase services for the WISE Local Infrastructure project services in accordance the Scope of Services and Consultant’s proposal dated May 6, 2015 attached as ***Exhibit 1*** (collectively, the “Services”).

Section 2. Payment. Consultant shall invoice Town for the Services rendered on a monthly basis in accordance with the rate and fee schedule identified in ***Exhibit 1***. Town shall pay such invoices within 30 days receipt of such invoice. In no event shall the cumulative payment to Consultant exceed \$263,873, unless authorized in writing by Town.

Section 3. Completion. Consultant shall commence the Services upon execution of this Agreement and complete the Services not later than 24 weeks from the date Town issues a Notice to Proceed. Consultant shall devote adequate resources to assure timely completion of the Services. Consultant shall perform the Services under this Agreement using a standard of care, skill and diligence ordinarily used by reputable professionals performing under circumstances similar to those required by this Agreement.

Town shall have the right to terminate this Agreement at any time with 30 days written notice to Consultant. The Town’s only obligation in the event of termination shall be payment

of fees and expenses incurred up to and including the effective date of termination. Consultant shall turn over all work product produced up to the date of termination.

Section 4. Subcontractors. Consultant may utilize subcontractors to assist with specialized works as necessary to complete the Services. Consultant will submit any proposed subcontractor and the description of their services to the Town for approval.

Section 5. Assignment. This Agreement shall not be assigned by Consultant without the written consent of the Town.

Section 6. Notice. Any notice required or permitted by this Agreement shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent by certified mail or registered mail, postage and fees prepaid, addressed to the party to whom such notice is to be given at the address set forth on the first page of this Agreement, or at such other address as has been previously furnished in writing to the other party or parties. Such notice shall be deemed given when deposited in the United States mail.

Section 7. Prohibition Against Employing Illegal Aliens. Consultant shall not knowingly employ or contract with an illegal alien to perform work under this contract. Consultant shall not enter into a contract with a subcontractor that fails to certify to the Consultant that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract.

Consultant has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under the public contract for services through participation in either the E-verify program or the Department program, as defined in C.R.S. §§ 8-17.5-101(3.3) and 8-17.5-101(3.7), respectively. Consultant is prohibited from using the E-verify program or Department program procedures to undertake pre-employment screening of job applicants while this contract is being performed.

If Consultant obtains actual knowledge that a subcontractor performing work under this Agreement for services knowingly employs or contracts with an illegal alien, Consultant shall:

A. Notify the subcontractor and the Town within three days that the Consultant has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

B. Terminate the subcontract with the subcontractor if within three days of receiving notice required pursuant to this paragraph the subcontractor does not stop employee or contracting with the illegal alien; except that the Consultant shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

Consultant shall comply with any reasonable request by the Department of Labor and Employment made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. §8-17.5-102(5).

If Consultant violates a provision of this Agreement required pursuant to C.R.S. §8-17.5-102, Town may terminate the Agreement for breach of contract. If the Agreement is so terminated, the Consultant shall be liable for actual and consequential damages to the Town.

Section 8. Insurance. Consultant agrees to procure and maintain, at his own cost, the following policy or policies of insurance. Consultant shall not be relieved of any liability, claims, demands or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

A. Consultant shall procure and maintain, and shall cause each subcontractor of the Consultant to procure and maintain a policy with the minimum insurance coverage listed below. Such coverage shall be procured and maintained with forms and insurers acceptable to the Town. All coverage shall be continuously maintained from the date of commencement of services hereunder. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage.

1. Workers Compensation insurance to cover obligations imposed by the Workers Compensation Act of Colorado and any other applicable laws for any employee engaged in the performance of Work under this contract, and Employer's Liability insurance with minimum limits of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) each accident, FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease-policy limit, and FIVE HUNDRED THOUSAND DOLLARS (\$500,000) disease-each employee.

2. Comprehensive General Liability insurance with minimum combined single limits of ONE MILLION DOLLARS (\$1,000,000) each occurrence and ONE MILLION DOLLARS (\$1,000,000) aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall contain a severability of interests provision.

3. Comprehensive Automobile Liability Insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS (\$1,000,000) each occurrence and ONE MILLION DOLLARS (\$1,000,000) aggregate with respect to each of Consultant's owned, hired and/or non-owned vehicles assigned to or used in performance of the services. The policy shall contain a severability of interests provision.

4. Professional Liability insurance with minimum limits of ONE MILLION DOLLARS (\$1,000,000) per claim and ONE MILLION DOLLARS (\$1,000,000) aggregate.

B. The policies required above, except Workers' Compensation insurance, Employers' Liability insurance and Professional Liability insurance shall be endorsed to include the Town, its officers and employees, as an additional insured. Every policy required

above, except Workers' Compensation and Professional Liability insurance, if applicable, shall be primary insurance, and any insurance carried by the Town, its officers, or its employees, shall be excess and not contributory insurance to that provided by Consultant. The additional insured endorsement for the Comprehensive General Liability insurance required above shall not contain any exclusion for bodily injury or property damage arising from completed operations. The Consultant shall be solely responsible for any deductible losses under each of the policies required above.

C. Certificates of insurance shall be completed by Consultant's insurance agent as evidence that policies providing the required coverage, conditions and minimum limits are in full force and effect, and shall be subject to review and approval by the Town. Each certificate shall identify the Project and shall provide that coverage afforded under the policies shall not be cancelled, terminated or materially changed until at least 30 days prior written notice has been given to the Town. If the words "endeavor to" appear in the portion of the certificate addressing cancellation, those words shall be stricken from the certificate by the agent(s) completing the certificate. The Town reserves the right to request and receive a certified copy of any policy and any endorsement thereto.

D. Failure on the part of Consultant to procure or maintain policies providing the required coverage, conditions, and minimum limits shall constitute a material breach of contract upon which at the Town's discretion may procure or renew any such policy or any extended connection therewith, and all monies so paid by the Town shall be repaid by Consultant to the Town upon demand, or the Town may offset the cost of the premiums against any monies due to Consultant from the Town.

E. The parties understand and agree that the Town is relying on, and does not waive or intend to waive by any provision of this contract, the monetary limitations (presently \$350,000 per person, \$990,000 per occurrence) or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S., as from time to time amended, or otherwise available to Town, its officers, or its employees.

Section 9. Indemnification. Consultant expressly agrees to indemnify and hold harmless Town or any of its officers or employees from any and all claims, damages, liability, or court awards including attorney's fees that are or may be awarded as a result of any loss, injury or damage sustained or claimed to have been sustained by anyone, including, but not limited to, any person, firm, partnership, or corporation, to the extent caused by the negligent acts, errors or omissions of Consultant or any of their employees or agents in performing work pursuant to this Agreement. In the event that any such suit or action is brought against Town, Town will give notice within ten (10) days thereof to Consultant.

Section 10. Delays. Any delays in or failure of performance by any party of his or its obligations under this Agreement shall be excused if such delays or failure are a result of acts of God, fires, floods, strikes, labor disputes, accidents, regulations or orders of civil or military authorities, shortages of labor or materials, or other causes, similar or dissimilar, which are beyond the control of such party.

Section 11. Additional Documents. The parties agree to execute any additional documents or take any additional action that is necessary to carry out this Agreement.

Section 12. Entire Agreement. This Agreement represents the entire agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties. If any other provision of this Agreement is held invalid or unenforceable, no other provision shall be affected by such holding, and all of the remaining provisions of this Agreement shall continue in full force and effect.

Section 13. Time of the Essence. Time is of the essence. If any payment or any other condition, obligation, or duty is not timely made, tendered or performed by either party, then this Agreement, at the option of the party who is not in default, may be terminated by the non-defaulting party, in which case, the non-defaulting party may recover such damages as may be proper.

Section 14. Default and Remedies. In the event either party should default in performance of its obligations under this agreement, and such default shall remain uncured for more than 10 days after notice of default is given to the defaulting party, the non-defaulting party shall be entitled to pursue any and all legal remedies and recover its reasonable attorney's fees and costs in such legal action.

Section 15. Waiver. A waiver by any party to this Agreement of the breach of any term or provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach by either party.

Section 16. Governing Law. This Agreement shall be governed by the laws of the State of Colorado.

Section 17. Independent Contractor. Consultant and Town hereby represent that Consultant is an independent contractor for all purposes hereunder. As such, Consultant is not covered by any worker's compensation insurance or any other insurance maintained by Town except as would apply to members of the general public. Consultant shall not create any indebtedness on behalf of the Town.

Section 18. No Third Party Beneficiaries. It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to Town and Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than Town or Consultant receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

ATTEST:

TOWN OF CASTLE ROCK

Sally A. Misare, Town Clerk

Paul Donahue, Mayor

Approved as to form:

Approved as to content:

Robert J. Slentz, Town Attorney

Mark Marlowe, Director of Utilities

CONSULTANT:

BURNS & McDONNELL ENGINEERING COMPANY, INC.
a Missouri corporation

By: _____

Its: _____



Scope of Services

07/20/2015

PROJECT NAME:

WISE Local Infrastructure Design
Design and Bid Phase Services

Project Understanding

The WISE Local Infrastructure Design project is required by the Town of Castle Rock (Town) to deliver WISE water from the Parker Water & Sanitation District's (PWSD) water distribution system to the Town's water distribution system. The proposed 5.3 mile pipeline (30-inches or 36-inches in diameter) will help to provide for the sustainable long-term water supply of the Town and the Dominion Water & Sanitation District.

In accordance with the Town's Water Resources Strategic Mater Plan, there is a long term goal to provide 75% of the required water supply from renewable sources such as water from the Water Infrastructure and Supply Efficiency (WISE) partnership. The primary goal of this project is to design and bid a pipeline for conveying WISE water from a connection to a PWSD waterline (future) to the Town's Ray Waterman Regional Water Treatment Center (RWRWTC). The pipeline will originate at a connection near the intersection of Outer Marker Road and Xcel's transmission mains. The pipeline will terminate with a connection to the Town's existing system(s) near the RWRWTC on Castle Oaks Drive. Water will discharge either upstream of the plant, directly to the finished water clearwell, or both. The pipeline will generally be routed parallel to, and in-and-along the existing Xcel Energy power easement. The waterline is expected to be aligned slightly offset (east) from the high voltage overhead power lines.

Design will include pipeline sizing, pipeline material selection, routing, flow control, cathodic protection, and all necessary work for a complete pipeline. A secondary goal of this project is to recommend options for utilizing WISE water that has been treated by PWSD and to determine what, if any, treatment processes are required to make the water compatible with the Town's existing water. This will include a water quality analysis and the design of basic treatment systems near the RWRWTC.

The work generally includes:

1. Design of ~5.3 miles of 36-inch (+/-) diameter waterline with flow metering/flow control facilities
2. Coordination of the flow metering/flow control with the Town's SCADA systems
3. Permitting support
4. Details of new connections
5. Hydraulic Review including Pipe Diameter and Pipe Class Determination
6. Standard and special water transmission line details
7. Development of legal descriptions/exhibits for securing easement documents
8. Waterline appurtenance design including valving, air/vacuum valves, water quality monitoring equipment, etc.
9. Grading, Erosion, and Sediment Control Drawings
10. Coordination and exhibit preparation for Xcel Energy
11. Water Treatment support including water process recommendations at RWRWTC
12. Bidding Assistance including document distribution and addendum

The general pipeline alignment is indicated in Figure 1.

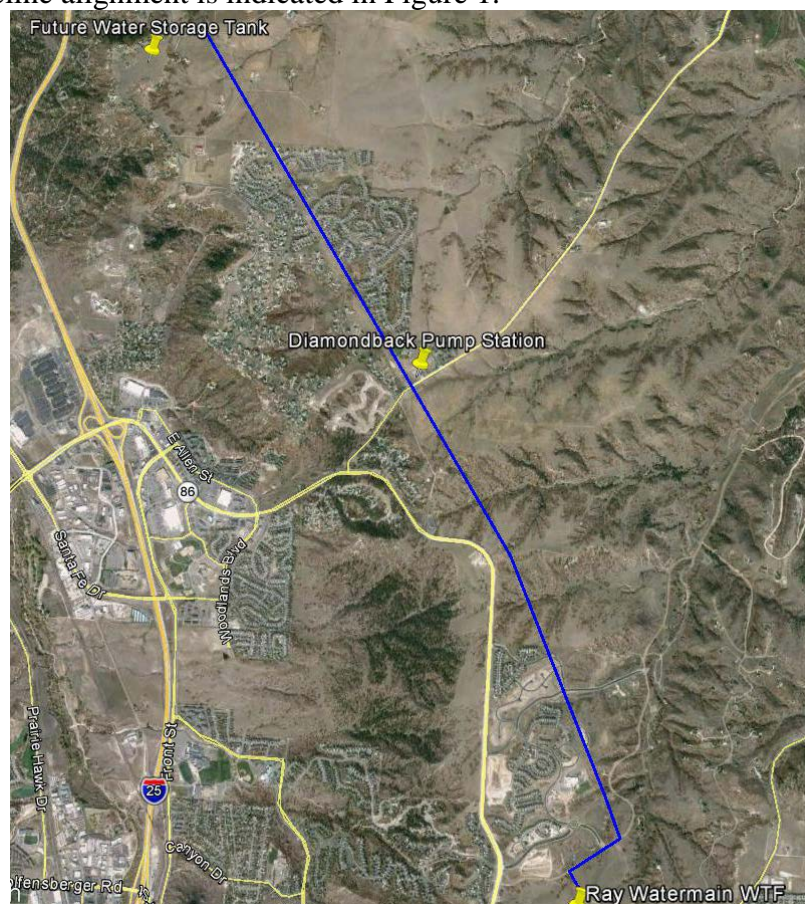


Figure 1
Approximate Waterline Routing ~ 5.3 miles
Generally in-and-along Xcel Energy Power Easement

Scope of Services

The Scope of Services proposed for the WISE Local Infrastructure Design project will generally follow the design programs that we have used successfully on our past projects with the Town. Our team will work as an extension of your staff, and we are open to scope revisions that the Town might desire. The project scoping will generally follow the main line design programs that we have used successfully on our past projects including the Kinner Street Sewer Outfall Project. The outline below is not intended to include all the tasks we will perform on this project, but describes some of the major tasks that will be involved. The major scoping tasks that we propose are as follows:

TASK SERIES 100 – PRELIMINARY DESIGN SERVICES

Task 101 – Conduct Project Kickoff Meeting with Town Staff:

Burns & McDonnell will attend a project kick-off meeting to be held with Town staff. The meeting shall include discussion of pertinent items for the project such as:

- Present project background and overview.
- Introduce key staff involved in the project including Town personnel who are to provide information/services.
- Determine lines of communication and project contacts (contact list to be developed).
- Identify available existing data and exchange.
- Discuss key issues and goals.
- Review the project schedule and milestones.
- Define sub-consultants and their roles.
- Outline possible community concerns, neighboring residents, businesses, easements, etc.
- Discuss the geotechnical needs for the project.
- Discuss considerations for connections to the existing system.
- Discuss methods of construction that will be considered.
- Discuss agency coordination such as PWSD and WISE.

A meeting agenda and subsequent meeting minutes will be distributed to all meeting participants

Task 102 – Field Visit with Project Team:

Burns & McDonnell will schedule a field visit to the project site with key project team members. We prefer to perform this field walk immediately after the project Kick-off Meeting. The primary objective of the field visits is to identify project design constraints and other physical barriers that may impact the final design of the water main replacement.

Task 103 – Data Collection and Review:

Burns & McDonnell will review available information provided by the Town including:

- Ray Waterman Plant Drawings
- As-built record drawings
- GIS mapping
- Utility maps including Key Maps
- Aerial photography

- Existing easement documents
- WISE documents including PWSD's proposed tank and waterline
- Existing details

Task 104 – Conduct Bi-Weekly Team Coordination Meetings:

Burns & McDonnell will conduct bi-weekly team coordination meetings via telephone conference and/or utilize our “Live Meeting” to discuss the status of the report and any project topics. For the purposes of this proposal, Burns & McDonnell has assumed that the design phase will take approximately six (6) months to complete. As such, our scope and fee includes hours to host ten (10) coordination meetings via telephone or LiveMeeting. These meeting are in addition to design review meetings (predesign, 30%, 60%, and 90% design levels) which will be held at Town offices. A meeting agenda and subsequent meeting minutes will be distributed to all meeting participants

Task 105 – Project Manager Attendance at Two Public Meetings:

Per the RFP request, Burns & McDonnell's Project Manager (Mike Lehrburger) will attend two (2) public meetings hosted by the Town of Castle Rock. Mike will be available to support the project and to answer any technical or engineering questions that may arise. We have assumed that each meeting will take approximately two hours and that the Town will lead the effort concerning advertisement and hosting of the meeting.

TASK SERIES 200 – PRELIMINARY DESIGN SERVICES

Task 201 – Locate Underground Utilities:

Flatirons Surveying, Inc. will gather available existing utility mapping from individual utility companies and from the Town along the pipeline alignment. Flatirons Surveying, Inc. will locate existing utilities along the work area utilizing a private utility locating firm. The existing utility locates will be included in the topographical survey.

The cost for this task will be included into the contract as a Town controlled allowance. See Task A1.

Task 202 – Conduct Topographical Survey:

All survey work will be provided by our subconsultant, Flatirons Surveying, Inc. Survey will be tied to the Town's coordinate system.

Our team will provide a detailed topographical survey along the construction area. Survey will locate existing surface features (i.e. curb, gutter, sidewalk, trees, fire hydrants, manhole covers, edge of pavement, fences, valve boxes, cross pans and walks and culverts, irrigation ditches and/or pipelines, meter pits, signs, and power poles). The survey will be provided at a 1-foot contour interval level. Survey is planned to be a total of sixty feet (60') in width.

Survey will locate and confirm horizontally identified existing utilities. Utility locator markings and visible property corners along the route will be surveyed along the proposed alignment.

Task 203 – Perform Geotechnical Research and Investigations:

Geotechnical investigation test holes will be drilled to a depth of fifteen feet (15') or to auger refusal (whichever comes first) along the pipeline alignment. Additional geotechnical holes will be provided to a depth of twenty five feet (25') on each side of a trenchless or bored crossing. Soil samples will be collected and brought to a laboratory for analysis. Groundwater levels (if present) will be recorded and included in the report.

A geotechnical report will be prepared to provide identification, sample and test soils encountered, discuss geotechnical design and construction concerns, take ground water depth measurements, and provide recommendations for pipeline and structure design criteria.

Our scope of work assumes the following required geotechnical holes:

| Bore Hole Type | Depth | Number of Holes |
|---|--------------|------------------------|
| Regular Interval Investigation (1000' spacing +/-) | 15' deep | 22 |
| Additional Investigation at Trenchless Crossings | 25' deep | 22 |
| Total | | 44 |

Task 204 – Utility Potholing:

Safe Site (USIC) will perform potholing of existing utilities that will be crossed or connected to by the proposed construction in order to determine their location, elevation, size, material, and alignment.

For a pipeline of this length and in this location, approximately 30 potholes are expected.

The cost for this task will be included into the contract as a Town controlled allowance. See Task A1.

Task 205 – Cathodic Protection Investigations and Recommendations:Field Analysis:

Our subconsultant, QualCorr, will utilize specialized equipment to gather the necessary field data to categorize the threat of AC corrosion and safety concerns along the pipeline. Field analysis may include obtaining HVAC information (tower spacing, grounding geometry, etc.) soil resistivity/sampling, basic AC interference tests with data logging, ROW evaluation, and other necessary actions to generate the data necessary to categorize this threat. This data will be tabulated and included within any calculations or other engineering and design submittals.

Engineering and Design:

Upon completion of the field analysis, QualCorr will develop a comprehensive design to properly mitigate the safety and integrity concerns for this pipeline project. A NACE Certified Cathodic Protection Specialist and Professional Engineer will oversee the work for accuracy. The process will involve redlining proposed drawings and specifications, material research, and technical studies to confirm a design basis of the AC mitigation

and corrosion control standards and procedures as they relate to this project. QualCorr will work with the Burns & McDonnell to develop a submittal package for each design milestone (60%, 90%, and 100%). Each design submittal will contain calculations, construction specifications, detail drawings, cost estimates, schedules, and other items as requested to be incorporated into the clients design submittal. Alternative design elements for both the steel and DIP pipeline options will be provided.

Based on the preliminary information provided, QualCorr anticipates each AC mitigation and corrosion control system to address the following:

AC Mitigation Design:

- Categorizing expected AC current densities;
- Mitigation of AC induction along each pipeline;
- Development of various appurtenances (gradient control mats, decouplers, etc.) to protect personnel who may come into contact with the pipeline.

Corrosion Control Design:

- Sacrificial or impressed current cathodic protection system;
- Selection of proper test station types and configurations depending upon results of the engineering design;
- Flange isolation kit or dielectric coupling schedules;
- Proper bonding and electrical continuity details for DIP option;
- Electrical isolation of cased crossings and other foreign structures;
- Stray current mitigation of foreign pipeline systems.

Task 206 – Waters of the United States Delineation and 404 Pre-Construction Notification

In order to comply with Section 404 of the Clean Water Act, Burns & McDonnell will conduct a waters of the United States (WUS) delineation which will include background review and field work to identify potentially jurisdictional WUS (e.g. wetlands, drainages). A findings report will be created and submitted to the U.S. Army Corps of Engineers (USACE) with a jurisdictional determination (JD) request to obtain concurrence on the WUS delineation. Per the Colorado Regional Conditions for the Nationwide Permits, a pre-construction notification (PCN) will be submitted to the USACE for authorization of WUS impacts. Required components of the PCN include project/applicant details, WUS delineation, impacts analysis, avoidance and minimization discussion, preliminary threatened and endangered (T&E) species analysis and cultural review. If additional T&E or cultural information, surveys, reporting, or coordination is required by the USACE, additional scope will be provided.

Task 207 - Hydraulic Evaluation and Diameter Determination:

Burns & McDonnell will evaluate pipeline hydraulics for static and dynamic hydraulic grade lines. Burns & McDonnell has developed a tool which makes evaluation of different pipeline, flow rates, diameter, and material selection easy to identify and evaluate. Our “on the fly” tool allows us to make changes to the pipeline hydraulics with immediate feedback relating to pipeline pressures, required pipeline pressure class (thickness), number of pipelines, energy costs, and potential impact to project costs.

Task 208 - Alternative Pipeline Material Evaluation and Recommendations:

Burns & McDonnell will evaluate the pipeline so that pipeline material and pipe class (wall thickness) is appropriate for all portions along the pipeline. This is an important step as reducing wall thickness will greatly impact the raw pipe cost which is the single most expensive cost associated with this project. Our specification will provide tables indicating various sections of the pipeline, allowable pipeline materials, and minimum required pipe class (thickness). We will coordinate allowable pipeline materials with the Town. It is expected that this pipeline would be constructed of ductile iron pipe, steel pipe, PVC pipe (C-905), or a combination of materials. We will work with the town and make recommendations based on design condition, lifecycle, and meeting the preferences of the town.

Task 209 - Predesign Review Meeting:

Burns & McDonnell will schedule a meeting at your office and hold a predesign review meeting to present the findings of work to date. As with all other meetings, Burns & McDonnell will provide meeting minutes with a decision log and a list of action items. Meeting minutes will be distributed to all participants.

Task 210 – Develop Legal Description s and Exhibits as Required for Easements:

Burns & McDonnell will provide legal descriptions and exhibits of property needed for the new waterline. Flatirons Surveying will provide the legal documents based on the current design provided by Burns & McDonnell.

Our fee has assumed that seven (7) additional legal descriptions/easements will be required. The Town has already acquired five (5) associated with the first 2.2 miles of pipeline. Additional easement legal can be provided at \$450/each.

For the purposes of our fee, it is assumed that the Town of Castle Rock will be responsible for all land valuation work, title commitment work, and property owner negotiations required to secure and record the easement documents.

TASK SERIES 300 –DESIGN PHASE SERVICES

Task 301 – 30% Design Documents:

Plans and specifications will be provided by Consultant at the 30% design level. The 30% Documents shall include the following:

- Initial Pipeline Alignment
- Proposed Pipeline Easements
- ROW/Property Lines
- Topographical Features
- Existing Ground Surface
 - Pipeline profiles will not be developed at this level of design. Profiles will be developed after the horizontal alignment is set

The Town will be given at least one week to review the plans and outline specifications prior to holding the 30% Design Review Meeting. Five half size copies of the plans will be provided to the Town for review.

Task 302 – 30% Engineer’s Opinion of Probable Construction Cost and Schedule:

Based on the 30% design drawings, our project team will prepare the engineer’s opinion of probable construction cost and update the overall project schedule. Our cost estimate and schedule update will be submitted along with the design documents for review and comment by the Town. Our estimate will be based on recent bid tabulation information, historical cost data, and discussions with local suppliers and contractors. Significant assumptions will be included for reference.

Task 303 – 30% Design Review Meeting:

Burns & McDonnell will prepare for, attend, and conduct a design review meeting to be held with Town staff. The 30% design will be presented by the Consultant and reviewed in detail with the Town. Town staff may provide written comments to be presented at the 30% design meeting. Burns & McDonnell will provide meeting minutes with a decision log and a list of action items. Meeting minutes will be distributed via e-mail.

Task 304 – 60% Design Documents:

Plans and specifications shall be provided by Consultant at the 60% design level. The 60% Documents shall include the following:

- Technical Specifications
- All drawings indicated in 30% review drawings brought to 60% completion
 - Pipe profiles will be shown
- Structural details will be developed including connection to the wet well
- Electrical details will be develop including integration with treatment technologies
- Water treatment technology details will be developed
- Additional Detail drawings that are needed for final design.

Five half size copies of the plans along with the specifications will be provided to the Town for review.

Task 305 – 60% Engineer’s Opinion of Probable Construction Cost and Schedule:

Based on the 60% design drawings, our project team will prepare the engineer’s opinion of probable construction cost and update the overall project schedule. Our cost estimate and schedule update will be submitted along with the design documents for review and comment by the Town. Our estimate will be based on recent bid tabulation information, historical cost data, and discussions with local suppliers and contractors. Significant assumptions will be included for reference.

Task 306 – 60% Design Review Meeting:

Burns & McDonnell will prepare for, attend, and conduct a design review meeting to be held with Town staff. The 60% design shall be presented by the Consultant and reviewed in detail with the Town. Burns & McDonnell will provide meeting minutes with a decision log and a list of action items. Meeting minutes will be distributed via e-mail.

Task 307 – 90% Design Documents:

Plans and specifications shall be provided by Burns & McDonnell at the 90% design level. The 90% Plans shall include, at a minimum, refinement of the plans and specifications. Utility pothole information shall be incorporated into the design at this level to identify conflicting utilities. Temporary and permanent easements information, land ownership information and all design related appurtenances shall be included.

Construction specifications shall be completed to a 90% level. Plans and specifications shall include sufficient detail for Bid.

The Town of Castle Rock will be given at least one week to review the plans and outline specifications prior to holding the 90% Design Review Meeting. Five half size copies of the plans will be provided to the Town for review.

Task 308 – 90% Engineer’s Opinion of Probable Construction Cost and Schedule:

Based on the 90% design drawings, our project team will prepare the engineer’s opinion of probable construction cost and update the overall project schedule. Our cost estimate and schedule update will be submitted along with the design documents for review and comment by the Town. Our estimate will be based on recent bid tabulation information, historical cost data, and discussions with local suppliers and contractors. Significant assumptions will be included for reference.

Task 309 – 90% Design Review Meeting:

Burns & McDonnell will prepare for, attend, and conduct a design review meeting to be held with Town staff. The 90% design plans shall be presented by the Consultant and reviewed in detail with the Town. Town staff shall review and provide final comments to the 90% design submittal at the meeting. Burns & McDonnell will prepare meeting minutes which shall include a decision log and a list of action items. The meeting minutes will be distributed via e-mail.

Task 310 – Grading, Erosion, and Sediment Control (GESC) Drawings:

Our team will provide GESC drawings for the project which shall include the Town of Castle Rock’s requirements relating to sediment and pollution controls. This will include the installation, quantity, and alignment of site specific BMP’s including inlet protection, rock socks, erosion control fence, construction fence, seeding, etc.

Task 311 – Perform Burns & McDonnell Quality Control Reviews:

Our team will perform quality control for the plans and specifications in accordance with the Burns & McDonnell procedures. Burns & McDonnell has an established, formalized quality control program that is mandatory on all projects. A copy of our formal quality control procedures manual is available upon request.

Task 312 – 100 % (Final) Design Documents:

Plans and specifications shall be completed by Burns & McDonnell at the 100% design level. Burns & McDonnell will provide the Town with two (2) full sized drawings, three (3) half sized drawings, and five (5) copies of the final specifications. Final documents shall also be provided in AutoCAD (version 2014 or later), Microsoft Word, and Adobe Acrobat (.pdf) formats.

Task 313 – 100% Engineer’s Opinion of Probable Construction Cost:

Based on the 100% design drawings, our project team will prepare the engineer’s opinion of probable cost for the project. This estimate will be submitted along with the design documents for review and comment by the Town. Our estimate will be based on recent bid tabulation information, historical cost data, and discussions with local suppliers and contractors. Relevant and significant assumptions will be included for reference. This estimate will include a 10% contingency.

Task 314 - Make Recommendations Regarding Pre-purchase of Equipment and/or Materials

Burns & McDonnell will work with the Town to evaluate whether there are financial or schedule benefits to pre-purchasing equipment or materials needed to construct the project. We will consider market conditions, material/equipment availability, and procurement times. Our evaluation will consider cost savings vs risk.

TASK SERIES 400 – PERMITTING SERVICESTask 401 – Identify, Coordinate, and Provide Technical Information Regarding Project Required Permits:

Burns & McDonnell will assist with the necessary technical support and permit applications as required by this work. Such permitting may consist of working with local, state, and federal agencies. Necessary permits for this work is likely to include permits through:

- Colorado Department of Public Health and the Environment (CDPHE)
- Douglas County

For the purposes of our fee, we have assumed that the Town will pay all associated permit application and permit review fees.

TASK SERIES 500 – COORDINATION WITH XCEL ENERGYTask 501 – Prepare Exhibits as Required to support License Agreement:

Burns & McDonnell will prepare the requested and necessary exhibits to coordinate the pipeline, provide technical information, and to support the licensing effort with Xcel energy. Our understanding is that the Town and Xcel Energy have already been discussing the project and that Xcel Energy supports the installation of the pipeline within their easement. We will coordinate our drawings and specification with Xcel Energy as requested by the Town.

For the purposes of our scope and fee, we have assumed that the Town will continue to provide a lead role in the coordination and communication of the necessary license agreement. Our work will support the existing and on-going negotiations and include any specific requirements into our drawings and specifications.

TASK SERIES 600 – BID PHASE SERVICES

Task 601 - Preparation of Advertisement to Bid:

Burns & McDonnell will prepare the bid advertisement which will specifically outline the work requirements, contractor requirements, bond requirements, and important bid dates and times. We will coordinate with the Town how the advertisement should be provided to potential Contractors.

Task 602 - Preparation and Distribution of Issued for Bid Contract Documents:

Our office will reproduce the bid document sets (number as required by plan holders) and have them available for contractor purchase. We will keep an updated plan holders list as part of this process. The plan holders list will be used to deliver addenda, send out important notices, and to support interested suppliers and subcontractors.

Task 603 - Preparation and Distribution of Addenda:

Our team will respond to questions from Contractors during the bidding process and will assemble and transmit addenda information as necessary. The addenda will be incorporated into the Contract Documents.

Task 604 - Conduct Pre-Bid Conference with Prospective Bidders:

Our Project Manager and Project Engineer will attend the pre-bid conference to assist the Town's staff in answering questions concerning the design of the project. The meeting agenda will cover important and noteworthy conditions or requirements associated with the bid and the work. a meeting sign-in sheet and provide a meeting agenda/minutes. Meeting minutes will be distributed to meeting attendees and prospective bidders.

Task 605 - Bid Opening Assistance:

Our Project Manager (Mike Lehrburger) will attend the bid opening and assist Town staff with the bid opening. Bid conditions including discrepancies and irregularities will be documented. Our team can help manage the chain of custody concerning bidding documents.

Task 606 - Evaluation of Bids, Reference Checks, and Preparation of Bid Tab:

Burns & McDonnell will collect all of the bids and evaluate each bid for conformance, completeness, and costs. Irregularities will be documented. We will then compile an overall bid tabulation showing all of the provided bid costs in a single spreadsheet. This bid tab will help identify computational errors and uncertainties in the bid process. Burns & McDonnell will also check the apparent low bidders' references to verify their qualifications, intent, and availability. Conversations with references will be well documented as to help support the recommendation for award.

Task 607 - Recommendation for Construction Contract Award:

We will provide a formal, written Contractor recommendation for Award, which can be presented to the Council. Our recommendations will consider Contractor's qualifications, value to the Town, reference checks, and other relevant considerations.

CONTRACT ALLOWANCES

Allowance A1 - Utility Locating and Potholing Allowance:

Per Addendum on April 30, 2015, utility locating and utility potholing will be covered by a Town controlled project Allowance. Use of this allowance account will be based upon actual work required based on conditions found in the field. Use of this allowance account must be agreed to between both the Consultant and the Town.

Our initial estimate for utility locating is \$4000. Burns & McDonnell also expects approximately thirty (30) utilities to pothole (based on project length and location). Our initial estimate for utility potholing is approximately \$16,000. The following table summarizes the allowance line used in the presented engineering fee.

| Allowance Description | Amount |
|---|---------------|
| Utility Locating Allowance (pre survey) | \$4,000 |
| Utility Potholing Allowance (30 potholes +/-) | \$16,000 |
| Allowance Amount | \$20,000 |

If the allowance amount of \$20,000 does not appropriately cover all utility locating and utility potholing work, additional fee can be negotiated.

Town of Castle Rock

RFP 2015-02 - Engineering Services for WISE Local Infrastructure Design

Work Breakdown Structure and Fee Schedule

| Activity | Project Director Dan Korinek | | Project Manager Mike Lehrburger | | Pipeline Engineers Kate Henske, Derek Nelson, and Chandler Wilson | | Process Engineer Jason Schaefer | | Electrical Engineer Kevin Sparrow | | Structural Engineer Kevin Thurman | | Environmental Engineer Sam Clark | | CADD Greg Garcia | | QA/QC Clint Madsen | | BMcD Total Labor | | Survey Flatirons Surveying | Geotech Ground Engineering | Utility Potholing and Locates Safe Site | Cathodic Protection QualCorr | Subs Total | Expenses | Total Cost |
|--|---------------------------------|---------|------------------------------------|----------|--|----------|------------------------------------|---------|--------------------------------------|---------|--------------------------------------|----------|-------------------------------------|----------|---------------------|----------|-----------------------|---------|---------------------|-----------|----------------------------------|----------------------------------|---|------------------------------------|---------------|----------|------------|
| | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Cost | Cost | Cost | Cost | Cost | Direct | |
| TASK SERIES 100 - PROJECT COORDINATION, COMMUNICATION, AND MANAGEMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 101 - Conduct Project Kickoff Meeting with Town Staff (1) | 2 | \$450 | 2 | \$382 | 2 | \$329 | 2 | \$348 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 8 | \$1,509 | | | | | \$0 | \$60 | \$1,569 |
| 102 - Field Visit with Project Team | | \$0 | 2 | \$382 | 2 | \$329 | 2 | \$348 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$1,059 | | | | | \$0 | \$40 | \$1,099 |
| 103 - Data Collection & Review | | \$0 | | \$0 | 4 | \$658 | 2 | \$348 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$1,006 | | | | | \$0 | \$40 | \$1,046 |
| 104 - Conduct Bi-Weekly Team Coordination Meetings (2) | | \$0 | 10 | \$1,910 | 6 | \$987 | 2 | \$348 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 18 | \$3,245 | | | | | \$0 | \$130 | \$3,375 |
| 105 - Project Manager Attendance at Two Public Meetings | | \$0 | 4 | \$764 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 4 | \$764 | | | | | \$0 | \$30 | \$794 |
| Sub-Total Series 100 | 2 | \$450 | 18 | \$3,438 | 14 | \$2,303 | 8 | \$1,392 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 42 | \$7,583 | \$0 | \$0 | \$0 | \$0 | \$0 | \$300 | \$7,883 |
| TASK SERIES 200 - PRELIMINARY DESIGN SERVICES | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 201 - Locate Underground Utilities (A1) | | \$0 | | \$0 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 2 | \$329 | | | See Note A1 | | \$0 | \$10 | \$339 |
| 202 - Conduct Topographical Survey (3) | | \$0 | 1 | \$191 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 3 | \$520 | \$23,650 | | | | \$23,650 | \$20 | \$24,190 |
| 203 - Perform Geotechnical Research and Investigations (4) | | \$0 | 1 | \$191 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 3 | \$520 | | \$25,080 | | | \$25,080 | \$20 | \$25,620 |
| 204 - Utility Potholing (A1) | | \$0 | 1 | \$191 | 4 | \$658 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 5 | \$849 | | | See Note A1 | | \$0 | \$30 | \$879 |
| 205 - Cathodic Protection Filed Investigations and Recommendations (5) | | \$0 | 1 | \$191 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 3 | \$520 | | | | \$9,900 | \$9,900 | \$20 | \$10,440 |
| 206 - Waters of the United States Delineation and 404 Pre-Construction Notification (6) (E1) | | \$0 | 2 | \$382 | 2 | \$329 | | \$0 | | \$0 | 116 | \$20,880 | | \$0 | | \$0 | | \$0 | 120 | \$21,591 | | | | | \$0 | \$860 | \$22,451 |
| 207 - Hydraulic Evaluation and Diameter Determination | | \$0 | 2 | \$382 | 4 | \$658 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$1,040 | | | | | \$0 | \$40 | \$1,080 |
| 208 - Alternative Pipeline Material Evaluation and Recommendations | | \$0 | 2 | \$382 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 8 | \$1,369 | | | | | \$0 | \$50 | \$1,419 |
| 209 - Predesign Review Meeting (1) | | \$0 | 2 | \$382 | 4 | \$658 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$1,040 | | | | | \$0 | \$40 | \$1,080 |
| 210 - Develop Legal Descriptions and Exhibits as Required for Easements (7) | | \$0 | | \$0 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | 2 | \$348 | | \$0 | 4 | \$677 | \$3,150 | | | | \$3,150 | \$30 | \$3,857 |
| Sub-Total Series 200 | 0 | \$0 | 12 | \$2,292 | 30 | \$4,935 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 116 | \$20,880 | 2 | \$348 | 0 | \$0 | 160 | \$28,455 | \$26,800 | \$25,080 | \$0 | \$9,900 | \$61,780 | \$1,120 | \$91,355 |
| TASK SERIES 300 - DESIGN PHASE SERVICES | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 301 - 30% Design Documents | | \$0 | 20 | \$3,820 | 60 | \$9,870 | 10 | \$1,740 | 4 | \$632 | 6 | \$948 | | \$0 | 60 | \$10,440 | | \$0 | 160 | \$27,450 | | | | | \$0 | \$1,100 | \$28,550 |
| 302 - 30% Engineer's Opinion of Probable Construction Cost and Schedule | | \$0 | | \$0 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$987 | | | | | \$0 | \$40 | \$1,027 |
| 303 - 30% Design Review Meeting (1) | 2 | \$450 | 2 | \$382 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 10 | \$1,819 | | | | | \$0 | \$70 | \$1,889 |
| 304 - 60% Design Documents | | \$0 | 20 | \$3,820 | 60 | \$9,870 | 12 | \$2,088 | 4 | \$632 | 6 | \$948 | | \$0 | 80 | \$13,920 | | \$0 | 182 | \$31,278 | | | | | \$0 | \$1,250 | \$32,528 |
| 305 - 60% Engineer's Opinion of Probable Construction Cost and Schedule | | \$0 | | \$0 | 4 | \$658 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 4 | \$658 | | | | | \$0 | \$30 | \$688 |
| 306 - 60% Design Review Meeting (1) | 2 | \$450 | 2 | \$382 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 10 | \$1,819 | | | | | \$0 | \$70 | \$1,889 |
| 307 - 90% Design Documents | | \$0 | 16 | \$3,056 | 60 | \$9,870 | 10 | \$1,740 | 4 | \$632 | 4 | \$632 | | \$0 | 40 | \$6,960 | | \$0 | 134 | \$22,890 | | | \$16,445 | \$16,445 | \$920 | \$40,255 | |
| 308 - 90% Engineer's Opinion of Probable Construction Cost and Schedule | | \$0 | 1 | \$191 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 3 | \$520 | | | | | \$0 | \$20 | \$540 |
| 309 - 90% Design Review Meeting (1) | | \$0 | 2 | \$382 | 3 | \$494 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 5 | \$876 | | | | | \$0 | \$40 | \$916 |
| 310 - Grading, Erosion, and Sediment Control (GESC) Drawings | | \$0 | | \$0 | 24 | \$3,948 | | \$0 | | \$0 | | \$0 | | \$0 | 30 | \$5,220 | | \$0 | 54 | \$9,168 | | | | | \$0 | \$370 | \$9,538 |
| 311 - Perform Burns & McDonnell Quality Control Reviews | | \$0 | | \$0 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 24 | \$4,584 | 26 | \$4,913 | | | | | \$0 | \$200 | \$5,113 |
| 312 - 100% (Final) Design Documents | | \$0 | 2 | \$382 | 6 | \$987 | 2 | \$348 | 2 | \$316 | 2 | \$316 | | \$0 | 10 | \$1,740 | | \$0 | 24 | \$4,089 | | | | | \$0 | \$160 | \$4,249 |
| 313 - 100% Engineer's Opinion of Probable Construction Cost | | \$0 | 1 | \$191 | 1 | \$165 | 1 | \$174 | 1 | \$158 | 1 | \$158 | | \$0 | | \$0 | | \$0 | 5 | \$846 | | | | | \$0 | \$30 | \$876 |
| 314 - Make Recommendations Regarding Pre-purchase of Equipment and/or Materials | | \$0 | 2 | \$382 | 6 | \$987 | 2 | \$348 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 10 | \$1,717 | | | | | \$0 | \$70 | \$1,787 |
| Sub-Total Series 300 | 4 | \$900 | 68 | \$12,988 | 246 | \$40,467 | 37 | \$6,438 | 15 | \$2,370 | 19 | \$3,002 | 0 | \$0 | 220 | \$38,280 | 24 | \$4,584 | 633 | \$109,029 | \$0 | \$0 | \$0 | \$16,445 | \$16,445 | \$4,370 | \$129,844 |
| TASK SERIES 400 - PERMITTING SERVICES | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 401 - Identify, Coordinate, and Provide Technical Information Regarding Required Permits (8) | | \$0 | 4 | \$764 | 22 | \$3,619 | 4 | \$696 | | \$0 | | \$0 | | \$0 | 8 | \$1,392 | | \$0 | 38 | \$6,471 | | | | | \$0 | \$260 | \$6,731 |
| Sub-Total Series 400 | 0 | \$0 | 4 | \$764 | 22 | \$3,619 | 4 | \$696 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 8 | \$1,392 | 0 | \$0 | 38 | \$6,471 | \$0 | \$0 | \$0 | \$0 | \$0 | \$260 | \$6,731 |
| TASK SERIES 500 - COORDINATION WITH XCEL ENERGY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 501 - Prepare Exhibits as Required to support License Agreement | | \$0 | 2 | \$382 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | 10 | \$1,740 | | \$0 | 18 | \$3,109 | | | | | \$0 | \$120 | \$3,229 |
| Sub-Total Series 500 | 0 | \$0 | 2 | \$382 | 6 | \$987 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 10 | \$1,740 | 0 | \$0 | 18 | \$3,109 | \$0 | \$0 | \$0 | \$0 | \$0 | \$120 | \$3,229 |
| TASK SERIES 600 - BID PHASE SERVICES | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 601 - Prepare Advertisement for Bid | | \$0 | | \$0 | 1 | \$165 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 1 | \$165 | | | | | \$0 | \$10 | \$175 |
| 602 - Preparation and Distribution of Issued for Bid Contract Documents | | \$0 | | \$0 | 1 | \$165 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 1 | \$165 | | | | | \$0 | \$10 | \$175 |
| 603 - Preparation and Distribution of Addenda | | \$0 | 1 | \$191 | 6 | \$987 | 2 | \$348 | | \$0 | | \$0 | | \$0 | 4 | \$696 | | \$0 | 13 | \$2,222 | | | | | \$0 | \$90 | \$2,312 |
| 604 - Conduct Pre-Bid Conference with Prospective Bidders | | \$0 | 2 | \$382 | 2 | \$329 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 4 | \$711 | | | | | \$0 | \$30 | \$741 |
| 605 - Bid Opening Assistance | | \$0 | 1 | \$191 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 1 | \$191 | | | | | \$0 | \$10 | \$201 |
| 606 - Evaluation of Bids with Reference Checks and Preparation of Bid Tab | | \$0 | | \$0 | 6 | \$987 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 6 | \$987 | | | | | \$0 | \$40 | \$1,027 |
| 607 - Recommendation for Construction Contract Award | | \$0 | 1 | \$191 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | | \$0 | 1 | \$191 | | | | | \$0 | \$10 | \$201 |
| Sub-Total Series 600 | 0 | \$0 | 5 | \$955 | 16 | \$2,632 | 2 | \$348 | 0 | \$0 | 0 | \$0 | 0 | \$0 | 4 | \$696 | 0 | \$0 | 27 | \$4,631 | \$0 | \$0 | \$0 | \$0 | \$0 | \$200 | \$4,831 |
| Project Sub-Totals | 6 | \$1,350 | 109 | \$20,819 | 334 | \$54,943 | 51 | \$8,874 | 15 | \$2,370 | 19 | \$3,002 | 116 | \$20,880 | 244 | \$42,456 | 24 | \$4,584 | 918 | \$159,278 | \$26,800 | \$25,080 | \$0 | \$26,345 | \$78,225 | \$6,370 | \$243,873 |
| Utility Locating and Potholing Allowance (A1) | | | | | | | | | | | | | | | | | | | | | | | | | | | \$20,000 |
| Project Total | | | | | | | | | | | | | | | | | | | | | | | | | | | \$263,873 |

Notes:

1. Includes preparation of meeting agenda and minutes with a decision log and action item log.

2. Assumes two coordination meetings each month with design expected from August 2015 through January 2016. Therefore assumes 10 meetings (not counting separate design review meeting).

3. Topographical survey to be performed by our subconsultant Flatirons Surveying.

4. Geotechnical borings and reporting to be performed by our subconsultant Ground Engineering. The fee assumes 44 geotechnical bores.

5. Cathodic Protection design services to be performed by our subconsultant QualCorr. Includes field investigations and CP engineering/design for one 30"/36" pipeline. If a second pipeline is requested, the CP engineering level of effort will increase.

6. Wetlands identification and 404 permit application includes a Preconstruction Notice (PCN) to the USACOE.

7. The fee includes the development seven (7) legal descriptions/easements by Flatirons Surveying. Additional easement documents can be provided at \$450/each.

8. Task includes communication with outside review agencies to identify permit requirements. It is assumed that the Town of Castle Rock will pay all associated fees for permit reviews.

Allowances:

A1. Per Addendum on April 30, 2015, Utility Locating and Potholing will be covered by a Town controlled project Allowance. The allowance of \$20,000 covers utility locating and utility potholing. The allowance is intended to include approximately 30 utility potholes.

Exclusions:

E1. No Historical or Cultural Investigations are currently included as part of this work as the alignment area has been recently developed. If cultural resource collection/investigation is required, additional fee can be negotiated.



May 6, 2015

Mr. Walt Schwarz, PE, Project Manager
Town of Castle Rock
Utilities Department
175 Kellogg Court
Castle Rock, CO 80109

Re: **Request for Proposals: Engineering Services for WISE Local Infrastructure Design (Town of Castle Rock Project No 2015-02)**

Dear Mr. Schwarz:

The Town of Castle Rock has been very proactive in upgrading their infrastructure to provide their citizens and businesses with a highly reliable water system from renewable sources. Construction of the WISE Local Infrastructure project will be another step in your staff's commitment to this ongoing process. Burns & McDonnell thanks you for the opportunity to work with the Town and your staff on the Kinner Street Outfall and the Plum Creek Water Purification projects. We would like the opportunity to put that same winning team to work for you on this very important project.

Burns & McDonnell will provide you a **local** project team that has tremendous credentials with the design and construction of transmission mains and master meter vaults. Our team has completed dozens of designs of large diameter water transmission projects and is familiar with all facets of their requirements. Our Project Manager, Mr. Mike Lehrburger, PE, is excited and fully committed to making this project a total success. Our project director, Mr. Dan Korinek, PE, pipeline lead, Ms. Kate Henske, PE, and the rest of our experienced team are dedicated to providing the Town with exceptional service and a quality final product - just as we have exhibited through our past projects. Through attention to detail and working closely with the client, our team's goal is to **make our clients successful!**

Our proposal presents our overall understanding of the project and the key issues that must be addressed. Burns & McDonnell is fully prepared to meet with the Town to discuss the proposed tasks, schedule, and fee for this project. We also acknowledge receipt of Addendum1.

Through our continued work with the Town of Castle Rock, we have a thorough understanding of your expectations and we are dedicated to meeting them. Our success as a firm, and as professionals, is determined by your satisfaction as our client. We look forward to the opportunity to put our unique qualifications to work for you and your staff on this very exciting project.

Sincerely,

A handwritten signature in blue ink, reading "Daniel A. Korinek".

Dan Korinek, PE
Vice President
Regional Water Practice Manager

A handwritten signature in blue ink, reading "Mike Lehrburger".

Mike Lehrburger, PE
Project Manager

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PROJECT TEAM QUALIFICATIONS & RELATED EXPERIENCE

Founded in 1898, Burns & McDonnell is a 100% employee-owned, full-service consulting firm that provides engineering, architecture, program management, construction, and environmental services. With the multidisciplinary experience of more than 5,000 professionals across 40 offices nationwide, Burns & McDonnell plans, designs, permits, constructs, and manages some of the world's most complex projects with one mission in mind – *"Create Amazing!"*

This commitment to providing owners with amazing quality and customer service prevents our project teams from resting on their laurels and has, in turn, helped Burns & McDonnell become one of the nation's premier engineering and construction consulting firms. We rank in the upper 5% of Engineering News-Record's (ENR) "Top 500 Design Firms" and are among the leaders in many individual service categories.

A critical part of our firm's success is the fact that we are 100% employee-owned, which aligns incentives and encourages employee-owners to work together to create an amazing culture and atmosphere. Each employee-owner has a "vested" interest in making certain that every project is a success on every level! As a result, Burns & McDonnell has earned a reputation for industry-leading quality and client satisfaction.

Our ability to continuously provide this high level of service has enabled Burns & McDonnell to establish a positive working environment that rewards hard work, passion, commitment and unmatched client service. This is why our employee-owners work "day-in" and "day-out" to provide every client with a tailored plan that is coupled with unsurpassed levels of accountability, transparency, and follow-through to deliver results, success, and satisfaction!

Our internal standards and commitment to delivering projects that solve community needs – no matter the size, schedule, or level-of-complexity – has earned Burns & McDonnell an industry standing based on "trust and reliability." As a result, we have had the fortune of being recognized throughout the industry for creating an amazing culture of collaboration and accomplishment. Some of these awards include:

- ▶ **"Premier Award for Client Satisfaction, 2010-2014"** by the Professional Services Management Resources Journal (PSMJ) for the fifth straight year, which is a national A/E/C award based on client analysis and surveys that measure various consultant performance across 13 key categories that are indicative of performance in the various aspects of business operations, including cash flow, overhead control, business development, project performance, staff utilization, and overall profitability.
- ▶ **"Best Companies to Work for in America, #15"** by Fortune magazine for the third year in a row (currently ranked #15), which is based on one of the most extensive employee evaluations in America and includes more than 257 participating firms across 45 countries and 250,000 employees.
- ▶ **"2012 ESOP Company of the Year"** by the ESOP Association, which was based on the review of more than 2,800 employee-owned businesses throughout America that demonstrated business success while promoting the core values and culture of employee-ownership in today's marketplace.
- ▶ **"Top Denver Workplaces, 2012-2014"** by the Denver Post, who – in collaboration with renowned employee survey firm, Workplace Dynamics – invited more than 1,340 companies and organizations throughout the region to participate in 2014. In all, more than 56,000 employees were surveyed on various aspects of business operations, including how employees feel about their day-to-day responsibilities, training, work/life balance, values, leadership, retention, motivation, referral, management, pay and benefits, and company direction.

ROCKY MOUNTAIN REGION OVERVIEW

Burns & McDonnell's Denver office opened its doors in 1987 to better support the Rocky Mountain Region, which we have served since 1910. Today, the office has nearly 180 employee owners, including more than 85+ professional engineers, and serves as the Rocky Mountain Regional hub. We offer and provide full-service, in-house professional engineering and construction services for a variety of services throughout the Front Range, State of Colorado, and Rocky Mountain Region. Our Rocky Mountain Regional Office serves as the firm's "Center of Excellence" for the Water Global Practice.



We offer experienced engineers who specialize in all aspects of transmission and distribution, collection, treatment, storage, and construction and who can fully evaluate, design, inspect, and solve any of the Town's water or wastewater issues in a manner that goes beyond "just putting designs on a page."

By selecting Burns & McDonnell, the Town of Castle Rock will benefit from our vast amounts of verifiable water experience, which includes many large-diameter pipelines, and water quality projects. We also understand local conditions and construction costs, as well as the long-term costs associated with operation and maintenance of water and wastewater associated infrastructure.

SPECIALIZED EXPERIENCE & TEAM

In today's marketplace, municipalities are tasked with the continued challenge of expanding water, wastewater, and stormwater systems to meet ever-increasing customer demands, while maintaining existing aging systems through replacements and rehabilitations. Burns & McDonnell has an established 117-year history of helping clients meet these challenges by providing the entire gamut of water-related engineering services. From planning, design, and construction to startup, our team has the proven comprehensive technical capabilities to successfully take your water project from evaluation and conception phases to its ultimate start-up.

We recognize that water is the most basic necessity for sustaining life and maintaining thriving communities. That's why today, more than ever, innovative solutions must be implemented to ensure the availability of this basic resource for years to come in order to maintain Town of Castle Rock's commitment to quality and sustainability. This is why it is essential that the Town partner with a firm who can provide the high-level and innovative thinking necessary to solve infrastructure needs for today and tomorrow.

Burns & McDonnell's Rocky Mountain Regional Office serves as the firm's Global Water Practice's "Center of Excellence" because our local team has tremendous amounts of similar experience throughout the State of Colorado, the Rocky Mountain Region, and the country. As a result, we know how to approach each situation with a solution and/ or alternative that meets the Town's specific objectives by providing high level designers and construction professionals who provide applicable, real-world water experience. This includes cost opinions, permitting, operations, design, and bid phase services.

Partnering Firms

Burns & McDonnell will be teaming with proven firms for the WISE Local Infrastructure Design project. All teaming firms have proven track records of working independently and together to complete projects throughout Colorado and the Rocky Mountain Region. As a result, the Burns & McDonnell Team can provide the necessary local resources, technical know-how, proven tools, and processes to provide the Town of Castle Rock with the best value and utmost accountability during the WISE Local Infrastructure Design project.



Flatirons, Inc. has served the Front Range since 1981 as a premier provider of surveying services that include a wide variety of construction surveying and construction layout services. They also prepare easement descriptions and exhibits. As they have grown, Flatirons has combined the time-honored traditions and standards of the surveying trade with cutting-edge technology such as GPS, robotic total stations, LiDAR, and GIS integration. Today, Flatirons maintains a staff of 50 professionals that includes six licensed surveyors, 10+ field crews, and a complete drafting department, which uses AutoCAD Releases 14 and 2000, Eagle Point, AutoDesk Land Development Desktop, and Softdesk software to produce cost-efficient and accurate drawings. Burns & McDonnell has teamed with Flatirons to perform topographical surveys on hundreds of design projects, including the Town of Castle Rock's Plum Creek Water Purification Facility and Kinner Sewer Outfall projects.



Founded in 1984, GROUND Engineering Consultants, Inc. is a client-oriented engineering firm providing a full range of consultant services to the design, engineering and construction industries. Their services include geotechnical engineering, construction management, pavement design, environmental assessment, materials testing, laboratory and on-site inspection services. GROUND's staff of registered professional engineers and certified technicians is committed to providing high quality service to our commercial, government and private clients. GROUND has premier reputation in the industry and a proven history of providing top-shelf support to Burns & McDonnell on projects that include the Town's Kinner Sewer Outfall and the Westminster's Southern Pipeline project.



USIC Locating Services (dba Safe Site) is a subsidiary of U.S. Infrastructure Corporation, which is a leading provider of underground utility locating services. With more than 6,100 highly-trained utility locating technicians across 31 states, USIC leads the utility locating industry in volume, accuracy, timeliness, and customer satisfaction. They have worked with Burns & McDonnell to locate and plan for underground utilities on projects that include the Southgate Sanitation District's Kaiser West Outfall Basin and the City of Gillette Madison Pipeline projects.

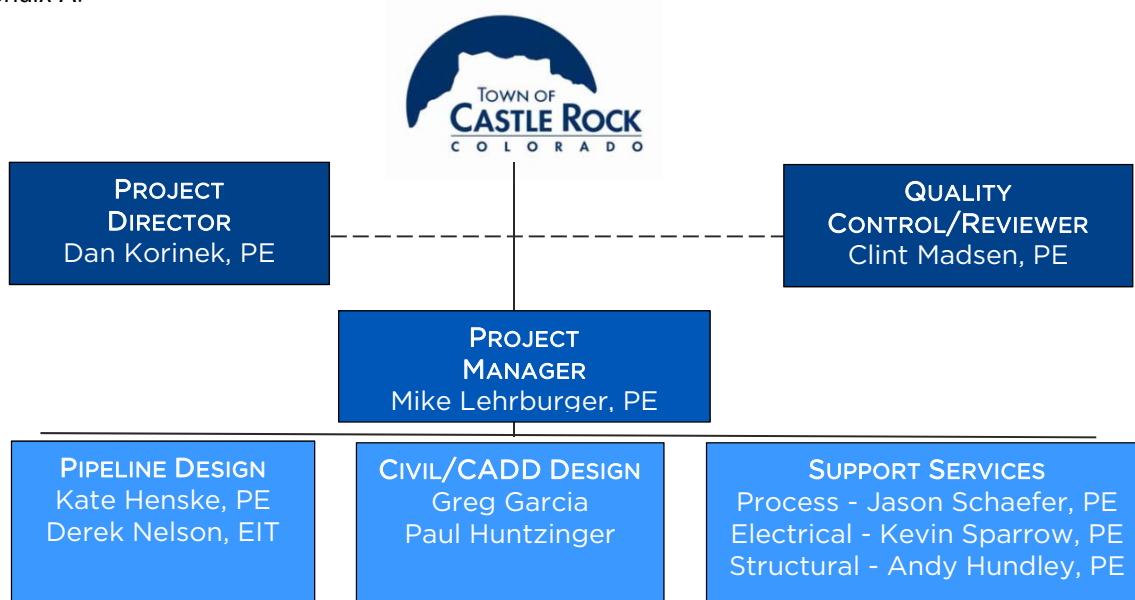


QualCorr Engineering Corporation (QualCorr) is a full service cathodic protection / corrosion control firm, specializing in cathodic protection and AC mitigation system engineering and design, compliance testing, and system installation. QualCorr's personnel include engineers and technicians that are registered professional engineers, project management professionals, and National Association of Corrosion Engineers (NACE) certified Testers, Technicians, Coating Inspectors, and Specialists. All personnel are Department of Transportation (DOT) operator qualified and well experienced in providing corrosion control engineering, design, installation, testing, and inspection services. QualCorr's main office is located in Castle Rock, CO with a field office in Fort Collins, CO.

TEAM PERSONNEL & ORGANIZATION

Burns & McDonnell is committing its best project team to execute engineering Services for WISE Local Infrastructure Design project because we know how vital this infrastructure is in helping meet Town's future supply water requirement of 75% from renewable sources. Our team has successfully delivered many small-, medium- and large-diameter water collection projects throughout the Front Range and the Rocky Mountain Region (see Table 8, pg. 15).

Our team consists of proven pipeline engineers who have recent, relative, and unsurpassed experience. From planning, modeling, design, and construction to start-up, our team has demonstrated that we have the comprehensive technical capabilities to evaluate and bring the best total project value. Our diverse team is ready and fully available to support the Town of Castle Rock and your customers by providing while serving customers now and into the future. The following figure outlines our proposed project team and is accompanied with full résumés in Appendix A.



Mike Lehrburger, PE

Project Manager

Mike has more than 14 years of experience and serves as the Rocky Mountain Water Supply & Conveyance Department Manager. With more than a decade's worth of progressive water and wastewater experience, Mike has both led and supported a wide variety of projects including the Town of Castle Rock's Kinner Sewer Outfall and Plum Creek Water Purification Facility designs by providing distribution and collection design, hydraulic and system capacity analysis, construction engineering, and field support services.

Throughout his career, Mike has provided operational and engineering design, advice, and support to maximize water and wastewater system delivery efficiencies while minimizing risks associated with both supply and quality in operating these systems. Mike also is well adept at developing information to identify and evaluate alternatives, which ultimately leads to innovative and cost-effective options that meet immediate project needs while preparing communities for future growth and expansion.

As Project Manager, Mike will provide the technical oversight and guidance necessary to deliver the WISE Local Infrastructure Design Project on time and within budget.

Kate Henske, PE

Pipeline Design-Lead

Kate has more than 26 years of water and wastewater design experience. As a result, Kate has served as project manager and design lead to for various major waterline projects that included pipelines ranging in size from 4 to 54 inches, alignment studies, material evaluation, hydraulics and permitting. Kate has also supported the Town of Castle Rock's Kinner Street Sewer Outfall project. As a result of her broad-reaching experience, Kate has gained a thorough understanding of the applications and methods required in pipeline designs and will be able to provide the technical knowledge, drive, and commitment necessary to identify the proper size of the infrastructure required by this project.

She is also familiar with all local, state, and federal regulations pertaining to both design and safety, and will be able to identify, analyze, and determine the materials, specifications, and constructability of the project.

Kate will be responsible for feasibility, alignment analysis, design, permitting, and outside agency coordination.

Jason Schaefer, PE

Support Services

Jason is a civil and environmental engineer with more than five years of experience covering a broad range of water and wastewater projects. Jason's experience includes many projects similar to this project, and a variety of other services such as piloting, bench scale testing, plant pre-designs and designs, cost estimating, client correspondence, and operation of water and wastewater facilities. Jason is also a water treatment expert and understands the water quality issues associated with the water combining WISE water with the Town of Castle Rock water. Jason will be responsible for making sure that there are no water quality issues for this project.

APPROACH TO SCOPE OF WORK

The WISE Local Infrastructure Design project is required by the Town of Castle Rock to deliver WISE water from Parker's Reuter Hess Reservoir to the Town of Castle Rock's water distribution system. The proposed 2.2 mile pipeline will help to provide for the the sustainable long-term water supply of the Town, and other WISE providers (Dominion Water & Sanitation District). In accordance with the Town's Water Resources Strategic Mater Plan, there is a long term goal to provide 75% of the required water supply from renewable sources such as water from the Water Infrastructure System Efficiencies (WISE) partnership. The pipeline is expected to be either 30" or 36" with the ability to convey up to 14 million gallons per day (MGD).

The primary goal of this project is to design a pipeline for conveying WISE water from the intersection of Outer Marker Road and Xcel's transmission mains, to the Town of Castle Rock's existing system near Diamondback Pump Station on Crowfoot Valley Road through and along the existing Xcel Energy easement, parallel to the overhead power lines. Design will include pipeline sizing, pipeline material selection, routing, master metering, and all necessary work for a complete pipeline. A secondary goal of this project is to recommend options for utilizing WISE water that has been treated in Parker's Water Treatment Plant and to determine what, if any, treatment processes are required to make the water compatible with the Town of Castle Rock's existing water. This will include a water quality analysis.



Implementing this WISE Local Infrastructure Design project will require significant coordination, communication, and cooperation. Burns & McDonnell is fully committed to making the Town successful. We have complete in-house services including pipeline, treatment, process, and permitting specialists ready to make this project a success.

PROJECT APPROACH

Burns & McDonnell has a proven history of working with the Town of Castle Rock to execute the smooth delivery of projects such as the Plum Creek Water Purification Facility and the Kinner Street Sewer Outfall. Closely coordinating and working as an extension of the Town's staff has been paramount to the success of these projects. It is through this teamwork that our team will provide technical experience and quality engineering in the most responsive manner. Our approach is designed to meet the following key objectives listed in Table 1.

| Table 1: Preliminary Project Objectives | |
|---|--|
| Communication and Coordination | Provide necessary communication and hold meetings with both the Town, and other WISE partners. |
| Hydraulic Analysis & Diameter Selection | Perform hydraulic analysis to determine the optimum waterline size based on near and long term demands. |
| Materials Selection | Evaluate different pipeline materials including steel, ductile iron, and PVC pipe to bring the best value to the Town. |
| Water Delivery Options | Identify water delivery options taking into account the different water quality and treatment methods. |
| Permitting | Identify and initiate the required permits required for project approval. |

Coordination and Communication

Burns & McDonnell has been in business for over 117 years. The design of water distribution and transmission pipelines is a core service provided by our firm. Our team recognizes the importance of constant coordination and ongoing communication between Town staff and the project team. This begins at the initial coordination/kick-off meeting where direct lines of communication, project requirements, project scope, public concerns, design criteria, and critical project issues are established.

We have anticipated that this project will take approximately 4 months to complete. Due to the importance of this project, we are also proposing that we hold progress meetings once a month at the Town of Castle Rock offices. We propose weekly conference calls to keep the Town of Castle Rock up to date on the progress of the project. Burns & McDonnell will provide necessary presentations, exhibits, agendas and develop meeting minutes along with action items, decision logs and, schedule revisions for all of the meetings.

Review of Existing Documentation

To fully understand the work and research for this project and for other projects that are directly related to this project we will review the following existing information that was included with the RFP:

- ▶ TCR WISE Infrastructure Alignment Study and Preliminary Design Services
- ▶ Parker Water and Sanitation District – Ridgeway Line and Rueter-Hess WISE Infrastructure Evaluation
- ▶ Parker Water and Sanitation District's – Water Treatment Facility Plans
- ▶ Town of Castle Rock – Utilities Information (location mapping, Diamond Ridge Pump Station Plans and the Interconnect Pipeline Alignment Evaluation)

We will also collect and review additional information as required to execute this project such as Town mapping, hydraulic model information, as-built information, etc.

Pipeline Diameter Selection

Burns & McDonnell will evaluate pipeline hydraulics including static and dynamic hydraulic grade lines for a wide variety of water delivery requirements now and into the future. The hydraulics associated with this pipeline are relatively straight forward. Burns & McDonnell will provide a spreadsheet hydraulic analysis based on varied flow rates (initial and future) which can be graphically depicted. The evaluation of the new pipeline and recommendation for design will consider the stated initial flow rate of 7 MGD (3 MGD for the Town and 4 MGD for Dominion) and the stated final flow rate of 14 MGD (7 for the Town and 7 MGD for Dominion). Table 2 provides an initial estimate of the proposed pipelines sizes and their associated velocities and head loss.

| Table 2: Waterline Diameters, Flow Rate, Velocity and Associated Head Loss | | | |
|--|-----------------|----------------|---------------------------|
| Description | Flow Rate (MGD) | Velocity (fps) | Pipeline Head Loss (feet) |
| 30-inch Waterline (initial flow) | 7 | 2.2 | 7 |
| 30-inch Waterline (future flow) | 14 | 5.5 | 25 |
| 36-inch Waterline (initial flow) | 7 | 1.5 | 3 |
| 36-inch Waterline (future flow) | 14 | 4.2 | 10 |

We have reviewed the proposed PWSD tank elevations against the existing HGL delivered to the Town's Purple Pressure Zone. There appears to be approximately 20 feet +/- of head between the proposed Parker tank and the purple zone. As such, Parker can deliver water without an additional booster pump station to the Town's infrastructure. However, the tanks are so close in elevation, that the pipeline hydraulics will control the ability to deliver flows. The ability to deliver flows will be based on the following criteria:

| Table 3: Criteria for Flow Delivery | |
|--|--|
| Water level in the PWSD tank | Water level in Tank #11 (Purple Zone) |
| Pipeline hydraulics (diameter selection) and number of pipelines | Flow rate in the pipeline (normal and peak flow rates) |

The diameter of the waterline is too close to call as part of this proposal. Further investigation into the tank elevations, pipeline diameters, and flow rates is required during design. There may be certain operational requirements necessary to make this flow delivery work. For instance, the Town may need to carefully monitor the tank levels in Parker's tank in order to ensure that there is available head to deliver the required flows. At this point, it appears that a 30-inch waterline may allow Parker to deliver approximately 10 MGD (depending on levels in both tanks). A 36-inch waterline would certainly meet the 14 MGD requirement of future flow.

Burns & McDonnell will work with the Town to determine the best overall value for the project. There are many considerations for pipeline hydraulics and a few criteria are summarized in Table 4.

| Table 4: Pipeline Selection Criteria | | |
|--|---|---|
| | Pros | Cons |
| Provide one pipeline, sized for future condition | <ul style="list-style-type: none"> A 2nd pipeline is not needed in the future | <ul style="list-style-type: none"> Water quality concerns at initial flows Larger diameter = greater initial cost |
| Provide two pipelines now, sized for future condition | <ul style="list-style-type: none"> Can use one pipeline at startup, and transition as flows increase Water quality is best maintained | <ul style="list-style-type: none"> Expensive Takes a larger working area May have poor utilization |
| Provide one smaller pipeline now, and install a 2 nd pipeline in future | <ul style="list-style-type: none"> Water quality is maintained Least expensive option Future construction = flexibility | <ul style="list-style-type: none"> Future construction may be much more expensive and harder to construct |

We have utilized Google Earth to perform a conceptual review of the ground elevations associated with this project. The following Figure 1 shows the ground elevations and potential hydraulic grade line (HGL) associated with the alignment. The HGL's for both a 30-inch and 36-inch waterline are shown for consideration. Many assumptions have been made in the production of this exhibit including the theoretical operating elevations in Parker's proposed tank. These assumptions will be verified as part of our design.

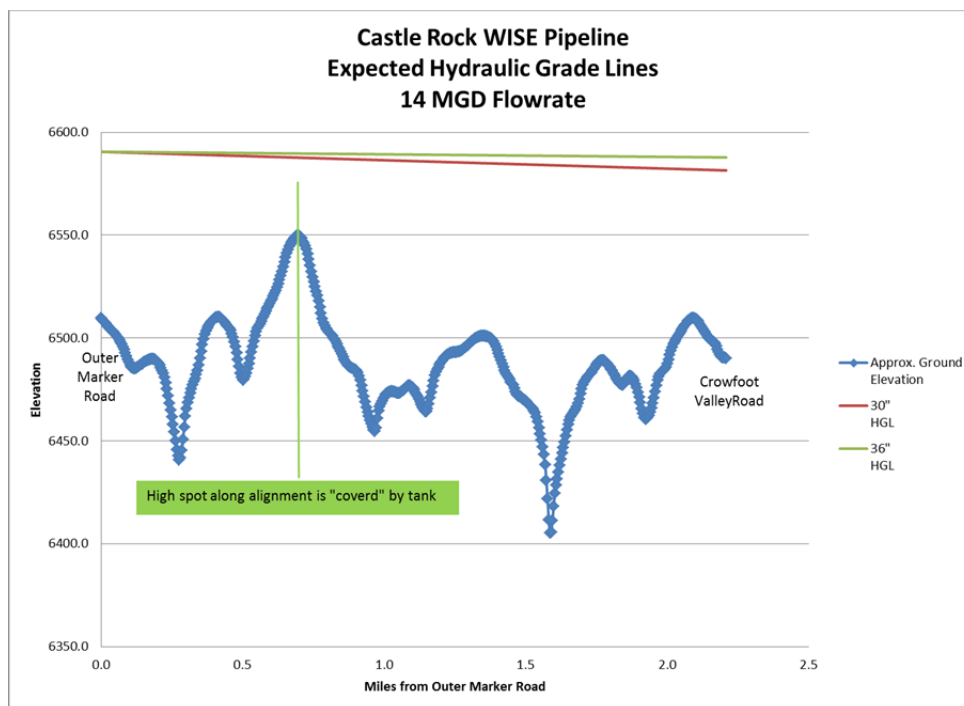


Figure 1 – WISE Local Infrastructure – 30" and 36" Waterlines – Ground Elevations and Pipeline HGL Profile

Pipeline Material Selection

For this project, there is a financial balance between pipe material selection, associated inside diameter, pipe thickness, appurtenance costs, maintenance costs, capital, and life-cycle costs. Burns & McDonnell will consider the total project in order to bring the best value to the Town of Castle Rock.

For a 30-inch and 36-inch waterline, there are three pipeline materials that should be considered – Steel, Ductile Iron, and PVC. The URS report summarizes the "pipeline pressures" as being very high. The statement was made for the entire pipeline including both Parker's and the Town's portions of the line. The Town's portion of the line will operate hydraulically off of the proposed Parker Tank. Expected pipeline pressures do not exceed 75 psi and are indicated in the Figure 2.

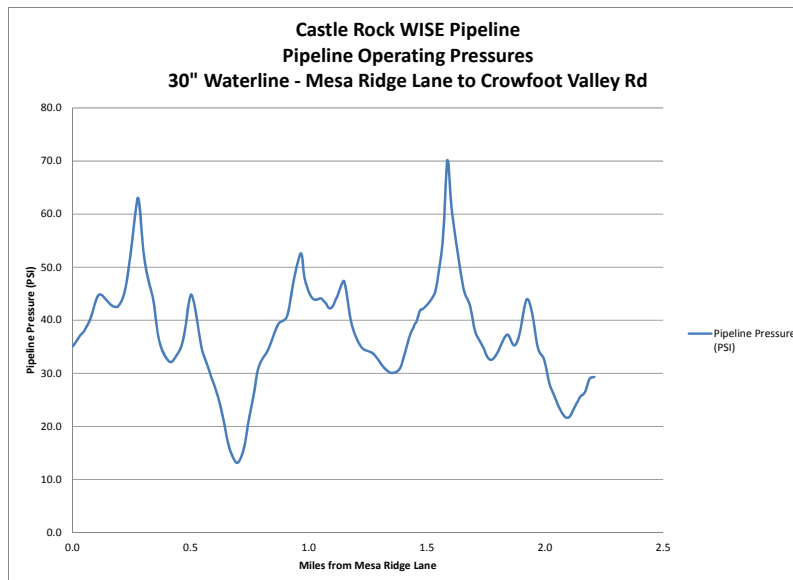


Figure 2 – Expected Pipeline Pressures

The normal working pressures in the pipeline are not expected to exceed 75 psi and therefore, PVC is a viable alternative. PVC (at both 30" and 36" diameters) is available in a variety of pressure classes and will be considered by the Burns & McDonnell design. PVC will be extremely cost competitive and PVC will not require the extensive cathodic protection system that both steel and DIP would. The pipeline will be located in-and-along high voltage overhead power transmission line and will be subject to stray currents and corrosion. Providing a plastic pipe (PVC) will greatly reduce the size, cost, complexity, and maintenance required by a metallic pipeline.

Burns & McDonnell will design, and bid alternative pipeline material options. Allowing contractors material options provides the most competitive pipeline cost at the time of bid and will bring considerable value to the Town. All of our recent transmission waterline projects have allowed the bidding of several pipeline materials, including our work for the City of Cheyenne which saved the City several million dollars.

Cathodic Protection

This waterline will be subject to stray current and corrosion due to the parallel high voltage power lines. The selected design engineer must have a plan and the experience to provide not only a pipeline that performs, but a pipeline that will perform well into the future. Providing a cathodic protection system that is simple and effective will be the key to our approach.

During design the soil resistivity will be obtained as part of the geotechnical investigations. Burns & McDonnell will help custom tailor a cathodic protection system to best meet the Town's needs. We will work with the Town in order to understand your preferences and establish the required pipeline life so that an appropriate cathodic protection system can be designed.

The cathodic protection requirements of this project will be evaluated as part of our design. The protection requirements are dependent on the following key decisions indicated in Table 5:

| Table 5 Cathodic Protection Requirements Basis | |
|--|-----------------------------------|
| Material of pipeline | Diameter |
| Existing and proposed power line voltages | Number of Pipelines |
| Distance from power line | Required pipeline life expectancy |

Burns & McDonnell has partnered with QualCorr to bring excellence in cathodic protection design for the waterline. QualCorr has worked successfully for both Burns & McDonnell and the Town of Castle Rock for nearly a decade.

Water Quality Considerations

Water quality will be an important consideration in the evaluation and preliminary design of the Town's connection to the WISE delivery system. The following issues will warrant further consideration:

- ▶ WISE delivery partners may utilize different strategies for iron and manganese control (oxidation vs sequestration) in their existing ground water supplies. If WISE water is co-mingled with these potable water supplies, the Town's portion may require additional treatment.
- ▶ The Town of Parker's Rueter-Hess Water Treatment Plant may offer a viable treatment option for WISE water stored in Rueter-Hess Reservoir. However, a thorough understanding of the treatment processes and chemical addition strategies utilized within the plant is necessary to determine the optimal discharge or withdrawal, point from the treatment process.

Burns & McDonnell's familiarity with the Town of Castle Rock, its water treatment facilities, raw water constituents, finished water treatment goals, and the treatment technologies utilized at the Rueter-Hess WTP make us uniquely suited to guide the Town through this important evaluation. Open and honest communication between the partnering entities regarding their treated water goals is an essential first step in accurately identifying the extent of any, or all, necessary treatment processes.

Agency Permitting

For this project, there will be outside agencies that will require close coordination and communication as we work our way through their design, review, and permitting processes. It is critical to obtain input from all such agencies early-on in order to make sure that all of these specific requirements are conveyed in the design documents and to factor in their review time into the project schedule. Our project team has extensive pipeline experience in Colorado which has resulted in established and trusting relationships with the many agencies from which permits for the WISE Infrastructure Alignment Study and Preliminary Design project are required. The sections below address the permitting requirements identified for project development activities.

- ▶ **Douglas County Approvals** - The entire pipeline will exist within Douglas County and portions may be installed within unincorporated Douglas County and will therefore require their review and approval. Our team will meet with Douglas County to determine if floodplain permitting is required for the project. Our initial investigation of FEMA floodplain mapping along the pipeline alignment only shows potential impact in and around Newlin Gulch. Expected permits are GESC, ROW Use and/or Construction and Floodplain. Impacts to floodplain are expected to be minimal and provide the opportunity for trenchless installations.
- ▶ **Town of Castle Rock** - There will be a number of roads that are within the jurisdiction of the Town of Castle Rock that will be crossed. Our team will meet with the Town of Castle Rock to determine if the roads will need to be bored, or if they can be open cut. Expected Town permits include GESC, ROW Use and/or Construction.
- ▶ **U.S. Army Corps of Engineers Clean Water Act Section 404 Compliance** - Our team will contact the Army Corps of Engineers (USACE) to determine if the crossings of any of the waterways are considered a federal waterway to determine what permitting, if any, will be required.
- ▶ **Colorado Department of Public Health & Environment** - Permitting will be required from the Colorado Department of Public Health & Environment due to the potential size of the waterline.

For the purpose of our proposal it has been assumed that the Town of Castle Rock will pay all fees associated with the license and permit applications and acquisition including public notice and advertising costs.

Easements

The Town of Castle Rock has already taken the first step in land acquisitions as the easement descriptions and exhibits have been created. Based on our discussion with Mr. Schwarz at the site visit meeting, additional, temporary construction easements are being determined and obtained by the Town.

While it is possible for a talented contractor to build a 30-inch or 36-inch waterline within the 40-foot proposed permanent easement, the cost to install the pipeline would be very expensive. Restricting the Contractor's work area to a narrow corridor will impact production rate which increases cost. Allowing a wider working area will improve the Contractor's ability to stage and install the work, thereby reducing cost. The cost to acquire temporary construction easements is relatively inexpensive when compared to the potential impact construction cost.

Burns & McDonnell recommends that the Town consider acquiring an additional 30 to 40 feet of temporary construction easement. This would produce a total working width of 70 to 80 feet. We expect that for the few thousand dollars of additional cost for the temporary construction easements could result in tens of thousands of dollars of savings in construction.

KEY ISSUES

There are many key issues that must be addressed for this project. An understanding of these key issues, and how to address them, is vital to an effective approach for this project. The key issues, their impact on the project, and how we will address them are discussed herein.

Trenchless Crossing, Borings, and Permits at Critical Crossings

Burns & McDonnell has unequaled experience with all aspects of trenchless crossings including, methodology, sizing and alignment, environmental concerns, permitting, outside agency coordination, and constructability. We have worked closely with CDOT, counties, cities, towns, ditch companies, the Corp of Engineers, and all of the railroad companies to secure necessary licensing agreements and permits required prior to putting these projects out to bid.

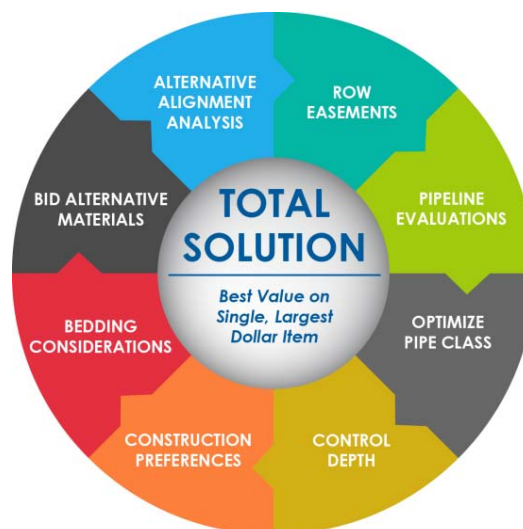
For this project, there are a number of roads and drainage ways that will need to be crossed. Some crossings will have the potential for installation via bored steel casing or HDD. Requirements are dependent upon the jurisdiction (Douglas County or Town of Castle Rock). Table 6 identifies waterways and roadways that will be crossed with the waterline alignment that have a high potential for a bored or a horizontal directionally drilled crossing.

| Table 6: Potential Bored Steel Casing Locations |
|--|
| Newlin Gulch |
| Mesa Ridge Lane |
| Cinnabar Drive |
| Sapphire Point Boulevard |
| Cobalt Way |
| Potential wetlands and water crossing off Aquamarine Drive |
| Potential wetlands and water crossing north of Gemstone Park |

“Total Solution”

The cost per lineal foot of pipeline will be, by far, the single most expensive part of this project on bid day. As such, understanding all of the intricacies of what goes into that price is absolutely critical. This understanding is based on years of providing large diameter water transmission projects which our team performs day-in and day-out. We will bring our understanding of pipeline costs and utilize them to bring the best value to the Town.

Our team’s knowledge of your system, understanding of where the large dollars will be spent, and value engineering ideas pertaining to the following items will provide an out of the box, Customized Value Engineered approach to the design. Our team is in the best position to bring savings to the Town of Castle Rock on every element of design and construction. This type of “Value Engineering” provides a “Total Solution” approach to the single most expensive element of a project of this magnitude!



Environmental Investigation and Resource Data Collection

This project will involve crossing of the Newlin Gulch as well as two other drainage areas. In lieu of having the cost of environmental investigations we will design trenchless crossing for each waterway. This will minimize the disturbance in the areas of the water crossings. The remainder of the alignment is currently being used for grazing and is adjacent to high voltage electrical lines. Since the land was previously disturbed, environmental impacts are minimized.

Existing Utility Consideration

Existing utility locations play a major role in the final alignment for any pipeline project. Special consideration will be given to achieve adequate separation distances (horizontal and vertical) from existing storm, sanitary, and waterlines. During the preliminary phase of this project, our team will review existing utility maps of the Town of Castle Rock service area in greater detail. Maps for other entities when available will also be obtained and reviewed. This information will give our designers an idea of the various utility crossings that can be expected. All utility crossings will be potholed by vacuum excavation

Public Relations

Open communications lead to a successful project and generally help eliminate issues at later stages in the design. Our prior experience indicates that the more input stakeholders have up-front, the happier they are with the overall project. Our proposal includes attendance at two public outreach meetings, organized by the Town of Castle Rock. The intent of our design will be to minimize impacts to the public. We have found that an informed public is more often a happy public!

PROJECT MANAGEMENT APPROACH

Burns & McDonnell’s approach to project management is centered on communication. Our goal has always been to closely coordinate with the Town on all of their projects that we work on in order to provide technical expertise and quality engineering in the most responsive manner possible. Burns & McDonnell will continually involve the Town of Castle Rock staff in the decision-making process. While we must retain ultimate responsibility for the content and

quality of design and contract documents, we emphasize a total team approach to produce a quality project that will meet all of the Town's goals and expectations for the project. As in the past, our approach will ensure that the Town of Castle Rock / Burns & McDonnell team will work together towards a successful project that meets all objectives. The Town will have an interactive, continuing role throughout the project!

- ▶ Our approach to planning includes transparency, but it must also be logical. Planning work often includes multiple variables that must be assigned. It is thus critical that planning work follows a logical progression that is defensible and repeatable.
- ▶ Our approach to design is centered on understanding the problem to be solved and incorporating the preferences of the Town in that solution. We understand that there are often many ways to complete a design, but ultimately, it will not be successful unless your staff and operators are in support of the design.

Plans and List of Drawings

It is anticipated that the drawings for the project will be as indicated in the table to the right. There will be a plan set for construction of the facilities and a GESC plan set for the project.

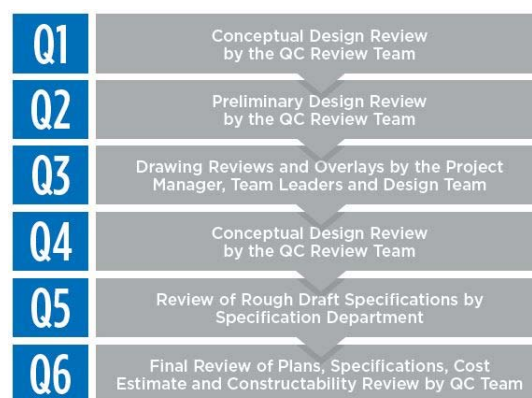
Scheduling

The project team uses Microsoft Project and Outlook for scheduling work tasks. An initial schedule which includes or work breakdown structure is provided with this Proposal. This schedule includes key dates for submittals and completion of individual tasks. As the project progresses, the schedule will be re-visited and revised if needed. Our intention is always to keep to the initial project schedule and to work with the Town to meet your schedule needs.

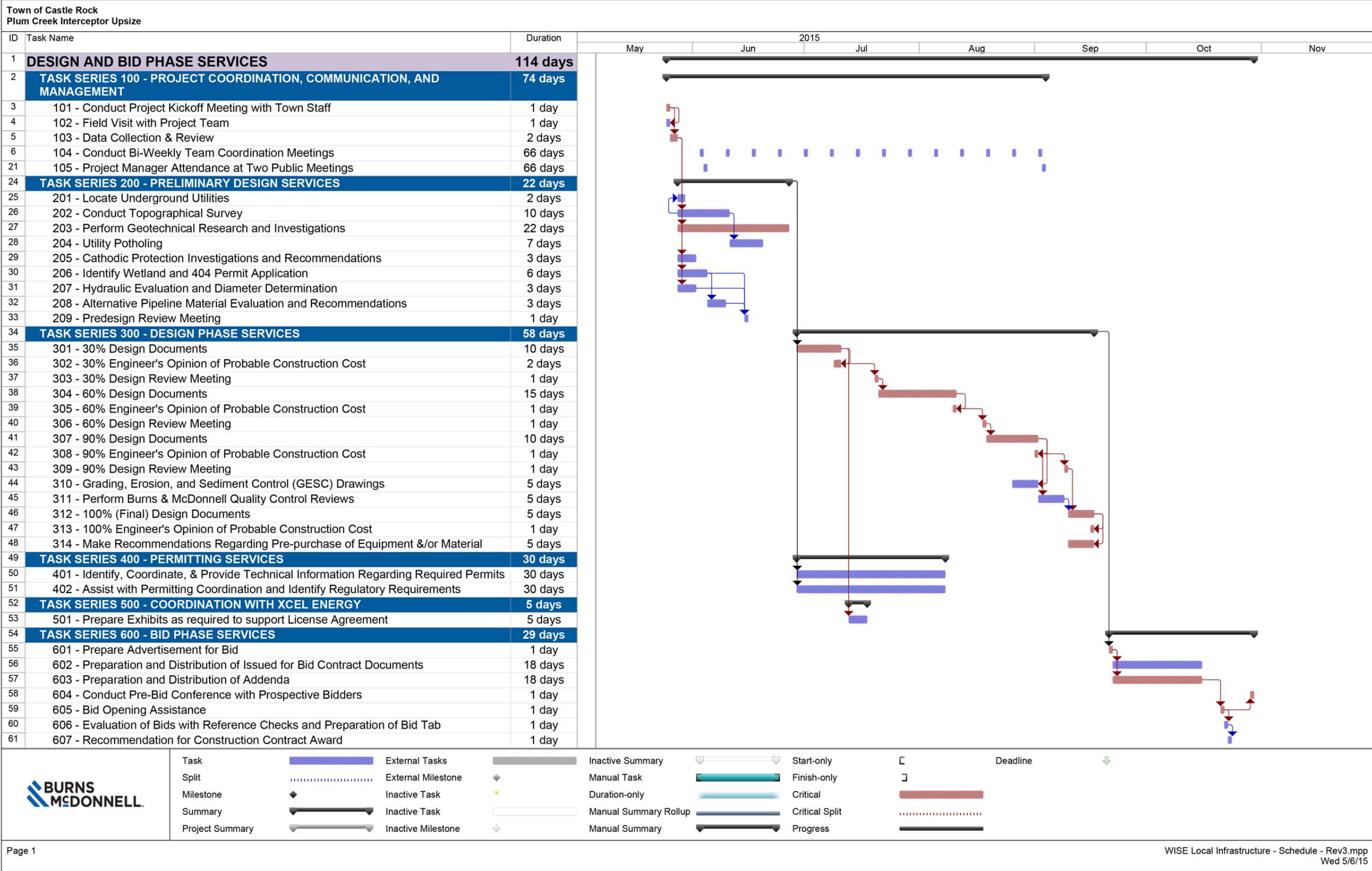
Quality Assurance/Quality Control

Burns & McDonnell has an established, formalized quality control program that is mandatory on all projects. Our project manager, Mike Lehrburger, will be responsible for organizing all aspects of your project's quality control activities including: scheduling the quality control review; assembling review teams; overseeing in-house quality reviews; and coordinating with the Town on their quality control requirements. The project manager will coordinate with the project team to see that the quality control functions are smoothly incorporated into the overall project work. The quality control director will review all documents for compliance. On this project, we will utilize a program customized for water transmission main designs that includes six subtasks. These subtasks are indicated in the graphic to the right.

| Sheet # | Description |
|---------|--|
| 1 | Cover |
| 2 | Index |
| 3 | Overall Layout , Survey Control, Legend |
| 4 | General Notes |
| 5 | Plan and Profile 1 - 30" WL STA: 00+00 to STA: 10+00 |
| 6 | Plan and Profile 2 - 30" WL STA: 10+00 to STA: 20+00 |
| 7 | Plan and Profile 3 - 30" WL STA: 20+00 to STA: 30+00 |
| 8 | Plan and Profile 4 - 30" WL STA: 30+00 to STA: 40+00 |
| 9 | Plan and Profile 5 - 30" WL STA: 40+00 to STA: 50+00 |
| 10 | Plan and Profile 6 - 30" WL STA: 50+00 to STA: 60+00 |
| 11 | Plan and Profile 7 - 30" WL STA: 60+00 to STA: 70+00 |
| 12 | Plan and Profile 8 - 30" WL STA: 70+00 to STA: 80+00 |
| 13 | Plan and Profile 9 - 30" WL STA: 80+00 to STA: 90+00 |
| 14 | Plan and Profile 10 - 30" WL STA: 90+00 to STA: 100+00 |
| 15 | Plan and Profile 11 - 30" WL STA: 100+00 to STA: 110+00 |
| 16 | Plan and Profile 12 - 30" WL STA: 110+00 to STA: 116+05 |
| 17 | Metering/Flow Control Vault Details |
| 18 | WL Details - Typical Trench, Air/Vac Assembly, Blow off Assembly |
| 19 | WL Details - Tracer Wire, Ring+Cover, Stairs, Cutoff Wall |
| 20 | WL Details - Water Tight Ring+Cover, Encasement, Others |
| 21 | Cathodic Protection Details - Anodes, Cad-Welds, Test Stations |
| 22 | GESC Cover |
| 23 | GESC Layout and Index |
| 24 | GESC Plan Views 1 - 30" WL STA: 00+00 to STA: 20+00 |
| 25 | GESC Plan Views 2 - 30" WL STA: 20+00 to STA: 40+00 |
| 26 | GESC Plan Views 3 - 30" WL STA: 40+00 to STA: 60+00 |
| 27 | GESC Plan Views 4 - 30" WL STA: 60+00 to STA: 80+00 |
| 28 | GESC Plan Views 5 - 30" WL STA: 80+00 to STA: 100+00 |
| 29 | GESC Plan Views 6 - 30" WL STA: 100+00 to STA: 116+05 |
| 30 | GESC Details - Castle Rock Standard Notes and Details - 1 of 3 |
| 31 | GESC Details - Castle Rock Standard Notes and Details - 2 of 3 |
| 32 | GESC Details - Castle Rock Standard Notes and Details - 3 of 3 |



ACTION PLAN & SCHEDULE



SIMILAR PROJECT EXPERIENCE

Burns & McDonnell's Distribution and Collection Department in our Denver Regional Office has designed dozens of transmission pipelines both locally and around the country. Our local project team has a tremendous amount of experience with all aspects of pipeline designs including replacement, alignment, hydraulics, rehabilitation, PRVs and vault installations, utility crossings, environmental concerns, outside agency coordination, permitting, cathodic protection systems, trenchless technologies, construction, as well as other issues associated with these types of projects.

Through our considerable experience, our proposed team knows exactly how to approach each situation and what challenges to anticipate. As a result, our team is prepared to provide you with a cost-effective design that will meet all of your needs. Ultimately, this viable and proven experience of our team gives us a level of experience that is unparalleled in this region.

Table 8: Burns & McDonnell's Recent Water Conveyance/Piping Experience

| Project Name | Client | Diameter (Inches) | Length (feet) | Material |
|---|-------------------------------------|-------------------|---------------|-----------------|
| North Area Lift Station Waterline | City & County of Broomfield (CO) | 12 | 3,185 | PVC |
| Erie Raw Water Pipeline | Town of Erie (CO) | 36 | 39,600 | Steel, DIP |
| Erie Reuse Waterline | Town of Erie (CO) | 16, 24 | 19,536 | PVC |
| Meadowlark and TOD Waterlines | City of Westminster (CO) | 8, 12 | 5,280 | PVC |
| Pressure Zone 12 Improvements | City of Westminster (CO) | 6, 8, 12 | N/A | Vaults |
| Lowell Blvd. Watermain Rehab – Ph I & II | City of Westminster (CO) | 12, 16 | 3,696 | DIP |
| Southern Zone 1 Pipeline | City of Westminster (CO) | 30, 36 | 9,504 | DIP |
| Cooley Raw Water and Potable Pipeline | City of Thornton (CO) | 36, 42 | 31,680 | DIP |
| Zone 1 - 136th Avenue | City of Thornton (CO) | 24 | 2,640 | PVC, Steel, DIP |
| Zone 1 - Holly Street | City of Thornton (CO) | 30 | 17,952 | Steel, DIP |
| 88th Avenue Waterline | City of Thornton (CO) | 12, 16 | 3,485 | PVC, DIP |
| Columbine RO Yard Piping | City of Thornton (CO) | 16, 54 | 2,640 | Steel, DIP |
| Northridge Discharge Pipeline | City of Westminster (CO) | 30 | 6,336 | PVC, Steel, DIP |
| Left Hand Water District Waterline | Left Hand Water District (CO) | 20 | 8,712 | Steel, DIP |
| CBT Parallel Waterline | City of Greeley (CO) | 36 | 2,957 | DIP |
| Southern Water Transmission Main – Phase II | City of Cheyenne – BOPU (WY) | 12, 16, 18, 42 | 58,080 | PVC, Steel, DIP |
| Gillette Madison Pipeline Project | City of Gillette (WY) | 42 | 274,560 | Steel |
| JCC Pressure Zone 4 Distribution WL | City of Riverton (WY) | 24 | 18,480 | PVC |
| Madison Blending Waterline | City of Gillette (WY) | 18 | 31,680 | PVC, DIP |
| Highway 66 Waterline | City of Longmont (CO) | 36 | 3,960 | Steel, DIP |
| Clover Basin Water Transmission | City of Longmont (CO) | 36, 42 | 15,840 | Steel, DIP |
| Alternative Water Supply Program | City of Clinton (OK) | 10, 12 | 62,304 | PVC |
| ACWWA Antelope Distribution | Arapahoe County W&WW Authority (CO) | 6, 8, 12 | 29,568 | PVC, DIP |
| Fort Morgan Pipeline | City of Fort Morgan (CO) | 30, 36 | 63,360 | Steel, DIP |
| A-100 Waterline Loop | Arapahoe County W&WW Authority (CO) | 12 | 3,485 | PVC |
| TPQ Well Waterline | Arapahoe County W&WW Authority (CO) | 6, 8 | 2,640 | PVC |
| Yosemite & County Line Rd. Waterline | Southgate Water District | 16, 20 | 528 | PVC |
| Federal Correction Institute | Federal Bureau of Prisons (CO) | 8, 12 | 6,495 | DIP |
| Antonoff Well Waterline | Arapahoe County W&WW Authority (CO) | 12, 18 | 6,178 | PVC |

Southern Zone 1 Potable Waterline

Westminster, Colorado



- ▶ PROJECT MANAGER: Dan Korinek, PE
- ▶ STATUS: Complete
- ▶ VALUE: \$3M

Burns & McDonnell provided planning, design, alignment selection and evaluation, easement acquisitions, public relations, material evaluations, permitting, construction management, a full-time resident engineer and full-time inspection services to design 4,500 LF of 36-inch potable waterline and 4,600 LF of 30-inch waterline. Several alignments were

evaluated and easement acquisition was a major challenge. The waterlines were located primarily within busy arterials along commercial business and residential areas, which included existing utilities and heavy traffic congestion as major challenges.

As a result, nearly 100 existing utilities were identified, potholed, and incorporated into the design drawings. Pipeline material bid alternatives were included in the bidding documents, which improved the competitive nature of the bidding environment and led to the use of alternate products, which provided the City with substantial cost savings. Construction along 88th Avenue and Harlan Street was exceedingly difficult due to the high-traffic volumes, a tight work zone, and maintaining normal business activity. Intricate traffic control plans were coordinated and changed daily and based on work progress and schedule.

Plum Creek Water Purification Facility

Castle Rock, Colorado



- ▶ PROJECT MANAGER: Anthony Beeson, PE
- ▶ STATUS: Complete
- ▶ VALUE: \$16.7M

Burns & McDonnell provided professional engineering services for the new 4-MGD Plum Creek Water Purification Facility (PCWPF) in Castle Rock, Colorado. This project utilized alternative project delivery and specifically the design/contract-build contracting method. Burns & McDonnell completed a 30% design package for use by the Town to select a general contractor to participate in a collaborative project delivery environment.

Burns & McDonnell was responsible for all design aspects of the project including preliminary design, process and ancillary equipment design, preparation of contract documents, coordination with local building and fire departments and other state and local government agencies, and general contractor selection assistance.

Gillette Regional Water Supply

City of Gillette, Wyoming



- ▶ PROJECT MANAGER: Dan Korinek, PE
- ▶ STATUS: Construction (est. 2016)
- ▶ VALUE: \$225M

Burns & McDonnell is providing planning, program/ project management, design, and construction phase services (including full-time construction inspection) for the largest state-funded municipal project in Wyoming. The project provides a regional

water source to meet current and projected growth and system demands as a result of the burgeoning energy industry which increased the region's population by 50% during the previous 10 years.

The project includes a new Madison Formation Well Field (5 wells), 52 miles of 36- and 42-inch diameter pipeline, a 23.5-MGD pump station, a 1-MG storage tank, an onsite sodium hypochlorite disinfection generation facility, three miles of 18-inch blending waterline, and a water blending facility.

Burns & McDonnell provided hydraulic modeling and surge analysis for the entire water system to accurately determine future demands, storage requirements, waterline sizes, pressures, flows and overall water quality. Construction management with full time observation is also being provided.

Southern Transmission Main – Phase II

City of Cheyenne - BOPU, Wyoming



- ▶ PROJECT MANAGER: Kate Henske, PE
- ▶ STATUS: Complete
- ▶ VALUE: \$26M

Burns & McDonnell provided planning, design, and construction management services for approximately 11.5 miles of potable waterline ranging in size from 42-inches to 12-inches in diameter.

The final product strengthened the Board of Public Utility's (BOPU) water infrastructure located in the southern portion of the City of Cheyenne with the allowance for the future Phase III connection point.

The waterline is located within utility easements and an existing right-of-way, and runs through non-developed property, county roads, and city streets. There were two crossings of I-80, one crossing of I-25, two railroad crossings, and multiple road crossings, which required coordination and planning with a variety of outside agencies and included reviews by WYDOT, WWDC, WDEQ, Laramie County, City of Cheyenne, Union Pacific Railroad, Burlington Northern Railroad, United States Fish and Wildlife, Western Area Power Association (WAPA), and the US Army Corps of Engineer.

DAN KORINEK, PE

Project Director



Dan has more than 26 years of experience and serves as the Rocky Mountain Regional Water Practice Manager. With nearly three decades of water /wastewater experience, Dan has been involved in every aspect of the project lifecycle. His experience includes project/program management, planning, designing, and constructing a wide variety of wastewater collection systems, water delivery systems, storage facilities, pumping systems, storm/sanitary sewers, and site work for various municipalities and industrial complexes throughout the Rocky Mountain Region, including previous Town of Castle Rock projects like the Kinner Street Sewer Outfall and Plum Creek Water Purification Facility projects.

Throughout his career, Dan has been involved with all technical phases associated with wastewater collection projects, including pipeline design, alternative alignment identification and selection, easement acquisitions, material evaluations, hydraulic analysis, pumping options, public involvement, creek/ditch/railroad borings, wildlife impact studies, and environmental impact studies. As Project Director, Dan will offer quality review and guidance while making certain that the project team has the tools and resources necessary to make the Plum Creek Sewer Interceptor Upsize Design Services Project a complete success.

EDUCATION

- ▶ BS, Civil Engineering, Colorado State University

REGISTRATIONS

- ▶ Professional Engineer: Wyoming, Colorado, Missouri, Texas

26 YEARS WITH BURNS & MCDONNELL

26 YEARS OF EXPERIENCE

Southern Water Transmission Main – Phase II, City of Cheyenne – BOPU (WY)

Project Director & Executive Sponsor.

Dan served as the Project Director, which provided planning, design, and construction management services for approximately 11.5 miles of potable waterline ranging in size from 12-inches to 42-inches. The waterline is located in utility easements and within existing ROWs, and runs through both non-developed areas, county roads, and city streets. There are two crossings of I-80, one crossing of I-25, two railroad crossings, and multiple road crossings. Coordination and planning with outside agencies was critical to the project's success and included reviews by the WYDOT, Laramie County, City of Cheyenne, Union Pacific Railroad, Burlington Northern Railroad, United States Fish and Wildlife, and USACE.

City of Gillette, Gillette Regional Water Supply, City of Gillette (WY)

Project Manager.

Dan is serving as the Project Manager for the project, which included a new Madison Formation Well Field, 52 miles of 36- and 42-inch diameter pipeline, a 24-MGD pump station, a 1-MG welded steel water storage tank, an onsite sodium hypochlorite disinfection generation facility, three miles of 18-inch diameter blending waterline, and a water-blending facility. Burns & McDonnell also provided hydraulic modeling and surge analysis of the entire water system to accurately determine future demands, storage requirements, pipe sizes, system pressures and flows, and overall water quality.

Southern Pressure Zone 1 Waterline, City of Westminster (CO)

Project Director.

Dan served as the Project Director and was responsible for providing more than 1.7 miles of 30- and 36-inch water transmission piping in the City of Westminster along existing City streets and through easements in the vicinity of the Westminster Mall. Several

DAN KORINEK, PE

(continued)

alignments were evaluated and easement acquisition was a major challenge. The work included planning, design, alignment selection and evaluation, easement acquisitions, public relations, material evaluations and permitting.

Cooley West Raw Water Pipeline & Pump Station, City of Thornton (CO)

Project Director.

Dan served as the Project Director, which provided planning, design, routing studies, alignment evaluation and selection, easement acquisition, public relations, material evaluations, and permitting for a 30-MGD pump station, 13,760 LF of 36-inch raw waterline, 11,690 LF of 42-inch and 3,200 LF of 8-inch potable waterline to convey water from downstream reservoirs to the Wes Brown Water Treatment Plant.

Erie Raw Water Pump Station and Pipeline, Town of Erie (CO)

Project Manager.

Dan served as Project Manager to design facilities to convey 30cfs of raw water to the Town of Erie's Prince Reservoir and Erie Lake from the Boulder supply Canal. The design included a new intake structure and metering off of the Boulder Supply Canal, a 13 MGD pump station, and over 7.5 miles of 36-inch raw waterline and appurtenances. Included in the design was multiple bores including Boulder Creek, the UPRR Railroad, roadways and ditches.

The work performed includes planning, design, routing study and alignment selection and evaluation, easement acquisition evaluation, public relations, materials evaluations, environmental, permitting issues and dealing with the Boulder County 1041 process.

Riverton Water Supply, City of Riverton (WY)

Project Director.

Dan is serving as the Project Director, which is providing hydraulic modeling, system planning, design services, and construction administration and observation for system-wide improvements to the City's potable water infrastructure system. Improvements included several water transmission mains, a 2-MG concrete water tank, three new pre-packaged booster pump stations, well head installations, and pressure zone boundary improvements including pressure-reducing valve vaults.

Meadowlark Waterline and Transit Oriented Development, City of Westminster (CO)

Project Manager.

Dan served as Project Manager to replace approximately 7,330 lineal feet of 12-inch, 8-inch, 6-inch and 4-inch potable water distribution systems, miscellaneous connections, all associated improvements and restoration for a completely functioning system. The project serves to replace existing, deteriorating potable waterline infrastructure while delivering improved system reliability and fire flow.

Kinner Street Sewer Outfall, Town of Castle Rock (CO)

Project Manager.

Responsible for the overall delivery, quality, and client satisfaction for the upsizing and realignment services of 3,500 LF of existing gravity pipeline ranging from 18-inch/21-inch sanitary sewer to a 27-inch/30-inch sanitary sewer. The project required two new bores: one under I-25 and one under Wolfensberger Road, and also included construction within narrow and environmentally-sensitive right-of-way the western edge of Plum Creek between 8th Street and Malibu Street, where traffic continued to pass at all times.

MIKE LEHRBURGER, PE

Project Manager



Mike has more than 14 years of experience and serves as the Rocky Mountain Water Supply & Conveyance Department Manager. With more than a decade's worth of progressive water and wastewater experience, Mike has both led and supported a wide variety projects including the previously completed Town of Castle Rock Kinner Sewer Outfall and Plum Creek Water Purification Facility designs by providing distribution and collection design, hydraulic and

system capacity analysis, construction engineering, and field support services.

EDUCATION

- ▶ Bachelor of Science, Civil Engineering, University of Colorado at Boulder

REGISTRATIONS

- ▶ Professional Engineer: Colorado, Texas

7 YEARS WITH BURNS & MCDONNELL

13 YEARS OF EXPERIENCE

Throughout his career, Mike has provided operational and engineering design, advice, and support to maximize water and wastewater system delivery efficiencies while minimizing risks associated with both supply and quality in operating these systems.

Mike also is well adept at developing information to identify and evaluate alternatives, which ultimately leads to innovative and cost-effective options that meet immediate project needs while preparing communities for future growth and expansion. As a Project Manager, Mike will provide the technical oversight and guidance necessary to deliver the Plum Creek Sewer Interceptor Upsize Project on time and within budget.

Southern Water Transmission Main – Phase II, City of Cheyenne – BOPU (WY)

Project Engineer.

Mike served as a Project Engineer for the project, which provided planning, design, and construction management services for approximately 11.5 miles of potable waterline ranging in size from 12-inches to 42-inches. The waterline is located in utility easements and within existing ROWs, and runs through both non-developed areas, county roads, and city streets.

There are two crossings of I-80, one crossing of I-25, two railroad crossings, and multiple road crossings. Coordination and planning with outside agencies was critical to the project's success and included reviews by the WYDOT, Laramie County, City of Cheyenne, Union Pacific Railroad, Burlington Northern Railroad, United States Fish and Wildlife, and USACE.

Gillette Regional Water Supply, City of Gillette (WY)

Project Engineer.

Mike served as a Project Engineer for the project, which included a new Madison Formation Well Field, 52 miles of 36- and 42-inch diameter pipeline, a 24-MGD pump station, a 1-MG welded steel water storage tank, an onsite sodium hypochlorite disinfection generation facility, three miles of 18-inch diameter blending waterline, and a water-blending facility. Burns & McDonnell also provided hydraulic modeling and surge analysis of the entire water system to accurately determine future demands, storage requirements, pipe sizes, system pressures and flows, and overall water quality.

MIKE LEHRBURGER, PE

(continued)

Southern Zone 1 Pipeline, City of Westminster (CO)

Project Engineer & Resident Project Representative.

Responsible for providing support for the design and installation of 4,500 LF of 36-inch potable waterline and 4,600 LF of 30-inch potable waterline, all appurtenances and connections to the existing system. The project required multiple zone interconnections and stub outs for future connections. Also included in this project was a 36-inch welded saddle connection to an existing critically important 54" steel conduit. Associated design included easement acquisitions, fire hydrant installations, deep pipeline installation, and custom appurtenance vaults. Mr. Lehrburger's role on this project also included Owners representation in the field as acting Resident Inspector for all phases of the overall project.

TOD & Meadowlark Waterlines, City of Westminster (CO)

Project Engineer & Resident Project Representative.

Mike served as Project Engineer and Resident Project Representative and provided design support for the replacement of aging, deteriorated waterlines. The new waterlines were installed very near (or in the same location as) the existing piping. Tight working conditions and close proximity to residential homes and local businesses made this a community sensitive project. Installations included over 7,700 LF of small diameter potable water waterlines. Careful planning and work phasing was required to preserve continuous water service to over 100 customers with considering also the 15 connections to the existing system. The project received a 2013 ACEC-CO award (Water Resources Category).

Lowell Boulevard Watermain Replacement, City of Westminster (CO)

Design Engineer & Resident Project Representative.

Responsible for providing construction method alternatives evaluations, design, and construction engineering services for the rehabilitation of an existing 12-inch waterline along Lowell Boulevard. The existing cast iron waterline was experiencing significant corrosion and multiple breaks. Due to site conditions, existing utility concerns, and high traffic volumes, traditional open-cut construction methods were not practicable.

In partnership with the City, Burns & McDonnell provided pre-design construction methodology regarding different types of trenchless technologies relating to potable, pressure waterlines. Cured-in-place-pipe (CIPP) technology was determined as the ideal solution for the project and the design was implemented. Design and construction included approximately 1,725 LF of 12-inch, CIPP rehabilitation of the medium pressure potable waterline. The project also required coordination of water delivery and timing, connections to existing water infrastructure, temporary thrust restraint, and other ancillary improvements. This project was completed ahead of schedule, and below budget with minimal inconveniences to the local residents and frequent commuters.

Kinner Street Sewer Outfall, Town of Castle Rock (CO)

Project Engineer.

Mike served as Project Engineer and was responsible for providing design services and client support for the upsizing and realignment services of 3,500 LF of existing gravity pipeline ranging from 18-inch/21-inch sanitary sewer to a 27-inch/30-inch sanitary sewer. The project required two new bores: one under I-25, and one under Wolfensberger Road, and also included construction within narrow and environmentally-sensitive right-of-way the western edge of Plum Creek between 8th Street and Malibu Street.

KATE HENSKE, PE

Pipeline Design - Lead



Kate has more than 26 years of water and wastewater design experience. As a result, Kate has served as project manager and design lead for various major sanitary sewer systems that included pipelines ranging in size from 4 to 42 inches, commercial and residential master plans, sewer alignments, and facility studies for both residential and commercial areas.

Kate has also supported Town of Castle Rock projects such as the Kinner Street Sewer Outfall project. As a result of her broad-reaching experience, Kate has gained a thorough understanding of the applications and methods required in pipeline designs and will be able to provide the technical knowledge, drive, and commitment necessary to identify the most effective alignment and the proper size of the infrastructure required by this project.

She is also familiar with all local, state, and federal regulations pertaining to both design and safety, and will be able to identify, analyze, and determine the materials, specifications, and constructability of the project. Kate will be responsible for feasibility, alignment analysis, design, permitting, and outside agency coordination.

Southern Water Transmission Main – Phase II, City of Cheyenne – BOPU (WY)

Project Manager.

Kate served as the Project Manager and was responsible for providing planning, design, and construction management services for approximately 11.5 miles of potable waterline ranging in size from 12-inches to 42-inches. The waterline is located in utility easements and within existing ROWs, and runs through both non-developed areas, county roads, and city streets. There are two crossings of I-80, one crossing of I-25, two railroad crossings, and multiple road crossings. Coordination and planning with outside agencies was critical to the project's success and included reviews by the WYDOT, Laramie County, City of Cheyenne, Union Pacific Railroad, Burlington Northern Railroad, United States Fish and Wildlife, and USACE.

Gillette Regional Water Supply, City of Gillette (WY)

Pipeline Project Manager.

Kate served as the Pipeline Project Manager and was responsible for the pipeline designs for a new Madison Formation Well Field, 52 miles of 36- and 42-inch diameter pipeline, a 24-MGD pump station, a 1-MG welded steel water storage tank, an onsite sodium hypochlorite disinfection generation facility, three miles of 18-inch diameter blending waterline, and a water-blending facility. Burns & McDonnell also provided hydraulic modeling and surge analysis of the entire water system to accurately determine future demands, storage requirements, pipe sizes, system pressures and flows, and overall water quality.

Southern Pressure Zone 1 Waterline, City of Westminster (CO)

Project Manager.

Kate served as the Project Manager and was responsible for providing more than 1.7 miles of 30- and 36-inch water transmission piping in the City of Westminster along existing City streets and through easements in the vicinity of the Westminster Mall. Several

EDUCATION

- ▶ BS, Civil Engineering, University of Wisconsin - Madison

REGISTRATIONS

- ▶ Professional Engineer: Wyoming, Colorado, California

9 YEARS WITH BURNS & MCDONNELL

26 YEARS OF EXPERIENCE

KATE HENSKE, PE

(continued)

alignments were evaluated and easement acquisition was a major challenge. The work included planning, design, alignment selection and evaluation, easement acquisitions, public relations, material evaluations and permitting.

Parallel CBT Pipeline, City of Greeley Larimer County (CO)

Project manager

Kate is serving as the Project Manager and was responsible for providing designs for 2,800 linear feet of 30-inch water transmission piping from the Hansen Feeder Canal to the Bellevue Water Treatment Plant Ponds 1 and 2. This waterline is parallel with the existing CBT Waterline and is required for additional supply to the treatment plant due to recent fires and the effect on other source water.

There is also a connection to the Pleasant Valley Pipeline, bore of ditch, dissipation structures and placement of the waterline under pond 1. Project was limited to non-irrigation season for the intake structure and non-eagle nesting season due to the location of an active nest in the area.

Cooley West Raw Water Pipeline & Pump Station, City of Thornton (CO)

Pipeline Project Manager.

Kate served as a Pipeline Project Manager and was responsible for providing planning, design, routing studies, alignment evaluation and selection, easement acquisition, public relations, material evaluations, and permitting for a 30-MGD pump station, 13,760 LF of 36-inch raw waterline, 11,690 LF of 42-inch and 3,200 LF of 8-inch potable waterline to convey water from downstream reservoirs to the Wes Brown WTP.

Erie Raw Water Pipeline & Pump Station, Town of Erie (CO)

Pipeline Project Manager.

Kate served as a Pipeline Project Engineer and was responsible for providing design and construction management for more than 7.5 miles of 36-inch diameter transmission piping and a 13-MGD pump station. The project required alternative waterline alignments and numerous bored crossings including the crossing of Boulder Creek, the Union Pacific Railroad, major streets, and ditches.

Meadowlark and TOD Waterlines, City of Westminster (CO)

Project Manager.

Kate served as the Project Manager and was responsible for providing approximately 1.5 miles of waterline replacement and upsizing ranging in diameter from 4 inches to 12 inches within the City of Westminster along existing City street through residential and commercial areas. The key was enabling the City to use the existing system while the new system was being constructed to eliminate customer issues. The work included planning, design, alignment selection and evaluation, public relations, material evaluations and permitting. This project received a 2013 ACEC-CO award (Water Resources Category).

Kinner Street Sewer Outfall, Town of Castle Rock (CO)

Project Engineer.

Responsible for providing design services and client support for the upsizing and realignment services of 3,500 LF of existing gravity pipeline ranging from 18-inch/21-inch sanitary sewer to a 27-inch/30-inch sanitary sewer. The project required two new bores: one under I-25 and one under Wolfensberger Road, and also included construction within narrow and environmentally-sensitive right-of-way the western edge of Plum Creek between 8th Street and Malibu Street.

DEREK NELSON, EIT

Project Engineer



Derek is a civil engineer with one year of experience. His core areas of focus include water and wastewater, distribution and collection, elevated storage tank design, and hydraulic analysis. Prior to Burns and McDonnell, Derek spent time outside of the classroom working internships in multiple disciplines including wastewater, environmental compliance, stormwater management, and urban drainage.

Southgate Sanitary Sewer Program, Southgate Water & Sanitation District (CO)

Project Engineer.

Under the general service agreement between Burns and McDonnell and Southgate District, Derek serves as a multi-functional correspondent between them and the contractors. His responsibilities include inspecting work to confirm standards and specifications are met, document testing, record as-built information, and maintain communication between the owner and contractor.

Southgate's large extension of projects ranging from water lines to sewer mains has provided Derek a wealth of experience to tackle many different and unpredictable circumstances. Such an example is his role as the Resident Field Representative for a Booster Pump Station SCADA Upgrade for which he rose to the occasion.

Private Inflow Reduction Reports Team, St. Louis Metropolitan Sewer District (MO)

Assistant Project Engineer.

Derek served as Assistant Project Engineer and was responsible for providing engineering design support services to the MSD's \$4.7 billion initiative plan, design, and build to remove storm water from the wastewater system in the St. Louis metropolitan area. He was responsible for conducting field inspections of private residences and businesses to verify non-compliant drains to reduce the amount of runoff entering the sanitary sewer. On confirmed properties he surveyed and helped assist where new storm sewer lines could be constructed. In the office he proposed work on confirmed drains as well as quantitate the amount of runoff from each property to meet the EPA's standards for runoff reduction.

Westminster Northridge 3.5-MG Tank, City of Westminster (CO)

Resident Project Representative.

Derek serves as Resident Project Representative during the construction phase of the 3.5 MG tank and was responsible for daily site inspection and compliance. The project included an extensive tank type alternative selection that included steel tanks with four different roofs and three different concrete tanks. A lifecycle cost analysis was completed and the Type 3 pre-stressed tank with a concrete dome was determined to have the lowest long-term cost. Since there is only one pre-stressed tank provider that services this area, it was determined that the pre-stressed should be bid against the conventionally reinforced option to increase competition. Burns & McDonnell assisted the City with Public meetings and provided renderings of the final tank site. The project is close to final design and will be bid in September 2014.

EDUCATION

- ▶ MS, Civil Engineering, University of Colorado
- ▶ BS, Environmental Science, University of Iowa

REGISTRATIONS

- ▶ Engineer-In-Training

1 YEARS WITH BURNS & MCDONNELL

1 YEARS OF EXPERIENCE

DEREK NELSON, EIT

(continued)

Master Planning Intern, Urban Drainage and Flood Control District (CO)

As an intern at UDFCD, Derek had multiple responsibilities including technician and design experience. As an engineering technician he was responsible for maintaining and collecting storm water collection samplers located throughout the Denver metropolitan area. Data collected allowed him to produce storm hydrographs of which detention and retention ponds were designed from. His work at UDFCD was meant to restore stream flow and reduce flood damage.

Pump and Treatment System, Seneca Companies (NE)

Derek assisted in the project management of a large scale pump and treat system while working at Seneca Companies under the regulation of the EPA. The goal was to remove DNAPLs, including carcinogens such as TCE, from the groundwater. He was responsible for putting together bids and schedules in the office. In the field he acted as a foreman observing and participating in the installation of linear pipe and an air stripper for chemical removal.

Environmental Technician, Seneca Companies (IA)

Derek was responsible for a myriad of jobs located across many locations in Iowa while working at Seneca Companies related to leaking underground storage tanks (LUSTs). He carried out a range of environmental compliance services including: Groundwater monitoring, removal of petroleum product, installation of various hydrologic equipment including monitoring wells, handled and analyzed soil samples, and assisted in the implementation of UST closure according to state regulations.

GREG GARCIA

CADD Design



Greg is a civil designer with 19 years of experience. He specializes in civil engineering design and drafting using AutoCAD and Civil 3D software platforms. He has experience in roadway design, site development (commercial, industrial, and residential), water transmission and distribution mains, sanitary sewer design and rehabilitation, and both stormwater and drainage design.

6 YEARS WITH BURNS & MCDONNELL
19 YEARS OF EXPERIENCE

More specifically, Greg has extensive familiarity with a variety of water and sewer lines ranging from 8 to 42 inches and a variety of materials, including steel, DIP, PVC, & CIP. As a result, Greg has incorporated these designs to coincide and tie into adjacent wastewater treatment, water treatment, hypochlorite, pump station, and water storage facilities, including the previous Town of Castle Rock Plum Creek Water Purification Facility project.

Plum Creek Water Purification Facility, Town of Castle Rock (CO)

Civil Designer/CADD Technician.

Greg served as Civil Designer/CADD Technician and was responsible for providing design and construction documents and plan/profiles for the new 4-MG facility, including building/road layout and grading, drainage/erosion control documents and surrounding roadway improvements. The PCWPF includes aeration, conventional pretreatment with high-rate inclined plate settlers, greensand filtration, MF/UF membranes, chloramine disinfection, clearwell, and high service pumping.

Southern Water Transmission Main – Phase II, City of Cheyenne – BOPU (WY)

CADD Technician.

Greg served as CADD Technician and was responsible for providing design and construction documents and plan/profiles for the planning, design, and construction management phases for approximately 11.5 miles of potable waterline ranging in size from 12-inches to 42-inches. The waterline is located in utility easements and within existing ROWs, and runs through both non-developed areas, county roads, and city streets.

There are two crossings of I-80, one crossing of I-25, two railroad crossings, and multiple road crossings. Coordination and planning with outside agencies was critical to the project's success and included reviews by the WYDOT, Laramie County, City of Cheyenne, Union Pacific Railroad, Burlington Northern Railroad, United States Fish and Wildlife, and USACE.

Gillette Madison Water Supply Pipeline, City of Gillette (WY)

Civil Designer & CADD Technician.

Responsible for providing design and construction design documents for the Madison Formation Well Field, 52 miles of 36- and 42-inch transmission pipeline, a 23.5-MGD pump station, a 1-MG welded steel water storage tank, an onsite sodium hypochlorite disinfection generation facility, three miles of 18-inch diameter blending waterline, and a water-blending facility.

GREG GARCIA

(continued)

Erie Raw Water Pipeline & Pump Station, Town of Erie (CO)

CADD Technician.

Greg served as CADD Technician and was responsible for providing design and construction documents and plan/profiles for more than 7.5 miles of 36-inch diameter transmission piping and a 13-MGD pump station. The project required alternative waterline alignments and numerous bored crossings including the crossing of Boulder Creek, the Union Pacific Railroad, major streets, and ditches.

Southern Transmission Main, Cheyenne Board of Public Utilities, Cheyenne – BOPU (WY)

Civil Designer / CADD Technician

Mr. Garcia served as the Civil Designer/CADD Technician of design and construction documents and plan/profiles for 22 miles of 42 and 18, 16, and 12 inch waterlines and appurtenances.

Transmission Blending Line, City of Gillette (WY)

Civil Designer / CADD Technician

Mr. Garcia served as the Civil Designer/CADD Technician of design and construction documents and plan/profiles for approximately 6 miles of 18 inch waterlines and appurtenances.

JCC Transmission Line, City of Riverton (WY)

Civil Designer / CADD Technician

Mr. Garcia served as the Civil Designer/CADD Technician of design and construction documents and plan/profiles for 1 mile of 24 inch waterline and appurtenances.

Pressure Zone 4 Transmission Line, City of Riverton (WY)

Civil Designer / CADD Technician

Mr. Garcia served as the Civil Designer/CADD Technician of design and construction documents and plan/profiles for 2.7 miles of 16 inch waterline and appurtenances.

PQ Wells Waterline, Arapahoe County Water and Wastewater Authority (CO)

Civil Designer / CADD Technician

Mr. Garcia served as the Civil Designer/CADD Technician of the installation of three 6 inch and two 8 inch waterlines, which included one 6 inch and one 8 inch crossing of Happy Canyon Creek.

PAUL HUNTZINGER

Civil/CADD Design



Mr. Huntzinger serves as a Staff Environmental detailer in Burns & McDonnell's Denver Regional Office. He specializes in drafting and design using AutoCAD 2012 software and inspection. He has experience in Plumbing Design, Structural CAD, Architectural CAD, Mechanical CAD, Electrical CAD, and Process CAD. Mr. Huntzinger has gained unique design experience through his work on the following projects:

EDUCATION

- ▶ A.A.S. Applied Science, Drafting Design Technology, Jefferson Technical College

3 YEARS WITH BURNS & MCDONNELL

24 YEARS OF EXPERIENCE

Water Treatment Plant Improvements, City of Longmont

Longmont, Colorado

Mr. Huntzinger served as the CADD Technician detailing construction documents for the Electrical, Plumbing, Structural, Architectural and HVAC for the Water Treatment Plant.

Jackson Springs Water Treatment Plant, City of Rapid City

Rapid City, South Dakota

Mr. Huntzinger served as the Plumbing Designer /CADD Technician detailing construction documents for the Electrical, Plumbing, and HVAC for the Water Treatment Plant.

Gillette Madison Pipeline Project, Pine Ridge Disinfection Facility, City of Rapid City

Rapid City, South Dakota

Mr. Huntzinger served as the Plumbing Designer/CADD Technician detailing construction documents for the Electrical, Plumbing, and HVAC for the Disinfection Facility.

Riverton Water Supply Project Pumping Facilities, City of Riverton

Riverton, Wyoming

Mr. Huntzinger served as the CADD Technician detailing construction documents for the Electrical, Plumbing, and HVAC for the Pumping Facilities.

Plum Creek Water Purification Facility, Town of Castle Rock

Castle Rock, Colorado

Mr. Huntzinger served as the Plumbing Designer/CAD Technician detailing construction documents for the Electrical, Plumbing and HVAC of the Water Purification Facility Plant.

2012 CIPP, South Adams County Water & Sanitation District

South Adams County, Colorado

Mr. Huntzinger served as the CAD Technician detailing civil construction documents for the CIPP Pipeline work.

JASON SCHAEFER, PE

Support Services



Mr. Schaefer is a civil and environmental engineer with experience in planning, optimizing, troubleshooting, designing, and constructing conventional and advanced water treatment facilities.

Jason has successfully performed a variety of projects, including water treatment evaluations, bench-scale testing, membrane pilot testing, advanced oxidation pilot testing, facility

optimization studies, facility rehabilitations and expansions, in addition to designing pre-treatment processes, membrane filtration systems, granular media filtration, chemical storage/feed systems, and pumping facilities. As a proven project manager and process designer, Jason has the tools and knowledge to make a project successful.

EDUCATION

- ▶ BS, Civil and Environmental Engineering, South Dakota State University
- ▶ MS, Environmental Engineering, South Dakota State University

REGISTRATIONS

- ▶ Professional Engineer: Colorado, Wyoming

7 YEARS WITH BURNS & MCDONNELL

7 YEARS OF EXPERIENCE

Plum Creek Water Purification Facility (4.0 MGD) (Design/Contract-Build), Town of Castle Rock

Castle Rock, Colorado

Project engineer for the Town of Castle Rock's new 4.0 MGD Plum Creek Water Purification Facility (PCWPF). This project was completed utilizing the design/contract-build project delivery method.

The PCWPF includes aeration, conventional pretreatment with high-rate inclined plate settlers, greensand filtration, MF/UF membranes, chloramine disinfection, clearwell, and high service pumping. The PCWPF's raw water is GWUDI with provisions for future use of a surface water supply. The groundwater source contains high levels of iron and manganese thereby requiring the use of aeration and greensand filtration. Additional facility components include an administration building complete with a laboratory, control center, conference area, and maintenance area; chemical storage and feed for ferric chloride, potassium permanganate, sodium hypochlorite, aqueous ammonia, citric acid, caustic soda, and sodium bisulfite; and full site development including raw water piping, finished water, electric, natural gas, fiber optic communications, and storm water.

Pressure Zone 3 Expansion, City of Westminster

Westminster, Colorado

Process Engineer responsible for providing engineering design services and guidance to expand pressure zone 3 within the City of Westminster's water distribution system. The overall project included an extensive alternative analysis to select the most desirable location and type of elevated storage tank, ground level water storage tanks, pump station, and water transmission lines. Following the selection of the desired project, the team designed a new pump station, water transmission lines, new elevated storage tank, and ground level water storage tanks.

Northridge 3.5-MG Tank & Pump Station, City of Westminster

Westminster, Colorado

Hydraulic and process engineer responsible for providing engineering design services and guidance for the Northridge Pump Station and 3.5 MG water storage tank. The overall project included an extensive tank type alternative analysis and selection

JASON SCHAEFER, PE

(continued)

for steel tanks with four different roofs and three different concrete tanks. A lifecycle cost analysis was also completed and the Type 3 pre-stress tank with a concrete dome was determined to have the lowest long-term cost. The project team designed and constructed the new Type 3 pre-stress tank on an existing site with two other water storage tanks. The project also included increasing the pumping capacity of the City's existing Northridge Pump Station to a firm capacity of 15.5 MGD.

Dodd Water Treatment Plant Design-Build, Left Hand Water District

Niwot, Colorado

Lead Design Engineer responsible for providing engineering design services and guidance for the design-build project, which includes conventional pre-treatment with a mechanical rapid mixer, horizontal paddle flocculators, high-rate inclined plate settlers, MF/UF membranes, clearwell and high service pumping to increase capacity from an 8 MGD to 10 MGD with the capability to expand to 16 MGD. Additional facility components included administration spaces such as a laboratory, control center; chemical storage and feed; and full site development for solids holding ponds, storm drainage, and raw water pipes.

Wes Brown Water Treatment Plant Taste & Odor Conceptual Study, City of Thornton

Thornton, Colorado

Project manager and engineer for the Taste & Odor Conceptual Study for the City of Thornton's Wes Brown Water Treatment Plant. The project included the optimization of their existing facility and an evaluation of potential new treatment options for the reduction of taste and odor causing Geosmin and 2-Methylisoborneol. Optimization of their existing facility included conducting a series of jar tests to evaluate the effectiveness of current process in reducing taste and odor compounds. The following chemicals were jar tested for taste & odor optimization: chlorine, three types of powder activated carbon, hydrochloric acid, and five types of coagulants. The potential new technologies evaluated included ozone, UV/hydrogen peroxide, and granular activated carbon.

Lynn R. Morgan Water Treatment Facility Taste & Odor Conceptual Study, Town of Erie

Erie, Colorado

Project manager and engineer for the Taste & Odor Conceptual Study for the Town of Erie's Lynn R. Morgan Water Treatment Facility. The project included the investigation of taste and odor reduction methods for implementation at the water treatment plant. The technologies evaluated included chlorine, ozone, potassium permanganate, chlorine dioxide, granular activated carbon, powder activated carbon, and UV/hydrogen peroxide. As a result of this study the Town installed a powder activated carbon feed system to reduce taste and odor compounds of their raw water.

Lynn R. Morgan Water Treatment Facility Pressure Membrane Replacement, Town of Erie

Erie, Colorado

Project manager and engineer for the Pressure Membrane Replacement for the Town of Erie's Lynn R. Morgan Water Treatment Facility. The project included the evaluation of multiple proposals for the replacement of the pressure membranes at the Lynn R. Morgan Water Treatment Plant. Responsibilities included reviewing membrane proposals, coordinating with membrane manufacturers, evaluating alternatives, and providing recommendations to the Town. As a result of the proposal evaluation, the Town proceeded with design-build contract with Burns & McDonnell to provide services to design, supply, and install the mechanical and electrical equipment necessary for incorporation of the new membranes into the overall treatment system. The major equipment required for a fully functional system included blowers, air compressor, chemical feed systems, industrial PLC, and water quality instrumentation.

KEVIN SPARROW, PE

Support Services



Mr. Sparrow has a strong background in electrical power and control system design from his work in water distribution facilities. His electrical design experience includes: facility power distribution, equipment layouts, electrical one-line diagrams, electrical three-line diagrams, electrical wiring diagrams, electrical schematics, lighting design, control system design, instrumentation, data

acquisition, and test system design. Design responsibilities have included development of electrical site plans, equipment plans and elevations, cable tray and conduit plans, power plans, grounding plans, electrical schematics, control schematics, wiring diagrams, interconnection diagrams, material lists, lighting layout, illumination studies, electrical load studies, electrical systems analysis, panel layouts, environmental controls, programmable logic controller (PLC) programming, loop drawings, conduit and conductor schedules, instrument lists, general electrical specifications, equipment specifications, equipment evaluation, equipment selection, and test sequence development from requirements. Construction administration responsibilities have included subcontractor qualifications, bid documents, bid reviews, subcontractor selections, subcontractor bid walks, submittal reviews, responding to Change Order Requests (COR) and Requests For Information (RFI), start-up and commissioning, operations and maintenance manual review, as-built drawing development and review, and construction observation. Fieldwork has also included front-end audit work at existing facilities.

EDUCATION

- ▶ BS, Electrical Engineering, Colorado School of Mines

REGISTRATIONS

- ▶ Professional Engineer: Colorado

1 YEARS WITH BURNS & MCDONNELL

8 YEARS OF EXPERIENCE

Bellevue Pump Station, Denver Water Department*

Denver, Colorado

Design Project Manager and Lead Electrical Engineer responsible for designing replacement medium-voltage motors and controllers at an existing treated water pump station. Design project manager duties included project scheduling, budgeting, coordinating multi-disciplinary engineering design, coordinating trade shop work, initiating design review processes, preparing and administering procurement contracts, and construction management. Electrical design included one 300 HP medium-voltage motor, one 900 HP medium-voltage motor, motor-pump coupling coordination, reduced-voltage autotransformer starters, instrumentation, control devices and control sequence, fitment of new motors to existing motor baseplates, fitment of new controllers to existing space, updates to existing Electrical Systems Analysis (load study, short circuit study, arc flash study), and temporary power to a portion of the medium-voltage lineup. Responsible for the electrical design and physical layout including power plan drawings, elevation drawings, updating one-line diagram, instrumentation and control plans, control schematics, P&ID drawings, equipment specifications, reviewing bids and selecting suppliers, and reviewing submittals.

KEVIN SPARROW, PE

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Electrical Systems Analysis Updates, Cat Reservoir Pump Station and Miller Reservoir Outlet Tower, Denver Water Department*

Adams County/Commerce City, Colorado

Electrical Engineer for updating the electrical systems analysis studies after several projects added or modified equipment at the sites. Responsibilities included field data collection, electrical system modeling, load studies, short circuit studies, arc flash studies, and arc flash label procurement.

North Complex Gravel Pits Conversion to Reservoir Storage, Denver Water Department*

Brighton, Colorado

Electrical Engineer for conceptual design of the electrical service, electrical distribution, control, and instrumentation for conversion of a gravel pit complex to water storage reservoirs. Responsibilities included data collection, power utility coordination, conceptual design, infrastructure planning (electrical and SCADA), instrumentation planning, security planning, and conceptual site plan development.

Tanabe Reservoir Interconnect, Tanabe Reservoir, Denver Water Department*

Brighton, Colorado

Project Electrical Engineer providing design of the power distribution, control, and instrumentation systems for a raw water reservoir interconnection system. The completion of Tanabe Reservoir required an interconnection system to the reservoir complex water control system. The electrical design for the interconnect structure included power distribution, control coordination, and instrumentation.

Reservoir Mixer Installation, Cat Reservoir Pump Station and Miller Reservoir Outlet Tower, Denver Water Department*

Adams County/Commerce City, Colorado

Project Electrical Engineer providing design of the power distribution, control, and instrumentation systems for two raw water reservoir mixers. The reservoir mixers were installed to mitigate hydrogen sulfide gas creation which occurs at these reservoirs. Design duties included equipment layout, power distribution, and control system. Responsibilities included electrical design and layout, power plans, control plans, updating electrical one-line, vendor coordination, and construction observation.

Valve Vault Rehabilitation Projects, Denver Water Department*

Denver Metro, Colorado

Lead Electrical Engineer for designing the complete electrical and I&C systems for the rehabilitation of treated water valve vaults. This annual project addresses multiple water valves requiring replacement and the appurtenant equipment in the valve vaults. Design activities included power distribution, valve control, environmental control, and instrumentation. Responsibilities included equipment layouts, power plans, grounding plans, lighting plans, instrumentation drawings, electrical one-lines, local utility coordination, control schematics, control panel design, and equipment specifications. Construction administration duties included submittal review, subcontractor management, construction observation, RFI and COR response, and as-built drawings.

ANDY HUNDLEY, PE

Support Services



Mr. Hundley is a structural engineer at Burns and McDonnell. His experience includes 19 years of structural design and analysis, primarily for municipalities and industrial clients. It also includes two years of graduate study and research in the area of FRP reinforcement for concrete structures. Primary responsibilities include the engineering design of concrete, masonry, and steel structures and substructures. His experience includes:

Dodd WTP Upgrade, Left Hand Water District

Niwot, Colorado

Structural engineering manager and architect for a pressure membrane expansion of the District's existing Dodd WTP. Completed the preliminary design and permitting for the project in 2007. The project included aeration, conventional pretreatment with high-rate inclined plate settlers, greensand filtration, MF/UF membranes, chloramine disinfection, clearwell, and high service pumping. Additional facility components include an administration building complete with a laboratory, control center, conference area, and maintenance area; chemical storage and feed for ferric chloride, potassium permanganate, sodium hypochlorite, aqueous ammonia, citric acid, caustic soda, and sodium bisulfite.

Plum Creek Water Purification Facility, Town of Castle Rock

Castle Rock, Colorado

Structural engineering manager and architect for the Town of Castle Rock's new 4.0 MGD Plum Creek Water Purification Facility (PCWPF). This project is being completed utilizing the design/contract-build project delivery method. The project included aeration, conventional pretreatment with high-rate inclined plate settlers, greensand filtration, MF/UF membranes, chloramine disinfection, clearwell, and high service pumping. Additional facility components include an administration building complete with a laboratory, control center, conference area, and maintenance area; chemical storage and feed for ferric chloride, potassium permanganate, sodium hypochlorite, aqueous ammonia, citric acid, caustic soda, and sodium bisulfite.

Columbine WTP Submerged Membrane Retrofit, City of Thornton

Thornton, Colorado

Lead structural engineer and architect for the retrofit of submerged membrane cassettes in existing conventional filtration concrete basins. Structural engineering included analysis of the existing facility with finite element analysis and modeling, recommendations on repair of existing concrete, demolition drawings on over 100 cubic yards of concrete, approximately 100 new large diameter pipe penetrations in concrete, pipe support systems, recommendations on specialty coatings for concrete basin linings to resist chemical exposure due to CIP, rehab of existing floors, new platform design, and building code review. The project also consisted of design of a new chemical storage building, a new cast-in-place concrete 3 MG clearwell, a new 60 MGD high service pump station, a warm equipment storage building, and a new admin building.

EDUCATION

- ▶ BS, Architectural Engineering, Structural Emphasis, University of Wyoming
- ▶ MS, Civil Engineering, Structural Emphasis, University of Wyoming

REGISTRATIONS

- ▶ Professional Engineer: Colorado, Wyoming, South Dakota, Indiana

19 YEARS WITH BURNS & MCDONNELL

19 YEARS OF EXPERIENCE

ANDY HUNDLEY, PE

(continued)

Moffat Water Treatment Plant Submerged Membrane Feasibility Study, Denver Water

Denver, Colorado

Project Engineer providing existing concrete basin condition assessment, repair recommendations, and structural feasibility analysis. The study involved modeling and analyzing existing concrete basins to determine feasibility of a retrofit that included heavy modifications

Water Treatment Plant Condition Assessments, City of Longmont

Longmont, Colorado

Structural assessments were completed for the City's existing Wade-Gaddis WTP and for other miscellaneous structures owned by the utility. The WTP assessment included checking the design of the plant and making recommendations based on the structural analysis and visual inspection.

Donkey Creek Pump Station, Sodium Hypo Generation Building, and Pine Ridge Tank, City of Gillette

Gillette, Wyoming

Lead structural engineer and architect for the design of a new pump station, tank, and on-site sodium hypochlorite generation facility for the Madison Pipeline and Water Supply Project.

5MG Buffalo Ridge Tank Repair Project, City of Cheyenne BOPU

Cheyenne, Wyoming

Project manager and lead structural engineer for the design of repairs on an existing 5 MG steel water storage tank. The project included repair of roof top access and recoating the interior and exterior of the tank.

Membrane Filtration Water Treatment Facilities, City of Rapid City

Rapid City, South Dakota

Lead structural engineer and architect for the preliminary design of two new submerged membrane water treatment plants consisting of new submerged membrane basins, pretreatment facilities, clearwells, and chemical storage facilities.

Water Supply Project and 2 MG Water Tank, City of Riverton

Riverton, Wyoming

Lead structural engineer for the design of a new 2 MG concrete water storage tank and two associated pump stations and well house.

Dodd WTP Membrane Retrofit Permitting, Left Hand Water District

Longmont, Colorado

Lead structural engineer and architect for the preliminary design and 1041 permitting of a retrofit of pressure membrane filtration and new pretreatment/chemical storage building addition for the Dodd Water Treatment Facility.

Chambers Reservoir Pump Station, Arapahoe County Water and Wastewater Authority

Lead structural engineer and architect for the final design of the new Chambers Reservoir irrigation pump station building and 30 foot deep wetwell structure. The structure housed room for 4 vertical turbine pumps, bridge crane, chemical storage, and MCC room.

CLINT MADSEN, PE

Quality Control Reviewer



Clint is a civil and environmental engineer with more than 20 years of experience where he has performed design, analysis, inspection, site investigation, sampling, and operations for a variety of water infrastructure projects throughout the Front Range and the Rocky Mountain Region.

Having worked on both the contractor and consulting engineering side, Clint is intimately familiar with the intricacies that go into pipeline projects and as the Lead Quality Control Reviewer, he will be able to provide a thorough review of the plans for quality assurance, control, and constructability.

EDUCATION

- ▶ Bachelor of Science, Civil Engineering, University of Colorado at Denver

REGISTRATIONS

- ▶ Professional Engineer: Colorado

6 YEARS WITH BURNS & MCDONNELL

22 YEARS OF EXPERIENCE

Regional Water Supply System, City of Gillette (WY)

Project Engineer & Resident Project Representative.

Clint served as Project Engineer and Resident Project Representative and was responsible for providing design services, construction observation, and compliance for the project, which includes a 14,000 gallon per minute groundwater well field expansion, water booster pump station, storage tanks, distribution system modifications, chlorination facilities and over 40 miles of 36-inch and 42-inch diameter transmission pipeline.

This potable water delivery system provides an additional source of water to Gillette, Wyoming. This project has the potential to be the largest municipal water project in Wyoming history. The new waterline will parallel the existing 30-inch diameter steel transmission pipe for the majority of the project. Project planning included a detailed operational plan to see that the two systems provide the redundancy and reliability necessary for a long-term water supply for customers. The transmission piping was designed within private land and rights-of-way. The transmission pipeline crossed multiple creeks, Interstate I-90, state highways, and railroad tracks.

Erie North Water Reclamation Facility, Influent, & Reuse Pipelines, Town of Erie (CO)

Resident Project Representative.

Clint served as Resident Project Representative and was responsible for providing onsite observation and compliance for the pipeline portion of the project. Pipeline responsibilities included extending the existing sewer infrastructure between the existing wastewater treatment plant and the newly designed wastewater treatment plant. This included three miles of a 30-inch sanitary sewer, a 12-inch reuse line, and a 12-inch sanitary sewer that will connect to the 30-inch sanitary sewer to eliminate the need for the Kenosha Lift Station.

The facility can discharge to either Boulder Creek or to an on-site reclaimed water storage reservoir for subsequent usage in the Town of Erie's reclaimed water system. This project was awarded the 2011 Rocky Mountain Design-Build Institute of America Water/Wastewater Project of the Year. It also received a 2013 ACEC-CO Honor Award (Waste and Storm Water Category).

CLINT MADSEN, PE

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Southgate Sanitary Sewer Program, Southgate Water & Sanitation Districts (CO)

Resident Project Representative.

Clint served as Resident Project Representative and was responsible for providing onsite observation and compliance for the District and the Sanitary Sewer Program, which was the largest sewer program to date for the District and included more than 40,000 LF of sanitary sewers ranging in size from 8-inches to 42-inches. Work included assessing sewers in 17 different locations throughout the District's broad boundary to provide individual condition assessment for each site to better determine how to improve the overall system. The "condition assessments" included CCTV video reviews and summaries, sewer and manhole condition summaries, and a capacity analysis. Burns & McDonnell also developed a pre-design report, which included information for each location and recommended that the overall project would be best constructed as three separate projects.

SACWSD Sanitary Sewer Program, South Adams County Water & Sanitation District (CO)

Resident Project Representative.

Clint served as Resident Project Representative and was responsible for providing onsite observation and compliance for the sanitary sewer consulting services provided to the District. Responsibilities included a variety of master planning, sewer video reviews, budget management, plan reviews, capital improvements project development, regional planning, interceptor analysis/design, and designs for several sanitary sewer rehabilitation projects. Based on recommendations described in SACWSD's CIP plan, Burns & McDonnell developed drawings and specifications, and provided construction management services for six different rehabilitation projects throughout Commerce City and Adams County. The projects consisted of sewer lining, sewer removal and replacement, manhole rehabilitations, manhole removals, and manhole replacement.

Cave Creek Reclaimed Wastewater Force Mains, Town of Cave Creek (AZ)

Project Engineer.

Clint served as Project Engineer and was responsible for providing engineering services and support for the Town of Cave Creek's new water reclamation facility, which included 14,700 LF of sanitary sewer force main; 7,800 LF of gravity sewer; 22,500 LF of reuse waterline, and 12,700 LF of potable waterline to convey raw wastewater to the new facility and to take the treated effluent to the point of disposal. This project supplemented the existing system and provided necessary looping.

The Town requested that Burns & McDonnell develop various alternatives that could be evaluated to determine the most advantageous pipeline alignment. As a result, Burns & McDonnell evaluated three alternative alignments and evaluated each one based on construction cost, operational costs, right-of-way and easement issues, environmental impacts, and public acceptance. Burns & McDonnell evaluated each of the alternatives and made recommendations to the Town. The alignment selected travels through Cave Creek's main street and a floodplain, in addition to requiring numerous easements, conducting native plant surveys, and obtaining permits from the Town of Cave Creek, Town of Care Free, Maricopa County Flood Control District, and the Army Corp of Engineers (404 permit).