EXHIBIT G

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September 20, 2024

Via Email: kevin.houck@state.co.us; chris.sturm@state.co.us

Kevin Houck, P.E., CFM, Chief, Watershed and Flood Protection &
Chris Sturm, Watershed Program Director
Colorado Water Conservation Board
1313 Sherman St., Rm. 721
Denver, CO 80203

Re: Town of Ridgway Water Supply Intake Structure and Transmission System Rehabilitation - Conceptual Plan and Cost Estimate for Design and Construction

Dear Kevin and Chris,

Wright Water Engineers, Inc. (WWE) is pleased to provide the Colorado Water Conservation Board (CWCB) this letter report summarizing WWE's conceptual level plan, cost estimates, and associated assumptions for the design and construction of repairs to the Town of Ridgway's (Town) primary raw water intake structure and transmission system (**collectively**, water transmission system), damaged by a debris flow that occurred on August 12, 2024 in the Beaver Creek watershed located in Ouray County, Colorado (see Figure 1). This letter report is intended to provide a basis for the Town's effort to secure initial funding from the Colorado Division of Homeland Security & Emergency Management (DHSEM) and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Emergency Watershed Protection (EWP) program for design and repairs to the damaged raw water transmission system.

The following letter report outlines and presents 1) WWE's approach to developing a conceptual plan to repair and minimize the risk from future debris flows to the Town's water transmission system, 2) estimated costs to secure an interim supply of raw water for summer 2025, and 3) an overall summary of estimated conceptual level costs for the design, permitting, and construction of the conceptual plan.

Conceptual Plan Development Approach

WWE's conceptual plan presented herein is intended to serve as a "baseline" alternative for repairing and protecting the Town's water transmission system. This baseline plan is intended, to the maximum extent practicable, to limit construction to the historical footprint of the Town's historical water transmission system infrastructure to minimize legal complications that may arise from installing infrastructure at a new location or from changing the way the Town diverts water from Beaver Creek (i.e., surface water versus alluvial groundwater). While changing the location and/or diversion type may help reduce overall project construction costs, the legal feasibility of making these changes from water rights, property ownership, and permitting perspectives is currently unknown.

WWE recommends the Town perform an alternatives analysis that considers the legal feasibility of each alternative considered as part of the preliminary engineering phase of the project and to determine if there are more cost-effective alternatives than WWE's baseline alternative.

Summary of Impacts to Existing Infrastructure

The Town owns senior surface water rights in Ridgway Ditch are the Town's primary source of raw water supply. Historically, the Town diverted these senior surface water rights from Beaver Creek into Ridgway Ditch which conveys the water to Lake Otonawanda (see Figure 1) which stores and has infrastructure for delivering the raw water to the Town's drinking water treatment plant.

The Town also owns junior water rights on Cottonwood Creek that are diverted into the Happy Hollow Ditch System. The Town is currently using these junior water rights as their source of raw water supply. However, the Town's water right is junior and at risk of being curtailed (i.e., reduced) when Cottonwood Creek is under water rights administration during the irrigation season and municipal water demands are highest (typically during the months of July and August). This means that restoring the Town's ability to reliably divert water from Beaver Creek into the Ridgway Ditch is key to securing the Town's raw water supply.

A sketch of the Town's historical water transmission system in the vicinity of Beaver Creek is provided in Figure 2. Based on WWE's field observations and field measurements made during site visits on August 28, 2024, and September 12, 2024, the August 12, 2024, debris flow caused the following major impacts to the Town's water transmission system:

- The Town historically diverted water from a braided section of Beaver Creek. Debris from the damaging debris flow has now covered and buried this braided section along with the Town's historical infrastructure, including the intake screen, rock sluicing channel, and the upper end of the Ridgway Ditch, which conveys water to Lake Otonawanda. The Town regularly maintained and operated the intake screen and rock sluicing channel to minimize the amount of gravel that would otherwise enter and fill the Ridgway Ditch.

- The mainstem of Beaver Creek experienced severe scour. As a result, the Town can no longer divert water by gravity from the mainstem of Beaver Creek into the braided section because, at the upstream entrance of the historical braid, the channel invert of the mainstem is now approximately 8 feet lower than the current elevation of the upstream entrance to the historical braid. This is problematic because the Town's intake screen is located on the historical braid.

- The invert elevation of Beaver Creek is now approximately 10 feet lower than the invert of the Town's intake screen.

- The debris flow filled approximately 1,000 linear feet of Ridgway Ditch with organic material and sediment and damaged the Ridgway Ditch measuring flume.

- The debris flow destroyed the spring pipeline that spanned Beaver Creek, which conveyed spring water from the left overbank of Beaver Creek into the Ridgway Ditch.

Conceptual Baseline Plan and Construction Costs for Repairing the Town's Water Transmission System

WWE's conceptual level plan sketches for repairing and improving the Town's water transmission system are shown on Figure 3 and Figure 4. Figure 3 shows the general extent of improvements needed for heavy equipment construction ingress and egress to the Town's intake structure on Beaver Creek, and the proposed length of Ridgway Ditch piping required to facilitate heavy equipment access along Ridgway Ditch. As shown on Figure 3, approximately 1.2 miles of access road improvements, and piping approximately 1,000 feet of the Ridgway Ditch, will be necessary for heavy equipment access (dump trucks, excavators, concrete trucks, etc.). Approximately 0.7 miles of the existing access road in need of improvement is located on an easement through private property. The Town anticipates that improvements to this access road will need to be coordinated and negotiated with the landowner.

WWE's conceptual baseline plan for repairing and protecting the Town's water supply intake infrastructure is provided in Figure 4 and consists of the following major work items:

- **Debris basin:** A debris capture basin would be installed near the previous upstream intersection of Beaver Creek and the historical stream braid. To facilitate long term cleaning and removal of future debris, an access road to the debris basin would be located along the historical stream braid alignment. The debris basin would be lined to provide a solid foundation for debris removal. For cost estimating purposes, WWE assumed the liner would consist of a concrete geocell mat filled with grout.

- **Check structure:** An impermeable check structure approximately 15 feet high, 8 to 10 feet above the stream bed, and 7 to 5 feet below the stream bed, would be installed immediately downstream of the debris basin to check the water surface elevation in Beaver Creek up to a sufficient height to push water into an intake structure to the Ridgway Ditch. The check structure would be equipped with a sluicing mechanism to allow the Town to sluice debris downstream and past the intake structure. For cost estimating purposes, WWE assumed the check structure would consist of reinforced concrete designed to resist loads generated by a debris flow. The sluicing mechanism would consist of a slide gate or stop log structure.

- **Intake structure:** Based on conversations with the Town and their engineer, the intake structure would need to be sized to deliver up to 10 cubic feet-per-second (cfs) into the Ridgway Ditch. Due to the presence of gravel in Beaver Creek, WWE's conceptual plans currently call for a concrete intake structure oriented parallel with the flow in Beaver Creek (i.e., side spill intake structure) located immediately upstream of the check structure.

  The concrete intake structure would be equipped with a Coanda style intake screen sized for 10 cfs and protected by debris racks (see Figure 4). Water that passes through the screen

would be conveyed to the Ridgway Ditch via an underground pipe, and gravel and debris that passes over the screen would be sluiced back to Beaver Creek through the sluice gate. The side spill orientation would allow Town operators to move debris past the intake structure by opening the sluicing mechanism on the check structure. WWE's approach for the intake structure is based on a recommendation from U.S. Bureau of Reclamation staff who reported good results using a Coanda intake screen along streams with high sediment loads.

- **Rock rundown structure:** A stepped rock rundown structure would buttress the downstream side of the check structure to connect the grade between the top of the check structure and the Beaver Creek channel invert and to reduce the potential for downstream erosion and undermining of the check structure. For cost estimating purposes, WWE assumed the rock material used to construct the rundown structure would be imported. However, WWE recommends testing the suitability of the rock present in the debris flow deposit as a potential way to reduce costs. If it were deemed suitable material, it could be stored onsite for future use.

- **Stream restoration:** WWE anticipates the stream banks would need to be restored in the general vicinity of the Town's intake structure. Stream restoration would generally consist of additional armoring of the stream banks with adequately sized rock, erosion control blankets for overbank areas, and overbank seeding and plantings. This work item also considers the costs for six check structures located upstream of the Town's intake structure in Beaver Creek to help stabilize the stream channel and capture future debris further upstream in the watershed.

- **Precipitation gage:** WWE recommends installing a remote precipitation gage (with telemetry communication capabilities) in the Beaver Creek watershed so the Town can continuously monitor for precipitation events that could trigger a debris flow in Beaver Creek and be better prepared for a timely response.

WWE's conceptual level opinion of probable capital costs for **construction** (not including design, permitting, etc.) of the baseline plan is approximately $6.66 million based on the work item quantities and cost summarized in Attachment A. Attachment A also includes a more detailed summary of WWE's references and the basis of cost for each work item.

Engineering Design and Permitting Fees

Engineering Design Fees: Engineering design services are anticipated to consist of the following major work items: surveying, alternatives evaluation, assistance with the development of a CWCB loan feasibility study, preparation of Issued for Bidding and Construction plans, contract documents and technical specifications, and engineering services during bidding and construction observation services.

WWE's conceptual level opinion of probable costs for engineering design fees is approximately $1 million. WWE's estimated cost for engineering design fees is calculated by multiplying the Total Construction Phase (including contingency) cost presented in Attachment A by 15 percent. In WWE's experience, engineering fees typically range between 15 and 20 percent of the total project construction cost.

Permitting Fees: WWE anticipates that the Town will need to acquire permits prior to construction. Permits could include, but may not be limited to, a U.S. Army Corps of Engineers Section 404 Permit (404 Permit) and a U.S. Forest Service Special Use Permit (Special Use Permit). Other permits, including construction stormwater discharge permit, Ouray County permits, a construction stormwater dewatering discharge permit, and any other permits required for construction are currently considered in the construction phase costs and are typically acquired by the General Contractor. Based on WWE's experience with preparing Section 404 Permit Applications and Special Use Permits, WWE's estimated permitting budget for the baseline plan is $150,000 as shown in Attachment A.

Pre-Construction Feasibility Work and Interim Water Supply Development

Water Rights Assessment and Easement Negotiations: To investigate the feasibility of more economical project alternatives, the Town will need to assess the feasibility of relocating the Ridgway Ditch point of diversion on Beaver Creek and may also want to consider alternatives that change the type of diversion (i.e., alluvial groundwater versus surface water). WWE's estimated budget to assess the feasibility of making these changes from a water rights, legal, and property ownership perspective is $150,000, and includes both engineering and legal consulting fees and considerations for a water rights application.

Interim Water Supply Plan: Construction of the project would likely not occur until after the 2025 runoff season. Because the Town would not have access to its senior water rights during the construction phase, which is anticipated to occur during the summer of 2025, the Town will have to rely on its junior water right located on Cottonwood Creek as its primary source of water supply during this time. As discussed previously, Cottonwood Creek does have a history of water rights administration, and the Town's diversion could be curtailed during the anticipated construction window, leading to a raw water supply shortage for the Town. For planning purposes, WWE estimated the cost of an interim water supply to be approximately $50,000 based on the current Tri-County Water Conservancy District Municipal and Industrial Water Lease rate from Ridgway Reservoir of $650 per acre-foot (AF) multiplied by the Town's average total raw water demands during July and August, when Cottonwood Creek is most likely to be under administration. The Town's 2022 Water Supply Assessment Report, prepared by LRE Water Inc., indicates the Town's average raw water demand is approximately 75 AF total during July and August (75 AF x $650 per AF = $50,000).

Overall Opinion of Probable Project Costs and Assumptions

WWE's overall opinion of probable costs for the design and construction of the baseline plan presented herein, including pre-construction feasibility work and development of an interim water supply, is approximately $8 million. A summary of the cost for each major work item associated with the baseline plan is provided below in Table 1. The references and assumptions WWE used to calculate the costs are provided in Attachment A; readers are encouraged to review the assumptions provided therein.

These construction costs are based on a mix of recent and historical bids for similar projects that have been adjusted to reflect industry-standard construction cost indices. Based on WWE's recent experience with cost estimating, it is challenging to develop accurate construction cost estimates at this time due to the current economic climate making construction costs unusually high and highly variable. Factors such as material and labor costs, supply chain disruptions, inflation, and other factors contribute to this uncertainty, and WWE typically applies a conceptual level contingency of +30 to -20 percent at the conceptual stage of cost estimating.

Table 1. Engineer's Opinion of Probable Project Cost Summary (Conceptual Level)

Work Item Description	Total ($)
Pre-Construction Feasibility Work	
Interim Water Supply	$ 50,000
Water Rights Assessment	$ 100,000
Easement Negotiations with Landowner	$ 50,000
Subtotal Pre-Construction Feasibility Work	**$ 200,000**
Engineering Design, Bidding, and Permitting Phase	
Engineering	**$ 1,000,000**
Pre-Construction Permitting	$ 150,000
Subtotal Engineering Design, Bidding, and Permitting Phase	**$ 1,150,000**
Construction Phase	
Debris Capture Basin	$ 352,000
Check Structure	$ 928,000
Intake Structure	$ 210,000
Rock Rundown Structure	$ 800,000
Ditch and Spring Conveyance Repair	$ 314,000
Stream Restoration	$ 717,000
Construction Access Road	$ 281,000
Construction Dewatering	$ 200,000
Existing Debris Removal	$ 120,000
Debris Removal for Future Debris Flow	$ 120,000
Subtotal Construction Work Items (Rounded, Nearest 10k)	**$ 4,050,000**
General Conditions	
Mobilization / Demobilization (15% of Work Items)	$ 610,000
General Conditions (5% of Work Items)	$ 210,000

Work Item Description	Total ($)
Grading, Erosion, and Sediment Control (6% of Work Items)	$ 250,000
Construction Work Items and General Conditions Subtotal	**$ 5,120,000**
Conceptual Level Contingency (30% of Work Items and General Conditions)	$ 1,540,000
Subtotal Construction Phase (Rounded, Nearest 10k)	**$ 6,660,000**
Estimated Grand Total All Phases (Rounded, Nearest 100k)	**$ 8,000,000**

Thank you for the opportunity to present WWE's conceptual level baseline plan and associated costs for this important project. Please feel free to call or email us with any questions or comments.

Sincerely,
WRIGHT WATER ENGINEERS, INC.

By _____
Hayes A. Lenhart, P.E.
Vice President of Durango Operations

By _____
Natalie M. Collar, Ph.D., CFM
Senior Hydrologist

By _____
T. Andrew Earles, Ph.D., P.E., P.H., CPESC, BC. WRE
Vice President of Water Resources

Attachments:

Figure 1. Ridgway Intake Strucutre – Project Location Map

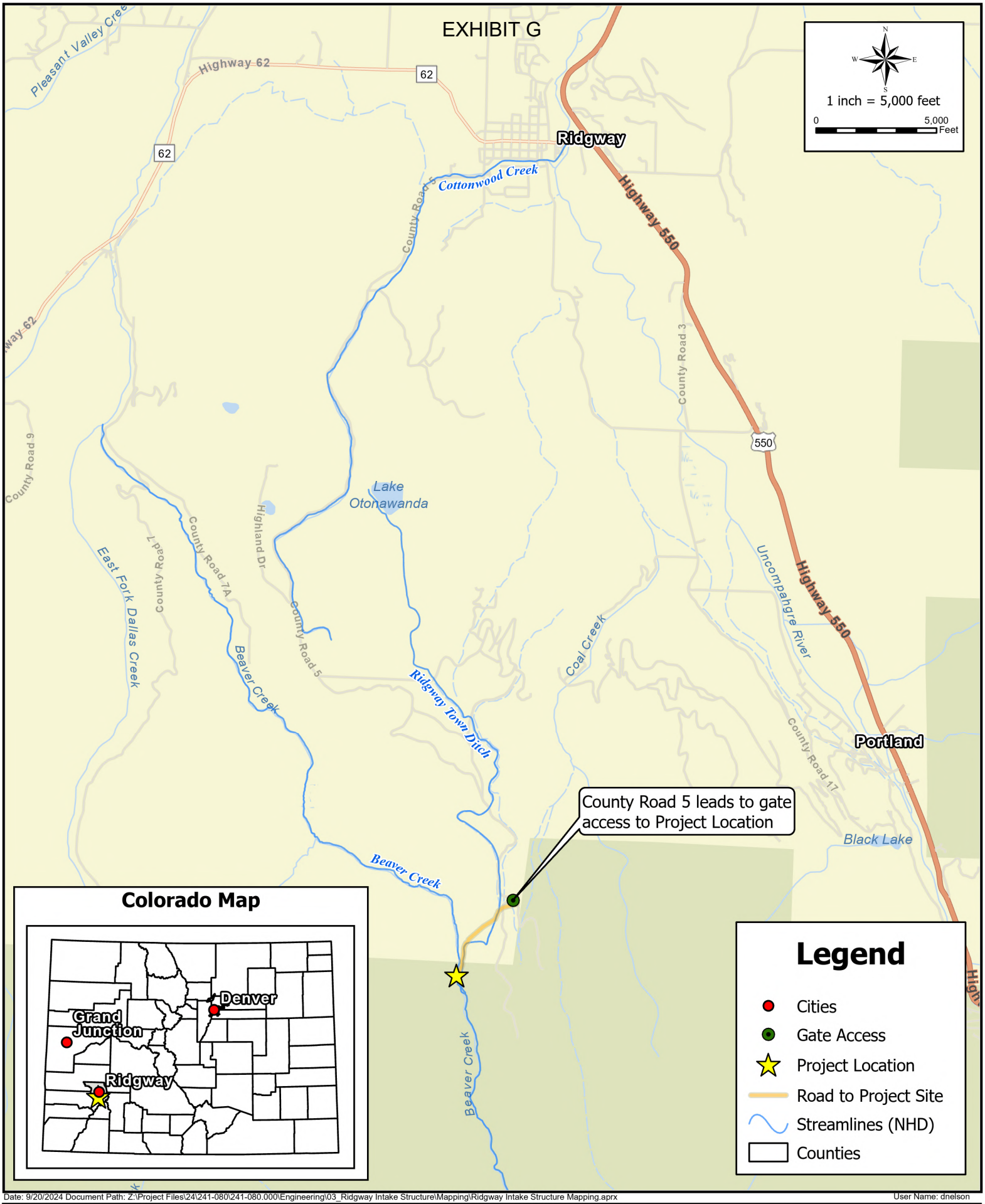
Figure 2. Ridgway Intake Structure – Historical Infrastructure Location Map

Figure 3. Ridgway Intake Structure – Overall Project Area Map

Figure 4. Ridgway Intake Structure – Conceptual Baseline Alternative Sketch

Attachment A. Town of Ridgway Intake Structure and Transmission System – Opinion of Probable Costs – Conceptual Level (-20 percent to + 30 percent)

EXHIBIT G



Date: 9/20/2024 Document Path: Z:\Project Files\24\241-080\241-080.000\Engineering\03_Ridgway Intake Structure\Mapping\Ridgway Intake Structure Mapping.aprx

User Name: dnelson

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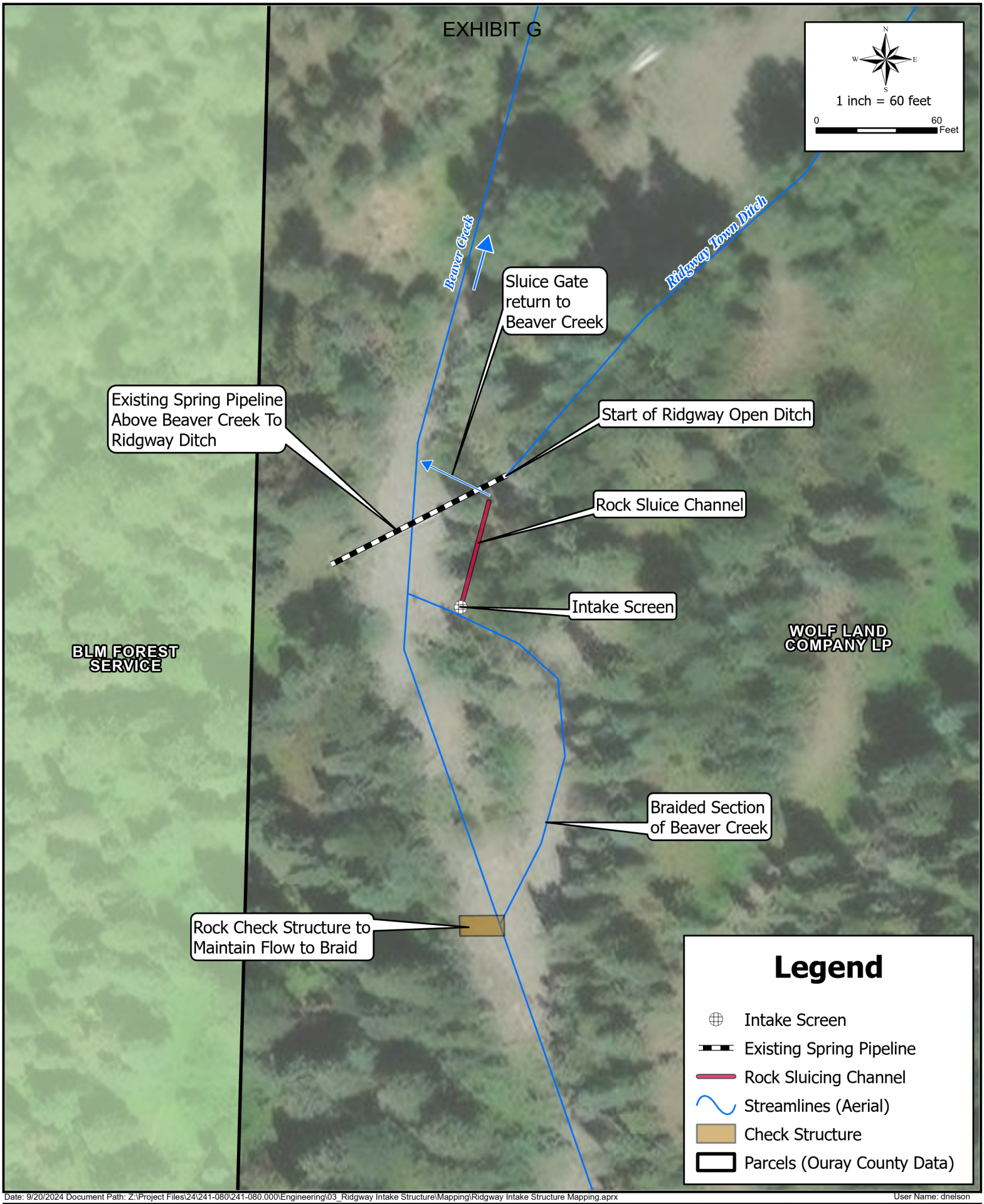
OURAY COUNTY, COLORADO

RIDGWAY INTAKE STRUCTURE - LOCATION MAP

TOWN OF RIDGWAY

PROJECT NO. 241-080.000

FIGURE 1



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OURAY COUNTY, COLORADO

RIDGWAY INTAKE STRUCTURE - HISTORICAL INFRASTRUCTURE LOCATION MAP

TOWN OF RIDGWAY

PROJECT NO. 241-080.000

FIGURE 2

EXHIBIT G

Legend

- Flow Measurement Device
- Road Improvements (6,200 feet)
- Approximate Pipe Section
- Streamlines (Aerial)
- Construction Staging Area
- Intake Structure Improvements (See Figure 4)
- Maintanence Access For Long Term Debris Removal and Intake Structure Maintenance
- Parcels (Ouray County Data)

N
W E
S
1 inch = 200 feet
0 200 Feet

Ridgway Town Ditch

New Flow Measuring Device

Piped Section of Ridgway Town Ditch (end)

Approximately 6,200 ft of Road Improvements (see Roadway Improvement Extent)

WOLF LAND COMPANY LP

Construction Staging Area

Heavy Equipment Access to Beaver Creek

Beaver Creek

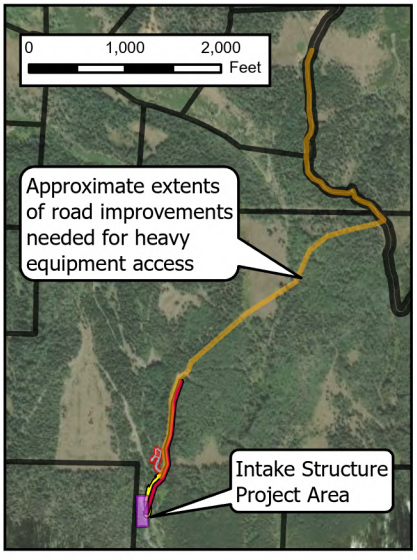
Maintanence Access from Road

BLM FOREST SERVICE

See Figure 4 for Ridgway Intake Structure Schematic

Concepts Only

Roadway Improvement Extent



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User Name: dnelson

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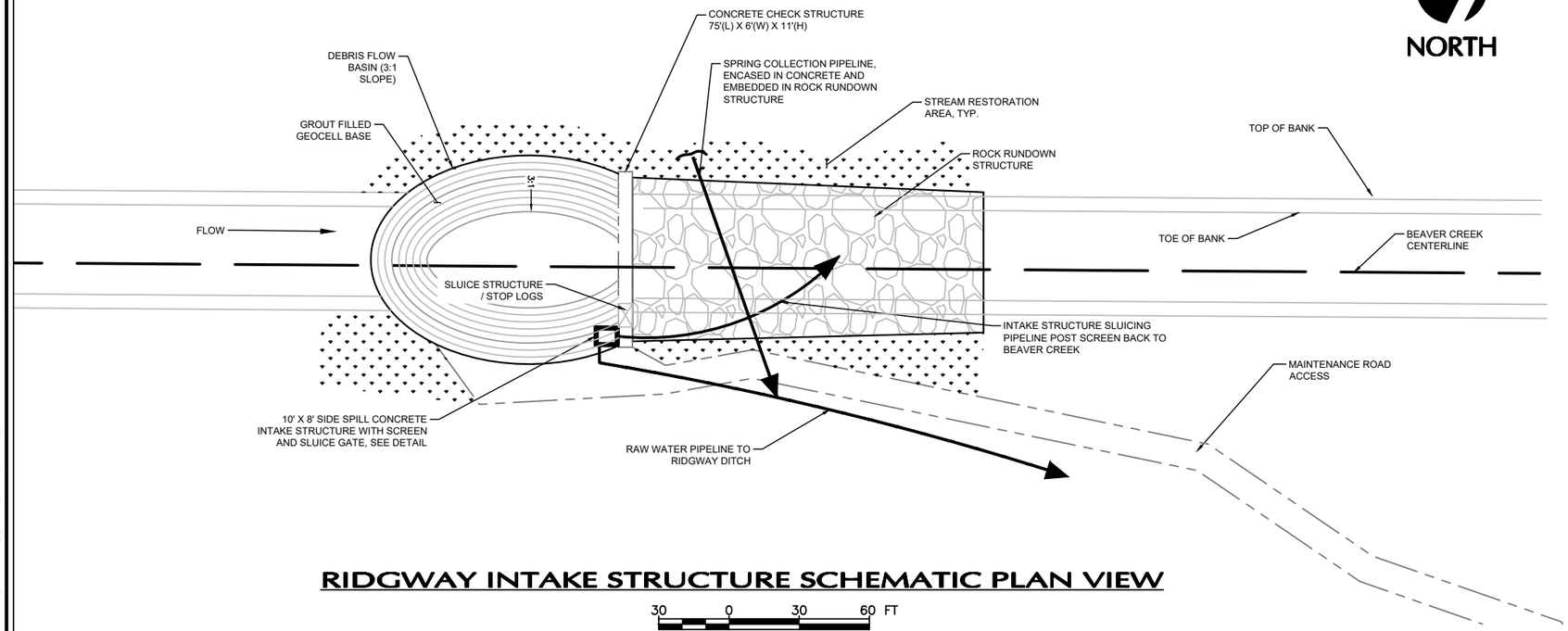
OURAY COUNTY, COLORADO

RIDGWAY INTAKE STRUCTURE - PROJECT AREA MAP

TOWN OF RIDGWAY

PROJECT NO. 241-080.000

FIGURE 3



RIDGWAY INTAKE STRUCTURE SCHEMATIC PLAN VIEW

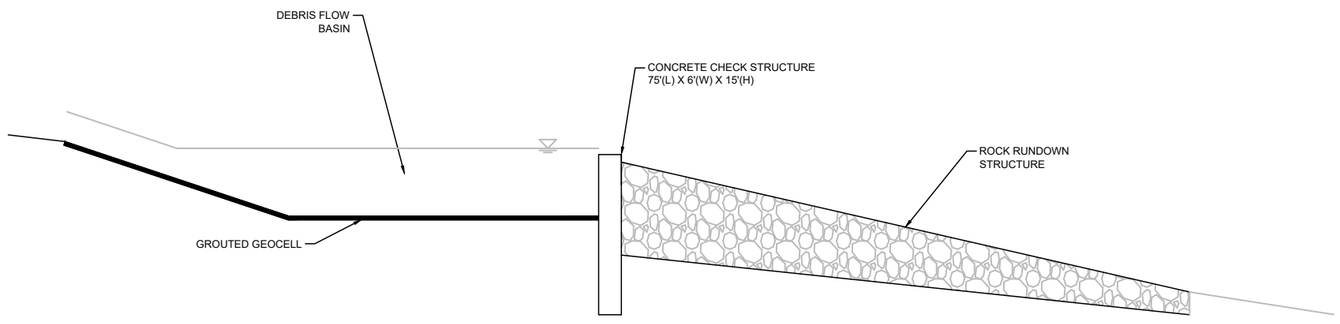
30 0 30 60 FT

CONCEPTUAL
NOT FOR
CONSTRUCTION

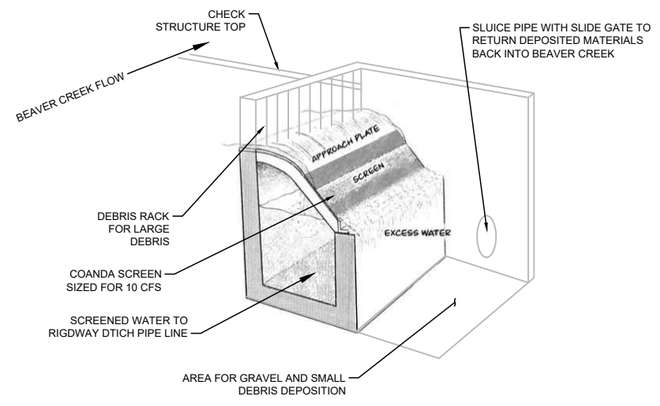
DRAFT
WORK
IN PROGRESS

CONCEPTUAL PLAN NOTES:

1. THE PLAN AND PROFILE SKETCHES ARE INTENDED TO PROVIDE CONCEPTS ONLY BASED ON LIMITED MEASUREMENTS COLLECTED BY WWE IN THE FIELD ON SEPTEMBER 12, 2024, AND ARE NOT BASED ON A SURVEY FROM A PROFESSIONAL LAND SURVEYOR.
2. ACTUAL DIMENSIONS, LOCATIONS, HEIGHTS AND ESTIMATED QUANTITIES SUBJECT TO CHANGE BASED ON TOPOGRAPHIC DATA PROVIDED BY A LICENSED PROFESSIONAL LAND SURVEYOR, GEOTECHNICAL ENGINEERING DESIGN, AND STRUCTURAL ENGINEERING DESIGN.



RIDGWAY INTAKE STRUCTURE SCHEMATIC PROFILE VIEW (NOT TO SCALE)



CONCRETE INTAKE STRUCTURE DETAIL (NOT TO SCALE)

WWE
WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. SUITE 100A
DENVER, CO 80211
(303)480-1700 FAX(303)480-1020

NO.	BY	DATE	DESCRIPTION	COMMENTS
1	–	–	–	-----
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		DATE
DESIGN	HAL	9/19/24
DETAIL	DMN	9/19/24
CHECK	HAL	9/19/24
APPROVAL		
SCALE		SHOWN
Ridgway Intake Structure.dwg		

RIDGWAY INTAKE STRUCTURE

CONCEPTUAL BASELINE ALTERNATIVE SKETCH

JOB NO. 031-090.200
REVISION NO. 0
FIGURE 04

EXHIBIT G

Wright Water Engineers, Inc.

Client:
CWCB
Project:
Town of Ridgway Intake Structure and Transmission System

ATTACHMENT A

Intake and Water Transmission Repair
Opinion of Probable Costs
Conceptual Level (-20% to +30%)

Project No:	241-080.000
Sheet 1 of 1	
By: SLP/MYG	Ckd: HAL
Date: 9/16/24	Date: 9/20/24

WWE
WRIGHT WATER ENGINEERS, INC.

WORK ITEM DESCRIPTION	COMMENTS	QTY.	UNIT MEAS.	UNIT COST $	TOTAL COST $	REFERENCE
Debris Capture Basin						
General Excavation		1,400	CY	$ 30	$ 42,000	Based on WWE experience and historical WWE project Bid Tabs.
Geocell Base		1,100	SY	$ 110	$ 121,000	Average of CDOT costs of Geocell from 2020 to 2024, removed projects with more than 10,000 SY.
Grout for Base	assume 6" deep, and multiply by 1.2 to account for waste	210	CY	$ 900	$ 189,000	Cost of grout for rock riprap structures from DWR EWP 2021, adjusted for inflation.
Check Structure						
Structural Excavation		1,100	C.Y.	$ 150	$ 165,000	NRCS Construction Cost Data Excavation, Dam Foundation Upper Tygart Valley Watershed.
Backfill		1,100	C.Y.	$ 75	$ 83,000	NRCS Construction Cost Data Earthfill, Backfill, Structural Class 1, Miliken CO Project by AECOM with additional for hauling.
Concrete Check Structure		300	C.Y.	$ 1,800	$ 540,000	Assume 75' x 6' x 15' check structure (height, 8' above stream, 6' below), concrete footer 2'x8'x77') NRCS Spreadsheet for Concrete, Reinforced, Wall (Colorado River Connectivity Channel, Granby, CO) with additional for inflation to July 2025, and additional for remote location.
Slide Gate/Stop Log Structure		1	L.S.	$ 100,000	$ 100,000	Assume 10'x8' Slide gate 7' head (Fresno Quote x 2.5 for install and Freight).
Access Grating and Handrails		1	L.S.	$ 40,000	$ 40,000	Grating, assume 6'x50' section with grating and handrails (half of check structure), 300 S.F. Aluminum Grating (RS Means 055313100186 @$90/S.F. w/ 112 L.F. of straight banding @$7/L.F.)=$28,000, Crew E4 year 2024 daily rate @3500 w/ daily output of 600 S.F. use $1750 for 300 S.F., Aluminum Handrails @112 L.F. (RS Means 055213500140 @$100/L.F.)=$11,200).
Intake Structure						
Side-Spill Style Screen and Sluice Concrete Structure		1	L.S.	$ 105,000	$ 105,000	Based on WWE project Bid Tab for similar structure, $252,000 for 30 L.F. structure, ~$8,400 per L.F., Assume 10 L.F for screen, 84,000 plus additional 20K for specialized structure for Coanda screen and sluicing.
Coanda Screen		1	L.S.	$ 35,000	$ 35,000	MISCO Quote x1.5 for install.
Sluice Slide Gate		1	L.S.	$ 20,000	$ 20,000	$12,000 for 48" slide gate flat back, low pressure application add $8,000 for installation.
Remote Telemetry Rain Gauge		1	L.S.	$ 50,000	$ 50,000	2021 NRCS cost rain gauge grand county (40k) adjusted for inflation.
Rock Rundown Structure		1	L.S.	$ 800,000	$ 800,000	Based on 2023 WWE Bid Tab item for Florida Canal Diversion Structure stepped pool rock rundown structure. Similar size and volume, adjusted for inflation and remote location.
Ditch and Spring Conveyance Repair						
Pipeline	ADS 36" N-12 HDPE Pipe (smooth wall)	1,000	L.F.	$ 200	$ 200,000	NRCS Davos Ranch Bid Tab, Highest Bids, 30" ADS N-12 HDPE Pipe ($175 per LF) adjusted to 36" pipe.
Cleanout Tees	cleanout tee every 200 feet	5	E.A.	$ 2,200	$ 11,000	NRCS Davos Ranch Bid Tab 18" ADS Insertatee.
Access Manholes	manhole every 300 feet	3	E.A.	$ 7,500	$ 23,000	2023 Unit Cost for 5-foot deep manhole from Mile High Flood District Bid Item Pricing Database.
Daylight Structure	at end of pipe	1	L.S.	$ 10,000	$ 10,000	Concrete flared end section and riprap, based on Historical WWE Bid Tabs received and NRCS Davos Ranch cost reference.
Flow Measurement		1	L.S.	$ 30,000	$ 30,000	Highest bids for a 24" aluminum Parshall flume and data logger from 2024 Zartman Ditch bids (231-035.010).
Spring Conveyance Repair		1	L.S.	$ 40,000	$ 40,000	Assumes pipeline crossing is encased in concrete and embedded in the rock rundown structure, and considers potential reconfiguration of spring collection pipe to facilitate gravity flow across the creek and into Ridgway Ditch.
Stream Restoration						
Upstream Check Structure		6	EA	$ 17,000	$ 102,000	2021 EWP costs, adjusted for inflation.
Streambank Improvements	length assumed by measuring stream length between two debris polygons and multiplied for both sides of the stream	2,200	LF	$ 100	$ 220,000	Type D Streambank Protection (root wads, plantings) from Colorado Connectivity Project 2022 Grand County, adjusted for inflation.
Earthwork, Streambank Shaping, Cut/Fill	assumed 8' cut bank, 3:1 side slopes	7,900	CY	$ 50	$ 395,000	Quotes from 2013 Thomas Farm Project, adjusted for inflation.
Construction Access Road						
General Excavation	assumes 1100' of roadway, 12' wide, 4' deep of material	2,000	CY	$ 30	$ 60,000	Initial 1,100 feet of Roadway near Ridgway ditch consists of borrow materials from ditch not suitable for heavy equipment, need to remove and haul offsite.
Road Subgrade Material	assumes 1100' of roadway, 12' wide, 4' deep of material	2,000	CY	$ 50	$ 100,000	NRCS Construction Cost Data Earthfill, Backfill, Structural Class 1, Miliken CO Project by AECOM.
Aggregate, Road Base	assumes 1100' of road, 12' wide road, 4" depth	200	CY	$ 140	$ 28,000	Drowsy Water Ranch EWP Project, 2021, adjusted for inflation.
Road Grading	assumes 12' wide road	6,200	LF	$ 15	$ 93,000	Based on Bids from contractors on a rugged BLM road in Grand County, EWP 2021, adjusted for inflation.
Construction Dewatering		1	L.S.	$ 200,000	$ 200,000	Based on dewatering costs from a WWE Project Bid Tab from 2023 additional for inflation, assumes construction occurs in post-runoff season during low flow conditions.
Existing Debris Removal		1,000	CY	$ 120	$ 120,000	NRCS EWP Cost Spreadsheet, adjusted for inflation and location.
Debris Removal for Future Debris Flow		1,000	CY	$ 120	$ 120,000	NRCS EWP Cost Spreadsheet, adjusted for inflation and location.
				Construction Work Items Subtotal (Rounded to Nearest 10k)	**$ 4,050,000**	
Contract General Conditions						
Mobilization / Demobilization	15%				$ 610,000	Calculated as 15% x Construction Work Items Subtotal rounded to nearest 10k. Based on historical WWE Project Bid Tabs, typically ranges between 10 to 15 percent of total construction work items.
General Conditions	5%				$ 210,000	Calculated as 5% x Construction Work Items Subtotal rounded to nearest 10k. Contractor contracting costs (bonding, insurance, etc.). Typical bonding and insurance costs are 5% of the Construction Work Items.
Grading, Erosion, and Sediment Control	6%				$ 250,000	Calculated as 6% x Construction Work Items Subtotal rounded to nearest 10k. Assumed cost for Stormwater Management Plan, Permits, Stormwater control measures, and revegetation efforts on entire project site
				Construction Work Items and General Conditions Subtotal	**$ 5,120,000**	
Conceptual Level Contingency	30%				$ 1,540,000	Assume 30% contingency at conceptual cost estimate level. Rounded to nearest 10k
				Total Construction Phase (including contingency)	**$ 6,660,000**	
Engineering Design and Permitting Fees						
Engineering	15%				$ 1,000,000	Calculated as 15% x Total Construction Phase cost rounded to nearest 10k. Includes surveying, alternatives evaluation, assistance with CWCB loan feasibility study, preparation of Issued for Bidding and Construction plans, Contract Documents and Technical Specifications, engineering services during bidding and construction observation services.
Pre-Construction Permitting		1	L.S.	$ 150,000	$ 150,000	Assume NEPA compliance for potential work on USFS property, and Section 404 permitting.
				Subtotal Engineering Design and Permitting	**$ 1,150,000**	
Pre-Construction Feasibility Work and Interim Water Supply Development						
Water Rights Assessment		1	L.S.	$ 100,000	$ 100,000	Legal water rights attorney fees and engineering fees. Includes considerations for a Water Rights Application.
Easement Negotiations with Landowner		1	L.S.	$ 50,000	$ 50,000	Per conversation with Town of Ridgway staff and Town engineer on 9/13/24 based on experience working with landowner
Interim Water Supply		75	AF	$ 650	$ 50,000	Ridgway M&I water costs x Town of Ridgway Raw Water Demand during the months of July and August from 2022, Town of Ridgway Water Supply Assessment Report.
				Subtotal Pre-Construction Feasibility Work and Interim Water Supply Development	**$ 200,000**	
				Project Grand Total	**$ 8,000,000**	

General Note: All costs rounded up to nearest thousand unless otherwise noted.