The Logan Irrigation District

112 North 8th Avenue - P.O. Box 333 - Phone (970) 522-2025
STERLING, COLORADO 80751-0333

June 20, 2018

Anna Mauss, P.E.
Colorado Water Conservation Board
1313 Sherman St #718
Denver, CO 80203

RE: Request for Feasibility Study Grant for the Logan Irrigation District.

Dear Ms. Mauss,

We have submitted preliminary application for a CWCB loan to rehabilitate Prewitt Reservoir, and have hired Marcus Krall, P.E. with Wenck in Cheyenne, Wyoming to perform the required engineering. We request a grant, in a maximum amount of $29,512, to pay for up to 50% of the cost of the Feasibility Study for the project. The study would be in accordance with the CWCB Guidelines, and would follow the format of the Sample CWCB Feasibility Study you have provided us.

The engineering scope of work and cost estimate are attached. If you have any questions or need any additional information please contact me.

Sincerely,

The Logan Irrigation District

Jim Yahn

James T. Yahn, P.E.
Manager

WENCK

Responsive partner.
Exceptional outcomes.

May 3, 2018

Mr. Jim Yahn, PE
Manager
Prewitt Operating Committee
112 North 8th Avenue
Sterling, CO 80751

Re: Prewitt Reservoir Rehabilitation Feasibility Study

Mr. Yahn:

We are pleased to submit this proposal to the Prewitt Operating Committee (Committee) for professional engineering services for rehabilitation of Prewitt Reservoir. We have identified the following key factors that are critical to the successful completion of this feasibility project:

- **Robust material sampling and testing program.** The rehabilitation concepts contemplated by this proposal require adequate knowledge of the materials to be dredged and used as fill. This study defines a clear plan for sampling and testing reservoir sediments to determine their suitability for use as embankment fill. We also propose investigating native sands for use as soil cement facing. This innovative approach could provide immediate and enduring benefit to the Committee.
- **Clearly define the project purpose and need.** Our project team includes Lytle Water Solutions, LLC, who has extensive hydrologic knowledge of Prewitt Reservoir and the Lower South Platte Basin. Their Prewitt Operational Model will clearly demonstrate the project's purpose and need, which will allow the project to move forward through subsequent phases.
- **Develop a clear roadmap for rehabilitation of Prewitt Reservoir.** We will develop a clear roadmap for the project by evaluating and ranking alternatives using objective criteria and identifying future project activities to be completed to successfully deliver the project.

Our extensive experience with dam rehabilitations will be an asset to the Committee. We state with confidence that our team will deliver timely and seamless execution of this study. The attached proposal articulates our approach to identifying feasible rehabilitation alternatives.

Sincerely,

Wenck Associates, Inc.

Marcus Krall, PE (WY, CO)
Associate

[Enclosure]

WENCK

RESPONSIVE PARTNER. **EXCEPTIONAL** OUTCOMES.

May 3, 2018

Proposal for:
Prewitt Reservoir Rehabilitation Feasibility Study

PREPARED FOR:

Prewitt Operating Committee
Mr. James Yahn, PE - Manager
112 North 8th Avenue
Sterling, CO 80751

PREPARED BY:

WENCK
7000 Yellowtail Road, Ste. 230
Cheyenne, WY 82001
Phone: 307-634-7848
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wenck.com

Wenck is extremely committed to successfully delivering the Prewitt Reservoir Rehabilitation Feasibility Project to the Prewitt Operating Committee (Committee). We have developed a strategic approach to provide enduring benefit to the Committee. Details of our project approach are provided below:

SCOPE OF SERVICES

Wenck will begin Work by leading a project kick-off meeting where project goals, scope, and schedule can be finalized with the Committee. A clear understanding of these will create alignment of resources, which is critical to project success.

We have structured our scope of services to match the requirements of a CWCB funded feasibility project. The CWCB mandates the following items be included within any feasibility level study:

- Project Background
- Project Sponsor
- Water Rights
- Project Description
- Financial Feasibility Analysis
- Conclusions and Recommendations
- Loan Request Submittals

Project Background and Sponsor portions of the report will be straightforward, and do not warrant additional discussion here. Detailed discussion of our approach to the remaining report items is provided below.

Water Rights

Prewitt Reservoir as an integral part of irrigation practices in the Lower South Platte River Basin. Water storage rights in the reservoir were originally adjudicated in Case No. CA-2142 for 32,300 acre-feet (ac-ft) with an appropriation date of May 25, 1910. An additional 34,960 ac-ft of storage was adjudicated in Case No. CA-16704, with an appropriation date of December 31, 1929. These additional rights were adjudicated to "refill the reservoir as many times as possible in each water year to the extent to which unappropriated waters were available and limited only to the capacity of the canal and reservoir" (CA-16704). The Prewitt Inlet Canal has an adjudicated flow capacity of 695 cubic feet per second (cfs), while the Prewitt Outlet Canal has a capacity of 500 cfs. As such, the Prewitt Reservoir system has the capability to divert, store, and deliver significant volumes of water for irrigation purposes to water rights owners in the reservoir.

The proposed rehabilitation project at Prewitt Reservoir is projected to provide an additional 4,300 ac-ft of storage. To evaluate the purpose and need for this rehabilitation project, Wenck's sub-consultant Lytle Water Solutions (LWS) has an existing Prewitt Reservoir Operational Model ("Operational Model") which will be used to demonstrate that downstream irrigation demands are more than sufficient to fully utilize this additional water storage. The Operational Model is premised on a point-flow model of the South Platte River that can evaluate in-priority flows at the Prewitt Inlet Canal, coupled with a water balance for Prewitt Reservoir, and the ability to discharge water from storage to the Prewitt Outlet Canal.

The project team will use the Prewitt Reservoir operational model to demonstrate purpose and need for the project.

This reservoir Operational Model is a daily model that will track inflows, storage needs, inputs to (precipitation) and outputs from storage (evaporation and seepage), as well as regulated releases to meet downstream irrigation needs. The Operational Model will simulate two scenarios, (1) the yield of the Prewitt Reservoir irrigation water rights prior to any rehabilitation work, i.e. with the current structural restriction, and (2) the yield of the Prewitt Reservoir irrigation water rights after the rehabilitation work provides an additional 4,300 ac-ft of storage. The difference between these two simulations will be the expected yield directly related to the rehabilitation work.

By modifying the elevation-area-capacity curve for Prewitt Reservoir to evaluate the increased storage due to the rehabilitation project, the daily, monthly, annual, and variable year-to-year yields related to this additional storage can be developed. As such, the purpose and need for the storage enlargement (to remove the structural storage restriction) can be demonstrated.

Project Description

We recommend evaluating the following alternatives for this project:

- No Action
- Sediment Beaching
- Soil-Cement Protection
  - Plating
  - Stepping

The no action alternative is likely undesirable to the Committee but should be discussed in minor detail for comparison to the other actions. Doing so will likely provide benefit during future permitting efforts. No detailed analysis will be required here outside of costing potential revenue lost due to the storage restriction and deadpool. Pricing information gathered for financial feasibility analysis will be used for that purpose.

Wenck will sample local materials for evaluation of the sediment beaching and soil-cement alternatives. A vibracorer sampling device will be used to obtain the specimens after a sampling plan is developed. The objectives of the sampling program will be to determine the suitability of dredged sediments for use as fill, and the suitability of locally borrowed sands for use as soil-cement. According to the USBR, broadly graded sands are typically the optimal material for soil-cement. This type of material will likely be available on-site and should be investigated. The benefits of soil-cement are:

- Longevity and durability
  - Soil-cement is much more robust than beached sediments alone
- Minimize cut/fill quantities
  - Soil-cement facing would allow steeper slopes of fill, providing cost savings on excavation and fill placement

However, soil-cement must be placed on suitable fill compacted to high densities, as deferential sediment may damage the facing and allow washout of fill materials. Soil-cement placed using the plating method is essentially paved onto a flat semi-beaching slope, typically 5H:1V to 10H:1V. This method requires less fill than sacrificial berming/beaching alone, but typically requires 6 to 12-in thickness of soil-cement facing. Soil-cement placed using the stair stepping method may be placed at much steeper slopes, up to 2.5H:1V or 3H:1V, but with greater quantities of soil-cement. The cost-benefits of each should be evaluated for this application. Plating and stair stepped methods are shown below:

Figure 1: Plating Soil-Cement Placement

Figure 2: Stairstep Soil-Cement Placement

Samples will be spatially varied to provide an accurate representation of the reservoir materials. Sediment sample depths shall vary from 1-11 ft. Up to 30 sediment samples may be obtained for laboratory analysis or logging. Our understanding is that sediment samples will be obtained from a pontoon boat supplied by the Committee. All sample locations will be geospatially located using a handheld GPS device. Logging will be completed for three select samples using high resolution photography.

Samples for soil-cement testing will be obtained from areas believed to be predominantly composed of sands. These will likely be higher elevation sites within the reservoir. Consideration may also be given to upland sites. Both cores and bulk samples via test pitting may be obtained. Logging will be completed for select samples using high resolution photography.

Wenck will deliver the specimens to a geotechnical laboratory were materials from each category will be homogenized prior to analysis. The project team has identified specific testing criteria required for this project. This program was developed using geotechnical knowledge and the USBR recommended "Bonney" criteria, which serve as the benchmark for soil-cement analysis. As a minimum, the following laboratory analysis would be completed:

Table 1: Proposed Material Laboratory Testing

Material Tested	Name	Description	Proposed Count
Sediments and Sands	Standard Proctor	Maximum dry density	1-each from composite
Sediments and Sands	Liquid and Plastic Limits	Indication of clay content	1-each from composite
Sediments and Sands	Gradation	Grain size distribution	1-each from composite
Sediments Only	Triaxial Shear	Strength Value	1-each from composite
Sands Only (Soil-Cement Test)	Compressive Strength	Recommended USBR "Bonney" Criteria	4-each at median, median +2%, and median -2% cement contents
Sands Only (Soil-Cement Test)	Wet-Dry Durability	Recommended USBR "Bonney" Criteria	2-specimens at each cement content
Sands Only (Soil-Cement Test)	Freeze-Thaw Durability	Recommended USBR "Bonney" Criteria	3-specimens at each cement content

The project team will evaluate each alternative after testing is complete. The suitability of the proposed dredged material for use as fill and sacrificial berming will be determined. Slope stability analysis will be completed for the sediments so that a minimum slope can be selected for the material which will be stable under post construction, steady-state seepage with and without earthquake loading, and rapid drawdown conditions. The suitability of local sands for use as soil-cement will also be determined, including a preliminary recommendation for cement content.

The embankment extents requiring slope protection should be confirmed. Wenck will complete an analysis of wave run-up using reservoir fetch and Colorado SEO Dam Safety required design wind storm. The minimum slopes required for each alternative will then be identified and recommended. These will be compared to the geotechnically stable slopes identified for the sediments. Typical sections will then be created for each alternative. Quantities required for each alternative will then be estimated and budgetary costs defined.

Financial Feasibility Analysis

Financial feasibility analysis can be completed after budgetary costs are known for each alternative. The Prewitt Reservoir Operational Model results can be used in conjunction with the cost of the rehabilitation project to estimate the value of the yield of the additional storage rights that will become available with the rehabilitation work. The Operational Model can

simulate the yield from Prewitt Reservoir both with and without the rehabilitation work to assess the additional yield that will be provided. There will be no actual storage construction, therefore, the value of this additional storage through the rehabilitation work can be compared to alternatives for storage of the expected additional yield from the Prewitt Reservoir irrigation water rights.

From an alternative standpoint, the storage rights associated with Prewitt Reservoir cannot be stored at any other location, whether it is an existing storage structure or a new storage structure, without a change in point of diversion being adjudicated in Division 1 Water Court. This likely would be rather long, expensive, and potentially contentious process. In addition, existing surface storage structures in this reach of the Lower South Platte River are fully utilized and would not have the ability to store the additional water that would be made available through the rehabilitation work that increases storage by approximate 4,300 ac-ft.

The recently-completed South Platte Storage Study (December 15, 2017) has identified potential new storage locations in this reach of the South Platte River that could be constructed to provide additional surface water storage of in-priority water. As part of an alternatives analysis, storage concept costs for reservoirs in the vicinity of Prewitt Reservoir from the South Platte Storage Study can be provided as a comparison to the cost for the rehabilitation work. However, based on the permitting, design, and construction of any new surface water storage structure, it is unlikely that any alternative can be competitive with rehabilitation of an existing reservoir to provide an additional 4,300 ac-ft of storage.

Conclusions and Recommendations

Wenck will summarize the results of the feasibility study in report form for the Committee. A budgetary cost estimate will be developed and provided for each option. Wenck will provide an objective evaluation of the alternatives using decision science methods. Using a decision science tool such as an evaluation matrix will ensure that the preferred alternative is selected without bias. Potential factors to consider would be costs, constructability, durability, and others such as permitting potential. Additionally, Wenck will provide the Committee with an itemized list of tasks to be completed for successful implementation of the project. A critical path schedule will accompany the list of recommended future activities. The report will be signed and stamped by professional engineer(s) licensed in the state of Colorado.

Loan Request Submittals

If the project is determined to be feasible, Wenck will assist the Committee with submitting the loan request documents necessary to advance the project to subsequent phases. As previously discussed, we would recommend considering involving additional stakeholders to help move the project through permitting, design, and construction. In addition to providing valuable cost sharing benefits, multi-stakeholder coalitions are often viewed more favorably by both funding and permitting agencies.

ACTIVITIES

Wenck has developed and organized activities to optimize benefit and minimize costs. We propose the following major activities (tasks) for this feasibility level study:

1 Project Coordination

•Task Objectives: Facilitate the timely and efficient execution of the Work. Control and assure quality of all work products.

2 Research and Investigation

•Task Objectives: Obtain site data to facilitate defensible feasibility analysis of the propose alternatives.

3 Analysis

•Task Objectives: Evaluate project purpose and need. Evaluate engineering feasibility for dredging and beaching concept using information gathered during previous activity. Evaluate technical feasibility of soil-cement facing.

4 Preliminary Report

•Task Objectives: Summarize results of activities within CWCB standard feasibility report. Provide recommendation for preferred alternative and future action items.

5 Final Report

•Task Objectives: Address Committee comments and provide final report deliverables. Assist with loan request submittals.

Work Products/Deliverables

Wenck shall produce the following deliverable outputs for the Committee:

- **Activity 1: Project Coordination**
  - Minutes from project kick-off meeting
  - Concise Project Management Plan
  - Bi-weekly progress meetings (as-necessary)
  - Monthly progress reports (letter format)
- **Activity 2: Research and Investigation**
  - Develop sampling program
  - Reservoir sediment samples cored up to 11-ft in depth (6)
  - Geospatial locating of all samples. 3-samples shall be logged
  - Bulks samples of native sands obtained from shallow cores or test pits (100-lbs dry weight)
  - Geospatial locating of all samples. 2-samples shall be logged.
- **Activity 3: Analysis**
  - Water supply/demand evaluation for attained storage
  - Evaluation of project purpose and need
  - Laboratory analysis of samples as indicated in Table 1
  - Feasibility recommendation for use of dredged materials as fill, including slope stability analysis
  - Feasibility recommendation for use of dredged materials as fill sacrificial berm
  - Determine feasibility of native sands for use as soil-cement
  - Recommendation for median cement content for soil-cement
  - Confirmation of embankment extents requiring treatment
  - Typical section recommendation for each feasible alternative
  - Quantity estimates for each feasible alternative
  - Determination of financial feasibility of the project
- **Activity 4: Preliminary Report**
  - Develop report in CWCB format summarizing description of all alternatives and results of previous activities
  - Budgetary cost estimates for each feasible alternative
  - Evaluation and recommendation of preferred alternative
  - Identification and itemization of recommended future activities
  - Development of future project critical path

- **Activity 5: Final Report**
  - Address comments received by Committee on preliminary report
  - Submit final deliverable report in CWCB format to the Committee (5-hard copies)
  - Assist Committee with CWCB loan request submittals

Assumptions/Exclusions

Wenck shall produce the following deliverable outputs for the Committee:

- **Activity 1: Project Coordination**
  - Progress meetings to be completed remotely via teleconference
- **Activity 2: Research and Investigation**
  - Our scope assumes Committee support for completing sampling program. Assumes the Committee will provide a pontoon boat with sufficient anchoring for sampling sediments.
- **Activity 3: Analysis**
  - Assumes use of existing Prewitt reservoir operational model
  - Assumes digital copy of topographic survey, including reservoir bathymetric data, will be provided
- **Activity 4: Preliminary Report**
  - Assumes single round of comment/review by Committee
- **Activity 5: Final Report**
  - Assumes Committee participation in loan request submittals

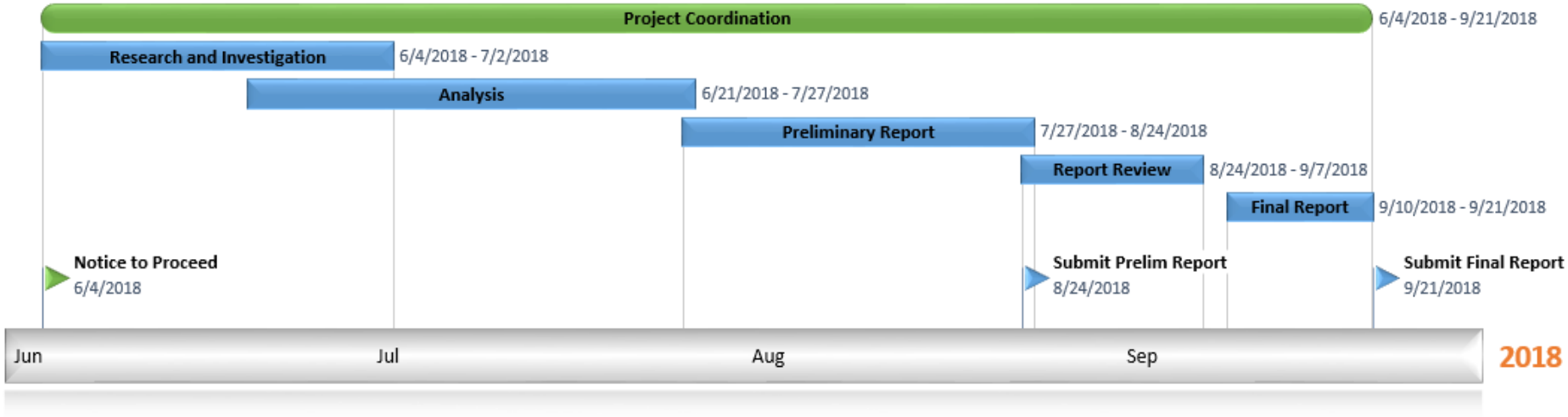
Schedule

We propose the following schedule for this scoping study. This schedule assumes no weather delays to the research and investigation phase. Sediment sampling will only be possible during fair weather conditions.

Table 2: Proposed Feasibility Project Schedule

Project Activity	Proposed Start Date	Proposed Completion Date
1) Project Coordination	6-4-18	9-21-18
2) Research and Investigation	6-4-18	7-2-18
3) Analysis	6-22-18	7-27-18
4) Preliminary Report	7-27-18	8-24-18
5) Final Report	9-10-18	9-21-18

Figure 3: Proposed Feasibility Schedule Gantt Chart



Dams and reservoirs are a core competency at Wenck. We have extensive experience in the field. Select project experience is provided within the following table.

Table 3: Dam and Reservoir Project Experience Summary

Project Name	Planning	Preliminary Design	Final Design	Permitting	Bidding and Construction
South Platte Supply Study	★	★			
Colorado-Wyoming (Flaming Gorge) Water Supply Study	★	★			
Middle Piney Dam Reconstruction and Road Stabilization Project	★	★	★	★	★
Lone Pine Reservoir Enlargement Project	★	★	★	★	★
Cucharas Reservoir No. 5 Consent Decree Project	★	★		★	
Little Snake Supplemental Storage (High Savory) Project	★	★	★		★
Buffalo, WY Municipal (Tie Hack) Reservoir Project	★	★	★	★	★
Lambert Reservoir No. 3 Rehabilitation Project	★	★		★	
Eastgate Dam Project	★	★	★	★	
Reuter-Hess Dam Project	★	★	★	★	★
Leavitt Reservoir	★	★	★		
Clear Creek Level II Project	★	★			

Detailed project examples, with reference information, are provided on the following pages.

Lower South Platte Water Supply Study
Sterling, CO

Client:	Parker, CO Water and Sanitation District
Client Contact:	Mr. Frank Jaeger, District Manager (303) 841-4627
Services Provided:	• Storage Alternative Analysis • Transmission Pipeline Alternative Analysis • Hydrologic Supply Modeling • Cost Estimates • Water Demand Evaluation • Water Treatment Analysis
Project Completion:	2006
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE

States West Water Resources Corp. (States West), now a Wenck company, was retained by the Parker Water and Sanitation District (Parker) to investigate water supply alternatives within the lower South Platte basin. The feasibility level study included evaluation of new and existing storage sites to supply Parker.

Hydrologic modeling was completed to estimate supply availability and develop recommendations for storage capacity. Reservoir siting analysis was completed for additional evaluation, and for estimating alternative costs.

Since the water supply quality is anticipated to be rather poor, the study investigated water treatment near the storage sites. Recommendations for treatment processes with associated costs were developed. A reverse osmosis (RO) based process was initially recommended to reduce total dissolved solids to below the 500 mg/L EPA threshold.

Pipeline routing analysis was included as part of the project. Three alternative pipeline routes were identified for transmission of the treated water to Parker. These included estimates of total pumping head required for each alignment under various demand scenarios. Right of way acquisition was evaluated for each alignment. Alignments where then screened using total estimated capital and long-term pumping costs. The study was completed in 2006.

This project was completed by States West, a Wenck company.

Colorado-Wyoming Water Supply Project
Regional Level Project

Client:	Parker, CO Water and Sanitation District
Client Contact:	Mr. Frank Jaeger, District Manager (303) 841-4627
Services Provided:	• Water Supply • Pipeline Routing • Preliminary Design • Cost Estimates • Water Demand Evaluation • Water Quality Analysis
Project Completion:	2008
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE

States West Water Resources Corp. (States West), now a Wenck company, was retained by the Parker Water and Sanitation District (Parker) to investigate transcontinental diversion of water from Flaming Gorge Reservoir to several potential sites. The highly publicized feasibility level study included water supply evaluation, water quality analysis, pipeline routing, and conceptual designs for a reservoir diversion structure, pump stations, and hydro power units. A new storage site, with conceptual design recommendations, was also identified for the project.

Three alternative pipeline routs were analyzed for the study. The intake structure was conceptually sited within Flaming Gorge Reservoir to optimize water quality and delivery capacity. Pump stations and hydropower sites were analyzed over a wide range of head and flow conditions. A new reservoir was proposed for re-regulation purposes prior to final delivery to the City of Parker. The study was completed in 2008.

This project was completed by States West, a Wenck company.

Middle Piney Dam Rehabilitation Project
Big Piney, WY

Client:	Wyoming Water Development Commission
Client Contact:	Jason Mead, Deputy Director
Services Provided:	• Water needs analysis and demand projections • Environmental Investigations • Cultural Analysis • Spillway Sizing • Water Rights Analysis • Financial Analysis • Permitting Analysis • Environmental Mitigation Analysis • Review of Funding Mechanisms
Project Completion:	Ongoing
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Marcus Krall, PE

This project has included planning, feasibility investigations, preliminary design, permitting, final design, and bidding, including a pre-qualification process. The project is currently bidding to pre-qualified Contractors. Planning level work included dam safety evaluation of the existing structure and development and ranking of alternatives for rehabilitation. Preliminary and final designs were developed for the preferred alternative which includes 90,000 CY cutoff trench with bentonite amended soils, single line tube-a-manchette grout curtain, 63-in concrete encased outlet works which serves as the principle spillway, seepage control section, and enlarged spillway capable of passing the probable maximum flood event. Wenck, and formally States West, has served as the prime consultant throughout the process. The project is scheduled to begin construction in the summer of 2018.

Lower Lone Pine Dam Enlargement Project
Red Feather Lakes, CO

Client:	Crystal Lakes Water and Sewer Association
Client Contact:	Doug Race, President 970-881-2250
Services Provided:	• Planning/Feasibility Study • Permitting-US Army Corps 404 • Flood Hydrology • Final Design • Bidding • Construction Management
Project Completion:	2014
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Marcus Krall, PE Principal in Charge: Victor Anderson, PE

Wenck was retained by Crystal Lakes Water and Sewer Association to provide planning, permitting, design, and construction management services for the enlargement of Lower Lone Pine Dam, which was required under the Association's water augmentation plan. Wenck identified the site during planning level assessment of Crystal Lakes' system. After identification of the site, Wenck provided preliminary and final engineering designs for enlargement of the zoned earth-fill dam. Wenck provided permitting services for the project, obtaining a US Army Corps 404 permit for the facility. Bidding and Construction Management services were also provided.

The dam was ultimately enlarged from 10 ac-ft to approximately 105 ac-ft. The enlarged structures featured a zoned earth embankment. Spillway sizing and design was completed for the 100-yr inflow design flood (IDF). The outlet works was rehabilitated in-place by slip lining a HDPE main through the existing corrugated metal pipe (CMP). The project also features a remedial wetland area, as required by permitting through the US Army Corps of Engineers.

Cucharas Dam Breach Project
Walsenburg, CO

Client:	Two Rivers Water and Farming Company
Client Contact:	Wayne Harding, CEO 303-222-1000
Services Provided:	• Dam Breach Analysis • Flood Routing • Incremental Damage Analysis • River Restoration
Project Completion:	Ongoing
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Marcus Krall, PE Principal in Charge: Victor Anderson, PE

Wenck Associates was retained by Two Rivers Water and Farming Company for the Cucharas Dam Consent Decree Project. The project features three basic tasks: recommendations for breaching the dam, design of a channel through the breached dam, and rehabilitation of the channel through reservoir sedimentation.

Detailed analysis of reservoir sediments was conducted for river restoration across approximately 2 miles of silt and clay deposited during 100-yrs of reservoir operation. Wenck used this information to develop conceptual designs for the restored Cucharas River. The restored river will utilize a compound channel design to prevent erosion during higher flow events, while also preventing sedimentation during lower flows.

Wenck also completed an Incremental Damage Analysis (IDA) as part of the dam breach scope. The IDA demonstrated that no incremental damages would occur due to failure of the lowered structure beyond that caused by flooding during the natural 100-yr event. This involved detailed dam break analysis and flood routing. Design recommendations are being developed for the dam breach and breach channel. Final Design for the project is currently ongoing.

Little Snake Supplemental Irrigation Water Supply Projects – High Savery Dam & Reservoir & West Fork Site

Client:	Wyoming Water Development Commission
Client Contact:	Jason Mead, Dam and Reservoir Division 307-777-7626
Services Provided:	• Planning/Feasibility Study • Permitting-US Army Corps 404 • Flood Hydrology • Final Design • Bidding • Construction Management
Project Completion:	High Savery Reservoir – 2003 West Fork Reservoir - Ongoing
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE Project Engineer: Dylan Wade, PE

Wenck was the primary consultant and performed final design and construction management for the 24,000 AF High Savery Dam and Reservoir Project. The work involved the dam, outlet works, principal spillway, emergency spillway, wetlands construction, access roads, and recreation facilities. The dam will be a 140-foot high zoned earth embankment involving approximately 1.5 million yards. The principal spillway will be a concrete structure, forty feet wide, incorporating a stepped chute to pass up to the 500-year flood event. The outlet works will be a cut and cover concrete structure incorporating an inclined multi-level intake. The structure will include a central building enclosing a jet flow valve and two polyjet valves for control of flow releases. The emergency spillway will be the primary borrow area for the dam and will be unlined. *This project was completed by States West, a Wenck company*.

Currently, Wenck is conducting a Level II planning study to assess the technical and economic feasibility of constructing additional storage facilities in the Little Snake River watershed. Wenck refined and updated the Little Snake River StateMod model as part of this study, and is currently analyzing water quality impacts and benefits associated with the West Fork Reservoir site.

Buffalo Municipal Reservoir Project
Buffalo, WY

Client:	City of Buffalo
Client Contact:	Ken Gross, City Administrator 307-684-5566
Services Provided:	• Water supply investigation • Preliminary dam design • Hydropower analysis and final designs • Permitting • SCADA system design • Economics • Final Designs of an RCC - 130 foot high dam • Construction Management
Project Completion:	1998
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE

Since the early 1970's, the City of Buffalo, Wyoming has been engaged in investigating a supplemental supply of water for municipal purposes from the Clear Creek basin, west of Buffalo. States West developed preliminary designs for a roller-compacted concrete dam, outlet works, and spillway. Hydropower analyses were also conducted and project financing plans developed. States West acted as the "Project Liaison" between the City, the U.S. Forest Service, and State of Wyoming through the development of the EIS and final permitting approvals for the project.

States West also acted as the final design team leader and the Project Engineer for final construction. This will be the first roller-compacted concrete dam built in the State of Wyoming.

This project was completed by States West, a Wenck company.

Lambert Reservoir Concept Design and Cost Estimates
Sedalia, CO

Client:	Lytle Water Solutions, LLC
Client Contact:	Mr. Bruce Lytle 303-350-4090
Services Provided:	• Small dam design • Flood hydrology • Spillway routing • Hazard classification • Schematic designs • Cost Estimates
Project Completion:	Ongoing
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Marcus Krall, PE Principal in Charge: Victor Anderson, PE

Wenck was retained by Lytle Water Solutions, LLC (LWS) to provide schematic designs of Lambert Reservoir near Sedalia, CO. An alternative site on Rainbow Creek may also be evaluated. The principal objective of the project is to develop cost estimates for rehabilitation or implementation of new storage using existing storage rights. The sites are relatively small, totaling less than 100 ac-ft.

Lambert Reservoir was breached during the floods of September 2013, and may require rehabilitation to retain its valuable storage right. The site is situated above Chatfield Reservoir, and may be used to augment water supplies for the Roxborough Water and Sanitation District.

Upon completion of reservoir yield hydrology, by LWS, Wenck will develop schematic design(s) for the facility(s). Flood hydrology will be completed to set initial crest height, and initial spillway routing will be completed. Hazard classification will be required to confirm spillway capacity. Wenck shall also compete conceptual design of the outlet works. Wenck will develop an opinion of probable construction costs (OPCC) to complete this phase of the project.

Eastgate Dam Project
Casper, WY

Client:	Eastgate Ranch, LLC, Casper Wyoming
Client Contact:	Mr. Robert McMurry
Services Provided:	• Dam design • Construction management • Dam breach analyses • Inundation mapping • Emergency action plan preparation
Project Completion:	2011
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE

States West was retained by Eastgate Ranch to perform final design and construction management services for Eastgate Reservoir. The 63-foot high, earth embankment dam storages approximately 600 acre-feet of water at the normal high water line.

States West was also required to develop an emergency action plan for Eastgate Reservoir in order to meet requirements set by the Wyoming State Engineer's Office. As part of this project, States West conducted dam failure analysis and routed the corresponding dam failure flood downstream using HEC-RAS software. The information provided from the dam failure analyses was used to create flood inundation mapping for the dam, which was included in the emergency action plan.

This project was completed by States West, a Wenck company.

Reuter Hess Dam and Reservoir Project
Parker, CO

Client:	Parker Water and Sanitation Department
Client Contact:	Mr. Frank Jaeger, District Manager (303) 841-4627
Services Provided:	• Permitting-US Army Corps 404 • EIS Coordination • Diversion Dam Design • Wetlands and Mouse Mitigation Design • Construction Management
Project Completion:	2014
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE Project Engineer: Dylan Wade, PE

Wenck served as the project liaison for all federal and Section 404 permitting for the new 75,000 acre-feet ($170M) dam and reservoir for the Parker Water and Sanitation District. An Army Corps of Engineers Section 404 Permit was obtained during the summer, 2003. The new dam is located off-channel in Newlin Gulch, a tributary of Cherry Creek located southeast of Denver Tech Center in Douglass County, Colorado. The Parker Water and Sanitation District previously was served solely by groundwater.

Wenck completed designs of the diversion dam and project mitigation sites. The diversion dam incorporates 30 10-foot-wide by 4-foot-high "Obermeyer" gates. The structure also includes a pump station intake, including five 10-foot-wide by 3-foot-high "Obermeyer" gates and two 4-foot by 8-foot sluice gates.

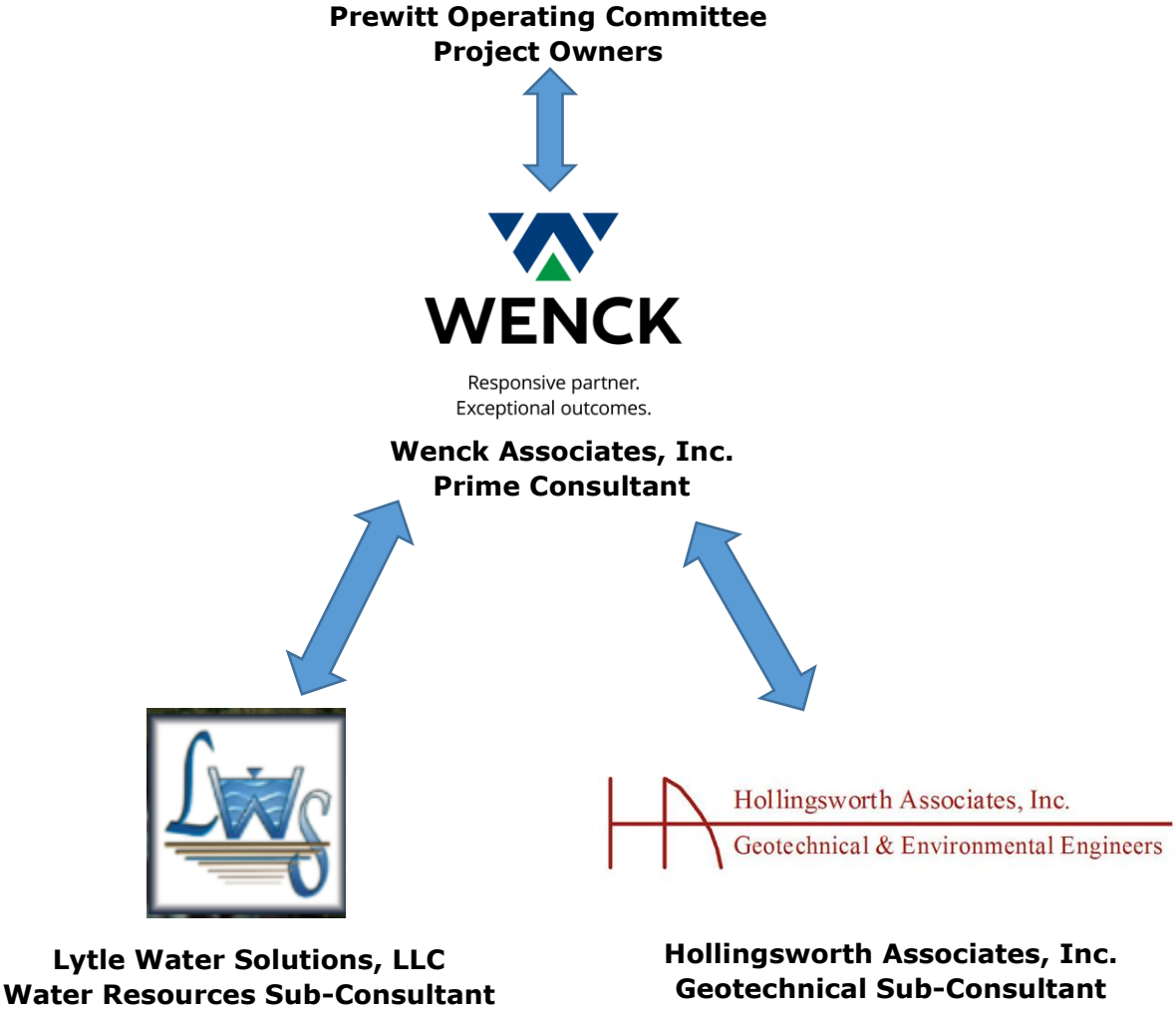
Clear Creek Level II Study
Buffalo, WY

Client:	Wyoming Water Development Commission
Client Contact:	Michael Besson, Director 307-777-7626
Services Provided:	• Potential Reservoir Site Assessment • Field Investigations • Temporary Stream Flow Gauging
Project Completion:	Ongoing
Location of Office:	Cheyenne, WY
Project Personnel:	Project Manager: Victor Anderson, PE Project Engineer: Dylan Wade, PE

The Lake DeSmet Conservation District submitted a request to the Wyoming Water Development Commission for a Level II study of the Clear Creek watershed. The sponsor indicated interest in analyzing and developing surface water for multiple purposes in the watershed. This study is to assess the technical and economic feasibility of developing multipurpose water storage facilities in the Clear Creek watershed. A StateMod hydrologic model is currently being developed for the watershed. The model will develop shortage and water availability information and will simulate potential reservoirs in the watershed. Four temporary stream gauge sites were developed and maintained to supplement stream flow data in the watershed.

This project was completed by States West, a Wenck company.

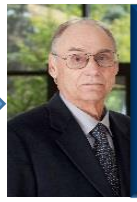
Wenck has the experience, expertise, resources, desire, and commitment to deliver the Prewitt Reservoir Rehabilitation Feasibility Study to the Prewitt Operating Committee on schedule and within budget. Our knowledge of the area and value-added approach will provide lasting and enduring benefits to the Committee. Our team has a proven record with projects of this magnitude, and the commitment to provide, with pride and integrity, a valuable resource for the Committee. Organizational charts for the project team by entity and personnel are provided below:



Prewitt Operating Committee
Jim Yahn, PE, Manager

Project Manager

Marcus Krall, PE



Principal-in-Charge

Victor Anderson, PE

Activity 1: Project Coordination

Marcus Krall, PE-Project Manager
Victor Anderson, PE-Principal in Charge

Activity 2: Research and Investigation

Victor Anderson, PE-Engineering Lead
Marcus Krall, PE-Sampling Program
Brian Beck-Sediment Sampling

Activity 3: Analysis

Victor Anderson, PE-Engineering Lead
Marcus Krall, PE-Engineering Evaluations
Lytle Water Solutions -Prewitt Operational Model
Hollingsworth Associates - Laboratory/Geotechnical Analysis

Activity 4: Preliminary Report

Victor Anderson, PE-QA/QC
Marcus Krall, PE-Report Recommendations/Deliverables
Lytle Water Solutions -Purpose and Need/Financial Feasibility
Hollingsworth Associates – Dredge fill recommendation

Activity 5: Final Report

Victor Anderson, PE-QA/QC
Marcus Krall, PE-Report Deliverables
Adam Marsh, PE-Drafting/Figures

STAFF RESUMES

Summary qualifications of team members for the Project are provided below. Detailed resumes are provided within Appendix A.

Victor Anderson, PE Principle and Chief Design Engineer for our team, Mr. Anderson will be available for peer review and consultation during all phases of the project. His widely recognized knowledge of dams and reservoirs will be an asset to the team. Additionally, Mr. Anderson has extensive knowledge of Colorado supply issues, and has participated in large-scale strategic planning efforts such as the Wyoming-Colorado Wyoming Water Supply (Flaming Gorge) Project and Lower South Platte Supply Planning Study for the City of Parker, CO. The latter provided him the opportunity to study Prewitt Reservoir and other sites within the area.

Marcus Krall, PE Mr. Krall will serve as project manager. He will provide coordination and engineering support to the team through all phases of work. Mr. Krall is an experienced project manager who has successfully managed projects of similar size and scope and is currently serving as project manager on a $10-Mil dam reconstruction project. He has successfully managed multiple projects for numerous public and private sector clients throughout the Front Range. He has completed the PSMJ Project Management Bootcamp.

Brian Beck Mr. Beck has six years of experience working on water quality data analysis, water quality modeling, sulfate geochemistry, data processing and analysis, technical report writing, and water quality monitoring. Mr. Beck graduated from the University of Minnesota - Duluth in 2012 with a MS in Water Resource Science with an emphasis in Environmental Chemistry. He has worked as a hydrologic and water quality modeler to develop and write TMDLs for turbidity, bacteria, and nutrients in impaired water bodies. Mr. Beck will assist Wenck's engineers with the design of the sediment sampling program and will lead field sampling activities. He will also participate in evaluation of the specimens.

Adam Marsh, PE (WY) Mr. Marsh will serve as project engineer. He has extensive experience with dams and reservoirs, including engineering design support for the Middle Piney Dam Reconstruction Project. He is also an experienced hydrologic modeler and drafter. Mr. Marsh is a Professional Engineer with five years of experience. He will assist Mr. Krall and Mr. Anderson with engineering tasks, including drafting and estimating cut-fill quantities for each alternative.

Lytle Water Solutions, LLC Lytle Water Solutions (LWS) will complete reservoir hydrologic modeling to demonstrate project purpose and need. They will also assist with financial feasibility analysis using demand data obtained from the model. LWS is a water resources consulting firm with a team of professional engineers, geologists, hydrologists and hydrogeologists specializing in innovative and cost-effective solutions to surface water and ground water issues. LWS has extensive experience in the lower South Platte Basin, and will be a valuable resource to the project team.

Hollingsworth Associates, Inc. Hollingsworth Associates, Inc. will complete laboratory analysis and geotechnical evaluations of material specimens. They have extensive experience with dams and reservoirs, and have collaborated with Wenck on several projects, including most recently the Middle Piney Dam Reconstruction Project. Hollingsworth has been in business since 1982, and has performed thousands of soil and geologic reports, including field inspection and testing during construction for private, as well as various Government agencies, doing both residential and commercial projects. Their geotechnical engineering capabilities are oriented towards site evaluation studies and geotechnical studies for water resource projects and related facilities. They have testing laboratories staffed by experienced technicians enrolled in NICET. The laboratory testing is conducted according to ASTM and other applicable standards.

Our estimated costs for delivering the Prewitt Reservoir Rehabilitation Feasibility study are provided in **Table 4**. Wenck will bill the Prewitt Operating Committee in accordance with our 2018 Professional Services Agreement and Fee Schedule (Appendix B). We will not exceed the budget without written permission from the Committee. We will immediately commence work upon receipt of an executed copy of our Professional Services Agreement.

Table 4: Proposed Project Budget

Project Activity	Proposed Budget
1) Project Coordination	$3,350.00
2) Research and Investigation	$9,025.00
3) Analysis	$33,100.00
4) Preliminary Report	$10,225.00
5) Final Report	$3,325.00
Estimated Total Not to Exceed	*$59,025.00*
Assumed CWCB 50% Grant Share	*$29,512.50*
Assumed Committee 50% Share	*$29,512.50*

APPENDIX A – Resumes

Victor Anderson, PE

Water Resources Engineer

Areas of Expertise:
Dam and Reservoir Projects
Hydropower
Irrigation Facilities
Municipal Water Projects
Drainage Projects

Education:
BS, Civil Engineering,
South Dakota State University

MS, Civil Engineering-Hydraulics
Colorado State University

Registration:
Professional Engineer: WY, CO, NM

Professional Memberships:
Wyoming Engineering Society
Association of State Dam Safety Officials
Wyoming Water Association

Professional Experience:
2012-Present
Wenck Associates, Inc.
Principal

1986-2012
States West Water Resources
President

1984-1986
Wyoming Water Development Commission
Project Manager

1972-1983
Banner Associates, Inc.
Civil Engineering Department Head

1970-1972
Wright-McLaughlin Engineers
Design Engineer

1968-1970
Stanley Consultants, Inc.
Design Engineer

Introduction

Mr. Anderson has experience in water resources engineering including dams and reservoirs, irrigation facilities, drainage, pump stations and pipelines and related projects. His projects have progressed from planning though design and construction and startup.

Selected Experience

High Savery Dam and Reservoir

States West performed planning, permitting, final design and construction management for the High Savery Dam and Reservoir Project. The work involved the dam, outlet works, principal spillway, emergency spillway, wetlands construction, access roads, and recreation facilities. The dam is a 140-foot high zoned earth embankment involving approximately one million cubic yards. The principal spillway is a concrete structure, forty feet wide, incorporating a stepped chute to pass up to the 500-year flood event. The outlet works is a cut and cover concrete structure incorporating an inclined multi-level intake. The structure includes a central building enclosing a jet flow valve and two polyjet valves for control of flow releases. The emergency spillway is the primary borrow area for the dam and is unlined.

Approximately 32 acres of wetlands were constructed in the vicinity of the reservoir. The wetland construction also involved stream stabilization utilizing drop structures, riprap protection, and bank stabilization. Stream gages incorporating fish barriers, fish traps, and wetlands were constructed on the upstream tributaries.

Victor Anderson, PE

Tie Hack Dam and Reservoir

This project involved planning, design, construction and start-up of a roller compacted concrete dam (RCC) for the City of Buffalo. This dam was 120 feet high and 700 feet wide. Other facilities included a multi-level outlet works intake, outlet works facilities, concrete overflow spillway, flow measurement, SCADA and wetland mitigation. The project also included a 250 KW hydropower station.

Greybull Valley Diversion Dams

Two diversion structures were designed and constructed on the Greybull River, for the Greybull Valley Irrigation District. These structures were designed to divert up to 1000 cfs into canals and incorporated Obermeyer overflow gates, radial gates, sluice gates, measuring flumes, drop structures and SCADA.

Dam and Reservoir Studies

Dam and Reservoir studies are presently being conducted for Middle Piney Dam Rehabilitation, Viva Naughton Enlargement, Little Snake River Supplemental Storage, Shell Valley Storage, Cottonwood/Grass Creek Storage, Clear Creek Storage, and Big Sandy Enlargement. These studies for the Wyoming Water Development Commission are in stages from feasibility to permitting and final design.

Dam Rehabilitation Projects

Dam Rehabilitation projects have included the rehabilitation of earth embankment, outlet works and spillway of the North Crow Reservoir, the concrete dam and outlet works at South Crow Diversion dam, and rehabilitation of the spillway at Granite Reservoir for the Cheyenne Board of Public Utilities.

Municipal Water Projects

Extensive experience with municipal projects which have included planning, design and constructing pipelines, pump stations, pressure reducing stations, and related facilities.

Drainage Projects

Mr. Anderson’s experience has included drainage master plans, storm sewer design and construction management, detention pond design and construction, drainage channel rehabilitation and drainage crossings.

Marcus J. Krall, PE
Associate/Project Manager

Areas of Expertise:
Water Resources
Civil Construction Management
Design Engineer/AutoCAD
Reservoir Siting Analysis/Modeling
Reservoir Operation & Maintenance
Analysis

Professional Experience:
2012-Present
Wenck Associates, Inc. Project Engineer

2009-2012
States West Water Resources Corp, Cheyenne, WY
Design Engineer

Education:
BS, Civil Engineering, University of Wyoming, Laramie, WY

Registration:
Professional Engineer: WY, CO

Professional Memberships:
Wyoming Engineering Society
Wyoming Water Association
American Society of Civil Engineers
American Water Works Association

Introduction

Mr. Krall has eight years of professional experience on a wide variety of water resources related projects. He has worked for public and private entities, serving clients throughout Wyoming and Colorado. Specialties include treated water pipeline design, civil engineering construction management, and reservoir feasibility and operation and maintenance studies. Mr. Krall also has experience with special waste landfill permitting and associated field work. Marcus is skilled in the use of AutoCAD 2011 with Carlson software add-on and has used it for a variety of projects and purposes including pipeline and dam embankment design and analysis. He is also proficient in HEC-HMS, HEC-RAS, and StateMod modeling software.

Selected Experience

Engineering Design, Project Management, and Construction Management

Two Rivers Water and Farming Company – Cucharas Dam Breach Project. Mr. Krall is currently serving as project manager for the Cucharas Dam Breach Project, which has featured multiple phases. Phase-I work consisted of development of a Compliance Plan which satisfied breach and channel design criteria set forth within the Consent Decree. Phase-II work, which is currently underway, consists of permitting, final design, and bidding for the project. The project work will consists of approximately 60 vertical feet and 50,000 CY of breaching of the existing rock-fill dam, construction of a Channel Cut through the lowered dam, and construction of a channel through reservoir sediments.

Wyoming Water Development Commission - Middle Piney Reservoir Rehabilitation Project.
Mr. Krall is currently serving as project manager and design engineer for the dam reconstruction project, which is now in Final Design phase after successful completion of an Environmental Assessment (EA). The project will reconstruct the existing facility through excavation of a cut-off trench, installation of a geo-synthetic clay liner (GCL) and grout curtain, as well as construction of an enlarged outlet works and spillway. A zoned earth seepage control section will also be constructed downstream of the cut-off trench. The project will also feature approximately 1,900 LF of access road stabilization near the site. The rehabilitated dam will provide 3,370 ac-ft of irrigation storage.

Marcus J. Krall

City of Cheyenne Board of Public Utilities – Powdered Activated Carbon Feed System Project. Mr. Krall is currently serving as project manager and design engineer for the Powdered Activated Carbon (PAC) Feed System Project. The PAC Feed System is being installed as a retrofit to existing floculation/sedimentation basins within the RL Sherard Water Treatment Plant. The system will serve to provide treatment against specific seasonal constituents which affect taste, odor, and color of the finished water. The system features two PAC storage tanks, four volumetric feeders, and a local control station near the floculation basins for PAC pacing.

City of Cheyenne Board of Public Utilities - FY 15 Distribution System Monitoring Project. Mr. Krall served as project manager and design engineer for the FY 15 Distribution System Monitoring Project. The project will provide early detection of water quality events as they enter the BOPU finished water distribution system through use of an in-situ water quality monitoring device. The device utilizes an optical probe to measure TOC, NTU, Color, and Temperature. The direct insertion method eliminates waste streams and provides real-time data. Pressure will also be measured at the site. Data will be transmitted via the BOPU SCADA system.

City of Cheyenne Board of Public Utilities - Standard Creek Diversion Structure Improvements. Mr. Krall served as project manager and design engineer for the diversion structure improvements. The project featured installation of pre-cast concrete weir box flow measurement structures as well as a protective fish screen. The weir boxes utilize a v-notch weir to effectively measure minimum by-pass flows, while the fish screen prevents passage of native trout into the intake structures.

City of Cheyenne Board of Public Utilities - Southern Pump Station Project. Mr. Krall served as resident project representative for the Southern Pump Station Project which featured approximately 4,500 LF of 24" PVC supply piping and a new metal frame building housing 4-100 HP split case centrifugal pumps with variable frequency drives (VFD's). Project featured extensive SCADA and controls as well as local on-site hypochlorite generation and water quality instrumentation. Project also featured 8" PVC supply piping and water quality instrumentation at the local elevated storage stank fed by the station.

Crystal Lakes Water and Sewer Association - Lone Pine Reservoir Enlargement Project. Mr. Krall served as project manager for the $1.8 M reservoir enlargement project, which consists of a reservoir enlargement via a 15' raise to the existing embankment. The project features mass material excavation and placement, outlet works improvements via slip-lining of 14" HDPE pipe and intake/outlet structure installation, new spillway installation, and construction of a wetlands remediation area. Duties include review of submittals, communications or clarifications of plans with the Contractor via RFI's and Field Orders, proctoring weekly meetings, conducting daily inspections, observing materials testing, working with state regulatory and funding agencies, and acting as general liaison for the Owners to the Contractor.

City of Cheyenne Board of Public Utilities - Pressure Management Project Phase-I. Mr. Krall served as project manager of the first phase of a multi-phase plan being implemented by the Cheyenne BOPU to improve their treated water system. Phase-I created a new pressure zone within the City's existing system to reduce the frequency of breaks and leakage, and to extend overall system life. Mr. Krall provided design services of the four pressure reducing vaults and 4600 LF of 8" PVC pipeline which created the new low pressure zone. One of the vaults featured an innovative local power generation design that supplies power for the SCADA system at that site. All sites feature SCADA that improved system management by providing BOPU operators with real time pressure data. Mr. Krall also provided full time construction management services for the project.

North Mandan Streets Improvements - City of Mandan, ND Mr. Krall provided full time construction management and inspection services for the $8 M streets improvement project in the summer of 2012. The project featured nearly 12 miles of residential streets improvements or rehabilitations, with complete reconstructions, mill and overlays, geotextile fabric installations, and drainage improvements. He identified areas of road and curb/gutter for complete reconstruction, while providing inspection services for other phases of work. He tracked quantities daily and completed daily observation reports. He also interacted with local residents for the special assessments required for the project.

Wyoming Game and Fish Department - Speas Hatchery Rehabilitation. Provided engineering construction management and inspection services for the construction of a trout fish hatchery building and associated feed storage building. The project featured extensive supply piping, including local treatment by an air stripper and vacuum degasser, and pump skid installation. Mr. Krall also provided inspection

services for the soils and concrete testing, concrete and building inspection, and successfully served as the Owner's main liaison to the Contractor.

City of Cheyenne Board of Public Utilities - 2010 Water Wells VFD Project. Mr. Krall provided the construction management and inspection services for this project which featured the installation of 19 new variable frequency drives and the replacement of nine submersible motors for selected existing City well sites. The VFD's provide numerous advantageous to the BOPU, namely giving them a greater level of control over flows from individual wells, extending motor and well-field piping lifetimes by reducing stresses, and saving money by reducing peak amperage costs and overall power usage costs.

City of Buffalo, WY - Waste Water Plant Expansion and Improvements. Mr. Krall assisted in the field engineering and inspection of the project which included the excavation and disposal of existing ponds and the installation of the new facility. The facility featured a new head-works building, aeration ponds, clarifiers, main treatment building, and a solids waste digester. The processes involved in treatment included waste activated and re-use sludge, as well as scum and solids disposal and final UV treatment. Mr. Krall gained experience in soils and concrete testing and observation, building construction observation, systems integration and controls, and overall civil engineering construction management.

Reservoir Siting Analysis/Reservoir Operation and Maintenance Analysis

Wyoming Water Devolvement Commission (Sponsored by City of Sheridan) - Sheridan Supplemental Supply Study. Mr. Krall assisted in the grading and analysis of additional storage options for the City of Sheridan, WY. Preliminary embankments for earthen dams were created and assessed, as were other additional storage options such as enlargement of existing facilities, rights transfers, and purchase of existing facilities. Mr. Krall gained experience in potential new reservoir design and storage acquisition.

MidAmerican Energy Company and M & M Ranch - Lake DeSmet Operation, Maintenance, and Rehabilitation Report. Marcus aided in the assessment of Lake DeSmet's facilities and its existing Operations and Maintenance manuals while developing recommendations for future operations and maintenance considerations. He gained valuable experience of day to day reservoir operations while providing his clients with potential cost saving and risk averting recommendations.

AutoCAD/Drafting

Various Clients - Various Projects. Provided drafting and design for various projects throughout his career including most recently the Pressure Management Project Phase-I in its near entirety. Mr. Krall created the record drawings for the Speas Hatchery project and created potential embankment plan and profiles for the Sheridan Supplemental Supply Study, and preliminary designs for the Middle Piney Reservoir Enlargement Project. The latter included embankment and storage volume analysis.

Modeling

Wyoming Water Development Commission - Middle Piney Reservoir Rehabilitation Project. Mr. Krall completed the reservoir yield analysis for Middle Piney Reservoir using the StateMod13 modeling program, which required a thorough understanding of influent hydrology, water rights, demands, and consumptive use requirements in Sub-district 4 within the Green River Basin. He also completed flood routing analysis through the reservoir using HEC-HMS 3.5, and HEC-RAS 4.1.0.

Brian F. Beck

Water Quality Scientist

Areas of Expertise:
Limnology
Water Quality Modeling
GIS
TMDLs
Aqueous Geochemistry
Hydrology

Education:
MS, Water Resource Science (emphasis Environmental Chemistry), University of Minnesota, Duluth, 2012

BS, Environmental Science (emphasis Water Quality), University of Minnesota, Twin Cities, 2008

Professional Memberships:
Society of Environmental Toxicology and Chemistry
North American Lakes Management Society

Professional Experience:
2013 – Present
Wenck Associates, Inc.
Maple Plain, MN
Water Quality Scientist

2012 – 2013
National Lacustrine Core Facility (University of Minnesota – Twin Cities)
Minneapolis, MN
Laboratory Technician

2010-2012
University of Minnesota – Duluth
Duluth, MN
Research assistant

2007-2009
Minnesota Pollution Control Agency
St. Paul, MN
Intern

Introduction

Mr. Beck has six years of experience working on water quality data analysis, water quality modeling, sulfate geochemistry, data processing and analysis, technical report writing, and water quality monitoring. Mr. Beck graduated from the University of Minnesota - Duluth in 2012 with a MS in Water Resource Science with an emphasis in Environmental Chemistry. He has worked as a hydrologic and water quality modeler to develop and write TMDLs for turbidity, bacteria, and nutrients in impaired water bodies. Mr. Beck has experience using BATHTUB, CEQUAL, HSPF, GWLF, FLUX32, PONDNET, ArcMap, and PHREEQC equilibrium geochemical modeling software. Prior to working at Wenck, Mr. Beck worked as a Research Assistant at the University of Minnesota Duluth on projects related to sulfur geochemistry and mercury fate/transport.

Selected Experience

Water Quality Modeling and Monitoring

South Fork Crow Watershed TMDL (2015-2016) – Mr. Beck is responsible for building BATHTUB models for impaired lakes in the South Fork Crow Watershed TMDL. This work involved obtaining watershed phosphorus loading from HSPF to build BATHTUB lake response models. Mr. Beck is also responsible for writing chapters related to water quality reductions.

Badger Lake Reservoir Water Quality Modeling (2015) - Developed a Generalized Watershed Loading Function (GWLF) model for Badger Lake Reservoir watershed. This model uses a modified version of the National Resources Conservation Services (NRCS) curve number approach to model watershed hydrology and runoff. Mr. Beck utilized flow and water quality monitoring data to calibrate the model's hydrology and pollutant loads. Output from the calibrated model was used as input to the BATHTUB lake response model to estimate water quality based on potential land use improvements. Mr. Beck was the lead author on the modeling report.

City of Eagan Neighborhood Lake Management Plan (2013-2014). Mr. Beck helped author the management plan report and led modeling efforts to update the City's PONDNET model to predict watershed hydrology and phosphorus loads to impaired and protection lakes. The PONDNET model consisted of a complex network of storm sewers and city ponds. Model hydrology was calibrated using monitored outflow from the various pump and lift stations throughout the City of Eagan. Calibrated model

results were used estimate watershed hydrology and phosphorus budgets for each lake. Lake response to flow and phosphorus loads were modeled in BATHTUB to set realistic goals and reductions to improve water quality in each lake.

Lake Susan Use Attainability Analysis (2013). Mr. Beck helped build and calibrated a BATHTUB model that was used to determine the necessary load reduction required for Lake Susan to meet water quality standards. Mr. Beck was also responsible for writing chapters related to water quality reductions.

North Fork Crow Turbidity, Bacteria, and Nutrient TMDL (2013 – 2014). Mr. Beck helped develop turbidity total maximum daily loads for multiple reaches in the North Fork Crow watershed. Mr. Beck was responsible for developing pollutant source assessments, calculating turbidity allocations, and writing the turbidity chapters of the TMDL.

Sauk River Bacteria and Nutrient TMDL (2013-2014). Mr. Beck is developing bacteria and nutrient TMDLs for multiple streams and lakes within the Sauk River watershed. Responsibilities included development of hydrologic flow duration curves and rigorous accounting of fecal coliform sources in the watershed to help understand the linkages between watershed hydrology, seasonal land management practices and bacteria sources throughout the watershed. Mr. Beck is also responsible for using Hydrologic Simulation Program—Fortran (HSPF) output to build BATHTUB lake response models to determine nutrient sources in impaired lakes. Mr. Beck is the primary author of the TMDL report.

Vermillion River Turbidity, Bacteria, Dissolved Oxygen, and Nutrient TMDL (2014). Mr. Beck is responsible for developing bacteria, turbidity, and nutrient total maximum daily loads for the Vermillion River watershed. Responsibilities include water quality data analysis, pollutant source assessment, and water quality modeling.

Shingle Creek Routine Monitoring and Reporting. Mr. Beck conducts routine monitoring for streams and lakes within the Shingle Creek watershed boundaries. Responsibilities include collecting water quality samples, routine maintenance of field equipment, measurement of stream discharge, and analysis of field data. Mr. Beck is also responsible for writing annual water quality reports for the Shingle Creek Watershed Management Organization.

Aquatic Geochemistry

Metropolitan Council Environmental Services Water Quality and Solids Analysis. Mr. Beck is responsible for the analysis of water quality data and assessment of solids characteristics in the Minnesota River. This work involves predicting the concentrations of multiple geochemical parameters to assess the beneficial use of reused solids from the Minnesota River. Mr. Beck is also responsible for data analysis to determine water quality and geochemical characteristics at multiple locations, which will be used as a means to determine when and how to treat Minnesota River water for phosphorus reduction.

Minnesota River Selenium Site Specific Standard Development (2015-2017) – Mr. Beck is the lead scientist developing a selenium site specific standard in the Minnesota River. Mr. Beck has developed a sampling plan, foodweb model, and site specific selenium standard based on updated guidance from the Environmental Protection Agency (EPA). This work has involved assessing chemical speciation analysis, analysis of solid phase and aqueous partitioning, and spatiotemporal water quality data analysis Mr. Beck is currently working with the industrial discharge, the EPA, and the Minnesota Pollution Control Agency (MPCA) to negotiate a selenium standard that is protective for the aquatic community.

St. Johns University Fire Water Quality Impacts. – Mr. Beck was responsible for assessing impacts from a hazardous material spill on the campus of St. Johns University in Collegeville, MN. This work included comparing contaminant data from spill against Minnesota acute and chronic water quality. Additionally, Mr. Beck used the PHREEQ equilibrium modeling software to determine speciation of redox sensitive contaminants. These results were summarized in a technical memorandum, which ultimately was used to show that the hazardous material spill had little impact on nearby water bodies.

Sediment Contaminant Geochemistry

Red Cedar River and Lake Menomin Sediment Investigation. – Mr. Beck assisted sediment sampling efforts on the Red Cedar River and Lake Menomin as a response to a tractor-trailer spill in the Red Cedar River containing hazardous material. Mr. Beck led the data analysis of sediment results to determine the extent and degree of contamination. Mr. Beck also developed a basic degradation model to assess the timeframe required for contaminants to decay within the area of interest. These data were used to compare against Wisconsin Department of Natural Resources guidelines for sediment contaminants and literature toxicology values to determine the ecological impacts for the spill. Mr. Beck authored a technical memo summarizing the results of the sediment sampling, data analysis, and decay modeling.

Eden Prairie Stormwater Basin Improvement. – Mr. Beck was responsible for collecting sediment cores and determining depth to parent material in stormwater basins in the City of Eden Prairie. Mr. Beck used sediment probes and gravity coring equipment to determine the depth of accumulated sediment and collect sediment samples, respectively, to determine appropriate use for dredged materials. Mr. Beck was responsible for writing technical memos recommending dredged material disposal volume and appropriate disposal methods.

Brooklyn Park Sediment Dredged Material Sampling. - Mr. Beck helped sample and determine appropriate uses (residential, industrial, or landfill disposal) dredged material stockpiles for the City of Brooklyn Park. Mr. Beck sampled dredged material stockpiles to assess contaminant concentrations. Results were used to compare against State of Minnesota Soil Reference Values (SRVs). Mr. Beck summarized data results and recommendations within a technical memo for the City.

St. Louis River Area of Concern Sediment Sampling. – Mr. Beck assisted sediment investigation of the St. Louis River Area of Concern (AOC) for mercury and organic contaminants. Mr. Beck led field efforts to collect sediment samples using piston and gravity corers. Mr. Beck assisted in the interpretation and data analysis to help inform the City of Duluth, Minnesota Pollution Control Agency, and Army Corp of Engineers appropriate remediation techniques.

Sediment Nutrient Management

Alum Dosing Study for Riley Lake Sediments. - Mr. Beck was the project geochemist for the development of alum dosing recommendations for internal phosphorus load reduction in Riley Lake. Mr. Beck assisted the development of the appropriate alum dose using modern dosing techniques that account for Al:P binding efficiency and depth of redox sensitive P. Mr. Beck assisted writing technical memos recommending appropriate alum dosing for Riley Lake

Alum Dosing and Engineering Specifications for Bald Eagle Lake Sediments. Mr. Beck was involved in developing specifications for an alum treatment on Bald Eagle Lake in the Northern suburbs of the Twin Cities. Mr. Beck assisted the development of the appropriate alum dose using modern dosing techniques that account for Al:P binding efficiency and depth of redox sensitive P. Mr. Beck also led jar testing, field observation of the alum application, and developed a follow-up monitoring approach for the application.

Golden Lake Internal Nutrient Load Control Feasibility Study (2015) - Mr. Beck was the lead geochemist for the development of a feasibility study to assess internal nutrient control options for Golden Lake. Options evaluated for cost and feasibility in the study included sediment alum application, hypolimnetic withdrawal, sediment dredging, and hypolimnetic aeration. Mr. Beck was the lead author on a technical report outlining feasibility, cost estimates, and recommendations.

Six Mile Creek Delta Investigation in Pierson Lake (2015) - Mr. Beck was the lead scientist in an investigation of a delta formation in Pierson Lake, MN due to land use changes within the Six Mile Creek watershed. This work involved collecting sediment cores within the delta formation, data analysis of sediment samples, and writing technical memos.

Sulfate Geochemistry

Impacts of Sulfate Addition in the St. Louis River Estuary (2010-2012). Mr. Beck was responsible for developing and executing a study to determine the influence of increasing sulfate

concentrations in the St. Louis River Estuary. Responsibilities included collecting sediment cores, conducting sulfate addition experiments, interpreting geochemical results, and writing reports.

MPCA Development of Wild Rice Sediment Porewater Sampling (2010-2011). Mr. Beck helped develop multiple methods for sampling and extracting sediment porewater samples for redox sensitive parameters (sulfide, sulfate, ferrous iron, etc.). Mr. Beck was responsible for testing methods, sample analysis, and reporting method results to superiors.

MnDNR Mercury Production and Transport in Northeastern Minnesota (2012). Mr. Beck assisted in the planning and execution of sampling events in lakes and rivers near the Minnesota Iron Range. Responsibilities included collecting sediment cores, stream and lake water samples, and analysis of collected sediment porewater samples.

Magnetation Environmental Assessment Worksheet (EAW). – Mr. Beck was the project geochemist responsible for determining the impact of dewatering the Canisteo Mine Pit into Trout Lake in northeastern Minnesota. Previous sediment data in nearby streams (Prairie River) and lakes (Trout Lake) were used to assess the impact of increasing sulfate concentrations on internal phosphorus loading and wild rice in the region. Mr. Beck was responsible for writing the sediment geochemical sections of the EAW.

Publications

Beck, B.F. et al., 2014. Geochemical factors influencing the production and transport of methylmercury in the St. Louis River Estuary. Applied Geochemistry. 51:44-54.

Adam Marsh, E.I.T.

Water Resources and Civil Engineer- Cheyenne, WY

Areas of Expertise:
Environmental Engineering
Water Resources Engineering
Civil Engineering
Wastewater Treatment
Watershed Hydrology
AutoCAD Civil 3D 2014
HEC-HMS 3.5
HEC-RAS 4.1.0

Education:
MS, Environmental Engineering, University of Wyoming, 2014
BS, Civil Engineering, Environment and Natural Resources, University of Wyoming, 2012

Registration:
E.I.T.: WY – ID 5727
Passed PE Exam – Oct 2016
PE License anticipated – May 2017

Professional Experience:
2014 – Present
Wenck Associates, Inc.
Civil Engineer

2012 – 2013
University of Wyoming
Graduate Teaching Assistant

2011
Wyoming Conservation Corps
Crew Member

Professional Memberships:
Wyoming Water Association

Introduction

Mr. Marsh has experience in civil and environmental design and analysis. His expertise includes adsorption and membrane water treatment processes, water rights analysis, watershed hydrology, StateCU consumptive use and StateMod water allocation modeling, water right research, hydraulic design site work and drainage, retaining wall design, dam and reservoir feasibility studies, in addition to construction management.

Selected Experience

Wastewater Treatment. Thesis research developed two novel nanoadsorbents for the selective removal and recovery of phosphorus and copper from municipal and industrial wastewaters. This research included nanoparticle design and synthesis and the optimization of adsorption chemistry including solution ionic strength, pH, competing ions, and reaction kinetics.

Dam and Reservoir Planning Studies. Experience includes conducting technical and economic feasibility studies of dam and reservoir planning projects for the Wyoming Water Development Commission. Tasks completed include alternatives analysis, preliminary design and cost estimates, flood hydrology and spillway requirements, StateCU and StateMod hydrologic modeling, water supply and needs assessment, water quality sampling and analysis, stream gauging, water rights research and mapping, and economic analyses.

Watershed Hydrology. Experience includes watershed description, evaluation, modeling, and drainage plan design. Urban projects include designing stormwater control and routing structures for redevelopment of contaminated sites up to 450 acres in size. Rural projects include highway drainage evaluation and reservoir spillway analysis for probable maximum precipitation storm events.

Water Sampling. Provides experience collecting potable and wastewater samples from streams, wells, and industrial sources.

Publications

Marsh, A. and Brant, J.A., Copper Recovery from Industrial Wastewater using DMSA Coated Magnetic Nanoparticles, *Environmental Engineering Science* – *submitted*.

HAROLD HOLLINGSWORTH

B.S., Civil Engineering, University of Maine, 1961
M.S., Civil Engineering, University of Maine, 1965

REGISTRATION

Professional Engineer: Colorado and Wyoming

EXPERIENCE

Mr. Hollingsworth is a geotechnical engineer with over 50 years of engineering and administrative experience, gained through his involvement on geotechnical projects for governmental, industrial, and commercial clients.

Much of his geotechnical work has been in providing specialized geotechnical engineering input to water resources projects including reconnaissance, feasibility, and design level studies for new dams, safety inspections for existing dams, irrigation canals, pipelines, and dam rehabilitation.

REPRESENTATIVE PROJECTS

- Middle Piney Creek Dam Rehabilitation Project, (Bridger National Forest, Wyoming) – Provided geotechnical engineering input during final design of the rehabilitation of an earth embankment dam and preparation of construction plans and specifications.
- Nowood River Storage Project, (Washakie and Big Horn Counties, Wyoming) – Conducted preliminary geotechnical engineering investigations of seven potential irrigation water storage sites. Based on a reconnaissance of each site, a geotechnical description and the type of dam appropriate for each site was prepared.
- Alkali Creek Dam, (Big Horn County, Wyoming) – Conducted the geotechnical investigation and design for a zoned earth embankment dam approximately 98 feet high and 2,500 feet long. Seepage controls consist of clay blankets on both abutments and a soil-bentonite wall under the main embankment approximately 1,200 feet long and up to 100 feet deep.
- Lone Pine Dam, (Larimer County, Colorado) – Conducted the geotechnical investigation and design for 15 feet, center raise of an existing dam with a central clay core and rockfill shell. During construction, inspected all phases of construction including foundation preparation, embankment placement, and concrete for the appurtenant structures.
- Frontier Refinery Surface Impoundments No. 1, 3, 4, and 5 Project, (Cheyenne, Wyoming) – Provided geotechnical engineering support and design for the cleaning and reconstruction of the ponds.
- Hudson Evaporation Ponds, (Fremont County, Wyoming) – Conducted a geotechnical investigation and laboratory testing of an existing 38 acre-foot lined evaporation pond, analyzed the stability of the pond slopes, and installed four monitoring wells.
- Stink Creek Stormwater Detention Dams, (Hanna, Wyoming) – Conducted geotechnical investigation and design parameters for four earth embankment dams ranging from 15 feet to 25 feet for the detention of stormwater flows in the Stink Creek drainage.
- Grayrocks Dam and Reservoir Project, (Wheatland, Wyoming) – Conducted the geotechnical investigation and design and monitored construction of the project which included 97 feet high

zoned earth embankment dam, a deep slurry cut-off wall, tunnels, and shafts.

- High Savery Dam, (Carbon County, Wyoming) – Conducted geotechnical field investigation and laboratory testing for a new 240 feet high, 1150 feet long zoned earth embankment dam. Prepared design recommendations for foundation preparation and embankment zoning. Evaluated embankment stability and seepage through the embankment and foundation. During construction, inspected all phases of construction including foundation preparation, embankment placement, and concrete for the appurtenant structures.
- Trujillo Meadows Reservoir Dam, (Rio Grande National Forest, Colorado) – Conducted field investigation and laboratory testing for an existing 35 feet high, 300 feet long homogeneous earth embankment dam. Prepared design recommendations for a dam raise, reconstruction of the spillway, and alternative means of cutting off the large amount of seepage through the talus slope on the left abutment. A self-hardening slurry wall was constructed through the talus deposit, which stopped the seepage.
- Cherry Creek Diversion Dam, (Parker, Colorado) – Conducted field investigation and laboratory testing for a new inflatable diversion dam on a concrete slab. Prepared design recommendations for treatment of the low-density alluvial soil dam foundation consisting of rock columns and allowable bearing pressures concrete structures. During construction, inspected the placement of compacted fill and concrete and evaluated the densification of the dam foundation soils.
- Lake Avery, Big Beaver Dam, (Meeker, Colorado) – Conducted field investigation and laboratory testing of an existing 88 feet high earth embankment dam. Prepared design recommendations for a 2 foot raise of the embankment and a mix design for the new spillway roller compacted concrete. During construction, inspected and tested the placement of earth embankment, roller compacted concrete, and normal Portland cement concrete.
- Lower Cogdill Reservoir Dam, (Moffat County, Colorado) – Conducted field investigation and laboratory testing to evaluate the stability and seepage conditions for an existing 24 feet high, 480 feet long homogeneous earth embankment dam. A nested open well piezometer was installed to allow water levels to be read in the foundation and in the embankment. The dam foundation is silty sand and gravel overlying sandstone. The embankment had experienced downstream slides on the left side. A re-configured dam embankment was designed to stabilize the dam.
- Upper Cogdill Reservoir Dam, (Moffat County, Colorado) – Conducted field investigation and laboratory testing to evaluate the stability and seepage conditions for an existing 11 feet high, 320 feet long homogeneous earth embankment dam. A nested open well piezometer was installed to allow water levels to be read in the foundation and in the embankment. The dam foundation is silty sands overlying sandstone. The dam was found to be conditionally satisfactory.

PUBLICATIONS

"Design of Deer Creek Dam", American Society of Civil Engineers Specialty Conference, Concrete Face Rockfill Dams, October 1985, Harold Hollingsworth, T.R. Conner, Victor Anderson.

"Rehabilitation of Muddy Guard Reservoir No. 2 North and South Embankments", Association of State Dam Safety Officials Western Regional Conference and Technical Seminar, May 1995, Harold Hollingsworth, Thomas R. Hollingsworth, Larry Baccari.

"Rehabilitation of Trujillo Meadow Reservoir", Association of State Dam Safety Officials Western Regional Conference and Technical Seminar, April 1997. Harold Hollingsworth, Thomas R. Hollingsworth.

APPENDIX B – 2018 Professional Services Agreement and Fee Schedule

WENCK

Responsive partner.
Exceptional outcomes.

Professional Services Agreement
Master and Work Order Form

This **Professional Services Agreement** (**Agreement**) is made this _____ day of _____, 20_____ (**Effective Date**) by and between _____ (**Client**) and Wenck Associates, Inc. (**Wenck**). **"Party"** or **"Parties"** refers to Client or Wenck, either individually or collectively, depending on the context in which the terms are used.

Recitals

WHEREAS, Client seeks certain engineering and design services as more specifically described in the attached **Exhibit A** (the **Project**).

WHEREAS, Wenck desires to provide such services for Client, all subject to the terms and conditions contained in this Agreement.

WHEREAS, the Parties agree that Client and Wenck are the only Parties to this Agreement.

NOW THEREFORE, in consideration of the mutual promises herein, the Parties, intending to be legally bound, agree as follows:

Section 1: Services

1.1 All services provided by Wenck (the **Services**) under this Agreement shall be provided pursuant to one or more written orders signed by Client and Wenck detailing the specific project to be completed and Services to be provided (each, a **Work Order**). Each Work Order shall describe the Project, the Services, and the basis and amount of payment for the Services. A copy of the form of Work Order to be used is attached hereto and incorporated by reference as **Exhibit B**.

1.2 Either Party may propose a Work Order; the other Party agrees to accept or reject within 10 days of receipt of the proposal. If a proposed Work Order is rejected, neither Party shall have further responsibility with respect to that matter.

1.3 Additional services outside the scope of a Work Order are to be provided on a fee basis, as set forth in **Exhibit C, Fee Schedule**, which is attached hereto and incorporated by reference. These services will be identified as extra services and Wenck shall obtain Client's approval in writing before work begins.

1.4 In case of any inconsistency or ambiguity between the provisions of a Work Order and the provisions of this Agreement, the provisions of the Work Order shall prevail.

Section 2: Term

This Agreement shall be in effect from the date of this Agreement and shall continue until terminated pursuant to Section 6. The beginning and ending dates for any Services to be performed pursuant to a Work Order may be specified in it, and such beginning and ending dates shall be subject to the provisions of Section 6.

Section 3: Compensation

3.1 Client shall compensate Wenck for Services and other charges, expenses, and disbursements relating to a Work Order according to the Fee Schedule in effect when Services are performed. A Work Order may set maximum compensation as an amount not to be exceeded without additional authorization. The assumptions that form the basis for a compensation limit ("Service Assumptions") shall be described in a Work Order. If the Service Assumptions do not reflect Wenck's actual effort, the Parties agree that compensation shall be adjusted as is equitable to reflect actual effort.

3.2 The current Fee Schedule is attached as an Exhibit. Wenck reserves the right to change the Fee Schedule not more often than once annually. Wenck shall notify Client of changes in the Fee Schedule before such changes become effective.

3.3 On a four-week cycle, Wenck shall submit invoices to Client for Services performed and expenses incurred pursuant to each active Work Order during the period. Such invoices shall summarize the Services performed and all other charges and expenses.

3.4 Wenck agrees to provide Client with supporting documentation for charges upon request. Wenck shall promptly address questions and concerns regarding invoices. Wenck will retain records related to this Agreement and the Services for three years after the termination of the related Work Order. Records shall be available for examination by Client or its designee at reasonable times upon reasonable advance notice and reasonable reimbursement for Wenck expenses.

3.5 Client shall pay each Wenck invoice within 30 days after receipt of the invoice as to all undisputed amounts. Payments not made within 60 days of invoice date shall bear interest from the date that is 30 days after the date of the invoice at a rate equal to the lesser of 18 percent per annum or the highest rate allowed by law. Client agrees to pay all Wenck costs of collection including reasonable attorney fees.

3.6 Upon Client's written request at the time of receipt of payment, Wenck shall execute and deliver a waiver of lien rights covering its Services and its subcontractors work performed under any Work Order for which payment has been made or is assured by Client.

Section 4: Wenck's Obligations

4.1 Wenck and its employees shall comply with and shall contractually require all subcontractors retained by Wenck to comply with all statutes, ordinances, rules, regulations, and other laws applicable to its performance of Services.

4.2 Wenck services will be provided in a manner consistent with the care and skill ordinarily used by reputable members of the profession practicing under similar conditions at the same time and general location. This statement of duty is exclusive.

4.3 To the extent the Services, or any part thereof, involve estimates of construction, operating or any other costs, Wenck agrees to make its best estimate of such costs based on information made available to Wenck and based on Wenck's experience and knowledge. Wenck cannot guarantee the accuracy of any such estimates, and it shall not be liable to Client or any other person for any loss or damage of any type based upon the use of, or reliance upon, such estimates.

4.4 Wenck shall provide the Services in compliance with all reasonable health and safety rules of Client that Client has made known to Wenck.

4.5 Wenck agrees to secure all permits and licenses normally required in Wenck's name for the performance of the Services. Client shall cooperate with Wenck in obtaining such permits and licenses as necessary. The fees for such permits and licenses shall be reimbursable expenses.

4.6 Wenck reserves the right to engage any subcontractors it deems necessary to provide the Services. At Client's written request, Client shall have the right to approve any subcontractor that Wenck proposes to use in connection with Services under this Agreement, but such approval shall not be unreasonably withheld.

4.7 Wenck shall appoint a "Wenck Representative" to coordinate provision of the Services on any Work Order with Client or Client's Representative. Wenck's Representative shall be authorized to act on Wenck's behalf and to bind Wenck and shall be available at reasonable times during the term of the Work Order to coordinate provision of the Services, answer Client's questions, and respond to Client's problems or complaints. Wenck reserves the right to change the Wenck Representative on any Work Order upon written notice to Client. The Wenck Representative shall be designated in the Work Order.

4.8 Except with respect to the work of subcontractors retained by Wenck, Wenck shall not, as a part of the Services or in connection with visits to and observations at a work site, supervise, direct, stop, or otherwise control the work of others. Wenck have no authority over, or no responsibility for, the means, methods, techniques, sequences, or procedures selected by others, or for safety precautions and programs incident to the work of others, or for any failure of others to comply with laws, rules, regulations, ordinances, codes, orders, or client safety rules applicable to furnishing and performing work related to, or in connection with, the Services. Accordingly, Wenck does not guarantee the performance of any other and Wenck shall have no responsibility for the failure of any person or entity, other than a subcontractor retained by Wenck, to furnish or perform work in accordance with any Documents or any other documents, plans, or specifications.

4.9 Client acknowledges that Wenck must rely on various engineering studies performed by others, and other information about existing systems in place and prior, and current and anticipated operations at the site, all obtained from others. Client further acknowledges that Wenck may rely on such information to the extent that such reliance is reasonable under all the circumstances at the time without independently confirming the accuracy of it, and if such information is later determined to be inaccurate and except to the extent Wenck’s reliance was negligent, Client releases and discharges Wenck from any liability as to losses caused by such reliance.

Section 5: Client's Obligations

5.1 Client shall promptly provide and fully disclose to Wenck all information in its possession or known to it from time to time that is pertinent to the Services to be performed by Wenck under a Work Order. This shall include but not be limited to budgeting and scheduling requirements or limitations, long-term plans or goals relating to the Services, and Client's preferred procurement approach, if any. Client shall provide to Wenck prompt updates regarding any changes to any of the foregoing. Wenck shall be entitled to rely on such information and to use the same in performing Services under a Work Order. Client shall assist Wenck, as reasonably required, in securing any other information Wenck deems necessary for providing Services under a Work Order.

5.2 If no other provision is made for it in a Work Order, client shall arrange and pay for access to property, including public property and property owned by third parties, as required for Wenck to provide the Services required by a Work Order.

5.3 Client shall promptly notify Wenck whenever Client becomes aware of any development that affects the scope or timing of Wenck's performance of Services under a Work Order or any defect in, or nonconformance of, any Services provided under a Work Order.

5.4 Client shall appoint a "Client Representative" to coordinate provision of the Services with Wenck or Wenck's Representative on each Work Order. The Client Representative shall be authorized to act on Client's behalf and to bind Client and shall be available at reasonable times during the term of the Work Order to coordinate provision of the Services, answer Wenck's questions, and respond to Wenck's problems or complaints. Client reserves the right to change the Client Representative upon written notice to Wenck. The Client Representative shall be designated in the Work Order.

5.5 Client or Client's Representative shall be responsible for, and Wenck may rely upon, the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by Client or Client's Representative to Wenck pursuant to this Agreement. Wenck may use such requirements, programs, instructions, reports, data, and information in performing or furnishing services under this Agreement.

5.6 Client shall notify any other scientific investigation, design or construction management professional retained by Client of the terms and conditions of this Agreement and the Work Order and shall instruct such other professionals to cooperate with Wenck as necessary to permit Wenck to perform the Services described in the Work Order in a timely and professional manner. Client shall further require that any other professionals retained by Client authorize a representative to act on its behalf in dealing with Wenck regarding Wenck's Services.

Section 6: Termination

6.1 Either party shall have the right to terminate this Agreement or a Work Order in the event of a material breach by the other party that is not corrected within ten days after written notice thereof. Client's failure to pay Wenck's invoices within the time prescribed hereunder shall be deemed a material breach.

6.2 Client shall be entitled to terminate this Agreement or a Work Order, with or without cause, upon ten days advance written notice to Wenck. If so requested by Client, Wenck shall cease performing Services under a Work Order as soon as practical after receipt of Client's notice of termination. Except as provided above, both Parties shall continue to perform their respective obligations during the period prior to termination.

6.3 Wenck shall be entitled to terminate this Agreement or a Work Order, with or without cause, upon 30 days advance written notice to Client. If so requested by Client, Wenck shall cease performing Services under a Work Order as soon as practical after Client's receipt of Wenck's notice of termination. Except as provided above, both Parties shall continue to perform their respective obligations during the period prior to termination.

6.4 Termination pursuant to this Section 6 shall not release Client from its obligation to pay for Services provided and expenses incurred through the date of termination and Wenck's reasonable time and expenses involved in the termination and its disengagement.

Termination shall not release Wenck or Client from their respective obligations under this Agreement which are, by nature, continuing.

Section 7: Insurance

7.1 During the term of this Agreement, Wenck agrees to procure and maintain the types of insurance and policy limits set forth in Section 7.2. Wenck will provide a certificate of insurance upon request. Any claim as an Additional Insured shall be limited to losses payable to Client by Wenck under Section 8.

7.2 The insurance coverages and policy limits required by Section 7.1 are as follows:

a.	Worker's Compensation:	Statutory
b.	Employer's Liability:	$500,000 Each Accident $500,000 Disease (Policy Limit) $500,000 Disease (Employee Limit)
c.	Commercial General Liability: Combined single limit bodily injury and property damage	$1,000,000 Each Occurrence $2,000,000 Aggregate
d.	Automobile Liability: Combined single limit bodily injury and property damage	$1,000,000
e.	Professional Liability:	$5,000,000 Each Claim and in the Aggregate
f.	Umbrella Excess Liability	$10,000,000 Each Occurrence and in the Aggregate (Items 7.2.a. – d. only)

7.3 Each of the Parties and for their respective successors, assigns, and insurers releases, discharges, and waives all claims against the other Party, its officers, directors, and employees, and the Party's subconsultants and subcontractors' directors, officers, and employees as to a loss covered under any insurance policy or other indemnity agreement.

Section 8: Risk Allocation and Disputes

8.1 Wenck shall indemnify and hold harmless Client and Client's officers, directors, partners, employees, and agents from and against any and all third-party claims, costs, losses, and damages for death, personal injury, or damage to property (including, but not limited to, fees and charges of attorneys and other professionals and court or arbitration or other dispute resolution costs) to the comparative extent the same have been proximately caused by the negligent acts or omissions or willful misconduct of Wenck or Wenck's officers, directors, partners, employees, agents, or subcontractors in the performance and furnishing of Services under this Agreement. This indemnification provision is subject to and limited by the limitation of liability provision in Section 8.6.

8.2 Client shall indemnify and hold harmless Wenck and Wenck's officers, directors, partners, employees, agents, and subcontractors from and against any and all third-party claims, costs, losses, and damages for death, personal injury, or damage to property (including, but not limited to, fees and charges of attorneys and other professionals and

court or arbitration or other dispute resolution costs) to the comparative extent the same have been proximately caused by the negligent acts or omissions or willful misconduct of Client or Client's officers, directors, partners, employees, agents, or Client's other advisors, other Parties contracting with Client on the same project, and other persons for whom the Client is legally responsible.

8.3 In providing Services under this Agreement, Wenck makes no warranty as to the quality or safety of any of the goods, parts, or equipment recommended, approved, used, or provided in connection with a Work Order. Wenck expressly disclaims any warranties, express or implied, including warranties as to its services or of merchantability and fitness for a particular purpose. Wenck shall in no event be liable for any losses or damages of any person or entity arising from or in connection with goods, parts, or equipment recommended, approved, used, or provided in connection with this Agreement. Client agrees to rely solely on any warranties provided by the manufacturers of goods, parts, or equipment used or provided in connection with this Agreement. Wenck, at Client's expense, agrees to cooperate with Client in pursuing rights under any such warranties.

8.4 Except as provided in Section 8.1, if any of the Services prove defective or not in accordance with the standards set forth in Section 4.2 of this Agreement, Wenck's sole responsibility, and Client's sole remedy, shall be the correction of the defective work to a level which meets the standards set forth in Section 4.2. Other provisions of this Section 8 notwithstanding, Wenck shall not be liable for special, incidental, indirect, consequential, or punitive damages, including but not limited to damages arising from delay, loss of use, loss of profits or revenue, loss of financing commitments or fees, or the cost of capital.

8.5 In addition to the indemnity provided under Section 8.2 of this Agreement, and notwithstanding any other provision hereof, and to the fullest extent permitted by law, Client shall indemnify and hold harmless Wenck and its officers, directors, partners, employees, agents, and subcontractors from and against all claims, costs, losses, and damages (including, but not limited to, all fees and charges of attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or relating to the presence, discharge, release, escape, migration, leaching, transmission, handling, treatment, disposal, or emission of asbestos, PCBs, petroleum derivatives, hazardous materials, hazardous wastes, pollutants, contaminants, or radioactive material which are in any way connected with existing conditions or the aggravation of existing conditions, except to the comparative extent that the same have been proximately caused by Wenck's gross negligence or willful misconduct.

8.6 **Limitation of Liability**. Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by law, the total liability, in the aggregate, of Wenck and Wenck's officers, directors, members, partners, agents, guarantors, subconsultants, and employees, to Client and anyone claiming by, through, or under Client for any and all claims, losses, costs, or damages whatsoever arising out of, resulting from, or in any way related to this Agreement and the Services, from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty, express or implied, of Wenck or its officers, directors, members, partners, agents, employees, guarantors or subconsultants, shall not exceed the total amount, individually or collectively, of $_____.

8.7 Each of the Parties and for their respective successors and assigns releases, discharges, and waives any and all claims against related entities of the Parties, such as but not limited to parents and subsidiaries of each.

8.8 Client and all those claiming through it covenant not to sue and waive any and all claims against individual employees, officers, directors, and shareholders of Wenck and those employees, officers, directors, and shareholders of its professional subconsultants, except to the extent they are insured under General Liability or Automobile Liability policies of insurance. It is the expressed intent of this Agreement that only Wenck Associates, Inc. shall have any financial liability to others as to alleged professional errors or omissions arising out of or related to the Services and then only to the extent otherwise provided herein.

8.9 Each Party will exercise good faith efforts to resolve disputes without litigation. Such efforts will include, but not be limited to, a meeting attended by each Party's representative empowered to resolve the dispute. Before either Party commences an action again the other, disputes (except collections) will be submitted to third-party mediation as a condition precedent to litigation.

Section 9: Work Product

9.1 All written and electronic documents, including without limitation materials, drawings, designs, data, computer software and models, and records developed or produced or obtained in connection with the Services ("Documents") for a Work Order, are instruments of Wenck's service to Client. Wenck retains full rights of ownership in and the right to use all Documents involved in the Services subject only to a perpetual license to Client and its successors and assigns to use the Services and to implement them for the intended purpose. As to models developed by Wenck, Wenck will provide Client with model output in hard copy form only, except as specifically agreed to by Wenck in a separate writing. Client may not use or transfer the Documents to others for a purpose for which they were not prepared without Wenck's written approval. Client agrees to indemnify and hold Wenck harmless from claims, damages, and expenses, including reasonable attorneys' fees, arising out of any unauthorized transfer or use.

9.2 The foregoing notwithstanding, Client shall be entitled to obtain for its files a copy of all Documents and all other information related thereto, including any information or material furnished to Wenck by any third parties. Electronic documents may be modified intentionally or inadvertently and may not be representative of the actual document. In the event of a conflict between signed reports, CAD files and other documents and those electronic documents provided as an instrument of Wenck services, the signed or sealed document shall govern. When accepting document transfer in electronic media format, Client accepts exclusive risk relating to long-term capability, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by Wenck at the beginning of Wenck's Services.

9.3 Client agrees not to use the Documents for purposes other than the original purpose for which the Documents were intended. Wenck shall have no responsibility with respect to Client's use of any of the Documents or the information contained therein other than as specifically contemplated by this Agreement. Client shall defend, indemnify, and hold Wenck harmless with respect to any claims asserted by any third party and related damages, losses, and expenses (including, but not limited to, fees and charges of attorneys and other professionals and court or arbitration or other dispute resolution costs) to the extent that the same are caused by any use of any such Documents or information other than as specifically contemplated by this Agreement.

9.4 All soil borings and monitoring wells placed by Wenck or its subcontractors are the property of Client, and Client shall be responsible for maintaining them as long as they are

necessary for their intended or subsequent purposes. Client shall be responsible for proper abandonment when they are no longer needed, unless Wenck accepts that responsibility in writing.

Section 10: Confidentiality

10.1 The Client has requested that the Documents and information contained therein that identifies Client or is specific to the Client's situation relative to the Services provided pursuant to a Work Order ("Client Information") shall be maintained by Wenck in confidence and shall not be disclosed to any person or entity for any reason except as necessary to provide the Services or as provided in Section 10.2. The limitations contained in this Section 10 shall not apply to:

a. Information in the public domain at the time of disclosure;
b. Information which becomes part of the public domain after disclosure through no fault of Wenck;
c. Information known by Wenck prior to the date of this Agreement;
d. Information that his expressly approved in writing by the Client for disclosure to a third party by Wenck; and
e. Information supplied to Wenck by a third party.

10.2 Wenck shall be entitled to disclose the Documents or client information to governmental authorities to the extent Wenck reasonably believes it has a legal obligation to make such disclosures, and to the extent Wenck reasonably deems to be necessary. If Wenck believes that any such disclosure is required by law, it shall provide advance notice to Client to provide Client with a reasonable opportunity to attempt to obtain an injunction or other protective order preventing such disclosure. Wenck shall be compensated for all reasonable expenses, including attorney fees, expended in responding to legal process. Wenck and its representatives shall be entitled to retain Client Information only (i) if such retention is required to comply with applicable law or regulation or internal record-keeping policies or procedures or applicable self-regulatory professional standards of general application to such profession or (ii) pursuant to ordinary course electronic data retention procedures ("Retained Confidential Information"); provided that Wenck and Wenck's representatives shall minimize any such retention of Retained Confidential Information. Any Retained Confidential Information shall continue to be subject to the confidentiality requirements and protections of this Agreement pursuant to the terms of this Agreement.

10.3 Employees, agents, and subcontractors of Wenck involved with providing Services to the Client pursuant to a Work Order shall agree to maintain Client Information in confidence as described by this Section 10.

Section 11: Force Majeure

Notwithstanding any other provision of this Agreement, Wenck shall not be in breach of this Agreement nor shall it be liable to Client for any losses or damages of any type arising from delays or changes in the Services due to any act or neglect of the Client or its employees, or any fire, labor disputes, unusual delays in transportation, flood or other adverse weather conditions not reasonably foreseeable, unavoidable casualties, or any other causes beyond Wenck's reasonable control.

Section 12: Nondiscrimination

Wenck shall not discriminate against any employee or applicant for employment because of race, color, creed, ancestry, religion, sex, age, marital status, affectional preference, disability, national origin, status with regard to public assistance, or status as a specially disabled, Vietnam-era, or other eligible veteran. Wenck shall take affirmative action to

ensure that applicants are considered and employees are treated during their employment without regard to their race, color, religion, sex, age, or national origin. Such actions shall include, but not be limited to, the following: hiring, promotion or employment upgrading, demotion, transfer, recruitment or recruitment advertising, layoffs or terminations, rates of pay and other forms of compensation, selection of training or apprenticeship, and placing in conspicuous places, available to employees and applicants for employment, notices setting for the provisions of this nondiscrimination clause.

Section 13: Notices
All notices, requests, demands, and other communications that are permitted or required by this Agreement shall be given to the party's Representative appointed in accordance with this Agreement. If any such notice, request, demand, or other communication is required to be in writing, it shall be addressed to the other party's Representative appointed in accordance with this Agreement. If delivered personally, it shall be deemed to have been duly given on the date of delivery. If delivered by mail, the same shall be delivered, postage prepaid, to the address set forth below or to such other address as such party shall have directed by written notice. In the case of notice given by mail, such notice shall be deemed given three business days after mailing.

To Client, at: _____
To Wenck, at: _____

Section 14: Assignment
Neither Wenck nor Client shall be permitted to assign or transfer in any manner, this Agreement, or any portion thereof, or any of the rights or obligations hereunder, without the written consent of the other party, and any such attempt to assign or transfer shall be void and of no effect. Consent to an assignment shall not be unreasonably withheld, and, further, Wenck agrees to cooperate with Client as to its needs as to project financing or similar needs that may call for assignments.

Section 15: Choice of Law, Forum and Jury Trial Waiver
The law of the state in which the project is located will govern all disputes, exclusive of its conflict of law principles. Each of the Parties waives trial by jury on its own behalf and on behalf of its subcontractors and assigns.

Section 16: Miscellaneous
16.1 Headings and captions used in this Agreement are for convenience only and shall not affect the meaning or interpretation of this Agreement.

16.2 This Agreement constitutes the entire and exclusive agreement of the Parties and it supersedes any prior agreements concerning the subject matter except as such agreements are included as Contract Documents.

16.3 Wenck agrees that it is providing services under this Agreement as an independent contractor, and individuals employed or engaged by Wenck shall not be considered employees of Client for any purpose. Neither Party nor anyone claiming through either of them shall make or maintain any claim against an employee of either party in their individual capacity if said employee is or was acting within the scope of their employment as to the loss giving rise to such claim.

16.4 No waiver by Wenck or Client of any condition or breach of any term, covenant, representation, or warranty contained in this Agreement or any document referred to herein

shall, whether by conduct or otherwise, be construed as a waiver or release of any other term, covenant, condition, or warranty.

16.5 This Agreement may be amended only in a written agreement signed by Wenck and Client.

16.6 Except as explicitly set forth in Section 8, nothing in or under this Agreement shall be construed to give any rights or benefits of this Agreement to anyone other than Client or Wenck, and all duties and responsibilities undertaken pursuant to this Agreement shall be for the sole and exclusive benefit of Client and Wenck and not for the benefit of any other party.

16.7 The invalidity or partial invalidity of any portion of this Agreement shall not invalidate the remainder thereof, and the remainder shall be construed as if the invalidated portion shall have never been part of this Agreement.

16.8 No Agency. Client acknowledges and agrees that Wenck is not acting as an agent or fiduciary of Client in connection with this Agreement or any Project.

16.9 The following Exhibits are attached hereto and incorporated herein by reference:

Exhibit A – Project Description
Exhibit B – Work Order Form
Exhibit C – Fee Schedule

[CLIENT]

By _____

Its _____

Wenck Associates, Inc.

By _____

Its: _____

EXHIBIT B

WORK ORDER

to Professional Services Agreement dated _____

between _____ (Client)

and Wenck Associates, Inc. (Wenck)

Drafter: Select the appropriate Work Order Form (General, Remediation, Design and Construction Services)

EXHIBIT A

to Professional Services Agreement dated _____

between _____ (Client)

and Wenck Associates, Inc. (Wenck)

Project Description (the Project)

Exhibit C

to Professional Services Agreement dated _____

between _____ (Client)

and Wenck Associates, Inc. (Wenck)

FEE SCHEDULE

WENCK

Responsive partner.
Exceptional outcomes.

Wenck Associates, Inc.
1800 Pioneer Creek Center
P.O. Box 249
Maple Plain, MN 55359-0249

(800) 472-2232
(763) 479-4200
Fax (763) 479-4242
wenckmp@wenck.com
www.wenck.com

Wenck Associates, Inc.
Fee Schedule
January 2018

Classification	Hourly Rate
Interns	$62.00
Administrative Support / Technician	$86.00
Professional I-A	$95.00
Professional I-B	$105.00
Professional I-C	$117.00
Professional II-A	$127.00
Professional II-B	$142.00
Professional II-C	$155.00
Professional III-A	$165.00
Professional III-B	$175.00
Professional III-C	$186.00
Professional IV-A	$195.00
Professional IV-B	$207.00
Professional IV-C	$220.00
Professional V-A	$231.00
Professional V-B	$241.00

- *Classifications listed above refer to the firm's internal system for billing purposes. The term "Professional" refers to engineers, scientists and business professionals.*
- *A Technology/Communication fee of 5% will be added to each invoice, applied as a percentage of total Wenck labor costs for a given invoicing period.*
- *Subcontracted services will be billed at cost plus 15 percent.*
- *Mileage will be billed at the IRS approved rate.*
- *Invoices are due upon presentation. Invoice balances not paid within thirty (30) days of invoice date are subject to 1-1/2% (18% annual) interest or finance charge.*
- *Specialized software used on a given project will be billed at a rate of $15.00/hour.*
- *Rates to be adjusted annually.*

Responsive partner.
Exceptional outcomes.

Toll Free: 800-472-2232 **Email: wenckmp@wenck.com** **Web: wenck.com**

The Prewitt Operating Committee

112 North 8th Avenue - P.O. Box 333 - Phone (970) 522-2025
STERLING, COLORADO 80751-0333

June 19, 2018

PREWITT RESERVOIR

OPERATING UNDER THE NAME OF:

Prewitt Operating Committee
P.O. Box 333 - 112 North 8th Avenue
Sterling, Colorado 80751

The Prewitt Operating Committee is a management organization used to perform the operation of the Prewitt Reservoir. It is composed of three entities - The Logan Irrigation District, The Iliff Irrigation District, and The Morgan Prewitt Reservoir Company. It is governed by a Governance Contact adopted January 31, 2006 (see attached). The ownership breakdown and their board members are provided below:

THE LOGAN IRRIGATION DISTRICT - 17/31 Interest

Organized under the Colorado Irrigation District Law of 1905 on December 19, 1910.
Elected Governing Board Members: Bob Lingreen - President, Rod Mari - Vice-President
Gerald Ruf - Director. James Yahn - Secretary/Manager - appointed by the board.
No. of Landowners: 128
District Acres: 12,818.9 acres
Current Levy: $4.00/acre

THE ILIFF IRRIGATION DISTRICT - 8/31 Interest

Organized under the Colorado Irrigation District Law of 1905 on March 6, 1911.
Elected Governing Board Members: Bob Monheiser - President, Dave Breidenbach - Vice-President
John Stieb - Director. James Yahn - Secretary/Manager - appointed by the board.
No. of Landowners: 65
District Acres: 10,874.3 acres
Current Levy: $2.50/acre

THE MORGAN PREWITT RESERVOIR COMPANY - 6/31 Interest

Organized as a corporation not for profit, under the General laws of the State of Colorado on February 10, 1923.
Elected Governing Board Members: Allyn Wind - President, Don Chapman - Vice-President
Wade Castor - Director, Robert Karg - Director, Brad Mortensen - Director.
Don Snider - Secretary - appointed by the board and James Yahn - Manager - appointed by the board.
No. of Shareholders: 58
No. of Shares: 261
Current Assessment: $135/share

PREWITT RESERVOIR SPECIFICATIONS

Water Rights:	Priority No. 75A - Storage of 32,300 acre feet at a rate of 695 cfs May 25, 1910
	Priority No. 75R(Refill) - Storage of 34,960 acre feet at a rate of 695 cfs Dec 31, 1929
Restricted Storage:	28,600 acre feet
Use of Water:	Supplemental Irrigation Supply for approximately 28,000 acres, augmentation, and recreation
Service Area:	Morgan and Logan Counties
Avg. Diversion:	40,160 acre feet
Length of Dam:	3 ½ miles
Height of Dam:	36 feet
Surface Area:	2,300 acres at restricted level

PREWITT OPERATING COMMITTEE GOVERNANCE CONTRACT

THIS AGREEMENT is entered into this 31st day of JANUARY, 2006, among the Logan Irrigation District, the Iliff Irrigation District, and the Morgan-Prewitt Reservoir Company.

RECITALS

1.1 The Parties. The Logan Irrigation District and the Iliff Irrigation District are irrigation districts formed under the Irrigation District Law of 1905, C.R.S. § 37-41-101 *et seq.* providing water supply for irrigation for the members within their respective boundaries. The Morgan-Prewitt Reservoir Company is a Colorado mutual reservoir company formed under the Colorado Ditch and Reservoir Company Act, C.R.S. § 7-42-102 *et seq.*, providing water supply for the use of its stockholders.

1.2 Prewitt Reservoir. Prewitt Reservoir is an existing reservoir located in Logan and Washington Counties, Colorado. The reservoir is filled by diversion from the South Platte River through an inlet canal with a headgate located in the Southwest Quarter of Section 24, Township 2 North, Range 55 West in Morgan County, Colorado. Storage water rights have been adjudicated to the reservoir in the amount of 32,300 acre feet at a fill rate of 695 c.f.s. under Reservoir Priority No. 75A in Weld, Morgan, and Washington County, as of May 25, 1910, and in the amount of an additional 34,960 acre feet under Reservoir Priority No. 75R in Weld, Morgan, and Washington County, as of December 31, 1929 as a refill decree. Water stored in the reservoir is released from the reservoir through an outlet canal to the South Platte River, whence it is rediverted for beneficial use by the members and shareholders, respectively, of the Parties hereto. Prewitt Reservoir and its appurtenances, including fee lands, rights of way, headgates, ditches, dams, spillways, outlet works, and other physical structures comprising the reservoir facility, and its water rights described above, (collectively, "Prewitt Reservoir") are owned by the Parties hereto as tenants in common, as follows: Logan Irrigation District: 17/31; Iliff Irrigation District: 8/31; and Morgan-Prewitt Reservoir Company: 6/31.

1.3 Prewitt Operating Committee. The Parties (and their predecessors in title) have, since construction of Prewitt Reservoir, jointly operated and maintained the reservoir for the benefit of their members and shareholders, respectively, through the Prewitt Operating Committee, constituted of representatives of the owners of the reservoir. At this time, the Parties, as the owners of Prewitt Reservoir, desire to set forth and memorialize their agreement regarding the constitution and operations of the Prewitt Operating Committee.

AGREEMENT

Now therefore, the Parties hereto, for and in consideration of the mutual promises and covenants hereinafter set forth agree as follows:

2. Prewitt Operating Committee. The Parties hereby establish the Prewitt Operating Committee to effect the operation and maintenance of Prewitt Reservoir in accordance with the provisions of this Agreement.

2.1 Committee Members and Functions.

2.1.1 Members. The Committee shall be made up of seven members, three of whom shall be appointed by the Board of Directors of the Logan Irrigation District; two of whom shall be appointed by the Board of Directors of the Illiff Irrigation District, and two of whom shall be appointed by the Board of Directors of the Morgan-Prewitt Reservoir Company. Each member shall serve until replaced by the Party that appointed him or her.

2.1.2 Initial Members. The initial members of the Committee shall be:

Robert Lingreen (appointed by the Logan Irrigation District)
Rod Mari (appointed by the Logan Irrigation District)
Gerald Ruf (appointed by the Logan Irrigation District)

Arthur Debus (appointed by the Iliff Irrigation District)
Harold Kautz (appointed by the Iliff Irrigation District)

Don Chapman (appointed by the Morgan-Prewitt Reservoir Company)
G. ALLYN WIND (appointed by the Morgan-Prewitt Reservoir Company)

2.1.3 Compensation. Members shall not receive compensation for their service on the Committee.

2.1.4 Chair. The Committee members, upon a majority vote, shall appoint a Chair for the Committee, who shall be entitled to call special meetings of the Committee, and shall chair all meetings of the Committee.

2.1.5 Committee Action. Action by the Committee shall require the affirmative votes of four Committee members, and four such members shall constitute a quorum for the transaction of Committee business.

2.2 Duties of the Committee. The Committee shall work to effectuate the operation and maintenance of Prewitt Reservoir for the benefit of the Parties' members and stockholders,

respectively, in accordance with the guidelines and policies set forth in this Agreement. To that end, the Committee shall:

2.2.1 Develop and adopt an Annual Operating Plan and Budget for Prewitt Reservoir, taking into consideration anticipated operating activities (e.g. operation of the headgates, ditches, dams, spillways, outlet gates, and other facilities comprising Prewitt Reservoir), regular maintenance activities (e.g. usual maintenance), and repair, replacement, and improvement activities (major maintenance and repair such as replacement of structures) needed for the upcoming year, anticipated administrative, legal, engineering, permitting, land use authorization, or other anticipated costs, and anticipated income available to defray such costs (e.g. Parties' assessments, recreation lease income, etc.).

2.2.2 Effectuate each year's Operating Plan and Budget, and to that end, appoint and supervise a Manager for the Reservoir, who shall engage, and shall supervise the activities of, staff and consultants to operate Prewitt Reservoir, negotiate appropriate contracts for services in connection with the operation of Prewitt Reservoir, and shall monitor and account for expenditures for the operation of Prewitt Reservoir.

2.2.3 Effectuate and carry out any capital project undertaken for Prewitt Reservoir, whether approved as part of the Annual Operating Plan or otherwise, and to that end, shall appoint and supervise a Manager for the Reservoir, who shall engage, and shall supervise the activities of, staff, contractors, engineers, or other consultants, negotiate appropriate agreements regarding financing, design, and construction of the capital projects, and monitor the carrying out of such activities and contracts.

2.2.4 Negotiate and enter into appropriate agreements for the operation and maintenance of Prewitt Reservoir for the benefit of the Parties' members and stockholders, consistent with the rules and regulations, bylaws, policies, and laws governing the Parties' actions.

2.2.5 Consider and adopt policies and make decisions regarding the long-term operations, protection, and enhancement of Prewitt Reservoir for the benefit of the Parties' members and stockholders.

3. Operation Policies and Guidelines. It is the intent and goal of the Parties to maximize the usable yield of Prewitt Reservoir for the benefit of the Parties' members and stockholders, respectively, by ensuring that Prewitt Reservoir is properly maintained, repaired, and replaced, and, if appropriate and economically feasible, upgraded and improved, and that the water rights adjudicated to the reservoir are protected and properly exercised.

4. Ownership of Prewitt Reservoir. Nothing in this Agreement shall effect any change or transfer of ownership of Prewitt Reservoir.

5. Costs and Budget.

5.1 All costs of operations and maintenance, and repair, replacements or improvements of Prewitt Reservoir, including the cost of each approved Annual Operations Plan

and Budget, and of any separately approved capital project, insurance costs, and administrative costs, such as office expenses, employee salaries and the like, shall be divided between the Parties pro-rata to their ownership interest in Prewitt Reservoir.

5.2 Remedy for failure to pay costs. In addition to any other remedy hereunder, the Committee may refuse to carry or deliver any water through or from Prewitt Reservoir to or for the benefit of a Party at any time that such Party is in arrears of any payment required hereunder.

6. Other.

6.1 The terms and obligations contained in this Agreement shall be binding on the Parties and their successors and assigns.

6.2 Invalidation of any of the provisions of this Agreement or of any paragraph, sentence, clause, phrase, or word herein, or the application thereof in any circumstance, shall not affect the validity of the remainder of this Agreement.

6.3 This Agreement may not be amended or modified except by an amendment in writing signed by all Parties.

6.4 This Agreement constitutes the entire understanding between the Parties with respect to the subject matter hereof, superceding all prior negotiations or agreements relating to such subject matter.

6.5 All Parties hereto waives all right to recover against any other Party for any loss or damage arising from any cause covered by the insurance described herein, to the extent of any claim above the amount of insurance coverage.

6.6 Except as expressly provided in this Agreement, no Party to this Agreement shall have any authority to act for or assume any obligations or responsibilities on behalf of any other Party. This Agreement shall not be construed as creating a common law or statutory partnership or any other relationship whereby one Party shall be held liable for the acts or omissions of any other Party. In every case of liability in favor of a third Party, the liability shall be several and individual, and not either joint, or joint and several.

Entered into this 31st day of January, 2006.

LOGAN IRRIGATION DISTRICT

By: Robert Lingreen

Date: 2/1/06

Attest: James J. Yalm

Date: 2/1/06

ILIFF IRRIGATION DISTRICT

By: John E. Stieb

Date: 2-1-06

Attest: James J. Yalm

Date: 2-1-06

MORGAN-PREWITT RESERVOIR COMPANY

By: G. Allyn Wind, Pres

Date: January 31, 2006

Attest: Kathy J. Samples

Date: 1/31/2006

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Water Project Loan Program

Application Type

☒ Prequalification *(Attach 3 years of financial statements)* ☐ Loan Approval *(Attach Loan Feasibility Study)*

Agency/Company Information

Company / Borrower Name: Logan Irrigation District

Authorized Agent &Title: James Yahn, Manager

Address: 112 N. 8th Ave - PO Box 333 Sterling CO 80751

Phone: (970) 522-2025 | Email: jim@northsterling.org

Organization Type: ☐ Ditch Co, ☒ District, ☐ Municipality ☐ other: _____ | Incorporated? ☐ YES ☒ NO

County: Logan | Number of Shares/Taps: See Attached Prewitt Org.

Water District: 1 South Platte | Avg. Water Diverted/Yr 40,160 acre-feet

Number of Shareholders/Customers Served: See Attached | Current Assessment per Share $ See Att. (Ditch Co)

Federal ID Number: 84-0815083 | Average monthly water bill $ _____ (Municipality)

Contact Information

Project Representative: James Yahn

Phone: (970) 520-0170 | Email: jim@northsterling.org

Engineer: Marcus Krall, P.E.

Phone: (307) 634-7848 | Email: mkrall@wenck.com

Attorney: Mason Brown

Phone: (303) 861-9000 | Email: mbrown@chp-law.com

Project Information

Project Name: Prewitt Reservoir Rehabilitation

Brief Description of Project: (Attach separate sheets if needed)

Determine options for limiting wave action on the dam to allow full storage and dredging to access dead pool. Feasibility Study.

General Location: (Attach Map of Area) See Attached Power Point

Estimated Engineering Costs: TBD	Estimated Construction Costs: TBD
Other Costs (Describe Above):	Estimated Total Project Costs:
Requested Loan Amount:	Requested Loan Term (10, 20, or 30 years): _____ Years

Project Start Date(s) Design: 2018 Construction: 2019

Signature

James J. Yahn 6/20/18
Signature / Title Date

Return to: Finance Section Attn: Anna Mauss
1313 Sherman St #718
Denver, CO 80203
Ph. 303/866.3449
e-mail: anna.mauss@state.co.us