

SMITH ENVIRONMENTAL AND ENGINEERING Delivering Smart Solutions for Planning, Permitting, & Design

Technical Proposal to Provide Stormwater Management Plan Services to the Town of Grand Lake

Prepared for the Town of Grand Lake by Smith Environmental and Engineering

March 30, 2023





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SMITH ENVIRONMENTAL AND ENGINEERING

Delivering Sustainable Environmental Solutions

1.0 COVER LETTER AND SIGNATURE PAGE

March 30, 2023

Kim White Planner to the Town of Grand Lake 1026 Park Avenue Grand Lake, CO 80447

RE: Town of Grand Lake Stormwater Management Plan

Dear Ms. White,

Please find enclosed Smith Environmental and Engineering's (SMITH) proposal to provide Stormwater Management Plan (SWMP) services for the Town of Grand Lake (the Town). SMITH is a full-service environmental consulting and construction firm that has completed nearly 2,400 contracts performing environmental consulting, planning, design, and permitting, and construction of our designs for various municipalities, state and federal agencies, and private sector clients in Colorado since our inception in June of 2000. This includes preparing many (more than 100) municipal and industrial stormwater management plans (SWMP) to improve the water quality of Colorado's streams, rivers, and lakes.

SMITH brings unique capabilities, experience, and core competencies to its partnerships, which can support the Town in its efforts to improve the quality of water reaching the Town's adjacent lakes. For example:

- SMITH is a local Colorado business with experience developing comprehensive SWMP and improving Colorado's water quality.
- In-house multidisciplinary staff. SMITH's 35-member staff includes water quality specialists, soil scientists, water resource engineers, certified ecologists, wildlife biologists, and support staff with a broad range of expertise.
- This team has core competencies in creating sustainable SWMPs, obtaining the funding to create and build them, and engaging the community through the entire process.

I hereby certify that the information contained in the attached proposal is true to the best of my knowledge. If you have any questions regarding our proposal, please call me at (303) 551-7972, by email at petersmith@smithdelivers.com, or at the Dacono address listed above.

Respectfully submitted, Smith Environmental & Engineering

Peter L. Smith, CPSS/SC, SPWS, CPESC Vice President

2.0 PROJECT UNDERSTANDING AND APPROACH

2.1 SITE CHARACTERISTICS AFFECTING STORMWATER MANAGEMENT

There are three watersheds (A, B, C) within the Project Area (PA). Watershed A is the westernmost covering 45% of the PA, and Watershed C is the easternmost covering 45% of the PA. All three watersheds extend outside the PA; however, Watershed B extends only slightly outside the PA. Watershed B comprises about 10% of the PA and sits between Watershed A and Watershed C.

The higher the percentage of impervious area in a watershed the greater the likelihood for flash flooding and the greater the need for stormwater detention and other water quality improvement measures. Watershed B has the



highest percentage of impervious area, therefore the highest runoff per unit area, because it has the highest concentrations of roads, driveways, roofs, parking, lots, and commercial buildings. However, because of the steep slopes (see above) in the northern part of Watershed C and many roads, buildings, and parking lots in the southern two-thirds, runoff per unit area is also high in this watershed. There is some impervious area within Watershed A but considerably less than in Watersheds B and C.

There are three dominant physiographic features in the PA: I) the Little Columbine Creek (LCC) corridor, 2) the terminal moraine (shown above) in the northern portions of the main area of the PA, and 3) the relatively flat (3% slope or less) alluvial fan in the southern part of the PA, which is relatively densely covered with houses and commercial buildings. Most of the runoff from the terminal moraine flows into Watershed A (LCC Watershed) to the west and Watershed C in the eastern part of the PA.

2.1.1 <u>Watershed A</u>

Runoff in the LCC Watershed collects entirely into the LCC channel. It goes temporarily into pipes beneath four roads, and about 50 ft upstream of the waters in the north end of marina, it flows back into a pipe and then into that end of the marina waters. The discharge into the marina carries enough warm flow to prevent the eastern upper half of the marina waters from freezing. The LCC riparian area has: I) a floodplain of wetlands, 2) slightly higher terraces adjacent to the channel with wetland vegetation, and non-wetland riparian vegetation, and 3) uplands having upland grasses, shrubs, and trees. Web Soil Survey maps Cumulic Cryaquolls in the lower elevations of this watershed. Rocky Mountain National Park soil survey information shows Histic Cryaquolls bordering the north end of this watershed in the PA. Histic Cryaquolls may be fen wetlands, which will warrant special consideration because of their regulatory protection by the US Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA) under Section 404 of the Clean Water Act (CWA).

2.1.2 Watershed C

The steep hillside in the northeaster portion of the PA is a terminal moraine and is mapped by Web Soil Survey as Gateway loam, 15-50% slopes. There are some seeps and springs at the base of the terminal moraine, which contribute to the stormwater runoff. Most of the runoff from the terminal moraine flows into Watershed C, which collects into a pipe north of Grand Avenue (south of West Portal Road) and east of Haskell Street. This pipe crosses beneath Grand Avenue and Ravenwood Circle and supposedly daylights into an open channel just south of Ravenwood Circle. However, SMITH understands the Town was not able to find where this water or pipe daylights. Where does the pipe and water go? The answer to this question may be the nature of the soil in this area.

The southern three-quarters of Watershed C, the 3% or less sloping area, is mapped by Web Soil Survey as Tine gravelly sandy loam. Tine soils are typically less than 20 inches to sand and gravel. This shallow sand and gravel may be where the flow from the pipe "disappears" because of the very highly permeable nature of sand and gravel. This stormwater infiltration concept has great merit and will be given serious consideration when developing runoff control and water quality improvement measures for the SWMP, because it is a sustainable, low impact development (LID). One problem that will have to be resolved, if this method is considered, is making sure the stormwater is conveyed deep enough into the substratum so that it doesn't freeze and form an ice block, which would short circuit the stormwater drainage system.

Downgradient from Ravenwood Circle, SMITH understands surface flow collects into a stormwater pipe beneath Marina Drive. The pipe beneath Marina Drive outlets at the east side of the southern leg of the marina. In the flatter area of Watershed C there is a go-cart track. Poorer water quality is suspected in the flow from this facility because of the gasoline, lubricants, and oils used at this facility.

2.1.3 Watershed B

Watershed B may have the most degraded water quality because some of the flow in the south end of the watershed comes from the Grand Lake maintenance yard, about 150 ft north of the marina. This yard consists of a dirt surface with several pieces of machinery – road graders, front end loaders, pickup trucks, and backhoes – and a fueling area. There may be drippings of oil and other petroleum chemicals that may degrade runoff water quality. Magnesium chloride is stored at the maintenance yard but is in drums inside one of the buildings. A slight swale collects runoff from most of the maintenance yard and carries flow to the south. Also in the southern part of this watershed is a car wash. It is not clear where the runoff from the car wash flows – into a sanitary sewer pipe or just into the roadside ditch.

In the north end of this watershed (the steep terminal moraine area), there are steep cut slopes along the dirt roads having higher total suspended solids (TSS) runoff. Fortunately, West Portal Avenue acts as a detention basin berm collecting runoff from this northern half of the watershed and collecting much of the sediment from that flow. There are some seeps and springs at the base of the terminal moraine, which may lessen water quality degradation through dilution in the upper part of this watershed. In summary, the ponding, water quality, and erosion problems in the PA can be solved by utilizing borrow/roadside ditches, replacing nonfunctioning (buried, undersized) culverts, creating infiltration swales in the underlying sand and gravel, creating biotreatment (vegetation buffer) strips, and utilizing conventional erosion control measures (erosion control blanket, straw wattles, etc.), all of which are sustainable LID measures. Other problems in Watersheds B and C may require more extensive engineering and design, such as surface drainage requiring curb and gutter and subsurface drainage through a storm drain system. Public input on these stormwater best management practices (BMP) will be important as they may adversely affect some businesses more than others. These ideas will be explored by SMITH and explained to Town staff and the Town Trustees. Whatever BMP measures are selected and placed will need to have a positive effect on water quality – groundwater and surface water.

2.2 APPROACH TO PUBLIC OUTREACH

While the contents of the SWMP will be technical, the nature of the planning effort should engage and incorporate feedback from the community of Grand Lake – residents, businesses, recreationalists, and Town staff. SMITH proposes that two public meetings be held, with the distribution of an electronic survey occurring shortly after the first public outreach meeting early in the project.

The first public meeting will be conducted right after field investigations and the concept design is finished. It will serve to introduce the project to interested individuals and solicit feedback on the types and locations of the BMPs. The format of this meeting is open to discussion with the Town to determine what the community is most accustomed to and responsive to. SMITH suggests a brief presentation in the evening followed by an informal meet-and-greet and Q&A with the project team. SMITH has had good success in the past by utilizing PowerPoint presentations and informational boards. If there is another Town project occurring concurrently, combined meetings can attract a larger crowd and avoid duplication of engagement efforts.

At the meeting, a survey link will be promoted as a formal means to obtain and analyze feedback from interested parties. This survey will be open for several weeks following the meeting to ensure that adequate time is given to allow incorporation of public feedback into the final design.

The last public outreach meeting will be conducted after final (100%) construction drawings are completed. SMITH envisions an open house for this session, as it will likely attract only those individuals who have been following the planning process.

Feedback from the meetings and survey will be added to the materials prepared by SMITH, which will then be reviewed with the Town to, I) finalize the identification of water quality problem areas and 2) decide what stormwater BMPs should be utilized and presented in the SWMP. SMITH will summarize the public engagement information and process in an appendix to the final planning document.

2.3 APPROACH TO PREPARING THE SWMP, SWMP REPORT, CONSTRUCTION DOCUMENTS, AND OPERATIONS AND MAINTENANCE MANUAL

The overall approach to preparing the SWMP will be consistent with SWMP guidelines and regulations of the county and state. Its purpose will be to incorporate BMPs that are appropriate to specific areas where water quality is degraded and stormwater management is impaired. By necessity they must be compatible with the Town's goals and priorities. There will be a strong emphasis placed on sustainable, LID BMPs with long lifespans to minimize long-term maintenance costs.

2.3.1 Field Investigations

Prior to the preparation of the SWMP, SMITH will complete several field investigations: 1) water quality investigation, 2) topographic survey, 3) soils survey/investigation, 4) existing stormwater infrastructure and condition assessment, and 5) identification of water quality monitoring locations. SMITH will need the Town to provide all as-built information for the existing stormwater system. The soils investigation will include soil borings and bank cut examinations and will be conducted by a Certified Professional Soil Classifier according to the standards of the National Cooperative Soil Survey. It will identify specific soil map units, soil characteristics, soil hydrologic group, Revised Universal Soil Loss Equation (RUSLE) erosion rates, and erosion hazard of each soil map unit. This soil mapping will also include hard impervious surfaces such as roads, buildings, and parking lots.

The topographic survey investigation will be conducted by a Professional Land Surveyor. The result of this investigation will be an AutoCAD file with one-foot contour information on the less than 9% slope areas and 5 to 10 ft contour information on the steeper sloping areas. The stormwater infrastructure and condition assessment will be a field investigation to identify all stormwater features such as culverts, inlets, and storm sewer pipelines, and stormwater problem areas such as sediment build up and flooded areas. Any stormwater infrastructure as-builts held by the Town will be reviewed.

A water quality needs assessment will also be completed to identify areas of suspected stormwater quality degradation and the causes of such degradation. As part of this field investigation, two water quality samples from Watersheds A and C and one water quality sample from Watershed B will be collected each quarter, for three quarters starting in early June 2023. The water quality needs assessment will result in a report and recommendations for monitoring locations and parameters. It will include the identification of problem water quality areas such as: 1) degraded water quality areas, 2) source areas contributing to degraded water quality and an explanation of why the water quality degradation is occurring, 3) areas of sediment deposition, 4) areas of known excessive hill slope erosion, and 5) areas where existing stormwater infrastructure contributes to degraded water quality.

As a result of these field investigations SMITH will prepare a map showing proposed BMP types and location. This set of maps will be utilized in the public meetings and as the starting point for the SWMP and SWMP report. SMITH provides in-house GIS services to support the development and planning of a diverse spectrum of natural resource projects. SMITH holds licenses for ESRI ArcGIS Desktop, version 10.8.1, and ArcGIS Pro. Our GIS capabilities are led by Environmental Scientist III and Project Manager, Rebecca Hannon, who has over a decade of experience in data collection and cartography using the ESRI product line. Field mapping collected for these investigations will be downloaded into ArcGIS Desktop to create maps for the reports and a project ArcGIS database.

For these field investigations, SMITH will first compile relevant GIS data from several sources, including the Town, Grand County, State of Colorado, public utilities, Natural Resource Conservation Service, US Geological Survey, US Forest Service, National Parks Service, US Fish and Wildlife Service, and other entities as applicable. Data that are unavailable will be summarized and discussed among the project team to determine if they are integral to the planning effort. SMITH will package the accumulated layers in shapefiles or a geodatabase for delivery to the Town and integration into their own GIS system. Care will be taken to ensure consistency and compatibility with diverse datasets so that significant analysis and interpretation can be conducted.

2.3.2 SWMP, SWMP Report, Construction Documents, and O&M Manual Preparation

Information from the: 1) soils investigation and report, 2) 1986 Drainage Study, 3) topographic information from our team surveyor, 4) water quality needs assessment, 4) stormwater infrastructure assessment, 5) LID BMP types and locations map; and 6) public outreach will be reviewed before starting the preparation of the SWMP.

The SWMP will be prepared consistent with guidelines and recommendations of the Town, County, and State. First, the preliminary SWMP (60% level) will be developed. It will include maps showing the types and locations of BMPs. SMITH believes the preliminary stormwater management construction documents are an unnecessary expense and should be dropped to save costs during the design phase. The SWMP will be accompanied by the SWMP report, which will include quantities and an opinion of probable cost. SMITH will meet with the Town after the preliminary SWMP and SWMP Report are submitted to obtain their comments, which will serve as a basis for making revisions and creating the 100% (Final) SWMP and SWMP Report.

Once the Final SWMP and SWMP report are approved, the Final (100%) Construction Documents including plans, details, specifications, and quantities will be prepared. The Operations and Maintenance (O&M) plan will be prepared concurrently with the Final Construction Documents.

SMITH anticipates it will also be conducting one progress meeting per month throughout the 18month course of the project. Most of these meetings will be virtual. SMITH will provide the following deliverables to the Town under this contract:

- Water quality assessment and needs report and water quality monitoring data
- Topographic survey as an AutoCAD file
- Stormwater infrastructure condition assessment
- Soils report with data interpretations and maps (as an ArcGIS file)
- Report and map of proposed stormwater BMP solutions and locations
- Public Outreach Plan, public outreach meetings (2), and one public survey
- Preliminary (60%) SWMP and SWMP Report including opinion of probable cost
- Final (100%) SWMP and SWMP report including opinion of probable cost
- Final (100%) Construction Documents and Final O&M manual
- List of funding options and a description of each
- Monthly invoices and supporting written progress reports
- Progress meeting minutes and schedule updates

2.4 APPROACH TO SECURING FUNDING FOR THE PROJECT

EPA Region 8 has grants available for water quality improvements – planning, reports, construction documents, and construction – for municipalities in Colorado. They are aggressively providing information on current and upcoming funding opportunities that will help entities like the Town access unprecedented funds from the Bipartisan Infrastructure Law and Inflation Reduction Act. These grants can be quite large – \$1-2 million – enough to cover planning, design, and construction fees. The SMITH team will help the Town identify these EPA grants, set up a SAM.gov account (if the Town does not have one), help the Town understand eligibility requirements, and prepare grant applications.

Similarly, the state of Colorado Water Quality Improvement Fund (WQIF) is a state-funded grant program that supports public water systems interested in committing to excellence but who lack the financial resources to do so. Grants can be awarded up to \$25,000, with a total of \$150,000 annually. Projects must be completed within the calendar year awarded. These grants are typically given to smaller municipalities or water and sanitation districts. Projects eligible for funding must fall within these categories:

- 1. Stormwater management and best management practices training.
- 2. Projects to improve water quality where there has been a civil penalty imposed for a water quality violation.
- 3. Planning, design, construction, or repair of stormwater projects or domestic wastewater treatment facilities currently on the State Revolving Fund Intended Use Plan.
- 4. Nonfederal match funding for nonpoint source projects.

Our grant funding team member, INTERA, has considerable experience successfully obtaining grants from the EPA and other agencies for water quality needs such as those of the Town.

2.5 SMITH'S ABILITY TO PERFORM ALL ASPECTS OF THE PROJECT

The SMITH team is prepared to complete every task described in the Town's RFP; the tasks described are among the core services that SMITH has delivered for the past 22 years. SMITH has professional engineers, stormwater management specialists, soil scientists, water quality specialists, and hydrologists that collectively have over 100 years of professional experience preparing SWMPs, SWMP reports, SWMP Construction Documents, and O&M Manuals. Specifically for this project, the SMITH team consists of senior-level Professional Engineers, a Certified Professional Soil Scientist/Soil Classifier, water quality specialists, and public outreach specialists, who routinely work together. The Professional Land Surveyor (PLS) and INTERA will be working as subcontractors to SMITH. We have worked together successfully on other projects of similar size and scope.

The following are the services outlined in the RFP's Scope of Services that this SMITH team has the experience, availability, and qualifications to perform:

➢ Communication

• Meeting and engaging with the Town, County, and Grantors

Public Engagement

- Creation of public outreach plans
- Creation of presentations and plans for public meetings
- Leading community meetings with stakeholders
- Community surveys

> Mapping

- GIS mapping, report generation, and GIS data sets
- Database development and management services
- Creation of field maps

Data Collection

- Collection of water quality samples to assess suspect degraded water quality
- Soil surveys and interpretations soil maps, slope and erosion hazard by soil type, RUSLE rates by soil type, soil hydrologic group by soil type, identification of impervious surfaces

> Monitoring

• Collection of water quality data downstream of the proposed stormwater solutions

Design Solutions

- Assessing the effects of proposed stormwater solution strategies on water quality
- Assess feasibility of low impact development (LID) and sustainable BMPs
- Recommending sustainable, LID stormwater quality solutions based on collected data
- Developing SWMPs and report
- Preliminary and final SWMP sets
- Environmental studies and permitting as needed
- Economic feasibility studies

> Reporting

• Integrating feedback from municipalities and public into plans and final reports

Inventory and Analysis of Existing Infrastructure

• Comprehensive evaluations of facilities (Grand Lake maintenance yard, car wash, go cart facility, stormwater pipelines) related to stormwater runoff

Sustainability

• Implementing LID solutions and BMPs to serve the needs of municipalities, the public, and other stakeholders

> Maintenance

- Communicating ways to maintain functionality of design solutions
- Development of operations and maintenance plans and manuals

Funding Options

• SMITH has teamed with a subconsultant with the experience and proven ability to locate and obtain available state and federal grants and loans to fund design solutions.

SMITH has qualifications to perform additional as-needed environmental tasks, such as:

- Ecological assessments
- Threatened and endangered species surveys and habitat assessments
- Biological assessments (Section 7)

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- NEPA documents, including Environmental Assessments
- Wetland and Waters of the US delineations
- Section 404 permitting
- Vegetation investigations and mapping
- Cultural site surveys and Section 106 clearances
- Risk assessment and site characterizations
- Assistance with effective strategies to assess potential environmental impairments
- Remediation system design, installation, operation, and implementation
- Phase I/II Environmental Site Assessments (ESA)
- Asbestos, lead-based paint (LBP), and mold inspections
- Design and oversight of abatement projects
- Spill Prevention, Control, and Countermeasure (SPCC) plans
- Underground storage tank (UST) removal and site closures
- Asbestos testing and mitigation plan development and associated oversight
- Fuel storage tank leak detection, mitigation, and removal plans and permitting
- Other consultations, permitting, and compliance with federal and state agencies

The SMITH team has provided the services outlined in the Town's RFP in Colorado and across the Front Range on numerous projects. SMITH is different than most environmental firms of a similar or even significantly larger size; our multidisciplinary team conducts studies and field investigations, prepares designs and management plans, prepares risk assessments and project management plans, and obtains environmental permits for our clients.

2.6 SMITH'S ABILITY TO MEET SCHEDULES WITHIN BUDGET

Based on extensive experience providing services to public and private sector clients, SMITH has established the following framework to meet schedules within budget.

2.6.1 Project Management



SMITH will ensure that all required services under the proposed contract are provided by following a carefully prepared Project Management Plan (PMP). The PMP will be developed after notice to proceed is received by SMITH on the contract. This plan will outline a system of processes, controls, and checks to ensure each task is completed successfully. To ensure that project responsibilities are accurately defined and carried out, SMITH will utilize a management structure consisting of a Principal in

Charge (Peter Smith), Project Manager (PM), and key project team members.

Jonathan Diller will be the PM and Ridwan Naife will be the Assistant PM for this contract. They will oversee all aspects of the project from start to completion. Mr. Diller will be responsible for coordinating the day-to-day activities; mapping project tasks to meet team capabilities and availability; assigning the adequate staff; monitoring budgets, schedules, and deliverable work products; and maintaining routine client communication. For each task, Mr. Diller or Mr. Naife will work with the key project team members to prepare milestones, deliverables, compliance, and permitting issues. He will also coordinate the day-to-day activities, manage schedules and budget, Quality Assurance/Quality Control (QA/QC) procedures, and develop specific communication protocols to ensure the client and our staff have a clear picture of each task's deliverables and timeline.

The overall technical direction of each task will be established and coordinated by Mr. Diller. He will obtain weekly updates from each team member regarding their respective task deliverables. Based on these updates, Mr. Diller will identify how new information will affect the other project components and inform the project team of any necessary adjustments. Any findings or new information that would significantly affect the overall schedule or costs will be immediately communicated to the Town.

SMITH recognizes the importance of selecting the right software to manage a project, track budget and timelines, and produce the reports and deliverables. In addition to the Microsoft Office suite, our team regularly uses the following software for the duration of any project:

- 1. Zoom and MS Teams for video calls whenever on-site meetings or planning is not possible.
- 2. Microsoft Project set up the project baseline schedule, milestones, and project progress reporting.
- 3. QuickBooks (QB) for project accounting and invoicing.
- 4. QB Time an electronic time keeping system fully integrated with QB that tracks project hours and expenses by task.

2.6.2 Budget and Scope Tracking System

SMITH is responsible for both cost and schedule control under the contract. SMITH has developed and implemented many successful project management systems to achieve both budget and schedule control. The SMITH PM tracks the progress by monitoring tasks completed and billable costs – hours and other direct costs (ODC) charged to the task and tracked in QB and QB Time – against the project's budget and Microsoft Project schedule developed. The status of the project will be reported regularly to the client. Should there be any changes to the project cost or budget, SMITH will discuss the issues with the Town and present alternative cost-efficient solutions to keep a project on budget and schedule.

At the beginning of every project, tasks, budgets, personnel assignments, and deliverables are defined. Project cost control is achieved through the following steps:

- Routine project cost status reviews of personnel hours and ODC reports generated in QB
- Monthly cost and narrative progress reports to the client with each invoice
- Early detection of potential cost overruns and the implementation of cost control measures

The SMITH PM tracks the weekly progress by monitoring subtasks completed and billable costs against the task order budget and the MS Project schedule.

2.6.3 <u>Schedule Process and Monitoring</u>

Schedule monitoring and control is obtained by measuring actual completed against dates shown on the MS Project schedule. The tools and actions used for making such measurements include:

- A precise understanding of project objectives, tasks, milestones, and the Town's completion requirements
- A detailed analysis of elements and sub-elements to identify "critical path" items, and key performance/milestone points that must be monitored to ensure schedule control and/or provide advance warning of potential slippage (for large complex tasks, SMITH will create Gantt charts to identify the critical path)

Schedule control is obtained by measuring actual completion dates against assigned work completion dates.

- A regular work status review by the PM
- Updating the schedule data at key points during the project

2.6.4 <u>Team Communication Process</u>

Regular and effective communication is foundational to successful projects. While the communication format may vary depending on the complexity of the project and the number of involved parties, at a minimum, all SMITH projects use the following paths to discuss project progress:

- 1. Kickoff meeting: Key SMITH team members and the Town will discuss and/or confirm the goals, deliverables, timeline, and budget.
- 2. Weekly check-in: The SMITH PM interacts weekly with the Town via phone and email, preparing an overview of what has been completed to date.
- 3. Daily team check in: The SMITH PM maintains involvement with the key project team members by conducting a daily review.
- 4. Monthly report: The SMITH PM prepares a monthly project progress report and shares it with the Town to track status of work completed against the project timeline.

3.0 SIMILAR EXPERIENCE AND CLIENT REFERENCES

SMITH has a proven track record of getting the job done for its municipal clients over the past 22 years. The following representative projects demonstrate the diverse capabilities of the SMITH team to meet this contract's requirements and scope of work efficiently and cost-effectively for the Town.

3.1 PLASTER RESERVOIR MANAGEMENT PLAN

Location – Broomfield, CO Client – City and County of Broomfield Reference – Kelly Behling, City and County of Broomfield Contact Information – Phone: (303) 438-6349, Email: kbehling@broomfield.org

In 2020, Broomfield selected SMITH in a competitive proposal and interview process to develop a management plan for Plaster Reservoir. The SMITH team incorporated the engineering expertise that was essential to assessing flood storage capacity and was led by a Certified Ecologist – a team structure that the selection committee appreciated. SMITH developed a project approach that consisted of three

phases: Data Gathering, Public Engagement, and Development of Recommendations.

During the Data Gathering phase, SMITH conducted a bathymetric survey of the reservoir to assess sediment deposition and dead storage capacity. A Lidar analysis was conducted to assess live storage capacity, and an ecological site investigation was performed to assess the condition of local vegetation and wildlife. Additionally, SMITH analyzed several years of water quality monitoring data collected and provided by the Broomfield lab.



SMITH participated in a public engagement process that included an "open house" at Plaster Reservoir in the fall of 2020. SMITH prepared a "walking tour" and Google survey that would facilitate community feedback while abiding by Covid-19 restrictions. Afterwards, at the Broomfield Open Space and Trails Advisory Committee meeting, SMITH presented a progress report and solicited feedback from that citizen oversight group.

SMITH developed a draft management plan that consisted of 14 recommendations that were subsequently organized into target phases for implementation. SMITH coordinated with City staff to address comments and questions and made a second presentation to OSTAC. A final draft was produced in February 2021, and OSTAC unanimously approved the document. In 2022, the City and County of Broomfield began to implement recommendations from the management plan.

Similarities to the proposed Grand Lake SWMP project: Public meetings and involvement, water management plan, 30% design level drawings prepared in Civil 3D, field investigations and water quality data collection.

3.2 LOWER CAPITOL BASIN/PUMPHOUSE PARK STORMWATER TREATMENT WETLANDS

Location – Cheyenne, WY Client – City of Cheyenne Reference – Brad Brooks, City of Cheyenne Contact Information – Phone: (307) 637-6460, Email: bbrooks@cheyennebopu.org

The City of Cheyenne's (City) stormwater failed to meet Clean Water Act stream water quality standards as it enters Crow Creek, a perennial stream on the west end of town. Specifically, it failed to meet bacteriological and sediment standards. The City received Brownfields and 319 EPA grants in 2011 to revitalize the downtown with a park that incorporates surface stormwater treatment features.

A stormwater treatment wetland in a park setting was envisioned (see drawing on bottom left of page). The Pumphouse Park stormwater treatment wetland was designed and built as a five-acre park that would remove sediment and E. coli from stormwater flow from the City's 753-acre watershed using treatment wetlands on City-owned land. The treatment wetlands would provide excellent wildlife habitat, especially for songbirds, waterfowl, and small raptors. The goal of the design was to create a bioengineered forebay, treatment wetland, parking lot, bridge and trail system in a park setting, having native wetland and upland native plant communities. The project site was a vacant lot except for the abandoned Pumphouse building.

The system now removes most of the TSS, Total P, and E. coli in stormwater coming from Cheyenne's downtown area. The final design was stamped by SMITH's Wyoming P.E. and SMITH's Professional Wetland Scientist (PWS). SMITH provided construction inspection services during construction.

The project design elements included a sediment removal forebay, a constructed wetland, and a micro pool. The flow was regulated by a diversion structure that brings the two-year design storm into the stormwater treatment system but would maintain the higher flows in the existing storm sewer. The design target for the system was more than 50% sediment removal and a measurable reduction in the E. coli levels. The system's hydrology created intermittent surface flooding and an elevated water table by diverting a small amount of runoff from a very large urban watershed into a small wetlands system. As a part of this portion of the project, SMITH updated the City's EPA SWMM model in order to integrate the new hydraulics created by this project into the model.



Before finalizing design, SMITH conducted a subsurface investigation in which soil samples were collected and analyzed for RCRA metals, volatile organic compounds (VOC, and polynuclear aromatic hydrocarbon (PAH). All three parameters were found to be above ecological assessment risk-based screening levels (RBSL). SMITH prepared a Materials Management Plan that required screening of the soils for RCRA metals, VOC, and PAH as they were excavated to ensure that pockets of contaminated soil were excavated and disposed of according to Wyoming Department of Environmental Quality (WDEQ) regulations.

SMITH's plan required that soils below ecological assessment RBSL were to be used in the wetland planting areas. Soils that had contaminant concentrations above ecological assessment RBSL and below industrial soil RBSL were placed on site in non-wetland areas and capped with clay or asphalt (parking lot). Soils that were found to contain contaminants more than industrial soil RBSL were segregated and hauled off-site to a hazardous materials landfill for disposal.

In 2016-2017, SMITH completed the following project milestones to fulfill project objectives:

- 1. Site Investigation and meeting with the WDEQ to review site contamination data and develop a Materials Management Plan
- 2. Hydrologic and hydraulic data gathering and analyses
- 3. Update the Lower Capitol Basin EPA SWMM Model to accurately reflect the sediment trap/treatment wetland
- 4. Design of a forebay inlet, treatment wetlands, outlet pool, outlet stormwater pipe
- 5. Integration of trail and formal design features with the forebay inlet, treatment wetlands, outlet pool, and outlet stormwater pipe that are consistent with the vision of the downtown area
- 6. Provide construction inspection services during construction
- 7. Make design and construction task scheduling decisions based on the schedule due dates

At one of the Open House meetings to solicit input from the public (see picture below), Brandon Cammarata, AICP, Director of Planning for the City said, "**Thanks for coming up for the open house**. I thought it went very well. The presentation boards looked great."



The project was built in the spring/early summer of 2017, where SMITH provided construction inspection services. These services included inspection of site features such as the forebay, treatment wetland, stormwater diversion structure, and park trails to confirm compliance with project specifications. SMITH provided extensive guidance to the construction firm installing the treatment wetland to ensure that site hydrology conditions were conducive to wetland planting

establishment. The results of the first round (2018) of water quality sampling demonstrated the resounding success of the project, with over 90 % removal of TSS, Total P, and fecal coliform.

Similarities to the proposed Grand Lake SWMP project: Public meetings and involvement; SWMP; identification of appropriate BMPs and their location; 30%, 60%, 90% and 100% design level drawings prepared in Civil 3D, and construction documents; soil borings, land surveying, and field water quality investigations; and water quality data collection. Photos of the project can be found on the pages that follow.

Below: trails, treatment wetland and bridge looking N From the south-central part of the project area – before and after construction, and in 2020.



Below: diversion structure, forebay, and bridge from the SE corner of the site, looking north – before and after construction, and in 2020.



Below: Treatment wetland from the central portion of the project area, looking west toward the Pumphouse – before and after construction, and in 2020.



3.3 COAL CREEK CANYON-REACH 12 DESIGN AND BUILD

Location – Jefferson County, CO Client – Coal Creek Canyon Watershed Partnership Reference – Jackie Daoust, former Watershed Coordinator Contact Information – Phone: (908) 303-4339, Email: jackiedaoust@gmail.com

The Coal Creek Canyon Reach 12 (CCCR12) stream restoration project (in Beaver Creek) was sponsored by the Coal Creek Canyon Watershed Partnership (CCCWP) and funded by a HUD Community Development Block Grant for Disaster Recovery (CDBG-DR) administered by the Colorado Division of Homeland Security and Emergency Management (DHSEM). This project added flood conveyance and protection and restored riparian habitat for homes and properties along Beaver Creek, a tributary to Coal Creek beginning at State Hwy 72 and extending upstream for approximately 3,550 feet to the confluence of Beaver and South Beaver creeks. Seventeen properties received direct benefit from stream improvements in this area, which will help to manage flow adjacent to Twin Spruce Road where emergency access is needed. For this project, the SMITH team completed 35% and 65% plan and profile design and the team built the project to: 1) add resiliency to the stream and improve water quality, 2) increase the level of safety for the residents by removing remaining flood debris, 3) improve stream capacity, and 4) add culvert capacity beneath Joanie and Burland Roads.

The SMITH design included: 1) laid back near vertical channel banks to reduce bank erosion, 2) established a native/riparian wetland mitigation area (shown below), 3) sized the channel and culverts to withstand an increased level of stormwater flows, 4) established a riparian plant community along the stream to improve water quality, and 5) created





additional terraces to handle increased flows. Additionally, it created a more natural channel bottom with log vanes and bank side vegetation to improve fisheries habitat. This design provides increased channel stability during storm events, reduces erosion potential, and increases sediment control through the stream thereby improving overall water quality.

Immediately after contract execution, the team met with stakeholders, focusing on building support from the direct landowners involved. This included affected property owners, Jefferson County, CDOT, and other community members impacted by the project. In concert with the CCCWP, the team engaged in a combination of short presentations and many one-on-

one meetings to landowners to present the larger vision of the restoration planning goals, combining individual requirements for each property.

A general concept plan was prepared before these meetings by the design team to show options and gain support prior to moving forward with the 35% level design. Gaining buy-in from the landowners was one of the highest priorities for the project. The SMITH design team updated current information published by the Watershed Master Plan, CWCB, and Jefferson County regarding project hydrology and ongoing floodplain updates conducted by the CWCB. This information along with updated project base mapping was utilized to evaluate existing flood hazards in the stream corridor. HEC-RAS analysis was used for hydraulic modeling purposes. A significant value in the early interaction between the designer and landowner was the selection (or elimination) of viable alternatives. Alternatives that would require a CLOMR or LOMR were avoided because the County did not want a rise at any of the properties. For the concept plans, we considered a full spectrum of engineering solutions, streamside enhancements, and resiliency features for Beaver Creek. The solutions were compared not only on their ability to reduce flood hazard but also to control project costs, improve stream ecology, maintain, or

improve water quality, add resiliency to the steam, be acceptable to Jefferson County, and accommodate other multi-objective goals associated with the community's needs.

During construction, SMITH was responsible for all aspects of revegetation and erosion control management on this project, including erosion control inspection, updating of the EC notebook, and installation of 2,000 LF of sediment control log and 1,800 SY of erosion control blanket.

For the revegetation effort, SMITH was responsible for seeding about 1.5 ac of wetland and riparian areas, installing about 2,600 wetland plant plugs and willow cuttings, planting about 300 shrubs and trees, and field engineering last minute landowner requests. SMITH also provided construction inspection of earthmoving activities. Post construction,



SMITH provided supplemental watering of upland plants, weed control services, and maintenance and/or replacement of dead trees or shrubs during the one-year warranty period, and completed the monitoring and maintenance report.

Similarities to the proposed Grand Lake SWMP project: Public meetings and involvement; identification of appropriate BMP's and their location; SWMP; 30% and 60% design level drawings prepared in Civil 3D and construction documents; soil borings, land surveying, and field water quality investigations; and water quality data collection.

3.4 ESTES PARK LOOP ROAD

Location – Estes Park, CO Client – Flatiron Constructors, Inc. Reference – Justin DuMond Contact Information – Phone: (303) 994-1161, Email: JDumond@flatironcorp.com

The Downtown Estes Park Loop Road Project consisted of the reconstruction and rehabilitation of 2.3 miles of urban streets in downtown Estes Park. The project also included construction of new storm sewers throughout the project area and bridge construction. SMITH was contracted by Flatirons Constructors, Inc. to develop a Stormwater Pollution Prevention Plan (SWPPP) – commonly known as a SWMP in Colorado – for the project.



The SMITH team designed a plan to suit the unique geography, erosion characteristics, existing stormwater infrastructure, and water quality issues of Estes Park. The SMITH engineering team carefully selected the proper BMPs to protect the nearby park, Big Thompson River, and developed areas from erosion and sedimentation during construction activities. The SWMP was stamped by Jonathan Diller, PE, CFM, the approved SWPPP/SWMP Developer. The SWPPP designed by SMITH was approved by the Federal Highway Administration on the first submission, without revisions.

Similarities to the proposed Grand Lake SWMP project: SWMP planning and design in a high elevation, high snowfall area. The project was federally funded but required a design appropriate for a town at high elevation. The design for this project took careful consideration of the Big Thompson River running through the project area.

3.5 REGIONAL GROUNDWATER MODEL OF THREE AQUIFER STORAGE & RECOVERY (ASR) SYSTEMS

Location – Colorado Client – South Metro Water Supply Authority Reference – Erik Jorgensen, P.E. Contact Information – Phone: 720.934.7391 Email: erikjorgensen@southmetrowater.org

INTERA has supported South Metro Water Authority to secure funding for development of a regional groundwater model of ASR for three water providers: Centennial Water & Sanitation District, Town of Castle Rock and East Cherry Creek Valley Water & Sanitation District. The project cost for Phase I of this project is \$199,000 which entails (1) data collection and identification of data gaps, (2) development of a conceptual groundwater model for three ASR systems, and (3) documentation.

The funding sources were Metro Basin Roundtable Water Supply & Reserve Fund and the Statewide Water Supply & Reserve Fund. INTERA researched funding sources, wrote grant applications, coordinated with CWCB and Metro basin roundtable, wrote the grant application, represented the client at meetings and interview, secured the funding and managed the work as required by CWCB guidelines.

The South Metro Conceptual Model will include the compilation of a broad spectrum of technical data including groundwater levels; aquifer properties such as transmissivity, hydraulic conductivity, well yields; location of wells and neighboring wells; operational capacity; and delivery limitations. These data will form the technical platform necessary to develop and calibrate a numerical model (to be developed in Phase 2). The numerical model will be constructed to simulate ASR operations in the three designated Hubs. Modeling scenarios will be developed to further understand the opportunities and limitations of a multi-hub integrated ASR system in the South Metro area.

Similarities to the proposed Grand Lake SWMP project: Identification of funding opportunities for municipal entities and assistance in securing necessary funding.

4.0 TEAM MEMBER QUALIFICATIONS

The following pages of the proposal explain why the SMITH team is highly qualified to provide the services required under this contract.

4.1 FIRM BIO

Established in June of 2000, SMITH is a woman-owned, full-service environmental consulting and construction firm providing a wide range of environmental consulting, engineering, design, permitting, and construction services. The SMITH team consists of water resources engineers, environmental scientists, industrial hygienists, field technicians, and support staff, all who carry the necessary licenses and certifications to perform the services required under this contract. Some of the reasons that the SMITH team is the best choice to be the Town's consultant:

- We are ready to start working with the Town on this contract immediately.
- The SMITH team delivers a problem-solving approach to its projects and mobilizes quickly to perform tasks, delivering results and meeting project requirements on time and on budget.
- Our subconsultant has the proven ability to locate and obtain state and federal funding for projects of a similar size and scope, and our teams have a history successfully working together on municipal projects.
- SMITH has an experienced in-house staff, including:

Professional Engineers (PE), Certified Floodplain Manager (CFM), Certified Professional in Erosion and Sediment Control (CPESC), Professional Wetland Scientists (PWS), Certified Professional Soil Scientist/Soil Classifier (CPSS/SC), Certified Ecologists (CE), Certified Asbestos Building Inspectors (CABI), Certified Hazardous Materials Manager (CHMM), Air Monitoring Specialist (AMS), Colorado Department of Public Health and Environment (CDPHE) certified Project Designers (PD), certified Transportation Erosion Control Supervisors (TECS), AutoCAD and Land Desktop design specialists, and revegetation specialists.

The multidisciplinary SMITH team has the capabilities and skills to complete every task outlined in the Town's RFP. This team can address a broad range of environmental issues and there's a strong rapport across discipline lines allowing for effective coordination amongst the entire team. These capabilities translate into direct benefits for the Town; we share experiences and connect internal expertise to create responsible, sustainable, and cost-effective solutions. By relying on this in-house knowledge and by teaming with a subconsultant we've successfully completed projects with in the past, this team is able to respond quickly and consistently to tasks, which in turn will help us to efficiently and effectively meet the Town's objectives.

Many of our competitors claim to be full-service but don't offer the breadth of services that we do. From the simple—such as water sample collection and analysis—to the complex—such as preparation of a remediation design and implementing it, preparation and implementation of SWMPs, MS4 compliance, NEPA document preparation, public outreach and meetings, water quality assessments and reports, and Biological Assessments—we do it all!

4.2 COMPANY TECHNICAL RESOURCES

As illustrated by the following list of SMITH's available equipment and software, this team has the necessary technical resources to perform the tasks required under this contract in a timely manner and while meeting budget constraints.

4.2.1 Ecological Services Equipment

- GPS units
- Bird calling devices
- Walkie talkies
- Binoculars and a stereo dissecting scope
- Balances and weighing devices
- Weed whackers
- Soil grinder to prepare soil samples for the laboratory
- Air compressor and tank

4.2.2 Professional Services Equipment

- Land surveying equipment survey transit, level, and height rods
- Self-contained breathing apparatus
- Many respirators and respirator cartridges
- Several digital cameras
- Specific conductance and temperature meters
- Geiger Counter
- Air quality meters
- Photoionization detector
- Air monitoring pumps
- Guelph Permeameters
- Radon detectors
- pH meters

4.2.3 Construction Equipment

- II pickup trucks one ton through half ton, some with flat beds
- Two skid steers with post hole auger, straw blower, jack hammer, and trencher attachments
- Mini excavator
- John Deere tractor with seed drill, harrow, and disc attachments.
- Straw blower cannon
- FINN T120 Hydro Seeder
- Two trenching machines
- ATV with weed spraying booms and attachments
- Welding machine
- Standard workbench areas with vices and grinders

SMITH ENVIRONMENTAL & ENGINEERING

- Four chainsaws
- John boat and motor
- 4- to 6-man rubber rafts
- Dewatering pumps and hoses
- Generators
- Backpack weed sprayers
- 1,600-gallon water trailer and pump
- Rock sock making device
- Several water tanks ranging from 300-gallon to 1,600-gallon capacity
- Four cargo trailers
- Two long gooseneck trailers
- Long bumper hitch trailer
- Dump trailer
- Silt fence installer
- Plate and jumping jack compactors

4.2.4 Software

- Adobe Acrobat
- Adobe Creative Cloud includes Photoshop, InDesign, Illustrator, Acrobat, Lightroom, Bridge
- ArcGIS Desktop
- AutoCAD Civil 3D
- Bluebeam
- Microsoft Office 365
- Microsoft Project
- QuickBooks Premier (accounting)
- QuickBooks Time

4.3 COMPANY FINANCIAL RESOURCES

As an indication of SMITH's financial strength and capacity, the firm currently has approximately \$3.8 million in business under contract for the next 15 months. We maintain a sufficient line of credit to ensure materials can be bought when needed on construction projects. We own over \$2 million in equipment and trucks used on construction projects. Subcontractors are paid within 7-10 days after SMITH is paid by the client.

4.4 KEY PROJECT PERSONNEL

SMITH offers the Town an outstanding, highly qualified team with comprehensive, multidisciplinary capabilities to address all tasks under this contract. Led by Peter Smith, Principal and Senior Environmental Scientist with over 44 years of experience on nearly 2,400 projects in Colorado and the western United States, SMITH is comprised of a 35-member team that is highly experienced working with municipalities and has extensive experience providing similar services to those required under this contract, as illustrated by this team's project experience in the previous section of this proposal.

<u>4.4.1 Key SMITH Staff</u>

The following individuals are the key SMITH personnel that will be involved in the resulting contract:

- Peter L. Smith, CPSS/SC, SPWS, CPESC, and PIC
- Jonathan Diller, PE, CFM, and PM
- Ridwan Naife, PE and Assistant PM
- Rebecca Hannon, CE, Environmental Scientist III and GIS Specialist
- Cecilia Eargle, Environmental Engineer II and AutoCAD Specialist
- Jacob Kriska, EIT, Environmental Engineer I and AutoCAD Specialist
- Dejan Smaic, PG, Hydrogeologist and Environmental Scientist III

The proposed team for this contract has more than 160 years of combined experience and has worked on more than 200 projects together in the last seven years. This synergy—combined with SMITH's 22-year history and experience creating SWMPs—makes SMITH an excellent choice for the Town's consultant under this contract.

Jonathan Diller will serve as SMITH's PM and the Town's principal point of contact under this contract. He has 45 years of experience as a Water Resources Engineer and Certified Floodplain Manager. Mr. Diller has completed many stormwater management plans and has extensive experience managing municipal contracts. He can be reached via phone at (815) 530-6243 (mobile) and via email at jonathandiller@smithdelivers.com.

4.4.2 Subconsultants

For this contract, SMITH will partner with our trusted subcontractor, INTERA. We have worked with them on past projects and hold them in high esteem for their expertise locating available sources of state and federal grants and loans. A brief introduction to INTERA is below.



INTERA is an employee-owned geosciences and engineering consulting firm founded in 1974 that provides solutions to funding, permitting, and environmental issues. INTERA's staff consists of 225 personnel specializing in environmental engineering, permitting, compliance, and assisting clients in locating and obtaining state and federal funding sources.

Address: 1434 Spruce Street Boulder, CO 80302 Phone: (303) 261-8538

4.4.3 Team Resumes

Resumes for key project personnel can be found on the pages that follow. The organization of the entire SMITH team is shown in the Organizational Chart in Section 4.4.4.



Peter Smith, CPSS/SC, PWS, CPESC

Principal/Senior Watershed Scientist/Erosion Control Specialist/Soil Scientist



As a SWMP Specialist, Mr. Smith's qualifications as an Watershed Scientist, Erosion Control Specialist, and Soil Scientist includes more than 40 years' experience on 2,500 projects – design only (DO), Design/Build (DB), Design-Bid-Build (DBB), CM/GC, and Build only (BO) – where he evaluated erosion conditions and developed or co-developed the SWMP. On these projects he was Principal-in-Charge (PIC), Project Manager (PM), or lead investigative scientist/designer for SWMPs. Other related studies and designs include Environmental Compliance Plans (ECP); NEPA documents (EAs and CatEx); Phase I/II ESA, remedial investigations; Soil Surveys; Biological Assessments (BA); wetland permitting and mitigation; stream restoration; and erosion modelling using RUSLE. He has authored/co-authored over 3,000 reports and plan sets. He has been PM and/or PIC for 40 years.

EDUCATION

B.S., Watershed Science (Hydrology), Colorado State University (CSU), 1976 Graduate coursework (10 credits), Soil and Range Sciences, CSU, 1978-79 MBA coursework (20 semester credits), University of Denver, 1991-1992

EMPLOYMENT HISTORY

Smith Environmental & Engineering Stoneman-Landers, Inc. Camp Dresser and McKee Woodward-Clyde Consultants Soil Conservation Service, USDA

PROFESSIONAL CERTIFICATION AND REGISTRATION

 ✓ Certified Professional Soil Scientist/Soil Classifier (CPSS/SC), Soil Science Society of America, No. 1785
✓ Certified Professional Erosion and Sediment Control Specialist (CPESC), Soil and Water Conservation Society of America, No. 512

 ✓ Senior Professional Wetland Scientist (SPWS), Society of Wetland Scientist, No. 1273

Experience Summary

Mr. Smith has managed numerous environmental teams on SWMP projects. He has worked with local municipalities and CDOT extensively and is experienced in obtaining stormwater discharge construction permits. Some of his SWMP related experience is described below.

- Mesa County Stormwater, Mesa County, CO For this County-wide Stormwater Compliance Notebook, Mr. Smith assisted in the preparation of Minimum Control Measures by developing best management practices (BMP's) for pollution prevention and good housekeeping at county facilities and county maintenance facilities and construction projects.
- Cooper Slough, Fort Collins, CO Evaluating the effects of adding runoff from the watershed to the north on waterfowl in the slough. Completed a report summarizing literature reviewed; anticipated water quality changes in the slough; potential detrimental effect to waterfowl; and water quality treatment measures to minimize water quality change if waterfowl would be adversely affected by the diversion.
- ✓ Argo Mine, Boulder County, CO on this DB project, he oversaw studies, design, permitting, and construction at the Argo Mine site near Jamestown to 1) reduce leaching and erosion of mine wastes and sediment into Little James Creek, 2) improve water quality in Little James Creek, and 3) decrease the interaction of mine wastes with precipitation and surface run-off. He co-authored the SWMP and SWMP report.
- Jessie Mine and Mill Site Water Quality Improvement, Summit County, CO On this DB project, he was the PIC responsible for design and construction cleanup measures in accordance with a VCUP permit. He oversaw the design of a new 1,000ft long, fish-compatible channel; a permanent dewatering/diversion trench; a new berm to divert runoff from the old mill site away from the old channel; construction of wetlands and a riparian ecosystem along the new channel to improve water quality in Gold Run Gulch, a tributary to the Swan River. He co-authored the SWMP and SWMP report.
- Pikes Peak Highway Erosion Control and Revegetation, Pikes Peak, CO PIC responsible for developing the erosion control plan, the revegetation plan, and overseeing erosion control BMP installation as the construction inspector on this DBB project.
- ✓ IXL/Royal Tiger Mine and Mill Site Water Quality Improvement, Summit County, CO - Designed WQ improvement measures in accordance with a Voluntary Cleanup Plan permit. He oversaw the design and construction of buck and rail fencing; topsoil salvaging and stockpiling; a new acid mine drainage water conveyance channel; a check dam downstream of the new channel alignment; revegetation of new channel banks, small open water areas, cut-and-fill slopes; design of runoff treatment wetlands, and an adit run-off diversion ditch to treatment wetlands to improve water quality in the Swan River.
- ✓ General Storm Gray's Peak SWMP, Denver, CO As PIC he oversaw the preparation and design of a SWMP and SWMP report and obtained the Stormwater Discharge Construction Permit prior to the start of this BO project. Then he oversaw the BMP installations, weekly BMP inspections, weekly discharge sampling, and monthly reporting to maintain SWMP compliance to improve water quality in the S. Platte River.



Jonathan Diller, P.E., CFM

Water Resources Engineer



Mr. Diller has over 30 years of experience as a water resources engineer. This includes over 15 years of experience in the preparation of Erosion and Sediment Control Plans (ESCP) and Stormwater Management Plans (SWMP), as well as site inspections to ensure proper implementation of those plans. Mr. Diller also has over 10 years of experience in the preparation of NPDES MS4 programs and permit applications. He brings with him extensive understanding of grant-funded projects specifically, having spent over 8 years as a consultant directly to municipalities and an additional 4 years of grant-funded flood recovery work for nonprofits. Mr. Diller has successfully worked with municipalities to develop engineering solutions that bring together natural habitat, water quality control, and flood control in a manner that provides sustainable and maintainable long-term solutions.

EDUCATION

M.S. Soil and Water Science, University of Florida, 2018 (Emphasis on Water and Wetlands) B.S. Chemical Engineering, Rose-Hulman Institute of Technology, 1982

EMPLOYMENT HISTORY

Smith Environmental & Engineering Jonathan M. Diller, P.E. Flood Rebuild Advocate – Lyons Emergency Assistance Fund Floyd Browne Group BA Engineers, Inc. Hanson Professional Service Inc. Robinson Engineering, Ltd. Ruettiger, Tonelli & Associates Paragon Professional Services Resource International, Ltd. Berkley, Howell & Associates Springstead Engineering Rose-Hulman Institute of Technology

PROFESSIONAL CERTIFICATION AND REGISTRATION

Registered Professional Engineer, CO and WY Certified Floodplain Manager (CFM) Member ASFPM and CAFSM Will County Stormwater Management Committee (Member 1999-2004, Secretary 2005-2007) Editorial Committee Member for Storms and Floods (IAFSM) (2005-2007) Past Chairman National Membership Committee American Institute of Chemical Engineers

SELECTED PUBLICATIONS

<u>Stormwater Discharge Permitting for Complex</u> <u>Industrial Facilities</u>, presented to the American Institute of Chemical Engineers Summer National Meeting August 20, 1991 (Later published in Environmental Progress)

<u>USEPA Office of Water NPDES Stormwater Phase</u> <u>II Rule</u> presented to the Illinois Association for Floodplain and Stormwater Management Annual Meeting March 2001, revised and represented for the March 2002 Annual Meeting

- **Consultant to the Town of Lyons, Lyons, CO** Tasks included review of internal and external floodplain develop permits, including HEC-RAS models, and review of land development projects in coordination with the Town Engineer.
- ✓ Flood Rebuild Advocate, Lyons Emergency Assistance Fund, Lyons, CO Mr. Diller provided assistance to homeowners in obtaining floodplain development permits, coordinated design issues with insurance companies, including NFIP and private underwriters, and met with homeowners on-site to discuss specific issues with proposed rebuild and/or flood protection activities. This work was performed under a local services grant on behalf of the people of Lyons.
- Colorado Springs Utilities, Colorado Springs, CO Prepared design drawings and specifications for a constructed wetlands mitigation project for a major utility. Project involved the creation of a wetlands system in the floodplain, which included the design of the ESCP.
- The City of Cheyenne, Cheyenne, WY Project Manager for the design of a stormwater treatment wetland in an urban area of Cheyenne, Wyoming. The project involved the design of a series of stormwater treatment elements, diversion structure, forebay, constructed wetlands, and micropool for the purpose of reducing sediment load and *E. coli* discharged into the receiving waters. This project was primarily funded by an EPA matching grant, and grant funding coordination was a part of his services.
- ✓ Various Municipalities in Illinois For a span of seven years, Mr. Diller served 20 municipalities in Illinois as their stormwater administrator, providing the review and approval of all design submittals related to stormwater management and the handling of all stormwater permitting issues for the municipalities. This included: the preparation of NPDES MS4 permit applications for the municipalities and compliance programs; the performance and supervision of E&S BMP inspections; the review and approval of SPPP and ESCP for all developments within those communities; and the performance and supervision for the inspection of the BMPs in those plans.
- ✓ Frankfort Prairie Park, Frankfort, IL -- Project manager for the civil and hydraulic design of the award-winning Frankfort Prairie Park stormwater detention and wetlands/prairie restoration project in Frankfort, IL. This project was entirely grant funded and Mr. Diller became the project manager when a different consultant was having difficulty meeting the grant funding limits. The project was completed on time and on budget.
- Tinley Park, Illinois Designed a regional stormwater detention system that removed hundreds of acres from the floodplain and prevented the recurrence of flood for over 50 homes. The project created an open water amenity and allowed for the development of prime commercial land along a major highway that had previously been undevelopable because it was in the floodplain and subject to frequent flooding.



Ridwan Naife, P.E.

Senior Engineer and Assistant Project Manager



Mr. Naife has over 25 years of experience as a Construction Engineer, Municipal Engineer, and Transportation Engineer with capabilities and experience in the areas of civil and roadway design, including engineering administration and stormwater management. He is experienced in design and construction of a wide variety of projects, including land development (residential, commercial), local roads, bridges, box culverts, and Wastewater Treatment Plants (WWTP). He has the capacity to evaluate and complete financial consideration requirements in a timely manner. Mr. Naife is qualified to provide senior-level knowledge over engineering design and construction in paving, drainage, water, erosion and sediment control, flood control, paving, bridge, sidewalk, water, utilities, wastewater mains, and any other

infrastructure improvement projects. He is an expert listed in the International Federation of Consulting Engineers (FIDIC) contract book and in the design and construction of WWTPs.

EDUCATION

M.S. Civil Engineering, University of Texas at Arlington (In Process) B.S. Civil Engineering, Building and Construction, University of Technology, Baghdad, Iraq

EMPLOYMENT HISTORY

Smith Environmental & Engineering Texas Department of Transportation RAF Engineering & Construction, LLC City of Dallas Department of Public Works New Mexico Department of Transportation

PROFESSIONAL CERTIFICATION AND REGISTRATION

Registered Professional Engineer, TX and NM

SKILLS AutoCAD CIVIL 3D

3D STODIO MAX ADINA MATHCAD ETAB REVIT

- **TxDOT Manuals and Project Guides, Fort Worth, TX** Mr. Naife coordinated and managed in-house roadway design and review, and reviewed and approved road access requests. He was the Project Coordinator and Project Manager for Local Government Projects (LGP), Local On-System Agreements (LOSA), and Green Ribbon Program.
- Roadway Design and Review, Fort Worth, TX Worked with TxDOT manuals – the LGPs, LGPs Guide, Roadway Design, ASHTO Green Book, MUTCD, Roadside Design, and Access Management.
- Structural Design and Specifications, Plano, TX Prepared design and specifications for the building's structural members, including, but not limited to, cast-in-situ reinforced concrete members, precast members, steel members, and masonry members.
- Capital Improvement Projects, Dallas, TX Project Manager for City of Dallas Public Works design and construction contracts for paving, streetscape, alley, drainage, flood control, bridge, sidewalk, erosion control, and other infrastructure improvement projects. Engaged and collaborated with other departments within the City. Communicated with citizens, council members, developers, and other City departments regarding project status.
- City of Dallas Public Works SWMPs, Dallas, TX Mr. Naife developed, designed, and reviewed engineering plans for drainage, erosion control, and Stormwater Pollution Prevention Plans (SWMPs). Ensured that the proposed infrastructure improvements were following city, state, and federal standards.
- Asphalt Overlay and Bridge Replacement, Deming and El Paso, NM – Conceptualized and designed 20-mile asphalt overlay project on I-40 in Deming, NM, and the replacement of a bridge in El Paso, NM, for the New Mexico Department of Transportation (NMDOT). He used AutoCAD and Civil 3D to prepare design plan sets projects.
- Fiber Optic Cable Installation, Santa Fe, NM Prepared the design plan set for a fiber optic cable project near Santa Fe for the NMDOT ITS group.
- Design Plan-Set for BNSF Bridge Replacement and Concrete Box Culvert Replacement, Belen and Gallup, NM – Using Civil 3D he produced the complete plan-set for a bridge replacement – bridge over the BNSF railroad tracks in Belen, NM. He also completed the design of a concrete box culvert for downtown Gallup, NM.



Rebecca L. Hannon, CE

Environmental Scientist III and GIS Specialist



Ms. Hannon has 12 years of experience as an environmental scientist and project manager specializing in environmental compliance and permitting. She is proficient with ArcGIS spatial software, including in the use of GPS equipment to capture the location of natural resources and in the spatial analysis of natural resource layers. Her experience includes NEPA documentation, wetland delineations, habitat suitability assessments for threatened and endangered species, small mammal trapping, bird surveys, and noxious weed surveys and removal. She has participated in municipal scale planning projects, serving as a technical expert while also engaging the public. As a project manager, she is responsible for the preparation of cost proposals, client communication, task scheduling, and quality control/quality assurance.

EDUCATION

B.S. Natural Resources Management Minored in Spanish and Conservation Biology, Colorado State University, 2009

Master of Natural Resource Stewardship, Colorado State University, currently enrolled

EMPLOYMENT HISTORY

Smith Environmental & Engineering Missouri River Communities Network Colorado State University Office of Admissions

Johnson County Parks and Recreation District

PROFESSIONAL CERTIFICATIONS

Certified Ecologist (CE), 2020 Certified Operator, Forest, Aquatic, Industrial and Right-of-Way, and Public Health, Colorado Department of Agriculture, #26278, 2020 Adult, Child, Infant CPR/AED, 2018 Standard First Aid, 2018 OSHA – 40-Hour HAZWOPER, 2012 OSHA – 10-Hour Training for the Construction Industry, 2011

TRAININGS

Functional Assessment of Colorado Wetlands (FACWet), 2015 Colorado Native Plant Master, 2014 City of Columbia TreeKeepers Program, 2010 City of Columbia Aquatic Restoration Program, 2010 Missouri Stream Team Program, 2009-2010

- Plaster Reservoir Management Plan, Broomfield, CO Fulfilled dual role of Project Manager and Lead Ecologist for the development of a management plan for Plaster Reservoir and its associated open space. Participated in a public open house and in three presentations to the Broomfield Open Space and Trails Advisory Committee.
- DEN Peña Seep, Denver, CO Served as lead GIS technician. Coordinated with DEN staff to identify and acquire relevant data layers for use by the engineering and modeling team.
- Central Park Boulevard, Denver, CO Developed an innovative GIS approach to address prairie dog relocation requirements for CDOT, using parcel data to identify suitable properties and identify landowners.
- Frederick Groundwater Investigation, Frederick, CO Served as lead GIS technician. Coordinated with project engineers, hydrologists, and Town staff to identify and acquire relevant data layers.
- ✓ US40 (Colfax) Resurfacing, Denver, CO Developed an innovative GIS approach to identify landowners adjacent to a road improvement project. Generated a list of over 4,000 addresses requiring public notification in under an hour, a task that had previously taken days.
- ✓ Monument Creek Master Plan, El Paso County, CO Provided GIS consultation services for the development of the Monument Creek Watershed Restoration Master Plan. Described the ecological and regulatory significance of selected GIS layers and assessed impacts to environmental resources at proposed project areas.
- ✓ Longmont Wildlife Management Plan, Longmont, CO Developed an update to the current Wildlife Management Plan for the City of Longmont as the original document was adopted in 2006. Attended public planning meetings during preparation of the document to ensure the update was responsive to community concerns. Coordinated with a technical advisory team of representatives from the City, County, and CPW.
- CCOB Raptor Management Plan, Broomfield, CO Serves as assistant project manager for this unique management plan effort. Rebecca developed content and mechanisms for engaging the public in the development of the management plan and will be authoring several sections of the final plan document, notably sections regarding existing regulations and proposed actions for raptor protection at various public and private levels. Rebecca has participated in formal before the Open Space and Trails Advisory Committee.
- Georgetown Loop Railroad, Clear Creek County, CO Prepared GIS mapping of fire management zones along the Georgetown Loop Railroad. Assisted History Colorado and Historic Rail Adventures in the bidding process and served as a contact for the forestry consultant that was selected to implement the management plan. Marked significant cultural resources in the management areas to prevent damage. Completed monitoring transects following mitigation activities to ensure that management criteria were met.



Dejan Smaic

Senior Hydrogeologist/Geochemist, Environmental Scientist III



Mr. Smaic has more than 30 years of experience as a Hydrogeologist/Geochemist working for industry and as a consultant. His comprehensive understanding of groundwater-geologic conditions relationships, subsurface drilling methods, geochemical behavior of contaminants in the environment, and construction experience provides the basis for him to conduct subsurface investigations at contaminated sites and develop and implement remediation strategies to fulfill cleanup and reclamation goals for a wide range of contaminants including chlorinated solvents, PFOs/PFAs, petroleum, hydrogen sulfide (H₂S), and gasoline. He has prepared a wide range of technical reports including Phase I and Phase II ESAs, Sampling and Analysis Plans,

Quality Assurance Plans, Corrective Action Plans, and Risk Assessments for private and public clients: mining and oil and gas companies, USACE, DOD, COGCC, CDPHE, OPS, school districts, and municipalities throughout CO and WY. He has managed professional investigation and remediation crews. He is also a highly skilled professional photographer.

EDUCATION

B.S. Geology, State University of New York (SUNY) at Buffalo, 1990 Graduate Coursework, Hydrogeology/Clay Mineralogy, 8 credits, SUNY at Buffalo, 1991

EMPLOYMENT HISTORY

Smith Environmental & Engineering Bureau Veritas of North America Tanaq Environmental, LLC Halliburton - Baroid Baker Hughes, Inc. Walsh Environmental Scientists & Engineers, LLC Handex of Colorado

PROFESSIONAL CERTIFICATION AND REGISTRATION

- ✓ OSHA 29 CFR 1910.120 Certified
- ✓ Safe Land Training
- ✓ H2S Awareness Training

✓ State of Tennessee Professional Geologist, Registration #5383 (currently expired)

 ✓ State of Colorado Registered Environmental Scientist, #5622
✓ 30 Hour OSHA Construction Supervisor

MILITARY

Operation of military equipment– armored personnel carriers and other military vehicles.

CONSTRUCTION EQUIPMENT EXPEREINCE Forklift Bobcat

Experience Summary

Mr. Smaic has provided services as Hydrogeologist and Geochemist on hundreds of consulting and industry projects. A description of some of his projects are presented below.

- ✓ 1661 E 77th Ave, Denver, CO Mr. Smaic provided field activity oversight and report preparation and overview for the Phase I and Phase II ESAs on this 10-acre property.
- ✓ 58th Ave Improvements (Wash to York), Denver, CO Provided technical support for this Phase II ESA in Adams County and Denver. Assisted in preparation of reports, HASP, and MMP.
- ✓ Lead Based Paint Removal Monitoring, Various Locations, WY Coordinated and monitored LBP-removal contractors to ensure no environmental or health hazards were created. Performed waste characterization sampling of the debris and coordinated disposal. Prepared analytical reports for WYDOT.
- ✓ Fort Lupton Mining Properties, Fort Lupton, CO Part of the SMITH team that performed a Phase I ESA of this 430-acre property which identified several RECs. Currently performing Phase II ESA on select properties, which includes up to 165 soil borings to collect soil and groundwater samples for testing and analysis.
- Several Phase I ESA Sites Near Longmont, CO Project Manager who conducted and managed Phase I ESAs. His responsibilities included site visits and report writing using Querie.
- PFAS Groundwater Treatment System Decommissioning, Homestead Air Force Base, ID – Oversight of the decommissioning of a PFAS groundwater treatment system. The remediation system was an activated carbon filtration system treating a potable water well system serving the Air Force Base.
- Groundwater Systems Upgrade, Peterson Air Force Base, CO Oversight of the upgrade of a activated carbon unit treating PFAS contaminated groundwater at the Peterson Air Force Base golf course facility.
- ✓ Groundwater Sampling, Norfolk Naval Base, VA Groundwater sampling for various contaminants in groundwater associated with the development, testing, and storage of naval munitions.
- Ruby Pipeline Surface Groundwater Testing and Sampling Various Sites in Nevada, Oregon, and Wyoming – Mr. Smaic provided environmental monitoring and compliance. Performed surface groundwater testing and sampling.



Cecilia Eargle

Environmental Engineer II and AutoCAD Specialist



Ms. Eargle is a determined engineering professional with over four years of experience aiding clients with various due diligence reports in the civil and environmental fields and performing environmental consulting and environmental engineering. She is highly adaptable and dedicated to providing thorough, error-free data and quality service.

She has provided over 150 Phase I and II ESAs, asbestos inspections, noise modeling reports, Stormwater Pollution Prevention Plans (SPPPs), and has performed Construction Materials Testing (CMT) for asphalt and concrete. She has also completed endangered species reports and is proficient in GIS, AutoCAD, and Civil 3D. She maintains best practices in city, state, and federal regulations/laws. Ms. Eargle currently works with both

the Industrial Hygiene and Engineering groups at SMITH, where she has completed park designs, residential plot designs, and SWMPs.

EDUCATION

Clemson University – Bachelor of Science in Biosystems Engineering Emphasis in Ecological Engineering Minor in Sustainability

EMPLOYMENT HISTORY

Smith Environmental & Engineering July 2022 – Present

EAS Professionals May 2018 – May 2022

PROFESSIONAL CERTIFICATION AND REGISTRATION

✓ Certified Mold Professional

✓ Certified Erosion Prevention & Sediment Control Inspector (#15142), SCDHEC

 ✓ Asbestos Inspector (BI-001966), SCDHEC

✓ Radiation Safety Officer Certification, APNGA

✓ Portable Nuclear Gauge Safety & U.S.
DOT Hazmat Certification, APNGA

SKILLS AND EQUPMENT USE

GIS, ArcGIS, and ArcGIS Pro AutoCAD Civil 3D GPS equipment

- Mir Park, Glendale, CO Aided in creating a conceptual design used to improve a pre-existing community park using CAD Software.
- Estes Park Loop Road, Estes Park, CO Aided in drafting civil construction plans and details with AutoCAD, including ESCPs, for roadway construction and realignment.
- ✓ Marston Lake Phase I, Denver, CO Drafted ESCPs for storm sewer construction to receive proper construction stormwater permits from the City and County of Denver (CCD) and CDPHE.
- ✓ 29th and Speer Sanitary Sewer Improvements, Denver, CO Drafted ESCPs for sanitary sewer reconstruction and re-grading of a roadway intersection.
- Croke Reservoir, Northglenn, CO Drafted conceptual park improvements using CAD Software.
- ✓ 58th Ave Improvements (Washington to York), Denver, CO Conducted a Phase II ESA of East 58th Avenue from Washington Street to York Street in Adams County and Denver. Helped to create the HASP and MMP. Monitoring the air quality and water quality to keep the project compliant with SDCP requirements. (2022)
- Phase I ESA, Fort Lupton, CO Conducted a Phase I ESA for a 300+ acre property consisting of eight separate parcels. analyzed current and former environmental hazards, including 27 on-site oil wells from former oil production activities.
- Phase I ESA, Longmont, CO Conducted Phase I ESA from start to finish, including making site observations and interpreting historical information to make an accurate judgement on potential environmental impacts on project site.
- Environmental Monitor for LBP Removal, WY Monitored environmental safety procedures during lead-based paint (LBP) removal activities for Wyoming Department of Transportation (WYDOT) in locations such as Guernsey, WY; Buffalo, WY; Riverside, WY; and Douglas, WY.



Jacob Kriska, EIT

Environmental Engineer I and AutoCAD Specialist



Mr. Kriska has diverse experience in the fields of engineering, construction management, and environmental sciences. He is an Engineer in Training with a construction background that gives him a well-rounded understanding of the projects he is involved in. Mr. Kriska is a University of Colorado Boulder graduate, where his studies focused on water resources engineering and treatment. He is currently working with both the Engineering group and the Construction group at SMITH, with a focus on engineering design and creating cost models for temporary and permanent erosion control measures. Mr. Kriska is qualified to analyze data, design Stormwater Management Plans (SWMP), perform noise modeling, prepare reports, and draft construction plans using AutoCAD and Civil 3D.

EDUCATION

B.S., Engineering Plus – May 2022 Environmental Emphasis, University of Colorado, Boulder, Colorado

EMPLOYMENT HISTORY

Smith Environmental & Engineering Dacono, CO, March 2022 - Present

PROFESSIONAL CERTIFICATION AND REGISTRATION

 ✓ CDOT SWMP Administrator of Design, No. BCDE8469
✓ Registered Engineering Intern, No. EI.0078507

CONTINUING EDUCATION

✓ Fundamentals of Engineering Exam (Civil)

Experience Summary

Mr. Kriska has provided engineering services on many projects. A description of some of these projects is presented below.

- ✓ Elbert Bridge Deck Rehabilitation, El Paso County, CO Completed the SWMP to obtain the proper permitting for the Elbert Bridge rehabilitation project. Utilized GIS programs to predict the greatest potential for pollution discharge into Black Squirrel Creek.
- ✓ Brush Paving Projects, Brush, CO As the SWMP Designer, completed a SWMP in order to receive proper stormwater permitting for roadway construction in Brush, Colorado through the Colorado Department of Public Health & Environment (CDPHE). Selected appropriate control measures for preventing pollution in water runoff to local receiving waters and the municipal stormwater drainage system.
- ✓ Estes Park Loop Road, Estes Park, CO As the SWMP Designer, drafted Erosion and Sediment Control Plans (ESCP) for roadway construction and realignment to receive proper stormwater permitting through CDPHE.
- ✓ Marston Lake Phase I, Denver, CO As the SWMP Designer, drafted ESCPs for storm sewer construction to receive proper construction stormwater permits from the City and County of Denver (CCD) and CDPHE.
- ✓ 29th and Speer Sanitary Sewer Improvements, Denver, CO As the SWMP Designer, drafted ESCPs for sanitary sewer reconstruction and re-grading of a roadway intersection.
- Mir Park, Glendale, CO As an Engineer in Training, drafted civil construction plans and details with AutoCAD, including ESCPs, for park improvement design.
- ✓ Rico Mine Constructed Wetlands Expansion, Rico, CO As an Engineer in Training, drafted pipe network and construction details using Civil 3D for design of wastewater treatment system addressing contaminants in runoff from this collapsed mine.
- ✓ Bates-Logan Park, Englewood, CO As an Engineer in Training, revised civil construction drawings with AutoCAD and calculated runoff of a 100-year storm event to determine required detention volume to accommodate increased impervious area.
- City Park, Denver, CO As an Engineer in Training, revised construction drawings according to comments from the CCD Department of Parks & Recreation (DPR) for design of a pump station to be constructed at Ferril Lake.

Shaden Musleh, PE

Principal Water Resources Engineer'



Years of Experience:

Education:

 MS, 2001, Water Resources/Irrigation Engineering (Emphasis on effect of grid size and digital simulation of groundwater flow), Utah State University

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 BS, 1994, Agricultural Engineering, Soil and Irrigation, University of Jordan

Professional Registrations/Affiliations:

- Metro Basin Roundtable, At-Large Member
- Certified Project Manager, 2008
- Professional Engineer, CO, 2008 (#42368), NM, 2007 (#18110)
- Member, Colorado River Water Users Association
- Member, Colorado Water Congress
- Member, Colorado Groundwater Association
- Member, American Water Resources Association, CO Section
- Member, International Association of Hydrological Sciences

Professional History:

Principal Water Resources Engineer – INTERA Incorporated, Boulder, CO
Principal Water Resources Engineer – Summit Water Consulting, Broomfield, CO
Senior Project Manager – Hydros Consulting, Boulder, CO
Group Manager & Senior Project Manager – Hydrosphere Resource Consultants, acquired by AMEC Foster Wheeler (now WSP USA), Boulder, CO
Geohydrologist – URS Corporation (now AECOM), Denver, CO
Project Engineer – Waterstone Environmental Hydrology and Engineering, Boulder, CO
Graduate Assistant, Systems Simulation/ Optimization Lab – Irrigation Engineering Department, Utah State University, Logan, UT

OSHA Hazardous Waste Operations, (40-Hour)



Shaden Musleh is a licensed professional engineer, a project manager and a leader with extensive and broad professional experience in water resources engineering, planning, and management. He has developed cooperative solutions to water resources problems in multi-party settings and has led and managed numerous large-scale projects that involved providing

management solutions to complex water resources problems.

Representative Projects

Groundwater Model of ASR System, East Cherry Creek Valley

WSD, CO. Project Manager. Development of a regional groundwater model of the confined aquifers under ECCV service area. Work included helping the client with applications for grants from CWCB Water Supply & Reserve fund, Metro Basin Roundtable (BRT) grants and South Platte BRT grants and securing funding for the project.

Regional Groundwater Model of ASR System, South Metro Water Supply Authority, CO. Project Principal. Development of a regional Groundwater of three aquifer storage & recovery systems for three municipal clients. Work includes helping the client with applications for grants from CWCB Water Supply and Reserve fund and Metro BRT grant and securing funding for the project.

Tabernash Development Water Rights, Tebernash, CO. Project Manage and Technical Lead. Provides engineering, modeling and litigation support for securing water supply for the development. Works includes analysis of water demand and water supply, research available water supplies and engineering support for water rights litigation.

Yampa/White/Green Basin Implementation Plan, Colorado State Water Plan, Yampa/White Basin Roundtable, CO. Project Manager. Led the technical team that developed the implementation plan for the Yampa, White and Green River Basins. The work was funded by State and Basin Roundtable grant sources.

Energy Water Needs in Northwestern Colorado, Colorado and White Basin Roundtables, CO. Project Manager/Modeling Lead. Responsible for development of complex water demand projections for anticipated large-scale energy development projects in Northwest Colorado and assessment of the impact of these demands on water supply and water rights. Developed water allocation models for the Colorado and White River basins. The work was funded by State and Basin Roundtable grant sources.

Best Management Practices, Gore Creek, Eagle River Water & Sanitation District, CO. Project Engineer. Participated in developing best management practices to mitigate sediment loading in Gore Creek from I-70 in Colorado. Work involved assessment of Colorado Department of Transportation sand application practices and proposing management practices to mitigate sediment loading in Gore Creek.

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Courtney Black, PE

Senior Water Resources Engineer



Years of Experience:

Education:

 MS, 2001, Environmental Engineering, University of Florida

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 BS, 1999, Civil and Environmental Engineering, Lehigh University

Professional Registrations/Affiliations:

- Registered Professional Engineer, CA, 2004, No. 67976; CO, 2005, No. 40429
- Director-at-Large, Chair of Education Committee, 2010-2013, American Water Resources Association
- Board of Directors 2019 Present Colorado WaterWise
- · Lead, Climate Resiliency Initiative, INTERA.

Professional History:

2019 - Present	Senior Water Resources Engineer – INTERA Incorporated, Boulder, CO
2017 - 2019	Senior Water Resources Engineer – Headwaters Corporation, Lakewood, CO
2015 - 2016	Regional Drought Information Coordinator – National Integrated Drought Information System (NIDIS), NOAA, Boulder, CO
2008 - 2014	Senior Water Resources Engineer – AMEC Foster Wheeler
2005 - 2008	Water Resources Engineer and Planner – CDM Smith Consulting, Denver, CO
2003 - 2005	Project Engineer – Ducks Unlimited, Inc., Sacramento, CA
2001 - 2003	Water Resources Engineer in Training – CDM Smith Consulting, Sacramento, CA
Specialized 1	Fraining:

- Water Leaders Course Water Education Colorado, 2012
- 40-hr Conflict Resolution Course, 2016



Courtney Black has over two decades of experience in municipal and basin-wide water resources planning, stakeholder engagement and coordination, grants writing and administration, drought and water conservation planning, water rights engineering, environmental impact study (EIS) planning documents and wetland design. She has management experience with the entire civil

engineering project life cycle including the initial survey, design, bidding, construction management and project closure. Courtney has expertise in the variuos grant opportunites that are avaiable for municiaplities. Such expertise was gaind through helping numerous munciplal clinets in Colorado with applications for grant funding and admisntartion of these grants. Courtney has managed and written numerous proposals for water resources planning and engineering projects for municiapl clients in Colorado.

Representative Projects

Drought Planning, Dominion Water and Sanitation District, CO. 2022 - Present. Project Manager and Senior Engineer. Helped Dominion with research and application for a CWCB Water Plan grant, represented client at Basin Roundtable meetings/presentations and supported grant application and administration.

Groundwater Model of ASR System, East Cherry Creek Valley

WSD, CO. 2021 - 2023. Senior Engineer. Researched, wrote and managed a CWCB Water Supply and Reserve grant application, represented client at Basin Roundtable meetings/presentations and managed the grant administration and work progress.

Regional Groundwater Model of ASR System, South Metro

Water Supply Authority, CO. 2022 - Present Project Manager. Researched, wrote and managed applications for a Metro Basin Roundtable Water Supply and Reserve grant and a CWCB statewide grant , wrote the applications and represented client at Basin Roundtable meetings/presentation.

Water Supply Master Plan Update, City of Steamboat Springs/Mount Werner Water and Sanitation District, CO. 2018 - 2019. Project Manager, Helped the client with research, writing and management of a CWCB Water Plan grant application.

Update to Drought Management Plan, City of Thornton, Thornton, CO. 2018 - 2019. Project Manager and Senior Engineer. Helped the client with research, writing and management of a CWCB Water Plan grant application.

Water Conservation Plans and Drought Mitigation Plans, Town of Erie, Erie, CO. 2006 - Present (multiple projects/grant applications). Senior Engineer. Helped the Town with obtaining CWCB Water Plan grants (water conservation and drought grants) for multiple projects and fulfilling grant requirements. This included research, communication with CWCB staff, writing the grants, client representation, presentations and management of grants.

Update to the Colorado Guidebook of Best Practices for Municipal Water Conservation, Colorado WaterWise, 2022 -Present. Senior Engineer. Supported the CWCB grant application that was used for this work.

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Liberty Flora

Water Resources Scientist



Years of Experience:

Education:

 MS, 2019, Environmental Science, Indiana University School of Public and Environmental Affairs

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- MA, 2019, Public affairs, Indiana University School of Public and Environmental Affairs
- BS, 2017, Environmental Science, Indiana University School of Public and Environmental Affairs

Professional Affiliations:

Member, KY American Water Works Association

Professional History:

2023 – Present	Water Resources Scientist – INTERA Incorporated, Bloomington, IN
2022 - 2023	Management Consultant – Arcadis, Inc., Louisville, KY
2019 - 2022	Environmental Program Coordinator, City of Bloomington Utilities, Bloomington, IN
2019	Administrative Assistant, City of Bloomington Utilities, Bloomington, IN
2018-2019	Water Quality Intern, City of Bloomington Utilities, Bloomington, IN
2017	Intern – Indiana Department of Environmental Management, Indianapolis, IN

Software and Specialized Training:

Microsoft Office & Visio

ArcGIS

Liberty Flora has 6 years of experience in the enviornmental science field, and has worked for local, state, and private organizations. Liberty was previously employed by a water, wastewater, and stormwater utility, and has developed a broad understanding of how municipal utilities operate. She has the knowledge and expertise to address large, complex issues through research, technical analysis, and stakeholder engagement. Liberty has helped muncipal clients with securing funding for water infrastructure projects from sources such as FEMA and EPA.

Representative Projects

FEMA Grant Writing, Arcadis, Inc., Louisville, KY. 2022. Management Consultant. Contributed to Federal Emergency Management Agency (FEMA) grant writing project aimed to mitigate natural hazard risks.

Building Resilient Infrastructure and Communities (BRIC)

- Developed full engineering and scoping grant applications for water utilities in OH, PA, and Washington D.C.

 Created request for information (RFI) based on grant program requirements, and coordinated with client to ensure information was collected in a timely manner.

 Wrote narrative to support application development, which included history of the site, environmental and climate change considerations, and analysis of socio-economic barriers which may reduce a community's ability to respond to and recover from a future event that impacts the assets in consideration.

 EPA Grant Writing, Arcadis, Inc., Louisville, KY. 2022. Management Consultant. Led efforts to develop application for grants which support innovative management of post-consumer materials, specifically allocated by the Environmental Protection Agency (EPA).

Solid Waste Infrastructure for Recycling (SWIFR)

- Researched SWIFR requirements and created outline of tasks to ensure all components of application were fully addressed.
- Reviewed Preliminary Engineering Report provided by client into application. Created RFI for remaining tasks identified in outline. Coordinated with client for items that were not publicly available.
- Provided guidance to other writers supporting application to maintain a consistent narrative.

Development of Asset Management and Cybersecurity Plans for SRF Eligibility. City of Bloomington Utilities, IN. 2019 – 2022. Environmental Program Coordinator. Managed development of Asset Management Plan and Cyber Security Plan to allow City of Bloomington Utilities to become eligible for Indiana Finace Authority (IFA) State Revolving Fund (SRF) loans.

- Met with IFA represenatitives to review requirements and learn tips for developing Plans.
- Facilitated recurring meetings to encourage coproduction and communication.
- Oversaw Plan development, which included writing narrative, storing information, and making necessary edits.

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4.4.4 Project Team Organizational Chart

