

## Appendix A

# Karcher Constructed Wetland, Indian Creek Pathway, and Environmental Permitting

## Scope of Services

Date: May 16, 2024

Project Name: Karcher Constructed Wetlands Design and Services During Construction

Consultant Name: Jacobs Engineering Group

Consultant Company Address: 999 W Main St suite 1200, Boise, ID 83702

Consultant Project Manager/Contact Information: Erin Cox/erin.cox@jacobs.com

Contract Amount: \$1,299,999 (T/M NTE)

Duration: 15 months

### Project Understanding

The City of Nampa (City) plans to build a demonstration constructed wetland treatment system located downstream of the Water Renewal Facility (WRF) along Indian Creek. The City's WRF discharges to Indian Creek upstream of the proposed demonstration wetland location. During the wet season, the WRF flow is approximately 50% of the creek flow. The City's goal with this natural treatment system is to reduce phosphorus, nitrogen, PFAS (per- and polyfluoroalkyl substances), 6PPD-quinone, other constituents of emerging concern (CEC) such as industrial chemicals, pharmaceuticals, personal care products, herbicides, pesticides, nutrients, and sediment to improve water quality in Indian Creek. The wetland will also be designed to reduce water temperature and ultimately remove heat from the creek to improve aquatic health. The

wetland will have flexibility to adjust operational regimes to prove impacts of variable flow rates, retention times, depths, plant species, and various medias in a bioreactor and subsurface flow media bed wetland in a process chain of subsurface flow (SF), free water surface (FWS) flow, and infiltration (IN) wetlands.

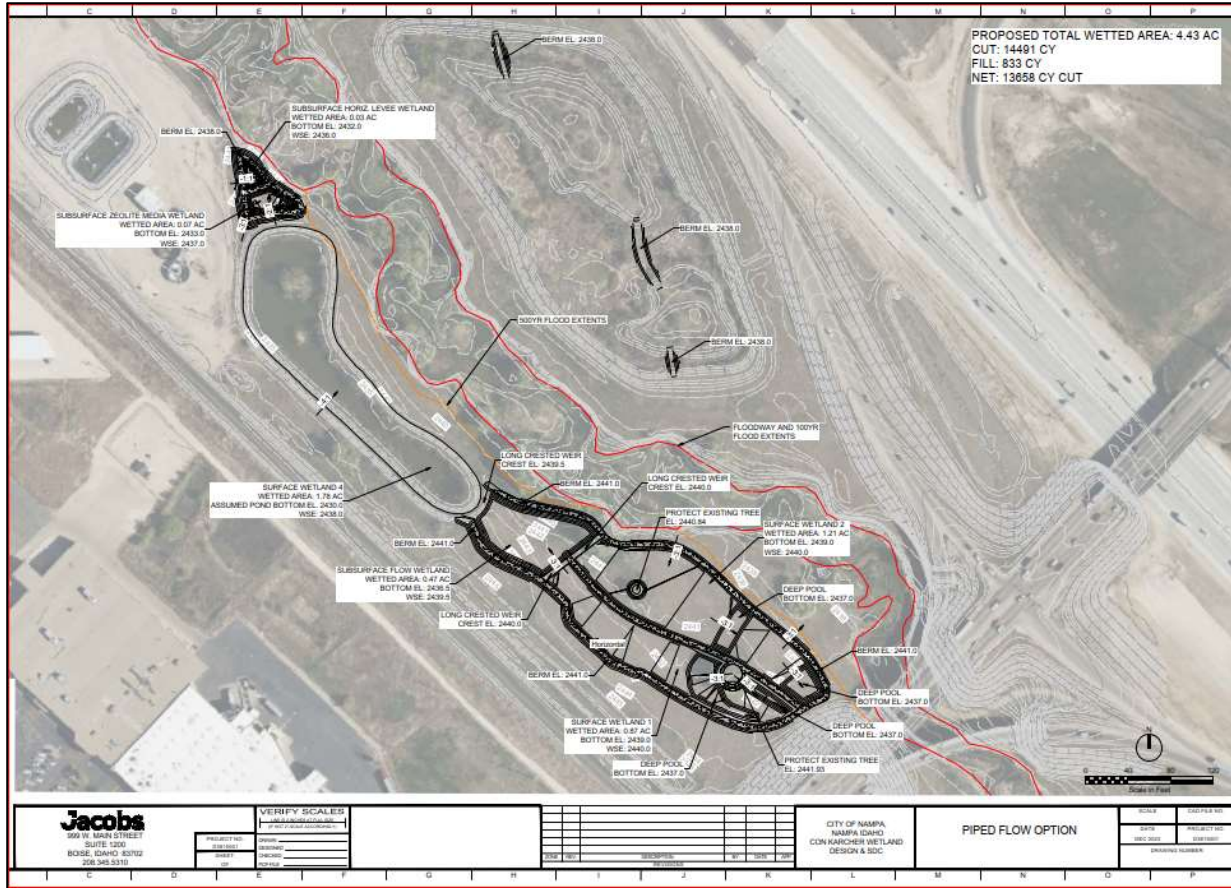
This scope of work includes site characterization, permitting, and design from preliminary through final, for the wetlands treatment system for approximately 4.5 acres of a demonstration constructed wetlands plus upgrades to the existing 2 acres of highway stormwater infiltration wetlands.

An early task in development of the wetlands included evaluating and developing comparative costs for options of conceptual design. The options included:

- 1) Excavating the wetlands deep enough to allow gravity flow from the creek adjacent to the site (most expensive).
- 2) Pumping from the creek to the wetlands (highest energy and maintenance costs).
- 3) Diverting water from the creek at a higher elevation near the Karcher Road crossing into a pipeline and reduced excavation at the wetlands to allow gravity flow.
- 4) Diverting water from the creek at a higher elevation near the WRF into a pipeline to allow minimal excavation at the wetlands.

Option 4 was selected as the preferred alternative. The pipeline routing and location of the pipeline diversion from the creek or the WRF remains to be identified to accommodate right-of-way considerations Figure 1 presents the conceptual layout and major features of the proposed wetlands as currently envisioned.

This scope also includes full design of construction access and bridge, in addition to the preliminary design and permitting materials for the permanent bridge, trails, gravel road, truck turnaround, and visitor parking area.



**Figure 1. Conceptual Layout and Major Features of the Proposed Wetlands**

Jacobs and the City mutually acknowledge that there are inherent uncertainties with respect to treatment performance of constructed wetlands due to factors beyond Jacobs' control, including, but not limited to: fluctuations in climate, changes in influent characteristics, varying soil conditions, vegetation growth and dynamics, and changeable hydrology. Jacobs cannot be held liable for variations from treatment performance expected or anticipated by City. Furthermore, since there are currently no permit-driven discharge or performance requirements for the Karcher Wetlands, Jacobs cannot be held liable for variations from treatment performance requirements, should permitting authorities make requirements in the future.

## Task 1. Project Management

**Objective.** Project management will include coordination, internal Jacobs' schedule and budget management, progress reporting and invoicing, and project administration. Upon Notice to Proceed (NTP), Jacobs will coordinate with City of Nampa to commence work.

Task management will be led by two design managers: one for the constructed wetland and a second for the transportation elements.

**Approach.** Jacobs will accomplish and facilitate the following items under the project management task.

### **Task 1.1 Project Kick-off Meeting**

Jacobs will prepare an agenda and conduct a meeting with City staff to discuss project approach, schedule, available information, etc. Jacobs will record meeting minutes and share with City in monthly progress report.

### **Task 1.2 Design Milestone Meetings**

Jacobs will schedule design progress meetings at project milestones with City, prepare agenda, and record minutes.

### **Task 1.3 Progress Reports**

Jacobs will provide monthly progress reports that will describe work completed during the previous month in addition to scope, schedule, and budget status and updates. Monthly progress reports will be submitted with monthly invoices.

### **Task 1.4 Design Coordination**

Jacobs' pathway and bridge engineers will coordinate with wetlands design team on the concept multi-use pathway and bridge tie-in points with the proposed wetland design. Additionally, Jacobs' pathway and bridge staff will coordinate with wetland design staff on final plans, specifications, and estimates and design needs for a construction access roadway and temporary bridge/culvert over Indian Creek to construct the proposed effluent wetlands.

### **Task 1.5 University and Partner Relations**

The Jacobs team will involve faculty of local universities and their students to support baseline studies, in addition to site visits and meetings with engineering and natural resource professionals during the design, construction, operation of the project allowing them to acquire meaningful "hands on" experience.

#### **Assumptions**

- There will be four transportation and four constructed wetland milestone check-in meetings with the City.
- Up to three Jacobs Staff members will attend each of these meetings.
- It is anticipated that this project will last 15 months.

#### **Deliverables**

- Meeting Agendas and Meeting Notes
- Monthly Progress Reports
- Monthly Invoicing, delivered electronically via email.

## **Task 2. Karcher Wetland Project Concept Refinement**

**Objective.** Refine project details and align team on design elements and configuration. Add detail to the selected project concept layout for the preliminary wetlands design to refine scope.

**Approach.** Refinement will include wetland configuration and pipeline connection from Indian Creek to the wetland inlet. Design concepts will include water level control structures, wetlands grading, berms, media for subsurface cells, sampling points, wetlands plants, and perimeter landscape plantings. Plants will be selected for treatment and shading to supply cooling of wetlands water before discharge to the creek. The scope also includes permitting assistance.

The approximately 2-mile-long supply pipeline will be mostly buried and be located adjacent to the creek. The pipeline will start with a fish screen inlet near the WRF and a potential connection directly to the WRF. The pipeline will be installed in an open trench where possible, with shallow-bury to a depth of 8 feet or less depending on topography. Trenchless construction methods will be utilized near the intersection of Leim Lane and West Karcher Road, and there will be an aerial pipe crossing of Indian Creek at a pedestrian bridge near Treasure Valley General Construction.

The wetlands complex will be unlined for infiltration of a part of the treated water through hyporheic flow to shallow groundwater under the site that discharges to the creek to gain the benefits of soil treatment and retention. The wetland footprint will incorporate an existing deep pit south of the creek and the existing Idaho Transportation Department (ITD) highway runoff infiltration wetland north of the creek next to the site. Design features will include an aeration cascade to increase dissolved oxygen and a deep media bed and horizontal levee to provide polishing treatment of CECs. The design will include modeling of the predicted treatment rate through each wetland flow path and each type of wetland with low flows and high flows.

Jacobs will work with the City of Nampa to refine design details and align the team on design elements.

- Coordinate and meet with the City to refine design details in two meetings.
- Conduct two site visits to visually inspect the proposed wetlands site and pipeline alignment to assess existing site conditions and vegetation. Sample soils for texture and background nutrients and perform in situ infiltration testing.
- Assess existing wetlands vegetation around the deep pond and ITD wetlands for shade cover and develop designs that incorporate existing vegetation into the planting palette.
- Establish points of connection with the creek to determine screening and piping requirements for water inflow and return flow.

## **Task 2.1 Wetland Modeling and Earthwork Preliminary Design**

Understanding site conditions is an essential task for successful constructed wetland design. Our design team will evaluate elevation contours, soil details, geotechnical conditions, and facilitate water quality and temperature modeling to refine design parameters.

### **2.1.1 Site Information and Data Collection and Analysis**

The following activities will be conducted and facilitated by the Jacobs team to support the wetland design process.

- **Utility Research.** Jacobs will coordinate with local utilities to gather record drawings, field knowledge and historical data available. Jacobs will prepare project area exhibits for use in communicating with utilities.

- **Site Conditions Confirmation.** Water quality data and the timing and volume of water flow will be evaluated to confirm and solidify assumptions for design, including water supply, water quality (including seasonal variation), and flow splits within the wetlands facility to optimize various treatment processes.
- **LiDAR Contour Mapping.** The proposed wetlands site and creek will be initially evaluated using available light direction and ranging (LiDAR) data provided by the City to produce 6-inch contours. Surveys will be conducted to augment the LiDAR data set at the identified connection points from the creek to the proposed wetlands.
- **Water Quality Modeling.** Assess the water quality improvements of the combined effluent and creek flow provided by the proposed wetlands, using Jacob's Wetlands Treatment Model with a high-flow and low-flow scenario. Each wetlands cell will be modeled to setup the treatment baseline for each treatment process as well as the total system performance. Sampling and monitoring points will be established to collect data during operations to update the model predictions.
- **Temperature Modeling.** Assess the temperature reduction that can be predicted with a high- and low-flow scenarios using heat loss modeling.

### 2.1.2 Wetland Predesign

Predesign of the wetland earthwork will consist of the following:

- A hydraulic analysis will be conducted to verify water level control requirements for each wetland cell based on proposed constructed wetlands configuration and water routing and the proposed discharge flow rates. A hydraulic grade line of the total wetlands system including connections to Indian Creek and the wetlands cells will be developed to check wetlands and control structure sizing and operational flexibility.
- Optimum wetland plants and configurations will be identified for cell bottom elevations, deep zones, and berm layout. The predesign will then continue to detailed site layout, plant selection, piping internal to the wetlands, water control structures, construction materials, berms, and operation and control of wetlands. Survey mapping will be used to identify the locations of inlet, outlet, and water level control structures.
- A range of bioreactor media blends and SF media options will be identified and evaluated for applicability to the site, and three media options will be selected for demonstration in two SF media wetland cells.

### 2.1.3 Schematic Drawings

Prepare schematic drawings of the wetland layout, earthwork, and planting plan. Meet with the City to present and discuss the drawings.

#### Assumptions

- Preferred pipeline alignment will be selected jointly with the City.
- The City will handle acquiring easements.
- Jacobs will prepare easement alignment drawings to assist with easement acquisition.

#### Deliverables

- Schematic Drawings of the Wetland Layout

- Schematic Earthwork Plan
- Wetland Planting Plan

## **Task 2.2 Wetlands Inlet Structure, Water Level Control Structures, Pipeline, and Discharge Structure Predesign**

The main objective of this task will be to determine design parameters and develop a general configuration for all components associated with the wetland's water supply, including an inlet fish screen structure, water level control structures, and gravity conveyance pipeline from the creek to the constructed wetlands and across the creek to the ITD wetlands. Outlets from the wetlands to the creek are envisioned as an aeration drop channel at the ITD wetland and a horizontal levee at the Karcher Wetland.

This task will confirm and document design criteria including design flow, equipment, and control requirements. A preliminary cost estimate of the project components will be prepared. Jacobs will perform the following tasks in support of wetlands predesign.

### **2.2.1 Hydraulic and System Analysis**

Complete a detailed hydraulic analysis to determine heads, operating strategy, preliminary material selection, and water level control structure equipment.

### **2.2.2 Pipeline Alignment Evaluation**

A preliminary pipeline route from the creek to the wetland inlet will be established in coordination with the City, using existing mapping and existing utility record drawing information. The City will acquire easements and property surveys. The pipeline crossing to connect to the ITD wetlands will be coordinated with the preliminary bridge and trail design effort, described in a Task 6.

### **2.2.3 Schematic Drawings and Predesign Report**

- Prepare schematic drawings to illustrate the features of the gravity pipeline, water level control structures, and wetlands inlet and outlet structure.
- ***Schematic Design Report.*** Prepare a schematic design report summarizing the work performed in this predesign task, including the schematic drawings, cost opinion, and implementation schedule.
- ***Draft and Final Predesign Report.*** Prepare a draft and final predesign report. Prepare for and take part in four meetings with the City to review progress, including two meetings with regulators to discuss project permitting.

### **Deliverables**

- Predesign Report with preliminary drawings and conceptual level cost estimate (+50%/-50%).

## Task 3 Soils, Hydrogeological Assessment and Geotechnical Investigation

**Objective.** The objective of this task is to assess groundwater flow and evaluated subsurface soils information necessary for site characterization and to provide geotechnical design evaluations and recommendations.

**Approach.** This scope of work describes the work elements necessary to evaluate the soils, groundwater flow, and geotechnical features of the site. The following activities will be conducted and facilitated by the Jacobs team:

- **Site Soil Review.** Natural Resources Conservation Service (NRCS) soil survey and all available soils lab results from construction of the highway overpass and infiltration wetlands next to the wetlands areas will be reviewed to understand the soils characteristics at the proposed wetlands site.
- **Hydrogeological Assessment.** Hydrogeological assessment will be conducted with a paper study of existing information to determine if the creek would be gaining or losing water to the proposed wetlands.
- **Geotechnical Site Study.** A geotechnical site assessment will be conducted to characterize the soil conditions for wetlands bottoms and berms constructability. Data from existing borings and soil sampling at the site will be reviewed.

### Task 3.1 Groundwater Assessment

Jacobs will compile and evaluate readily available topographic, climatic, and hydrogeologic data from the project area to define the water budget components in the vicinity of the wetlands area, and to determine if the creek is gaining or losing water, as an indicator of whether the water is flowing into or away from the creek relative to the proposed wetlands.

### Task 3.2 Soils and Geotechnical Exploration and Evaluation

Geotechnical evaluation is essential to collect subsurface information for site characterization and develop geotechnical design evaluations and recommendations. A technical memorandum will present engineering properties of the soils to be used for wetlands construction including water retaining berms, concrete weir structure foundations, trench excavations, and cut and fill for general site leveling. The alignment of the gravity pipelines will be included in the evaluation using existing available data.

Geotechnical engineering tasks will include the following:

- Review of existing published information
- Site reconnaissance to evaluate existing conditions
- Field exploration with hand augers
- Laboratory testing
- Prepare Geotechnical Design Memorandum

Jacobs will also support a geotechnical evaluation of pathway alignment and bridge location tasks following completion of a site reconnaissance to evaluate existing cut sections along Indian Creek and geotechnical information from site observations and literature review.

Pending finalization of the bridge location, Jacobs will perform a geotechnical exploration at the bridge abutment locations to support foundation recommendations. This exploration is anticipated to consist of test pits excavated with an excavator or borings advanced with a drill rig. This effort will be conducted with the final design of the bridge under a separate contract.

### 3.2.1 Review Existing Information

Geotechnical staff will conduct a brief review of available literature, including geologic mapping, aerial photographs, and earlier geotechnical reports made available by the City. The soils assessment will include information from NRCS soil survey and highway construction information from the deep pond, characterizing soils at proposed wetlands site.

### 3.2.2 Field Exploration

Up to five double-ring infiltrometer infiltration tests will also be performed to supply direct measurement of anticipated leakage rates from the wetlands and to evaluate the spatial variability in leakage rates across the site. A double-ring infiltrometer will be used on the soil surface for the tests, and each test will last a minimum of 1 hour.

- **Soil Sampling.** Soil samples will be collected with hand augers at 1-foot intervals over an average depth of up to 3 feet in five locations representing site conditions. Soil samples will be analyzed for nutrients and texture to show background conditions to support geotechnical design.
- **Groundwater Monitoring.** Groundwater elevations in any existing monitoring wells in the vicinity of the proposed wetlands will be recorded during the geotechnical field investigation. It would be beneficial to check groundwater at times of high and low flow in the creek, but the schedule may not allow this.

Geotechnical exploration recommendations will be provided, if necessary, following initial site reconnaissance as described previously.

### 3.2.3 Laboratory Evaluation

Limited laboratory testing will be performed on selected soil samples to confirm field classifications, decide engineering properties for design, and further clarify construction considerations. Testing will include, but not be limited to, the following analyses:

- Atterberg limits - ASTM D4318
- In situ moisture content - ASTM D2216
- Grain size analysis - ASTM D422
- Percent passing U.S. No 200 Sieve ("P200") - ASTM D1140
- Consolidation test - ASTM D2435
- Background Nutrient Content and soil texture on five samples including pH, texture, soluble salts (ECe), Cation Exchange Capacity (true), percent lime, percent organic matter, nitrates, ammonium, phosphorus (alkaline soils – sodium bicarbonate extract, acid soils – Bray

extract), potassium, calcium, magnesium, sodium, zinc, iron, manganese, copper, sulfates, and boron

### 3.2.4 Geotechnical Design Technical Memorandum

A geotechnical characterization will be developed for use at the Karcher Wetland site and for wetlands improvements at the ITD site. A summary of engineering analysis, including design and construction recommendations, will be presented in the Soils and Geotechnical Design Technical Memorandum.

Findings from the review of existing information, along with the results of the field investigation, and laboratory testing, will be summarized in the technical memorandum. The memorandum provides information specific to wetland characterization. It will include a vicinity map, investigation location plan, laboratory test results, and data from infiltration monitoring of existing wetlands. Assuming data is available from the previous work done at the excavation pond, up to five subsurface profiles from the ground surface to groundwater will be plotted. One profile will include the longest transect through the proposed wetland site, and three profiles perpendicular to the longest transect will be plotted, evenly spaced. One transect through the existing ITD wetland will also be plotted.

Geotechnical engineering evaluation and calculations will be performed to include the following:

- Evaluate geotechnical conditions related to seismic concerns, including soil profile, liquefaction, ground motion parameters.
- Evaluate embankment settlement.
- Evaluate slope stability considerations for embankments and interior wetland slopes.
- Estimate potential settlement and foundation bearing capacity for the wetland structures.
- Incorporate findings from the groundwater assessment task to evaluate seepage for embankments next to the creek.
- Evaluate potential constructability issues including use of excavated material for water containment berms with water up to 2 feet deep, compaction requirements, and excavation dewatering for trenches up to 5 feet deep.
- Evaluate erosion potential for wetland slopes and containment berms and provide recommendations for methods to minimize erosion prior to the establishment of dense wetland plants.

*Geotechnical Design Support.* Geotechnical input to final design will include developing earthwork related specifications and assisting with the development of drawings associated with the constructed wetlands.

#### Assumptions

- The City will pay directly for soils lab testing.
- No more than two days will be spent onsite for geotechnical exploration.
- City will support access to the sites during the field exploration.
- Soil encountered during the field exploration is assumed to be free of environmental contamination requiring special monitoring, handling, or testing.
- Jacobs will coordinate utility locating services.

## Deliverables

- Draft and Final Soils and Geotechnical Design Technical Memorandum

## Task 4. Permitting and Water Rights Support

**Objective.** Assist the City in preparing the necessary permits for establishing the constructed wetlands and in preparing the necessary permits for establishing the Parking, Pathway, and Bridge..

**Approach.** Permits anticipated include Joint Application (S404/S401/Idaho Department of Water Resources [IDWR] Stream Alteration Permit), Idaho Pollution Discharge Elimination System (IPDES) S402 permit, and a consumptive use water rights permit. It is expected that a consumptive use water right may be needed for wetlands evapotranspiration losses. Alternatively, an existing source of water or another water right may be used as a trade for water consumption at the site. A meeting with IDWR and consultation calls will be needed. The usual process to obtain a new water right can delay the startup of the project so alternatives will be considered, and a recommended option will be developed.

### Task 4.1 General Permitting Support - Permitting Matrix

Permitting support will include developing a permit matrix identifying applicable permits based on the contracted design and scope of work. This task will also include developing a permit matrix identifying applicable permits based on contracted design and scope of work of the Parking, Pathway, and Bridge.

Jacobs will provide an initial high-level environmental permit needs and risk assessment summary to identify and define potential resource impacts and anticipated permitting strategy and schedule for the project. The document will outline anticipated environmental permits that may be required for the proposed project, may provide environmental design recommendations to minimize environmental impacts during construction, and identify a proposed schedule for documentation, coordination, and permitting.

The Permitting Matrix will discuss the independent use and utility of the constructed wetland project. The constructed wetland project is assumed to be a stand-alone, independent project that contains specific utility, goals, and objectives independent of the Parking, Pathway, and Bridge. The constructed wetland project will be considered a single, complete, and independent project and will be permitted using a Nationwide Permit (NWP) and permitted independently from the Parking, Pathway, and Bridge NWP and environmental process.

### Assumptions

- One meeting with IDWR and consultation calls will be needed.

### Deliverables

- Permit Needs Assessment Permit Matrix

## Task 4.2 Wetland Delineation

**Objective.** Identification and delineation of aquatic resources (wetlands and watercourses) within the Karcher Wetland. The study area to be evaluated includes the existing deep pit, ITD wetland, the Karcher proposed constructed wetland site.

**Approach.** The following tasks will be performed to ensure accurate identification and delineation of aquatic resources at the project site:

- Review available documentation including national and local wetland inventory maps, NRCS county soils maps, U.S. Geological Survey topographic maps, recent aerial photographs, and other available sources of wetland and water resource information.
- Review current and historical aerial photographs of the area to decide if the site historically had wetlands. The aerial photos will be evaluated for a wetland signature, and any observable changes throughout the years will be noted.
- Conduct a delineation of aquatic resources (wetlands and water bodies) in the study area including all locations where project impacts may occur. This task will include mapping the boundaries of streams and wetlands within the proposed project area with a handheld GPS with sub-meter accuracy.
- Conduct a wetlands functional assessment using the Idaho Wetland Ecosystem Services Protocol (WESP-ID) or the Hydrogeomorphic (HGM)-based Assessment of Wetland and Riparian Sites.
- Prepare a Wetland Delineation Report according to the procedures described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). The Wetland Delineation Technical Report will be suitable for submission to the state and federal regulatory agencies and will include supporting graphics including a map showing delineated wetland and stream boundaries.

### Assumptions

- Field work will be conducted over 2 field days.
- The City will supply any wetland delineation review fees required.
- A site visit for data collection is not needed for the historical wetland review. Contact for historical information will be performed over the telephone.
- The City will provide physical or electronic copies of all historical aerial photos in the City's possession.

### Deliverables

- Draft and Final Wetland Delineation Technical Report.
- Draft Aquatic Resource Delineation Report (ARDR) suitable for submission to the state and federal regulatory agencies. The report will include supporting graphics including map showing delineated wetland and stream boundaries.
- Final ARDR suitable for submission to the state and federal regulatory agencies.

### **Task 4.3 Biological Resources Review Technical Memorandum**

In support of the Joint Permit Application requirements, Jacobs will qualitatively describe onsite biological resources including existing vegetation communities, desktop identified special status wildlife species (U.S. Fishing and Wildlife Service [USFWS]), fisheries (National Marine Fisheries Service [NMFS]), Essential Fish Habitat (presence/absence), onsite suitable habitat features, and potential to occur determinations for federally protected special status species.

Biological resources reporting will include an overview of site conditions and general characterization of vegetation resources and documentation of desktop review of any potentially present federally protected special status species, designated critical habitat, federally protected fisheries, and essential fish habitat. The biological resources reporting is an overview of potential special status species and preliminary assessment of potential to occur on site and suitable habitat present and the basis to inform or determine requirement for detailed biological assessment reporting and analysis.

The Biological Resources Review Technical Memorandum will be provided in support of the project's Joint Permit Application requirements for all project components. This document is an overview of potential special status species and preliminary assessment of potential to occur on site and onsite suitable habitat and is the basis to inform or determine requirement for detailed biological assessment reporting and analysis.

#### **Assumptions**

- No protocol surveys or biological sampling will be conducted.
- Biological assessment (USFWS and NMFS species) reporting is not included in this scope of work and, if required, would be provided under separate cover under a future contract and future project phase.

#### **Deliverables**

- Draft and Final Biological Resources Review Technical Memorandum

### **Task 4.4 Cultural Resources Documentation**

Jacobs will prepare cultural and historic resources documents in support of the Joint Permit Application, NEPA evaluation, and cultural permitting and clearance process. This task includes identification, effects analysis and report documentation of historical and archaeological cultural resources within the project's Area of Potential Effects (APE), in compliance with Section 106 of the National Historic Preservation Act. Jacobs will coordinate with the U.S. Army Corps of Engineers (USACE) to determine the level of effort needed for cultural resources clearance and to determine effects to historic properties (cultural resources listed, determined, or identified as eligible for the National Register of Historic Places [NRHP]) that may be present in the APE.

#### **4.4.1 Identification and Evaluation**

This task will consist of a records search and literature review through the Idaho State Historic Preservation Office (SHPO) to identify cultural resources and studies present within a 0.5-mile radius of the APE; a cultural resources survey (both pedestrian and subsurface, if required); and a summary conference call with the USACE archaeologist and/or an architectural historian to discuss research findings and determination of effects.

Previously unrecorded historic resources identified within the APE will be recorded on Archeological Survey of Idaho (ASI) site forms and/or Idaho State Historical Inventory (ISHI) site forms and will be evaluated for NRHP eligibility. Previously recorded cultural resources within the APE will have their forms updated and evaluated for NRHP eligibility, where appropriate.

#### **4.4.2 Determination of Effects**

Jacobs will apply the criteria of adverse effects and will provide recommendations regarding the effects on identified resources. This task will include two meetings to discuss comments on each of the draft Archaeological and Historic Survey Report (AHSR) deliverables.

##### **Assumptions**

- USACE will conduct its own Section 106 consultation with SHPO, Tribes, or other agencies.
- SHPO records search of the project area and 0.5-mile radius of the APE will be conducted to identify the presence of previous cultural resources and cultural studies.
- One site visit will be required for the cultural resources survey, consisting of an archaeological surface pedestrian survey, subsurface testing (if required), and architectural survey of built environment if resources are present. Fieldwork will take place after a review of the SHPO record search and literature review.
- Jacobs' level of effort assumes one archaeological resource will be identified, a portion of roadway will be recorded as an historic resource, and no other historical structures or buildings are present in the APE. Changes to these assumptions identified during the course of project delivery may require a contract modification.
- Jacobs will review all proposed design plans and any as-built plans prior to effects analysis.
- Two meetings with USACE cultural staff will be conducted, with two Jacobs staff attending.
- Effort assumes that one archaeological resource and one historic resource will be evaluated.
- The Archaeological and Historic Survey Report will include ISHI forms, project area and APE maps, and survey photo attachments.

##### **Deliverables**

- Draft and Final AHSR that addresses cultural resources identified in the APE.

#### **Task 4.5 Joint Permit Application for Impacts to Jurisdictional Waters**

Jacobs will complete the Joint Permit Application for impacts to wetlands and waters of the State/U.S. It is assumed that permitting will be conducted at the 80-90% design level. This task includes identification of potential impacts, identification of applicable permit type (NWP), and preparation of state and federal wetland/jurisdictional waters Joint Permit Application. The permit application will be prepared following completion of the Aquatic Resources Delineation Report. It is assumed that this project will proceed using an NWP to address any unavoidable impacts associated with proposed project tasks that include the following:

- Preparation of the Section 404 Joint Permit Application for submittal to the USACE, Idaho Department of Environmental Quality (IDEQ), and IDWR.
- Coordination with federal and state agency personnel.

- Determine if conceptual mitigation plan for unavoidable impacts to aquatic resources will be required.
- Preparation of a Revegetation Plan for temporary impacts.

#### **Assumptions**

- This project will be permitted under a USACE NWP.
- This task does not include the development of a conceptual mitigation plan.
- The City will supply permit fees.
- The permit application and mitigation plan for the adjacent Highway Runoff Infiltration Wetlands and other City riparian and wetlands permits are available for review.
- The City has a site available for mitigation in case the proposed new wetland cannot self-mitigate all riparian and creek side wetland impacts.
- The Conceptual Wetland Mitigation Plan is not included in this scope of work and will be contracted under a separate contract or change order.

#### **Deliverables**

- Draft and Final Joint Permit Application for submittal to the USACE, IDWR, and IDEQ
- Environmental Construction Specifications

#### **Task 4.6 IPDES 1200-C Permit**

**Objective.** Obtain coverage under the 1200-C IPDES permit program for activities associated with the construction of the wetlands project.

**Approach.** A 1200-C permit application will be prepared and submitted for construction projects that disturb one or more acre. The most significant part of the 1200-C permit is the Erosion and Sediment Control Plan (ESCP) or Stormwater Pollution Prevention Plan (SWPPP). The ESCP/SWPPP describes the best management practices (BMPs) incorporated for the duration of land-disturbing construction work. Application requirements are prescriptive and rely heavily on BMPs. The BMPs shown in the ESCP will be based on standard construction practices and any site-specific BMPs needed based on specialized construction approaches associated with the design drawings. ESCP/SWPPP materials will be provided by others under a separate contract.

The completed 1200-C application will include the following:

- IPDES 1200-C Application Form.
- Land Use Compatibility Statement (LUCS) Form signed by the City.
- ESCP/SWPPP drawings (completed by others) including the following required information:
  - Narrative site description (including nature of construction activities, construction schedule, and receiving water bodies)
  - Contact information for the applicant, planning firm, and Designated Site Inspector
  - Soil conditions (including native soil types, and type of fill material)

- Site maps and construction plans (including location of critical or sensitive areas, pre- and post-construction contours or flow directions, utility construction, road construction, and location of staging and laydown areas)
- Erosion and sediment control details

The ESCP site maps and construction plans will be created by changing the design drawings to show the construction area and the location of specific structural BMPs (such as silt fence, biofilter check dams, straw wattles, and fencing for denoting sensitive areas). Jacobs has a specific format used to convey the information that is needed in the 1200-C application. The ESCP may include several sheets to illustrate the location of the selected BMPs. A brief description of the proposed format for the ESCP drawing is presented below:

- *Coversheet* – Includes contact information for the application (City of Nampa), Designated Site Inspector, total area of the construction site, location map, and sheet index.
- *General Notes* – Includes standard erosion and sediment control notes, construction schedule, native soil type(s), table of selected BMPs, rational statement, and standard note to excavators.
- *Erosion Control Plan* – Several sheets that will include the construction area, location of BMPs, and critical areas, and site-specific keyed notes to further describe the BMPs and critical areas.
- *Site-Specific Erosion and Sediment Control Notes* – Includes a description of the keyed notes that will be shown on the ESCP sheets.
- *Erosion and Sediment Control Details* – Includes installation details for the selected BMPs.

#### **Assumptions**

- ESCP/SWPPP is not part of Jacobs' scope of work and will be provided by others.
- Jacobs will obtain a signed LUCS from the City to include with the 1200-C application.
- The City will supply one set of review comments on the draft permit application.
- The City will pay for the IPDES 1200-C permit fee.
- No site visits will be required by Jacobs for this task.
- The budget assumes 4 hours of Jacobs labor for potential follow-up support after submission of the 1200-C application.
- The description of erosion prevention practices and placement of sediment control structures in the ESCP will be based on the design drawings and standard construction practices. Standard descriptions of BMPs will be used in preparation of the ESCP.
- The ESCP will not include final surveyed site maps and engineering construction plans and specifications for the design and placement of specific sediment and erosion control structures and sediment and erosion control practices to be implemented during construction. The ESCP will include details of the location and type of BMPs that will be employed at the site but is for permitting and compliance and not a replacement for final construction plans.

The 1200-C permit application and supporting materials will be prepared in conjunction with the design drawings. The 1200-C will be prepared with the intent to submit the application at least 60 days before the anticipated construction start date.

#### 4.7 Water Rights

**Objective.** Evaluate and obtain water rights approval to divert water from the creek or the wastewater treatment plant for treatment through the wetlands.

**Approach.** An assessment of the water rights will be provided to support the development of the proposed constructed wetlands. Activities anticipated in this task include the following:

- Meet with City of Nampa Staff and attorneys to outline objectives and requirements.
- Draft and or assist in developing an initial water right Application and facilitate review by Nampa and attorneys.
- Submit final water right application.
- Provide expert and technical support during Permit approval process.
- Participate in water right protest and administrative hearing process, including informal hearing processes.

#### Assumptions

- The water rights work may include a new water rights request or transfers of the City's existing water rights.

#### Deliverables

- Draft and Final Water Rights Application

#### 4.8 Quality Assurance Project Plan

The EPA required the preparation of a Quality Assurance Project Plan (QAPP) during the project planning process, which serves as a blueprint for how the project will be carried out effectively and meet grant requirements.

### Task 5. Final Design Documents for Constructed Wetland

**Objective.** Finalize design documents for the proposed wetlands and plantings. Develop final design documents for the wetland earthwork, inlet structure, water level control structures, creek diversion and return flow outlets to the creek, and conveyance pipeline. The design package will include planting palettes, plant layout and detail designs, and specifications for wetlands and perimeter landscaping.

**Approach.** The Bid Package for the wetland construction includes design drawings and specifications for earthwork, piping, the inlet structure, creek diversion and return flow earthwork and hard structures, and all water level control structures for the constructed wetlands. This is part of the package that will also include the temporary roadway and site access for construction presented in task 7.

Specific Tasks to be performed include the following:

- Model hydraulic performance of components and the integrated system.

- Develop predesign documents, including brief tech memos and work-in-progress design drawing which will be approximately 30% complete as part of the 60% design review set when complete. No formal 30% documents will be prepared for review. The work in-progress drawings will be shared with the City, but work will not stop for formal review. Work in-progress drawings may be final in some respects and some sheets may be missing.
- Prepare a design package for this work to include earthwork, piping, wetlands structures and landscape, wetlands planting, and construction access. Bidding these major work components together will allow for coordinated scheduling of the major tasks.
- Prepare construction documents for construction of the wetlands' earthwork, gravity pipeline from the creek to the wetlands, inlet and outlet structures, special media for subsurface wetlands, water control structures, wetlands planting, and construction access. This design package will include plans and specifications for construction of the earthwork, internal piping for ITD wetlands, and water control structures. During final design, the site will be surveyed to establish site control, collect survey information, and prepare the necessary computer files for import into CAD. No electrical power will be needed and is therefore not included in this design.

The construction documents will include the wetland plants procurement and installation. The plans and specifications for the installation and procurement of the plants for the wetlands will include riparian corridor plantings and perimeter plantings of trees, shrubs, and forbs. Wetland plants will be selected for maximum removal of CECs and may include block plantings of specific species as well as palettes of compatible plant communities for the treatment demonstration goals. All plantings outside the wetted wetlands area will favor native plants and plants currently used by the City. The City plant specialist will advise the team on non-wetland plantings.

### **Task 5.1 Conveyance Pipeline**

The pipeline design includes piping from the creek to the inlet of the Karcher wetlands, and from the Karcher constructed wetlands to the ITD wetlands. The pipeline will extend from near the WRF to the wetlands site. The inlet and outlet structures and the pipeline will have riparian, and potentially wetland, impacts covered by permits included in this scope of work or are included in other City-held permits. The pipeline may be buried in some locations with a soil berm to minimize excavation and utility conflicts. The wetlands excavation will produce excess soil that can be used for pipe cover.

The pipeline will be installed in an open trench where possible, with shallow-bury to a depth of 8 feet or less, with the exact depth varying by topography. Where the pipeline crosses West Karcher Road near the intersection of Leim Lane, approximately 200 feet of trenchless pipe installation (such as auger boring or pipe jacking) will be utilized to avoid lane closures and traffic interruptions at this high-congestion area. An aerial pipe crossing of Indian Creek will be installed at a pedestrian bridge near Treasure Valley General Construction, to avoid a deep stream crossing of Indian Creek.

### **Assumptions**

- Berms will be vegetated but not covered in rock or other hard surfaces for erosion control.
- No rock ripping or blasting will be needed.

- The City will coordinate and acquire access to the site from an adjacent highway or existing parking lot.
- Existing plants around the deep pit and ITD wetlands will remain and may have more plants added.

### **Task 5.2 Wetlands Inlet Structure**

The Wetlands Inlet Structure is expected to consist of a riparian edge cut to create a deeper shoreline pool approximately to the depth of the main flow channel in the creek to ensure water availability. The pool will be elongated to extend beyond the riparian vegetation and shoreline buffer. An inlet fish screen structure at the deep pool in the creek will have a water volume control device to manage the rate of diversion from the creek.

Diverted water will flow by pipe to the first wetland basin. The deep pool and water diversion will be located far enough upstream of the wetlands site to allow gravity flow to the wetlands at an elevation above the adjacent creek water elevation to supply gravity head for flow through all structures, FWS wetlands, and media filled SF wetlands and back to the creek. Diverting water at a higher elevation will reduce the amount of earthwork needed to create the wetlands.

#### **Assumptions**

- Diversion upstream of the highway bridge and a conveyance pipe crossing the creek is assumed.
- The City will coordinate any permission or permitting needed to divert upstream of the bridge and cross under the bridge.
- The City will acquire all easements for the pipeline alignment and will provide property surveys. Jacobs will prepare drawings to document new easements.
- The pipeline outlet structure will be designed to dissipate energy to minimize erosion within the wetlands.

### **Task 5.3 Constructed Wetland**

Design drawings for the constructed wetland cells will be developed incorporating comments from City and through collaborative design workshops.

#### **Assumptions**

- The new wetland construction will be outside of the 500-year floodway.
- A raised berm around the wetland perimeter will not be considered as fill in the floodplain and will not require a flood impact analysis.
- No net fill will be imported to construct the wetlands, and if specific media is imported, it will be offset by an equal amount of cut removed from the floodplain and placed above flood level.
- The high value bioreactor and SF wetlands will be protected from a 100-year flood event by a higher berm and restrictive inlet and outlet flow control device to prevent washing away or clogging of media with sediment and debris.

### **Task 5.4 Wetlands Water Level Control Structures**

The Wetlands Water Level Control Structures will consist of long-crested weir flashboard structures, which are important to optimize hydraulics through the wetland system. The long-crested weir will set the maximum water level when the cell is full and will pass extreme high flows to keep a safe freeboard on all berms up to the design inundation flood elevation. The demonstration nature of the wetland will require series and parallel flow paths or process trains.

#### **Assumptions**

- Freeboard on berms during normal flow operations will be approximately 1 foot.
- The design will include the ability to shift flow between flow paths and potentially shift the flow to reconnect various wetland cells into different process trains to prove treatment rates with adjustable variables.
- More than a single control structure may exist in a wetland cell to allow cross connection of process trains or flow regulation through various media types in SF wetlands.

### **Task 5.5 Final Wetland Construction Drawings and Specifications**

Jacobs will prepare all final construction drawings and specifications as follows:

- The plans will be reviewed by the City at approximately 30% work in-progress.
- Develop 60% and 90% draft drawings for City review.
- Meet with the City to review the 60% and 90% draft design package.

Perform Jacobs' internal quality control check of the design package.

- Incorporate City and internal review Quality Control (QC) comments of 60% and 90% documents after a 1-week City review period.
- A specifications list will be provided at 60% design.
- Prepare draft specification at 90% design to be included with the City's standard construction contract terms and legal documents supplied electronically by the City.

Finalized drawings and specifications will be provided in electronic format for use with the City contract documents.

- Prepare order of magnitude of Probable Costs of 90% design. No updated cost estimate will be provided after 90% design.
- Decide the potential permits that will be required and assist the City in preparing the applications for the required permits (Detailed in Task 4), as applicable and where required.

#### **Deliverables**

For the Bid Package, provide each of the following:

- Work in-progress, 60% and 90% drawings electronically delivered to the City for review.
- Draft specifications at 90% design.
- Order of Magnitude of Probable Costs based on 90% design documents.
- Final Design Drawings and Specifications.

The following list of design sheets are expected for the Bid Package:

- **General Sheets**
  - Location and Vicinity Map
  - Index to Drawings
  - Design Criteria
  - Hydraulic Profiles
  - Structural Notes
  - Civil Legend and Notes
  - Mechanical Legend
  - Special Inspection Plan sheet
  - Standard Abbreviations
  - Process Flow Schematic
- **Wetlands Site Development**
  - Earthwork And Rock Work Plan at Inlet
  - Earthwork And Rock Work Plan at Outlet
  - Site Layout Partial Plans
  - Conveyance Pipe Plan, Section, and Details
- **Wetlands**
  - Demolition Plan
  - Tree Salvage Plan
  - Overall Site Plan
  - FWS Wetlands Plan, Sections, and Details
  - Bioreactor Wetlands Partial Plan, Sections, and Details
  - Subsurface Flow Media Wetlands Partial Plan, Sections, and Details
  - Horizontal Levee Wetlands Plan, Sections, and Details
  - Modifications to ITD Wetlands, Plan, Sections, and Details
  - Details
  - Structural Details
  - Berms Typical Plan, Section, and Details
  - Grading Plan
  - Wetland Inlet Structure Plan, Sections, and Details
  - Wetland Outlet Structure Profile and Details
  - Conveyance Pipeline Typical Sections
  - Conveyance Pipeline Typical Details, (manhole, cleanout, trench)
  - Conveyance Pipeline Plan and Profiles (4 sheets)
  - Water Level Control Structure Plan, Sections, and Details
- **Plantings**
  - General notes and Specifications Data (1 sheet)
  - General Site Plan: Wetlands Site (3 sheets)
  - Perimeter Landscape Plan
  - Deep Pit and ITD Wetlands Planting Augmentation Plan
  - FWS Wetlands Planting Plan
  - Bioreactor and Subsurface Flow Wetland Planting Plan
  - Riparian Corridor Planting Plan

- Grassed and Forested Planting Plan
- Transplant Planting Palette and Details
- Seed Planting Palette and Details
- Tree and Shrub Planting Details

## **Task 6. Multi-Use Parking, Pathway, and Bridge Conceptual Design**

**Objective.** Provide concept level civil engineering design services for the proposed Karcher Effluent Wastewater Wetland Multi-Use Pathway and Bridge project.

**Approach.** The proposed parking, pathway, and pedestrian bridge will be designed in coordination with the Karcher Effluent Wastewater Wetland. This design will consist of 30% design concept options for vehicle parking, multi-use pathways, and a multi-use pedestrian bridge crossings over Indian Creek. In addition to these items, parking lot lighting, pathway lighting, restrooms, miscellaneous utilities, and stormwater facilities options will be identified in the design. The goal of this project is to provide the City with adequate information to select a feasible multi-use path option that can progress into final, and Plans, Specifications, and Estimates (PS&E) design phases.

Additionally, this task will include concept, final, and PS&E design services for a roadway and temporary bridge to provide construction vehicle access from Black Butte Court to the proposed Karcher Effluent Wastewater Wetland. The goal of this project is to provide temporary access for the effluent wetland construction. Environmental documentation and permitting are included in this scope of work to support the parking, pathway, and bridge construction.

The Karcher Wetland site will be a tremendous community asset that offers education and recreation. A pathway will provide pedestrian access to the wetland system with a bridge to provide both pedestrian and long-term maintenance access. The exact location and configuration of the bridge is not yet determined. This decision will be needed to provide a detailed design scope.

The following tasks will support Jacobs with optimal site layouts and design.

### **Task 6.1 Environmental Permitting**

The following section describes environmental services required for permitting the project's transportation elements, including the trail along Indian Creek.

#### **6.1.1 General Permitting Support - Permitting Matrix**

This task will include developing a permit matrix identifying applicable permits based on contracted design and scope of work of the Parking, Pathway, and Bridge.

#### **Deliverables**

- Permit Needs Assessment Permit Matrix

#### **6.1.2 Wetland Delineation**

Identification and delineation of aquatic resources (wetlands and watercourses) within the pathway area. The study area to be evaluated includes the full length of the water supply pipeline, and the pipe crossings of Indian Creek. The study area also includes the parking area,

pathway, bridge, and all areas of pathway proposed project disturbance. Tasks performed as described in 4.2

### **Assumptions**

- Field work will be conducted over 2 field days.
- The City will supply any wetland delineation review fees required.
- A site visit for data collection is not needed for the historical wetland review. Contact for historical information will be performed over the telephone.
- The City will provide physical or electronic copies of all historical aerial photos in the City's possession.

### **Deliverables**

- Draft and Final Wetland Delineation Technical Report.
- Draft Aquatic Resource Delineation Report (ARDR) suitable for submission to the state and federal regulatory agencies. The report will include supporting graphics including map showing delineated wetland and stream boundaries.
- Final ARDR suitable for submission to the state and federal regulatory agencies.

## **6.1.3 Biological Resources Review Technical Memorandum**

Biological resources reporting will include an overview of site conditions and general characterization of vegetation resources and documentation of desktop review of any potentially present federally protected special status species, designated critical habitat, federally protected fisheries, and essential fish habitat. The biological resources reporting is an overview of potential special status species and preliminary assessment of potential to occur on site and suitable habitat present and the basis to inform or determine requirement for detailed biological assessment reporting and analysis.

The Biological Resources Review Technical Memorandum will be provided in support of the project's Joint Permit Application requirements for all project components. This document is an overview of potential special status species and preliminary assessment of potential to occur on site and onsite suitable habitat and is the basis to inform or determine requirement for detailed biological assessment reporting and analysis.

### **Assumptions**

- No protocol surveys or biological sampling will be conducted.
- Biological assessment (USFWS and NMFS species) reporting is not included in this scope of work and, if required, would be provided under separate cover under a future contract and future project phase.

### **Deliverables**

- Draft and Final Biological Resources Review Technical Memorandum

## **6.1.4 Cultural Resources Documentation**

Jacobs will prepare cultural and historic resources documents in support of the Joint Permit Application, NEPA evaluation, and cultural permitting and clearance process. This task includes identification, effects analysis and report documentation of historical and archaeological cultural resources within the project's Area of Potential Effects (APE), in compliance with Section 106 of

the National Historic Preservation Act. Jacobs will coordinate with the U.S. Army Corps of Engineers (USACE) to determine the level of effort needed for cultural resources clearance and to determine effects to historic properties (cultural resources listed, determined, or identified as eligible for the National Register of Historic Places [NRHP]) that may be present in the APE.

### ***Identification and Evaluation***

This task will consist of a records search and literature review through the Idaho State Historic Preservation Office (SHPO) to identify cultural resources and studies present within a 0.5-mile radius of the APE; a cultural resources survey (both pedestrian and subsurface, if required); and a summary conference call with the USACE archaeologist and/or an architectural historian to discuss research findings and determination of effects.

Previously unrecorded historic resources identified within the APE will be recorded on Archeological Survey of Idaho (ASI) site forms and/or Idaho State Historical Inventory (ISHI) site forms and will be evaluated for NRHP eligibility. Previously recorded cultural resources within the APE will have their forms updated and evaluated for NRHP eligibility, where appropriate.

### ***Determination of Effects***

Jacobs will apply the criteria of adverse effects and will provide recommendations regarding the effects on identified resources. This task will include two meetings to discuss comments on each of the draft Archaeological and Historic Survey Report (AHSR) deliverables.

### **Assumptions**

- USACE will conduct its own Section 106 consultation with SHPO, Tribes, or other agencies.
- SHPO records search of the project area and 0.5-mile radius of the APE will be conducted to identify the presence of previous cultural resources and cultural studies.
- One site visit will be required for the cultural resources survey, consisting of an archaeological surface pedestrian survey, subsurface testing (if required), and architectural survey of built environment if resources are present. Fieldwork will take place after a review of the SHPO record search and literature review.
- Jacobs' level of effort assumes one archaeological resource will be identified, a portion of roadway will be recorded as an historic resource, and no other historical structures or buildings are present in the APE. Changes to these assumptions identified during the course of project delivery may require a contract modification.
- Jacobs will review all proposed design plans and any as-built plans prior to effects analysis.
- Two meetings with USACE cultural staff will be conducted, with two Jacobs staff attending.
- Effort assumes that one archaeological resource and one historic resource will be evaluated.
- The Archaeological and Historic Survey Report will include ISHI forms, project area and APE maps, and survey photo attachments.

### **Deliverables**

- Draft and Final AHSR that addresses cultural resources identified in the APE.

### **6.1.5 Joint Permit Application for Impacts to Jurisdictional Waters**

Jacobs will complete the Joint Permit Application for impacts to wetlands and waters of the State/U.S. It is assumed that permitting will be conducted at the 80-90% design level. This task includes identification of potential impacts, identification of applicable permit type (NWP), and preparation of state and federal wetland/jurisdictional waters Joint Permit Application. The permit application will be prepared following completion of the Aquatic Resources Delineation Report. It is assumed that this project will proceed using an NWP to address any unavoidable impacts associated with proposed project tasks that include the following:

- Preparation of the Section 404 Joint Permit Application for submittal to the USACE, Idaho Department of Environmental Quality (IDEQ), and IDWR.
- Coordination with federal and state agency personnel.
- Determine if conceptual mitigation plan for unavoidable impacts to aquatic resources will be required.
- Preparation of a Revegetation Plan for temporary impacts.

#### **Assumptions**

- This project will be permitted under a USACE NWP.
- This task does not include the development of a conceptual mitigation plan.
- The City will supply permit fees.
- The permit application and mitigation plan for the adjacent Highway Runoff Infiltration Wetlands and other City riparian and wetlands permits are available for review.
- The City has a site available for mitigation in case the proposed new wetland cannot self-mitigate all riparian and creek side wetland impacts.
- The Conceptual Wetland Mitigation Plan is not included in this scope of work and will be contracted under a separate contract or change order.

#### **Deliverables**

- Draft and Final Joint Permit Application for submittal to the USACE, IDWR, and IDEQ
- Environmental Construction Specifications

## **Task 6.2 Site Survey**

The Jacobs team will perform the following tasks to support comprehensive site surveying and mapping for detailed design.

### **6.2.1 Survey Coordinate System**

Establish horizontal and vertical control for the project based on the City of Nampa's Local Coordinate System.

### **6.2.2 Recorded Survey Research**

Complete research for recorded surveys and plats within project area. The recorded documents in PDF file format will be delivered.

### 6.2.3 Review of Topographic Data

Review existing topographic information provided by the City and verify that on the City's Local Coordinate System and a consistent vertical datum. If the datums are not consistent, Jacobs will try to convert or reproject the provided information.

### 6.2.4 Mapping Augmentation and LiDAR Quality Control Survey

Augment the City-provided mapping in areas where design requires additional information, clarity, or where the provided mapping is insufficient for design. Some of these areas have been identified due to the nature of the design. Other mapping needs may become apparent based on the final pathway alignment or other unknowns that are discovered during design.

The supplemental areas that have been identified include Midland/Karcher Road over Indian Creek bridge abutment and the Karcher Road and Midland Boulevard intersection. Other supplemental mapping will depend on the conceptual design analysis and design needs identified where the provided mapping does not meet the detail required for final design.

Examples of these items include Millwork's building corners, underground utilities, or creek banks where the pathway alignment is within the floodplain, areas where vegetation has obscured existing topographic features. Jacobs is estimating 10 days of field effort with office support for these potential mapping needs.

Spot observations will be made along the proposed pathway alignment to QC the remoted sensed LiDAR mapping. Differences between the surveyed spot observations and the LiDAR elevations will be reported to the team for review.

- ***Midland/Karcher Over Indian Creek Abutment Survey.*** Map the existing bridge abutment face, concrete slope, and ground from the concreted slope northerly to the adjacent creek bank. Map the low chord of the bridge to verify clearance for construction activities. The City-provided topographic map and LiDAR digital terrain surface will be augmented with the mapped features.
- ***Karcher Road and Midland Boulevard Intersection at Indian Creek Crossing.*** Map the existing roadway from the intersection 300 feet east to 150 feet west of the intersection on West Karcher Road and Midland Boulevard from 300 feet south to 300 feet north of the intersection. The mapping will include existing planimetric features (edge of pavement, sidewalk, guardrails, signs, etc.), existing visible surface utility feature (manholes, valve casings, power poles, junction boxes, guy wires, etc.), and elevations of the roadway surface at a nominal 50-foot intervals. The mapping will also include the ends of the Indian Creek culvert headwall, wingwall(s) and appurtenant features. The City-provided topographic map and LiDAR digital terrain surface will be augmented with the mapped features.
- ***Indian Creek.*** Provide augmented survey data for Indian Creek. This data will include five stream cross sections and approximately 0.4 mile of stream channel profile surveyed at a frequency of 50 feet.

### 6.2.5 Review Floodway Data

Verify that the coordinate system of the 100-year regulatory floodway/floodplain and 500-year flood area found on Federal Emergency Management Agency (FEMA) FIRM Panels 16027C0376F and 16027C0377F have been accurately translated to the City's Local

Coordinate System. Additionally, Jacobs will translate any FEMA map updates that impact this project.

#### **6.2.6 Wetland Limits Survey**

Jacobs environmental staff will mark out the limits of existing wetlands in previous task. Jacobs survey staff will create a CAD wetland map from this survey for use in concept design.

#### **6.2.7 Property Data**

Utilize GIS property line information provided by the City. The information from the Recorded Surveys Research will be used to augment the City-provided GIS property lines to refine the boundaries, right of ways, and easements shown thereon. This property information will be reviewed, processed, and developed into CAD files for preliminary design use.

#### **6.2.8 Right-of-Way/Permanent Easements**

Provide the City with approximate right-of-way and/or permanent easement areas for the proposed pipeline and pathway. These areas will be determined using City-provided GIS property information. For each of the impacted properties (four assumed), an encumbrance exhibit will be prepared with the existing conditions, proposed trail, and the proposed easements shown for each property with record owner information and areas of the proposed encumbrances.

#### **Assumptions**

- The City will provide Jacobs with the horizontal meta data (datum and projection) needed to establish survey control on the City's Local Coordinate System.
- The City will provide Jacobs with GIS parcel linework for the project area.
- The City will provide LiDAR data and aerial orthophotography. Other than the proposed supplemental mapping identified under 6.1.4 no additional survey is anticipated under the proposed scope of work. If additional survey along Indian Creek is required for the multi-use pathway and bridge, it will be negotiated in supplemental services, or as a part of a future contract.
- Legal descriptions and exhibits required for right-of-way acquisition or permanent easements establishment is excluded from the concept multi-use pathway design scope, and will be negotiated in supplemental services, or as a part of a future contract.

### **Task 6.3 Conceptual Hydraulic Analysis**

Hydraulic analysis is essential for designing the pathway and bridge for the Karcher Constructed Wetland. The following tasks will be facilitated to provide the necessary hydraulic details.

- **Desktop and Field Review.** conduct a desktop review of all available FEMA information to ensure that the most current flood hazard designations and limits has been provided for Indian Creek at the project location. This will include a review of the Canyon County Flood Insurance Study, 100-year floodway/floodplain, 0.2% Annual Chance Flood Hazard, cross section locations, water surface elevations, and jurisdictional boundaries.
- **FEMA Map Verification.** Jacobs hydraulic staff will coordinate with Jacobs survey staff to provide accurate CAD file mapping of Indian Creek's flood hazard data for concept design.

- **Hydraulic Consultation.** Jacobs hydraulic staff will coordinate with project design staff to develop pathway and bridge concepts and will attend up to two City meetings.

Jacobs will provide the City with a technical memorandum discussing the findings of the desktop review and development of the concept pathway and bridge designs. The technical memorandum will contain recommendations for future hydraulic and permitting efforts, if needed, to support the proposed design. The findings of this technical memorandum may determine that a more detailed hydraulic analysis is required for this project. This technical memorandum will be incorporated into the Concept Design Report submittal.

### **Assumptions**

- Up to two Jacobs staff will visit the project site to document stream channel characteristics, identify ordinary and high-water marks and other potential risks associated with installing a bridge over a waterway.
- City of Nampa, Community No. 160038, and Canyon County Unincorporated Areas, Community No. 160208, are the Floodplain Administrators of Indian Creek for this project location.
- If additional hydraulic analysis is required for the multi-use pathway and bridge, it will be negotiated in supplemental services or as a part of a future contract.

### **Deliverables**

- Draft and Final Floodplain Technical Memorandum

## **Task 6.4 Conceptual Multi-Use Bridge Design**

A multi-use bridge crossing Indian Creek will be conceptualized for both pedestrians and maintenance access. The following tasks will support this work.

### **6.4.1 Bridge Loading Condition**

Jacobs will coordinate with the City to determine the appropriate vehicular Live Load condition (e.g., H-5, H-10, H-20, HS-20) that is most representative of the City's needs for equipment/vehicles required for maintenance of the Karcher Effluent Wetland.

### **6.4.2 Bridge Type**

Jacobs will provide the City with type, size, & location (TS&L) options for two bridge types and two bridge location concepts. Bridge type options will consist of the following options:

1. Prefabricated truss bridge
2. Deck and girder bridge

### **6.4.3 Bridge Location**

Jacobs will evaluate the possibility of two different bridge crossing locations over Indian Creek west of the Karcher Road Overpass.

### **6.4.4 Structural Consultation**

Jacobs structural staff will coordinate with project design staff to develop pathway and hydraulic design.

#### **6.4.5 Geotechnical Evaluation**

A geotechnical site assessment will be conducted to characterize the soil conditions for bridge and trail constructability. Data from existing borings and soil sampling at the site will be reviewed.

#### **6.4.6 Bridge Exhibit**

Jacobs will provide four/two exhibits; one for each bridge type at each/preferred location to be included in the Concept Design Report deliverable.

#### **6.4.6 Bridge Type, Size, and Location Report**

Jacobs will provide a TS&L Report detailing pertinent data required for the final design of the structure, and documentation of the design decisions. This report will provide enough background information so that the City can effectively evaluate the bridge concepts. This report will be incorporated into the Concept Design Report submittal.

#### **Assumptions**

- The following bridge design standards will be utilized for this project:
  - AASHTO LRFD Bridge Design Specifications
  - AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges
  - ITD LRFD Bridge Design Manual
  - ITD Standard Specifications for Highway Construction
- The City will provide Jacobs with a typical maintenance vehicle size and type. Geotechnical analysis for detailed bridge substructure design is excluded from this scope and will be negotiated in supplemental services or as a part of a future contract.
- No permanent easement or land use agreement between the City and ITD is required for City infrastructure located within ITD right-of-way.
- The terms and conditions of ITD's Memorandum of Understanding with the City allows for the utilization of ITD ROW for a City owned and operated multi-use pathway bridge.
- Proposed multi-use pathway bridge will not be utilized for effluent wetland construction.

The following items are excluded from this multi-use bridge concept scope. If the City wishes to complete any of these tasks, they will be negotiated in supplemental services or as a part of a future contract.

- Geotechnical analysis or preliminary foundation design or type selection for bridge substructure
- TS&L reports for multi-use pathway bridges between the Karcher Road overpass and the existing wastewater treatment plant
- Final Design of bridge concept
- Construction documents
- Public involvement meetings
- Coordination with Union Pacific Railroad
- Coordination with ITD

- Coordination with private landowners

## Task 6.5 Conceptual Parking and Pathway Design

As a community asset, the Karcher Constructed Wetland will have places for people to park, walk, and learn about their community's water resources. This task will include conceptual design of the parking lot and pathway to provide concepts to refine through a collaborative design process.

### 6.5.1 Parking Lot

Jacobs will design the Karcher Pathway Parking facility per City Ordinances.

### 6.5.2 AutoTURN Analysis

Jacobs will complete an AutoTURN analysis verifying a City-specified design vehicle can navigate through the parking lot.

### 6.5.3 Parking Lot Section

Jacobs will utilize City of Nampa's Standard Drawing N-820A pavement section for the concept parking lot.

### 6.5.4 Parking Lot Amenities

Jacobs will detail the approximate locations of the following parking facility amenities:

- One two-stall public restroom facility and associated potable water, sewer, and electrical services.
- Parking lot light poles and associated electrical services.
- Irrigation service from the City's pressure irrigation system.
- If the City wishes to complete a detailed lighting luminaire study, it will be negotiated in supplemental services or as a part of a future contract.

### 6.5.5 Pathway

Jacobs will provide two concept multi-use pathway layouts. The goals of these layouts will be to provide access from the proposed parking lot to the proposed Karcher Wastewater Effluent Wetland and to the existing wastewater treatment plant.

- **Pathway Geometrics.** Provide horizontal and vertical geometric analysis for the proposed pathway layout options. Pathway will be designed to meet Americans with Disabilities Act standards as identified in PROWAG.
- **Pathway Section.** Utilize City of Nampa's Standard Drawing N-826 pavement section for the proposed pathway.
- **Pathway Amenities.** Detail the approximate locations of pathway lighting and associated electrical services. If the City wishes to complete a detailed lighting luminaire study, it will be negotiated in supplemental services or as a part of a future contract.

### 6.5.6 Stormwater Analysis

Jacobs will calculate post-development 100-year peak runoff flow and runoff volume and will approximately size subsurface seepage facilities or bio-infiltration swales for the proposed

parking area. Stormwater facility sizing will be based on assumed existing soil conditions determined from U.S. Department of Agriculture soil mapping data. The increase in runoff due to the proposed pathway improvements is assumed to be negligible and will not be analyzed as a part of this project. A detailed drainage analysis will be negotiated in supplemental services or as a part of a future contract.

#### **6.5.7 Site Visit**

Two Jacobs team members will visit the project site to document site characteristics and become familiar with site topography.

#### **6.5.8 Landscaping**

Jacobs will provide landscaping design concept and recommendations for the transportation elements. Recommendations will be based on the City's needs and preferences. Detailed landscaping planting and irrigation schedules will be negotiated in supplemental services or as a part of a future contract.

#### **Assumptions**

- The 2020 Idaho Standards for Public Works Construction (ISPMC) as amended by the City's 2023 Supplemental Standards for Public Works Construction will be used as the basis of the design.
- Resident access to the proposed parking, multi-use pathway way, and wetland will be provided via Black Butte Court.
- Parking lot stormwater can discharge into a subsurface seepage facility or bio-infiltration swale.
- Pathway stormwater runoff can discharge onto adjacent ground without any stormwater control infrastructure.
- No permanent easement or land use agreement between the City and ITD is required for City infrastructure located within ITD right-of-way.
- The terms and conditions of ITD's Memorandum of Understanding with the City allows for the utilization of ITD ROW for a City-owned and -operated multi-use pathway.
- The proposed pathway from the effluent wetland to the wastewater treatment plant will follow the proposed wastewater effluent pipe alignment were feasible.
- If the proposed multi-use pathway concept design identifies additional multi-use bridges are needed to cross Indian Creek in order to provided pathway connection between the Karcher Road overpass and the existing wastewater treatment plant; a bridge TS&L report will be negotiated in supplemental services or as a part of a future contract.
- The City will provide Jacobs with the following:
  - Wetland surrounding areas where the City wants vehicular maintenance access.
  - Number of parking stalls needed for proposed site.
  - Design vehicle for parking lot geometric design.
  - Future Indian Creek pathway tie-in points.
  - Parking and pathway landscaping preferences. Black Butte Phase 3 LLC's proposed design for Parcel 24413000 0 to coordinate proposed pathway and parking locations.

- Black Butte Phase 3 LLC’s proposed design for Parcel 24413000 0 to coordinate proposed pathway and parking locations.

The following items are excluded from this multi-use parking lot/path concept scope. If the City wishes to complete any of these tasks, they will be negotiated in supplemental services or as a part of a future contract.

- Geotechnical analysis for pavement section design and stormwater design
- Intersection widening options at West Karcher Road and Midland Boulevard
- Construction documents
- Public Involvement meetings
- Intersection improvements for a pedestrian pathway crossing at West Karcher Road and Midland Boulevard
- Coordination with Union Pacific Railroad
- Coordination with ITD
- Coordination with private landowners

### **Task 6.6 Conceptual Design Report**

Jacobs will develop a concept report identifying the proposed pathway and bridge design options for the Kercher Wastewater Effluent Wetland Project. The report will be submitted to the City for use in determining funding options and action items needed to progress the project into later design phases.

This report will consist of the following items:

**Narrative.** The report narrative will summarize proposed parking, pathway, and bridge options for this project. The narrative will consist of a project introduction, the City’s goals for this project, project options, a project recommendation, and a summary of Next Step Action Items to progress the parking, pathway, and bridge further in the design process.

**Exhibits.** Prepare 11"x17" exhibits illustrating proposed layout of two multi-use pathway options. This will include an overall pathway plan with bridge exhibits. The following exhibits are anticipated.

Multi-Use Parking, Pathway, and Bridge Exhibits:

- One Project Vicinity Map
- Option 1 Pathway Exhibits:
  - One Project Site Plan Sheet (1:600 Scale)
  - Eight Pathway Plan Sheets (1:40 Scale)
- Option 2 Pathway Exhibits:
  - One Project Site Plan Sheet (1:600 Scale)
  - Eight Pathway Plan Sheets (1:40 Scale)
- One Parking lot plan (1:40 Scale)
- One Miscellaneous Detail Sheet

Multi-Use Bridge options exhibits will be detailed in the TS&L Report.

- **Engineer's Estimate.** Prepare an itemized engineers estimate for the proposed multi-use pathway and bridge options.

## 6.7 Conceptual Design Review

Jacobs will lead an informal concept design review with the City to present the concept design and determine any outstanding design issues that should be incorporated into supplemental services or as a part of a future contract.

### Assumptions

- Graphics, renderings, and 3D models are excluded from this scope.
- Design Exhibits will be completed in Autodesk Civil 3D.

### Deliverables

- Draft and Final Conceptual Design Report

## Task 7. Construction Access Design

**Objective.** Develop a temporary construction access plan for the construction of the Karcher Constructed Wetland. Construction access over Indian Creek will be provided by a temporary culvert/bridge.

**Approach.** Jacobs will develop an alignment and profile for a construction access road from Black Butte Court to the Indian Creek Temporary Construction Bridge. The typical section for the construction access road will consist of 15 inches of crushed aggregate base. The alignment and profile for the construction access road will match the concept design multi-use pathway were feasible. The following tasks will be performed to support preparation of the construction access road design documents.

### Task 7.1 Temporary Construction Access Plan

An actionable and reasonable plan will be developed to provide temporary construction access. This task includes all the efforts resulting in 90% design plans.

#### 7.1.1 Temporary Construction Access Hydraulics

Jacobs will develop an alignment and profile for a construction access road from Black Butte Court to the Indian Creek Temporary Construction Bridge. The typical section for the construction access road will consist of 15 inches of crushed aggregate base. The alignment and profile for the construction access road will match the concept design multi-use pathway were feasible.

#### 7.1.2 Local Floodplain Manager Coordination

Jacobs will coordinate with the local jurisdiction floodplain manager to determine documentation needs to support construction, timing, and demolition of a temporary crossing structure.

### **7.1.3 Temporary Construction Access Location**

Jacobs will evaluate the construction and haul needs of the wetland project and recommend one Indian Creek temporary construction crossing location for this project.

### **7.1.4 90% Design Plan Documents**

Jacobs will complete the final design including the following 11"x17" plan sheets.

- Title Sheet – Complete the final plan set title page. (1 sheet)
- Survey Control & General Notes – Prepare a map showing the local project survey control and general notes for project construction. (1 sheet)
- Vicinity & Special Map(s) – Update the Vicinity Map and/or Special Maps. (1-2 sheets)
- Plan Sheets – Complete the final plan layout for the project with construction callouts and details. (5 sheets)
- Temporary Bridge/Culvert Sheets – Prepare a construction access road plan and profile over Indian Creek that will accommodate the recommended temporary crossing conveyance structure. Prepare a recommended crossing structure stream profile. (2-3 sheet)
- Miscellaneous Details – Prepare final layout of other project details. (1-2 sheets)

### **7.1.5 Draft Temporary Construction Easement**

Draft Temporary Construction Easements (TCEs) will be developed for areas throughout the design which the City may need access to, in order to layout the proposed construction access road.

### **7.1.6 Final Design Construction Access Review Meeting**

Jacobs will complete the final design including the following 11"x17" plan sheets:

- Title Sheet – Complete the final plan set title page. (1 sheet)
- Survey Control & General Notes – Prepare a map showing the local project survey control and general notes for project construction. (1 sheet)
- Vicinity & Special Map(s) – Update the Vicinity Map and/or Special Maps. (1-2 sheets)
- Plan Sheets – Complete the final plan layout for the project with construction callouts and details. (5 sheets)
- Temporary Bridge/Culvert Sheets – Prepare a construction access road plan and profile over Indian Creek that will accommodate the recommended temporary crossing conveyance structure. Prepare a recommended crossing structure stream profile. (2-3 sheets)
- Miscellaneous Details – Prepare final layout of other project details. (1-2 sheets)

## **Task 7.2 100% Design Plans**

Jacobs will compile the Final Design Review Comments, respond to each comment, and resolve identified issues prior to incorporating into the PS&E plans. Jacobs will complete the final plan revisions and prepare a complete set of PS&E plans.

### 7.2.1 Final Temporary Construction Easements

Jacobs will finalize the Draft TCEs for City processing. Each TCE will have an agreement for property owner signature as well as a supporting exhibit showing the area associated with the TCE agreement. The City will be responsible for acquiring all property owner signatures for final Execution of the TCE agreements. One TCE is anticipated for this project.

### 7.2.2 Specifications

Jacobs will prepare project specifications and general notes for wetland construction access at critical milestones, including the following:

- Final Design
- PS&E

### 7.2.3 Engineer's Construction Estimate

Jacobs will prepare a project construction quantity estimate and associated cost estimate for construction access at critical milestones, including the following:

- Final Design
- PS&E

### Assumptions

- Up to two meetings with the floodplain manager are assumed.
- One TCE is anticipated for this project.
- The 2020 ISPMC as amended by the City's 2023 Supplemental Standards for Public Works Construction will be used as the basis of the design.
- The construction access road stormwater runoff can discharge onto adjacent ground without any stormwater control infrastructure.
- Construction access road width will be 14 feet.
- Although recommendations for the temporary construction crossing over Indian Creek size will be recommended by Jacobs, the conveyance size will be selected ultimately by the wetland construction contractor based on materials availability.
- Temporary construction crossing over Indian Creek structural design standards will be determined by the wetland construction contractor.
- A TCE between Black Butte LLC Phase III and the City will be utilized for the construction access road from Black Butte Ct though Parcel 24413000 0 to ITD's right-of-way.
- The terms and conditions of ITD's Memorandum of Understanding with the City allows for the construction of an access road and temporary creek crossing.
- Coordination of the temporary construction crossing of Indian Creek will be limited to local floodplain management.
- The following items are excluded from this construction access road and temporary Indian Creek crossing scope. If the City wishes to complete any of these tasks, they will be negotiated in supplemental services or as a part of a future contract.
  - Permanent easements – none will be required for the construction access road or temporary creek crossing.

- Structural design of the temporary construction crossing over Indian Creek.
- A Conditional Letter of Map Revision (CLOMR), Letter of Map Revision (LOMR) or coordination with FEMA for temporary construction crossing.
- SWPPP, ESCP, City of Nampa Erosion Permit, and IPDES Permit.

## **Task 8. Constructed Wetland Contract and Bidding Documents**

Jacobs will prepare one set of contract and bidding documents using the ISPWC Division 100 – Standard General Conditions of Construction Contracts. The temporary construction access road, temporary Indian Creek crossing, constructed wetlands, and effluent piping will be bid as one construction project. The contract documents will include the following sections:

- Project Advertisement for Bids
- Bid Forms and Instructions to Bidders
- Bid, Performance and Payment Bonds
- Naming of Subcontractor(s)
- Standard Form of Contract Agreement
- WH-5 Public Works Contract Report
- Contractor's Affidavit Concerning Taxes
- Notice of Award and NTP
- General Conditions
- Supplementary Conditions
- General Notes, Modifications to the ISPWC, and Special Provisions

Draft contract documents will be completed for review at the 90% design stage of the project development and then finalized for publication during the 100% stage of the project development.

### **Assumptions**

- Bidding support, construction engineering, and inspection services are excluded from this scope of work. If the City wishes to complete any of these tasks, they will be negotiated in supplemental services or as a part of a future contract.

## Appendix B

### Schedule and Budget

The proposed schedule includes expected project dates and durations. Work will begin as soon as this agreement is executed and will continue based on the work plan shown in Table 1. If the Notice to Proceed date is issued later than that estimated in Table 1, the remaining milestone dates will be adjusted accordingly. The schedule is subject to change as details emerge and field work is initiated. Updates will be provided through monthly progress reports.

**Table 1. Proposed Schedule**

<b>Task</b>	<b>Start</b>	<b>Duration</b>
<b>Task 1. Project Management</b>	February 1, 2024	15 months
<b>Task 2. Karcher Wetland Project Concept Refinement</b>	February 1, 2024	6 months
<b>Task 3. Groundwater Assessment and Geotechnical Investigation</b>	May 1, 2024	2 months
<b>Task 4. Permitting and Water Rights</b>	May 1, 2024	12 months
<b>Task 5. Final Design Documents for Wetlands and Plantings</b>	July 1, 2024	6 months
<b>Task 6. Multi-Use Parking, Pathway, and Bridge Conceptual Design</b>	May 1, 2024	6 months
<b>Task 7. Construction Access Design</b>	September 1, 2024	4 months
<b>Task 8. Constructed Wetland Construction Documents</b>	February 1, 2025	2 months

## Compensation

Table 2 provides an estimated breakdown of the budget level of effort and costs associated with this scope of work. Compensation for this task order will be on a Time and Materials Basis, with the amount shown in Table 2 as the target budget.

The Engineer will make reasonable efforts to complete the work within the total budget and will keep the City of Nampa informed of progress toward that end so that the budget or work effort can be adjusted if necessary. Due to the consulting nature of this project, the effort will be limited by the overall budget, which will be managed at the project level. The project budget includes a 15% contingency for small adjustments to the effort that cannot be foreseen prior to beginning the design. The City project manager will hold the contingency and distribute it to specific task amendments to expedite project design progress without the need for additional City Council approval. If added effort is needed, a modification to this contract will be negotiated and presented for City Council consideration.

**Error! Not a valid link. Table 2. Proposed Budget**

<b>Karcher Constructed Wetland Design and Multi-Use Parking, Pathway, and Bridge Conceptual Design</b>	USD	Hr
	<b>\$ 1,299,999</b>	
<b>Task 1. Project Management</b>	<b>\$ 101,484</b>	<b>324</b>
Project Administration	\$ 25,683	110
Meetings and Workshops	\$ 28,347	114
Progress Reports	\$ 13,991	60
Design Coordination	\$ 9,963	40
University and Partner Relations (Subconsultant)	\$ 14,000	
Subconsultant Project Management	\$ 13,000	
<b>Expenses</b>	<b>\$ 9,500</b>	
Travel	\$ 5,000	
Lab Analysis	\$ 4,000	
Supplies	\$ 500	
<b>Task 2. Karcher Wetland Project Concept Refinement</b>	<b>\$ 294,780</b>	<b>1414</b>
Task Management	\$ 14,250	50
<b>2.1 Wetland Modeling and Earthwork Preliminary Design</b>	<b>\$ 208,040</b>	<b>988</b>
Site Information and Data Collection and Analysis	\$ 71,420	320
Wetland Predesign	\$ 98,410	472
Schematic Drawings	\$ 38,210	196
<b>2.2 Wetland Structure, Water Level Control Structures, Pipeline, and Discharge Structure Predesign</b>	<b>\$ 81,530</b>	<b>398</b>
Hydraulic and System Analysis	\$ 7,640	40
Pipeline Alignment Evaluation	\$ 28,870	142
Schematic Drawings and Predesign Report	\$ 45,020	216
<b>Task 3. Soils, Hydrogeological Assessment and Geotechnical Investigation</b>	<b>\$ 56,965</b>	<b>231</b>

Task Management	\$ 4,450	16
<b>3.1 Groundwater Assessment</b>	\$ 11,340	36
<b>3.2 Soils and Geotechnical Exploration and Evaluation</b>	\$ 41,175	179
Review Existing Information	\$ 16,980	72
Field Exploration	\$ 12,475	55
Laboratory Evaluation	\$ 2,880	12
Geotechnical Design Technical Memorandum	\$ 8,840	40
<b>Task 4. Permitting and Water Rights Support</b>	\$ 170,910	778
Task Management	\$ 2,080	8
<b>4.1 General Permitting Support</b>	\$ 24,100	74
Permitting Support and Matrix	\$ 18,100	74
Permitting Support	\$ 6,000	0
<b>4.2 Wetland Delineation</b>	\$ 34,040	170
Conduct Delineation	\$ 32,740	170
Wetland Delineation Expenses	\$ 1,300	0
<b>4.3 Biological Resources Review Technical Memorandum</b>	\$ 9,880	50
<b>4.4 Cultural Resources Documentation</b>	\$ 30,990	162
Identification and Evaluation	\$ 12,970	74
Determination of Effects	\$ 14,520	88
Cultural Resources Expenses	\$ 3,500	0
<b>4.5 Joint Permit Application for Impacts to Jurisdictional Waters</b>	\$ 30,910	168
Prepare Section 404 Joint Permit Application	\$ 25,110	128
Prepare Environmental Construction Specifications	\$ 5,800	40
<b>4.6 IPDES 1200-C Permit</b>	\$ 20,880	104
Prepare IPDES 1200-C Application	\$ 18,560	88
Prepare ESCP/SWPPP Drawings	\$ 2,320	16
<b>4.7 Water Rights Determination</b>	\$ 11,200	0
Prepare Water Rights Application	\$ 11,200	0
<b>4.8 Quality Assurance Project Plan</b>	\$ 6,830	42
<b>Task 5. Final Design for Constructed Wetland</b>	\$ 244,610	1356
Task Management	\$ 19,380	68
<b>5.1 60% Design of Conveyance Pipeline, Wetlands Inlet Structure, Constructed Wetland, and Water Level Control Structures</b>	\$ 75,490	434
Revise wetlands layout based on City conceptual design review	\$ 4,740	28
60% design drawings for earthwork, water conveyance, structures, finalize process flow diagram, details on conveyance, berms, control structures	\$ 41,920	236
60% design drawings for plantings, perimeter landscaping	\$ 17,120	114
Specifications	\$ 10,570	52
60% Design Review Meeting	\$ 1,140	4
<b>5.2 90% Design of Conveyance Pipeline, Wetlands Inlet Structure, Constructed Wetland, and Water Level Control Structures</b>	\$ 105,360	580
Incorporate City's review comments; Conduct survey of pipeline and coordinates for the wetlands footprint	\$ 20,320	104

90% design drawings for wetlands earthwork, pipeline, and control structures; finalize process flow diagram, details on conveyance, berms, control structures	\$ 40,120	228
90% Detail design drawings for plantings, perimeter landscaping	\$ 18,025	119
Prepare 90% specifications for Bid Package with City's standard construction contract terms and legal documents provided by City	\$ 18,655	91
Prepare Engineer's Cost Estimate	\$ 7,670	36
90% Bid Packages Drawings & Specifications Review Meeting	\$ 570	2
<b>5.3 Final Wetland Construction Drawings and Specifications</b>	<b>\$ 44,380</b>	<b>274</b>
Incorporate City comments from 90% design drawings & Finalize drawings for Bid Package to 100%	\$ 26,620	156
Finalize 100% specifications for Bid Package, incorporating City's comments on 90%	\$ 17,190	116
Submit 100% Bid Package to City for Bidding	\$ 570	2
<b>Task 6. Multi-Use Parking, Pathway, and Bridge Conceptual Design</b>	<b>\$ 331,620</b>	<b>1866</b>
Task Management	\$ 1,520	8
<b>6.1 Environmental Permitting</b>	<b>\$ 160,325</b>	<b>874</b>
General Permitting Support - Permitting Matrix	\$ 6,225	31
Wetland Delineation	\$ 29,160	154
Biological Resources Review Technical Memorandum	\$ 10,825	60
Cultural Resources Documentation	\$ 43,125	251
Joint Permit Application for Jurisdictional Waters	\$ 70,990	378
<b>6.2 Site Survey</b>	<b>\$ 39,980</b>	<b>229</b>
<b>6.3 Conceptual Hydraulic Analysis</b>	<b>\$ 6,740</b>	<b>40</b>
<b>6.4 Conceptual Multi-Use Bridge Design</b>	<b>\$ 61,060</b>	<b>320</b>
Conceptual Bridge Design and Bridge Type, Size, and Location Report	\$ 39,820	228
Geotechnical Evaluation and Report	\$ 21,240	92
<b>6.5 Conceptual Parking and Pathway Design</b>	<b>\$ 34,805</b>	<b>225</b>
<b>6.6 Conceptual Design Report</b>	<b>\$ 25,690</b>	<b>160</b>
<b>6.7 Conceptual Design Review</b>	<b>\$ 1,500</b>	<b>10</b>
<b>Task 7. Temporary Construction Access Plan</b>	<b>\$ 52,980</b>	<b>326</b>
<b>7.1 Temporary Construction Access Plan</b>	<b>\$ 24,270</b>	<b>153</b>
<b>7.2 Temporary Access 100% Design Plans</b>	<b>\$ 7,700</b>	<b>49</b>
<b>Task 8. Constructed Wetland Contract and Bidding Documents</b>	<b>\$ 23,700</b>	<b>134</b>
Task Management	\$ 380	2
Prepare Contract and Bidding Documents	\$ 8,980	48
Bidding Administration and Support	\$ 14,340	84