Appendix A

Basic Services of Engineer
City of Billings W.O. 15-21 – Logan Reservoir/Pump Station

Section 1. Engineer's Rights and Duties.

A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete the Engineer's portion of the project as defined in the scope of work and to prepare and deliver to Billings all plans, specifications, bid documents, and other material as designated herein.

B. Ascertain such information as may have a bearing on the work from local units of government, utility companies, and private organizations and shall be authorized to procure information from other authorities besides Billings, but shall keep Billings advised as to the extent of these contacts and the results thereof.

C. Prepare and present such information as may be pertinent and necessary in order for Billings to pass critical judgment on the features of the work. The Engineer shall make changes, amendments or revisions in the detail of the work as may be required by Billings. When alternates are being considered, Billings shall have the right of selection.

D. Engineer's work shall be in accordance with the standards of sound engineering and present City, State, and National standards and policies currently in use.

E. Conform to the requirements of the Montana Code Annotated Title 18 "Public Contracts" and more particularly Sections 18-2-121 and 18-2-122, and all other codes of the State of Montana applicable to providing professional services including codes and standards nationally recognized.

F. The Engineer shall certify with the submission of final plans that the plans are in conformance with applicable sections of Title 69, Chapter 4, Part 5, of the Montana Code Annotated as pertaining to existing utilities.

G. To perform professional services in connection with the project and will serve as Billings' representative in those phases of the project to which this agreement applies.

H. Where Federal funds are involved, the necessary provisions to meet all requirements will be complied with and documents secured and placed in the bidding documents.

I. Submit an estimated progress schedule as to time and costs at the beginning of the work, and monthly progress reports thereafter until complete. The reports will include any problems, potential problems, and delays as foreseen by the Engineer. Reports will be submitted in a timely manner to permit prompt resolution of problems.

J. Contract administration duties will include review of contractor certified payrolls for wage rate compliance. Discrepancies in certified payrolls will be resolved with the Contractor. A signed Engineer's Payroll Check Sheet (included in the Standard Modifications to MPWSS) will be submitted as proof of this review with one copy of each payroll.

K. Name a Task Director who shall be the liaison between Billings and the Engineer. For this project the Task Director designated for the Engineer is Jake Ostrander working under the Principal-in-Charge, Amanda McInnis.

Section 2. Billings Rights and Duties.

A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete Billings' portion of the project as designated in the scope of work.

B. Name a Task Director who shall be the liaison between the Engineer and Billings. For this project, the Task Director designated is Will Robbins, working under the City Engineer, Debi Meling.

Section 3. Scope of Work.

The project consists of engineering services for the feasibility analysis, preliminary evaluation, design, bidding and construction phases for the City of Billings W.O. 15-21 – Logan Reservoir/Pump Station. The purpose of the project is to add additional water storage for the Zone 5 Pressure Zone and to evaluate and potentially implement storage and pumping improvements associated with the Zone 6 Pressure Zone. The size, location, type and style for the new Zone 5 Reservoir and the impacts associated with storage and pumping in the Zone 6 Pressure Zone will be determined through a feasibility study. The selected alternative from the feasibility study will be designed and constructed. The project will be funded with a State Revolving Fund (SRF) Loan.

The program will be implemented in the following phases:

- Phase I – Feasibility Study
- Phase II – Design, bidding and construction engineering services for the facilities selected during the feasibility study

The Phase I scope of work is summarized below. The work scope for Phase II of the project will be developed upon the completion of Phase I and presented in a subsequent contract amendment.

Phase I – Feasibility Study Scope:

- Zone 5 Reservoir Size Evaluation
  - Evaluate current Zone 5 system demands, future area growth, land usage projections, fire flow requirements, and time period for new reservoir to meet criteria, to determine the proper size for the new Zone 5 Reservoir.
  - Evaluate storage requirements for Zone 6 and Zone 7 using same criteria to consider in sizing the Zone 5 Reservoir.

- Develop Technical Memorandum summarizing Zone 5 Reservoir Size Evaluation.

- Zone 5 Reservoir Site Evaluation
  - Five potential reservoir sites will be evaluated, sites A, B, C and D from the project proposal, and a potential site located within Zimmerman Park.
  - Site evaluation for each location to include:
    - Reservoir style and material: based on previously determined reservoir size
    - Waterline requirements
    - Pumping requirements
    - Water quality impacts
    - FAA coordination
    - Preliminary construction and life cycle cost analysis
    - Land acquisition requirements and easements for reservoir(s), pump station and waterlines and preliminary investigation to gauge land owner interest in selling.

- Existing Logan Reservoir Evaluation
  - Evaluate the feasibility of relocating the existing steel Logan Reservoir to an alternate site to serve the Zone 6 Pressure Zone.
  - Evaluate other options for the existing Logan Reservoir including:
    - Demolition and selling for scrap
    - Salvaging the tank to the City for future use
    - Selling tank to another interested party
  - Incorporate findings/requirements from the Cultural Study being performed by the airport relating to the existing Logan Reservoir into the final recommendation**.**

- Christensen Pump Station Evaluation
  - Evaluate alternatives associated with the existing Christensen Pump Station. Alternatives to include:
    - Increasing the capacity of and modifying the existing pump station.
    - Providing a new pump station. Pump station could be at existing site, new site, or within the stem of a new composite elevated reservoir. Along with evaluating a new pump station, investigate salvaging any pumps, misc. equipment from the existing pump station.
    - Building out the Ironwood Pump Station to provide Zone 6 Pumping. This alternative would include evaluating installation of a Zone 6 waterline from the Ironwood Pump Station to the existing Zone 6 waterline near Zimmerman Trail and Highway 3.
  - Evaluate benefits of adding Zone 6 Reservoir
    - Based on Zone 6 storage requirements previously developed, evaluate cost of including a Zone 6 Reservoir in the project.
    - Evaluate cost savings and other benefits to Christensen Pump Station alternatives.

Phase II – Design, Bidding, and Construction Engineering Scope:

(To be further defined and included upon the completion of Phase I)

- Preliminary design
- Land acquisition assistance
- Final design
- Bidding assistance
- Construction administration
- Construction inspection
- Operations and maintenance manual
- State revolving fund assistance

DETAIL SCOPE OF SERVICES

The scope of services that will be utilized on the Billings Logan Reservoir/Pump Station project is presented in the summaries for Tasks 100 through 800. The scope of services is organized as follows:

Task Series	Description
100	Project Initiation, Coordination, and Management
200	Feasibility Study
300	Preliminary Design and Land Acquisition Assistance (scope and fee to be added by amendment)
400	Final Design (scope and fee to be added by amendment)
500	Bidding Services (scope and fee to be added by amendment)
600	Construction Services (scope and fee to be added by amendment)
700	Operations & Maintenance Manual (scope and fee to be added by amendment)
800	State Revolving Fund Assistance (scope and fee to be added by amendment)

TASK SERIES 100 – PROJECT INITATION, COORDINATION, AND MANAGEMENT

101 – Project Initiation

The purpose of this task is to kick off the project externally and internally. A project management plan (PMP) and all the support paperwork will be developed for all team members to have available to understand the project, the project team, and the project requirements. The PMP is updated with significant changes in the project. The project will be kicked off with the City with pertinent staff from the City and HDR to review the project components, schedule, and the process for completing the feasibility study.

- Deliverable: Meeting with City, agenda and meeting minutes.

102 – Meetings with City Staff

During the feasibility study phase of the project, key members of the Consultant design team will meet with the City staff to review the project. Meeting minutes will be prepared and distributed to all parties attending the meeting. During the feasibility study, meetings will be held monthly with a review meeting at the completion of the draft study. Three (3) total meetings are planned for. Meetings to normally be held at the Water Treatment Plant Conference Room.

- Deliverable: Agenda and meeting minutes for each meeting.

103 – Feasibility Study Phase Project Management

As part of this task, the Engineer's Project Manager will lead coordination of the project team with the City as well as supervise the project team. Project Manager and Accountant will monitor project status, maintain project schedule and prepare financial documents.

- Deliverable: Monthly Invoices

TASK SERIES 200 – FEASIBILITY STUDY

This task series will evaluate the various components associated with the new Zone 5 Reservoir, and provide an evaluation and recommendation associated with the existing Logan Reservoir, Christensen Pump Station, and potential Zone 6 Reservoir and will select the desired project to move forward with design. The tasks associated with the feasibility study include the following:

201 – Zone 5 Reservoir Sizing

Evaluate current Zone 5 system demands along with future area growth and land usage projections to determine appropriate equalizing and emergency storage volumes. Review Uniform Fire Code for current requirements applicable for Zone 5 land use classification to develop applicable fire flow storage volume. Coordinate with Logan International Airport staff; include additional airport volume potentially required for airport use. The storage requirements for Zone 6 and Zone 7 will also be considered and taken into consideration in the development of the recommended storage volume for the Zone 5 Reservoir.

- Deliverable: Technical Memorandum summarizing recommended Zone 5 Reservoir size

202 – Reservoir Site Evaluation

Five potential sites for a new Zone 5 Reservoir will be evaluated. Sites include:

- Existing Logan Reservoir site (A)
- North of Highway 3, East of Rod and Gun Club Road (B)
- North of Highway 3, West of Rod and Gun Club Road (C)
- North of the Highway 3/Zimmerman Trail Intersection (D)
- Zimmerman Park (E)

The evaluation for each site will include the type of construction and materials of construction for a proposed reservoir at each location. Waterline and pumping requirements associated with each location, and potential additional facilities (Zone 6 Reservoir/Pump Station, etc.) that could be included with this project or in the future at each location.

203 – Water Modeling

The existing City of Billings water model will be updated and evaluated to determine the impacts of a new reservoir at each of the proposed sites. System flows, pressures, and overall water quality will be included in the water modeling update.

- Deliverable: Summary of water modeling results to be included in evaluation.
- Assumptions: The existing City of Billings InfoWater Suite 10.0 Water Model is available for update.
  GIS data, where needed will be supplied by the City.

204 – FAA Coordination

Each of the proposed reservoir sites and associated tank style/configuration will be evaluated to determine if coordination with the FAA is necessary due to height or proximity to the airport. If FAA coordination is necessary, preliminary discussions will be held with necessary FAA contacts to gauge the possibility of approval at all necessary sites.

- Deliverable: Summary of FAA coordination to be included in evaluation.

205 – Cost Estimates

Preliminary construction and life cycle cost estimates will be developed for each of the proposed reservoir sites and reservoir types.

- Deliverable: Cost Estimates to be included in evaluation.

206 – Landowner Coordination

Current property ownership for each of the proposed Reservoir sites will be determined, and preliminary discussions will be had with the landowners of each of the proposed reservoir sites to gauge landowner interest in selling property to the City.

- Deliverable: Summary of landowner coordination to be included in evaluation.

207 – Existing Logan Reservoir Evaluation

Evaluate the feasibility of relocating the existing Logan Reservoir to proposed site D to serve the Zone 6 Pressure Zone versus demolition and scrap, or removal and storage of the existing elevated steel reservoir. Coordinate with airport on Culture Survey results to determine if relocating the existing reservoir is possible, or if the existing structure will need to remain in place. Pending results of culture survey, if deemed acceptable to remove the existing structure, develop preliminary cost estimates associated with each alternative.

- Deliverable: Memorandum on evaluation.
- Assumptions: Airport personnel or their designated personnel will perform the Culture Survey and furnish results to HDR. HDR will incorporate/include study findings as applicable if available prior to completion of the feasibility study.

208 – Christensen Pump Station Evaluation
Evaluate the Christensen Pump Station relating to each of the proposed reservoir sites. Depending on the site, the Christensen Pump Station evaluation may include leaving the pump station as is, increasing the capacity of the pump station, or relocating the pump station. Develop preliminary cost estimates associated with the alternatives.

- Deliverable: Memorandum on evaluation.

209 – Zone 6 Reservoir Evaluation
Evaluate providing a new Zone 6 Reservoir with this project; size based on task 201 storage requirements for Zone 6. Evaluation to compare costs associated with a new Zone 6 Reservoir versus costs associated with a new Zone 6 (Christensen) Pump Station. Evaluation will also include a summary of operational benefits of additional Zone 6 storage compared to a new pump station.

- Deliverable: Memorandum on evaluation.

210 – Prepare Feasibility Study
Prepare a feasibility study that summarizes the various evaluations performed associated with the project. Preliminary site plan and layout drawings will be developed for each alternate site that hasn't been previously eliminated as not being feasible. These drawings will be produced in 2D AutoCAD files.

211 – Review Feasibility Study
Conduct internal review of Feasibility Study. Incorporate review comments and submit to City for review. Conduct review meeting with the City.

- Deliverable – Draft Feasibility Study (3 hard copies, 1 electronic copy)

212 – Finalize Feasibility Study
Incorporate City review comments and finalize feasibility study.

- Deliverable – Final Feasibility Study
  (3 hard copies, 1 electronic copy, 1 hard copy delivered to SRF)

TASK SERIES 300 – 800

Scope details to be added by amendment.