



City of Ketchum

February 6, 2023

Mayor Bradshaw and City Councilors:

Recommendation to Approve Task Order No. 15 with HDR Engineering, Inc. for a Solids Handling Preliminary Engineering Report for the Ketchum / SVWSD Wastewater Treatment Plant

Recommendation and Summary

Staff is recommending the Council approve Task Order No. 15 (Purchase Order 23056) with HDR Engineering which will produce a Preliminary Engineering Report for upgrading the biosolids handling facilities at the City of Ketchum and Sun Valley Water & Sewer District Wastewater Treatment Plant and adopt the following motion:

"I move to approve Task Order No. 15 (Purchase Order 23056) with HDR Engineering, Inc. for a Solids Handling Preliminary Engineering Report for the Ketchum / SVWSD Wastewater Treatment Plant with a not to exceed amount of \$96,230.00."

The reasons for the recommendation are as follows:

- HDR Engineering has been the design engineering firm for the wastewater treatment plant and has a Multiple Project Agreement for Professional Services with the City.
- HDR Engineering will provide technical assistance and necessary engineering functions to the City through this task order.

Analysis

The Ketchum/Sun Valley Water and Sewer District (SVWSD) Wastewater Treatment Facility is in the process of upgrading the current facility as part of the near-term improvements identified in a 2022 Facilities Planning Study. HDR Engineering will be providing these services under a Master Services Agreement between the City of Ketchum, the Sun Valley Water and Sewer District and HDR Engineering. This Task Order #15 would authorize HDR Engineering to provide technical memorandums regarding the phased implementation for biosolids dewatering/handling upgrades identified in the planning study.

Sustainability

The recommended action will enhance energy efficiency and sustainability at the treatment plant in the following ways:

- Modern, energy efficient equipment will be specified to reduce energy consumption
- Trucking requirements of treated biosolids will be reduced by 80%
- Dewatered biosolids can be used to produce compost to be reused locally

Financial Impact

The FY23 budget includes funds for Wastewater Capital Improvement Projects. This is a capital improvement expense which will be shared equally with the Sun Valley Water and Sewer District.

Attachments

HDR Task Order 14 Scope of Services

Purchase Order 23056

TASK ORDER # 15

This Task Order pertains to an Agreement by and between City of Ketchum, ID / Sun Valley Water & Sewer District, Sun Valley, ID (“OWNERS”), and HDR Engineering, Inc. (“ENGINEER”), dated January 21, 2014, (“the Agreement”). Engineer shall perform services on the project described below as provided herein and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties. Upon execution, this Task Order shall supplement the Agreement as it pertains to the project described below.

TASK ORDER NUMBER: Amendment #15

PROJECT NAME:

Ketchum / SVWSD Water Reclamation Facility (WRF) – Solids Handling Preliminary Engineering Report (PER)

PART 1.0 AMENDMENT DESCRIPTION:

Provide Solids Handling PER to advance the upgrade design described in the Ketchum/SVWSD Wastewater Facility Planning Study (2022).

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY ENGINEER:

See Exhibit A.

PART 3.0 OWNER’S RESPONSIBILITIES:

PART 4.0 PERIOD OF SERVICE:

March 2023 – September 2023

PART 5.0 ENGINEER’S FEE:

See Exhibit A for breakdown.

Amendment #15: Ketchum/SVWSD Water Reclamation Facility (WRF) – Solids Handling Preliminary Engineering Report

\$96,230.00

PART 6.0 OTHER: N/A

This Task Order is executed this _____, 2023.

CITY OF KETCHUM, ID

“OWNER”

BY: _____

NAME: Neil Bradshaw

TITLE: Mayor

ADDRESS: City of Ketchum
P.O. Box 2315 (191 5th St. W.)
Ketchum, ID 83340

SUN VALLEY WATER & SEWER DISTRICT (SVWSD)

“OWNER”

BY: _____

NAME: Jim Loyd

TITLE: Chairman

ADDRESS: SVWSD
P.O. Box 2410
Sun Valley, ID 83353

HDR ENGINEERING, INC.

“ENGINEER”

BY: 

NAME: Kate Eldridge

TITLE: Sr. Vice President

ADDRESS: HDR
412 E. Parkcenter Blvd,
Suite 100
Boise, ID 83706

EXHIBIT A

Scope of Services

Background

The Ketchum/SVWSD Water Reclamation Facility (WRF) treats the wastewater generated by the City of Ketchum and Sun Valley. The WRF is jointly owned by the City of Ketchum and the Sun Valley Water & Sewer District (SVWSD). Treated water is discharged to the Big Wood River per an Idaho Pollutant Discharge Elimination System (IPDES) permit and recycled during the summer authorized by an Idaho Department of Environmental Quality (IDEQ) reuse permit. Future planning for the WRF was submitted in a Wastewater Facility Planning Study (FPS) completed by HDR in 2022 and approved by IDEQ.

This Task Order is for a Biosolids Handling Preliminary Engineering Report (PER) advancing upgrades identified in the Capital Improvements Plan (CIP) and Implementation Schedule for the next three years (2023 – 2025). The core of the upgrades includes biosolids dewatering. The WRF currently does not have solids dewatering and hauls thickened biosolids to drying beds at Ohio Gulch Transfer Station in liquid form.

This scope of services specifically advances the Biosolids Digestion, Thickening, Dewatering, and Handling plan by developing a PER used to define dewatering and handling of biosolids. Dewatering of biosolids will eliminate liquid trucking of three percent solids “liquid sludge” (97% water) and allow open trailer hauling at fifteen percent solids (no free water), a trucking reduction of 80 percent. The end product can be composted into an ultra-high quality biproduct (Class A Exceptional Quality) and reused in the Valley.

The PER is generally summarized below:

Solids Thickening, Dewatering, and Handling PER

- Summarize the current, intermediate, and future design conditions (from FPS).
- Review the Sumo biological process model for solids production calibrated to the observed solids generation to meet current, intermediate, and future loading demands.
- Determine the cost/benefit for implementation of rotary drum thickener (RDT) biosolids thickening technology to reduce future digester #2 volume.
- Determine the size and layout for screw press dewatering (dewatering technology selected in FPS study).
- Determine the building layout serving future digester blowers, biosolids pumping, thickening, dewatering, conveying, trucking, and associated details.
- Define the building construction materials required to match existing buildings and conform to building codes.

- Review the electrical feed to the existing digester blower building near the proposed site and determine the changes required for additional power at the new biosolids handling building.
- Prepare a Class 3 construction cost opinion for the biosolids handling project and an implementation schedule.

The engineering services described in detail for this Scope of Services are as follows:

TASKS

Task 100 – Project Management

Objective

Budget Status Monitoring: Monitor the project work to complete the overall Project, the budget expended, the estimated cost of the work remaining, and the estimated cost at completion. Inform Ketchum/SVWSD of budget status through the monthly invoices, provide invoice progress reports and progress conference calls. Manage activities within overall total Project budget.

HDR Subtasks

- Communicate to Ketchum/SVWSD and the project team through telephone calls, conference calls, project meetings, and e-mail communications.
- Monitor team scope, budget, and schedule; delegate task assignments and responsibilities by discipline; and coordinate issues with Ketchum/SVWSD Project Manager.
- Bi-monthly project update virtual meetings (web based) between HDR PM, Ketchum PM, and Ketchum/District Manager's. Duration 30 minutes each, for 6 months. Prepare agenda and meeting notes.
- Prepare monthly progress reports to accompany invoice summarizing the work progress to date, budget expenditures, and identify information requirements or decisions for Ketchum/District.
- Develop and execute internal Quality Assurance/Quality Control (QA/QC) Plan.

City/District Involvement

- Interface with Consultant on project issues and timely response to requests for information.

Assumptions

- Project kickoff meeting and draft PER review workshop will be conducted on site at the Ketchum/SVWSD WRF. The kickoff meeting will be attended by HDR's project manager, project engineer, and the electrical/controls engineer.
- The draft PER review meeting will be on site and attended by the PM and project engineer with the electrical engineer joining by conference call.

- Meeting and travel time for each on-site meeting will be 8 hours. Meeting time is assumed to require a minimum of two (2) hours. Engineer will prepare agenda, Microsoft PowerPoint slides, and meeting minutes.
- Monthly progress reports for the duration of the project, up to 6 months.
- Prepare amendments to the agreement if scope changes occur.
- Direct expenses for travel or printing will be included on invoices.

Deliverables

- Progress reports and invoices (1 each month sent electronically)
- Bi-monthly meeting agenda and notes (sent electronically by e-mail in .pdf format)

Task 200 – Preliminary Engineering Report (PER) for Solids Handling

Objective

Establish the preliminary engineering requirements for the solids handling improvements that meet the requirements per Idaho Code IDAPA 58.01.16 Section 411: Facility and Design Standards for Municipal Wastewater Treatment or Disposal Facilities – Preliminary Engineering Reports.

The PER will generally address:

- Flows and loads along with associated waste activated sludge (WAS) estimates (current, +10 years, +20 years)
- Solids pumping
- Pros/cons of thickening for new digester #2 sizing
- Blowers for future digester #2 aeration
- Screw press sizing and layout
- Conveyor and truck layout
- Dewatering building codes and details
- Electrical architecture, sizing, and area classification.
- Controls/instrumentation requirements and controls network architecture.
- Electrical room layout

HDR Subtasks

Prepare a Solids Handling PER to define the upgrade project with a unified design concept to allow development of a realistic opinion of probable construction cost (OPCC), an informed review by Owner, and approval by Idaho Dept. of Environmental Quality (DEQ). The anticipated subtasks of the PER are as follows:

- Establish design flows and loads for the current, + 10 years (2033), +20 years (2043) planning conditions.
- Run SUMO process biological computer model to predict WAS flow for minimum, average, and maximum design conditions. Develop mass balance for the aerobic digester/solids handling system.

- Determine final biosolids quality requirements and disposal requirements.
- Develop Process Flow Diagram (PFD) for the solids handling system identifying reliability and redundancy requires per DEQ code. The PER will provide a narrative for individual unit processes.
- Survey of the existing plant south of the existing digester and east-west between the existing solids loadout building and river.
- Develop site plan showing new and existing structures, building road access, and preliminary yard piping plan (major piping systems). Site considerations include demolition of existing gravity thickener and repurposing of sludge loadout building.
- Evaluate the cost / benefit of WAS thickening using rotary drum thickener (RDT) on the future digester #2 sizing. Determine if RDT should be constructed with dewatering or wait until digester #2 construction (~ FY 2030).
- Determine the preliminary digester #2 sizing and layout for the purpose of site coordination with the new dewatering building.
- Determine future digester #2 aeration blower sizes by process modeling (SUMO) for power requirements and building space.
- Determine biosolids pumping methods (pump type), pump locations in dewatering building, and pump motor sizes.
- Determine screw press sizing, layout, and accessories.
- Determine polymer storage and feed requirements, polymer dilution system, and polymer layout.
- Determine dewatered biosolids conveyance and truck loadout.
- Odor and noise mitigation (discussed in narrative form, no active systems are planned for either).
- Develop preliminary equipment and electrical load lists and data sheets for major equipment.
- Preliminary design of Solids Handling Building including: building design codes, preliminary sizing of foundation, walls, and slabs. Footprints and sections showing major equipment. Determine equipment access and hoisting plans. Define building material selections. Define building design standards meeting NFPA 820 - Standards for Fire Protection in Wastewater Treatment and Collection Facilities (HVAC and electrical).
- Provide 3D view of major equipment in the building and building elevation views.
- Determine electrical supply to building (electrical site plan), electrical classification inside the building, electrical room size and layout. Provide electrical power one-line diagram.

- Develop preliminary Piping & Instrumentation Diagram (P&ID) and controls network diagram.
- Prepare an opinion of annual operating cost for the solids handling system.
- Prepare a Class 3 Opinion of Probable Construction Cost (OPCC) estimate. Class 3, expected accuracy range of plus 30 percent and minus 15 percent.
- Prepare implementation schedule for detailed design, equipment pre-purchase, and construction.

City/District Involvement

- Perform a timely review of draft PER and provide single set of reconciled review comments. Consultant schedule includes an allowance of up to two (2) weeks for Owner review of the PER. Any duration longer will result in schedule adjustment.
- Provide operating log sheets for the previous thirty-six (36) months of plant operations.
- Provide record drawings of existing plant structures and equipment arrangements.
- Provide geotechnical reports and foundation design recommendations from past design projects.
- Provide survey and topographic mapping information of project site in AutoCAD (.dwg) format.
- Participate in the review meetings.
- Authorize submission of final Solids Handling Preliminary Engineering Report to DEQ.

Assumptions

- Survey allowance of \$5,000 based upon discussion with Galena Engineering (plus 10% markup).
- Potholing of underground piping and utilities will not be required.
- Process flow diagram and P&ID will be for solids handling only.
- Computational fluid dynamic (CFD) modeling will not be required for digester sizing or mixing.
- Odor control and noise mitigation narrative only, preliminary design for special equipment or systems not needed or required.
- Consultant's quality assurance manual and design delivery manual will provide the basis of the quality control program.
- Preliminary cost opinion will be for budgetary planning purposes to support project funding. Consultant will provide a Class 3 estimate (appropriate for 10 – 30 project definition) per AACE International recommended Practice No. 17R-97 with range of accuracy +30 percent to -15 percent.
- DEQ comments to PER are anticipated and response to comments is assumed to require 4 hours.

Deliverables

- Review meeting agendas and minutes (electronic file in .pdf format transmitted vis e-mail).
- Draft – Ketchum/SVWSD WRF Solids Handling Preliminary Engineering Report to City/District (electronic file in .pdf format transmitted via e-mail).
- Final - Ketchum/SVWSD WRF Solids Handling Preliminary Engineering Report to DEQ (electronic file in .pdf format transmitted via e-mail).
- Response to DEQ comments (electronic file in .pdf format transmitted via e-mail).

Additional Services Not Part of this Scope

Additional services can be provided upon request. The following provides a list of exclusions or situations not included in this scope of services:

- No bench or pilot testing.
- No updates to the FPS and CIP
- No bidding documents.
- Excludes any other services not otherwise included in the agreement or not customarily furnished in accordance with generally accepted engineering practices.

Anticipated Schedule Summary

The project schedule assumes the following milestones timeline for project completion.

Activity or Milestone	Date
Notice-to-Proceed (NTP)	March 6, 2023
Draft Solids Handling PER	July 21, 2023
Final Solids Handling PER	August 18, 2023
DEQ Approval	September 29, 2023

The above schedule will be adjusted based on the actual day the NTP is issued and/or if the City requests additional review time. An additional 30 days has been added to the overall contract period in the Task Order (PM) to allow for project closeout activities.

Fee Summary Table

Subtask	Est. Hours	Cost
100 – Project Management, Project Financials, Monthly Reports, Meeting	78	\$14,160
200 – Solids Handling PER	370	\$59,070
Survey	40	\$5,500
Electrical/Controls	80	\$16,500
Expenses	-	\$1,000
TOTAL	568	\$96,230

Time and expenses, not to exceed \$96,230 without written authorization.



CITY OF KETCHUM
PO BOX 2315 * 191 5TH ST. * KETCHUM, ID 83340
Administration 208-726-3841 (fax) 208-726-8234

PURCHASE ORDER
 BUDGETED ITEM? ___Yes___No

PURCHASE ORDER - NUMBER: 23056

To: 2319 HDR ENGINEERING, INC. BOX 74008202 CHICAGO IL 60674-8202	Ship to: CITY OF KETCHUM PO BOX 2315 KETCHUM ID 83340
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P. O. Date	Created By	Requested By	Department	Req Number	Terms
01/31/2023	bancona	bancona	Utilities/Wastewater	0	

Quantity	Description	Unit Price	Total
1.00	TASK ORDER #15 SOLIDS HANDLING PER 67-4350-7817	96,230.00	96,230.00
	SHIPPING & HANDLING		0.00
	TOTAL PO AMOUNT		96,230.00

 Authorized Signature