



NAPA SANITATION DISTRICT

HDR ENGINEERING, INC. - TASK ORDER No. 27
HEADWORKS EQUIPMENT PROJECT
PROJECT (CIP 17726)

Date: _____

Issued under Professional Services Agreement dated August 8, 2014.

To: HDR Engineering, Inc.

Project Description:

Headworks Equipment Project - Professional Design Services.

Description of Scope of Services to be performed by Consultant under this Task Order:

See Attachment 'A' – Scope of Services

Description of Services to be Provided by District: See Attachment 'A' –Scope of Services

Deliverables: See Attachment 'A' –Scope of Services

Consultant Project Manager: Rob Natoli, PE

Consultant Quality Control Manager: Rob Williams, PE

Schedule to Perform Services: See Attachment 'B' - Schedule

Time & Materials Not-to-Exceed Cost Limit: \$261,808

See Attachment 'C' – Budget Summary

APPROVALS:

HDR ENGINEERING, INC.

By: _____
Authorized Representative

Date

NAPA SANITATION DISTRICT

By: _____
Purchasing Agent

Date

NSD Account No.: CIP 17726

Attachment 'A' – Scope of Services

Napa Sanitation District Task Order No. 27 - Headworks Equipment Replacement

The following scope of work involves final design, bidding, and construction engineering services for recommended Headworks Equipment Replacement Project (Project) improvements to the existing headworks facility at the Soscol Water Recycling Facility, as outlined in the Preliminary Design Report. This Project includes the following items:

- Replacement of the existing influent screens with two 6 mm opening perforated plate screens.
- Replacement of the existing washer compactors and belt conveyor with a sluiceway and single washer compactor.
- Replacement of the existing grit classifier and washer with a sole-sourced grit washer, along with an operating platform.
 - Grit washer pricing to be pre-negotiated during the design. Scope of work includes development of a memorandum of agreement (MOA) draft and final documents for review by the manufacturer and District and Consultant lead negotiations with the manufacturer to finalize pricing.
 - Grit washer structural support analysis will be completed for slab supporting the new grit washer. Structural design to include slab analysis and the design of slab retrofit components as required to support the grit washer.
- Install new ventilation connections to the screenings channels and rebalance the ventilation system inside the headworks equipment room to add 12 air changes (minimum) of ventilation to the screenings channels and to improve the airflow across the headworks equipment room.
- Rehabilitate screenings channels embeds, stop plate guides and channel covers via blasting and recoating where possible, and via complete replacement where required.
- Replace electrical conduits, control panels, and equipment associated electrical equipment in the headworks equipment room.

The following assumptions are included in the scope of work:

- Ferric chloride facility improvements are not included in the Project.
- The screen operating platforms will be manufacturer designed rolling stair platforms and are not included in the design.

- No electrical conduit design is required outside of the Headworks Building.
- Structural work is limited to the grit washer slab support analysis and slab retrofit design.

TASK 1 - PROJECT MANAGEMENT, QUALITY ASSURANCE/QUALITY CONTROL (QA/QC), AND MEETINGS

Subtask 1.1 - Project Management and Coordination

This subtask includes the management activities required to ensure the project is completed on time and within budget, and addresses the District's concerns. A project management plan will be developed to serve as a communication tool for District and Consultant staff. Consultant will prepare invoices, progress reports, and decision log updates on a monthly basis. The monthly progress reports will summarize budget and schedule status in measurable terms. Other activities include coordination and scheduling of staff and coordinating the quality assurance effort.

Deliverables: Monthly progress reports, invoices, project management plan, and decision log.

Subtask 1.2 - QA/QC Program

Consultant will institute and maintain a QA/QC program for the work performed on this project. To ensure objectivity, senior technical staff, not involved in the project, will perform internal QA/QC upon completion of key deliverables before they are submitted to the District.

Deliverables: To be incorporated into the deliverables.

Subtask 1.3 - Progress Meetings

Consultant will meet with District staff to discuss comments on the 50 and 90 percent design submittals. Design review comments will be encouraged and welcome from the District's management, engineering, and operations personnel.

Deliverables: Meeting agenda and minutes.

Subtask 1.4 – Grit Washer Pricing Pre-Negotiation

Consultant will develop of a MOA draft and final documents for review by the manufacturer and District. MOA to be signed by District and manufacturer. Consultant will provide a MOA, design drawings, technical specifications and front end documents in a separate deliverable package to the grit washer manufacturer after District Legal Approval. Consultant will lead negotiations with the Manufacturer to finalize pricing.

*Deliverables: Draft MOA and supporting document package for District and manufacturer review.
Final MOA and supporting document package for District and manufacturer approval.*

Assumptions: One two-hour meeting with the District is included for review of the draft MOA. Eight hours of Consultant project manager time is included for equipment negotiations and coordination with the manufacturer.

TASK 2 – LIDAR SCANNING

The following LiDAR scanning services will be provided to record existing conditions for the Project design:

Subtask 2.1 – Field Work

Consultant will conduct one day of field work to complete LiDAR scanning of the headworks equipment room and pipe chases. Field work includes a two-man crew, set up, and scanning of the headworks equipment room and pipe chase areas. LiDAR scanning will generate a color, high-resolution model with tolerances of existing conditions in the equipment room within 0.25" of actual conditions.

It is noted that access to the two pipe chase sections are permit required confined spaces. No entry into the pipe chases will be required. Scanning via manhole access points will be utilized.

Subtask 2.2 – LiDAR Model Generation

Consultant will generate 3D model of the existing headworks equipment room and pipe chases such that it may be utilized with Rivet 2016 software.

Deliverables: LiDAR Model will be utilized for the development of the 60, 90, and 100 percent drawings.

TASK 3 - FINAL DESIGN PHASE

Consultant will provide final design services (preparation of bidding documents, including plans and specifications) for the headworks renovation improvements identified in the predesign report.

Drawings will be prepared in Revit. Design plans will be developed utilizing industry standard scales, in English (not metric) engineering units. Table 1 shows a preliminary listing of drawings anticipated for the project.

Table 1 - Estimated Sheet List for Design		
No.	Sheet No.	Drawing Description
General		
1	G1	Cover Sheet, Location and Vicinity Maps, Sheet List, and Survey Notes
2	G2	General Notes, Abbreviations, and Details

Table 1 - Estimated Sheet List for Design		
No.	Sheet No.	Drawing Description
3	G3	Process Flow Diagram and Hydraulic Profile
4	G4	Standard Details I
5	G5	Standard Details II
6	G6	Standard Details III
Demolition		
7	D1	Demolition Plan
8	D2	Demolition Sections and Details
9	D3	Demolition Photographs
Process		
10	P1	Headworks Equipment Room - Plan
11	P2	Headworks Equipment Room - Sections I
12	P3	Headworks Equipment Room - Sections II
13	P4	Pipe Chase - Plan
14	P5	Pipe Chase - Sections and Details
15	P6	Process Details I
16	P7	Process Details II
17	P8	Process Details III
Corrosion Repair		
18	Z1	Headworks Equipment Room - Plan
19	Z2	Headworks Equipment Room - Concrete Repair Sections and Details I
20	Z3	Headworks Equipment Room - Concrete Repair Sections and Details II
Mechanical		
21	M1	Ventilation Schematic
22	M2	Ventilation Plan
23	M3	Ventilation Section and Details
Structural		
24	S1	Structural Notes
25	S2	Structural Plans/Sections and Details
Electrical		
26	E1	Symbols and Legend
27	E2	Site Plan
28	E3	Single Line Diagram
29	E4	Motor Control Center (MCC) Elevations

Table 1 - Estimated Sheet List for Design		
No.	Sheet No.	Drawing Description
30	E5	Enlarged Power and Control Plan
31	E6	Enlarged Lighting Plan
32	E7	Panel and Lighting Schedules
33	E8	Control Diagrams I
34	E9	Control Diagrams II
35	E10	Electrical Details I
36	E11	Electrical Details II
37	E12	Electrical Details III
Instrumentation		
38	I1	Instrumentation General Notes, Symbols, and Abbreviations
39	I2	Influent Screens – Process and Instrumentation Diagram (P&ID)
40	I3	Washer Compactor - P&ID
41	I4	Grit Washer - P&ID
42	I5	Instrumentation Details

At the 60 percent design level, a 3D model of the equipment room and pipe chases will be submitted to along with demolition and process plans and critical section cuts through the facility.

At the 90 percent design level, updated 60 percent drawings, along with construction sequencing, details will be submitted. The electrical/instrumentation design will include sheets in 2D CAD. The 100 percent design will add the final design details missing from the 90 percent drawings and incorporate the 90 percent design comments. A 3D model of the equipment room will be provided at the 90 or 100 percent levels to facilitate review and discussion of the design.

Throughout the design phases, electrical and instrumentation drawings will be submitted based in 2D CAD.

The specifications will be prepared in Construction Specification Institute (CSI) format using Microsoft Word. The District will provide Consultant with District standard front-end documents (Division 0 & 1). Only minor edits and modifications will be performed by Consultant on the District-provided documents. Consultant will prepare technical specifications (Division 2 through 16).

At the 60 percent design level, the major equipment specifications will be submitted. At the 90 percent and 100 percent design levels, the entire set of specifications will be submitted.

Engineer's opinion of construction cost will be prepared in Microsoft Excel at the 60, 90, and 100 percent design stages.

Drawings, specifications, and engineer's estimate of probable construction cost will be submitted to the District for review and approval at the 60, 90, and 100 percent design stages.

***Deliverables:** PDF copy of half-size (11" x 17") drawings, technical specifications, and engineer's opinion of construction cost for review by District personnel at the 60 and 90 percent design stages. One stamped and signed PDF set of half-size and full-size (22" x 34") 100 percent drawings, technical specifications, and engineer's opinion of construction cost. One CD containing electronic files (PDF, AutoCAD, and Word) of the final design documents.*

TASK 4 - BIDDING PHASE

The following services will be provided by Consultant during the bidding phase of this project.

Subtask 4.1 - Perform Job Walk and Attend Pre-bid Conference

Consultant will perform a job walk and attend the pre-bid conference to answer contractor questions.

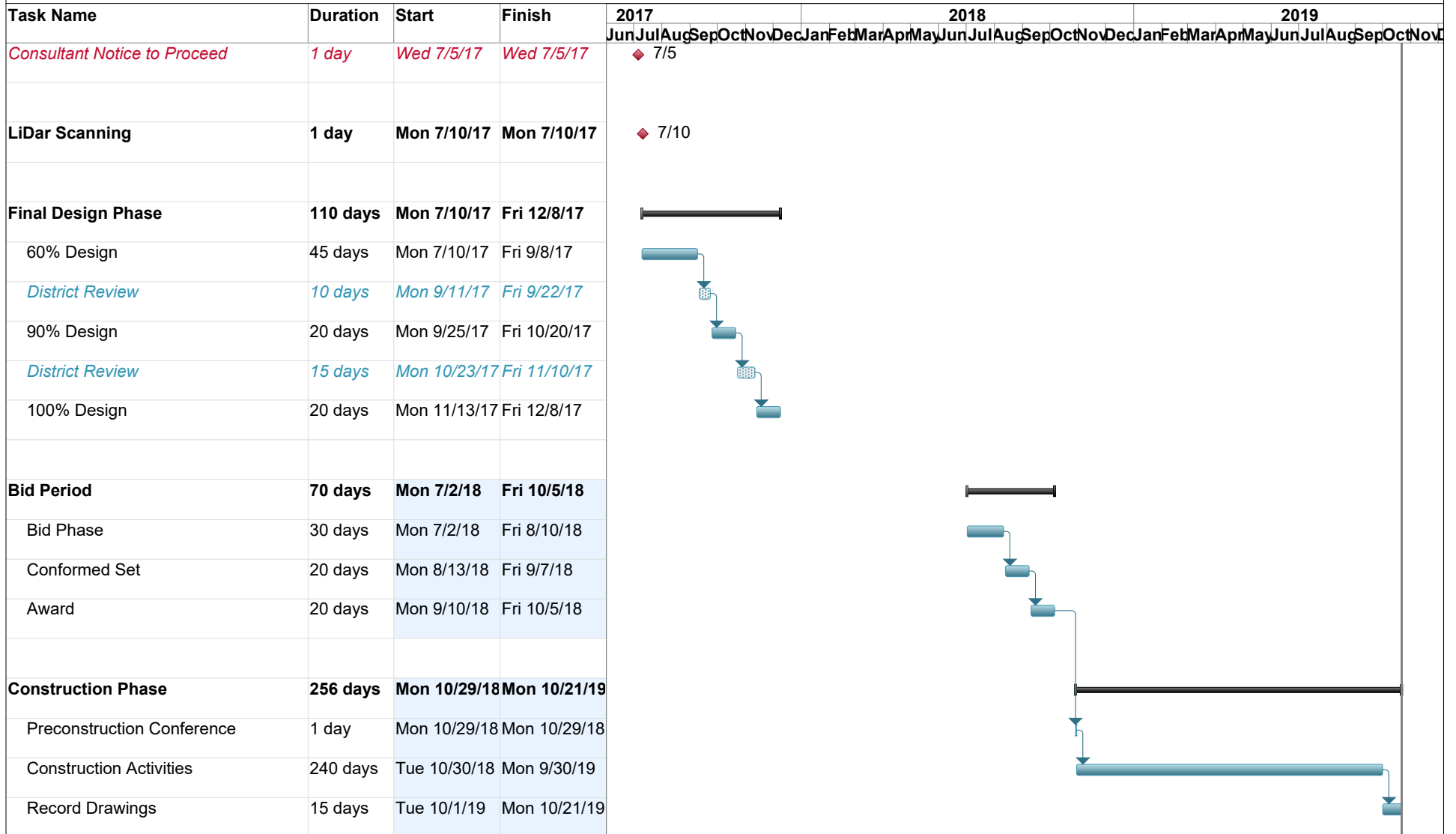
***Deliverables:** Pre-bid meeting notes.*

Subtask 4.2 - Respond to Contractor Questions and Prepare Addenda

The District will receive contractor written and faxed questions during the bidding period, and will forward to Consultant. Addenda to the contract documents will be prepared for distribution to each plan and specification holder.

***Deliverables:** Up to two addenda.*

Attachment 'B' – Project Schedule



Napa Sanitation District
Task Order No. 27 - Headworks
Equipment Project Design (CIP 17726)

Task  Summary  District Review 
Milestone  Meetings 

17-10056057

Attachment ‘C’ - Budget Summary

Napa Sanitation District

Task Order No. 27 - Headworks Equipment Project Design Services (CIP 17726)

Task No.	Task Description	Principal/ QA/QC	Project Manager	Staff Engineer	Mechanical Engineer	Electrical Engineer	Structural Engineer	LiDar Tech	CAD/BIM Tech	Admin/ Clerical	Total HDR Labor Hours	Total HDR Labor (\$)	Total HDR Expenses (\$)	Total Cost (\$)
Task 1 - Project Management, Quality Assurance/Quality Control (QA/QC), and Meetings														
1.1	Project Management and Coordination		40							40	80	\$13,649	\$50	\$ 13,699
1.2	QA/QC Program		4			8				4	16	\$2,741	\$50	\$ 2,791
1.3	Progress Meetings (up to 2)		16	12		8				8	44	\$7,277	\$450	\$ 7,727
1.4	Grit Washer Pre-Negotiation	4	24	24	8	8			12	8	88	\$15,475	\$100	\$ 15,575
	Subtotal Task 1	4	84	36	8	24	0	0	12	60	228	\$ 39,142	\$650	\$ 39,792
Task 2 - LiDar Scanning														
2.1	Field Work		6					6			12	\$2,099	\$1,200	\$ 3,299
2.2	LiDar Model Generation							12	8		20	\$2,815	\$50	\$ 2,865
	Subtotal Task 2	0	6	0	0	0		18	8	0	32	\$ 4,914	\$1,250	\$ 6,164
Task 3 - Final Design Phase														
3.1	60%, 90%, and 100% Drawings	16	40	160	40	180	56		488		980	\$162,875	\$250	\$ 163,125
3.2	60%, 90%, and 100% Specifications	8	24	60	16	40				40	188	\$30,175	\$150	\$ 30,325
3.3	60%, 90%, and 100% Cost Estimates	6	8	24	4	8				8	58	\$9,603	\$50	\$ 9,653
	Subtotal Task 3	30	72	244	60	228	56	0	488	48	1,226	\$202,653	\$450	\$ 203,103
Task 4 - Bid Period Services														
4.1	Perform Job Walk and Attend Prebid Conference		6								6	\$1,331	\$200	\$ 1,531
4.2	Respond to Contractor Questions and Prepare Addenda (up to 2)		16	16	4	8			12	12	68	\$11,118	\$100	\$ 11,218
	Subtotal Task 4	0	22	16	4	8	0	0	12	12	74	\$12,449	\$300	\$ 12,749
COLUMN TOTALS		34	184	296	72	260	56	18	520	120	1,560	\$259,158	\$2,650	\$261,808