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**A RESOLUTION AUTHORIZING THE CITY MANAGER PRO TEM TO NEGOTIATE AND ISSUE A TASK ORDER WITH HDR ENGINEERING, INC., CONSULTING ENGINEERS TO PROVIDE CONSTRUCTION SERVICES FOR THE WASTEWATER TREATMENT PLANT INFLUENT PUMP STATION, HEADWORKS, AND DEWATERING CONSTRUCTION PROJECT**

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**RECITALS:**

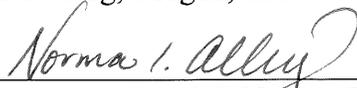
1. On May 18, 2009, the city council adopted Resolution No. 2009-2844 authorizing the city manager to enter into a professional services agreement with HDR Engineering, Inc., to provide design services for the wastewater treatment plant (WWTP) repair, renovation and expansion (RRE) project for an initial amount not to exceed \$3,000,000.00.
2. To this date, \$2,954,200.00 has been used for many design related projects associated with the WWTP RRE Project.
3. The city council adopted Resolution No. 2012-3006, which authorized the city manager to enter into a contract with Mortenson Construction, Inc., for the construction of the Headworks, Dewatering, and Influent Pump Station project.
4. Engineering construction related design services are required for this construction project. The details of the scope for these services can be seen in Exhibit A, which is hereby attached and by this reference incorporated. The HDR Engineering, Inc., fee for these services is \$858,986.00.

**THE CITY OF NEWBERG RESOLVES AS FOLLOWS:**

The city council does hereby authorize the city manager pro tem to negotiate and issue task order #8 with HDR Engineering, Inc., to provide design related construction services for the wastewater treatment plant influent pump station, headworks, and dewatering project in the amount of \$858,986.00.

➤ **EFFECTIVE DATE** of this resolution is the day after the adoption date, which is: January 7, 2014.

**ADOPTED** by the City Council of the City of Newberg, Oregon, this 6<sup>th</sup> day of January, 2014.

  
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Norma I. Alley, MMC, City Recorder

**ATTEST** by the Mayor this 9<sup>th</sup> day of January, 2014.

  
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Bob Andrews, Mayor

# **Task Order 8 – Phase II Plant Expansion – Dewatering, Headworks, and Influent Pump Station**

## **Construction Services Scope of Work**

### **Introduction**

The Predesign Report completed in March 2012 indicated that the three highest priority projects for improving the Newberg Wastewater Treatment Plant are Headworks, Influent Pump Station (IPS), and Dewatering facilities. These projects have been through the design phase. This Task Order will provide construction engineering services support for the three facilities including the record drawings for the access road to the IPS.

### **DEWATERING**

The existing dewatering belt filter presses are near the end of their service life. Two new 90 gpm Huber screw presses were designed which are to be placed where the existing belt presses are located. This will require coordination between treatment plant staff and the construction company to replace the filter presses while operations of the treatment plant need to be ongoing and interruption needs to be minimized.

### **HEADWORKS**

The existing headworks facility does not have sufficient capacity for future flows and has poor odor control and grit removal. The new headworks facility has four major components, influent flow metering, screening, grit removal, and flow split of RAS and oxidation ditch influent. Because the existing perforated plate screens are still relatively new and in good shape they will be relocated to the new headworks.

Construction of the new headworks also includes a new combined RAS line from the RAS pump station to the headworks, new WAS line from the headworks to the WAS storage tank, and the four new oxidation ditch influent lines, two of which will be connected to the existing oxidation ditches and the other two will be installed part way and capped for the future oxidation ditches.

Following the commissioning of the new headworks, the old headworks will be demolished and the area landscaped.

### **IPS**

The new influent pump station will be located next to the existing influent pump station and will serve as an overflow wetwell to the existing pump station. Electrical equipment will be located in the existing electrical building next to the administrative building. The header piping and valve assembly will be located outside of the wetwell right next to the new pump station.

## **General Assumptions**

- The existing biological odor control system has sufficient capacity to treat the foul air from the headworks.
- The geotechnical analysis for all sites has been completed as part of Task Order 7.
- The existing headworks will be completely demolished to 4 ft below grade, backfilled, and landscaped.

## **Scope of Services**

### **1.0 Project Management and Administration**

#### **Objective:**

The purpose of this task is to plan and execute the construction engineering of the headworks, IPS, and dewatering improvements in accordance with the schedule and budget established in this scope of services. Work activities described below are provided to cover the project management activities.

#### **Assumptions:**

- This task includes: administrative procedures, such as invoicing and communication protocol, monitor project progress including work completed, work remaining, budget expended, schedule, estimated cost of work remaining, and estimated cost at completion.
- Attend one meeting for the projects with City staff and CM/GC in the City of Newberg to kickoff and review the construction effort.
- Prepare and submit monthly narrative report and invoice for the duration of the project.
- The construction phase of the three projects is assumed to be 19 months.
- City will participate in conference calls and workshops/meetings.
- City will review narrative report amendments and approve invoices.
- City will review and approve modifications to approach, schedule, and deliverables as appropriate.

#### **Deliverables:**

- Monthly progress narrative and monthly invoices.

## 2.0 Construction Engineering Services - Dewatering, Headworks, IPS

### Objective

Assist the City of Newberg with the construction projects by supporting administration of the construction phase of the work, reviewing CM/GC Submittals and RFIs, performing site visits, coordinating with the CM/GC, development of required reports for DEQ approval, and completing construction closeout activities. Specific construction activities identified below will be provided for concurrent construction of Dewatering, Headworks and IPS project areas.

### Assumptions

- HDR will provide a Resident Engineer on site for the duration of the project construction phase. The Resident Engineer will be on site approximately 80% of the construction period, on average, although at times the on site time will fluctuate between full time and less than 80% time. It is also possible that more than one person could be on site for parts of the project that are critical. Project budget has assumed that the combination of construction services activities and on site time will equal one person on site for the 19 month period for up to 80% of the working time during that period. Responsibilities of the Resident Engineer are as follows:
  - RFI, submittal, change order coordination
  - Coordination with contractor on site
  - Resolution assistance in the field
  - Coordination with design team for contractor questions/clarifications
  - Assistance with development of shut down procedures for construction activities
  - Site observation for compliance with design plans and specifications
- The HDR Team will provide responses to specific issues that arise in the field that cannot otherwise be resolved. These responses will be addressed through Submittal Reviews, RFIs, and Change Order reviews.
- The HDR Team will complete site visits by design team members for construction observation. HDR staff will photograph major elements of construction as part of the site visits. HDR Resident Engineer will determine when site visit should be completed. Budget for site visits is an allowance that will be used for visits. HDR will not exceed the allowance without authorization from the City. HDR will notify the City PM when the site visit allowance budget is at 50 and 75% spent to determine if site visit allowance or approach should be modified.
- Geotechnical observation during installation of auger cast piles is included in construction services. HDR's subconsultant will confirm the bearing stratum and depth; and development of pile installation records. On-call, part time site visits to observe the foundation subgrade conditions, excavation and structural fill placement activities are included in the scope. The assumption is five (5) 3-hour visits for this task with for one person.

- HDR will develop draft and final Performance Evaluation Standards for DEQ requirements.
- HDR will prepare acceptance-testing protocols and preside over acceptance testing, final inspection, and commissioning of the completed Task Order work. This effort will include one (1) full day (8 hours) site visit for one person, as well as preparation time for deliverables listed in this scope of work.
- HDR will prepare the DEQ Construction Certification to certify that based on the constrained observation period of the resident engineer during construction period, the construction, materials, and testing appear to be in compliance with approved plans and specifications and testing appears to be adequately documented. Budget provides for one site visit and preparation of Construction Certification. If construction is deemed incomplete, additional budget will be required to re-certify construction.
- HDR's review and approval of submittals will not relieve the contractor from responsibility for complying with the requirements of the construction contract.
- The project budget is based on completing 50 submittal reviews at 4 hours per submittal.
- The project budget is based on completing 200 RFI reviews at 3 hours per RFI. RFI quantities are dependent on the complexity of the project and coordination with the CM/GC. HDR will monitor RFI quantities and discuss status in relation to construction milestones with Newberg and CM/GC to project final RFI quantities.
- Change order status will be monitored and communicated as RFIs occur so that appropriate budget control is maintained. Change orders are the responsibility of the CM/GC. HDR will review the change orders prepared by the CM/GC.
- Budget is allocated for 10 change order reviews to check the costs associated with the technical work that has been proposed to be changed. As with RFIs, the quantities are dependent on the complexity of the project and coordination with the CM/GC. Additionally, change orders may also be driven by City requested changes. Change order review will be monitored and communicated as change occurs so that appropriate budget control is maintained.
- CM/GC will provide final red-line markups of design drawings and notes to clarify markups 30 days after final acceptance. No field verification will be completed to verify the accuracy of the CM/GC red-line markups.
- HDR will prepare record drawings in AutoCAD and pdf format based on CM/GC provided red lines. Record drawings will incorporate CM/GC red-line markups to original design drawings, including the access road. Budget for record drawings assumes that red-line markups are legible and understandable. HDR will review red-line markups and discuss with Newberg additional budget should the effort to understand the red-line markups exceed the budget allocated for record drawings. The effort for the record drawings will include 164 drawings at 2 hrs per drawing. Record drawings will be 2D drawings, the 3D model will not be provided with the record drawing deliverable.
- HDR will provide start-up and commissioning services for 80 hours performed by an operation specialist and 120 hours for a senior engineer. One full day (8 hours) of operator training will be provided.

- HDR will prepare the Performance Evaluation Report for DEQ after 11 months of operation, documenting performance of the system compared with the Performance Evaluation Standards.
- HDR will prepare the Performance Certification for DEQ after 12 months of operation, confirming whether or not the facility meets performance and operational requirements applicable to the project.

### **Deliverables**

- Materials for pre-construction conference.
- Digital photographs of construction progress.
- Up to 50 Submittal Reviews
- Up to 200 RFI responses
- Draft and Final Performance Evaluation Standards.
- Acceptance-testing protocol and acceptance testing supervision.
- Final punch list for contractor and inspection of completion.
- Final construction inspection/walk-through.
- Construction Certification.
- Startup checklists and training materials.
- One training session (full day).
- Record drawings in 2D digital format and 11”x 17” sized hardcopy within 30 days after CM/GC final red lines have been received.
- Performance Evaluation Report
- Performance Certification

## **3.0 O&M Manual**

### **Objective**

Provide the City of Newberg with the Operation and Maintenance Manual section for the Headworks, IPS, and Dewatering facilities, which will be merged with O&M sections from previous task orders and the existing O&M Manual.

### **Assumptions**

- City staff will be actively involved in development of a Manual that is tailored to their specific needs.
- The O&M manual will be developed to DEQ guidelines.
- The O&M Manual will be provided as a searchable PDF and as a hardcopy document.

- CM/GC will submit all manufacturer O&M information to HDR in searchable PDF format. Screen capture images from manufacturer websites will not be acceptable.
- The new headworks O&M section will incorporate the O&M information of the relocated equipment.
- HDR will prepare modifications to operating procedures based on results of the commissioning phase.

### **Deliverables**

- Electronic draft and final copies in searchable PDF format.
- Four (4) Draft and Final hard copies.
- Draft and Final O&M manual to DEQ

## **4.0 SCADA Integration**

SCADA Integration was not included in the original project scope and fee. It was not determined how this work would be completed. Typically SCADA integration is completed by the construction contractor, however, at Newberg HDR has a high degree of familiarity with the existing SCADA system. Due to this, the City requested that HDR provide SCADA integration services during construction.

### **Objective**

To provide SCADA Integration for the new equipment installed for the new Influent Pump Station, new Headworks facility, and the new components of the Dewatering Facility.

- Provide PLC and Wonderware programming during the construction period to integrate the new and modified systems into the City's existing SCADA system. The programming will be done on-line at the Wastewater Treatment Facility using the City's programming equipment. The programming will be based on the PLC I/O List furnished by HDR as part of the 100% design (bidding documents).
- Startup of the automated controls will be conducted after the contractor has provided written confirmation that they have checked the terminations of the control signals and that the appropriate manufacturer representatives have performed their field services and have certified the equipment for operation.
- Substantial completion is expected to be July, 2015. The startup activities are anticipated to take place over one period of time and not separated into individual events.

### **Assumptions**

1. The City's programming software and computers will be used for programming of the existing system.
2. The PLC hardware, installation of the hardware, control panel wiring modifications, and panel wiring diagrams is provided by others.
3. Field instruments (e.g. pressure switches, flowmeters) are to be installed and calibrated by others.
4. Signals will be tested by others.
5. The programming level of effort is based on a quantity of approximately 265 new PLC I/O points (not including spare points).
6. The existing Wonderware Screens will be modified to incorporate operator interface to the new or replaced equipment. The City's current version of Wonderware will be used for this project.
7. The new hardware has been properly terminated and is ready for operation on the scheduled dates.

### **Deliverables**

1. Installed and tested PLC logic and Wonderware configuration.
2. Electronic files and hardcopy print-outs of PLC logic.

