

NOTICE TO ARCHITECTS, ENGINEERS, AND PLANNERS

NOTICE IS HEREBY GIVEN, that the City of Oklahoma City has a project that requires the services of a consulting firm.

In order to be considered, the Consultant must comply with the Resolution establishing procedure for "Selection of Architects, Engineers, and Planners" adopted by the City Council on November 18, 1986, a copy of which may be obtained at <http://okc.gov/departments/public-works/engineer-architect-resources/notice-to-a-e> from the office of the Public Works Department Director.

The Project is as follows: ST-0149, North Canadian Wastewater Treatment Plant Facility Master Plan and Upgrades

Scope of work: The consultant will develop a facility master plan for the North Canadian Wastewater Treatment Plant. Following completion of the master plan, plans and specifications for short-term identified improvements will be required through future amendment. Long-term facility upgrades will be designed and completed under future projects. The current estimated construction cost for short-term improvements is \$20,000,000.

A question and answer meeting will be held from 9:00 to 10:00 am on November 13, 2018 at 420 W. Main Street, Suite 500, Conference Room A. Please address your questions at the meeting. The Utilities Department contact is Nathan Madenwald at (405) 297-2068.

As a part of your Letter of Interest, provide your understanding of the project and your expertise and experience on similar projects.

Refer to the basic contract located on <http://okc.gov/departments/public-works/engineer-architect-resources/notice-to-a-e>. All contracts with the City or its related Trusts use this contract. Please review the contract to ensure insurance and indemnity requirements will be met.

Please include a 254 Form with your Letter of Interest.

Time Schedule for the above project: The Facility Master Plan is required within one hundred eighty (180) days of the issuance of the Work Order. Last date for submitting Letter of Interest (**two copies of letter and all attachments and an electronic copy, provided on a CD or flash drive**) to the Public Works Department Director, 420 W. Main Street, Suite 700, Oklahoma City, OK 73102: prior to 5:00 p.m. November 21, 2018. Emailed submittals are not being accepted at this time.



Eric J. Wenger, P.E., Director
Public Works/City Engineer



The City of
OKLAHOMA CITY
UTILITIES DEPARTMENT

September 28, 2018

Project Title: North Canadian WWTP Facility Master Plan and Upgrades

Project Location: North Canadian Wastewater Treatment Plant

Project Number: ST-0149

Estimated Project Cost: To Be Determined

Project Description: This project will provide a comprehensive and detailed evaluation of the North Canadian Wastewater Treatment Plant (WWTP) and design of immediate improvements so that systems and processes can be operated reliably and efficiently. Long-term facility upgrades would be designed and completed under future projects.

Background: The North Canadian WWTP was constructed in the 1980s and is the largest WWTP for Oklahoma City with a rated capacity of 80 million gallons per day. Due to the age of the facilities and corrosive environments, several structures warrant upgrades and improvements.

Project Intent: The Engineer will develop a facility master plan and will provide preliminary engineering, final design, bidding, construction administration and management, inspection, and as-built drawing services to evaluate and/or upgrade the following structures or processes at the North Canadian WWTP:

1. Hydraulics

The Engineer will develop a hydraulic profile for the existing WWTP from the headworks through discharge and for all treatment processes. The profile will be developed based on field measurements and observations and will encompass both average and wet weather conditions. Following the evaluation of the WWTP and recommended improvements and the facility plan, the proposed hydraulic profile will be developed to confirm that the entire system will work and to identify any required hydraulic upgrades necessary for current and proposed WWTP processes.

2. Headworks

The existing pumping systems for the WWTP differ between the two main treatment trains (Phase I and Phase II) which impacts the overall functionality of the WWTP. The Engineer will be required to evaluate these pumping systems as part of the overall existing and proposed WWTP hydraulics.

3. Screening

The screening mechanisms for the WWTP are dated and difficult to maintain. Additionally, odors within the screening facilities are elevated creating additional problems for staff. This project will evaluate the current screening facilities and will determine the appropriate upgrades necessary to provide reliable screening operations that facilitate easy, safe operation and maintenance for staff.

4. Grit Removal

The grit removal systems are enclosed within structures and have poor flow transitions which have created turbulent and corrosive conditions. Additionally, the flume that flows into the grit removal system and flows from the screening mechanisms shows evidence of corrosion that has led to apparent structure deterioration. The Engineer shall evaluate these structures as part of the facility plan recommend improvements to allow for proper grit removal with the capability for staff to safely operate and maintain the system.

5. Pre-Aeration Basin

Pre-Aeration basins were installed as part of the original WWTP construction but these unit processes are no longer in service. Rather, these facilities act only now as part of the conveyance through the WWTP and could therefore be properly abandoned and demolished with modifications to the plant yard piping. As part of the overall evaluation, the Engineer will confirm this and recommend any required capital improvements necessary to eliminate the facilities.

6. Piping and Junction Boxes

Upstream of the primary clarifiers, concrete channels conveying flow and junction boxes splitting flow have become deteriorated due to corrosive gases. The Engineer shall evaluate the condition of WWTP piping and junction boxes in corrosive areas and, in combination with the overall hydraulic analysis, recommend rehabilitation or replacement of degraded or unnecessary facilities.

7. Primary Clarifiers

Four primary clarifiers were constructed as part of the original WWTP construction for Phase I in 1981. In 1985, for Phase II, two additional primary clarifiers were constructed. All six clarifiers are covered which creates a corrosive environment plus the mechanical and weir components of the clarifiers necessitate replacement. The Engineer will evaluate the potential for elimination of the covers for the primary clarifiers and ensure that any proposed improvements will not increase the potential for offsite odor impacts and will also recommend any required mechanical or structural improvements.

8. Aeration Basins

Aeration basins are in service for Phase I, Phase II and Phase III treatment trains. Note that the Phase III treatment train utilizes upstream treatment processes, such as pumping, screening, grit removal, and primary clarification, of Phase I. The Engineer shall evaluate the efficacy of treatment for the aeration systems for all phases and will recommend any required improvements to the basins or ancillary facilities necessary to maintain a high level of treatment. For Phase III, the evaluation and recommended improvements must include the elimination of any structures or flow channels that are determined to be unnecessary for current or proposed future processes.

9. Secondary Clarifiers

Twelve secondary clarifiers currently exist at the WWTP and were constructed as part of their respective phase. The mechanisms have generally not been replaced since their original installation unless complete failure of the system had previously occurred. Additionally, several weir structures have deteriorated reducing the efficiency of the unit. Drain valves also are not properly functioning for several clarifiers. The Engineer will evaluate the mechanical and structural components of each clarifier as well as their ancillary components and recommend improvements necessary to maintain required treatment efficiency and allow for proper operation and maintenance.

10. Tertiary Filtration

Though not currently necessary to meet discharge permit requirements, the Engineer will evaluate the existing system and provide recommendations for tertiary filtration should it be determined necessary to meet anticipated future discharge requirements. Should it be determined unnecessary to implement filtration based on anticipated discharge requirements, the Engineer shall recommend the demolition and removal of any facilities or structures deemed unnecessary.

11. Disinfection and De-Chlorination

The WWTP currently uses chlorine gas for disinfection and sulfur dioxide for de-chlorination to meet permit requirements. During peak flow/wet weather periods, the size of the existing systems are challenged to provide the required feed rates to meet discharge requirements. The Engineer will evaluate the current system and develop proposed improvements, including alternative technologies, to meet average and peak flow requirements.

12. Wet Weather / Off-Line Storage Basins

The wet weather storage basin cannot be completely emptied for maintenance with the current hydraulic configuration at the headworks. The basin receives unscreened, unsettled wastewater which means that solids accumulate in the basin resulting in the

increased potential for odors. Additionally, when a WWTP upset occurs and insufficient treatment results in non-compliant treated wastewater, the wet weather basin could also be configured to be used as an offline storage basin to temporarily retain flows.

The Engineer will need to evaluate the wet weather basin as part of the overall WWTP hydraulics to allow for full usage of the basin and proper maintenance including the potential for screening of wastewater prior to diversion to the basin.

13. Interconnection of Phase 1 and Phase 2 Treatment Trains

Several interconnections between Phase 1 and Phase 2 treatment trains were previously installed to allow for shutdowns for transferring flows between treatment trains to allow for maintenance and repair of various treatment processes. However, these interconnections are not currently functioning. The Engineer, in concert with the WWTP hydraulic evaluation, will be required to determine what improvements are necessary to enable more efficient operation and maintenance of the various treatment processes.

14. Biosolids Improvements

- a. Thickening** – Four gravity thickeners are currently utilized at the site. This process is not efficient in reducing sludge volumes and is difficult to operate and maintain due to corrosion issues. The Engineer will be required to evaluate these facilities to assess the current operation and identify required upgrades to allow for efficient, reliable biosolids processing into the future.
- b. Dewatering** – Four belt filter presses are currently in operation at the facility. Two of the belt filter presses were installed in 1988 and the other two were installed in 2007. The presses, due to age and a corrosive environment, warrant improvements either need to be replaced. The Engineer will need to evaluate the replacement as part of the overall master plan to determine the best technology for dewatering as part of the overall Facilities Master Plan.
- c. Stabilization** – The Engineer will need to evaluate future potential upgrades for biosolids stabilization when evaluating and recommending upgrades for the thickening and dewatering systems. This will ensure that capital funds are efficiently spent by allowing future stabilization improvements, if recommended, to build upon past thickening and dewatering upgrades.

15. Electrical System Upgrades

A study was recently completed for various electrical systems at a number OCVUT facilities. A major component of this study was the North Canadian WWTP. The study identified that significant electrical upgrades are necessary to ensure reliable, safe operation into the future. The Engineer will utilize the existing study and electrical system

model to develop a plan for upgrading the electrical infrastructure in concert with the proposed facility plan to efficiently utilize OCWUT funds.

16. Emergency Generator Synchronization / Coordination

New emergency generators were installed to serve the overall WWTP site as part of Project ST-0132 within the last 5 years. Additionally, emergency generators are on site and only serve separate equipment or facilities, specifically the main blower building. The Engineer will need to evaluate these generators as part of the facility plan to determine how this infrastructure will work with the proposed improvements or determine if additional emergency generation is necessary.

17. Stormwater Drainage / Levee Improvements

Due to erosion and migration of the North Canadian River main channel, improvements are necessary to protect the integrity of the levee and storm water outlets. The Engineer will be required to assess the current situation and identify improvements necessary to maintain the long-term protection of the facility.

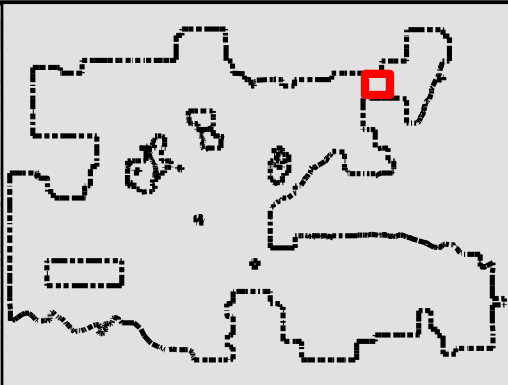
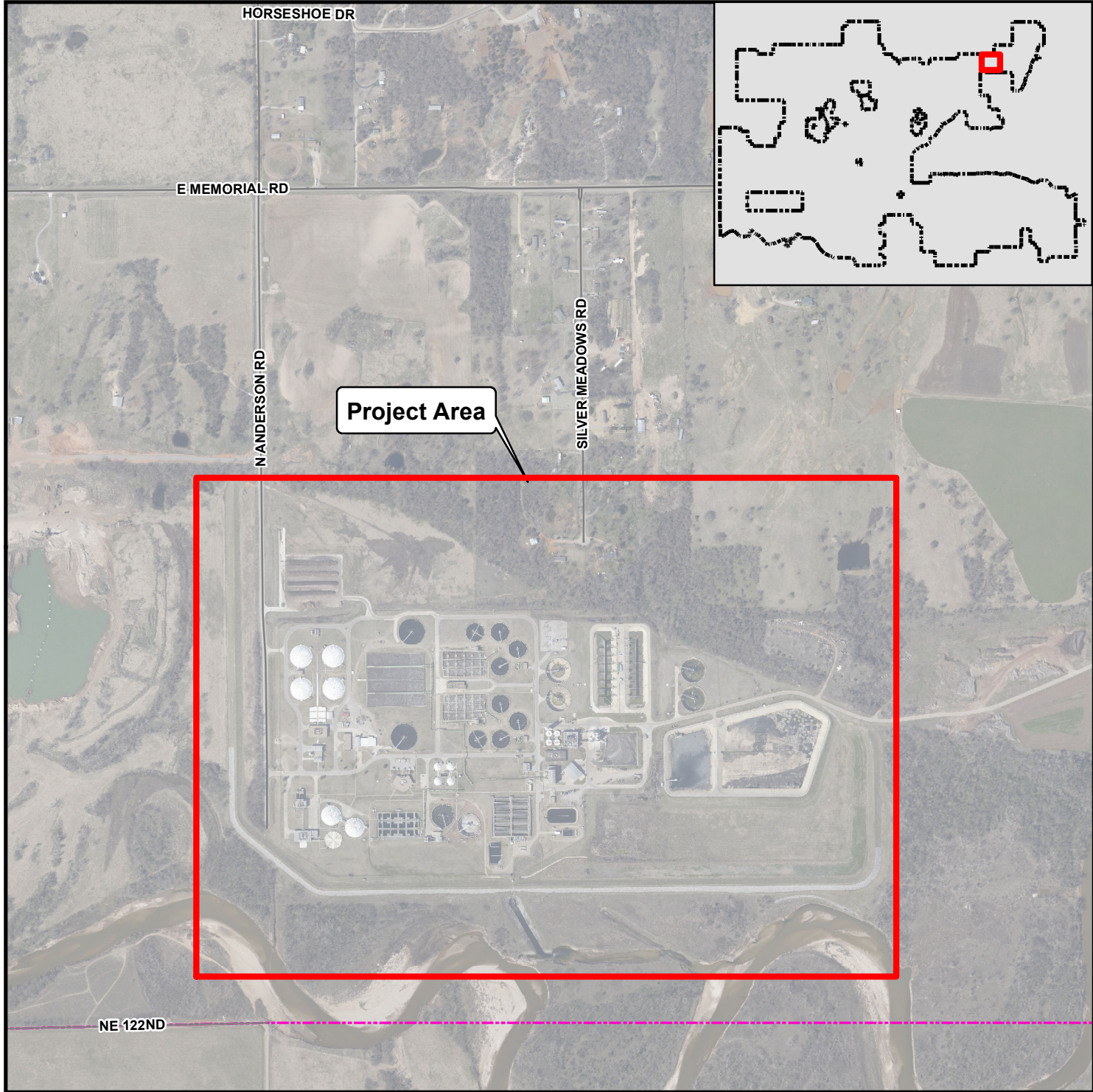
18. Nutrient Removal

Though not required within the current discharge permit, the Engineer shall plan for nutrient removal facilities and shall allocate sufficient space any additional treatment processes. Anticipated treatment facilities shall be determined based on discussions with regulatory agencies regarding anticipated discharge limit requirements.

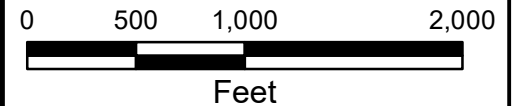
19. SCADA/Fiber Communications

Where possible, the project will incorporate the installation of new fiber optic cable to support the SCADA improvement initiative at the WWTP.

Proposal Instructions: Upon public advertisement, interested consulting firms will have four (4) weeks to prepare general qualification proposal materials. During this stage of the general qualifications material development, OCWUT staff will hold a question and answer session seven (7) days prior to the due date regarding this project. Three firms will be identified for a set interview date four (4) weeks in advance of said event. During this second four (4) week period, the three identified firms may engage OCWUT staff in individual meetings to gain further project specific knowledge in advance of the interview session.



| | |
|---------------------------------|---|
| Project No. | ST-0149 |
| Project Title | North Canadian Wastewater Treatment Plant Facility Master Plan |
| Project Location | 12800 N Anderson Road |
| Ward | 7 |
| Core Business Initiative | Reliability and Resiliency |
| Project Need | Age of facility and corrosive environments warrants upgrades to maintain reliable operation and regulatory compliance. |
| Project Details | Full facility evaluation to develop Facility Plan with initial improvements to upgrade electrical systems at a minimum. |
| Project Manager | Ken Giannone |
| Project Engineer | TBD |



NE 122ND