

## **Task Order**

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**Task Order Number: 110**

**Date:** January 21, 2020

**Title:** Sewer Condition and Risk Assessment

**Project Description:** Perform condition inspection of specified sewer collection system mains and manholes to develop a condition and risk assessment outlining current defects, rehabilitation recommendations, and to develop capital planning supporting future master planning efforts.

The task breakdown for the project is designated as follows:

- Task 1 – Project Management
- Task 2 – Sewer Main Inspection
- Task 3 – Sewer Manhole Inspection
- Task 4 – Condition and Risk Assessment
- Task 99 – County Directed Services

### **PART 1 – SERVICES**

#### **Task 1 – Project Management**

##### *Objective*

To plan, organize, direct, control, and communicate all relevant activities set forth in this Scope of Work within the approved budget and schedule.

##### *Approach*

Farr West will routinely review project progress and communicate project status on a regular basis via email and telephone. This task will include the following activities:

- Project administration includes scheduling maintenance, cost control, monthly invoicing, filing, resource allocation, subconsultant management, and routine communications.
- Coordination and contracting with Sub-contractor.
- Monitoring changes to the scope, budget, or schedule and developing change management strategies with Lyon County.

##### *Deliverables*

The following deliverables will be submitted under this task:

- Project schedule.
- Monthly invoices.

### ***Assumptions***

The following assumptions apply:

- Monthly reports will be provided with timely invoices.
- Project-related issues will be identified, communicated, and resolved.

### **Task 2 – Sewer Main Inspection**

#### ***Objective***

Organize a team, including a sub-contractor, to perform CCTV and condition scoring of selected sewer collection mains to support the condition assessment.

#### ***Approach***

This task will include the following activities:

- Contract with third-party sub-contractor to perform sewer main cleaning, CCTV, and prepare NASSCO PACP scoring of each pipe segment.
- Farr West will provide management services including oversight of the pipe inspection and cleaning, schedule coordination between the sub-contractor and Lyon County, changes, payment requests, and rework.
- Provide project oversight for periodic on-site field investigations and support of CCTV efforts.

#### ***Deliverables***

The following deliverables will be submitted under this task:

- Contractor to provide the following to Farr West:
  - CCTV media files provided in an open source and commonly used format. Videos may be provided by CD/DVD, USB device, FTP, or other secure cloud-based sharing service.
  - PACP scoring sheets in a commonly supported format such as pdf, Word document or Excel file. Documents may be provided by CD/DVD, USB device, FTP or other secure cloud-based sharing service.
- Provided Videos and PACP scoring documents shall be organized and provided to Lyon County by Farr West.

### ***Assumptions***

The following assumptions apply:

- CCTV activities to be performed for 32,655 LF of sewer collection system as identified in the project extent figures in Attachment A. Lateral services are not included.
  - Farr West will contract with Alpine Septic and Pumping, Inc. and Mountain Pipeline for cleaning and CCTV inspection and scoring, respectively. Costs associated with cleaning are \$0.65/LF and CCTV inspection and scoring are \$0.63/LF

- CCTV field work anticipated to take seven (7) weeks.
- All CCTV efforts will utilize manhole asset ID information from Lyon County’s existing GIS.
- CCTV activity anticipated to include cleaning of sewer mains prior to video inspection to obtain the best visual of the condition and any defects of each pipe segment.
  - All three sub-contractors solicited by Farr West for this work strongly encouraged cleaning prior to video. The selected sub-contractors (Alpine Septic and Pumping, and Mountain Pipeline) visited the site and assessed manholes throughout the project area to better understand the existing conditions. It was their determination that 78-80% of the piped would require cleaning.
- Cleaning shall consist of light-medium efforts as defined per NASSCO which consists of a water jet-nozzle. More substantial cleaning efforts are not included and would be subject to change.
- Lyon County will identify areas of the sewer collection system that are problematic or are subject to damage from CCTV activities. To protect the integrity of these mains, video of these sewer mains will be performed prior to cleaning to investigate and collect as much information as possible.
- Water for cleaning activities may be accessed from fire hydrants or effluent water, as directed, and identified by Lyon County. A meter deposit will be required but will be refunded once water is no longer required. Meter shall track usage, but water usage will not be charged by Lyon County.
- Pipe cleaning water and disposal location of cleaning debris to be provided at the South Plant, or as identified by Lyon County, at no charge.
- Project administration tasks are estimated at 4-hours per week of CCTV activities.
- Project oversight tasks are estimated at 6-hours per week of CCTV activities.
- Tasks not included: Work within NDOT right-of-way, permitting, traffic control beyond minor residential requirements.

## **Task 2 – Sewer Manhole Inspection**

### ***Objective***

Perform sewer manhole inspections and condition scoring of selected sewer collection manholes to support the condition assessment.

### ***Approach***

This task will include the following activities:

- Perform field inspections of predetermined manholes corresponding with sewer main inspection performed under Task 1. To minimize field time and traffic disturbances, field inspection effort shall collect video documentation and critical measurements of manhole only. Review and scoring of manholes will be performed in the office.

- Farr West's NASSCO MACP certified staff will assess the information collected during field inspections, complete scoring forms for each manhole, and produce final NASCO Manhole Component Defect Forms.

### ***Deliverables***

The following deliverables will be submitted under this task:

- Provided MACP scoring documents shall be organized and provided to Lyon County by Farr West.

### ***Assumptions***

The following assumptions apply:

- Manhole inspections to be performed for 135 sewer manholes within the sewer collection system as identified in the project extent figures in Attachment A. Lateral services are not included.
- Field inspections are assumed to take 30-minutes per manhole.
- Office inspection review and scoring is assumed to take 60-minutes per manhole.
- All efforts will utilize manhole asset ID information from Lyon County's existing GIS.
- Manhole interiors are assumed to be clear of deposits and obstructions that may inhibit field inspection observation and video collection to be performed.
- All manholes that can receive inspection for this effort are assumed not to exceed 8-feet in depth. Field inspection will be able to be performed from the ground level, without the need to enter the manholes. Manholes that exceed this limitation will not be inspected.
- If Farr West determines consistency in adjacent manhole conditions, and correlate to sewer main conditions, some manholes may be skipped for efficiencies and classified the condition score of adjacent manholes.
- Tasks not included: Confined space entry, work within NDOT right-of-way, permitting, traffic control, manhole access in congested traffic areas.

## **Task 3 – Condition and Risk Assessment**

### ***Objective***

Utilize collected PACP and MACP scoring data to develop a comprehensive condition assessment outlining the condition of sewer mains. Data will be utilized to prepare a technical memorandum evaluating the condition and risk assessment of the investigated sewer collection system. The technical memorandum will identify and outline the range of rehabilitation techniques and planning level cost estimating for Lyon County to utilize for capital planning.

### ***Approach***

This task will include the following activities:

- Condition Assessment
  - Collect and perform a quality control review of the PACP scoring of the sewer main CCTV performed by the sub-contractor.
  - Utilize the final PACP pipe segment scoring to develop GIS mapping. Mapping will consist of multiple figures to present project area, structural scoring, operation and maintenance scoring, and proposed rehabilitation to support the condition assessment.
  - Prepare condition scoring parameters specifically to the findings.
- Risk Assessment
  - Develop consequence and likelihood categories and weighting factors based on Farr West recommendations and Lyon County input.
  - Assemble consequence and likelihood scoring.
  - Utilize the final risk scoring to develop GIS mapping to support the risk assessment.
- Prepare a draft technical memorandum and deliver to Lyon County for review and comment.
- Update Lyon County GIS with condition and risk scoring.
- Incorporate draft technical memorandum comments and prepare a final technical memorandum.

### ***Deliverables***

The following deliverables will be submitted under this task:

- Condition Assessment Technical Memorandum, draft and final versions.

### ***Assumptions***

The following assumptions apply:

- The Lyon County GIS database will be updated with condition and risk scoring.
- Technical memorandum shall include
  - Detailed results of the CCTV work.
  - Condition assessment of sewer mains and manholes.
  - Risk assessment of sewer collection system.
  - Recommendations for further data collection and subsequent phased efforts.
  - Summary of rehabilitation technologies.

- Identify cost estimating for the various technologies.
- Proposed rehabilitation methods for sewer infrastructure assessed within this scope of work.
- Future efforts not included in this scope of work:
  - The Lyon County GIS database will not be updated with videos, documents, nor other record linking.
  - Lateral inspection nor condition/risk evaluation.

**Task 99 – County Directed Services**

The County Directed Services task will account for project work items that are unforeseen by Lyon County. A task budget is incorporated into the contract as shown in Part 2 of this Scope of Work. Labor effort will not be charged to this task unless authorized in writing by Lyon County.

**PART 2 – COMPENSATION**

Lyon County shall pay Farr West on a time and materials basis, including travel, not to exceed One Hundred Forty Thousand Nine Hundred and Forty Dollars (\$140,940), as noted in the table below. Hourly rates and other expenses shall be in accordance with Exhibit C of the Master Services Agreement (Standard Hourly Rates).

Task 1	Project Management	\$3,824
Task 2	Sewer Main Inspection	\$55,186
Task 3	Sewer Manhole Inspection	\$28,228
Task 4	Condition and Risk Assessment	\$32,702
Task 99	County Directed Services	\$21,000
<b>PROJECT TOTAL:</b>		<b>\$140,940</b>

**PART 3 – SCHEDULE**

Notice to Proceed:	January 2021
Begin Field Work:	February 2021
Complete Field Work:	April 2021
Condition Assessment Deliverable:	June 2021

**IN WITNESS WHEREOF, the parties hereto have executed this Task Order.**

Owner: Lyon County

Engineer: Farr West Engineering

By: \_\_\_\_\_

By: \_\_\_\_\_

Print Name: Vida Keller

Print Name: Brent Farr, P.E.

Title: Chairman/Board of County  
Commissioners

Title: President

Date Signed: \_\_\_\_\_

Date Signed: \_\_\_\_\_