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April 19, 2022

Subject: **Proposal for Cathodic Protection Engineering Services**
21041 South Side Water Transmission Main
Corpus Christi, TX

In accordance with your request, Corrpro is pleased to submit our cost proposal to provide cathodic protection (CP) design services and construction support services on the segments of line indicated in the "21014 Cathodic Protection Project Limits.pdf" document provided on 10-22-21 from the Island to the north/East side of Oso Creek. The remainder of the pipe will not be part of the scope of this project.

SCOPE OF WORK

Corrpro understand that the work is to include field discovery and testing, design, bid package preparation, construction technical support, inspection, commissioning, and training. These tasks will be discussed in greater detail below.

Task 1- Document Review and records discovery

This task consists of all the preparatory work proceeding the detailed testing in the field. The specific elements of Task 1 are as follows:

- The pipe constructions drawings will be reviewed at our Houston, Texas office. The purpose of the review will be to determine the pipe depth and location of pipeline features, and to select field sites for testing.
- Corrpro's Engineer will define the project requirements and meet with the Corrosion Specialist to develop the field test work plan.
- Project management activities and project review meetings will also be included under this task.

Task 2- Field Verification and Discovery

Corrpro will provide a NACE Certified Technician to perform the following:

- A NACE Certified Corrpro Technician will assemble all of the test equipment and confirm proper calibration and operation of all instrumentation.
- The technician will travel the pipeline, focusing on areas identified during the document discovery phase, identifying the condition and location of existing corrosion mitigation facilities. These will be documented with photos and GPS.
- Pipeline alignment will be surveyed with respect to crossings of foreign pipelines and paralleling utility systems. Existing cathodic protection systems and locations of foreign line test stations will be identified. The impact of the foreign pipeline crossings will be assessed.

- Pipeline alignment will be surveyed for possible induced AC interference and the need for protection under fault conditions.

Task 3- Current Requirement and Continuity Testing

Corrpro will provide two (2) NACE Certified Technicians to perform the following

- Based on the reviewed findings from the discovery survey, the project engineer will direct testing for the purpose of identifying locations for repairs to make a cathodic protection system effective and efficient.
- Based on the reviewed findings from the discovery survey, the project engineer will direct testing for the purpose of sizing and locating cathodic protection systems
- Conduct any interference testing with foreign pipeline operators, if relevant.
- Dimensional field sketches will be created of possible locations for cathodic protection systems
- Soil resistivity measurements will be recorded in accordance with ASTM G57-95. Measurements will be performed from grade to depths of five, ten and fifteen feet.

Task 4- Data Analysis

All electrical data will be processed at our Houston, Texas Corrpro Office. Included in this task is the following:

- Soil resistivity data will be evaluated to determine resistivity's of the soil layer where the cathodic protection system is to be installed.
- AC and DC interference test data will be tabulated and analyzed.
- All data will be complied into an overall analysis of the conditions for galvanic and electrolytic corrosion along the pipeline route will be performed.

Task 5- Corrosion Protection Design

Following the analysis of the electrical data and the soil test results, corrosion protection and interference mitigation requirements will be defined. Specific design deliverables will include specifications for:

60% design Submittals

- Proposed locations of test station installation or repairs
- Proposed locations for cathodic protection system
    - Corrpro will work with the city to assess options based on land rights and power availability
- Proposed locations of bonding cable installations
- Installation detail drawings for review and comment

90% Design Submittals

- Installation locations with illustrated access or traffic control as deemed necessary from conversations with the City. Formal traffic control plans to be part of awarded contractors responsibility.
- Test Stations and Cathodic Protection detail drawings
- Stray Current Interference Mitigation and Foreign Pipeline Crossings
- A report will be prepared that documents all test data, analysis and a construction cost estimate for the cathodic protection and interference control systems.
- The report will be submitted to the city for final review and comment before incorporating into the final bid package preparation

Task 6 – Bid Package

Corrpro's Engineer and Manager will prepare the bid package for the City to release for public bid. This bid package will include the following:

- Material Specifications
- Approved for construction plan drawings and details
- Testing and inspection specifications
- Hold point requirements
- Pre-bid meeting
- Bid Proposal
- OPCC
- Respond to all RFI's
- Support the city with review and evaluation of all bids
- Supply recommendation letter for evaluation of contractor bids

Task 7- Construction Support

During the construction support phase of the project, Corrpro will provide technical services to:

- Pre-construction meeting
- Review and approve material submittals
- Perform periodic spot checks during construction (assumed to be 5-days)
- Observe or review documentation all required quality check points
- Respond to all RFI's

Task 8 – Commission Cathodic Protection System

After construction is completed Corrpro will complete all functionality testing to assure proper installation and the commission the system.

- Measure base line pipe-to soil potentials at all new test stations
- Energize rectifier and check for proper operation and wiring
- Adjust rectifier to desired output

- Collect interrupted On and Instant Off potentials after adequate polarization
- After completion of the commissioning procedures, Corrpro will provide a final written report to include the following:
    - Tabulation and analysis of data
    - Description of field-testing procedures
    - Operations and maintenance manual of the installed system
    - Record Drawings (as-builts)
    - Conclusions and recommendations
- Create and maintain database of corrosion protection information for the City of Corpus Christi

Task 9- System Training

After final installation Corrpro will conduct a 1-day training for city personnel. The training will consist of presenting the extent, location, and general operating principals of the system.

ESTIMATED SCHEDULE

Summary of Estimated Costs		
Task Number	**Description**	**Completion Date**
	Notice to Proceed	May 30th, 2022
Task 1	Document Discovery	June 17th, 2022
Task 2 & 3	Field Testing	August 1st, 2022
Task 4 & 5	60% Design Submittals	September 2nd, 2022
	City Review and Feedback	September 16th, 2022
Task 5	90% Design Submittals	September 30th, 2022
	Final City Review and Feedback	October 14th, 2022
Task 6	Final bid package	October 28th, 2022
Task 6	Advertise Bid Package	November 1st, 2022
Task 6	Pre-Bid Conference	November, 2022
Task 6	Receive bids	November, 2022
Task 6	Provide Recommendation letter of bids	December 9th, 2022
	Contract Award	December 2022
	Begin Construction	January 2023
Task 7	Complete Construction	June 2023
Task 8	Final Commissioning	July 2023
Task 9	Final Report and Training	August 2023

PRICING SUMMARY

Corrpro will be pleased to provide the above-described work for the below price.

Summary of Estimated Costs	
Field Testing and Design (Task 1-6, 9)	$100,412.00
Construction Support (Task 7 & 8)	$39,588.00
Total	**$140,000**

Corrpro will invoice monthly based progress percentage complete with the final 5% billed after delivery of commissioning report.

Summary of Estimated Hours		
Labor Type	**Field Testing and Design**	**Construction Support**
Principal	10	
Project Manager	82	16
Corrosion Engineer	354	48
Corrosion Technician	200	154
Drafter	120	20

SERVICES/MATERIALS PROVIDED BY OTHERS

1. Records, drawings and historical reports to be provided to Corrpro, if available.
2. Access to the right-of-way. Delays and cost associated with right-of-way or access problems may incur additional charges.
3. Land surveyors to be provided by Corrpro. For site easements, services to be provided by the City.

COMMERCIAL TERMS AND CONDITIONS

1. Payment terms will be net 30 days.
2. Progress invoices to be submitted as agreed upon
3. Contract is lump sum

NOTES

1. All terms and conditions listed above, whether explicitly detailed or not detailed in a resulting contract or purchase order, shall be accepted as "condition of sale" between Corrpro and the Purchaser and cannot be waived unless it is explicitly mentioned in the resulting contract or purchase order.

We appreciate the opportunity to submit this proposal. Please contact **Business Development Matthew Speights** at **281-770-8790 or Regional Engineering Manager Steve Padden at 773-350-3218** if you have any questions or require any further information regarding this proposal.

Sincerely,

Matthew Speights
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