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ADDENDUM NO. 4

Date: October 22, 2018
Project: **MARINWOOD-HWY 101 TRUNK SEWER UNDERCROSSING
EMERGENCY REPAIR**
Job No.: **11200-03**
To: All Planholders and Prospective Bidders

This addendum consists of nine (9) page(s) including this page. Acknowledge receipt of this addendum in the space provided on page 11, Proposal and Bid Schedule, of the Contract Documents, and by signing in the space provided below. Submit original copy of this addendum cover page along with the bid. Failure to do so may disqualify the bidder.

Las Gallinas Valley Sanitary District: Bidder: _____

Michael P. Cortez, PE, District Engineer
Tel. No. (415) 472-1033, ext. 18

(Authorized Signature)

(Date)

The following changes and/or clarifications are hereby made to the Contract Documents, and shall become a part of the Contract Documents dated September 2018.

1. Refer to NOTICE INVITING INFORMAL BIDS, Paragraph 2, Page 5: Bid opening has been rescheduled for Thursday, November 1, 2018 at 11:00 AM.
2. Replace the bid form issued in Addendum No. 3 with the attached revised bid form.
3. Include Section 02651 - Fold and Form Pipe (FFP) for Sewer Mains, in the Technical Specifications section of the Contract Documents. FFP is an acceptable method of trenchless rehabilitation of the existing 18" ABC sewer in addition to CIPP lining.

SCHEDULE OF UNIT PRICE AND LUMP SUM BID ITEMS:

1. For the trenchless rehabilitation of the 18” Asbestos Bonded Corrugated (ABC) trunk sewer by (select one):
 - a. ____ Cured-in-Place Pipe (CIPP) lining;
 - b. ____ Fold and Form Pipe (FFP) lining;

complete in place as shown and specified: 420 LF multiplied by \$_____ per lineal foot, at the Extended Total of:

\$ _____
(In figures)

2. For the pre-construction CCTV inspection to determine if the existing 18” ABC trunk sewer is suitable for the trenchless rehabilitation selected d in Bid Item 1 above, at the Lump Sum price of:

\$ _____
(In figures)

3. For the post-construction CCTV inspection, at the Lump Sum price of:

\$ _____
(In figures)

4. For point repairs, complete in place, as shown and specified, at the Lump Sum price of:

\$ _____
(In figures)

5. For bypass pumping, complete in place, as shown and specified, at the Lump Sum price of:

\$ _____
(In figures)

6. For Caltrans encroachment permit fees (\$984), vegetation clearing and grubbing of the existing earthen ditch, offsite disposal of excavated materials, and other requirements, complete in place, as shown and specified, at the Lump Sum price of:

\$ _____
(In figures)

7. For mobilization, demobilization, and incidentals not included in Bid Items 1 thru 6; however, are necessary for the successful completion of the project, at the Lump Sum price of:

\$ _____
(In figures)

TOTAL BASE BID, BASIS OF AWARD (SUM OF BID ITEMS 1 and 7):

\$ _____
(In figures)

SECTION 02651

FOLD AND FORM (FFP) LINER FOR SEWER MAINS

PART 1 GENERAL

1.01 DESCRIPTION

- A. The Contractor shall furnish all labor, equipment and materials necessary to complete the lining of sanitary and storm sewers as stipulated herein and as shown on the Contract Documents. As applicable to a specific contract, the work shall include the preparation of the construction site, including cleaning and flushing of existing piping; flow control bypass pumping; protection of existing conditions during installation work; unloading; hauling; distribution and installation; testing of all pipe, fittings, scaffolding, piping, valves, boilers, etc. and other accessories as required for proper installation; protection of the site during the work, including protection of necessary watchmen, warning lights, barricades, traffic control, dust control and maintenance of detours, as needed; and the cleanup of the work site.
- B. It is the intent of this Specification to provide for the reconstruction of sanitary and storm sewers by the installation of a polyvinyl chloride (PVC) pipe liner into the existing sewer line. When installed, the pipe liner shall extend over the length of the pipe between manholes in a continuous, tight fitting, watertight pipe-within-a-pipe. The lining system shall be installed using trenchless technology, with no excavation or surface restoration required.
- C. Pipe relining is one method of pipeline rehabilitation. Depending on site conditions, other or additional pipeline rehabilitation methods, e.g., point repairs, may be required.

1.02 RELATED WORK SPECIFIED IN OTHER TECHNICAL SECTIONS

- A. Section 02951: TV Inspection of Pipelines

1.03 SUBMITTALS

- A. Submit product data, video records, and installation instructions for approval.
- B. After award of the Contract and before any materials are delivered to the job site, the Contractor shall submit to the Engineer a complete list of all materials proposed to be furnished and installed for the work.
 - 1. The materials list shall include the manufacturer's name and catalog number for each item, furnish catalog cuts and technical data, and the manufacturer's recommendations as to method of installation.
 - 2. Upon approval of the Engineer, the manufacturer's recommendations shall become the basis for acceptance or rejection of actual methods of installation used in the work.
 - 3. The Contractor shall not permit any sewer-lining component to be brought onto the job site until it has been approved by the Engineer.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Protection: The Contractor shall use reasonable means to protect sewer lining materials before, during, and after installation and to protect the installed work and materials of other trades.
- B. Replacement: In the event of damage to the sewer lining materials, the Contractor shall make timely repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.

1.05 WARRANTY

- A. The Contractor shall warrant all work to be free from defects in workmanship and materials for a period of one year from the date of final completion of the project.

1.06 EXISTING SEWER SYSTEM

- A. Active Sewers: The Contractor shall maintain in operating condition all active sanitary and storm sewers encountered in the sewer lining installation.
- B. Connections to Existing Sewers and Structures: The Contractor shall make all required connections to existing sewers and structures (i.e., manholes, drop inlets, headwalls) and carry out such work in accordance with local standards and requirements and as directed by the Engineer. The Contractor shall exercise reasonable care to prevent debris from entering existing sewers to be lined.
- C. The FFP system is not recommended for above-ground, geothermal, or other piping systems with service temperatures over 120°F.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. The pipe liner pipe rehabilitation system shall be the DYNALINER pipeline rehabilitation system as produced by DYNALINER LLC, or approved equal.
- B. Alternative materials must be approved not less than three (3) days prior to bid date.

2.02 PIPE LINING MATERIALS

- A. Polyvinyl Chloride Liner
 - 1. The liner shall be fabricated to a size which, when installed, will fit the internal circumference of the pipe as specified by the Engineer. Allowance for circumferential expansion during installation shall be made. The liner material shall be made only from a polyvinyl chloride (PVC) compound.
 - 2. The minimum liner length shall span the distance from the inlet to the outlet of the pipe to be lined. The Contractor shall verify the lengths in the field before insertion of the liner. Unless otherwise agreed, 4 inch to 15 inch diameter liner shall have a dimension ratio of SDR 35, or as determined by the design calculations of a professional engineer. Unless otherwise agreed, 18 inch to 36

inch diameter liner shall have a minimum wall thickness of 0.300 inch, or as determined by the design calculations of a professional engineer.

3. Unless otherwise specified, the Contractor shall furnish a polyvinyl chloride compound liner pipe meeting all the requirements for cell classification and minimum physical properties as defined in specification ASTM F1504-14, listed below:

Physical Characteristics	Test Procedures	Pipe Material PVC
Tensile Strength	ASTM D-638	5,000 psi
Tensile Modulus	ASTM D-638	>280,000 psi
Flexural Modulus	ASTM D-790	>280,000 psi

4. The liner shall be able to accommodate reasonable changes in host pipe diameter, with design approval by Owner’s representative, with the understanding by all parties that when the FFP pipe expands beyond its nominal diameter that it will have a higher dimension ratio (SDR).

PART 3 EXECUTION

3.01 EXISTING CONDITIONS

A. Inspection:

1. Prior to installation the Contractor shall: Inspect the host pipe for any pre-existing conditions that could inhibit the installation of the liner.
2. The Contractor shall make arrangements with the Marin Municipal Water District for use of water hydrants for cleaning, installation and other process related work items requiring water and pay for all water used.
3. Verify that the liner is to be installed in accordance with all applicable codes, regulations, referenced standards and the manufacturer’s recommendations.

B. Discrepancies:

1. In the event of a discrepancy, immediately notify the Engineer.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 FIELD MEASUREMENTS

- A. Make all necessary measurements in the field to ensure precise fit of items in accordance with the Contract Documents.**

3.03 INSPECTION OF PIPE LINER

- A. No pipe shall be lined without prior notification to the Engineer. Each liner shall be subject to inspection by the Engineer immediately before installation, and defective liner will be rejected.

3.04 INSTALLATION OF PIPE LINER

- A. Installation of PVC pipe liner shall be performed by personnel who are recognized by the manufacturer as an authorized installer of its PVC pipe liner product.
- B. Installation Procedures: The following installation procedures shall be adhered to unless otherwise approved by Owner's representative.
 - 1. Safety: The Contractor shall carry out its operations in accordance with all OSHA and manufacturer's safety requirements including, but not limited to working with boilers, steam, mechanical equipment, and confined space entry.
 - 2. Cleaning of sewer line: It shall be the responsibility of the Contractor to remove all internal debris from the sewer line prior to installation.
 - 3. Inspection of pipelines: Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections by closed circuit television. The interior of the pipeline shall be carefully inspected to determine the location of any condition that may prevent the proper installation of the liner into the pipeline, and it shall be noted so that these conditions can be corrected. The Owner shall keep a videotape and suitable log for later reference.
 - 4. Bypassing flow: The Contractor, when required, shall provide for the flow around the section of pipe designated for the liner. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow.
 - 5. Line obstructions: The Contractor shall clear the line of obstructions or collapsed pipe that will prevent the insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the repair work and shall be considered as a separate pay item.
- C. Installation of Pipe Liner: The method of installation shall be compatible with the manufacturer's recommended practices. For the pipe liner, the installation shall be as follows:
 - 1. The liner shall be inserted into the sewer through existing structures, without modification of the structures.
 - 2. The liner shall have been wrapped on a coil, in a reduced cross section of either a "C" or an "H" at the time of manufacture, to facilitate insertion into the host pipe.

3. The liner shall be brought to the work site in an apparatus suitable for applying heat to the PVC liner. The coil of liner shall be heated to a temperature (as determined by the manufacturer) to make the liner pliable enough to be easily removed from the coil and to remove any "reel set".
 4. The heated liner shall be pulled into the host pipe using a cable from a winch located at a downstream manhole connected through the lumen of the host pipe and attached to the end of the liner. The coiled liner shall be unreeled from the upstream manhole to reduce the amount of tension placed on the liner by the winch cable. The Contractor shall insert enough liner material so that sufficient material is available to allow for insertion of flow-through plugs at both upstream and downstream stations.
 5. After the liner pipe has been inserted, allow the material to relax for several minutes in order to recover from any stretching that may have occurred during the insertion process. Continue to heat and relax the liner until movement has stopped.
 6. After insertion is completed, the Contractor shall supply suitable heat source equipment and flow-through plugs. The equipment shall be capable of delivering steam through the lining section to uniformly raise the temperature and pressure to effect forming of the PVC liner pipe. This temperature and pressure shall be determined by the system employed.
 7. The heat source shall be fitted with suitable monitors to gauge the steam temperature and pressure at the input and exhaust ends of the liner. Steam monitoring methods and forming period shall be recommended by the liner manufacturer.
 8. The liner pipe shall be plugged with flow-through plugs, and expanded until it is pressed tightly against the existing host pipe walls.
 9. If the liner fails to install properly, the Contractor shall remove the failed liner and replace it with a new liner. This work shall be performed without additional cost to the Owner.
 10. After the liner has been formed, the ends of the liner shall be cut away at both structures.
 11. When the installation is complete, the liner pipe shall be continuous over the entire length of run between two structures and be as free as commercially practical from visual defects such as foreign inclusions and pin holes.
 12. Any defects which affect the integrity or strength of the liner pipe during the warranty period shall be repaired at the Contractor's expense. Allowance shall be given for excess pipe (rib) when the cross-sectional area has been reduced due to offset joints, partial collapse, out-of-round sections, etc.
- D. Sealing at Structures: If, due to broken or offset pipe at the structure wall, the pipe liner fails to make a tight seal, the Contractor shall apply a seal at that point. The seal shall be of a material compatible with the liner pipe material.

- E. Service Connections: After the pipe liner has been formed in place, the Contractor shall reconnect the existing active service connections as designated by the Engineer. This shall be done without excavation, and in the case of non-man entry pipe, from the interior of the pipeline by means of a television camera and a cutting device that re-establishes the service connection to not less than 90 percent capacity.
- F. Clean-up:
 - 1. The Contractor shall restore or replace removed or damaged paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other surfaces or structures disturbed by the work to a condition equal to that before the work began, to the satisfaction of the Engineer, and shall furnish all labor and material incidental thereto.
 - 2. Surplus liner material, tools and temporary structures shall be removed by the Contractor after completion of the work. All dirt and rubbish from the operation shall be legally disposed of by the Contractor, and the construction site shall be left clean to the satisfaction of the Engineer.

PART 4 PAYMENT

4.01 GENERAL

- A. Full compensation for the work specified herein shall be considered as included in the applicable lump sum or unit price items stated in the Contactor's proposal and no additional compensation will be allowed therefor.

END OF SECTION