

September 16, 2020  
Project No. 180004.2

Mr. Jericho Gallardo  
Project Manager  
City of San Diego – Public Works Department  
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Subject: Response to City of San Diego LDR-Geology  
Environmental Review  
City Project No. 646068; Cycle 1

Project: City of San Diego Task 15GT14 – College Area Sewer (Master Contract # H156366)  
San Diego, California

References: i) RECON Environmental, Inc., Biological Technical Report for the College Area Sewer and AC Water Project, 106 pages (Dated August 19, 2020).

ii) City of San Diego Plans for the Construction of College Area Sewer and AC Water Main Replacement, Drawing Number 39946, 33 Sheets (Unsigned dated June 8, 2020); College Area Sewer and AC Water Project Revegetation Plans B-16025, 3 Sheets (Dated August 9, 2020).

iii) Twining Cost Proposal to Provide a City of San Diego Response Letter to LDR-Geology, Cycle 1, review comments (Dated May 19, 2020).

iv) City of San Diego Letter requesting additional Geotechnical Services for the subject project (Dated March 30, 2020).

v) City of San Diego Cycle Issues, Environmental Review prepared by LDR-Geology, Cycle 1, Project No. 646068, City review dated September 25, 2019 (Print dated October 3, 2019), document received by Twining dated March 30, 2020.

vi) Twining Project No. 180004.2 Preliminary Geotechnical Investigation for City of San Diego Task 15GT14 – College Area Sewer and AC Water Main Replacement 54th Street (Dated April 10, 2018).

Dear Mr. Gallardo,

In accordance with your request and authorization, we are providing this letter to respond to the LDR-Geology Review Issues dated September 25, 2019 (Reference v), for the Task 15GT14 College Area Sewer and AC Water Replacement project for the City of San Diego Public Works Department. This response is based upon a review of the references above to resolve addressing the LDR-Geology Issues as part of the City Environmental Review process.

## PROJECT UNDERSTANDING

Based on our review of the information provided by the City, it is our understanding that the City intends to replace and abandon sewer mains and water mains, and construct new mains via open trench and trenchless methods, including construction of nine launching/receiving pits, nine new manholes, and three new vault structures throughout the College Area as shown in the referenced project plans (Reference ii). Half of the planned construction would occur within developed right-of-ways, with the other half occurring within an undeveloped (modified) canyon. The scope of Twining's investigation area includes the work planned within the west to east canyon planned for construction of a new trenchless 15- to 18-inch sewer main adjacent to/or replacing the existing 8- to 10-inch sewer main. This section begins at the west end of the cul-de-sac at Campanile Way, proceeds westward and crosses under 54th Street (Station Nos. 1+00 to 27+00, Sheets 3 through 6). This alignment is within an existing canyon along an unnamed tributary to Alvarado Creek and terminates at the existing western sewer manhole #1. According to the design plans, the proposed sewer line will replace an existing vitrified clay pipeline; replacement will consist of a trenchless installation method through the canyon and under the road canyon fill for 54th Street between stations 3+51.10 through 25+92.6.

Twining previously performed a geotechnical investigation for the undeveloped canyon which included a project location map, geotechnical exploration map, geological maps, geological cross sections and geotechnical recommendations (Reference vi). Based upon the final City construction plans (Reference ii, Sheets 1 through 6), the eastern 15-inch sewer main section is now planned to be trenchless construction versus the previously planned 15-inch pipe bursting method (Station Nos. 24+14.79 to 25+92.60, Reference ii). Therefore, the majority of the sewer replacement section investigated by Twining will all be performed by pipe trenchless methods between Stations 3+51.10 through 25+92.6. From Station 1+00 to 3+51.10 and from Station 25+92.6 to 27+00, the plans indicate cut-and-cover construction.

The scope of Twining's work (Reference iii) was to review our previously prepared geotechnical report (Reference vi), the City LDR-Geology Cycle 1 Issues (Reference v), perform a geologic field reconnaissance and prepare this response letter. This work was performed without any additional geotechnical subsurface investigation as part of the City Environmental Review process. This work was necessary because Twining's geotechnical report was prepared two-and-one-half years ago and field conditions, and updated City design plans required additional review in order to provide the following responses. The intent for this response was for Twining to respond to the City LDR-Geology issues which asked whether or not the proposed construction as recommended will measurably destabilize neighboring properties or induce the settlement of adjacent structures, and indicate if unfavorable geologic structure exists at the site.

## RESPONSES TO LDR-GEOLOGY

The following provides our responses to each of the City of San Diego LDR-Geology Issues (Reference v):

**City Cycle 1; Issue No. 3: Submit an addendum geotechnical document that addresses the following.**

**Twining Response:** *Twining is providing this updated letter response as part of the City environmental review process addressing the City LDR-Geology Issues below (Reference v).*

**City Cycle 1; Issue No. 4: Construction Impacts: The geotechnical consultant must comment whether or not the proposed construction as recommended will measurably destabilize neighboring properties or induce the settlement of adjacent structures.**

**Twining Response:** *Twining has reviewed our previous geotechnical report (Reference vi), the updated construction plans (Reference ii), and performed an additional site reconnaissance on September 4, 2020. No additional subsurface investigation was planned for this environmental review. The scope of this review includes the sewer construction planned within the west to east trending undeveloped canyon (Station Nos. 1+00 to 27+00, Sheets 3 through 6). The majority of this work is planned as trenchless to limit impacts in this undeveloped canyon for construction of a new 15- to 18-inch sewer main to replace an existing 8- to 10-inch sewer main between Stations 3+51.10 through 25+92.6. This canyon section of the sewer main will not be constructed by cut and cover methods; therefore, on this basis, it is our professional opinion that the proposed type of construction as recommended will not measurably destabilize neighboring properties or induce the settlement of adjacent structures. Note that from Stations 1+00 to 3+51.10 and 25+92.6 to 27+00, the plans indicate cut-and-cover construction mostly within existing street sections. From the western Station 1+00 eastward to Station 3+51.10, the sewer alignment is relatively level and begins within the subdivision paved road, then continues between the pavement and the existing concrete channel. From Station 25+92.6 eastward to Station 27+00, the sewer alignment is within the existing level pavement in the cul-de-sac of Campanile Way.*

*Based on this additional site reconnaissance, Twining is providing the following site conditions that should be considered for the planned construction in the canyon that were not included in our original geotechnical report (Reference vi). This alignment is within an existing canyon along an unnamed tributary to Alvarado Creek. Although groundwater was not encountered in the borings at the time of the field exploration, groundwater should be anticipated during construction of the horizontal trenchless sewer pipes and the vertical structures (launching/receiving pits; manholes, vaults) in the canyon. This is because flowing and standing water were documented in the canyon during our site reconnaissance on September 4, 2020 which was performed during the drier time of the year. Damming and ponding of water was especially noted in the wider area of the canyon at Station 17+00, the location of a receiving pit and Manhole 7, and east to Station 19+78.92 (Manhole 8). Concrete culverts exist in most of the canyon bottom which appear to carry year-round surface water/seepage from adjacent residential properties. Localized groundwater should be anticipated at the other sections of pipe construction. All standard means and methods, including but not limited to reducing allowable overcut and grouting annular space needs to be implemented to avoid settlement during microtunneling nearby adjacent structures.*

**City Cycle 1; Issue No. 5: Indicate if unfavorable geologic structure exists at the site.**

**Twining Response:** *Twining has reviewed our previous geotechnical report (Reference vi), the updated construction plans (Reference ii), and performed an updated site reconnaissance on September 4, 2020. The sewer alignment is within an existing canyon along an unnamed tributary to Alvarado Creek, which has the potential for erosion and shallow sloughing and slumping of slope materials. Our reconnaissance noted that access is difficult into the canyon due to overgrowth of vegetation and trash and debris that were encountered on slopes and in the drainage. The slope outside of the City easements which is located within private property, on the south side of the canyon, south of the area of Station 19+78.92 (Manhole 8), may have experienced some minor slumping of slope materials, though overgrowth and lack of access on private property limited geologic mapping. A review of aerial images notes some upper hillside scarp features south of the easement, though they are not conclusive due to the alteration of the topography for residential homes in the area. Alternatively, this feature could have been excavated as a borrow site exposing a backcut; Stadium Conglomerate is mapped as the geologic unit in this area (Reference vi). Twining's Figures 3 through 6D (Reference vi) presented the geology and geologic structure in the area. The project is underlain by artificial fill, Quaternary-aged alluvium, and gravel/cobble conglomerates associated with the Tertiary-aged Mission Valley Formation and Stadium*

*Conglomerate. The trenchless construction method is planned for the canyon bottom adjacent to the private property with the questionable unstable geologic structure; therefore, it is our opinion that the potential for unfavorable geologic structure to impact the project and surrounding areas is low due to the trenchless method.*

**City Cycle 1; Issue No. 6: Submit original quality prints and digital copies (on CD/DVD/or USB data storage device) of the referenced geotechnical investigation report and the requested addendum geotechnical document for our review and for our records.**

**Twining Response:** *A digital copy of the referenced geotechnical report (Reference vi), and this letter response are being provided.*

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this letter report, or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,  
**TWINING, INC.**



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