GEO-ENGINEERING SOLUTIONS, INC.
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October 13, 2020

San Leandro Unified School District
1145 Aladdin Ave
San Leandro, CA 94577

Attention: Mr. Ridge Greene

Subject: ***Proposal for Geotechnical Engineering and Geologic Hazards Study Report***
San Leandro Continuation High School-New Classroom Buildings
1448 Williams Street, San Leandro CA
Geo-Eng Proposal No.1287

Dear Mr. Greene:

Geo-Engineering Solutions Inc. (Geo-Eng) has prepared this proposal to provide geotechnical services to the San Leandro Unified School District for the proposed new classroom buildings at the new San Leandro Continuation High School, located at 1448 Williams Street in San Leandro, California. This proposal is based on a review of published geotechnical data, discussions with you, a review of preliminary site plans and our experience in the area.

Based on our review of the schematic plans, it is our understanding that the new project will be developed in the area currently occupied by a soccer field, located north of the San Leandro Adult School and to the west of the John Muir Middle School. We also understand that the proposed improvements consist of the construction of 16 new single-story modular-type classroom buildings, along with a new administration building of 2400 square feet and a management building of 4800 square feet, and other various associated site improvements, including grading, landscaping, and utilities.

We are aware that the following geologic concerns that will need to be addressed by this investigation and report:

- Expansive Soils – In general, the soils of the young alluvial plain adjacent to San Francisco Bay are typically moderately to highly plastic at the surface and have a moderate potential for expansion.
- Liquefiable Soils – The project is located within a California Geologic Survey zone for high liquefaction potential.
- Compressible Soils – due to the proximity to the bay and the young age of the underlying sediments, there is a higher potential for soft to medium stiff soils at the site which may be of concern.

Based on Division of the State Architect (DSA) IR A-4.13 as dictated by California Code of Regulations, Title 24, it is our opinion that a Geologic Hazards Study report and California Geologic Survey (CGS) review will be required due to the construction of a new building that would both satisfy the annual 2,000 person-hour occupancy requirement for a permanent structure and exceed 4,000 square feet in covered area. Therefore, we have included the preparation of a Geologic Hazard Study and Report for this project. Based on a review of the California Geologic Survey (CGS) the project site is mapped within either a state identified earthquake fault zone or a seismic liquefaction hazard zone.

Additionally, per CGS Note 48, Section 16, it is required that regardless of school building type, site-specific ground motion analyses be performed for all sites where seismic parameter S_1 is 0.2 g or greater, which essentially occurs where sites are within the vicinity of major earthquake faults such the Hayward and San Andreas faults, and analyzed using the most recent California Building Code (CBC) procedures. The computed S_1 value for San Leandro Adult School is 0.737g based on the 2015 NEHRP Provisions, which is referenced by ASCE 7-16. Therefore, to comply with CGS requirements a site-specific seismic ground motion analysis will need to be completed for the project.

We have assumed that all the boring locations are accessible to a drill rig without any restrictions. In addition, we have assumed that the work will be performed on a weekday and that excess drill cuttings can be disposed of onsite in unpaved/undeveloped areas to be designated by the District. If requested excess drill cuttings can be removed and off hauled from the site at an additional cost.

A - Geotechnical Engineering and Geologic Hazards Report.

Geo-Eng will conduct a design-level Geotechnical Engineering Study for the purpose of developing sufficient geotechnical information to guide foundation design and site infrastructure development at the site, which will consist of the following scope of work:

Preliminary Field Activities

1) Review available geotechnical and geologic literature for the site.
2) Mark the locations of the subsurface explorations at the site and contact Underground Service Alert.
3) Utilize an underground utility locating subcontractor to better define the location of existing buried utilities.
4) Obtain an Alameda County drilling permit.

Field Exploration

1) The field exploration program will consist of drilling 4 soil borings and advancing 4 CPT soundings to develop shear wave velocities and to assist with foundation design and value engineering at the site. The soil borings will be advanced between 15 to 30 feet deep and the CPTs will be advanced to up to 100 feet deep with a seismic velocity being obtained in the upper 30 m to obtain a Vs30 velocity for improved design capabilities. It is anticipated that the drilling will take up to two days.
2) Sampling will occur in up to five-foot intervals in the borings. The soil will be sampled with a Modified California sampler fitted with six-inch long inner brass liners and a Standard Penetration Test (SPT) split spoon sampler. The relatively undisturbed liner samples will be sealed and the SPT samples will be placed in plastic bags. The samplers will be driven 18 inches with a 140-pound hammer with an approximate 30-inch drop. Blow counts for the last foot will be logged as the penetration resistance. The blow counts from the SPT sampler will be utilized to determine subsurface soil characteristics for correlation with USCS soil types. Bulk soil samples will be obtained from the upper few feet of auger cuttings in select borings.

3) The borings will be backfilled with cement grout under the supervision of an Alameda County Environmental Health Inspector. Excess drill cuttings will be spread in landscape areas which will not impact the play yard or play fields.

Laboratory Testing

1) Several in-situ moisture and density tests will be performed on selected brass tube liner samples.
2) Up to two Sieve Analysis tests will be performed to determine subsurface soil characteristics of granular subsurface soils as needed for engineering analysis.
3) One to two Atterberg Limits tests will be performed to determine the expansive potential of the near surface soil.
4) One Corrosion test will be performed as required by the 2019 CBC to help evaluate the corrosive potential of onsite soil on buried structures.

Report Preparation

1) A Geotechnical Engineering Study report will be prepared and will contain a site plan showing boring location, boring logs, CPT data, geologic cross-sections, and a summary of the site soil and groundwater conditions.
2) A discussion of Geologic Hazards will be prepared in accordance with the checklist provided in Note 48 of the California Geologic Survey.
3) Recommendations will be provided for:
    - Site clearing, preparation, grading (cut and fill, backfilling) and drainage,
    - Allowable fill material requirements,
    - Underground utility backfilling,
    - Subgrade preparation for building pads and paved areas
    - Foundation design for buildings and structures
    - Retaining wall design,
    - Exterior concrete hardscape,
    - Temporary cut slope excavation and trench slope stability,
    - Flexible asphalt and rigid concrete pavement section designs (vehicular and non-vehicular).

Consultation During Design

Consultation during design may be required to provide information to other engineers or architects on the design team. This consultation is typically minor and consists of letter preparation and plan review services by a Senior Engineer or Geologist and may also include value engineering and attendance at design team meetings if requested.

Summary of Fees

We will perform our proposed base scope of work for Phase A services presented herein for a Lump Sum fee of **$15,900**. The following table provides a breakdown of our proposed fees for this project:

Scope Item	Amount	Fee Basis
Phase A - Geotechnical Engineering Study and Geologic Hazards Report		
Planning and Coordination	$ 500.00	Lump Sum
Alameda County Environmental Permit	$ 800.00	Lump Sum
Utility Location-USA (Staff) and Private Locating Contractor	$ 800.00	Lump Sum
Soil Borings Drilling, including Geo-Eng Staff Engineer/Geologist	$3,200.00	Lump Sum
CPT, including Geo-Eng Staff Engineer/Geologist	$3,200.00	Lump Sum
Lab Testing	$1,200.00	Lump Sum
Engineering and Geologic Hazard Analysis	$1,200.00	Lump Sum
Site-Specific Seismic Ground Motion Analysis	$3,500.00	Lump Sum
Report Preparation	$1,500.00	Lump Sum
Total – Required Geologic Report and Geotechnical Report	**$15,900.00**	Lump Sum

Schedule

The field exploration program is anticipated of consist of two days of drilling and the estimate above is based on the assumption that the drilling will take place on a weekday to avoid overtime charges. Laboratory testing will take approximately one week to complete following the fieldwork. The report can be issued within about two to three weeks after the drilling is completed. Specific design recommendations if needed by the project architect prior to submittal of our report can be provided in the form of e-mail correspondence or a project progress memorandum as the needed information is developed.

We anticipate that the services will be provided in accordance with our master services agreement with the district and a task order will be issued in accordance with the terms of our agreement. If you have any questions regarding this proposal, please contact the undersigned at eswenson@geo-eng.net or (925) 433-0450. We greatly appreciate the opportunity to provide this proposal to the San Leandro Unified School District.

Sincerely,

GEO-ENGINEERING SOLUTIONS, INC.



Nicolas B. Haddad, PE
Senior Geotechnical Engineer



Eric J. Swenson, G.E., C.E.G.
Principal Engineer/ Engineering Geologist

Distribution: Mr. Ridge Greene, RGM and Associates (Ridge@rgmassociates.com)