

Cal Land Engineering, Inc. dba Quartech Consultants

Geotechnical, Environmental, and Civil Engineering

March 12, 2019

Ms. Agnes So

New SWS Southland Real Estate LLC
1216 Old Mill Road 11730 Valley Blvd.
El Monte, CA 91732

Subject: Geotechnical Report Update, 11640-11730 Valley Boulevard, APN: 8566-021-010-015, El Monte, California QCI Project No.: 19-019-002

References: "Report of Geotechnical Engineering Investigation, Proposed 4-Story Mixed Use Development with One Level of Subterranean Garage, 11640-11710 Valley Boulevard, APN: 8566-021-011-015, El Monte, California; QCI Project No.: 15-087-004GE

Ladies and Gentlemen:

This report presents our update geotechnical recommendations of the subject site. This report is based on our review of the referenced report and architectural plan by WHA.

SITE LOCATION AND PROPOSED DEVELOPMENT

The project site is located on west side of Valley Boulevard in the City of El Monte, California. No major surface erosions were observed during our subsurface exploration.

The proposed construction consists of cut and fill grading operation to create level building pads for the proposed commercial and residential mixed use buildings. The main structure of the building is anticipated to be three to four stories in height with slab-on-grade. Column loads are unknown at this time, but are expected to be light to medium.

PLAN REVIEW

Based on our review of the architectural site plan and the referenced report, it is our opinion that the site is suitable for the proposed construction from a geotechnical engineering viewpoint.

CONCLUSIONS

The recommendations presented below should be incorporated into the design, grading, and construction considerations.

SITE GRADING

1. Any vegetation, miscellaneous debris, and stockpile materials within the construction areas should be stripped and hauled offsite.
2. Based on referenced report and current site investigation, it is recommended that the surficial soils be removed about 5 feet to expose competent soils within the construction areas. Locally deeper removals may be necessary to expose competent natural ground. The recommended removal should be extended at least 5 feet beyond building lines. The actual removal depths should be determined in the field as conditions are exposed. Visual inspection and/or testing may be used to define removal requirements.

3. Soils exposed within areas approved for fill placement should be scarified to a depth of 6 inches, conditioned to near optimum moisture content, then compacted in-place to minimum project standards.
4. The onsite soils may be used as compacted fill, provided they are free of organic materials and debris. Fills should be placed in relatively thin lifts (6 to 8 inches), brought to near optimum moisture content, then compacted to at least 90 percent relative compaction based on laboratory standard ASTM D-1557-12.

RECOMMENDATION.

Shallow Foundation

An allowable bearing value of 2500 pounds per square foot (psf) may be used for design of continuous and pad footings with a minimum of 18 or 24 inches in width, respectively. All footings should be a minimum of 24 inches deep. This value may be increased by one third (1/3) when considering short duration seismic or wind loads.

Resistance to the lateral loads can be assumed to be provided by the passive earth pressure and the friction between the concrete and competent soils. Passive earth pressure may be computed as an equivalent fluid pressure of 300 pcf, with a maximum earth pressure of 2500 psf. An allowable coefficient of friction between soil and concrete of 0.30 may be used with the dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one third (1/3).

Mat Foundation

An allowable bearing value of 4000 pounds per square foot (psf) may be used for design of the mat foundations. Mat foundations should be a minimum of 12-inches thick. Should the elastic method be used for the mat foundation design, the allowable subgrade modulus of 80 pounds per cubic inch may be used. A minimum exterior footing depth of 24 inches into approved soils recommended for perimeter wall footings. All foundations should be reinforced in accordance with the structural design and specifications.

Resistance to the lateral loads can be assumed to be provided by the passive earth pressure and the friction between the concrete and competent soils. Passive earth pressure may be computed as an equivalent fluid pressure of 300 psf, with a maximum earth pressure of 4000 psf. An allowable coefficient of friction between soil and concrete of 0.35 may be used with the dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one third (1/3).

Settlement

Settlement of the footings placed as recommended, and subject to no more than allowable loads is not expected to exceed 3/4 inch. Differential settlement between adjacent columns is not anticipated to exceed 1/4 inch for the adjacent column spaced at a distance of about 30 feet. Additionally, the foundation should also be designed to resist the potential liquefaction induced total settlement and differential settlement of about 0.44 inch and 0.30 inch, respectively.

Foundation Construction

It is anticipated that the entire structure will be underlain by onsite soils of very low expansion potential. All footings should be founded at a minimum depth of 24 inches below the lowest adjacent ground surface. All continuous footings should have at least two No. 4 reinforcing bar placed both at the top and two No. 4 reinforcing bar placed at the bottom of the footings.

Concrete Slab

Concrete slabs should be a minimum of 4 inches thick and reinforced with a minimum of No. 3 reinforcing bar spaced 16-inch each way or it's equivalent. All slab reinforcement should be supported to ensure proper positioning during placement of concrete.

In order to comply with the requirements of the 2016 CalGreen Section 4.505.2.1 within the moisture sensitive concrete slab, a minimum of 4-inch thick base of $\frac{1}{2}$ inch or larger clean aggregate should be provided with a vapor barrier in direct contact with concrete. A 10-mil Polyethylene vapor retarder, with joints lapped not less than 6 inches, should be placed above the aggregate and in direct contact with the concrete slab.

CORROSION POTENTIAL

According to the referenced report, Type II cement or its equivalent may be used for this project. It is estimated that the subsurface soils are corrosive to buried metal pipe. It is recommended that any underground steel utilities be blasted and given protective coating. Should additional protective measures be warranted, a corrosion specialist should be consulted.

SEISMIC DESIGN

Based on our studies on seismicity, there are no known active faults crossing the property. However, the subject site is located in Southern California, which is a tectonically active area. Based on ASCE 7-10 Standard, CBC 2016, the following seismic related values may be used:

Seismic Parameters (Latitude: 34.066484, Longitude:-118.0255149)	Site Class "D"
Mapped 0.2 Sec Period Spectral Acceleration, S_s	2.340g
Mapped 1.0 Sec Period Spectral Acceleration, S₁	0.812g
Site Coefficient for Site Class "D", F_a	1.0
Site Coefficient for Site Class "D", F_v	1.5
Maximum Considered Earthquake Spectral Response Acceleration Parameter at 0.2 Second, S_{MS}	2.340g
Maximum Considered Earthquake Spectral Response Acceleration Parameter at 1.0 Second, S_{M1}	1.218g
Design Spectral Response Acceleration Parameters for 0.2 sec, S_{DS}	1.560g
Design Spectral Response Acceleration Parameters for 1.0 Sec, S_{D1}	0.812g

The Project Structural Engineer should be aware of the information provided above to determine if any additional structural strengthening is warranted.

Peak ground acceleration (PGAm), corresponding to USGS Design Map Summary Report, ASCE 7-10 Standard is 0.843g.

INSPECTION

As a necessary requisite to the use of this report, the following inspection is recommended:

- Temporary excavations.
- Removal of surficial and unsuitable soils.
- Backfill placement and compaction.
- Utility trench backfill.

The geotechnical engineer should be notified at least 1 day in advance of the start of construction. A joint meeting between the client, the contractor, and the geotechnical engineer is recommended prior to the start of construction to discuss specific procedures and scheduling.

LIMITATIONS

The recommendations presented in this report were made in accordance with generally accepted engineering procedures and the review of the referenced report. In the opinion of the undersigned, this report has been substantiated by available data and our limited field observations, and presents fairly information requested. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The reference soils report remains valid and the remaining design and construction recommendation presented in the referenced report remains valid and applicable.

This opportunity to be of service is sincerely appreciated. Should you have any questions pertaining to this addendum, please call us.

Respectfully submitted,

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dba Quartech Consultants (QCI)



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