

Date: March 27, 2015
Project No.: 118-65-2

Prepared For: Ms. Kieulan Pham
DAVID J. POWERS & ASSOCIATES
1871 The Alameda, Suite 200
San Jose, California 95126

Re: Geotechnical Feasibility Study
Samaritan Medical Office Buildings
Samaritan Drive and Samaritan Court
San Jose, California

Dear Ms. Pham:

This letter provides the results of our geotechnical feasibility study and preliminary recommendations for the project referenced above. The findings and recommendations provided herein are intended for project planning and CEQA purposes only and are not intended to be used for final project design or construction.

PROJECT UNDERSTANDING

Based on the Proposed Site Plan prepared by RBB Architects, Inc., the proposed project will include a new medical office complex consisting of five multi-story office buildings and three multi-level parking structures on an approximately 13-acre site. The medical office buildings and parking structures have combined footprints of about 475,300 and 366,200 square feet, respectively. Three 6-story office buildings and one 7-level parking structure are located at 2505 and 2577 Samaritan Drive. Two 3-story office buildings and two 2.5-level parking structures are located at 2506 and 2512 Samaritan Court. The 7-level parking structure has 1.5 levels below-grade, and the two 2.5-level parking structures are at-grade.

Surface parking, driveways, and landscaping would also be included in the proposed project. The project also includes the installation of a traffic signal at the intersection of Samaritan Way and Samaritan Court.

We understand a feasibility geotechnical study is needed for the site at this time and a final design-level investigation will be completed once the development plans are finalized.

SITE CONDITIONS

GEOLOGIC SETTING

The site is located within the southwestern portion of the Santa Clara Valley, which is a broad alluvial plane between the Santa Cruz Mountains to the southwest and west, and the Diablo Range to the northeast. The San Andreas Fault system, including the Monte Vista-Shannon Fault, exists within the Santa Cruz Mountains and the Hayward and Calaveras Fault systems

exist within the Diablo Range. Alluvial soil thicknesses in the area of west San Jose and Los Gatos range from less than 100 feet to greater than 500 feet (Rogers & Williams, 1974).

REGIONAL SEISMICITY (GENERAL)

The San Francisco Bay area is one of the most seismically active areas in the Country. While seismologists cannot predict earthquake events, the U.S. Geological Survey's Working Group on California Earthquake Probabilities 2007 estimates there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake occurring in the Bay Area region between 2007 and 2036. As seen with damage in San Francisco and Oakland due to the 1989 Loma Prieta earthquake that was centered about 50 miles south of San Francisco, significant damage can occur at considerable distances. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances.

EXISTING SITE CONDITIONS

The site located at 2505 Samaritan Drive is currently occupied by 13 one story medical office buildings (Suites 100 through 600). Suite 500 is a one story building with a basement. The site located at 2577 Samaritan Drive is occupied by a two-story medical office building. The sites also include paved parking and landscape areas. The site located at 2506 Samaritan Court is occupied by a vacant lot. The site located at 2512 Samaritan Court is occupied by a one story medical office building and paved parking and landscape areas. The topography of the sites is relatively level and at or near the elevation of the adjacent properties and roadways. Based on elevations provided by Google Earth (2013), the elevation of the site ranges from about 287 feet above Mean Sea Level (MSL) near the northeast corner to 300 feet MSL near the southwest corner of the property. The site is bounded by California State Route 85 and medical office buildings to the north, National Avenue to the west, the Lotus Medical Center and a paved parking lot to the east, and single family residences to the south.

Based on aerial images provided by Google Earth (2013), development of the site occurred prior to 1993. California State Route 85 is present in an aerial image dated March 2000. Construction of the medical office buildings north of the site is present in an aerial image dated October 2002. The existing development has not changed significantly since 1993.

At the time of our site reconnaissance, the ground surface at the site was covered with asphalt concrete pavement and vegetation. Based on our observations, the existing pavements are in poor to fair condition with minor to moderate cracking.

ANTICIPATED SUBSURFACE CONDITIONS

The surficial geology at the site is mapped as late Pleistocene alluvial fan deposits (Wentworth et al, 1999). Based on the mapped geological unit and our experience at other sites in the vicinity, we anticipate the site is underlain by low plasticity, relatively dense silty and clayey sand and gravel and cobbles.

Based on our experience with similar sites with past site use, we recommend you anticipate encountering localized areas of undocumented fill and loose surficial soil. Undocumented fill and potential mitigation measures are discussed in the “Undocumented Fill” Section below.

GROUND WATER

Based on our previous experience in the area, we anticipate that the high ground water level will be on the order of 30 to 50 feet below current grades. Historic high ground water maps prepared by the California Geologic Survey (CGS, 2002) indicate the high ground water to be 30 to 40 feet below the existing ground surface.

Fluctuations in the level of the ground water may occur due to variations in rainfall, underground drainage patterns, as well as numerous other factors.

GEOLOGIC HAZARDS

FAULT RUPTURE

The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, therefore, fault rupture through the site is not anticipated (CSG). However, the site is located approximately 2,400 feet north of a Santa Clara County Fault Rupture Hazard Zone (Santa Clara County, 2002).

GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. While a seismic hazard analysis has not been prepared for this feasibility study, strong ground shaking can be expected at the site during the life of the improvement.

Potential mitigation of strong ground shaking likely includes designing new structures to meet current building codes and applicable requirements.

LANDSLIDING

The site is not located within a California Seismic Hazard Zone for landsliding (CGS, 2006) or a Santa Clara County Landslide Hazard Zone (Santa Clara County, 2012). Due to the relatively flat topography, the potential for landsliding at the site may be considered low.

DIFFERENTIAL COMPACTION

Provided any near-surface undocumented fill and loose material is removed and replaced as engineered fill, in our opinion, the probability of differential compaction at the site is low.

LIQUEFACTION

The site is not mapped within a California Seismic Hazard Zone for liquefaction (CGS, 2002) or the Santa Clara County Liquefaction Hazard Zone (Santa Clara County, 2006).

As previously discussed, historic high ground water in the area is mapped to be on the order of 30 to 40 feet below the ground surface. In addition, the site is underlain by older alluvial deposits generally consisting of relatively dense sandy and gravelly soil and cobbles. Therefore, the potential for liquefaction impacting site development is estimated to be low.

SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose unsaturated sandy soils can settle during strong seismic shaking. Based on the anticipated subsurface conditions at the site, the potential for seismic settlement of the subsurface sandy soil to affect the proposed development should be considered. The potential for seismic settlement should be further evaluated during the design-level geotechnical investigation.

LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form.

The existing ground surface slopes down toward California State Route 85 approximately 100 feet north of the proposed medical office building at 2577 Samaritan Drive; however, the potential for liquefaction appears low. Therefore, in our opinion, the potential for lateral spreading to affect the site is estimated to be low.

We recommend the potential for lateral spread be evaluated during the design-level geotechnical investigation once the project plans are finalized.

FLOODING

Based on our internet search of the Federal Emergency Management Agency (FEMA) flood map public database, the site is located within Zone D, described as "Areas in which flood hazards are undetermined but possible". We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

The Santa Clara Valley Water District Inundation Maps includes areas of Dam Failure Inundation (1995). Based on our review of these maps, the site is located within a dam failure inundation area for Lexington Reservoir.

CONCLUSIONS AND RECOMMENDATIONS

GEOTECHNICAL DESIGN CONSIDERATIONS

Based on available data and our engineering judgment, the planned project is feasible from a geotechnical standpoint. This feasibility report and recommendations are intended to assist you with the project planning and preparation of planning documents. A final design-level geotechnical investigation should be performed once development plans are finalized.

Potential geotechnical concerns, design considerations, and preliminary recommendations are provided herein. A brief description of these concerns follows.

- Potential for seismic settlement
- Presence of sand and gravel
- Undocumented fill
- Close proximity to adjacent streets and buildings
- Potential for undermining

Potential for Seismic Settlement

As discussed, the subsurface soil is anticipated to consist of sand and gravel with cobbles. Based on our experience with sites in the vicinity of the project, the potential for seismic settlement to impact the proposed development should be considered.

We recommend that the potential for seismic settlement of the unsaturated sandy soil be evaluated during the design-level geotechnical investigation.

Presence of Sand and Gravel

As discussed, granular soil (sand and gravel) with variable amounts of fines (silt and clay) and cobbles are anticipated to be encountered at the project site. Contractors should plan on forming footings, shoring utility installation and the potential for shoring of excavations, preparation of slab-on-grade subgrade just prior to concrete placement, and other similar construction issues related to these materials. These issues will be addressed further during the design-level geotechnical investigation.

Undocumented Fill

Areas of undocumented fill and loose surficial materials should be anticipated and planned for. Based on our understanding and the history of the site, significant depths of undocumented fill

may be encountered below the existing ground surface. Undocumented fill within future improvement areas should be removed and replaced as engineered fill.

We recommend the presence and lateral extent of undocumented fill be evaluated further during the design-level geotechnical investigation.

Close Proximity to Adjacent Streets and Buildings

During excavation of the proposed below-grade parking levels, a relatively deep, stiff shoring system will most likely have to be implemented. A stiff shoring system will help to limit the lateral movements adjacent to the excavation, and limit the nearby improvements and buildings from being affected.

Potential for Undermining

As discussed, the proposed improvements located at 2577 Samaritan Drive are in close proximity of California State Route 85. The elevation of the freeway is below that of the project site and results in a downward slope along the north side of the site. The potential for undermining to impact the project site should be considered and will depend on the lateral setback of the proposed improvements from the existing slope.

POTENTIAL FOUNDATION ALTERNATIVES

The new medical office buildings will most likely consist of steel-frame construction and concrete construction for the proposed parking structures. Structural loads for the proposed structures are not known at this time; therefore, our initial recommendations provided below are intended for your project planning purposes only. They should not be used for project design.

In our opinion, it is likely that the proposed structures may be supported on spread footings and mat foundations depending on the final project plans.

The feasibility of the spread footings and mat foundations should be evaluated further during the design-level geotechnical investigation.

If the total and/or differential settlement cannot be tolerated, an alternative foundation system or subsurface ground mitigation measures will be required. Alternative foundation systems can include deep concrete pile foundations, Rammed Aggregate Piers, or an auger-cast pile system.

DESIGN-LEVEL GEOTECHNICAL INVESTIGATION

The design considerations and feasibility recommendations contained in this report were based on limited site development information, geotechnical data in our files, and available published information. We recommend that Cornerstone Earth Group be retained to perform a design-level geotechnical investigation, once detailed site development plans are available. The recommendations provided in this letter should not be used for project design.

CLOSURE

This report has been prepared for the sole use of David J. Powers & Associates for the Samaritan Medical Office Buildings project located at Samaritan Drive and Samaritan Court in San Jose, California. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at this time and location. No warranties are expressed or implied.

If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

Cornerstone Earth Group, Inc.


Nicholas S. Devlin, P.E.
Project Engineer




Dann, T. Tran, P.E.
Senior Principle Engineer

NSD:DTT

Copies: Addressee (by email)

REFERENCES

Association of Bay Area Governments (ABAG), 2011, Interactive Liquefaction Hazard Map: <http://quake.abag.ca.gov/liquefaction/>.

California Geological Survey, 2002, State of California Seismic Hazard Zones, San Jose West 7.5-Minute Quadrangle, California: Seismic Hazard Zone Report 058.

Federal Emergency Management Administration (FEMA), 2009, FIRM City of San Jose, California, Community Panel #0239H, dated May 18.

Google Earth, 2013, Version 7.1.2.2041, Google Inc., dated October 7.

RBB Architects, Inc., 2015, Proposed Site Plan, Final Phase, Samaritan Medical Center Master Plan, dated January 21.

Rodgers, Thomas H. and Williams, John W., 1974, Potential Seismic Hazards in Santa Clara County, California, Special Report 107.

Santa Clara County, 2002-2012, Geologic Hazard Zones Maps.

Santa Clara Valley Water District, 1995, Inundation Map of Lexington Dam, Sheet 1 of 4, Santa Clara County, DWR Registry No. 72-0008, dated March.

Wentworth, C. M., Blake, M. C., McLaughlin, R. J., and Graymer, R. W., 1999, Preliminary Geologic Map of the San Jose 30 X 60-Minute Quadrangle, California.