

October 20, 2020 Project No. 403870001

Ms. Kathleen Ledbetter LBA Realty Fund VI, L.P. 3347 Michelson Drive, Suite 200 Irvine, California 92612

Subject: Geotechnical Due Diligence Assessment 1535-1575 Industrial Avenue San Jose, California

Dear Ms. Ledbetter:

In accordance with your authorization on October 8, 2020, we have performed a geotechnical Due Diligence Assessment of the property located at 1535-1575 Industrial Avenue in San Jose, California (Figure 1). The subject property, located along the eastern side of Highway 880 just north of the Highway 880 and Highway 101 interchange, is irregular in shape and occupies an area of about 3.62 acres. The purpose of our geotechnical due diligence study was to assess the potential impact that geologic hazards and geotechnical issues may have on future development. This report presents our conclusions regarding the potential impacts of regional and local geologic hazards and provides preliminary geotechnical recommendations for consideration in your evaluation of the site for proposed redevelopment. The contents of the report are not intended to be used in the design of a future development. Ninyo & Moore will be providing a design level Geotechnical Evaluation, which will include geotechnical recommendations for use in design of the proposed project.

SCOPE OF SERVICES

Our scope of services for this study included a review of readily available background materials including topographic maps, regional geologic maps and reports, geologic and seismic hazard maps, selected historical aerial photographs, and the safety element from the General Plan for the City of San Jose (2011). In addition, we also used relative data from our previous geotechnical evaluation of the adjacent property located at 1605 Industrial Avenue, which is currently under construction (Ninyo & Moore, 2019a and 2019b).

SITE AND PROJECT DESCRIPTIONS

The 1535-1575 Industrial Avenue property consists of two adjoining parcels that occupy about 3.6 acres along the eastern side of Highway 880 just north of the Highway 880 and Highway 101 interchange (Figure 1). The site is bounded by Highway 880 to the west, 1605 Industrial Avenue to the north, Industrial Avenue to the east, and other heavy industrial property to the south (Figure 2). The property is zoned as Heavy Industrial per the City of San Jose's general plan and is occupied by a specialty trailer supplier and diesel engine repair facilities. There are five main structures on the property along with a few outbuildings, and concrete and asphalt paved parking lots and access roads. Underground storage tanks were present on the property and have reportedly been removed. Details regarding the depth of the tank removal excavations and the backfill placement were not provided for our review. The property is relatively flat and lies at an elevation of about 50 feet above mean sea level.

The proposed project includes design and construction of an approximately 74,650 square-foot concrete tilt-up building with a loading dock and adjacent parking (Figure 3). We understand that the new structure will be built near the existing grade, and cuts and fills will be only a few feet to construct the dock-high building pad and to contour the site for drainage.

GENERAL GEOLOGIC CONDITIONS AND GEOLOGIC HAZARDS

The site is located within Santa Clara Valley, which is a broad alluvial valley situated at the southern end of San Francisco Bay in the Coast Ranges geomorphic province of California. Santa Clara Valley lies between the Santa Cruz Mountains to the west and the Diablo Range to the east. The Coast Ranges are comprised of northwesterly trending mountain ranges and structural valleys formed by tectonic processes commonly found around the Circum-Pacific belt. Basement rocks have been sheared, faulted, metamorphosed, and uplifted, and are separated by thick blankets of Cretaceous and Cenozoic sediments that fill structural valleys and line continental margins. The San Francisco Bay Area has several ranges that trend northwest, parallel to major strike-slip faults such as the San Andreas, Hayward, and Calaveras. Major tectonic activity associated with these and other faults within this regional tectonic framework consists primarily of right-lateral, strike-slip movement.

According to regional geologic maps covering the subject property, the site is underlain by Holocene age alluvial soils deposited by nearby Guadalupe and Coyote Creeks (Helley et al., 1994; Knudsen et al., 2000; Wesling and Helley, 1989; and Witter et al., 2006). These deposits typically consist of silt and clay interspersed with layers of sand and gravel. The silt and clay deposits can compress under heavy loads and are also expansive.

Groundwater is anticipated to be shallow within the upper 10 feet of the ground surface. According to regional records, the historical high groundwater level for the local area is less than 10 feet below the ground surface (CGS, 2020).

GEOLOGIC HAZARDS AND GEOTECHNICAL CONSIDERATIONS

Geologic hazards and geotechnical considerations reviewed for this study included ground surface rupture due to faulting, strong ground motion, liquefaction and strain-softening, dynamic settlement, expansive soils, dam inundation and flooding, erosion and infiltration, sea level rise, tsunami inundation, regional land subsidence, static settlement under loading, and soil corrosivity. These are discussed in the following sections:

Seismic Hazards

The project site is located within the San Francisco Bay Area, a seismically active region. The seismic hazards considered in this study include the potential for ground surface rupture due to faulting, ground shaking due to seismic activity, and seismically induced liquefaction. These hazards and other seismically related hazards, have been evaluated by the California Geological Survey (CGS), who has established specific seismic hazard zones in many areas of California. The subject site lies in an area where CGS has established a hazard zone for liquefaction (CGS, 2002). The potential hazards identified in our study are discussed in the following subsections.

Ground Surface Rupture

The site is not located within an Alquist-Priolo Earthquake Fault Zone as established by the California Geological Survey (CGS, 2007) or the City of San Jose (2011). The projected trace of the Silver Creek fault lies about 800 feet southwest of the property; however, this fault is not considered active and does not pose a ground rupture hazard to the site (Wentworth et al., 2010). The probability of damage from surface fault rupture is considered to be low.

Strong Ground Motion

The project site is located within the San Francisco Bay Area, a seismically active region. There are several active faults in the Bay Area, including the San Andreas, Hayward, and Calaveras, that are capable of producing strong ground shaking at the site. The Working Group on California Earthquake Probabilities (WGCEP) periodically assesses the probabilities of earthquakes for numerous faults in California and provides probability estimates (Field and 2014 WGCEP, 2015). According to the 2015 assessment, there is a 72 percent probability that at least one magnitude 6.7 or greater earthquake will occur in the Bay Area between 2014 and

2043. Probabilities of a magnitude 6.7 or greater earthquake occurring on the Hayward, Calaveras, and San Andreas faults during this period are 14.3%, 7.4%, and 6.4%, respectively.

The potential for future strong ground motion due to earthquakes is considered significant. Future geotechnical evaluations and design studies should be performed in accordance with the most recent version of the California Building Code (CBC, 2019) and other applicable seismic codes.

Liquefaction, Strain Softening, and Dynamic Settlement

The site is located within a liquefaction hazard zone (Figure 4) as established by the California Geological Survey (CGS, 2007) and the City of San Jose (2011). Regional studies of liquefaction susceptibility by the U.S. Geological Survey (Knudsen et al., 2000 and Witter et al., 2006) indicate that the site has a moderate potential to liquefaction during a moderate to large magnitude earthquake on a nearby fault. Evidence of liquefaction including sand boils and lateral spreading occurred within a few miles of the site during the 1906 San Francisco and 1989 Loma Prieta earthquakes (Knudsen et al., 2000).

The strong vibratory motions generated by earthquakes can trigger a rapid loss of shear strength in saturated, loose, granular soils of low plasticity (liquefaction) or in wet, sensitive, cohesive soils (strain softening). Liquefaction and strain softening can result in a loss of foundation bearing capacity, or lateral spreading of sloping or unconfined ground. Liquefaction can also generate sand boils leading to subsidence at the ground surface. Liquefaction (or strain softening) is generally not a concern at depths more than 50 feet below ground surface.

Our geotechnical evaluation at 1605 Industrial Avenue (Ninyo & Moore, 2019a and 2019b) encountered a thick sequence of cohesive (clay and silt) soils overlying potentially liquefiable layers of sandy soils at depths of approximately 40 feet. Our analysis of the liquefaction potential at 1605 Industrial Avenue concluded that liquefaction-induced settlement and strain-softening were not foundation design issues.

In addition to liquefaction, the strong vibratory motion associated with earthquakes can also dynamically compact loose granular soil, leading to surficial settlements. Dynamic settlement may occur in both dry and saturated sand and silt. Cohesive soil is not typically susceptible to dynamic settlement. Our analysis of dynamic compaction at 1605 Industrial Avenue concluded that the amount of settlement would be negligible and was not a design consideration for the project (Ninyo & Moore, 2019b).

The potential for liquefaction and strain-softening along with dynamic settlement will be addressed as part of the geotechnical evaluation being performed by Ninyo & Moore.

Expansive Soils

The alluvial soils underlying the site are known to be expansive. Highly to moderately expansive soils are subject to excessive shrink/swell, which can damage overlying pavements and foundations. Mitigation measures to reduce the impact of expansive soils on future structures will be needed. Chemically treating the expansive soils with lime to reduce the expansion characteristics should be considered. The near surface soils at 1605 Industrial Avenue were determined to have medium expansion characteristics and we anticipate that the near surface soils at the project site will have similar expansion characteristics, most likely ranging from medium to high.

Dam Inundation and Flooding

Based on maps included in the City of San Jose General Plan (2011), the site is located within an inundation path for Anderson Dam (Figure 4), which is located in the nearby East Bay Hills and flows into nearby Coyote Creek. The depth of water is not included in the information provided in the general plan.

The site is located within a FEMA flood zone, designated as Zone D (Figure 5). Zone D is defined as an area with a risk to flooding due to levy failure. The nearest levee is the Coyote Creek levee, which is located about one-half miles northeast from the property.

Erosion and Infiltration Characteristics

The surficial soils are anticipated to consist of clay and silt and considered susceptible to erosion. The near surface soils are cohesive and are anticipated to have very low infiltration rates.

Sea Level Rise and Tsunami Inundation

According to the City of San Jose General Plan (2011), the site is not located within an area that is likely to be impacted by future sea level rise. In addition, regional studies by the State of California (2009) regarding tsunami inundation indicate that the site lies outside of the tsunami inundation zone for the southern end of San Francisco Bay.

Regional Land Subsidence

Regional land subsidence due to groundwater withdrawal occurred in Santa Clara Valley during the early and later parts of the last century, and over the last 30 years has been controlled by

groundwater management practices led by the Santa Clara Valley Water District. Studies by the U.S. Geological Survey (Poland and Ireland, 1988) indicate that as much as 8 feet of land subsidence occurred as of 1982 in the central portion of San Jose. The estimated amount of land subsidence that occurred beneath the site is about 6 feet, according to maps included in the Poland and Ireland (1988) study. Current groundwater management practices have drastically reduced subsidence rates, which are currently monitored by Federal and local agencies.

Static Settlement

We anticipate that the proposed foundation loads will be relatively low to moderate and that significant changes to the site grade are not proposed. Based on the anticipated subsurface conditions, we do not regard static settlement as a design consideration provided that remedial grading of the near-surface soils is performed under the recommendations of a geotechnical engineer.

Soil Corrosivity

Based on laboratory test results from 1605 Industrial Avenue, we anticipate that the near-surface soils will not be considered corrosive based on Caltrans criteria (Caltrans, 2018). Testing of the near-surface soils for corrosive properties will be conducted as part of the geotechnical evaluation that is presently underway.

CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

Based on our preliminary review, it is our professional opinion that the site is suitable for future development from a geotechnical viewpoint. The likelihood of ground surface rupture due to faulting, dam inundation and flooding, sea level rise, tsunami inundation, and regional land subsidence to impact the site is considered low. Geologic hazards and geotechnical issues considered significant to site development are discussed in the following sections.

Strong Ground Motion

The potential for future strong ground motion due to earthquakes is considered significant. Future geotechnical evaluations and design studies should be performed in accordance with the most recent version of the California Building Code (CBC, 2019) and other applicable seismic codes including the American Society of Civil Engineers (ASCE) 7-16 Standard and the Structural Engineer Association of California (SEAOC) and California's Office of Statewide Health Planning and Development (OSHPD) seismic design map tool (SEAOC & OSHPD, 2020).

Liquefaction, Stain-Softening, and Dynamic Settlement Potential

As previously discussed, the liquefaction and strain-softening potential and associated dynamic settlement potential of saturated, as well as dry sands, should be evaluated during a future geotechnical evaluation. Although determined to have a limited impact on the foundation design for the 1605 Industrial Avenue project, the subsurface conditions at the subject site may vary and there is a potential that liquefiable layers at shallower depths may be present.

Expansive Soils

The near-surface soils are anticipated to have medium to high expansion characteristics. Mitigation of the presence of near-surface expansive soils at the site may consist of: 1) the use of foundations designed for expansive soils, such as post-tensioned concrete slabs-on-ground or mat slabs, 2) construction of a zone of select import material with low expansion potential for support of the concrete slabs-on-grade, or 3) chemical stabilization of the expansion soils by mixing the soil with lime to reduce the expansion characteristic and create the zone of low-expansion material.

Construction of low- to non-expansive fill layers will require import of select fill and increased earth moving activities, as well as will likely result in raising of grades. Based on the anticipated expansion potential of the near-surface soils the select fill layer will potentially be on the order of 2 feet thick below buildings and 12 to 18 inches below concrete flatwork. If lime treatment is to be considered, similar sections will be required. In addition to the consideration of earthwork labor, and cost of import, the negative impacts of lime treatment will also need to be considered. Lime has a very high pH which will significantly impact landscaping.

Erosion and Infiltration Characteristics

The surficial soils are anticipated to consist of clay and silt considered susceptible to erosion. Drainage and landscaping should be designed to prevent excessive erosion from occurring. The cohesive near surface soils are anticipated to have very low infiltration rates. On-site storm water management systems may need to consider overflow control measures due to low soil infiltration.

Earthwork

Earthwork should be conducted in accordance with the local grading ordinances and recommendations of the geotechnical engineer of record for the project. We anticipate that remedial grading recommendations for this project will be similar to those implemented at 1605 Industrial Avenue. Earthwork operations should include: clearing and grubbing of the site prior to grading; removal of debris generated during demolition of the existing facilities; removal of undocumented fills; processing and compaction of subgrade soils prior to fill placement; processing and compaction

of engineered fills; and remedial grading for expansive soils including placement of zones of nonexpansive materials below slabs-on-grade, flatwork, and pavement, and/or chemical stabilization.

Based on information provided to us, it is our understanding that several underground storage tanks were previously removed from the site and the subsequent excavations backfilled. The approximate locations of the removed tanks have been provided; however, details regarding the depth of removal and compaction of the backfill materials have not been provided. Information regarding the backfilling operations performed after removal of the known buried underground storage tanks should be forwarded to the geotechnical consultant for review.

Foundations

Based on the anticipated soil conditions and loads for the proposed structure, and the assumption that the site soil settlement characteristics under static and dynamic loading will be similar to those of 1605 Industrial Avenue the proposed structure may be supported on a shallow foundation system consisting of continuous strip footings at the building perimeter and below load bearing walls, with isolated spread footings at columns. Allowable bearing capacities are anticipated to vary from 2,000 to 2,500 psf for bearing depths of 2 feet or more with footing widths varying from 1.5 to 6 feet depending upon the sustained loads. Based on the anticipated level of liquefaction-induced settlement and static settlement, deep foundations are not anticipated, but may be considered if such settlements are found to be higher than anticipated.

Pavement and Flatwork

The near-surface soils are anticipated to consist of moderately to highly expansive clay, similar in characteristics to the soils at 1605 Industrial Avenue. Pavement and flatwork sections used at 1605 Industrial Avenue can be used for preliminary cost evaluations. Laboratory R-value testing of the near-surface soils at the subject site should be conducted to determine final pavement and flatwork sections.

Site Demolition Activities

Redevelopment of the site will require the demolition of the existing structures, surrounding parking lots, landscape areas, and abandonment of underground utilities. Temporary excavations resulting from the demolition operations should be backfilled under the observation and testing of a geotechnical consultant. The reuse of concrete and asphalt pavement as fill or base materials should also be evaluated by a geotechnical consultant for suitability prior to construction. The use

of on-site recycled asphalt concrete and Portland cement concrete should be limited to fill and potentially as pavement section aggregate base in roadway areas only.

LIMITATIONS

This report is intended for feasibility purposes only. It does not provide sufficient data for design or to prepare an accurate bid by contractors. Our conclusions, preliminary recommendations, and opinions are based on a desktop study of readily available documents that cover the subject property. No subsurface exploration or sampling was performed. It should be understood that the conditions of a site could change with time as a result of natural processes or human activities at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

Our opinions and recommendations are provided in accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding our opinions and conclusions.

Ninyo & Moore appreciates the opportunity to provide services on this project.

Respectfully submitted, **NINYO & MOORE**

David C. Seymour, PG, CEG Principal Engineering Geologist

DCS/GJR/gvr

Attachments: References Figure 1 – Site Location Figure 2 – Aerial Image Figure 3 – Site Plan Figure 4 – Seismic Hazard Zones Figure 5 – Dam Inundation Figure 6 – FEMA Flood Zone

Distribution: (1) Addressee (via e-mail)



Gregory J. Ruf, PE, GE

Principal Engineer

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REFERENCES

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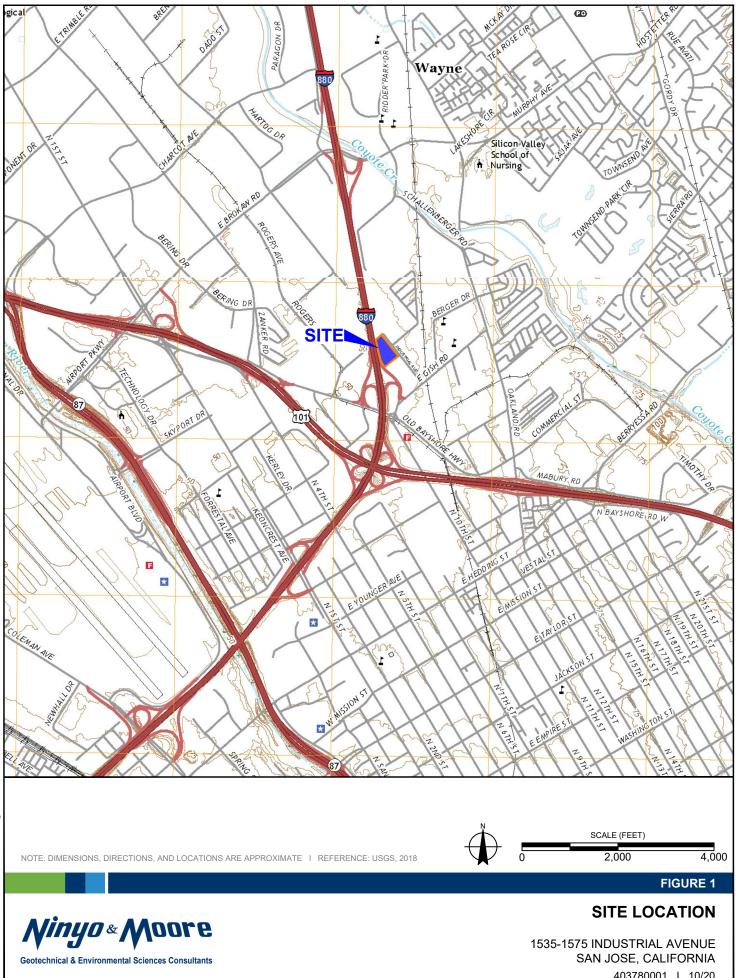
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FIGURES

Ninyo & Moore | 1535-1575 Industrial Road, San Jose, California | 403870001 | October 20, 2020



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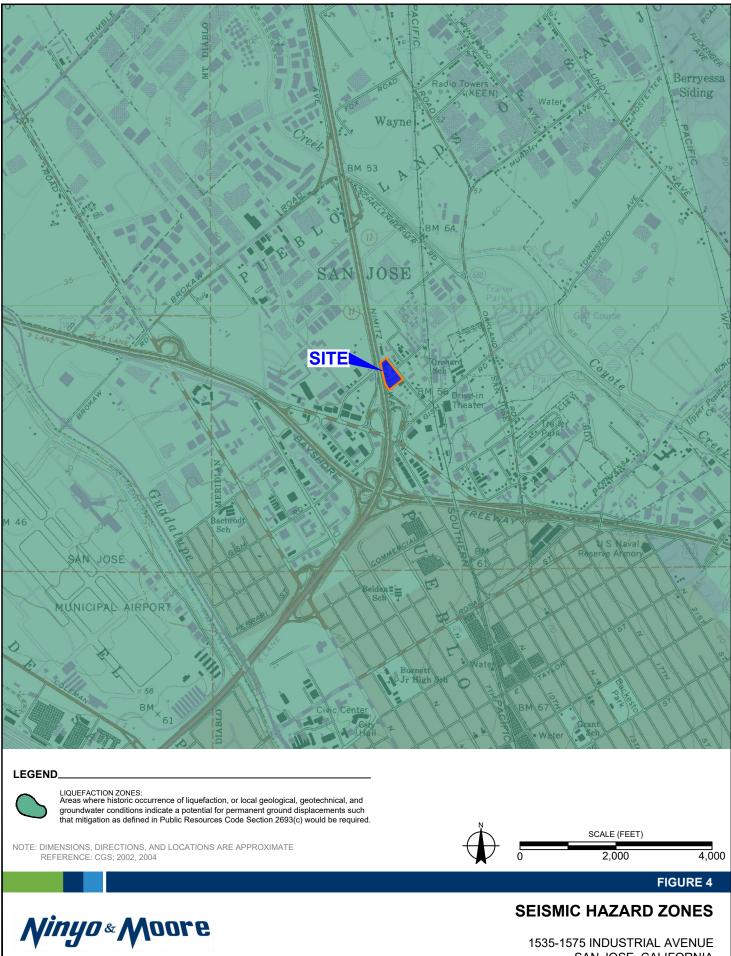
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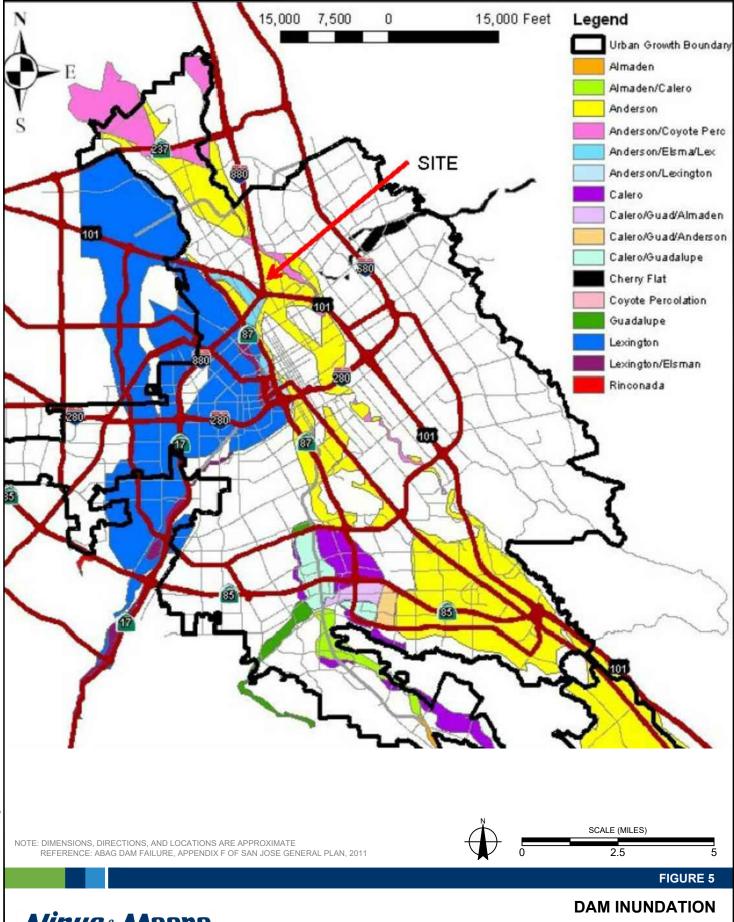
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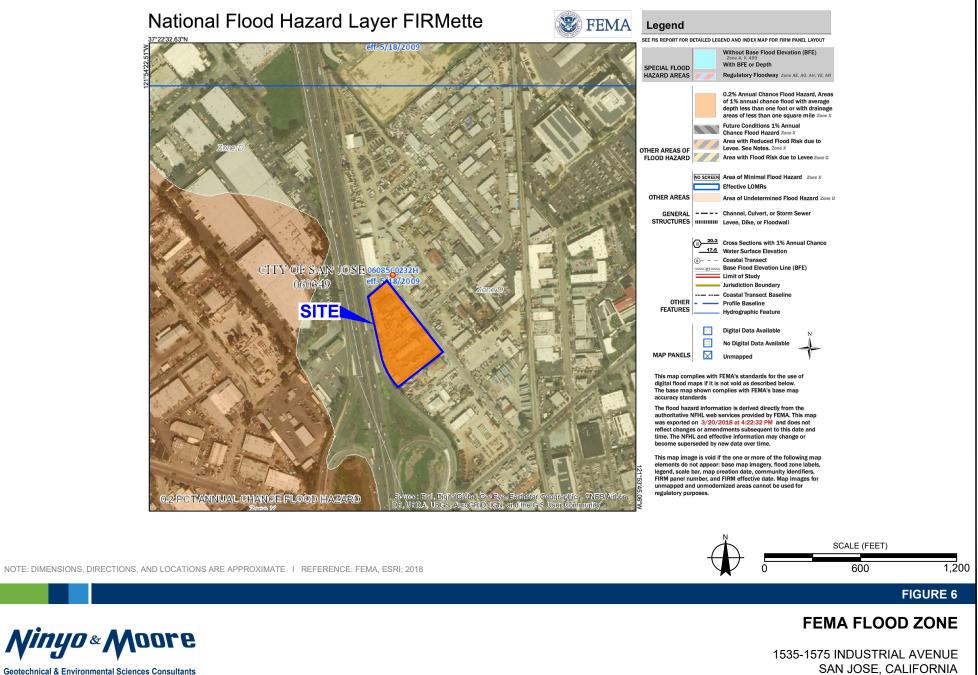
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