

LAWRENCE B. KARP
CONSULTING GEOTECHNICAL ENGINEER

NOV 18 2014

FOUNDATIONS, WALLS, PILES
UNDERPINNING, TIEBACKS
DEEP RETAINED EXCAVATIONS
SHORING & BULKHEADS
EARTHWORK & SLOPES
CAISSONS, COFFERDAMS
COASTAL & MARINE STRUCTURES

SOIL MECHANICS, GEOLOGY
GROUNDWATER HYDROLOGY
CONCRETE TECHNOLOGY

November 6, 2014

Board of Supervisors
City & County of San Francisco
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

Subject: 115 Telegraph Hill Boulevard, San Francisco
Planning Case No. 2013.1375CE [Block 0105 - Lot 065]
Appeal of [Project] Exemption from Environmental Review

Dear President Chiu and Members of the Board:

This letter-report supplements my correspondence of 7/16/14 to City Planning (copy attached) concerning the inadequacy of the geotechnical report for the proposed project at 115 Telegraph Hill Blvd. (the "Project") and elaborates on the fact-based evaluation of the potential environmental impact of the subject Project based on the principal engineering and construction aspects of the Project considered under the California Environmental Quality Act (CEQA) regulations. The City Planning Department determined the Project was categorically exempt from environmental review on 6/10/14 (revised 9/3/14).

In my professional opinion, the Project presents unusual circumstances as there has never before been a vertical excavation more than 10 feet deep in the proximity of the south side of Pioneer Park and Coit Tower. Although the risk of a deep open (not a shaft) excavation should be obvious (as was noted on 7/16/14, the excavation required for the Project is 33 feet deep [per Drawing A3.4 issued 5/19/14; Surface El. +252, bottom foundation scaled El. +219]), the City failed to require the submittal of engineering information related to the stability of the surrounding hillside. Instead, the Planning Department issued a new or revised categorical exemption determination on 9/3/14 and a novel approach was taken by "omitting and voiding from submission" all the architectural drawings showing sections through the building (as shown on Drawing A0.0, Revision 5, 9/16/14) following the Planning Commission hearing on 9/11/14. The Project's design is even more incomplete than before.

However, even though the current section drawings have been omitted by the Planning Department from the submission using words like "pad" in the exemption determination, the excavation still has to be at least 32 feet deep because the rear elevation (Drawing A3.2, Revision 5, 9/16/14) shows the foundation extending to at least El. +220 (scaled) which means excavating to at least 32 feet below the ground surface. Because the submittal was altered, no adequate or useful geotechnic data for the Project was provided to the public or decision makers, violating the standard-of-care for a proper environmental investigation which must include environmental risks.

No information has been submitted to the Planning Department concerning even a projected ways-and-means effort for continuously restraining a 32 or 33 foot deep vertical excavation within an unstable series of the Franciscan formation. Only selected architectural drawings have been submitted, no geotechnic data necessary for a theory of a support system or mitigation of vibrations and the effects of dewatering have been provided, and when questioned about the missing engineering the Project sponsor does nothing more than invite Appellants to assemble and produce for them the necessary data.

In my professional opinion, it is more than a reasonable possibility that a 32 or 33 foot deep dewatered excavation into ground that supports Telegraph Hill Boulevard and Pioneer Park would not only impair lateral and subjacent support along the only access roadway to Coit Tower, but the drawdown due to dewatering alone will significantly affect neighboring properties and leave a latent condition that irreparably relieves lateral and subjacent support along the southern flank of Pioneer Park south of Coit Tower. An open excavation 32 or 33 feet deep along the only road to Coit Tower presents serious hazards to those working on-site as well as those above the building site. Except for Telegraph Hill Boulevard which dead-ends at Coit Tower, the project site is landlocked so because there is no other vehicular access to the site the excavated materials can only be trucked away by multiple trucks that have no choice but to turn around at Coit Tower. The Project site is mapped as being between earthquake induced landslide hazard areas (C&CSF 2000) as shown on the attached map (landslide areas in light blue). The effects of dewatering on adjacent properties, the loss of lateral and subjacent support to the roadway and hillside, the vibrations during breaking and excavating the greywacke, the hazards of working in and under a 32 or 33 foot deep excavation, trucking, and excavating in a landslide hazard zone are all critical environmental concerns.

The adverse environmental impacts from the Project will be significant and no solution is practicable from following codes or regulations (off-site compliance with 2013 SFBC §3307 is not feasible). Once the groundwater table is drawn down, subsequent recharging of the sandstone and joints by rainfall (if that would occur with subterranean drainage behind the garage installed 32 or 33 feet below the existing ground surface) would likely produce weakened ground support conditions surrounding the Project (most of the buildings are more than 100 years old). The probability of altered conditions off-site, and environmental impacts off-site, due to vibrations during breaking and removing blocks of greywacke sandstone, loss of lateral and subjacent support both during construction and later, and drawing down the groundwater table is significant.

The history of Telegraph Hill includes numerous rock falls on its east, north, and south faces even after quarrying by the Gray Bros. terminated approximately 100 years ago. Observations of the predominate sandstone (greywacke) exposed in the rock faces find pervasive fractures with both subhorizontal and subvertical intersecting joint sets with varying spacing of discontinuities in the formation [*KJss*] (Schlocker 1974); minor fine sandstone shale [*ssh*] horizons interbedded with thick to massive sandstone [*ss*] units. The most recent major rockfall occurred northeast of Coit Tower in January 2012. There the latent effects of vibrations from blasting and excavating into the hillside resulted in progressive falls of greywacke sandstone blocks that were separated by interbeds of shale and fine sandstone which erodes with stormwater, letting the blocks loose.

Specifically, on the south facing hillside of Telegraph Hill below the Project site, the hillside that supports Coit Tower and Pioneer Park, there were the major rockfalls in October 1962 and February 2007 and intermittent rockfalls between 1984 and 1998 that were attributed to new construction (Geolith 1998) which included rock sporadically falling from below the condominiums on Vallejo Street. The rockfalls in 2007 resulted in the City declaring the buildings in the area were uninhabitable (SFGate 2007). The Project site is in the same geologic formation [KJss] as is the toe of the greywacke and shale rockfall locations between 1962 and 2007 (below Vallejo between Montgomery and Kearny), as shown in light blue on the attached map (Schlocker 1974). Also indicative of the nexus between site conditions is that the available joint set data of the greywacke at the Project site, and at the 1962-2007 rockfall site, are almost the same (40° or 45° dips to the southwest from similar strikes).

The Planning Department's exemption from environmental review dated 9/3/14 was based on 14 CCR §15301(d) [Class 1, restoration] and §15303(b) [Class 3, six or less dwelling units] but Class 3 exemptions are qualified by location where, if a project may have a significant impact on the environment, an exemption will be disallowed. Categorical exemptions are rebuttable. 14 CCR §15300.2(c) specifically does not apply to projects where there may be a "Significant Effect", i.e. "A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."

The Project, due to the unusual circumstances of a wide 32 or 33 foot deep open vertical excavation, which radically differs from the general circumstances of projects covered by the granted exemption, 14 CRC §15303(b), and all that is related to the excavation as summarized herein, requires environmental review under CEQA. The stability of the Franciscan formation (greywacke sandstone interbedded with fine sandstone and shale), is affected by water, so the project's dewatering, recharging, subsurface drainage and cyclic recharging by rainfall will surely impact not only the Project's ground environment but buildings in the area, and all of those impacts will be significant. Vibrations and loss of lateral support during construction and after will also significantly impact the Project's environment. Significant effects will arise from the unusual circumstances. The rockfall events discussed herein demonstrating the instability of excavations into Telegraph Hill and the certainty of encountering the same geotechnic conditions during excavating 32 or 33 feet for construction of the planned Project as exists where rock failures and damages have occurred over many years in the toe of the geologic formation, even without dewatering, lead to the inevitable conclusion that the Project is not categorically exempt from environmental review.

In my professional opinion, the Project as proposed is likely to result in significant potential environmental impacts not only during construction but even after construction, as they will be cumulative in service due to impairment of lateral and subjacent support and alterations in the groundwater regime.

Yours truly,



Lawrence B. Karp



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Photographs taken
by Lawrence B. Karp
at 240 Lombard SF
January 27, 2012

Permit 2014.02.21.9090

issued based on

January 9, 2013 report for

SF Dept of Public Works

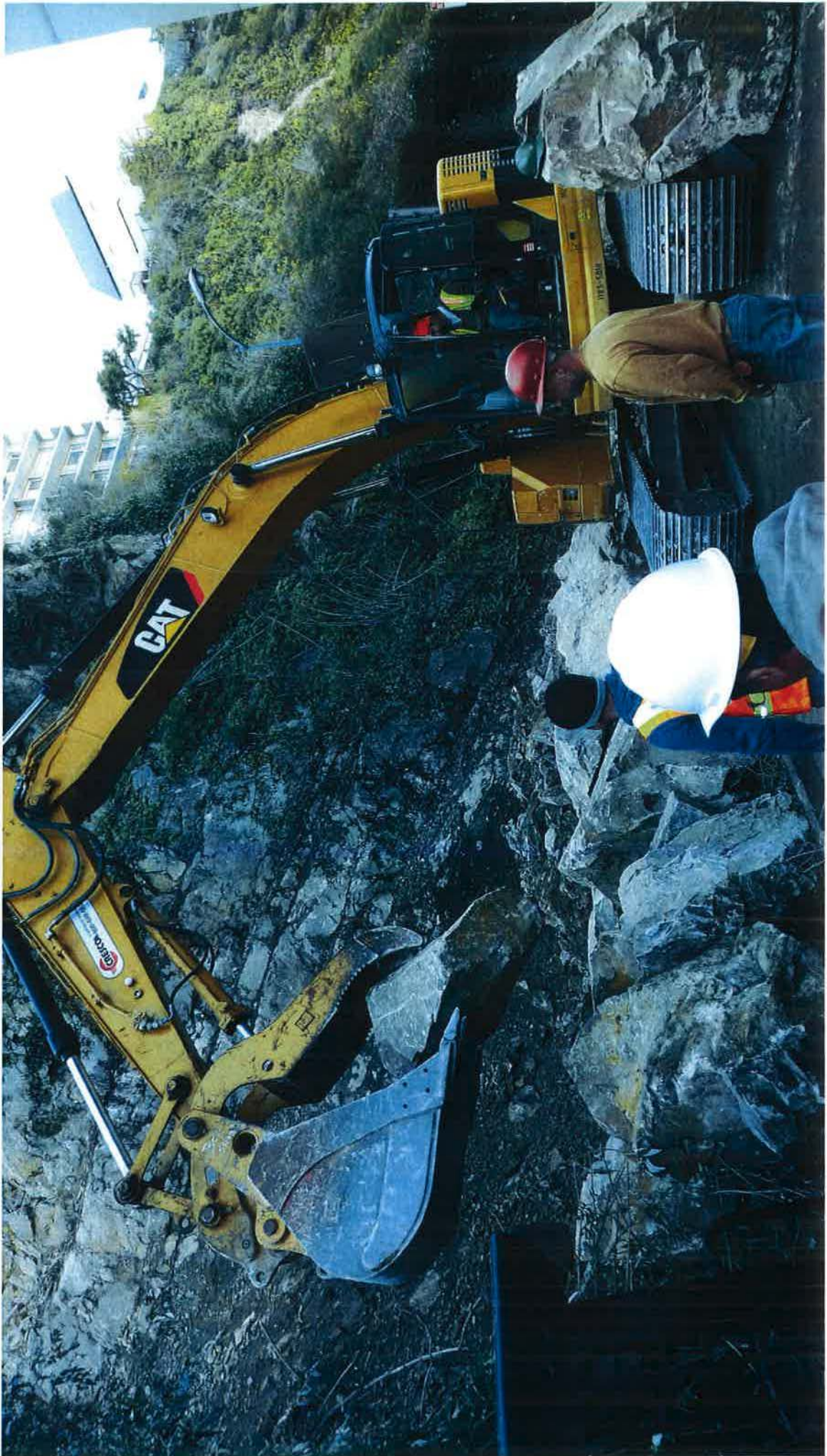
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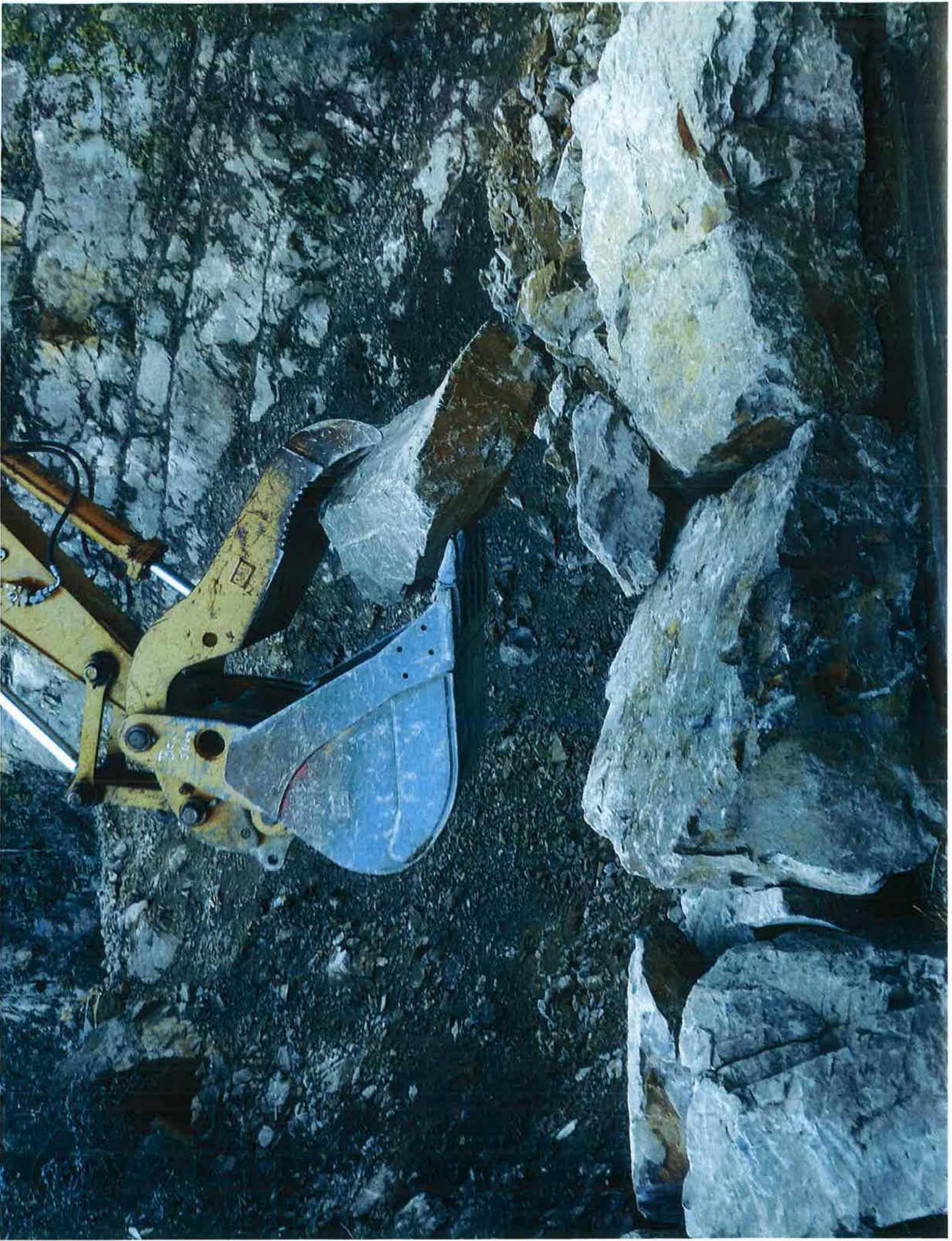
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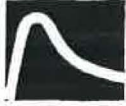
Photos Printed November 18, 2014











COTTON, SHIRES AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

November 17, 2014
G5154

Mr. Daniel Frattin, Esq.
REUBEN, JUNIUS & ROSE, LLP
One Bush Street, Suite 600
San Francisco, CA 94104

SUBJECT: Preliminary Geologic and Geotechnical Review Comments
RE: 115 Telegraph Hill Boulevard
San Francisco, California

Dear Mr. Frattin:

With this letter, Cotton, Shires and Associates, Inc. (CSA) is providing you with our initial engineering geologic and geotechnical engineering opinions of the proposed residential development at 115 Telegraph Hill Boulevard, in San Francisco California. In addition, we are providing you with comments in response to two letters submitted by Lawrence B. Karp to the City of San Francisco regarding his opinions with respect to the proposed development's design and construction impacts. Our preliminary opinions are based upon our review of the following:

- Geotechnical Investigation (report), prepared by Earth Mechanics Consulting Engineers, dated June 22, 2013, signed by Mr. Allen Gruen, GE 2147;
- Critique of EMCE Geotechnical Investigation, Letter to Planning Commission, prepared by Lawrence B. Karp, dated July 16, 2014;
- Supplemental Letter to Board of Supervisors, prepared by Lawrence B. Karp, dated November 6, 2014;
- Architectural Plans, prepared by Butler Armsden Architects, latest revision dated September 16, 2014; and
- In addition, we reviewed the site conditions on November 10, 2014 as well as our project files for multiple projects that we have completed in the area.

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slopes along Sansome Street from Union to Alta, as well as the precipitous slopes at 22 Alta Street, and the slopes at Vallejo Street and Montgomery Street. We have not encountered persistent groundwater table in any of these locations. In particular, 115 Telegraph Hill Boulevard is near the top of the hill and, at this elevation, should not support significant groundwater since it is drained by the precipitous quarried slopes on the north and east sides of the hill. In our decades of working on Telegraph Hill, we have not seen evidence for persistent groundwater emanating from any of these slopes. The small excavation at 115 Telegraph Hill, when compared to the immense quarried rock face on the other side of Coit Tower that is completely void of any permanent groundwater seepage, should not result in any alteration of a groundwater table. Thus, we do not believe that there will be any "latent condition that irreparably relieves lateral and subjacent support" to any surrounding properties provided the excavation is properly investigated, designed and supported.

Dr. Karp states (Page 2, second paragraph) that the site is mapped as being between earthquake induced landslide hazard areas, then goes on to state that the effects of dewatering, loss of lateral support, vibrations, the 32 to 33 foot deep excavation, and trucking in a landslide hazard zone are all critical environmental concerns.

CSA Response – Dr. Karp states that the site is between earthquake induced landslide hazard areas. Dr. Karp is correct that the site is located outside of mapped earthquake induced landslide hazard zones. In this case, the hazard zones correspond (and rightfully so) with the old quarried rock faces located 500+ feet to the north, 600+ feet to the east, and 1,000+ feet to the south of the proposed project. Since CSA is responsible for creating landslide hazard maps for many communities, we are keenly aware that the areas between, or outside of, identified hazard zones represent low risk areas with respect to landsliding. With respect to Dr. Karp's second statement about the site being in a landslide hazard zone, we are not aware of the site being mapped in any landslide hazard zone, nor should it be.

Dr. Karp, on Page 2 and 3, opines on the rockfall history of Telegraph Hill. In particular he states that the 2012 rockslide on the northeast side of Telegraph Hill failed in response to the erosion of shale interbeds.

CSA Response – CSA performed a detailed investigation of this failure, and the failure mechanism stated by Dr. Karp is not correct. **Our investigation report, on file with the City of San Francisco (Geologic and Geotechnical Investigation, Winthrop at Lombard Street Rockslope, prepared by Cotton, Shires and Associates, Inc., dated May 2014) documents the site conditions and causes/mechanisms of failure and they do not involve shale interbeds.**

S.R. 8079

San Francisco Department of Public Works
240 Lombard Street Rock Slide
Geologic and Geotechnical Investigation

Final | January 9, 2013

0079/008

~~0076/008~~



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 225124

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vegetated area. The slope has been hardscaped in an asphalt type material (see Figure 4). This area has been partially covered by soil and scrub growth.

2.2 Site History

Residential construction in the area above the site began in the mid-1800s and continued into the late 1930s. The slope areas adjacent to the west and south of the Parc Telegraph building were part of a rock quarry operated by the Gray Brothers in the late 1800s through the early 1900s. Past quarry blasting has contributed to the current slope instability issues impacting the site. Coit Tower was constructed in the mid-1930s.

Review of historic aerial photographs indicates that the site (240 Lombard Street) was previously occupied by industrial buildings, possibly warehouses, prior to and including the 1940s through the 1960s. The warehouses were removed from the site in the 1970s and the property became a parking lot until the early 1990s when the Parc Telegraph complex was constructed, based on our review of aerial photographs.

2.3 Published Geology

According to published geologic maps, bedrock within the site area is generally graywacke sandstone with minor shale interbeds belonging to the Franciscan Assemblage. There is at least one prominent north-striking fault mapped along the east flank of Telegraph Hill near the site. Several other faults are mapped within the Franciscan Assemblage along other portions of Telegraph Hill. An extract from the Geological Map of the San Francisco North Quadrangle is provided in Figure 5.

Isolated pockets of slope debris and/or ravine fill have been mapped near the base of the subject slope. Various geologic map sources have indicated landslides along the eastern flanks of Telegraph Hill near the site (Blake et al., 1974 and 2000; Ellen and Wentworth, 1995; Ellen and Wiczorek, 1988; Hillhouse et al., 1999; Schlocker, 1974; Schlocker et al., 1958 and URS/John A. Blume & Associates, 1974).

2.4 Site Reconnaissance

2.4.1 Site Visit -- June 22, 2012

A site reconnaissance visit was made by geologists from the Arup team on June 22, 2012. The rockface and talus slopes were viewed from Winthrop Street adjacent to the rear (southwest) of the Parc Telegraph apartment complex.

The predominate sandstone exposed within the cliff face was observed to contain pervasive fractures with both subhorizontal and subvertical intersecting joint sets.

Shale horizons were observed interbedded with the more massive sandstone units. There appears to be a distinct division in the spacing of discontinuities at the site with the southern half of the exposed rockface being more closely spaced than the northern half.

Discontinuities on the northern half of the exposed face appear to be typically widely to very widely spaced, becoming closely to widely spaced with progression south across the face (see Figure 6 and Figure 7). This fracture spacing variability across the slope likely controls localized failures. Shale horizons were observed interbedded with the more massive sandstone units. Where intersecting discontinuities are widely spaced, larger scale block failures (6 to 8 feet in size) are likely to occur, as seen in the rock fall of January 2012. Closer spaced discontinuities are likely to result in cobble-sized material which dominates the talus slopes at the base of the escarpment.

The intact section of the catchment fence located at the base of the slope was observed. The fence sections damaged during the 2012 rock fall had been removed along with a significant amount of rock fall debris (see Figure 8).

The fence was observed to be constructed using cable tie backs into the rock/talus slope (see Figure 9). The condition of these tie backs at the time of the site walk was variable with some of the cable ties sheared/broken and one rock bolt observed to be protruding out of the rockface. Shotcrete-type slurry concrete was observed at the base of the slope in the vicinity of the fence, used for stabilization of the talus slope as described in Dames and Moore Rock Fence Design memo dated April 1, 1991. Isolated concrete and granite blocks were also noted at the base of the slope (see Figure 9).

Observations of the area at the top of the rockface were completed near the intersection of upper Lombard Street and Telegraph Hill Boulevard. The flat plateau area at the top of the slope remained heavily vegetated (see Figure 4).

There are a significant number of utility service covers located in this area. Four large utility covers are located within the road adjacent to the steps leading up to Pioneer Park (see Figure 10). A series of covers are also located in the small memorial park located within the central part of Lombard Street as it curves into Telegraph Hill Boulevard. The covers (eight identified) follow the curvature of the road, located partially within the sidewalk and grassed area (see Figure 11). The covers were not accessed during this site visit.

There was no distinct evidence of cracking or signs of distress noted within the sidewalk or road area at the time of the site reconnaissance that could be attributed to continued movement of the rockface from the January 23, 2012 event.