CHRISTIAN WHEELER ENGINEERING

July 5, 2018

Roger Abbott 6340 Camino de la Costa La Jolla, California 92037 CWE 2170156.05R City Project Nbr.: 538814

Subject:	Geotechnical Response to Letter dated March 30, 2018 Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California
References:	1) Hecht Solberg Robinson Goldberg & Bagley, LLP, Abbot Residence (CDP/SDP Project No. 538814), 6340 Camino de la Costa, dated March 30, 2018.
	2) Christian Wheeler Engineering, 2017, Report of Preliminary Geotechnical Investigation Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, CWE Report 2170156.01, dated May 30, 2017.
	3) Christian Wheeler Engineering, 2017, Addendum Geotechnical Report and Response to LDR- Geology Cycle 4 LDR-Geology Review Comments, Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, CWE Report 2170156.03, dated November 1, 2017.
	4) Christian Wheeler Engineering, 2017, Addendum Geotechnical Report and Response to Cycle 5 LDR-Geology and -Coastal Commission Review Comments, Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, CWE Report 2170156.04, dated January 27, 2018.

Dear Mr. Abbott:

In accordance with your request, we have prepared this report to respond to the geotechnical related comments presented in the referenced letter dated March 30, 2018, which was prepared by the law firm representing your neighbors to the north (reference #1).

The following presents the comments presented in the referenced letter, followed by our geotechnical response to those comments.

<u>Comment 1.</u> The site plan did not map the visible sea cave near the southwest corner of the property. The determination of the location of the bluff top did not include the landward limit of the sea cave along Section D-D'. The sea cave appears to be enlarging based on comparisons between the 1972 and 2013 aerial photos and it appears that the crack in the bedrock visibly traverses onto the property. Is this crack evidence of a fault? If so it should be shown on the site plan and evaluated.

Attached the 1972 and 2103 (sic) aerial photos of the site and a blown up 2013 of the "fault" area (Source: Reference 7).

<u>CWE Response</u> – The Site Plan and Geotechnical Map and geologic cross sections included in our referenced report CWE 2170156.01 (reference 2) does not depict the open fracture/joint located along the lower bluff face on the adjacent residential lot to the south of the subject site. As re-evaluated by Certified Engineering Geologists from our firm, this open fracture, the type and strike of which are very common along the coastal bluffs of La Jolla, does not offset bedding of the Cretaceous-age sediments in which it is exposed and does not display polished or slickensided surfaces, and is not considered a fault. As previously stated, "It is our professional opinion and judgment that the site is not underlain by active or potentially active faulting" (CWE 2170156.03).

As measured by our staff, this joint exposed along the bluff face southwest of the subject site strikes N44°E with a dip of 85° NW. The orientation of the joint does project towards the Abbott property (6340 Camino de la Costa) and the adjacent property to the north of the Abbott property. From the face of the bluff, the first 11 feet of the joint is eroded and open with the mouth of the opening as wide as 24 inches. At a point approximately 8 feet back from the face of the bluff the opening narrows to approximately 5 inches in width. As measured from the face of the bluff, the eroded opening of the joint narrows from about 5 inches in width to being fully closed from 8 to 11 feet back from the face of the bluff. As such, along strike, the opening within the fracture is located 49 feet (NE) to 60 feet (SW) from the alignment of our geologic cross section D-D' and from 26 feet (NE) to 37 feet (SW) from the southern property line of the Abbott property. Furthermore, although surface expression of the joint (without opening) is visible for a distance of approximately 8 feet along the lower bluff face at the Abbott property, the northeastern-most expression of the joint is at least 15 feet from the alignment of our geologic cross section D-D'.

The oblique aerial photographs taken in 1972 and 2013 that were presented in the referenced Hecht Solberg Robinson Goldberg & Bagley, LLP letter, which were taken from different vantages and which appear to have been taken during different seasons and/or tides, do not demonstrate significant erosion of the joint/fracture on the adjacent lot over the 41 year time period from 1972 to 2013. It continues to be our professional opinion and judgment that this relatively small and partially open (off-site) joint does not affect the stability of the subject lot, our mapping of the bluff edge at the subject lot, or our recommended bluff edge setback for the proposed construction.

Photographs of the opening of the joint/fracture, which were taken from the pocket beach below the lot adjacent to and south of the Abbott property on April 20 and June 26, 2018, are presented in Appendix B of this report.

<u>Comment 2.</u> The reports provided did not include the boring and or test pit data/logs that verified the surficial soil type in the vicinity of the bluff top. The geotechnical report used data from a previous investigation for the property from a Coastal Development Permit application for the property that was initiated in the early 2000's but subsequently abandoned and closed out. Although the previous report by Geotechnical Explorations Inc. (GEI) identified the top and the bluff, the City did not signoff on the report or approve any determination as to the location of the top of the bluff.

<u>CWE Response</u> – Appendices D and E of our referenced report CWE 2170156.01 present the logs of the subsurface explorations utilized in our characterization of the subject site's geologic conditions and the mapping of the top of bluff at the subject site.

<u>Comment 3.</u> The delineation of the top of the bluff does not appear to be in conformance with the City Guidelines (Reference 4, page 17). In particular, along sections B-B' and C-C' the bluff top appear more seaward than the Guidelines would determine. They appear to delineate the bluff top seaward of the actual bluff top.

<u>**CWE Response</u>** – As presented in our referenced report CWE 2170156.04, "Delineation of the bluff edge at the subject site considered the geologic observations from the exploratory borings, test pits, test trenches, and hand auger explorations performed on-site by others (GEI, 2000) and our firm (CWE, 2015) as well as review of historic aerial photographs and topographic maps." The bluff edge delineated on geologic cross sections B-B' and C-C' of CWE report 2170156.01 (on Plate Nos. 2 and 3) have been plotted in accordance with the procedures described in Section III of the City of San Diego's Coastal Bluffs and Beaches Guidelines. Specifically, in the area of cross section B-B' and C-C', the edge of bluff was delineated in accordance with Section III:A.4 Modified Landform and Section III:A.1. Simple Bluff of the Coastal Bluffs and Beaches Guidelines, respectively. A detailed description of the mapping of the edge of bluff in the vicinity of cross sections A-A' and B-B', in the area of the site where the edge of bluff has been obscured by retaining wall</u>

backfill that was placed in conjunction with the construction of the existing home and rear yard retaining wall in 1962, is presented in our referenced report CWE 2170156.04.

<u>Comment 4.</u> In the applicant's response to City Cycle Issue 17 (see Reference 2), the consultant argues that the existing bluff top wall is not a protective device. As defined by the California Coastal Commission, "protective device" means any type of device, measure, or structure constructed in or on a coastal cliff or bluff which is intended to preserve and protect the coastal cliff or bluff from the effects of erosion (Reference 6). The existing wall was constructed both seaward and landward of the bluff top prior to 1972, over 46 years ago. Since the time of construction, particularly in the areas where the device is at or seaward of the bluff top, the wall has prevented erosion.

In the applicant's response to City Cycle Issue 19 (see Reference 2), the consultant determined an erosion rate of about 17 feet in 75 years or a rate of  $\sim 0.23$  ft/yr. If the retaining wall had NOT been in place seaward of the bluff for the last approximately 50 years the bluff would have eroded approximately 11.3 feet. The retaining wall is located on a bluff top and the project geotechnical consultant has established that the bluff is eroding.

This makes the retaining wall a "protective device" by definition and, as such, the project must adhere to the minimum 40-foot bluff top setback for development.

This conclusion is supported by the City's Development Regulations for Sensitive Coastal Bluffs and the Coastal Bluffs and Beaches Guidelines. As stated in the Development Regulations, the exception to the 40-foot setback is only appropriate if "no shoreline protection is required ... and will not require construction of shoreline protection measures throughout the economic life span of the structure (Reference 4, LDC Section 143.0143(f)(1)). As stated in the Guidelines, "[i]f a seawall (or other stabilization/erosion control measure) has been installed due to excessive erosion on a premises, that premises shall not qualify for a reduction of the required 40-foot distance to the coastal bluff edge" (Reference 4, Guidelines, Section II, C).

<u>CWE Response</u> – Christian Wheeler Engineering does not practice law. However, we are unaware of any specific definition of a coastal protection device by the California Coastal Commission (CCC). We welcome any specific reference to a CCC definition of "protective device."

The City of San Diego's Coastal Bluffs and Beach Guidelines states that "If a seawall (or other stabilization/erosion control measure) has been installed due to excessive erosion on a premises, that premises shall not qualify for a reduction of the required 40-foot distance to the coastal bluff edge. Since the instability

of the coastal bluff necessitated the installation of the seawall, the coastal bluff would not be considered stable enough to support development within the 40-foot bluff edge setback." As indicated in the attached copy of the building permit, the existing rear yard retaining wall was approved as part of the building permit dated 1962. This retaining wall was simply for the purpose of extending the rear yard of the property for landscaping purposes. It was not installed for purposes of controlling excessive erosion on the property.

We do not know the origin of statement made in the referenced March 30, 2018 letter that "If the retaining wall had NOT been in place seaward of the bluff for the last approximately 50 years the bluff would have eroded approximately 11.3 feet." Such is not our professional opinion and judgment.

A detailed description of the permitted rear yard retaining wall on-site and how such is not considered to be a shoreline protection device installed to halt or retard marine erosion is presented in our referenced report CWE 2170156.04. However, to reiterate, it is clear that the permitted rear yard retaining wall at the site was constructed (prior to the establishment of the CCC) along the rear of the existing residence on-site in order to allow for the construction and grading of a relatively narrow, level rear yard area at the home. Furthermore, it is clear that such wall was not constructed to retard marine erosion as it is not now affected by coastal or marine erosion, ±56 years since it was constructed.

<u>Comment 5.</u> The project proposes substantial improvements and development, including adding a second story and relocating the western elevation of the residence. The project should not rely on the existing previously conforming development, particularly the bluff top and bluff face retaining wall that serves as a protective device and the other access improvements on the bluff face.

In addition, the project needs to be evaluated over the life of the development which is 75 years. The geotechnical consultant has determined that the bluff top erosion for the next 75 years is approximately 17 feet. This indicates that any existing or proposed improvement that is within 17 feet will be impacted by erosion, which precludes the required project finding that the development is safe over the next 75 years.

<u>**CWE Response</u>** – As presented in our report CWE 2170156.01, all new additions are to be supported on new foundations extending into competent native deposits. The new foundations may consist of conventional shallow footings in areas were the fill is relatively shallow or cast-in-place concrete piers connected with grade beams where the fill depth is such that shallow foundations are not feasible. As such, no existing foundations of the residence will be utilized to support new structural loads and the existing man-placed fill soils at the site will not be utilized to support new loads.</u>

#### July 5, 2018

As presented in our report CWE 2170156.01, "assuming all of the measured bluff top recession was caused by natural processes that will continue into the future, a conservative assessment of future erosion of the bluff over the next 75 years would be about 17 feet." It should be reiterated that the measured recession or erosion of the upper bluff described in our referenced report CWE 2170156.01 certainly was, to some degree, caused by the activities of man including the construction of the permitted site retaining wall and placement of fills near the top of the bluff as well as pedestrian access along the top of bluff. Furthermore, the edge of the bluff along the west side of the site has remained relatively constant over the last few decades. As geotechnical professionals, it is not our professional opinion and judgment that "any existing or proposed improvement that is within 17 feet will be impacted by erosion" (HechtSolberg, 2018).

If you have any questions after reviewing this report, please do not hesitate to contact this office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted,

CHRISTIAN WHEELER ENGINEERING

David R. Russell, CEG #2215



No. 36037 Exp. 6-30-20

Daniel B. Adler, RCE #36037

# **APPENDIX** A

# **1962 BUILDING PERMIT**

MAN FILE 5296B PERMIT APPLICAN'Y FRI **Building Permit Application** INSIDE REAVY LINES JOB define de la er Benboush NAME ADDR SIDE REAR MAN ADORESS ADK AVE YARD BACK VARD VACANT USE MAP 20 CITY SA 84 ZONE 3113 NO: 18 BLS ECONOMIC LOCATION CENSUS ENGINEER the state Shaverek- PT CODE EA IBD. CAN TRACT VARIANCE NO. STREET BUILDING IOT 55000 BAJILLO (COUNA) ADDRESS AREA AREA TEL NO. PERMIT NUMBER Encroachment Yes ST. GRADE, ENG. STATE LICENSE NO. J 011806 Permit Rog'd No CHECK [] CLEARANCE CHECKED B METER 2.21 BUILDING CONTRACTOR FERK Kacau SIZE DUL REQUESTED METER LOCATION EXISTING [] CENTER LINE OTHER STREET OF PROPERTY ADDRESS 4 9 RBER 12 TEL. NO. TYPE OF BOOK VERIEIED BY. 2111 CITY COVI. E02 979 CONNECTION PAGE FIRE ZONE Type of Construction STREET YES IT STATE LICENSE NO. Ston I. 2 / 3) 1 BE IV IMPROVED NO D Ż SPECIAL YES [] OCCUPANCY GROUP JOB DESCRIPTION 0 INSPECTOR REQ'D NO P ABCDEFGF LEGAL DESCRIPTION: (Attach Mares & Bounds if Necessary) PLAN CHECKED BY PLAN CHECK 1019810 TRACT HCR LASSA BLOCK RACT RECEIPT NO 1 BUILDING BUILDING ADDRESS LA COSTA CAMENO de VALUATION + ALTER DEMOLISH NEW T BUILDING REPAIR 186 ADD -MOVE PERMIT FEE RESIDENTIAL NUMBER OF NUMBER OF 10.0 LESS NON-RESIDENTIAL STORIES 17 DWELLING UNITS PLAN-CHECK FEE COUNTY SANITATION DISTRICT PRIVATE DISPOSAL APPROVAL 0 50 RECEIPT NO. SEWER FEE STATEMENT OF PROPOSED USE AMOUNT 1/ac DUE NOX 7 Ret APPLICATION APPROVAL ATTENTION: ly A.c. marchen car of gan feren I hereby acknowledge that I have read this application; that the THIS PERMIT information given is correct, and that I am the owner, or the duly auth-orized agent of the owner. I agree to comply with city and state laws THIS PERMIT DOES NOT BECOME VALID UNTIL AUTHORIZES SIGNED BY THE DIRECTOR OF BUILDING regulating construction; and in doing the work authorized thereby, no person will be employed in violation of the Labor Code of the State of ONLY THE INSPECTION, OR HIS DEPUTY; AND PEES ARE WORK NOTED California relating to Workmen's Compensation Insurance. PAID, AND RECEIPT IS ACKNOWLEDGED IN SPACE PROVIDED SIGNATURE OF INSPECTION Ale -OWNER OF AGENT DEPARTMENT You Volland Blu 5417 ADOPESS EVIDENCE OF AGENCY NOTED INSPECTOR FLOT PLAN CHECK & APPROVED. HEALTH DEPT. APPROVAL CITY OF SAN DIEGO FORM NO. 17-288 (7-60)

# **APPENDIX B**

# PHOTOGRAPHS

### Taken April 20, 2018



### Taken June 26, 2018



10 22 2003

548016

### INSPECTION APPROVALS

MSPECTOR 2 SETBACK & YARDS 2 PEDESTRIAN PROTECTION 3 SOIL, FOUNDATION TRENCHES & REINFORCING A FRAME 7 5 REINFORCING STEEL ROOFING 6 7 FIREPLACE & CHIMNEY 8 AREA SEPARATION 9 STAIRWAYS, SLOPE & CLEARANCE 10 STANDPIPES & SPRINKLERS 11 LATH 12 OCCUPANCY SEPARATION 13 FIRE DOORS & WINDOWS 14 EXITS HARDWARE & SIGNS 15 SPECIAL INSPECTOR'S REPORT 16 FINAL DATE. CORRECTIONS 2 QUANNE. 4 Nosal 201011 114 ENSER OR 2 3 5 16 12/201 3 62 1409-0 344 SE \$ 23/176 V. N. 21



June 4, 2018

Roger Abbott 6340 Camino de la Costa La Jolla, California 92037 CWE 2170156.06 City Project Nbr.: 538814

Subject:	Addendum Geotechnical Report and Response to Cycle 6 LDR-Geology Review Comments												
	Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California												
References:	1) Christian Wheeler Engineering, 2017, Report of Preliminary Geotechnical Investigation												
	Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, CWE												
	Report 2170156.01, dated May 30, 2017.												
	2) Christian Wheeler Engineering, 2017, Addendum Geotechnical Report and Response to LDR-												
	Geology Cycle 4 LDR-Geology Review Comments, Proposed Abbott Residence Additions, 6340												
	Camino de la Costa, La Jolla, California, CWE Report 2170156.03, dated November 1, 2017.												
	3) Christian Wheeler Engineering, 2018, Addendum Geotechnical Report and Response to LDR-												
	Geology Cycle 5 LDR-Geology Review Comments, Proposed Abbott Residence Additions, 6340												
	Camino de la Costa, La Jolla, California, CWE Report 2170156.04, dated January 27, 2018.												
	4) City of San Diego, 2017, Cycle 6, LDR-Geology Review Memorandum, Project Nbr. 538814,												
	prepared by Patrick Thomas, CEG, dated November 28, 2017.												
	5) Abbott Residence, 6340 Camino de la Costa, La Jolla, CA 92037, prepared by Matrix Design												
	Studio, revision date January 26, 2018.												

Dear Mr. Abbott:

In accordance with your request, we have prepared this addendum report to respond to or provide responses to the geotechnical "issues" presented in the referenced LDR-Geology Cycle 6 review memorandum. The following presents each of the specific issues noted in the LDR-Geology review memorandum, followed by our response to, or comments regarding each issue.

City Issue #19 - Bluff Recession: As previously requested, provide photographic copies or high density scans of historic photographs used in the analysis (.jpg or .tif format) as well as copies of any other documents used. Please indicate the points measured as part of the analysis. A site-specific rate must be determined for the site by using historical data, such as historic aerial photographs.

<u>CWE Response</u> – Highest resolution digital copies of historic photographs used in our bluff analyses have been obtained from the County of San Diego. Such photographs have been submitted to the City.

As presented in CWE report 2170156.04 (dated January 27, 2018):

In order to further quantify the rate of bluff top retreat of the exiting coastal bluff at the subject site we have obtained and reviewed the referenced aerial photographs on file with the of the County of San Diego. Photograph A1 of Packet 52 from 1928, which depicts the subject site and coastal bluff in the central portion of the photograph (and thus demonstrates the least amount of distortion of all of the reviewed photographs) was enlarged to an approximate scale of 1 inch to 300 feet. This scale was chosen to preserve legibility and reduce pixilation of the photograph. Our estimation of the approximate scale of the enlarged photograph was performed by scaling the distances between previous and existing street locations (along the alley between Avenida Cortez and Avenida Cresta, from the centerline of the intersection of that alley and Avenida Cresta (south end) and the centerline of the intersection of the alley and Via Del Norte (north end); along Camino de la Costa from the centerline of the intersection of with Gravilla Street (to the north) and the centerline of the intersection with Palomar Avenue (to the south); along Palomar Avenue from the centerline of the intersection with Camino de La Costa (to the west) to the centerline of the intersection with La Jolla Boulevard (to the east); and from the centerline of the intersection between Camino de la Costa and Palomar Avenue (to the northwest) and the centerline of the intersection of La Jolla Boulevard and Via del Norte (to the southeast) and the City of San Diego 200-scale ortho-topographic map sheet 238-1683 from 1979.

Utilizing a northerly projection of the linear alley (N4½°E) that exists between Avenida Crest and Avenida Cortez and plotting the locations of our geologic cross sections included in our referenced geotechnical reports (CWE 2170156.01 and .03) on the enlarged 1928 aerial photograph (52A1), we estimate that in 1928 the edge of the bluff top along the western portion of the site was located approximately 603 feet, 648 feet, 626 feet, and 644 feet, to the southwest of the northerly projection (N4½°E) of the above described alley along our geologic cross sections A-A', B-B', C-C', and D-D', respectively, when measured along the strike of the cross sections (N88°W). By plotting the locations of our cross sections on the above described 200scale ortho-topographic map and plotting the top of bluff from our Site Plan and Geotechnical Map and geologic cross sections (Plate Nos. 1 through 3 of CWE Reports 2170156.01 and .03) on the orthotopographic map, we calculate that the top of the bluff top is currently approximately 620 feet, 645 feet, 640 feet, and 628 feet, to the southwest of the northerly projection (N4½°E) projection of the above described alley along our geologic cross sections A-A', B-B', C-C', and D-D', respectively. As such, we calculate that the edge of the bluff top within the western portion of the subject site has retreated between 8 feet and 17 feet over the 89 year time period from 1928 to 2017. Specifically, 17 feet, 8 feet, 14 feet, and 16 feet of bluff top retreat was measured along cross sections A-A', B-B', C-C', and D-D', respectively.

Such distance of bluff top retreat equates to an approximate mean annual rate of top of bluff retreat of approximately 0.19 foot/year ( $\pm$  2<sup>1</sup>/<sub>4</sub> inches/year), 0.09 foot/year ( $\pm$  1 inch/year), 0.16 foot/year ( $\pm$  2 inches/year), 0.09 foot/year ( $\pm$  1 inch/year), 0.16 foot/year ( $\pm$  2 inches/year), 0.17 foot/year ( $\pm$  2 inches/year), along cross sections A-A', B-B', C-C', and D-D', respectively. Such variations in the measured mean annual rate of bluff top relief correlate well with the geomorphic conditions of the subject site and adjacent coastal bluff. Specifically, the greatest amount of bluff top erosion has been measured along the northern and southern margins of the bluff at the site while the least amount of erosion has been measured within the central portion (measured north to south) of the bluff face, which is protected by the erosion resilient headland-type feature that characterizes the on-site bluff area and which is furthest away from the small coves and pocket beaches to the north and south of the subject site.

Additionally, we have compared the elevations of the 10 foot elevation contours along the lower portions of the bluff face at the locations of our cross sections A-A' through D-D' utilizing current (2017) survey data and the 1953 and 1964 editions of the 200-scale topographic map sheets 238-1683. Such review indicates a landward migration of the 10 foot elevation contour of less than 2 feet since 1953. Such erosion of the lower bluff face (not the top of bluff as defined for development purposes) equates to an approximate mean annual rate of lower bluff retreat of less than approximately 0.03 foot/year (<½ inch/year).

It should be understood that the mean annual rates of bluff top retreat represent average rates of bluff top/sea cliff retreat. As such, year to year variations in the rate of bluff top recession should not only be anticipated but also expected. However, it is our professional opinion and judgment that even with the effects of projected sea level rise" (see our response to LDR-Geology Issue 21 presented in CWE Report 2170156.04 dated January 27, 2018) "the horizontal extent of bluff top retreat over the design life of the residence will be less than the minimum bluff top setback recommendation of 25 feet for the proposed project."

City Issue #25 - As previously requested in the Geology review for PTS Cycle 4, the applicant has provided photographic copies and high density scans of historic photographs for PTS Cycle 6 review. Clarify if these photos were used in the bluff recession rate analysis as described in the narrative on pages 6, 7 and 8 of the referenced report dated January 27, 2018. <u>CWE Response</u> – The 1928 aerial photograph A1 of Packet 52 from the County of San Diego and the 1979 edition of the City's 200-scale ortho-topographic map sheet 238-1683 were utilized in conjunction with our mapping of the edge of bluff included on the Site Plan and Geotechnical Map from our referenced report CWE 2170156.01, to determine the historical mean annual rates of recession along each of the four geologic cross sections, as described on pages 6, 7, and 8 of our referenced report CWE 2170156.04 (January 27, 2018).

City Issue #26 - As previously requested in the Geology review for PTS Cycle 4, please indicate the points measured on the photos or on photo overlays as part of the analysis described on pages 6, 7 and 8 of the referenced report dated January 27, 2018. Provide all historic photos, photo overlays, maps and other documents and illustrations used to support the analysis.

<u>CWE Response</u> – The points, azimuths, and reference locations utilized in our bluff recession analysis, which compared the 1928 historic edge of bluff along each of our geologic cross sections to the current edge of bluff along each of the four geologic cross sections, are described on pages 2 and 3 of this report and pages 6-8 of CWE report 21701556.04 (January 27, 2018). For clarification, the historic aerial photographs, maps, and documents used in our analyses are presented on Plates 1 and 2 of this report.

If you have any questions after reviewing this report, please do not hesitate to contact this office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted, CHRISTIAN WHEELER ENGINEERING

David R. Russell, CEG #2215 cc: roger@abbott.bz; lauren@matrixdesignstudio.com









40 CAMINO I LA JOLLA, C	DE LA COSTA ALIFORNIA	
18	JOB NO.:	2170156.06
	PLATE NO.:	2

## CHRISTIAN WHEELER ENGINEERING

June 19, 2018

Roger Abbott 6340 Camino de la Costa La Jolla, California 92037 CWE 2170156.07 City Project Nbr.: 538814

#### Subject: Addendum to Report of Preliminary Geotechnical Investigation Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California

Dear Mr. Abbott:

We have prepared this report to present revised geologic mapping of the site (see the revised Site Plan and Geologic Map and Geologic Cross Sections A-A' through D-D' on Plate Nos. 1-3 of this report), to present our recently revised global stability analyses to reflect the revised geologic mapping, and to provide revised foundation recommendations. This report has been prepared as an addendum to our Report of Preliminary Geotechnical Investigation (CWE 2170156.01) and other referenced geotechnical reports. As such, unless specifically modified herein, all of the findings, conclusions, and recommendations presented in the referenced reports (See Appendix A of this report) remain applicable to the subject project.

Specifically, our revised interpretation of the site's geologic characterization includes the mapping of the upperand mid-bluff areas (above an approximate elevation of 20 feet) as consisting of Quaternary-age old paralic deposits. Such revised mapping is presented on Plate Nos. 1-3 of this report.

Appendix B of this report presents the results of our revised global stability of the site to reflect a thicker than what was previously mapped section of old paralic deposits. Each of the revised global stability analyses was performed using the same strength parameters and failure parameters as which were included in our original global stability analyses (see CWE 2170156.01). As presented in Appendix B of this report, each of our revised global stability analyses (modelling the current geologic characterization of the site) demonstrates minimum factors-ofsafety against static and pseudo-static global failures at the site and adjacent bluff areas of or greater than 1.5 and 1.1, respectively (the minimums that are generally considered to be stable). It should also be recognized that our revised geologic characterization of the thickness of the old paralic deposits at the site does not affect our discussions of the coastal bluff edge location, mean annual rate of bluff edge recession, or sea level rise that have been presented in our previous and referenced geotechnical reports.

The only revised recommendations necessary as the result of our revised geologic characterization of the thickness of the old paralic deposits at the site pertain to the foundation systems associated with the proposed construction and are presented hereinafter.

#### FOUNDATIONS

**GENERAL:** Based on our findings, it is our opinion that the proposed additions be supported on new foundations extending into competent old paralic deposits. The new foundations may consist of conventional shallow footings in areas were the fill is relatively shallow or cast-in-place concrete piers connected with grade beams where the fill depth is such that shallow foundations are not feasible. The following recommendations are considered the minimum based on soil conditions and are not intended to be lieu of structural considerations. All foundations should be designed by a qualified structural engineer.

#### SHALLOW FOUNDATIONS

FOUNDATION DIMENSIONS: Conventional spread footings supporting the proposed additions should have a minimum embedment of 24 inches below the finish pad grade and should also extend at least 12 inches into competent old paralic deposits, whichever is more. A minimum width of 12 inches and 24 inches is recommended for continuous and isolated footings, respectively. A minimum depth and width of 24 inches is recommended for retaining walls.

**BEARING CAPACITY:** Spread footings with the aforementioned minimum dimensions may be designed for an allowable soil bearing pressure of 2,000 pounds per square foot. This value may be increased by 600 psf for each additional foot of embedment depth and 400 psf for each additional foot of width, up to a maximum of 5,000 psf. The soil bearing pressures may be increased by one-third for combinations of temporary loads such as those due to wind or seismic loads.

FOOTING REINFORCEMENT: The project structural engineer should provide reinforcement requirements for foundations. However, based on soil conditions, we recommend that the minimum reinforcing for continuous footings should consist of at least 2 No. 5 bars positioned near the bottom of the footing and 2 No. 5 bars positioned near the top of the footing. New footings located adjacent to existing footings should be doweled as recommend by the project structural engineer.

LATERAL LOAD RESISTANCE: Lateral loads against foundations may be resisted by friction between the bottom of the footing and the supporting soil, and by the passive pressure against the footing. The coefficient of friction between concrete and soil may be considered to be 0.30. The passive resistance may be considered to be equal to an equivalent fluid weight of 300 pounds per cubic foot. These values are based on the assumption that the footings are poured tight against undisturbed soil. If a combination of the passive pressure and friction is used, the friction value should be reduced by one-third.

#### CAST-IN-PLACE CONCRETE PIERS

MINIMUM PIER DIMENSIONS: Cast-in-place concrete pier foundations to support the proposed additions should have a minimum diameter of 24 inches, extend to a minimum depth of 10 feet below the existing grade, and should also extend at least 5 feet into competent native deposits (Old Paralic Deposits or Point Loma Formation). At this depth, a bearing capacity of 8,000 pounds per square foot (psf) may be assumed for said piers. This bearing pressure may be increased by 800 psf for each additional foot of depth, and 600 psf for each additional foot of width, up to a maximum bearing pressure of 20,000 psf. This value may be increased by one-third when considering wind and/or seismic loads.

If you have any questions after reviewing this report, please do not hesitate to contact this office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted, CHRISTIAN WHEELER ENGINEERING

David R. Russell, CEG #2215 DRR:dba ec: roger@abbott.bz lauren@matrixdesignstudio.com



Adler, RCE #36037



CW	VE LEGEND
P-4	APPROXIMATE TEST PIT LOCATION
HA-2	APPROXIMATE HAND AUGER LOCATION
• B-9	APPROXIMATE BORING LOCATION (GEI, 2000)
<b>F</b> T-2	APPROXIMATE TEST TRENCH Location (gei, 2000)
HP-4	APPROXIMATE HAND PIT LOCATION (GEI, 2000)
D D'	GEOLOGIC CROSS SECTION
<u> </u>	GEOLOGIC CONTACT (DOTTED WHERE BURIED)
<u>Qaf</u> Qop	ARTIFICIAL FILL OVER OLD PARALIC DEPOSITS
<u>Qaf</u> Weathered Qop/Qsw	ARTIFICIAL FILL UNDERLAIN BY WEATHERED UNDIFFERENTIATED OLD PARALIC DEPOSITS/SLOPEWASH
Qop	OLD PARALIC DEPOSITS
Кр	POINT LOMA FORMATION

\*NOTE: TOPSOILS/SUBSOILS NOT MAPPED







	PRO	POSED ABBOTT RESID 6340 CAMIN LA JOLLA	E <b>NCE REMODEI</b> NO DE LA COST <i>I</i> A, CALIFORNIA	L AND ADDITION A	87
SITE PLAN AND GEOTECHNICAL MAP	DATE:	JUNE 2018	JOB NO.: 2170156.07		CHRISTIAN WHEELEF
	BY:	SD	PLATE NO.:	1	ENGINEERING





![](_page_22_Figure_2.jpeg)

![](_page_22_Figure_3.jpeg)

	PROP	OSED ABBOTT RESIDEN 6340 CAMINO LA JOLLA,	8		
GEOLOGIC CROSS SECTIONS A-A' & B-B'	DATE:	JUNE 2018	JOB NO.:	2170156.07	CHRISTIAN WHEELEF
	BY:	SD	PLATE NO.:	2	ENGINEERING

![](_page_23_Figure_0.jpeg)

![](_page_23_Figure_1.jpeg)

				<u>e</u>	OP							0 X 'C
			F BLUFF	25' BLUFF TO SETBACK	40' BLUFF T SETBACK	PF	OPOSED OFFIC ADDITIO	N N C C P A D E	E Qaf	XISTING GARAGE		
			TOPO		Qaf	P-4 (C PROJECTED S	WE) WEB	(GEI)	EXIST OFF	'ING ICE		
			Qop	B-9 (GEI) PROJECTED 27' NORTH			PROJECT	ED 17' NORTH	Qop			PI
						Кр				Кр		
	Кр											
60	80	100 120	140	160	180	200	220	240	260	280	300	0

	CWE LEGEND	]		
Qaf	ARTIFICIAL FILL			
Qop	OLD PARALIC DEPOSITS	0 L	20'	40
Кр	POINT LOMA FORMATION			
*NOTE:	TOPSOILS NOT MAPPED	]	SCALE: 1" = 20'	

![](_page_23_Figure_4.jpeg)

	PROPOSED ABBOTT RESIDENCE REMODEL AND ADDITIONS 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA												
C-C' & D-D'	DATE:	JUNE 2018	JOB NO.:	2170156.07	CHRIS								
	BV.	۶D	DIATENO.	2	EN								

SD PLATE NO.:

![](_page_23_Picture_7.jpeg)

GEOLOGIC CROSS SECTIONS

	LOG OF HAND AUGER HA-1													<u>Sa</u> Cal SPT ST	Modified Standard Shelby T	<b>Гуре a</b> l Califor Penetrat	<b>nd Labo</b> nia Sampler ion Test	CK C CK C DR I	<b>est Legen</b> Chunk Densit Density Ring Juclear Gaug	<u>d</u> y e Test				
	Date Logge Existi Finisl	Drilled: ed By: ng Elev: n Elevat	ation: ion:	11/ DJ: 54½ N/	11/12/14Equipment:Hand ToolsDJFAuger Type:N/A54½ feetDrive Type:N/AN/ADepth to Water:N/A									MD SO4 SA HA SE PI CP	Max Den Soluble S Sieve An Hydrom Sand Equ Plasticity Collapse	sity ulfates alysis eter uvalent Index Potentia	L	DS I Con C EI F R-Val F Chl S Res F	Direct Shear Consolidation Xpansion Inc Lesistance Val oluble Chlor H & Resistiv	lex lue ides vity				
DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL		5	SUMN (base	MARY OF SUBSURFACE CONDITIONS sed on Unified Soil Classification System)											PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
	541/2		SM	Artific mediur	ial Fill n-graine	(Qaf) ed, SIL	: Ligh .TY S.	t bro AND	wn to	yellov	wish-	brow	7n, m	oist, lo	oose, fi	ne- to								
3 -	- 501/2																							
5	48½																							
7 -	 46½		SC	Old Pa moist,	u <b>ralic E</b> loose, fi	Depositine to	ts/Slo mediu	pe W ım gra	′ <b>ash (Ç</b> ained, (	Qop/Q CLAY	<mark>Qsw)</mark> YEY :	: Gr SAN	eenisl D; m	1-gray, iicaceo	, moist ous wit	to very h rootle	y ets							
9 —	<b>99</b>		CL	Dark g	reenish	on stan gray, '	ning. very n	noist,	stiff, S	SANE	DY C	LAY	with	ı rootl	ets and	l reddis	sh -							
10 — 	<u> </u>			Test pi Slight s	t termin eepage	nated a at 9 fee	ut 9½ 1 et.	feet.																
12 — 13 —	42½																							
14 —	40½																							
Not	es:																							
⊻ ₹	, ,	Sym Ground Ground	<b>bol Le</b> lwater Le lwater Le	e <b>gend</b> evel During evel After I	; Drillinş Drilling	5					PR	OPC 6340 L/	DSEI Cai A Joi	) ABE MINO LLA, (	<b>BOTT</b> DE L CALIF	RESID A COS 70RNI	DENC STA TA	E						
<b>96</b> ((	<ul> <li>Apparent Seepage</li> <li>* No Sample Recovery</li> </ul>						DATE: JUNE 2018 JOB NO.:						21701	56.07		СН	RISTIA Engin	N WHE	ELER G					
**	** Erroneous Blow Count (rocks present)							Y:		MWI					PLA	TE NO	O.:	D.: 4						

	LOG OF HAND AUGER HA-2													Ca SP	<b>Sampl</b> il Modi T Stand	<b>e Type</b> fied Calif ard Pene	<b>e an</b> fornis tratic	a <b>d Labo</b> r a Sampler on Test	CK C	<b>est Legen</b> Chunk Densit Density Ring	u <u>d</u> y	
Date E Logge Existi Finish	Drilled: d By: ng Elev: n Elevati	ation: ion:	11/1 DJF 55 fa N/A	11/12/14Equipment:Hand ToolsDJFAuger Type:N/A55 feetDrive Type:N/AN/ADepth to Water:N/A								M SC SA H. SE PI CI	D Max D Max D4 Solub Sieve A Hydr Sand Plast P Colla	y Tube Density le Sulfate Analysis ometer Equivalen city Inde pse Poter	s nt x ntial		NG N DS E Con C EI E R-Val R Chl S Res p	Juclear Gaug Direct Shear Consolidation xpansion Inc .esistance Va oluble Chlor H & Resistiv	e Test lex lue ides vity			
DEPTH (ft) ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL		S	UMMA (based	RY Ol on Un	F SUBS	SURFA oil Clas	ACE ( ssifica	CON tion	[DIT] Syste	iONS m)			PENETRATION (blows per foot)	CAMBLE TVDE		DULA	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS
0 55 ½		SM SM	Artifici medium	al Fill ( -grained	Qaf): L I, SILT posits (	ight br Y SAN	own to D with Light t	yellow rootlet	vish-b: s. moist	rown	i, moi	dense	se, fine	e- to se, fine								
$2 - 53$ $2\frac{1}{2}$ $3 - 52$ $3\frac{1}{2}$									us, we		ed to	3 1/2 .										
4 51			Test pit	termin:	ated at 4	4 feet. I	No groi	ındwat	er or s	seepa	ge en	counte	ered.									
5																						
-7½																						
8 47																						
₹ ₹ ₹ * *	✓       Symbol Legend         ✓       Groundwater Level During Drilling         ✓       Groundwater Level After Drilling          Apparent Seepage         *       No Sample Recovery         **       Erroneous Blow Count         (reference)       Gound						PROPOSED ABBOTT RESIDENCE 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA DATE: JUNE 2018 JOB NO.: BY: MWL PLATE NO.:							NCE A 217 5	0156.07			CHE	RISTIAI	N WHE IEERIN	ELER G	

			L	OG OF 1	<u>Sa</u> Cal SPT	Sample Type and Laboratory Test Legend           Cal         Modified California Sampler         CK         Chunk Density           SPT         Standard Penetration Test         DR         Density Ring           ST         Shelby Tube         NG         Nuclear Gauge Test										
	Date Logg Exist Finis	Drilled: ed By: ing Elev: h Elevat	ation: ion:	11/12/14 DJF 54½ feet N/A	Ec Ai D.	quipment: uger Type: rive Type: epth to Wate	Ha N/ N/ r: N/	nd Too A A A	ls	MD SO4 SA HA SE PI CP	Max Densi Soluble Su Sieve Anal Hydromet Sand Equi Plasticity I Collapse P	be lfates lysis er valent Index otentia	DS Direct Shear Con Consolidation EI Expansion Index R-Val Resistance Value Chl Soluble Chlorides Res pH & Resistivity			
DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	<b>USCS SYMBOL</b>	SUMM (base	ARY OF SU d on Unified	BSURFACI Soil Classifi	PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS			
$\begin{array}{c} 0 \\ 1'_{2} \\ - \\ 1 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$	541/2 531/2 531/2 521/2 511/2 501/2 491/2 491/2 481/2 481/2 471/2		SM	Artificial Fill (Qaf): medium-grained, SIL' 	Light brown TY SAND with SAND with Solution of the second	to yellowish th rootlets.	-brown, 1	h-brow ith SIL'I	Dosse, fine- to					113.9		SA MD DS SO4
7½ —				Moist, medium dense	, with gravels	and cobbles.										
8 Not	es:			Test pit terminated at	t 8 feet. No gi	roundwater o	or seepage	encoun	tered.							
∑ ▼ € €	, , ,	Sym Ground Ground Appare No San	bol La lwater La lwater La nt Seepa nple Reco	egend evel During Drilling evel After Drilling ge overy	DATE:	JUNE 20	6340 CA LA JC	<b>D ABE</b> MINC DLLA, 0	BOTT RESIDEN DE LA COSTA CALIFORNIA JOB NO.:	ICE 21701	56.07		CHRISTIAN WHEELER			
**	ł	Errone	ous Blow	Count	BY:	ENGINEERING										

	LOG OF TEST PIT P-2         Date Drilled:       11/12/14       Equipment:       Hand Tools         Logged By:       DJF       Auger Type:       N/A         Existing Elevation:       54½ feet       Drive Type:       N/A         Finish Elevation:       N/A       Depth to Water:       N/A         Image: Dot of the second sec															<u>Sa</u> Cal	Ample 7 Modified	<b>['ype a</b>   Califor	nd Labo nia Sampler	CK CK	est Legen	<u>d</u> y					
	Date Drilled: Logged By: Existing Elevation: Finish Elevation:					l4 et		Equipment: Hand Tools Auger Type: N/A Drive Type: N/A Depth to Water: N/A											MD SO4 SA HA SE PI CP	Max Den Soluble S Sieve An Hydroma Sand Equ Plasticity Collapse	sity ulfates alysis eter ivalent Potentia	DS Direct Shear DS Direct Shear Con Consolidation EI Expansion Index R-Val Resistance Value Chl Soluble Chlorides Res pH & Resistivity ial					
DEPTH (ft)	ELEVATION (ft)	SUMMA BUDT DI SUMMA (based) CK S S C S S S C S S S C S S S S							ARY OF SUBSURFACE CONDITIONS d on Unified Soil Classification System)										PENETRATION (blows per foot)	SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS		
0	54½		SM	Artif	icial I	ill (C	Qaf): I	Light b	ight brown to yellowish-brown, moist, loose, fine- to																		
1/				medi	um-gr	ained,	, SILT	'Y SAN	۷D.																		
$\gamma_2$ 1 $1^{1/2}$ 2	53½																										
2 <sup>1</sup> / <sub>2</sub> —																											
3 — 																				CK		14.6	104.6				
4 —	50½																										
4½ —	4016																			CK		14.2	107.8				
6 — 6 <sup>1</sup> / <sub>2</sub> —	48½		sc	1'' th Old medi rootl	ick lei P <b>arali</b> um de ets.	<u>ns of  </u> c Dep nse, (	black posits. CLAY	organi / <b>Slope</b> 'EY SA	cs and Was	d reddi <b>h (Qo</b> ; Micad	ish sa p/Q: ceou:	und abo sw) : ( s with	ove co Greeni reddis	ntact sh-gr sh iro	ay, n n sta	noist, ining	loose t and tra	to ace									
7 -				Test	pit ter	mina	ted at	7 feet.	No g	ground	lwate	er or se	epage	enco	unte.	red.				СК		15.6	109.6				
7½ —																											
8	461/2													_													
Not	es:																										
			1 -																								
⊻ ⊻	-	Sym Ground Ground	<b>bol L</b> e lwater Le lwater Le	egend evel Duri evel After	ng Dri : Drilli	lling ng			PROPOSED ABBOTT RESIDENC 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA										E				H				
		Appare No Sar	nt Seepaş anle Recc	ge overv				DA	TE:	JU	JNE	2018				JOB	NO.:		21701	56.07		СН	RISTIA	n whe	ELER		
<ul> <li>No Sample Recovery</li> <li>Erroneous Blow Count (rocks present)</li> </ul>							BY:		М	IWL					PLA	TE NC	D.:	7 ENGINEERING									

	LOG OF TEST PIT P-3         Date Drilled:       11/12/14       Equipment:       Hand Tools         Logged By:       DJF       Auger Type:       N/A         Existing Elevation:       55½ feet       Drive Type:       N/A         Finish Elevation:       N/A       Depth to Water:       N/A         (1)       VI       VI       VI       VI       SUMMARY OF SUBSURFACE CONDITIONS (based on Unified Soil Classification System)         0       55½       SM       Artificial Fill (Qaf): Light grayish-brown, damp to moist, medium dens to medium-grained, SIL TY SAND with trace concrete debris.         1       54½       SS       SC/CL       Subsoil: Greenish-gray, moist, medium dense/stiff, CLAYEY SAND/S         24       SC/CL       Subsoil: Greenish-gray, moist, medium dense/stiff, CLAYEY SAND/S       CLAY with reddish iron staining.         3       52½       S2       SC/CL       Subsoil: Greenish-gray, moist, medium dense/stiff, CLAYEY SAND/S																	Sample Type and Laboratory Test Legend Cal Modified California Sampler CK Chunk Density SPT Standard Penetration Test DR Density Ring ST Stallar The Construction Construct						<u>d</u> y			
	Date Logge Existi Finisl	Drilled: ed By: ing Elev h Elevat	ation: ion:	11. DJ 55 N.	/12/14 F ½ feet /A				Eq Au Dr De	uipma ıger T tive T epth to	ent: ype: ype: o Wa	ıter:	Har N/. N/. N/.	nd To A A A	pols				ST MD SO4 SA HA SE PI CP	Shelby Tu Max Den Soluble Si Sieve Ana Hydrome Sand Equ Plasticity Collapse	ibe sity ulfates ilysis eter ivalent Index Potentia	L	NG DS Con EI R-Val Chl Res	Nuclear Gaug Direct Shear Consolidation Expansion Inc Resistance Va Soluble Chlor pH & Resistiv	e Test lex lue ides ity		
DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL			SUM (bas	MAR sed or	AY OF SUBSURFACE CONDITIONS n Unified Soil Classification System)												MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS				
	55½ 		SM	Artifi to mee	zial Fil lium-gi	l (Qaf ained,	<u>)</u> : Lig SILT	ht gr Y Sz	ayish- AND	brown with t	1, da race	mp to concr	mois ete de	t, me bris.	diun	ı den	se, fir	ne-									
	 53½											/		VEV	CAN		CANU			CK		11.0	92.2				
2½ — 	 52½			Subso CLAY Expan	with r sion In	eddish dex = 4	ray, n iron 8 (Lo	noist stain w)	, mea ing.					IEI	SAN					СК		15.2	111.2				
3½ — 4 — 41⁄2 —	51½		SM	Old P with C	aralic I CLAY a	Deposi and rec	<b>its (Q</b> ldish	op): iron	Yello stainii	owish-l ng.	orow	/n, mc	ist, d	ense,	SIL	ΓY S2	AND			CK		13.4	119.8		SA EI PI		
	50½		CL	Green Test p	ish-gray	r, mois inated	st, SIL at 5 f	TY (	CLAY No gr	l with	root vater	tlets an	nd rec page	ldish enco	iron unte	stain red.	ning.										
6 — 6 <sup>1</sup> / <sub>2</sub> —	49½																										
7 — 7½ —	48½																										
8 – Not	- 47½																										
Symbol Legend Groundwater Level During Drilling Groundwater Level After Drilling								PROPOSED ABBOTT RESIDENC 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA										DENC DSTA IIA		5/ 07							
<ul> <li>Apparent Seepage</li> <li>No Sample Recovery</li> <li>Erroneous Blow Count (rocks present)</li> </ul>								BY:	E:	JU	NE 2 WL	2018				PLA,	INO.: TE N	: 10.:	8	2170156.07 CHRISTIAN ENGINE 8							

			L	00	GC	)F	T 7	'ES	T	PI	T	P-	4						<u>S</u> Cal SPT	Sample Type and Laboratory Test Legend           Cal         Modified California Sampler         CK         Chunk Density           SPT         Standard Penetration Test         DR         Density Ring           ST         Stablut The Network         DR         Density Ring							
	Date Drilled: 11/12/14 Logged By: DJF Existing Elevation: 55½ feet Finish Elevation: N/A							Equipment: Hand Tools Auger Type: N/A Drive Type: N/A Depth to Water: N/A											MD SO4 SA HA SE PI CP	Max Den: Soluble So Sieve Ana Hydrome Sand Equ Plasticity Collapse	sity ulfates alysis eter ivalent Index Potentia		NG Nuclear Gauge Test DS Direct Shear Con Consolidation EI Expansion Index R-Val Resistance Value Chl Soluble Chlorides Res PH & Resistivity				
DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	USCS SYMBOL	NRY OF SUBSURFACE CONDITIONS on Unified Soil Classification System)												SAMPLE TYPE	BULK	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	RELATIVE COMPACTION (%)	LABORATORY TESTS						
0 	55½		SM	<u>Artif</u> medi	Light b 'Y SAI	rown ND w	to gr ith co	ayish oncret	-brow .e and	n, me meta	oist, l l debi	oose, is.	fine-	to													
1 -	— — 54½ —																										
1½ — 																											
3 —	- 52½			Large	e piece	s of c	concre	e debris.																			
				I Cot		111114	icu ai	5 1001.	1 <b>10</b> g.	round	awatt	1 01 30	cpag	e enec	Junic	icu.											
4 —	- 51½																										
4½ —																											
5 —																											
6 -																											
7 —	- 48½																										
-// <sub>2</sub>																											
8 —	471⁄2																										
Not	Notes:																										
∑     Symbol Legend       Groundwater Level During Drilling       Groundwater Level After Drilling									PROPOSED ABBOTT RESIDENC 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA															8			
<b>9</b> ( (	•	Appare No Sar	ent Seepa nple Reco	ge overv		-		DA	ſE:	J	UNE	2018				JOB	NO.	.:	21701	56.07		СНІ	RISTIA	N WHE	ELER		
No Sample Recovery     ** Erroneous Blow Count     (rocks present)										Ν	IWL					PLA	TEN	NO.:	9	9 ENGINEERING							

## Appendix A

### References

Christian Wheeler Engineering, 2017, Report of Preliminary Geotechnical Investigation, Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, CWE Report 2170156.01, dated May 30, 2017.

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# Appendix B

Updated Global Stability Analyses

![](_page_32_Figure_0.jpeg)

c:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'.OUT Page 1

```
*** GSTABL7 ***
                       ** GSTABL7 by Garry H. Gregory, P.E. **
      ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
                 (All Rights Reserved-Unauthorized Use Prohibited)
   SLOPE STABILITY ANALYSIS SYSTEM
         Modified Bishop, Simplified Janbu, or GLE Method of Slices.
          (Includes Spencer & Morgenstern-Price Type Analysis)
          Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
          Nonlinear Undrained Shear Strength, Curved Phi Envelope,
          Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
          Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
   6/15/2018
   Analysis Run Date:
   Time of Run:
                           04:09PM
   Run By:
                          DRR
   Input Data Filename:
                          c:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'.i
   Output Filename:
                          c:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'.0
UT
   Unit System:
                           English
   Plotted Output Filename: c:\Users\Dave Russell\Desktop\Red Abbot Stability\a-a'.PLT
   PROBLEM DESCRIPTION: 6340 Camino de la Costa, La Jolla, CA
                       A-A' CWE2170156
   BOUNDARY COORDINATES
      23 Top Boundaries
      32 Total Boundaries
   Boundary
              X-Left
                         Y-Left X-Right
                                            Y-Right
                                                       Soil Type
               (ft)
      No.
                          (ft)
                                  (ft)
                                             (ft)
                                                       Below Bnd
       1
                 0.00
                          20.00
                                    83.00
                                              26.50
                                                          4
                                    88.00
       2
               83.00
                          26.50
                                              29.00
                                                          4
       3
               88.00
                          29.00
                                   97.00
                                              31.00
                                                          4
       4
               97.00
                          31.00
                                    99.00
                                              34.50
                                                          4
                                              36.00
       5
               99.00
                          34.50
                                  118.50
                                                          4
                                  121.00
141.00
       6
               118.50
                          36.00
                                              38.00
                                                          4
       7
               121.00
                          38.00
                                              40.50
                                                          4
       8
               141.00
                                   169.00
                                              56.00
                          40.50
                                                          1
       9
               169.00
                          56.00
                                  188.00
                                              68.00
                                                          1
      10
                                  188.10
               188.00
                          68.00
                                              74.50
                                                          1
      11
               188.10
                          74.50
                                   200.00
                                              74.50
                                                          1
                                   200.10
      12
               200.00
                          74.50
                                              75.50
                                                          1
                                              75.50
                          75.50
      13
               200.10
                                   228.00
                                                          1
      14
               228.00
                          75.50
                                  268.00
                                              75.50
                                                          1
      15
              268.00
                          75.50
                                  289.00
                                              74.00
                                                          1
                                  292.00
               289.00
                          74.00
                                              76.00
      16
                                                          1
                                  302.50
      17
               292.00
                          76.00
                                              77.00
                                                          1
      18
               302.50
                          77.00
                                   310.50
                                              82.00
                                                          1
                                  318.00
               310.50
      19
                          82.00
                                              83.00
                                                          1
      20
               318.00
                          83.00
                                  322.00
                                              87.00
                                                          1
      21
               322.00
                          87.00
                                  335.00
                                              87.00
                                                          1
                                  335.10
      22
               335.00
                          87.00
                                              89.00
                                                          1
      23
                          89.00
                                   370.00
                                              89.50
               335.10
                                                          1
                                   370.00
      24
               335.00
                          84.00
                                              86.00
                                                          3
      25
               327.00
                          82.50
                                  335.00
                                              84.00
                                                          3
      26
               299.00
                          74.50
                                  327.00
                                              82.50
                                                          3
               280.00
      27
                          73.00
                                  299.00
                                              74.50
                                                          3
      28
               250.10
                          71.00
                                   280.00
                                              73.00
                                                          3
      29
               192.00
                          67.00
                                   250.10
                                              71.00
                                                          3
      30
               184.00
                          49.00
                                   192.00
                                              67.00
                                                          3
                                   184.00
                                              49.00
      31
               141.00
                          40.50
                                                          3
                                              43.00
      32
               141.00
                          40.50
                                   370.00
                                                          4
   Default Y-Origin = 0.00(ft)
   Default X-Plus Value = 0.00(ft)
   User Specified Y-Plus Value = 20.00(ft)
  ISOTROPIC SOIL PARAMETERS
    4 Type(s) of Soil
   Soil Total Saturated Cohesion Friction Pore Pressure
                                                           Piez.
   Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface
                 (pcf)
                          (psf)
                                   (deg)
                                          Param. (psf)
    No. (pcf)
                                                             No.
```

n

c:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'.OUT Page 2

125.0 0.0 0 1 120.0 150.0 30.0 0.00 2 120.0 125.0 150.0 28.0 0.00 0.0 0 3 125.0 130.0 200.0 30.0 0.00 0.0 0 135.0 600.0 125.0 35.0 0.00 4 0.0 0 A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 5000 Trial Surfaces Have Been Generated. 100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 100.00(ft)and X = 150.00(ft)Each Surface Terminates Between X = 182.00(ft) and X = 250.00(ft)Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 5000 Statistical Data On All Valid FS Values: FS Max = 6.171 FS Min = 1.501 FS Ave = 3.277 Standard Deviation = 0.735 Coefficient of Variation = 22.42 % Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 143.88 1 42.09 151.85 2 42.74 3 159.72 44.21 46.46 4 167.39 174.79 49.50 5 6 181.85 53.27 7 188.48 57.75 194.62 8 62.88 9 200.20 68.61 10 205.17 74.88 11 205.56 75.50 Circle Center At X = 141.52 ; Y = 120.17 ; and Radius = 78.11 Factor of Safety 1.501 \*\*\* \* \* \* Individual data on the 18 slices Water Water Tie Tie Earthquake Force Force Force Force Surcharge Force Slice Width Weight Hor Ver Load Тор Bot Norm Tan (lbs) (lbs) (lbs) (lbs) (lbs) No. (ft) (lbs) (lbs) (lbs) 0. 0.0 0. 0.0 1 8.0 1800.6 0.0 0.0 0.0 2 7.9 4916.9 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 3 7.7 7045.0 0.0 0.0 Ο. 0. 0.0 0.0 0.0 4 1.6 1691.9 0.0 0.0 0. 0. 0.0 0.0 0.0 5 5.8 6618.2 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.0 0.0 Ο. 0.0 6 7.1 8890.9 Ο. 0.0 0.0 0.0 Ο. 7 5.8 7441.6 0.0 Ο. 0.0 0.0 0.0 8 0.4 466.4 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.1 0.0 9 165.9 0.0 Ο. 0.0 Ο. 0.0 0.0 Ο. 10 0.4 769.6 0.0 0.0 Ο. 0.0 0.0 0.0 6524.8 0.0 11 3.5 0.0 Ο. Ο. 0.0 0.0 0.0 12 2.6 4064.3 0.0 0.0 0. 0. 0.0 0.0 0.0 13 4.5 5072.8 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.9 698.9 Ο. 14 0.0 0.0 Ο. 0.0 0.0 0.0 15 0.1 78.6 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 16 0.1 82.7 0.0 0.0 0. Ο. 0.0 0.0 0.0 0.0 0.0 0.0 2239.3 0. 17 5.0 0. 0.0 0.0 0.0 0.0 18 0.4 14.8 0. Ο. 0.0 0.0 0.0 Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 144.90 42.66 1 2 152.86 43.42 3 160.69 45.08 4 168.27 47.63

c:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'.OUT Page 3 5 175.52 51.02 6 182.33 55.22 7 188.62 60.16 65.79 8 194.30 9 199.31 72.03 10 201.50 75.50 Circle Center At X = 142.34 ; Y = 112.26 ; and Radius = 69.65 Factor of Safety \* \* \* 1.502 \*\*\* Failure Surface Specified By 10 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 1 145.92 43.22 2 153.86 44.20 45.99 3 161.66 4 169.23 48.57 5 176.50 51.92 183.38 55.99 6 7 189.81 60.74 8 195.72 66.14 9 201.05 72.11 75.50 10 203.50 Circle Center At X = 140.51 ; Y = 120.36 ; and Radius = 77.33 Factor of Safety 1.510 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 142.86 41.53 2 150.77 42.73 3 158.53 44.68 4 166.07 47.35 5 173.32 50.73 180.22 54.78 6 7 186.70 59.46 8 192.72 64.74 9 198.20 70.56 10 202.04 75.50 Circle Center At X = 134.24 ; Y = 125.08 ; and Radius = 84.00 Factor of Safety \*\*\* 1.513 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 147.96 1 44.35 2 155.92 45.17 3 163.73 46.87 4 171.31 49.44 5 178.55 52.84 6 185.37 57.03 7 191.67 61.96 8 197.38 67.56 9 202.42 73.77 203.53 75.50 10 Circle Center At X = 144.81 ; Y = 115.11 ; and Radius = 70.82 Factor of Safety \* \* \* 1.513 \*\*\* Failure Surface Specified By 9 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 147.96 44.35 155.93 2 45.01 3 163.75 46.72 4 171.27 49.45 178.35 53.16 5 184.88 57.79 6 7 190.74 63.24 8 195.82 69.42 9 198.96 74.50 Circle Center At X = 147.05 ; Y = 104.30 ; and Radius = 59.95
Factor of Safety 1.514 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 1 146.94 43.79 2 154.87 44.82 3 162.64 46.73 4 170.15 49.48 5 177.32 53.04 184.04 57.37 6 7 190.25 62.41 68.11 8 195.87 9 200.82 74.40 75.50 201.51 10 Circle Center At X = 141.62; Y = 115.74; and Radius = 72.15Factor of Safety \* \* \* 1.519 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (f+)1 144.90 42.66 2 152.80 43.92 3 160.52 46.00 4 167.99 48.87 175.12 52.51 5 6 181.82 56.87 7 188.04 61.90 67.56 8 193.70 9 198.73 73.77 10 199.21 74.50 Circle Center At X = 136.86 ; Y = 118.60 ; and Radius = 76.36 Factor of Safety \* \* \* 1.525 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 146.94 1 43.79 2 154.89 44.65 3 162.72 46.29 170.36 4 48.68 51.80 5 177.72 184.75 55.62 6 7 191.38 60.11 197.53 8 65.22 9 203.16 70.90 10 206.90 75.50 Circle Center At X = 142.13 ; Y = 125.44 ; and Radius = 81.80 Factor of Safety 1.527 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 142.86 41.53 1 2 150.75 42.84 158.52 44.74 3 4 166.13 47.22 5 173.52 50.27 6 180.67 53.86 7 187.53 57.98 8 194.05 62.61 9 200.21 67.71 10 205.97 73.27 11 207.96 75.50 Circle Center At X = 129.42 ; Y = 146.87 ; and Radius = 106.19 Factor of Safety 1.531 \*\*\* \* \* \* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



**6340 Camino de la Costa, La Jolla, CA A-A' CWE2170156** c:\users\dave russell\desktop\revised abbot stability\a-a\ps.pl2 Run By: DRR 6/15/2018 04:13PM

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps.OUT Page 1

```
*** GSTABL7 ***
                      ** GSTABL7 by Garry H. Gregory, P.E. **
      ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
                 (All Rights Reserved-Unauthorized Use Prohibited)
   SLOPE STABILITY ANALYSIS SYSTEM
         Modified Bishop, Simplified Janbu, or GLE Method of Slices.
         (Includes Spencer & Morgenstern-Price Type Analysis)
         Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
         Nonlinear Undrained Shear Strength, Curved Phi Envelope,
         Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
         Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
   6/15/2018
   Analysis Run Date:
   Time of Run:
                          04:13PM
   Run By:
                          DRR
   Input Data Filename:
                          C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps
.in
                          C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps
   Output Filename:
. OUT
   Unit System:
                          English
   Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\a-a'ps.PLT
   PROBLEM DESCRIPTION: 6340 Camino de la Costa, La Jolla, CA
                       A-A' CWE2170156
   BOUNDARY COORDINATES
     23 Top Boundaries
     32 Total Boundaries
   Boundary
              X-Left
                         Y-Left X-Right
                                            Y-Right
                                                      Soil Type
               (ft)
                                  (ft)
     No.
                          (ft)
                                            (ft)
                                                      Below Bnd
                0.00
                          20.00
                                    83.00
                                              26.50
      1
                                                          4
                                   88.00
      2
               83.00
                          26.50
                                             29.00
                                                          4
      3
               88.00
                          29.00
                                   97.00
                                             31.00
                                                          4
       4
              97.00
                          31.00
                                   99.00
                                             34.50
                                                          4
                                             36.00
      5
               99.00
                          34.50
                                 118.50
                                                          4
                                  121.00
141.00
      6
              118.50
                          36.00
                                             38.00
                                                          4
      7
              121.00
                          38.00
                                             40.50
                                                          4
                                  169.00
                                             56.00
      8
              141.00
                          40.50
                                                          1
      9
              169.00
                          56.00
                                  188.00
                                             68.00
                                                          1
      10
                                 188.10
              188.00
                          68.00
                                             74.50
                                                          1
     11
              188.10
                          74.50
                                  200.00
                                              74.50
                                                          1
                                   200.10
     12
               200.00
                          74.50
                                              75.50
                                                          1
                                             75.50
                          75.50
                                  228.00
     13
               200.10
                                                          1
     14
              228.00
                         75.50
                                 268.00
                                             75.50
                                                          1
     15
              268.00
                         75.50
                                  289.00
                                             74.00
                                                          1
                                  292.00
              289.00
                          74.00
                                              76.00
     16
                                                          1
                                  302.50
     17
               292.00
                          76.00
                                              77.00
                                                          1
     18
               302.50
                          77.00
                                   310.50
                                             82.00
                                                          1
                                  318.00
              310.50
     19
                          82.00
                                             83.00
                                                          1
      20
              318.00
                          83.00
                                  322.00
                                             87.00
                                                          1
      21
              322.00
                          87.00
                                  335.00
                                             87.00
                                                          1
                                  335.10
      22
               335.00
                         87.00
                                             89.00
                                                          1
      23
                          89.00
                                   370.00
                                              89.50
               335.10
                                                          1
                                  370.00
      24
               335.00
                         84.00
                                             86.00
                                                          3
      25
              327.00
                          82.50
                                  335.00
                                             84.00
                                                          3
      26
              299.00
                          74.50
                                  327.00
                                             82.50
                                                          3
                                  299.00
      27
               280.00
                          73.00
                                             74.50
                                                          3
      28
               250.10
                          71.00
                                   280.00
                                              73.00
                                                          3
      29
               192.00
                          67.00
                                   250.10
                                              71.00
                                                          3
      30
              184.00
                          49.00
                                  192.00
                                             67.00
                                                          3
                                             49.00
      31
               141.00
                          40.50
                                  184.00
                                                          3
                                             43.00
      32
               141.00
                          40.50
                                   370.00
                                                          4
   Default Y-Origin = 0.00(ft)
   Default X-Plus Value = 0.00(ft)
   User Specified Y-Plus Value = 20.00(ft)
  ISOTROPIC SOIL PARAMETERS
    4 Type(s) of Soil
   Soil Total Saturated Cohesion Friction Pore Pressure
                                                          Piez.
   Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface
                (pcf)
                         (psf)
                                   (deg)
                                         Param. (psf)
    No. (pcf)
                                                            No.
```

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps.OUT Page 2

125.0 0.00 0.0 1 120.0 150.0 30.0 0 2 120.0 125.0 150.0 28.0 0.00 0.0 0 3 125.0 130.0 200.0 30.0 0.00 0.0 0 125.0 135.0 600.0 35.0 0.00 4 0.0 0 Specified Peak Ground Acceleration Coefficient (A) = 0.330(q) Specified Horizontal Earthquake Coefficient (kh) = 0.150(g) Specified Vertical Earthquake Coefficient (kv) = 0.000(g) Specified Seismic Pore-Pressure Factor = 0.000 A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 5000 Trial Surfaces Have Been Generated. 50 Points Equally Spaced 100 Surface(s) Initiate(s) From Each Of Along The Ground Surface Between X = 100.00(ft)and X = 150.00(ft)Each Surface Terminates Between X = 182.00(ft)X = 250.00(ft)and Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 5000 Statistical Data On All Valid FS Values: FS Max = 4.428 FS Min = 1.141 FS Ave = 2.362 Standard Deviation = 0.496 Coefficient of Variation = 21.02 % Failure Surface Specified By 11 Coordinate Points X-Surf Point Y-Surf No. (ft) (ft) 1 143.88 42.09 2 151.85 42.74 3 159.72 44.21 4 167.39 46.46 5 174.79 49.50 6 181.85 53.27 57.75 7 188.48 8 194.62 62.88 9 200.20 68.61 10 205.17 74.88 11 205.56 75.50 120.17 ; and Radius = 78.11 Circle Center At X = 141.52 ; Y = Factor of Safety \* \* \* 1.141 \*\*\* Individual data on the 18 slices Water Water Force Force Tie Tie Earthquake Force Force Force Surcharge Slice Width Weight Bot Tan Ver Load Тор Norm Hor (lbs) (lbs) (lbs) (ft) (lbs) (lbs) (lbs) No. (lbs) (lbs) 0.0 0.0 Ο. 0. 0.0 1 8.0 1800.6 270.1 0.0 0. Ο. 0.0 2 7.9 4916.9 0.0 0.0 737.5 0.0 3 7.7 7045.0 0.0 0.0 Ο. 0. 1056.8 0.0 0.0 4 1.6 1691.9 0.0 0.0 Ο. Ο. 253.8 0.0 0.0 992.7 0.0 5 5.8 6618.2 0.0 0.0 Ο. 0. 0.0 Ο. 6 7.1 8890.9 0.0 0.0 0. 1333.6 0.0 0.0 7 5.8 1116.2 0.0 7441.6 0.0 0.0 Ο. 0. 0.0 8 0.4 466.4 0.0 0.0 Ο. 0. 70.0 0.0 0.0 9 0.1 165.9 0.0 0.0 0. Ο. 24.9 0.0 0.0 769.6 10 0.4 0.0 0.0 Ο. 115.4 0.0 0.0 0. 11 3.5 6524.8 0.0 0.0 Ο. Ο. 978.7 0.0 0.0 12 2.6 4064.3 0.0 0.0 0. Ο. 609.7 0.0 0.0 0. 13 4.5 5072.8 0.0 0.0 0. 760.9 0.0 0.0 698.9 0.0 0.0 14 0.9 0.0 Ο. Ο. 104.8 0.0 15 0.1 78.6 0.0 0.0 Ο. Ο. 11.8 0.0 0.0 0.1 82.7 0.0 0.0 0. 0. 12.4 0.0 0.0 16 17 5.0 2239.3 0.0 0.0 Ο. Ο. 335.9 0.0 0.0 18 0.0 0. 2.2 0.0 0.0 0.4 14.8 0.0 0. Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf (ft) (ft) No.

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps.OUT Page 3 1 144.90 42.66 2 152.86 43.42 45.08 3 160.69 47.63 4 168.27 5 175.52 51.02 6 182.33 55.22 7 188.62 60.16 8 194.30 65.79 9 199.31 72.03 75.50 10 201.50 Circle Center At X = 142.34 ; Y = 112.26 ; and Radius = 69.65 Factor of Safety \* \* \* 1.152 \*\*\* Failure Surface Specified By 10 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 1 145.92 43.22 153.86 2 44.20 3 161.66 45.99 169.23 48.57 4 5 176.50 51.92 6 183.38 55.99 7 189.81 60.74 8 195.72 66.14 9 201.05 72.11 75.50 10 203.50 Circle Center At X = 140.51 ; Y = 120.36 ; and Radius = 77.33 Factor of Safety \* \* \* 1.153 \*\*\* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft)1 142.86 41.53 2 150.75 42.84 3 158.52 44.74 4 166.13 47.22 5 173.52 50.27 6 180.67 53.86 7 187.53 57.98 8 194.05 62.61 9 200.21 67.71 10 205.97 73.27 207.96 75.50 11 Circle Center At X = 129.42 ; Y = 146.87 ; and Radius = 106.19 Factor of Safety 1.154 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 146.94 43.79 2 154.89 44.65 3 162.72 46.29 4 170.36 48.68 177.72 51.80 5 б 184.75 55.62 7 191.38 60.11 8 197.53 65.22 9 203.16 70.90 206.90 75.50 10 Circle Center At X = 142.13 ; Y = 125.44 ; and Radius = 81.80 Factor of Safety 1.156 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 142.86 41.53 1 2 150.77 42.73 3 158.53 44.68 4 166.07 47.35 5 173.32 50.73

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\a-a'ps.OUT Page 4 6 54.78 180.22 7 59.46 186.70 64.74 8 192.72 198.20 70.56 9 10 202.04 75.50 Circle Center At X = 134.24 ; Y = 125.08 ; and Radius = 84.00 Factor of Safety \* \* \* 1.157 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 1 147.96 44.35 2 155.92 45.17 3 163.73 46.87 171.31 49.44 4 5 178.55 52.84 6 185.37 57.03 7 191.67 61.96 8 197.38 67.56 9 202.42 73.77 75.50 10 203.53 Circle Center At X = 144.81 ; Y = 115.11 ; and Radius = 70.82 Factor of Safety \* \* \* 1.157 \*\*\* Failure Surface Specified By 10 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 1 146.94 43.79 154.87 2 44.82 3 162.64 46.73 49.48 4 170.15 5 177.32 53.04 6 184.04 57.37 7 190.25 62.41 8 195.87 68.11 9 200.82 74.40 75.50 10 201.51 Circle Center At X = 141.62 ; Y = 115.74 ; and Radius = 72.15 Factor of Safety 1.166 \*\*\* \* \* \* Failure Surface Specified By 9 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 147.96 44.35 1 155.93 2 45.01 3 163.75 46.72 4 171.27 49.45 5 178.35 53.16 6 184.88 57.79 7 190.74 63.24 8 195.82 69.42 9 198.96 74.50 9 198.96 74.50 Circle Center At X = 147.05; Y = 104.30; and Radius = 59.95 Factor of Safety 1.167 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 148.98 44.92 1 156.90 2 46.06 3 164.67 47.93 4 172.24 50.52 5 179.54 53.81 6 186.50 57.76 193.06 7 62.33 199.16 67.50 8 9 204.76 73.22 10 206.61 75.50 Circle Center At X = 140.85; Y = 129.84; and Radius = 85.31 Factor of Safety

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\*\*\* 1.168 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'.OUT Page 1

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*** GSTABL7 ***
                   ** GSTABL7 by Garry H. Gregory, P.E. **
   ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
             (All Rights Reserved-Unauthorized Use Prohibited)
SLOPE STABILITY ANALYSIS SYSTEM
      Modified Bishop, Simplified Janbu, or GLE Method of Slices.
      (Includes Spencer & Morgenstern-Price Type Analysis)
      Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
      Nonlinear Undrained Shear Strength, Curved Phi Envelope,
      Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
      Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
6/15/2018
Analysis Run Date:
Time of Run:
                       10:08AM
Run By:
                       DRR
Input Data Filename:
                      C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'.i
                      C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'.0
Output Filename:
Unit System:
                       English
Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\b-b'.PLT
PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA
                    B-B' CWE 2170156
BOUNDARY COORDINATES
  28 Top Boundaries
  38 Total Boundaries
Boundary
          X-Left
                     Y-Left X-Right
                                        Y-Right
                                                   Soil Type
           (ft)
                              (ft)
  No.
                      (ft)
                                         (ft)
                                                   Below Bnd
   1
             0.00
                       20.00
                                19.00
                                           20.50
                                                      4
                                29.00
                                          25.00
   2
            19.00
                       20.50
                                                      4
   3
           29.00
                       25.00
                                66.00
                                          29.00
                                                      4
   4
           66.00
                       29.00
                                77.50
                                          28.50
                                                      4
           77.50
83.00
   5
                      28.50
                                83.00
                                          32.00
                                                      4
   6
                       32.00
                               108.00
                                          36.50
                                                      4
   7
           108.00
                      36.50
                               115.00
                                          40.00
                                                      4
                               131.50
   8
                                          46.00
           115.00
                      40.00
                                                      3
   9
           131.50
                      46.00
                              140.00
                                          51.50
                                                      3
                              143.50
  10
           140.00
                      51.50
                                          52.50
                                                      3
                              155.50
  11
           143.50
                      52.50
                                          61.00
                                                      3
           155.50
  12
                      61.00
                               160.00
                                          63.00
                                                      3
                               165.00
                                          67.50
  13
           160.00
                      63.00
                                                      1
  14
           165.00
                      67.50
                              165.10
                                          74.50
                                                      1
  15
           165.10
                      74.50
                              176.00
                                          74.50
                                                      1
                      74.50
                                          75.50
  16
           176.00
                               176.10
                                                      1
                              188.00
  17
           176.10
                      75.50
                                          75.50
                                                      1
  18
           188.00
                      75.50
                               188.10
                                          65.00
                                                      1
                               212.25
  19
           188.10
                      65.00
                                          65.00
                                                      4
  20
           212.25
                      65.00
                               212.30
                                          75.50
                                                      1
  21
           212.30
                      75.50
                               229.20
                                          75.50
                                                      1
                               269.50
  22
           229.20
                      75.50
                                          75.00
                                                      1
  23
           269.50
                       75.00
                                273.00
                                           78.00
                                                      1
                                          79.00
  24
                      78.00
                               284.00
           273.00
                                                      1
  25
           284.00
                      79.00
                               289.00
                                          82.00
                                                      1
  26
           289.00
                      82.00
                               298.00
                                          87.00
                                                      1
  27
                               304.00
                                          89.00
           298.00
                      87.00
                                                      1
  28
           304.00
                      89.00
                               350.00
                                          89.00
                                                      1
  29
           302.00
                      82.00
                               350.00
                                          86.00
                                                      3
  30
           269.50
                      73.50
                               302.00
                                          82.00
                                                      3
  31
           242.50
                      72.50
                               269.50
                                          73.50
                                                      3
  32
           229.10
                      70.50
                               242.50
                                          72.50
                                                      3
                               229.10
           219.00
                                          70.50
  33
                      69.00
                                                      3
                       65.00
                                219.00
                                          69.00
  34
           212.25
                                                      3
                               188.00
  35
           185.00
                      67.50
                                          65.00
                                                      3
  36
           174.00
                      67.00
                              185.00
                                          67.50
                                                      3
  37
           160.00
                      63.00
                              174.00
                                          67.00
                                                      3
                                          43.00
           115.00
                      40.00
                              350.00
                                                      4
  38
Default Y-Origin = 0.00(ft)
```

Default X-Plus Value = 0.00(ft)

n

UT

User Specified Y-Plus Value = 20.00(ft) ISOTROPIC SOIL PARAMETERS 4 Type(s) of Soil Soil Total Saturated Cohesion Friction Pore Pressure Piez. Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface 
 (psf)
 (deg)
 Param.
 (psf)
 No.

 150.0
 30.0
 0.00
 0.0
 0

 150.0
 28.0
 0.00
 0.0
 0

 200.0
 30.0
 0.00
 0.0
 0

 600.0
 35.0
 0.00
 0.0
 0
 No. (pcf) (pcf) 1 120.0 125.0 125.0 2 120.0 3 125.0 130.0 135.0 4 125.0 A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 5000 Trial Surfaces Have Been Generated. 100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 100.00(ft)and X = 150.00(ft)Each Surface Terminates Between X = 182.00(ft) and X = 250.00(ft)Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 5000 Statistical Data On All Valid FS Values: FS Max = 19.753 FS Min = 1.537 FS Ave = 4.413 Standard Deviation = 1.944 Coefficient of Variation = 44.07 % Failure Surface Specified By 9 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 129.59 45.31 1 137.56 2 46.00 3 145.38 47.69 152.93 50.35 4 53.94 160.08 5 6 166.72 58.40 7 172.75 63.66 69.63 8 178.07 9 182.09 75.50 9 182.09 75.50 Circle Center At X = 128.08 ; Y = 108.78 ; and Radius = 63.49 Factor of Safety 1.537 \*\*\* \* \* \* Individual data on the 19 slices Tie Tie Earthquake Water Water Force Force Force Force Force Surcharge Slice Width Weight Bot Norm Tan Hor Ver Load Top (lbs) (lbs) (lbs) (lbs) (lbs) (lbs) (lbs) (lbs) (ft) No. 62.9 0.0 0.0 0. 0. 0.0 0.0 0.0 1 1.9 0.0 0.0 0.0 0. 0. 0. 0. 0.0 0. 0.0 0. 0.0 1685.9 0.0 2 6.1 1355.5 0.0 3 2.4 0.0 0.0 0.0 4 3.5 2228.8 0.0 0.0 0.0 0.0 0.0 0. 0.0 1.9 1335.2 Ο. 0.0 5 0.0 7057.4 6 7.5 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0. 0.0 7 2925.5 0.0 0.0 2.6 Ο. 0.0 0.0 0. 0.0 0.0 8 4.5 5190.5 0.0 Ο. 0.0 0.0 0.0 9 0.1 86.2 0.0 Ο. Ο. 0.0 0.0 0.0 0.0 0. 10 5927.1 0. 0.0 4.9 0.0 0.0 0.0 11 0.1 168.2 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.0 0. 0.0 12 1.6 3286.5 0.0 Ο. 0.0 0.0 0.0 0.0 0.0 0. 9889.2 0.0 0. 13 6.0 0.0 0.0 0. 0. 0.0 0.0 Ο. 14 1.3 1540.6 0.0 0.0 15 1.8 1823.1 0.0 Ο. 0.0 0.0 180.2 0.0 Ο. 0.0 0.0 0.2 Ο. 0.0 0.0 16 91.6 0.0 17 0.1 0.0 Ο. Ο. 0.0 0.0 0.0 1644.40.00.01416.90.00.0 0. 0. 0. 0. 18 0.0 0.0 0.0 2.0 19 4.0 0.0 0.0 0.0 Failure Surface Specified By 10 Coordinate Points X-Surf Y-Surf Point

No. (ft) (ft) 1 127.55 44.56 2 135.55 44.47 45.49 3 143.49 4 151.20 47.60 5 158.55 50.76 6 165.38 54.92 7 171.57 59.99 8 177.00 65.87 72.44 9 181.56 10 183.09 75.50 Circle Center At X = 132.31 ; Y = 101.35 ; and Radius = 56.98 Factor of Safety \* \* \* 1.547 \*\*\* Failure Surface Specified By 9 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 1 46.75 132.65 2 140.64 47.25 3 148.48 48.83 4 156.03 51.46 5 163.16 55.09 6 169.73 59.66 7 175.61 65.08 8 180.71 71.25 75.50 9 183.33 Circle Center At X = 132.98 ; Y = 105.47 ; and Radius = 58.73 Factor of Safety 1.549 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft)1 129.59 45.31 2 137.56 46.05 3 145.38 47.70 4 152.97 50.25 53.65 5 160.21 6 167.01 57.86 7 173.28 62.83 8 178.94 68.49 9 183.91 74.76 10 184.37 75.50 Circle Center At X = 127.20 ; Y = 114.42 ; and Radius = 69.16 Factor of Safety \* \* \* 1.549 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 128.57 44.94 2 136.57 44.94 144.50 46.03 3 4 152.20 48.18 5 159.54 51.37 166.37 55.53 6 7 172.57 60.58 178.03 8 66.43 9 182.64 72.97 10 183.95 75.50 Circle Center At X = 132.65 ; Y = 102.99 ; and Radius = 58.20 Factor of Safety 1.551 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 120.41 41.97 1 2 128.40 42.26 3 136.32 43.44 4 144.05 45.48 5 151.51 48.37 6 158.61 52.07

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'.OUT Page 4 7 165.25 56.52 8 171.36 61.69 67.50 9 176.86 181.68 10 73.88 11 182.64 75.50 Circle Center At X = 121.76 ; Y = 114.14 ; and Radius = 72.19 Factor of Safety \* \* \* 1.560 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 43.82 1 125.51 2 133.51 43.77 3 141.46 44.71 149.23 46.61 4 5 156.70 49.45 6 163.78 53.19 7 170.34 57.77 8 176.28 63.12 9 181.53 69.16 10 185.80 75.50 Circle Center At X = 129.92 ; Y = 108.63 ; and Radius = 64.95 Factor of Safety \* \* \* 1.563 \*\*\* Failure Surface Specified By 10 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 1 130.61 45.68 2 138.61 45.53 3 146.55 46.55 4 154.25 48.69 5 161.57 51.93 6 168.34 56.19 61.39 7 174.42 8 179.70 67.40 9 184.04 74.12 75.50 10 184.67 Circle Center At X = 135.66 ; Y = 100.44 ; and Radius = 55.00 Factor of Safety \*\*\* 1.567 \*\*\* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 118.37 41.22 1 2 126.36 40.89 3 134.34 41.53 4 142.17 43.13 149.76 5 45.66 6 156.99 49.09 7 163.75 53.37 8 169.94 58.43 9 175.48 64.21 10 180.27 70.61 75.50 183.08 11 Circle Center At X = 125.10 ; Y = 106.94 ; and Radius = 66.06 Factor of Safety \* \* \* 1.568 \*\*\* Failure Surface Specified By 10 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 1 125.51 43.82 2 133.49 44.36 3 141.38 45.72 4 149.08 47.87 5 156.52 50.81 163.62 54.50 6 170.30 7 58.90 8 176.50 63.96 9 182.14 69.63 75.50

10

186.89

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Circle Center At X = 124.30 ; Y = 121.48 ; and Radius = 77.67 Factor of Safety \*\*\* 1.572 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



6340 Camino de La Costa, La Jolla, CA B-B' CWE 2170156

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```
*** GSTABL7 ***
                      ** GSTABL7 by Garry H. Gregory, P.E. **
      ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
                 (All Rights Reserved-Unauthorized Use Prohibited)
   SLOPE STABILITY ANALYSIS SYSTEM
         Modified Bishop, Simplified Janbu, or GLE Method of Slices.
         (Includes Spencer & Morgenstern-Price Type Analysis)
         Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
         Nonlinear Undrained Shear Strength, Curved Phi Envelope,
         Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
         Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
   Analysis Run Date:
                       6/15/2018
   Time of Run:
                          10:11AM
                         DRR
   Run By:
   Input Data Filename:
                         C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'PS
.in
                         C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'PS
   Output Filename:
. OUT
   Unit System:
                          English
   Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\b-b'PS.PLT
   PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA
                       B-B' CWE 2170156
   BOUNDARY COORDINATES
     28 Top Boundaries
     38 Total Boundaries
   Boundary
             X-Left
                        Y-Left X-Right
                                           Y-Right
                                                     Soil Type
                                 (ft)
               (ft)
     No.
                         (ft)
                                            (ft)
                                                     Below Bnd
                0.00
                         20.00
                                   19.00
                                             20.50
      1
                                                         4
                                   29.00
                                             25.00
      2
               19.00
                         20.50
                                                         4
      3
               29.00
                         25.00
                                   66.00
                                             29.00
                                                         4
      4
              66.00
                         29.00
                                   77.50
                                             28.50
                                                         4
               77.50
83.00
                                             32.00
      5
                         28.50
                                   83.00
                                                         4
                                             36.50
      6
                         32.00
                                  108.00
                                                         4
      7
              108.00
                         36.50
                                  115.00
                                             40.00
                                                         4
                                 131.50
      8
                                             46.00
              115.00
                         40.00
                                                         3
      9
              131.50
                         46.00
                                 140.00
                                             51.50
                                                         3
                                 143.50
      10
              140.00
                         51.50
                                             52.50
                                                         3
                                 155.50
     11
              143.50
                         52.50
                                             61.00
                                                         3
              155.50
     12
                         61.00
                                  160.00
                                             63.00
                                                         3
                                  165.00
                                             67.50
     13
              160.00
                         63.00
                                                         1
     14
              165.00
                         67.50
                                 165.10
                                             74.50
                                                         1
     15
              165.10
                         74.50
                                 176.00
                                             74.50
                                                         1
                         74.50
                                 176.10
                                             75.50
     16
              176.00
                                                         1
                                 188.00
     17
              176.10
                         75.50
                                             75.50
                                                         1
     18
              188.00
                         75.50
                                  188.10
                                             65.00
                                                         1
                                 212.25
     19
              188.10
                         65.00
                                             65.00
                                                         4
      20
              212.25
                         65.00
                                 212.30
                                             75.50
                                                         1
      21
              212.30
                         75.50
                                 229.20
                                             75.50
                                                         1
                                  269.50
      22
              229.20
                         75.50
                                             75.00
                                                         1
      23
               269.50
                         75.00
                                  273.00
                                             78.00
                                                         1
                                  284.00
                                             79.00
                         78.00
      24
               273.00
                                                         1
      25
              284.00
                         79.00
                                  289.00
                                             82.00
                                                         1
      26
              289.00
                         82.00
                                  298.00
                                             87.00
                                                         1
              298.00
      27
                                  304.00
                                             89.00
                         87.00
                                                         1
                                 350.00
      28
               304.00
                         89.00
                                             89.00
                                                         1
      29
               302.00
                         82.00
                                  350.00
                                             86.00
                                                         3
      30
              269.50
                         73.50
                                  302.00
                                             82.00
                                                         3
      31
              242.50
                         72.50
                                  269.50
                                             73.50
                                                         3
      32
              229.10
                         70.50
                                 242.50
                                             72.50
                                                         3
                                 229.10
              219.00
                                             70.50
      33
                         69.00
                                                         3
                         65.00
                                  219.00
                                             69.00
      34
               212.25
                                                         3
      35
              185.00
                         67.50
                                  188.00
                                             65.00
                                                         3
     36
              174.00
                         67.00
                                 185.00
                                             67.50
                                                         3
      37
              160.00
                         63.00
                                 174.00
                                             67.00
                                                         3
                                             43.00
              115.00
                         40.00
                                 350.00
                                                         4
     38
   Default Y-Origin = 0.00(ft)
```

Default X-Plus Value = 0.00(ft)

User Specified Y-Plus Value = 20.00(ft) ISOTROPIC SOIL PARAMETERS 4 Type(s) of Soil Soil Total Saturated Cohesion Friction Pore Pressure Piez. Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface .gl( (deg) 30.0 28.0 30 (deg) Param. (psf) No. (pcf) (pcf) (psf) No. 125.0 120.0 150.0 0.00 0.0 0 1 120.0 125.0 150.0 0.00 2 0.0 0 3 125.0 130.0 200.0 0.00 0.0 0 135.0 600.0 35.0 4 125.0 0.00 0.0 0 Specified Peak Ground Acceleration Coefficient (A) = 0.330(g)Specified Horizontal Earthquake Coefficient (kh) = 0.150(g) Specified Vertical Earthquake Coefficient (kv) = 0.000(g) Specified Seismic Pore-Pressure Factor = 0.000 A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 5000 Trial Surfaces Have Been Generated. 100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 100.00(ft)and X = 150.00(ft)Each Surface Terminates Between X = 182.00(ft) and X = 250.00(ft)Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 5000 Statistical Data On All Valid FS Values: FS Max = 6.186 FS Min = 1.190 FS Ave = 2.752 Standard Deviation = 0.896 Coefficient of Variation = 32.56 % Failure Surface Specified By 9 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 1 129.59 45.31 2 137.56 46.00 3 145.38 47.69 4 152.93 50.35 5 160.08 53.94 58.40 6 166.72 7 172.75 63.66 178.07 8 69.63 75.50 9 182.09 Circle Center At X = 128.08 ; Y = 108.78 ; and Radius = 63.49 Factor of Safety 1.190 \*\*\* \* \* \* Individual data on the 19 slices Tie Water Water Tie Earthquake Force Force Force Force Force Surcharge Norm Top Bot (lbs) (lbs) Tan Slice Width Weight Hor Ver Load (lbs) No. (ft) (lbs) (lbs) (lbs) (lbs) (lbs) 0. 0. 9.4 0.0 0.0 62.9 0.0 0.0 1.9 1 0. 2 6.1 1685.9 0.0 0.0 Ο. 252.9 0.0 0.0 0.0 0.0 1355.5 0.0 Ο. Ο. 203.3 0.0 3 2.4 4 3.5 2228.8 0.0 0.0 0. 0. 334.3 0.0 0.0 5 1.9 1335.2 0.0 0.0 Ο. Ο. 200.3 0.0 0.0 7.5 7057.4 0.0 Ο. 0. 1058.6 0.0 6 0.0 0.0 7 2.6 2925.5 0.0 0.0 Ο. Ο. 438.8 0.0 0.0 0.0 8 4.5 5190.5 0.0 Ο. Ο. 778.6 0.0 0.0 0.0 0.0 0.1 Ο. 9 86.2 0.0 0. 12.9 0.0 10 0. 5927.1 0.0 0.0 Ο. 889.1 0.0 0.0 4.9 0.0 11 0.1 168.2 0.0 Ο. Ο. 25.2 0.0 0.0 0.0 Ο. Ο. 493.0 0.0 0.0 12 1.6 3286.5 0.0 9889.2 0.0 0.0 0. 1483.4 0.0 13 6.0 Ο. 0.0 0. 0.0 1.3 1540.6 0.0 0.0 0. 231.1 0.0 14 0.0 1823.1 180.2 91.6 0.0 0.0 0.0 0.0 0.0 0. 15 1.8 273.5 0.0 0. 0. 0. 0. 16 0.2 27.0 0.0 0.0 13.7 0.0 17 0.1 0.0

18 19	2.0 4.0	1644.4 1416.9	0.0 0.0 0.0 0.0	0. 0.	0. 2 0. 2	46.7 12.5	0.0	0.0
	Failure	e Surface Sp	ecified By 10	Coordinate	Points			
	No.	(ft)	(ft)					
	1	129.5	9 45.31					
	2	137.5						
	4	152.9	7 50.25					
	5	160.2	1 53.65					
	6	167.0						
	8	178.9	o 02.03 4 68.49					
	9	183.9	1 74.76					
	10	184.3	7 75.50		40			CO 1C
	Circle	Factor of S	= 127.20; afety	Y = 114.	4 <i>2 ;</i> and	Radius	=	69.16
	•	*** 1.190						
	Failure	e Surface Sp	ecified By 10	Coordinate	Points			
	Point	C X-Sur: (ft)	I Y-Suri (ft)					
	1	127.5	5 44.56					
	2	135.5	5 44.47					
	3	143.4	9 45.49					
	4	151.2 158 5	0 47.60 5 50.76					
	6	165.3	8 54.92					
	7	171.5	7 59.99					
	8	177.0	0 65.87					
	9 10	181.5	6 /2.44 9 75 50					
	Circle	Center At X	= 132.31;	Y = 101.	35 ; and	l Radius	=	56.98
		Factor of Sa	afety					
	Te i luur	*** 1.195	***	Georgianste	Deinte			
	Point	- X-Suriace Spo	ecified By 9 f Y-Surf	Coordinate	Points			
	No.	(ft)	(ft)					
	1	132.6	5 46.75					
	2	140.6	4 47.25					
	3 4	148.4 156 0	8 48.83 3 51.46					
	5	163.1	6 55.09					
	6	169.7	3 59.66					
	7	175.6	1 65.08					
	o 9	183.3	3 75.50					
	Circle	Center At X	= 132.98;	Y = 105.	47 ; and	l Radius	=	58.73
	Factor of Safety							
	Failure	*** 1.195 Surface Sp	eaified By 10	Coordinate	Dointa			
	Point	X-Sur	f Y-Surf	coordinate	FOILICS			
	No.	(ft)	(ft)					
	1	128.5	7 44.94					
	2	136.5	7 44.94 0 46.03					
	4	152.2	0 48.18					
	5	159.5	4 51.37					
	б	166.3	7 55.53					
	7	172.5	7 60.58					
	9	182.6	4 72.97					
	10	183.9	5 75.50					
	Circle	Center At X	= 132.65;	Y = 102.	99 ; and	l Radius	=	58.20
		Factor of Sa *** 1 104	aiety ***					
	Failure	e Surface Sp	ecified By 10	Coordinate	Points			
	Point	X-Sur	f Y-Surf					
	No.	(ft)	(ft)					
	⊥ 2	133.4	⊥ 43.82 9 44.36					

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'ps.OUT Page 4 3 141.38 45.72 4 149.08 47.87 5 156.52 50.81 54.50 6 163.62 7 170.30 58.90 8 176.50 63.96 9 182.14 69.63 186.89 10 75.50 Circle Center At X = 124.30 ; Y = 121.48 ; and Radius = 77.67 Factor of Safety 1.197 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 125.51 43.82 1 2 133.51 43.77 3 141.46 44.71 4 149.23 46.61 5 156.70 49.45 163.78 53.19 6 7 170.34 57.77 8 176.28 63.12 9 181.53 69.16 10 185.80 75.50 Circle Center At X = 129.92 ; Y = 108.63 ; and Radius = 64.95 Factor of Safety 1.197 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point Y-Surf X-Surf No. (ft) (ft) 1 125.51 43.82 2 133.51 43.96 3 141.44 45.00 149.21 4 46.92 5 156.71 49.69 б 163.86 53.28 7 170.56 57.65 176.73 8 62.74 9 182.30 68.49 10 187.18 74.83 11 187.59 75.50 Circle Center At X = 128.24 ; Y = 115.23 ; and Radius = 71.46 Factor of Safety \* \* \* 1.200 \*\*\* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 43.08 1 123.47 2 131.46 43.47 3 139.37 44.65 4 147.12 46.63 5 154.64 49.36 6 161.85 52.84 7 57.02 168.67 8 175.04 61.86 180.89 9 67.31 10 186.17 73.32 11 187.72 75.50 Circle Center At X = 123.59 ; Y = 122.93 ; and Radius = 79.85 Factor of Safety 1.200 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 120.41 41.97 1 2 128.40 42.26 3 136.32 43.44 4 144.05 45.48 5 151.51 48.37 6 158.61 52.07

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\b-b'ps.OUT Page 5 56.52 61.69 67.50 73.88 7 165.25 8 171.36 9 176.86 181.68 10 75.50 11 182.64 Circle Center At X = 121.76 ; Y = 114.14 ; and Radius = 72.19 Factor of Safety \*\*\* 1.201 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



6340 Camino de La Costa, La Jolla, CA C-C' CWE 2170156

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'.OUT Page 1

\*\*\* GSTABL7 \*\*\* \*\* GSTABL7 by Garry H. Gregory, P.E. \*\* \*\* Original Version 1.0, January 1996; Current Version 2.003, June 2002 \*\* (All Rights Reserved-Unauthorized Use Prohibited) SLOPE STABILITY ANALYSIS SYSTEM Modified Bishop, Simplified Janbu, or GLE Method of Slices. (Includes Spencer & Morgenstern-Price Type Analysis) Including Pier/Pile, Reinforcement, Soil Nail, Tieback, Nonlinear Undrained Shear Strength, Curved Phi Envelope, Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces. Analysis Run Date: 6/15/2018 Time of Run: 10:43AM Run By: DRR Input Data Filename: C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'.i C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'.0 Output Filename: Unit System: English Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\c-c'.PLT PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA C-C' CWE 2170156 BOUNDARY COORDINATES 21 Top Boundaries 27 Total Boundaries Boundary X-Left Y-Left X-Right Y-Right Soil Type (ft) (ft) No. (ft) (ft) Below Bnd 0.00 20.00 5.00 20.10 1 4 2 5.00 20.10 21.50 24.00 4 3 21.50 24.00 24.00 27.00 4 4 24.00 27.00 36.00 28.50 4 36.00 38.50 5 32.00 4 28.50 38.50 6 32.00 66.00 36.00 4 7 66.00 36.00 70.00 38.00 4 70.00 8 40.00 38.00 80.00 4 9 80.00 40.00 100.00 50.00 3 108.00 10 100.00 50.00 58.50 3 126.00 11 108.00 58.50 64.80 3 12 126.00 64.80 152.00 68.00 3 178.00 13 152.00 68.00 72.50 1 14 178.00 72.50 178.10 75.00 1 15 178.10 75.00 242.00 75.50 1 260.50 77.00 16 242.00 75.50 1 17 260.50 77.00 260.60 90.00 1 298.00 18 260.60 90.00 90.00 1 90.00 310.00 88.00 19 298.00 1 20 310.00 88.00 313.00 87.00 1 21 313.00 87.00 330.00 86.50 1 22 310.00 84.00 330.00 85.00 3 23 310.00 84.00 283.00 81.50 3 81.50 24 260.50 77.00 283.00 3 25 234.00 73.00 260.50 77.00 3 26 152.00 68.00 234.00 73.00 3 80.00 330.00 43.00 27 40.00 4 Default Y-Origin = 0.00(ft)Default X-Plus Value = 0.00(ft) User Specified Y-Plus Value = 20.00(ft) ISOTROPIC SOIL PARAMETERS 4 Type(s) of Soil Soil Total Saturated Cohesion Friction Pore Pressure Piez. Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface No. (pcf) (pcf) (psf) (deg) Param. (psf) No. 120.0 125.0 150.0 30.0 0.00 0.0 0 1 2 120.0 125.0 150.0 28.0 0.00 0.0 0 3 125.0 130.0 200.0 30.0 0.00 0.0 Ω 4 135.0 600.0 35.0 0.00 0.0 0 125.0

A Critical Failure Surface Searching Method, Using A Random

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Technique For Generating Circular Surfaces, Has Been Specified. 6300 Trial Surfaces Have Been Generated. 90 Surface(s) Initiate(s) From Each Of 70 Points Equally Spaced Along The Ground Surface Between X = 20.00(ft)and X = 90.00(ft)Each Surface Terminates Between X = 126.00(ft)X = 215.00(ft)and Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 0 Statistical Data On All Valid FS Values: FS Max = 0.000 FS Min = 500.000 FS Ave = NaN Standard Deviation = 0.000 Coefficient of Variation = NaN Failure Surface Specified By 9 Coordinate Points Y-Surf Point X-Surf No. (ft) (f+)1 75.80 39.16 83.80 2 39.33 91.70 3 40.53 4 99.39 42.75 106.73 5 45.94 6 113.59 50.05 7 119.86 55.02 8 125.44 60.75 9 128.72 65.13 78.48 ; Y = 100.87 ; and Radius = 61.76 Circle Center At X = Factor of Safety \* \* \* 2.184 \*\*\* Individual data on the 0 slices Water Water Force Force Tie Tie Earthquake Force Force Force Surcharge Slice Width Weight qoT Bot Norm Tan Hor Ver Load (lbs) (lbs) No. (ft) (lbs) (lbs) (lbs) (lbs) (lbs) (lbs) Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 75.80 39.16 1 2 83.80 39.32 91.75 40.18 3 4 99.60 41.74 5 107.28 43.97 6 114.73 46.87 7 121.91 50.41 8 128.74 54.57 9 135.19 59.30 10 141.20 64.59 11 143.45 66.95 Circle Center At X = 77.96 ; Y = 130.41 ; and Radius = 91.28 Factor of Safety 2.236 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 72.75 38.55 1 80.73 2 39.13 3 88.63 40.40 4 96.39 42.36 5 103.94 44.99 6 111.24 48.27 118.22 7 52.17 124.84 8 56.67 9 131.04 61.73 10 135.38 65.95 Circle Center At X = 70.22 ; Y = 129.61 ; and Radius = 91.10 Factor of Safety

\* \* \* \* \* \* 2.249 Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf (ft) (ft) No. 1 71.74 38.35 79.70 2 39.11 87.59 3 40.47 4 95.35 42.42 102.94 5 44.94 110.32 48.03 6 7 117.44 51.66 8 124.28 55.82 9 130.78 60.48 10 136.92 65.61 137.54 66.22 11 Circle Center At X = 65.56 ; Y = 144.66 ; and Radius = 106.49 Factor of Safety 2.291 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 73.77 38.75 2 81.77 38.56 89.74 97.61 39.19 3 4 40.63 105.29 5 42.87 6 112.70 45.89 7 119.76 49.65 8 126.40 54.12 9 132.54 59.24 10 138.13 64.96 11 139.30 66.44 Circle Center At X = 79.64 ; Y = 116.47 ; and Radius = 77.94 Factor of Safety 2.301 \*\*\* \* \* \* Failure Surface Specified By 12 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 1 75.80 39.16 83.80 39.23 2 91.76 99.65 3 39.94 4 41.29 5 107.40 43.28 6 114.97 45.88 122.30 7 49.08 8 129.35 52.86 9 136.07 57.20 10 142.42 62.06 11 148.36 67.42 12 148.49 67.57 Circle Center At X = 78.96 ; Y = 138.29 ; and Radius = 99.18 Factor of Safety \*\*\* 2.304 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 71.74 38.35 79.73 2 38.74 87.65 39.90 3 4 95.42 41.80 5 102.97 44.43 6 110.24 47.77 7 117.16 51.79 8 123.66 56.45 129.69 9 61.71 133.50 65.72 10 71.68 ; Y = 121.85 ; and Radius = 83.50 Circle Center At X = Factor of Safety \* \* \* 2.305 \*\*\* Failure Surface Specified By 9 Coordinate Points

Point X-Surf Y-Surf (ft) No. (ft) 73.77 38.75 1 81.76 39.11 2 3 89.65 40.45 4 97.30 42.77 5 104.61 46.02 6 111.46 50.16 7 117.74 55.11 123.36 60.81 8 9 126.46 64.86 Circle Center At X = 74.92; Y = 102.94; and Radius = 64.20Factor of Safety \* \* \* 2.310 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 71.74 38.35 2 79.73 38.65 87.66 39.76 3 4 95.43 41.66 5 102.97 44.32 6 110.21 47.74 7 117.06 51.86 8 123.47 56.65 62.06 9 129.36 132.51 65.60 10 72.81 ; Y = 117.35 ; and Radius = 79.01 Circle Center At X = Factor of Safety 2.312 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 71.74 38.35 79.71 39.07 2 3 87.61 40.31 95.42 42.04 4 5 103.10 44.27 6 110.63 46.99 117.96 7 50.18 8 125.08 53.84 131.95 57.94 9 138.54 62.47 10 144.38 67.06 11 Circle Center At X = 64.37 ; Y = 163.30 ; and Radius = 125.17 Factor of Safety 2.320 \*\*\* \* \* \* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



6340 Camino de La Costa, La Jolla, CA C-C' CWE 2170156

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps.OUT Page 1

\*\*\* GSTABL7 \*\*\* \*\* GSTABL7 by Garry H. Gregory, P.E. \*\* \*\* Original Version 1.0, January 1996; Current Version 2.003, June 2002 \*\* (All Rights Reserved-Unauthorized Use Prohibited) SLOPE STABILITY ANALYSIS SYSTEM Modified Bishop, Simplified Janbu, or GLE Method of Slices. (Includes Spencer & Morgenstern-Price Type Analysis) Including Pier/Pile, Reinforcement, Soil Nail, Tieback, Nonlinear Undrained Shear Strength, Curved Phi Envelope, Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces. 6/15/2018 Analysis Run Date: Time of Run: 10:45AM DRR Run By: Input Data Filename: C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps .in C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps Output Filename: . OUT Unit System: English Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\c-c'ps.PLT PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA C-C' CWE 2170156 BOUNDARY COORDINATES 21 Top Boundaries 27 Total Boundaries Boundary X-Left Y-Left X-Right Y-Right Soil Type (ft) (ft) No. (ft) (ft) Below Bnd 0.00 20.00 5.00 20.10 1 4 5.00 2 20.10 21.50 24.00 4 3 21.50 24.00 24.00 27.00 4 4 24.00 27.00 36.00 28.50 4 36.00 38.50 5 28.50 32.00 4 38.50 6 32.00 66.00 36.00 4 7 66.00 36.00 70.00 38.00 4 70.00 8 40.00 38.00 80.00 4 9 80.00 100.00 40.00 50.00 3 10 108.00 100.00 50.00 58.50 3 126.00 11 108.00 58.50 64.80 3 12 126.00 64.80 152.00 68.00 3 178.00 13 152.00 68.00 72.50 1 14 178.00 72.50 178.10 75.00 1 15 178.10 75.00 242.00 75.50 1 260.50 77.00 16 242.00 75.50 1 260.60 298.00 17 260.50 77.00 90.00 1 18 260.60 90.00 90.00 1 310.00 90.00 88.00 19 298.00 1 20 310.00 88.00 313.00 87.00 1 21 313.00 87.00 330.00 86.50 1 22 310.00 84.00 330.00 85.00 3 23 310.00 84.00 283.00 81.50 3 81.50 24 260.50 77.00 283.00 3 25 234.00 73.00 260.50 77.00 3 26 152.00 68.00 234.00 73.00 3 80.00 330.00 43.00 27 40.00 4 Default Y-Origin = 0.00(ft)Default X-Plus Value = 0.00(ft) User Specified Y-Plus Value = 20.00(ft) ISOTROPIC SOIL PARAMETERS 4 Type(s) of Soil Soil Total Saturated Cohesion Friction Pore Pressure Piez. Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface No. (pcf) (pcf) (psf) (deg) Param. (psf) No. 120.0 125.0 150.0 30.0 0.00 0.0 0 1 2 120.0 125.0 150.0 28.0 0.00 0.0 0 2 125.0 130.0 200.0 30.0 0.00 0.0 Ω 4 125.0 135.0 600.0 35.0 0.00 0.0 0 Specified Peak Ground Acceleration Coefficient (A) = 0.330(g)

```
Specified Horizontal Earthquake Coefficient (kh) =
                                                     0.150(g)
  Specified Vertical Earthquake Coefficient (kv) = 0.000(g)
  Specified Seismic Pore-Pressure Factor = 0.000
  A Critical Failure Surface Searching Method, Using A Random
  Technique For Generating Circular Surfaces, Has Been Specified.
   6300 Trial Surfaces Have Been Generated.
    90 Surface(s) Initiate(s) From Each Of
                                             70 Points Equally Spaced
  Along The Ground Surface Between X = 20.00(ft)
and X = 90.00(ft)
  Each Surface Terminates Between X = 126.00(ft)
                              and X = 215.00(ft)
  Unless Further Limitations Were Imposed, The Minimum Elevation
  At Which A Surface Extends Is Y = 0.00(ft)
   8.00(ft) Line Segments Define Each Trial Failure Surface.
  Following Are Displayed The Ten Most Critical Of The Trial
        Failure Surfaces Evaluated. They Are
        Ordered - Most Critical First.
        * * Safety Factors Are Calculated By The Modified Bishop Method * *
        Total Number of Trial Surfaces Evaluated =
                                                   0
        Statistical Data On All Valid FS Values:
           FS Max = 0.000 FS Min = 500.000 FS Ave = NaN
           Standard Deviation = 0.000 Coefficient of Variation = NaN
                                                                              ÷
        Failure Surface Specified By 11 Coordinate Points
          Point
                     X-Surf
                                Y-Surf
           No.
                      (ft)
                                  (ft)
                      75.80
            1
                                  39.16
                     83.80
            2
                                 39.32
                     91.75
            3
                                  40.18
            4
                     99.60
                                  41.74
            5
                     107.28
                                  43.97
            6
                     114.73
                                  46.87
            7
                     121.91
                                  50.41
                     128.74
                                 54.57
            8
                     135.19
            9
                                 59.30
           10
                     141.20
                                 64.59
                     143.45
                                  66.95
           11
                                77.96 ; Y = 130.41 ; and Radius = 91.28
        Circle Center At X =
               Factor of Safety
              * * *
                     1.631 ***
             Individual data on the
                                       15 slices
                       Water Water
Force Force
                                       Tie
                                               Tie
                                                        Earthquake
                                       Force
                                               Force
                                                        Force Surcharge
                                                       Hor Ver Load
Slice Width
              Weight
                              Bot
                                       Norm
                                              Tan
                        Top
                       (lbs) (lbs)
                                       (lbs) (lbs)
No.
       (ft)
              (lbs)
                                                      (lbs)
                                                               (lbs)
                                                                      (lbs)
                          0.0
                                 0.0
                                          Ο.
                                                  Ο.
                                                                           0.0
               198.6
                                                                 0.0
                                                        29.8
 1
        4.2
 2
        3.8
                790.7
                          0.0
                                  0.0
                                           Ο.
                                                   Ο.
                                                         118.6
                                                                  0.0
                                                                           0.0
 3
        7.5
               3817.0
                          0.0
                                 0.0
                                            Ο.
                                                    Ο.
                                                         572.6
                                                                  0.0
                                                                           0.0
 4
        0.4
               294.1
                         0.0
                                 0.0
                                           Ο.
                                                    0.
                                                        44.1
                                                                  0.0
                                                                           0.0
 5
        7.8
               6747.1
                         0.0
                                  0.0
                                           0.
                                                    0. 1012.1
                                                                  0.0
                                                                           0.0
 6
        0.4
               408.6
                        0.0
                                 0.0
                                           Ο.
                                                    Ο.
                                                         61.3
                                                                  0.0
                                                                           0.0
                                           Ο.
 7
               9966.3
                        0.0
                                 0.0
                                                    0. 1494.9
                                                                  0.0
                                                                           0.0
        7.3
                          0.0
                                                                  0.0
 8
        0.7
               1263.9
                                 0.0
                                           Ο.
                                                    Ο.
                                                        189.6
                                                                           0.0
                                                    0. 1782.7
 9
        6.7
              11884.4
                         0.0
                                 0.0
                                           Ο.
                                                                  0.0
                                                                           0.0
                                                    0. 1812.1
                                           Ο.
                                                                           0.0
10
        7.2
             12080.8
                         0.0
                                 0.0
                                                                  0.0
                                                                  0.0
11
        4.1
              6357.8
                         0.0
                                 0.0
                                            Ο.
                                                    0. 953.7
                                                                           0.0
               3854.3
                                                    0. 578.1
                                                                  0.0
12
        2.7
                         0.0
                                 0.0
                                            Ο.
                                                                           0.0
13
        6.4
               6928.9
                          0.0
                                  0.0
                                            0.
                                                    Ο.
                                                       1039.3
                                                                  0.0
                                                                           0.0
14
        6.0
               3269.3
                          0.0
                                  0.0
                                            Ο.
                                                    Ο.
                                                         490.4
                                                                  0.0
                                                                           0.0
                        0.0
15
                292.6
                                  0.0
                                                        43.9
                                                                           0.0
        2.2
                                            0.
                                                    0.
                                                                  0.0
        Failure Surface Specified By 12 Coordinate Points
          Point
                     X-Surf
                                 Y-Surf
                                  (ft)
           No.
                      (ft)
                      75.80
            1
                                  39.16
            2
                      83.80
                                  39.23
                     91.76
                                 39.94
            3
                     99.65
                                 41.29
            4
            5
                     107.40
                                  43.28
            6
                     114.97
                                  45.88
            7
                     122.30
                                  49.08
```

8

129.35

52.86

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps.OUT Page 3 9 136.07 57.20 62.06 10 142.42 11 148.36 67.42 67.57 148.49 12 Circle Center At X = 78.96 ; Y = 138.29 ; and Radius = 99.18 Factor of Safety \*\*\* 1.655 \*\*\* Failure Surface Specified By 13 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 74.78 38.96 1 2 39.61 82.76 90.69 98.56 3 40.65 4 42.07 106.36 5 43.86 6 114.06 46.03 7 121.65 48.56 8 129.11 51.45 9 136.42 54.69 143.57 10 58.28 150.54 11 62.21 12 157.31 66.47 13 161.97 69.73 65.05 ; Y = 205.66 ; and Radius = 166.99 Circle Center At X = Factor of Safety \*\*\* 1.661 \*\*\* Failure Surface Specified By 13 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 73.77 38.75 81.72 39.60 2 3 89.63 40.82 4 97.47 42.41 5 105.23 44.37 112.88 6 46.70 7 120.42 49.38 127.82 52.41 8 9 135.07 55.79 10 142.16 59.50 11 149.06 63.55 12 155.76 67.92 13 157.10 68.88 Circle Center At X = 59.77 ; Y = 207.95 ; and Radius = 169.77 Factor of Safety \* \* \* 1.661 \*\*\* Failure Surface Specified By 9 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 75.80 39.16 2 83.80 39.33 91.70 99.39 40.53 3 4 42.75 5 106.73 45.94 113.59 50.05 6 7 119.86 55.02 125.44 60.75 8 9 128.72 65.13 78.48 ; Y = 100.87 ; and Radius = 61.76 Circle Center At X = Factor of Safety 1.670 \*\*\* \* \* \* Failure Surface Specified By 13 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 73.77 38.75 81.73 39.55 2 89.64 40.71 3 4 97.50 42.22 5 105.28 44.09 6 112.97 46.31 7 120.54 48.87

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps.OUT Page 4 8 51.77 128.00 9 135.32 55.00 10 142.48 58.56 149.48 62.44 11 12 156.29 66.63 13 160.45 69.46 Circle Center At X = 60.07 ; Y =215.37 ; and Radius = 177.14 Factor of Safety \* \* \* 1.672 \*\*\* Failure Surface Specified By 10 Coordinate Points X-Surf Point Y-Surf No. (ft) (ft) 38.55 1 72.75 2 80.73 39.13 88.63 40.40 3 4 96.39 42.36 5 103.94 44.99 6 111.24 48.27 7 118.22 52.17 8 124.84 56.67 9 131.04 61.73 10 135.38 65.95 70.22 ; Y = 129.61 ; and Radius = 91.10 Circle Center At X = Factor of Safety 1.682 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 71.74 38.35 2 79.71 39.07 87.61 40.31 3 4 95.42 42.04 5 103.10 44.27 6 110.63 46.99 7 117.96 50.18 8 125.08 53.84 9 131.95 57.94 10 138.54 62.47 11 144.38 67.06 Circle Center At X = 64.37; Y =163.30 ; and Radius = 125.17 Factor of Safety \*\*\* 1.684 \*\*\* Failure Surface Specified By 11 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 1 71.74 38.35 79.73 2 38.74 87.67 39.71 3 4 95.52 41.26 5 103.23 43.37 6 110.77 46.05 7 118.10 49.27 8 125.16 53.02 131.94 57.27 9 10 138.39 62.01 144.29 11 67.05 Circle Center At X = 70.42 ; Y = 147.75 ; and Radius = 109.41 Factor of Safety \* \* \* 1.694 \*\*\* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 71.74 38.35 79.70 2 39.11 87.59 40.47 3 95.35 42.42 4 5 102.94 44.94 6 110.32 48.03 7 117.44 51.66 55.82 8 124.28

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\c-c'ps.OUT Page 5

9 130.78 60.48 10 136.92 65.61 11 137.54 66.22 Circle Center At X = 65.56 ; Y = 144.66 ; and Radius = 106.49 Factor of Safety \*\*\* 1.700 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*



6340 Camino de La Costa, La Jolla, CA D-D' CWE 2170156

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*** GSTABL7 ***
                    ** GSTABL7 by Garry H. Gregory, P.E. **
   ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
              (All Rights Reserved-Unauthorized Use Prohibited)
 ****
                   SLOPE STABILITY ANALYSIS SYSTEM
       Modified Bishop, Simplified Janbu, or GLE Method of Slices.
       (Includes Spencer & Morgenstern-Price Type Analysis)
       Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
       Nonlinear Undrained Shear Strength, Curved Phi Envelope,
       Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
       Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
 6/15/2018
Analysis Run Date:
Time of Run:
                        10:56AM
Run By:
                        DRR
Input Data Filename:
                       C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'.i
Output Filename:
                        C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'.0
Unit System:
                        English
Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\d-d'.PLT
PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA
                     D-D' CWE 2170156
BOUNDARY COORDINATES
   23 Top Boundaries
   30 Total Boundaries
Boundary
           X-Left
                      Y-Left X-Right
                                          Y-Right
                                                    Soil Type
            (ft)
                                (ft)
   No.
                       (ft)
                                          (ft)
                                                    Below Bnd
    1
              0.00
                       20.00
                                 16.00
                                            20.50
                                                        4
                                 24.00
                                           26.00
    2
             16.00
                       20.50
                                                        4
    3
            24.00
                       26.00
                                 38.00
                                           26.50
                                                        4
            38.00
    4
                       26.50
                                 42.00
                                           31.50
                                                        4
            42.00
                                           33.00
    5
                       31.50
                                 76.00
                                                        4
             76.00
    6
                       33.00
                                 82.00
                                           40.00
                                                        4
            82.00
    7
                       40.00
                                 93.00
                                           49.50
                                                        3
            93.00
                               108.00
    8
                       49.50
                                           55.00
                                                        3
    9
            108.00
                       55.00
                               124.50
                                           64.00
                                                        3
   10
                               134.00
            124.50
                       64.00
                                           66.80
                                                        1
                               138.00
   11
            134.00
                       66.80
                                           70.50
                                                        1
   12
            138.00
                       70.50
                                150.00
                                            73.00
                                                        1
                                162.00
                                           73.00
                       73.00
   13
            150.00
                                                        1
   14
            162.00
                       73.00
                               162.10
                                           75.50
                                                        1
   15
            162.10
                       75.50
                               186.00
                                           75.50
                                                        1
                       75.50
                                186.10
                                           78.00
   16
            186.00
                                                        1
                                212.00
212.10
   17
            186.10
                       78.00
                                           78.00
                                                        1
                                           75.50
   18
            212.00
                       78.00
                                                        1
                                237.50
                                           75.50
   19
            212.10
                       75.50
                                                        1
   20
            237.50
                       75.50
                                242.00
                                           80.00
                                                        1
   21
            242.00
                       80.00
                                253.00
                                           81.50
                                                        1
                                253.10
   22
            253.00
                       81.50
                                           90.50
                                                        1
   23
            253.10
                       90.50
                                 325.00
                                           90.50
                                                        1
            299.00
                                325.00
   24
                                           87.00
                       85.50
                                                        3
   25
            267.00
                       81.50
                                299.00
                                           85.50
                                                        3
   26
            237.50
                       73.00
                                267.00
                                           81.50
                                                        3
   27
                       72.00
                                237.50
                                           73.00
            177.50
                                                        3
   28
            150.00
                       69.00
                                177.50
                                           72.00
                                                        3
   29
            124.50
                       64.00
                                150.00
                                           69.00
                                                        3
   30
             82.00
                       40.00
                                325.00
                                           43.00
                                                        4
Default Y-Origin = 0.00(ft)
Default X-Plus Value = 0.00(ft)
User Specified Y-Plus Value = 20.00(ft)
ISOTROPIC SOIL PARAMETERS
 4 Type(s) of Soil
Soil Total Saturated Cohesion Friction Pore Pressure Piez.
Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface
 No. (pcf)
             (pcf)
                       (psf)
                                (deg)
                                       Param. (psf)
                                                          No.
  1
      120.0
              125.0
                       150.0
                                30.0
                                        0.00
                                                  0.0
                                                          0
  2
      120.0
              125.0
                       150.0
                                28.0
                                        0.00
                                                  0.0
                                                          0
```

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130.0 30.0 0.00 0.0 3 125.0 200.0 0 35.0 4 125.0 135.0 600.0 0.00 0.0 0 A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified. 5000 Trial Surfaces Have Been Generated. 100 Surface(s) Initiate(s) From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 45.00(ft)and X = 95.00(ft)Each Surface Terminates Between X = 124.00(ft)Each Surface Terminates Between X = 124.00(ft)and X = 215.00(ft)Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = 0.00(ft) 8.00(ft) Line Segments Define Each Trial Failure Surface. Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Evaluated. They Are Ordered - Most Critical First. \* \* Safety Factors Are Calculated By The Modified Bishop Method \* \* Total Number of Trial Surfaces Evaluated = 5000 Statistical Data On All Valid FS Values: FS Max = 13.366 FS Min = 1.906 FS Ave = 3.599 Standard Deviation = 0.913 Coefficient of Variation = 25.36 % Failure Surface Specified By 11 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 1 82.76 40.65 90.75 40.57 2 3 98.71 41.39 4 106.53 43.10 5 114.10 45.69 6 121.33 49.11 7 128.12 53.34 8 134.39 58.30 140.07 9 63.94 10 145.06 70.19 72.24 11 146.36 Circle Center At X = 87.51 ; Y = 111.11 ; and Radius = 70.62 Factor of Safety \* \* \* 1.906 \*\*\* Individual data on the 16 slices Tie Water Water Tie Earthquake Force Force Force Force Force Surcharge Hor Ver Load (lbs) (lbs) (lbs) Slice Width Weight Тор Bot Norm Tan (lbs) (lbs) (lbs) (lbs) (lbs) (ft) (lbs) (lbs) No. 3497.0 0.0 0.0 0. 0. 0.0 0.0 0.0 1 8.0 0.0 0.0 2 2202.8 0.0 0.0 Ο. Ο. 0.0 2.2 0.0 0. 0. 0.0 3 5.7 6751.8 0.0 0.0 0.0 4 7.8 10533.3 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 2095.3 0.0 5 1.5 0.0 Ο. Ο. 0.0 0.0 0.0 6 6.1 9158.1 0.0 0.0 0. 0. 0.0 0.0 0.0 0.0 7 7.2 11653.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0. 8 3.2 5171.5 0. 0.0 0.0 9 3.6 5573.6 Ο. Ο. 0.0 0.0 0. 7529.2 0.0 10 5.9 Ο. 0.0 0.0 0.0 0.4 433.9 Ο. 0.0 0.0 Ο. 0.0 0.0 11 12 3.6 3892.7 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 0.0 1975.6 0.0 0.0 0.0 13 2.1 Ο. Ο. 0.0 0.0 0.0 14 3.0 1953.9 0.0 0. 0. 0.0 0.0 15 2.0 699.5 0.0 0.0 Ο. Ο. 0.0 0.0 0.0 699.5 0.0 138.1 0.0 0.0 Ο. 0.0 0.0 16 1.3 0. 0.0 Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf (ft) (ft) No. 81.73 39.69 1 2 89.63 40.96 97.42 3 42.81 105.04 4 45.22 5 112.47 48.19 6 119.67 51.69 7 126.58 55.71 8 133.19 60.22

9 139.44 65.21 10 145.32 70.64 72.36 11 146.91 Circle Center At X = 68.36 ; Y = 147.93 ; and Radius = 109.06 Factor of Safety 1.921 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 83.78 41.53 1 2 91.77 41.85 99.70 3 42.88 107.51 4 44.64 5 115.12 47.09 122.49 50.21 6 7 129.53 54.00 58.40 8 136.21 9 142.46 63.40 10 148.24 68.93 11 151.77 73.00 Circle Center At X = 84.31 ; Y = 129.81 ; and Radius = 88.27 Factor of Safety \* \* \* 1.927 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 82.76 1 40.65 90.75 2 40.41 98.71 3 41.22 4 106.49 43.08 45.95 5 113.96 6 120.98 49.78 7 127.44 54.51 133.21 8 60.05 9 138.20 66.30 10 141.12 71.15 88.65 ; Y = 100.47 ; and Radius = 60.11 Circle Center At X = Factor of Safety \* \* \* 1.944 \*\*\* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 82.76 40.65 1 2 90.75 41.01 3 98.64 42.33 4 106.32 44.57 5 113.67 47.72 6 120.60 51.72 7 127.00 56.53 8 132.77 62.06 9 137.85 68.24 10 139.49 70.81 83.84 ; Y = 107.04 ; and Radius = 66.40 Circle Center At X = Factor of Safety 1.949 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 83.78 41.53 1 91.76 2 41.04 3 99.75 41.45 107.64 4 42.77 5 115.33 44.97 6 122.72 48.03 7 129.72 51.91 136.23 56.55 8 9 142.18 61.91 10 147.48 67.90 11 151.04 73.00 92.13 ; Y = 111.49 ; and Radius = 70.46 Circle Center At X =

```
Factor of Safety
           1.952 ***
     * * *
Failure Surface Specified By 11 Coordinate Points
           X-Surf
                      Y-Surf
 Point
  No.
            (ft)
                        (ft)
   1
            84.80
                        42.41
   2
            92.80
                        42.47
   3
            100.74
                        43.37
   4
            108.55
                        45.12
   5
           116.13
                        47.68
           123.40
                        51.03
   6
   7
           130.27
                       55.13
   8
            136.66
                        59.94
   9
            142.51
                        65.39
            147.75
                        71.44
  10
  11
           148.63
                       72.71
                      88.27 ; Y = 117.66 ; and Radius = 75.32
Circle Center At X =
     Factor of Safety
     * * *
          1.962 ***
Failure Surface Specified By 10 Coordinate Points
 Point X-Surf Y-Surf
  No.
            (ft)
                        (ft)
   1
            82.76
                        40.65
            90.75
98.65
   2
                        40.90
   3
                        42.16
           106.33
   4
                        44.42
   5
           113.66
                       47.63
   6
           120.52
                       51.74
   7
            126.80
                       56.69
   8
            132.41
                        62.40
                        68.77
   9
            137.25
  10
           138.27
                       70.56
Circle Center At X = 84.87; Y = 103.21; and Radius = 62.60
     Factor of Safety
           1.968 ***
     * * *
Failure Surface Specified By 12 Coordinate Points
                     Y-Surf
 Point
           X-Surf
  No.
            (ft)
                        (ft)
   1
            81.73
                       39.69
           89.58
   2
                        41.25
   3
            97.35
                        43.15
           105.04
                        45.38
   4
   5
           112.62
                        47.94
   6
           120.08
                       50.82
   7
           127.41
                       54.02
   8
            134.60
                        57.54
   9
            141.63
                        61.36
  10
            148.48
                       65.47
  11
            155.16
                       69.88
  12
           159.46
                        73.00
Circle Center At X =
                      49.59 ; Y = 222.02 ; and Radius = 185.15
     Factor of Safety
     *** 1.979 ***
Failure Surface Specified By 12 Coordinate Points
  Point
         X-Surf Y-Surf
  No.
            (ft)
                        (ft)
   1
            80.71
                        38.50
   2
            88.60
                        39.84
            96.39
                        41.65
   3
           104.06
   4
                        43.92
   5
           111.59
                        46.64
   6
            118.94
                        49.81
   7
            126.09
                        53.40
   8
            133.01
                        57.41
            139.68
                       61.82
   9
   10
           146.08
                       66.62
           152.18
                        71.79
  11
  12
            153.45
                        73.00
Circle Center At X =
                      62.13 ; Y = 171.60 ; and Radius = 134.39
      Factor of Safety
```

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\*\*\* 1.980 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*


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```
*** GSTABL7 ***
                      ** GSTABL7 by Garry H. Gregory, P.E. **
      ** Original Version 1.0, January 1996; Current Version 2.003, June 2002 **
                 (All Rights Reserved-Unauthorized Use Prohibited)
   * * * * * * * * * * * * * * *
                      SLOPE STABILITY ANALYSIS SYSTEM
         Modified Bishop, Simplified Janbu, or GLE Method of Slices.
         (Includes Spencer & Morgenstern-Price Type Analysis)
         Including Pier/Pile, Reinforcement, Soil Nail, Tieback,
         Nonlinear Undrained Shear Strength, Curved Phi Envelope,
         Anisotropic Soil, Fiber-Reinforced Soil, Boundary Loads, Water
         Surfaces, Pseudo-Static & Newmark Earthquake, and Applied Forces.
   6/15/2018
   Analysis Run Date:
   Time of Run:
                           10:58AM
   Run By:
                          DRR
   Input Data Filename:
                          C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'ps
.in
                           C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'ps
   Output Filename:
. OUT
   Unit System:
                           English
   Plotted Output Filename: C:\Users\Dave Russell\Desktop\Red Abbot Stability\d-d'ps.PLT
   PROBLEM DESCRIPTION: 6340 Camino de La Costa, La Jolla, CA
                       D-D' CWE 2170156
   BOUNDARY COORDINATES
      23 Top Boundaries
      30 Total Boundaries
   Boundary
              X-Left
                         Y-Left X-Right
                                            Y-Right
                                                       Soil Type
               (ft)
                                  (ft)
     No.
                          (ft)
                                             (ft)
                                                       Below Bnd
      1
                 0.00
                          20.00
                                    16.00
                                               20.50
                                                           4
                                              26.00
      2
                16.00
                          20.50
                                    24.00
                                                           4
      3
               24.00
                          26.00
                                    38.00
                                              26.50
                                                           4
               38.00
       4
                          26.50
                                    42.00
                                              31.50
                                                           4
               42.00
                                              33.00
      5
                          31.50
                                    76.00
                                                           4
               76.00
      6
                          33.00
                                    82.00
                                              40.00
                                                           4
              82.00
      7
                          40.00
                                    93.00
                                              49.50
                                                           3
                                  108.00
               93.00
      8
                                              55.00
                          49.50
                                                           3
      9
              108.00
                          55.00
                                  124.50
                                              64.00
                                                           3
      10
                                  134.00
              124.50
                          64.00
                                              66.80
                                                           1
                                  138.00
      11
               134.00
                          66.80
                                              70.50
                                                           1
      12
               138.00
                          70.50
                                   150.00
                                              73.00
                                                           1
                                   162.00
                                              73.00
                          73.00
      13
               150.00
                                                           1
      14
              162.00
                          73.00
                                  162.10
                                              75.50
                                                           1
      15
              162.10
                          75.50
                                  186.00
                                              75.50
                                                           1
                          75.50
                                  186.10
                                              78.00
      16
               186.00
                                                           1
                                   212.00
212.10
      17
               186.10
                          78.00
                                              78.00
                                                           1
                                              75.50
      18
               212.00
                          78.00
                                                           1
                                  237.50
                                              75.50
      19
              212.10
                          75.50
                                                           1
      20
              237.50
                          75.50
                                  242.00
                                              80.00
                                                           1
      21
               242.00
                          80.00
                                  253.00
                                              81.50
                                                           1
                                  253.10
      22
               253.00
                          81.50
                                              90.50
                                                           1
      23
               253.10
                          90.50
                                   325.00
                                              90.50
                                                           1
                                   325.00
      24
                                              87.00
               299.00
                          85.50
                                                           3
      25
               267.00
                          81.50
                                  299.00
                                              85.50
                                                           3
      26
               237.50
                          73.00
                                  267.00
                                              81.50
                                                           3
                                   237.50
      27
                          72.00
                                              73.00
               177.50
                                                           3
      28
               150.00
                          69.00
                                   177.50
                                              72.00
                                                           3
      29
               124.50
                          64.00
                                   150.00
                                              69.00
                                                           3
      30
                82.00
                          40.00
                                   325.00
                                              43.00
                                                           4
   Default Y-Origin = 0.00(ft)
   Default X-Plus Value = 0.00(ft)
   User Specified Y-Plus Value = 20.00(ft)
  ISOTROPIC SOIL PARAMETERS
    4 Type(s) of Soil
   Soil Total Saturated Cohesion Friction Pore Pressure Piez.
   Type Unit Wt. Unit Wt. Intercept Angle Pressure Constant Surface
    No. (pcf)
                (pcf)
                         (psf)
                                   (deg)
                                          Param. (psf)
                                                             No.
     1
        120.0
                 125.0
                          150.0
                                   30.0
                                           0.00
                                                     0.0
                                                             0
     2
        120.0
                 125.0
                          150.0
                                   28.0
                                           0.00
                                                     0.0
                                                             0
```

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```
130.0
                           200.0
                                             0.00
                                                        0 0
    3
        125.0
                                     30.0
                                                                 0
    4
        125.0
                135.0
                           600.0
                                     35.0
                                             0.00
                                                        0.0
                                                                 0
   Specified Peak Ground Acceleration Coefficient (A) =
                                                        0.330(q)
  Specified Horizontal Earthquake Coefficient (kh) = 0.150(g)
  Specified Vertical Earthquake Coefficient (kv) =
                                                     0.000(q)
  Specified Seismic Pore-Pressure Factor = 0.000
  A Critical Failure Surface Searching Method, Using A Random
  Technique For Generating Circular Surfaces, Has Been Specified.
   5000 Trial Surfaces Have Been Generated.
   100 Surface(s) Initiate(s) From Each Of
                                              50 Points Equally Spaced
  Along The Ground Surface Between X = 45.00(ft)
                               and X = 95.00(ft)
  Each Surface Terminates Between X = 124.00(ft)
and X = 215.00(ft)
  Unless Further Limitations Were Imposed, The Minimum Elevation
  At Which A Surface Extends Is Y =
                                        0.00(ft)
   8.00(ft) Line Segments Define Each Trial Failure Surface.
  Following Are Displayed The Ten Most Critical Of The Trial
        Failure Surfaces Evaluated. They Are
        Ordered - Most Critical First.
        * * Safety Factors Are Calculated By The Modified Bishop Method * *
        Total Number of Trial Surfaces Evaluated = 5000
        Statistical Data On All Valid FS Values:
           FS Max = 10.180 FS Min = 1.391 FS Ave =
                                                            2.498
           Standard Deviation =
                                  0.566 Coefficient of Variation =
                                                                        22.65 %
        Failure Surface Specified By 11 Coordinate Points
          Point
                     X-Surf
                                 Y-Surf
           No.
                      (ft)
                                  (ft)
                                  40.65
                      82.76
            1
                                  40.57
            2
                      90.75
                      98.71
            3
                                  41.39
            4
                     106.53
                                  43.10
            5
                     114.10
                                  45.69
                     121.33
            6
                                  49.11
            7
                     128.12
                                  53.34
            8
                     134.39
                                  58.30
            9
                     140.07
                                  63.94
           10
                     145.06
                                 70.19
                     146.36
                                  72.24
           11
        Circle Center At X =
                                87.51 ; Y =
                                             111.11 ; and Radius =
                                                                    70.62
               Factor of Safety
              * * *
                     1.391 ***
                                       16 slices
             Individual data on the
                       Water Water
                                        Tie
                                               Tie
                                                        Earthquake
                       Force Force
                                       Force
                                               Force
                                                         Force Surcharge
Slice Width
              Weight
                        qoT
                               Bot
                                       Norm
                                                Tan
                                                        Hor
                                                               Ver Load
       (ft)
               (lbs)
                       (lbs)
                              (lbs)
                                       (lbs)
                                               (lbs)
                                                       (lbs)
                                                               (lbs)
                                                                       (lbs)
No.
                                          0.
 1
        8.0
               3497.0
                        0.0
                                 0.0
                                                  0. 524.5
                                                                 0.0
                                                                          0.0
 2
        2.2
               2202.8
                          0.0
                                  0.0
                                           0.
                                                    0.
                                                         330.4
                                                                  0.0
                                                                            0.0
 3
        5.7
               6751.8
                          0.0
                                  0.0
                                           Ο.
                                                    0. 1012.8
                                                                  0.0
                                                                            0.0
                                           Ο.
 4
        7.8
              10533.3
                          0.0
                                  0.0
                                                    0. 1580.0
                                                                  0.0
                                                                            0.0
                                            Ο.
                                                                   0.0
 5
        1.5
               2095.3
                          0.0
                                  0.0
                                                    Ο.
                                                         314.3
                                                                            0.0
                                                    0. 1373.7
 6
        6.1
               9158.1
                          0.0
                                 0.0
                                            Ο.
                                                                  0.0
                                                                            0.0
 7
        7.2
                                           Ο.
                                                    0. 1748.0
             11653.0
                         0.0
                                 0.0
                                                                  0.0
                                                                            0.0
 8
        3.2
              5171.5
                          0.0
                                 0.0
                                           Ο.
                                                    0.
                                                        775.7
                                                                  0.0
                                                                            0.0
 9
               5573.6
        3.6
                          0.0
                                 0.0
                                           Ο.
                                                   Ο.
                                                        836.0
                                                                  0.0
                                                                           0.0
10
        5.9
               7529.2
                          0.0
                                 0.0
                                           Ο.
                                                   0.
                                                        1129.4
                                                                  0.0
                                                                            0.0
11
        0.4
                433.9
                          0.0
                                 0.0
                                            Ο.
                                                   Ο.
                                                         65.1
                                                                  0.0
                                                                           0.0
               3892.7
12
        3.6
                          0.0
                                 0.0
                                           0.
                                                         583.9
                                                                  0.0
                                                                           0.0
                                                   0.
13
        2.1
               1975.6
                          0.0
                                 0.0
                                            Ο.
                                                   Ο.
                                                         296.3
                                                                  0.0
                                                                           0.0
14
        3.0
               1953.9
                          0.0
                                 0.0
                                            0.
                                                   Ο.
                                                         293.1
                                                                  0.0
                                                                           0.0
                                  0.0
15
        2.0
                699.5
                         0.0
                                            0.
                                                    0.
                                                         104.9
                                                                  0.0
                                                                            0.0
                                  0.0
16
        1.3
                138.1
                         0.0
                                            Ο.
                                                    Ο.
                                                          20.7
                                                                   0.0
                                                                            0.0
        Failure Surface Specified By 11 Coordinate Points
                    X-Surf
                              Y-Surf
          Point
           No.
                      (ft)
                                  (ft)
                                  41.53
                      83.78
            1
            2
                      91.77
                                  41.85
            3
                      99.70
                                  42.88
                     107.51
            4
                                  44.64
```

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'ps.OUT Page 3 5 115.12 47.09 6 122.49 50.21 7 129.53 54.00 136.21 58.40 8 9 142.46 63.40 10 148.24 68.93 151.77 73.00 11 84.31 ; Y = 129.81 ; and Radius = 88.27 Circle Center At X = Factor of Safety 1.392 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 81.73 39.69 89.63 40.96 2 3 97.42 42.81 45.22 4 105.04 5 112.47 48.19 119.67 51.69 6 55.71 7 126.58 8 133.19 60.22 9 139.44 65.21 10 145.32 70.64 11 146.91 72.36 Circle Center At X = 68.36 ; Y = 147.93 ; and Radius = 109.06 Factor of Safety 1.405 \*\*\* \* \* \* Failure Surface Specified By 12 Coordinate Points X-Surf Point Y-Surf No. (ft) (ft) 81.73 1 39.69 2 89.58 41.25 3 97.35 43.15 4 105.04 45.38 5 112.62 47.94 б 120.08 50.82 7 127.41 54.02 8 134.60 57.54 9 141.63 61.36 10 148.48 65.47 11 155.16 69.88 12 159.46 73.00 Circle Center At X = 49.59 ; Y = 222.02 ; and Radius = 185.15 Factor of Safety \* \* \* 1.409 \*\*\* Failure Surface Specified By 11 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 83.78 41.53 2 91.76 41.04 99.75 41.45 3 4 107.64 42.77 44.97 5 115.33 122.72 48.03 6 7 129.72 51.91 8 136.23 56.55 9 142.18 61.91 10 147.48 67.90 151.04 73.00 11 92.13 ; Y = 111.49 ; and Radius = 70.46 Circle Center At X = Factor of Safety 1.414 \*\*\* \* \* \* Failure Surface Specified By 13 Coordinate Points Point X-Surf Y-Surf (ft) No. (ft) 82.76 40.65 1 2 90.70 41.57 3 98.59 42.88 4 106.41 44.58 5 114.14 46.66

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'ps.OUT Page 4 6 121.75 49.13 7 129.22 51.97 8 136.55 55.18 58.75 9 143.71 10 150.68 62.68 11 157.45 66.94 164.00 71.54 12 169.09 13 75.50 68.34 ; Y = Circle Center At X = 200.87 ; and Radius = 160.87 Factor of Safety 1.418 \*\*\* \* \* \* Failure Surface Specified By 11 Coordinate Points Y-Surf Point X-Surf No. (ft) (ft) 84.80 42.41 1 2 92.80 42.47 100.74 3 43.37 4 108.55 45.12 5 116.13 47.68 6 123.40 51.03 7 130.27 55.13 8 136.66 59.94 9 142.51 65.39 10 147.75 71.44 11 148.63 72.71 Circle Center At X = 88.27 ; Y = 117.66 ; and Radius = 75.32 Factor of Safety \* \* \* 1.423 \*\*\* Failure Surface Specified By 13 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 1 82.76 40.65 2 90.65 41.92 3 98.49 43.54 4 106.24 45.52 5 113.90 47.83 121.44 6 50.50 7 128.86 53.49 8 136.13 56.82 9 143.25 60.48 10 150.20 64.44 68.72 11 156.96 163.52 73.30 12 166.39 75.50 13 58.52 ; Y = 216.82 ; and Radius = 177.83 Circle Center At X = Factor of Safety 1.423 \*\*\* \* \* \* Failure Surface Specified By 10 Coordinate Points Point X-Surf Y-Surf No. (ft) (ft) 82.76 40.65 1 2 90.75 40.41 98.71 3 41.22 106.49 43.08 4 5 113.96 45.95 120.98 49.78 6 7 127.44 54.51 8 133.21 60.05 138.20 9 66.30 10 141.12 71.15 Circle Center At X = 88.65 ; Y = 100.47 ; and Radius = 60.11 Factor of Safety \* \* \* 1.425 \*\*\* Failure Surface Specified By 14 Coordinate Points X-Surf Y-Surf Point No. (ft) (ft) 40.65 82.76 1 2 90.75 40.55 3 98.74 41.02 4 106.67 42.06

C:\Users\Dave Russell\Desktop\Revised Abbot Stability\d-d'ps.OUT Page 5 43.65 45.80 48.48 5 114.51 6 122.22 129.76 137.08 7 51.70 8 9 144.16 55.42 10 150.96 59.64 11 157.44 64.32 69.46 75.02 12 163.58 13 169.33 169.77 75.50 14 Circle Center At X = 88.15 ; Y = 153.24 ; and Radius = 112.72 Factor of Safety \*\*\* 1.425 \*\*\* \*\*\*\* END OF GSTABL7 OUTPUT \*\*\*\*

CHRISTIAN WHEELER ENGINEERING

September 15, 2018

Roger Abbott 6340 Camino de la Costa La Jolla, California 92037 CWE 2170156.08 City Project Nbr.: 538814

## Subject: Review of TerraCosta Consulting Group Response to Coastal Commission Comments Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California

References: 1) Response to Coastal Commission Comments, 6340 Camino De La Costa, La Jolla, California, prepared by TerraCosta Consulting Group, TCCG Project No. 3018, dated September 13, 2018.

> 2) Addendum Geotechnical Report and Response to Cycle 5 LDR-Geology and -Coastal Commission Review Comments, Proposed Abbott Residence Additions, 6340 Camino de la Costa, La Jolla, California, Prepared by Christian Wheeler Engineering, CWE Report No. 2170156.04, dated January 17, 2018.

Dear Mr. Abbott:

In accordance with your request, we have reviewed the referenced TerraCosta Consulting Group (TCCG) response to the California Coastal Commission's (CCC) review comments transmitted on August 27, 2018. Simply stated, the CCC comments pertain to the potential for storm surf overtopping the bedrock shelf along the lower portions of the coastal bluff adjacent to and in the vicinity of the subject site and the issue of whether or not the existing rear yard retaining wall at the site should be considered a coastal protection device.

Page No. 2

Discussions of the history of the rear yard retaining wall and the fact that even during times of significant swell events the rear yard retaining wall and mid- to upper bluff areas are not affected by marine erosion are presented in our referenced Report No. 2170156.04 (January 18, 2018). Furthermore, we fully concur with the findings and characterizations of the site conditions (including the fact that the rear yard retaining wall is not a coastal protection device) and coastal environment presented in the referenced TCCG report (September 13, 2018).

If you have any questions after reviewing this report, please do not hesitate to contact this office. This opportunity to be of professional service is sincerely appreciated.

Respectfully submitted,

CHRISTIAN WHEELER ENGINEERING

David R. Russell, CEG #2215 DRR:dba cc: roger@abbott.bz; lauren@matrixdesignstudio.com; cslaven@joncornlaw.com





Daniel B. Adler, RCE #36037





Project No. 3018 June 29, 2018

Geotechnical Engineering Coastal Engineering Maritime Engineering

Ms. Chandra Slaven **THE JON CORN LAW FIRM** 160 Chesterfield Drive, Suite 201 Cardiff by the Sea, California 92007

THIRD-PARTY REVIEW GEOTECHNICAL INVESTIGATION AND RESPONSE TO CITY OF SAN DIEGO REVIEW COMMENTS 6340 CAMINO DE LA COSTA LA JOLLA, CALIFORNIA

Dear Ms. Slaven:

In accordance with your request, TerraCosta Consulting Group, Inc. (TerraCosta) performed a third-party review of Christian Wheeler Engineering's May 30, 2017, "Report of Preliminary Geotechnical Investigation, Proposed Abbott Residence Addition, 6340 Camino De La Costa, La Jolla, California," along with their responses to the City of San Diego Cycle 4, 5, and 6 LDR-Geology Review Comments. We also reviewed CWE's June 19, 2018, response to a letter from the neighbor's attorney. Lastly, we reviewed Coastal Commission Staff's May 22, 2018, email to Glenn Gargas with the City of San Diego, providing offline comments regarding the Abbott residence at 6340 Camino De La Costa.

We discussed the project at some length with David Russell with Christian Wheeler Engineering (CWE) and performed a site inspection with Mr. Russell to discuss site geology, the location of the bluff-top edge, and importantly the history of the rear yard retaining wall. We also reviewed select geotechnical reports for other projects in the site vicinity, as well as reports, maps, and aerial photographs contained in our in-house files and documents available on the internet that pertain to the general site area.

As reflected in CWE's June 19, 2018, addendum to their May 30, 2017, Geotechnical Investigation Report, we argued and CWE subsequently agreed to slightly recharacterize the site geology, with the upper sloping coastal bluff being comprised of the Quaternary-

age Bay Point Formation (paralic terrace deposits). The upper sloping portion of the coastal bluff is typically 45 to 50 feet landward of the top of the Point Loma Formation shelf rock that substantially protects this section of coastline. Although we considered it important to recharacterize the site geology, we concur with CWE that this geologic recharacterization has no impact on CWE's estimate of bluff-top erosion rate, or bluff stability for that matter.

Based on our review of CWE's reports and responses to City review comments, we concur with the conclusions and findings of CWE that this site, along with the neighboring properties, has high factors of safety against slope instability and exhibits relatively low erosion rates. This is in large part due to the extensive highly erosion-resistant Point Loma shelf rock that extends up to about elevation 20 feet on this property.

The benefits of the highly erosion-resistant Point Loma shelf rock seaward of the subject property cannot be overstated, as this highly erosion-resistant shelf rock absorbs virtually all wave energy from even the most severe storms, with only the runup and overtopping above the high relief shelf rock reaching the relatively stable upper sloping terrace deposits above roughly elevation 20 feet.

CWE's January 27, 22018, Response to Cycle 5 LDR-Geology and Coastal Commission Review Comments letter nicely summarizes the benefits of this high relief erosionresistant bedrock, which is illustrated on Page 3 of their report, reproducing the California Coastal Records 1972 photograph of the site and vicinity.

On Page 4 of CWE's report, they show the very effective high relief shelf rock completely stopping large storm surf, with no overtopping even reaching the base of the upper sloping terrace deposits.

Notably, Alex Llerandi's (Coastal Commission) May 22, 2018, email to Glenn Gargas (City of San Diego), states, "Coastal Commission Staff finds the bluff edge delineation submitted by the applicant to be acceptable." Mr. Llerandi then goes on to note that the bluff edge delineation shows a portion of the existing rear retaining wall to be located seaward of the bluff edge, and then incorrectly concludes that the wall acts as shoreline protection, "as it obscures the natural bluff face and disrupts natural processes …" We



take strong exception to Mr. Llerandi's mischaracterization of this relatively stable upper sloping coastal bluff and note that when the residence was built in 1962, the permitted rear yard wall was concurrently constructed to delineate and set the westerly limits of the rear yard of this very expensive residential property in La Jolla, and importantly consistent with many of its neighboring properties.

One need only look at the base of the existing wall today, now 56 years later, with absolutely no erosion at the base of the wall, in sharp contrast to Mr. Llerandi's incorrect characterization suggesting that the bluff would erode from the "natural erosive forces such as wind and rain." The mere fact that Mr. Llerandi did not mention wave forces as a contributing mechanism for erosion of the coastal bluff in his May 22 email would further suggest that even he recognizes that this 56-year-old rear yard wall is not providing any shoreline protection.

Based on our review of CWE's geotechnical report and responses to the three cycles of City review comments, we agree with all of CWE's findings and importantly, share their opinion that the currently proposed improvements to the subject property will be safe against coastal erosion for the next 75 years with a 25-foot rear yard bluff-top setback.

We trust this information meets your needs. If you have any questions or require additional information, please give us a call.

Very truly yours,

TERRACOSTA CONSULTING GROUP, INC.

Walter F. Crampton, Principal Engineer R.C.E. 23792, R.G.E. 245

WFC/GAS/jg



Gregory A. Spaulding, Project Geologist P.G. 5892, C.E.G. 1863





## CALIFORNIA COASTAL COMMISSION

SAN DIEGO AREA 7575 METROPOLITAN DRIVE, SUITE 103 SAN DIEGO, CA 92108-4421 (619) 767-2370



October 19, 2018

Glenn Gargas Development Services Dept. 1222 First Ave, MS 501 San Diego, CA 92101

Re: Offline Review Comments re: Abbot Residence (Project No. 538814)

Dear Mr. Gargas:

Thank you for the opportunity to comment on the pending City of San Diego coastal development permit for the partial demolition and second-story addition to an existing 5,609 sq. ft. single family residence located on a 1.37-acre bluff top lot at 6340 Camino de la Costa, La Jolla, San Diego, CA, 92037. The site is located between the first public road and the sea, in the appeals jurisdiction of the California Coastal Commission.

The subject property contains a single family residence as well as two smaller, detached garage structures, a swimming pool, and landscaping and hardscape. The single family residence, constructed in 1962, predates the Coastal Act and is a legally non-conforming structure in that portions of the residence are located closer than the default forty feet setback to the coastal bluff edge required in the certified Local Coastal Program (LCP). In addition, the rear yard area terminates at an approximately 110-foot wall along its western boundary that is partially located seaward of the coastal bluff edge on the bluff face. The proposed development includes the demolition of all portions of the existing single family residence located closer than twenty-five feet to the bluff edge. All the new additions are likewise proposed to only be twenty-five, not forty, feet back from the bluff edge. However, the aforementioned rear yard wall is proposed to be retained in its current non-conforming configuration. The certified LCP permits twenty-five foot setbacks from the bluff edge for qualifying development, but if shoreline protection is present on the property, the default forty-foot setback must be applied.

Upon review of the materials, Commission staff expressed concern over the presence of the rear wall on the bluff face in comments dated August 14, 2017, October 26, 2017, May 22, 2018, and July 31, 2018. Section 143.0143(f) of the certified LCP addresses development regulations for sensitive coastal bluffs. Per the LCP, the presence of an existing shoreline protective device on a site automatically imposes a forty-foot bluff setback for any new development. Thus, the subject project would have been modified to require all new development to be sited no closer than forty feet from the bluff edge, or the segment of wall seaward of the bluff edge be removed to be consistent with the LCP.

The applicant expressed disagreement with the characterization of the rear wall as a shoreline protective device, and submitted additional information detailing the construction history of the rear wall, the minimal wave action that the majority of the

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bluff face experiences, the historically low erosion rate of the dense bluff material, and evidence that the wall is not supporting the existing residence. Commission staff acknowledges that the wall is a legal non-conforming use, and that the site has experienced relatively little erosion in the decades since the wall was constructed. However, the fact that the wall is not required to support the residence, or that the wall does not receive wave action, does not mean it is not a shoreline protective device. The Commission's geologist has reviewed the project and the material submitted, and notes that the presence of the wall has to some extent protected the bluff by slowing or limiting the rate or extent of erosion that would otherwise have occurred on the natural bluff face, affecting both the profile of the bluff and the amount of sand that reaches the beach. Thus, staff believes that the retaining wall is, in part, a shoreline protective device under the LCP.

Nevertheless, Commission staff recognizes that the majority of the 110-ft. wall (approximately three-quarters) is not located seaward of the bluff. The applicant has provided evidence that the existing residence does not depend on the wall for support. The site has historically experiences limited erosion and wave action (although this may not be the case in the future given sea level rise and climate change). The project does not constitute demolition of the existing structure, and includes removal of portions of the structure that are most at risk from erosion. Given these particular circumstances and the limited nature of the development, this particular project is less likely to result in substantial adverse impacts to coastal resources.

Commission staff believes it is important that the City's approval of the permit not conclude that the existing rear wall is not shoreline protection. Rather, the findings supporting any permit authorizing the residential addition should identify the distinguishing characteristics of the site and the development as noted. Findings or conditions should make clear that absolutely no work to the rear wall is included in the proposed residential remodel, and that barring routine repair and maintenance, no alteration, modification, or expansion of the rear wall is authorized by the permit and will require its own separate permit review. Further, the current configuration of the wall should be described, namely with regard to its relatively minor interaction with the coastal bluff. This includes noting that the vast majority of the wall is located landward of the designated bluff edge, and that the wall itself does not contain any deep footings or caissons either on or behind the bluff. Furthermore, the findings should note that the rear wall is not retaining any of the bluff material, but rather only supports the fill constituting the rear yard area. Finally, it is especially important to note that the existing residence, either in its current or proposed state, is not currently nor is expected in the future to rely on the rear wall for geological support.

Regarding special conditions in any final local permit, the LCP requires that any development proposing a geological setback of less than forty feet record a waiver of future shoreline protection, and such a condition will be expected in any final permit action. As an ancillary structure to the primary residence, the LCP makes clear that structures such as the rear wall do not qualify for any future protection from erosion or other geological hazards, and consequently the findings should make clear that should the

October 19, 2018 Page 3

wall become undermined at some point in the future, in line with the LCPs coastal resource protection policies, it is expected that the wall will be removed, in whole or in part, at that time.

Commission staff appreciates the City's willingness to coordinate with the Commission on this project to ensure that all potential impacts to coastal resources are addressed and mitigated as necessary.

Should you have any questions or comments regarding the above matter, please feel free to contact me at the San Diego District office at (619) 767-2370.

Sincerely,

Alexander Llerandi Coastal Program Analyst California Coastal Commission San Diego District