Preliminary Drainage Study

Dolphin Motel

Lots 1-5, Block 62, Map No. 165
1453-63 Rosecrans Street and 2912 & 2930 Garrison Street
San Diego, California 92106

Prepared for:
PL BOUTIQUE INVESTORS LLC
17828 VILLAMOURA DR
POWAY CA 92064-1013

Prepared by:
Christensen Engineering & Surveying
7888 Silverton Avenue, Suite "J"
San Diego, CA 92126
(858) 271-9901

April 10, 2017
Revised August 25, 2017

PTS No. 556027

Introduction

This project proposes the removal of the existing commercial improvements on lots 1-5 in Block 62 of Map No.165, to be replaced with a new motel with subterranean parking, biofiltration basins, and landscaping.

The attached drainage area maps are from a topographic survey by Christensen Engineering & Surveying dated March 23, 2017. The site, in its existing pre-construction condition, drains southwesterly to the Garrison Street (1.60 cfs). Following construction area PC-R will flow to Rosecrans Street (0.44 cfs (0.44 cfs by curb outlet)) and area PC-G will flow to Garrison (1.16 cfs (1.14 cfs to curb outlet)). The flow to Rosecrans will flow to Garrison and then to San Diego Bay, by the same public storm drain before construction. Drainage Basin G runoff, from the roof, will flow to the biofiltration basin (BMP-1) by a downspout drainage system within the building that outlets to the basin. The outlet to the basin will have adequate energy dissipation to prevent scouring within the basin's upper soil/mulch layer. Runoff from Drainage Basin R will be conveyed to biofiltration basin (BMP-2) by being pumped from catch basins equipped with pumps. There will be no increase in runoff from the site. The site has 0.572 ac of imperviousness and a proposed 0.562 area of imperiousness following development, a change from of 100% to 98.2% area of imperviousness.

Section 404 of CWA regulates the discharge of dredged or fill material into waters of the United States. Section 404 is regulated by the Army Corps of Engineers. Section 401 of CWA requires that the State provide certification that any activity authorized under Section 404 is in compliance with effluent limits, the state's water quality standards, and any other appropriate requirements of state law. Section 401 is administered by the State Regional Water Quality Control Board. The project does not require a Federal CWA Section 404 permit nor Section 401 Certification because it does not cause dredging or filling in waters of the United States and is in compliance with the State Water Quality Standards. See separate SWQMP.

The Rational Method was used to calculate the anticipated flow for the 100-year storm return frequency event using the method outlined in the City of San Diego Drainage Design Manual.

Antony K. Christensen
RCE 54021
Exp. 12-31-17
JN A2016-80

08-25-17
Date

Calculations

1. *Intensity Calculation*

(From the City of San Diego Drainage Design Manual, Page 86)
Tc = Time of concentration

$Tc = 1.8\ (1.1\text{-}C)\ (D)^{1/2} / S^{1/3}$

Since the difference in elevation is 0.8' (9.1'-8.3') and the distance traveled is 267' (S=0.3%). C=0.85.

Tc = 11 minutes

From table on Page 83

I_{100} = 3.3 inches

2. *Coefficient Determination*

The site and the area offsite that will contribute to runoff is included in this study.
From Page 82

Pre-Construction:
The site is a motel site and is considered Commercial

C= 0.85

Post construction:
From Page 82 site remains a motel and is considered Commercial

C = 0.55

3. *Volume calculations*

Q = CIA

Areas of Drainage

The procedure used by the City of San Diego Drainage Design Manual is that areas of similar use should employ the same runoff coefficient using that method for this project has the same pre- and post-construction total runoff.

Pre-Construction

Area onsite flows to Garrison Street A = 0.572 Acre

Post-Construction

Area draining from roof and biofiltration basin flowing to Garrison Street — PC-G = 0.414 Acre (0.408 to curb outlet)

Area draining from roof and biofiltration basin flowing to Rosecrans Street — PC-R = 0.159 Acre (0.159 to curb outlet)

Pre-Construction

Q_{100A} = (0.85) (3.3) (0.572)

Q_{100A} = 1.60 cfs

Post-Construction

$Q_{100PC-G}$ = (0.85) (3.3) (0.414) (0.408 to curb outlet)
$Q_{100PC-R}$ = (0.85) (3.3) (0.159) (0.159 to curb outlet)

$Q_{100PC-G}$ = 1.16 cfs (1.14 cfs to curb outlet)
$Q_{100PC-R}$ = 0.44 cfs (0.44 cfs to curb outlet)

4. *Discussion*

The site, in its existing pre-construction condition, drains southwesterly to the Garrison Street (1.60 cfs). Following construction area PC-R will flow to Rosecrans Street (0.44 cfs (0.44 cfs by curb outlet)) and area PC-G will flow to Garrison (1.16 cfs (1.14 cfs to curb outlet)). The flow to Rosecrans will flow to Garrison and then to the Bay by the same public storm drain before construction. There will be no increase in runoff from the site.

APPENDIX

TABLE 2

RUNOFF COEFFICIENTS (RATIONAL METHOD)

DEVELOPED AREAS (URBAN)

Land Use	Coefficient, C Soil Type (1)
	D
Residential:	
Single Family	.55
Multi-Units	.70
Mobile Homes	.65
Rural (lots greater than 1/2 acre)	.45
Commercial (2) 80% Impervious	.85
Industrial (2) 90% Impervious	.95

NOTES:

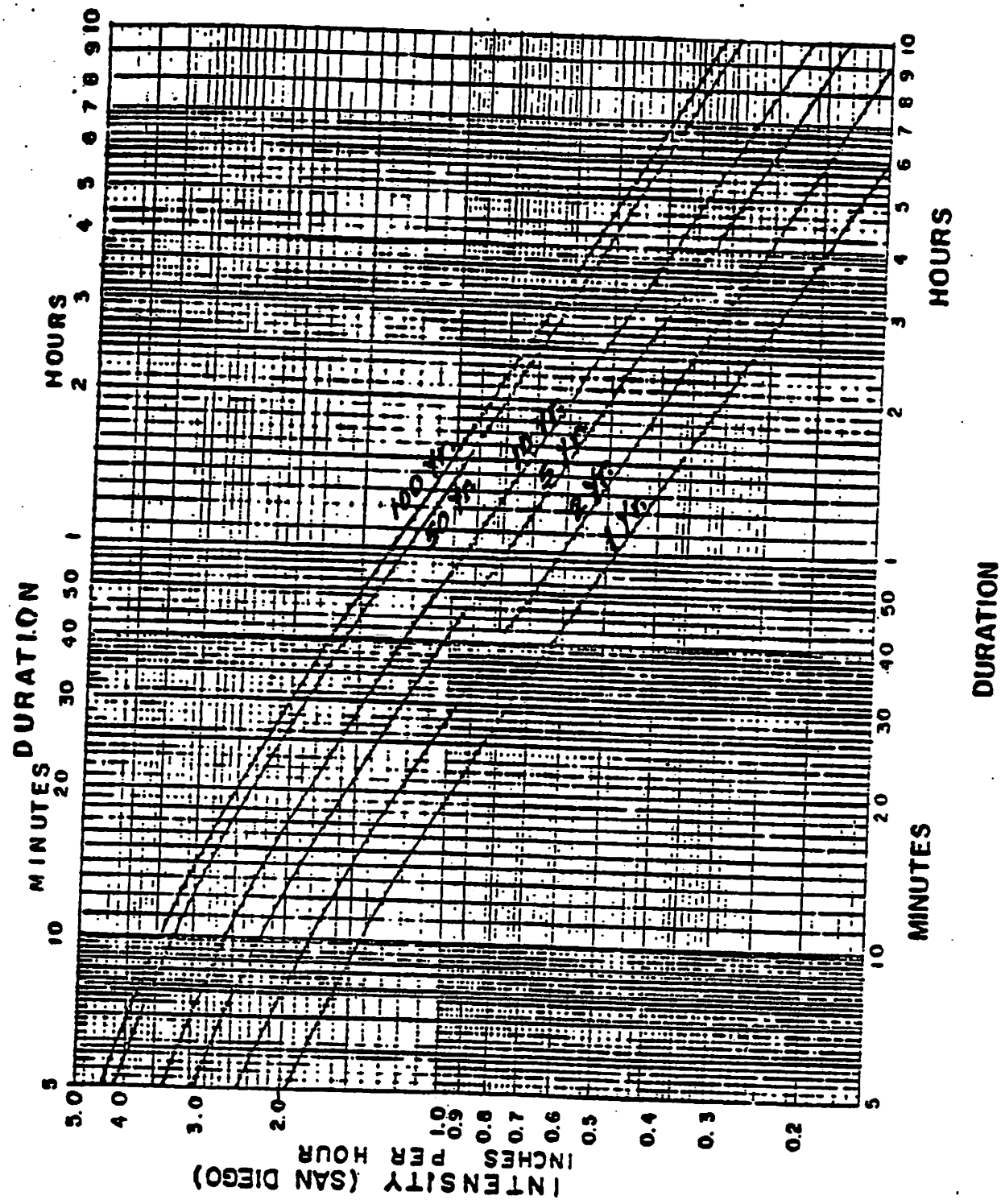
(1) Type D soil to be used for all areas.

(2) Where actual conditions deviate significantly from the tabulated imperviousness values of 80% or 90%, the values given for coefficient C, may be revised by multiplying 80% or 90% by the ratio of actual imperviousness to the tabulated imperviousness. However, in no case shall the final coefficient be less than 0.50. For example: Consider commercial property on D soil.

Actual imperviousness = 50%

Tabulated imperviousness = 80%

Revised C = $\frac{50}{80}$ x 0.85 = 0.53



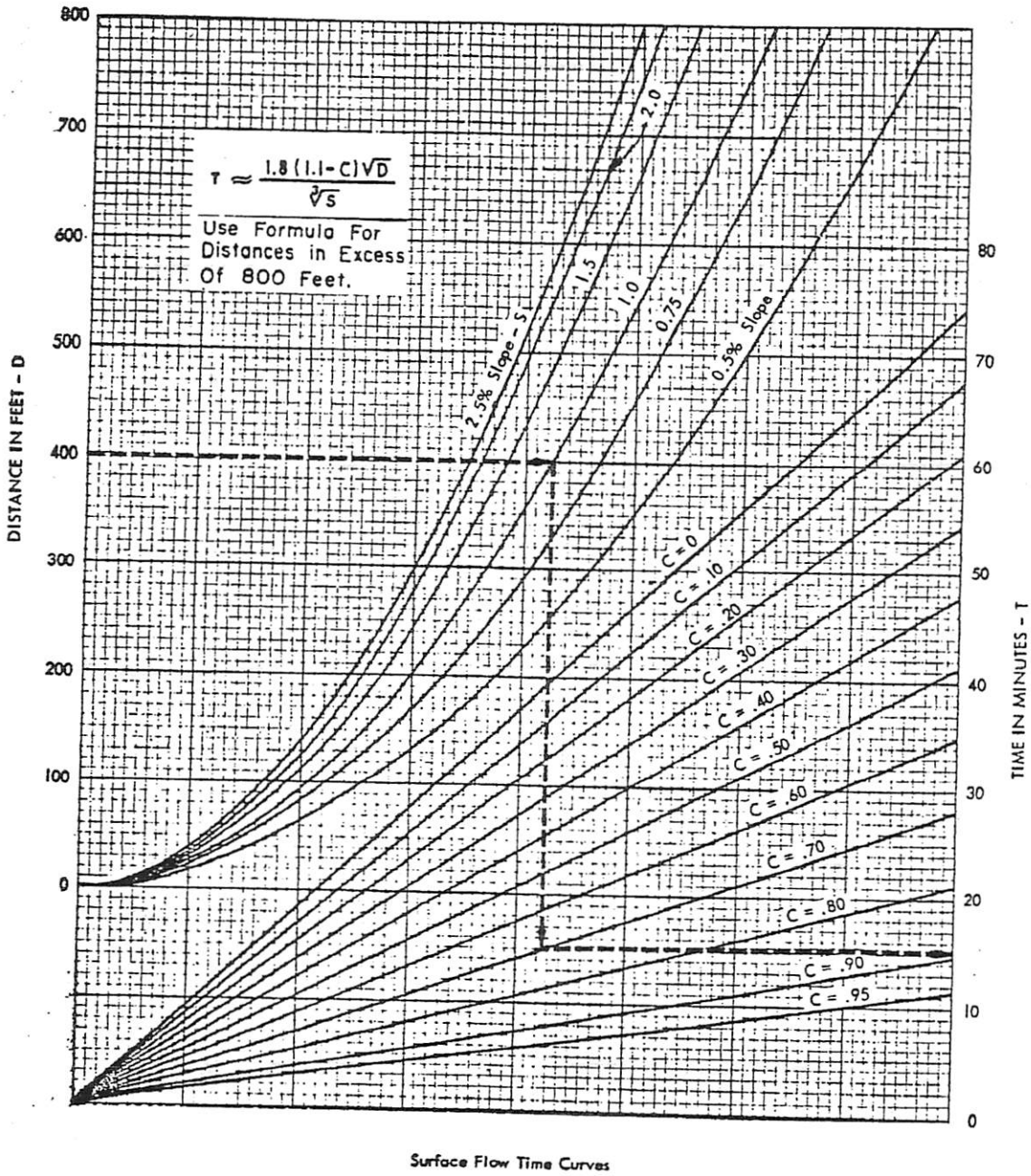
ELEV.	FACTOR
0–1500	1.00
1500–3000	1.23
3000–4000	1.42
4000–5000	1.60
5000–6000	1.70
DESERT	1.25

To obtain correct intensity, multiply intensity on chart by factor for design elevation.

RAINFALL
INTENSITY – DURATION – FREQUENCY
CURVES
for
COUNTY OF SAN DIEGO

APPENDIX I-

URBAN AREAS OVERLAND TIME OF FLOW CURVES



Surface Flow Time Curves

EXAMPLE:

GIVEN: LENGTH OF FLOW = 400 FT.
SLOPE = 1.0 %
COEFFICIENT OF RUNOFF C = .70

READ: OVERLAND FLOWTIME = 15 MINUTES

DRAINAGE AREA MAPS

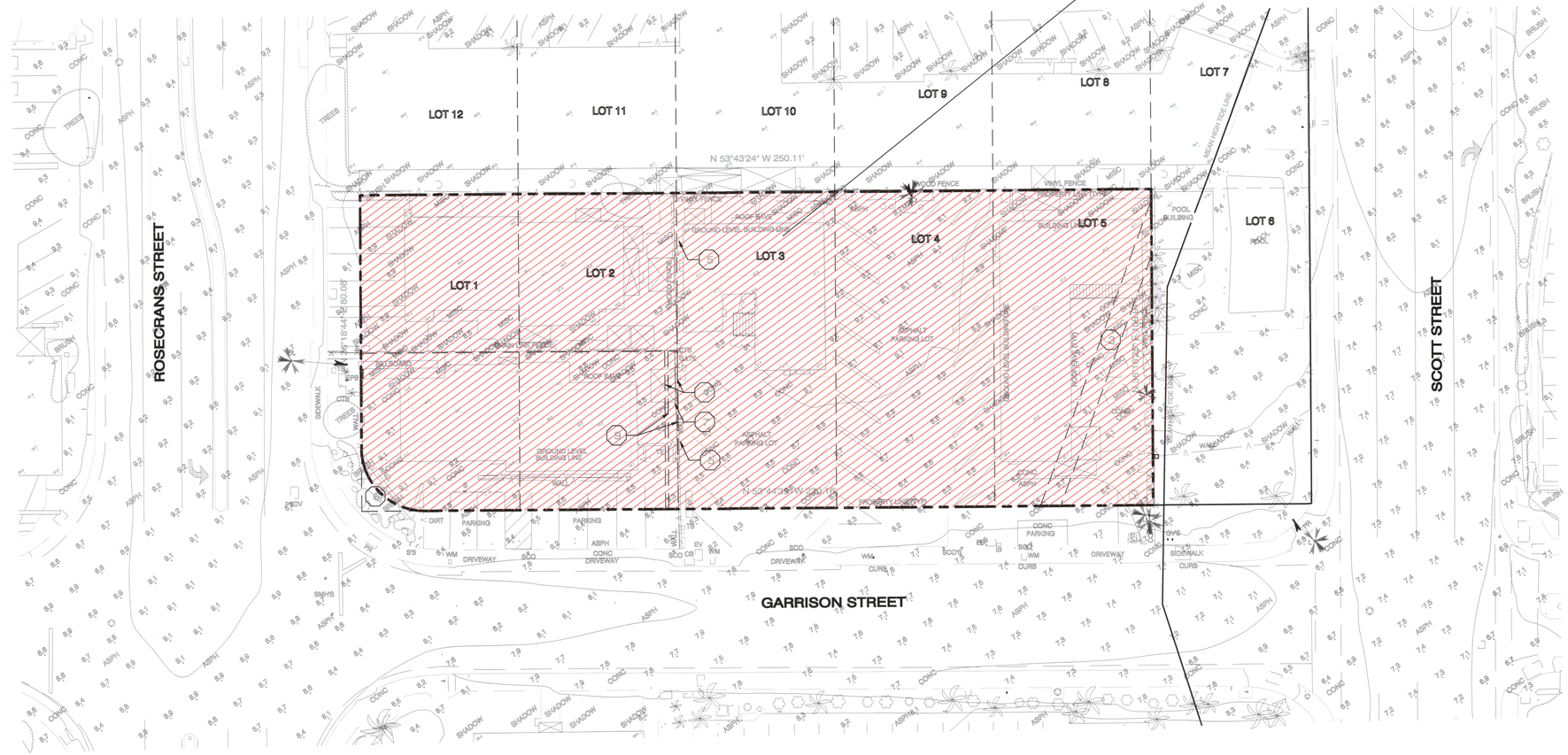
PRE-DEVELOPMENT DRAINAGE AREA MAP

PRE-CONSTRUCTION DRAINAGE AREA MAP

SHEET 1 0F 1 SHEET

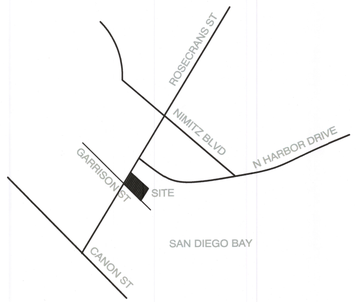
TOPOGRAPHY

SCALE 1"= 20'



ABBREVIATIONS

ASPH	ASPHALT
CB	COMMUNICATIONS BOX
CTB	CABLE TELEVISION BOX
EV	ELECTRIC VAULT
GV	GAS VALVE
IB	IRRIGATION BOX
L	LIGHT
PR	PEDESTRIAN RAMP
PSDV	PORT OF SAN DIEGO VAULT
S	SIGN
SCO	SEWER CLEANOUT
SL	STREET LIGHT
SMH	SEWER MANHOLE
TB	TELEPHONE BOX
TE	TRASH ENCLOSURE
TYP	TYPICAL
WM	WATER METER



VICINITY MAP

NOT TO SCALE

TITLE NOTES

(2) AN EASEMENT OR RIGHT OF WAY FOR THE CONSTRUCTION AND MAINTENANCE OF FLUMES, CANALS OR AQUEDUCTS, CONVEYED BY DEED FROM FRANK A. KIMBALL, AND WARREN G. KIMBALL TO KIMBALL BROTHERS WATER COMPANY, A CORPORATION, DATED JUNE 9, 1889, AND RECORDED IN BOOK 7, PAGE 124 OF DEEDS. THE INTEREST OF SAID GRANTEE IN AND TO SAID EASEMENT HAS SINCE PASSED TO AND NOW VESTS OF RECORD IN THE SWEETWATER AUTHORITY. THE LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD AND IS NOT PLOTTED.

(3) AN EASEMENT FOR SEWER PURPOSES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED JUNE 12, 1928 IN BOOK 1510, PAGE 12, OF DEEDS, OF OFFICIAL RECORDS.

(4) AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A PRIVATE SEWER LATERAL AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED FEBRUARY 4, 1944 IN BOOK 1635, PAGE 177 OF OFFICIAL RECORDS.

(5) AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED MAY 29, 1944 IN BOOK 1684, PAGE 263, OF OFFICIAL RECORDS.

(6) AN EASEMENT FOR PUBLIC STREET AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, RECORDED MARCH 3, 1959 IN BOOK 7527, PAGE 49 OF OFFICIAL RECORDS.

(7) AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED IN BOOK 1688, PAGE 116, OF OFFICIAL RECORDS.

(8) AN AGREEMENT RELATING TO THE INSTALLATION, MAINTENANCE AND POSSIBLE REMOVAL OF A PARKING LOT OVER EXISTING SIDEWALK AND CURB, BY AND BETWEEN THE CITY OF SAN DIEGO AND EDWIN FRANK MAY AND BARBARA J. MAY, RECORDED JUNE 21, 1963 AS INSTRUMENT NO. 108971, OF OFFICIAL RECORDS. AGREEMENT IS NOT PLOTTED.

(9) AN EASEMENT FOR COMMUNICATION STRUCTURES AND RIGHTS INCIDENTAL THERETO, GRANTED TO THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, RECORDED MAY 11, 1966 AS INSTRUMENT NO. 79002, OF OFFICIAL RECORDS.

(13) AN AGREEMENT RELATING TO THE INSTALLATION, MAINTENANCE AND POSSIBLE REMOVAL OF A 3 1/2 TALL CHAIN LINK FENCE, BY AND BETWEEN THE CITY OF SAN DIEGO AND H.G. ROCKWOOD AND BEVERLY M. ROCKWOOD, RECORDED DECEMBER 18, 1986 AS INSTRUMENT NO. 86-596034, OF OFFICIAL RECORDS. AGREEMENT IS NOT PLOTTED.

(20) AN ENCROACHMENT MAINTENANCE AND REMOVAL AGREEMENT, EXECUTED BY. H.D. MURDOCK, INC. AND THE CITY OF SAN DIEGO, RECORDED APRIL 4, 2014 AS INSTRUMENT NO. 2014-0133012, OF OFFICIAL RECORDS. AGREEMENT IS NOT PLOTTED.

LEGAL DESCRIPTION

LOTS 1 AND 2, BLOCK 62 OF ROSEVILLE, CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 165 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, EXCEPTING THAT PORTION IF ANY HERETO FORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOT 3 IN BLOCK 62 OF ROSEVILLE, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE RECORDER OF SAN DIEGO COUNTY. EXCEPTING THAT PORTION, IF ANY, HERETOFORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOTS 4 AND 5 IN BLOCK 62, OF ROSEVILLE, IN CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.

REFERENCE DOCUMENT

TITLE INFORMATION FOR THIS SURVEY IS FROM FIDELITY NATIONAL TITLE COMPANY PRELIMINARY REPORT ORDER NO. 005-23088597-1MB, DATED OCTOBER 7, 2016 AND CHICAGO TITLE PRELIMINARY REPORT ORDER NO. 0069801-993-SD2-CFU, DATED MARCH 16, 2017.

LEGEND

(3) INDICATES REFERENCE TO TITLE NOTE EXCEPTION PER THE TITLE REPORTS.

NOTES

1. AGREEMENTS, DOCUMENTS AND OTHER MATTERS WHICH AFFECT THIS PROPERTY EXIST, BUT CANNOT BE PLOTTED. SEE TITLE REPORT.
2. THE PRECISE LOCATION OF UNDERGROUND UTILITIES COULD NOT BE DETERMINED IN THE FIELD PRIOR TO ANY EXCAVATION UTILITY COMPANIES WILL NEED TO MARK-OUT EXACT UTILITY LOCATIONS.
3. THE ASSESSOR PARCEL NUMBERS FOR THE SUBJECT PROPERTY ARE 530-751-01,02,03,04 AND 05.
4. THE ADDRESSES FOR THE SUBJECT PROPERTY ARE 1453-1455 AND 1461-1463 ROSECRANS STREET AND 2912 AND 2930 GARRISON STREET, SAN DIEGO, CA 92106.
5. THE TOTAL AREA OF THE SUBJECT PROPERTY IS 0.572 ACRES.

LICENSED LAND SURVEYOR — EXP. 3-31-18 — No. L.S. 7208 — STATE OF CALIFORNIA

MARCH 23, 2017

PATRICK F. CHRISTENSEN, L.S. 7208 Date

CE &S CHRISTENSEN ENGINEERING & SURVEYING
CIVIL ENGINEERS LAND SURVEYORS PLANNERS
7888 SILVERTON AVENUE, SUITE "J", SAN DIEGO, CALIFORNIA 92126
TELEPHONE: (858)271-9901 FAX: (858)271-8912 EMAIL: CEANDS@AOL.COM

C-1

J.N. 2016-80

POST-DEVELOPMENT DRAINAGE AREA MAP

POST-CONSTRUCTION DRAINAGE AREA MAP

CONSTRUCTION NOTES

1. C/L PROPOSED 25' DRIVEWAY PER SDG-163
2. PROPOSED PED RAMP PER SDG-132
3. REMOVE AND REPLACE EXISTING DRIVEWAY WITH CURB GUTTER AND SIDEWALK (TYPICAL)
4. REMOVE EX CONCRETE. REPLACE WITH PLANTER (TYPICAL)
5. PROPOSED SIDEWALK PER SDG-155
6. KILL EXISTING WATER SERVICE (TYPICAL)
7. ABANDON EXISTING SEWER LATERAL AT P/L (TYPICAL)
8. PROPOSED 6" SEWER LATERAL
9. PROPOSED 2" WATER SERVIDE
10. PROPOSED 4" FIRE SERVICE
11. VISIBILITY TRIANGLE (TYPICAL)
12. MAIN FLOOR LEVEL CATCH BASIN (TYPICAL)
13. PVC DRAIN CONVEYING RUNOFF TO BMP-2
14. CATCH BASIN WITH PUMP (AT GROUND LEVEL) TO CONVEY MAIN FLOOR AND PARKING RAMP RUNOFF TO BIOFILTRATION BASIN. INCLUDES OVERFLOW TO CURB OULET IN THE CASE OF PUMP FAILURE
15. BIOFILTRATION BASIN TO TREAT RUNOFF FROM ROOF (504 SF) (BMP-1)
16. BIOFILTRATION BASIN TO TREAT RUNOFF FROM MAIN LEVEL (211 SF) (BMP-2)
17. DRAIN WITHIN BUILDING TO CONVEY DOWNSPOUT ROOF RUNOFF TO BMP-1 (TYPICAL)
18. OUTER EXTENT OF ROOF (OUTLINE)
19. CURB OUTLET PER D-25
    Q100 = 0.44 CFS
    V100 = 2.2 FPS
20. CURB OUTLET PER D-25
    Q100 = 1.14 CFS
    V100 = 3.1 FPS
21. PROPOSED BACKFLOW PREVENTER (TYPICAL)
22. PROPOSED AREA DRAIN CONVEYING RUNOFF TO BMP-2 SURFACE BY PUMP IN CATCH BASIN WITHIN BASIN
23. ROOF DOWNSPOUT (JOINED BY ITEM #17 DRAIN WHERE SHOWN TO BMP-1)
24. "GARDEN" AREA ON MAIN FLOOR. SEE LANDSCAPE PLAN
25. CATCH BASIN WITH PUMP TO COVEY RUNOFF FROM ITEM 22 TO SURFACE OF BMP-2
26. "GARDEN" AREA DRAIN CONVEYING RUNOFF TO BMP-2 (TYPICAL)
27. "GARDEN" AREA PVC DRAIN (TYPICAL)

TITLE NOTES

2. AN EASEMENT OR RIGHT OF WAY FOR THE CONSTRUCTION AND MAINTENANCE OF FLUMES, CANALS OR AQUEDUCTS, CONVEYED BY DEED FROM FRANK A. KIMBALL, AND WARREN G. KIMBALL TO KIMBALL BROTHERS WATER COMPANY, A CORPORATION, DATED JUNE 9, 1869, AND RECORDED IN BOOK 7, PAGE 124 OF DEEDS. THE INTEREST OF SAID GRANTEE IN AND TO SAID EASEMENT HAS SINCE PASSED TO AND NOW VESTS OF RECORD IN THE SWEETWATER AUTHORITY. THE LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD AND IS NOT PLOTTED.
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4. AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A PRIVATE SEWER LATERAL AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED FEBRUARY 4, 1944 IN BOOK 1635, PAGE 177 OF OFFICIAL RECORDS. (TO BE VACATED)
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8. AN EASEMENT FOR COMMUNICATION STRUCTURES AND RIGHTS INCIDENTAL THERETO, GRANTED TO THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, RECORDED MAY 11, 1966 AS INSTRUMENT NO. 79002, OF OFFICIAL RECORDS. (TO BE QUITCLAIMED)

LEGAL DESCRIPTION

LOTS 1 AND 2, BLOCK 62 OF ROSEVILLE, CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 165 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, EXCEPTING THAT PORTION IF ANY HERETO FORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

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APNs: 530-751-01,02,03,04 AND 05

BASIS OF BEARINGS

A PORTION OF THE MEAN HIGH TIDE LINE AS SHOWN ON SHEET 3 OF RECORD OF SURVEY 20732. I.E. SOUTH 37°29'53" WEST.

APN / ADDRESS

ASSESSOR'S PARCEL NUMBERS: 530-751-01,02,03,04 AND 05

ADDRESS: 1453-1455 AND 1461-1463 ROSECRANS ST
AND 2912 AND 2930 GARRISON ST
SAN DIEGO, CA 92106

BENCHMARK

CITY OF SAN DIEGO BENCHMARK BRASS PLUG LOCATED IN THE TOP OF CURB AT THE WESTERLY CORNER OF ROSECRANS STREET AND GARRISON STREET. ELEVATION = 8.474' MEAN SEA LEVEL (N.G.V.D. 1929).

NOTES

1. UTILITIES SHOWN HEREON ARE FROM CITY OF SAN DIEGO RECORDS AND ARE THEIR LOCATION ARE APPROXIMATE. NOT ALL UTILITIES MAY BE SHOWN. BEFORE ANY WORK TAKES PLACE CONTRACTOR SHALL HAVE ALL UTILITIES MARKED OUT AND SHALL USE SPECIAL CARE DURING CONSTRUCTION.
2. TITLE INFORMATION FOR THIS PROJECT IS FROM FIDELITY NATIONAL TITLE COMPANY PRELIMINARY REPORT ORDER NO. 005-230885971-1MB, DATED OCTOBER 7, 2016 AND CHICAGO TITLE PRELIMINARY REPORT ORDER NO. 0069801-993-SD2-CFU, DATED MARCH 16, 2017. ITEMS OTHER THAN EASEMENTS EXIST. SEE TITLE REPORTS FOR DETAILS.
3. THE SOURCE OF THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS FROM SURVEY BY CHRISTENSEN ENGINEERING & SURVEYING, DATED 01-07-13 AND REVISED 01-08-13.
4. THE SUBJECT PROPERTY IS SERVED BY CITY OF SAN DIEGO SANITARY SEWER AND WATER MAINS.
5. NAD27 COORDINATES = 204-1698. NAD83 COORDINATES = 1844-6258.
6. TITLE ITEM 3 TO BE VACATED. TITLE ITEMS 4, 5, 7 & 9 TO BE QUITCLAIMED.
7. AN ENCROACHMENT MAINTENANCE AND REMOVAL AGREEMENT WILL BE REQUIRED FOR PRIVATE CURB OUTLETS AND WALKWAYS WITHIN ROSECRANS AND GARRISON STREET RIGHTS OF WAY

GRADING DATA

AREA OF SITE - 24,941 S.F.
AREA OF SITE TO BE GRADED: 24,941 SF
PERCENT OF SITE TO BE GRADED: 100%
AREA OF SITE WITH SLOPES GREATER THAN 25%: 0 S.F.

AMOUNT OF CUT - 9160 C.Y.
AMOUNT OF FILL - 180 C.Y.
AMOUNT OF EXPORT - 8,980 C.Y.
MAXIMUM FILL - <1
MAXIMUM CUT - 11 FOOT VERTICAL WITHIN STRUCTURE
NONE ELSEWHERE
MAXIMUM HEIGHT OF FILL SLOPE - NONE
MAXIMUM HEIGHT OF CUT SLOPE - NONE
RETAINING WALL: NONE NOT A PART OF BUILDING

EARTHWORK CALCULATIONS ARE APPROXIMATE
TO FINISH FLOOR/SURFACE

AREA PC-G
18,030 SF
0.414 AC
C=0.85
FLOWS TO GARRISON

AREA PC-R
6,911 SF
0.159 AC
C=0.85
FLOWS TO ROSECRANS

ROSEVILLE SUBDIVISION
BLOCK 62
MAP NO. 165

9.0 FF/FS MAIN LEVEL
-1.5 FF LOWER LEVEL

ROSEVILLE SUBDIVISION
BLOCK 75
MAP NO. 165

ROSECRANS STREET

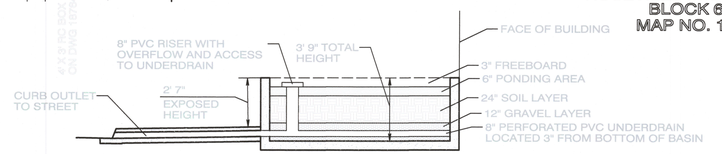
GARRISON STREET

SCOTT STREET

ROSEVILLE SUBDIVISION
BLOCK 62
MAP NO. 165

SCALE 1" = 20'

0 20 40 60 80



BIOFILTRATION BASIN DETAIL
(BMP-1 & BMP-2)
NOT TO SCALE

NOTE:
SEE SHEET C-3 FOR BASIN DIMENSIONS

AUGUST 30, 2017
ANTONY K. CHRISTENSEN, R.C.E. 54021 Date

REGISTERED PROFESSIONAL ENGINEER
ANTONY K. CHRISTENSEN
R.C.E. No. 54021
Exp. 12-31-17
CIVIL
STATE OF CALIFORNIA

Owners:

PL BOUTIQUE INVESTORS LLC
17828 VILLAMOURA DR
POWAY CA 92064-1013

Prepared By:

CHRISTENSEN ENGINEERING & SURVEYING
7888 SILVERTON AVENUE, SUITE "J"
SAN DIEGO, CA 92126
PHONE (858) 271-9901 FAX (858) 271-8912

Project Address:

1453-1455 AND 1461-1463 ROSECRANS ST
AND 2912 AND 2930 GARRISON ST
SAN DIEGO, CA 92106

Project Name:

DOLPHIN MOTEL

Revision 4:
Revision 3:
Revision 2: 03-30-17 REVISE GARDEN DESIGN
Revision 1: 08-25-17 REVISED DESIGN ADDRESS CITY COMMENTS

Original Date: APRIL 10, 2017

Sheet Title:

PRELIMINARY GRADING PLAN

Sheet of Sheets

C-2

A2016-80

ADVANCED GEOTECHNICAL SOLUTIONS, INC.
485 Corporate Drive, Suite B
Escondido, Ca 92029
Telephone: (619) 867-0487

Alliance Development Services, Inc.
17828 Villamoura Drive
Poway, CA 92064

November 21, 2017
P/W 1611-03
Report No. 1611-03-B-8

Attention: **Mr. Mac Stead**

Subject: **Response to City of San Diego Review Comments, Dolphin Motel Project, Point Loma San Diego, California**

Gentlemen:

In accordance with your request and authorization, Advanced Geotechnical Solutions, Inc., presents herein our response to City of San Diego LDR-Geology Cycle Review Comments for the Dolphin Motel Project, Point Loma San Diego, California. More specifically, this letter has been prepared in response to review comments 8 and 9 from Cycle 5 Review Comments dated September 17, 2017.

In preparing this response to cycle review comments we have first presented the review comment followed by our response

***Item 8* -City of San Diego-** *As previously requested, submit a geotechnical investigation report that addresses the subject site, geologic hazards, and proposed development. For information regarding geotechnical reports, consider reviewing the City's Guidelines for Geotechnical Reports (http:www.sandiego.gov/development-services/industry/hazards/intex.shtml).*

AGS response – AGS, has attached our preliminary geotechnical investigation and design recommendations herein (AGS, 2017b). Please see Appendix A.

***Item 9* -City of San Diego-** *Per the current stormwater standards, the role of a planning-level infiltration feasibility assessment is to help the planners determine where infiltration is likely feasible, possibly feasible or clearly unfeasible. A review of the infiltration test map and report indicates infiltration testing was conducted only in the northeasterly portion of the site. As previously requested, the project's geotechnical consultant should clarify if additional testing will be conducted in order to determine the storm water infiltration feasibility condition across the entire site.*

AGS response – AGS, has attached our updated infiltration feasibility study herein (AGS, 2017d). Please see Appendix B.

Advanced Geotechnical Solutions, Inc. appreciates the opportunity to provide you with geotechnical consulting services and professional opinions. If you have any questions, please contact the undersigned at (619) 867-0487.

Respectfully Submitted,
Advanced Geotechnical Solutions, Inc.

Prepared by:

SHANE P. SMITH
Staff Engineer

Reviewed by:

JEFFREY A. CHANEY, President
RCE 46544 / RGE 2314, Reg. Exp. 6-30-19

Distribution: (6) Addressee

Attachments: References
Appendix A – Preliminary Geotechnical Investigation
Appendix B – Updated Infiltration Feasibility Study

REFERENCES

Advanced Geotechnical Solutions, Inc., 2016, "Proposal for Geotechnical Services Associated with the Design of the Dolphin Motel Project", San Diego, California", dated November 28, 2016, Report No. 1611-03-A-1.

---. (2017a). "Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated April 7, 2017, Report No. 1611-03-B-2

---. (2017b). "Preliminary Geotechnical Investigation and Foundation Design Recommendations for Proposed Residential Multi-Family Podium Apartment Structure (Garrison Street) Dolphin Motel Project, San Diego, California", dated April 10, 2017, Report No. 1611-03-B-3

---. (2017c). "Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated June 12, 2017, Report No. 1611-03-B-5

---. (2017d). "Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated November 20, 2017, Report No. 1611-03-B-7

APPENDIX A

PRELIMINARY GEOTECHNICAL INVESTIGATION

(AGS 2017)

ADVANCED GEOTECHNICAL SOLUTIONS, INC.
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Alliance Development Services, Inc.
17828 Villamoura Drive
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April 10, 2017
P/W 1611-03
Report No. 1611-03-B-3

Attention: **Mr. Mac Stead**

Subject: **Preliminary Geotechnical Investigation and Foundation Design Recommendations for Proposed Residential Multi-Family Podium Apartment Structure (Garrison Street) Dolphin Motel Project, San Diego, California**

Gentlemen,

In accordance with your request, presented herein are the results of Advanced Geotechnical Solutions, Inc.'s (AGS) geotechnical investigation and foundation design recommendations for the proposed motel structures to be located at 2912 Garrison, San Diego, California. As we understand the project the site will consist of a new motel structure that will consist of three stories of motel units supported by a "podium" above the one story subterranean parking garage below grade.

The recommendations presented in the following report are based on a limited subsurface investigation performed by AGS and associated laboratory testing. It is AGS's opinion, from a geotechnical standpoint, the subject site is suitable for construction of the proposed motel, provided the recommendations presented in this report are incorporated into the design, planning and construction phases of site development. Included in this report are: 1) engineering characteristics of the onsite soils; 2) unsuitable soil removal recommendations; 3) grading recommendations; 4) foundation design recommendations; and 5) storm water infiltration feasibility analysis.

Provided the recommendations presented herein are utilized during the grading and construction the site is considered suitable for its intended use. Advanced Geotechnical Solutions, Inc., appreciates the opportunity to provide you with geotechnical consulting services and professional opinions. If you have any questions, please contact the undersigned at (619) 867-0487.

Respectfully Submitted,
Advanced Geotechnical Solutions, Inc.

Prepared by:

PAUL J. DERISI, Vice President
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Distribution: (3) Addressee

Attachments: Figure 1 – Site Location Map;
Figure 2 – Geologic Map and Exploration Plan;
Plate 1 – Site Geologic Map; Plate 2 – Cross-Sections;
Appendix A – References
Appendix B – Field and Laboratory Data;
Appendix C – General Earthwork Specifications & Grading Guidelines;
Appendix D – Homeowner Maintenance Recommendations;

PRELIMINARY GEOTECHNICAL INVESTIGATION AND FOUNDATION DESIGN RECOMMENDATIONS FOR PROPOSED MOTEL PODIUM STRUCTURE (GARRISON STREET) DOLPHIN MOTEL PROJECT SAN DIEGO, CALIFORNIA

1.0 SCOPE OF SERVICES

This study is aimed at providing geotechnical information as it relates to: 1) existing site soil conditions; 2) discussion of the geologic units onsite; 3) seismic hazard analysis; 4) engineering characteristics of the onsite soils; 5) excavation characteristics of earth materials; 6) seismic design parameters for use in the structural design of the proposed single-family residences; 7) foundation design parameters for the proposed conventional shallow foundation systems; and 8) storm water infiltration onsite.

The scope of our study included the following tasks:

- Review of pertinent published and unpublished geologic and geotechnical literature, maps, and aerial photographs.
- Coordination of site mark-out with Underground Service Alert (USA).
- Excavate, log, and sample: three (3) exploratory borings (HS-1 through HS-3) with a Hollowstem Auger drill rig (Appendix B).
- Laboratory testing of representative bulk and "undisturbed" ring samples including moisture content and density, maximum density and optimum moisture content, shear strength, and chemical/resistivity analysis. (Appendix C)
- Excavate two (2) percolation test hand auger borings (P-1 and P-2) and conduct infiltration testing in accordance with Appendix D of the final Model BMP Design Manual adopted by the City of San Diego.
- Prepare plans depicting the onsite geologic contacts, boring an CPT test locations (utilizing grading plans prepared by JWDA Engineering (plate 1) and preparing geologic cross sections AA' thru EE' (plate 2).
- Conduct a geotechnical engineering and geologic hazard analysis of the site.
- Conduct a limited seismicity analysis.
- Determine earth pressures for design of buried structures.
- Determine the site-specific seismic design parameters for use in the structural design.
- Determine design parameters of onsite soils as a foundation medium including bearing and friction values for foundation soils.
- Preparation of a geotechnical foundation investigation report with exhibits summarizing our findings. This report would be suitable for design, contractor bidding, and regulatory review.

2.0 GEOTECHNICAL STUDY LIMITATIONS

The conclusions and recommendations in this report are professional opinions based on our field investigation, associated lab testing, review of referenced geotechnical maps, and our experience in the area.

The materials immediately adjacent to or beneath those observed may have different characteristics than those observed. No representations are made as to the quality or extent of materials not observed. Any evaluation regarding the presence or absence of hazardous material is beyond the scope of this firm's services.

3.0 SITE LOCATION AND DESCRIPTION

The rectangular shaped 0.70 acre site (approximately) is located at 2912 Garrison Street, City of San Diego, California (Figure 1, Site Location Map). The site is bounded on the southwest by Garrison Street; to the north by Rosecrans Street and a commercial structure; and to the northeast and southeast by existing motels. The site currently supports a motel with two, two story structures and two smaller one story structures; outside of the buildings are paved driveways and parking areas with some small planters.

The elevations onsite range from a high of 12 MSL at the northwester property corner, to a low of 11 MSL at the southeast corner of the site.

4.0 PROPOSED DEVELOPMENT

As AGS understands the project, it is anticipated that the existing structures will be razed and a new rectangular shaped hotel structure will be constructed. Initial designs by JWDA indicate that the new hotel structure will be a three story wood podium supported by a one story subterranean parking structure. Current design indicates that the finish slab grade elevation of the subterranean portion of the building will be at an elevation of -1.5msl. It is anticipated that the structure will be supported by a mat slab extending approximately 2 feet deeper than the finish floor grade. It is anticipated that the subterranean portion will likely be watertight. The basement walls are anticipated to be cast in –place reinforced concrete. A sump will also be constructed in the basement area for collection of runoff which will be treated and subsequently be outleted in to the local storm drain systems. During construction it is anticipated that temporary shoring and dewatering will be required to construct the subterranean portion of the proposed structure.

5.0 FIELD AND LABORATORY INVESTIGATION

5.1. Subsurface Exploration

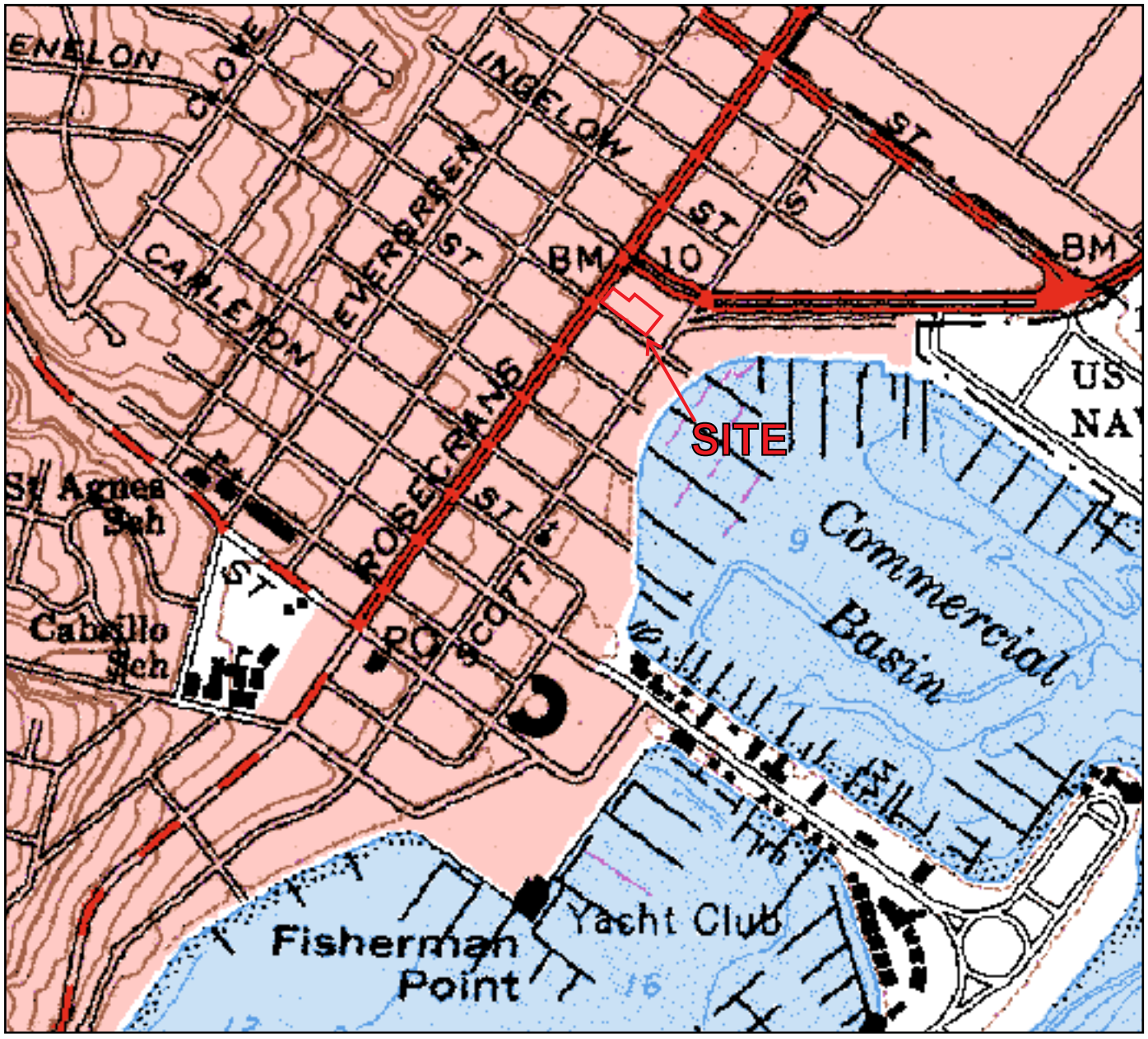
AGS conducted a subsurface exploration at the subject site on February 1, 2017 to evaluate the onsite soil conditions. As part of our investigation three exploratory Hollowstem auger borings were excavated to depths ranging from 45 to 50 feet bgs with a truck mounted drill rig (HS-1 through HS-3). The approximate locations of the exploratory borings are shown on Plate 1 with boring logs presented in Appendix B. As part of our study bulk, “undisturbed” ring and Standard Penetration Test (SPT) samples were obtained at various depths in an effort to determine the lithographic changes and the onsite geology at the study site.

5.2. Laboratory Investigation

Representative “undisturbed” ring samples, and bulk samples obtained from the borings where transported to our laboratory for laboratory testing to determine: in-situ moisture content and density; shear strengths (both “undisturbed” and re-molded); maximum density and optimum moisture content; soluble sulfate/chloride content; and resistivity. Results of laboratory testing are presented in Appendix B.

5.3. Infiltration Testing

Two *Hand Auger* borings were excavated adjacent to soil borings P-1 and P-2 to depths of approximately five (5) feet below existing grade. A total of two infiltration tests were conducted. Infiltration testing was conducted in accordance with the Borehole Percolation Testing Method



USGS SITE LOCATION MAP

2912 GARRISON STREET
SAN DIEGO, CALIFORNIA

FIGURE 1

SOURCE MAP(S): POINT LOMA QUADRANGLE CALIFORNIA - SAN DIEGO CO. 7.5 MINUTE SERIES (TOPOGRAPHIC)

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described in Appendix D of the San Diego Region BMP Design Manual. Preliminary infiltration rates were calculated utilizing the Porchet Method.

6.0 ENGINEERING GEOLOGY

6.1. Geologic and Geomorphic Setting

The subject site is situated within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges province occupies the southwestern portion of California and extends southward to the southern tip of Baja California. In general the province consists of young, steeply sloped, northwest trending mountain ranges underlain by metamorphosed Late Jurassic to Early Cretaceous-aged extrusive volcanic rock and Cretaceous-aged igneous plutonic rock of the Peninsular Ranges Batholith. The westernmost portion of the province is predominantly underlain by younger marine and non-marine sedimentary rocks. The Peninsular Ranges' dominant structural feature is northwest-southeast trending crustal blocks bounded by active faults of the San Andreas transform system.

6.2. Subsurface Conditions

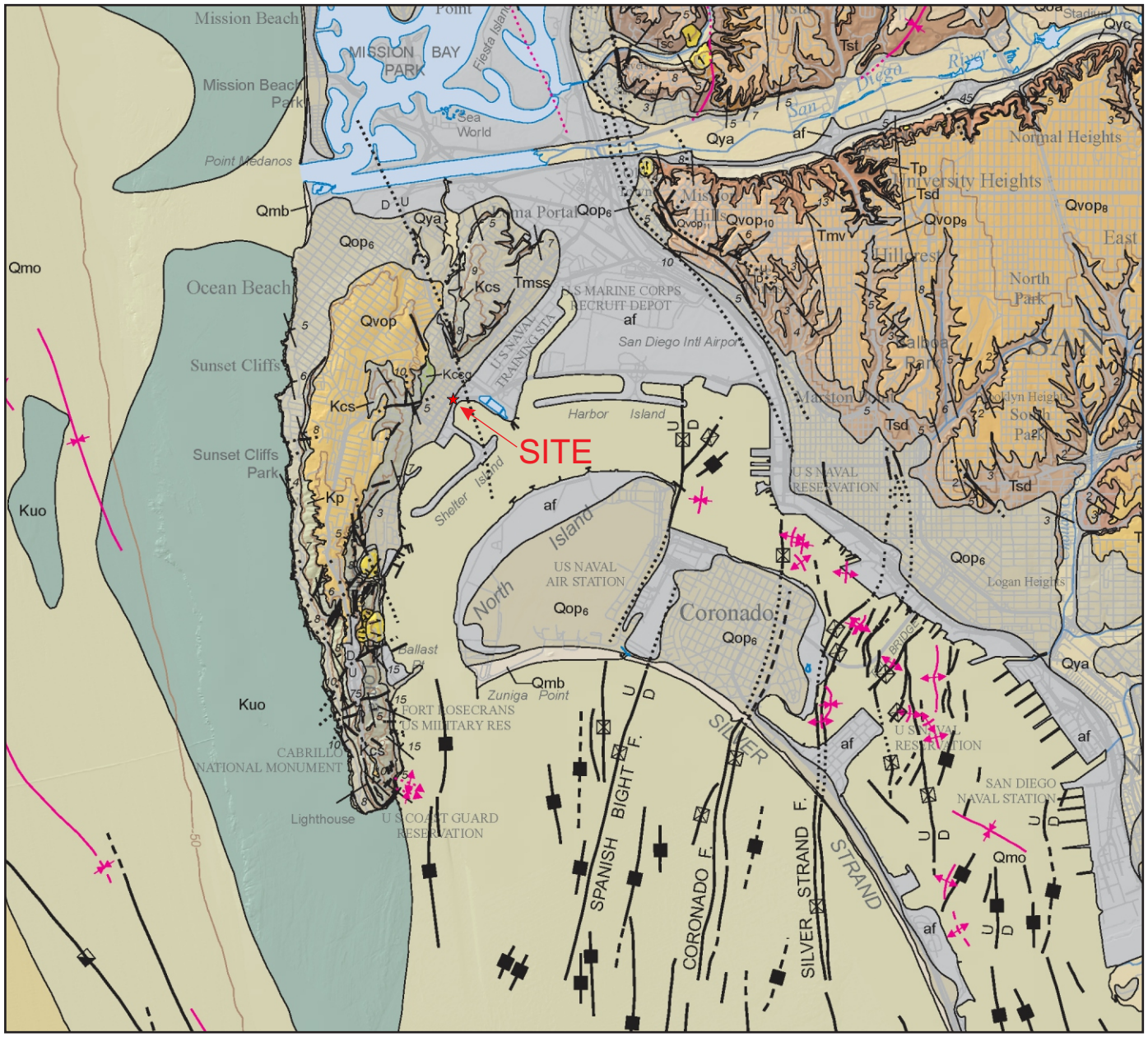
A brief description of the earth materials encountered on this site is presented in the following sections. More detailed descriptions of these materials are provided in the boring logs included in Appendix A. Based on our site reconnaissance, subsurface excavations, and review of the referenced geologic map, the site is underlain to the depths explored by old paralic deposits (marine terrace deposits) which are locally overlain by undocumented fill soils. A regional geologic map is presented in Figure 2.

6.3. Artificial Fill- Undocumented (afu)

Artificial fill (undocumented) were encountered in our excavations and were observed to overlie the old paralic deposits. As encountered, the undocumented fill soils were approximately five (5) to eight (8) feet thick. These materials generally consisted of tan to brown, moist to wet, fine to medium grained silty to clay sands in a loose medium dense state. Perched water was found in boring HS-1 at a depth of five feet below existing grade.

6.4. Old Paralic Deposits (Map symbol Qop_6)

The site is underlain to maximum depth explored by old paralic deposits. As encountered these materials can generally be described as orange brown to light brownish gray, moist to saturated, medium dense to dense, fine-grained sandy clay and clayey sands. Origins of these deposits are from shallow marine and nonmarine (talus and slope wash) deposits; deposited on currently-raised wave cut platforms; typically poorly consolidated to consolidated, light brown fine- to medium-grained, clean, silty and clayey sand with few interbeds of sandy clay; includes most terrace deposits found up to 200 feet in elevation: remnants overlying most coastal and near coastal areas; also found along margins of San Diego and Mission Bay and mouth of major river valleys (e.g. San Diego River, Soledad Valley, Penasquitos Canyon, Carmel Valley, San Dieguito Valley); uninvestigated maximum thickness, but on the order of 100 feet or more; dated 0.13-0.08 Mya.



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SCALE: 1 in. = 4000 ft.

REGIONAL GEOLOGY MAP
2912 GARRISON STREET,
SAN DIEGO, CALIFORNIA

FIGURE 2

SOURCE MAP(S): Geologic Map of the San Diego 30' x 60' Quadrangle, California

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6.5. Groundwater/Saturated Soils

Groundwater/saturated soils were encountered in exploratory soil borings on site. Groundwater was found to at uniform depth of 15 feet below ground surface (approximate elevation of 4 MSL) across the site. Perched water was found in boring HS-1 at an approximate elevation of 7 msl. It is our opinion that wet and saturated conditions will be found within the upper soils above sea level throughout the site. Further, it should be anticipated that the groundwater level will vary, due to tidal fluctuations, fluctuations in precipitation, irrigation practices, infiltration water from adjacent properties, or factors not evident at the time of our field explorations. For structural design it should be anticipated that infiltration of water into site excavation will occur from elevation 7 MSL and below, with a static water elevation of 1 to 0 msl.

6.6. Non-seismic Geologic Hazards

6.6.1. Mass Wasting

Given the flat nature of the site no evidence of mass wasting was observed onsite nor was any noted on the reviewed maps.

6.6.2. Flooding

According to available FEMA maps, the site is not in a FEMA identified flood hazard area.

6.6.3. Subsidence/Ground Fissuring

Due to the presence of the relatively dense underlying old paralic deposits (Qop_6) and the removals proposed herein, the potential for subsidence and ground fissuring due to Subsidence/Ground Fissuring is unlikely

6.7. Seismic Hazards

The site is located in the tectonically active Southern California area, and will therefore likely experience shaking effects from earthquakes. The type and severity of seismic hazards affecting the site are to a large degree dependent upon the distance to the causative fault, the intensity of the seismic event, and the underlying soil characteristics. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction or dynamic settlement. The following is a site-specific discussion of ground motion parameters, earthquake-induced landslide hazards, settlement, and liquefaction. The purpose of this analysis is to identify potential seismic hazards and propose mitigations, if necessary, to reduce the hazard to an acceptable level of risk. The following seismic hazards discussion is guided by the California Building Code (2016), CDMG (2008), and Martin and Lew (1998).

6.7.1. Surface Fault Rupture

No known active faults have been mapped at or near the subject site. The nearest known active surface fault is the Silverstrand section of the Newport-Inglewood-Rose Canyon fault zone which is approximately 2.8 miles east of the subject site. Accordingly, the potential for fault surface rupture on the subject site is considered to be “very low” to “remote”. This conclusion is based on literature review and aerial photograph analysis.

6.7.2. Seismicity

As noted, the site is within the tectonically active southern California area, and is approximately 2.8 miles from an active fault, the Silverstrand section of the Newport-Inglewood-Rose Canyon fault zone. The potential exists for strong ground motion that may affect future improvements.

At this point in time, non-critical structures (commercial, residential, and industrial) are usually designed according to the California Building Code (2016) and that of the controlling local agency. However, liquefaction/seismic slope stability analyses, critical structures, water tanks and unusual structural designs will likely require site specific ground motion input.

The Point Loma fault is a north-northwest trending late Quaternary normal fault approximately 12 kilometers long located along the east side of Point Loma Peninsula (Figures G-1 and G-2; Kennedy in Kennedy and Petersen, 1975). A fault branching to the northeast off of the Point Loma fault projects toward the extreme northwest portion of the Midway subarea. The main fault and the small northeast striking branch fault displace the late Pleistocene Bay Point Formation in excess of 30 meters. The smaller northeast trending fault displaces the Bay Point formation about 3 meters. On this basis the Point Loma fault is considered potentially active.

6.7.3. Liquefaction

In consideration of the proposed remedial grading recommendations presented herein and the relatively dense nature and age (middle to late Pleistocene) of the deeper underlying old paralic deposits (Qop_6) at the project site, the potential for seismically induced liquefaction is considered to be "very low".

6.7.4. Dynamic Settlement

Dynamic settlement occurs in response to an earthquake event in loose sandy earth materials. This potential of dynamic settlement at the subject site is considered "low" to "very low" due to the presence of the old paralic deposits and the proposed removals of the loose and poorly consolidated undocumented fill and the depth (~12 to 14 feet below ground surface) that the foundation elements will be situated on the old paralic deposits.

6.7.5. Seismically Induced Landsliding

The topography on site is relatively flat. As such, the potential for landsliding on site is considered nil.

6.7.6. Tsunamis

Our review of the 2009 Tsunami Inundation Map for Emergency Planning, Point Loma Quadrangle, prepared by CalEMA, indicates the project site is not located within the tsunami inundation line. This line represents the maximum considered tsunami run-up from a number of local and distant tsunami sources. The suite of tsunami source events selected for modeling represent possible but extreme and rare events. As such, no information about the probability of any tsunami affecting any area within a specific period of time is provided. In addition, the map does not represent inundation from a single scenario event. Rather, it was created by combining inundation results for an ensemble of source events affecting a region. Accordingly, it is our opinion that tsunamis are not a significant risk at the project site.

7.0 GEOTECHNICAL ENGINEERING

Presented herein is a general discussion of the geotechnical properties of the various soil types and the analytic methods used in this report.

7.1. Excavation Characteristics & Groundwater

Based on our previous experience with similar projects near the subject site and the information gathered in preparing this report, it is our opinion that the undocumented fill soils and Old Paralic Deposits are readily excavatable with conventional grading equipment. Although unlikely, well cemented zones could be encountered within the old paralic deposits that may be difficult to excavate and or install the temporary shoring required for construction. Specialized grading equipment (large excavators and/or bull dozers) may be necessary to efficiently excavate portions of the old paralic deposits. Further, given the proposed subterranean parking and the existing shallow groundwater levels onsite, dewatering and shoring of the proposed excavation should be anticipated during the construction of the proposed hotel.

7.2. Compressibility

The near surface undocumented fill soils and the weathered upper one to two feet of the Old Paralic deposits are considered to be moderately compressible in their present condition. Compressibility of the unweathered old paralic deposits is not a geotechnical design concern for the proposed structures.

7.3. Collapse Potential/Hydro-Consolidation

Given the relatively thin veneer of undocumented fill soils on top of the dense formational materials, the saturated condition of the onsite soils and the removals proposed herein, the potential for hydro-consolidation is considered remote at the subject site.

7.4. Expansion Potential

Based on our previous experience in the area with similar materials, the onsite soils exposed within the upper 10 to 15 feet will likely exhibit a “very low to medium” expansion potential.

7.5. Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in *NAVFAC DM-7.1*. Allowable bearing was determined by applying a factor of safety of at least three (3) to the ultimate bearing capacity.

Static lateral earth pressures were calculated using *Rankine* methods for active and passive cases. If it is desired to use *Coulomb* forces, a separate analysis specific to the application, can be conducted.

7.6. Shear Strength

Based upon our laboratory testing and our previous experience in the area with similar soils, the following are proposed shear strengths for compacted fill and old paralic deposits.

TABLE 7.6 SHEAR STRENGTH		
Material	**Cohesion (psf)**	**Friction Angle (deg)**
Compacted Fill	150	27
Old Paralic Deposits (Qop_6)	200	31

7.7. **Chemical/Resistivity Test Results**

Preliminary soluble sulfate and chloride, and resistivity testing was conducted on a representative bulk sample obtained during subsurface exploration (Appendix B). Based upon the test results and our previous experience in the area it is anticipated that the onsite soil will exhibit "negligible" sulfate concentrations when classified in accordance with ACI 318-05 Table 4.3.1 (per 2016 CBC).

Testing reveals that the upper soils(3 to 5 feet) on site has a “low” corrosion potential to metal construction materials in direct contact to the onsite soils. However, given the proximity of the site to the adjacent tidal basin and the depth of the proposed subterranean garage it should be anticipated that concrete mix designs will need to address the potentially corrosive nature of the onsite soils and that portions of the parking garage will be situated below the existing water table. Determination as to the need and specification for protection of metal construction materials should be determined by engineers(s) specializing in corrosion analysis. During construction additional testing should be conducted.

7.8. **Earthwork Adjustments**

It is anticipated that the onsite fill soils and weathered old paralic deposits will shrink on the order of 5 to 10 percent when re-compacted. The fresher, old paralic deposits are anticipated to bulk on the order of 4 to 8 percent when used to make compacted fill.

7.9. **Pavement Support Characteristics**

It is anticipated that the onsite soils will have “poor to moderate” support characteristics. Depending upon the final distribution of site soils, pavement support characteristics could vary. If structural pavements are to be constructed (concrete or asphaltic concrete), an "R"-value of 20 can be utilized for the preliminary design of pavements. Final design should be based upon representative sampling of the as-graded soils.

7.10. **Infiltration Potential**

AGS conducted two borehole percolation tests (P-1 and P-2) in the western portion of the site (toward Rosecrans) in accordance with the testing methods described in Appendix D of the BMP Design Manual. Based on the results of our subsurface investigation, it is anticipated that the upper portions of the artificial fill and the interbedded nature of the underlying Old Paralic deposits onsite possess relatively low infiltration rates. Infiltration rates were calculated using

the Porchet method. Measured infiltration rates varied from between 0.00 in/hr and 0.14 in/hr with preliminary design values utilizing a factor of safety FS=2.0, initial design rates are 0.07 in/hr or lower. These rates indicate a ***No Infiltration to Partial Infiltration*** condition. However, the clay lenses encountered will act as confining layers when saturated prohibiting vertical infiltration. It is anticipated that water introduced through infiltration type BMPs will flow laterally toward the proposed subterranean parking structure and into adjacent utility trenches. In addition, the site does not meet the minimum separation of 10 feet between the proposed infiltration surface and seasonal high groundwater levels. Accordingly ***No Infiltration*** is recommended.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Construction of the proposed "Podium" structure and associated improvements are considered feasible, from a geotechnical standpoint, provided that the conclusions and recommendations presented herein are incorporated into the design and construction of the project. Presented below are specific issues identified by this study as possibly affecting site development. Recommendations to mitigate these issues are presented in the text of this report.

8.1. Grading Recommendations

8.1.1 Unsuitable Soil Removals

As we understand the development the existing basement/ parking structure will extend to a depth of 14.5-15 feet below existing grade. Accordingly, dewatering and stabilization of the subgrade soil swill be required to construct the proposed Mat Slab. Accordingly, AGS recommends that once the proposed removal bottom is obtained, a two to three foot section of crushed rock reinforced with two layers of a geotextile (Tencate Mirafi RS580i) should be placed. The first layer should be placed near the bottom of the removal with a second layer placed approximately 12 to 18 inches from (vertically) from the first layer. Localized areas may require deeper removals. Where possible the removals should extend a lateral distance of at least 5 feet beyond the limits of settlement sensitive structures. Removal bottoms should expose competent formational materials in a firm and unyielding condition. The resulting removal bottoms should be observed by a representative of AGS to verify that adequate removal of unsuitable materials have been conducted prior to fill placement. In general, soils removed during remedial grading will likely be unsuitable for reuse in compacted fills as they will be saturated. Grading shall be accomplished under the observation and testing of the project soils engineer and engineering geologist or their authorized representative in accordance with the recommendations contained herein, the current grading ordinance of the City of San Diego.

8.2. Earthwork Considerations

8.2.1 Compaction Standards

Fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D 1557. Compaction shall be achieved at or

slightly above the optimum moisture content and as generally discussed in the attached Earthwork Specifications (Appendix C).

8.2.2 Compaction Standards

At the completion of unsuitable soil removals, the exposed bottom should be scarified to a minimum depth of eight inches, moisture conditioned to above optimum moisture and compacted in-place to the standards set forth in this report.

8.2.3 Compaction Standards

Fill should be placed in thin lifts (eight-inch bulk), moisture conditioned to at or slightly above the optimum moisture content, uniformly mixed, and compacted by the use of both wheel rolling and kneading type (sheep's foot) compaction equipment until the designed grades are achieved.

8.3. Excavation, Dewatering and Shoring

8.3.1. Temporary Cut Slopes

Temporary cut slopes should be made no steeper that 1½:1 adjacent to existing improvements. Excavations exposing hydraulic fills should not exceed 15 feet in height. In consideration of the inherent instability created by temporary construction of backcuts, it is imperative that grading schedules be coordinated to minimize the unsupported exposure time of these excavations. Once started these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed. All utility trenches and excavations should be shored or laid back in accordance with applicable Cal-OSHA standards.

8.3.2. Dewatering

It is anticipated that some dewatering will be necessary to construct the proposed subterranean parking garage and foundation elements. Dewatering can create subsidence outside of the area of work and create distress to adjacent improvements. Adjacent improvements should be inventoried prior to dewatering and observed periodically to determine if the dewatering is creating settlement outside of the work area. It is suggested that key survey points should be established and monitored during construction and dewatering.

Discharge of groundwater generated during the dewatering process will require a discharge permit in accordance with NPDES permits. Accordingly, water testing and possible treatment of the discharge water will be necessary.

8.3.3. Shoring and Tieback Design

Shoring and/or tiebacks will be necessary for the majority of the excavations for the basement. Design of shoring should utilize the active, passive and at-rest pressures presented in Section 9.3. If a dewatering system is not used during construction to lower the groundwater below the excavation bottom, the shoring wall should be designed to resist hydrostatic forces below the observed groundwater level. All components of the shoring system should be designed by a specialist who is a Registered Civil Engineer in the State of California. The design should also consider the requirements of CAL-OSHA. The design of shoring should consider hydrostatic pressures, adjacent structures and transient traffic and construction loads.

In general, soldier piles with wood lagging and sheet piling can be used for support of the portions of the temporary excavations. However, if settlement sensitive improvements are located within a distance from the top of shoring equal to the excavation depth, additional measures should be implemented (i.e. internal bracing, rakers, tiebacks, etc.) to limit the amount of shoring deflection to tolerable levels. Caving soils may be encountered between the piles and may be supported by lagging or guniting. All lumber left in the ground should be treated in accordance with Section 204-2 of the "Standard Specifications for Public Works Construction".

Soldier piles may be designed using an ultimate passive resistance corresponding to an equivalent fluid weight of 300 pounds per cubic foot per effective pile width. The effective pile width can be taken as 3 times the pile width. The upper 1.5B of passive resistance should be ignored, where B is equal to the pile width. Since the above passive pressures are considered ultimate, an appropriate factor of safety should be incorporated into the design. These values cannot be used to estimate the amount of deflection experienced at the allowable lateral loads. A more rigorous analysis, utilized in lateral load-pile deflection software, should be conducted for piles that are sensitive to deflection.

Tiebacks, if used, should develop resistance past the active pressure zone behind the wall (30 degree angle projected from the toe of the wall). Anchor capacity is dependent upon the installation techniques used by the contractor and is typically a design-build from the specialty contractor. A tieback testing program should be undertaken during installation to verify the maximum and design capacity of the tiebacks.

8.3.4. Monitoring of Settlement and Lateral Movement

Excavations, shoring and tie-back walls adjacent to existing improvements can cause settlement and disturbance to existing adjacent improvements. It is recommended that survey monuments should be installed within a 1½:1 projection of the bottom of any vertical cut, at the top of the soldier pile/sheet pile, midpoint and bottom of the pile at the base of the excavation. These monitoring points should be monitored on a regular basis during construction to within a tolerance of 0.1 inches. Prior to construction a detailed inventory of all adjacent surface and subsurface improvements should be made. Regularly scheduled survey should be conducted around all deeper excavations should be conducted. If movement is noted then corrective actions can be instigated.

9.0 DESIGN RECOMMENDATIONS

It is our understanding that the proposed Motel building will consist of a "Podium" with a subterranean "Mat" slab-on-grade foundation system. The podium will support the three-story wood-frame motel structure. It is anticipated that the foundation systems will likely be a "Mat" system with CMU basement walls. In addition to the structures, associated driveways, hardscape and landscape areas are proposed. From a geotechnical perspective these proposed improvements are feasible provided that the following recommendations are incorporated into the design and construction.

9.1. Foundation Design

The motel podium structure can be supported on a shallow "mat" foundation system. The following values may be used in the foundation design.

Allowable Bearing: 5000 lbs./sq.ft.(dead + live load)

Allowable Bearing: @ 2" of total Settlement: 1500 lbs./sq.ft.(not including foundation weight)

Lateral Bearing: 350 lbs./sq.ft. at a depth of 12 inches plus 200 lbs./sq.ft. for each additional 12 inches embedment to a maximum of 5000 lbs./sq.ft.

Sliding Coefficient: 0.35

The above values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building Code and structural design considerations may govern. Depth and reinforcement requirements should be evaluated by the Structural Engineer.

Based upon the onsite soil conditions and information supplied by the 2016 CBC.

9.2. Modulus of Subgrade Reaction

For the design of slab-on-grade "Mat" foundation systems the following design parameters are presented:

Modulus of Subgrade Reaction k: 250pci (for 1ft by 1 ft plate)

Modulus for subgrade reaction is dependent upon shape of foundation and can be calculated by the following:

$$Kr=k((B+1)/(2B))^2$$

Where B= Foundation Width

9.3. Basement Wall Design

Basement: Assume groundwater at a depth of 8 feet below existing grade (4 MSL)

Wall Design Assumptions: Unit Weight = 133pcf

Friction Angle = 30 degrees

Cohesion=100psf

Retaining Wall Earth Pressures:

Equivalent Fluid Pressure

Active Pressure (Ka) = 0.33 (44 pcf/ft)

Passive Pressure (Kp) = 3.00 (400 pcf/ft)

At Rest Pressure (Ko) = 0.50 (67 pcf/ft)

For ridged restrained walls it is recommended that "At-Rest" values should be used. For cantilever retaining walls which can undergo minor rotations active pressures can be used. The above values may be increased by 1/3 as allowed by Code to resist transient loads. Building Code and structural design considerations may govern.

9.4. Seismic Design Parameters

The following seismic design parameters are presented to be code compliant to the California Building Code (2016). The subject parcels have been identified to be Site Class "D" in accordance with CBC, 2016, Section 1613.3.2 and ASCE 7, Chapter 20. The site is located at Latitude 32.72546°N, and Longitude 117.22773° W. Utilizing this information, the United States Geological Survey (USGS) web tool (http://earthquake.usgs.gov/hazards/designmaps/) and ASCE 7 criterion, the mapped seismic acceleration parameters S_S, for 0.2 seconds and S_1, for 1.0 second period (CBC, 2016, 1613.3.1) for Risk-Targeted Maximum Considered Earthquake (MCE_R) can be determined. The mapped acceleration parameters are provided for Site Class "B". Adjustments for other Site Classes are made, as needed, by utilizing Site Coefficients F_a and F_v for determination of MCE_R spectral response acceleration parameters S_{MS} for short periods and S_{M1} for 1.0 second period (CBC, 2016 1613.3.3). Five-percent damped design spectral response acceleration parameters S_{DS} for short periods and S_{D1} for 1.0 second period can be determined from the equations in CBC, 2016, Section 1613.3.4.

TABLE 9.4
SEISMIC DESIGN CRITERIA

Mapped Spectral Acceleration (0.2 sec Period), S_S	1.168g
Mapped Spectral Acceleration (1.0 sec Period), S_1	0.445g
Site Coefficient, F_a	1.033
Site Coefficient, F_v	1.556
MCE Spectral Response Acceleration (0.2 sec Period), SM_S	1.206g
MCE Spectral Response Acceleration (1.0 sec Period), SM_1	0.692g
Design Spectral Response Acceleration (0.2 sec Period), SD_S	0.804g
Design Spectral Response Acceleration (1.0 sec Period), SD_1	0.461g

Utilizing a probabilistic approach, the CBC recommends that structural design be based on the peak horizontal ground acceleration (PGA) having of 2 percent probability of exceedance in 50 years (approximate return period of 2,475 years) which is defined as the Maximum Considered Earthquake (MCE). Using the United States Geological Survey (USGS) web-based ground motion calculator, the site class modified PGA_M (F_{PGA}*PGA) was determined to be 0.507g. Giving the site a Seismic Design Category = D. This value does not include near-source factors that may be applicable to the design of structures on site.

9.5. **Under Slab**

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive. The retarder should be of suitable composition, thickness, strength and low permeance to effectively prevent the migration of water and reduce the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as *Visqueen*, placed between one to four inches of clean sand, has been used for this purpose. More recently Stego® Wrap or similar underlayments have been used to lower permeance to effectively prevent the migration of water and reduce the transmission of water vapor to acceptable levels. The use of this system or other systems, materials or techniques can be considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

9.6. **Concrete Design**

Laboratory testing and our previous experience in the general area indicates onsite soils likely exhibit a "negligible" sulfate exposure when classified in accordance with ACI 318 Table 4.2.1. Final determination will be based upon testing of near surface soils obtained at the conclusion of grading. However, some fertilizers have been known to leach sulfates into soils otherwise containing "negligible" sulfate concentrations and increase the sulfate concentrations to potentially detrimental levels. It is incumbent upon the owner to determine whether additional protective measures are warranted to mitigate the potential for increased sulfate concentrations to onsite soils as a result of the future homeowner's actions.

9.7. **Corrosion**

Resistivity tests performed indicate that the onsite soils possess a "low" corrosion potential to buried metallic materials. However, potentially corrosive soils may exist onsite. It is our understanding that only the last ten feet of the domestic and fire waterlines will be metallic, with the remainder of these lines being non metallic. Further, the proposed plumbing for the structure will not be located under slab but will be located in the walls and roofs. Provided that all metallic piping is wrapped with a suitable corrosion inhibiting material (foam, plastic sleeve, tape, or similar products) and that non-aggressive backfill (sand) soils are placed around all metallic pipe, no other requirements are deemed necessary to address the corrosive soils found onsite.

9.8. **Retaining Walls**

At the time of this report, grading plans were not available for our review. As AGS understands the project, buried structures are anticipated. The following earth pressures are recommended for design of small site retaining walls proposed onsite (excluding basement walls). At rest earth pressures should be used in the design of restrained basement walls.

Static Case

Compacted Fill/Old Paralic Deposits (34° at 125pcf):

Level Backfill	Rankine Coefficients	Equivalent Fluid Pressure (psf/lin.ft.)
Coefficient of Active Pressure:	$K_a = 0.28$	35
Coefficient of Passive Pressure:	$K_p = 3.54$	442
Coefficient of At Rest Pressure:	$K_o = 0.44$	55

Seismic Case

In addition to the above static pressures, unrestrained retaining walls should be designed to resist seismic loading. In order to be considered unrestrained, retaining walls should be allowed to rotate a minimum of roughly 0.004 times the wall height. The seismic load can be modeled as a thrust load applied at a point 0.6H above the base of the wall, where H is equal to the height of the wall. This seismic load (in pounds per lineal foot of wall) is represented by the following equation:

$$Pe = \tfrac{3}{8} * \gamma * H^2 * k_h$$

Where:

H = Height of the wall (feet)

γ = soil density = 133 pounds per cubic foot (pcf)

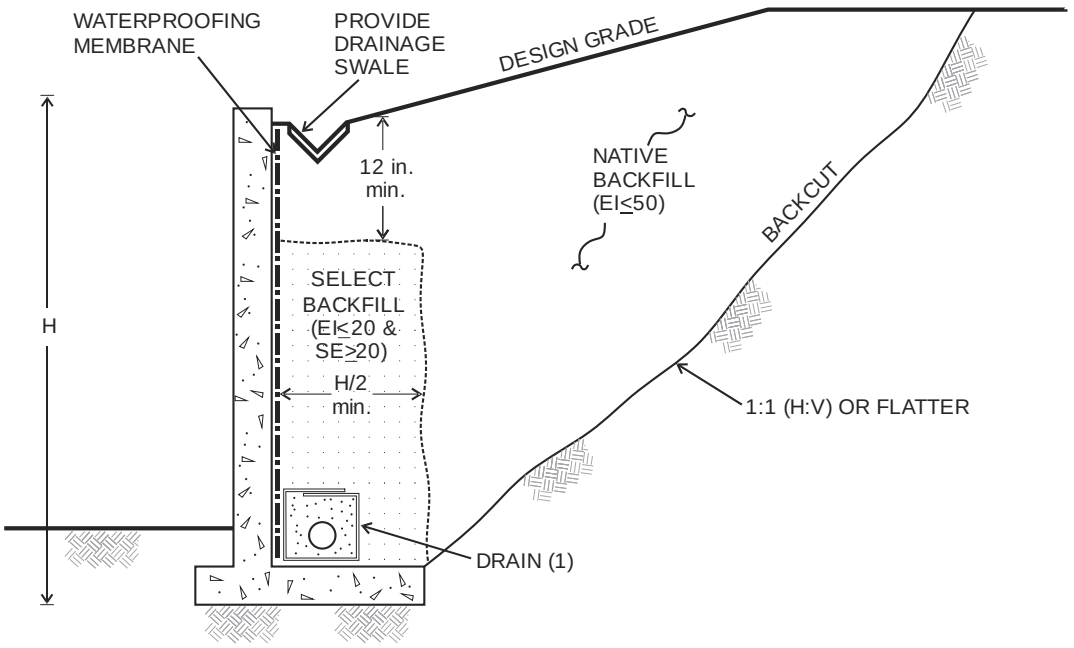
k_h = ½ * peak horizontal ground acceleration = ½ * 0.507g

Walls should be designed to resist the combined effects of static pressures and the above seismic thrust load.

A bearing value of 3,000 psf may be used for design of basement walls. A value of 0.40 may be used to model the frictional between the soil and concrete. For sliding passive pressure both passive and friction can be combined to a maximum of 2/3 the total.

Retaining wall footings should be designed to resist the lateral forces by passive soil resistance and/or base friction as recommended for foundation lateral resistance. To relieve the potential for hydrostatic pressure wall backfill should consist of a free draining backfill (sand equivalent "SE" >20) and a heel drain should be constructed. The heel drain should be place at the heel of the wall and should consist of a 4-inch diameter perforated pipe (SDR35 or SCHD 40) surrounded by 4 cubic feet of crushed rock (3/4-inch) per lineal foot, wrapped in filter fabric (Mirafi® 140N or equivalent).

Proper drainage devices should be installed along the top of the wall backfill, which should be properly sloped to prevent surface water ponding adjacent to the wall. In addition to the wall drainage system, for building perimeter walls extending below the finished grade, the wall should be waterproofed and/or damp-proofed to effectively seal the wall from moisture infiltration through the wall section to the interior wall face. Retaining wall backfill and drains should be constructed in general conformance to RTW-A. Final design of the waterproofing should be determined by the Architect.



NOTES: (1) DRAIN: 4-INCH PERFORATED ABS OR PVC PIPE OR APPROVED EQUIVALENT SUBSTITUTE PLACED PERFORATIONS DOWN AND SURROUNDED BY A MINIMUM OF 1 CUBIC FEET OF 3/4 INCH ROCK OR APPROVED EQUIVALEN T SUBSTITUTE AND WRAPPED IN MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT SUBSTITUTE

VER 1.0 NTS

AGS ADVANCED GEOTECHNICAL SOLUTIONS, INC.	RETAINING WALL ALT. A - SELECT BACKFILL	DETAIL RTW-A

The retaining walls should be backfilled with granular soils placed in loose lifts no greater than 8-inches thick, at or near optimum moisture content, and mechanically compacted to a minimum 90 percent relative compaction as determined by ASTM Test Method D1557. Flooding or jetting of backfill materials generally do not result in the required degree and uniformity of compaction and, therefore, is not recommended. The soils engineer or his representative should observe the retaining wall footings, backdrain installation and be present during placement of the wall backfill to confirm that the walls are properly backfilled and compacted.

9.9. **Utility Trench Excavation**

All utility trenches should be shored or laid back in accordance with applicable CAL/OSHA standards. Excavations in bedrock areas should be made in consideration of underlying geologic structure. AGS should be consulted on these issues during construction.

9.10. **Utility Trench Backfill**

Mainline and lateral utility trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D 1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill, provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils.

Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

9.11. **Utility Lines Below Podium Foundation**

It is our understanding that two proposed 4-inch diameter drain lines may run underground below the podium basement slab. These drain lines will collect nuisance water from building-up behind the basement walls and direct it to a proposed sump pump that will outlet in to the storm drain system. From a geotechnical perspective having these lines below the slab are acceptable provided that they do not conflict with any of the proposed footings and it are encased in 2-sack sand cement slurry (minimum). Further, dependent upon structural loads, these pipes may need to be a higher strength pipe (schedule 80). Final determination will be dependent upon the foundation design.

9.12. **Exterior Slabs and Walkways**

- **Subgrade Compaction**

  The subgrade below exterior slabs, sidewalks, driveways, patios, etc. should be compacted to a minimum of 90 percent relative compaction as determined by ASTM D 1557.

- **Subgrade Moisture**

  The subgrade below exterior slabs, sidewalks, driveways, patios, etc. should be moisture conditioned to a minimum of 110 percent of optimum moisture content prior to concrete placement.

- **Slab Thickness**

  Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

- **Control Joints**

  Weakened plane joints should be installed on walkways at intervals of approximately eight to ten feet. Exterior slabs should be designed to withstand shrinkage of the concrete.

- **Flatwork Reinforcement**

  Consideration should be given to reinforcing any exterior flatwork.

- **Thickened Edge**

  Consideration should be given to construct a thickened edge (scoop footing) at the perimeter of slabs and walkways adjacent to landscape areas to minimize moisture variation below these improvements. The thickened edge (scoop footing) should extend approximately eight inches below concrete slabs and should be a minimum of six inches wide.

10.0 BMP DESIGN

AGS conducted site specific percolation testing to determine preliminary infiltration rates and evaluate feasibility for storm water infiltration at the project site. Testing was completed in general accordance with the new 2016 San Diego Region BMP Design Manual.

Based on the results of our preliminary testing, ***No Infiltration to Partial Infiltration*** design for BMPs is potentially feasible for the site. AGS does not recommend full or partial infiltration in consideration that the development will be supported by a partially subterranean garage "Podium" structure. From a geotechnical perspective the addition of shallow groundwater from infiltration near the podium structure is highly unpredictable. In some instances infiltration below and adjacent to these types of structures has resulted in: additional hydraulic forces on basement walls; increase the likelihood for unwanted seepage into the basement; caused differential settlement across the basement floor; and created mounding of infiltration water due to the disruption of the horizontal conductivity of the flat lying deposits found in the Old Paralic deposits. Accordingly ***No Infiltration*** is recommended.

11.0 PLAN REVIEW

Once grading and foundation design plans become available, they should be reviewed by AGS to verify that the design recommendations presented are consistent with the proposed construction.

11.1. Geotechnical Review

As is the case in any grading project, multiple working hypotheses are established utilizing the available data, and the most probable model is used for the analysis. Information collected during the grading and construction operations is intended to evaluate these hypotheses, and some of the assumptions summarized herein may need to be changed as more information becomes available. Some modification of the grading and construction recommendations may become necessary, should the conditions encountered in the field differ significantly than those hypothesized to exist.

AGS should review the pertinent plans and sections of the project specifications, to evaluate conformance with the intent of the recommendations contained in this report.

If the project description or final design varies from that described in this report, AGS must be consulted regarding the applicability of, and the necessity for, any revisions to the recommendations presented herein. AGS accepts no liability for any use of its recommendations if the project description or final design varies and AGS is not consulted regarding the changes.

12.0 LIMITATIONS

This report is based on the project as described and the information obtained from the excavations at the approximate locations indicated on Plate 1. The findings are based on the results of the field, laboratory, and office investigations combined with an interpolation and extrapolation of conditions between and beyond the excavation locations. The results reflect an interpretation of the direct evidence obtained. Services performed by AGS have been conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by geotechnical engineers and engineering geologists who are familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report. AGS should be notified of any pertinent changes in the project plans or if subsurface conditions are found to vary from those described herein. Such changes or variations may require a re-evaluation of the recommendations contained in this report.

The data, opinions, and recommendations of this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location, and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of AGS.

AGS has no responsibility for construction means, methods, techniques, sequences, or procedures, or for safety precautions or programs in connection with the construction, for the acts or omissions of the CONTRACTOR, or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications.

APPENDIX A
REFERENCES

Advanced Geotechnical Solutions, 2016, *Proposal for Geotechnical Services Associated with the Design of the Dolphin Motel Project, San Diego, California, dated November 28, 2016, Report No. 1611-03-A-1*

American Concrete Institute, *2002, Building Code Requirements for Structural Concrete (ACI318M-02) and Commentary (ACI 318RM-02), ACI International, Farmington Hills, Michigan.*

American Society for Testing and Materials (2008), *Annual Book of ASTM Standards, Section 4, Construction, Volume 04.08, Soil and Rock (I), ASTM International, West Conshohocken, Pennsylvania.*

California Code of Regulation, *Title 24, 2013 California Building Code, 3 Volumes.*

California Emergency Management Agency, 2009, *Tsunami Inundation Map for Emergency Planning, Point Loma Quadrangle, County of San Diego, California, Scale 1:24,000.*

Jennings, C.W., and Bryant, W.A., 2010, *Fault Activity Map of California: California Geological Survey, California Geologic Data Map No. 6, Scale 1:750,000.*

Kennedy, M.P., and Tan, S.S., 2008, *Geologic Map of the San Diego 30' x 60' Quadrangle, California Regional Geologic Map Series, Scale 1:100,000, Map No. 3, Sheet 1 of 2.*

San Diego Region, *Model BMP Design Manual for Permanent Site Design, Storm Water Treatment and Hydromodification Management*, February 2016.

United States Geological Survey, *2010 Ground Motion Parameter Calculator v. 5.1.0., World Wide Web, http://earthquake.usgs.gov/designmaps/us/application.php.*

APPENDIX B

FIELD AND LABORATORY DATA

ADVANCED GEOTECHNICAL SOLUTIONS, INC., 2017

BORING NUMBER HS-1

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SM	**Artificial Fill - Undocumented (afu):** SILTY SAND, fine to medium grained, brown, moist to wet, loose										
5			@ 4.0 ft, SILTY SAND, fine to medium grained, brown, saturated, loose; perched water										
		SC	@ 5.0 ft, CLAYEY SAND, fine to medium grained, mottled brown to gray, wet, medium dense	MC	7-4-5 (9)	116	14.9	88					
		SC	**Old Paralic Deposits (Qop6):** CLAYEY SAND, fine to medium grained, brown, wet, moderately dense; interbedded sand and clay										
10			@ 10.0 ft, CLAYEY SAND, fine to medium grained, brown, wet, moderately dense; interbedded sand and clay	SPT	3-7-7 (14)								
15			▽										
		CL	@ 15.0 ft, SANDY CLAY, fine grained, brown, wet, hard; interbedded sand and clay	MC	8-14-18 (32)	117	16.3	100	Consol				
20		SM	@ 20.0 ft, SILTY SAND, very fine grained, tan to brown, moist, very dense	SPT	5-9-11 (20)		19.0						
25			@ 25.0 ft, SILTY SAND, fine grained, tan to brown, saturated, dense	MC	5-10-20 (30)	101	21.0	85	SA, Shear				23
30			@ 30.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, dense	SPT	7-15-27 (42)								
35													

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BORING NUMBER HS-1

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SM	@ 35.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, medium dense	MC	3-5-22 (27)	100	23.0	90					
40			@ 40.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, moderately dense; interbedded sand and clay, lense of seashells	SPT	4-5-7 (12)		21.0						23
45		SC	@ 45.0 ft, CLAYEY SAND, fine to medium grained, reddish brown, saturated, very dense	MC	18-30-44 (74)	120	15.0	99					
50			@ 50.0 ft, CLAYEY SAND, fine to medium grained, reddish brown, saturated, dense	SPT	13-16-18 (34)								

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

BORING NUMBER HS-2

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			0-6 inches of Asphalt										
		SM	**Artificial Fill - Undocumented (afu):** SILTY SAND, fine to medium grained, brown, moist to wet, loose	BU					Max, El, Chem				
5		SC	**Old Paralic Deposit (Qop6):** CLAYEY SAND, fine to medium grained, mottled brown to gray, wet, loose	SPT	1-1-2 (3)								
10			@ 10.0 ft, CLAYEY SAND, fine to medium grained, dark gray to brown, moist to wet, medium dense	MC	8-10-12 (22)	113	18.4	100					
15		SM	▽ @ 15.0 ft, SILTY SAND, fine to medium grained, light brown to tan, moist, moderately dense	SPT	5-8-9 (17)								
20			@ 20.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, moderately dense	MC	9-11-14 (25)	108	20.5	99	Consol				
25			@ 25.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, moderately dense	SPT	5-7-9 (16)								
30			@ 30.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, dense	MC	6-17-28 (45)	98	25.1	95					
35													

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BORING NUMBER HS-2

AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		CL	@ 35.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, medium dense; mottling iron oxide	SPT	6-11-18 (29)								
40			@ 40.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, dense	MC	8-16-25 (41)	115	17.1	100					
45			@ 45.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, dense	SPT	9-15-23 (38)								
50			@ 50.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, very dense	MC	16-24-40 (64)	106	21.1	96					

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

BORING NUMBER HS-3

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SM	4 inches of Concrete **Artificial Fill - Undocumented (afu):** SILTY SAND, fine to medium grained, tan to brown, slightly moist, loose	BU					Remolded Shear				
5		SC	**Old Paralic Deposit (Qop6):** CLAYEY SAND, fine to medium grained, mottled brown to dark brown, moist, moderately dense; roots and orgaincs	MC	3-4-7 (11)	103	19.6	83					
10			@ 10.0 ft, CLAYEY SAND, fine to medium grained, mottled brown to dark brown, moist, moderately dense	SPT	3-4-6 (10)					39	13	26	
15		SM	▽ @ 15.0 ft, SILTY SAND, fine to medium grained, gray to brown, saturated, moderately dense to dense; with mottling	MC	5-11-18 (29)	108	20.3	98	Consol				39
20			@ 20.0 ft, SILTY SAND, fine to medium grained, gray to brown, saturated, loose	SPT	5-4-4 (8)		29.0						30
25			@ 25.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, dense	MC	11-15-28 (43)	98	26.0	97					
30			@ 30.0 ft, SILTY SAND, fine grained, tan to brown, saturated, moderately dense	SPT	7-13-15 (28)								
35													

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BORING NUMBER HS-3

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	OTHER TESTS	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SM	@ 35.0 ft, SILTY SAND, fine grained, tan to brown, saturated, very dense	MC	10-26-42 (68)	103	22.7	96					
40		CL	@ 40.0 ft, SANDY CLAY, fine to medium grained,orange brown to brown, saturated, very stiff	SPT	7-11-17 (28)		16.0						
45			@ 45.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, hard	MC	16-16-17 (33)	114	17.0	96					
50			@ 50.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, very stiff	SPT	4-8-17 (25)								

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

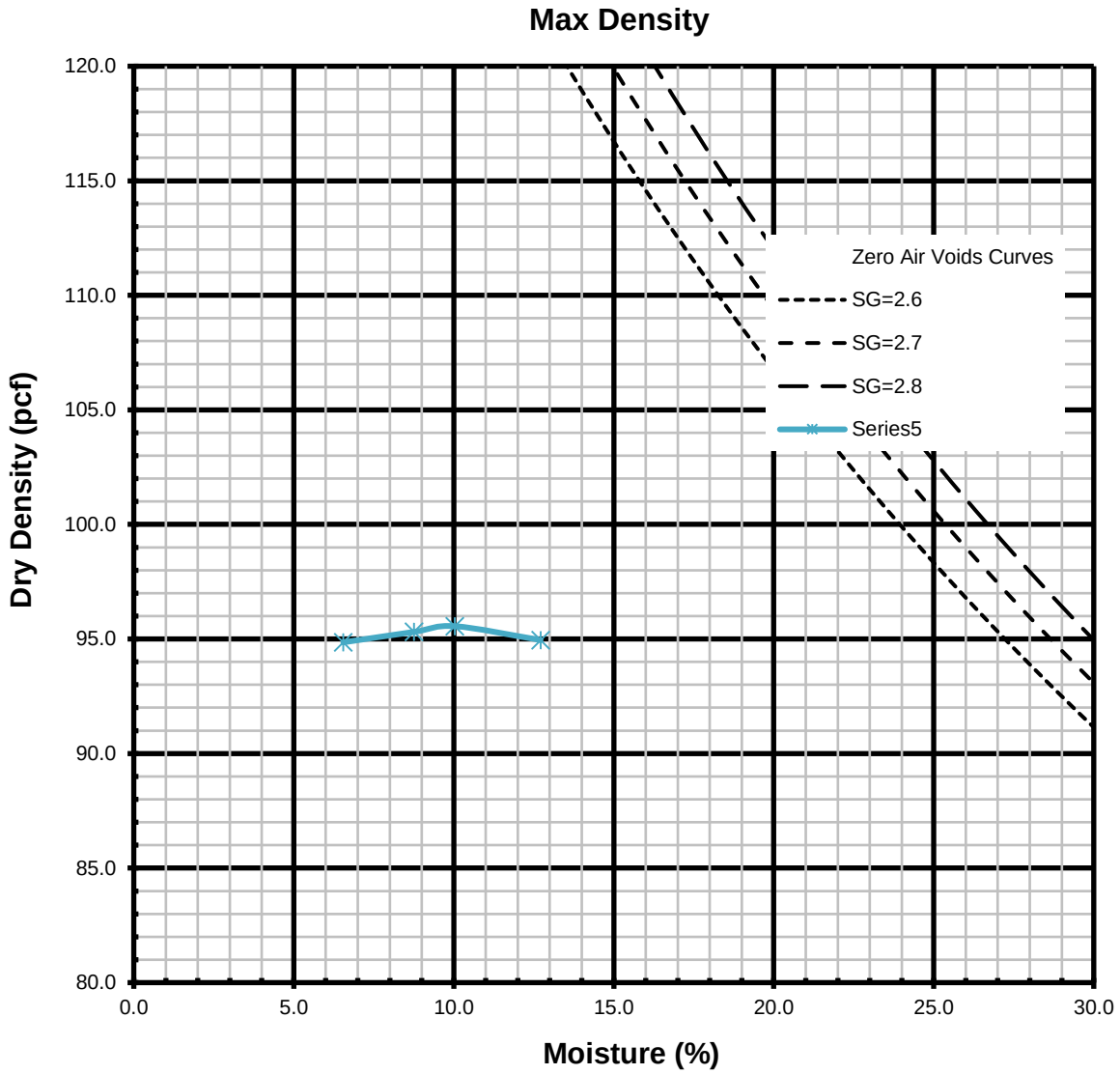
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

MAXIMUM DENSITY - ASTM D1557

Project Name:	Dolphin Motel	Excavation:	HS-2
Location:		Depth:	5 ft
Project No.:	1611-03	Description:	Olive SM
Date:	42794	Project Manager	JC
		By:	FV

Method: A Rock Coreection 0.3209414

Test Number	1	2	3	4
Dry Density (pcf)	94.9	95.3	95.6	95.0
Moisture Content (%)	6.5	8.8	10.0	12.7



Maximum Density **96.0** pcf Optimum Moisture **10.0** %

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

ATTERBERG LIMITS - ASTM D4318

Project Name: Dolphin Motel
Location: San Diego
Project No: 1611-03
Date: 3/10/2017

Excavation: HS-3
Depth: 10 ft
Description: Light Brn. SC-SM
By: HM

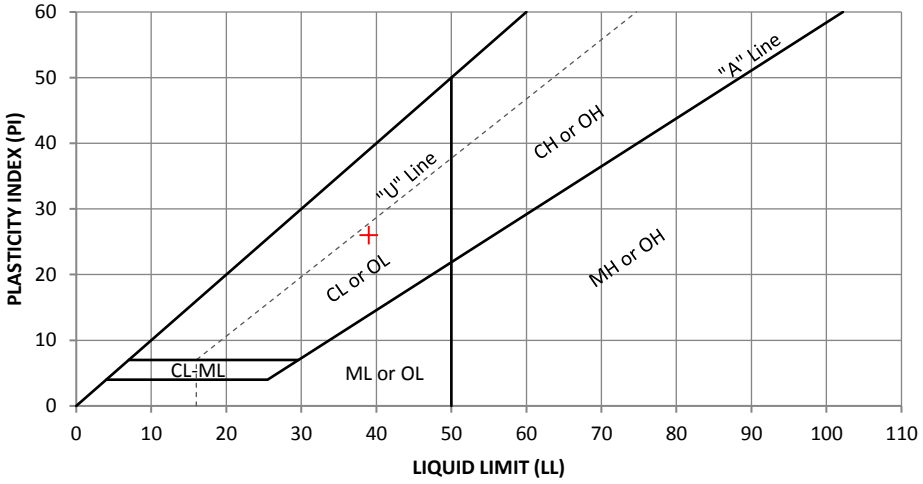
LIQUID LIMIT

Can No.	12	17	13
Wt. wet soil+can (g)	44.74	45.47	49.30
Wt. dry soil+can (g)	41.05	41.35	43.93
Wt. can (g)	30.68	30.56	30.66
Wt. mosture (g)	3.69	4.12	5.37
Wt. dry soil (g)	10.37	10.79	13.27
Water Content %	35.58	38.18	40.47
No. of Blows	38	28	19

PLASTIC LIMIT

64	66
18.59	19.15
17.70	18.21
10.74	10.81
0.89	0.94
6.96	7.40
12.79	12.70

LIQUID LIMIT



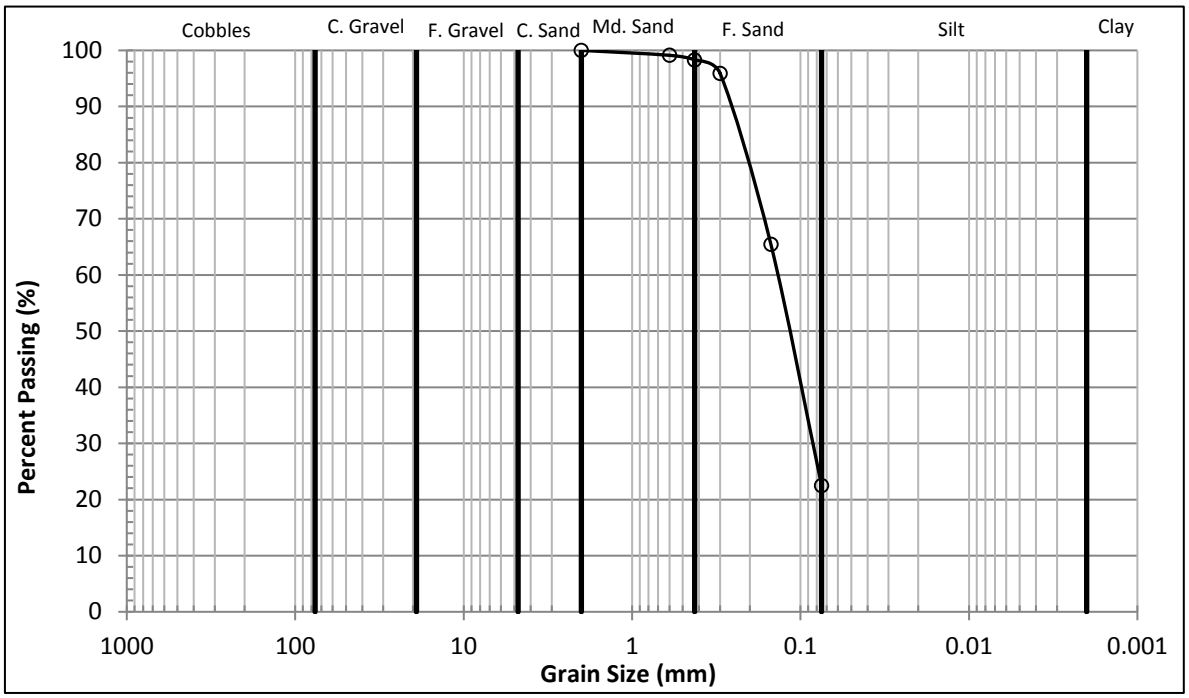
Liquid Limit (LL) 39 Plastic Limit (PL) 13 Plasticity Index (PI) 26

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

PARTICLE SIZE ANALYSIS - ASTM D422

Project Name: Dolphin Motel
Location: San Diego
Project No.: 1611-03
Date: 12/15/16

Excavation: HS-1
Depth: 25 ft
By: FV



Grain Size (in/#)	Grain Size (mm)	Amount Passing (%)
3 "	76.20	100.00
2 1/2 "	63.50	100.00
2 "	50.80	100.00
1 1/2 "	38.10	100.00
1 "	25.40	100.00
3/4 "	19.05	100.00
1/2 "	12.70	100.00
3/8 "	9.53	100.00
# 4	4.75	100.00
# 10	2.00	100.00
# 20	0.85	
# 30	0.60	99.13
# 40	0.425	98.31
# 50	0.30	95.88
# 60	0.212	
# 100	0.15	65.47
# 200	0.075	22.51
Hydro		
Hydro		
Hydro		
Hydro		
Hydro		
Hydro		
Hydro		

Summary	
% Gravel =	0.0
% Sand =	77.5
% Fines =	22.5
Sum =	100.0

LL=
PL=
PI=

Soil Type: Silty Sand

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

DIRECT SHEAR - ASTM D3080

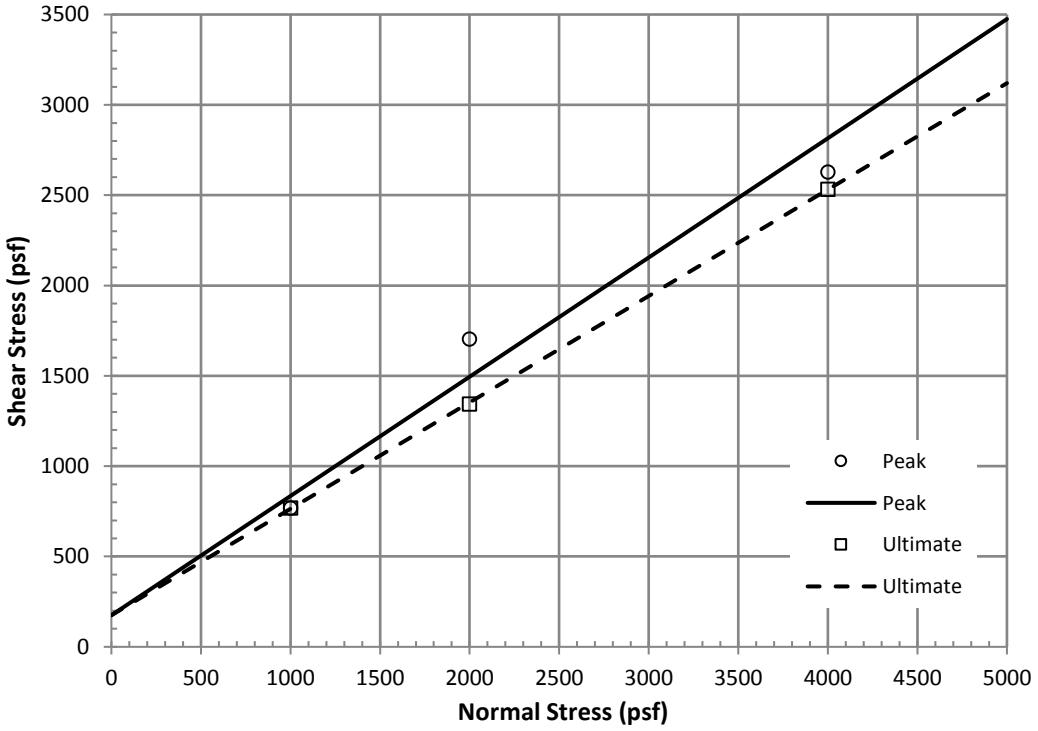
Project Name: Dolphin Motel
Location: San Diego
Project No.: 1611-03
Date: 3/3/17

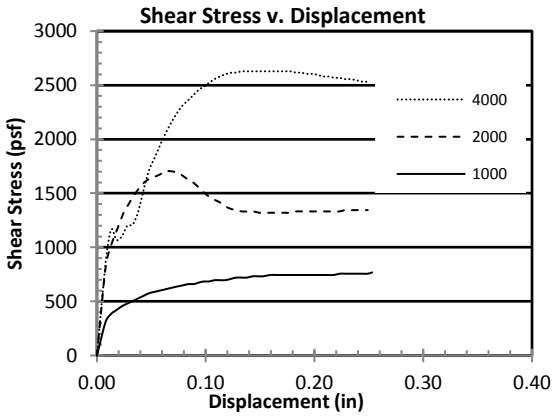
Excavation: HS-3
Depth: 5 ft
Sample Type: Undisturbed
By: FV

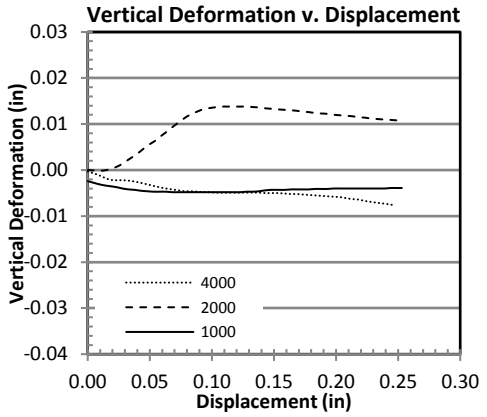
Samples Tested	1	2	3
Normal Stress (psf)	1000	2000	4000
Maximum Shear Stress (psf)	768	1704	2628
Ultimate Shear Stress (psf)	768	1344	2532
Initial Moisture Content (%)	19.6	19.6	19.6
Initial Dry Density (pcf)	105.8	105.2	99.8

Method: Drained
Consolidation: Yes
Saturation: Yes
Shearing Rate (in/min): 0.05

	Peak	Ultimate
Friction Angle, phi (deg)	33	30
Cohesion (psf)	175	175







ADVANCED GEOTECHNICAL SOLUTIONS, INC.

DIRECT SHEAR - ASTM D3080

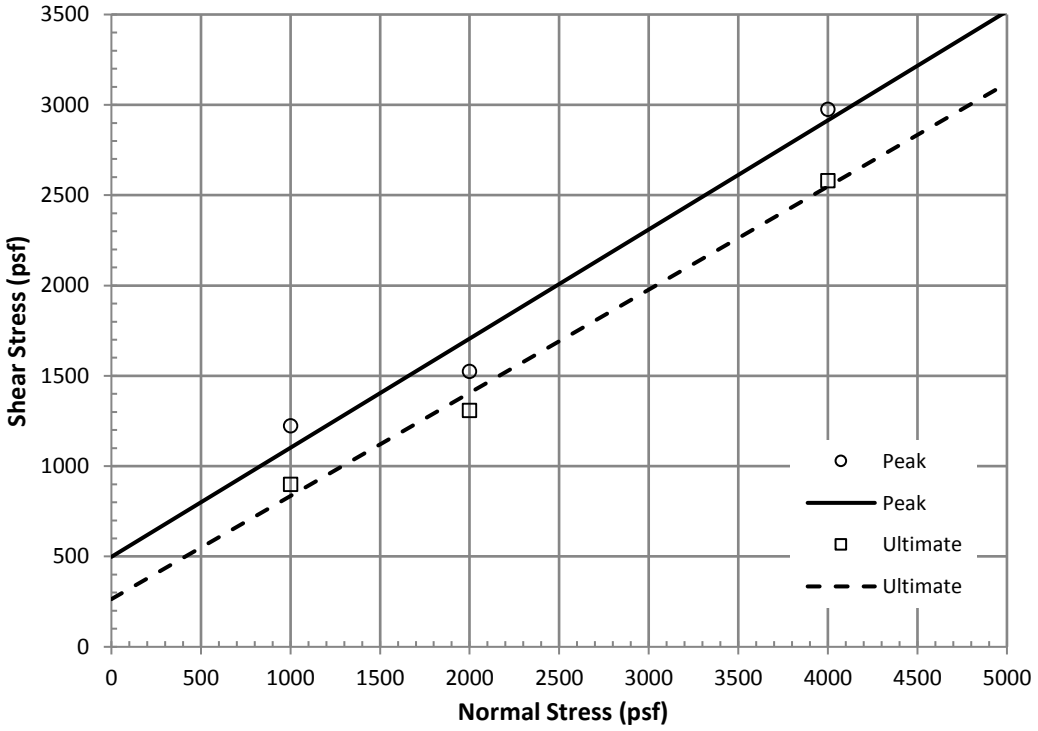
Project Name: Dolphin Motel
Location:
Project No.: 1611-03
Date: 3/2/17

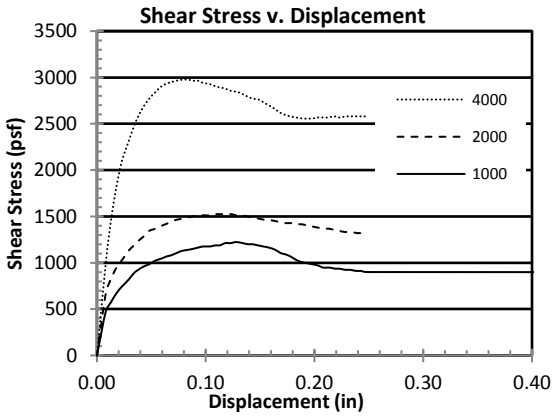
Excavation: HS-1
Depth: 25 ft
Sample Type: Undisturbed
By: FV

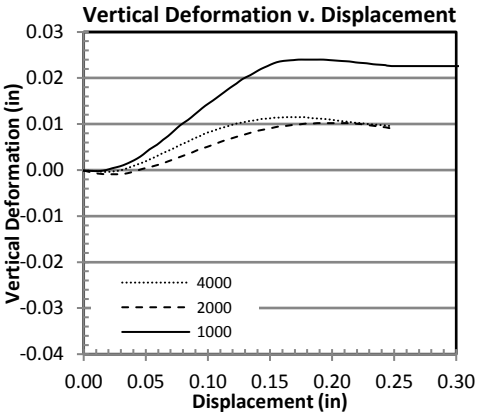
Samples Tested	1	2	3
Normal Stress (psf)	1000	2000	4000
Maximum Shear Stress (psf)	1224	1524	2976
Ultimate Shear Stress (psf)	900	1308	2580
Initial Moisture Content (%)	21.0	21.0	21.0
Initial Dry Density (pcf)	106.0	100.4	96.1

Method: Drained
Consolidation: Yes
Saturation: Yes
Shearing Rate (in/min): 0.05

	Peak	Ultimate
Friction Angle, phi (deg)	31	30
Cohesion (psf)	498	264







ADVANCED GEOTECHNICAL SOLUTIONS, INC.

AMOUNT PASSING NO. 200 SIEVE - ASTM D1140

Project: Dolphin Motel Project No.: 1611-03

Location: Date: 2/22/2016

Tested By: FV

Boring/Trench No.	HS-1	HS-1		
Sample Depth	40 ft	20 ft		
Dry Wt. of Sample Before Wash (g)	335.63	380.29		
Dry Wt. of Sample After Wash (g)	257.86	366.84		
Wt. Passing No. 200 Sieve (g)	77.77	13.45		
% Passing 200 Sieve	23.2%	3.5%		
Boring/Trench No.				
Sample Depth				
Dry Wt. of Sample Before Wash (g)				
Dry Wt. of Sample After Wash (g)				
Wt. Passing No. 200 Sieve (g)				
% Passing 200 Sieve				
Boring/Trench No.				
Sample Depth				
Dry Wt. of Sample Before Wash (g)				
Dry Wt. of Sample After Wash (g)				
Wt. Passing No. 200 Sieve (g)				
% Passing 200 Sieve				

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

AMOUNT PASSING NO. 200 SIEVE - ASTM D1140

Project: Dolphin Motel		Project No.: 1611-03		
Location: Santee		Date: 3/30/2017		
Tested By: FV				
Boring/Trench No.	HS-3	Hs-3		
Sample Depth	20 ft	15 ft		
Dry Wt. of Sample Before Wash (g)	155.09	93.92		
Dry Wt. of Sample After Wash (g)	109.24	57.42		
Wt. Passing No. 200 Sieve (g)	45.85	36.5		
% Passing 200 Sieve	29.6%	38.9%		
Boring/Trench No.				
Sample Depth				
Dry Wt. of Sample Before Wash (g)				
Dry Wt. of Sample After Wash (g)				
Wt. Passing No. 200 Sieve (g)				
% Passing 200 Sieve				
Boring/Trench No.				
Sample Depth				
Dry Wt. of Sample Before Wash (g)				
Dry Wt. of Sample After Wash (g)				
Wt. Passing No. 200 Sieve (g)				
% Passing 200 Sieve				

ANAHEIM TEST LAB, INC

3008 ORANGE AVENUE
SANTA ANA, CALIFORNIA 92707
PHONE (714) 549-7267

Advanced Geotechnical Solutions, Inc
485 Corporate Ave., Suite B
Escondido, CA 92029

DATE: 03/06/17

P.O. NO.: Chain of Custody

LAB NO.: C-0286

SPECIFICATION: CA-417/422/643

MATERIAL: Soil

J.N.: 1611-03
Project: Dolphin Motel
Date sampled: 03/03/17
Boring Sample

ANALYTICAL REPORT

SUMMARY OF DATA

	pH	SOLUBLE SULFATES per CA. 417 ppm	SOLUBLE CHLORIDES per CA. 422 ppm	MIN. RESISTIVITY per CA. 643 ohm-cm
B-2 @ 5'	7.0	92	48	10,100

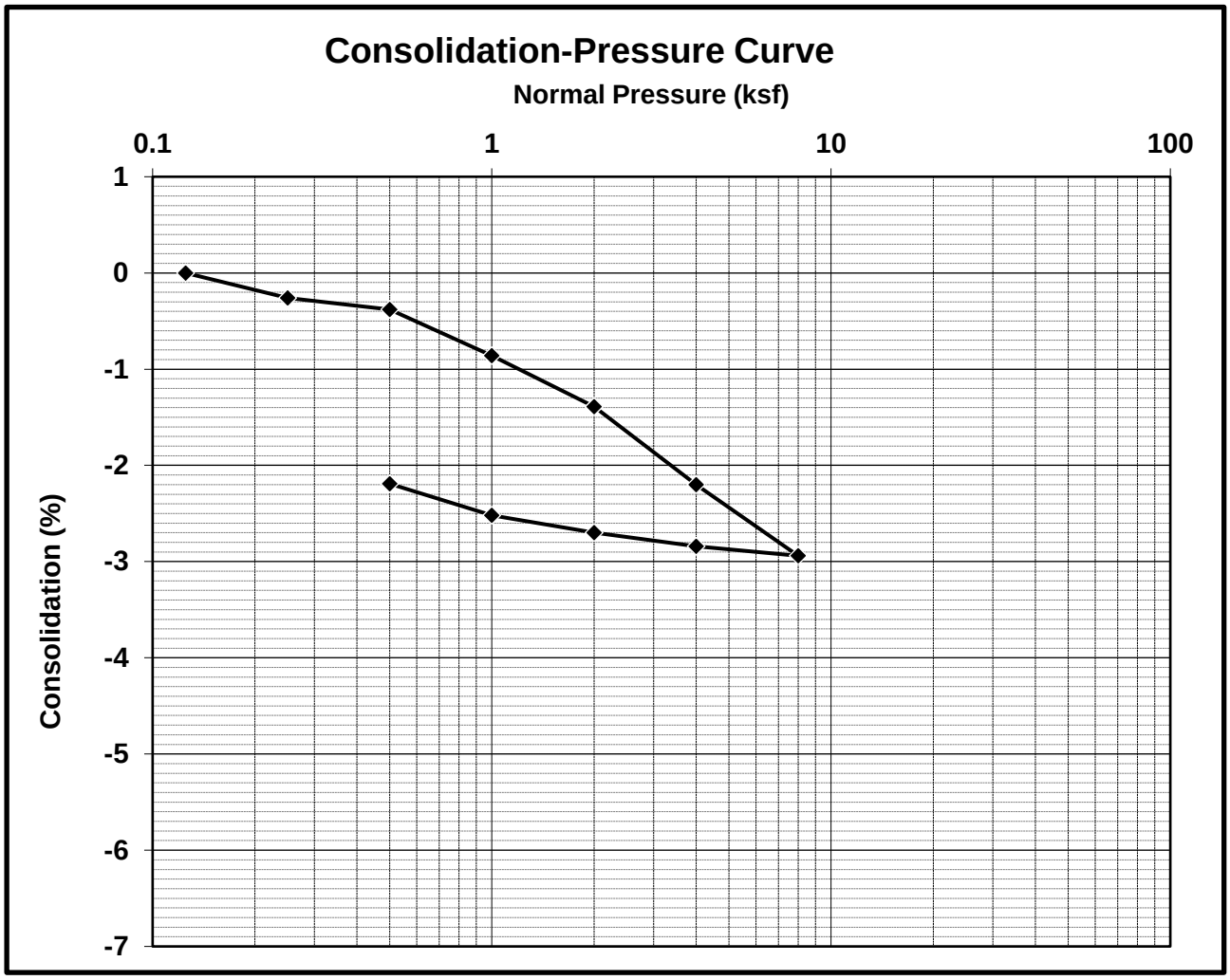
RESPECTFULLY SUBMITTED

WES BRIDGER CHEMIST

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CONSOLIDATION - ASTM D2435

Project Name:	Dolphin Motel	Excavation:	HS-3
Location:		Depth:	15 ft
Project No:	1611-03	Description:	SC-SM
Date:	3/29/2017	By:	FV



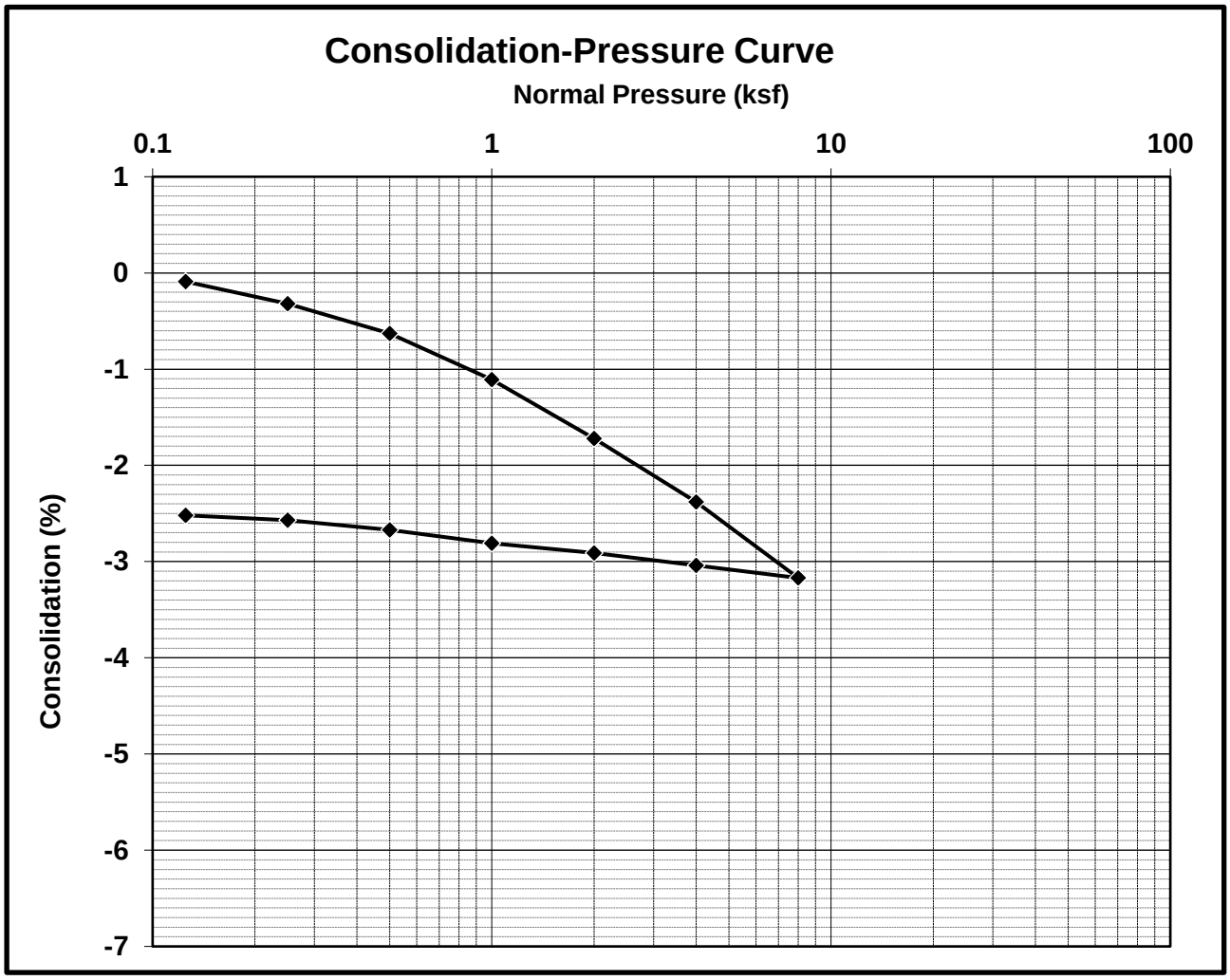
Test Description:

	Before Test	After Test
Water Content, w	20.3%	17.2%
Void Ratio, e	0.68	0.62
Saturation, S	78%	72%
Dry Density (pcf)	96.8	100.2
Wet Density (pcf)	116.4	117.5

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CONSOLIDATION - ASTM D2435

Project Name:	Dolphin Motel	Excavation:	HS-2
Location:		Depth:	20 ft
Project No:	1611-03	Description:	SC-SM
Date:	3/29/2017	By:	FV



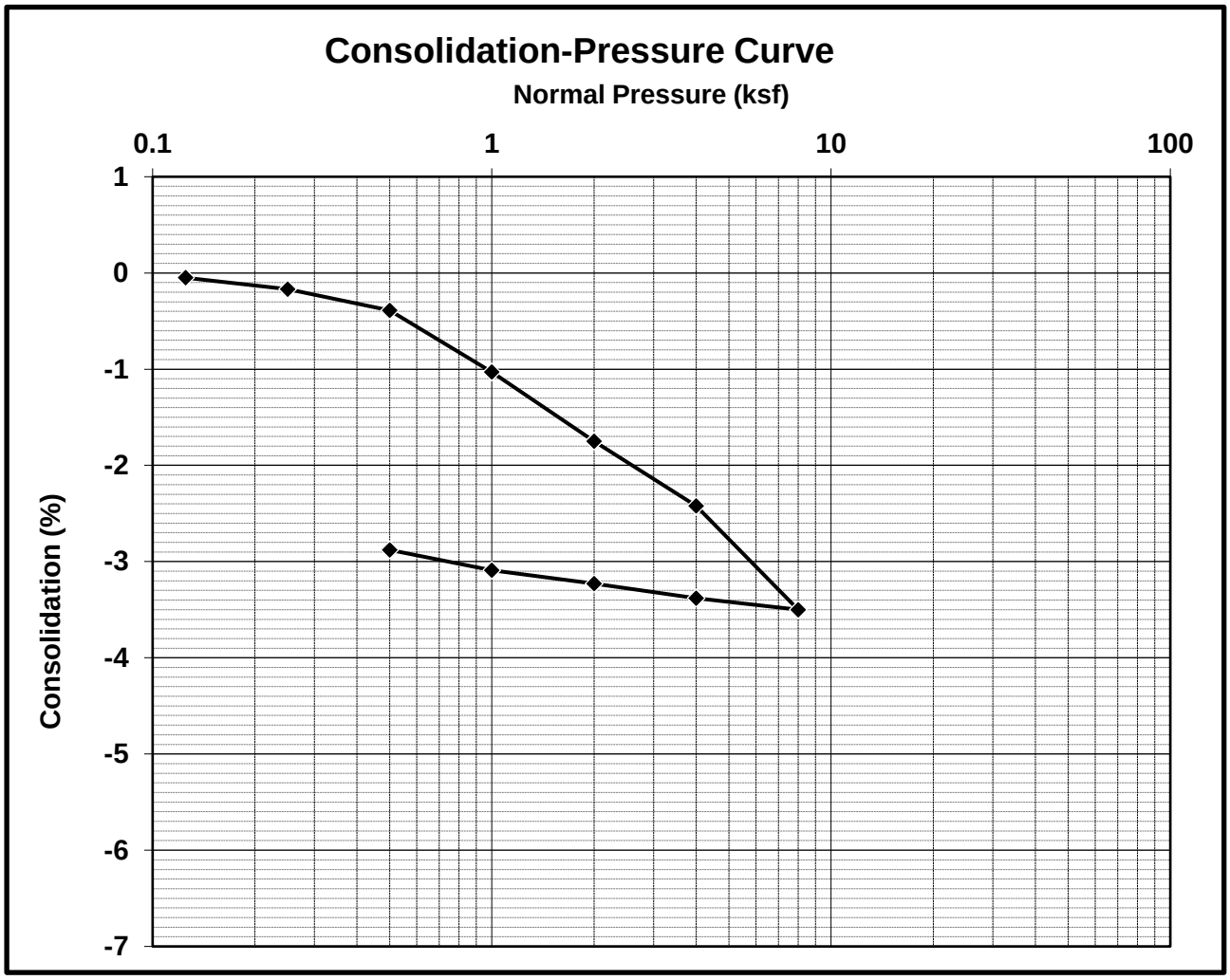
Test Description:

	Before Test	After Test
Water Content, w	20.5%	19.4%
Void Ratio, e	0.58	0.52
Saturation, S	95%	100%
Dry Density (pcf)	105.7	109.9
Wet Density (pcf)	127.4	131.2

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CONSOLIDATION - ASTM D2435

Project Name:	Dolphin Motel	Excavation:	HS-1
Location:		Depth:	15 ft
Project No:	1611-03	Description:	SC-SM
Date:	3/29/2017	By:	FV



Test Description:

	Before Test	After Test
Water Content, w	16.3%	13.8%
Void Ratio, e	0.44	0.38
Saturation, S	99%	96%
Dry Density (pcf)	114.7	119.7
Wet Density (pcf)	133.4	136.1

APPENDIX C

GENERAL EARTHWORK SPECIFICATIONS

AND GRADING GUIDELINES

GENERAL EARTHWORK SPECIFICATIONS

I. General

A. General procedures and requirements for earthwork and grading are presented herein. The earthwork and grading recommendations provided in the geotechnical report are considered part of these specifications, and where the general specifications provided herein conflict with those provided in the geotechnical report, the recommendations in the geotechnical report shall govern. Recommendations provided herein and in the geotechnical report may need to be modified depending on the conditions encountered during grading.

B. The contractor is responsible for the satisfactory completion of all earthwork in accordance with the project plans, specifications, applicable building codes, and local governing agency requirements. Where these requirements conflict, the stricter requirements shall govern.

C. It is the contractor's responsibility to read and understand the guidelines presented herein and in the geotechnical report as well as the project plans and specifications. Information presented in the geotechnical report is subject to verification during grading. The information presented on the exploration logs depicts conditions at the particular time of excavation and at the location of the excavation. Subsurface conditions present at other locations may differ, and the passage of time may result in different subsurface conditions being encountered at the locations of the exploratory excavations. The contractor shall perform an independent investigation and evaluate the nature of the surface and subsurface conditions to be encountered and the procedures and equipment to be used in performing his work.

D. The contractor shall have the responsibility to provide adequate equipment and procedures to accomplish the earthwork in accordance with applicable requirements. When the quality of work is less than that required, the Geotechnical Consultant may reject the work and may recommend that the operations be suspended until the conditions are corrected.

E. Prior to the start of grading, a qualified Geotechnical Consultant should be employed to observe grading procedures and provide testing of the fills for conformance with the project specifications, approved grading plan, and guidelines presented herein. All remedial removals, clean-outs, removal bottoms, keyways, and subdrain installations should be observed and documented by the Geotechnical Consultant prior to placing fill. It is the contractor's responsibility to apprise the Geotechnical Consultant of their schedules and notify the Geotechnical Consultant when those areas are ready for observation.

F. The contractor is responsible for providing a safe environment for the Geotechnical Consultant to observe grading and conduct tests.

II. Site Preparation

A. Clearing and Grubbing: Excessive vegetation and other deleterious material shall be sufficiently removed as required by the Geotechnical Consultant, and such materials shall be properly disposed of offsite in a method acceptable to the owner and governing agencies. Where applicable, the contractor may obtain permission from the Geotechnical Consultant, owner, and governing agencies to dispose of vegetation and other deleterious materials in designated areas onsite.

B. Unsuitable Soils Removals: Earth materials that are deemed unsuitable for the support of fill shall be removed as necessary to the satisfaction of the Geotechnical Consultant.

C. Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines, other utilities, or other structures located within the limits of grading shall be removed and/or abandoned in accordance with the requirements of the governing agency and to the satisfaction of the Geotechnical Consultant.

D. Preparation of Areas to Receive Fill: After removals are completed, the exposed surfaces shall be scarified to a depth of approximately 8 inches, watered or dried, as needed, to achieve a generally uniform moisture content that is at or near optimum moisture content. The scarified materials shall then be compacted to the project requirements and tested as specified.

E. All areas receiving fill shall be observed and approved by the Geotechnical Consultant prior to the placement of fill. A licensed surveyor shall provide survey control for determining elevations of processed areas and keyways.

III. Placement of Fill

A. Suitability of fill materials: Any materials, derived onsite or imported, may be utilized as fill provided that the materials have been determined to be suitable by the Geotechnical Consultant. Such materials shall be essentially free of organic matter and other deleterious materials, and be of a gradation, expansion potential, and/or strength that is acceptable to the Geotechnical Consultant. Fill materials shall be tested in a laboratory approved by the Geotechnical Consultant, and import materials shall be tested and approved prior to being imported.

B. Generally, different fill materials shall be thoroughly mixed to provide a relatively uniform blend of materials and prevent abrupt changes in material type. Fill materials derived from benching should be dispersed throughout the fill area instead of placing the materials within only an equipment-width from the cut/fill contact.

C. Oversize Materials: Rocks greater than 8 inches in largest dimension shall be disposed of offsite or be placed in accordance with the recommendations by the Geotechnical Consultant in the areas that are designated as suitable for oversize rock placement. Rocks that are smaller than 8 inches in largest dimension may be utilized in the fill provided that they are not nested and are their quantity and distribution are acceptable to the Geotechnical Consultant.

D. The fill materials shall be placed in thin, horizontal layers such that, when compacted, shall not exceed 6 inches. Each layer shall be spread evenly and shall be thoroughly mixed to obtain near uniform moisture content and uniform blend of materials.

E. Moisture Content: Fill materials shall be placed at or above the optimum moisture content or as recommended by the geotechnical report. Where the moisture content of the engineered fill is less than recommended, water shall be added, and the fill materials shall be blended so that near uniform moisture content is achieved. If the moisture content is above the limits specified by the Geotechnical Consultant, the fill materials shall be aerated by discing, blading, or other methods until the moisture content is acceptable.

F. Each layer of fill shall be compacted to the project standards in accordance to the project specifications and recommendations of the Geotechnical Consultant. Unless otherwise specified by the Geotechnical Consultant, the fill shall be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method: D1557-09.

G. Benching: Where placing fill on a slope exceeding a ratio of 5 to 1 (horizontal to vertical), the ground should be keyed or benched. The keyways and benches shall extend through all unsuitable materials into suitable materials such as firm materials or sound bedrock or as recommended by the Geotechnical Consultant. The minimum keyway width shall be 15 feet and extend into suitable materials, or as recommended by the geotechnical report and approved by the Geotechnical Consultant. The minimum keyway width for fill over cut slopes is also 15 feet, or as recommended by the geotechnical report and approved by the Geotechnical Consultant. As a general rule, unless otherwise recommended by the Geotechnical Consultant, the minimum width of the keyway shall be equal to 1/2 the height of the fill slope.

H. Slope Face: The specified minimum relative compaction shall be maintained out to the finish face of fill and stabilization fill slopes. Generally, this may be achieved by overbuilding the slope and cutting back to the compacted core. The actual amount of overbuilding may vary as field conditions dictate. Alternately, this may be achieved by back rolling the slope face with suitable equipment or other methods that produce the designated result. Loose soil should not be allowed to build up on the slope face. If present, loose soils shall be trimmed to expose the compacted slope face.

I. Slope Ratio: Unless otherwise approved by the Geotechnical Consultant and governing agencies, permanent fill slopes shall be designed and constructed no steeper than 2 to 1 (horizontal to vertical).

J. Natural Ground and Cut Areas: Design grades that are in natural ground or in cuts should be evaluated by the Geotechnical Consultant to determine whether scarification and processing of the ground and/or overexcavation is needed.

K. Fill materials shall not be placed, spread, or compacted during unfavorable weather conditions. When grading is interrupted by rain, filing operations shall not resume until the Geotechnical Consultant approves the moisture and density of the previously placed compacted fill.

IV. Cut Slopes

A. The Geotechnical Consultant shall inspect all cut slopes, including fill over cut slopes, and shall be notified by the contractor when cut slopes are started.

B. If adverse or potentially adverse conditions are encountered during grading; the Geotechnical Consultant shall investigate, evaluate, and make recommendations to mitigate the adverse conditions.

C. Unless otherwise stated in the geotechnical report, cut slopes shall not be excavated higher or steeper than the requirements of the local governing agencies. Short-term stability of the cut slopes and other excavations is the contractor's responsibility.

V. Drainage

A. Back drains and Subdrains: Back drains and subdrains shall be provided in fill as recommended by the Geotechnical Consultant and shall be constructed in accordance with the governing agency and/or recommendations of the Geotechnical Consultant. The location of subdrains, especially outlets, shall be surveyed and recorded by the Civil Engineer.

B. Top-of-slope Drainage: Positive drainage shall be established away from the top of slope. Site drainage shall not be permitted to flow over the tops of slopes.

C. Drainage terraces shall be constructed in compliance with the governing agency requirements and/or in accordance with the recommendations of the Geotechnical Consultant.

D. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the prevailing drainage.

VI. Erosion Control

A. All finish cut and fill slopes shall be protected from erosion and/or planted in accordance with the project specifications and/or landscape architect's recommendations. Such measures to protect the slope face shall be undertaken as soon as practical after completion of grading.

B. During construction, the contractor shall maintain proper drainage and prevent the ponding of water. The contractor shall take remedial measures to prevent the erosion of graded areas until permanent drainage and erosion control measures have been installed.

VII. Trench Excavation and Backfill

A. Safety: The contractor shall follow all OSHA requirements for safety of trench excavations. Knowing and following these requirements is the contractor's responsibility. All trench excavations or open cuts in excess of 5 feet in depth shall be shored or laid back. Trench excavations and open cuts exposing adverse geologic conditions may require further evaluation by the Geotechnical Consultant. If a contractor fails to provide safe access for compaction testing, backfill not tested due to safety concerns may be subject to removal.

B. Bedding: Bedding materials shall be non-expansive and have a Sand Equivalent greater than 30. Where permitted by the Geotechnical Consultant, the bedding materials can be densified by jetting.

C. Backfill: Jetting of backfill materials is generally not acceptable. Where permitted by the Geotechnical Consultant, the bedding materials can be densified by jetting provided the backfill materials are granular, free-draining and have a Sand Equivalent greater than 30.

VIII. Geotechnical Observation and Testing During Grading

A. Compaction Testing: Fill shall be tested by the Geotechnical Consultant for evaluation of general compliance with the recommended compaction and moisture conditions. The tests shall be taken in the compacted soils beneath the surface if the surficial materials are disturbed. The contractor shall assist the Geotechnical Consultant by excavating suitable test pits for testing of compacted fill.

B. Where tests indicate that the density of a layer of fill is less than required, or the moisture content not within specifications, the Geotechnical Consultant shall notify the contractor of the unsatisfactory conditions of the fill. The portions of the fill that are not within specifications shall be reworked until the required density and/or moisture content has been attained. No additional fill shall be placed until the last lift of fill is tested and found to meet the project specifications and approved by the Geotechnical Consultant.

C. If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as adverse weather, excessive rock or deleterious materials being placed in the fill, insufficient equipment, excessive rate of fill placement, results in a quality of work that is unacceptable, the consultant shall notify the contractor, and the contractor shall rectify the conditions, and if necessary, stop work until conditions are satisfactory.

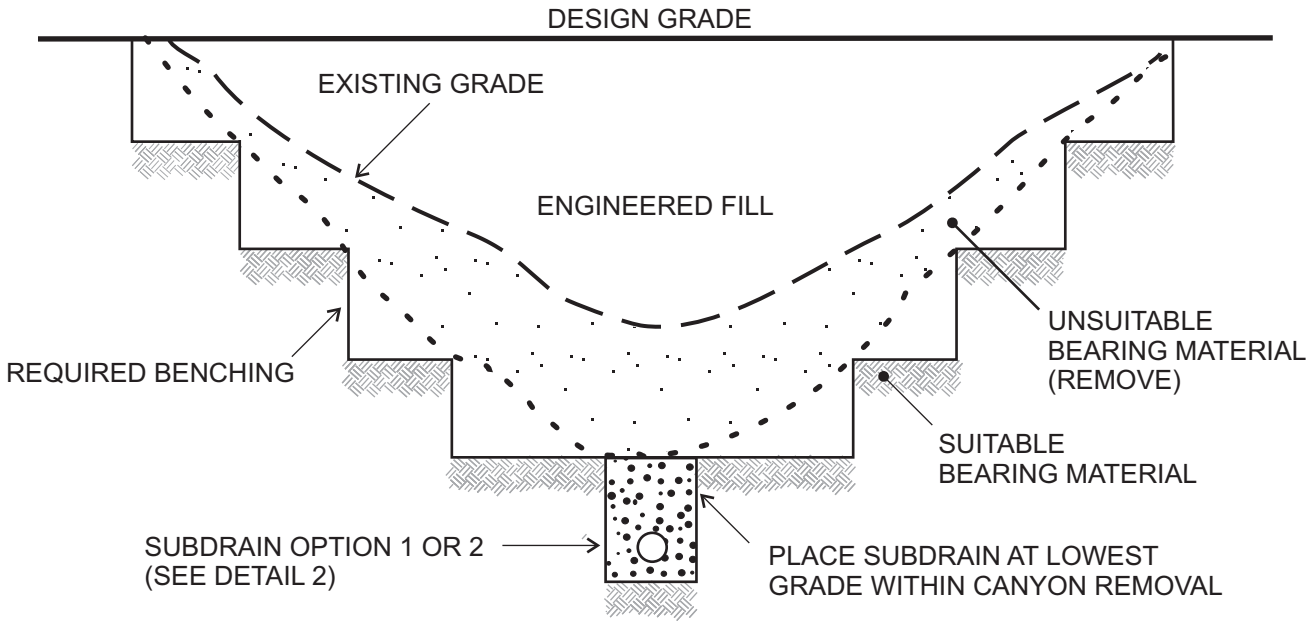
D. Frequency of Compaction Testing: The location and frequency of tests shall be at the Geotechnical Consultant's discretion. Generally, compaction tests shall be taken at intervals not exceeding two feet in fill height and 1,000 cubic yards of fill materials placed.

E. Compaction Test Locations: The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of the compaction test locations. The contractor shall coordinate with the surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations. Alternately, the test locations can be surveyed and the results provided to the Geotechnical Consultant.

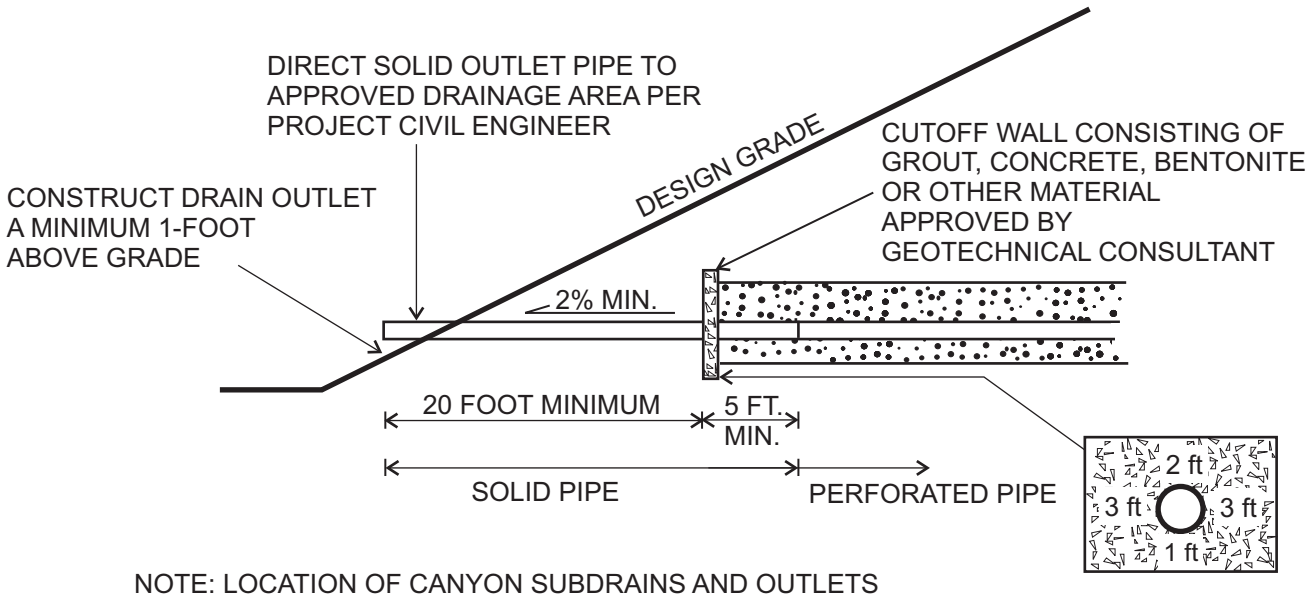
F. Areas of fill that have not been observed or tested by the Geotechnical Consultant may have to be removed and recompacted at the contractor's expense. The depth and extent of removals will be determined by the Geotechnical Consultant.

G. Observation and testing by the Geotechnical Consultant shall be conducted during grading in order for the Geotechnical Consultant to state that, in his opinion, grading has been completed in accordance with the approved geotechnical report and project specifications.

H. Reporting of Test Results: After completion of grading operations, the Geotechnical Consultant shall submit reports documenting their observations during construction and test results. These reports may be subject to review by the local governing agencies.



CANYON SUBDRAIN PROFILE



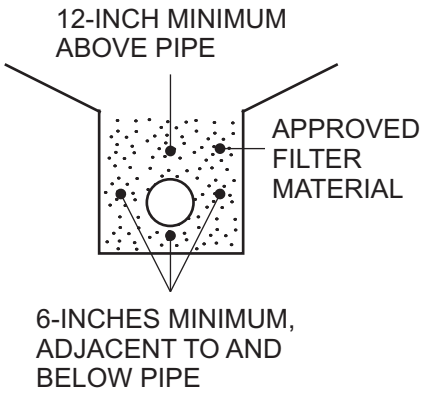
NOTE: LOCATION OF CANYON SUBDRAINS AND OUTLETS SHOULD BE DOCUMENTED BY PROJECT CIVIL ENGINEER. OUTLETS MUST BE KEPT UNOBSTRUCTED AT ALL TIMES.

CANYON SUBDRAIN TERMINUS

VER 1.0

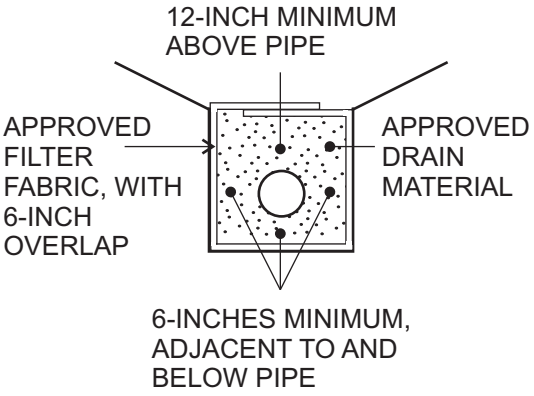
NTS

AGS ADVANCED GEOTECHNICAL SOLUTIONS	CANYON SUBDRAIN	DETAIL 1



OPTION 1

FILTER MATERIAL: MINIMUM VOLUME OF 9 CUBIC FEET PER LINEAL FOOT OF CALTRANS CLASS 2 PERMEABLE MATERIAL



OPTION 2

DRAIN MATERIAL: MINIMUM VOLUME OF 9 CUBIC FEET PER LINEAL FOOT OF 3/4-INCH MAX ROCK OR APPROVED EQUIVALENT SUBSTITUTE

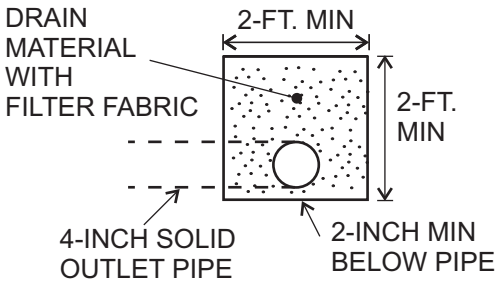
FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT SUBSTITUTE

PIPE: 6 OR 8-INCH ABS OR PVC PIPE OR APPROVED SUBSTITUTE WITH A MINIMUM OF 8 PERFORATIONS (1/4-INCH DIAMETER) PER LINEAL FOOT IN BOTTOM HALF OF PIPE

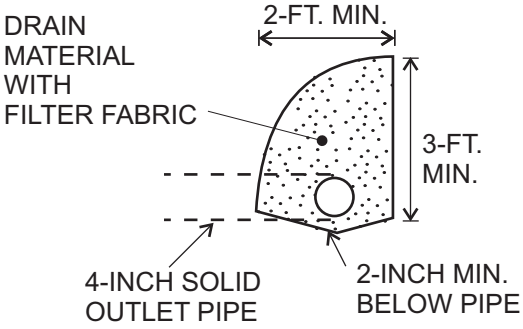
(ASTM D2751, SDR-35 OR ASTM D3034, SDR-35
ASTM D1527, SCHD. 40 OR ASTM D1785, SCHD. 40)

NOTE: CONTINUOUS RUN IN EXCESS OF 5OO FEET REQUIRES 8-INCH DIAMETER PIPE (ASTM D3034, SDR-35, OR ASTM D1785, SCHD. 40)

CANYON SUBDRAIN



OPTION 1



OPTION 2

DRAIN MATERIAL: GRAVEL TRENCH TO BE FILLED WITH 3/4-INCH MAX ROCK OR APPROVED EQUIVALENT SUBSTITUTE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR EQUIVALENT SUBSTITUTE WITH A MINIMUM 6-INCH OVERLAP

PIPE: 4-INCH ABS OR PVC PIPE OR APPROVED EQUIVALENT SUBSTITUTE WITH A MINIMUM OF 8 PERFORATIONS (1/4-INCH DIAMETER) PER LINEAL FOOT IN BOTTOM HALF OF PIPE

(ASTM D2751, SDR-35 OR ASTM D3034, SDR-35
ASTM D1527, SCHD. 40 OR ASTM D1785, SCHD. 40)

BUTTRESS/STABILIZATION DRAIN

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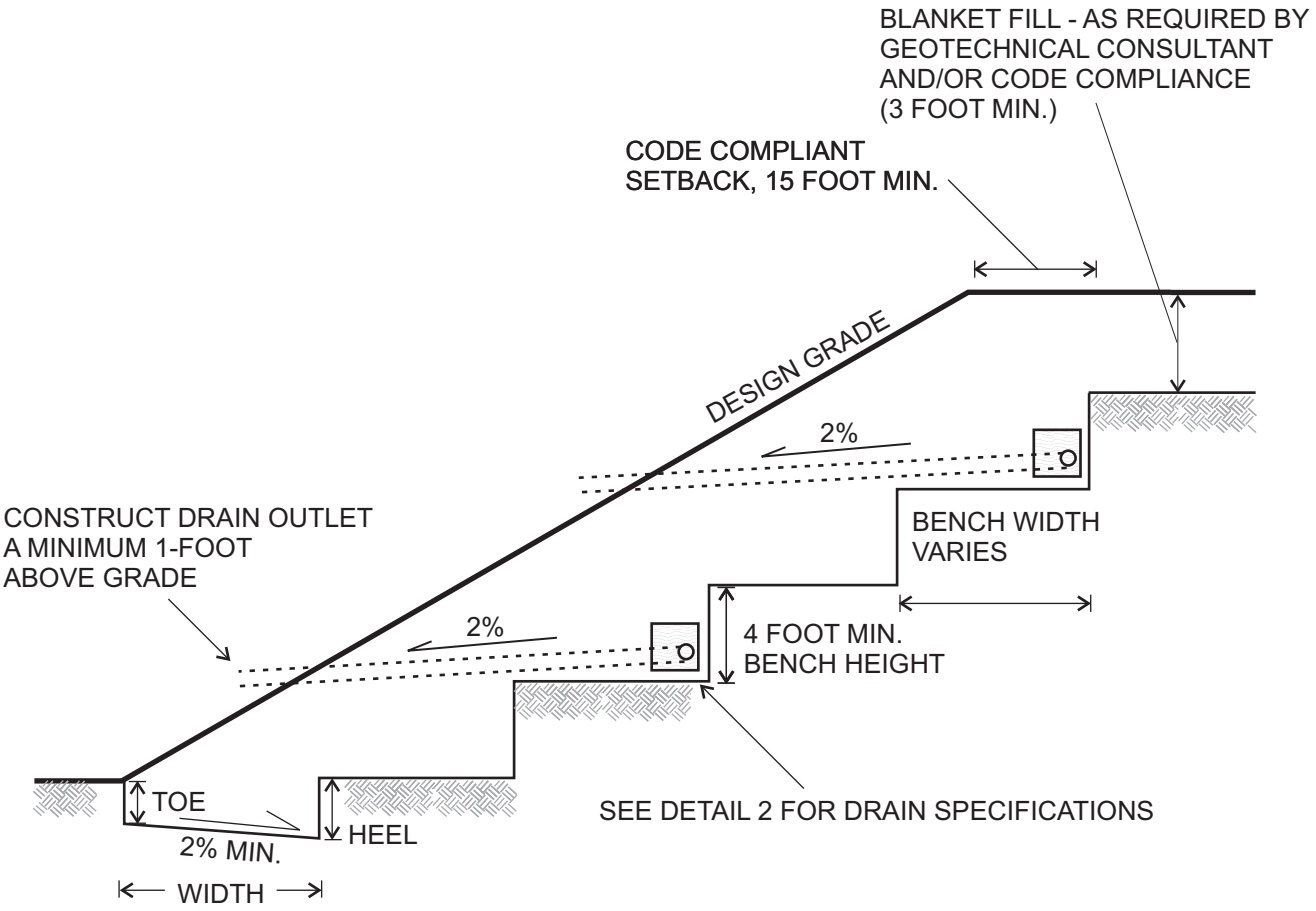
ADVANCED GEOTECHNICAL SOLUTIONS

DRAIN SPECIFICATIONS

DETAIL 2



CODE COMPLIANT KEYWAY
WITH MINIMUM DIMENSIONS:

TOE 2 FOOT MIN.
HEEL 3 FOOT MIN.
WIDTH 15 FOOT MIN.

NOTES:

1. DRAIN OUTLETS TO BE PROVIDED EVERY 100 FEET CONNECT TO PERFORATED DRAIN PIPE BY “L” OR “T” AT A MINIMUM 2% GRADIENT.

2. THE NECESSITY AND LOCATION OF ADDITIONAL DRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL CONSULTANT. UPPER STAGE OUTLETS SHOULD BE EMPTIED ONTO CONCRETE TERRACE DRAINS.

3. DRAIN PIPE TO EXTEND FULL LENGTH OF STABILIZATION/BUTTRESS WITH A MINIMUM GRADIENT OF 2% TO SOLID OUTLET PIPES.

4. LOCATION OF DRAINS AND OUTLETS SHOULD BE DOCUMENTED BY PROJECT CIVIL ENGINEER. OUTLETS MUST BE KEPT UNOBSTRUCTED AT ALL TIMES.

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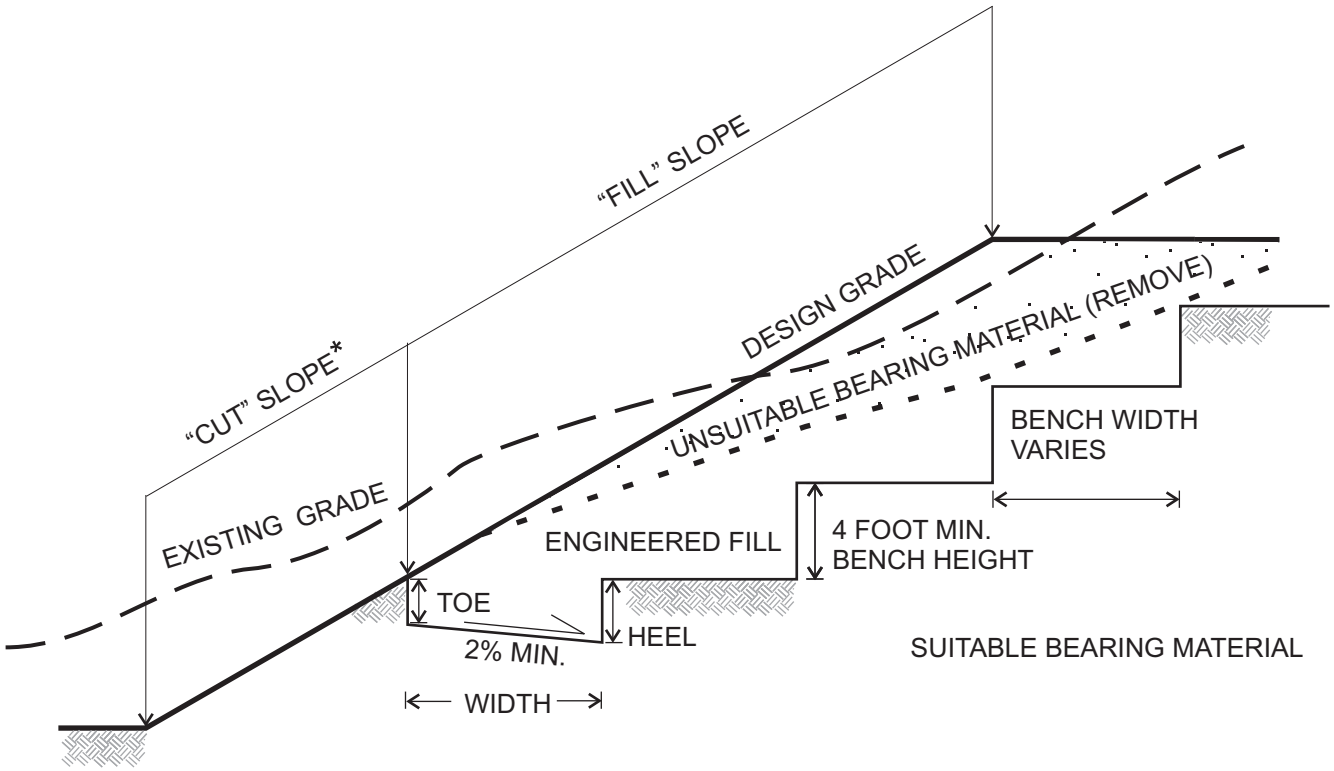
STABILIZATION/BUTTRESS FILL

DETAIL 3

* THE “CUT” PORTION OF THE SLOPE SHALL BE EXCAVATED AND EVALUATED BY THE GEOTECHNICAL CONSULTANT PRIOR TO CONSTRUCTING THE “FILL” PORTION



CODE COMPLIANT KEYWAY
WITH MINIMUM DIMENSIONS:

TOE: 2 FOOT MIN.
HEEL: 3 FOOT MIN.
WIDTH: 15 FOOT MIN.

NOTES:

1. THE NECESSITY AND LOCATION OF DRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL CONSULTANT

2. SEE DETAIL 2 FOR DRAIN SPECIFICATIONS

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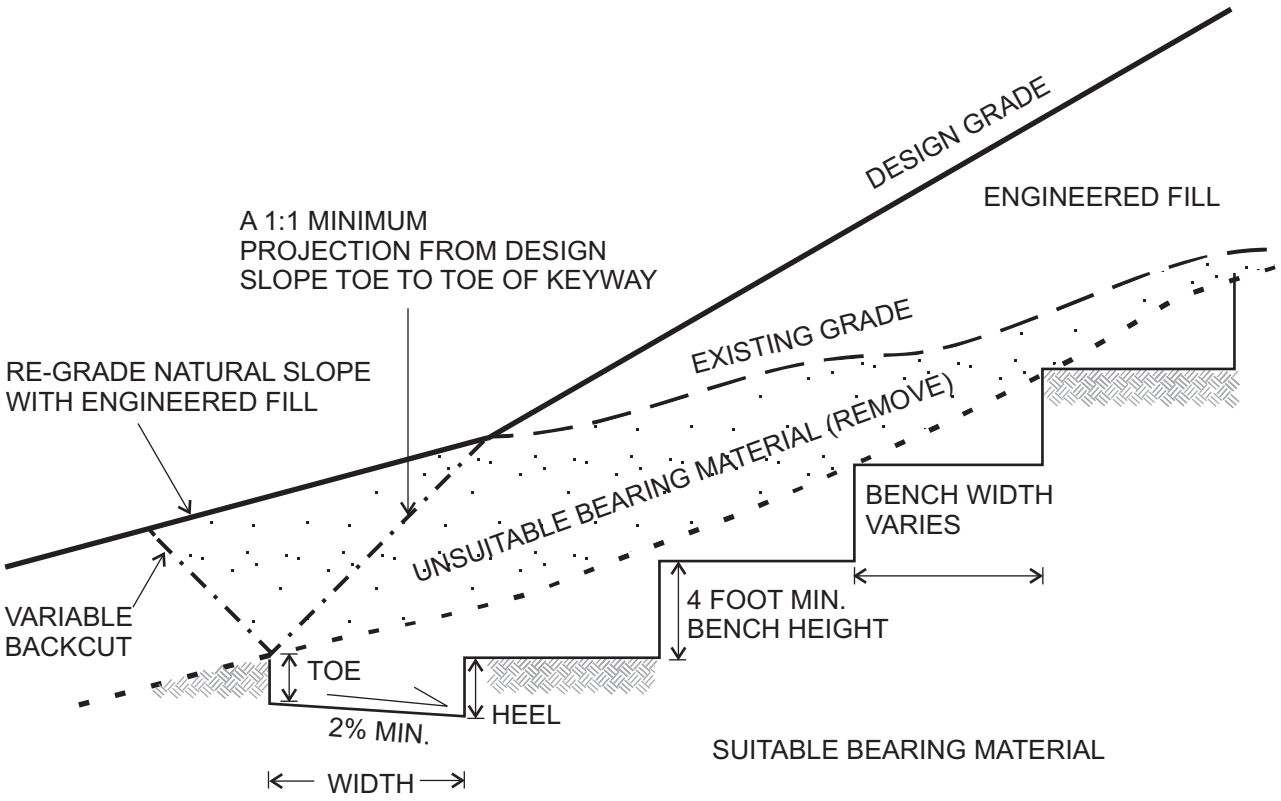
ADVANCED GEOTECHNICAL SOLUTIONS

FILL OVER CUT SLOPE

DETAIL 4



CODE COMPLIANT KEYWAY
WITH MINIMUM DIMENSIONS:

TOE: 2 FOOT MIN.
HEEL: 3 FOOT MIN.
WIDTH: 15 FOOT MIN.

NOTES:

1. WHEN THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN GRADE SLOPE RATIO, SPECIAL RECOMMENDATIONS ARE NECESSARY BY THE GEOTECHNICAL CONSULTANT

2. THE GEOTECHNICAL CONSULTANT WILL DETERMINE THE REQUIREMENT FOR AND LOCATION OF SUBSURFACE DRAINAGE SYSTEMS.

3. MAINTAIN MINIMUM 15 FOOT HORIZONTAL WIDTH FROM FACE OF SLOPE TO BENCH/BACKCUT

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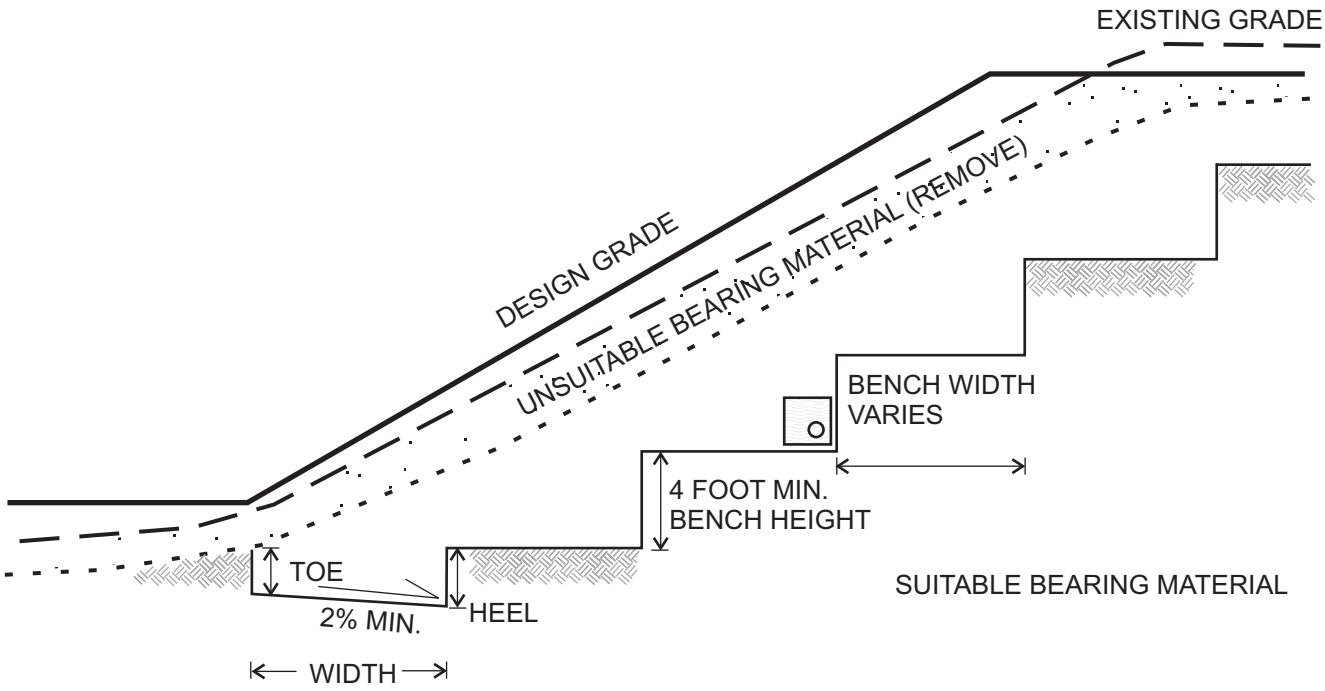
FILL OVER NATURAL SLOPE

DETAIL 5



CODE COMPLIANT KEYWAY
WITH MINIMUM DIMENSIONS:

TOE: 2 FOOT MIN.
HEEL: 3 FOOT MIN.
WIDTH: 15 FOOT MIN.

NOTES:

1. MAINTAIN MINIMUM 15 FOOT HORIZONTAL WIDTH FROM FACE OF SLOPE TO BENCH/BACKCUT

2. SEE DETAIL 2 FOR DRAIN SPECIFICATIONS

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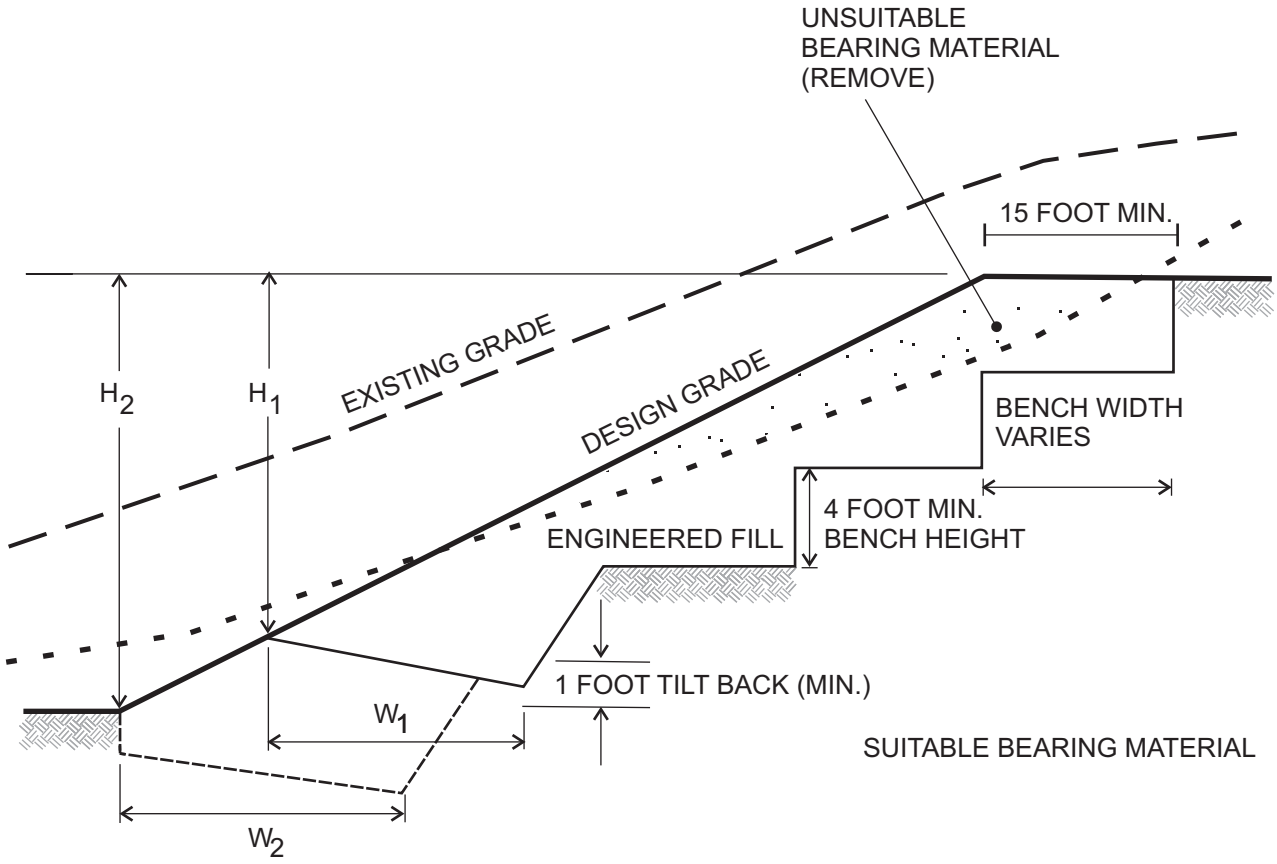
SKIN FILL CONDITION

DETAIL 6



NOTES:

1. IF RECOMMENDED BY THE GEOTECHNICAL CONSULTANT, THE REMAINING CUT PORTION OF THE SLOPE MAY REQUIRE REMOVAL AND REPLACEMENT WITH AN ENGINEERED FILL

2. "W" SHALL BE EQUIPMENT WIDTH (15 FEET) FOR SLOPE HEIGHT LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET, "W" SHALL BE DETERMINED BY THE GEOTECHNICAL CONSULTANT. AT NO TIME SHALL "W" BE LESS THAN H/2

3. DRAINS WILL BE REQUIRED (SEE DETAIL 2)

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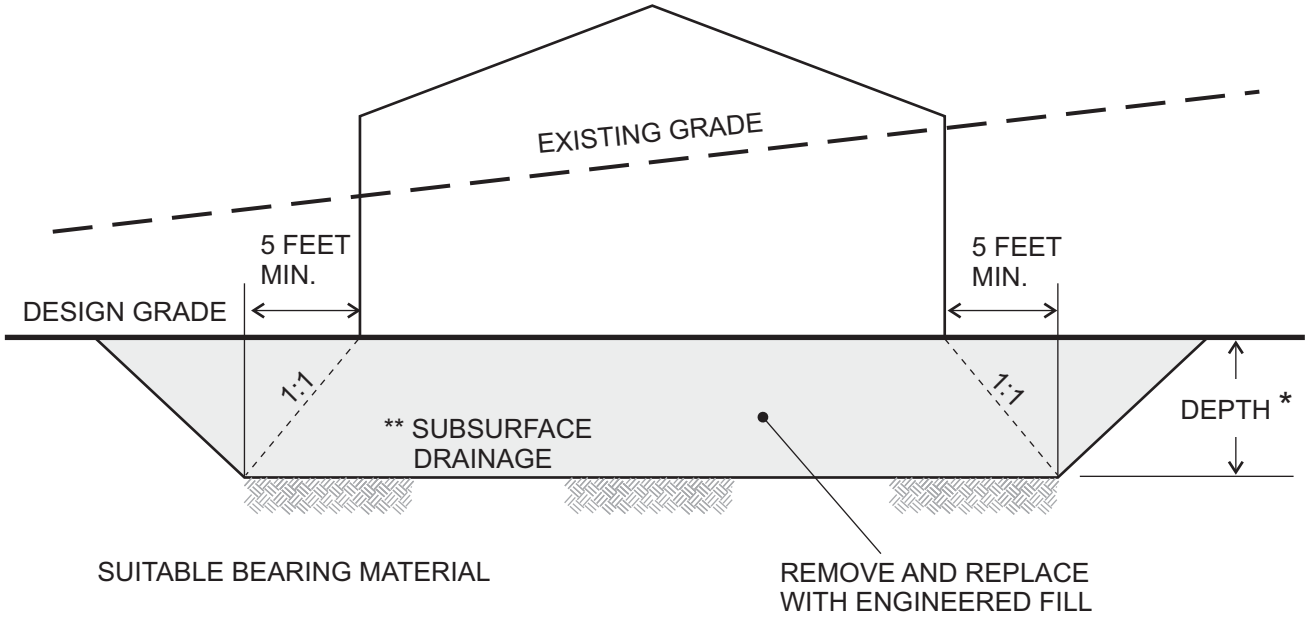
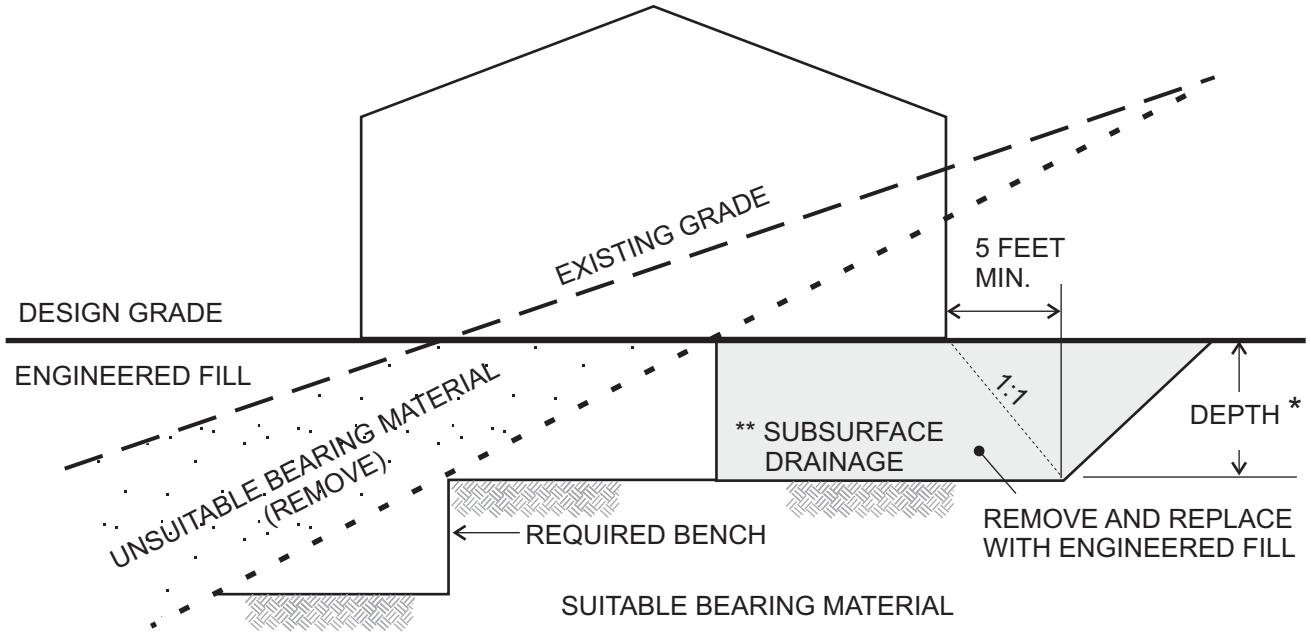
PARTIAL CUT SLOPE STABILIZATION

DETAIL 7



CUT LOT OVEREXCAVATION



CUT-FILL LOT OVEREXCAVATION

NOTES:

* SEE REPORT FOR RECOMMENDED DEPTHS, DEEPER OVEREXCAVATION MAY BE REQUIRED BY THE GEOTECHNICAL CONSULTANT BASED ON EXPOSED FIELD CONDITIONS

** CONSTRUCT EXCAVATION TO PROVIDE FOR POSITIVE DRAINAGE TOWARDS STREETS, DEEPER FILL AREAS OR APPROVED DRAINAGE DEVICES BASED ON FIELD CONDITIONS

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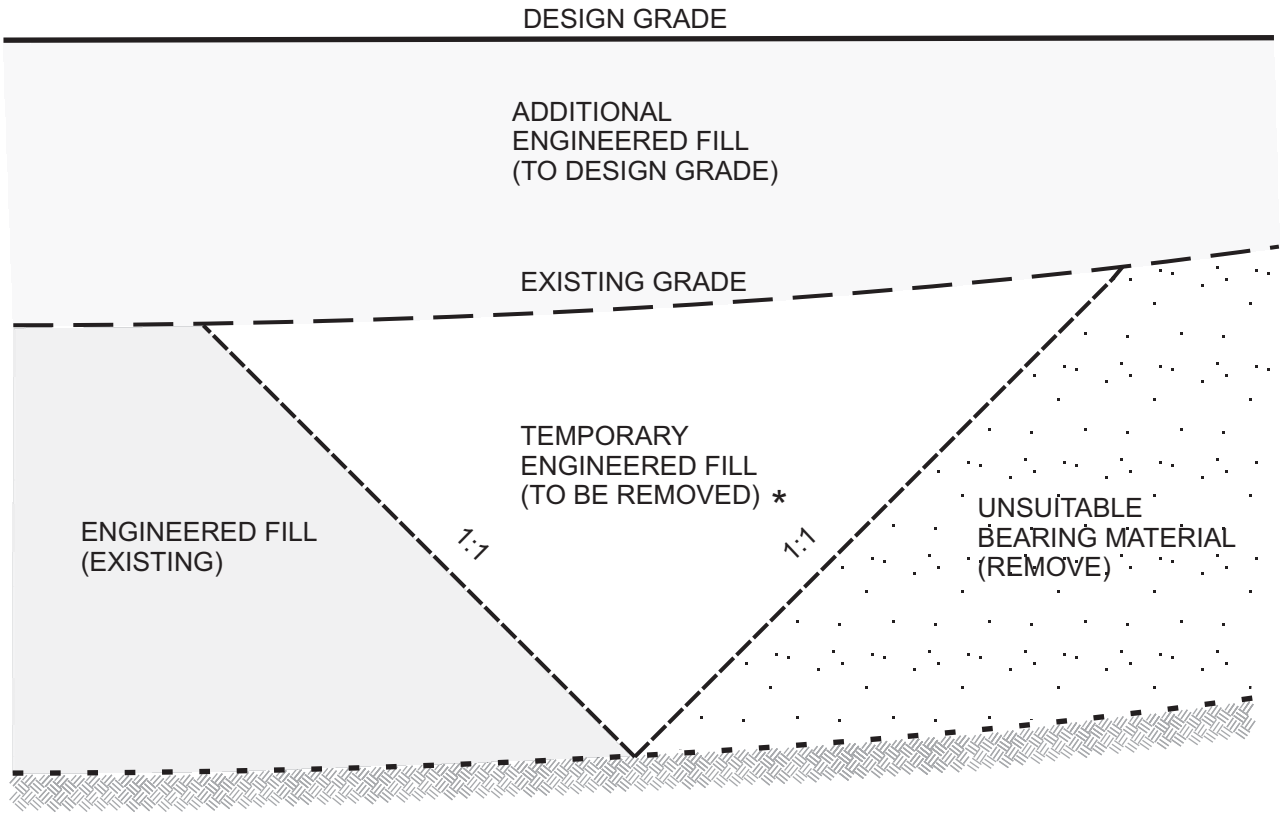
AGS ADVANCED GEOTECHNICAL SOLUTIONS	CUT & CUT-FILL LOT OVEREXCAVATION	DETAIL 8



* REMOVE BEFORE PLACING ADDITIONAL ENGINEERED FILL

TYPICAL UP-CANYON PROFILE

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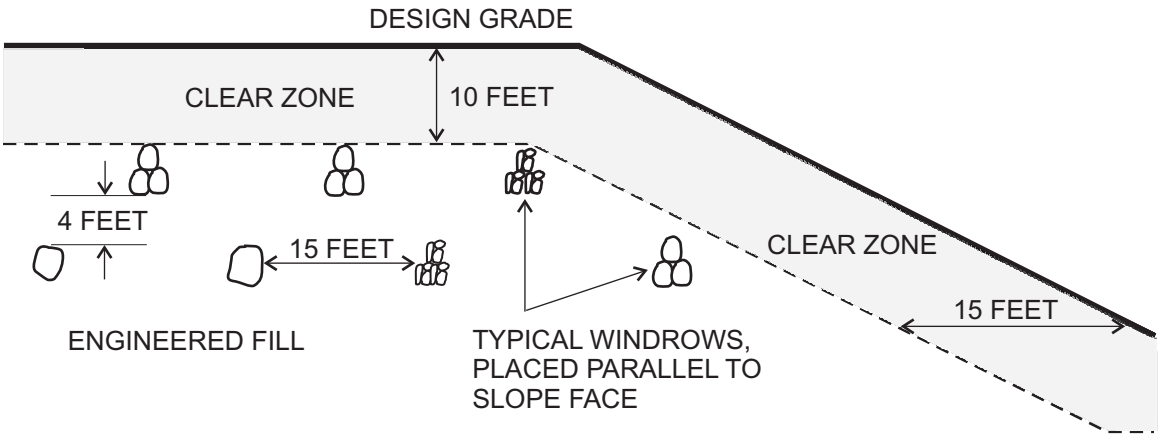
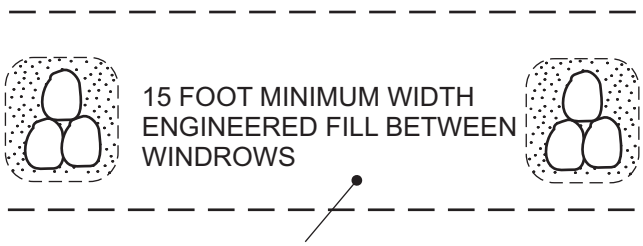
REMOVAL ADJACENT TO EXISTING FILL

DETAIL 9



CLEAR ZONE DIMENSIONS FOR REFERENCE ONLY, ACTUAL DEPTH, WIDTH, WINDROW LENGTH, ETC. TO BE BASED ON ELEVATIONS OF FOUNDATIONS, UTILITIES OR OTHER STRUCTURES PER THE GEOTECHNICAL CONSULTANT OR GOVERNING AGENCY APPROVAL

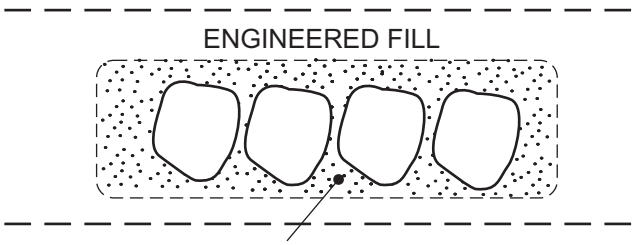
OVERSIZED MATERIAL DISPOSAL PROFILE



HORIZONTALLY PLACED ENGINEERED FILL, FREE OF OVERSIZED MATERIALS AND COMPACTED TO MINIMUM PROJECT STANDARDS

COMPACT ENGINEERED FILL ABOVE OVERSIZED MATERIALS TO FACILITATE "TRENCH" CONDITION PRIOR TO FLOODING GRANULAR MATERIALS

WINDROW CROSS-SECTION



WINDROW PROFILE

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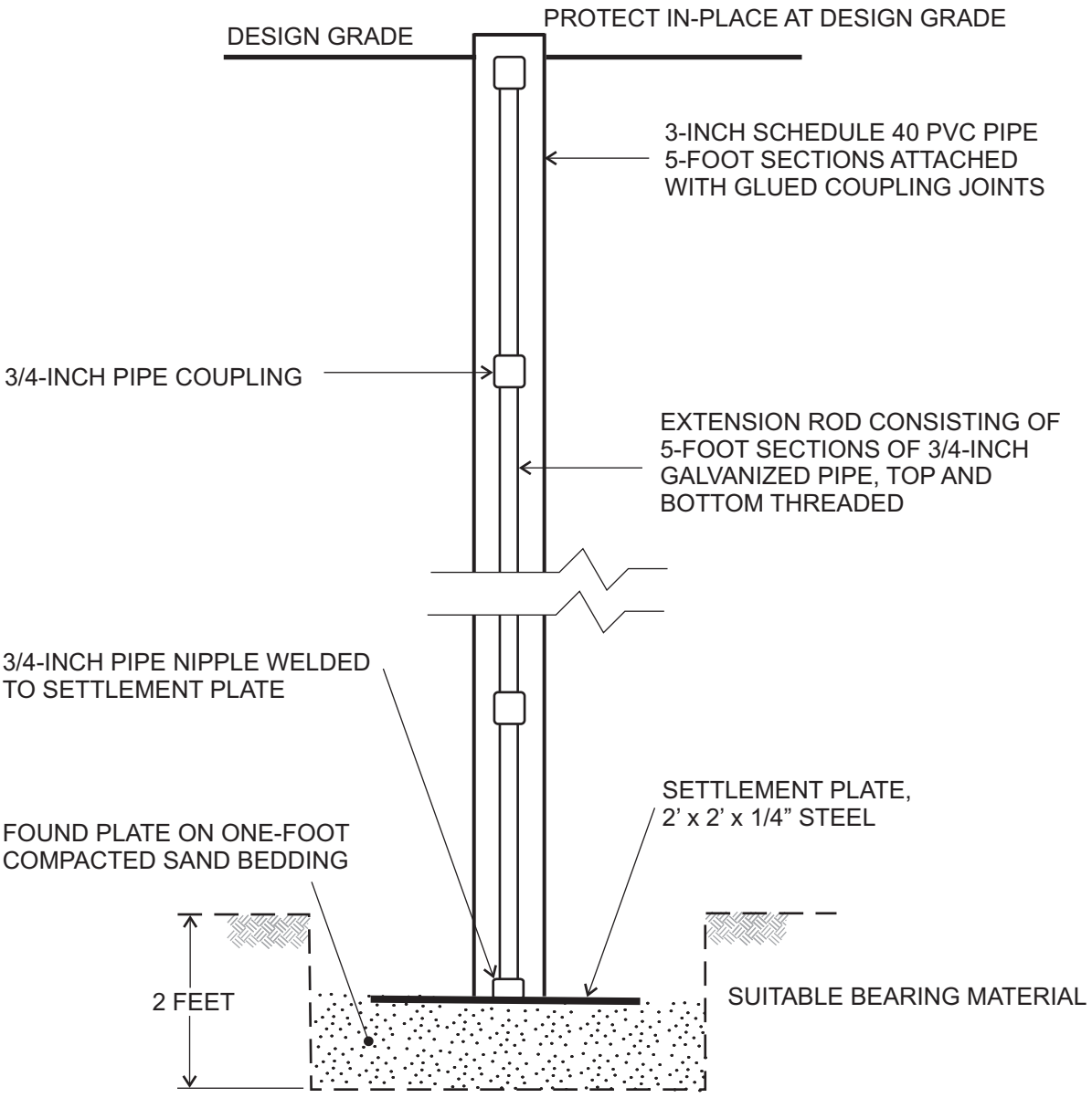
OVERSIZED MATERIAL DISPOSAL CRITERIA

DETAIL 10



NOTES:

1. SETTLEMENT PLATE LOCATIONS SHALL BE SUFFICIENTLY IDENTIFIED BY THE CONTRACTOR AND BE READILY VISIBLE TO EQUIPMENT OPERATORS.

2. CONTRACTOR SHALL MAINTAIN ADEQUATE HORIZONTAL CLEARANCE FOR EQUIPMENT OPERATION AND SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO SETTLEMENT PLATE DURING SITE CONSTRUCTION.

3. A MINIMUM 5-FOOT ZONE ADJACENT TO SETTLEMENT PLATE/EXTENSION RODS SHALL BE ESTABLISHED FOR HAND-HELD MECHANICAL COMPACTION OF ENGINEERED FILL. ENGINEERED FILL SHALL BE COMPACTED TO MINIMUM PROJECT STANDARD.

4. ELEVATIONS OF SETTLEMENT PLATE AND ALL EXTENSION ROD PLACEMENT SHALL BE DOCUMENTED BY PROJECT CIVIL ENGINEER OR SURVEYOR.

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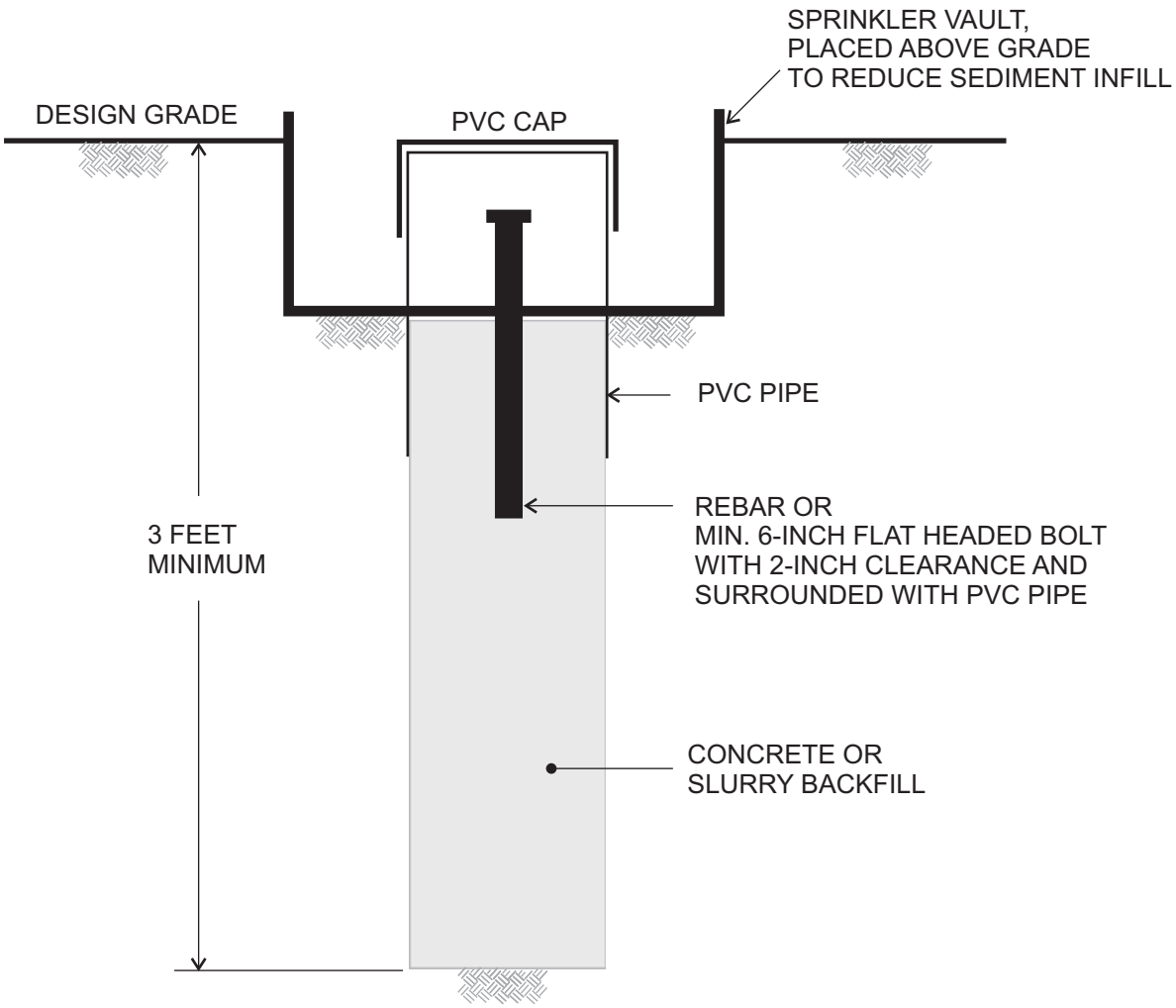
SETTLEMENT PLATE

DETAIL 11



NOTES:

1. SETTLEMENT MONUMENT LOCATIONS SHALL BE SUFFICIENTLY IDENTIFIED AND BE READILY VISIBLE TO EQUIPMENT OPERATORS.

2. ELEVATIONS OF SURFACE MONUMENTS SHALL BE DOCUMENTED BY PROJECT CIVIL ENGINEER OR SURVEYOR.

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SETTLEMENT MONUMENT

DETAIL 12

APPENDIX D

HOMEOWNER MAINTENANCE RECOMMENDATIONS

HOMEOWNER MAINTENANCE AND IMPROVEMENT CONSIDERATIONS

Homeowners are accustomed to maintaining their homes. They expect to paint their houses periodically, replace wiring, clean out clogged plumbing, and repair roofs. Maintenance of the home site, particularly on hillsides, should be considered on the same basis or even on a more serious basis because neglect can result in serious consequences. In most cases, lot and site maintenance can be taken care of along with landscaping, and can be carried out more economically than repair after neglect.

Most slope and hillside lot problems are associated with water. Uncontrolled water from a broken pipe, cesspool, or wet weather causes most damage. Wet weather is the largest cause of slope problems, particularly in California where rain is intermittent, but may be torrential. Therefore, drainage and erosion control are the most important aspects of home site stability; these provisions must not be altered without competent professional advice. Further, maintenance must be carried out to assure their continued operation.

As geotechnical engineers concerned with the problems of building sites in hillside developments, we offer the following list of recommended home protection measures as a guide to homeowners.

Expansive Soils

Some of the earth materials on site have been identified as being expansive in nature. As such, these materials are susceptible to volume changes with variations in their moisture content. These soils will swell upon the introduction of water and shrink upon drying. The forces associated with these volume changes can have significant negative impacts (in the form of differential movement) on foundations, walkways, patios, and other lot improvements. In recognition of this, the project developer has constructed homes on these lots on post-tensioned or mat slabs with pier and grade beam foundation systems, intended to help reduce the potential adverse effects of these expansive materials on the residential structures within the project. Such foundation systems are not intended to offset the forces (and associated movement) related to expansive soil, but are intended to help soften their effects on the structures constructed thereon.

Homeowners purchasing property and living in an area containing expansive soils must assume a certain degree of responsibility for homeowner improvements as well as for maintaining conditions around their home. Provisions should be incorporated into the design and construction of homeowner improvements to account for the expansive nature of the onsite soils material. Lot maintenance and landscaping should also be conducted in consideration of the expansive soil characteristics. Of primary importance is minimizing the moisture variation below all lot improvements. Such design, construction and homeowner maintenance provisions should include:

- Employing contractors for homeowner improvements who design and build in recognition of local building code and site specific soils conditions.
- Establishing and maintaining positive drainage away from all foundations, walkways, driveways, patios, and other hardscape improvements.
- Avoiding the construction of planters adjacent to structural improvements. Alternatively, planter sides/bottoms can be sealed with an impermeable membrane and drained away from the improvements via subdrains into approved disposal areas.
- Sealing and maintaining construction/control joints within concrete slabs and walkways to reduce the potential for moisture infiltration into the subgrade soils.

- Utilizing landscaping schemes with vegetation that requires minimal watering. Alternatively, watering should be done in a uniform manner as equally as possible on all sides of the foundation, keeping the soil "moist" but not allowing the soil to become saturated.
- Maintaining positive drainage away from structures and providing roof gutters on all structures with downspouts installed to carry roof runoff directly into area drains or discharged well away from the structures.
- Avoiding the placement of trees closer to the proposed structures than a distance of one-half the mature height of the tree.
- Observation of the soil conditions around the perimeter of the structure during extremely hot/dry or unusually wet weather conditions so that modifications can be made in irrigation programs to maintain relatively constant moisture conditions.

Sulfates

Homeowners should be cautioned against the import and use of certain fertilizers, soil amendments, and/or other soils from offsite sources in the absence of specific information relating to their chemical composition. Some fertilizers have been known to leach sulfate compounds into soils otherwise containing "negligible" sulfate concentrations and increase the sulfate concentrations in near-surface soils to "moderate" or "severe" levels. In some cases, concrete improvements constructed in soils containing high levels of soluble sulfates may be affected by deterioration and loss of strength.

Water - Natural and Man Induced

Water in concert with the reaction of various natural and man-made elements, can cause detrimental effects to your structure and surrounding property. Rain water and flowing water erodes and saturates the ground and changes the engineering characteristics of the underlying earth materials upon saturation. Excessive irrigation in concert with a rainy period is commonly associated with shallow slope failures and deep seated landslides, saturation of near structure soils, local ponding of water, and transportation of water soluble substances that are deleterious to building materials including concrete, steel, wood, and stucco.

Water interacting with the near surface and subsurface soils can initiate several other potentially detrimental phenomena other then slope stability issues. These may include expansion/contraction cycles, liquefaction potential increase, hydro-collapse of soils, ground surface settlement, earth material consolidation, and introduction of deleterious substances.

The homeowners should be made aware of the potential problems which may develop when drainage is altered through construction of retaining walls, swimming pools, paved walkways and patios. Ponded water, drainage over the slope face, leaking irrigation systems, over-watering or other conditions which could lead to ground saturation must be avoided.

- Before the rainy season arrives, check and clear roof drains, gutters and down spouts of all accumulated debris. Roof gutters are an important element in your arsenal against rain damage. If you do not have roof gutters and down spouts, you may elect to install them. Roofs, with their, wide, flat area can shed tremendous quantities of water. Without gutters or other adequate drainage, water falling from the eaves collects against foundation and basement walls.
- Make sure to clear surface and terrace drainage ditches, and check them frequently during the rainy season. This task is a community responsibility.
- Test all drainage ditches for functioning outlet drains. This should be tested with a hose and done before the rainy season. All blockages should be removed.

- Check all drains at top of slopes to be sure they are clear and that water will not overflow the slope itself, causing erosion.
- Keep subsurface drain openings (weep-holes) clear of debris and other material which could block them in a storm.
- Check for loose fill above and below your property if you live on a slope or terrace.
- Monitor hoses and sprinklers. During the rainy season, little, if any, irrigation is required. Oversaturation of the ground is unnecessary, increases watering costs, and can cause subsurface drainage.
- Watch for water backup of drains inside the house and toilets during the rainy season, as this may indicate drain or sewer blockage.
- Never block terrace drains and brow ditches on slopes or at the tops of cut or fill slopes. These are designed to carry away runoff to a place where it can be safely distributed.
- Maintain the ground surface upslope of lined ditches to ensure that surface water is collected in the ditch and is not permitted to be trapped behind or under the lining.
- Do not permit water to collect or pond on your home site. Water gathering here will tend to either seep into the ground (loosening or expanding fill or natural ground), or will overflow into the slope and begin erosion. Once erosion is started, it is difficult to control and severe damage may result rather quickly.
- Never connect roof drains, gutters, or down spouts to subsurface drains. Rather, arrange them so that water either flows off your property in a specially designed pipe or flows out into a paved driveway or street. The water then may be dissipated over a wide surface or, preferably, may be carried away in a paved gutter or storm drain. Subdrains are constructed to take care of ordinary subsurface water and cannot handle the overload from roofs during a heavy rain.
- Never permit water to spill over slopes, even where this may seem to be a good way to prevent ponding. This tends to cause erosion and, in the case of fill slopes, can eat away carefully designed and constructed sites.
- Do not cast loose soil or debris over slopes. Loose soil soaks up water more readily than compacted fill. It is not compacted to the same strength as the slope itself and will tend to slide when laden with water; this may even affect the soil beneath the loose soil. The sliding may clog terrace drains below or may cause additional damage in weakening the slope. If you live below a slope, try to be sure that loose fill is not dumped above your property.
- Never discharge water into subsurface blanket drains close to slopes. Trench drains are sometimes used to get rid of excess water when other means of disposing of water are not readily available. Overloading these drains saturates the ground and, if located close to slopes, may cause slope failure in their vicinity.
- Do not discharge surface water into septic tanks or leaching fields. Not only are septic tanks constructed for a different purpose, but they will tend, because of their construction, to naturally accumulate additional water from the ground during a heavy rain. Overloading them artificially during the rainy season is bad for the same reason as subsurface subdrains, and is doubly dangerous since their overflow can pose a serious health hazard. In many areas, the use of septic tanks should be discontinued as soon as sewers are made available.
- Practice responsible irrigation practices and do not over-irrigate slopes. Naturally, ground cover of ice plant and other vegetation will require some moisture during the hot summer months, but during the wet season, irrigation can cause ice plant and other heavy ground cover to pull loose. This not only destroys the cover, but also starts serious erosion. In some areas, ice plant and other heavy cover can cause surface sloughing when saturated due to the increase in weight and weakening of the near-surface soil. Planted slopes should be planned where possible to acquire sufficient moisture when it rains.
- Do not let water gather against foundations, retaining walls, and basement walls. These walls are built to withstand the ordinary moisture in the ground and are, where necessary, accompanied by subdrains to carry off the excess. If water is permitted to pond against them, it may seep through

the wall, causing dampness and leakage inside the basement. Further, it may cause the foundation to swell up, or the water pressure could cause structural damage to walls.

- Do not try to compact soil behind walls or in trenches by flooding with water. Not only is flooding the least efficient way of compacting fine-grained soil, but it could damage the wall foundation or saturate the subsoil.
- Never leave a hose and sprinkler running on or near a slope, particularly during the rainy season. This will enhance ground saturation which may cause damage.
- Never block ditches which have been graded around your house or the lot pad. These shallow ditches have been put there for the purpose of quickly removing water toward the driveway, street or other positive outlet. By all means, do not let water become ponded above slopes by blocked ditches.
- Seeding and planting of the slopes should be planned to achieve, as rapidly as possible, a well-established and deep-rooted vegetal cover requiring minimal watering.
- It should be the responsibility of the landscape architect to provide such plants initially and of the residents to maintain such planting. Alteration of such a planting scheme is at the resident's risk.
- The resident is responsible for proper irrigation and for maintenance and repair of properly installed irrigation systems. Leaks should be fixed immediately. Residents must undertake a program to eliminate burrowing animals. This must be an ongoing program in order to promote slope stability. The burrowing animal control program should be conducted by a licensed exterminator and/or landscape professional with expertise in hill side maintenance.

Geotechnical Review

Due to the fact that soil types may vary with depth, it is recommended that plans for the construction of rear yard improvements (swimming pools, spas, barbecue pits, patios, etc.), be reviewed by a geotechnical engineer who is familiar with local conditions and the current standard of practice in the vicinity of your home.

In conclusion, your neighbor's slope, above or below your property, is as important to you as the slope that is within your property lines. For this reason, it is desirable to develop a cooperative attitude regarding hillside maintenance, and we recommend developing a "good neighbor" policy. Should conditions develop off your property, which are undesirable from indications given above, necessary action should be taken by you to insure that prompt remedial measures are taken. Landscaping of your property is important to enhance slope and foundation stability and to prevent erosion of the near surface soils. In addition, landscape improvements should provide for efficient drainage to a controlled discharge location downhill of residential improvements and soil slopes.

Additionally, recommendations contained in the Geotechnical Engineering Study report apply to all future residential site improvements, and we advise that you include consultation with a qualified professional in planning, design, and construction of any improvements. Such improvements include patios, swimming pools, decks, etc., as well as building structures and all changes in the site configuration requiring earth cut or fill construction.

CONSTRUCTION NOTES

1. C/L PROPOSED 25' DRIVEWAY PER SDG-163
2. PROPOSED PED RAMP PER SDG-132
3. REMOVE AND REPLACE EXISTING DRIVEWAY WITH CURB GUTTER AND SIDEWALK (TYPICAL)
4. REMOVE EX CONCRETE. REPLACE WITH PLANTER (TYPICAL)
5. PROPOSED SIDEWALK PER SDG-155
6. KILL EXISTING WATER SERVICE (TYPICAL)
7. ABANDON EXISTING SEWER LATERAL AT P/L (TYPICAL)
8. PROPOSED 6" SEWER LATERAL
9. PROPOSED 2" WATER SERVIDE
10. PROPOSED 4" FIRE SERVICE
11. VISIBILITY TRIANGLE (TYPICAL)
12. MAIN FLOOR PARKING AREA CATCH BASIN (TYPICAL)
13. PVC DRAIN (TYPICAL)
14. CATCH BASIN WITH PUMP (AT GROUND LEVEL) TO CONVEY MAIN FLOOR AND PARKING RAMP RUNOFF TO BIOFILTRATION BASIN. INCLUDES OVERFLOW TO CURB OULET IN THE CASE OF PUMP FAILURE V100 = 4.0 FPS
15. BIOFILTRATION BASIN TO TREAT RUNOFF FROM ROOF (500 SF) (BMP-1)
16. BIOFILTRATION BASIN TO TREAT RUNOFF FROM MAIN LEVEL (213 SF) (BMP-2)
17. RAMP TRENCH DRAIN WITH PUMP TO CONVEY RUNOFF TO CATCH BASIN 14 AND THEN TO BIOFILTRATON BASIN
18. OUTLINE OF RUOFF
19. CURB OUTLET PER D-25 Q100 = 0.45 CFS V100 = 2.2 FPS
20. CURB OUTLET PER D-25 Q100 = 1.12 CFS V100 = 3.1 FPS
21. PROPOSED BACKFLOW PREVENTER (TYPICAL)
22. PROPOSED ONSITE POROUS PAVING AREA

TITLE NOTES

2. AN EASEMENT OR RIGHT OF WAY FOR THE CONSTRUCTION AND MAINTENANCE OF FLUMES, CANALS OR AQUEDUCTS, CONVEYED BY DEED FROM FRANK A. KIMBALL, AND WARREN G. KIMBALL TO KIMBALL BROTHERS WATER COMPANY, A CORPORATION, DATED JUNE 9, 1869, AND RECORDED IN BOOK 7, PAGE 124 OF DEEDS. THE INTEREST OF SAID GRANTEE IN AND TO SAID EASEMENT HAS SINCE PASSED TO AND NOW VESTS OF RECORD IN THE SWEETWATER AUTHORITY. THE LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD AND IS NOT PLOTTED.
3. AN EASEMENT FOR SEWER PURPOSES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED JUNE 12, 1928 IN BOOK 1510, PAGE 12, OF DEEDS, OF OFFICIAL RECORDS.
4. AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A PRIVATE SEWER LATERAL AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED FEBRUARY 4, 1944 IN BOOK 1635, PAGE 177 OF OFFICIAL RECORDS.
5. AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED MAY 29, 1944 IN BOOK 1684, PAGE 263, OF OFFICIAL RECORDS.
6. AN EASEMENT FOR PUBLIC STREET AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, RECORDED MARCH 3, 1959 IN BOOK 7527, PAGE 49 OF OFFICIAL RECORDS.
7. AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED IN BOOK 1688, PAGE 116, OF OFFICIAL RECORDS.
9. AN EASEMENT FOR COMMUNICATION STRUCTURES AND RIGHTS INCIDENTAL THERETO, GRANTED TO THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, RECORDED MAY 11, 1966 AS INSTRUMENT NO. 79002, OF OFFICIAL RECORDS.

LEGAL DESCRIPTION

LOTS 1 AND 2, BLOCK 62 OF ROSEVILLE, CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 165 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, EXCEPTING THAT PORTION IF ANY HERETO FORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOT 3 IN BLOCK 62 OF ROSEVILLE, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE RECORDER OF SAN DIEGO COUNTY. EXCEPTING THAT PORTION, IF ANY, HERETOFORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOTS 4 AND 5 IN BLOCK 62, OF ROSEVILLE, IN CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.

APNs: 530-751-01,02,03,04 AND 05

BASIS OF BEARINGS

A PORTION OF THE MEAN HIGH TIDE LINE AS SHOWN ON SHEET 3 OF RECORD OF SURVEY 20732. I.E. SOUTH 37°29'53" WEST.

APN / ADDRESS

ASSESSOR'S PARCEL NUMBERS: 530-751-01,02,03,04 AND 05

ADDRESS: 1453-1455 AND 1461-1463 ROSECRANS ST AND 2912 AND 2930 GARRISON ST SAN DIEGO, CA 92106

BENCHMARK

CITY OF SAN DIEGO BENCHMARK BRASS PLUG LOCATED IN THE TOP OF CURB AT THE WESTERLY CORNER OF ROSECRANS STREET AND GARRISON STREET. ELEVATION = 8.474' MEAN SEA LEVEL (N.G.V.D. 1929).

NOTES

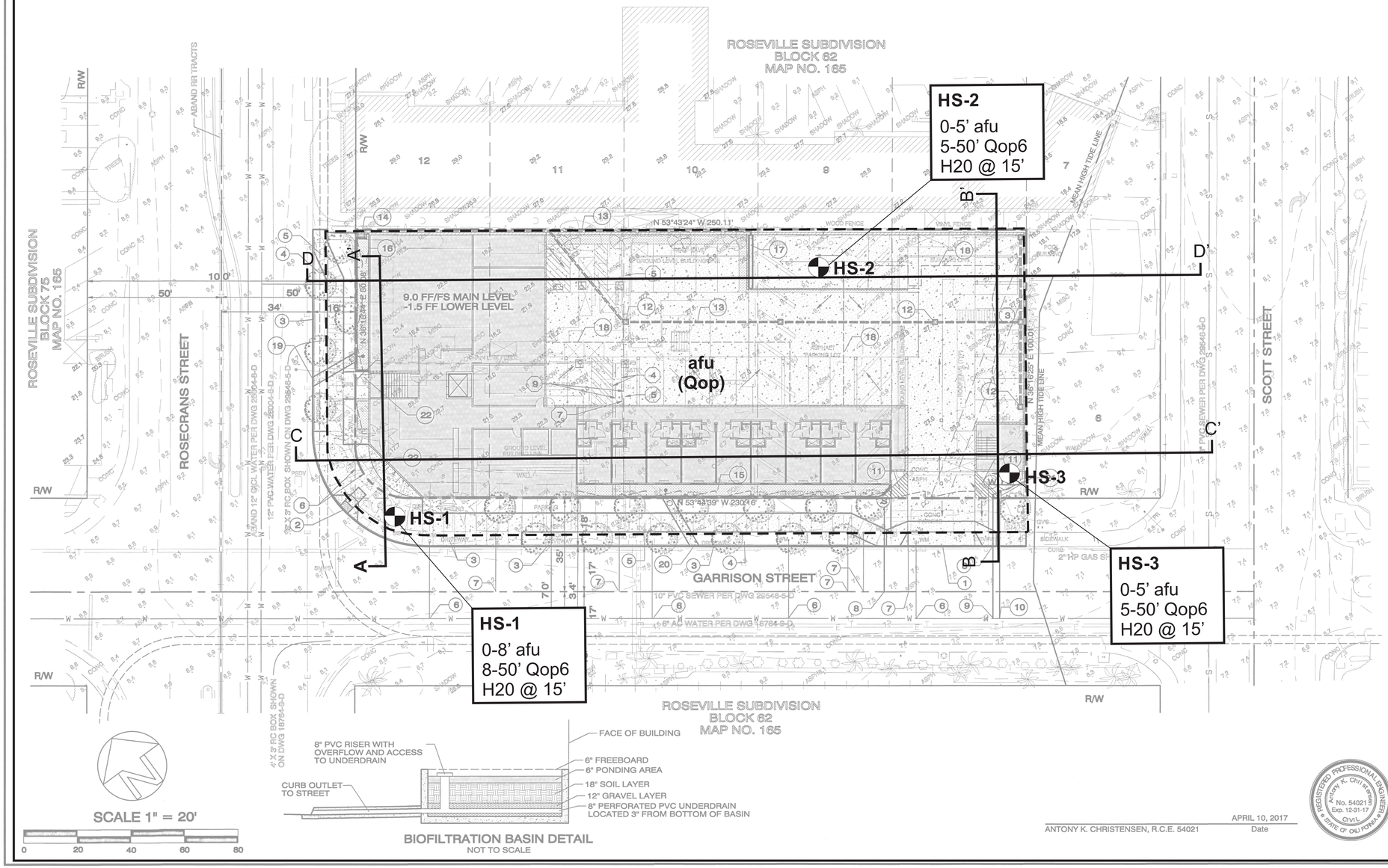
1. UTILITIES SHOWN HEREON ARE FROM CITY OF SAN DIEGO RECORDS AND ARE THEIR LOCATION ARE APPROXIMATE. NOT ALL UTILITIES MAY BE SHOWN. BEFORE ANY WORK TAKES PLACE CONTRACTOR SHALL HAVE ALL UTILITIES MARKED OUT AND SHALL USE SPECIAL CARE DURING CONSTRUCTION.
2. TITLE INFORMATION FOR THIS PROJECT IS FROM FIDELITY NATIONAL TITLE COMPANY PRELIMINARY REPORT ORDER NO. 005-23088597-1MB, DATED OCTOBER 7, 2016 AND CHICAGO TITLE PRELIMINARY REPORT ORDER NO. 0069801-993-SD2-CFU, DATED MARCH 16, 2017. ITEMS OTHER THAN EASEMENTS EXIST. SEE TITLE REPORTS FOR DETAILS.
3. THE SOURCE OF THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS FROM SURVEY BY CHRISTENSEN ENGINEERING & SURVEYING, DATED 01-07-13 AND REVISED 01-08-13.
4. THE SUBJECT PROPERTY IS SERVED BY CITY OF SAN DIEGO SANITARY SEWER AND WATER MAINS.
5. NAD27 COORDINATES = 204-1698. NAD83 COORDINATES = 1844-6258.
6. TITLE ITEM 3 TO BE VACATED. TITLE ITEMS 4, 5, 7 & 9 TO BE QUITCLAIMED.
7. AN ENCROACHMENT MAINTENANCE AND REMOVAL AGREEMENT WILL BE REQUIRED FOR PRIVATE CURB OUTLETS AND WALKWAYS WITHIN ROSECRANS AND GARRISON STREET RIGHTS OF WAY

GRADING DATA

AREA OF SITE - 24,941 S.F.
AREA OF SITE TO BE GRADED: 24,941 SF
PERCENT OF SITE TO BE GRADED: 100%
AREA OF SITE WITH SLOPES GREATER THAN 25%: 0 S.F.

AMOUNT OF CUT - 9160 C.Y.
AMOUNT OF FILL - 180 C.Y.
AMOUNT OF EXPORT - 8,980 C.Y.
MAXIMUM FILL - <1
MAXIMUM CUT - 11 FOOT VERTICAL WITHIN STRUCTURE
NONE ELSEWHERE
MAXIMUM HEIGHT OF FILL SLOPE - NONE
MAXIMUM HEIGHT OF CUT SLOPE - NONE
RETAINING WALL: NONE NOT A PART OF BUILDING

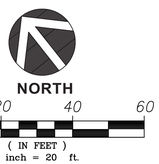
EARTHWORK CALCULATIONS ARE APPROXIMATE TO FINISH FLOOR/SURFACE



SCALE 1" = 20'

0 20 40 60 80

BIOFILTRATION BASIN DETAIL
NOT TO SCALE



ANTONY K. CHRISTENSEN, R.C.E. 54021 — APRIL 10, 2017 Date

REGISTERED PROFESSIONAL ENGINEER — Antony K. Christensen — No. 54021 — Exp. 12-31-17 — CIVIL — STATE OF CALIFORNIA

Owners:

PL BOUTIQUE INVESTORS LLC
17828 VILLAMOURA DR
POWAY CA 92064-1013

Prepared By:

CHRISTENSEN ENGINEERING & SURV
7888 SILVERTON AVENUE, SUITE "J"
SAN DIEGO, CA 92126
PHONE (858) 271-9901 FAX (858) 271-8

Project Address:

1453-1455 AND 1461-1463 ROSECRAN
AND 2912 AND 2930 GARRISON ST
SAN DIEGO, CA 92106

Project Name:

DOLPHIN MOTEL

Sheet Title:

PRELIMINARY GRADING PLAN

LEGEND:

- HS-1 — Approximate location of exploratory Hollow Stem Boring (AGS, 2017)
- afu — Artificial Fill (Undocumented)
- Qop6 — Old Paralic Deposits (Bracketed where buried)
- A — A' — Approximate location of Cross Section
- Limits of Report

Revision 3:

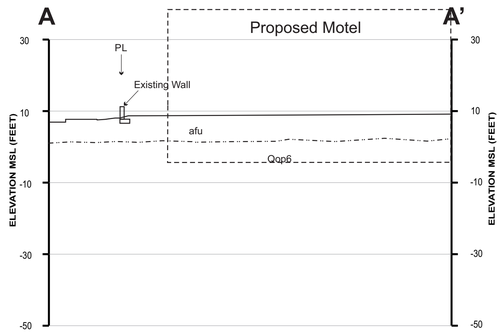
Revision 2:

PLATE 1
Geologic Exploration
Location Plan

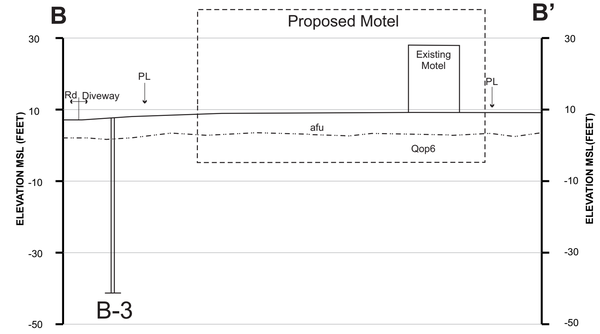
AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

Project:	Report:	Date:
P/W 1611-03	1611-03-B-3	April, 2017

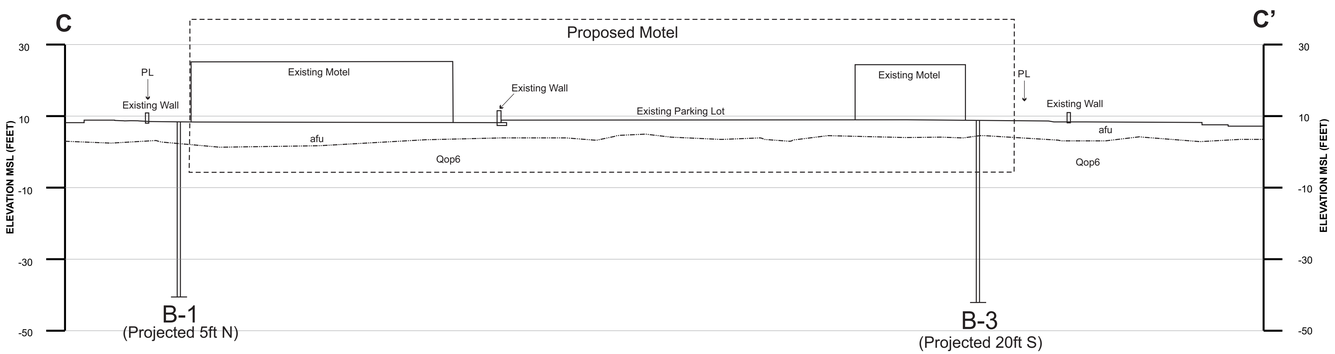
A2016-80



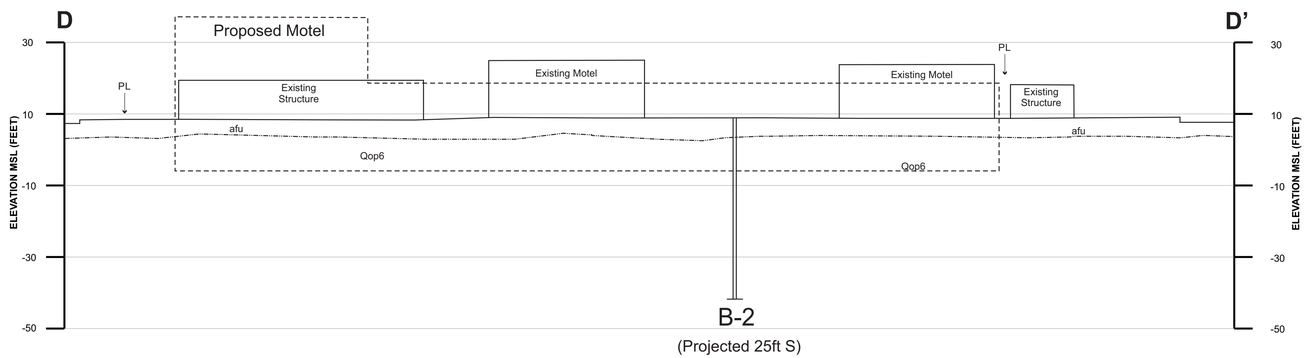
CROSS-SECTION A-A'
SCALE 1"=20' H&V



CROSS-SECTION B-B'
SCALE 1"=20' H&V



CROSS-SECTION C-C'
SCALE 1"=20' H&V



CROSS-SECTION D-D'
SCALE 1"=20' H&V

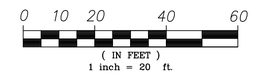


PLATE 2
Cross Sections
A, B, C & D

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

Project:	Report:	Date:
P/W 1611-03	1611-03-B-3	April, 2017

APPENDIX B

UPDATED INFILTRATION STUDY

(AGS 2017)

ADVANCED GEOTECHNICAL SOLUTIONS, INC.
485 Corporate Drive, Suite B
Escondido, CA 92029
Telephone: (619) 867-0487

Alliance Development Services, Inc.
17828 Villamoura Drive
Poway, CA 92064

November 20, 2017
P/W 1611-03
Report No. 1611-03-B-7

Attention: **Mr. Mac Stead**

Subject: ***Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California***

References: See Attached

Gentlemen:
In accordance with your request, Advanced Geotechnical Solutions, Inc. (AGS) has prepared this Updated Preliminary Infiltration Feasibility Study for the proposed Dolphin Motel Project in the Point Loma area of San Diego, California. This report is intended to meet the preliminary infiltration testing requirements of the City of San Diego and provide an evaluation of the feasibility for storm water infiltration in accordance with the current Storm Water Standards – BMP Design Manual. A discussion of our field testing and findings are presented below. Worksheet Form C.4-1 and associated supporting worksheets and data are presented in Appendix A.

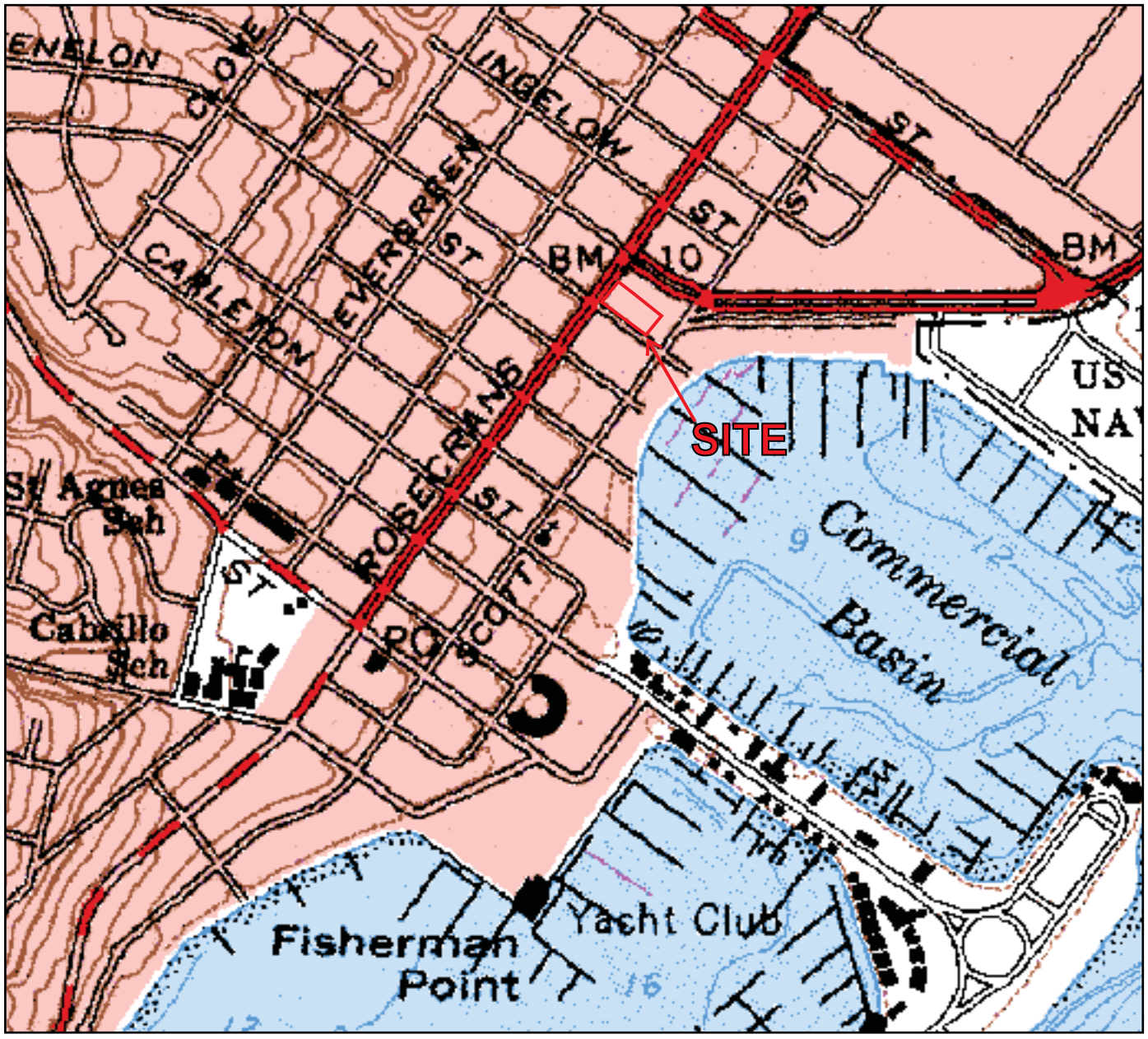
1.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The Proposed Project is located within the USGS 7.5' Point Loma quadrangle, generally along Rosecrans Street, City of San Diego, California. More specifically the rectangular shaped property is bounded on the southwest by Garrison Street, to the northwest by Rosecrans Street and a commercial structure, and to the northeast and southeast by existing motels as depicted in Figure 1 (Site Location Map). Overall the lot encompasses approximately 0.57 acres. Topography at the site is relatively level to gently sloping to the southeast (toward the bay). The site currently supports a motel with two, two-story structures and a separate one-story structure; surface improvements include paved driveways and parking areas with some small planters.

As AGS understands the project, the existing structures and associated improvements will be razed to allow for construction of a new motel structure. It is currently anticipated that the new motel will consist of a multi-story "podium" structure having three stories of motel units over one story of subterranean parking. Current plans call for the finish surface of the subterranean garage slab to be at an elevation of -1.5 feet below sea level Associated improvements including storm water BMPs are anticipated.

2.0 PREVIOUS STUDIES

AGS previously performed geotechnical studies (AGS, 2017a, 2017b and 2017c) for the proposed project which included excavation of three (3) exploratory borings (HS-1 though HS-3) to a depth of 50 feet and six (6) site specific infiltration borehole testing (P-1 through P-6) ranging in depth from 3 to 6 feet.



N

USGS SITE LOCATION MAP

2912 GARRISON STREET
SAN DIEGO, CALIFORNIA

FIGURE 1

SOURCE MAP(S): POINT LOMA QUADRANGLE CALIFORNIA - SAN DIEGO CO. 7.5 MINUTE SERIES (TOPOGRAPHIC)

AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.
485 Corporate Drive, Suite B, Escondido Ca, 92029
Telephone: (619) 867-0487 Fax: (714) 786-5661
P/W 1611-03

3.0 CURRENT FIELD INVESTIGATION

To further evaluate the feasibility of storm water infiltration across the entire site, three (3) additional double ring infiltrometer tests were performed within areas not tested during our previous studies. The double ring infiltrometer tests were perfomed in general conformance with Appendix D, Section D.3.3.2 of the current BMP Design Manual. The double ring infiltrometer tests ranged in depth from 36 to 62 inches below ground surface. A geologist from AGS continuously logged the excavations used for the double ring test borings for soil/geology/stratigraphy. Locations of the double ring infiltrometer tests are shown on Plate 1 (Infiltration Test Location Plan).

4.0 GEOLOGY

The site is underlain by old paralic deposits at depth and mantled by a relatively thin veneer of artificial fill near the surface. All infiltration tests (P-1 through P-9) with the exception or P-3 extended into old paralic deposits (Qop_6) which were observed to underlie undocumented artificial fill (afu). Infiltration test boring P-3 extended into undocumented artificial fill (afu). The undocumented artificial fill encountered within the borings advanced during this infiltration investigation consisted predominantly of medium dense, silty sand with clay in moist to wet condition. The upper portion of the old paralic deposits encountered generally consisted of interbedded fine-grained clayey sand and sandy clay in a wet to saturated and loose/firm to moderately dense/stiff condition. Observed bedding ranged from laminar to thickly bedded but was generally observed to be thinly bedded.

5.0 TEST PROCEDURES

5.1. Borehole Percolation

Infiltration tests P-1 through P-6 were performed via borehole percolation test method. The test holes were advanced utilizing a 6-inch diameter hand auger. The resulting test holes were cleaned of loose debris then successively filled with clean, potable water and allowed to pre-soak. The following day the test holes were cleaned of sediment and the bottom was lined with approximately 2-inches of washed gravel prior to infiltration testing. A series of falling head infiltration tests were performed. The test holes were filled with clean, potable water to approximately 24 inches above the infiltration surface and allowed to infiltrate. The water level was allowed to drop for a 30-minute period, the water level was then measured and the drop rate calculated in inches per hour. The test hole was then refilled with water as necessary and the test procedure was repeated over the course of 6 hours, and until a stabilized percolation rate was recorded. The stabilized percolation

rate was then converted to an infiltration rate based on the "Porchet Method" utilizing the following equation:

$$I_t = \frac{\Delta H\, \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\, 60\, r}{\Delta t(r + 2H_{avg})}$$

Where:

I_t = tested infiltration rate, inches/hour
ΔH = change in head over the time interval, inches
Δt = time interval, minutes
r = effective radius of test hole
H_{avg} = average head over the time interval, inches

5.2. Double-Ring Infiltrometer

Infiltration tests P-7 through P-9 were performed via the double-ring infiltrometer. The test holes were excavated utilizing hand tools. The resulting holes were cleaned of loose debris and two open cylinders, one inside the other were driven into the ground. The rings were then partially filled with water and the water level was maintained. The volume of water added to the inner ring, to maintain the water level constant was measured and recorded as the volume of water that infiltrates the soil. The volume infiltrated during timed intervals was converted to an incremental infiltration velocity, in inches per hour. The maximum-steady state velocity was used as the infiltration rate.

6.0 TEST RESULTS AND PRELIMINARY DESIGN VALUES

The results of our testing are summarized in Table 1 below.

TABLE 1
SUMMARY OF INFILTRATION TEST RESULTS

Test Hole No.	Depth of Test Hole	Approximate Test Elevation	Geologic Unit	Description	Tested Infiltration Rate (inches/hour)
P-1	60 inches	6.0 ft msl	Qop_6	Clayey Sand/Sandy Clay	0.00
P-2	60 inches	6.0 ft msl	Qop_6	Clayey Sand	0.14
P-3	38 inches	5.2 ft msl	afu	Clayey Sand to Sandy Silt	0.03
P-4	34 inches	5.7 ft msl	Qop_6	Clayey Sand	0.00
P-5	36 inches	6.1 ft msl	Qop_6	Clayey Sand	0.00
P-6	36 inches	6.0 ft msl	Qop_6	Clayey Sand	0.00
P-7	36 inches	5.9 ft msl	Qop_6	Clayey Sand	0.002
P-8	64 inches	3.7 ft msl	Qop_6	Clayey Sand	0.001
P-9	61 inches	2.6 ft msl	Qop_6	Clayey Sand	0.0006

It is our understanding that a factor of safety of 2 should be applied to the tested infiltration rates when the rates indicate a condition other than full infiltration. Table 2 summarizes the preliminary design infiltration rates utilizing a factor of safety of 2.

TABLE 2
SUMMARY OF PRELIMINARY DESIGN INFILTRATION RATES

Test Hole No.	Tested Infiltration Rate (in./hr.)	Factor of Safety	Design Infiltration Rate (in./hr.)
P-1	0	2.0	0.00
P-2	0.14	2.0	0.07
P-3	0.03	2.0	0.01
P-4	0.00	2.0	0.00
P-5	0.00	2.0	0.00
P-6	0.00	2.0	0.00
P-7	0.002	2.0	0.001
P-8	0.001	2.0	0.007
P-9	0.0006	2.0	0.0003

7.0 DESIGN CONSIDERATIONS

7.1. Groundwater

Static groundwater was not observed within hand auger excavations but was encountered within the deeper exploratory borings (HS-1 through HS-3) at a depth of approximately fifteen (15) feet below ground surface. However, nearby monitoring well data suggests historical high ground water is approximately eleven (11) feet below ground surface. Further, it is anticipated that static groundwater elevations may fluctuate due to tides given the close proximity of the San Diego Bay (approximately 280 ft). Perched groundwater was encountered between three (3) and four (4) feet below ground surface during our previous subsurface exploration at the site.

7.2. Geotechnical Hazards

There are no significant geotechnical hazards known to exist on or adjacent to the project site.

7.3. Soil Contamination

During our recent site investigation, no evidence of soil contamination was observed, nor is any contamination known to exist onsite. Utilizing an online resource; Geotracker.ca.gov, showed an open Leaking Underground Storage Tank (LUST) cleanup site that is open. The cleanup site is located at Northern Trust of CA, which is about 750 feet from the proposed project site. The investigation opened in 2000 and soil samples collected at a depth of 15 feet below ground surface were saturated with petroleum hydrocarbons. Northern Trust of CA sits at a higher elevation than the proposed project site and the contaminant plume has not migrated to the project site. It is not anticipated that infiltration would lead to spread of contamination.

7.4. Soil Characteristics and Anticipated Flow Paths

The soils underlying the project site are identified as Old Paralic Deposits, Unit 6 and generally consist of interbedded clayey sands and sandy clay. Based on site specific testing and our previous experience in the project area, the clay soils underlying the site are considered to be impermeable

when saturated and the silty to clayey sand soils have low to moderate permeability. Minor to moderate lateral flow will occur within the confined sand layers. However, in consideration of the thinly interbedded nature of the soils, the capacity for vertical infiltration is negligible.

7.5. Proximity to Water Supply Wells

There are no known water supply wells within the project vicinity.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our preliminary infiltration testing, the onsite native soils (Old Paralic Deposits) possess preliminary design infiltration rates ranging between **0.0 to 0.07 inches/hour** with an average preliminary design infiltration rate of less than **0.0097 inches/hour.** The average rate indicates a No Infiltration condition based on the City's current interpretation of 'appreciable rate' as being greater than or equal to 0.01 inches/hour.

Advanced Geotechnical Solutions, Inc. appreciates the opportunity to provide you with geotechnical consulting services and professional opinions. If you have any questions, please contact the undersigned at (619) 867-0487.

Respectfully Submitted,
Advanced Geotechnical Solutions, Inc.

Prepared by:

SHANE P. SMITH
Staff Engineer

Reviewed by:

JEFFREY A. CHANEY, President
RCE 46544 / RGE 2314, Reg. Exp. 6-30-19

REGISTERED PROFESSIONAL ENGINEER
JEFFREY A. CHANEY
No. 2314
GEOTECHNICAL
STATE OF CALIFORNIA

Distribution: (6) Addressee

Attachments: References
Figure 1 – Site Location Map
Appendix A- Storm Water Standards BMP Design Manual - Worksheet Form C.4-1
Appendix B- Boring Logs
Plate 1 – Infiltration Test Location Plan

REFERENCES

Advanced Geotechnical Solutions, Inc., 2016, "Proposal for Geotechnical Services Associated with the Design of the Dolphin Motel Project", San Diego, California", dated November 28, 2016, Report No. 1611-03-A-1.

---. (2017a). "Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated April 7, 2017, Report No. 1611-03-B-2

---. (2017b). "Preliminary Geotechnical Investigation and Foundation Design Recommendations for Proposed Residential Multi-Family Podium Apartment Structure (Garrison Street) Dolphin Motel Project, San Diego, California", dated April 10, 2017, Report No. 1611-03-B-3

---. (2017c). "Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated June 12, 2017, Report No. 1611-03-B-5

American Society for Testing and Materials (2008), Annual Book of ASTM Standards, Section 4, Construction, Volume 04.08, Soil and Rock (I), ASTM International, West Conshohocken, Pennsylvania.

California Building Standards Commission, 2016, California Building Code, Title 24, Part 2, Volumes 1 and 2.

City of San Diego, 2016, Transportation & Storm Water, Storm Water Standard – BMP Design Manual, January 2016 Edition.

Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas: California Geological Survey, California Geologic Data Map No. 6, Scale 1:750,000.

Kennedy, M.P., and Tan, S.S., 2008, Geologic Map of the San Diego 30' x 60' Quadrangle, California Regional Geologic Map Series, Scale = 1:100,000, Map No. 3, Sheet 1 of 2.

State of California Water Boards, September 23, 2016, *http://geotracker.waterboards.ca.gov/*

Tan, S.S., 1995, Landslide Hazards in the Southern Part of the San Diego Metropolitan Area, San Diego County, California, Landslide Hazard Identification Map No. 33, Plate 33A, Division of Mines and Geology, Open File Report 95-03.

APPENDIX A

STORM WATER STANDARDS BMP DESIGN MANUAL – WORKSHEET FORM C.4-1

Categorization of Infiltration Feasibility Condition	Worksheet C.4-1

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Nine (9) infiltration tests (P-1 though P-9) have performed at the project site. The stabilized percolation rates overserved in the field have been converted to inflation rates. Using a factor of safety of 2, the onsite soils possess infiltration rates ranging between 0.00 and 0.07 inches/hour with an average infiltration rate of less than 0.5 inches/hour. A more detailed discussion of the site specific infiltration testing can be found in our, "Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated November 20, 2017, Report No. 1611-03-B-7.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

Design Infiltration rates at the project site are less than 0.5 inches/hour. As such, this screening question does not control the feasibility of infiltration at the project site and is not applicable.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: The preliminary design infiltration rates at the project site are less than 0.5 inches/hour. Infiltration at a rate greater than 0.5 inches/hour is not feasible for this project. As such, this screening question does not control the feasibility of infiltration at the project site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: The design infiltration rates at the project site are less than 0.5 inches/hour. Infiltration at a rate greater than 0.5 inches/hour is not feasible for this project. As such, this screening question does not control the feasibility of infiltration at the project site. Per Section C.4.4 of the BMP Design Manual, final determination should be made by the project design engineer. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result*	If all answers to rows 1-4 are "Yes" a full infiltration design is potentially feasible. The feasibility screening category is Full Infiltration If any answer from row 1-4 is "No", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		No, full infil-tration is not feasible

**To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by the City Engineer to substantiate findings*

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	Do soil and geologic conditions allow for infiltration in any appreciable rate or volume? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Site specific infiltration testing yielded preliminary design infiltration rates (utilizing a factor of safety of 2) ranging between 0.00 and 0.07 inches/hour with an average rate of less than 0.0097 inches/hour. In addition the subsurface soils encountered are relatively dense and possess high fines content, and perched groundwater was encountered at shallow depths during previous geotechnical studies at the site. Infiltration at the project site is anticipated to be negligible. It is anticipated that over the lifetime of the development the infiltration rates will further diminish. The BMP Design Manual utilizes the subjective terminology of 'appreciable' and fails to define a lower bound infiltration rate. It is our current understanding that an 'appreciable' infiltration rate is interpreted to be an infiltration rate of 0.01 in/hr or greater. Therefore, in consideration of the current interpretation, the soil and geologic conditions at the project site locally does not allow for infiltration in an 'appreciable' rate or volume. A more detailed discussion of the site specific infiltration testing can be found in our, "Updated Preliminary Infiltration Feasibility Study, Dolphin Motel Project, Point Loma San Diego, California", dated November 20, 2017, Report No. 1611-03-B-7.

6	Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

As stated in response to criteria 5; it is our current understanding that an 'appreciable' infiltration rate is interpreted to be an infiltration rate of 0.01 in/hr or greater. Therefore, in consideration of the current interpretation, the soil and geologic conditions at the project site does not allow for infiltration in an 'appreciable' rate or volume. As such, this screening question does not control the feasibility of infiltration at the project site.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	Yes	No
7	Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: As stated in response to previous screening questions; it is our current understanding that an 'appreciable' infiltration rate is interpreted to be an infiltration rate of 0.01 in/hr or greater. Therefore, in consideration of the current interpretation, the soil and geologic conditions at the project site locally does not allow for infiltration in an 'appreciable' rate or volume. As such, this screening question does not control the feasibility of infiltration at the project site. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	Can infiltration be allowed without violating downstream water rights? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☐	☒
Provide basis: It is not anticipated that infiltration would violate downstream water rights; however, per Section C.4.4 of the BMP Design Manual, final determination should be made by the project design engineer. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 5-8 are "Yes", then partial infiltration design is potentially feasible. The feasibility screening category is Partial Infiltration. If any answer from row 5-8 is "No", then infiltration of any volume is considered to be infeasible within the drainage area. The feasibility screening category is No Infiltration.		No Infil-tration

**To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by the City Engineer to substantiate findings*

APPENDIX B

BORING LOGS

BORING NUMBER HS-1

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
10	0		SM	**Artificial Fill - Undocumented (afu):** SILTY SAND, fine to medium grained, brown, moist to wet, loose							
	5			@ 4.0 ft, SILTY SAND, fine to medium grained, brown, saturated, loose; perched water							
5			SC	@ 5.0 ft, CLAYEY SAND, fine to medium grained, mottled brown to gray, wet, medium dense	MC	7-4-5 (9)	116	14.9	88		
			SC	**Old Paralic Deposits (Qop6):** CLAYEY SAND, fine to medium grained, brown, wet, moderately dense; interbedded sand and clay							
	10			@ 10.0 ft, CLAYEY SAND, fine to medium grained, brown, wet, moderately dense; interbedded sand and clay	SPT	3-7-7 (14)					
0											
	15			▽							
-5			CL	@ 15.0 ft, SANDY CLAY, fine grained, brown, wet, hard; interbedded sand and clay	MC	8-14-18 (32)	117	16.3	100		Consol
	20										
-10			SM	@ 20.0 ft, SILTY SAND, very fine grained, tan to brown, moist, very dense	SPT	5-9-11 (20)		19.0			
	25										
-15				@ 25.0 ft, SILTY SAND, fine grained, tan to brown, saturated, dense	MC	5-10-20 (30)	101	21.0	85	23	SA, Shear
	30										
-20				@ 30.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, dense	SPT	7-15-27 (42)					
	35										

(Continued Next Page)

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
-25	35		SM	@ 35.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, medium dense	MC	3-5-22 (27)	100	23.0	90		
-30	40			@ 40.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, moderately dense; interbedded sand and clay, lense of seashells	SPT	4-5-7 (12)		21.0		23	
-35	45		SC	@ 45.0 ft, CLAYEY SAND, fine to medium grained, reddish brown, saturated, very dense	MC	18-30-44 (74)	120	15.0	99		
	50			@ 50.0 ft, CLAYEY SAND, fine to medium grained, reddish brown, saturated, dense	SPT	13-16-18 (34)					

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

BORING NUMBER HS-2R

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
	0			0-6 inches of Asphalt							
10			SM	**Artificial Fill - Undocumented (afu):** SILTY SAND, fine to medium grained, brown, moist to wet, loose	BU						Max, EI, Chem
			SC	**Old Paralic Deposit (Qop6):** CLAYEY SAND, fine to medium grained, mottled brown to gray, wet, loose							
	5				SPT	1-1-2 (3)					
5											
	10			@ 10.0 ft, CLAYEY SAND, fine to medium grained, dark gray to brown, moist to wet, medium dense	MC	8-10-12 (22)	113	18.4	100		
0											
	15			▽							
			SM	@ 15.0 ft, SILTY SAND, fine to medium grained, light brown to tan, moist, moderately dense	SPT	5-8-9 (17)					
-5											
	20			@ 20.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, moderately dense	MC	9-11-14 (25)	108	20.5	99		Consol
-10											
	25			@ 25.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, moderately dense	SPT	5-7-9 (16)					
-15											
	30			@ 30.0 ft, SILTY SAND, fine grained, light brown to tan, saturated, dense	MC	6-17-28 (45)	98	25.1	95		
-20											
	35										

(Continued Next Page)

AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
	35										
-25			CL	@ 35.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, medium dense; mottling iron oxide	SPT	6-11-18 (29)					
	40			@ 40.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, dense	MC	8-16-25 (41)	115	17.1	100		
-30											
	45			@ 45.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, dense	SPT	9-15-23 (38)					
-35											
	50			@ 50.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, very dense	MC	16-24-40 (64)	106	21.1	96		

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

BORING NUMBER HS-3R

ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

DATE STARTED 2/1/17 **COMPLETED** 2/1/17 **GROUND ELEVATION** 11 ft **HOLE SIZE** 8

DRILLING CONTRACTOR 2R-Drilling **GROUND WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT TIME OF DRILLING** 15.00 ft / Elev -4.00 ft

LOGGED BY SS **CHECKED BY** JAC **AT END OF DRILLING** ---

NOTES **AFTER DRILLING** ---

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
	0			4 inches of Concrete							
10			SM	**Artificial Fill - Undocumented (afu):**	BU						Remolded Shear
			SC	SILTY SAND, fine to medium grained, tan to brown, slightly moist, loose							
				Old Paralic Deposit (Qop6): CLAYEY SAND, fine to medium grained, mottled brown to dark brown, moist, moderately dense; roots and orgaincs							
	5										
5					MC	3-4-7 (11)	103	19.6	83		
	10										
0				@ 10.0 ft, CLAYEY SAND, fine to medium grained, mottled brown to dark brown, moist, moderately dense	SPT	3-4-6 (10)					
	15			▽							
-5			SM	@ 15.0 ft, SILTY SAND, fine to medium grained, gray to brown, saturated, moderately dense to dense; with mottling	MC	5-11-18 (29)	108	20.3	98	39	Consol
	20										
-10				@ 20.0 ft, SILTY SAND, fine to medium grained, gray to brown, saturated, loose	SPT	5-4-4 (8)		29.0		30	
	25										
-15				@ 25.0 ft, SILTY SAND, fine to medium grained, tan to brown, saturated, dense	MC	11-15-28 (43)	98	26.0	97		
	30										
-20				@ 30.0 ft, SILTY SAND, fine grained, tan to brown, saturated, moderately dense	SPT	7-13-15 (28)					
	35										

(Continued Next Page)

AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

CLIENT Alliance Development Services Inc. **PROJECT NAME** Dolphin Motel

PROJECT NUMBER 1611-03 **PROJECT LOCATION** Point Loma

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	USCS	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	SATURATION (%)	FINES CONTENT (%)	OTHER TESTS
-25	35		SM	@ 35.0 ft, SILTY SAND, fine grained, tan to brown, saturated, very dense	MC	10-26-42 (68)	103	22.7	96		
	40		CL	@ 40.0 ft, SANDY CLAY, fine to medium grained,orange brown to brown, saturated, very stiff	SPT	7-11-17 (28)		16.0			
-30	45			@ 45.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, hard	MC	16-16-17 (33)	114	17.0	96		
-35	50			@ 50.0 ft, SANDY CLAY, fine to medium grained, orange brown to brown, saturated, very stiff	SPT	4-8-17 (25)					

Total Depth = 50.0 ft
Ground Water at 15.0 ft
Backfilled with Bentonite and Cement Grout

CONSTRUCTION NOTES

1. C/L PROPOSED 25' DRIVEWAY PER SDG-163
2. PROPOSED PED RAMP PER SDG-132
3. REMOVE AND REPLACE EXISTING DRIVEWAY WITH CURB GUTTER AND SIDEWALK (TYPICAL)
4. REMOVE EX CONCRETE. REPLACE WITH PLANTER (TYPICAL)
5. PROPOSED SIDEWALK PER SDG-155
6. KILL EXISTING WATER SERVICE (TYPICAL)
7. ABANDON EXISTING SEWER LATERAL AT P/L (TYPICAL)
8. PROPOSED 6" SEWER LATERAL
9. PROPOSED 2" WATER SERVIDE
10. PROPOSED 4" FIRE SERVICE
11. VISIBILITY TRIANGLE (TYPICAL)
12. MAIN FLOOR PARKING AREA CATCH BASIN (TYPICAL)
13. PVC DRAIN (TYPICAL)
14. CATCH BASIN WITH PUMP (AT GROUND LEVEL) TO CONVEY MAIN FLOOR AND PARKING RAMP RUNOFF TO BIOFILTRATION BASIN. INCLUDES OVERFLOW TO CURB OULET IN THE CASE OF PUMP FAILURE V100 = 4.0 FPS
15. BIOFILTRATION BASIN TO TREAT RUNOFF FROM ROOF (500 SF) (BMP-1)
16. BIOFILTRATION BASIN TO TREAT RUNOFF FROM MAIN LEVEL (213 SF) (BMP-2)
17. RAMP TRENCH DRAIN WITH PUMP TO CONVEY RUNOFF TO CATCH BASIN 14 AND THEN TO BIOFILTRATON BASIN
18. OUTLINE OF RUOFF
19. CURB OUTLET PER D-25 Q100 = 0.45 CFS V100 = 2.2 FPS
20. CURB OUTLET PER D-25 Q100 = 1.12 CFS V100 = 3.1 FPS
21. PROPOSED BACKFLOW PREVENTER (TYPICAL)
22. PROPOSED ONSITE POROUS PAVING AREA

TITLE NOTES

2. AN EASEMENT OR RIGHT OF WAY FOR THE CONSTRUCTION AND MAINTENANCE OF FLUMES, CANALS OR AQUEDUCTS, CONVEYED BY DEED FROM FRANK A. KIMBALL, AND WARREN G. KIMBALL TO KIMBALL BROTHERS WATER COMPANY, A CORPORATION, DATED JUNE 9, 1869, AND RECORDED IN BOOK 7, PAGE 124 OF DEEDS. THE INTEREST OF SAID GRANTEE IN AND TO SAID EASEMENT HAS SINCE PASSED TO AND NOW VESTS OF RECORD IN THE SWEETWATER AUTHORITY. THE LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD AND IS NOT PLOTTED.
3. AN EASEMENT FOR SEWER PURPOSES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED JUNE 12, 1928 IN BOOK 1510, PAGE 12, OF DEEDS, OF OFFICIAL RECORDS.
4. AN EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF A PRIVATE SEWER LATERAL AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, A MUNICIPAL CORPORATION, RECORDED FEBRUARY 4, 1944 IN BOOK 1635, PAGE 177 OF OFFICIAL RECORDS.
5. AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED MAY 29, 1944 IN BOOK 1684, PAGE 263, OF OFFICIAL RECORDS.
6. AN EASEMENT FOR PUBLIC STREET AND RIGHTS INCIDENTAL THERETO GRANTED TO THE CITY OF SAN DIEGO, RECORDED MARCH 3, 1959 IN BOOK 7527, PAGE 49 OF OFFICIAL RECORDS.
7. AN EASEMENT FOR POLES AND WIRES AND RIGHTS INCIDENTAL THERETO GRANTED TO THE SAN DIEGO GAS AND ELECTRIC COMPANY, RECORDED IN BOOK 1688, PAGE 116, OF OFFICIAL RECORDS.
9. AN EASEMENT FOR COMMUNICATION STRUCTURES AND RIGHTS INCIDENTAL THERETO, GRANTED TO THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY, RECORDED MAY 11, 1966 AS INSTRUMENT NO. 79002, OF OFFICIAL RECORDS.

LEGAL DESCRIPTION

LOTS 1 AND 2, BLOCK 62 OF ROSEVILLE, CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, ACCORDING TO MAP THEREOF NO. 165 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, EXCEPTING THAT PORTION IF ANY HERETO FORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOT 3 IN BLOCK 62 OF ROSEVILLE, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE RECORDER OF SAN DIEGO COUNTY. EXCEPTING THAT PORTION, IF ANY, HERETOFORE OR NOW LYING BELOW THE ORDINARY HIGH TIDE LINE OF THE BAY OF SAN DIEGO.

LOTS 4 AND 5 IN BLOCK 62, OF ROSEVILLE, IN CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 165, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY.

APNs: 530-751-01,02,03,04 AND 05

BASIS OF BEARINGS

A PORTION OF THE MEAN HIGH TIDE LINE AS SHOWN ON SHEET 3 OF RECORD OF SURVEY 20732. I.E. SOUTH 37°29'53" WEST.

APN / ADDRESS

ASSESSOR'S PARCEL NUMBERS: 530-751-01,02,03,04 AND 05

ADDRESS: 1453-1455 AND 1461-1463 ROSECRANS ST
AND 2912 AND 2930 GARRISON ST
SAN DIEGO, CA 92106

BENCHMARK

CITY OF SAN DIEGO BENCHMARK BRASS PLUG LOCATED IN THE TOP OF CURB AT THE WESTERLY CORNER OF ROSECRANS STREET AND GARRISON STREET. ELEVATION = 8.474' MEAN SEA LEVEL (N.G.V.D. 1929).

NOTES

1. UTILITIES SHOWN HEREON ARE FROM CITY OF SAN DIEGO RECORDS AND ARE THEIR LOCATION ARE APPROXIMATE. NOT ALL UTILITIES MAY BE SHOWN. BEFORE ANY WORK TAKES PLACE CONTRACTOR SHALL HAVE ALL UTILITIES MARKED OUT AND SHALL USE SPECIAL CARE DURING CONSTRUCTION.
2. TITLE INFORMATION FOR THIS PROJECT IS FROM FIDELITY NATIONAL TITLE COMPANY PRELIMINARY REPORT ORDER NO. 005-23088597-1MB, DATED OCTOBER 7, 2016 AND CHICAGO TITLE PRELIMINARY REPORT ORDER NO. 0069801-993-SD2-CFU, DATED MARCH 16, 2017. ITEMS OTHER THAN EASEMENTS EXIST. SEE TITLE REPORTS FOR DETAILS.
3. THE SOURCE OF THE TOPOGRAPHIC INFORMATION SHOWN HEREON IS FROM SURVEY BY CHRISTENSEN ENGINEERING & SURVEYING, DATED 01-07-13 AND REVISED 01-08-13.
4. THE SUBJECT PROPERTY IS SERVED BY CITY OF SAN DIEGO SANITARY SEWER AND WATER MAINS.
5. NAD27 COORDINATES = 204-1698. NAD83 COORDINATES = 1844-6258.
6. TITLE ITEM 3 TO BE VACATED. TITLE ITEMS 4, 5, 7 & 9 TO BE QUITCLAIMED.
7. AN ENCROACHMENT MAINTENANCE AND REMOVAL AGREEMENT WILL BE REQUIRED FOR PRIVATE CURB OUTLETS AND WALKWAYS WITHIN ROSECRANS AND GARRISON STREET RIGHTS OF WAY

GRADING DATA

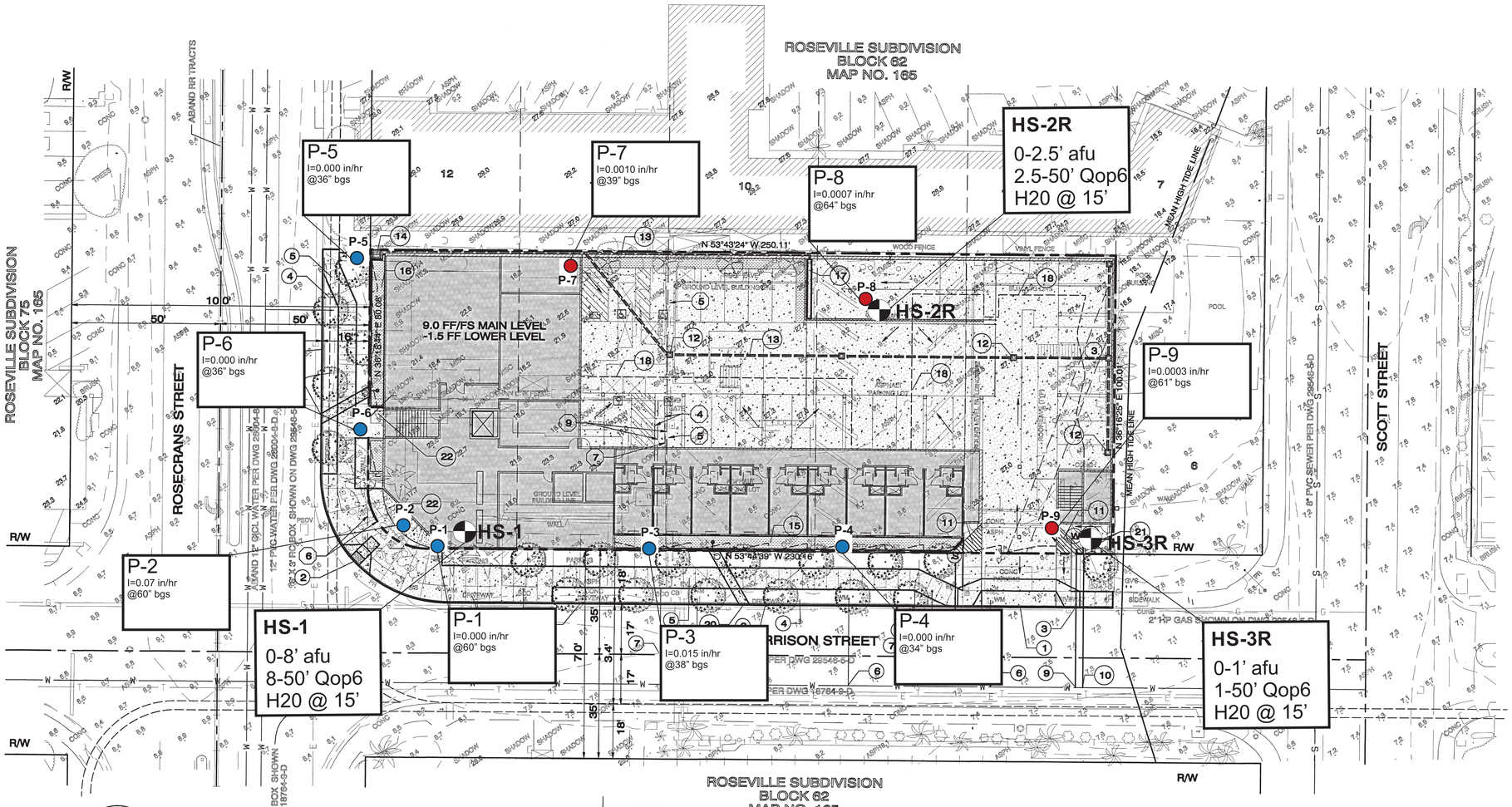
AREA OF SITE - 24,941 S.F.
AREA OF SITE TO BE GRADED: 24,941 SF
PERCENT OF SITE TO BE GRADED: 100%
AREA OF SITE WITH SLOPES GREATER THAN 25%: 0 S.F.

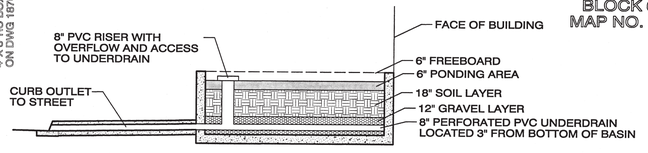
AMOUNT OF CUT - 9160 C.Y.
AMOUNT OF FILL - 180 C.Y.
AMOUNT OF EXPORT - 8,980 C.Y.
MAXIMUM FILL - <1
MAXIMUM CUT - 11 FOOT VERTICAL WITHIN STRUCTURE
NONE ELSEWHERE
MAXIMUM HEIGHT OF FILL SLOPE - NONE
MAXIMUM HEIGHT OF CUT SLOPE - NONE
RETAINING WALL: NONE NOT A PART OF BUILDING

EARTHWORK CALCULATIONS ARE APPROXIMATE TO FINISH FLOOR/SURFACE

INFILTRATION RATES	
ID	Rate (in/hr)
P-1	0.0000
P-2	0.0700
P-3	0.0150
P-4	0.0000
P-5	0.0000
P-6	0.0000
P-7	0.0010
P-8	0.0007
P-9	0.0003
AVERAGE =	0.0097

(FS = 2.0)





BIOFILTRATION BASIN DETAIL
NOT TO SCALE

SCALE 1" = 20'

0 20 40 60 80

0 10 20 40 60
(IN FEET)
1 inch = 20 ft.

Owners:

PL BOUTIQUE INVESTORS LLC
17828 VILLAMOURA DR
POWAY CA 92064-1013

Prepared By:

CHRISTENSEN ENGINEERING &
7888 SILVERTON AVENUE, SUITE
SAN DIEGO, CA 92126
PHONE (858) 271-9901 FAX (858)

LEGEND:

- P-1 — Approximate Borehole Percolation Test location (AGS, Previous Studies)
- P-7 — Approximate Double Ring Infiltrometer Test location (AGS, Current Study)
- HS-1 — Approximate Hollow Stem Boring location

Project Address:

1453-1455 AND 1461-1463 ROSECRANS ST
AND 2912 AND 2930 GARRISON ST
SAN DIEGO, CA 92106

Revision 4:

Revision 3:

Project Name:

DOLPHIN MOTEL

PLATE 1
Infiltration Test Location Plan

Sheet Title:

PRELIMINARY GRADING PL

AGS
ADVANCED GEOTECHNICAL SOLUTIONS, INC.

Project:	Report:	Date:
P/W 1611-03	1611-03-B-7	Nov. 2017

REGISTERED PROFESSIONAL ENGINEER
Antony K. Christensen
No. 54021
Exp. 12-31-17
CIVIL
STATE OF CALIFORNIA

APRIL 10, 2017
ANTONY K. CHRISTENSEN, R.C.E. 54021 Date

A2016-80

ADVANCED GEOTECHNICAL SOLUTIONS, INC.
485 Corporate Drive, Suite B
Escondido, Ca 92029
Telephone: (619) 867-0487

Alliance Development Services, Inc.
17828 Villamoura Drive
Poway, CA 92064

January 5, 2018
P/W 1611-03
Report No. 1611-03-B-9

Attention: **Mr. Mac Stead**

Subject: **Response to City of San Diego Review Comments, Dolphin Motel Project, Point Loma San Diego, California**

Gentlemen:

In accordance with your request and authorization, Advanced Geotechnical Solutions, Inc., presents herein our response to City of San Diego LDR-Geology Cycle Review Comments for the Dolphin Motel Project, Point Loma San Diego, California. More specifically, this letter has been prepared in response to review comments 11 through 13 from Cycle 9 Review Comments dated December 15, 2017.

In preparing this response to cycle review comments we have first presented the review comment followed by our response

Item 11 -City of San Diego- *Submit an addendum geotechnical report or update letter that specifically addresses the proposed development for the purposes of environmental review and the following:*

AGS response – In preparing this addendum letter AGS, has reviewed the current 20-scale Preliminary Grading Plans prepared by Christensen Engineering & Surveying dated January 2, 2018. It is our opinion that construction of the proposed motel structure and associated improvements is considered feasible, from a geotechnical standpoint, provided that the conclusions and recommendations in this addendum and our previously-submitted geotechnical report (AGS 2017b) are incorporated into the design and construction of the project.

Item 12 -City of San Diego- *The project's geotechnical consultant should provide a conclusion regarding if the proposed development will destabilize or result in settlement of adjacent property or the City Right-of-Way.*

AGS response – AGS does not anticipate the proposed development to destabilize or result in settlement of the adjacent property or the City Right-of-Way provided the recommendations within our referenced report (AGS 2017b) are incorporated into the design and construction of the project.

Item 13 -City of San Diego- *The project's geotechnical consultant should clarify if, in their professional opinion and based on their site specific investigation, there are no areas of the site where storm water infiltration is feasible.*

AGS response – Based on AGS's site specific investigation it is our professional opinion that there are no areas of the site where storm water infiltration is feasible.

Advanced Geotechnical Solutions, Inc. appreciates the opportunity to provide you with geotechnical consulting services and professional opinions. If you have any questions, please contact the undersigned at (619) 867-0487.

Respectfully Submitted,
Advanced Geotechnical Solutions, Inc.

Prepared by:

SHANE P. SMITH
Staff Engineer

Reviewed by:

JOHN J. DONOVAN
RCE 65051, RGE 2790, Reg. Exp. 6-30-19

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Attachments: References

REFERENCES

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WASTE MANAGEMENT PLAN

FOR

Dolphin Motel

San Diego, California

Project No. 556027

Prepared for:

City of San Diego Environmental Services Department
9601 Ridgehaven Court, Suite 320
San Diego, California 92123-1636

Prepared by:

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September 6, 2017

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1.0 INTRODUCTION

The purpose of this Waste Management Plan (WMP) for the *Dolphin Motel* project in the City of San Diego is to provide analysis of the solid waste impacts anticipated for the Project. The goal of this WMP is to identify sufficient measures to minimize potential impacts of the *Dolphin Motel* project on solid waste services such that significant impacts are avoided. Two acceptable approaches to managing waste are to reduce the tons disposed to 60 tons or less, or to provide diversion of 75 percent or more, thus meeting the goal established by Assembly Bill 341.

The 0.57-acre *Dolphin Motel* project site is located along Garrison Avenue between Rosecrans and Scott Streets, San Diego, California 92106. The project site is situated generally east of Rosecrans Street, west off Scott Street, North of Garrison Street and south of North Harbor Drive and is within the Peninsula Community Plan area. (See Figure 1, *Dolphin Motel Location Map and Aerial.*) The project site is currently developed with four commercial buildings and related parking, including the Dolphin Motel and a one-story commercial space fronting Rosecrans Street. The site has two hotels to the north and south, commercial uses to the west and the Sport Fishing Landing and San Diego Harbor to the east. The site is zoned CC-4-2, and is located in the Community Plan Implementation, Coastal, Coastal Height Limitation, Parking Impact, and Airport Influence Area Overlay Zones, within the Roseville Commercial District of the Peninsula Community Plan area.

The proposed project involves demolition of all four existing structures (9,263 sf), and existing surface improvements (approximately 18,110 sf) and construction of a hotel development (approximately 49,705 square feet gross floor area) consisting of ninety-two guest rooms, underground parking, and a landscaped courtyard. The project would be a maximum of three stories in height above ground and provide ninety-two vehicle parking spaces. Seven of the parking spaces will be provided at grade and eighty-five will be below-grade accessible via a lift system and valet service. The project is being designed to generate a minimum of 30% or more of the designed energy consumption through photovoltaics (See Figure 2, *Dolphin Motel Site Plan.*)

The proposed *Dolphin Motel* project requires an Amendment to Site Development Permit No. 1090713, Project No. 311777, and a Coastal Development Permit.

Figure 1
Dolphin Motel - Project Location Map and Aerial

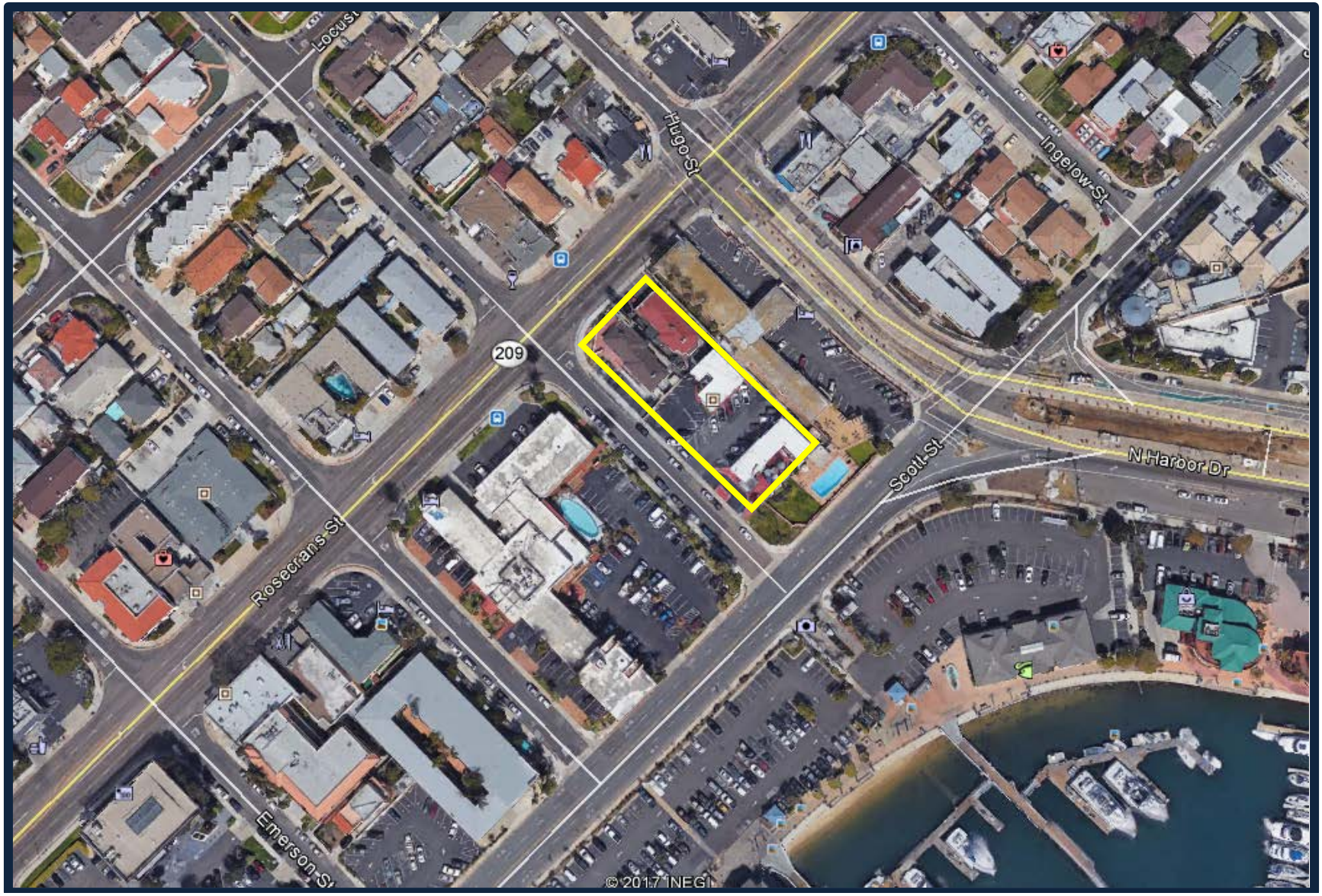
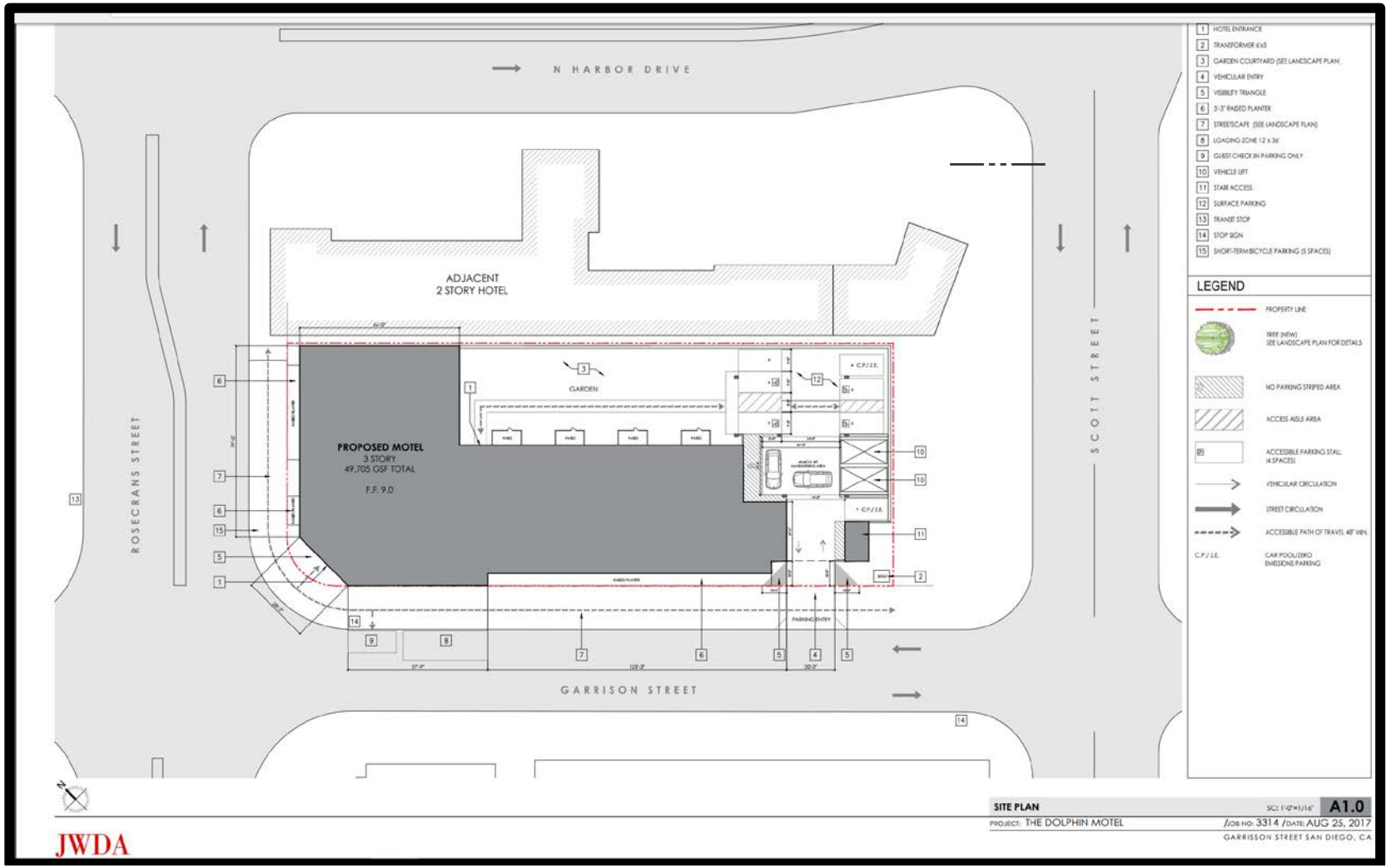


Figure 2
Dolphin Motel Site Plan



This WMP consists of two sections corresponding to the implementation of site development: the *Construction Phase* (to include demolition) and the *Occupancy Phase* (post-construction). The WMP addresses the projected amount of waste that could be generated by the project based on current City generation rates and estimates; waste reduction goals; and recommended techniques to achieve the waste reduction goals, such as recycling. The project includes one month of demolition. Construction of the project (including demolition) is anticipated to take approximately 16 months. Construction is estimated to begin Spring 2018.

Waste disposal sites and recycling methods and opportunities may change from those available today; however, it is not expected that waste diversion and disposal sites listed in Table 3, *Minimum Exterior Refuse and Recyclable Material Storage Areas for Commercial Development,* would change by the time the project is anticipated to begin construction. This WMP includes the following general information known at the time the WMP was prepared:

- Projected waste generation calculations and identification of types of waste materials generated;
- Source separation techniques for waste generated;
- How materials will be re-used on-site;
- Name and location of current recycling, re-use, and landfill facilities where waste will be disposed of if not re-used on-site;
- A "buy recycled" program;
- Measures to be implemented directed at reducing construction debris;
- Method(s) for communicating waste reduction and recycling goals to subcontractors;
- A general timeline for construction and development; and
- A list of required progress and inspections by City staff, based on current ordinances.

2.0 BACKGROUND

In 1989, the California Legislature passed Assembly Bill (AB) 939: Integrated Waste Management Act, which mandated that all cities reduce waste disposed in landfills from generators within their borders by 50 percent by the year 2000. AB 939 required all local governments to prepare a Source Reduction and Recycling Element, which incorporates waste management policies and programs to achieve the mandated waste reduction. Since 1990, the City has diverted more than 50 percent of its generated waste stream from disposal. This bill specified that solid waste should be considered by the equation GENERATED = DISPOSED + DIVERTED. "Diverted" materials are put into a *hierarchy* in the law, as follows:

- First *source reduction*, such as using a reusable bag, making double-sided copies, or other measure that stops waste at the source.
- Secondary measures include *recycling* and *composting*. Because these measures often have transportation and processing impacts, they are considered less preferable than source reduction.
- In the Public Resources Code, various methods of *transformation* for energy production are limited to ten percent of the total waste reduction target.

In 2008, SB 1016 was chaptered. Known as the Solid Waste Disposal Measurement Act, SB 1016 maintained the 50 percent diversion requirement, but changed to a disposal-based measurement system, expressed as the 50 percent Equivalent Per Capita Disposal Target. This built upon AB 939 by implementing a simplified and timelier indicator of jurisdiction performance that focuses on reported disposal at Board-permitted disposal facilities. This established a goal of not recycling more, but disposing of less. AB 341: Jobs and Recycling, chaptered in 2011, was intended to create green jobs by expanding recycling to every multi-family dwelling and business. It charged CalRecycle with responsibility for ensuring that the State is diverting at least 75 percent of solid waste that is generated within the State by 2020. SB 1016 establishes that compliance with State law is measured by reducing the amount of waste material requiring disposal, and AB 341 increases the diversion target to 75 percent.

Additional local regulation pertaining to solid waste management includes the City of San Diego's Municipal Code Ch.14 Art. 2 Div. 8: §142.0810, §142.0820, Ch. 6 Art. 6 Div. 7; §66.0706, §66.0709, §66.0710; and Ch. 6 Art. 6 Div. 6; §66.0711, §66.0604, §66.0606. These statues designate refuse and recycling space allocation requirements for:

- on-site refuse and recyclable material storage requirements,
- diversion of construction and demolition debris regulations, and
- diversion of recyclable materials generated from residential facilities, businesses, commercial/institutional facilities, apartments, condominiums, and special events requiring a City permit.

The City of San Diego has established a threshold of 40,000 square feet of development as generating sufficient waste (60 tons) to have a potentially cumulatively significant impact on solid waste services. *Dolphin Motel* as proposed exceeds this threshold. The purpose of this WMP is to identify measures that would be implemented to reduce this potential solid waste impacts such that significant impacts are avoided.

The City Recycling Ordinance is found in Municipal Code section 66.0701 et. seq. It requires the provision of recycling service for all single-family residences; and commercial facilities and multifamily residences with service for four cubic yards or more. In addition, the ordinance also requires development of educational materials to ensure occupants are informed about the City's ordinance and recycling services including information on types of recyclable materials accepted.

Construction and Demolition (C&D) Debris Diversion Deposit Program applies to all applicants for building, demolition, and removal permits. This ordinance requires that the applicant post a deposit (Table 1, *C&D Debris Deposit Table*). The deposit is not returned until the applicant demonstrates that a minimum amount of the material generated has been diverted from disposal in landfills. Mixed construction debris recycling facilities in San Diego are evaluated quarterly to determine how much of the throughput is recycled, and how much is a "residual" material requiring disposal. Facilities that accept mixed debris typically achieve a 68 percent or less diversion rate. Single materials recyclers, such as metal recyclers, often achieve a nearly 100 percent diversion rate. When comingled materials are sent to a mixed facility, the 75 percent diversion goal established by AB 341 will not be met. Depending on the project, to ensure that the overall diversion goal is attained, some materials must often be separated and trucked to facilities with higher diversion rates, such as aggregate and metal recyclers.

Table 1
C&D Debris Deposit Table

Building Category	Sq. Ft. Subject to Ordinance*	Deposit per Sq. Ft.	Range of Deposits
Residential New Construction	500-125,000 detached 500-100,000 attached	$0.40	$200-$50,000 $200-$40,000
Non-residential New Construction	1,000-25,000 commercial 1,000-75,000 industrial	$0.20	$200-$5,000 $200-$15,000
Non-residential Alterations	286 with no maximum	$0.70	$200 and up
Residential Demolition	286 with no maximum	$0.70	$200 and up
Non-residential Demolition	1,000 with no maximum	$0.20	$200 and up
Roof Tear-off	All projects	-	$200
Residential Alterations	500 and above	-	$1,000

* Projects under the minimum square footage subject to the ordinance are exempt from the C&D debris recycling deposit.

2.1 Exterior Refuse and Recyclable Material Storage Area Requirements

The *Dolphin Motel* would develop over an approximate 16-month period. Development is anticipated to begin Spring 2018. Because the *Dolphin Motel* includes nonresidential development, exterior refuse and recyclable material storage areas will be provided in accordance with City regulations per Chapter 14, Article 2, Division 8: Refuse and Recyclable Material Storage Regulations, §142.0830.

2.2 Exterior Refuse and Recyclable Material Storage Areas for *Dolphin Motel*

Dolphin Motel would develop an approximately 49,705 square foot hotel with basement parking. Table 2, *Minimum Exterior and Recyclable Material Storage Areas for Commercial Development*, shows the required amount of refuse and recyclable storage areas for the project's commercial retail element. As shown in Table 2, the project would be required to provide 96 square feet each of exterior refuse and recyclable material storage area, for a total of 192 square feet of material storage area.

Table 2
Minimum Exterior Refuse and Recyclable Material Storage Areas for Commercial Development

Gross Floor Area per Development (square feet)	Minimum Refuse Storage Area per Development (square feet)	Minimum Recyclable Material Storage Area per Development (square feet)	Total Minimum Storage Area per Development (square feet)
0 – 5,000	12	12	24
5,001 – 10,000	24	24	48
10,001 – 25,0000	48	48	96
25,001 – 50,000	96	96	192
50,001 – 75,000	144	144	288
75,001 – 100,000	192	192	384
100, 001+	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	384 plus 96 square feet for every 25,000 square feet of building area above 100,001

Source: City of San Diego Municipal Code, Chapter 14, Article 2, Division 8: Refuse and Recyclable Material Storage Regulations, §142.0830, Table 142-08C, effective January 1, 2000.

3.0 EXISTING CONDITIONS

The *Dolphin Motel* project encompasses approximately 0.57-acre previously graded and developed site. The project site is bordered by Rosecrans Street to the east, Scott Street to the west, Garrison Street to the north and North Harbor Drive to the south. The project site is currently developed with four, one- and two-story commercial use structures totaling approximately 9,263 square feet, and surface parking.

4.0 PROPOSED CONDITIONS

The proposed project involves demolition of existing commercial structures (9,263 square feet) with surface parking and pavement (18,110 square feet) and construction of a hotel development (approximately 49,705 square feet gross floor area) with underground parking. The project would be a maximum of three stories in height and would have a total of 92 guest rooms. A total of 9 2 parking spaces would be provided in an underground parking area, accessed through a vehicle lift. The project is being designed to comply with Cal-Green standards and will generate a minimum of 30% or more of the designed energy consumption through photovoltaics.

Construction will be completed over a 16-month period with construction anticipated to begin in Spring 2018. Construction practices will comply with local, State, and Federal regulations regarding handling of building materials to ensure waste minimization requirements are met.

5.0 CONSTRUCTION WASTE

Construction activities would generate packaging materials and unpainted wood, including wood pallets, and other miscellaneous debris. Construction debris would be separated on-site into material-specific containers to facilitate reuse and recycling and to increase the efficiency of waste reclamation and/or would be collected by a contracted waste hauler and separated at the facility. Source separation of materials at the construction site is essential to (1) ensure appropriate waste diversion rate, (2) minimize costs associated with transportation and disposal, and (3) facilitate compliance with the C&D ordinance. The types of construction waste anticipated to be generated include:

- Asphalt and Concrete
- Brick/Masonry/Tile
- Cardboard
- Carpet, Padding/Foam
- Drywall
- Landscape Debris
- Mixed C&D Debris
- Roofing Materials
- Scrap Metal
- Unpainted Wood and Pallets
- Garbage/Trash

Materials to be recycled would be redirected to appropriate recipients selected from ESD's directory of facilities that recycle construction materials, scrap metal, and yard waste.

5.1 Recycled Construction Materials

The *Dolphin Motel* will implement a target of 20 percent recycled material.

5.2 Managing Construction Material

Demolition would occur over a period of approximately one month and construction would occur over a period of approximately 16 months. ESD staff would be present for an early pre-construction meeting to evaluate waste segregation, signage, and salvage.

The project site is the location of existing commercial development. The demolition phase will include the deconstruction/demolition and removal of the existing surface parking. Approximately 53 tons of waste is expected to be generated during demolition. Approximately 43 tons of material would be recycled, to include landscaping, concrete, asphalt, and curb and gutter. Approximately 10 tons of debris would be disposed in a landfill, to include non-useable asphaltic paving that becomes contaminated with the underlying subgrade soils. Table 4, *Dolphin Motel Waste Generation – Demolition*, summarizes the type and amount of demolition materials, as well as diversion/disposal.

Table 3
Dolphin Motel Waste Generation – Demolition

Material Type	Estimated Waste Quantity (tons)	Handling	Estimated Diversion (tons)	Estimated Disposal (tons)
DEMOLITION WASTE				
Asphalt and Concrete, Curb/Gutter	27	**Hanson Aggregates** 9229 Harris Plant Road San Diego, CA 92126 (100% diversion)	27	0
Landscape Materials	2	**Miramar Greenery** 5180 Convoy Street San Diego, CA 92111 (100% diversion)	2	0
Construction and Demolition: Drywall, Wood, Metal, etc.	14	**EDCO Recovery & Transfer** 3660 Dalbergia St, San Diego, CA 92113 (70% diversion)	9	5
Garbage/Trash	5	**Miramar Landfill** 5180 Convoy Street San Diego, CA 92111 (0% diversion)	5	5
TOTAL	48		38	10

In accordance with State diversion targets, a minimum of 75 percent of construction materials will be recycled. Materials to be recycled would be redirected to appropriate recipients selected from ESD's directory of facilities that recycle demolition materials, scrap metal, and yard waste.

To facilitate management of construction materials, the developer shall identify one person or agency connected with the proposed development to act as Solid Waste Management Coordinator, whose responsibility it becomes to work with all contractors and subcontractors to ensure material separation and coordinate proper disposal and diversion of waste generated. The Solid Waste Management Coordinator will help to ensure all diversion practices outlined in this Waste Management Plan are upheld and communicate goals to all contractors involved efficiently.

The responsibilities of the Solid Waste Management Coordinator, include, but are not limited to, the following:

- Review the Solid Waste Management Plan including responsibilities of Solid Waste Management Coordinator.
- Review and update procedures as needed for material separation and verify availability of containers and bins needed to avoid delays.
- Review and update procedures for periodic solid waste collection and transportation to recycling and disposing facilities.
- The authority to issue stop work orders if proper procedures are not being allowed.

The contractors will perform daily inspections of the construction site to ensure compliance with the requirements of the Waste Management Plan and all other applicable laws and ordinances and report directly to Solid Waste Management Coordinator. Daily inspections will include verifying the availability and number of dumpsters based on amount of debris being generated, correct labeling of dumpsters, proper sorting and segregation materials, and salvaging of excess materials. Additionally, the following apply:

- Solid waste management coordinator will be responsible for educating contractors and subcontractors regarding waste management plan requirements and ensuring that contractors and subcontractors carry out the measures described in the WMP.
- Solid waste management coordinator will ensure ESD attendance at a Precon and assure compliance with segregation requirements, and verification of recycled content in base materials.
- Recycling areas will be clearly identified with large signs, approved by ESD, and sufficient amounts of material-specific bins will be provided for necessary segregation.
- Recycling bins will be placed in areas that are readily accessible to contractors/subcontractors and in areas that will minimize misuse or contamination by employees and the public.
- Solid waste management coordinator will be responsible for ensuring that contamination rates in bins remain below 5 percent by weight of the bin.

Table 5, *Dolphin Motel Waste Generation – Construction*, is included below to summarize the types of waste generated, the approximately amount of each waste type diverted, and the approximate overall amount remaining to be disposed of in landfills. Construction waste processing facilities that may be used for any of the construction phases include but are not limited to those facilities listed in Table 5. Because certified diversion rates and authorized facilities are updated quarterly and the decision on which facility will be contracted for waste hauling will be made at the time of construction based on market conditions and the facility's certified rate, the developer reserves the right to select any authorized facility as long as the facility is City-certified to meet minimum diversion requirements.

Table 4
Dolphin Motel Waste Generation – Construction

Material Type	Estimated Waste Quantity (tons)	Handling	Estimated Diversion (tons)	Estimated Disposal (tons)
CONSTRUCTION WASTE				
Asphalt and Concrete	25	**Hanson Aggregates** 9229 Harris Plant Road San Diego, CA 92126 (100% diversion)	22	3
Brick/Masonry/ Tile	11	**Vulcan Carroll Canyon Landfill and Recycle Site** 10051 Black Mountain Road San Diego, CA 92126 (100% diversion)	11	--
Cardboard	10	**Allan Company** 6733 Consolidated Way San Diego, CA 92121 (100% diversion)	9	1
Carpet, Padding/Foam	1	**DFS Flooring** 10178 Willow Creek Road San Diego, CA 92131 (100% diversion)	1	--
Drywall	7	**EDCO Station Transfer and Buy Back Center** 8184 Commercial Street La Mesa, CA 91942 (70% diversion)	5	2
Landscape Debris	11	**Miramar Greenery** 5180 Convoy Street San Diego, CA 92111 (100% diversion)	11	–
Mixed C&D Debris	4	**Otay C&D/Inert Debris Processing Facility** 1700 Maxwell Road Chula Vista, CA 91913 (76% diversion)	3	1
Roofing Materials	2	**LEED Recycling** 8725 Miramar Place San Diego, CA 92121 (100% diversion)	1	1
Scrap Metal	3	**Allan Company** 6733 Consolidated Way San Diego, CA 92121 (100% diversion)	3	--
Unpainted Wood & Pallets	24	**Miramar Greenery** 5180 Convoy Street San Diego, CA 92111 (100% diversion)	24	--
Garbage/Trash	10	**Miramar Landfill** 5180 Convoy Street San Diego, CA 92111 (0% diversion)	0	10
TOTAL	**108**		**90**	**18**

Construction debris will be separated onsite into material-specific containers, corresponding to the materials types in Table 5, to facilitate reuse and recycling and to increase the efficiency of waste reclamation. The *Dolphin Motel* will implement a target of 20 percent recycled material and 75 percent for landfill diversion. As shown in Table 5, the applicant has the goal of 83 percent diversion rate of the construction materials generated by the project are expected to be diverted from landfills.

6.0 OCCUPANCY PHASE

While the construction phase for the *Dolphin Motel* occurs as a one-time waste generation event as

construction of the project proceeds, tenant/owner occupancy requires an on-going plan to manage waste disposal to meet the waste reduction goals established by the City and State.

6.1 Solid Waste Recycling

The following table expresses the anticipated refuse and recyclable storage requirements based on 142.08C of the City of San Diego Municipal Code.

Table 5
Minimum Exterior and Recyclable Material Storage Areas for the Dolphin Motel

Land Use	Gross Floor Area/Units	Minimum Refuse Storage Area (square feet)	Minimum Recyclable Material Storage Area (square feet)	Total Minimum Storage Area (square feet)
Commercial	49,705 sq ft	96	96	192
TOTAL	49,705 sq ft	96	96	192

As shown in Table 7, *Estimated Solid Waste Generation from the Dolphin Motel*, during occupancy, the expected generated waste per year from the *Dolphin Motel* when fully occupied would be approximately 146.64 tons.

Table 6
Estimated Solid Waste Generation from the Dolphin Motel – Occupancy Phase

Use	Intensity	Waste Generation Rate	Estimated Waste Generated (tons/year)
Commercial	49,705 sq ft	0.0015 tons/year/sq ft	75
		TOTAL	75

On-site recycling service bins shall be provided at the *Dolphin Motel* and the on-site operator shall participate in a recycling program by separating recyclable materials from other solid waste and depositing the recyclable materials in the recycling container provided for the occupants. Recycling services are required by Section 66.0707 of the City of San Diego Land Development Code. Based on current requirements, these services shall include the following:

- Collection of recyclable materials as frequently as necessary to meet demand;
- Collection of plastic bottles and jars, paper, newspaper, metal containers, cardboard, and glass containers;
- Collection of other recyclable materials for which markets exist, such as scrap metal, wood pallets
- Collection of food waste for recycling by composting, where available (prior to issuance of building and occupancy permits, the project proponent will meet with representatives from ESD to ensure that their educational materials and haulers can comply with the requirements for this service);
- Use of recycling receptacles or containers which comply with the standards in the Container and Signage Guidelines established by the City of San Diego Environmental Services Department;
- Designated recycling collection and storage areas; and

- Signage on all recycling receptacles, containers, chutes, and/or enclosures which complies with the standards described in the Container and Signage Guidelines established by the City of San Diego Environmental Services Department

As required by Section 66.0707 of the City of San Diego Land Development Code, the building management or other designated personnel shall ensure that occupants are educated about the recycling services as follows:

- Information, including the types of recyclable materials accepted, the location of recycling containers, and the occupant's responsibility to recycle shall be distributed annually;
- All new occupants shall be given information and instructions upon occupancy; and
- All occupants shall be given information and instructions upon any change in recycling service to the commercial facility.

6.2 Landscaping and Green Waste Recycling

Plant material selection will be guided by the macro-and micro-climate characteristics of the project site and surrounding region to encourage long-term sustainability without the excessive use of water pesticides and fertilizers. Irrigation of these areas, where practical, will utilize reclaimed water applied via low precipitation rate spray heads, drip emitters, or other highly efficient systems. Landscape maintenance would include the collection of green waste and disposal of green waste at recycling centers that accept green waste. This will help further reduce the waste generated by developments within *Dolphin Motel* project during the occupancy.

7.0 CONCLUSION

The City of San Diego Development Services Department is requiring that this WMP be prepared and submitted to the City of San Diego's ESD. Since the project is in the design phase, this is only a preliminary plan, which specifies the intent to meet the requirements of PRC 939 and City ordinances. This WMP will be implemented to the fullest degree of accuracy and efficiency. Additionally, the project will be required to adhere to City ordinances, including the *Construction and Demolition Debris Diversion Deposit Program*, the City's *Recycling Ordinance*, and the *Refuse and Recyclable Materials Storages Regulations*. The WMP plan for the *Dolphin Motel* is designed to implement and adhere to all city ordnance and regulations with regards to waste management. The measures in the WMP would ensure that significant impacts relative to solid waste are avoided.

Prior to the issuance of any grading or construction permits, the Solid Waste Coordinator will ensure ESD's attendance at a precon. The Solid Waste Coordinator will ensure that 1) the proposed approach to contractor education is approved, 2) the written specifications for base materials, concrete pavers, decomposed granite, and mulch, is approved, and 3) that the ESD inspector approves the separate waste containers, signage, and hauling contract(s) for the following materials:

- Asphalt/concrete
- Brick/masonry/tile

- Cardboard
- Carpet/padding/foam
- Drywall
- Landscape debris
- Mixed C&D debris
- Scrap metal
- UNTREATED woodwaste
- Refuse

The project would be designed to achieve 75+ percent of construction waste to be source reduced and/or recycled. While diversion activities during occupancy will achieve only 40 percent diversion and will not achieve the State target of 75 percent, the project incorporates several measures above and beyond the requirements of local ordinance.

- First, the project exceeds ordinance requirements and even the State waste reduction target during construction.
- Second, the project includes landscaping that will reduce yardwaste, and will provide transportation to a composting facility for the yard waste that is produced. The project proponent will ensure that ESD reviews the landscaping plans and hauling contract for the facility to verify that waste reduction goals are met.
- Third, the project would include Cal-Green measures to reduce waste, including separate Rubbish and Recycle bins.

The project would target 20 percent of solid waste to be recycled material and 75 percent for landfill diversion.

These measures ensure that the waste generated by the project will be properly managed and that solid waste services will not be impacted.

The following measures apply to the project to reduce cumulative impacts on solid waste to below a level of significance:

1.0 Prior to Permit Issuance or Bid opening/Bid award

A. LDR Plan check

1. Prior to the issuance of any construction permit, including but is not limited to, demolition, grading, building or any other construction permit, the Assistant Deputy Director (ADD) Environmental Designee shall verify that the all the requirements of the Refuse & Recyclable Materials Storage Regulations and all of the requirements of the waste management plan are shown and noted on the appropriate construction documents. All requirements, notes and graphics shall be in substantial conformance with the conditions and exhibits of the associated discretionary approval.
   The construction documents shall include a waste management plan.

Notification shall be sent to:

MMC Environmental Review Specialist
Development Service Department
9601 Ridgehaven Court
Ste. 220, MS 1102 B
San Diego, California 92123 1636
(619) 980 7122

Environmental Services Department (ESD)
9601 Ridgehaven Court
Ste. 210, MS 1102 A
San Diego, California 92123 1636
(858) 573-1236

II. Prior to Start of Construction

A. Grading and Building Permit - Prior to issuance of any grading or building permit, the permittee shall be responsible to arrange a preconstruction meeting to coordinate the implementation of the WMP. The Precon Meeting that shall include: the Construction Manager, Building/Grading Contractor; MMC; and ESD and the Building Inspector and/or the RE (whichever is applicable) to verify that implementation of the waste management plan shall be performed in compliance with the plan approved by LDR and the San Diego ESD, to ensure that impacts to solid waste facilities are below a level of significance.

1. At the Precon Meeting, the Permittee shall submit reduced copies (11" x 17") of the approved waste management plan, the RE, BI, MMC, and ESD.
2. Prior to the start of construction, the Permittee/Construction Manager shall submit a construction schedule to the RE, BI, MMC, and ESD.

III. During Construction

The Permittee/Construction Manager shall call for inspections by the RE/BI and both MMC and ESD, who will periodically visit the demolition/construction site to verify implementation of the waste management plan. The Consultant Site Visit Record (CSVR) shall be used to document the Daily Waste Management Activity/progress.

IV. Post Construction

A. For any demolition or construction permit, a final results report shall be submitted to both MMC and ESD for review and approval to the satisfaction of the City. MMC will coordinate the approval with ESD and issue the approval notification. ESD will review/approve City Recycling Ordinance-required educational materials prior to occupancy.