Data Report for
White Point Landslide
Boring B-12
W.O. E1907483
Task Order Solicitation 11-087
San Pedro District
Los Angeles, California

July 3, 2014

SHANNON & WILSON, INC.

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July 3, 2014

City of Los Angeles
Bureau of Engineering
1149 South Broadway Street, Suite 120
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Attn: Mr. Mark Oborne

RE: DATA REPORT FOR WHITE POINT LANDSLIDE, BORING B-12, CITY OF LOS ANGELES W.O. E1907483, TOS 11-087, SAN PEDRO DISTRICT, CITY OF LOS ANGELES, CALIFORNIA

This report supplements our Geotechnical Report (Shannon & Wilson, Inc., 2012a) and Addendum Geotechnical Report (Shannon & Wilson, Inc., 2012b) for the White Point Landslide project. Its purpose is to provide geologic data obtained from boring B-12, as well as document the geotechnical instrumentation installed in the borehole. In doing so, this report will summarize our field activities, supplement previous description of the subsurface conditions in the vicinity of the White Point Landslide, and provide a schedule for our monitoring program.

The purpose of boring B-12 is to augment the existing geotechnical monitoring devices located east of the November 2011 landslide, namely borings B-7, B-10, and B-11. These borings contain inclinometer casing and vibrating wire piezometers used to monitor movement and groundwater levels during the dewatering construction activities.

Boring B-12 was logged during coring by a California Certified Engineering Geologist from Shannon & Wilson, as well as representatives of Grover-Hollingsworth and Associates, Inc. for the Los Angeles City Attorney's Office and by American Geotechnical, Inc. representing the Bruno residence.

FIELD EXPLORATION

Boring B-12 was drilled within the southern side of Paseo Del Mar at the intersection of Weymouth Avenue and completed on April 15, 2013. The location of B-12, as well as the

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locations of borings previously drilled in the vicinity, is shown on the Site and Exploration Plan, Plate 1. Boring B-12 was advanced to a depth of approximately 131 feet below existing grade. Field Activity Reports describing our daily fieldwork are provided in Appendix A. The techniques used to advance and sample boring B-12 are described in Appendix B, along with the boring log. Immediately after drilling acoustic televiewer and natural gamma surveys were performed, as described in Appendix C. The borehole was then reamed to an approximately six-inch diameter and instrumented with 2.75-inch diameter inclinometer casing and three vibrating wire piezometers (VWPs), as described in Appendix D.

Information and location of the previous borings B-1 through B-11, including boring logs and instrumentation, are provided in our Geotechnical and Addendum Reports (Shannon & Wilson, Inc., 2012a, 2012b).

LOCAL GEOLOGY

Stratigraphy

The geologic materials observed during coring of B-12 were consistent with observations made in the nearby boring B-11. A relatively thin layer of Quaternary-age Terrace Deposits (Qt) was observed below the approximately 16-inch thick pavement. The underlying Tertiary-age Altamira Shale consisted of interbedded siltstones with less frequent claystones and fine-grained sandstones. Soft clay beds were observed, most prominently at approximately 83 feet depth below ground surface (bgs), while bentonite beds were noted at depths of approximately 79, 80, and 82 feet bgs. Interbedded siliceous siltstone beds were observed at a depth 98 feet bgs and below. Generalized Subsurface Profile I-I' has been extended toward the east, and updated to include information obtained from B-12, and is included as Plate 2.

Detailed descriptions of the geologic units at the site are provided in our Geotechnical and Addendum Reports (Shannon & Wilson, Inc., 2012a, 2012b).

Geologic Mapping

A Shannon & Wilson California Certified Engineering Geologist performed additional geologic mapping of bedrock exposures in the intertidal surf area during this episode of fieldwork. The geologic data collected has been added to the Site and Exploration Plan, Plate 1.

Geologic Structure

The interpreted geologic structure in the area east of the landslide (near borings B-7, B-10, B-11, and B-12) is shown on the Generalized Subsurface Profile I-I", which includes our interpretations of surface mapping and subsurface exploration data. A legend for the profiles is shown on Plate 3. The profile shows the apparent orientations of sedimentary bedding surfaces measured using the boring televiewer survey (Appendix C).

Stereographic projections of the discontinuities and bedding attitudes observed in borings B-7, B-10, B-11, and B-12 are shown on Plate 1. These projections are presented as poles to planes. An illustration and description of the presentation method (equal-angle stereographic projection) is included in Plate 1 of the Addendum Report (Shannon & Wilson, Inc., 2012b). Based upon the bedding attitudes from borings B-7, B-10, B-11, and B-12, as well as surface mapping in the intertidal zone, an anticlinal fold axis has been inferred along the eastern portion of the site. The fold axis is oriented roughly north-south, plunging gently toward the south. It has been added to the Site and Exploration Plan, Plate 1.

As a part of the Addendum Report (Shannon & Wilson, Inc., 2012b) we ran natural gamma surveys on the existing cased bore holes. The natural gamma surveys are made by lowering an instrument into each borehole and measuring the intensity of natural gamma radiation. Natural gamma radiation in rock typically increases with increasing clay content. The natural gamma log for B-12 has also been added to the Generalized Subsurface Profile I-I".

MONITORING

Data provided from monitoring of the geotechnical instrumentation installed in boring B-12 consists of inclinometer and vibrating wire piezometer (VWP) groundwater readings during dewatering construction activities. The inclinometer was read daily during the dewatering construction and the data reviewed for indications of subsurface movement observed in the inclinometer. VWP readings are recorded hourly by an installed datalogger at the borehole location. These measurements were then downloaded daily during dewatering construction and reviewed to observe any trends or noticeable changes in the groundwater elevation. The VWP groundwater data has been presented as Figure D-2, and Cumulative Inclinometer readings as are presented as Figure D-3, both in Appendix D.

Shannon & Wilson, Inc. has prepared the document, "Important Information About Your Geotechnical/Environmental Report," in Appendix E to assist you and others in understanding the use and limitations of this report.

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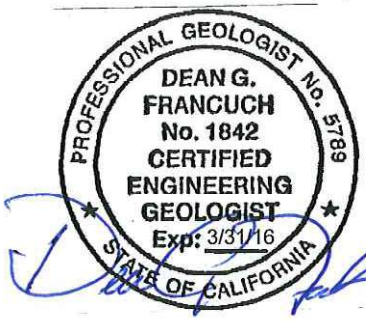
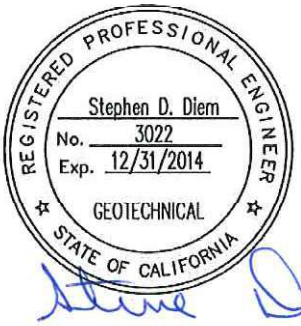
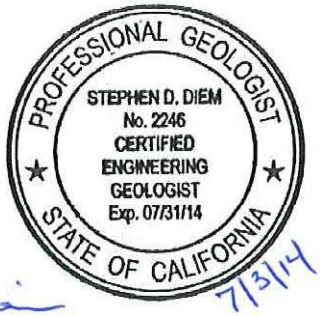


Dean G. Francuch, P.G., C.E.G.
Associate Engineering Geologist





Stephen D. Diem, P.E., G.E. P.G., C.E.G.
Principal Engineering Geologist

SDD:DGF:RTD/sdd

c: Mr. Christopher Johnson, City of Los Angeles (electronic copy only)
Mr. Gene Edwards, City of Los Angeles (electronic copy only)

Enc: Plate 1, Site and Exploration Plan
Plate 2, Generalized Subsurface Profile I-I"
Plate 3, Generalized Subsurface Profile Legend
Appendix A, Field Activity Reports
Appendix B, Subsurface Explorations
Appendix C, Televiewer and Natural Gamma Surveys
Appendix D, Geotechnical Instrumentation
Appendix E, Important Information About Your Geotechnical/Environmental Report

REFERENCES

Shannon & Wilson, Inc., 2012a, Final Geotechnical Report, White Point Landslide: Report prepared by Shannon & Wilson, Inc., Glendale, Calif., W. O. E1907483, for City of Los Angeles Geotechnical Engineering Group, Los Angeles, Calif., August, 467 p.

Shannon & Wilson, Inc., 2012b, Final Addendum Geotechnical Report No. 1, White Point Landslide: Report prepared by Shannon & Wilson, Inc., Glendale, Calif., W. O. E1907483, for City of Los Angeles Geotechnical Engineering Group, Los Angeles, Calif., August, 500 p.