APPENDIX D

LETTERS
APPENDIX D

LETTERS

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October 24, 2013

City of Los Angeles
Bureau of Engineering
1149 South Broadway Street, Suite 120
Los Angeles, California 90015

Attn: Mr. Gene Edwards

RE: EROSION CONCERNS FROM REMOVAL OF PALM TREES,
PROPOSED GROUND ANCHOR CONSTRUCTION, WHITE POINT LANDSLIDE,
SAN PEDRO DISTRICT, LOS ANGELES, CALIFORNIA

This letter provides our conclusions and recommendations regarding erosion that may occur following removal of three palm trees located on County of Los Angeles (County) property. The palm trees require removal to install proposed ground anchors, which are part of the immediate repairs following the White Point Landslide in November 2011 (2011 Landslide). Eighteen ground anchors will be installed along the existing bluff top between the 2011 Landslide and Weymouth Avenue. Refer to our “Final Addendum Geotechnical Report No. 2, Ground Anchor Design” dated April 17, 2013 (Add-2 Report) and the plans and specifications prepared by Wagner Engineering & Survey dated June 7, 2013 (Anchor Plans) for additional details regarding the ground anchor design. The palm trees are located near the southwest corner of Paseo del Mar and Weymouth Avenue as shown in Photograph 1 below.

Photograph 1 – Palm Trees to be Removed
Mr. Gene Edwards of the Bureau of Engineering forwarded an email chain with the County and requested our opinion on the palm tree removal on October 24, 2013. Most palm trees form a foot bulb at the tree base. The root bulb is typically one to two times the diameter of the tree trunk and extends approximately two to four feet below the ground surface. Smaller roots radiate out from the root bulb laterally and vertically down. We recommend two options for tree removal.

1) Cut the tree at the ground surface, leaving the underlying root bulb and roots intact to reduce ground disturbance.

2) Excavate and remove the root bulb with the tree. The radiating roots should be cut off from the bulb during the excavation process and left in place to the extent practical. Upon tree removal, the resulting hole left should be backfilled with native or imported soil and tamped with hand or small equipment in loose lifts not exceeding 12 inches. The backfill should be mounded at least 3 inches above the surrounding surface grade to allow for settlement and impede pooling of surface water at the excavations.

In our opinion, erosion from the tree removal would be mitigated by implementing either option and in conjunction with temporary erosion sedimentation control (TESC) measures installed for the anchor construction, per the Anchor Plans. Permanent erosion control measures should be installed before the TESC measures are removed. We anticipate these would consist of revegetation.

The limitations described in our Add-2 Report apply to this letter. Please call if there are any questions regarding this letter.

Sincerely,

SHANNON & WILSON, INC.

R. Travis Deane, P.E., G.E.
Senior Associate

RTD: CAR/rtd
December 16, 2013

City of Los Angeles
Bureau of Engineering
1149 South Broadway Street, Suite 120
Los Angeles, California 90015

Attn: Mr. Gene Edwards

RE: UPDATE ON INSTRUMENTATION READINGS, GROUND ANCHOR CONSTRUCTION FOR THE WHITE POINT LANDSLIDE, SAN PEDRO DISTRICT, LOS ANGELES, CALIFORNIA

This letter provides updated readings on instrumentation for borings adjacent to the ground anchor installation at the White Point Landslide. We installed the borings and instrumentation as part of our immediate repairs to the eastern flank area of the landslide. This letter refers to our previous conclusions and recommendations described in the following White Point Landslide correspondence with the City of Los Angeles Bureau of Engineering (City):

- Final Geotechnical Report, August 15, 2012 (Final Report)
- Final Addendum Geotechnical Report No. 1, December 19, 2012 (Add-1 Report)
- DRAFT Data Report for White Point Landslide, Boring B-12 (Boring B-12 Report)
- Field Activity Reports during ground anchor construction (FARs)

We read the instrumentation in four borings, designated B-7, B-10, B-11, and B-12, on December 12, 2013. Details of the boring installations and instrumentation are described in the above reports. The reading updates are in response to reported distress at the Los Angeles County (County) storm drain outfall (storm drain) that is within the eastern flank area. Mr. Charles Nestle of the County contacted us on December 11, 2013 about the storm drain distress. We do not know the location or extent of the storm drain distress.
The borings, storm drain, and anchor locations are shown in Figure 1. The results of the VWP readings for the entire project are shown in Figure 2. The VWP readings for the four borings along with an installation summary of test anchors C-1 and G-1 are provided in Figure 3. Fluctuations in the groundwater levels recorded by the VWP's appear to be related to the test anchor construction.

Inclinometer readings are provided in Figures 4 through 7 for the four borings. The inclinometers indicate negligible ground movement at the boring locations. We also have not observed ground cracking in the immediate vicinity of the storm drain. The ground crack that was observed on October 28, 2013 (see FAR No. 1) has not moved to date based on our visual observations, surface markings, and extensometers installed to monitor ground crack movement (see FARs). The ground crack also appears to terminate west of the storm drain from our geologic mapping.

As described in our Construction Report, movement was observed in the inclinometers for borings B-7, B-10, and B-11 and is associated with the drain installations. Ground movement, as recorded by these inclinometers, ceased upon termination of the horizontal direction drilling (HDD) used for the drainage installation in late April 2013. Since completion of the HDD, no significant ground movement has been recorded.

We concluded from the instrumentation and observed field conditions that the slope has not experienced mass movement in the vicinity of the storm drain since the completion of the dewatering drains. If details are provided on the County’s observations of the storm drain distress, we should review to corroborate with our observations.
The limitations described in our previous reports above apply to this letter. Please contact me if you have questions regarding this letter.

Sincerely,

SHANNON & WILSON, INC.

R. Travis Deane, P.E., G.E.
Senior Associate

JXM:RTD/rtd

Enc.  Figure 1, Site and Exploration Plan
Figure 2, Measured Piezometric Levels Drain and Anchor Construction
Figure 3, Measured Piezometric Levels Anchor Construction
Figure 4, Cumulative Displacement B-7
Figure 5, Cumulative Displacement B-10
Figure 6, Cumulative Displacement B-11
Figure 7, Cumulative Displacement B-12
NOTES
1. Dewatering drains were installed between February 18 and April 25, 2013.
3. When VWP piezometric elevation equals VWP elevation, the groundwater is at or below the VWP.
4. VWP's B-3, B-4, and B-9 are installed inside standpipe wells. Remaining VWP's are installed alongside piezometer casings at specific elevations.
5. Where data is discontinuous, dataloggers were out of service.
PASEO B_11, A-Axis

PASEO B_11, B-Axis

Depth in feet

Cumulative Displacement (in) from 8/14/2012

Cumulative Displacement (in) from 8/14/2012

4/29/2013
7/31/2013
8/26/2013
10/2/2013
12/12/2013

4/29/2013
7/31/2013
8/26/2013
10/2/2013
12/12/2013

White Point Landslide
San Pedro District
Los Angeles, California

CUMULATIVE DISPLACEMENT B-11

December 2013
51-1-10079-033

FIG. 6
January 29, 2014

City of Los Angeles  
Bureau of Engineering  
1149 South Broadway Street, Suite 120  
Los Angeles, California 90015

Attn: Mr. Gene Edwards

RE: RESPONSE TO REQUEST FOR CLARIFICATION FROM BUREAU OF CONTRACT ADMINISTRATION FOR GROUNDWATER DISCHARGE, WHITE POINT SLOPE STABILIZATION, PASEO DEL MAR, SAN PEDRO DISTRICT, LOS ANGELES, CALIFORNIA

This letter clarifies the disposal procedure for the groundwater in the containment area. Mr. Rob Lackaye, construction inspector for the City of Los Angeles Bureau of Contract Administration, requested this clarification on January 27, 2014. In our field activity reports (FARs) for the project to date, we have referred to the sanitary sewer as “the storm sewer.”

Hayward Baker, Inc. is pumping groundwater collected from the dewatering drains in the containment area to the sanitary sewer below Paseo del Mar under an emergency industrial wastewater discharge permit. We understand the sanitary sewer is not connected to the nearby storm drain.

If you have any questions, please contact me.

Sincerely,

SHANNON & WILSON, INC.

R. Travis Deane, P.E., G.F.  
Senior Associate

JXM:RTD/rtd
February 21, 2014

City of Los Angeles  
Bureau of Engineering  
1149 South Broadway Street, Suite 120  
Los Angeles, California 90015

Attn: Mr. Gene Edwards

RE: UPDATE ON INSTRUMENTATION READINGS, GROUND ANCHOR CONSTRUCTION FOR THE WHITE POINT LANDSLIDE, SAN PEDRO DISTRICT, LOS ANGELES, CALIFORNIA

This letter provides updated readings on instrumentation for borings adjacent to the ground anchor installation at the White Point Landslide. We installed the borings and instrumentation as part of our evaluation and immediate repairs of the landslide. The reading updates are in response to reported displacement recorded by the City Survey Division in January 2014 as shown in Figure 1. The City provided us with the survey data on February 7, 2014 (Survey Data). Changes in the Survey Data positions were from January 26, 2012 to January 8, 2014. Survey movements on the south side of Paseo Del Mar appear to be moving downslope (south). Monuments north of Paseo Del Mar appear more chaotic, favoring the east and south directions.

This letter refers to our previous conclusions and recommendations described in the following reports for the project with the City of Los Angeles Bureau of Engineering (City):

- Final Geotechnical Report, August 15, 2012 (Final Report)
- Final Addendum Geotechnical Report No. 1, December 19, 2012 (Addendum-1 Report)
- DRAFT Data Report for White Point Landslide, Boring B-12 (Boring B-12 Report)
- Field Activity Reports during ground anchor construction (FARs)
We read the instrumentation, consisting of vibrating wire piezometers (VWPs) and inclinometers, in Borings B-1, B-3, B-5, B-6, B-7, B-8, B-9, B-10, B-11, and B-12, on February 12, 2014. Details of the boring installations and instrumentation are described in the Final, Addendum-1, and Boring B-12 Reports.

Measurements from the VWPs for the landslide area are shown in Figure 2. Relatively rapid fluctuations in the groundwater levels recorded by the VWPs appear to be related to the horizontal direction drilling (HDD) dewatering drains and anchor construction. The VWP readings generally indicate steady or gradually decreasing groundwater levels. The VWP readings for borings in the anchor construction area are provided in Figure 3. Precipitation shown in both figures has been below seasonal averages.

Inclinometer readings are provided in Figures 4 through 10. The inclinometers indicate negligible ground movement at their respective boring locations since completion of the HDD dewatering drains described in our Addendum-1 and Construction Reports. Movement was observed in the inclinometers for borings B-7, B-10, and B-11 and is associated with the HDD drain installations. Ground movement, as recorded by these inclinometers, ceased upon termination of the HDD used for the drainage installation in late April 2013.

Extensometers were installed across a ground crack observed on the anchor construction bench. Measurements from the extensometers are provided in Figure 11. Our review and conclusions regarding the ground crack are being prepared in a concurrent report. Note that extensometer EX-1 was removed to accommodate anchor construction and relocated to the area designated EX-3.

We conclude from the instrumentation and observed field conditions that the landslide area has not experienced mass movement. However, there is insufficient data to conclude the origin of movements recorded by the Survey Data. Possible explanations could include expansive soil of the terrace deposits causing near-surface movement of the soil or direct disturbance of the survey markers. Expansive soil movement would have minimal impact to the inclinometers.
The limitations described in our previous reports above apply to this letter. Please contact me if you have questions regarding this letter.

Sincerely,

SHANNON & WILSON, INC.

R. Travis Deane, P.E., G.E.
Senior Associate

JXM:RTD/jxm

Enc: Figure 1, Site and Exploration Plan
  Figure 2, Measured Piezometric Levels Drain and Anchor Construction
  Figure 3, Measured Piezometric Levels Anchor Construction
  Figure 4, Cumulative Displacement B-1
  Figure 5, Cumulative Displacement B-5
  Figure 6, Cumulative Displacement B-7
  Figure 7, Cumulative Displacement B-9
  Figure 8, Cumulative Displacement B-10
  Figure 9, Cumulative Displacement B-11
  Figure 10, Cumulative Displacement B-12
  Figure 11, Ground Crack Deformation
HDD Drain Installation between 2/18/13 and 4/25/13

NOTES:
1. Dewatering drains were installed between February 18 and April 25, 2013.
3. When VWP piezometric elevation equals VWP elevation, the groundwater is at or below the VWP.
4. VWPs B-3, B-6, and B-9 are installed inside standpipe wells. Remaining VWP are inserted alongside micrometer casings at specific elevations.
5. Where data is discontinuous, dataloggers were out of service.

Anchor Installation between 11/12/13 and present

White Point Landslide
San Pedro District
Los Angeles, California

MEASURED PIEZOMETRIC LEVELS
DRAIN AND ANCHOR CONSTRUCTION

February 2014
S1-1-10079-033

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 2
FIG. 4
CUMULATIVE DISPLACEMENT

White Point Landslide
San Pedro District
Los Angeles, California

CUMULATIVE DISPLACEMENT
B-1

February 2014
51-1-10079-033
FIG. 6

CUMULATIVE DISPLACEMENT

White Point Landslide
San Pedro District
Los Angeles, California

February 2014

51-1-10079-033

FIG. 6
FIG. 7

CUMULATIVE DISPLACEMENT

PASEQ_B9, A-Axis

Depth in feet

Cumulative Displacement (in) from 12/28/2011

PASEQ_B9, B-Axis

Depth in feet

Cumulative Displacement (in) from 12/28/2011

White Point Landslide
San Pedro District
Los Angeles, California

CUMULATIVE DISPLACEMENT
B-9

February 2014

51-1-10079-033

FIG. 7
FIG. 8
CUMULATIVE DISPLACEMENT B-10
White Point Landslide
San Pedro District
Los Angeles, California
February 2014
51-1-10079-033

PASEO B10, A-Axis
PASEO B10, B-Axis

Cumulative Displacement (in) from 8/14/2012
Depth in feet
FIG. 9

CUMULATIVE DISPLACEMENT

White Point Landslide
San Pedro District
Los Angeles, California

February 2014

51-1-10079-033
CUMULATIVE DISPLACEMENT B-12

White Point Landslide
San Pedro District
Los Angeles, California

February 2014

51-1-10079-033
NOTES
1. Anchor installation started November 12, 2013.
2. Baseline readings were established for the extensometers EX-1 and EX-2 on 12/6/13 and EX-3 on 12/13/14.
3. EX-1 is installed between Anchor A-1 and Anchor B-1. EX-2 is installed in front of Anchor D-1. EX-3 is installed between Anchors B-1 and C-1.
4. EX-1 was removed on 1/23/14 due to interference with the construction of the Anchor A-1 bearing pad.