

August 8, 2012

Mr. Mark Osborne
City of Los Angeles
Department of Bureau of Engineering
1149 South Broadway, Suite 120
Los Angeles, California 90015

RE: RESPONSE TO PUBLIC COMMENTS ON DRAFT FINAL GEOTECHNICAL REPORT, WHITE POINT LANDSLIDE, SAN PEDRO DISTRICT, LOS ANGELES, CALIFORNIA

Dear Mr. Osborne:

This letter presents our response to comments on the Draft Final Geotechnical Report (DFGR) for the White Point Landslide. The DFGR was submitted to the City of Los Angeles (City) on June 18, 2012.

We have been provided with public comments on the DFGR. Based on our review of the provided electronic documents, geotechnical related comments were contained in the following documents:

- Comments Submittal RE White Point Landslide Draft Final Geotechnical Engineering Report - June 18, 2012, dated July 6, 2012, submitted by Richard Havernick.
- E-mail comments submitted to the City of Los Angeles dated July 11, 2012, submitted by Richard Havernick.

Our response to each geotechnically-related comment in the above letter and e-mail is presented below. Shannon & Wilson is providing responses to most comments. Included within this letter is City of Los Angeles Bureau of Engineering responses to Comments #9 and #10 . For ease of reference, each of the comments is listed below in italics, along with our response in standard type. A copy of the letter and e-mail are included as attachments to this response letter.

COMMENTS FROM LETTER SUBMITTED BY RICHARD HAVERNICK

Comment 1: *Due to the degree of instability associated with groundwater level as established in the slope stability analyses discussed in Section 8.3 Analyses and Results/8.3.2 Back Analysis and 8.3.3 Forward Analyses, please provide summary explanation describing the potential for future landslide in the affected areas as related to depth of the referenced water levels.*

Response: As described in the referenced sections of the report, our studies indicate that the stability of the slope is heavily dependent on groundwater levels (i.e., the depth of the ground water below the ground surface). As discussed in other sections of the report and our response to Comment 2a below, the source of high groundwater levels may be attributed to several potential factors. The groundwater levels used in our models correspond to our readings during drilling, our subsequent monitoring of instrumentation, previous geotechnical studies conducted at the site by others, and in the case of forward analyses, hypothesized groundwater levels that may lead to future slope instability. The significance of the groundwater levels discussed in the referenced sections can be summarized as follows:

- Elevated groundwater levels resulted in increased potential for slope instability (i.e. lower factor of safety) in our modeling studies;
- Observations by Shannon & Wilson and previous studies by others indicate that the elevated and artesian groundwater pressures included in our slope stability models are reasonable; and
- Controlling and lowering groundwater levels in potentially unstable areas on the east side of the 2011 Landslide are recommended mitigation measures to increase slope stability.

Comment 2: *Please continue effort and/or investigation as possible to determine the following and respond with conclusions:*

- a) *Likely cause of excess groundwater pressure as referenced in Section 5.6 Groundwater;*

Response: To date we have not yet determined a point source of what we might consider contributing to “excess” groundwater. Our continued investigation into the cause of the excess groundwater consists of:

1. Drilling two additional borings along the east portion of Paseo Del Mar to perform hydrogeologic testing at various depths, installation of instruments to measure groundwater fluctuations continually, and installation of slope inclinometers to verify the presence or absence of subsurface movement;

2. Comparing the local groundwater levels to neighborhood levels if available, up-gradient uses, municipal water usage and precipitation;
3. Refining the subsurface geology to characterize the geometry of the low permeability bounding layers of the perched and confined aquifers along the east portion of the site; and
4. Designing and testing a long-term passive dewatering system to lower groundwater pressures and thereby increase the slope stability of the eastern portion of the site.

b) Source of the irrigation referenced in Section 7.2 Contributing Factors/7.2.1 Irrigation in the area north of the site for which historic water usage/utility records will likely provide helpful conclusive information;

Response: We agree that water utility records could provide useful information regarding the volume of water a particular development or entity is using. Shannon & Wilson in conjunction with the City have reviewed water use records available to date from the Los Angeles Department of Water and Power. This information was used in developing our conclusions in Section 7.2 of the DFGR. Additional review of LADWP records combined with seasonal, continuous groundwater measurements should help provide guidance as to the source(s) of the groundwater.

c) Identification of potential leaking underground utilities related to the residential development as referenced in Section 7.2.4 Residential Development;

Response: Since the onset of earth movement was observed in 2011, the City has performed underground utility inspections of the storm drains along Paseo Del Mar as discussed in the DFGR. Shannon & Wilson has reviewed the videos completed of the storm drains. Unfortunately, the videos were completed after initial movement of the main landslide so while we were able to view areas of pipe offset and water leakage, we could not determine if the water leakage had started to occur before the landslide started to move or after.

We are unaware of any additional studies that have been completed of the water supply lines in the area of the existing residential developments.

d) Usage of the broken underground irrigation piping along the south margin of Paseo Del Mar as referenced in Section 7.2.5 Road Construction; and,

Response: Based on the location of the piping in the south landscaped margin of the Paseo Del Mar right-of-way, it appears to be a public system. We understand that this system was used to provide water to the landscaping along the south side of Paseo Del Mar. As this system is now inoperable, it is unlikely that the contribution, if any, to the landslide activation will be determined.

e) Likely cause of elevated groundwater levels during dry season and/or to identify the non-precipitation sources as referenced in Section 8.3.3 Forward Analyses.

Response: Please see the Response to Comment 2a above.

Comment 3: *Please explain the actions completed or to be completed to ensure adequate drainage of runoff in the location which represents a topographic low point as referenced in section 7.4 Inconclusive Factors so that the stability of the adjacent land is not threatened.*

Response: If Paseo Del Mar is reconstructed across this topographic low, we would recommend a subdrain system be placed in the area to capture subsurface water that may collect in the area. This collected water could then be directed to the existing storm drain system. A specific design for the subdrain system would be included with the grading/roadway plans if this option is chosen.

Comment 4: *Please initiate actions required to ensure urgent implementation of the actions suggested in the Section 9 Recommendations.*

Response: The action items will be addressed in the upcoming geotechnical dewatering study that will be starting in the month of July, 2012. The initial field work will be aimed at installing additional inclinometers and piezometers along Paseo Del Mar in the area between the current landslide and Weymouth Avenue. When the study is completed in the fall of 2012, detailed plans addressing the dewatering system, grading (reshaping) of the landslide, traffic and street improvements, and a slope anchoring system will be included to facilitate the improvements. It is our understanding that the City can then initiate the construction of the improvements as funds become available.

Comment 5: *Please provide an estimate for scheduling/completion required for each of the immediate actions recommended in Section 9.2 Immediate Improvements from the point that potential funding is identified. Please provide rough order of magnitude estimates (e.g., one to two years, three to five years,*

etc.) distinctly for each of the below suggested immediate actions if more specific timing cannot be defined:

a) Dewatering;

Response: We began the study for the proposed dewatering plan design in July 2012. We anticipate that the dewatering system will be completed by December 2012.

b) Passive drains (hydraugers);

Response: The passive drains are part of the dewatering system, and would be completed at the same time (estimated December 2012).

c) Cleaning and shaping surface topography;

Response: The study for the proposed grading plan design has started. We anticipate that the grading (cleaning and shaping) will be completed by December 2012.

d) Slope anchor system on east flank; and,

Response: We will begin the study for the proposed slope anchor design in August 2012. We anticipate that the slope anchoring system could be constructed starting as early as January 2013.

e) Abandonment of damaged section of Paseo Del Mar with turnarounds constructed.

Response: We are beginning the study for the traffic improvement plan design in August 2012. We anticipate that the improvements would be completed at about the same time as the grading is completed in about December 2012.

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Comment 6: *Please investigate and report on potential to obtain funds from United States Federal Stimulus funding that may be used for Landslide repairs or mitigations.*

Response: It is our understanding that the City is currently pursuing alternate funding sources for the project.

Comment 7: *Please ensure advance notification and coordination as required with affected residents for the installation of the recommended two (2) future borings B-10 and B-11 recommended in Section 10.3.1 Immediate Repair.*

Response: Notification for the upcoming drilling has been placed on the east side of the landslide on the fence at Paseo Del Mar and Weymouth Avenue near the intersection of Averill Avenue and Almeria Street during drilling activities.

Comment 8: *Please request technical assistance from the U.S. Army Corps of Engineers, which may provide key expertise in concluding the open issues 2.a. through 2.e., above.*

Response: The City and Shannon & Wilson have met with the U.S. Army Corp or Engineers (USACE) to discuss both technical issues as well as possible alternative funding for the project. It is our understanding that the proposed repair design will be reviewed by the USACE where appropriate.

Comment 9: *Please define the methods by which City Agencies will include Public input in design of Long-Term Mitigation Options.*

As Shannon & Wilson has no control over the above issues and as they are not geotechnical in nature, the above questions are best answered by the City of Los Angeles. The City of Los Angeles has provided the following response.

Response: The Bureau of Engineering will take direction from the local Council Office, which is the lead with regards to community outreach and interaction with the community.

Comment 10: *Please respond with capability and timeliness for proceeding with the following requests:*

- *Removal of fencing installed on the south side of Paseo Del Mar at west of Landslide (adjacent to baseball field);*
- *Removal of bright security lights (one each on west side and east side of landslide);*
- *Removal of debris on beach below landslide and in landslide area; and,*
- *Removal of tall fencing on walking trail at perimeter of landslide of landslide or replacement of the tall fencing with style of fencing more consistent with Nature Preserve setting.*

As Shannon & Wilson has no control over the above issues and as they are not geotechnical in nature, the above questions are best answered by the City of Los Angeles. The City of Los Angeles has provided the following response.

Response:

- The City will look at options for removal of the fencing and the lights in conjunction with discussions with the County of Los Angeles, the Palos Verdes Land Conservancy, City Recreation and Parks, Council Office, and Office of City Attorney.
- Some debris removal on the landslide will be part of the scope of work for the immediate measures.
- Part of the tall fencing will be removed and replaced, and this will be determined and incorporated with the final plan.

COMMENTS FROM E-MAIL SUBMITTED BY RICHARD HAVERNICK

Comment 1: *Please consider installation of two (2) additional boring sites to accumulate objective data for the study of ground stability in the neighborhood to the east of the Landslide, such as next to Paseo Del Mar at the approximate locations of Jackstadt Street and Averill Street.*

Response: The proposed geotechnical dewatering study will include two new borings west of Weymouth Avenue. The initial field work will be aimed at installing additional inclinometers and piezometers along Paseo Del Mar to better determine the potential for landsliding immediately adjacent to the east side of the landslide. While the geologic material in the area of Paseo Del Mar between Jackstadt and Averill Street is likely similar to the materials below the landslide, the data collected from borings in that area would not be of great help in determining the slope stability conditions in the area immediately adjacent to the landslide.

Comment 2: *Please respond as to the adequacy of the use of dye-tracer method to assist in determining the origin of continual runoff at sea-level in the affected area.*

Response: The use of tracer-dye could be considered for some of the suspected sources of groundwater in the area of the landslide. It is especially useful in the case of a “point source” such as utility lines, swimming pools, or streams. At White Point it might have been best used prior to the major landslide movement. Currently tracer-dyes would be difficult to use because the potential sources of groundwater are most likely widespread, such as residential irrigation and White Point Nature Preserve, making tracer-dye application difficult.

Comment 3: *Please respond as to the potential effects on ground stability in the affected area from the construction of the planned Los Angeles County Sanitation District Clearwater Program Outfall.*

Response: Shannon & Wilson reviewed the Clearwater Program Draft Documents, including the Executive Summary, Draft Master Facilities Plan, and EIR/EIS for the replacement of two 6-mile long onshore tunnels that convey effluent from the Joint Water Pollution Control Plant (JWPCP) to the manifold structure located at Royal Palms Beach. The executive summary recommends Alternative 4, which will involve constructing a new onshore tunnel along a 6.9 mile alignment that would terminate adjacent to the existing ocean outfall manifold structure at Royal Palms Beach more than 0.5-miles northwest of the White Point Landslide. The tunnels will be constructed of pre-fabricated, steel reinforced concrete liner segments with watertight gaskets. Given the distance of the JWPCP to the White Point Landslide and the proposed watertight construction, we do not anticipate the Clearwater Program Outfall will affect the ground stability at the White Point Landslide.

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Sincerely,

SHANNON & WILSON, INC.



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

Enc: Public Comments Letter dated July 6, 2012.
Public Comments E-mail dated July 11, 2012.

(2 copies submitted)

7/06/12

Gary Lee Moore, City Engineer
Vincent Jones, Deputy City Engineer
City of Los Angeles, Bureau of Engineering
1149 S. Broadway
Los Angeles, CA 90015

Subject: Comments Submittal RE White Point Landslide Draft Final Geotechnical Engineering Report – June 18, 2012

Mr. Jones and Mr. Moore,

I will appreciate your consideration of the requests and comments below submitted in response to the Subject Geotechnical Report. Please note that the Subject Report's conclusion that the area east of the 2011 Landslide is marginally stable and could become unstable with a rise in groundwater levels compel all Agencies to proceed with urgency as requested below.

1. Due to the degree of instability associated with groundwater level as established in the slope stability analyses discussed in Section 8.3 Analyses and Results/8.3.2 Back Analysis and 8.3.3 Forward Analyses, please provide summary explanation describing the potential for future landslide in the affected areas as related to depth of the referenced water levels.
2. Please continue effort and/or investigation as possible to determine the following and respond with conclusions:
 - a. Likely cause of excess groundwater pressure as referenced in Section 5.6 Groundwater;
 - b. Source of the irrigation referenced in Section 7.2 Contributing Factors/7.2.1 Irrigation in the area north of the site for which historic water usage/utility records will likely provide helpful conclusive information;
 - c. Identification of potential leaking underground utilities related to the residential development referenced in Section 7.2.4 Residential Development;
 - d. Usage of the broken underground irrigation piping along south margin of Paseo Del Mar as referenced in Section 7.2.5 Road Construction; and,
 - e. Likely cause of elevated groundwater levels during dry season and/or to identify the non-precipitation sources as referenced in Section 8.3.3 Forward Analyses.
3. Please explain the actions completed or to be completed to ensure adequate drainage of runoff in the location which represents a topographic low point referenced in Section 7.4 Inconclusive Factors so that the stability of adjacent land is not threatened.
4. Please initiate actions required to ensure urgent implementation of the actions suggested in the Section 9 Recommendations.

5. Please provide an estimate for scheduling/completion required for each of the immediate actions recommended in Section 9.2 Immediate Improvements from the point that potential funding is identified. Please provide rough order of magnitude estimates (e.g., one to two years, three to five years, etc.) distinctly for each of the below suggested immediate actions if more specific timing cannot be defined:
 - a. Dewatering;
 - b. Passive drains (hydraugers);
 - c. Cleaning and shaping surface topography;
 - d. Slope anchor system on east flank; and,
 - e. Abandonment of damaged section of Paseo Del Mar with turnarounds constructed.
6. Please investigate and report on potential to obtain funds from United States Federal Stimulus funding that may be used for Landslide repairs or mitigations.
7. Please ensure advance notification and coordination as required with affected residents for the installation of the recommended two (2) future borings B-10 and B-11 recommended in Section 10.3.1 Immediate Repair.
8. Please request technical assistance from the U.S. Army Corps of Engineers, which may provide key expertise in concluding the open issues 2.a. through 2.e., above.
9. Please define the methods by which City Agencies will include Public input in design of Long-Term Mitigation Options.
10. Please respond with capability and timeliness for proceeding with the following requests:
 - a. Removal of fencing installed on south side of Paseo Del Mar at west of Landslide (adjacent to baseball field);
 - b. Removal of security lights (one each on west side and east side of landslide);
 - c. Removal of debris on beach below landslide and in landslide area; and,
 - d. Removal of tall fencing on walking trail at perimeter of landslide or replacement of the tall fencing with style of fencing more consistent with Nature Preserve setting.

I'll appreciate your taking the time to consider and respond to the above comments and requests.

Sincerely,



Richard Havenick
3641 South Parker Street
San Pedro CA 90731

From: Mark Osborne
To: Travis Deane; Dean Francuch
Cc: Mark Osborne
Subject: White Point Draft Report - comments
Date: Wednesday, July 11, 2012 12:55:03 PM

Travis and Dean,
the comments below were included in an email along with the Comments letter I sent you previously from Mr. Havenick. Please call to discuss this and note the following web site regarding the Clearwater Program Outfall.
http://www.clearwaterprogram.org/clearwater/eir_n_facility_plan.asp

Subject: Re: Geotechnical Report Advance Comments Letter Attached

Vince,

Thanks for fast acknowledgment.

I wanted you to know about the potential comments when we met, and to see them in advance of the Neighborhood Council similar comments, which may be submitted next week and may include the below listed additional three (3) items. Please know that my concern is due to the Report's conclusion that the area is marginally stable and I hope that immediate focus can be devoted to finding a way to initiate dewatering and slope anchoring system to be completed before rains start in fall/winter. Thank you.

1. Please consider installation of two (2) additional boring sites to accumulate objective data for the study of ground stability in the neighborhood to the east of the Landslide, such as next to Paseo Del Mar at the approximate locations of Jackstadt Street and Averill Street.
2. Please respond as to the adequacy of the use of dye-tracer method to assist in determining the origin of continual runoff at sea-level in the affected area.
3. Please respond as to the potential effects on ground stability in the affected area from the construction of the planned Los Angeles County Sanitation District Clearwater Program Outfall.

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Richard Havenick