Project No. A9201-06-01E
June 30, 2017

Mr. Derek Empey
Reylenn Properties, LLC
444 South Cedros Avenue
Solana Beach, California 92705

Subject: RESPONSE TO REVIEW COMMENTS
PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
HAWTHORNE BOULEVARD AND VIA VALMONTE
TORRANCE, CALIFORNIA

References: *Fault Rupture Hazard Investigation*, prepared by Geocon, January 21, 2016;

Preliminary Geotechnical Investigation, prepared by Geocon, March 3, 2016;

Geotechnical Peer Review, prepared by Kleinfelder, dated October 24, 2016;

Informal Review Comments via Email, City of Torrance, dated October 26, 2016;

Updated Preliminary Geotechnical Investigation, prepared by Geocon, June 16, 2017.

Dear Mr. Empey:

This letter has been prepared in response to the referenced October 24, 2016 Geotechnical Peer Review Comments and informal review comments from the City of Torrance provided via email on October 26, 2016. The Geotechnical Peer Review indicates that 22 comments be addressed, and the email communication indicate that two geotechnical comments need to be addressed. A copy of all correspondence is appended herein.

Geotechnical Peer Review Comments

Comment 1: *Include discussion of the existing Slope 3 conditions. There are large overhanging areas, large fractured areas, and existing sloughing/rockfall "chutes" present on the slope. Is there a concern or recommendation to address existing slope mitigation on the slope (scaling, rock anchors, etc.) along with the rockfall containment areas?*

Response 1: There is a potential for continued surficial instability in the form of sloughing and/or rockfall accumulation at the toe of the slope. However, the soft and highly fractured nature of the bedrock negate the potential for large blocks to break loose and remain intact at the base of the slope. Based on bedrock structural data, geologic mapping, and field surveys of the exposed bedrock conditions, rockfalls are estimated to either contain small blocks (less than 12 inches in size) or, if larger blocks break loose during a seismic event, are anticipated to break into small fragments at the toe of the slope upon impact and be contained within the rockfall containment areas that are incorporated

into the project design. The results of the updated rockfall simulation modeling by GeoStabilization International (2017) indicate that the designated rock containment areas and associated barriers are more than sufficient to mitigate the potential for rockfalls to adversely impact the site. Mitigation measures for potential rockfalls and sloughing are discussed in the *Rockfall Catchment and Slough Protection* section of this report (Section 8.15). A detailed discussion of the existing Slope 3 conditions is provided in the updated Preliminary Geotechnical Report dated June 16, 2017.

Comment 2: *In Section 8.7, a Building Code requirement for a setback from slopes is discussed with a horizontal distance of 40 feet. In Section 8.15.2, the setback is discussed "in combination" with the rockfall catchment area or barrier. The rockfall area is described and analyzed as about 40-feet wide. Based on the Building Codes, can this Setback area be used for a rockfall catchment area or is additional area required? This should be reviewed and discussed.*

Response 2: Acknowledged. Based on the latest set of development plans, the Building Code setbacks will be satisfied for Buildings A, B, and C. It is our understanding that the City of Torrance will consider alternate slope setback criteria for the parking structure based on the findings of the slope stability and rockfall hazard analysis presented in this geotechnical report. The proposed rockfall mitigation currently consists of a 7-foot-high rockfall containment wall constructed at the top of the two retaining walls along Slope 3. In addition, between the two walls, the rear wall of the parking structure will serve as the rockfall containment barrier. Furthermore, it is our understanding that the City of Torrance has agreed that the rockfall mitigation may be constructed within the slope setback area.

Comment 3: *Please include a table of recommended heights and widths of catchment areas/barriers in your discussion.*

Response 3: Since the preparation of the Preliminary Geotechnical Investigation report dated March 3, 2016, the proposed rockfall protection has been revised. A catchment area will no longer be used. The currently proposed rockfall protection is comprised of two components. The first component is a 7-foot-high rockfall containment barrier constructed at the top of the two retaining walls proposed along Slope 3. The alignment of the proposed retaining wall is indicated on the Site Plan (see Figure 2A in updated report). The second component consists of the rear wall of the proposed six-story parking structure. The currently proposed rockfall protection is discussed further in our updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Comment 4: *From Figure 8, it looks like the barrier is built directly against the wall of the foundation or parking level. Is this a concern for energy from rockfall transferring to the building from potential rockfall? This concern should be discussed with the structural engineer and in the report.*

Response 4: Acknowledged. Although the proposed rockfall protection has been revised, a component of the currently proposed rockfall protection includes the rear wall of the proposed six-story parking structure. It is our understanding that the Client intends to further address the use of the structure wall as the rockfall containment barrier once a structural engineer is retained for the project.

Comment 5: *The report should discuss how rockfall that builds up against the barrier at the top of the retaining wall will be cleaned out or how the barrier will be repaired if damaged by rockfall. Will it be accessible and feasible to address these concerns? This is briefly discussion in 8.15.6, but more discussion is needed especially for the barrier on top of the planned retaining walls (Detail 4 in Figure 8).*

Response 5: Acknowledged. Based on the current set of development plans, there will be a 9½-foot-wide maintenance bench constructed at the base of Slope 3, and a 7-foot-wide maintenance bench constructed at the base of Slope 1. The bench will facilitate maintenance behind the retaining walls and rockfall containment barriers. The maintenance bench will have access points at two locations. As indicated in Section 8.15, the developer of the site should create and enforce a written maintenance plan which addresses periodic evaluations and maintenance of the rockfall containment barrier and accumulations of debris.

Comment 6: *Please provide a detail/figure and further discussion of this option [Section 18.15.5 of report]. Please discuss construction, runout distance needed, and how this will contain rockfall versus the berms, or barriers.*

Response 6: Acknowledged. Section 18.15.5 discusses the use of a slough wall along the tops of retaining walls constructed along Slope 3. Based on the revisions to the proposed development plans and the proposed rockfall protection, a slough wall is no longer considered necessary.

Comment 7: *Provide more detail on the proposed grade and the 2H:1V sloped "rockfall catchment area" shown on the Figure. This model doesn't match one of the details shown on Figure 8. Include the detail number for the recommended catchment.*

Response 7: Acknowledged. This comment refers to Figure 3B. The rockfall catchment area which was previously indicated on Figure 3B is no longer proposed. The rockfall protection is proposed to consist of a rockfall containment barrier, as indicated in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017

Comment 8: *Provide more detail on the proposed grade and the 2H:1V sloped "rockfall catchment area" shown on the Figure. Does this go with Detail 4 on Figure 8? Include the detail number for the recommended catchment on each Figure.*

Response 8: Acknowledged. This comment refers to Figure 3G. The rockfall catchment area which was previously indicated on Figure 3G is no longer proposed. The rockfall protection is proposed to consist of a rockfall containment barrier, as indicated in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017

Comment 9: *Detail 1 is not assessed or discussed in the GSI report provided in Appendix D. Provide analyses and discussion to show that this catchment area provides adequate catchment.*

Response 9: Acknowledged. This comment refers to Figure 8 from the Preliminary Geotechnical Investigation report dated March 3, 2016. Detail 1 from Figure 8 depicted a rockfall catchment area, which is no longer proposed. The rockfall protection is proposed to consist of a rockfall containment barrier, as indicated in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Comment 10: *In Details 1 and 2, the rockfall catchment berm extends to the final floor of level 1 above the parking. It is difficult to tell from the plans and details if this area will be accessible to the public. Is there a concern for public access to the rockfall berm and catchment area? Was a fence or barrier at the top of the berm considered to address public safety?*

Response 10: Acknowledged. This comment refers to Figure 8 from the Preliminary Geotechnical Investigation report dated March 3, 2016. Details 1 and 2 from Figure 8 depicted rockfall catchment areas, which is no longer proposed. The rockfall protection is proposed to consist of a rockfall containment barrier, as indicated in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Comment 11: *The analyses included were completed by modeling a 3-foot-diameter rock block. In the 2nd paragraph, you state the barrier and 40-foot contained ALL the potential rockfalls. What is your confidence to contain 100%. Did you analyze other rock block sizes for the slope?*

Response 11: The rockfall analyses have been updated to address the currently proposed rockfall protection system which is a 7 foot high rockfall containment barrier constructed at the top of the proposed retaining walls along Slope 3. The updated rockfall analyses are presented in an update letter prepared by GeoStabilization International (GSI) dated May 6, 2107. A copy of the update letter is provided in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Based on geologic mapping and field observations that included a detailed survey of the size of rock blocks at the toe of the slope and the spacing of fractures within the bedrock, the largest block size is estimated to be a maximum dimension of 12 inches. For an additional factor of safety, the maximum dimension of a 3-foot diameter rock block was used in the rockfall analysis.

The updated rockfall analyses show a 95 percentile maximum bounce height of 4½ feet at Station 7+50, which is close to Geologic Cross-Section A-A'. Therefore, based on the height of the proposed rockfall containment barrier of 7 feet, we have a high degree of confidence that all rockfall will be contained.

Comment 12: The model results show a higher maximum kinetic energy of over 50 kJ. Provide discussion and justification for assuming a 20 kJ energy for the rockfall barrier. The maximum bounce height of 3 feet was discussed, but not the maximum potential kinetic energy.

Response 12: Acknowledged. Based on the updated rockfall analyses, the 95 percentile maximum energy is 30,034 foot-pounds of force (approximately 40 kJ). Therefore, it is recommended that the rockfall containment barrier be designed to withstand at least 40 kJ of force.

Comment 13: The attached analysis was completed with a 5-foot barrier. Although the max bounce height just before the barrier was modeled to be about 3 feet, did you complete an analysis to show that a 42" jersey barrier or GCS with the proper face angles also meets this requirement?

Response 13: Acknowledged. The currently proposed rockfall protection consists of a 7-foot-high rockfall containment barrier constructed at the top of the proposed retaining walls. Neither a jersey barrier or Geosynthetically Confined Soil barrier are currently proposed.

Comment 14: The model results show a higher maximum kinetic energy of over 60 kJ. Provide discussion and justification for assuming a 20 kJ energy for the rockfall barrier.

Response 14: Acknowledged. Based on the updated rockfall analyses, the 95 percentile maximum energy is 30,034 foot-pounds of force (approximately 40 kJ). Therefore, it is recommended that the rockfall containment barrier be designed to withstand at least 40 kJ of force.

Comment 15: The report notes that the topographic low for the site was previously mined to approximately Elevation 150. Boring B4 indicates artificial fill to an elevation of 141.5. In addition, Geologic section A-A' presents an artificial fill contact (queried) extending to an elevation of approximately 120 feet at the end of the section. These elements should be reviewed and revised as needed.

Response 15: Acknowledged. The elevation of the previous mining activities was extrapolated from historic topographic maps dating back to the late 1920s and the depth of fill encountered in our borings at the site. Based on the depth of fill encountered in our supplemental borings at the site performed in May 2017, the estimated elevation of the previous mining is now interpreted to be approximately Elevation 110 as indicated in the updated Preliminary Geotechnical Investigation report dated June 16, 2017.

Comment 16: The site soils are described as ranging from loose to dense. Historic high groundwater is estimated to be below a depth of 80 feet. The potential for liquefaction beneath the site is described as very low. Seismically-induced settlement (i.e. dry settlement) should also be evaluated and the total and differential seismic settlement reported

Response 16: Acknowledged. Additional site exploration was performed in May 2017 and included the excavation of nine borings using a hollow-stem auger drilling machine. Eight of those borings were used to analyze the potential for seismically-induced settlement, and the results of that analysis are presented in Section 7.5 of the updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Comment 17: Soil properties for both Engineered Fill and Artificial Fill are included in the summary table. Artificial fill is shown on Section C-C' behind the retaining wall and below the building pad. Section D-D' shows artificial fill beneath a layer of engineered fill within the building pad. Is the intention to leave the undocumented artificial fill in place or remove and replace as engineered fill?

Response 17: Acknowledged. Based on the results of our supplemental site exploration, laboratory testing, and engineering analyses, the updated Preliminary Geotechnical Investigation Report dated June 16, 2017 provides clarification on the existing artificial fill. In summary, it is recommended that some of the existing artificial fill be removed and replaced as engineered fill. However, some artificial fill will be left in place below Buildings A and B, and along the slopes behind the proposed retaining walls. Additional discussion of this is provided in the updated report.

Comment 18: The slope stability analysis for slope 1, Section C-C' shows search zones above the proposed retaining wall. Were searches extended in front of the wall considered?

Response 18: Acknowledged. The slope stability analyses for Slope 1 have been updated based on the current set of development plans. As a part of the revisions, additional failure surfaces which extend below the proposed retaining walls were considered. The results of the updated slope stability analyses are discussed in Section 7.6 of the updated Preliminary Geotechnical Investigation Report dated June 16, 2017.

Comment 19: *The report indicates that the existing artificial fill is not suitable to support the proposed structures. Has the feasibility of removal and replacement of approximately 50 feet of fill been considered? This evaluation could require cross-sections showing temporary slope configurations and stability analyses for the temporary conditions. Please advise.*

Response 19: Acknowledged. Based on the results of our supplemental site exploration, laboratory testing, and engineering analyses, the updated Preliminary Geotechnical Investigation Report dated June 16, 2017 provides revised recommendations regarding the existing artificial fill. In general, at Building A approximately 16 feet of existing soils below the proposed pad elevations is recommended to be removed, and at Building B, approximately 14 feet. Removals of these magnitudes are considered feasible and have been addressed in the updated report.

Comment 20: *Section 8.1.8 indicates excavations up to 60 feet deep are anticipated during construction. Section 8.20 recommends temporary excavations be sloped at 2:1 or flatter. Given the depths of fill encountered in the borings, is it feasible to remove the fill while maintaining 2:1 slopes?*

Response 20: Acknowledged. The updated Preliminary Geotechnical Investigation Report dated June 16, 2017 provides revised recommendations regarding the existing artificial fill. Removals less than 20 feet below proposed pad elevations are anticipated. Updated recommendations regarding temporary excavations during grading, including recommendations for temporary shoring, are provided in the updated report.

Comment 21: *Section 8.9 indicates total and differential settlement will be on the order of 2 inches and 1 inch, respectively. Section 2 of the report indicated that artificial fill was encountered ranging from 2½ to 50½ feet. Was the varying thickness of fill factored into the settlement calculations, particularly the differential settlement estimate?*

Response 21: Acknowledged. Updated recommendations regarding foundation design and anticipated settlements are provided in the updated Preliminary Geotechnical Investigation Report dated June 16, 2017. The updated anticipated settlements include consideration of the varying thickness of existing artificial fill and proposed engineered fill below the proposed structures.

Comment 22: *This section [8.11.1] recommends that resistance to lateral loading may be provided by friction acting at the base of foundations. However, section 8.8.5 recommends that the structures be decoupled from the engineered fill. Will a decoupled foundation still provide resistance to lateral loads?*

Response 22: Acknowledged. The intent is for Buildings A, B, C and the Parking Structure to be decoupled from the engineered fill. Foundations for miscellaneous improvements and retaining walls may use friction acting at the base of the foundations. The updated Preliminary Geotechnical Investigation Report dated June 16, 2017 includes a revision which is intended to clarify the use of friction along the base of foundations.

Informal Review Comments via Email, City of Torrance,

Comment 1: *Undocumented Fill – The City of Torrance requires the removal of all undocumented fill on site prior to any placement of fill or preparation of building pads. Verify this will be the case in the Geotechnical Investigation Report.*

Response 1: Acknowledged. Supplemental site exploration, laboratory testing, and engineering analyses were performed to further evaluate the existing artificial fill. Based on our findings, it is our opinion that some of the existing artificial fill may be left in place. Updated recommendations for grading, foundation design and anticipated settlements are provided in an updated report and take into consideration the recommendation to allow some artificial fill to remain in place below Buildings A and B.

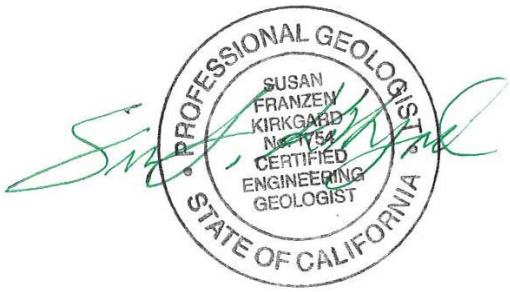
Comment 2: *Due to the depth of fill to be removed provide rough grading plan showing limits and depths of fill. Indicate areas where shoring will be required and how temporary cuts will meet Geotechnical recommendations.*

Response 2: Acknowledged. Based on the updated recommendations, removals of less than 20 feet below proposed pad elevations are anticipated. Updated recommendations regarding temporary excavations during grading, including recommendations for temporary shoring, are provided in the updated report.

If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned.

Sincerely,

GEOCON WEST, INC.



Jelisa Thomas Adams
GE 3092

Susan F. Kirkgard
CEG 1754

Neal D. Berliner
GE 2576

Enclosures: Copies of City Correspondence

(Email) Addressee

KLEINFELDER
Bright People. Right Solutions.

October 24, 2016
Project No. 20172547.001A

Mr. Curt Dittman
City of Torrance
3031 Torrance Blvd.
Torrance, CA 90503

Subject: Geotechnical Peer Review
Proposed Multi-Family Residential Development
Southwest Corner of Hawthorne Blvd. and Via Valmonte
Torrance, California

Dear Mr. Dittman:

At the request of the City of Torrance, we have completed a geotechnical engineering peer review of the following documents for the above-referenced project:

- *Preliminary Geotechnical Investigation, Proposed Multi-Family Residential Development, Hawthorne Boulevard and Via Valmonte, Torrance, California.* Develop by GEOCON West, Inc. Dated March 03, 2016. Project No. A9201-06-01C.

- *Fault Rupture Hazard Investigation, Proposed Multi-Family Residential Development, Hawthorne Boulevard and Via Valmonte, Torrance, California, by* GEOCON West, Inc. Dated January 21, 2016. Project No. A9201-06-01C.

We understand that the project is proposed to consist of multi-family residential development consisting of four to five-story residential units and common areas over two levels of parking. In addition, three-story flats are planned along the northeastern portion of the site adjacent to the parking structure.

The property is an approximately 23.35-acre irregular-shaped parcel and is currently vacant. The project area is bounded by Via Valmonte on the north and west, Hawthorne Boulevard on the east, and a 200- to 250-foot-high, north-facing, former quarry slope on the south.

Our scope of services in performing this peer review included review of the above referenced reports, a meeting with City personnel, Reylenn Properties (Developer) and Geocon West (Geotechnical Consultant) at the City of Torrance on May 24, 2016, sites visits by our Geotechnical Engineer and Engineering Geologist on May 24, 2016, and a site visit by our Geological Engineer on August 9, 2016.

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Our review focuses on three areas:

- Stability and the potential for rockfall associated with the existing quarry slopes
- General Geotechnical Engineering Approach and Recommendations
- Fault Rupture Hazard Potential

Slope Stability

One of primary geotechnical concerns for the project is the slope stability of the existing quarry slope and the potential for rockfall from the slope onto the proposed project area and residential development. The purpose of this brief review was to evaluate the geotechnical report to assist the City of Torrance in the identification of geotechnical concerns with the existing north-facing quarry slope and areas where clarification could benefit the project regarding this slope. Our slope stability comments on the provided documents are summarized in the attached table.

Geotechnical Engineering Review

We have reviewed the referenced Preliminary Geotechnical Investigation report for adherence with the standard of care and standard of practice for the project area. Based on our review, we found the report to be generally complete and well presented. However, we did identify a few items that require additional clarification and/or consideration by the geotechnical consultant. Our review comments are presented in the attached table.

Fault Rupture Potential

We have reviewed the Fault Rupture Hazard Investigation report prepared for the site. The purpose of the report was to identify faults that may traverse the site and evaluate the potential for surface fault rupture. The findings of the investigation were based on review of available geologic information related to faulting, subsurface investigation including three exploratory trenches and potholing, and evaluation and interpretation of the data. The major geologic feature in the area is the Palos Verdes Fault Zone and inferred splays of this fault zone are interpreted to be offsite and do not traverse the subject property. However the trench excavations exposed minor shears in mod-Pleistocene-age San Pedro Sand. The minor shears are interpreted to be not active faults by definition of the State of California and the result of folding rather than tectonic generated features.

Although the minor shears are not considered tectonic, the report concluded that differential movement along the shears could occur during an earthquake event and therefore present a “very minor risk that a future earthquake may generate minor secondary slip along these features.” Recommendations were presented in the report to mitigate the potential effects of differential movement along the minor shears.

It is our professional opinion that the scope of work performed by Geocon West, Inc. was sufficient to adequately address the potential for surface fault rupture and was performed in a professional manner and in accordance with generally accepted practice in the State of California. The recommendations presented in the report relating to the potential for minor secondary slip on the minor shears should be incorporated in the design and construction of the project.

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LIMITATIONS

The brief review of the documents referenced above was conducted as an independent third party reviewer. The recommendations in the project geotechnical report by GEOCON West, Inc. are not revised by this letter. GEOCON West, Inc. remains the geotechnical engineer-of-record for the project.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions, and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data, as provided for our review. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

CLOSURE

We appreciate the opportunity to be of service to you. Please call us if you would like to discuss this project further.

Sincerely,
KLEINFELDER

Eric W. Noel, PE, GE
Principal Geotechnical Engineer

Chad Lukkarila, LEG (WA), PE (WA)
Director of Engineering Geology

Richard F. Escandon, PG, CEG
Principal Engineering Geologist

Attachment: Table of Review Comments

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Table 1: Geotechnical Peer Review Comments
Proposed Multi-Family Residential Development
Southwest Corner of Hawthorne Blvd. and Via Valmonte
Torrance, California

Comment No.	PDF Document Page	Document Section	Comment
1	16	7.5	Include discussion of the existing Slope 3 conditions. There are large overhanging areas, large fractured areas, and existing sloughing/rockfall "chutes" present on the slope. Is there a concern or recommendation to address existing slope mitigation on the slope (scaling, rock anchors, etc) along with the rockfall containment areas?
2	37	8.15.2	In Section 8.7, a Building Code requirement for a setback from slopes is discussed with a horizontal distance of 40 feet. In Section 8.15.2, the setback is discussed "in combination" with the rockfall catchment area or barrier. The rockfall area is described and analyzed as about 40-feet wide. Based on the Building Codes, can this Setback area be used for a rockfall catchment area or is additional area required? This should be reviewed and discussed.
3	38	8.15.3	Please include a table of recommended heights and widths of catchment areas/barriers in your discussion.
4	38	8.15.3 and Figure 8	From Figure 8, it looks like the barrier is built directly against the wall of the foundation or parking level. Is this a concern for energy from rockfall transferring to the building from potential rockfall? This concern should be discussed with the structural engineer and in the report.
5	38	8.15.4 and Figure 8	The report should discuss how rockfall that builds up against the barrier at the top of the retaining wall will be cleaned out or how the barrier will be repaired if damaged by rockfall. Will it be accessible and feasible to address these concerns? This is briefly discussion in 8.15.6, but more discussion is needed especially for the barrier on top of the planned retaining walls (Detail 4 in Figure 8).
6	38	8.15.5	Please provide a detail/figure and further discussion of this option. Please discuss construction, runout distance needed, and how this will contain rockfall versus the berms, or barriers.
7	52	Figure 3B	Provide more detail on the proposed grade and the 2H:1V sloped "rockfall catchment area" shown on the Figure. This model doesn't match one of the details shown on Figure 8. Include the detail number for the recommended catchment.
8	57	Figure 3G	Provide more detail on the proposed grade and the 2H:1V sloped "rockfall catchment area" shown on the Figure. Does this go with Detail 4 on Figure 8? Include the detail number for the recommended catchment on each Figure.
9	62	Figure 8	Detail 1 is not assessed or discussed in the GSI report provided in Appendix D. Provide analyses and discussion to show that this catchment area provides adequate catchment.

Comment No.	PDF Document Page	Document Section	Comment
10	62	Figure 8	In Details 1 and 2, the rockfall catchment berm extends to the final floor of level 1 above the parking. It is difficult to tell from the plans and details if this area will be accessible to the public. Is there a concern for public access to the rockfall berm and catchment area? Was a fence or barrier at the top of the berm considered to address public safety?
11	146	Appendix D	The analyses included were completed by modeling a 3-foot diameter rock block. In the 2nd paragraph, you state the barrier and 40-foot contained ALL the potential rockfalls. What is your confidence to contain 100%. Did you analyze other rock block sizes for the slope?
12	146	Appendix D	The model results show a higher maximum kinetic energy of over 50 kJ. Provide discussion and justification for assuming a 20 kJ energy for the rockfall barrier. The maximum bounce height of 3 feet was discussed, but not the maximum potential kinetic energy.
13	146	Appendix D	The attached analysis was completed with a 5-foot barrier. Although the max bounce height just before the barrier was modeled to be about 3 feet, did you complete an analysis to show that a 42" jersey barrier or GSC with the proper face angles also meets this requirement?
14	148	Appendix D	The model results show a higher maximum kinetic energy of over 60 kJ. Provide discussion and justification for assuming a 20 kJ energy for the rockfall barrier.
15	2	2.0, Appendix A and Figure 3A	The report notes that the topographic low for the site was previously mined to approximately Elevation 150. Boring B4 indicates artificial fill to an elevation of 141.5. In addition, Geologic section A-A' presents an artificial fill contact (queried) extending to an elevation of approximately 120 feet at the end of the section. These elements should be reviewed and revised as needed.
16	11	7.4	The site soils are described as ranging from loose to dense. Historic high groundwater is estimated to be below a depth of 80 feet. The potential for liquefaction beneath the site is described as very low. Seismically-induced settlement (i.e. dry settlement) should also be evaluated and the total and differential seismic settlement reported.
17	13	7.5	Soil properties for both Engineered Fill and Artificial Fill are included in the summary table. Artificial fill is shown on Section C-C' behind the retaining wall and below the building pad. Section D-D' shows artificial fill beneath a layer of engineered fill within the building pad. Is the intention to leave the undocumented artificial fill in place or remove and replace as engineered fill?
18	15	7.5 and Figures E1 and E2	The slope stability analysis for slope 1, Section C-C' shows search zones above the proposed retaining wall. Were searches extended in front of the wall considered?

Comment No.	PDF Document Page	Document Section	Comment
19	19	8.1.2	The report indicates that the existing artificial fill is not suitable to support the proposed structures. Has the feasibility of removal and replacement of approximately 50 feet of fill been considered? This evaluation could require cross-sections showing temporary slope configurations and stability analyses for the temporary conditions. Please advise.
20	20 and 37	8.1.8 and 8.20	Section 8.1.8 indicates excavations up to 60 feet deep are anticipated during construction. Section 8.20 recommends temporary excavations be sloped at 2:1 or flatter. Given the depths of fill encountered in the borings, is it feasible to remove the fill while maintaining 2:1 slopes?
21	28	8.9	Section 8.9 indicates total and differential settlement will be on the order of 2 inches and 1 inch, respectively. Section 2 of the report indicated that artificial fill was encountered ranging from 2½ to 50½ feet. Was the varying thickness of fill factored into the settlement calculations, particularly the differential settlement estimate?
22	29	8.11.1	This section recommends that resistance to lateral loading may be provided by friction acting at the base of foundations. However, section 8.8.5 recommends that the structures be decoupled from the engineered fill. Will a decoupled foundation still provide resistance to lateral loads?

From: Dittman, Curt [mailto:CDITTMAN@TorranceCA.gov]
Sent: Wednesday, October 26, 2016 5:02 PM
To: Derek Empey <dereke@reylenn.com>
Subject: Peer Review

Mr. Empey,

Attached is the geotechnical review by Kleinfelder with their comments on the subject project. In addition to their comments the City will require the following comments and conditions be addressed.

- Undocumented Fill – The City of Torrance requires the removal of all undocumented fill on site prior to any placement of fill or preparation of building pads. Verify this will be the case in the Geotechnical Investigation Report.

- Due to the depth of fill to be removed provide rough grading plan showing limits and depths of fill. Indicate areas where shoring will be required and how temporary cuts will meet Geotechnical recommendations.

- Provide civil engineered sections (not geotechnical) using current survey data showing compliance with CBC 2013 Section 1808.7.1. Use most critical slope sections with tangent 1:1 slope clearly shown and dimensioned to property line and building.

- Show fire access around building that does not encroach into required setback per CBC 2013 Section 1808.7.1.

Please call or email if you would like to discuss these items in further detail.