

Appendix E.1b City of Los Angeles
Geology and Soils Approval Letter

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GEOLOGY AND SOILS REPORT APPROVAL LETTER

July 21, 2015

LOG # 79736-01
SOILS/GEOLOGY FILE - 2
LIQ/LAN

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TRACT: 6293 / 1000 / 7442
LOT(S): 135 (Arbs 1 and 2) / 1111 (Arbs 1 and 2), 1112 (Arb 45) / 63 to 69
LOCATION: 3675, 3693, 3700, 3705, 3707, 3709, 3717, & 3719 N. Coldwater Canyon Ave.
12908, 12916, 12924 & 12930 W. Hacienda Dr., and 3678 & 3686 N. Potosi
Ave.

<u>CURRENT REFERENCE</u> <u>REPORT/LETTER(S)</u>	<u>REPORT</u> <u>No.</u>	<u>DATE(S) OF</u> <u>DOCUMENT</u>	<u>PREPARED BY</u>
Geology/Soils Report	BG 21898	05/18/2015	Byer Geotechnical, Inc.
Oversized Doc(s).	``	``	``

<u>PREVIOUS REFERENCE</u> <u>REPORT/LETTER(S)</u>	<u>REPORT</u> <u>No.</u>	<u>DATE(S) OF</u> <u>DOCUMENT</u>	<u>PREPARED BY</u>
Field Ex. and Lab Report	GH16870-G	03/25/2015	Grover-Hollingsworth
Dept. Correction Letter	79736	04/03/2013	LADBS
Update Letter	2270.C	02/06/2013 rev.	GPI
Geology/Soils Report	2270.I	07/27/2010	GPI

The Grading Division of the Department of Building and Safety has reviewed the referenced reports that provide recommendations for a proposed three level parking structure with an athletic field on the top level. The proposed parking structure is located along the western flank of Coldwater Canyon with ascending slopes that exceed 200 feet in height. In addition to ascending slopes, the proposed structure will intersect two secondary east-trending drainages. The earth materials at the site consist of uncertified fill observed to be up to approximately 20 feet thick, underlain by colluvium/alluvium and Modelo Formation bedrock. The structure of the bedrock is generally steeply dipping to the north, although overturned south-dipping beds were observed on the south part of the site.

Byers Geotechnical, Inc. (BGI) states that they have review previous work by Geotechnical Professionals, Inc. (GPI) and more recent work by Grover-Hollingsworth (report dated 03/25/2015). BGI concurs and agrees to assume geotechnical responsibility for the previous work. The Department recognizes BGI as the current geotechnical consultant of record.

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To accommodate the propose structure, soil nail walls up to 87 high are proposed. Conventional retaining walls are proposed for driveway entrances and diversion walls. The consultants recommend to support the proposed structures on conventional and/or drilled-pile foundations bearing on competent bedrock. A debris basis is proposed for the larger, southern drainage on the west side of the project. Diversion structures are planned for the northern drainage. A pedestrian bridge is proposed to cross over Coldwater Canyon Avenue.

The site is located in a designated liquefaction hazard zone as shown on the "Seismic Hazard Zones" map issued by the State of California. The consultants concluded that bedrock is expected at the parking structure grade for most of the structures and recommended all foundations be entirely founded into bedrock, therefore, liquefaction hazard at this site is very low. This satisfies the requirement of the 2014 Los Angeles City Building Code Section 1802.2.7.

The site is located in a designated seismically induced landslide hazard zone as shown on the "Seismic Hazard Zones" map issued by the State of California. The above report/s include/s an acceptable seismic slope stability analysis and the requirements of the 2014 City of Los Angeles Building Code, have been satisfied.

The referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis () refer to applicable sections of the 2014 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans that clearly indicates the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports. (7006.1)
2. All recommendations of the reports that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.
3. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans. Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit. (7006.1)
4. A grading permit shall be obtained. (106.1.2)
5. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density (D1556). Placement of gravel in lieu of compacted fill is allowed only if complying with Section 91.7011.3 of the Code. (7011.3)
6. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill. (1809.2)
7. Drainage in conformance with the provisions of the Code shall be maintained during and

subsequent to construction. (7013.12)

8. Prior to the issuance of any permit, an accurate volume determination shall be made and included in the final plans, with regard to the amount of earth material to be exported from the site. For grading involving import or export of more than 1000 cubic yards of earth materials within the grading hillside area, approval is required by the Board of Building and Safety. Application for approval of the haul route must be filed with the Grading Division. Processing time for application is approximately 8 weeks to hearing plus 10-day appeal period.
9. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the State Construction Safety Orders enforced by the State Division of Industrial Safety. (3301.1)
10. Unsurcharged temporary excavations exposing soil shall be trimmed back at a gradient not exceeding 1:1, as recommended.
11. Unsurcharged temporary excavations in competent bedrock may be cut vertical up to 10 feet. For excavations over 10 feet, the lower 10 feet may be cut vertically and the portion of the excavation above 10 feet shall be trimmed back at a gradient not exceeding 1:1 (horizontal to vertical), as recommended.
12. Verification nails shall be installed and tested prior to installation of any production nails.
13. Soil nail spacing shall be limited to a maximum of 5 ft center to center, as recommended.
14. Grout mix and installation procedures for production nails shall be identical to those of test nails.
15. Shotcrete shall be in accord with Information Bulletin P/BC 2014-051 and LABC Section 1910.
16. Centralizers shall not be spaced greater than 5 feet center to center and the lowest centralizer located a maximum of 1.5 foot from the bottom and top of the drill hole (in accordance with FHWA practice). Centralizers shall be sized and spaced along the nails such that the nail is positioned within 1 inch of the center of the drillhole and a minimum of 2 inches of grout cover is achieved.
17. Prior to the grouting of soil-nails, a representative of the soils engineer shall inspect and approve the nail excavations. Inspection shall include logging of the diameter, depth, location, and condition of each drilled hole. Prior to grouting the Soil Engineer shall post a notice on the job site for the City Building Inspector and the Contractor stating that the work so inspected meets the conditions of the report. No concrete or grout shall be placed until the Department of Building & Safety Inspector also has inspected and approved the nail excavation and installation. A written certification by the Soils Engineer that the work so inspected meets the conditions of the report shall be filed with the Department upon completion of the work.
18. The proposed soil nails shall be double-corrosion protected, as recommended. Nail corrosion protection shall be provided and approved by a licensed corrosion engineer.
19. Nail testing shall as a minimum satisfy Section 8 of the draft document "Recommended Guidelines for Permanent Soil Nails," dated 8/23/2000 by the California Soil Nail Committee, and "Manual for Design & Construction Monitoring of Soil Nail Walls", Publication No.

FHWA0-IF-03-017, by U.S. Department of Transportation, Federal Highway Administration.

20. As a minimum, two verification tests shall be conducted in each soil strata that is encountered to verify the installation methods and design capacity. Verification test nails shall be tested to 200% of the calculated design capacity. The nails used for the verification tests shall be sacrificial and not be incorporated into the production piles.
21. A supplemental report containing testing results of the verification nails shall be submitted to the Department for review and approval prior to installation of any production nails. The supplemental report shall include detailed logs of the fill / alluvium / bedrock encountered during drilling, details of the soil nails and grout, installation procedure, testing results, analysis and recommended ultimate bond stress.
22. No less than 5 percent of the production soil-nails installed shall be proof tested to a test load of 150% of the calculated design capacity to verify bond stress. The wall and nail design shall accommodate such testing.
23. No less than 5 permanent slope inclinometers shall be installed at the locations shown on SH-2.0 prepared by DRS as included in the 05/18/2015 report prior to excavation and monitored during construction and after wall completion. Inclinometers shall extend a minimum of 20 ft below the base of wall, or as recommended by the soils engineer. Inclinometers used to monitor near wall face conditions shall be located within a maximum horizontal distance of 5 ft of the upper wall face, or as recommended by the soils engineer. Actual locations and depths shall be approved by the soils engineer.
24. A minimum of 20 production soil nails shall be equipped with strain gauges with automated data acquisition system to monitor strain in the steel bars.
25. Certification from an approved testing laboratory is required for the calibration of the nail loading and measuring devices at the start of each job and at 30 day intervals, thereafter.
26. No soil nail testing shall be performed until the concrete and grout have achieved a 3-day cure time or minimum 1,000 psi compressive strength.
27. The soil engineer shall inspect and approve the testing of all test soil nails. He shall keep a record of all test loads and anchor movements and certify to their accuracy. This record shall be kept on the job site and be available for inspection by the Building Inspector.
28. A registered deputy grading inspector approved by and responsible to the project soils engineer shall be required to provide inspection for any proposed soil-nailing, shoring, or drilling and installation of deep foundations. Unloading, handling, and storage of the soil nails shall be performed under the inspection of the deputy grading inspector.
29. The maximum acceptable deflections of the bar end during each type of soil nail testing shall be tabulated and presented on the plans.
30. Wall performance shall be monitored as recommended on SH-2.0 prepared by DRS as included in the 05/18/2015 report . Wall monitoring data shall be reviewed and analyzed by the soils engineer. Corrective actions shall be performed, as directed by the soils engineer, in the event of excessive deformation.

31. An "As-Built" plan approved and signed by the soils engineer shall be submitted to the Department of Building and Safety upon completion of wall construction.
32. An as-built geotechnical report shall be submitted to the Department within 6 months of wall completion and include testing and monitoring data for the soil-nail wall with appropriate graphics and conclusions. The report shall be signed by the soils engineer of record.
33. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.
34. Foundations adjacent to a descending slope steeper than 3:1 (H:V) in gradient shall be a minimum distance of one-third the vertical height of the slope but need not exceed 40 feet measured horizontally from the footing bottom to the face of the slope (1808.7.2).
35. Buildings adjacent to ascending slopes steeper than 3:1 (H:V) in gradient shall be set back from the toe of the slope a level distance equal to one-half the vertical height of the slope, but need not exceed 15 feet (1808.7.1) .
36. Pile caisson and/or isolated foundation ties are required by Code Sections 1809.13 and/or 1810.3.13. Exceptions and modification to this requirement are provided in Information Bulletin P/BC 2014-030.
37. Pile and/or caisson shafts shall be designed for a lateral load of 1000 pounds per linear foot of shaft exposed to fill, soil and weathered bedrock. (P/BC 2014-050)
38. The design passive pressure shall be neglected for a portion of the pile with a set back distance (horizontal set back) less than five feet from fill, soil or weathered bedrock contact plane with bedrock.
39. When water over 3 inches in depth is present in drilled pile holes, a concrete mix with a strength of 1000 p.s.i. over the design p.s.i. shall be tremied from the bottom up; an admixture that reduces the problem of segregation of paste/aggregates and dilution of paste shall be included. (1808.8.3)
40. Existing uncertified fill shall not be used for lateral support of deep foundation. (1810.2.1)
41. Slab on uncertified fill shall be designed as a structural slab. (7011.3)
42. Slabs placed on approved compacted fill shall be at least 3½ inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced maximum of 16 inches on center each way.
43. The seismic design shall be based on a Site Class C as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check.
44. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate all applicable surcharge loads for the design of the retaining walls and shoring.
45. Conventional retaining walls shall be designed for the lateral earth pressures specified in the section titled "Retaining Walls" starting on page 32 of the 05/18/2015 report. All surcharge

loads shall be included into the design.

46. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted to the street in an acceptable manner and in a non-erosive device. (7013.11)
47. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soil report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record. (1805.4)
48. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector. (108.9)
49. Basement walls and floors shall be waterproofed/damp-proofed with an L.A. City approved "Below-grade" waterproofing/damp-proofing material with a research report number. (104.2.6)
50. Prefabricated drainage composites (Miradrain) (Geotextiles) may be only used in addition to traditionally accepted methods of draining retained earth.
51. Retaining walls at the base of ascending slopes shall be provided with a minimum freeboard of 12 inches, as recommended.
52. The recommended equivalent fluid pressure (EFP) for the proposed retaining wall shall apply from the top of the freeboard to the bottom of the wall footing.
53. All deck and athletic field drainage shall be collected and conducted to an approved location in a non-erosive device. (7013.10)
54. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.
55. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS. (7013.10)
56. Any recommendations prepared by the geologist and/or the soils engineer for correction of geological hazards found during grading shall be submitted to the Grading Division of the Department for approval prior to utilization in the field. (7008.3)
57. The geologist and soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading. (7008 & 1705.6)
58. All friction pile or caisson drilling and installation shall be performed under the inspection and approval of the geologist and soils engineer. The geologist shall indicate the distance that friction piles or caissons penetrate into competent bedrock in a written field memorandum. (1803.5.5, 1704.9)
59. Prior to the pouring of concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. He shall post a notice on the job site for the LADBS

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Building Inspector and the Contractor stating that the work so inspected meets the conditions of the report, but that no concrete shall be poured until the City Building Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

60. Prior to excavation, an initial inspection shall be called with LADBS Inspector at which time sequence of construction, pile installation, protection fences and dust and traffic control will be scheduled. (108.9.1)
61. Pile installation shall be performed under the inspection and approval of the soils engineer and deputy grading inspector. (1705.6)
62. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. He shall post a notice on the job site for the City Grading Inspector and the Contractor stating that the soil inspected meets the conditions of the report, but that no fill shall be placed until the LADBS Grading Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included. (7011.3)



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