GEOLOGY AND SOILS REPORT APPROVAL LETTER

June 24, 2024

LOG # 128686-01
SOILS/GEOLOGY FILE - 2

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CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	180902	05/30/2024	ZS Engineering

PREVIOUS REFERENCE REPORT/LETTERS	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	128686	01/18/2024	LADBS
Geology/Soils Report	180902	11/20/2023	ZS Engineering
Laboratory Test Report	18-213-009b	09/24/2018	CalLand Engineering, Inc.
Dept. Approval Letter	884	04/16/1980	LADBS
Geology/Soils Report	379-518	03/03/1980	Moore & Taber
Dept. Approval Letter	----	08/03/1971	LADBS
Geology/Soils Report	202-90	06/24/1971	Geolabs, Inc.
Dept. Review Letter	----	05/17/1971	LADBS
Geology/Soils Report	3146	02/02/1971	GeoLabs, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provide recommendations for a proposed two-story, single family residence with a basement (three-stories total) and a swimming pool. According to the report, the site is developed with a one-story, single-family residence with an attached garage. Slopes descend from the rear of the site toward the northeast adjacent property at a vertical relief of about 17-feet with a slope gradient ranging between 1.8:1 (H:V) to 2:1, as shown on the Site Topography, Exploration & Geology Map-Figure 1 and the Geologic Cross Section A-A'-Figure 2 of the 05/30/2024 report. The existing residence, pool, and site work will be demolished prior to the proposed construction.

Three test pits were excavated to a maximum depth of 9 feet below existing grade. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by Monterey Formation shaley siltstone bedrock. Bedrock orientation from the subsurface exploration indicate a northeast strike with a northwesterly dip angle of 20 degrees. The consultants recommend to support the proposed structures on conventional and/or mat-type foundations bearing on competent bedrock.

Engineering analyses provided by ZS Engineering is based on laboratory testing performed by CalLand Engineering, Inc. ZS Engineering is accepting responsibility for use of the data in accordance to Code section 91.7008.5 of LABC.

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 2023 City of LA Building Code. P/BC numbers refer to 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 (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

4. A grading permit shall be obtained for all structural fill and retaining wall backfill (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. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

6. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill (1809.2, 7011.3).

7. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

8. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Grading Division of the Department and the Department of Public Works, Bureau of Engineering, B-Permit Section, for any grading work in excess of 200 cubic yards (7007.1).

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9. All loose foundation excavation material shall be removed prior to commencement of framing. Slopes disturbed by construction activities shall be restored (7005.3).

10. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

11. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the

bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

12. Where any excavation, not addressed in the approved reports, would remove lateral support (as defined in 3307.3.1) from a public way, adjacent property or structures, a supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring, underpinning, and sequence of construction. Shoring recommendations shall include the maximum allowable lateral deflection of shoring system to prevent damage to adjacent structures, properties and/or public ways. Report shall include a plot plan and cross-section(s) showing the construction type, number of stories, and location of adjacent structures, and analysis incorporating all surcharge loads that demonstrate an acceptable factor of safety against failure. (7006.2 & 3307.3.2)

13. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

14. Unsurcharged temporary excavations exposing unsupported geology and/or unsupported bedding planes shall be trimmed back at a 1H:1V slope inclination, or shored, as recommended.

15. The soils engineer shall review and approve the shoring plans prior to issuance of the permit (3307.3.2).

16. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

17. Unsurcharged temporary excavation may be cut vertical up to 5 feet. Excavations over 5 feet shall be trimmed back at a uniform gradient not exceeding 1:1, from top to bottom of excavation, as recommended.

18. Surcharged ABC slot-cut method may be used for temporary excavations with each slot-cut not exceeding 5 feet in height and not exceeding 8 feet in width, as recommended. The surcharge load shall not exceed the value given in the report. The soils engineer shall determine the clearance between the excavation and the existing foundation. The soils engineer shall verify in the field if the existing earth materials are stable in the slot-cut excavation. Each slot shall be inspected by the soils engineer and approved in writing prior to any worker access. The width of the slot-cut shall not be larger than the height of the excavation.

19. Shoring shall be designed for the lateral earth pressures specified in the section titled “Temporary Shoring” starting on page 3 of the 05/30/2024 report and page 15 of the 11/20/2023 report; all surcharge loads shall be included into the design. [

20. Shoring shall be designed for a maximum lateral deflection of ½ inch where a structure is within a 1:1 plane projected up from the base of the excavation, and for a maximum lateral deflection of 1 inch provided there are no structures within a 1:1 plane projected up from the base of the excavation, as recommended.

21. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

22. All foundations shall derive entire support from competent bedrock, as recommended and approved by the geologist and soils engineer by inspection.

23. Foundations adjacent to a descending slope steeper than 3:1 (horizontal to vertical) 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); for pools the foundation setback shall be one-sixth the slope height to a maximum of 20 feet (1808.7.3). Where the slope is steeper than 1:1, the required setback shall be measured from an imaginary plane 45 degrees to the horizontal, projected upward from the toe of the slope.

24. Slabs placed on approved compacted fill shall be at least 4 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way, as recommended.

25. Concrete floor slabs placed on expansive soil shall be placed on a 4-inch fill of coarse aggregate or on a moisture barrier membrane. The slabs shall be at least 4 inches thick and shall be reinforced with ½-inch diameter (#4) reinforcing bars spaced a maximum of 16 inches on center each way, as recommended.

26. The seismic design shall be based on a Site Class D, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check. According to ASCE 7-16 Section 11.4.8, for structures on Site Class D sites with S1 greater than or equal to 0.2, the parameter SM1 determined by EQ. (11.4-2) shall be increased by 50%. Alternatively, a supplemental report containing a site-specific ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 shall be submitted for review and approval.

27. Retaining walls shall be designed for the lateral earth pressures specified in the section titled "Retaining Wall" starting on page 3 of the 05/30/24 report. All surcharge loads shall be included into the design.

28. Retaining walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions as specified on page 23 of the 11/20/2023 report (1803.5.12).

29. Basement walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure as specified on page 3 of the 05/30/24 report (1610.1). All surcharge loads shall be included into the design.

30. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

31. 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 soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

32. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

33. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

34. The use of acceptable prefabricated drainage composites (also known as geosynthetic subdrain systems), as an alternative to traditionally accepted methods of draining retained earth, shall be determined during structural plan check.

35. The proposed swimming pool shall be designed for a freestanding condition.

36. Pool deck drainage shall be collected and conducted to an approved location via a non-erosive device (7013.10).

37. All deck drainage shall be collected and conducted to an approved location in a non-erosive device (7013.10).

38. The structure shall be connected to the public sewer system per P/BC 2020-027.

39. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works; water shall not be dispersed on to descending slopes without specific approval from the Grading Division and the consulting geologist and soils engineer (7013.10).

40. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

41. 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 use in the field (7008.2, 7008.3).

42. 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 & 1705.8).

43. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS 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)

44. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; slot cuts; protection fences; and, dust and traffic control will be scheduled (108.9.1).

45. Installation of shoring and/or slot cuts shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

46. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS 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).

47. No footing/slab shall be poured until the compaction report is submitted and approved by the Grading Division of the Department.

48. A supplemental report shall be provided in the event any deviation to the currently proposed project configuration, as presented and as shown in the plans and cross sections included in the approved

reports, is made. This shall include but not limited to: relocation, change in any dimension, change in the number of stories above or below grade of any of the proposed structures; addition of any structure(s), such as retaining walls, decks, swimming pools, driveways, access roads, living quarters, etc.; or, additional permanent grading or temporary grading for construction purposes that are not described and not shown in the plans and cross sections included in the approved reports.

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