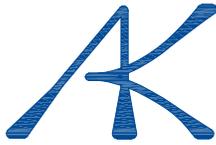




1600 W. Lincoln Avenue Project

Appendix D

Geotechnical Due-Diligence Evaluation, Albus-Keefe & Associates, Inc.,
October 2018



ALBUS-KEEFE & ASSOCIATES, INC.
GEOTECHNICAL CONSULTANTS

October 9, 2018
J.N.: 2623.00

Mr. Josh Haskins
Development Advisors, LLC
2400 E. Katella Avenue, Suite 800
Anaheim, California 92806

Subject: Response to City of Anaheim Review Comments, OTH2018-01082, Proposed Multi-Family Residential Development and Parking garage, 1600 W. Lincoln Avenue, Anaheim, California.

Reference: First Review Comments Pertaining to the Referenced Report for the Proposed Multi-Family Development & Parking Garage at 1600 W. Lincoln Avenue, Anaheim, California, OTH 2018-01082, Dated/Stamped by the Public Works Engineering on July 23, 2018, prepared by CEM Lab, dated August 13, 2018 (File No. CEM2018-119).

Geotechnical Due-Diligence Evaluation, Proposed Multi-Family Residential Development and Parking garage, 1600 W. Lincoln Avenue, Anaheim, California, prepared by Albus-Keefe & Associates, Inc., dated October 6, 2018 (J.N.: 2623.00).

Dear Mr. Haskins,

We are pleased to provide you with our responses to the comments by the city of Anaheim's consultant during their review of our referenced report. A copy of the review comments is attached herein for your reference. Our responses to the comments are provided below.

Comment 1:

The information presented in the referenced report is intended only for preliminary feasibility, planning and budgetary evaluation. It is not intended to satisfy the requirements of a site specific and detailed geotechnical investigation required for further planning and permitting. Please acknowledge.

Response 1:

Acknowledged. Similar language was included in the first paragraph of Section 1.1 of our referenced report.

Comment 2:

Referring to pages 4 & 5 under section 3.3. Table 3.1 presents a summary of all the known seismically active faults within 10 miles. However, under the section 5.2 in page 6, the closest known active fault is reported to be Whittier Fault located about 8.5 miles northeast from the site which contradicts information contained in Table 3.1. In fact, Whittier Fault is not included in Table 3.1. Please clarify.

Response 2:

The U.S.G.S database information presented in Table 3.1 is a discussion of faults capable of producing ground motion. The fault information presented in Table 3.1 includes the Whittier fault as being a segment of the northwestern extension of the much larger Elsinore Fault System. For clarification, "Elsinore;W" presented in the fourth row of Table 3.1 represents only Whittier fault segment of the overall Elsinore Fault System. The southerly continuation of the Elsinore fault system is subdivided into specific section depending on locale, such as Glen Ivy (GI) segment, Temecula segment (T), etc.

In Section 5.2.1 of our report, we refer specifically to the Whittier fault (unassociated with the Elsinore Fault System) as commonly referred to in the local southern California region. The closest known active fault (capable of ground rupture) distance provided in Section 5.2.1 was an approximate measurement from the site to the surface trace of the Whittier fault as presented on the California Geological Survey, Earthquake Fault Zone map.

Comment 3:

Referring to page 3 under Section 2.2, a total of two (2) percolation tests were performed by the consultant. Reportedly, Boring B-1 and B-4 was utilized for percolation tests upon completion of soil sampling. The details and results of percolation tests were not made available to us. Please provide the test results and specify the method utilized for establishing design infiltration rate. Also, provide the procedures and calculations applied to determine infiltration rate from percolation tests. We understand, more testing will be necessary once the location and invert elevation of the proposed BMP is determined.

Response 3:

A report of our infiltration study for proposed Water Quality Improvements was presented under separate cover. A copy of this report is included with this response.

Comment 4:

In reference to the laboratory test program in Appendix B, the Direct Shear Test in Plate No. B-2 missing the essential data such as internal friction angle and cohesion.

Response 4:

A revised copy of Plate B-2 is attached herein, and now includes friction angles and cohesion values for both Peak and Ultimate conditions.

Comment 5:

Referring to the laboratory test program in Appendix B, the consolidation test results in Plate No. B-3. It is unlikely for a soil sample with an initial dry density of 131.8 pcf to consolidate over 8.0%. It also contradict the data at depth 5 ft in Boring B-2. Therefore, we believe the laboratory test is erroneous.

Response 5:

The initial dry density of 131.8 pcf indicated on Plate No. B-3 was inadvertently reported in error. A corrected copy of Plate No. B-3 is attached herein.

Comment 6:

Please provide an actual size updated legible geotechnical map to scale, utilizing the current grading plan for the project and clearly show (at a minimum) a) the existing site topography, b) proposed structures/improvements, c) proposed finish grade, geologic units, contacts etc. d) the locations of the subsurface exploration, and, e) the locations of the proposed structures/improvements superimposed over previous structures.

Response 6:

The purpose of our referenced geotechnical due-diligence evaluation report for the subject property was intended to evaluate the feasibility of proposed site development for preliminary planning purposes only. The supplemental information requested by the reviewer in Comment 6 will be addressed during preparation of a design-level geotechnical report subsequent to our review of detailed construction drawings that were not available at the time of our due-diligence study.

Comment 7:

Consistent with the geotechnical map per comment 6, please specify the depth of removal for uncertified fill including loose or disturbed soil caused by site cleanup per requirements of Phase II ESA. Please discuss and provide supporting evidence if the remedial earthwork after the site cleanup was properly documented.

Response 7:

The purpose of our referenced geotechnical due-diligence evaluation report for the subject property was intended to evaluate the feasibility of proposed site development for preliminary planning purposes only. The supplemental information requested by the reviewer in Comment 7 will be addressed during preparation of a design-level geotechnical report subsequent to our review of the Phase II report and our review of detailed construction drawings that were not available at the time of our due-diligence study.

Comment 8:

Provide recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way, adjacent property or an existing structure. A plot plan and cross-section(s) showing the construction type, number of stories, and location of the structures adjacent to the excavation shall be part of the excavation plans.

Response 8:

The purpose of our referenced geotechnical due-diligence evaluation report for the subject property was intended to evaluate the feasibility of proposed site development for preliminary planning purposes only. The supplemental information requested by the reviewer in Comment 8 will be addressed during preparation of a design-level geotechnical report subsequent to our review of detailed construction drawings that were not available at the time of our due-diligence study.

CLOSING

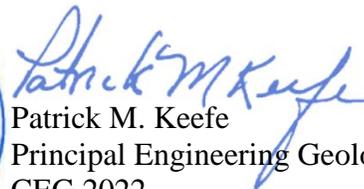
We appreciate this opportunity to be of service to you. If you have any questions regarding the contents of this report, please do not hesitate to call.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.



Paul Hyun Jin Kim
Associate Engineer
GE 3106



Patrick M. Keefe
Principal Engineering Geologist
CEG 2022



Attachments: *First Review Comments Pertaining to the Referenced Report for the Proposed Multi-Family Development & Parking Garage at 1600 W. Lincoln Avenue, Anaheim, California, OTH 2018-01082, Dated/Stamped by the Public Works Engineering on July 23, 2018, prepared by CEM Lab, dated August 13, 2018 (File No. CEM2018-119).*

Infiltration Study for Proposed Water Quality Improvements, Proposed Multi-Family Development and Parking Structure, 1600 W. Lincoln Avenue, Anaheim, California, Prepared by Albus-Keefe & Associates, Inc., dated May 8, 2018 (J.N.: 2623.00).

Direct Shear Test, Plate B-2

Consolidation Test Results, Plate B-3

City of Anaheim
DEPARTMENT OF PUBLIC WORKS

August 30, 2018

To: Paul Kim
Albus-Keefe & Associates
1011 N. Armando Street
Anaheim, CA 92806
Tel: (714) 730-1626

RE: Preliminary Geotechnical Review
OTH2018-01082, 1600 W. Lincoln Ave.
First Review

Dear Mr. Kim:

We have completed our review of this project and a re-submittal is required. The following will be required for the next plan submittal:

1. This Subdivision Section markup report and a copy of this letter.
2. Two (2) prints of corrected report addressing all corrections on the check print and/or on a typewritten response letter.
3. Geotechnical Report:
 - 3.1 The information presented in the referenced report is intended only for a preliminary feasibility, planning and budgetary evaluation. It is not intended to satisfy the requirements of a site specific and detailed geotechnical investigation required for further planning and permitting. Please acknowledge.
 - 3.2 Referring to pages 4 & 5 under section 3.3. Table 3.1 presents a summary of all the known seismically active faults within 10 miles. However, under the section 5.2 in page 6, the closest known active fault is reported to be Whittier Fault located about 8.5 miles northeast from the site which contradicts information contained in Table 3.1. In fact, Whitter Fault is not included in Table 3.1. Please clarify.
 - 3.3 Referring to page 3 under section 2.2, a total of two (2) percolation tests were performed by the consultant. Reportedly, Boring B-1 and B-4 was utilized for percolation tests upon completion of soil sampling. The details and results of percolation tests were not made available to us. Please provide the test results and specify the method utilized for establishing design infiltration rate. Also, provide the procedure and calculations applied to determine infiltration rate from percolation tests. We understand, more testing will be necessary once the location and invert elevation of the proposed BMP is determined.
 - 3.4 In reference to the laboratory test program in Appendix B, the Direct Shear Test in Plate No. B-2 missing the essential data such as internal friction angle and cohesion.
 - 3.5 Referring to the laboratory test program in Appendix B, the consolidation test results in Plate No. B-3. It is unlikely for a soil sample with an initial dry density of 131.8 pcf to consolidate over 8.0%. It also contradict the data at depth 5 ft in Boring B-2. Therefore, we believe the laboratory test is erroneous.
 - 3.6 Please provide an actual size updated legible geotechnical map to scale, utilizing the current grading plan for the project and clearly show (at a minimum) a) the existing site topography, b) proposed structures/improvements, c) proposed finish grads, geologic units, contacts, etc. d) the locations of the subsurface exploration, and, e)

RE: Preliminary Geotechnical Report
OTH2018-01082, 1600 W. Lincoln Ave
First Review

Page 2 of 2

- the locations of the proposed structures/improvements superimposed over previous structures.
- 3.7 Consistent with the geotechnical map per comment 6, please specify the depth of removal for uncertified fill including loose or disturbed soil caused by site cleanup per requirement of Phase II ESA. Please discuss and provide supporting evidence if the remedial earthwork after the site cleanup was properly documented.
 - 3.8 Provide recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way, adjacent property or an existing structure. A plot plan and cross-section(s) showing the construction type, number of stories, and location of the structures adjacent to the excavation shall be part of the excavation plans.
 - 3.9 Please see attached review letter.

If you have any questions regarding this project, call me at (714) 765-5100 Extension 5886.

Sincerely,



Esperanza Rios
Assistant Engineer

Attachments: Geotechnical Report OTH2018-01082, dated 7/23/2018

cc; Raul Garcia, Development Services Manager
Mike Eskander, Principal Civil Engineer
DSL Consulting, Inc., PO Box 51371, Irvine, CA 92619
File



August 13, 2018

File No. CEM2018-119

Mr. Josh Haskins
Development Advisors, LLC
2400 E. Katella Avenue, Suite 800
Anaheim, CA 92806

Subject: **FIRST REVIEW COMMENTS PERTAINING TO THE REFERENCED REPORT FOR THE PROPOSED MULTI FAMILY DEVELOPMENT & PARKING GARAGE AT:**
1600 West Lincoln Avenue, Anaheim, California
OTH 2018-01082, Dated/Stamped by the Public Works Engineering on July 23, 2018

Reference: **GEOTECHNICAL DUE DILIGENCE EVALUATION**
By Albus-Keefe & Associates, Inc. Dated October 6, 2017
JN: 2623-00

Dear Mr. Haskins:

CEM Laboratory Corporation reviewed the referenced report on behalf of the City of Anaheim Building & Safety Division, for compliance with applicable codes, guidelines, and standards of practice. It is understood that the proposed construction is comprised of the following major developments:

- Forty (40) 3-story Townhomes and;
- A 5-Story wrap-style apartment buildings;
- New seven level parking structure with one level subterranean parking garage;

The project site is relatively flat and not located within a State of California Seismic Hazard Zone for liquefaction or earthquake-induced landslides. The existing structures on the site will be demolished and all structures and site obstructions will be removed. The subject site is approximately 5.33 acres of land. The groundwater is estimated to be deeper than 50 ft below the existing ground surface.

Based upon our review of the referenced report, the Project Geotechnical Consultant is advised to adequately address the following peer review comments:

1. The information presented in the referenced report is intended only for a preliminary feasibility, planning and budgetary evaluation. It is not intended to satisfy the requirements of a site specific and detailed geotechnical investigation required for further planning and permitting. Please acknowledge.
2. Referring to pages 4 & 5 under section 3.3. Table 3.1 presents a summary of all the known seismically active faults within 10 miles. However, under the section 5.2 in page 6, the closest known active fault is reported to be Whittier Fault located about 8.5 miles northeast from the site which contradicts information contained in Table 3.1. In fact, Whittier Fault is not included in Table 3.1. Please clarify.



3. Referring to page 3 under section 2.2, a total of two (2) percolation tests were performed by the consultant. Reportedly, Boring B-1 and B-4 was utilized for percolation tests upon completion of soil sampling. The details and results of percolation tests were not made available to us. Please provide the test results and specify the method utilized for establishing design infiltration rate. Also, provide the procedure and calculations applied to determine infiltration rate from percolation tests. We understand, more testing will be necessary once the location and invert elevation of the proposed BMP is determined.
4. In reference to the laboratory test program in Appendix B, the Direct Shear Test in Plate No. B-2 missing the essential data such as internal friction angle and cohesion.
5. Referring to the laboratory test program in Appendix B, the consolidation test results in Plate No. B-3. It is unlikely for a soil sample with an initial dry density of 131.8 pcf to consolidate over 8.0%. It also contradict the data at depth 5 ft in Boring B-2. Therefore, we believe the laboratory test is erroneous.
6. Please provide an actual size updated legible geotechnical map to scale, utilizing the current grading plan for the project and clearly show (at a minimum) a) the existing site topography, b) proposed structures/improvements, c) proposed finish grads, geologic units, contacts, etc. d) the locations of the subsurface exploration, and, e) the locations of the proposed structures/improvements superimposed over previous structures.
7. Consistent with the geotechnical map per comment 6, please specify the depth of removal for uncertified fill including loose or disturbed soil caused by site cleanup per requirement of Phase II ESA. Please discuss and provide supporting evidence if the remedial earthwork after the site cleanup was properly documented.
8. Provide recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral support to the public way, adjacent property or an existing structure. A plot plan and cross-section(s) showing the construction type, number of stories, and location of the structures adjacent to the excavation shall be part of the excavation plans.

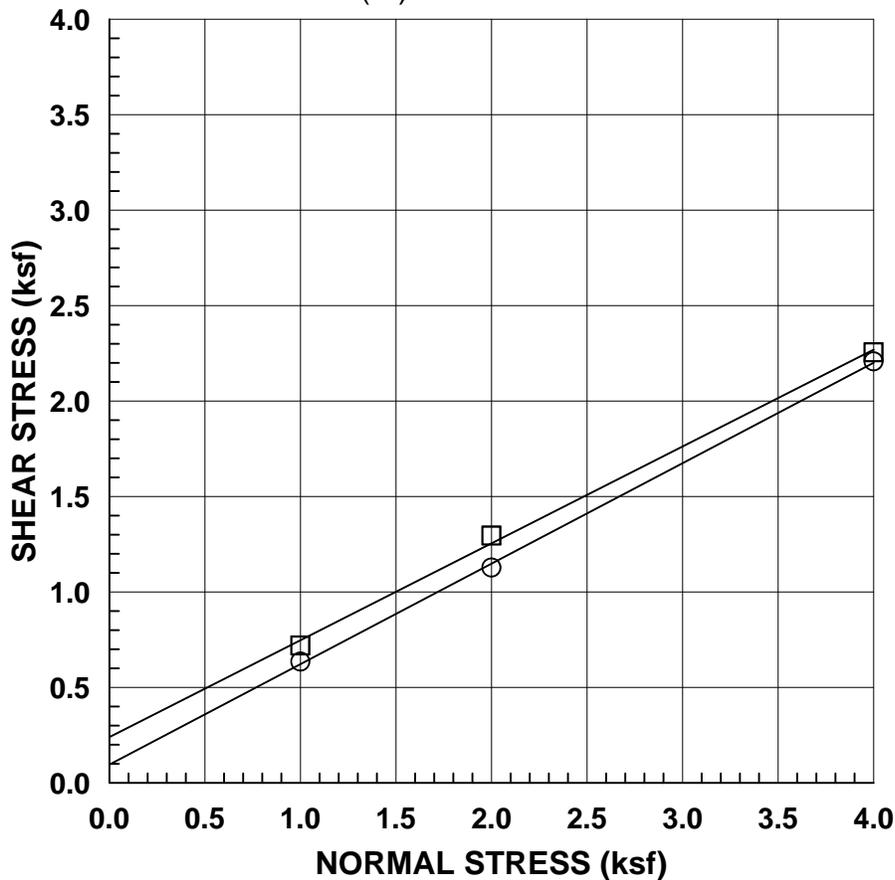
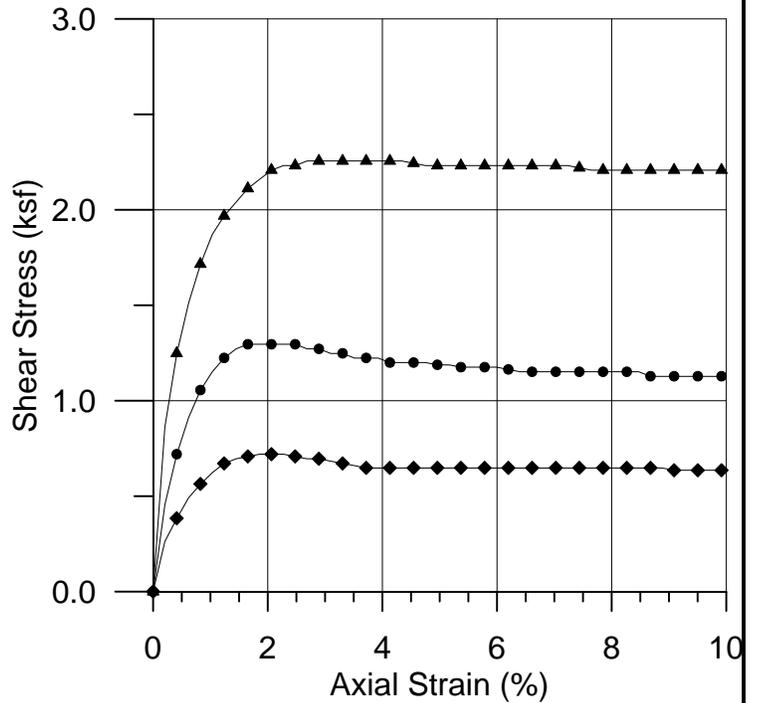
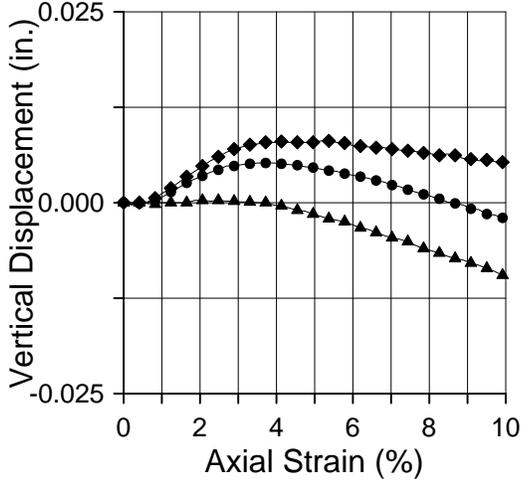
Should you have any questions, please do not hesitate to contact us at your earliest convenience.

Respectfully submitted,
C.E.M. LAB Corp.


Prepared By: A. Wahab Noori, P.E.

Our review is intended to determine if the submitted report(s) comply with City of Anaheim Codes and generally accepted geotechnical practices within the local area. The scope of our services for this third party review has been limited to a brief review of the above referenced report and associated documents, as supplied by the City of Anaheim. Re-analysis of reported data and/ or calculations and preparation of amended construction or design recommendations are specifically not included within our scope of services. Our review should not be considered as a certification, approval or acceptance of the consultant's work, nor is it meant as an acceptance of liability for final design or construction recommendations made by the geotechnical consultant of record or the project designers or engineers.

| | | | |
|------------------------------|-------|-------|-------|
| Specimen No. | 1 | 2 | 3 |
| Normal Stress (ksf) | 1 | 2 | 4 |
| Peak Shear Stress (ksf) | 0.72 | 1.296 | 2.256 |
| Peak Displacement (in) | 0.008 | 0.005 | 0.01 |
| Ultimate Shear Stress (ksf) | 0.636 | 1.128 | 2.208 |
| Ultimate Displacement (in) | 0.25 | 0.25 | 0.25 |
| Initial Dry Density (pcf) | 107.6 | 107.6 | 107.6 |
| Initial Moisture Content (%) | 13.8 | 13.8 | 13.8 |
| Strain Rate (in/min) | 0.01 | | |



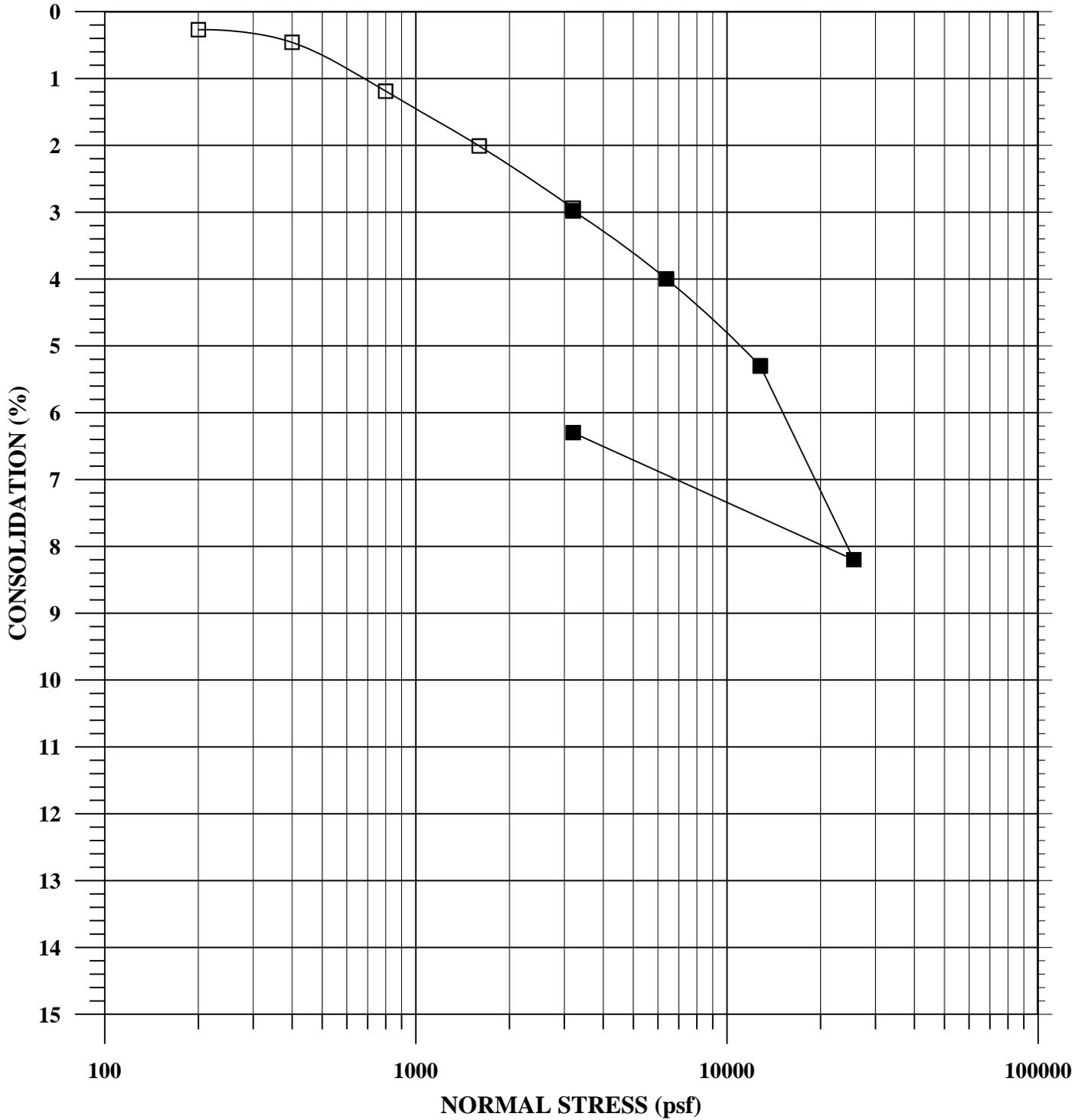
| Strain Legend | |
|---------------|---|
| ◆ | 1 |
| ● | 2 |
| ▲ | 4 |

| |
|-----------------------------|
| Peak: |
| Friction Angle = 27 degrees |
| Cohesion = 250 psf |
| Ultimate: |
| Friction Angle = 28 degrees |
| Cohesion = 100 psf |

| Strength Legend | |
|-----------------|----------|
| □ | Peak |
| ○ | Ultimate |

| SAMPLE LOCATION | SAMPLE TYPE | SAMPLE DESCRIPTION |
|---|-----------------------------------|--------------------|
| B-5 @ 0-5 feet | Remolded @ 90% of 121.5 pcf @ 12% | Silty Sand (SM) |
|  | | Job No: 2623.00 |
| | | Plate No: B-2 |

DIRECT SHEAR



| | | |
|-----------------------------|---|--|
| Sample Location: B-2 | Initial Dry Density (pcf): 100.4 | Legend □ □ □ Field Moisture ■ ■ ■ Saturated |
| Sample Depth: 5 ft | Initial Moisture Content (%): 19.8 | |
| Classification: ML | Final Moisture Content (%): 21.9 | |

| | | |
|---|-----------------------------------|------------------------|
|  ALBUS-KEEFE & ASSOCIATES, INC. GEOTECHNICAL CONSULTANTS | CONSOLIDATION TEST RESULTS | Job No: 2623.00 |
| | | Plate No: B-3 |