Geotechnical Engineering Report

Ivy at Mountain Gate Senior Living Facility
Corona, California
November 15, 2022
Terracon Project No. 60225085

Prepared for:
Oakmont Management Group
Irvine, CA

Prepared by:
Terracon Consultants, Inc.
Colton, California

November 15, 2022

Oakmont Management Group
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Attn: Ms. Carissa Savant –Vice President of Development
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Re: Geotechnical Engineering Report
Ivy at Mountain Gate Senior Living Facility
430 W Foothill Parkway
Corona, California
Terracon Project No. 60225085

Dear Ms. Savant:

We have completed our Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Proposal No. P60225085 dated May 24, 2022. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, pavements, and infiltration systems for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

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Senior Staff Engineer
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REGISTERED PROFESSIONAL ENGINEER
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REPORT TOPICS

Note: This report was originally delivered in a web-based format. Orange Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the *GeoReport* logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

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430 W Foothill Parkway
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INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Ivy at Mountain Gate Senior Living Facility to be located at 430 W Foothill Parkway, Corona, California. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Foundation design and construction
- Pavement design and construction
- Seismic site classification per CBC

The geotechnical engineering Scope of Services for this project included the advancement of eleven (11) test borings to depths ranging from approximately 6½ to 51½ feet below existing site ground surface (bgs). Four (4) of these borings (P-1 to P-4) were used for percolation testing at approximate depths of 6½ to 21½ feet bgs.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project site is located at 430 W Foothill Parkway in Corona, California. The site is bounded by West Foothill Parkway on the north and Mountain Gate Drive on the south. Based on our review of a site plan provided to Terracon, the project site covers approximately 5 acres. The coordinates for the approximate center of the site are 33.84440N, 117.57540W.
Existing Improvements	The site is currently an empty lot.

Item	Description
Current Ground Cover	Site groundcover consists of exposed soil and light vegetation.
Existing Topography	The overall elevation of the site slopes gradually down towards the north. The majority of the site ranges from an approximate elevation of 1065 feet in the north to 1075 feet in the south. The northern boundary of the site has an approximate 12-foot slope ranging from 1065 to 1053 descending to W Foothill Parkway. The southern boundary of the site also has an approximate 12-foot slope ranging from 1087 to 1075 ascending up to Mountain Gate Drive. It appears as though the site may have previously been rough-graded to it's current elevation, possibly during construction of the existing shopping center development to the east. Documentation regarding previous earthwork at the site (if any) was not provided to Terracon.

PROJECT DESCRIPTION

Item	Description
Proposed Structures	The proposed residential care facility building will be a 2-story structure with approximately 102,000 square-feet of floor space across both stories. The structure will have an at-grade courtyard in the center of the building footprint. Appurtenant construction will include a swimming pool and spa, recreational areas, picnic areas, landscaping, and hardscape.
Construction	Wood- or steel-framed building supported on reinforced concrete foundation system with a concrete slab-on-grades.
Finished Floor Elevation	Assumed to be within two feet of existing grade.
Maximum Loads (assumed)	■ Columns: 80-200 kips ■ Walls: 2 to 4 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf)
Grading	Cut/fill – assumed to be 5 feet or less (excluding remedial grading) with the exception of the pool area which has an anticipated cut of 10 feet below existing ground surface.
Below Grade Structures	It is our understanding that no below-grade structures are proposed at the besides the swimming pool.
Infiltration Systems	We have anticipated that a shallow infiltration system is proposed on site.
Pavements	It is our understanding that new pavements will be constructed and are included in this project.

Item	Description
Traffic Loading	We assume both rigid (concrete) and flexible (asphalt) pavement sections should be considered. Anticipated traffic is as follows: ■ Automobile Parking Area: Traffic Index of 4.5 ■ Driving Lanes: Traffic Index of 5.5 ■ Truck Loading Area/Fire Lane Access: Traffic Index of 7.5

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface soil and groundwater conditions based upon our review of the data and our understanding of the geologic setting and planned construction.

Based on our field observations and review of historical topographic maps, the site appears to have been previously rough graded. Fill was observed in borings near the northern border of the site to depths of 10 to 13 feet below existing grade. Fill was encountered in borings advanced within the footprint of the proposed building to depths ranging from approximately 1½ to 2½ feet below existing grade. The fill soil consisted of medium dense to dense silty clayey sand with varying amounts of gravel. Terracon does not have any documentation to show if the grading operations were monitored or the fill materials have been compacted and tested. Native soils underlying the fill and across the remainder of the site generally consisted of medium dense to very dense clayey sand with varying amount of silt, medium dense to very dense gravel with varying amount of sand and clay, and very stiff to hard lean clay with varying amount of gravel.

The geotechnical characterization forms the basis of our geotechnical calculations and evaluation of site preparation, foundation options and pavement options. As noted in **General Comments**, the characterization is based upon widely spaced exploration points across the site, and variations are likely.

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Lab Results

Laboratory tests were conducted on selected soil samples and the test results are presented in the **Exploration Results** section and on the boring logs. Atterberg limit test results indicate that the on-site soils generally have low plasticity. Consolidation tests indicate that the silty clayey soils encountered at approximate depths of 2.5 and 5 feet bgs have a moderate collapse potential saturated under normal footing loads of 2,000 psf. Direct Shear testing performed on a sample

taken at a depth of 5 feet bgs indicates the soil sample tested has a cohesion of approximately 140 psf and effective friction angle of 41°. An Expansion Index (EI) test performed on a near surface soil sample resulted in an EI value of 24, indicating a "low" potential for expansion.

Groundwater

Groundwater was not observed in the borings while drilling, or for the short duration the boring remained open, to the maximum depth explored of 51½ feet bgs. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations.

According to data collected from the Water Data Library for the State of California from a nearby well, located approximately 1.4-miles northwest of the site in State Well number 03S07W01A001S[1], the highest groundwater level, between March 1, 2003 and June 17, 2022, was recorded at greater than 44 feet below a ground surface elevation of 954 feet at the well location. Based on the elevation of the Ivy at Mountain Gate site, groundwater at the site is assumed to be greater than 50 feet.

SEISMIC CONSIDERATIONS

The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that "In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites." Based on our understanding of the proposed structures, it is our assumption that the exception in Section 11.8.4 applies to the proposed structure. However, the structural engineer should verify the applicability of this exception.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 1613.2.3(2) presented in Section 16.4.4 of the 2019 CBC.

[1] *California Department of Water Resources, https://wdl.water.ca.gov/waterdatalibrary/Map.aspx.*

Description	Value
2019 California Building Code Site Classification (CBC) [1]	D [2]
Site Latitude (°N)	33.8444
Site Longitude (°W)	117.5754
S_s Spectral Acceleration for a 0.2-Second Period	2.424
S_1 Spectral Acceleration for a 1-Second Period	0.916
F_a Site Coefficient for a 0.2-Second Period	1.0
F_v Site Coefficient for a 1-Second Period	1.7

1. Seismic site classification in general accordance with the *2019 California Building Code*.
2. The 2019 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Borings were extended to a maximum depth of 51½ feet, and this seismic site class definition considers that similar or denser soils continue below the maximum depth of the subsurface exploration. Additional exploration to deeper depths would be required to confirm the conditions below the current depth of exploration.

A site-specific ground motion study may reduce design values and consequently construction costs. We recommend consulting with a structural engineer to evaluate the need for such study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Faulting and Estimated Ground Motions

The site is located in southern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the Elsinore Glen Ivy Fault, which is considered to have the most significant effect at the site from a design standpoint, has a maximum credible earthquake magnitude of 6.49 and is located approximately 2.5 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 1.12 g. Based on the USGS Unified Hazard Tool, the project site has a mean magnitude of 6.62. Furthermore, the site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[2]

[2] California Geological Survey (CGS), https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/.

LIQUEFACTION

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table.

The project site is located in an area not yet mapped for liquefaction hazard by the CGS. Based on Riverside County liquefaction hazard maps, the site is located in an area of low liquefaction susceptibility. Based on the anticipated depth to groundwater and density of the on-site soils, liquefaction potential at the site is considered low. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low.

CORROSIVITY

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary						
Boring	**Sample Depth (ft)**	**Soil Description**	**Soluble Sulfate (%)**	**Chlorides (ppm)**	**Electrical Resistivity (Ω-cm)**	**pH**
B-5	0 - 5	Poorly graded sand with silty clay and gravel	0.02	45	6014	8.09

Results of soluble sulfate testing indicate samples of the on-site soils tested possess negligible sulfate concentrations when classified in accordance with Table 19.3.1.1 of the ACI Design Manual. Concrete should be designed in accordance with the exposure class S0 provisions of the ACI Design Manual, Section 318, Chapter 19.

STORMWATER MANAGEMENT

Four (4) in-situ percolation tests were performed to approximate depths of 6.5 and 21.5 feet bgs. A 2-inch thick layer of gravel was placed in the bottom of each boring after the borings were drilled to investigate the soil profile. A 3-inch diameter perforated pipe was installed on top of the gravel layer in each boring. Gravel was used to backfill between the perforated pipes and the boring sidewall. The borings were then filled with water for a pre-soak period of 24 hours. Testing began

after a pre-soak period. At the beginning of the test, the pipes were refilled with water and readings were taken at standardized time intervals. Percolation rates are provided in the following table:

TEST RESULTS			
Test Location (depth, feet bgs)	**Soil Classification**	**Slowest Measured Percolation Rate (in/hr.)**	**Correlated Infiltration Rate[1] (in/hr.)**
P-1 (0 to 6.5 ft)	Clayey sand	2.1	< 0.1
P-2 (10 to 21.5 ft)	Silty clayey sand with gravel	73.4	1.8
P-3 (0 to 6.5 ft)	Clayey sand with gravel	2.3	< 0.1
P-4 (10 to 21.5 ft)	Clayey sand with gravel	1.7	< 0.1

[1]If proposed infiltration system will mainly rely on vertical downward seepage, the correlated infiltration rates should be used. The infiltration rates were correlated using the Porchet method.

With time, the bottoms of infiltration systems tend to plug with organics, sediments, and other debris. Long term maintenance will likely be required to remove these deleterious materials to help reduce decreases in actual percolation rates.

The percolation tests were performed with clear water, whereas the storm water will likely not be clear, but may contain organics, fines, and grease/oil. The presence of these deleterious materials will tend to decrease the rate that water percolates from the infiltration systems. Design of the stormwater infiltration systems should account for the presence of these materials and should incorporate structures/devices to remove these deleterious materials. A safety factor should be applied to these measured rates.

Based on the soils encountered in our borings, we expect the percolation rates of the soils could be different than measured in the field due to variations in fines and gravel content. The design elevation and size of the proposed infiltration system should account for this expected variability in infiltration rates.

Infiltration testing should be performed after construction of the infiltration system to verify the design infiltration rates. It should be noted that siltation and vegetation growth along with other factors may affect the infiltration rates of the infiltration areas. The actual infiltration rate may vary from the values reported here. Infiltration systems should be located a minimum of 10 feet from any existing or proposed foundation system.

GEOTECHNICAL OVERVIEW

The site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

Based on our field observations and review of historical topographic maps, the site appears to have been previously rough graded. Fill was observed in borings near the northern border of the site to depths of 10 to 13 feet below existing grade. Fill was encountered in borings advanced within the footprint of the proposed building to depths ranging from approximately 1½ to 2½ feet below existing grade. Terracon does not have any documentation to show if the grading operations were monitored or the fill materials have been compacted and tested. Structures that are classified as “occupied structures” in accordance with California Code of Regulations Section 3601 should not be constructed on undocumented fill. We recommend that all fill soils beneath the proposed building area be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Estimated movements described in this report are based on effective drainage for the life of the structure and cannot be relied upon if effective drainage is not maintained. Exposed ground, extending at least 10 feet from the perimeter, should be sloped a minimum of 5% away from the building to provide positive drainage away from the structure. Grades around the structure should be periodically inspected and adjusted as part of the structure’s maintenance program.

Based on the findings summarized in this report, it is our professional opinion that the proposed construction will not be subjected to a hazard from settlement, slippage, or landslide, provided the recommendations of our report are incorporated into the proposed construction. It is also our opinion that the proposed construction will not adversely affect the geologic stability of the site or adjacent properties provided the recommendations contained in our report are incorporated into the proposed construction.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results** section), engineering analyses, and our current understanding of the proposed project.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing vegetation, debris, pavements, and other deleterious materials from proposed building and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed building structures.

Fill was observed in borings at the site to depths of 1½ to 13 feet below existing grade. Terracon does not have any documentation to show if the grading operations were monitored or the fill materials have been compacted and tested. Structures that are classified as “occupied structures” in accordance with California Code of Regulations Section 3601 should not be constructed on undocumented fill. We recommend that all fill soils be removed within the proposed building area and the excavation thoroughly cleaned prior to backfill placement and/or construction. If such documentation exists, Terracon should be notified and the recommendations in this report may be appropriately modified.

Although no evidence of underground facilities such as septic tanks, cesspools, or basements was observed during the site reconnaissance, such features could be encountered during construction. If underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

The proposed building may be supported by a shallow foundation system bearing on engineered fill extending to a minimum depth of 3 feet below the bottom of foundations, 5 feet below existing grade, or the depth of undocumented fill, whichever is greater. Grading for the proposed structure should incorporate the limits of the structure plus a lateral distance of 3 feet beyond the outside edge of perimeter footings, where space is available.

Support of pavements on or above existing fill materials is discussed in this report. However, even with the recommended construction testing services, there is an inherent risk for the owner that compressible fill or unsuitable material within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill, but can be reduced by performing additional testing and evaluation.

Subgrade soils beneath exterior slabs and pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. The moisture content and compaction of subgrade soils should be maintained until slab or pavement construction.

Exposed areas which will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned, and compacted per the compaction requirements in this report.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Excavation

Excavations may encounter gravel and oversize materials such as cobbles which may require the use of specialized heavy-duty equipment, or material handling and processing. Some additional effort may be necessary to extract cobble sized materials, particularly in deep narrow excavations such as utility trenches. Consideration should be given to obtaining a unit price for difficult excavation or material processing in the contract documents for the project.

The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

We recommend that the swimming pool be over-excavated by about 2 feet in plan area to provide adequate access around the excavation for pool construction. The walls of the proposed excavation should be shored or sloped in conformance with OSHA excavation and trench safety standards. If any excavation is extended to a depth of more than 20 feet, it will be necessary to have the side slopes designed by a professional engineer.

Soils from the excavation should not be stockpiled higher than six (6) feet or within ten (10) feet of the edge of an open trench. Construction of open cuts adjacent to existing structures, including underground pipes, is not recommended within a 1½ H:1V plane extending beyond and down from the perimeter of the structure. Cuts that are proposed within five 5 feet of light standards, other utilities, underground structures, and pavement should be provided with temporary shoring.

It may be necessary for the contractor to retain a geotechnical engineer to monitor the soils exposed in all excavations and provide engineering services for slopes. This will provide an opportunity to monitor the soils encountered and to modify the excavation slopes as necessary. It also offers an opportunity to verify the stability of the excavation slopes during construction.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards.

Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 6 inches in size. Pea gravel or other similar non-cementatious, poorly graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Clean on-site soils or approved imported materials may be used as fill material for the following:

- general site grading
- foundation areas
- interior floor slab areas
- foundation backfill
- pavement areas
- exterior slab areas

Imported soils for use as fill material within proposed building and structure areas should conform to low volume change materials as indicated in the following specifications:

Gradation	Percent Finer by Weight (ASTM C 136)
3”	100
No. 4 Sieve	50-100
No. 200 Sieve	10-40

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 15 (max)
- Maximum expansion index* ..... 20 (max)

*ASTM D 4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Rock fragments generated from excavations may be incorporated into the fill soils; however, they should be no larger 6-inches maximum dimension and they must be embedded within a compacted fill soil matrix. Point to point contact of the rock fragments should be avoided. Additionally, consideration should be given to a placement depth below finish grade that will avoid conflict with foundation and utility excavations.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
On-site soils and low volume change imported fill: Beneath foundations:	90	0%	+3%
Beneath interior slabs:	90	0%	+3%
Fill greater than 5 feet in depth	95	0%	+3%
Miscellaneous backfill:	90	0%	+3%
Beneath pavements:	95	0%	+3%
Utility Trenches*:	90	0%	+3%
Bottom of excavation receiving fill:	90	0%	+3%
Aggregate base (beneath pavements):	95	0%	+3%

* Upper 12 inches should be compacted to 95% within pavement and structural areas.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

We recommend a minimum horizontal setback distance of 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention basin.

Roof drainage should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

We recommend construction activities minimize soil compaction at the bottom of infiltration systems. Soil compaction damages soil structure, reduces infiltration rates, limits root growth and plant survivability, and destroys soil organisms. For these reasons site planning, design, and execution, where appropriate, should restrict compaction to infiltration areas.

Exterior Slab Design and Construction

Compacted subgrade composed of on-site clayey soils will expand with increasing moisture content; therefore, exterior concrete slabs may heave, resulting in cracking or vertical offsets. The potential for damage would be greatest where exterior slabs are constructed adjacent to the building or other structural elements. To reduce the potential for damage caused by movement, we recommend:

- exterior slabs should be supported directly on subgrade fill (not ABC) with no, or very low expansion potential;
- strict moisture-density control during placement of subgrade fills;
- maintain proper subgrade moisture until placement of slabs;
- placement of effective control joints on relatively close centers and isolation joints between slabs and other structural elements;
- provision for adequate drainage in areas adjoining the slabs;
- use of designs which allow vertical movement between the exterior slabs and adjoining structural elements.

Utility Trenches

It is anticipated that the on-site soils and fill materials will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 should be used for bedding and shading of utilities, unless allowed or specified otherwise by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances. Imported low volume change soils should be used for trench backfill in structural areas.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed, or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

On-site clay and silt soils may pump and unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance. The use of remotely operated equipment, such as a backhoe, would be beneficial to perform cuts and reduce subgrade disturbance.

Should unstable subgrade conditions develop stabilization measures will need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime, fly ash, kiln dust or cement could also be considered as a stabilization technique. Laboratory evaluation is recommended to determine the effect of chemical stabilization on subgrade soils prior to construction.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

As a safety measure, no equipment should be operated within 5 feet of the edge of the excavation and no materials should be stockpiled within 10 feet of the excavation. Excavations should not approach closer than a distance equal to the depth of excavation from existing structures/facilities without some form of protection for the facilities. Proper berming or ditching should be performed to divert any surface runoff away from the excavation.

Construction Observation and Testing

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test for every 50 linear feet of compacted utility trench backfill. This testing frequency criteria may be adjusted during construction as specified by the geotechnical engineer of record.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event that unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Shallow Foundation Design Recommendations

DESCRIPTION	RECOMENDATION
Foundation Type	Spread and strip footing foundations
Bearing Material	Engineered fill extending to a minimum depth of 3 feet below the bottom of foundations, 5 below existing grade, or the depth of undocumented fill, whichever is greater.
Allowable Bearing Pressure	Spread Footings ■ 3,000 psf (up to 11 feet wide) Strip Footings ■ 2,500 psf (up to 8 feet wide)
Minimum Dimensions	Columns: 24 inches

DESCRIPTION	RECOMENDATION
	Continuous: 18 inches wide
Minimum Embedment Depth Below Finished Grade	18 inches
Total Estimated Settlement	1 inch
Estimated Differential Settlement	½ inch across 40 feet

Finished grade is defined as the lowest adjacent grade within five feet of the foundation for perimeter (or exterior) footings.

The allowable foundation bearing pressure applies to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

Foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement. Foundation excavations should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

FLOOR SLABS

DESCRIPTION	RECOMMENDATION
Interior floor system	Slab-on-grade concrete
Floor slab support	Engineered fill extending to a minimum depth of 3 feet below the bottom of foundations, 5 below existing grade, or the depth of undocumented fill, whichever is greater.
Subbase	Minimum 4-inches of Aggregate Base
Modulus of subgrade reaction	140 pounds per square inch per inch (psi/in) (The modulus was obtained based on estimates obtained from NAVFAC 7.1 design charts). This value is for a small loaded area (1 Sq. ft or less) such as for forklift wheel loads or point loads and should be adjusted for larger loaded areas.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should

be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

LATERAL EARTH PRESSURES

Design Parameters

For engineered fill comprised of on-site soils or imported low volume change materials above any free water surface, recommended equivalent fluid pressures for unrestrained foundation elements are:

ITEM	VALUE[a, b]
Active Case	35 psf/ft
Passive Case	400 psf/ft
At-Rest Case	55 psf/ft
Coefficient of Friction	0.30

[a]Note: The values are based on low volume change engineered fill materials used as backfill.
[b]Note: Uniform, horizontal backfill, compacted to at least 90% of the ASTM D 1557 maximum dry density, rendering a maximum unit weight of 125 pcf.

The lateral earth pressures herein do not include any factor of safety and are not applicable for submerged soils/hydrostatic loading. Additional recommendations may be necessary if such conditions are to be included in the design.

Fill against foundation and retaining walls should be compacted to densities specified in the Earthwork section of this report. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement

performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Design Parameters

An estimated design R-Value was used to calculate the asphalt concrete pavement thickness sections and the Portland cement concrete pavement sections. R-value testing should be completed prior to pavement construction to verify the design R-value.

Assuming the pavement subgrades will be prepared as recommended within this report, the following pavement sections should be considered minimums for this project for the traffic indices assumed in the table below. As more specific traffic information becomes available, we should be contacted to reevaluate the pavement calculations.

Pavement Section Thicknesses

The following table provides options for Asphalt Concrete (AC) and Portland Cement Concrete (PCC) pavement sections for the assumed Traffic Indices (TI):

	Recommended Pavement Section Thickness (inches) [1]		
	Light (Automobile) Parking TI = 4.5	**Driving Lanes TI = 5.5**	**Truck Loading/Fire Lane TI = 7.5**
PCC Section[2]	5.0-inches PCC over 4-inches Class II Aggregate Base	6.0-inches PCC over 4-inches Class II Aggregate Base	7.0-inches PCC over 4-inches Class II Aggregate Base
AC Section	4-inches AC over 4-inches Class II Aggregate Base	4-inches AC over 7-inches Class II Aggregate Base	4-inches AC over 14-inches Class II Aggregate Base

1. All materials should meet the Caltrans Standard Specifications for Highway Construction.
2. 600 psi Flexural Strength or 4,250 psi compressive strength

These pavement sections are considered minimal sections based upon the expected traffic and the existing subgrade conditions. However, they are expected to function with periodic maintenance and overlays if good drainage is provided and maintained.

Subsequent to clearing, grubbing, and removal of topsoil, subgrade soils beneath all pavements should be scarified, moisture conditioned, and compacted to a minimum depth of 10 inches. All materials should meet the Caltrans Standard Specifications for Highway Construction. Aggregate base materials should meet the gradation and quality requirement of Class 2 Aggregate Base (¾ inch maximum) in Caltrans Standard Specifications, latest edition, Sections 25 through 29.

All concrete for rigid pavements should have a minimum flexural strength of 600 psi (4,250 psi Compressive Strength) and be placed with a maximum slump of four inches. Proper joint spacing

will also be required to prevent excessive slab curling and shrinkage cracking. All joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

Preventative maintenance should be planned and provided for through an on-going pavement management program to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

Preventative maintenance consists of both localized maintenance (e.g. crack sealing and patching) and global maintenance (e.g. surface sealing). Preventative maintenance is usually the first priority when implementing a planned pavement maintenance program and provides the highest return on investment for pavements.

Pavement Construction Considerations

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the State of California Department of Transportation, or other approved local governing specifications.

Base course or pavement materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of paved areas to minimize lateral moisture transmission into the subgrade.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and

are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. The findings and recommendations presented in this report were prepared in a manner consistent with the standards of care and skill ordinarily exercised by members of its profession completing similar studies and practicing under similar conditions in the geographic vicinity and at the time these services have been performed. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet)[1]	Planned Location
6	21½ to 51½	Proposed building and swimming pool area
5	6½ to 21½	Pavement/infiltration areas

1. Below ground surface.

Boring Layout and Elevations: Boring layout was prepared by Terracon personnel. The borings were located in the field by using the proposed site plan, an aerial photograph of the site, and handheld GPS. The accuracy of boring locations should only be assumed to the level implied by the method used.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted drill rig using continuous hollow stem flight augers. Four samples were obtained in the upper 10 feet and at intervals of five feet thereafter. Soil sampling was performed using split-barrel and Modified California sampling spoon procedures. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. The Modified California split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 18 inches of penetration. The samples were placed in appropriate containers, taken to our soil laboratory for testing, and classified by a geotechnical engineer. In addition, we observed and recorded groundwater levels during drilling and sampling.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D7263 Standard Test Methods for Laboratory Determination of Dry Density (Unit Weight) of Soil Specimens
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1140 Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASTM D422 Standard Test Method for Particle-Size Analysis of Soils
- ASTM D4546 Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading
- ASTM D3080 Standard Test Method for Direct Shear Test of Soils
- ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
- Corrosivity Testing included pH, chlorides, sulfates, sulfides, Redox potential, and electrical lab resistivity

The laboratory testing program included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

Ivy at Mountain Gate ■ Corona, CA
November 10, 2022 ■ Terracon Project No. 60225085

Terracon GeoReport

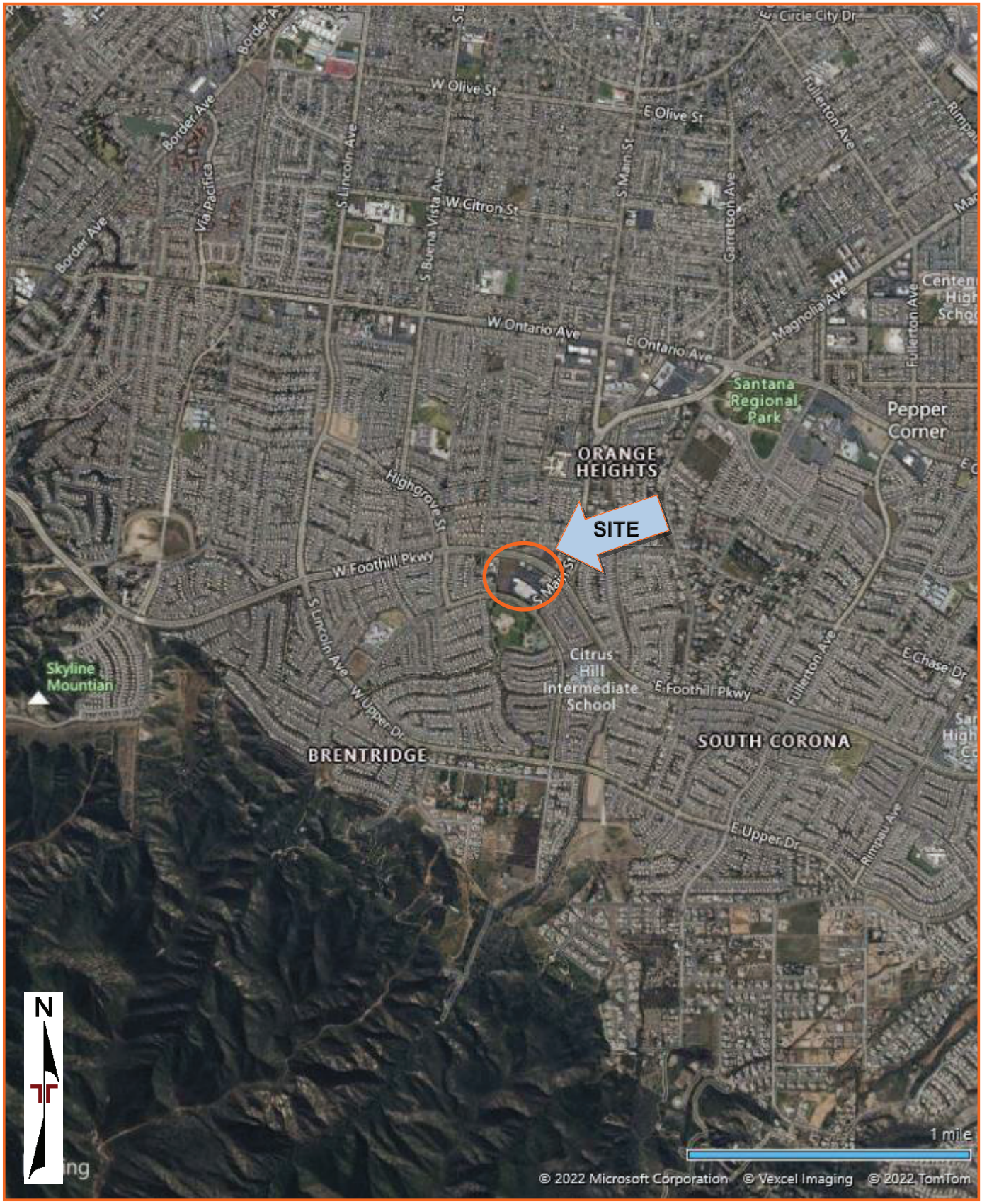


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: CORONA SOUTH, CA (1/1/1997).

EXPLORATION PLAN

Ivy at Mountain Gate ■ Corona, CA
November 10, 2022 ■ Terracon Project No. 60225085

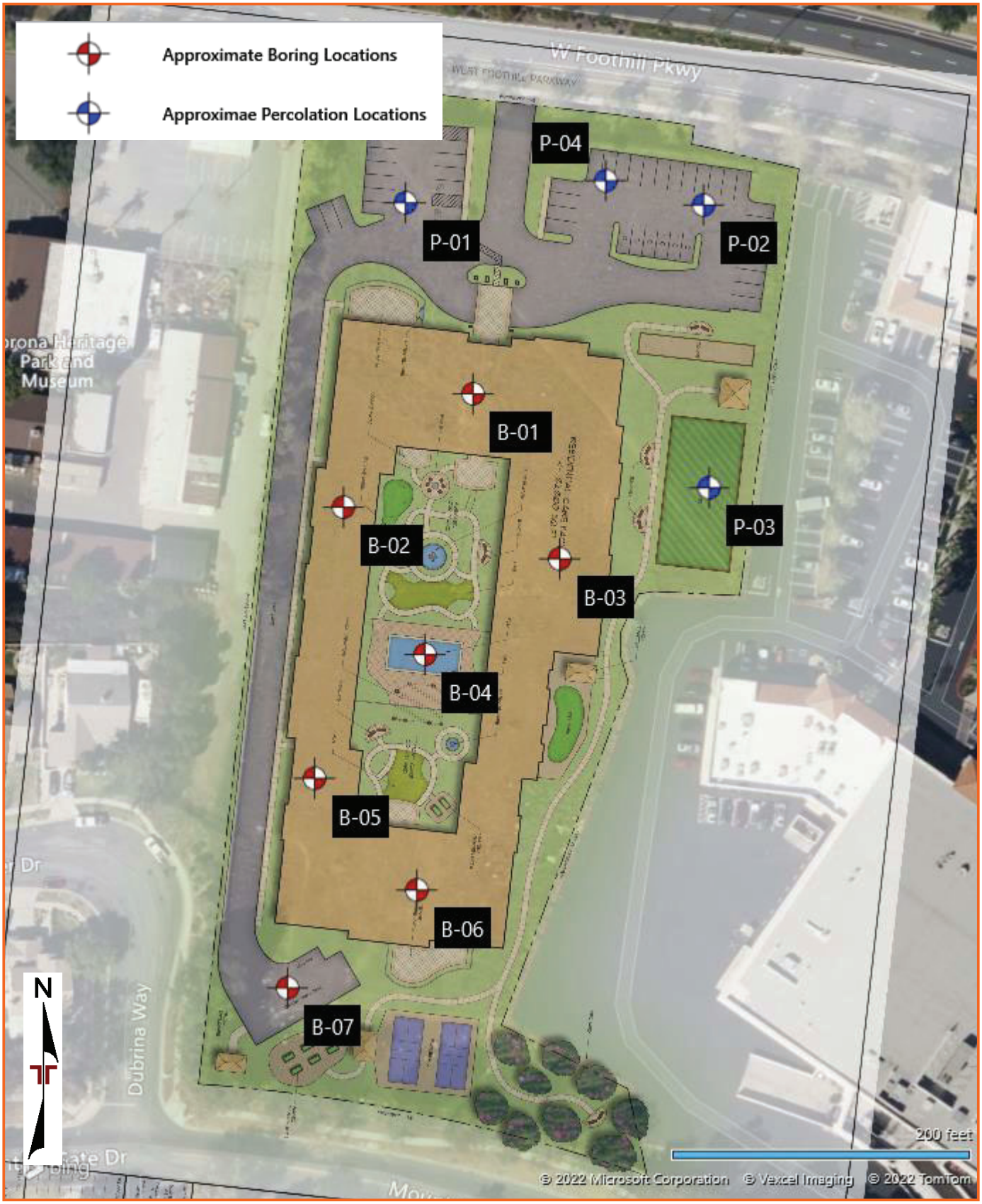


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

BORING LOG NO. B-1

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8446° Longitude: -117.5755°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - SILTY CLAYEY SAND WITH GRAVEL (SC-SM), trace gravel, brown									
2.5		**SILTY CLAYEY SAND WITH GRAVEL (SC-SM)**, brown, medium dense				14-18-27	24	4.5	118	22-16-6	
			5			13-19-21		5.1	115		
						8-12-18		3.6	105		
10.0		**POORLY GRADED GRAVEL WITH SILT (GP-GM)**, brown, medium dense	10			18-18-24		3.3	113		6
15.0		**SILTY CLAY (CL-ML)**, trace sand and gravel, brown, very stiff	15			4-8-12 N=20				21-15-6	
20.0		**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown, hard	20			4-18-45		9.5	123		
25.0		**SILTY CLAYEY SAND WITH GRAVEL (SC-SM)**, brown, dense	25			8-13-30 N=43					
		very dense	30			34-40-50/2"					
			35								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-1

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8446° Longitude: -117.5755°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY CLAYEY SAND WITH GRAVEL (SC-SM), brown, dense *(continued)* dense				19-21-23 N=44					
40.0		**POORLY GRADED GRAVEL WITH SAND (GP)**, trace clay, brown to black, very dense	40			18-50/6"					
45.0		**CLAYEY SAND WITH GRAVEL (SC)**, light brown, dense	45			12-17-28 N=45					
50.0		**POORLY GRADED GRAVEL WITH SAND (GP)**, trace clay, brown, dense	50			7-30-49					
51.5		***Boring Terminated at 51.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-2

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8444° Longitude: -117.5758°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - SILTY CLAYEY SAND (SC-SM), brown									
1.5		**SILTY CLAYEY SAND (SC-SM)**, brown, dense									
						20-30-34		3.5	116		40
		medium dense	5			12-13-16		3.7	108	21-15-6	
						12-18-38		4.4	116		
		very dense	10			24-50/6"		5.1	87		
			15			16-50/3"					
20.0		**LEAN CLAY WITH GRAVEL (CL)**, brown, hard	20			10-21-46		10.7	126		
21.5		***Boring Terminated at 21.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-3

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8443° Longitude: -117.5753°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - CLAYEY SAND WITH GRAVEL (SC), light brown									
2.5		**CLAYEY SAND WITH GRAVEL (SC)**, light brown									25
5.0		**POORLY GRADED SAND WITH CLAY AND GRAVEL (SP-SC)**, light brown, medium dense	5			10-13-17		3.2	121		12
7.5		**POORLY GRADED GRAVEL WITH SAND (GP)**, trace clay, brown and dark gray, very dense				30-50/6"		2.3	115		
		medium dense	10			15-19-31		3.5	106		
			15			6-10-17 N=27					
20.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, dense	20			18-35-35					
21.5		***Boring Terminated at 21.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-4

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8439° Longitude: -117.5758°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		CLAYEY SAND WITH GRAVEL (SC), brown									
		medium dense				12-11-16		4.1	109		18
			5			10-17-21		3.4	116		
7.5		**CLAYEY GRAVEL WITH SAND (GC)**, brown, medium dense				15-31-21		3.1	125		
			10			14-14-15		5.0	113		19
15.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, dense	15			5-14-22 N=36					
20.0		**SANDY LEAN CLAY WITH GRAVEL (CL)**, brown, very stiff	20			10-17-21		6.7	119		
25.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, dense	25			18-23-22 N=45					
31.0		very dense	30			14-50/6"					
		Boring Terminated at 31 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-5

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8437° Longitude: -117.5756°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		POORLY GRADED SAND WITH SILTY CLAY AND GRAVEL (SP-SC), brown									
		medium dense				10-16-20		4.8	115		11
5.0		**POORLY GRADED GRAVEL WITH SILTY CLAY (GP-GC)**, trace gravel, brown, medium dense	5			7-11-13		5.4	119		
						6-14-17		5.8	116	22-16-6	
10.0		**LEAN CLAY WITH GRAVEL (CL)**, trace sand, brown, very stiff	10			5-10-15		8.8	124		
15.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, dense	15			10-16-20 N=36					
		medium dense	20			18-25-25		7.3	122		
21.5		***Boring Terminated at 21.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-05-2022 | Boring Completed: 10-05-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-6

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8441° Longitude: -117.5756°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC), gray and brown									
		brown, medium dense				16-20-27		4.5	116		9
			5			17-24-22		5.6	119		
		gray to dark gray, medium dense				13-16-19		5.2	129		
			10			13-21-36		3.6	119		
15.0		**SANDY LEAN CLAY (CL)**, brown, hard	15			17-12-20 N=32					
20.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, medium dense	20			5-22-32					
		very dense	25			17-24-28 N=52					
		medium dense	30			22-28-21					
31.5		***Boring Terminated at 31.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-05-2022 | Boring Completed: 10-05-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. B-7

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8435° Longitude: -117.5759°

DEPTH	GRAPHIC LOG	DESCRIPTION	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		SILTY CLAYEY SAND WITH GRAVEL (SC-SM), light brown								
		dense			28-31-34		4.9	126		
5					13-24-38		3.4	120	21-15-6	
7.5		**CLAYEY SAND WITH GRAVEL (SC)**, brown, medium dense			8-17-26		6.9	119		40
10		dense			25-43-42		6.8	124		
15		light brown			15-21-20 N=41					
16.5		***Boring Terminated at 16.5 Feet***								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-05-2022 | Boring Completed: 10-05-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. P-1

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8450° Longitude: -117.5756°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - CLAYEY SAND (SC), brown medium dense				8-11-12 N=23					
		5			5-7-11 N=18					29
	6.5 ***Boring Terminated at 6.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. P-2

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8449° Longitude: -117.5750°

DEPTH	GRAPHIC LOG	DESCRIPTION	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - SILTY CLAYEY SAND WITH GRAVEL (SC-SM), brown									
		dense				11-22-27 N=49					
			5			14-11-25 N=36				22-15-7	
		medium dense				5-6-9 N=15					
			10			5-5-14 N=19					
13.0		**SILTY CLAYEY SAND WITH GRAVEL (SC-SM)**, brown, very dense									
			15			22-23-35 N=58					15
		loose	20			8-2-6 N=8					
21.5		***Boring Terminated at 21.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. P-3

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8444° Longitude: -117.5750°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FILL - CLAYEY SAND WITH GRAVEL (SC), brown									
	2.5									
	CLAYEY SAND WITH GRAVEL (SC), brown, medium dense				8-12-16 N=28					39
		5			10-8-7 N=15					
	6.5									
	Boring Terminated at 6.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

BORING LOG NO. P-4

PROJECT: Ivy at Mountain Gate

CLIENT: Oakmont Senior Living
Irvine, CA

SITE: 430 W Foothill Plwy
Corona, CA

LOCATION See Exploration Plan

Latitude: 33.8450° Longitude: -117.5752°

DEPTH	GRAPHIC LOG		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	EXPANSION INDEX	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
		FILL - CLAYEY SAND WITH GRAVEL (SC), brown									
		dense				21-25-14 N=39					
			5			7-14-26 N=40					
		medium dense				10-9-8 N=17					
10.0		**CLAYEY SAND WITH GRAVEL (SC)**, brown, medium dense	10			5-6-8 N=14					
			15			10-9-8 N=17					32
20.0		**SILTY CLAY WITH GRAVEL (CL-ML)**, brown, hard	20			4-6-9 N=15				22-15-7	
21.5		***Boring Terminated at 21.5 Feet***									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

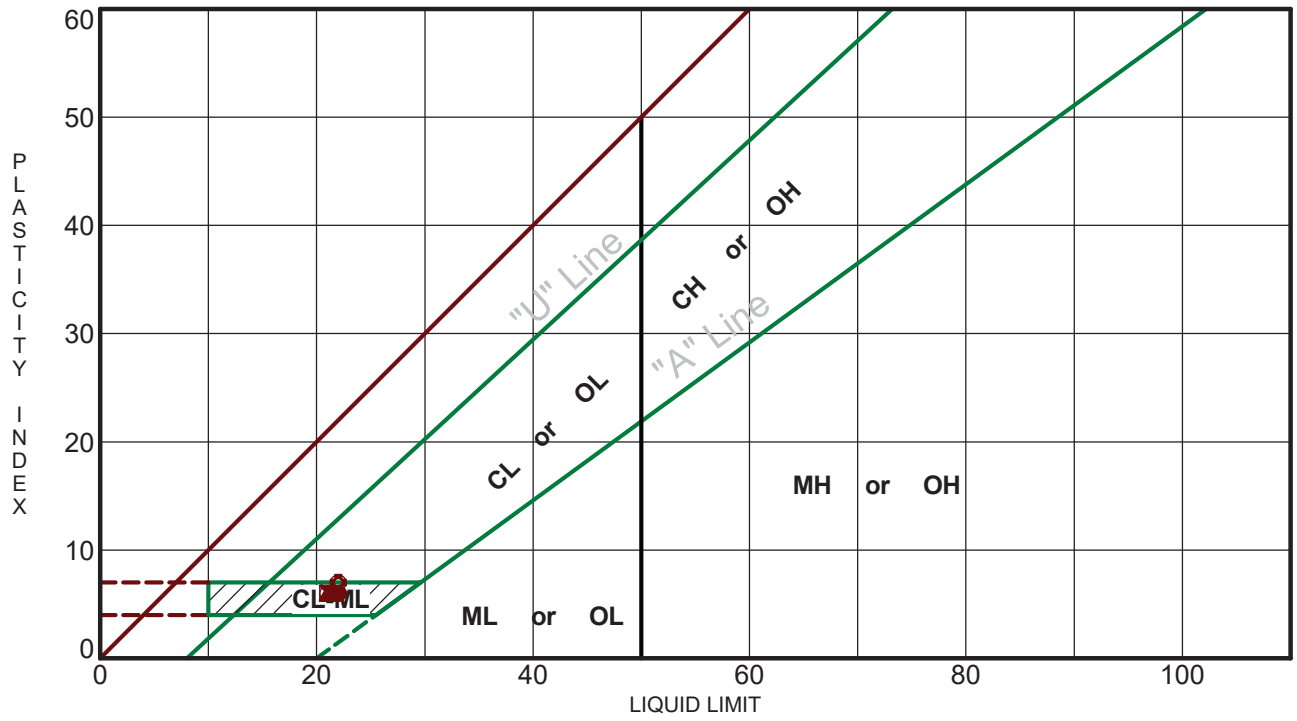
Boring Started: 10-04-2022 | Boring Completed: 10-04-2022

Drill Rig: B-61 | Driller: Cal-Pac

Project No.: 60225085

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	2.5 - 4	22	16	6		SC-SM	SILTY CLAYEY SAND WITH GRAVEL
⊠	B-1	15 - 16.5	21	15	6		CL-ML	SILTY CLAY
▲	B-2	5 - 6.5	21	15	6		SC-SM	SILTY CLAYEY SAND
★	B-5	7.5 - 9	22	16	6		GP-GC	POORLY GRADED GRAVEL WITH SILTY CLAY
⊙	B-7	5 - 6.5	21	15	6		SC-SM	SILTY CLAYEY SAND WITH GRAVEL
✿	P-2	5 - 6.5	22	15	7		SC-SM	SILTY CLAYEY SAND WITH GRAVEL
○	P-4	20 - 21.5	22	15	7		CL-ML	SILTY CLAY WITH GRAVEL

PROJECT: Ivy at Mountain Gate

PROJECT NUMBER: 60225085

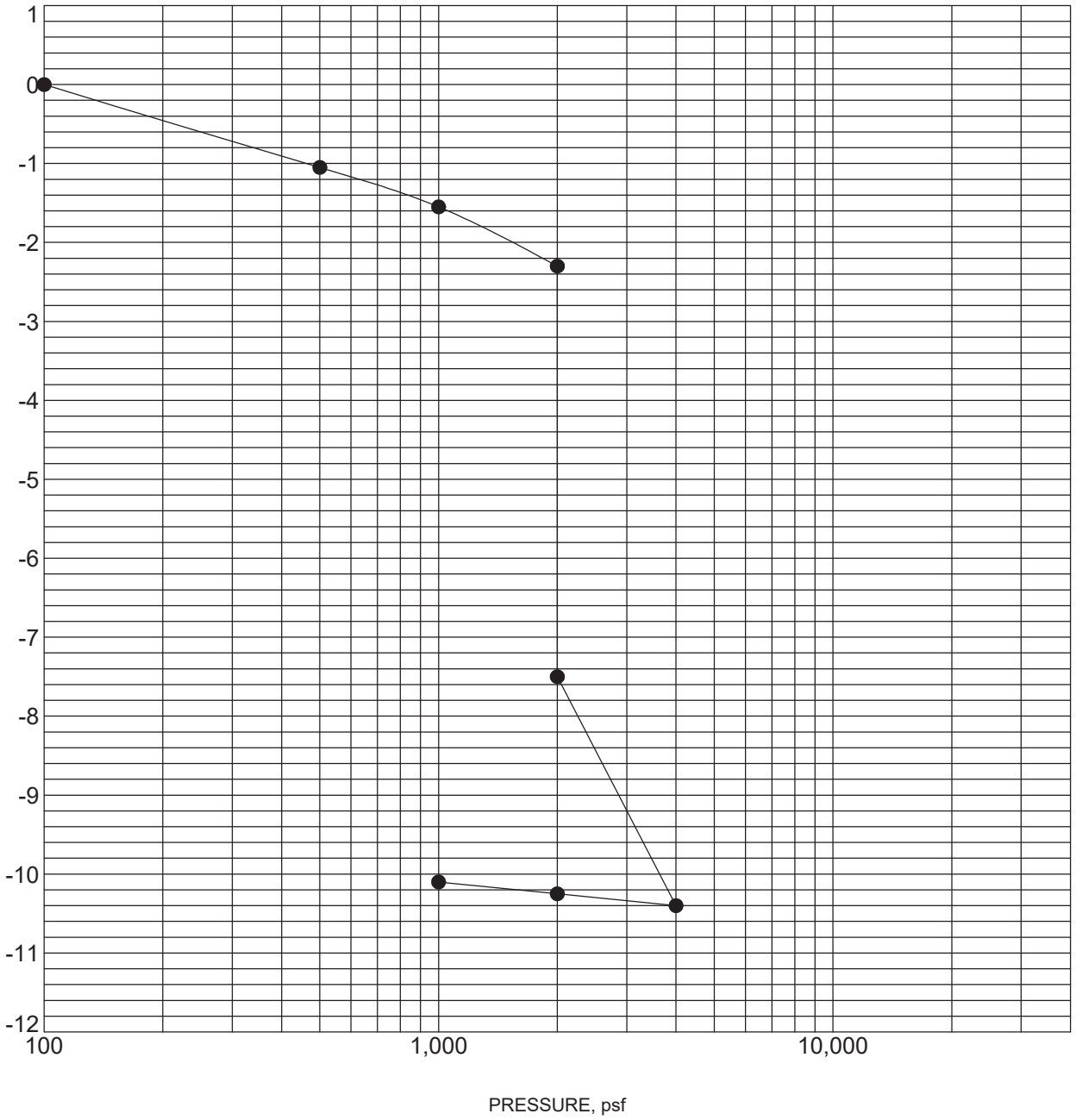
SITE: 430 W Foothill Plwy
Corona, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: Oakmont Senior Living
Irvine, CA

SWELL CONSOLIDATION TEST

ASTM D2435



Specimen Identification			Classification	γ_d, pcf	WC, %
●	B-1	5 - 6.5 ft	SILTY CLAYEY SAND WITH GRAVEL	115	5.1

NOTES: water added at 2000 psf

PROJECT: Ivy at Mountain Gate

PROJECT NUMBER: 60225085

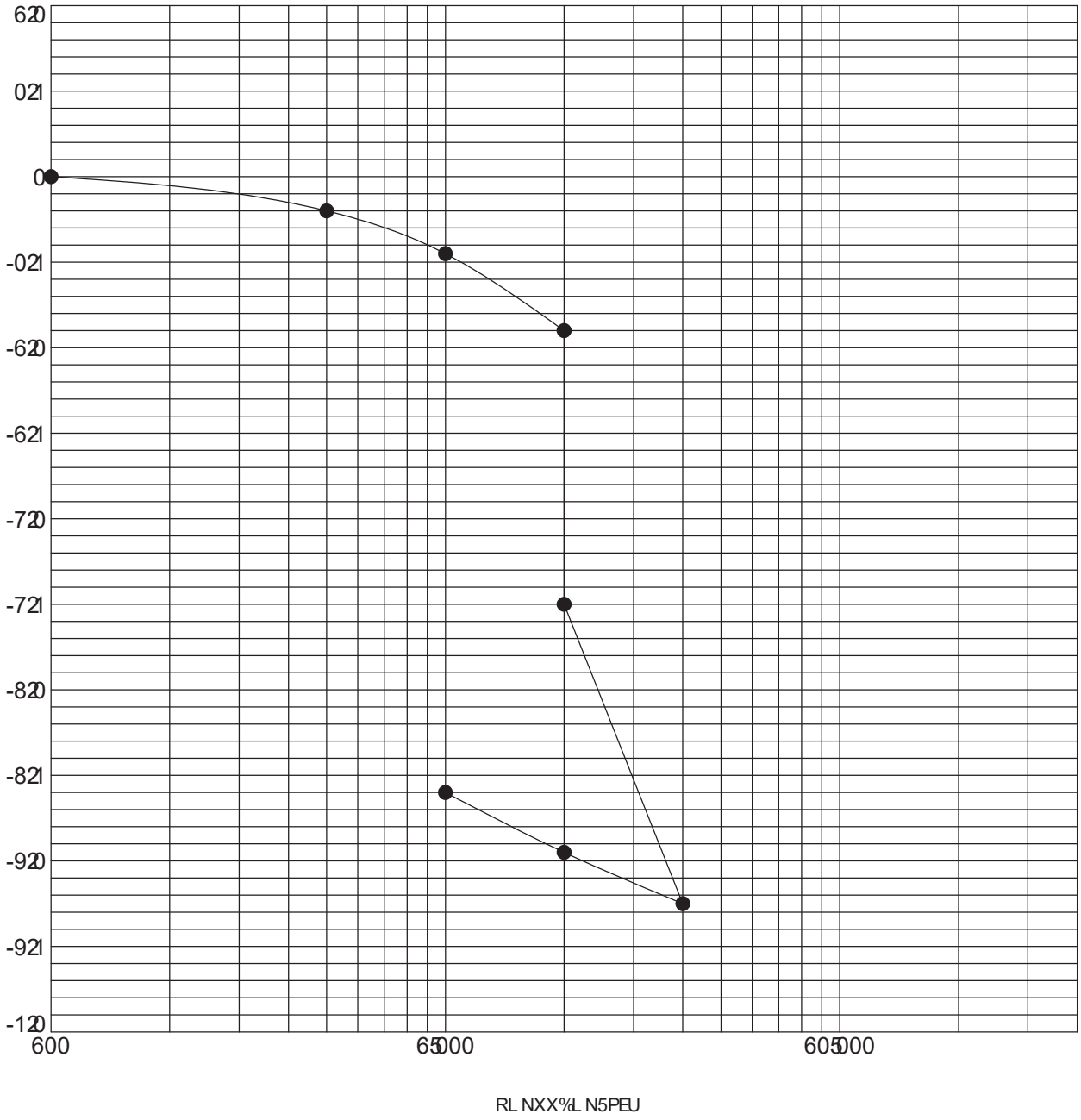
SITE: 430 W Foothill Plwy
Corona, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: Oakmont Senior Living
Irvine, CA

SWELL CONSOLIDATION TEST

ASTM D2435



XPwcHk wy ,t wy:hUtcOthFy		r iCEEHUtcOthFy	γ_d, pcf	WC, %
●	J-_ 721 - 9 U	X,AI Hr A4HNH X4Sg B ,I D uL4YNA	67C	921

Sp I NXsf OwaOt t wt O 7000 PEU

RLpeNr I s ,nl O d Fvy:Oty u Ow

X,I Ns 980 B WFF:ohii Rif I
r FaFyO5r 4

Terracon
78096 4nwyht OgwAOr OaF:OX:w810
AOmyODhiiE5r 4

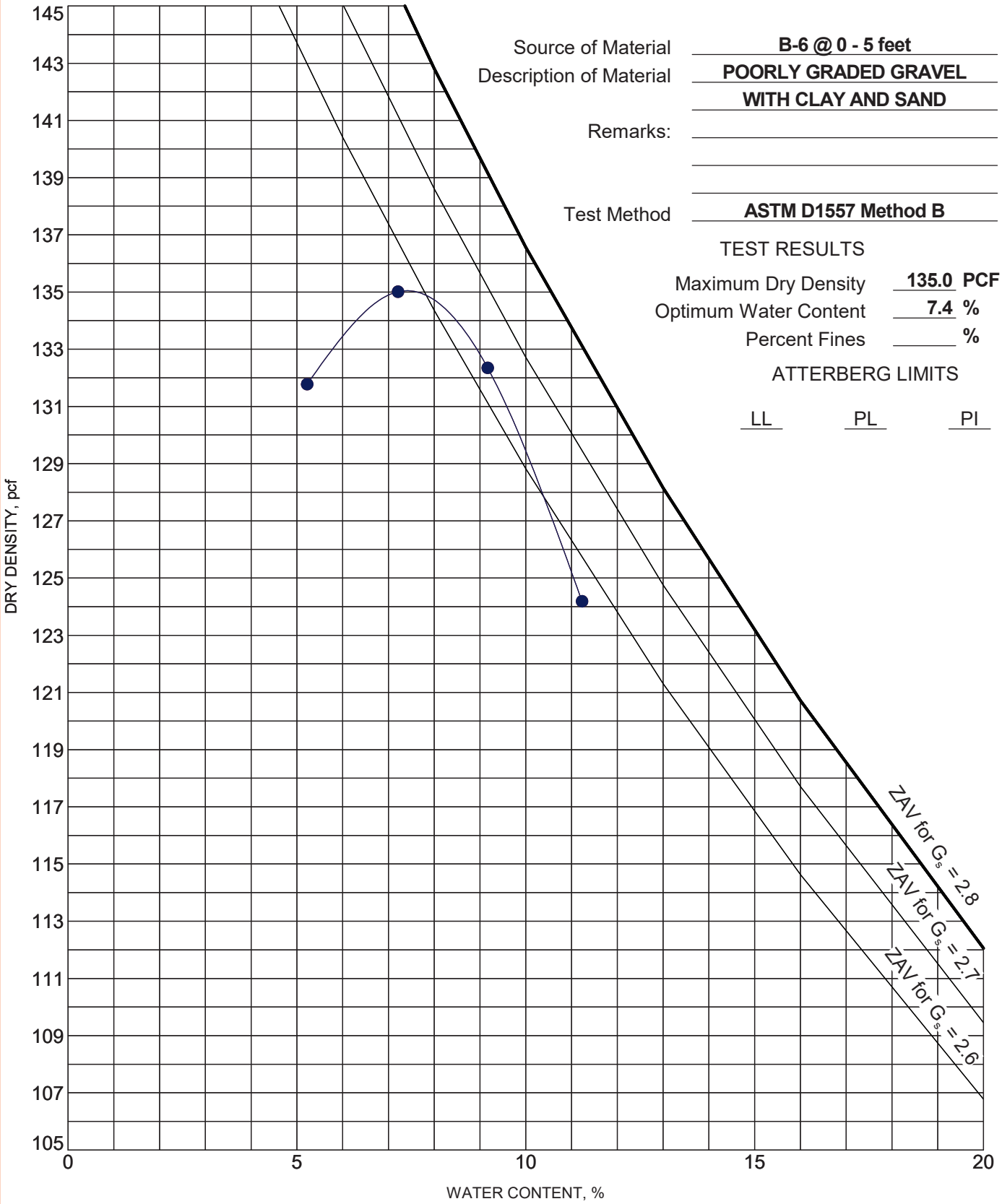
RLpeNr I S%d JNLs C07710Mfl

r A,NSI s p OGk Fy: XwyhFaAhnlym
,anlyw5r 4

A4JpL4I pLH I NXI X4L N Sp I Y4Ag ,WXNR4L4I Ng WLpd pL,u,S4ALNRp LI 2 I r Vr p SXp AVXI L4,S-%Xr X C07710Mf ,YH4I d p %SI 4,S u 2u Re I NLL4r p SVg4I 4I Nd RA4I N2ug I 60.70.77

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material	**B-6 @ 0 - 5 feet**
Description of Material	**POORLY GRADED GRAVEL WITH CLAY AND SAND**
Remarks:	
Test Method	**ASTM D1557 Method B**

TEST RESULTS

Maximum Dry Density	**135.0**	**PCF**
Optimum Water Content	**7.4**	**%**
Percent Fines		**%**

ATTERBERG LIMITS

LL	PL	PI

PROJECT: Ivy at Mountain Gate

PROJECT NUMBER: 60225085

SITE: 430 W Foothill Plwy
Corona, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: Oakmont Senior Living
Irvine, CA

750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client
Oakmont Senior Living

Project
Ivy at Mountain Gate

Sample Submitted By: Terracon (60) **Date Received:** 10/11/2022 **Lab No.: 22-0711**

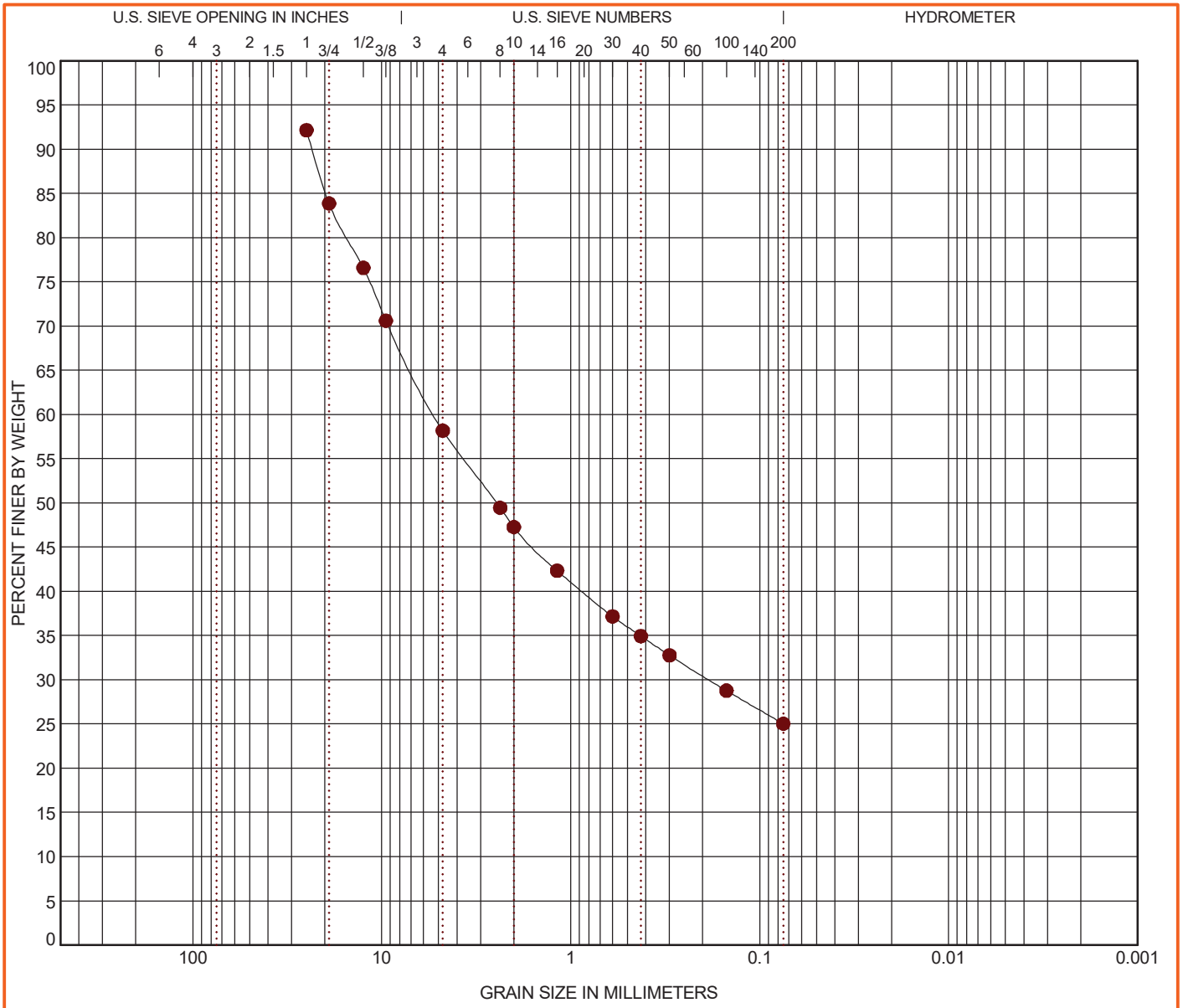
Results of Corrosion Analysis

Sample Number	--
Sample Location	B-5
Sample Depth (ft.)	0.0-5.0
pH Analysis, ASTM G 51	8.09
Water Soluble Sulfate (SO4), ASTM C 1580 (percent %)	0.02
Sulfides, AWWA 4500-S D, (mg/kg)	Nil
Chlorides, ASTM D 512, (mg/kg)	45
Red-Ox, ASTM G 200, (mV)	+735
Total Salts, AWWA 2540, (mg/kg)	131
Resistivity, ASTM G 57, (ohm-cm)	6014

Analyzed By:
Nathan Campo
Engineering Technician II

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
B-3	0 - 5	CLAYEY SAND WITH GRAVEL (SC)						

Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
B-3	0 - 5	25	5.259	0.186			34.0	33.1		25.0	

PROJECT: Ivy at Mountain Gate

SITE: 430 W Foothill Plwy
Corona, CA

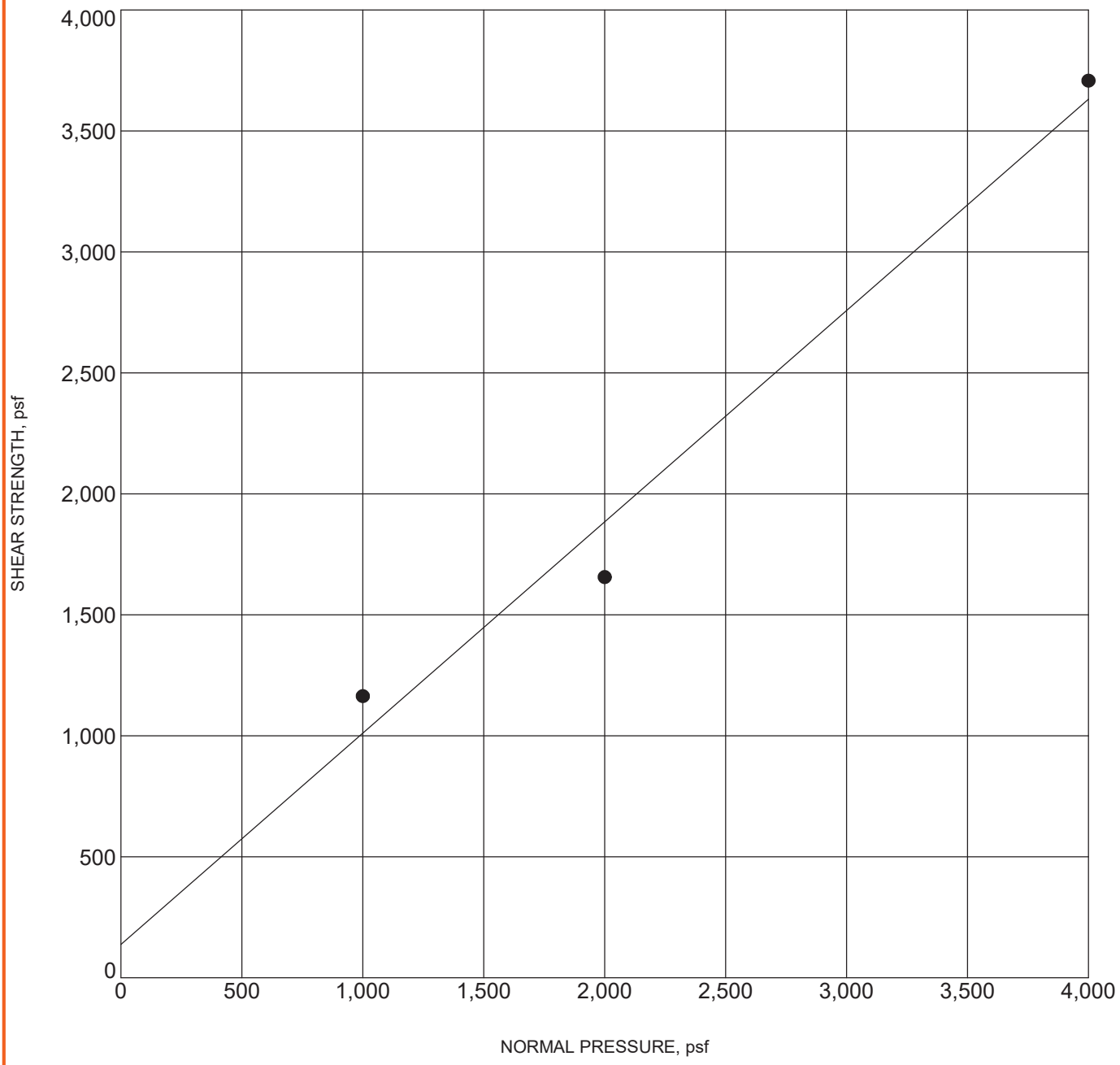
Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

PROJECT NUMBER: 60225085

CLIENT: Oakmont Senior Living
Irvine, CA

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 60225085 IVY AT MOUNTAIN G.GPJ TERRACON_DATATEMPLATE.GDT 11/9/22

DIRECT SHEAR TEST ASTM D3080



Specimen Identification	Classification	γ_d, pcf	WC,%	c, psf	$\phi°$
● B-5 5.0ft	POORLY GRADED GRAVEL WITH SILTY CLAY (GP-GC)	119	5	138	41

PROJECT: Ivy at Mountain Gate

PROJECT NUMBER: 60225085

SITE: 430 W Foothill Plwy
Corona, CA

Terracon
23041 Avenida De La Carlota Ste 350
Laguna Hills, CA

CLIENT: Oakmont Senior Living
Irvine, CA

SUPPORTING INFORMATION

UNIFIED SOIL CLASSIFICATION SYSTEM

Terracon GeoReport

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [Cc<1 or Cc>3.0] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [Cc<1 or Cc>3.0] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

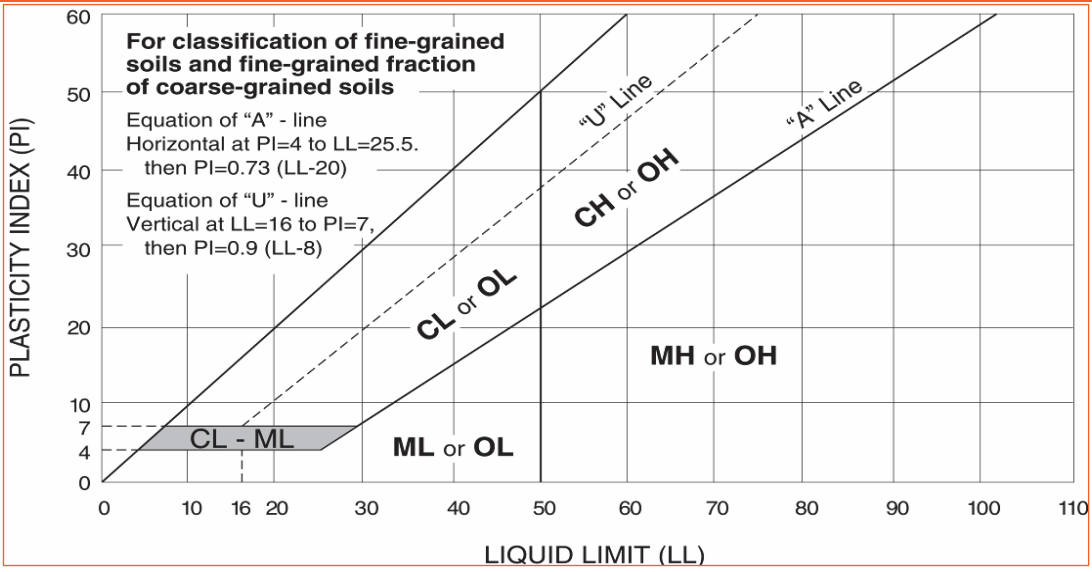
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.

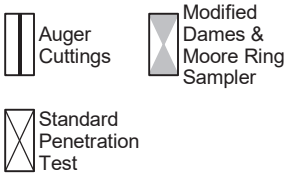


GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS
Ivy at Mountain Gate ■ Corona, CA
Terracon Project No. 60225085

Terracon GeoReport

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

N	**Standard Penetration Test Resistance (Blows/Ft.)**
(HP)	**Hand Penetrometer**
(T)	**Torvane**
(DCP)	**Dynamic Cone Penetrometer**
UC	**Unconfined Compressive Strength**
(PID)	**Photo-Ionization Detector**
(OVA)	**Organic Vapor Analyzer**

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		**CONSISTENCY OF FINE-GRAINED SOILS** (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.