



**REPORT
GEOTECHNICAL STUDY
PROPOSED SJ MARKETPLACE
SOUTHWEST OF INTERSECTION OF 11400 SOUTH
AND BANGERTEER HIGHWAY
SOUTH JORDAN, UTAH**

Submitted To:

CCA Acquisition Company, LLC
% Kornwasser Shopping Center Properties, LLC
5670 Wilshire Boulevard, Suite 1250
Los Angeles, California 90036

Submitted By:

GSH Geotechnical, Inc.
473 West 4800 South
Salt Lake City, Utah 84123

October 18, 2013

Job No. 1226-003-13



October 18, 2013
Job No. 1226-003-13

CCA Acquisition Company, LLC
% Kornwasser Shopping Center Properties, LLC
5670 Wilshire Boulevard, Suite 1250
Los Angeles, California 90036

Attention: Mr. Bill Sandre

Mr. Sandre:

Re: Report
Geotechnical Study
Proposed SJ Marketplace
Southwest of the Intersection of 11400 South
and Bangerter Highway
South Jordan, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the proposed SJ Marketplace located southwest of the intersection of 11400 South and Bangerter Highway in South Jordan, Utah. The general location of the site with respect to major topographic features and existing facilities, as of 1999, is presented on Figure 1, Vicinity Map. A more detailed layout of the site showing the proposed development and adjacent roadways is presented on Figure 2, Site Plan. The locations of the borings and test pits completed in conjunction with this study are also presented on Figure 2.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Mr. Bill Sandre of Kornwasser Shopping Center Properties and Mr. Alan Spilker of GSH Geotechnical, Inc. (GSH).

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In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions at the site.
2. Provide appropriate foundation, earthwork and pavement recommendations, and geoseismic information to be utilized in the design and construction of the proposed facility.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the drilling/excavating, logging, and sampling of 7 borings and 15 test pits.
2. A laboratory testing program.
3. An office program consisting of the correlation of available data, engineering analyses, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of our Professional Services Agreement No. 13-0934rev1 dated September 24, 2013.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration borings, projected groundwater conditions, and the layout and design data discussed in Section 2, Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. PROPOSED CONSTRUCTION

A total of 14 retail structures are planned for the approximately 16-acre site. The footprints of the structures range from approximately 2,500 to 28,000 square feet in size. It is anticipated that the structures will be one to one-extended level in height and of wood-frame and/or masonry construction established slab on grade. The location and layout of the proposed structure is shown on Figure 2.



Structural loads will be transmitted down through columns and bearing walls to the supporting foundations. Maximum real column and wall loads are anticipated to be on the order of 30 to 150 kips and 3 to 8 kips per lineal foot, respectively. Real loads are defined as the total of all dead plus frequently applied (reduced) live loads. Average uniform floor slab loads on the order of 150 to 200 pounds per square foot are anticipated.

At-grade paved parking and drive areas will be part of the overall site development. Projected traffic in parking areas is anticipated to consist of a light volume of automobiles and light trucks and occasional medium-weight trucks. In primary drive areas, traffic is projected to consist of a moderate volume of automobiles and light trucks, a light volume of medium-weight trucks, and occasional heavy-weight trucks.

Maximum site grading cuts and fills are anticipated to be minor to moderate at the site, on the order of 2 to 3 feet.

3. SITE INVESTIGATIONS

3.1 FIELD PROGRAM

In order to define and evaluate the subsurface soil and groundwater conditions at the proposed site, 28 test pits were excavated to depths of 5 to 16 feet and 7 borings were drilled to a depth of 15 feet below existing grade using a truck-mounted drill rig equipped with hollow-stem augers. Locations of the borings are presented on Figure 2.

The field portion of our study was performed under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the drilling/excavating operations, a continuous log of the subsurface conditions encountered was maintained. In addition, samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent observation and laboratory testing. Detailed graphical representation of the subsurface conditions encountered is presented on Figures 3A through 3AB, Log of Test Pits and 5A through 5G, Log of Borings. Soils were classified in accordance with the nomenclature described on Figure 4, Key to Test Pit Log (USCS) and Figure 6, Key to Boring Log (USCS).

A 3.25-inch outside diameter, 2.42-inch inside diameter drive sampler (Dames & Moore) and a 2.0-inch outside diameter, 1.38-inch inside diameter drive sampler (SPT) were utilized. The blow counts recorded on the boring logs were those required to drive the samplers 12 inches with a 140-pound hammer dropping 30 inches.



3.2 LABORATORY TESTING

3.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was completed. The program included moisture, density, consolidation, and chemical tests. The following paragraphs describe the tests and summarize the test data.

3.2.2 Moisture and Density Tests

To aid in classifying the soils and to help correlate other test data, moisture and density tests were performed on selected samples. The results of these tests are presented on the test pit and boring logs, Figures 3A through 3AB and Figures 5A through 5G, respectively.

3.2.3 Consolidation Tests

To provide data necessary for our settlement analysis, consolidation tests were performed upon each of 4 representative samples of the natural fine-grained clay soils encountered. The results of the tests indicate that the samples tested are moderately over-consolidated and will exhibit moderate strength and compressibility characteristics under the anticipated loading range. Detailed results of these tests are attached to this report.

3.2.4 Chemical Tests

To determine if the site soils will react detrimentally with concrete, chemical tests were performed on a representative sample of the near-surface soils encountered at the site. The results of the chemical tests are tabulated below:

Boring No.	Depth (feet)	Soil Classification	pH	Total Water Soluble Sulfate (mg/kg-dry)
TP-5	2.0	CL	7.9	209

4. SITE CONDITIONS

4.1 SURFACE

The site consists of 2 vacant/undeveloped rectangular-shaped parcels located on the south side of 11400 South Street at 4000 West. The site contains 12.35 acres of land on the east side of 4000 West Street extending to Bangerter Highway and 3.66 acres of land on the west side of 4000 West Street. The topography of the site slopes downward to the east/southeast with an overall relief on the order of 20 to 25 feet. Vegetation consists of a moderate growth of ankle- to knee-high weeds and grasses.



The site is bordered on the north by 11400 South Street, on the east by Bangerter Highway, on the south by similar vacant/undeveloped land, and on the west by 4000 West Street and vacant/undeveloped land.

4.2 SUBSURFACE SOIL AND GROUNDWATER

The soil conditions encountered in each of the borings and test pits, to the depths penetrated, were similar. The soil profile generally consists of natural silty clay overlying sands and gravels. The silty clay contains trace to some fine sand and was encountered extending to depths of 4.5 to 13.0 feet below existing grade. The clay is stiff to very stiff, slightly moist to moist, brown, and is anticipated to exhibit moderate strength and compressibility characteristics under the anticipated loading range. The upper 6 to 8 inches contain major roots and have been classified as topsoil.

Underlying the clay and extending to depths of 13.5 to 15.0 feet is fine and coarse gravel/sand with varying silt content. The sand/gravel is dense to very dense, moist, brown, and is anticipated to exhibit high strength and compressibility characteristics under the anticipated loading range.

Underlying the sand and gravel in Borings B-2 and B-4, and extending to the maximum explored depth of 15.0 feet, is silty clay with some fine sand. The clay is very stiff, moist, brown, and is anticipated to exhibit moderate strength and compressibility characteristics under the anticipated loading range.

For a more detailed description of subsurface conditions, please refer to Figures 5A through 5G, Log of Borings. The lines designating the interface between soil types on the boring logs generally represent approximate boundaries. In-situ, the transition between soil types may be gradual.

During drilling/excavating operations, groundwater was not encountered at the maximum explored depth, 15 feet.

5. DISCUSSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The results of our study show that the proposed structures may be supported upon conventional spread and continuous wall foundations placed on structural fill extending to suitable natural soils.

The geotechnical aspect of the site that will most influence the design and construction of the proposed structures and pavements is the root containing loose/disturbed soil encountered in the upper 4 to 6 inches at the boring and test pit locations. Loose/disturbed soils must be completely removed from beneath the footings and floor slabs of the proposed structures.

In the following sections, detailed discussions pertaining to earthwork, foundations, lateral resistance, floor slabs, pavements, and the geoseismic setting of the site are provided.

5.2 EARTHWORK

5.2.1 Site Preparation

Preparation of the site must consist of the removal of all non-engineered fills (if encountered), loose surficial soils, topsoil, debris, and other deleterious materials from beneath an area extending at least 3 feet beyond the perimeter of proposed building, rigid pavement, and exterior flatwork areas.

The non-engineered fills (if encountered) may remain in flexible pavement areas as long as they are properly prepared and of limited thickness (less than 3 feet). Proper preparation will consist of scarifying and moisture conditioning the upper 9 inches and re-compacting to the requirements of structural fill. However, it should be noted that compaction of fine-grained soils (clays and silts) as structural site grading fill will be very difficult, if not impossible, during wet and cold periods of the year. Additionally, in many instances, the natural clay soil is likely above optimum moisture content requiring some drying prior to re-compacting. As an option for proper preparation and recompaction, the upper 9 inches of the non-engineered fills may be removed and replaced with granular subbase over proofrolled subgrade. Even with proper preparation, flexible pavements established on non-engineered fills may experience some long-term movements. If the possibility of these movements is not acceptable, these non-engineered fills must be completely removed.

Subsequent to the above operations and prior to the placement of footings, structural site grading fill, or floor slabs, the exposed natural subgrade must be proofrolled by passing moderate-weight rubber tire-mounted construction equipment over the surface at least twice. If any loose, soft, or disturbed zones are encountered, they must be completely removed in footing and floor slab areas and replaced with granular structural fill. If removal depth required is greater than 2 feet, GSH must be notified to provide further recommendations. In pavement areas, unsuitable soils encountered during recompaction and proofrolling must be removed to a maximum depth of 2 feet and replaced with compacted granular structural fill.

5.2.2 Temporary Excavations

Groundwater is anticipated to be encountered at depths greater than 15 feet below the ground surface. Temporary construction excavations in cohesive soil, above or below the water table, not exceeding 4 feet in depth, may be constructed with near-vertical sideslopes. Temporary excavations up to 8 feet deep in fine-grained cohesive soils and above or below the water table may be constructed with sideslopes no steeper than one-half horizontal to one vertical. Excavations deeper than 8 feet are not anticipated at the site.



For granular (cohesionless) soils, temporary construction excavations, not exceeding 4 feet and above the water table, should be no steeper than one-half horizontal to one vertical. For excavations up to 8 feet in granular soils and above the water table, the slopes should be no steeper than one horizontal to one vertical. Excavations encountering saturated cohesionless soils will be very difficult and will require very flat sideslopes and/or shoring and bracing.

All excavations must be inspected periodically by qualified personnel. If any signs of instability or excessive sloughing are noted, immediate remedial action must be initiated.

5.2.3 Structural Fill

Structural fill is defined as all fill which will ultimately be subjected to structural loadings, such as imposed by footings, floor slabs, pavements, etc. Structural fill will be required as backfill over foundations and utilities, as site grading fill, and possibly as replacement fill below footings. All structural fill must be free of sod, rubbish, topsoil, frozen soil, and other deleterious materials.

Structural site grading fill is defined as structural fill placed over relatively large open areas to raise the overall grade. For structural site grading fill, the maximum particle size shall not exceed 4 inches; although, occasional larger particles, not exceeding 8 inches in diameter, may be incorporated if placed randomly in a manner such that "honeycombing" does not occur and the desired degree of compaction can be achieved. The maximum particle size within structural fill placed within confined areas shall be restricted to 2 inches.

On-site clay soils may be re-utilized as structural site grading fill. However, utilization of the fine-grained soils (clays and silts) as structural site grading fill will require tight moisture control, which will be very difficult, if not impossible, during wet and/or cold periods of the year. Additionally, they are likely above optimum moisture content for compaction and, therefore, would require some drying prior to compacting. Only granular soils are recommended as structural fill in confined areas, such as around foundations, within utility trenches, and as replacement fill below foundations.

Imported granular structural fill should consist of a fairly well graded mixture of sand and gravel with less than 20 percent fines (clays and silts) and no more than 30 percent retained on the 0.75-inch sieve.

To stabilize soft subgrade conditions, a mixture of coarse gravels and cobbles and/or 1.5-inch to 2.0-inch size gravel (stabilizing fill) should be utilized.

Non-structural site grading fill is defined as all fill material not designated as structural fill and may consist of any cohesive or granular soils not containing excessive amounts of degradable material.

5.2.4 Fill Placement and Compaction

All structural fill shall be placed in lifts not exceeding 8 inches in loose thickness. Structural fills shall be compacted in accordance with the percent of the maximum dry density as determined by the ASTM¹ D-1557 (AASHTO² T-180) compaction criteria in accordance with the following table:

Location	Total Fill Thickness (feet)	Minimum Percentage of Maximum Dry Density
Beneath an area extending at least 3 feet beyond the perimeter of the structure	0 to 8	95
Outside area defined above	0 to 5	90
Outside area defined above	5 to 8	95
Road base	-	96

Structural fills greater than 8 feet thick are not anticipated at the site.

Subsequent to stripping and prior to the placement of structural site grading fill, the subgrade shall be prepared as discussed in Section 5.2.1, Site Preparation, of this report. In confined areas, subgrade preparation should consist of the removal of all loose or disturbed soils.

Coarse gravel and cobble mixtures (stabilizing fill), if utilized, shall be end-dumped, spread to a maximum loose lift thickness of 15 inches, and compacted by dropping a backhoe bucket onto the surface continuously at least twice. As an alternative, the stabilizing fill may be compacted by passing moderately heavy construction equipment or large self-propelled compaction equipment at least twice. Subsequent fill material placed over the coarse gravels and cobbles shall be adequately compacted so that the "fines" are "worked into" the voids in the underlying coarser gravels and cobbles.

Non-structural fill may be placed in lifts not exceeding 12 inches in loose thickness and compacted by passing construction, spreading, or hauling equipment over the surface at least twice.

¹ American Society for Testing and Materials

² American Association of State Highway and Transportation Officials



5.2.5 Utility Trenches

All utility trench backfill material below structurally loaded facilities (footings, floor slabs, flatwork, pavements, etc.) shall be placed at the same density requirements established for structural fill. If the surface of the backfill becomes disturbed during the course of construction, the backfill shall be proofrolled and/or properly compacted prior to the construction of any exterior flatwork over a backfilled trench. Proofrolling shall be performed by passing moderately loaded rubber tire-mounted construction equipment uniformly over the surface at least twice. If excessively loose or soft areas are encountered during proofrolling, they shall be removed to a maximum depth of 2 feet below design finish grade and replaced with structural fill.

Most utility companies and City-County governments are now requiring that Type A-1a or A-1b (AASHTO Designation – basically granular soils with limited fines) soils be used as backfill over utilities. These organizations are also requiring that in public roadways, the backfill over major utilities be compacted over the full depth of fill to at least 96 percent of the maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) method of compaction. GSH recommends that as the major utilities continue onto the site that these compaction specifications are followed.

Fine-grained soil, including the on-site clays, are not recommended for utility trench backfill.

5.3 SPREAD AND CONTINUOUS WALL FOUNDATIONS

5.3.1 Design Data

The proposed structure may be supported upon conventional spread and continuous wall foundations established upon suitable natural soils and/or structural fill extending to suitable natural soils. For design, with respect to the proposed construction and anticipated loading given in Section 2.0, Proposed Construction, the following parameters are recommended:

Minimum Depth of Embedment for Frost Protection	- 30 inches
Minimum Depth of Embedment for Non-frost Conditions	- 15 inches
Minimum Width for Continuous Wall Footings	- 18 inches
Minimum Width for Isolated Spread Footings	- 24 inches
Recommended Net Bearing Pressure for Real Load Conditions For footings on suitable natural clay soils	- 2,000 pounds per square foot



For footings established on a minimum of 18 inches of granular structural fill or natural undisturbed granular soils	- 2,500 pounds per square foot
Bearing Pressure Increase for Seismic Loading	- 50 percent

The term “net bearing pressure” refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

5.3.2 Installation

Under no circumstances shall the footings be established upon non-engineered fills, topsoil, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water. If unsuitable soils are encountered, they must be completely removed and replaced with compacted structural fill.

The width of structural replacement fill below footings should be equal to the width of the footing plus one foot for each foot of fill thickness.

5.3.3 Settlements

Settlements of foundations designed and installed in accordance with above recommendations and supporting maximum projected structural loads are anticipated to be less than approximately one inch. Settlements are expected to occur rapidly, with approximately 60 percent or more of the settlements occurring during construction.

5.4 LATERAL RESISTANCE

Lateral loads imposed upon foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footings and the supporting soils. In determining frictional resistance, a coefficient of 0.40 should be utilized. Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 300 pounds per cubic foot.

A combination of passive earth resistance and friction may be utilized provided that the friction component of the total is divided by 1.5.



5.5 FLOOR SLABS

Floor slabs may be established upon suitable natural soils and/or upon structural fill extending to suitable natural soils. Under no circumstances shall floor slabs be established over non-engineered fills, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or within ponded water.

In order to facilitate curing of the concrete, it is recommended that floor slabs be directly underlain by at least 4 inches of "free-draining" fill, such as "pea" gravel or three-quarters to one-inch minus clean gap-graded gravel.

Settlement of lightly loaded floor slabs designed according to previous recommendations (average uniform pressure of 200 pounds per square foot or less) is anticipated to be less than one-quarter of an inch.

5.6 PAVEMENTS

The existing soils will exhibit moderately poor pavement support characteristics when saturated or nearly saturated. All pavement areas must be prepared as previously discussed (see Section 5.2.1, Site Preparation). With the subgrade soils and the projected traffic as discussed in Section 2, Proposed Construction, the following pavement sections are recommended:

Parking Areas

(Light Volume of Automobiles and Light Trucks,
Occasional Medium-Weight Trucks,
No Heavy-Weight Trucks)
[Less than 1 equivalent 18-kip axle load per day]

Flexible:

2.5 inches	Asphalt concrete
8.0 inches	Aggregate base
Over	Suitable natural subgrade soils, and/or structural site grading fill extending to suitable natural soils



Rigid:

5.0 inches	Portland cement concrete (non-reinforced)
4.0 inches	Aggregate base
Over	Suitable natural soils and/or structural site grading fill extending to suitable natural soils*

* Rigid pavements shall not be established on non-engineered fills, even if properly prepared.

Primary Drive Lanes within Parking Lots

(Moderate Volume of Automobiles and Light Trucks,
 Light Volume of Medium-Weight Trucks,
 and Occasional Heavy-Weight Trucks)
 [5 equivalent 18-kip axle loads per day]

Flexible:

3.0 inches	Asphalt concrete
8.0 inches	Aggregate base
Over	Suitable natural subgrade soils, and/or structural site grading fill extending to suitable natural soils

Rigid:

5.5 inches	Portland cement concrete (non-reinforced)
5.0 inches	Aggregate base
Over	Suitable natural subgrade soils, and/or structural site grading fill extending to suitable natural subgrade soils*

* Rigid pavements shall not be established on non-engineered fills, even if properly prepared.

For dumpster pads, we recommend a pavement section consisting of 6.5 inches of Portland cement concrete, 4.0 inches of aggregate base, over properly prepared suitable natural subgrade or site grading structural fills extending to suitable natural soils. Dumpster pads shall not be constructed overlying non-engineered fills unless heavily reinforced.

These above rigid pavement sections are for non-reinforced Portland cement concrete. Concrete should be designed in accordance with the American Concrete Institute (ACI) and joint details should conform to the Portland Cement Association (PCA) guidelines. The concrete should have a minimum 28-day unconfined compressive strength of 4,000 pounds per square inch and contain 6 percent \pm 1 percent air-entrainment.

5.7 CEMENT TYPES

The laboratory tests indicate that the natural soils tested contain a negligible amount of water soluble sulfates. Based on our test results, concrete in contact with the on-site soil will have a low potential for sulfate reaction (ACI 318, Table 4.3.1). Therefore, all concrete which will be in contact with the site soils may be prepared using Type I or IA cement.

5.8 GEOSEISMIC SETTING

5.8.1 General

Utah municipalities have adopted the International Building Code (IBC) 2012. The IBC 2012 code determines the seismic hazard for a site based upon 2008 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

The structure must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2012 edition.

5.8.2 Faulting

Based upon our review of available literature, no active faults are known to pass through or immediately adjacent to the site. The nearest active fault is the Wasatch Fault, approximately 8.2 miles southeast of the site.

5.8.3 Soil Class

For dynamic structural analysis, the Site Class D - Stiff Soil Profile as defined in Chapter 20 of ASCE 7 (per Section 1613.3.2, Site Class Definitions, of IBC 2012) can be utilized.



5.8.4 Ground Motions

The IBC 2012 code is based on 2008 USGS mapping, which provides values of short and long period accelerations for the Site Class B boundary for the Maximum Considered Earthquake (MCE). This Site Class B boundary represents a hypothetical bedrock surface and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for an MCE event and incorporates a soil amplification factor for a Site Class D soil profile in the second column. Based on the site latitude and longitude (40.5422 degrees north and 111.9853 degrees west, respectively), the values for this site is tabulated below:

Spectral Acceleration Value, T Seconds	Site Class B Boundary [mapped values] (% g)	Site Class D [adjusted for site class effects] (% g)
Peak Ground Acceleration	45.2	47.4
0.2 Seconds, (Short Period Acceleration)	$S_S = 112.9$	$S_{MS} = 118.4$
1.0 Seconds (Long Period Acceleration)	$S_1 = 37.5$	$S_{M1} = 61.9$

The IBC 2012 code design accelerations (S_{DS} and S_{D1}) are based on multiplying the above accelerations (adjusted for site class effects) for the MCE event by two-thirds.

5.8.5 Liquefaction

The site is located in an area that has been identified by Salt Lake County as having a “low” liquefaction potential. Liquefaction is defined as the condition when saturated, loose, finer-grained sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Due to the lack of a shallow groundwater table and the relatively dense nature of the granular soils encountered, liquefaction is not anticipated to occur at the site during the design seismic event.

5.9 SITE VISITS

GSH must observe the foundation excavations prior to placing structural fill to verify that any topsoil and/or disturbed soils have been removed and that suitable soils have been encountered.

CCA Acquisition Company, LLC
Job No. 1226-003-13
Geotechnical Study
October 18, 2013



If you have any questions or would like to discuss these items further, please feel free to contact us at (801) 685-9190.

Respectfully submitted,

GSH Geotechnical, Inc.

Reviewed by:

A handwritten signature in black ink, appearing to read "Patrick R. Emery".

Patrick R. Emery, P.E.
State of Utah No. 7941710
Project Geotechnical Engineer

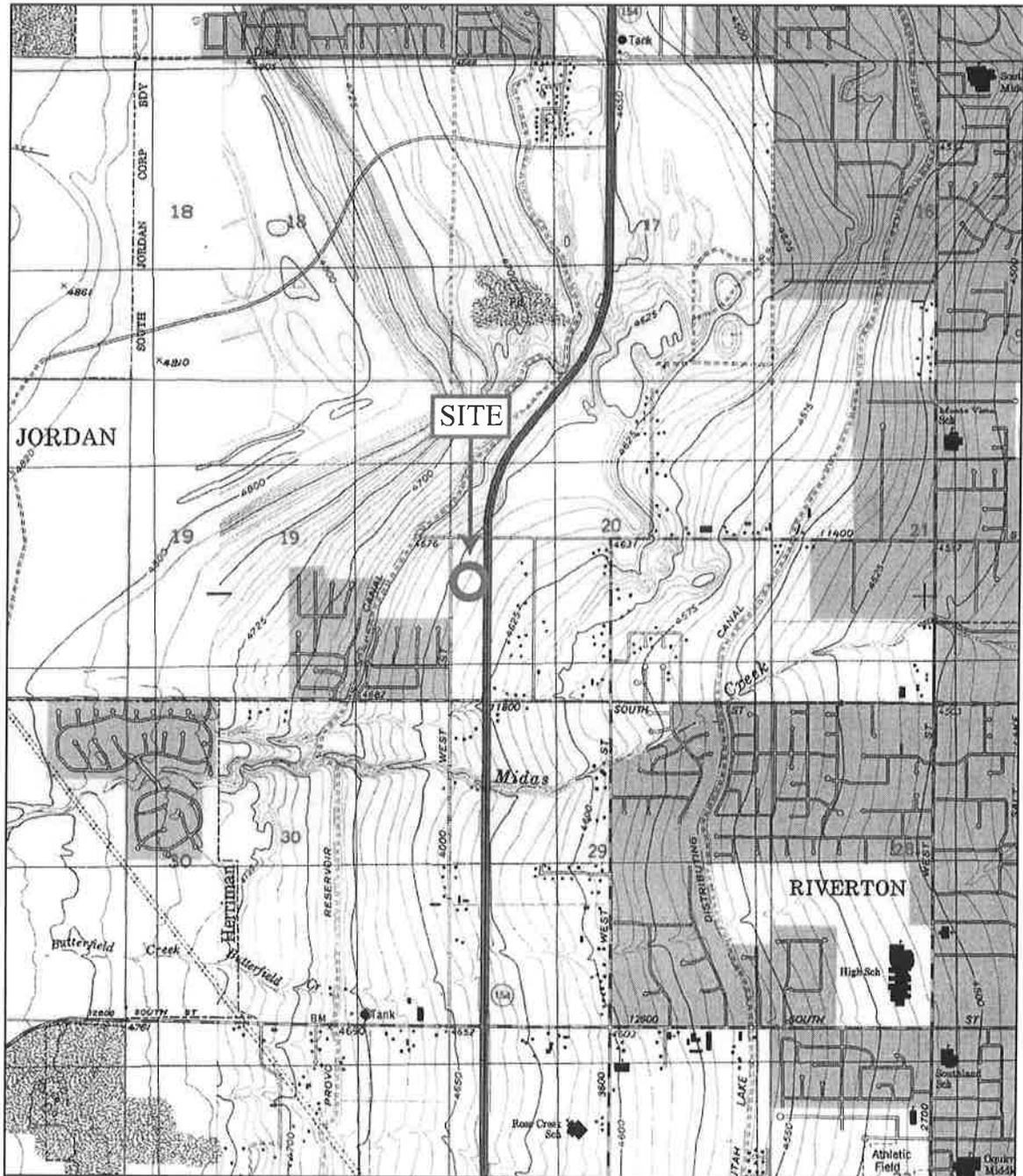
A handwritten signature in black ink, appearing to read "Bryan N. Roberts".

Bryan N. Roberts, P.E.
State of Utah No. 276476
Project Geotechnical Engineer

PRE/BNR;jlh

- Encl. Figure 1, Vicinity Map
- Figure 2, Site Plan
- Figures 3A through 3AB, Log of Test Pits
- Figure 4, Key to Test Pit Log (USCS)
- Figures 5A through 5G, Log of Borings
- Figure 6, Key to Boring Log (USCS)

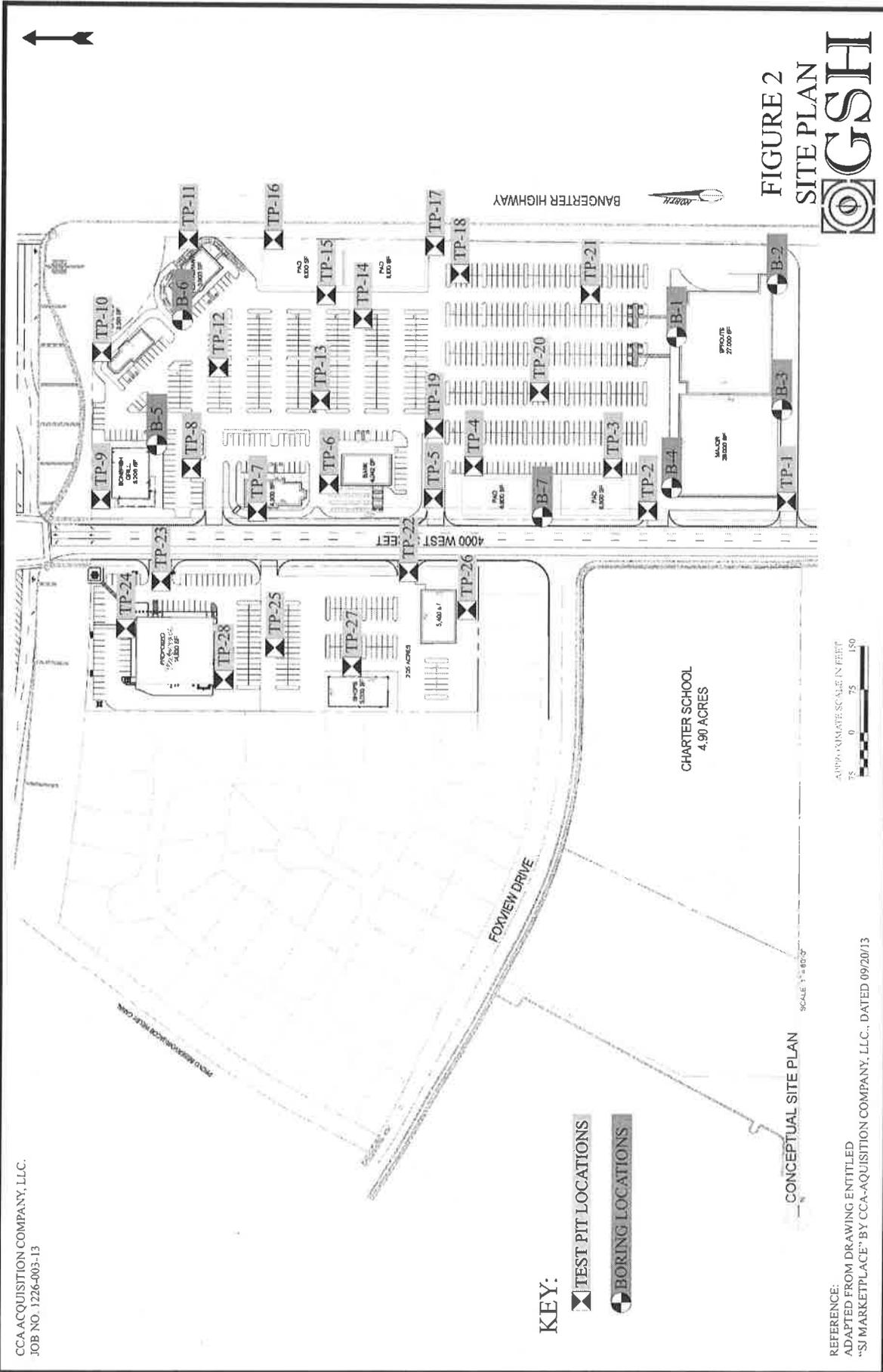
Addressee (3 + email)



REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP(S)
ENTITLED "MIDVALE, UTAH" AND "COPPERTON, UTAH"
BOTH DATED 1999

FIGURE 1
VICINITY MAP
 GSH

CCA ACQUISITION COMPANY, LLC.
JOB NO. 1226-003-13



KEY:

- ✕ TEST PIT LOCATIONS
- BORING LOCATIONS

CONCEPTUAL SITE PLAN

SCALE 1" = 40'-0"
 REFERENCE:
 ADAPTED FROM DRAWING ENTITLED
 "SJ MARKETPLACE" BY CCA-ACQUISITION COMPANY, LLC., DATED 09/20/13

APPROXIMATE SCALE IN FEET
 0 75 150

FIGURE 2
SITE PLAN
GSH



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-1

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangarter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, and occasional rootholes; major roots (topsoil) to 8"; gray with some oxidation mottling								moist
		grades blocky								
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3A



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-2

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

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DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	<p>SILTY CLAY with trace fine sand, and some rootholes; major roots (topsoil) to 8"; gray with some oxidation mottling</p> <p>grades blocky</p>	0							moist
		<p>End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.</p>	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3B



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-3

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, and some rootholes; major roots (topsoil) to 8"; gray/brown with some oxidation mottling								moist
		grades blocky								
		grades with some fine sand and some pinholes								
		grades fine and coarse gravelly clay with trace fine to coarse sand; brown								
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3C



GSH

TEST PIT LOG

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TEST PIT: TP-4

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, and some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 4							moist
	SM	SILTY FINE TO COARSE SAND with some fine gravel; brown	4 - 8							moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown	8 - 15							moist
		grades fine and coarse gravel with some fine to coarse sand and trace silt and clay, occasional cobbles; brown	15 - 15.0'							
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0' - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3D



GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-6

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand and some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 4.5							moist
		grades gravelly clay with some fine to coarse sand; brown	4.5 - 9.5							
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and clay; brown	9.5 - 15.0							moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0 - 25.0							

See Subsurface Conditions section in the report for additional information.

FIGURE 3F



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-7

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, some rootholes, blocky; major roots (topsoil) to 8"; light brown	0 - 5							moist
		grades fine to medium clay with some fine and coarse gravel; brown	5 - 10							moist
	GM	SILTY FINE AND COARSE GRAVEL with some fine to coarse sand and silt; brown	10 - 15							moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and cobbles; brown	15 - 15.0'							moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0' - 25'							

See Subsurface Conditions section in the report for additional information.

FIGURE 3G



GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-8

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, some rootholes, blocky; major roots (topsoil) to 8"; light brown with oxidation mottling	0 5							moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5 10 15 20 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3H



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-9

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, blocky; major roots (topsoil) to 8"; light brown with oxidation mottling	0 - 8	█						moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown grades with some cobbles	8 - 15	█						moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15 - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3I



CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand; major roots (topsoil) to 8"; light brown with some oxidation mottling	0							moist
		grades blocky	5							
	GP/ GM	FINE AND COARSE GRAVEL with some fine to coarse sand, silt, and cobbles; brown	10							moist
		grades with some small boulders	15							
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3J



GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-11

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, and blocky; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 4	▲						moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown grades with some cobbles	4 - 15	▲						moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15 - 25	▲						

See Subsurface Conditions section in the report for additional information.

FIGURE 3K



GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-12

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangarter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, and blocky; major roots (topsoil) to 8"; light brown with occasional oxidation mottling	0 5							moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5 10 15 20 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3L



GSH

TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-14

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand; major roots (topsoil) to 8"; light brown with some oxidation mottling								moist
		grades blocky	5							
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.								
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3N



GSH

TEST PIT LOG

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TEST PIT: TP-15

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 5							moist
		grades blocky	5							
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; light brown	5 - 10							moist
		grades fine and coarse gravel with some silt and cobbles; brown	10 - 16.0							
		End of exploration at 16.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	16.0 - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 30



GSH

TEST PIT LOG

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TEST PIT: TP-16

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, trace rootholes, and blocky; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 to 5							moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt and clay; brown	5 to 15							moist
		grades fine and coarse gravel with some silt and cobbles; brown	15 to 25							
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	25 to 30							

See Subsurface Conditions section in the report for additional information.

FIGURE 3P



GSH

TEST PIT LOG

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TEST PIT: TP-17

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand, some rootholes; major roots (topsoil) to 8"; light brown with occasional oxidation mottling	0 - 5	█						moist
	GP/ GM	FINE AND COARSE GRAVEL with some fine sand, silt and cobbles; brown	5 - 10	▴						moist
		grades fine to coarse sandy fine and coarse gravel	10 - 15	▴						moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15 - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Q



GSH

TEST PIT LOG

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TEST PIT: TP-18

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling	0							moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3R



TEST PIT LOG

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TEST PIT: TP-19

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	<p>SILTY CLAY with trace fine sand, some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling</p> <p>grades blocky</p>	0 5							moist
		<p>End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.</p>	5 10 15 20 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3S



TEST PIT LOG

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TEST PIT: TP-20

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	<p>SILTY CLAY with trace fine sand, some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling</p> <p>grades blocky</p>	0							moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3T



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-21

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	<p>SILTY CLAY with trace fine sand, some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling</p> <p>grades blocky</p>	0							moist
		<p>End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.</p>	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3U



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-23

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand, some rootholes; dark brown								slightly moist
		grades with trace fine sand, blocky; light brown with some oxidation mottling								moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5							
			10							
			15							
			20							
			25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3W



CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand; major roots (topsoil) up to 8"; light brown with occasional oxidation mottling	0 - 5	█						slightly moist
		grades blocky	5 - 10	█						moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown	10 - 15	█						
		grades with some cobbles	15 - 15.0'	█						
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0' - 25'							

See Subsurface Conditions section in the report for additional information.

FIGURE 3X



GSH

TEST PIT LOG

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TEST PIT: TP-25

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand, some rootholes; major roots (topsoil) up to 8"; light brown with oxidation mottling	0 5							moist
		End of exploration at 5.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	5 10 15 20 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Y



TEST PIT LOG

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TEST PIT: TP-26

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 10	█						moist
	SM	SILTY FINE TO COARSE SAND with some fine and coarse gravel; brown	10 - 15	█						moist
	GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown	15 - 15.0'	█						moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0' - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3Z



TEST PIT LOG

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TEST PIT: TP-27

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with trace fine sand, some rootholes; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 to 13.5							moist
	GM	SILTY FINE AND COARSE GRAVEL with some fine to coarse sand; brown	13.5 to 15.0							moist
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0 to 25.0							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AA



TEST PIT LOG

Page: 1 of 1

TEST PIT: TP-28

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/08/13 DATE FINISHED: 10/08/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: RAG

DRILLING METHOD/EQUIPMENT: JCB 214S - Backhoe

ELEVATION: ---

GROUNDWATER DEPTH: No groundwater encountered (10/08/13)

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0							
	CL	SILTY CLAY with some fine sand; major roots (topsoil) to 8"; light brown with some oxidation mottling	0 - 8	█						moist
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown	8 - 15	█						moist
		grades with some cobbles	15 - 15.0	█						
		End of exploration at 15.0'. No groundwater encountered at time of excavation. No significant sidewall caving.	15.0 - 25							

See Subsurface Conditions section in the report for additional information.

FIGURE 3AB

PROJECT: Proposed SJ Marketplace
PROJECT LOCATION: SWC of intersection 11400 South & Bangenter Hwy, South Jordan, Utah
PROJECT NUMBER: 1226-003-13

KEY TO TEST PIT LOG

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
1	2	3	4	5	6	7	8	9	10	11
COLUMN DESCRIPTIONS										
1 Water Level: Depth to measure groundwater table. See symbol below.		9 Liquid Limit (%): Water content at which a soil changes from plastic to liquid behavior.								
2 USCS: Graphic depiction of subsurface material encountered; typical symbols are explained below.		10 Plasticity Index (%): Range of water content at which a soil exhibits plastic properties.								
3 Description: Description of material encountered; may include color, moisture, grain size, density/consistency, etc.		11 Remarks: Comments and observations regarding drilling or sampling made by driller or field personnel. Other field and laboratory test results using the following abbreviations:								
4 Depth (ft.): Depth in feet below the ground surface.										
5 Sample Symbol: Type of soil sample collected at depth interval shown; sampler symbols are explained below.										
6 Moisture (%): Water content of soil sample measured in laboratory, expressed as percentage of dry weight of specimen.										
7 Dry Density (pcf): The density of a soil measured in laboratory; expressed as pounds per cubic foot.										
8 % Passing 200: Fines content of soil sample passing a No. 200 sieve measured in laboratory; expressed as a percentage.										
				CEMENTATION: Weakly: Crumbles or breaks with handling of slight finger pressure. Moderately: Crumbles or breaks with considerable finger pressure. Strongly: Will not crumble or break with finger pressure.			MODIFIERS: Trace <5% Some 5-12% With >12%		MOISTURE CONTENT (FIELD TEST): Dry: Absence of moisture, dusty, dry to the touch. Moist: Damp but no visible water. Saturated: Visible water, usually soil below water table.	
				Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on the logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.						
UNIFIED SOIL CLASSIFICATION SYSTEM										
MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS					
			Graph	Letter						
COARSE-GRAINED SOILS More than 50% of No. 200 sieve size.	GRAVELS More than 50% of coarse fraction retained in No. 4 sieve.	CLEAN GRAVELS (little or no fines)		GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines					
		GRAVELS WITH FINES (appreciable amount of fines)		GP	Poorly Graded Gravel, Gravel-Sand Mixtures, Little or No Fines					
		CLEAN SANDS (little or no fines)		GM	Silty Gravels, Gravel-Sand-Silt Mixtures					
		SANDS WITH FINES (appreciable amount of fines)		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures					
	SANDS More than 50% of coarse fraction passing through No. 4 sieve.	CLEAN SANDS (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines					
		SANDS WITH FINES (appreciable amount of fines)		SP	Poorly Graded Sands, Gravelly Sands, Little or No Fines					
SANDS WITH FINES (appreciable amount of fines)			SM	Silty Sands, Sand-Silt Mixtures						
FINE-GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity						
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays						
			OL	Organic Silts and Organic Silty Clays of Low Plasticity						
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils						
			CH	Inorganic Clays of High Plasticity, Fat Clays						
			OH	Organic Clays of Medium to High Plasticity, Organic Silts						
HIGHLY ORGANIC SOILS			PT	Peat, Humus, Swamp Soils with High Organic Contents						

Note: Dual Symbols are used to indicate borderline soil classifications

STRATIFICATION:	
DESCRIPTION	THICKNESS
Seam	up to 1/8"
Layer	1/8" - 12"

STRATIFICATION:	
Occasional:	
One or less per 6" of thickness.	
Numerous:	
More than one per 6" of thickness.	

TYPICAL SAMPLER GRAPHIC SYMBOLS

	Bulk/Bag Sample
	Standard Penetration Split Spoon Sampler
	Rock Core
	No Recovery
	3.25" OD 2.42" ID D&M Sampler
	3.0" OD 2.42" ID D&M Sampler
	California Sampler
	Thin Wall

LOG KEY SYMBOL

	Water Level
--	-------------

FIGURE 4





GSH

BORING LOG

Page: 1 of 1

BORING: B-1

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: NM

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with some fine to coarse sand and fine gravel; major roots (topsoil) to 6"; brown		24							slightly moist medium stiff
			5	34							very stiff
	GP/ GM	FINE AND COARSE GRAVEL with some fine to coarse sand and silt; brown									very dense
			10	50/ 3							
		grades fine and coarse gravelly fine to coarse sand		85							dense
		End of exploration at 15.0'. No groundwater encountered at time of drilling. Installed 1-1/4" diameter slotted PVC pipe to 15.0'.	15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5A



BORING LOG

Page: 1 of 1

BORING: B-2

CLIENT: CCA Acquisition Company, LLC. PROJECT NUMBER: 1226-003-13
 PROJECT: Proposed SJ Marketplace DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13
 LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah GSH Field Rep.: NM
 DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger HAMMER: Automatic WEIGHT: 140 lbs DROP: 30"
 GROUNDWATER DEPTH: No groundwater encountered (10/07/13) ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand and fine gravel; major roots (topsoil) to 6"; brown with oxidation mottling		36		24.7	94				slightly moist very stiff
	SP/ SM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt; brown	5	89							slightly moist dense
			10	50/ 5							very dense
	CL	SILTY CLAY with some fine sand; brown		36							slightly moist very stiff
		End of exploration at 15.0'. No groundwater encountered at time of drilling.	15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5B



BORING LOG

Page: 1 of 1

BORING: B-3

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 **DATE FINISHED:** 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: NM

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs **DROP:** 30"

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand; brown		33	X						slightly moist very stiff
		grades with some fine sand	5	29	X	26.9	95				
		grades with trace fine sand	10	24	X						
	GP/ GM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt; brown		38							medium dense
		End of exploration at 15.0'. No groundwater encountered at time of drilling.	15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5C



GSH

BORING LOG

Page: 1 of 1

BORING: B-4

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: NM

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand; brown with oxidation mottling		23							slightly moist very stiff
	GP/ GM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt; brown	5	50/ 5							very dense
			10	25							medium dense
	CL	FINE SANDY CLAY brown		16		21.4	100				slightly moist medium stiff
		End of exploration at 15.0'. No groundwater encountered at time of drilling.	15								
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5D



GSH

BORING LOG

Page: 1 of 1

BORING: B-5

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 **DATE FINISHED:** 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: NM

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand; brown		21							slightly moist stiff
		grades with some fine and coarse gravel	5	14							
			10	50/ 5		7.7	123				very stiff
	GP/ GM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt; brown	15	50/ 5							very dense
		End of exploration at 15.0'. No groundwater encountered at time of drilling.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5E



BORING LOG

Page: 1 of 1

BORING: B-6

CLIENT: CCA Acquisition Company, LLC. **PROJECT NUMBER:** 1226-003-13
PROJECT: Proposed SJ Marketplace **DATE STARTED:** 10/07/13 **DATE FINISHED:** 10/07/13
LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah **GSH Field Rep.:** NM
DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger **HAMMER:** Automatic **WEIGHT:** 140 lbs **DROP:** 30"
GROUNDWATER DEPTH: No groundwater encountered (10/07/13) **ELEVATION:** ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand; brown		21							slightly moist very stiff
			5	14							
	GP/ GM	FINE TO COARSE SANDY FINE AND COARSE GRAVEL with some silt; brown		50/ 5							very dense
			15	71							
		End of exploration at 15.0'. No groundwater encountered at time of drilling. Installed 1-1/4" diameter slotted PVC pipe to 15.0'.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5F



GSH

BORING LOG

Page: 1 of 1

BORING: B-7

CLIENT: CCA Acquisition Company, LLC.

PROJECT NUMBER: 1226-003-13

PROJECT: Proposed SJ Marketplace

DATE STARTED: 10/07/13 DATE FINISHED: 10/07/13

LOCATION: SWC of intersection 11400 South & Bangerter Hwy, South Jordan, Utah

GSH Field Rep.: NM

DRILLING METHOD/EQUIPMENT: 3-3/4" ID Hollow-Stem Auger

HAMMER: Automatic

WEIGHT: 140 lbs

DROP: 30"

GROUNDWATER DEPTH: No groundwater encountered (10/07/13)

ELEVATION: ---

WATER LEVEL	U S C S	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
		Ground Surface	0								
	CL	SILTY CLAY with trace fine sand; brown with oxidation mottling		31		36.1	82				slightly moist very stiff
			5	27							
	GP/ GM	FINE AND COARSE GRAVELLY FINE TO COARSE SAND with some silt; brown		50/ 5							very dense
			10	50/ 5							
			15	50/ 5							
		End of exploration at 15.0'. No groundwater encountered at time of drilling.									
			20								
			25								

See Subsurface Conditions section in the report for additional information.

FIGURE 5G

PROJECT: Proposed SJ Marketplace
PROJECT LOCATION: SWC of intersection 11400 South & Bangarter Hwy, South Jordan, Utah
PROJECT NUMBER: 1226-003-13

KEY TO BORING LOG

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

- | | |
|---|---|
| <p>1 Water Level: Depth to measure groundwater table. See symbol below.</p> <p>2 USCS: Graphic depiction of subsurface material encountered; typical symbols are explained below.</p> <p>3 Description: Description of material encountered; may include color, moisture, grain size, and density/consistency.</p> <p>4 Depth (ft.): Depth in feet below the ground surface.</p> <p>5 Blow Count: Number of blows required to advance sampler (12 inches) beyond first, using a 140-lb hammer with a 30 inch drop.</p> <p>6 Sample Symbol: Type of soil sample collected at depth interval shown; sampler symbols are explained below.</p> <p>7 Moisture (%): Water content of soil sample measured in laboratory; expressed as percentage of dry weight of specimen.</p> <p>8 Dry Density (pcf): The density of a soil measured in laboratory; expressed as pounds per cubic foot.</p> | <p>9 % Passing 200: Fines content of soil sample passing a No. 200 sieve measured in laboratory, expressed as a percentage.</p> <p>10 Liquid Limit (%): Water content at which a soil changes from plastic to liquid behavior.</p> <p>11 Placsticity Index (%): Range of water content at which a soil exhibits plastic properties.</p> <p>12 Remarks: Comments and observations regarding drilling or sampling made by driller or field personnel. Other field and laboratory test results; using the following abbreviations:</p> |
|---|---|

CEMENTATION	MODIFIERS	MOISTURE CONTENT (FIELD TEST)
Weakly: Crumbles or breaks with handling of slight finger pressure.	Trace <5%	Dry: Absence of moisture, dusty, dry to the touch.
Moderately: Crumbles or breaks with considerable finger pressure.	Some 5 - 12%	Moist: Damp but no visible water.
Strongly: Will not crumble or break with finger pressure.	With >12%	Saturated: Visible water, usually soil below water table.

Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on the logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.

UNIFIED SOIL CLASSIFICATION SYSTEM	MAJOR DIVISIONS		SYMBOLS		TYPICAL DESCRIPTIONS	
			Graph	Letter		
COARSE-GRAINED SOILS More than 50% of No. 200 sieve size.	GRAVELS More than 50% of coarse fraction retained in No. 4 sieve.	CLEAN GRAVELS (little or no fines)		GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines	
		GRAVELS WITH FINES (appreciable amount of fines)		GP	Poorly Graded Gravel, Gravel-Sand Mixtures, Little or No Fines	
		SANDS More than 50% of coarse fraction passing through No. 4 sieve.	CLEAN SANDS (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
			SANDS WITH FINES (appreciable amount of fines)		SP	Poorly Graded Sands, Gravelly Sands, Little or No Fines
	SILTS AND CLAYS Liquid limit less than 50%			GM	Silty Gravels, Gravel-Sand-Silt Mixtures	
				GC	Clayey Gravels, Gravel-Sand-Clay Mixtures	
			SM	Silty Sands, Sand-Silt Mixtures		
SILTS AND CLAYS Liquid limit greater than 50%			SC	Clayey Sands, Sand-Clay Mixtures		
			ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity		
			CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays		
			OL	Organic Silts and Organic Silty Clays of Low Plasticity		
SILTS AND CLAYS Liquid limit greater than 50%			MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils		
			CH	Inorganic Clays of High Plasticity, Fat Clays		
			OH	Organic Clays of Medium to High Plasticity, Organic Silts		
HIGHLY ORGANIC SOILS			PT	Peat, Humus, Swamp Soils with High Organic Contents		

STRATIFICATION	
DESCRIPTION	THICKNESS
Seam	up to 1/8"
Layer	1/8" - 12"

STRATIFICATION	
Occasional:	
One or less per 6" of thickness.	
Numerous:	
More than one per 6" of thickness.	

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Bulk/Bag Sample
- Standard Penetration Split Spoon Sampler
- Rock Core
- No Recovery
- 3.25" OD
2.42" ID
D&M Sampler
- 3.0" OD
2.42" ID
D&M Sampler
- California Sampler
- Thin Wall

LOG KEY SYMBOLS

- Water Level

Note: Dual Symbols are used to indicate borderline soil classifications