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PRELIMINARY GEOTECHNICAL INVESTIGATION

JUDICIAL COMPLEX PARKING GARAGE
SANTA FE, NEW MEXICO

EEG Project No.: A13-921

Prepared for:

SANTA FE COUNTY

Prepared By:

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October 7, 2013

SUMMARY

The information presented in this section is a partial summary intended for reference use only. This information is intended for use only in conjunction with the complete geotechnical investigation report. Significant information contained in the complete geotechnical report may not be present here.

ON-SITE SOILS

The test holes encountered a variable soil profile consisting of silty sand with some interbedded layers of clean to slightly silty sands, clayey sand, and sandy clay. The sandy soils were generally loose in the upper 10 feet and medium dense to dense at greater depths. Test hole 3 encountered a significant clay pocket at presumed foundation bearing depth (13 feet bgs). The clay was stiff and medium moist to moist.

Groundwater was not encountered in the test holes to the maximum depth of exploration, approximately 32 feet.

FOUNDATIONS

The parking garage building may be founded on conventional shallow foundations with an isolated concrete slab-on-grade ground floor.

We anticipate the parking garage will have a full below-grade level, and foundations for the entire building will be embedded around 15 feet below existing site grades. The base of all foundations should be embedded a minimum of 24 inches below lowest adjacent grade/finished floor elevation. The following allowable bearing capacities may be utilized for different foundation widths:

12 inches	24 inches	36 inches	48 inches	60 inches
2000 psf	2500 psf	3000 psf	3500 psf	4000 psf

If encountered during construction, the clay pocket discovered in test hole 3 should be removed from under foundations and slabs to a minimum depth of 5 feet and replaced with engineered fill. If the entire building footprint is over-excavated to a minimum depth of 5 feet below foundation/slab bearing elevation, the above allowable bearing capacity values may be increased by 1000 psf.

Other foundation types that are compatible with the site include mat foundations and drilled piers. We anticipate the final foundation type will be determined as design loads are finalized.

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INTRODUCTION

This report presents the results of our preliminary geotechnical investigation for the proposed parking garage structure to be built around the Santa Fe County Judicial District Court House located at 100 Catron Street in Santa Fe, New Mexico. This report may be revised as the project design is finalized.

The investigation was performed to determine the site subsurface conditions, and based on the conditions encountered, develop revised geotechnical recommendations for:

- Foundation Design
- Slabs-on-Grade
- Retaining Walls
- Site Grading
- Earthwork Construction

The conclusions and recommendations presented are based on information provided by the client regarding the proposed construction, subsurface conditions disclosed by the test holes, laboratory testing, and the local standards of our profession at the time this report was prepared. It is assumed that all recommendations herein will be followed.

PROJECT DESCRIPTION

The project will consist of construction of a three-story parking garage building.

We anticipate the building will be composed primarily of cast-in-place and pre-cast concrete construction. A full below-grade parking level is anticipated.

Design loads were not available at the time this report was prepared.

If structure loads or configuration differ from those indicated in this report, this office should be notified.

SOIL CONDITIONS

To explore the site subsurface conditions five test holes were excavated on the site with a truck-mounted CME Model 75 drill rig using hollow stem auger drilling techniques. Standard penetration testing was performed with an automatic SPT hammer (140 lb./30 inch free-fall).

The approximate test hole locations are presented on the attached Site Plan, Figure 1. Detailed logs of the test holes are presented on Figures 2 through 6. Soil Index test results are summarized on Table 2.

The test holes encountered a variable soil profile consisting of silty sand with some interbedded layers of clean to slightly silty sands, clayey sand, and sandy clay. The sandy soils were generally loose in the upper 10 feet and medium dense to dense at greater depths. Test hole 3 encountered a significant clay pocket at presumed foundation bearing depth (13 feet bgs). The clay was stiff and medium moist to moist. Groundwater was not encountered in the test holes to the maximum depth of exploration, approximately 32 feet.

On-site sandy soils are suitable for re-use as engineered fill. Clay soils should not be used as engineered fill. Specifications for engineered fill are presented in the Earthworks section of this report.

The subsurface conditions presented above allow observation of a very small portion of the soils below the site. Significant variation in subsurface conditions may occur across the site that was not disclosed by the test holes.

FOUNDATION RECOMMENDATIONS

SEISMIC DESIGN

An IBC seismic site classification of D may be utilized for design.

FOUNDATIONS

The parking garage building may be founded on conventional shallow foundations with an isolated concrete slab-on-grade ground floor. We anticipate the parking garage will have a full below-grade level, and foundations for the entire building will be embedded around 15 feet below existing site grades. The base of all foundations should be embedded a minimum of 24 inches below lowest adjacent grade/finished floor elevation. The following allowable bearing capacities may be utilized for different foundation widths:

12 inches	24 inches	36 inches	48 inches	60 inches
2000 psf	2500 psf	3000 psf	3500 psf	4000 psf

These allowable bearing capacity values may be increased by one-third for short term loading due to wind and earthquakes, if structural load calculations are made using the alternative basic load combinations of IBC 2009 Section 1605.3.2. Foundations should be designed by a qualified structural engineer.

If encountered during construction, the clay pocket discovered in test hole 3 should be removed from under foundations and slabs to a minimum depth of 5 feet and replaced with engineered fill.

If the entire building footprint is over-excavated to a minimum depth of 5 feet below foundation/slab bearing elevation, the above allowable bearing capacity values may be increased by 1000 psf. This office must perform inspections and testing during earthwork.

Other foundation types that are compatible with the site include mat foundations and drilled piers. We anticipate the final foundation type will be determined as design loads are finalized.

Lateral foundation loads will be resisted by a combination of passive soil pressure against the sides of foundations and friction along the base. A passive soil resistance of 300 pounds per cubic foot may be utilized for design. Frictional resistance may be determined by multiplying foundation dead load by a coefficient of friction of 0.40.

Foundations designed and constructed as described herein are not anticipated to experience differential movement of more than one-inch. This estimate is based on the assumption the site soils will not be allowed to increase in moisture content and that all recommendations presented in this report will be fully implemented, particularly those regarding site grading, drainage and landscaping. Additional movement and distress may occur if the soils are allowed to increase in moisture content or if the recommendations presented herein are not followed.

CONCRETE SLABS-ON-GRADE

Concrete slabs-on-grade should be supported by properly prepared sandy native soils or engineered fill as discussed previously. A capillary break and vapor barrier underlayment is not necessary unless required for moisture-sensitive floorings. Slab reinforcement should be designed to resist shrinkage and curling effects. Slabs should be designed by a qualified structural engineer.

Concrete slabs and exterior flatwork should be isolated from all utility lines. Some movement should be expected to occur between the building and adjacent exterior concrete flatwork. Joints and cracks in concrete flatwork should be sealed as discussed in the Maintenance section of this report.

All exterior concrete (exposed to weather or freeze-thaw cycles) should conform to an approved air entrained mix design having between 4.5% and 7.5% air. This also applies to interior slabs, if it is anticipated that they will be placed or left unprotected during winter months.

RETAINING WALLS

Retaining walls constructed in association with this project are not anticipated to exceed twelve feet in height. The values presented below do not include surcharge loads or hydrostatic pressures. If taller walls, surcharge loads, or unusual conditions such as sloping backfill are anticipated, this office should be contacted for additional recommendations.

Retaining wall foundations should be designed as detailed in the Foundation Recommendations section of this report.

Walls should be designed to resist Active Earth Pressure calculated as an equivalent fluid pressure from a fluid having a unit weight of 40 pounds per cubic foot. If the wall is restrained against rotating the wall should be designed for an At-Rest Earth Pressure calculated as an equivalent fluid pressure from a fluid having a unit weight of 60 pounds per cubic foot.

Wall movement will be resisted by Passive Earth Pressure at the toe calculated as an equivalent fluid pressure from a fluid having a unit weight of 300 pounds per cubic foot. Friction along the base can be calculated as the normal force multiplied by a friction factor of 0.40.

The backside of retaining walls should be waterproofed to prevent moisture infiltration. A french drain or gravel-packed weep holes should be installed behind the wall to help prevent hydrostatic forces from developing. Water should drain rapidly.

Retaining wall backfill should be treated as engineered fill. Retaining walls should be backfilled with an approved granular material. Care should be taken during compaction of retaining wall backfill to avoid stressing and deflecting the walls.

EARTHWORK

STRIPPING AND GRUBBING

Prior to performing earthwork, all borrow and fill areas should be stripped of vegetation and deleterious materials. Strippings should be hauled offsite.

NATURAL GROUND PREP

We anticipate the site soils may be excavated with conventional earthwork equipment. Following all cut earthwork, the natural soils should be scarified to a depth of eight inches and moisture conditioned to optimum moisture content (+/- 3%). The surface of the natural soils should then be compacted to a minimum of 95% of maximum dry density as determined by ASTM D-1557.

ENGINEERED FILL SPECIFICATIONS

On-site sandy soils are suitable for re-use as engineered fill. Clay soils should not be used as engineered fill. Sieve analysis and Atterberg Limits tests will be required prior to acceptance of proposed fill materials.

Engineered fill soil should have a **Plasticity Index of ten or less** and should not contain any frozen, organic, or decomposable material. Cobbles, boulders and rock fragments should not be placed within engineered fills. Engineered fill should meet the following gradation:

U.S. SIEVE SIZE	%-PASSING
3-INCH	100
NO. 4	70-100
NO. 200	10-40

Table 1: Fill Specifications

Engineered fill should be stockpiled on site, moisture conditioned, and blended to a homogeneous mixture prior to use.

FILL PLACEMENT AND COMPACTION

Engineered fill should be placed in horizontal lifts a maximum of eight-inches in loose thickness, moisture conditioned to optimum moisture content (+/- 3%), and mechanically compacted. Lift thickness may need to be reduced based on the size of the compaction equipment utilized. All engineered fill should be compacted to a minimum of 95% of maximum dry density as determined by ASTM D-1557.

UTILITIES

Care should be taken when installing utilities that the prepared building pad is not overly disturbed. Trenches should be no wider than is necessary for proper installation of utilities. Utility line trenches should not be located parallel and below/immediately adjacent to foundations.

If water or sewer line leaks occur, differential movement of the structure may result. Prior to backfilling utility line trenches, all water and sewer lines should be pressure checked for leaks. Any leaks found should be repaired.

Per the APWA Manual of Standard Specifications 2007 Edition, Section 33-05-20-3.3, the maximum particle size allowable within the pipe zone is ¾-inches for plastic pipes. If the onsite soils cannot be milled or screened to these specifications then we recommend that buried utilities be surrounded by approximately one cubic foot of nominal 3/8-inch "pea gravel" in the pipe zone.

The excavation spoils may be reused as trench backfill provided that the minimum pipe bedding and cover requirements are fulfilled as described above. Cobbles, boulders and rock fragments should not be placed within pipe bedding or pipe backfills.

To reduce the possibility of breaking utility lines, compaction of pipe backfill should be performed with light, hand-operated equipment. In order to achieve compaction, it will be necessary to place backfill in thinner lifts than would normally be necessary. The fill soils in trenches should be compacted to a minimum of 95% of maximum dry density as determined by ASTM D-1557, except where applying this compactive effort may damage pipes or insulation, in which case the backfill should be compacted to a minimum 90%.

FOUNDATION EXCAVATIONS

Caving and raveling of excavation sidewalls should be expected. Prior to pouring concrete, foundation excavations should be cleaned of any slough, loose soil, or debris. Footing excavations should be scarified and moisture conditioned to optimum moisture content (+/- 3%). Foundation excavations should be compacted to a minimum of 95% of maximum dry density as determined by ASTM D-1557.

OBSERVATION AND TESTING

Compaction testing must be performed by this office during earthwork construction to verify the compaction requirements outlined in this report have been met.

Modified Proctor testing (ASTM D-1557) will be necessary to determine the maximum dry density and optimum moisture content of the natural soils at the base of excavations. The surface of natural soils should be tested for compaction prior to placing engineered fill.

Engineered fill material should be approved by this office prior to use. Following acceptance of the fill material, Modified Proctor testing (ASTM D-1557) will be necessary to determine the maximum dry density and optimum moisture content. Compaction testing should be performed on engineered fill at a minimum of every other lift until finished grade is reached.

Testing of utility line trenches for compaction should be performed at a minimum of every foot of compacted backfill thickness.

The base of footing excavations and finished pad grade should be tested prior to placing reinforcement and pouring concrete. Compaction testing cannot be performed if reinforcement has been installed and will need to be removed to perform testing.

EARTHWORK CERTIFICATION

An earthwork certification letter may be requested **prior to** placing concrete.

Earthwork certification will only be provided if all recommendations presented herein are followed. It is up to the client to read and understand the recommendations prior to starting construction. Earthworks Engineering Group will answer all questions the client may have concerning these recommendations.

Earthwork certification will be valid for five days following the last inspection by this office. Foundations should be poured during this time-period. The site must be re-inspected if foundations are not poured during this time-period or if site conditions change for any reason following the previous inspection.

DRAINAGE, GRADING, AND LANDSCAPING

Site grading should comply with the 2009 IBC Section 1804.3. A grading and drainage plan should be designed by a qualified civil engineer.

To reduce the risk of moisture induced movement the site should be graded to rapidly drain away from structures. We suggest a minimum five percent gradient within at least the first ten feet away from structures in areas not protected by sidewalks and pavement. Planters and sidewalks should not "dam" water adjacent to structures.

Roof gutters and downspouts should be utilized on the building(s). Down spouts should discharge down slope and well away from building(s). Splash blocks should be utilized below down spouts. Surface water should run off rapidly.

Landscaping adjacent to structures should be designed and constructed to minimize the potential for wetting of soils supporting the proposed facilities. We suggest utilizing a xeriscape design. Watering should be carefully controlled to prevent over watering. Sprinkler lines and drip irrigation mains should be located a minimum of five feet away from foundations.

If onsite leach fields or stormwater ponding areas are required, this office should be contacted for additional recommendations.

Permanent, non-retained slopes should be graded to a maximum slope of 3:1 horizontal to vertical for gross slope stability.

All earth slopes will require protection from erosion.

This office should review site grading and drainage plans to evaluate conformance with the recommendations presented herein.

SHORING

All trenches greater than five feet in depth must be sloped, shored or braced, or otherwise supported according to OSHA Construction and Safety Standards. The site soils correspond to OSHA Type "C" soils. Temporary construction excavations should be sloped no steeper than 1½:1 (horizontal: vertical).

Limited raveling of slopes will occur particularly as the exposed soils dry out. Material excavated from the trench or spoil must be placed away from the edge of the excavation. The spoil should be retained in an effective manner such that no loose material can fall into the excavation. Heavy equipment and material stockpiles should be located a minimum of five feet from the top of slope.

The above information is intended to provide only general guidelines. This office is not responsible for excavation safety. Temporary construction excavations should be evaluated by the contractor's competent person. Design of safe excavations should conform to the regulations set forth in 29 CFR 1926 Subpart P by the contractor or their designated engineer of record.

MAINTENANCE

Performance of structures depends not only on proper design and construction, but also on an ongoing foundation maintenance program. A properly designed foundation may still experience distress from incorrectly controlled water sources, improper drainage, and landscaping. The owner should perform a yearly inspection to observe for necessary maintenance and repair.

Positive drainage should be provided away from the structure over the life of the building. A minimum slope of four percent within the ten feet of the structure should be maintained. Flowerbeds and landscaping that requires irrigation should not be installed adjacent to structures. Walkways and borders that dam water adjacent to foundations should be eliminated.

Depressions and excavations should be backfilled with compacted, non-swelling, relatively-impervious soils such as clayey sands.

Gutters and downspouts should be installed to control roof drainage. Downspouts should discharge a minimum of ten feet away from structures. Area drains may be installed around structures to improve drainage. Discharge pipes should slope a minimum of 1/8th inch vertical per foot of horizontal pipe. Drainage sewers and discharge channels should be kept free of debris.

Water bills should be monitored for unexplained increases in usage. Higher than normal water usage may indicate a leaking utility line. If a leaking line is suspected, utility lines should be pressure checked for leaks.

Expansion joints within exterior concrete flatwork should be filled with a flexible joint sealer to minimize water infiltration.

Some minor cracking of new concrete foundations, concrete flatwork, and interior dry wall is normal. This is a result of concrete shrinkage as it cures, "settling in" of the new structure, drying of timbers used in construction, etc. Normally the majority of this movement should cease within the first year following construction. However, depending on the structure and site conditions, movement may continue at a slow rate for several years. If cracks tend to open and close, increase significantly within a short period of time, or resume after a period of relative inactivity, it is recommended that this office be contacted to review the situation.

CLOSURE

The recommendations presented in this report are based upon the subsurface conditions disclosed by the test holes. Soil and groundwater conditions may vary between test holes and with time. This office may change the recommendations presented herein based on the conditions encountered during construction.

Prior to performing earthwork, a meeting between the client, this office, and the earthwork contractor should be arranged to discuss the earthwork and foundation recommendations and testing requirements of this project. The purpose of this meeting is to assure that recommendations and requirements are implemented and to minimize delays and expenses during construction.

In order to verify the recommendations presented herein are followed this office must perform field inspections and earthwork Proctor and compaction testing. If this office is not utilized to perform these services, the client agrees to assume all risk for post-construction movement and distress.

This report reflects our interpretation of the site subsurface conditions. We strongly recommend that prior to bidding all contractors perform their own subsurface investigation to form their own opinion of the site soil, rock and groundwater conditions. Should contractors elect to use this report for construction, bidding or estimating purposes, they do so at their own risk.

The staff of Earthworks Engineering Group, LLC is available for supplemental consultation as necessary at (505) 899-4886.

LABORATORY TEST RESULTS

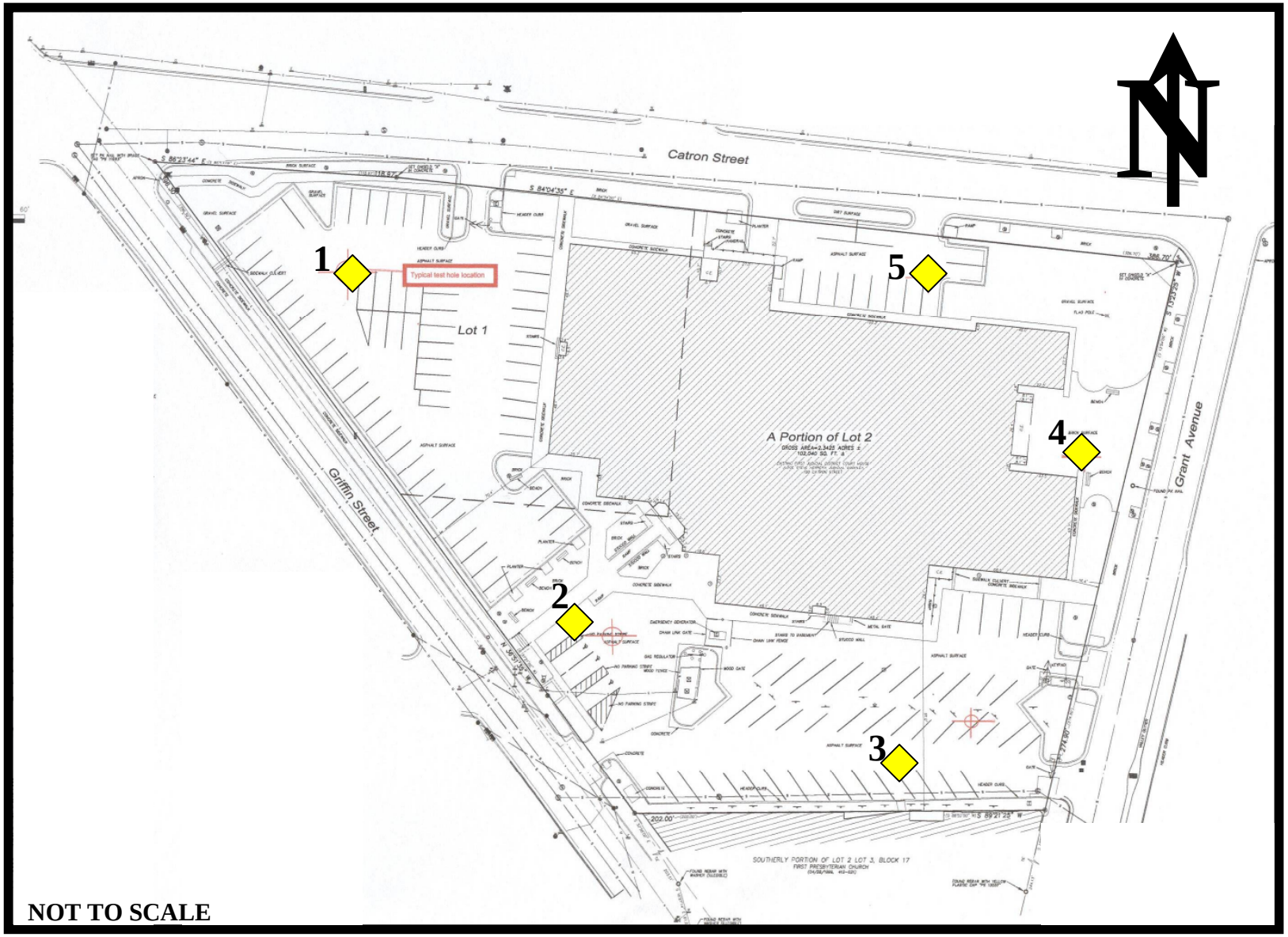
Test Hole	Depth (feet)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Percent Passing - U.S. Sieve Numbers									
						1-1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	N0. 100	No. 200
1	2		11.8					100	99	97	94	88	75	57	48.5
	5		11.1						100	98	94	88	73	57	46.0
	10		5.9			100	97	94	91	87	80	68	56	44	34.8
	15		5.2				100	99	97	94	90	83	69	48	35.0
	20		4.5						100	99	97	93	82	66	38.6
	25		6.3						100	99	98	94	84	59	38.7
	30		4.8							100	99	96	81	46	26.7
2	0		11.0					100	98	95	89	76	61	46	37.7
	2		11.8			100	94	91	88	85	80	71	58	48	40.7
	5		7.4						100	99	95	85	61	40	26.9
	10		5.9				100	97	96	93	87	73	55	39	28.2
	15		4.1					100	99	96	88	73	51	36	28.4
	20		4.1					100	98	95	92	81	62	38	23.0
	25		3.6			100	93	89	85	81	75	65	51	39	30.5
	30		3.7					100	98	93	87	76	60	43	32.6
3	2		14.1					100	98	94	87	77	64	52	39.9
	5		4.9					100	96	91	83	69	50	30	16.5
	7		9.9			100	93	93	93	92	89	82	63	39	27.9
	10		10.4					100	99	97	94	86	74	59	39.0
	15		16.7					100	98	96	94	91	86	75	56.4
	16		17.5	36	19					100	98	95	86	74	62.8
	20		7.6				100	94	86	80	73	65	52	36	25.5
	25		15.5						100	99	96	92	83	72	59.5
	30		3.7				100	85	70	57	44	33	25	18	12.7

Table 2. - Summary of Laboratory Test Results

LABORATORY TEST RESULTS

Test Hole	Depth (feet)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Percent Passing - U.S. Sieve Numbers									
						1-1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	N0. 100	No. 200
4	2		11.4					100	99	98	95	90	78	61	44.5
	5		1.8				100	98	91	77	55	32	16	8	5.2
	10		2.7				100	91	83	74	65	51	32	18	13.0
	15		6.5				100	94	90	86	80	73	65	56	47.3
	20		1.2			100	92	88	81	72	60	44	26	15	9.6
	25		3.8				100	91	85	78	70	60	50	40	32.6
5	2		9.8	24	9		100	96	93	88	81	72	58	44	34.4
	5		16.6				100	97	94	92	89	83	74	67	56.9
	7		2.1			100	94	90	85	77	63	39	20	12	8.8
	10		9.1												
	15		1.5			100	95	91	85	75	64	48	27	14	8.6
	20		1.8				100	99	91	74	52	32	19	12	8.4
	25		1.4				100	96	92	80	62	40	22	14	9.7
	30		1.5				100	95	91	82	67	50	35	25	19.5

Table 2. - Summary of Laboratory Test Results



SITE PLAN

◆ **TEST HOLE LOCATION**

FIGURE 1.

LOG OF TEST HOLE NO.: 1

Project:	Santa Fe Judicial Parking Garage, Santa Fe, NM
Date Drilled:	9.20.13
Drilling Method:	7" Hollow Stem Auger
Surface Elevation:	Not Available
Depth to Groundwater:	Not Encountered
Bottom of Hole:	31.5 ft

Depth (feet)	N-Value (blows/ft)	Sample Type	Unified Class.	Description	Dry Density (pcf)	Moisture Content (%)
			SM	- 2" asphalt at surface		
2	9	S		FILL, SAND, silty, fine to coarse grained, loose, very moist, dark-brown		11.8
5	11	S				11.1
			SM	NATURAL GROUND, SAND, silty, fine to coarse grained, medium moist, medium dense, light-brown		
10	19	S		- with gravel lenses		5.9
15	21	S				5.2
20	18	S				4.5
25	15	S				6.3
30	23	S				4.8
				Bottom of Hole at 31.5 Feet		

LOG OF TEST HOLE NO.: 2

Project:	Santa Fe Judicial Parking Garage, Santa Fe, NM
Date Drilled:	9.20.13
Drilling Method:	7" Hollow Stem Auger
Surface Elevation:	Not Available
Depth to Groundwater:	Not Encountered
Bottom of Hole:	31.5 ft

Depth (feet)	N-Value (blows/ft)	Sample Type	Unified Class.	Description	Dry Density (pcf)	Moisture Content (%)
		B	SC	- 2-3" asphalt		11.0
2	10	S		SAND, clayey, fine to coarse grained, trace gravel, very moist, stiff, dark-brown		11.8
5	3	S	SM	SAND, silty, fine to medium grained, very loose, medium moist, light-brown		7.4
				- clay lenses		
10	33	S		- dense		5.9
15	33	S				4.1
				- clay lenses		
20	13	S		- medium dense		4.1
25	35	S		- gravelly, dense		3.6
30	33	S				3.7
				Bottom of Hole at 31.5 Feet		

LOG OF TEST HOLE NO.: 3

Project:	Santa Fe Judicial Parking Garage, Santa Fe, NM
Date Drilled:	9.19.13
Drilling Method:	7" Hollow Stem Auger
Surface Elevation:	Not Available
Depth to Groundwater:	Not Encountered
Bottom of Hole:	31.5 ft

Depth (feet)	N-Value (blows/ft)	Sample Type	Unified Class.	Description	Dry Density (pcf)	Moisture Content (%)
			SC	- 2" asphalt		
2		B		FILL, SAND, clayey, fine to coarse grained, very moist, dark-brown		14.1
5	10	S				4.9
	4	S	SM	NATURAL GROUND, SAND, silty, fine grained, medium moist, loose, light-brown		9.9
				- fine to medium grained		
10	5	S				10.4
			CL	CLAY, sandy, stiff, medium moist, light-brown		
15	9	S				16.7 17.5
20	13	S				7.6
			SM	SAND, silty, fine to coarse grained, with gravel, medium dense, medium moist, light-brown		
25	13	S	CL	CLAY, sandy, fine grained, moist, stiff, dark-brown		15.5
30	40	S	SP-SM	SAND, slightly silty, fine to coarse grained, with gravel, medium moist, dense, light-brown-red		3.7
				Bottom of Hole at 31.5 Feet		

LOG OF TEST HOLE NO.: 4

Project:	Santa Fe Judicial Parking Garage, Santa Fe, NM
Date Drilled:	9.19.13
Drilling Method:	7" Hollow Stem Auger
Surface Elevation:	Not Available
Depth to Groundwater:	Not Encountered
Bottom of Hole:	28 ft

Depth (feet)	N-Value (blows/ft)	Sample Type	Unified Class.	Description	Dry Density (pcf)	Moisture Content (%)
			SM-SC	- brick at surface SAND, silty to clayey, fine to medium grained, very moist, loose, dark-brown		
2	6	S				11.4
5	7	S	SP	SAND, trace silt, fine to coarse grained, with gravel, slightly moist, loose, light-brown-red		1.8
10	16	S	SM	SAND, silty, fine to coarse grained, gravelly, medium dense, slightly moist, light-brown		2.7
15	16	S	SC	SAND, clayey, fine grained, moist, medium dense, light-brown		6.5
20	26	S	SP-SM	SAND, slightly silty, fine to coarse grained, with gravel, slightly moist, medium dense, light-brown		1.2
25	24	S	SM	SAND, silty, fine to coarse grained, with gravel, medium dense, medium moist, light-brown - auger refusal		3.8
30				**Bottom of Hole at 28 Feet**		

LOG OF TEST HOLE NO.: 5

Project:	Santa Fe Judicial Parking Garage, Santa Fe, NM
Date Drilled:	9.19.13
Drilling Method:	7" Hollow Stem Auger
Surface Elevation:	Not Available
Depth to Groundwater:	Not Encountered
Bottom of Hole:	31.5 ft

Depth (feet)	N-Value (blows/ft)	Sample Type	Unified Class.	Description	Dry Density (pcf)	Moisture Content (%)
2		B	SC	SAND, clayey, fine to medium grained, moist, dark-brown		9.8
5	4	S	CL	CLAY, sandy, fine grained, medium moist, medium stiff, dark-brown		16.6
	28	S	SP-SM	SAND, slightly silty, fine to coarse grained, with gravel, medium moist, medium dense, light-brown		2.1
10	11	S	SM	SAND, silty, fine to medium grained, slightly moist, medium dense, light-brown		9.1
15	21	S	SP-SM	SAND, slightly silty, fine to coarse grained, with gravel, slightly moist, medium dense, light-brown		1.5
20	24	S				1.8
25	25	S				1.4
30	26	S	SM	SAND, silty, fine to coarse grained, with gravel, medium dense, slightly moist, light-brown		1.5
				Bottom of Hole at 31.5 Feet		