Geotechnical Data Report for USA Parkway Extension From I-80 to US-50 Storey and Lyon Counties, NV

NDOT Project Identification Number 73900

NDOT Project Number STP-050-1(033)

March 27, 2015

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1.0 INTRODUCTION

1.1 General

This document presents Wood Rodgers' geotechnical data report for the proposed USA Parkway extension. The proposed alignment and study area extends from the current terminus of the paved USA Parkway improvements (Sta. 690+00, approximately 6.2 miles south of the Interstate 80 corridor) to the south for approximately 12.5 miles to US-50 (Sta. 10+00). The proposed alignment will incorporate 4 travel lanes, drainage improvements, and slope stabilization measures all designed to NDOT Standards. The purpose of this conceptual report is to:

- Present factual subsurface data for the project specific to the locations explored.
- Compile factual geological, geotechnical, and groundwater data obtained from the geotechnical investigations.
- Serve as an inclusive source of geotechnical information obtained for the project.

1.2 Scope

The scope of work for this contract is to obtain and present factual information garnered during our investigation programs specific to surface and subsurface soil, bedrock, and groundwater conditions. This scope incorporates field exploration, laboratory testing, and preparation of this geotechnical data report.

Our exploration program consisted of advancing borings and performing geophysical surveys along the proposed alignment beginning near the terminus of the existing graded portion of USA Parkway and extending to US 50. Boring locations were selectively located to target explorations in areas of significant cuts, where generation of significant fill quantities will occur. Borings were advanced to depths ranging between 30 and 100 feet or until refusal was met. (Refusal was defined as that point at which the rate of exploration advance became less than 1 foot in 20 minutes). As mentioned, field exploration was complimented by geophysical methods. Geophysical methods included performing seismic refraction surveys (P-waves, ASTM D577-00) and refraction micro-tremor surveys (ReMi ™).

1.3 Location Control

In the field exploration locations were located using a Trimble GeoXH 2005 Series GPS unit. Typical horizontal accuracy for this GPS unit is sub-meter, and exploration locations were identified using predetermined waypoints loaded into the unit.

1.4 Report Organization

Our report presents and discusses the following:

1. Project description and history.
2. A summary of geologic conditions and seismicity.
3. A summary of our field investigations and laboratory analyses.
4. A discussion of subsurface conditions encountered.

1.5 Limitations

The purpose of this Geotechnical Data Report (GDR) is to summarize site and subsurface information garnered during our investigations performed for the benefit of the USA Parkway project. This report is a compilation of factual data and test results. However, variations in classification of subsurface soil and rock materials will occur with changes in: location, exploration methods, and field personnel training and expertise. Final interpretation as to how the reported properties and test values will respond are a function of the materials' processing and design applications and are at the discretion of the designers who rely on this information in the formulation of their assessments.

2.0 BACKGROUND INFORMATION

2.1 General

The project consists of constructing a four lane, 60 mph roadway, to provide a connection between I-80 and US-50. The roadway will be designed and constructed to NDOT standards and will ultimately be under NDOT's jurisdiction. As shown in Figure 1 the site for the proposed extension begins at the existing terminus of the USA Parkway pavement (shown in gold), approximately 6.2 miles south of the I-80 corridor, and proceeds south for approximately 12.5 miles.

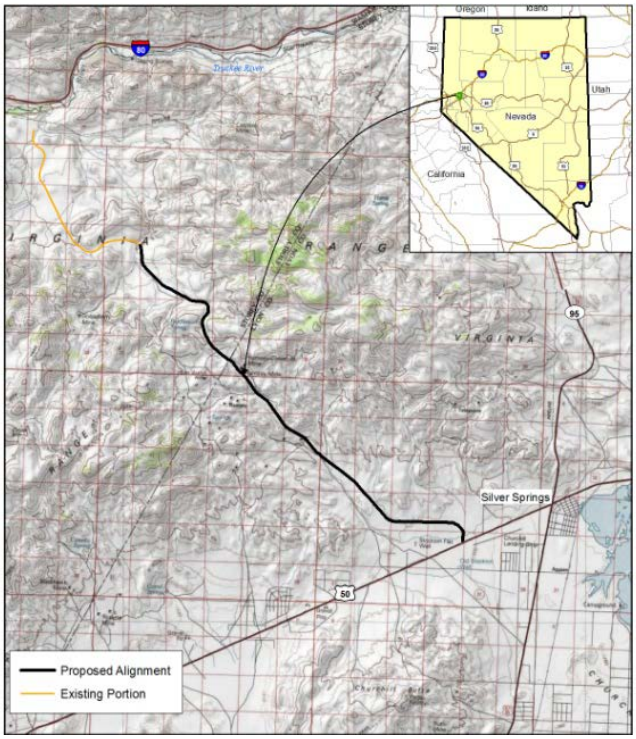

Figure 1 – Project Location Map

The project can essentially be characterized by 3 segments. Beginning from the north, Stations 690 to 460 ±, the alignment consists of an existing graded road. The proposed corridor also closely approximates existing grade along this portion of the alignment (Photo 1). The next leg of the alignment, Station 460 to 300 ±, transects through the Virginia Range resulting in cuts approaching 100 feet and fills approaching 20 feet in thickness (Photo 2). The final leg of the alignment crosses old alluvium and extends from Station 300 to US 50 (Station 10+00). Portions of this segment are at or near grade and in some areas require fills in excess of 20 feet.

Numerous dirt roads, drainages, and horse trails cross the proposed alignment. Vegetation ranges between sparse to moderate and consists of native shrubs and grasses to juniper and pinion pines. Springs are present in some of the drainages and in some instances the water is being piped to corrals for livestock. There are two mine sites that are adjacent to the alignment and old fencing crisscrosses throughout the terrain.

2.2 Other Investigations

In 2013, a Conceptual Geotechnical Report was prepared for the project. This report was prepared by Wood Rodgers; the explorations, test data, and factual findings of that report have been presented in Appendix B.

3.0 GEOLOGIC CONDITIONS AND SEISMICITY

3.1 Regional Geologic Setting

The project site lies within the Great Basin physiologic province. The Great Basin consists of a series of mountains and corresponding valleys (a series of uplifted and down dropped crustal blocks referred to as horsts and grabens) extending from the Sierra Nevada Mountains to the west and the Wasatch Front to the east. The province is characterized by abrupt changes in elevation between the narrow mountain chains and flat arid valley basins. This regional structure trends lengthwise north to south. This topographic trend is believed to be the result of extension of the Earth's crust leading to the development of opposing normal faults which led to the formation of the horst and graben block system. With the Great Basin being formed between the Sierra and Rocky mountains there is no external drainage to the sea, leading to thick accumulated deposits in the associated basins. This means that the valley alluvial deposits are a direct representation of the neighboring mountains.

3.2 Local Geology

The bulk of the USA Parkway alignment transects the Virginia Range. The Virginia Range is an east-northeast trending range bounded by the Truckee River canyon on the north and the Carson River valley on the south. Some of the oldest rocks in the Virginia Range are metamorphosed sedimentary and volcanic rocks of the Mesozoic age. These rocks were folded and regionally metamorphosed prior to the intrusion of granitic plutons of the late Mesozoic age. Overlying the Mesozoic rocks is a thick section of volcanic and sedimentary rocks ranging in age from Oligocene to Pleistocene (Bonham, 1969). In addition to the volcanic rock units, deposits of alluvium and colluvium sediments are locally abundant especially on the south end of the site. In our explorations, various rock units were encountered including: basalt, andesite, rhyolite, sandstone, and gravels with clay, sand, cobbles, and boulders. The rock encountered in our explorations appeared to consist primarily of rhyolite, diorite, and andesite.

4.0 FIELD INVESTIGATIONS

4.1 Test Borings

The project was explored in January and February by advancing a series of 27 test borings using a Spyder sonic drill rig. The approximate locations of the test borings are shown on Plates A1a thru A1xxx – Site Plan and Approximate Test Boring Locations. In addition, test boring designations indicate the stations and offsets at which the explorations were performed, e.g. 327+00 200' R was advanced 200 feet right of Station 327+00. The maximum depth of boring advance extended to 100 feet below the existing ground surface.

The sonic method is a technique that reduces friction on the drill string and bit due to a combination of liquefaction, inertia, and temporary reduction in soil porosity. The vibrations of the drill bit cause the soil to rearrange thereby 'opening' the soil for the bit to advance. Because of the vibrations induced by the system (typical vibration frequencies of 150 Hz), a thin layer of soil/rock particles immediately adjacent to the bit lose structure. Once this behavior is triggered, the soil begins to behave like a fluid and dramatically reduces resistance. Introduction of water helps cool the bit. The sonic methodology allows for obtaining long, continuous samples which begin to more closely mimic characteristics that would be developed within a mass graded fill. Solid core samples are also obtained from more competent rock units with longer joint spacing (Figure 2, insert).

FIGURE 2 – Typical Samples

4.1.a Field Classification

Wood Rodgers' personnel examined and classified all soils and rock in the field in general accordance with ASTM D 2488 (Description and Identification of Soils) and ASTM D 5878-08 Standard Guides for Using Rock-Mass Classification Systems for Engineering Purposes. During exploration, bulk samples were placed in sealed plastic bags and returned to our Reno, Nevada laboratory for testing. Additional soil and rock classifications, as well as verification of the field classifications, were subsequently performed in accordance with the referenced ASTM standards. Logs of the test borings are presented as Plate 2 in Appendix A. Criteria for various rock descriptions, e.g. hardness, strength, fracturing, and weathering, are presented as Plate 3 in Appendix A.

4.1.b Criteria for Rock Descriptions

Plate A-3 presets our Criteria for Rock Descriptions relied upon in development of the field logs. As previously indicated, these classifications parameters were developed in consideration of ASTM D5878.

4.1.c Geologic Strength Index

In addition to classifying rock in accordance with the requirements of ASTM, Geologic Strength Index (GSI) was indicated on the borings. GSI is scaled quantity and a function of rock structure and rock quality. A GSI of 100 represents fresh massive rock; as rock quality and structure decrease, GSI reduces. GSI readily provides a means to 'understand' the rock and translate that information. The GSI presented on our logs should not be used for direct design of any structure or improvement, but simply relied upon as an overall assessment of the rock mass. For the purposes of this report, we have essentially limited GSI ratings of 75, 50, and 25. Clarifications regarding these ratings are presented as follows:

GSI 75 – Rock mass is uniformly jointed, blocky, with the particles interlocked in an undisturbed rock mass. Rock quality is typically fair to very good.

GSI 50 – Rock mass is very jointed and some of the mass may be disturbed. Rock quality would typically range from fair to very good.

GSI 25 – Rock mass would be heavily broken, and would tend to excavate as a clayey sandy gravel profile comprised of individual angular rock particles. Individual particles may range from good to very poor.

4.1.d Drill Intervals

Drill interval is also indicated on the Logs. Typically, in medium dense soils, the drill interval approaches 10 feet. However, when drilling in rock, the drill interval can be influenced by the larger, more competent rock particles getting bound up within the drill flight, reducing the method efficiency, and the recovery interval would need to be reduced. Because the rock at the site is so variable in quality, drill interval provided a means to gauge variation in rock structure as the rock mass could range from blocky to disintegrated throughout a profile.

4.1.e Unit Weight

Because the sonic method allows for recovery of virtually all the cuttings, it allows a viable means to determine the approximate unit weight of the extracted soil mass. Each bag is weighed and divided by the corresponding volume of the drill hole. The Unit Weights reported on the drill logs are provided to serve as a basis to observe variation in rock quality via changes in unit weight.

4.2 Geophysical Surveys

In addition to test borings, refraction micro-tremor (ReMi ™) and seismic refraction geophysical surveys were employed to measure in-situ rock mass velocities corresponding to the boring locations and depths. These geophysical methods provide a means to obtain subsurface information to depths up to 100 feet. The ReMi method is based on the same theories as spectral analysis of surface waves (SASW) and multi-analysis of surface waves (MSAW) with the benefit of utilizing lightweight, portable seismic equipment. Two dimensional shear wave velocity profiles were developed to aid in the assessment of thickness and consistency of soils and weathered bedrock. The primary applications for seismic refraction surveys are to determine depth to bedrock, underlying geologic structures, and anomalous conditions. Rippability is also a common assessment derived from refraction surveys. Geophysical data and survey locations are presented in Appendix A.

5.0 LABORATORY TESTING PROGRAM

5.1 General

Representative samples of soil and bedrock cuttings were tested in the laboratory to measure index properties, such as moisture content (ASTM D2216), grain size distribution (ASTM D6913), and plasticity (ASTM D4318). R-Value (NDOT T115) and Modified Proctor (ASTM D1557) tests were performed on combined samples presenting similar gradation and plasticity characteristics. In accordance with ASTM

Standards, the particle size distribution reported in Table 1 is specific to the portion of the sample passing a 3-inch maximum sieve size. Because of the sampling methodology the maximum particle size was limited to 5 1/2-inch. The +3-inch portion of the as-sampled condition can be reviewed on the laboratory test reports presented in Appendix A.

We targeted performing our established test series on three samples from each boring. However, where the samples presented too much rock and the series would be outside the limitations of the published standards, we performed additional testing on alternative samples obtained from other borings.

5.1.a Moisture Content

The moisture content data must be tempered with the knowledge that water was used intermittently during drilling and that added water would skew the measured moisture content.

Laboratory test data is presented in Table 1 and in Appendix A of this report:

TABLE 1 – Summary of Test Data

Station	Depth	USCS	% Moist	Liquid Limit	Plastic Index	% Gravel	% Sand	% Fines
315+00 100' R	12	GC	11.7	46	25	41	34.9	24.1
322+00 220' R	18	SC	9.4	40	18	37	39.5	23.5
322+00 220' R	42	GC	7.9	38	21	44	32.6	23.4
322+00 220' R	55	SM	11.1	NP	NP	22	35.2	42.8
322+00 220' R	75	GC	6.6	31	13	52	16.4	31.8
322+00 220' R	12	GC	4.4	38	21	61	18.2	20.9
327+00 200' R	14.5	GC	7.1	27	10	46	18.9	34.8
327+00 200' R	27	CH	21.3	53	27	15	22.4	62.6
327+00 200' R	40	SC	15.6	48	22	25	26.3	48.7
327+00 200' R	57	GC	11.5	35	21	46	25	29
327+00 200' R	78	CL	6.4	37	19	13	36.1	50.9
327+00 CL	28	GC	14.7	48	28	45	26	29.0
327+00 CL	46	GC	7.6	33	17	54	23.5	22.5
327+00 CL	66	GC	5.3	29	11	56	27.2	16.8
334+00 CL	14	GC	7.4	33	20	38	28.6	33.4
340+00 156' R	7.5	SC	8.4	41	24	33	34.6	32.4
340+00 156' R	16	GM	5.9	20	3	42	22.9	35.8
340+00 156' R	34	GC	5.8	37	22	67	15.2	17.9
340+00 156' R	68	GC	2.2	29	14	65	15.5	19.2
340+00 CL	16	SM	6.5	NP	NP	8	74.9	17.1

TABLE 1 – Summary of Test Data

Station		Depth	USCS	% Moist	Liquid Limit	Plastic Index	% Gravel	% Sand	% Fines
340+00	CL	24	GP	1.7	NP	NP	57	36.1	6.0
340+00	CL	43	GP	2.2	NP	NP	72	23	5.0
345+00	278' R	13	GC	11.5	29	12	65	22.9	12.1
345+00	278' R	48	GC	4.8	31	15	55	25.7	19.3
345+00	278' R	59	GC	9.6	40	22	50	28.1	21.9
345+00	278' R	84	GC	6.5	35	18	41	32	27.0
345+50	CL	10	GC	6.2	24	9	69	16.1	14.4
350+00	89' R	8	GC	5.1	30	14	90.2	4.5	5.3
350+00	89' R	40	GC	6.8	26	11	66	16.1	17.9
355+00	CL	905	GC	3.4	27	12	53	21	26.0
355+00	CL	41	GC	6.3	33	17	54	25.4	20.6
363+59	CL	8	GC	5.8	35	19	51	26.6	22.4
363+59	CL	28	GC	10.3	42	21	47	24.2	28.8
370+00	CL	6	GC	4.5	29	14	52	17.6	30.1
370+00	CL	35	GC	4.6	33	16	62	13.7	24.3
370+00	CL	73	GC	10.4	26	5	76	14.3	9.5
392+00	CL	15	GC	8.1	25	9	64	23.4	12.6
399+04	CL	18	GC	6.3	32	16	52	20.4	27.6
411+74	117' L	20	GC	3.3	42	27	76	8.7	15.6
411+74	117' L	68	GC	6.2	26	10	67.1	19.8	13.1
417+00	100' L	14	SC	6.3	33	17	32	39.7	28.3
417+00	100' L	28	GC	6.5	33	18	47	32.8	20.2
432+00	100' L	18	GC	4.4	32	17	70	11.8	17.9
432+00	100' L	34	GC	2	29	13	51	16.1	32.8
432+00	100' L	58.5	GC	11.3	29	13	38	16.2	45.4
436+50	144' L	10	GC	7.3	28	13	68	18.2	13.3
436+50	144' L	29	SC	7.9	33	16	26	45.9	28.1
436+50	144' L	39	GC	3.8	32	18	52	28.8	19.2
443+00	194'L	11.5	GC	2.6	29	15	49.8	25.1	25.1
443+00	194'L	32	GC	4.5	36	21	58	25.5	16.5
443+00	194'L	69	SC	7.1	40	23	37	39.8	23.2
443+00	CL	3	GC	5.7	37	20	58	20.5	21.5
443+00	CL	35	SC	10.2	41	22	16	46	38.0

TABLE 1 – Summary of Test Data

Station		Depth	USCS	% Moist	Liquid Limit	Plastic Index	% Gravel	% Sand	% Fines
443+00	CL	67	GC	6.6	35	20	48	20.6	31.4
443+00	CL	74.5	GC	6	36	21	35	21.9	43.1
450+00	122' L	5	SC	7.8	27	7	16	64.4	19.6
450+00	122' L	40	GC	4.6	36	19	62	20.3	17.7
450+00	122' L	63	GC	5.1	35	19	48	26.1	25.9
453+00	156' L	10	SC	11.1	44	23	25	33.6	41.4
453+00	156 'L	23	GC	8.8	43	21	63	14.1	23.1
453+00	156' L	46	GC	4.6	39	23	53	13.1	33.7
454+00	CL	2	GC	4.1	35	18	57	26.9	16.1
454+00	CL	28	GC	7.8	39	20	52	26.7	21.3
454+00	CL	50	GC	8.1	38	20	56	17.2	26.0
559+00	CL	7	GC	4.1	26	5	58	23	19.0
559+00	CL	31	SC	11.6	30	16	28	25.4	46.2

5.1.b Combined Samples

Similar samples were combined to develop a series of material 'families' upon which changes in R-Value (NDOT T115) and Maximum Dry Density (ASTM D1557) could be examined in context of material types. Table 2 summarizes Laboratory test results for the combined samples.

TABLE 2 – Summary of R-Value and Curve Test Data from Blended Samples

Blend	USCS	% Gravel	% Sand	% Fines	Liquid Limit	Plasticity Index	γ_{max} (pcf)	Opt. Moist.	R-Value
1	GC	43	35	24	46	25	131.5	10.0	15
2	GC	52	20	28	32	16	135.5	8.0	47
3	GC	62	20	18	36	19	131.0	10.0	20
4	SC	37	40	24	40	18	122.5	12.0	32
5	GC	70	12	18	32	17	131.0	10.0	30
6	GC	56	17	26	38	20	123.0	12.0	37
7	GC	62	14	24	33	16	134.0	9.0	27
8	SM	16	64	20	27	7	122.5	10.0	47
9	GC	37	16	45	29	13	131.5	10.0	24
10	GM	42	23	26	20	3	127.5	11.0	36

5.1.c Uniaxial Compression Testing

Uniaxial compression testing was performed on several samples in accordance with ASTM D7012. Samples were selected to attempt to encompass the variability of the rock observed in our explorations. Results are summarized in Table 3.

TABLE 3 - Summary of Uniaxial Compression Testing

Station	Depth	Diameter (in)	Load (#)	Stress (psi)
370+00 CL	71 - 73	5.5	50,929	2,140
345+00 CL	23 - 25	5.5	201,145	8,470
345+00 CL	13 - 15	5.5	117,599	4,950
417+00 100'L	50 - 52	5.5	75,162	3,160

6.0 REFERENCES

Bonham, F. Harold, and Papke, G. Keith, "Geology and Mineral Deposits of Washoe and Storey Counties, Nevada", Nevada Bureau of Mines and Geology, Bulletin 70., pgs 50-51, 1969.

Geotechnical Policies and Procedures Manual, State of Nevada, Department of Transportation, Carson City Nevada, 2005.

Moore, G. James, and Archbold, N.L., "Geology and Mineral Deposits of Lyon, Douglas, and Ormsby Counties, Nevada", Nevada Bureau of Mines and Geology, Bulletin 75., pgs 21,22, 1969.

Standard Specifications for Road and Bridge Construction, State of Nevada, Department of Transportation, Carson City Nevada, 2010.

APPENDIX A

WOOD RODGERS
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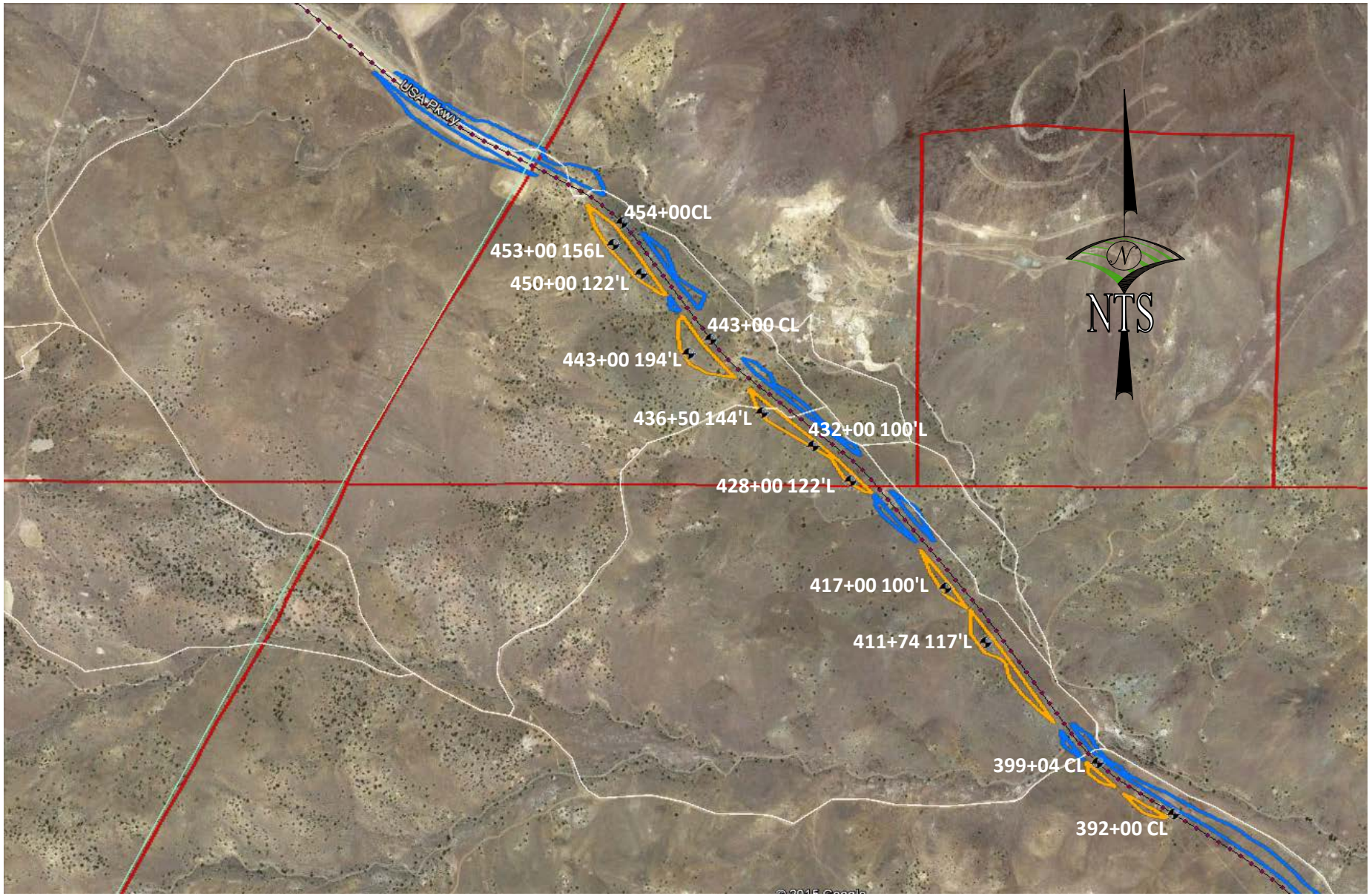
SITE PLAN AND APPROXIMATE EXPLORATION LOCATIONS

Geotechnical Investigation

USA Parkway
NDOT PIN 73900

Project No.: 8480.001
Date: 3.27.15

PLATE A-1a



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SITE PLAN AND APPROXIMATE EXPLORATION LOCATIONS

Geotechnical Investigation

USA Parkway
NDOT PIN 73900

Project No.: 8480.001
Date: 3.27.15

PLATE A-1b

WOOD RODGERS
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SITE PLAN AND APPROXIMATE EXPLORATION LOCATIONS

Geotechnical Investigation

USA Parkway
NDOT PIN 73900

Project No.: 8480.001
Date: 3.27.15

PLATE A-1c

Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 315+00 100'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5025 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Residual Rock - Drill as medium dense, Clayey Sand & Gravels, brown, slighly moist		MS	W	I	C		87	600						
			RHYOLITE, Medium Grained, light gray, pitted						50								
10										140	1000	3000					
			Strong brown	GB A	S	W				172			11.7	46	21	25	24.1
									50	188		4000					
20											1500						
			Light gray						25	78							
30											2000	5000					

Bottom of Borehole at 30.0 Feet.

Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 322+00 220'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5133 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray		MH	MS	M	I		124	1000						
10												3000					
										121							
20				GB A									9.4	40	22	18	23.5
			Strong brown		S	VW	I	I	25	130							
30												4000					
					VS	W					1500						
										129	2000						
40			Basalt - Fine Grained, dark, gray, pitted, organic ordor		MH	MS	M	C	25	146	2500						
				GB B								5000	7.9	38	17	21	23.4
50																	
					S	W	I	I		96							
				GB C									11.1	NP	NP	NP	42.8
60			Dark brown														
												6000					
70																	
			Light gray, pitted		M	MS	M	I		101	3000						
				GB D									6.6	31	18	13	31.8
80											3500						
												7000					

Bottom of Borehole at 85.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 322+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5068 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Clayey Gravel (GC) - medium dense, moist, brown (Colluvium)									2000					
			Rhyolite - Medium Grained, light gray		MS	W	I	I	25		1000	3000					
											1500						
10												4000					
										124		5000					
				GB A							2000	6000	4.4	38	17	21	20.9
20																	
					MH	MS	M	C	50	204		7000					
												8000					
										144							
30											2500 3500	9000					

Bottom of Borehole at 30.0 Feet.

Wood Rodgers, Inc.
5440 Reno Corporate Drive
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Fax: 775-823-4066

BORING LOCATION 327+00 200'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/19/15 **COMPLETED** 2/20/15
GROUND ELEVATION 5164 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY Blake Carter **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray		MS	W	I	I			1000	4000					
10			Light gray, pitted	GB A	MH	MS	M	I	<25	118		3000	7.1	27	17	10	34.8
20			Reddish yellow	GB B	S	VW	D	C					21.3	53	26	27	62.6
30												4000					
40			Pink, pitted	GB C	VS	W	M	I		112	1500		15.6	48	26	22	48.7
50			Dark gray, altered Gray, pitted		VS MH	EW MS	D M	M	25			5000					
60				GB D						81	2000		11.5	35	14	21	29.0
70											2500	6000					
80			Reddish yellow	GB E	MS	MS	M	I	<25	90			6.4	37	18	19	50.9
			Bottom of Borehole at 85.0 Feet.									7000					

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BORING LOCATION 327+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5088 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light brown, residual soil		S	EW	D	C		148	500						
			Light gray				I		25			3000					
10										119							
											1000						
											1500	4000					
20			Easy drilling							109							
30			Greenish gray, wet from 27 to 40 feet, Clay	GB A	MS	F	D	I			2000	5000	14.7	48	20	28	29.0
											2500						
												6000					
40			Gray		S	F	D	I	25	105		7000					
				GB B									7.6	33	16	17	22.5
50									25			8000					
												9000					
												10000					
60												11000					
											3000	12000					
			Gray	GB C	MS	W	M	C					5.3	29	18	11	16.8
70											3500						

Bottom of Borehole at 75.0 Feet.

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BORING LOCATION 334+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5100 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Sandy Gravel with Some Clay (GP-GC) - medium dense to dense, slightly moist, light brown (Alluvium)		NA	NA	NA	NA	NA		500						
										90		2000					
10				GB A									7.4	33	13	20	33.4
											1000	3000					
20										131	1500						
											2000	4000					
30										98	2500	5000					

Bottom of Borehole at 30.0 Feet.

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BORING LOCATION 340+00 156'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5209 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Clayey Sand and Gravel (SC) - medium dense, moist, orange brown, (Colluvium)								1000	2000					
			Diorite - Medium Grained, greenish gray, pitted		H	VS	M	M	75	144	1500	3000					
10				GB A									8.4	41	17	24	32.4
												4000					
				GB B					25	161	2000	5000	5.9	20	17	3	35.8
20									75		2500						
30						S	S			135		6000					
				GB C									5.8	37	15	22	17.9
40									75			7000					
			Material recovered as continous core							215							
50																	
									25	91	2500	8000					
60										155							
70				GB D									2.2	29	15	14	19.2
										179		9000					
80																	
												9500					

Bottom of Borehole at 85.0 Feet.

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BORING LOCATION 340+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5136 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, pink, pitted		H	S	M	I	50	144	2000	5000					
												6000					
10																	
												7000					
				GB A								8000	6.2	NP	NP	NP	17.1
20					H	S	M	C		178							
				GB B							2500		1.7	NP	NP	NP	6.6
30																	
					H			C	75								
40												9000					
											3000						
				GB C							3500		2.2	NP	NP	NP	5.0
50												10000					

Bottom of Borehole at 50.0 Feet.

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BORING LOCATION 345+00 278'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/26/15 **COMPLETED** 2/27/15
GROUND ELEVATION 5190 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray, pitted some iron staining		VH	VS	F	M	75		1500	3000					
										165							
10											2000	4000					
										170		5000					
				GB A	H	S	S						11.5	29	17	12	12.1
20												6000					
										180		7000					
							M										
30																	
									75	195		8000					
										170							
40					MH	VS	M					9000					
										155							
										187							
50				GB B									4.8	31	16	15	19.3
										175	2500						
										155	3500						
60				GB C									9.6	40	18	22	21.9
										168							
70					VH	VS						10000					
									25	127							
									50								
80										145							
				GB D						120			6.5	35	17	18	27.0
90																	
										146							
100					MS	W	I	C		97							

Bottom of Borehole at 100.0 Feet.

PLATE A-2j

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BORING LOCATION 345+50 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/14/15 **COMPLETED** 1/14/15
GROUND ELEVATION 5314 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray, pitted		H	S	S	I	50		500	2000					
										172							
										154	1000	3000					
10				GB A							1500	4000	6.2	24	15	9	14.4
								M		143		5000					
20					H	VS	M	M	75		2000	6000					
										107	3500	7000					
												8000					
30					VH	VS	F	M				9000					
40																	

Practical Refusal at 45.0 feet.
Bottom of Borehole at 45.0 Feet.

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BORING LOCATION 350+00 89'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5210 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted		H	MS	S	I	25	148	5000	2000					
											1000						
												3000					
10				GB A	MS	W	M	C			1500	4000	5.1	30	16	14	5.3
												5000					
												6000					
20												7000					
					H	MS	S	C	50	114	2000						
			Medium grained														
30					MS	W	M	C									
			Coarse grained									8000					
40				GB B									6.8	26	15	11	17.9
50										139							

Bottom of Borehole at 50.0 Feet.

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BORING LOCATION 355+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5205 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted, with Iron Staining, Residual Soil Characteristics to 5 Feet.		S	W	M	I	25	135	1500	5000					
												4000					
10				GB A						135	2000	5000	3.4	27	15	12	26.0
			Iron Staining Increases					C	50	180		6000					
20																	
							I			160							
30											2000						
					MH	S	M			154							
40				GB B								7000	6.3	33	16	17	20.6
50										122		8000					

Bottom of Borehole at 50.0 Feet.

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BORING LOCATION 363+59 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5223 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted, Iron Staining on Fractures		MH	MS	M	M	25	111	500 1000	4000					
					H	MS						3000					
10				GB A						176	1500		5.8	35	16	19	22.4
												4000					
										92							
20							S		50								
					VH	VS				161		5000					
30			Altered zone	GB B	MS	MS	M						10.3	42	21	21	28.8
			Bottom of Borehole at 30.0 Feet.														

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BORING LOCATION 370+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5297 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained, light gray, pitted		MS	W	I	I	25		1000	2000					
										158		3000					
				GB A									4.5	29	15	14	30.1
10										153	1500						
											2000						
												4000					
										179							
												5000					
20			Strong brown				D										
										183							
												6000					
									25								
30																	
												7000					
										207							
				GB B									4.6	33	17	16	24.3
40			Gray,		VH			M		199							
									50	139							
												8000					
50																	
										147		9000					
					S												
					H							10000					
60																	
									75	166	2500	11000					
											3000						
					S												
			Reddish yellow								3500						
70					VH	VS	F	C									
										237		12000					
				GB C									10.4	26	21	5	9.5

Bottom of Borehole at 75.0 Feet.

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BORING LOCATION 392+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5232 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, strong brown, pitted, Residual Soil		MS	W	I	I	25	124	500						
			Greenish gray														
10										151							
												1000					
									50			2000					
			Gray	GB A			D			157	1000	3000	8.1	25	16	9	12.6
20												4000					
												5000					
												6000					
										139		7000					
30										147							

Bottom of Borehole at 30.0 Feet.

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BORING LOCATION 399+04 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5242 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, greenish gray		S	W	I	I	25	125		3000					
											500	4000					
10										155							
										164		5000					
											1000						
20			Gray	GB A					50	176			6.3	32	16	16	27.6
					MH	MS	I	C			1500	6000					
										162	2000						
											2500	7000					
30										167	3000						
											3500						

Bottom of Borehole at 30.0 Feet.

Wood Rodgers, Inc.
5440 Reno Corporate Drive
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Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 411+74 117'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/24/15 **COMPLETED** 2/26/15
GROUND ELEVATION 5333 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diortite - Medium Grained, dark brown		VH	S	S	I		107	2000	7000 6000 7000					
10										172		5000					
								M	75	197		7000					
20												8000					
				GB A						163 97		9000 10000	3.3	42	15	27	15.6
										147							
30						MS		S		70							
					VH	ES		S		165		10000					
40												9000					
												8000					
								M				7000					
50					MH	MS	M	I	25	79		7000					
											2500	8000					
60											3500						
70				GB B									6.2	26	16	10	13.1

Bottom of Borehole at 76.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 417+00 100'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/27/15 **COMPLETED** 1/27/15
GROUND ELEVATION 5345 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained, strong brown		S	W	I	I	20	164		3000					
											500						
10										161	1000						
				GB A						143		4000	6.3	33	16	17	28.3
20																	
			Greenish gray		MH	MS	M	M	50	145	1500						
										155		5000	6.5	33	15	18	20.2
30				GB B						149		6000					
											2000						
										180	2500	7000					
40											3000	8000					
											3000						
					H	S	S	M		190	3500	9000					
50																	
												10000					
60									75								
70					H	S	M	M									

Bottom of Borehole at 78.0 Feet.

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BORING LOCATION 428+00 122'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/24/15 **COMPLETED** 1/24/15
GROUND ELEVATION 5392 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Gabbro - Medium Grained, greenish gray, pitted		VH	VS	S	M	75	151	500	6000					
										123	1000						
10											1500						
										175	2000	10000					
										65	2500						
											3000						
20											3500						
										167		12000					
										135							

Practical Refusal at 27.5 feet.
Bottom of Borehole at 27.5 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 432+00 100'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/23/15 **COMPLETED** 1/23/15
GROUND ELEVATION 5414 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Gabbro - Medium Grained, greenish gray, pitted		H	S	M	M			1500						
										147		4000					
10																	
			Gray							154		5000					
20				GB A									4.4	32	15	17	17.9
			Strong brown							170							
								S	50	187		6000					
30											2000						
				GB B									2.0	29	16	13	32.8
40																	
					VH	VS		M	75	187		7000					
										151							
50																	
												8000					
60				GB C							2500		11.3	29	16	13	45.4
			Bottom of Borehole at 60.0 Feet.														

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BORING LOCATION 436+50 144'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5465 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained		MH	MS	M	M	25	165	500	2000					
										174							
10				GB A						153			7.3	28	15	13	13.3
										140	1000	3000					
										170	1500	4000					
												5000					
20										196							
									50								
										169	2000	6000					
										135		7000					
30				GB B									7.9	33	17	16	28.1
			Strong brown				I			149		8000					
										136							
40				GB C	MH	MS	S		25				3.8	32	14	18	19.2
			Greenish gray							140							
										140							
50																	
					VH	VS			50			9000					
60												10000					
											2500						
70											3500	11000					

Bottom of Borehole at 75.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 443+00 194'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/20/15 **COMPLETED** 1/20/15
GROUND ELEVATION 5496 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, gray, pitted		H	VS	M	M	25	151	500	3000					
										136	1000	2000					
10				GB A	VH					123		3000	2.6	29	14	15	25.1
			Drilling slows								1500						
20										134		4000					
30				GB B					50	167		5000	4.5	36	15	21	16.5
40										195		6000					
										143							
										174		7000					
50											2000	8000					
60										150	3500						
					S	W	I	VI		185							
70				GB C									7.1	40	17	23	23.2
			Bottom of Borehole at 76.0 Feet.									9000					

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BORING LOCATION 443+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5532 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Fine Grained, gray, pitted		MH	W	M	I	25		500						
				GB A						151		3000	5.7	37	17	20	21.5
										136	1000						
10										123		2000					
												2000					
20											1500	3000					
										129		4000					
30					MS	W	D	C		167							
												5000					
				GB B						195			10.2	41	19	22	38.0
40												6000					
					MH	MS	M	C	50	143		7000					
50										176	2000						
			Drilling becomes harder		H	S	M			150	3500	8000					
60										185							
70				GB C	H	S	S						6.6	35	15	20	31.4
				GB D	VH	VS	S	C				9000	6.0	36	15	21	43.1

Bottom of Borehole at 76.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 450+00 122'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/16/15 **COMPLETED** 1/16/15
GROUND ELEVATION 5516 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray, Regolith, Drills like a soil		MS	W	M	I			500	4000					
				GB A					25	117	1000		7.8	27	20	7	19.6
10											1000	3000					
										166							
					MH	MS				146							
20										167		4000					
											1500						
					S			I		147	2000	5000					
30																	
			Becomes wet							155		6000					
												7000					
					MS	MS		M	50	156		8000					
40																	
				GB B									4.6	36	17	19	17.7
										172		9000					
50																	
										145	2500						
											3500						
										157							
60																	
				GB C									5.1	35	16	19	25.9
					H	MS		M	50	155							
70										130							
												1000					
										169							

Bottom of Borehole at 75.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 453+00 156'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/15/15 **COMPLETED** 1/16/15
GROUND ELEVATION 5566 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray, pitted		MH	W	M	I	25	153	500	2000					
10				GB A				I		133	1000	3000	11.1	44	21	23	41.4
										122	1500						
20										145							
												4000					
				GB B									8.8	43	22	21	23.1
30									25	133							
										129							
40					H	MS	S	C		151		5000					
				GB C						134			4.6	39	16	23	33.7
50					S	W	M	C			2000						
									50	191							

Bottom of Borehole at 55.0 Feet.

Wood Rodgers, Inc.
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BORING LOCATION 454+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/14/15 **COMPLETED** 1/14/15
GROUND ELEVATION 5514 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray		MS	W	I	I			1000	1000					
				GB A						125			4.1	35	17	18	16.1
10									25			2000					
										155							
					MS	W	D	C									
20																	
										147		3000					
										142							
30				GB B									7.8	39	19	20	21.3
									25	151							
			Rock dills to chips		MH	MS	M	I		103		4000					
40																	
										133		4500					
							D										
50																	
				GB C	MH	MS	M	C					8.1	38	18	20	26.0
									25								
60																	
										164							
						W											
70																	
						F						6000					
											1500						

Bottom of Borehole at 75.0 Feet.

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BORING LOCATION 559+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/27/15 **COMPLETED** 2/27/15
GROUND ELEVATION 5492 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Fine Grained, pink, pitted, Residual Soil to 4 Feet		MH	MS	M	C	36	125							
										179							
10				GB A						178			4.1	26	21	5	19.0
										132							
			Altered clay zone		S	F	I	I									
20					MH	MS	M	M	50								
30																	
									25								
				GB B									11.6	30	14	16	46.2
40			Altered zone				D	I		102							

Bottom of Borehole at 40.0 Feet.

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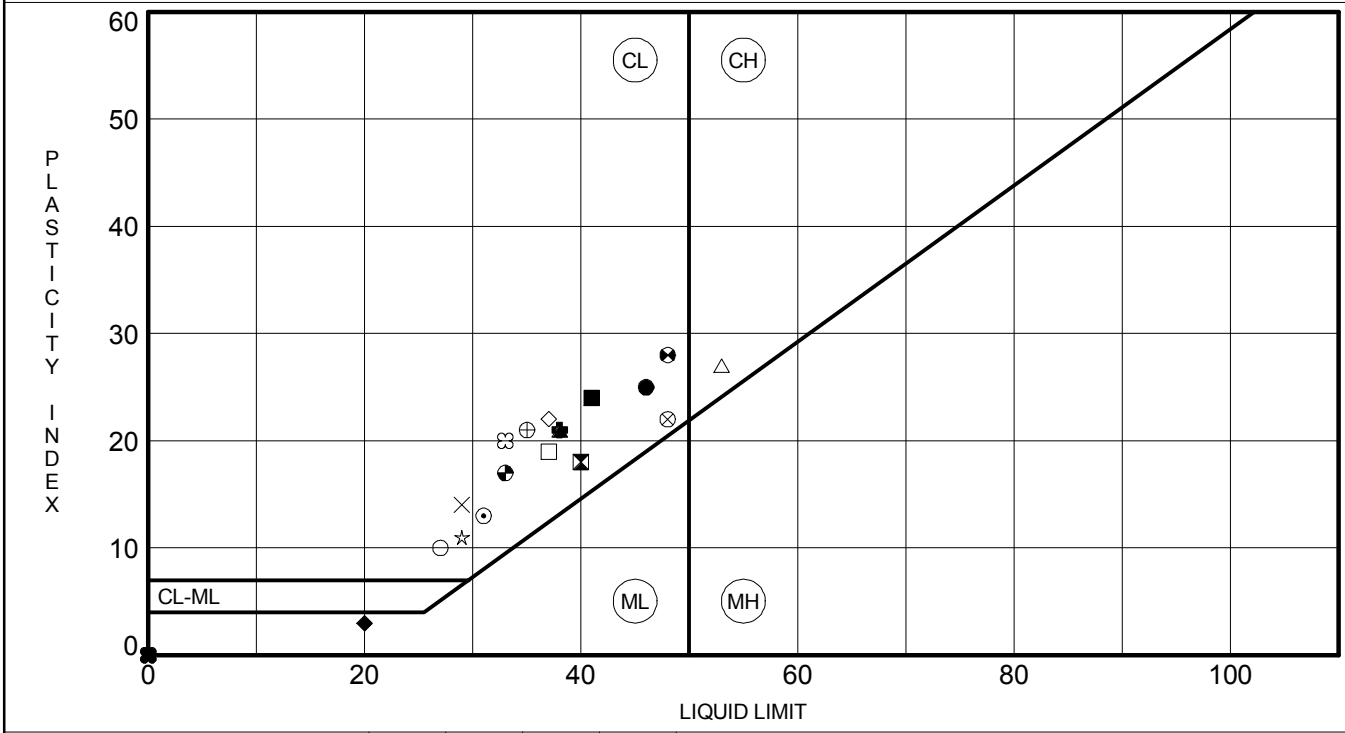
ATTERBERG LIMITS' RESULTS

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



	TEST PIT	DEPTH	LL	PL	PI	Fines	Classification
●	315+00 100'R	12.0	46	21	25	24	CLAYEY GRAVEL with SAND(GC)
⊠	322+00 220'R	18.0	40	22	18	24	CLAYEY SAND with GRAVEL(SC)
▲	322+00 220'R	42.0	38	17	21	23	CLAYEY GRAVEL with SAND(GC)
★	322+00 220'R	55.0	NP	NP	NP	43	SILTY SAND with GRAVEL(SM)
⊙	322+00 220'R	75.0	31	18	13	27	CLAYEY GRAVEL with SAND(GC)
✿	322+00 CL	12.0	38	17	21	21	CLAYEY GRAVEL with SAND(GC)
○	327+00 200'R	14.5	27	17	10	33	CLAYEY GRAVEL with SAND(GC)
△	327+00 200'R	27.0	53	26	27	63	SANDY FAT CLAY with GRAVEL(CH)
⊗	327+00 200'R	40.0	48	26	22	49	CLAYEY SAND with GRAVEL(SC)
⊕	327+00 200'R	57.0	35	14	21	29	CLAYEY GRAVEL with SAND(GC)
□	327+00 200'R	78.0	37	18	19	51	SANDY LEAN CLAY(CL)
⊛	327+00 CL	28.0	48	20	28	29	CLAYEY GRAVEL with SAND(GC)
◕	327+00 CL	46.0	33	16	17	23	CLAYEY GRAVEL with SAND(GC)
☆	327+00 CL	66.0	29	18	11	17	CLAYEY GRAVEL with SAND(GC)
⊠	334+00 CL	14.0	33	13	20	33	CLAYEY GRAVEL with SAND(GC)
■	340+00 156'R	7.5	41	17	24	32	CLAYEY SAND with GRAVEL(SC)
◆	340+00 156'R	16.0	20	17	3	27	SILTY GRAVEL with SAND(GM)
◇	340+00 156'R	34.0	37	15	22	16	CLAYEY GRAVEL with SAND(GC)
×	340+00 156'R	68.0	29	15	14	12	CLAYEY GRAVEL with SAND(GC)
✖	340+00 CL	16.0	NP	NP	NP	17	SILTY SAND(SM)

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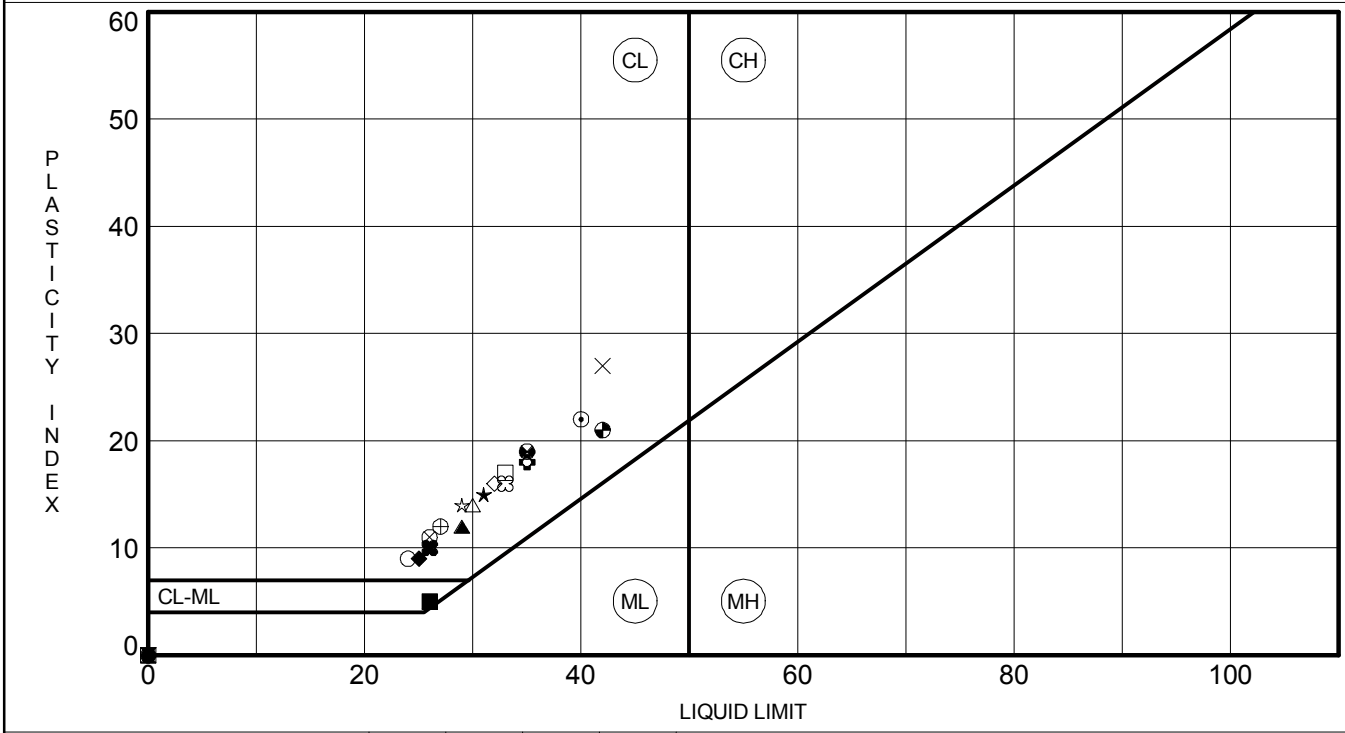
ATTERBERG LIMITS' RESULTS

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



	TEST PIT	DEPTH	LL	PL	PI	Fines	Classification
●	340+00 CL	24.0	NP	NP	NP	6	POORLY GRADED GRAVEL with SILT and SAND(GP-GM)
⊠	340+00 CL	43.0	NP	NP	NP	5	POORLY GRADED GRAVEL with SILT and SAND(GP-GM)
▲	345+00 278'R	13.0	29	17	12	12	CLAYEY GRAVEL with SAND(GC)
★	345+00 278'R	48.0	31	16	15	19	CLAYEY GRAVEL with SAND(GC)
⊙	345+00 278'R	59.0	40	18	22	22	CLAYEY GRAVEL with SAND(GC)
✿	345+00 278'R	84.0	35	17	18	27	CLAYEY GRAVEL with SAND(GC)
○	345+50 CL	10.0	24	15	9	16	CLAYEY GRAVEL with SAND(GC)
△	350+00 89'R	8.0	30	16	14	5	WELL-GRADED GRAVEL with CLAY(GW-GC)
⊗	350+00 89'R	40.0	26	15	11	18	CLAYEY GRAVEL with SAND(GC)
⊕	355+00 CL	9.5	27	15	12	26	CLAYEY GRAVEL with SAND(GC)
□	355+00 CL	41.0	33	16	17	21	CLAYEY GRAVEL with SAND(GC)
⊛	363+59 CL	8.0	35	16	19	22	CLAYEY GRAVEL with SAND(GC)
◕	363+59 CL	28.0	42	21	21	29	CLAYEY GRAVEL with SAND(GC)
☆	370+00 CL	6.0	29	15	14	27	CLAYEY GRAVEL with SAND(GC)
⊠	370+00 CL	35.0	33	17	16	22	CLAYEY GRAVEL with SAND(GC)
■	370+00 CL	73.0	26	21	5	8	POORLY GRADED GRAVEL w SILTY CLAY & SAND(GP-GC)
◆	392+00 CL	15.0	25	16	9	13	CLAYEY GRAVEL with SAND(GC)
◇	399+04 CL	18.0	32	16	16	28	CLAYEY GRAVEL with SAND(GC)
×	411+74 117'L	20.0	42	15	27	13	CLAYEY GRAVEL(GC)
✖	411+74 117'L	68.0	26	16	10	9	CLAYEY GRAVEL with SAND(GC)

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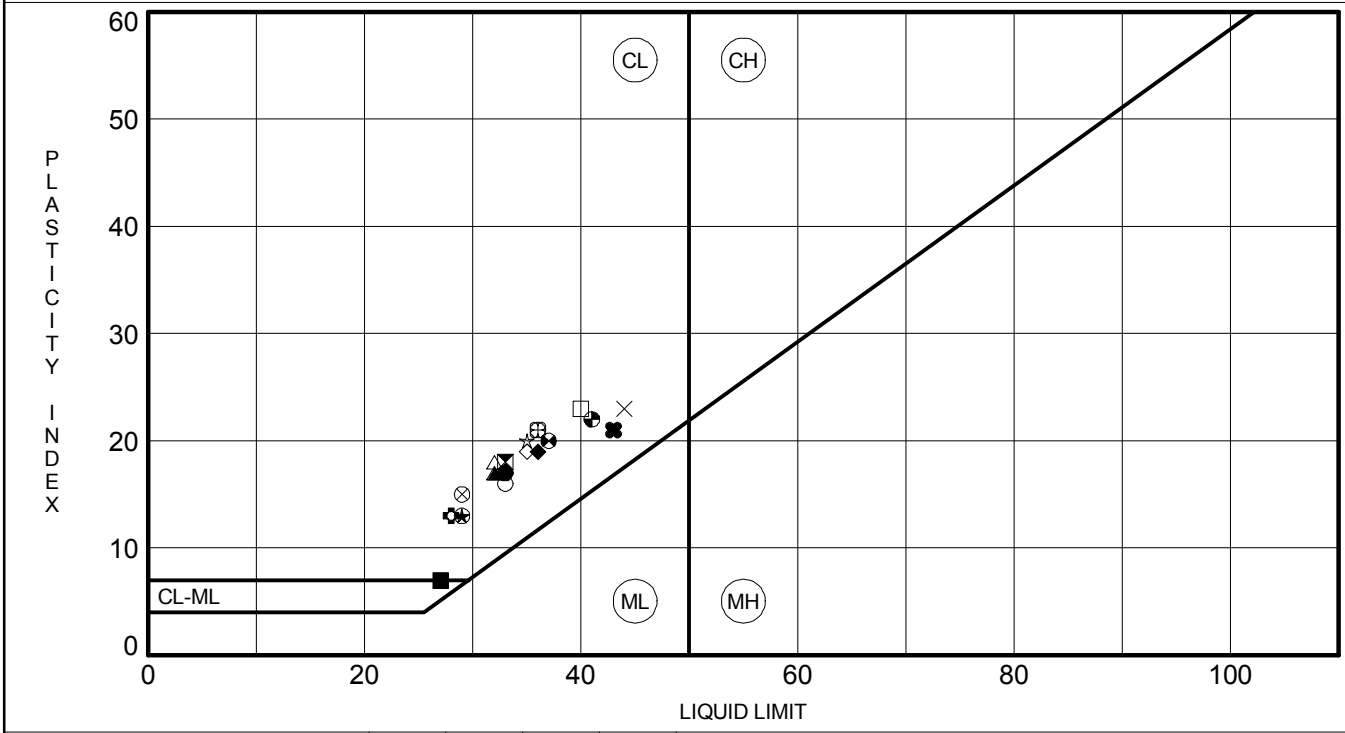
ATTERBERG LIMITS' RESULTS

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



	TEST PIT	DEPTH	LL	PL	PI	Fines	Classification
●	417+00 100'L	14.0	33	16	17	28	CLAYEY SAND with GRAVEL(SC)
⊠	417+00 100'L	28.0	33	15	18	20	CLAYEY GRAVEL with SAND(GC)
▲	432+00 100'L	18.0	32	15	17	17	CLAYEY GRAVEL with SAND(GC)
★	432+00 100'L	34.0	29	16	13	24	CLAYEY GRAVEL with SAND(GC)
⊙	432+00 100'L	58.5	29	16	13	30	CLAYEY GRAVEL with SAND(GC)
✿	436+50 144'L	10.0	28	15	13	15	CLAYEY GRAVEL with SAND(GC)
○	436+50 144'L	29.0	33	17	16	28	CLAYEY SAND with GRAVEL(SC)
△	436+50 144'L	39.0	32	14	18	19	CLAYEY GRAVEL with SAND(GC)
⊗	443+00 194'L	11.5	29	14	15	22	CLAYEY GRAVEL with SAND(GC)
⊕	443+00 194'L	32.0	36	15	21	17	CLAYEY GRAVEL with SAND(GC)
□	443+00 194'L	69.0	40	17	23	23	CLAYEY SAND with GRAVEL(SC)
⊛	443+00 CL	3.0	37	17	20	22	CLAYEY GRAVEL with SAND(GC)
◕	443+00 CL	35.0	41	19	22	38	CLAYEY SAND with GRAVEL(SC)
☆	443+00 CL	67.0	35	15	20	31	CLAYEY GRAVEL with SAND(GC)
⊠	443+00 CL	74.5	36	15	21	40	CLAYEY GRAVEL with SAND(GC)
■	450+00 122'L	5.0	27	20	7	20	SILTY, CLAYEY SAND with GRAVEL(SC-SM)
◆	450+00 122'L	40.0	36	17	19	18	CLAYEY GRAVEL with SAND(GC)
◇	450+00 122'L	63.0	35	16	19	26	CLAYEY GRAVEL with SAND(GC)
×	453+00 156'L	10.0	44	21	23	41	CLAYEY SAND with GRAVEL(SC)
✖	453+00 156'L	23.0	43	22	21	22	CLAYEY GRAVEL with SAND(GC)

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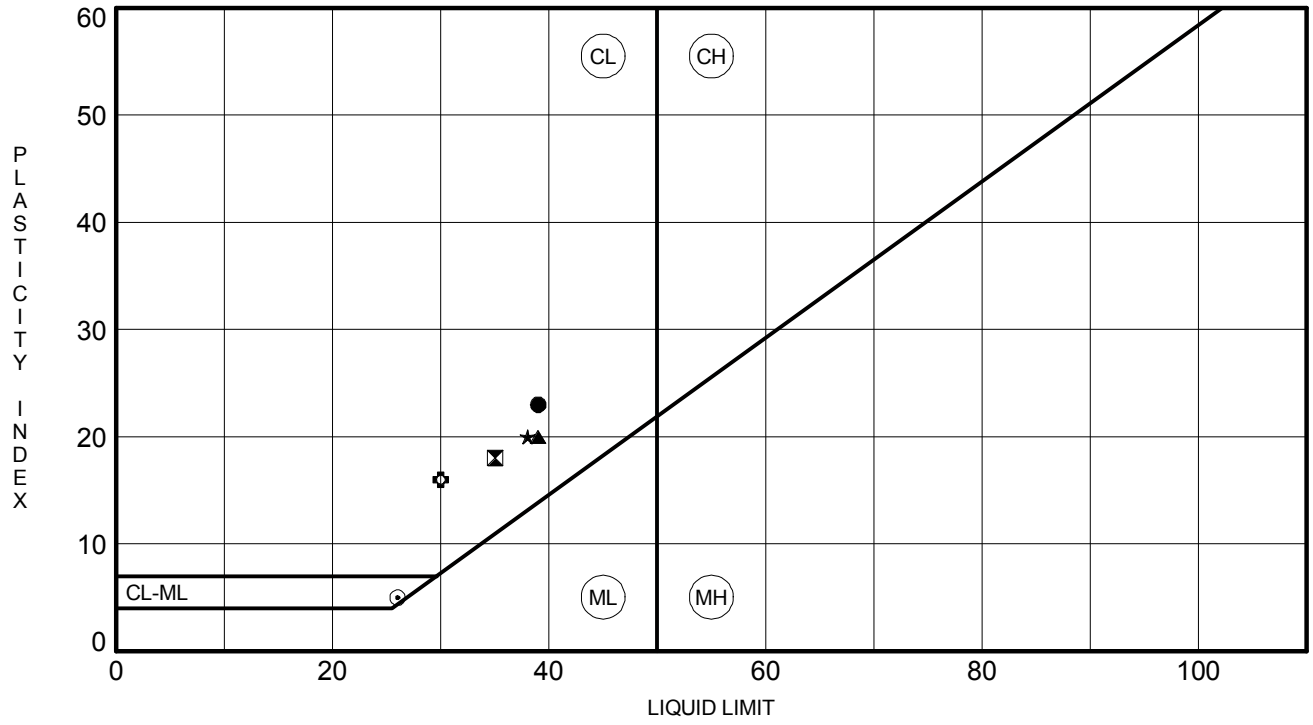
ATTERBERG LIMITS' RESULTS

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



	TEST PIT	DEPTH	LL	PL	PI	Fines	Classification
●	**453+00 156'L**	**46.0**	**39**	**16**	**23**	**25**	**CLAYEY GRAVEL with SAND(GC)**
⊠	**454+00 CL**	**2.0**	**35**	**17**	**18**	**16**	**CLAYEY GRAVEL with SAND(GC)**
▲	**454+00 CL**	**28.0**	**39**	**19**	**20**	**21**	**CLAYEY GRAVEL with SAND(GC)**
★	**454+00 CL**	**50.0**	**38**	**18**	**20**	**24**	**CLAYEY GRAVEL with SAND(GC)**
⊙	**559+00 CL**	**7.0**	**26**	**21**	**5**	**14**	**SILTY, CLAYEY GRAVEL with SAND(GC-GM)**
✿	**559+00 CL**	**31.0**	**30**	**14**	**16**	**42**	**CLAYEY SAND with GRAVEL(SC)**

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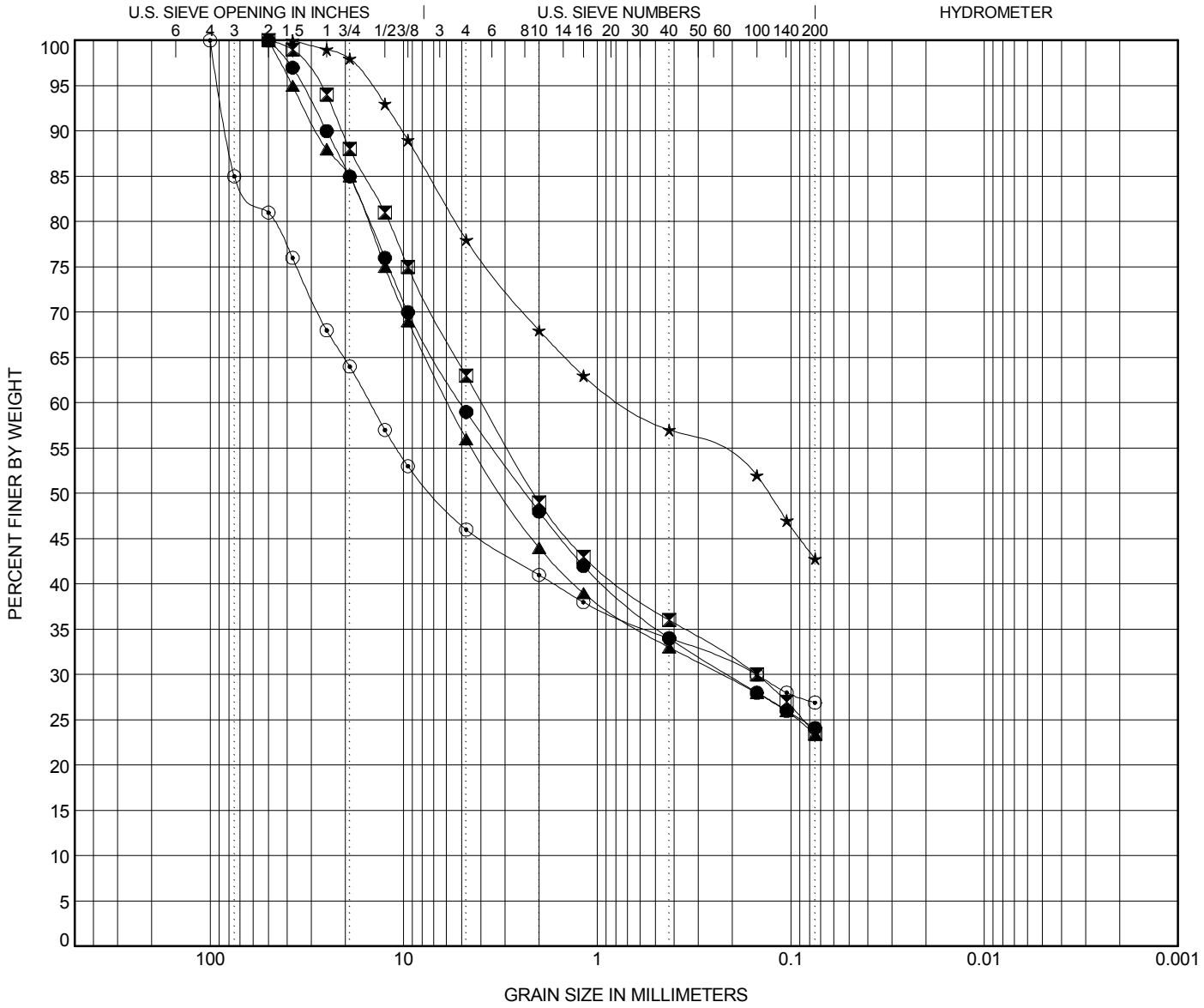
GRAIN SIZE DISTRIBUTION

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	315+00 100'R 12.0	**CLAYEY GRAVEL with SAND(GC)**	46	21	25		
⊠	322+00 220'R 18.0	**CLAYEY SAND with GRAVEL(SC)**	40	22	18		
▲	322+00 220'R 42.0	**CLAYEY GRAVEL with SAND(GC)**	38	17	21		
★	322+00 220'R 55.0	**SILTY SAND with GRAVEL(SM)**	NP	NP	NP		
⊙	322+00 220'R 75.0	**CLAYEY GRAVEL with SAND(GC)**	31	18	13		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	315+00 100'R 12.0	50	5.059	0.212		41.0	34.9	24.1	
⊠	322+00 220'R 18.0	50	3.946	0.15		37.0	39.5	23.5	
▲	322+00 220'R 42.0	50	5.879	0.228		44.0	32.6	23.4	
★	322+00 220'R 55.0	37.5	0.708			22.0	35.2	42.8	
⊙	322+00 220'R 75.0	100	14.957	0.15		51.8	16.4	31.8	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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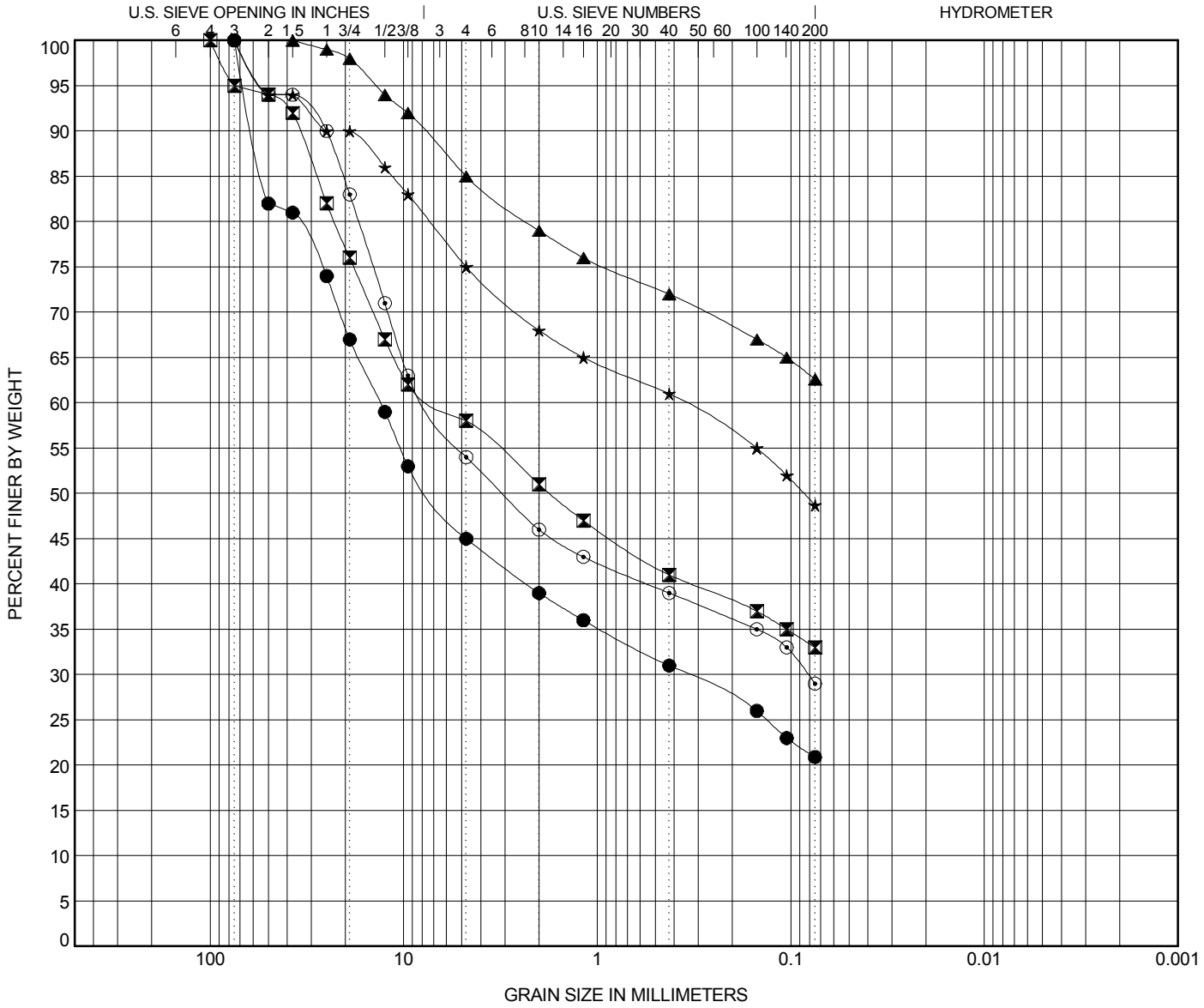

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	322+00 CL 12.0	**CLAYEY GRAVEL with SAND(GC)**	38	17	21		
⊠	327+00 200'R 14.5	**CLAYEY GRAVEL with SAND(GC)**	27	17	10		
▲	327+00 200'R 27.0	**SANDY FAT CLAY with GRAVEL(CH)**	53	26	27		
★	327+00 200'R 40.0	**CLAYEY SAND with GRAVEL(SC)**	48	26	22		
⊙	327+00 200'R 57.0	**CLAYEY GRAVEL with SAND(GC)**	35	14	21		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	322+00 CL 12.0	75	13.172	0.345		61.0	18.2	20.9	
⊠	327+00 200'R 14.5	100	6.718			46.2	18.9	34.8	
▲	327+00 200'R 27.0	37.5				15.0	22.4	62.6	
★	327+00 200'R 40.0	75	0.357			25.0	26.3	48.7	
⊙	327+00 200'R 57.0	75	7.54	0.082		46.0	25.0	29.0	

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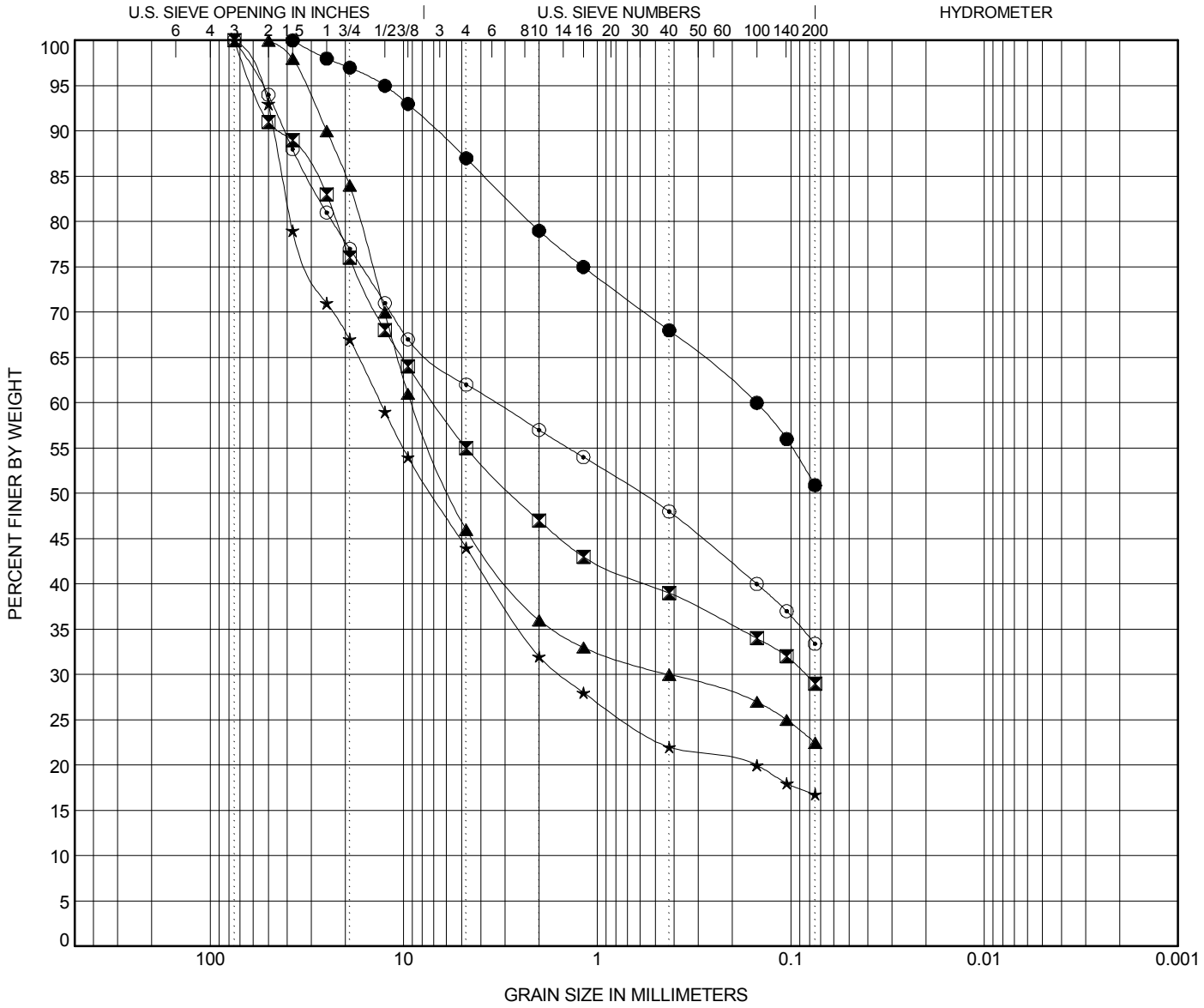

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	327+00 200'R 78.0	**SANDY LEAN CLAY(CL)**	37	18	19		
⊠	327+00 CL 28.0	**CLAYEY GRAVEL with SAND(GC)**	48	20	28		
▲	327+00 CL 46.0	**CLAYEY GRAVEL with SAND(GC)**	33	16	17		
★	327+00 CL 66.0	**CLAYEY GRAVEL with SAND(GC)**	29	18	11		
⊙	334+00 CL 14.0	**CLAYEY GRAVEL with SAND(GC)**	33	13	20		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	327+00 200'R 78.0	37.5	0.15			13.0	36.1	50.9	
⊠	327+00 CL 28.0	75	6.981	0.084		45.0	26.0	29.0	
▲	327+00 CL 46.0	50	9.071	0.425		54.0	23.5	22.5	
★	327+00 CL 66.0	75	13.172	1.536		56.0	27.2	16.8	
⊙	334+00 CL 14.0	75	3.361			38.0	28.6	33.4	

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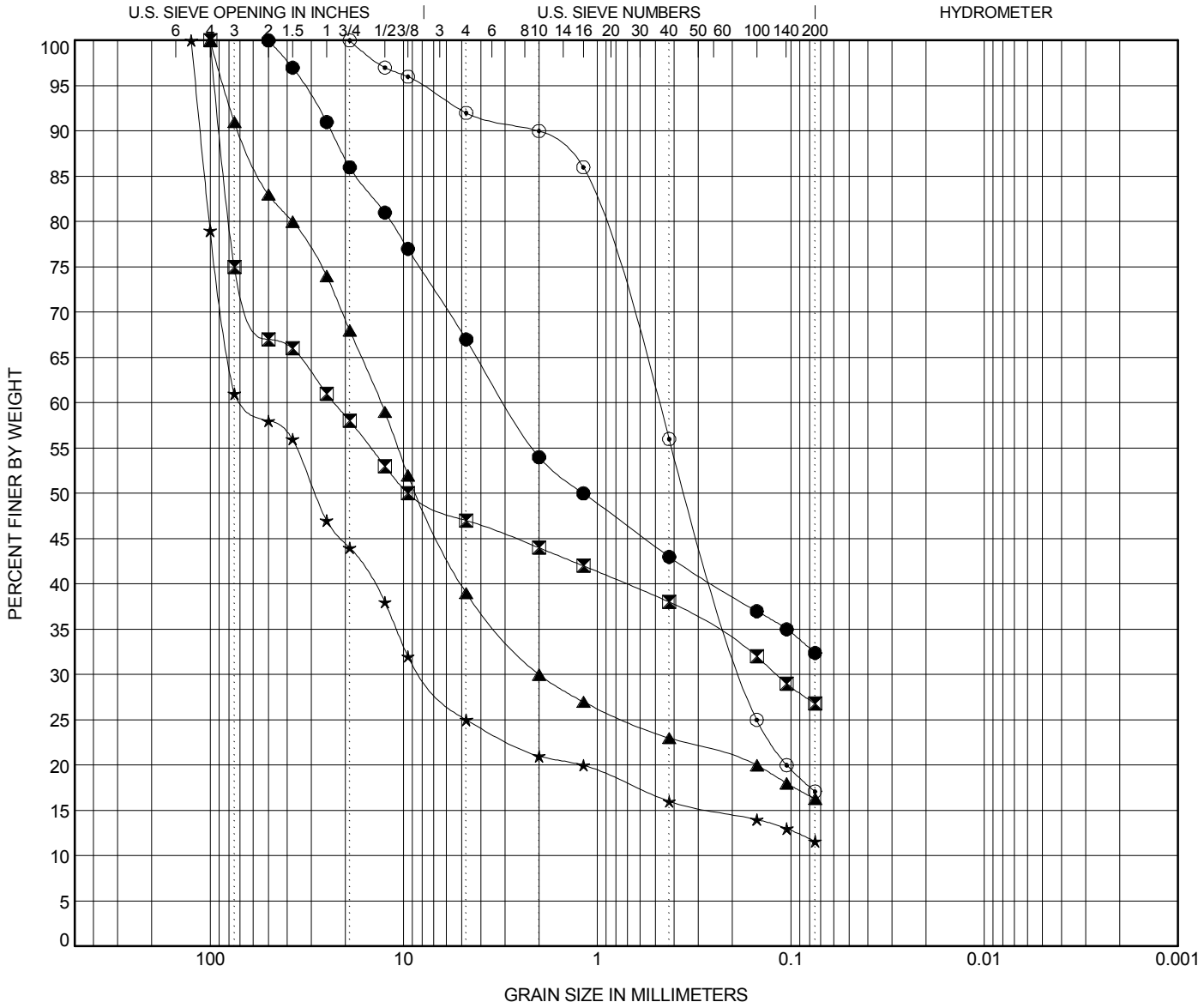

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	340+00 156'R 7.5	CLAYEY SAND with GRAVEL(SC)	41	17	24		
⊠	340+00 156'R 16.0	SILTY GRAVEL with SAND(GM)	20	17	3		
▲	340+00 156'R 34.0	CLAYEY GRAVEL with SAND(GC)	37	15	22		
★	340+00 156'R 68.0	CLAYEY GRAVEL with SAND(GC)	29	15	14	18.161	283.24
⊙	340+00 CL 16.0	SILTY SAND(SM)	NP	NP	NP		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	340+00 156'R 7.5	50	2.981			33.0	34.6	32.4	
⊠	340+00 156'R 16.0	100	22.815	0.118		41.5	22.7	35.8	
▲	340+00 156'R 34.0	100	13.095	2		66.9	15.2	17.9	
★	340+00 156'R 68.0	125	65.519	7.793		65.3	15.5	19.2	
⊙	340+00 CL 16.0	19	0.487	0.177		8.0	74.9	17.1	

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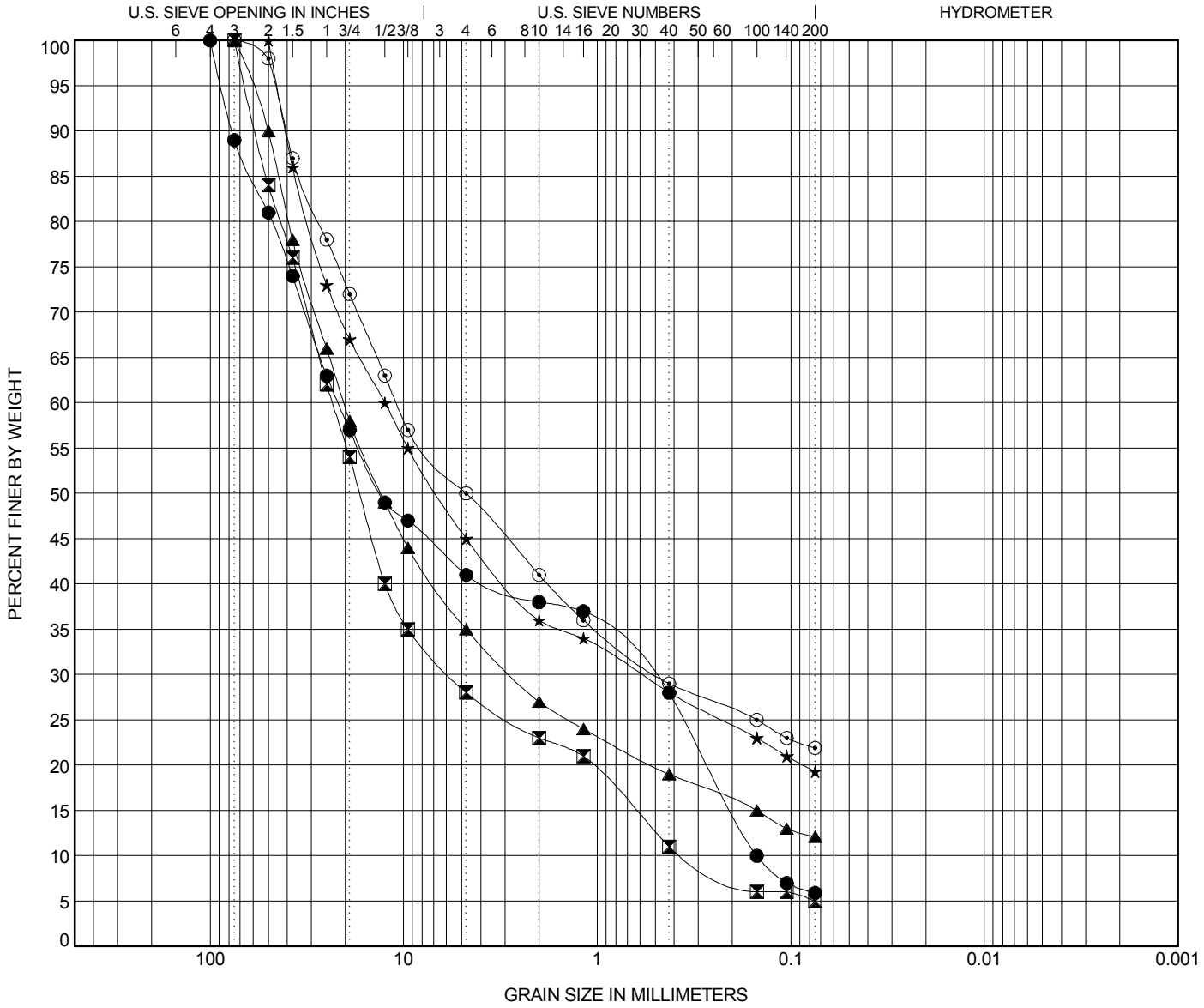

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	340+00 CL 24.0	**POORLY GRADED GRAVEL with SILT and SAND(GP-GM)**	**NP**	**NP**	**NP**	**0.09**	**145.30**
⊠	340+00 CL 43.0	**POORLY GRADED GRAVEL with SILT and SAND(GP-GM)**	**NP**	**NP**	**NP**	**4.16**	**67.64**
▲	345+00 278'R 13.0	**CLAYEY GRAVEL with SAND(GC)**	**29**	**17**	**12**	**10.99**	**594.91**
★	345+00 278'R 48.0	**CLAYEY GRAVEL with SAND(GC)**	**31**	**16**	**15**		
⊙	345+00 278'R 59.0	**CLAYEY GRAVEL with SAND(GC)**	**40**	**18**	**22**		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	340+00 CL 24.0	**100**	**21.794**	**0.533**	**0.15**	**57.3**	**36.1**	**6.6**	
⊠	340+00 CL 43.0	**75**	**23.342**	**5.79**	**0.345**	**72.0**	**23.0**	**5.0**	
▲	345+00 278'R 13.0	**75**	**20.349**	**2.766**		**65.0**	**22.9**	**12.1**	
★	345+00 278'R 48.0	**50**	**12.5**	**0.597**		**55.0**	**25.7**	**19.3**	
⊙	345+00 278'R 59.0	**75**	**10.897**	**0.492**		**50.0**	**28.1**	**21.9**	

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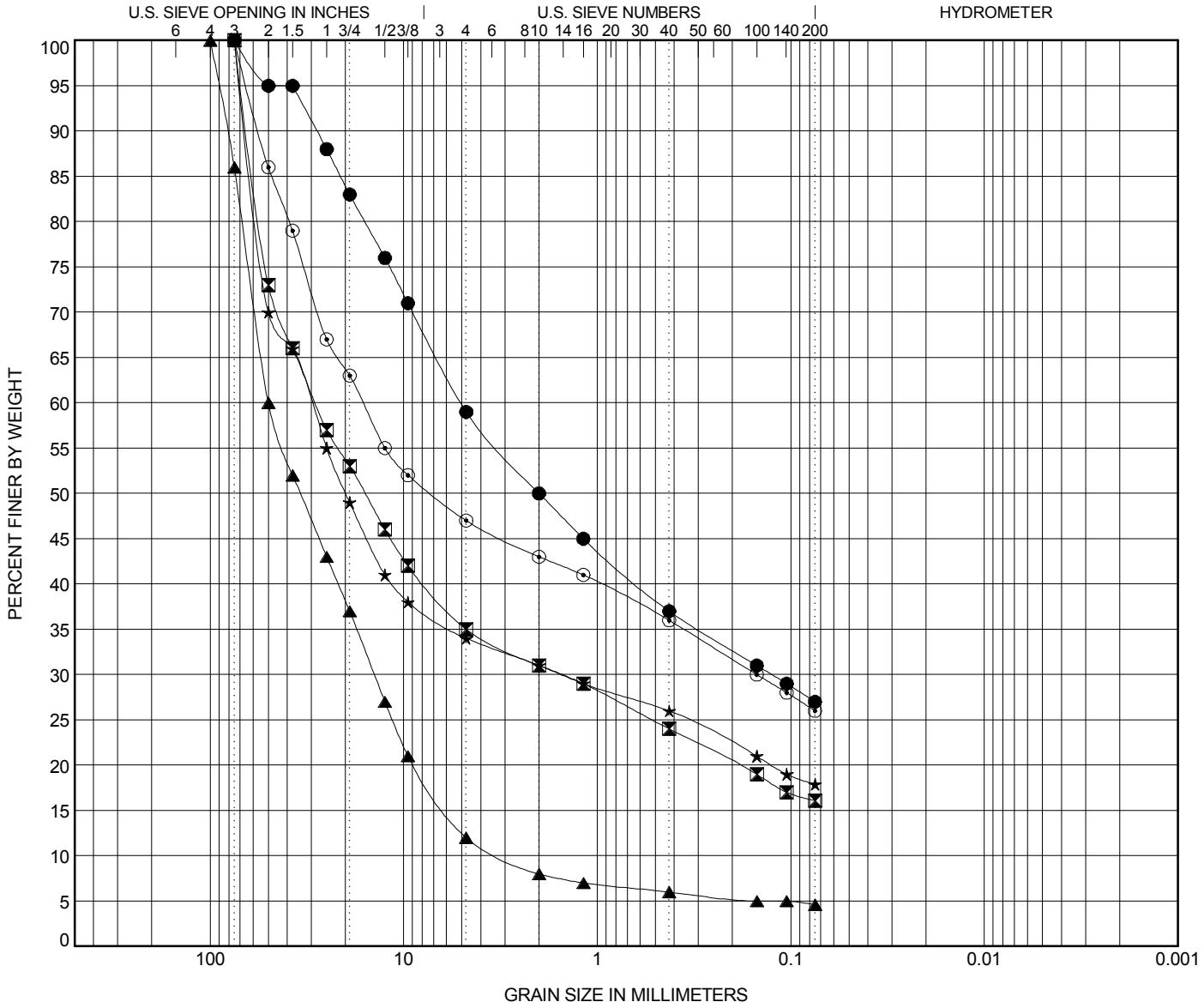

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	345+00 278'R 84.0	**CLAYEY GRAVEL with SAND(GC)**	35	17	18		
⊠	345+50 CL 10.0	**CLAYEY GRAVEL with SAND(GC)**	24	15	9		
▲	350+00 89'R 8.0	**WELL-GRADED GRAVEL with CLAY(GW-GC)**	30	16	14	1.30	16.22
★	350+00 89'R 40.0	**CLAYEY GRAVEL with SAND(GC)**	26	15	11		
⊙	355+00 CL 9.5	**CLAYEY GRAVEL with SAND(GC)**	27	15	12		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	345+00 278'R 84.0	75	5.032	0.125		41.0	32.0	27.0	
⊠	345+50 CL 10.0	75	28.618	1.536		69.4	16.1	14.4	
▲	350+00 89'R 8.0	100	50	14.173	3.082	90.2	4.5	5.3	
★	350+00 89'R 40.0	75	30.059	1.536		66.0	16.1	17.9	
⊙	355+00 CL 9.5	75	16.239	0.15		53.0	21.0	26.0	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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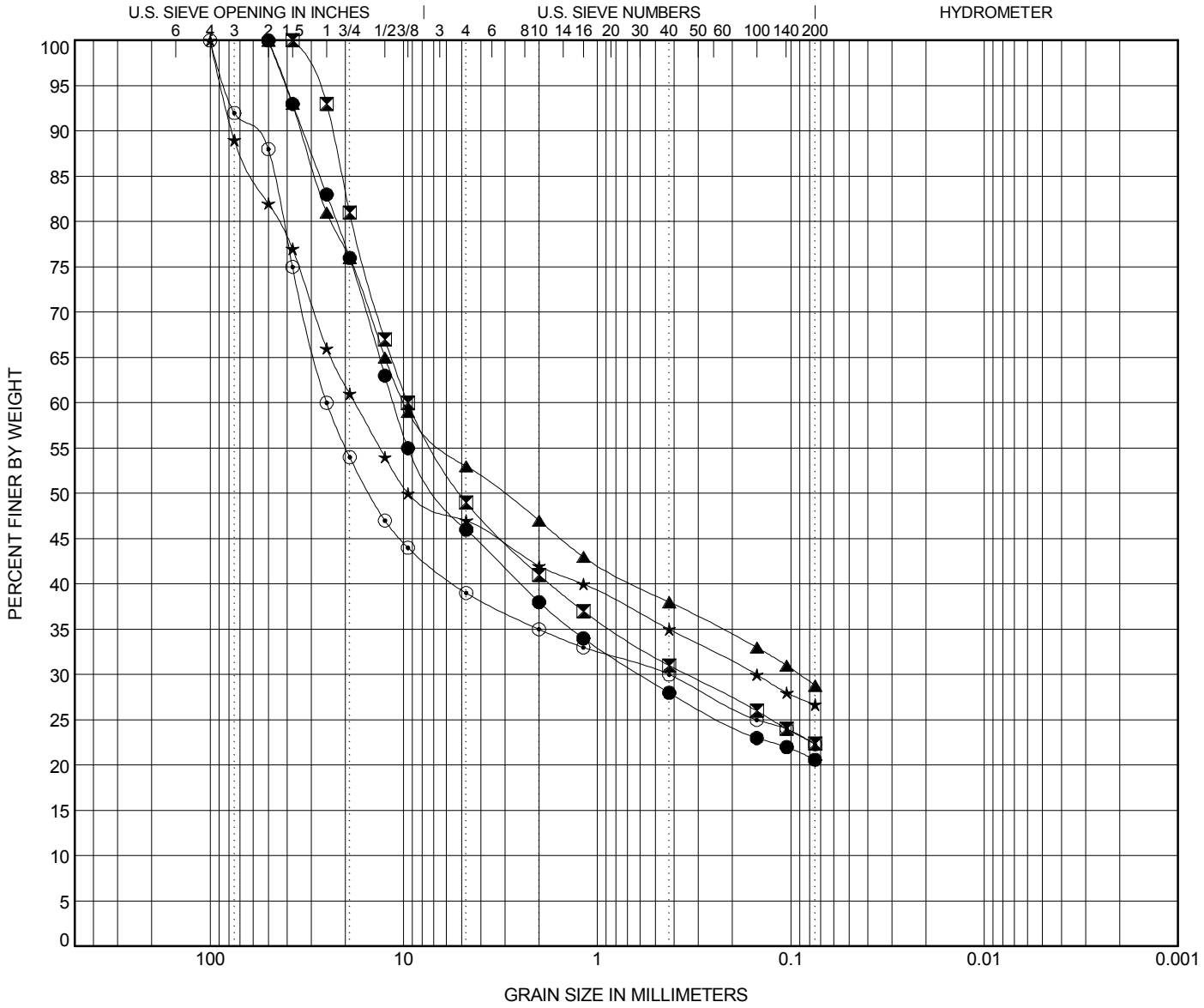

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	355+00 CL	41.0	**CLAYEY GRAVEL with SAND(GC)**	33	16	17		
⊠	363+59 CL	8.0	**CLAYEY GRAVEL with SAND(GC)**	35	16	19		
▲	363+59 CL	28.0	**CLAYEY GRAVEL with SAND(GC)**	42	21	21		
★	370+00 CL	6.0	**CLAYEY GRAVEL with SAND(GC)**	29	15	14		
⊙	370+00 CL	35.0	**CLAYEY GRAVEL with SAND(GC)**	33	17	16		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	355+00 CL 41.0	50	11.278	0.597		54.0	25.4	20.6	
⊠	363+59 CL 8.0	37.5	9.5	0.345		51.0	26.6	22.4	
▲	363+59 CL 28.0	50	9.945	0.09		47.0	24.2	28.8	
★	370+00 CL 6.0	100	17.897	0.15		52.3	17.6	30.1	
⊙	370+00 CL 35.0	100	25	0.425		62.0	13.7	24.3	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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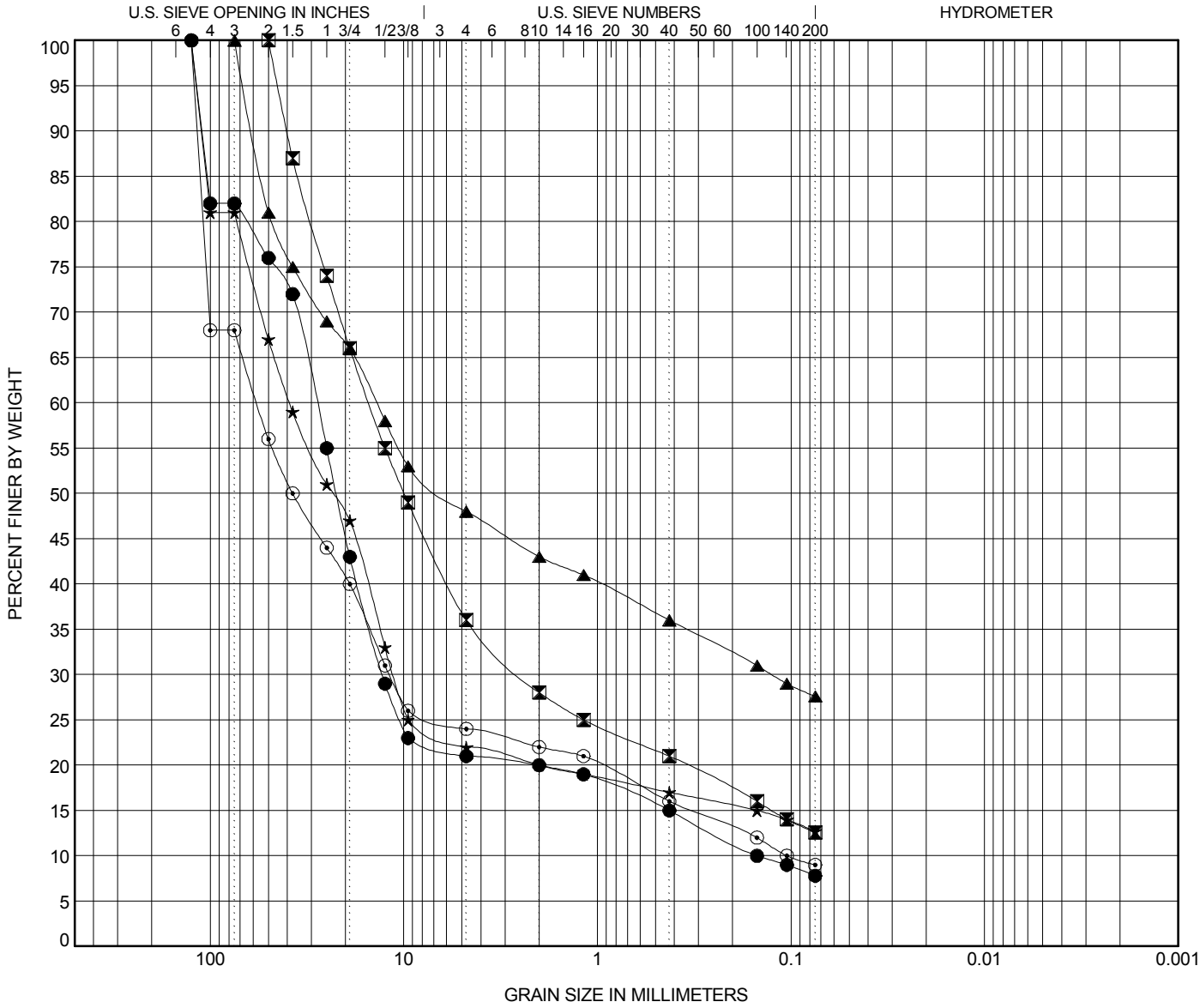


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	370+00 CL 73.0	POORLY GRADED GRAVEL with SILTY CLAY and SAND(GP-GC)	26	21	5	39.26	187.78
⊠	392+00 CL 15.0	CLAYEY GRAVEL with SAND(GC)	25	16	9		
▲	399+04 CL 18.0	CLAYEY GRAVEL with SAND(GC)	32	16	16		
★	411+74 117'L 20.0	CLAYEY GRAVEL(GC)	42	15	27		
⊙	411+74 117'L 68.0	CLAYEY GRAVEL with SAND(GC)	26	16	10	23.30	545.10

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	370+00 CL 73.0	125	28.166	12.879	0.15	76.2	14.3	9.5	
⊠	392+00 CL 15.0	50	15.121	2.483		64.0	23.4	12.6	
▲	399+04 CL 18.0	75	13.879	0.125		52.0	20.4	27.6	
★	411+74 117'L 20.0	125	38.873	11.278		75.7	8.7	15.6	
⊙	411+74 117'L 68.0	125	57.236	11.832	0.105	67.1	19.8	13.1	

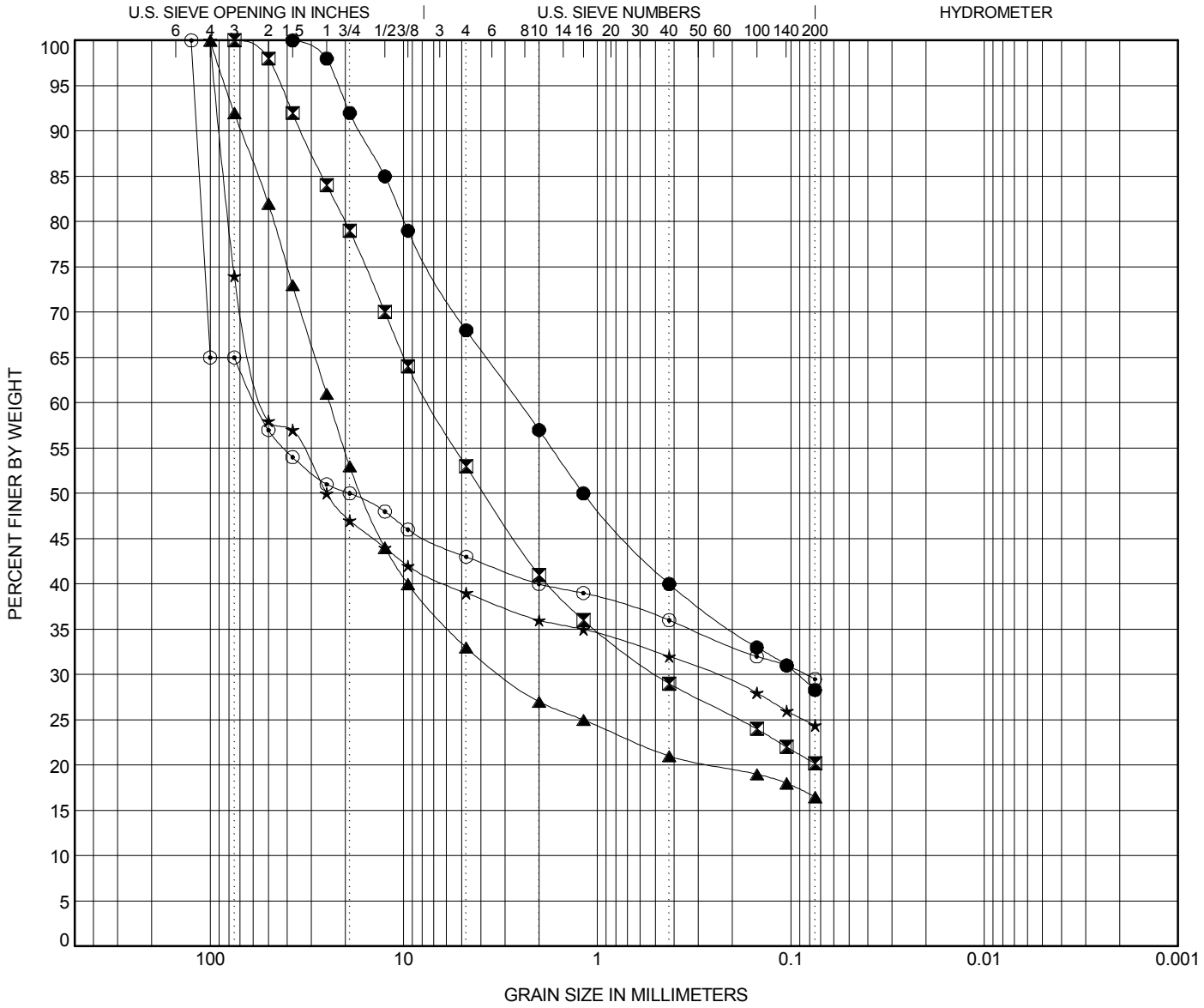
GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

GRAIN SIZE DISTRIBUTION

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	417+00 100'L 14.0	**CLAYEY SAND with GRAVEL(SC)**	33	16	17		
⊠	417+00 100'L 28.0	**CLAYEY GRAVEL with SAND(GC)**	33	15	18		
▲	432+00 100'L 18.0	**CLAYEY GRAVEL with SAND(GC)**	32	15	17		
★	432+00 100'L 34.0	**CLAYEY GRAVEL with SAND(GC)**	29	16	13		
⊙	432+00 100'L 58.5	**CLAYEY GRAVEL with SAND(GC)**	29	16	13		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	417+00 100'L 14.0	37.5	2.532	0.093		32.0	39.7	28.3	
⊠	417+00 100'L 28.0	75	7.383	0.492		47.0	32.8	20.2	
▲	432+00 100'L 18.0	100	24.157	3.082		70.3	11.8	17.9	
★	432+00 100'L 34.0	100	52.599	0.252		51.1	16.1	32.8	
⊙	432+00 100'L 58.5	125	58.211	0.084		38.4	16.2	45.4	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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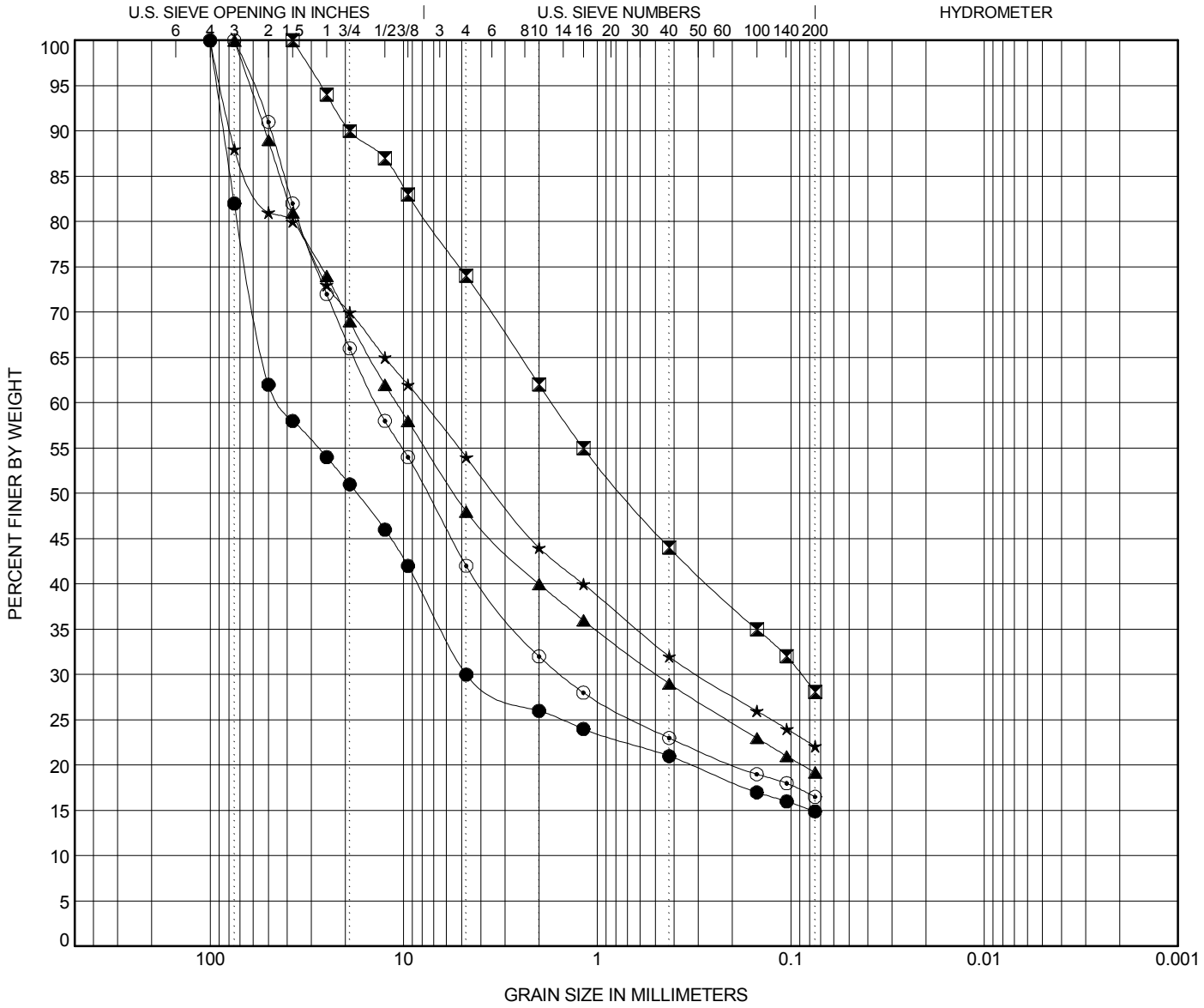
GRAIN SIZE DISTRIBUTION

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	436+50 144'L 10.0	**CLAYEY GRAVEL with SAND(GC)**	28	15	13		
⊠	436+50 144'L 29.0	**CLAYEY SAND with GRAVEL(SC)**	33	17	16		
▲	436+50 144'L 39.0	**CLAYEY GRAVEL with SAND(GC)**	32	14	18		
★	443+00 194'L 11.5	**CLAYEY GRAVEL with SAND(GC)**	29	14	15		
⊙	443+00 194'L 32.0	**CLAYEY GRAVEL with SAND(GC)**	36	15	21		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	436+50 144'L 10.0	100	43.301	4.75		68.5	18.2	13.3	
⊠	436+50 144'L 29.0	37.5	1.72	0.088		26.0	45.9	28.1	
▲	436+50 144'L 39.0	75	10.897	0.492		52.0	28.8	19.2	
★	443+00 194'L 11.5	100	7.989	0.3		49.8	25.1	25.1	
⊙	443+00 194'L 32.0	75	13.879	1.536		58.0	25.5	16.5	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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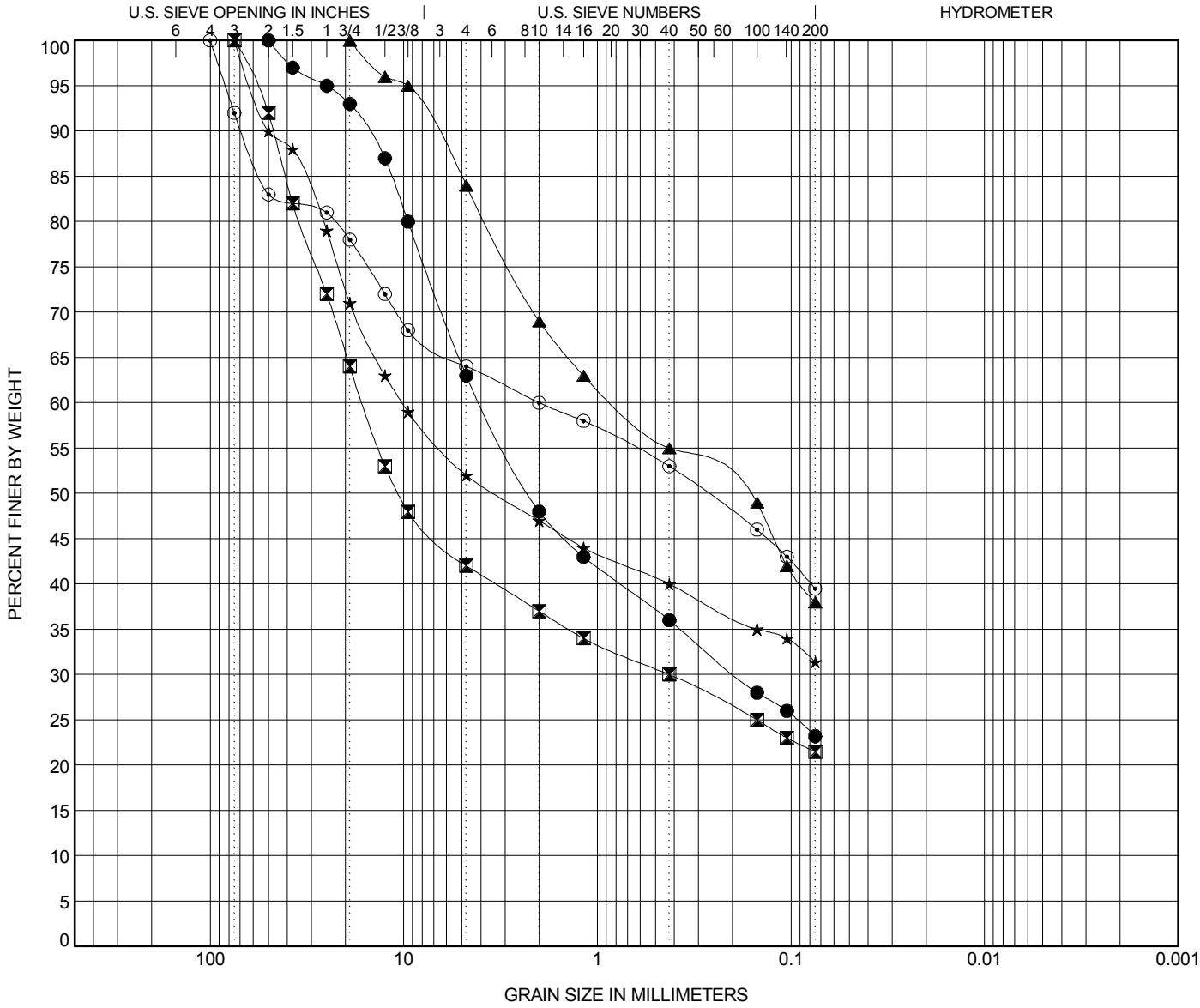
GRAIN SIZE DISTRIBUTION

CLIENT Jacobs - FBO Nevada Department of Transpotation **PROJECT NAME** USA Parkway

PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	443+00 194'L 69.0	**CLAYEY SAND with GRAVEL(SC)**	40	17	23		
⊠	443+00 CL 3.0	**CLAYEY GRAVEL with SAND(GC)**	37	17	20		
▲	443+00 CL 35.0	**CLAYEY SAND with GRAVEL(SC)**	41	19	22		
★	443+00 CL 67.0	**CLAYEY GRAVEL with SAND(GC)**	35	15	20		
⊙	443+00 CL 74.5	**CLAYEY GRAVEL with SAND(GC)**	36	15	21		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	443+00 194'L 69.0	50	3.995	0.195		37.0	39.8	23.2	
⊠	443+00 CL 3.0	75	16.317	0.425		58.0	20.5	21.5	
▲	443+00 CL 35.0	19	0.805			16.0	46.0	38.0	
★	443+00 CL 67.0	75	10.175			48.0	20.6	31.4	
⊙	443+00 CL 74.5	100	2			35.0	21.9	43.1	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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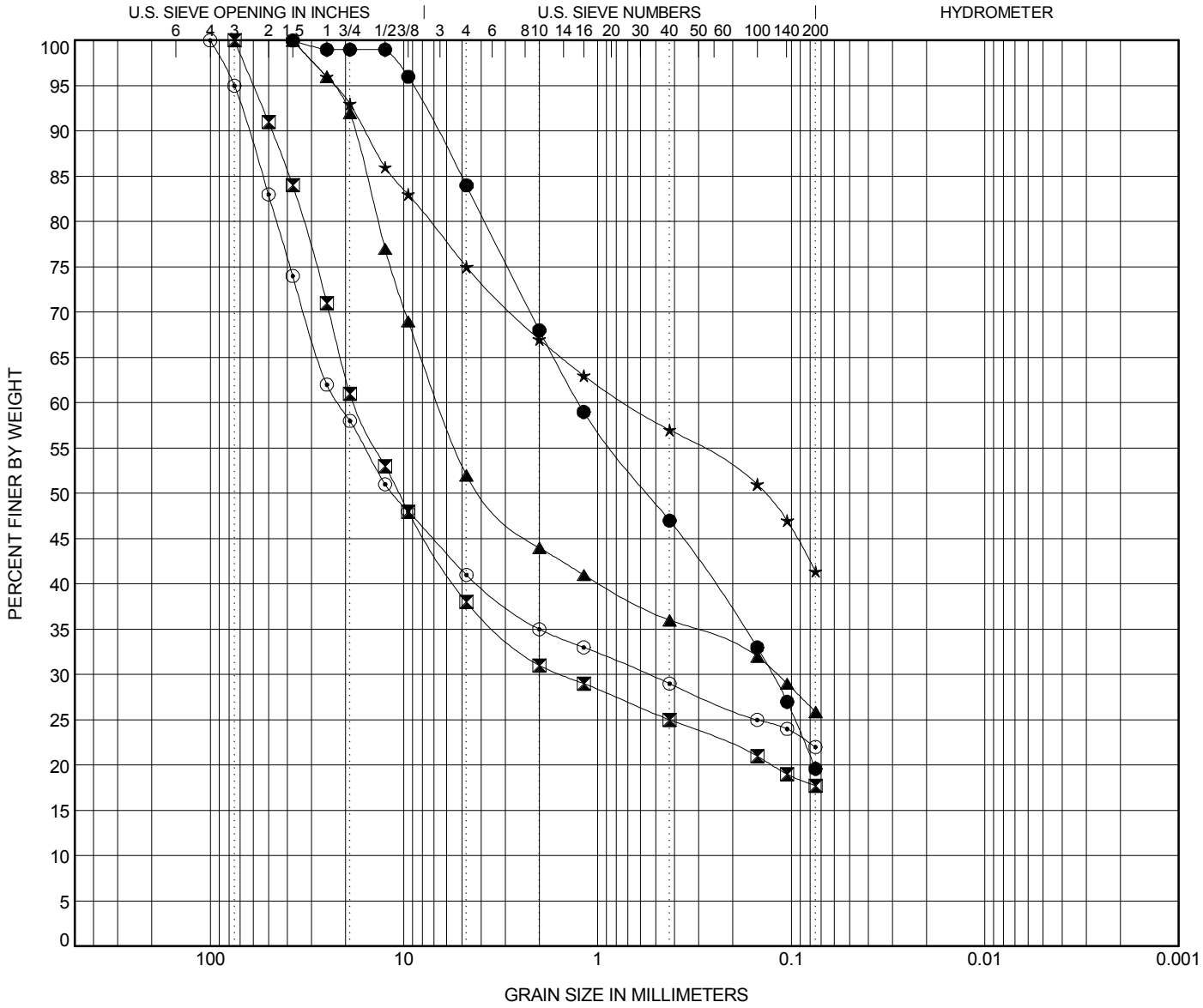

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	450+00 122'L 5.0	**SILTY, CLAYEY SAND with GRAVEL(SC-SM)**	27	20	7		
⊠	450+00 122'L 40.0	**CLAYEY GRAVEL with SAND(GC)**	36	17	19		
▲	450+00 122'L 63.0	**CLAYEY GRAVEL with SAND(GC)**	35	16	19		
★	453+00 156'L 10.0	**CLAYEY SAND with GRAVEL(SC)**	44	21	23		
⊙	453+00 156'L 23.0	**CLAYEY GRAVEL with SAND(GC)**	43	22	21		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	450+00 122'L 5.0	37.5	1.251	0.125		16.0	64.4	19.6	
⊠	450+00 122'L 40.0	75	18.031	1.536		62.0	20.3	17.7	
▲	450+00 122'L 63.0	37.5	6.582	0.118		48.0	26.1	25.9	
★	453+00 156'L 10.0	37.5	0.708			25.0	33.6	41.4	
⊙	453+00 156'L 23.0	100	21.794	0.549		62.8	14.1	23.1	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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GRAIN SIZE DISTRIBUTION

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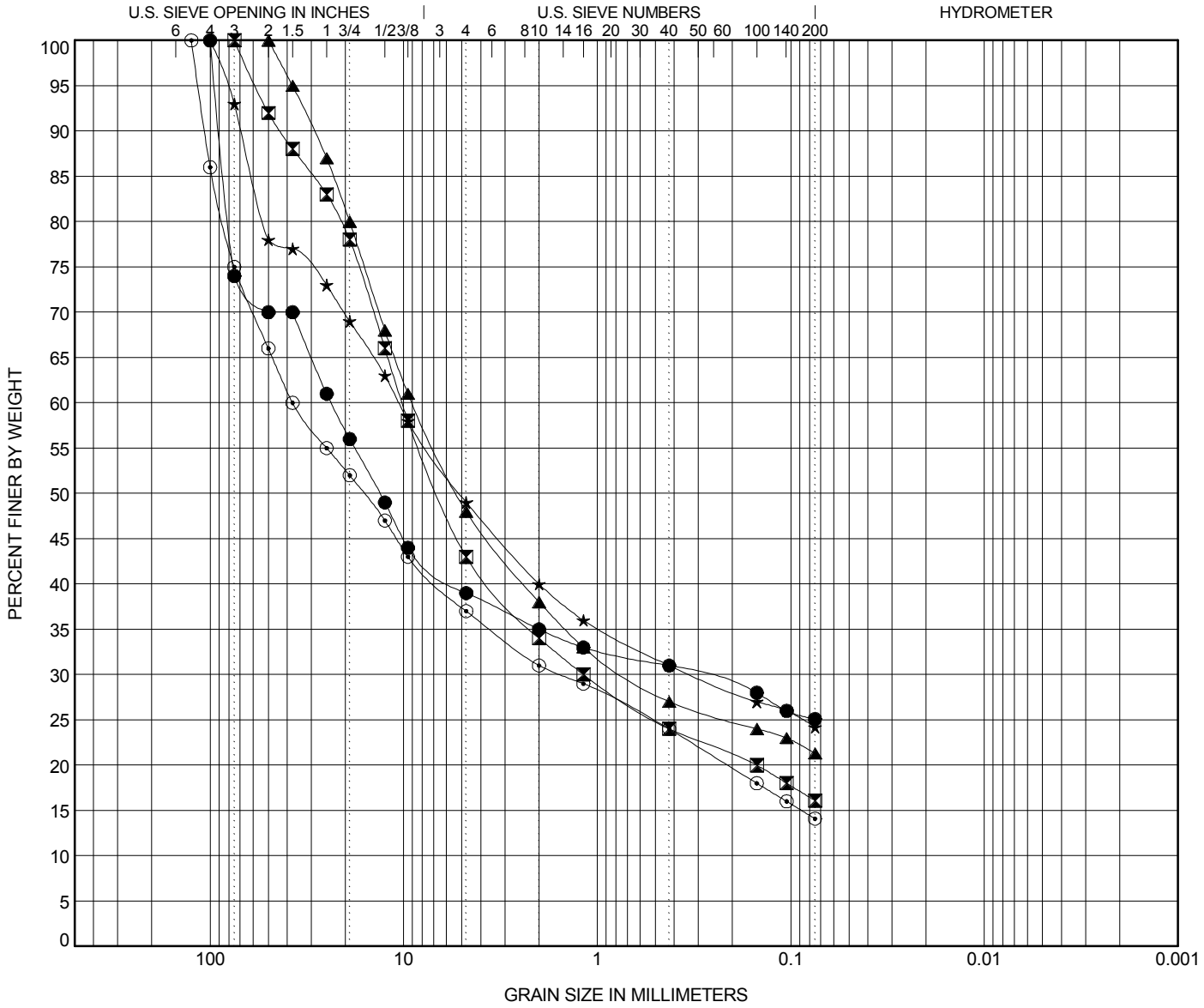
PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
● 453+00 156'L	46.0	**CLAYEY GRAVEL with SAND(GC)**	39	16	23		
⊠ 454+00 CL	2.0	**CLAYEY GRAVEL with SAND(GC)**	35	17	18		
▲ 454+00 CL	28.0	**CLAYEY GRAVEL with SAND(GC)**	39	19	20		
★ 454+00 CL	50.0	**CLAYEY GRAVEL with SAND(GC)**	38	18	20		
⊙ 559+00 CL	7.0	**SILTY, CLAYEY GRAVEL with SAND(GC-GM)**	26	21	5		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 453+00 156'L	46.0	100	23.665	0.3		53.2	13.1	33.7	
⊠ 454+00 CL	2.0	75	10.175	1.18		57.0	26.9	16.1	
▲ 454+00 CL	28.0	50	9.007	0.708		52.0	26.7	21.3	
★ 454+00 CL	50.0	100	10.602	0.328		56.8	17.2	26.0	
⊙ 559+00 CL	7.0	125	37.5	1.536		57.8	23.2	19.0	

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

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GRAIN SIZE DISTRIBUTION

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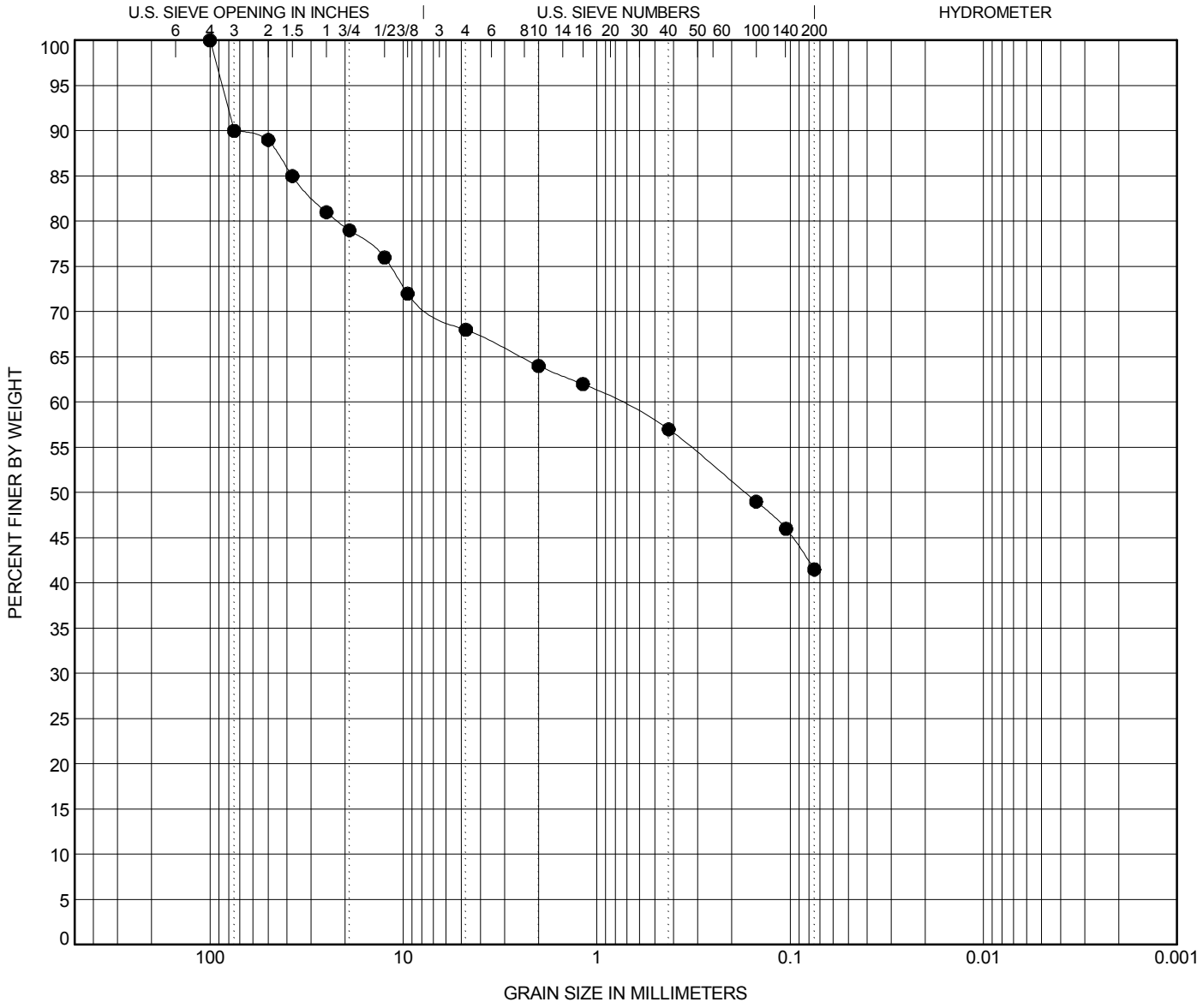
PROJECT NUMBER 8480.001 **PROJECT LOCATION** Storey/Lyon Counties



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BORING	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**559+00 CL**	**31.0**	**CLAYEY SAND with GRAVEL(SC)**	**30**	**14**	**16**		

BORING	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**559+00 CL**	**31.0**	**100**	**0.784**			**26.4**	**25.4**	**46.2**

GRAIN SIZE - BORING - GINT STD US LAB.GDT - 3/27/15 10:40 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\USA PARKWAY\USA PKWAY 2015.GPJ

CONSOLIDATION OF SEDIMENTARY ROCKS

Usually determined from unweathered samples. Largley dependent on cementation.

U = unconsolidated **M** = moderately consolidated

P = poorly consolidated **W** = well consolidated

BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	Very thick-bedded
Blocky	2.0 to 4.0 ft.	Thick-bedded
Slabby	0.2 to 2.0 ft.	Thin-bedded
Flaggy	0.05 to 0.2 ft.	Very thin bedded
Shaly or platy	0.01 to 0.05 ft.	Laminated
Papery	Less than 0.01 ft.	Thinly laminated

FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5 .1 - ½°
Intensely fractured	0.005 to 0.1
Disintegrated	Less than 0.005

HARDNESS

1. **S**oft - Reserved for plastic material alone
2. **M**oderately **S**oft - can be gouged deeply or carved easily with a knife blade
3. **M**oderately **H**ard - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away
4. **H**ard - can be scratched with difficulty; scratch produces little powder and is often faintly visible
5. **V**ery **H**ard - cannont be scratched with a knife blade; leaves a metallic streak

STRENGTH

1. **P**lastic - very low strength
2. **F**riable - crumbles easily by rubbing with fingers
3. **W**eak - An unfractured specimen of such material will crumble under light hammer blows
4. **M**oderately **S**trong - Specimen will withstand a few heavy hammer blows before breaking
5. **S**trong - Specimen will withstand a few heavy hammer blows, and will yeild with difficulty only dust and small flying fragments
6. **V**ery **S**trong - Specimen will resist heavy ringing hammer blows and will yeild with difficulty only dust and small flying fragments

WEATHERING

The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, freezing, and thawing

1. **D**eeply or **I**ntensely - Moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration, many fractures, all extensively coated or filled with oxides, carbonates and/or clay silt
2. **M**oderate - Slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected; Moderate to occasionally intense discoloration; Moderately coated features
3. **S**lightly - No megascopic decomposition of minerals; little or no effect on normal cementation; Slight and inter-mittent, or localized discoloration; Few stains on fracture surfaces
4. **F**resh - Unaffected by weathering agents; No disintegration or discoloration; Fractures usually less numerous than joints

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
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CRITERIA FOR ROCK DESCRIPTIONS

Geotechnical Investigation

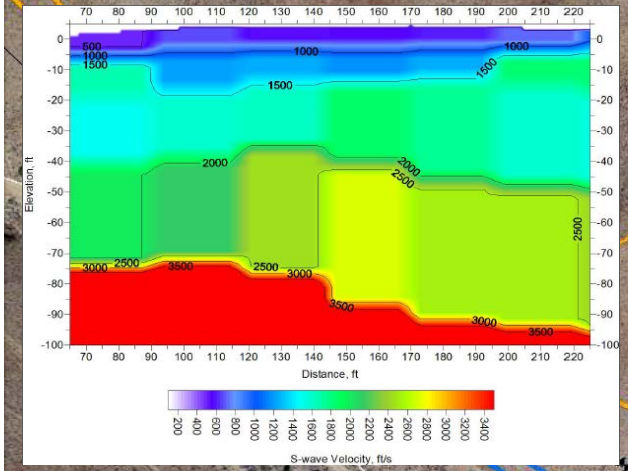
USA Parkway
NDOT PIN 73900

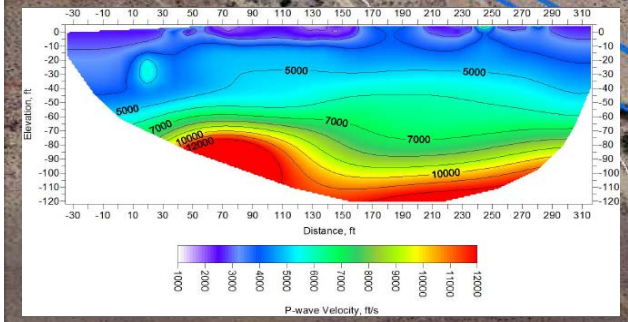
Project No.: 8480.001
Date: 3.27.15

PLATE A-3

APPENDIX B

315+00 100’ RIGHT





Summary of Laboratory Test Data

TEST	315+00 100R 12'-14'
4 - Inch Sieve	100
No. 4 Sieve	59
No. 200 Sieve	24.1
Max Liquid Limit	46
Max Plastic Index	25
USCS	GC
Moisture Cont.	4.7

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315+00 100' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

315+00 100'R

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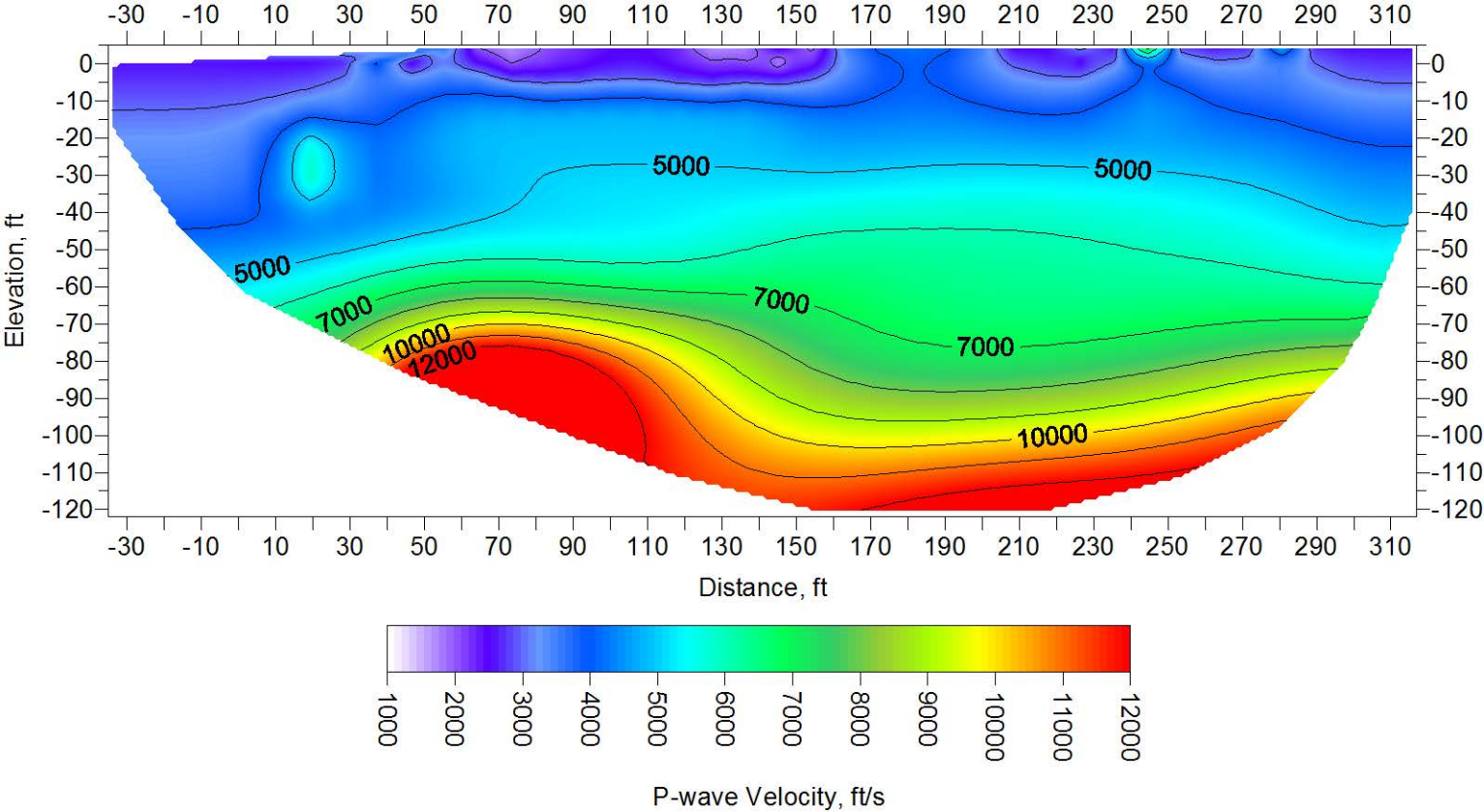
Fax: 775-823-4066

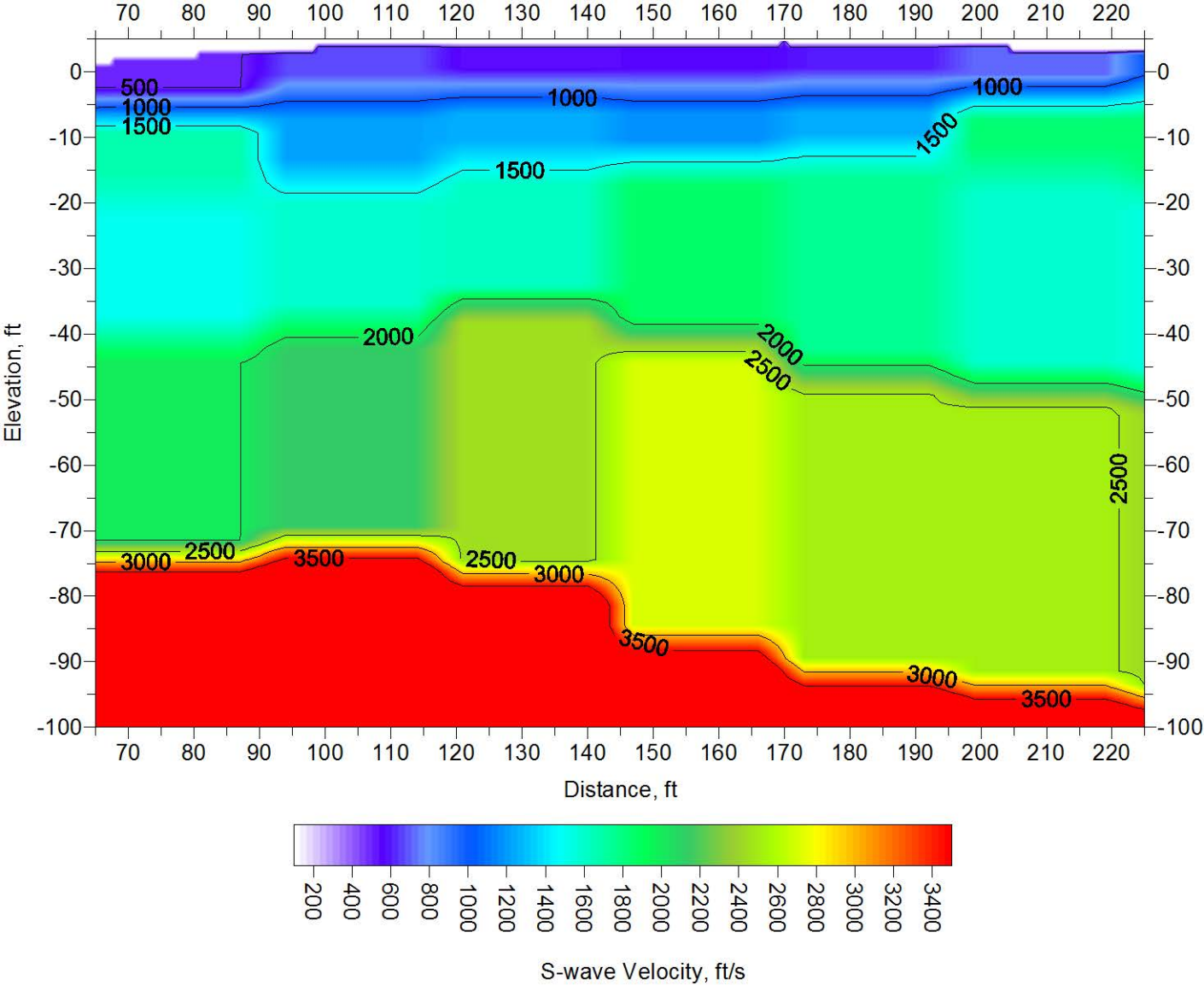
BORING LOCATION 315+00 100'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5025 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

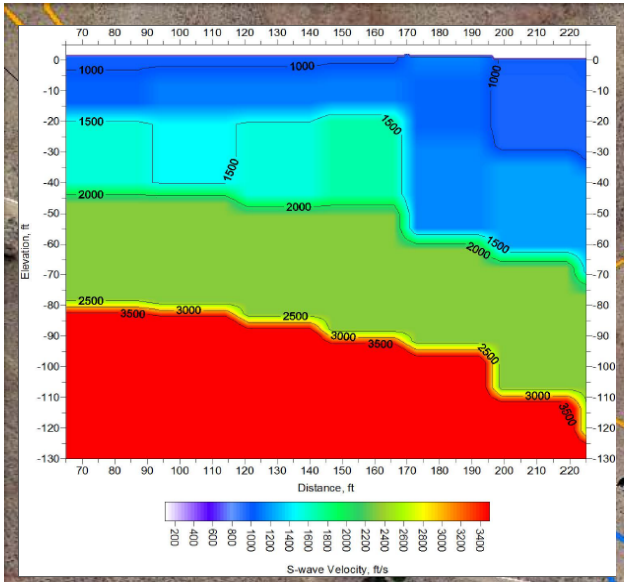
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Residual Rock - Drill as medium dense, Clayey Sand & Gravels, brown, slighly moist		MS	W	I	C		87	600						
			RHYOLITE, Medium Grained, light gray, pitted						50								
10										140	1000	3000					
			Strong brown	GB A	S	W				172			11.7	46	21	25	24.1
									50	188		4000					
20											1500						
			Light gray						25	78							
30											2000	5000					

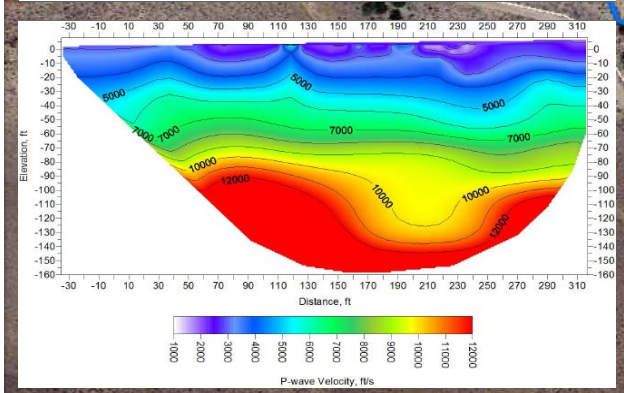
Bottom of Borehole at 30.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120
Elevation, ft
5000
5000
5000
7000
7000
7000
10000
12000
10000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
500
1000
1500
2000
2500
3000
3500
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400

322+00 CENTERLINE





Summary of Laboratory Test Data

TEST	322+00 CL 12'-17'
4 - Inch Sieve	100
No. 4 Sieve	45
No. 200 Sieve	20.9
Max Liquid Limit	37
Max Plastic Index	21
USCS	GC
Moisture Cont.	4.4

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322+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

322+00 CL

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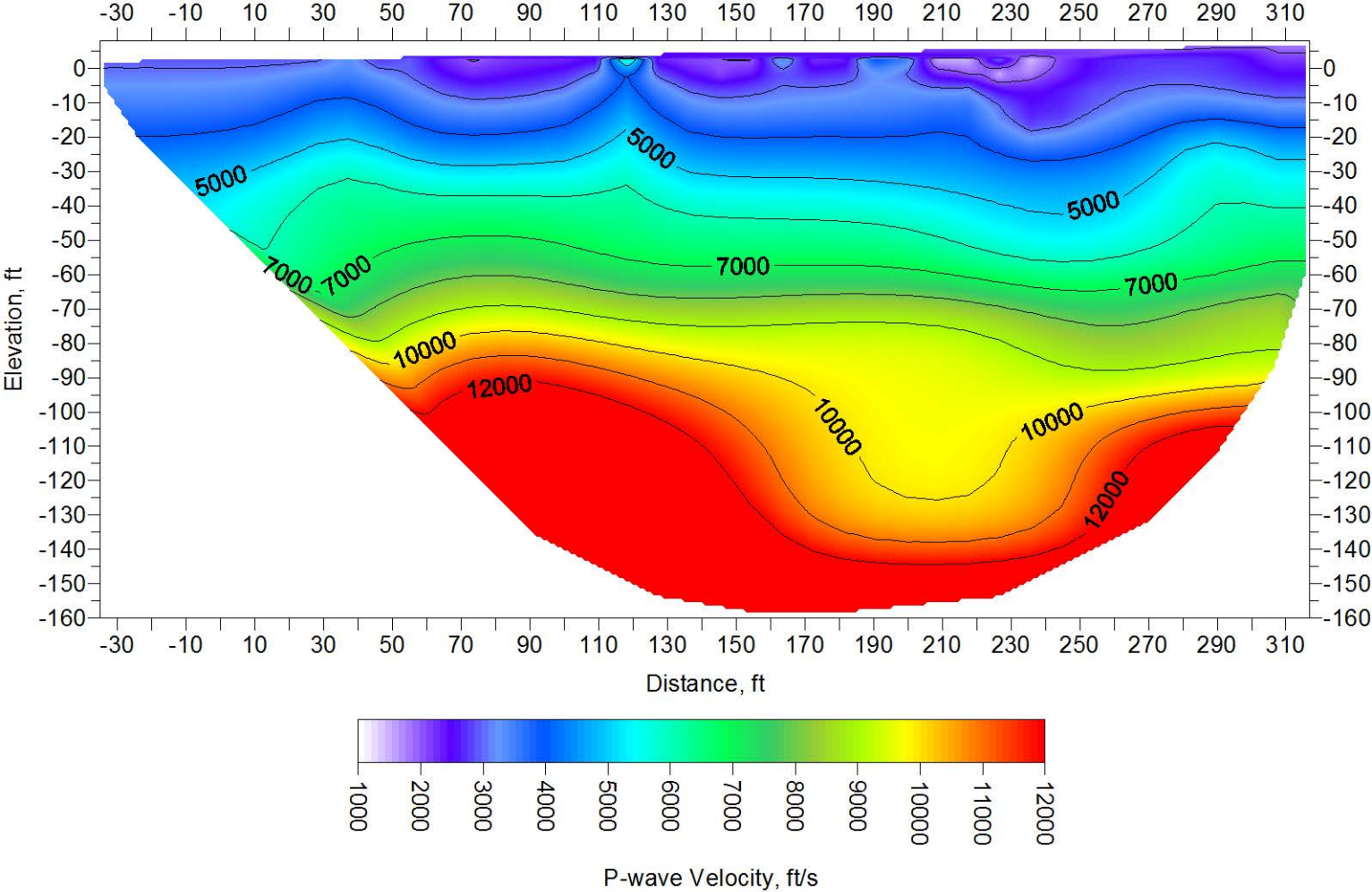
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

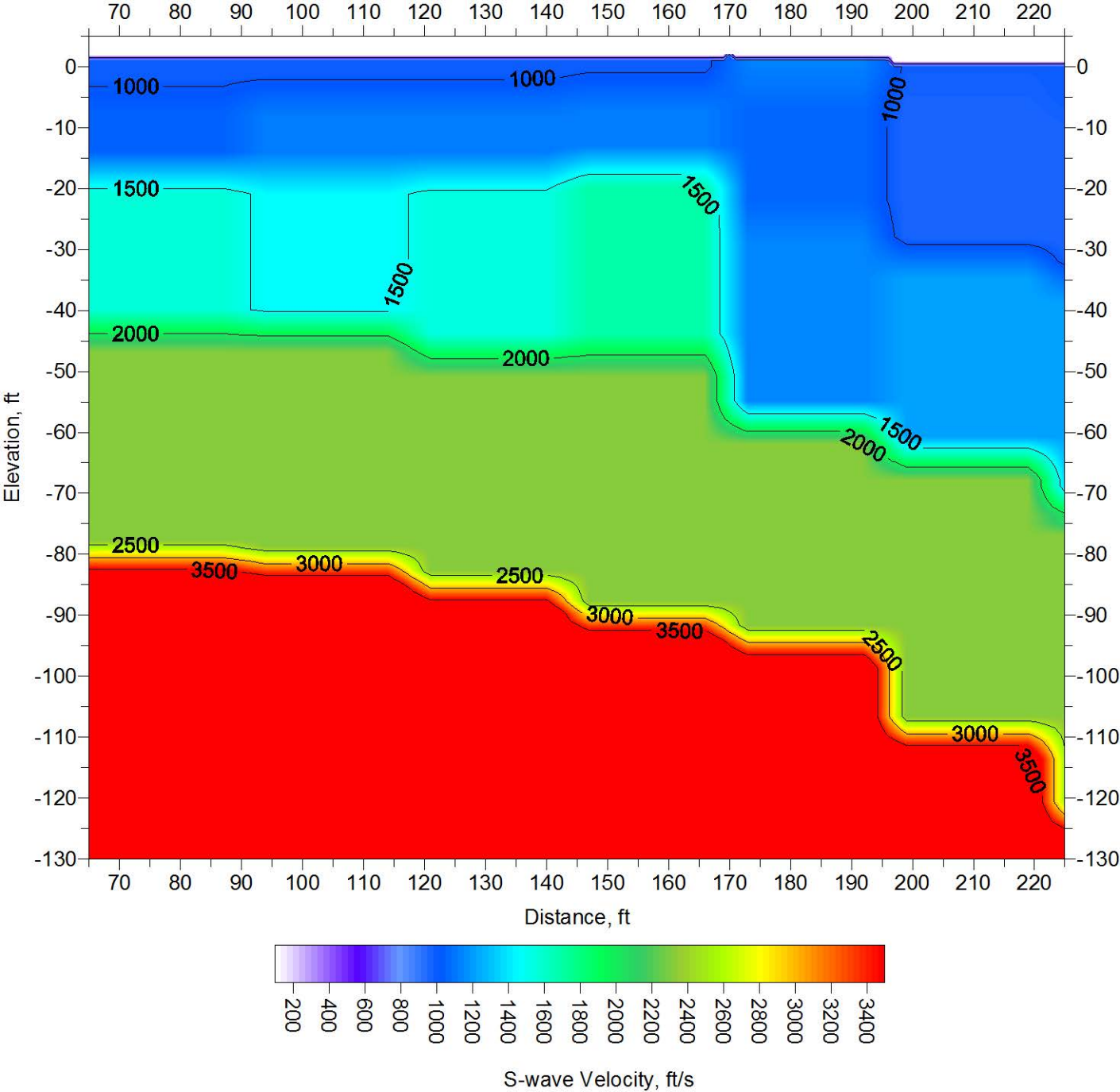
BORING LOCATION 322+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5068 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

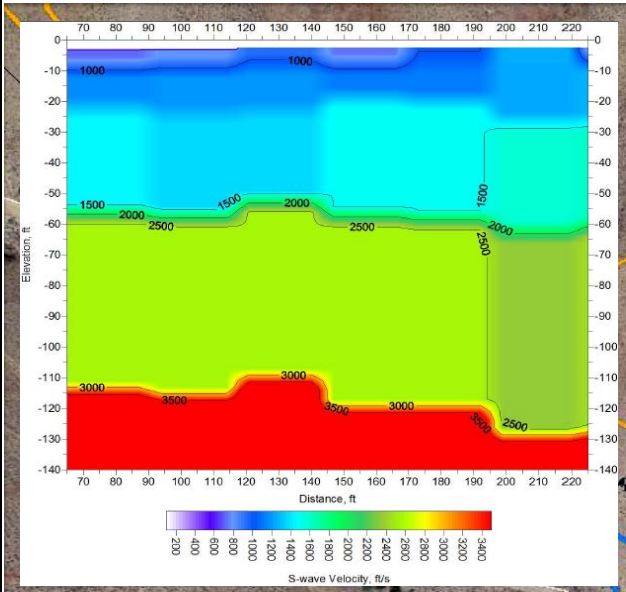
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Clayey Gravel (GC) - medium dense, moist, brown (Colluvium)									2000					
			Rhyolite - Medium Grained, light gray		MS	W	I	I	25		1000	3000					
											1500						
10												4000					
										124		5000					
				GB A							2000	6000	4.4	38	17	21	20.9
20																	
					MH	MS	M	C	50	204		7000					
												8000					
										144							
30											2500 3500	9000					

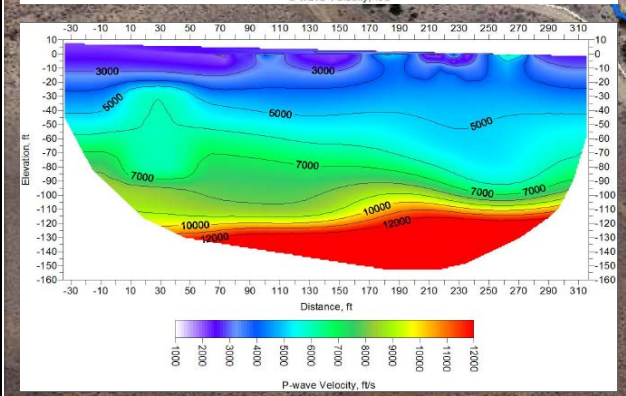
Bottom of Borehole at 30.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160
Elevation, ft
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130
Elevation, ft
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

322+00 220’ RIGHT





Summary of Laboratory Test Data

TEST	322+00 220R 18'-20'	322+00 220R 42'-45'	322+00 220R 55'-57'	322+00 220R 75'-78'
4 - Inch Sieve	100	100	100	100
No. 4 Sieve	63	56	78	46
No. 200 Sieve	23.5	23.4	42.8	26.9
Max Liquid Limit	40	38	NV	31
Max Plastic Index	18	21	NP	13
USCS	SC	GC	SM	GC
Moisture Cont.	9.4	7.9	11.1	6.6

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

322+00 220' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

322+00 220'R

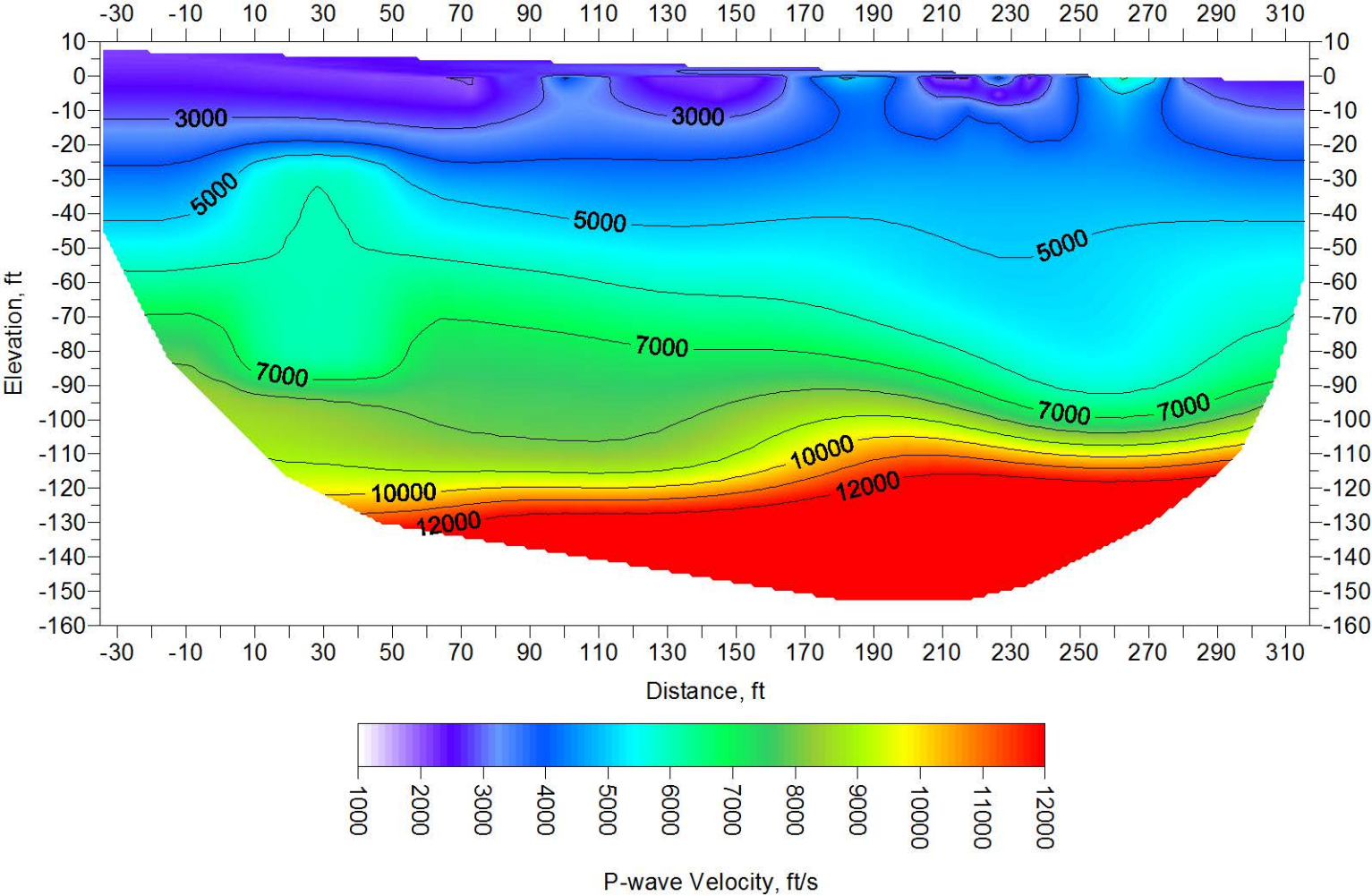
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

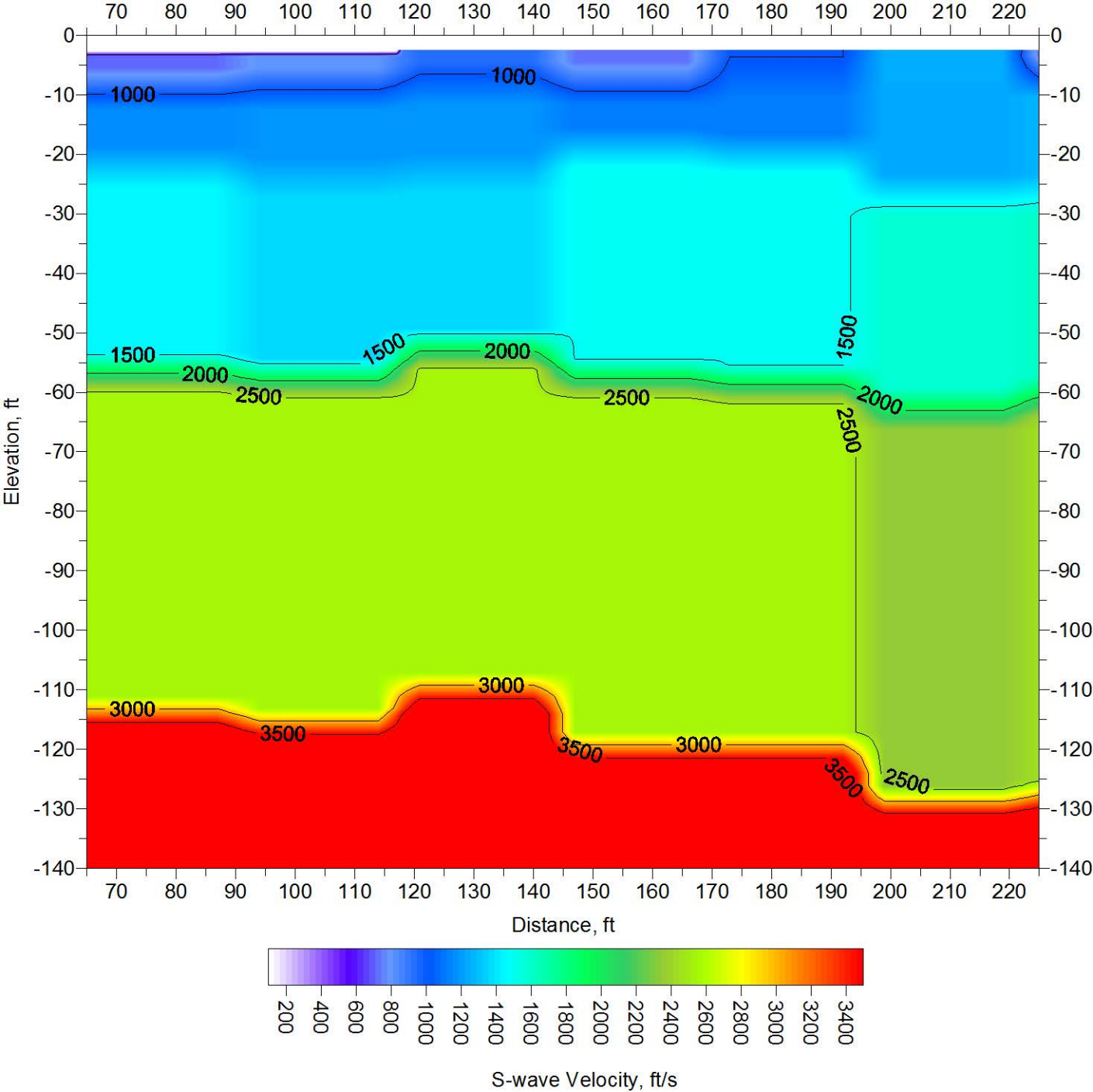
BORING LOCATION 322+00 220'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5133 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

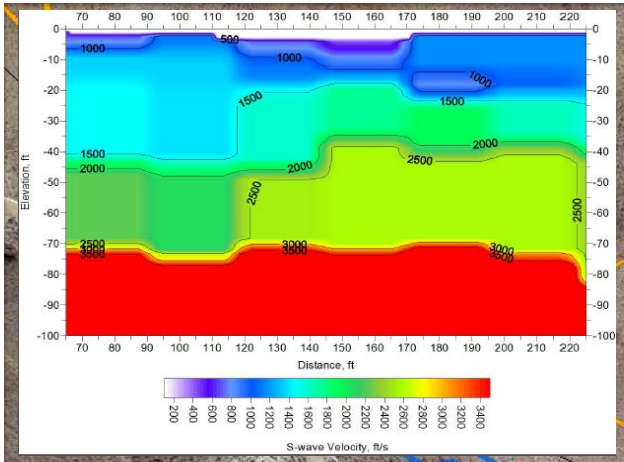
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray		MH	MS	M	I		124	1000						
10												3000					
										121							
20				GB A									9.4	40	22	18	23.5
			Strong brown		S	VW	I	I	25	130							
30												4000					
					VS	W					1500						
										129	2000						
40			Basalt - Fine Grained, dark, gray, pitted, organic ordor		MH	MS	M	C	25	146	2500						
				GB B								5000	7.9	38	17	21	23.4
50																	
					S	W	I	I		96							
				GB C									11.1	NP	NP	NP	42.8
60			Dark brown														
												6000					
70																	
			Light gray, pitted		M	MS	M	I		101	3000						
				GB D									6.6	31	18	13	31.8
80											3500						
												7000					

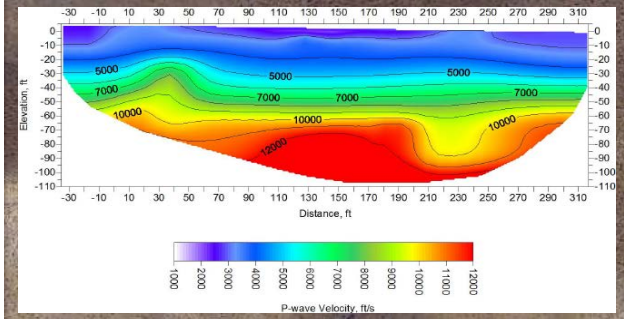
Bottom of Borehole at 85.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160
Elevation, ft
3000
3000
5000
5000
5000
7000
7000
7000
7000
10000
10000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
1000
1500
2000
2500
3000
3500

327+00 CENTERLINE





Summary of Laboratory Test Data

TEST	327+00 CL 28'-30'	327+00 CL 46'-49'	327+00 CL 66'-70'
4 - Inch Sieve	100	100	100
No. 4 Sieve	55	46	44
No. 200 Sieve	29.0	22.5	16.8
Max Liquid Limit	48	33	29
Max Plastic Index	28	17	11
USCS	GC	GC	GC
Moisture Cont.	14.7	7.6	5.3

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

327+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

327+00 CL

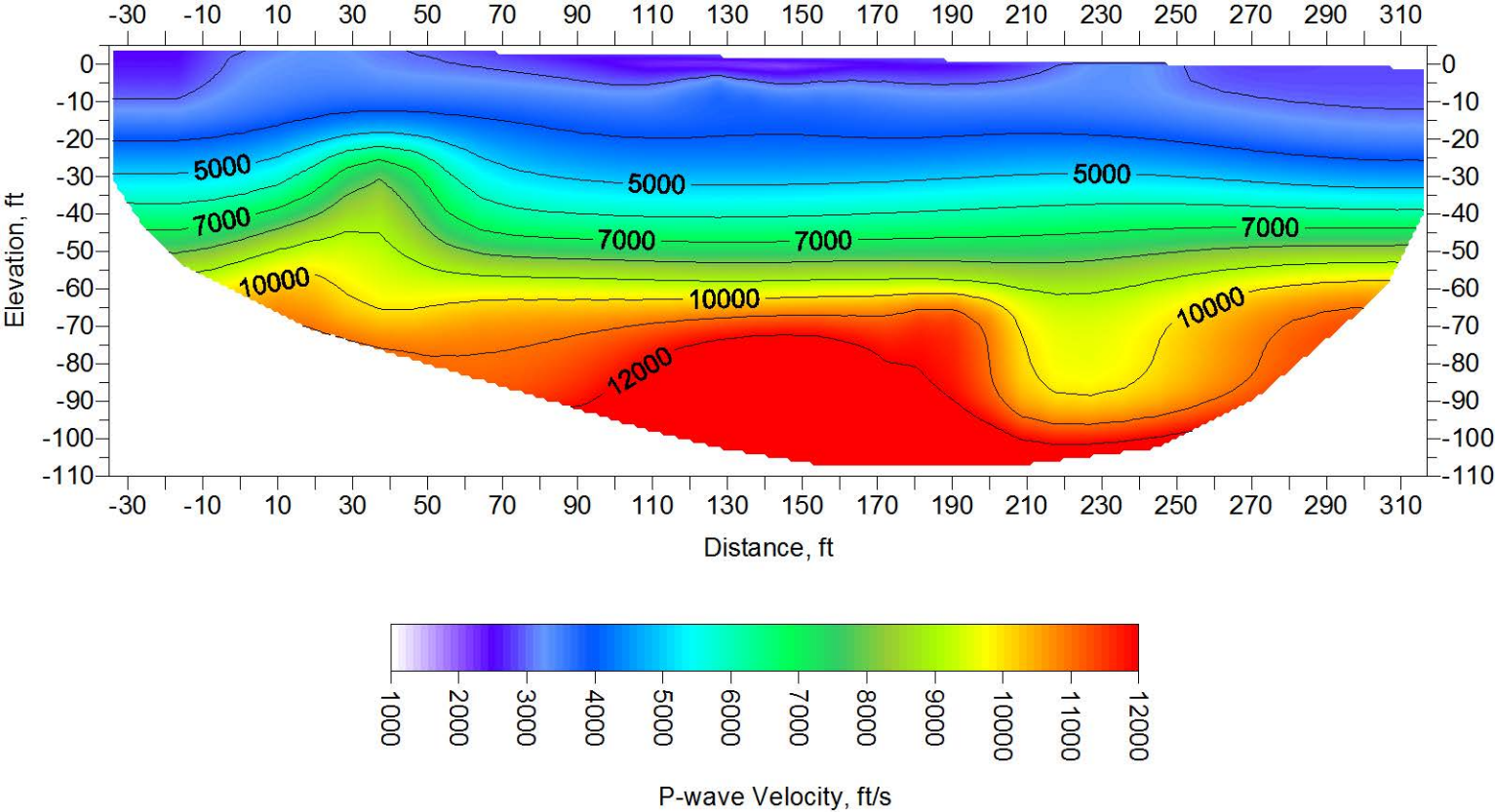
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

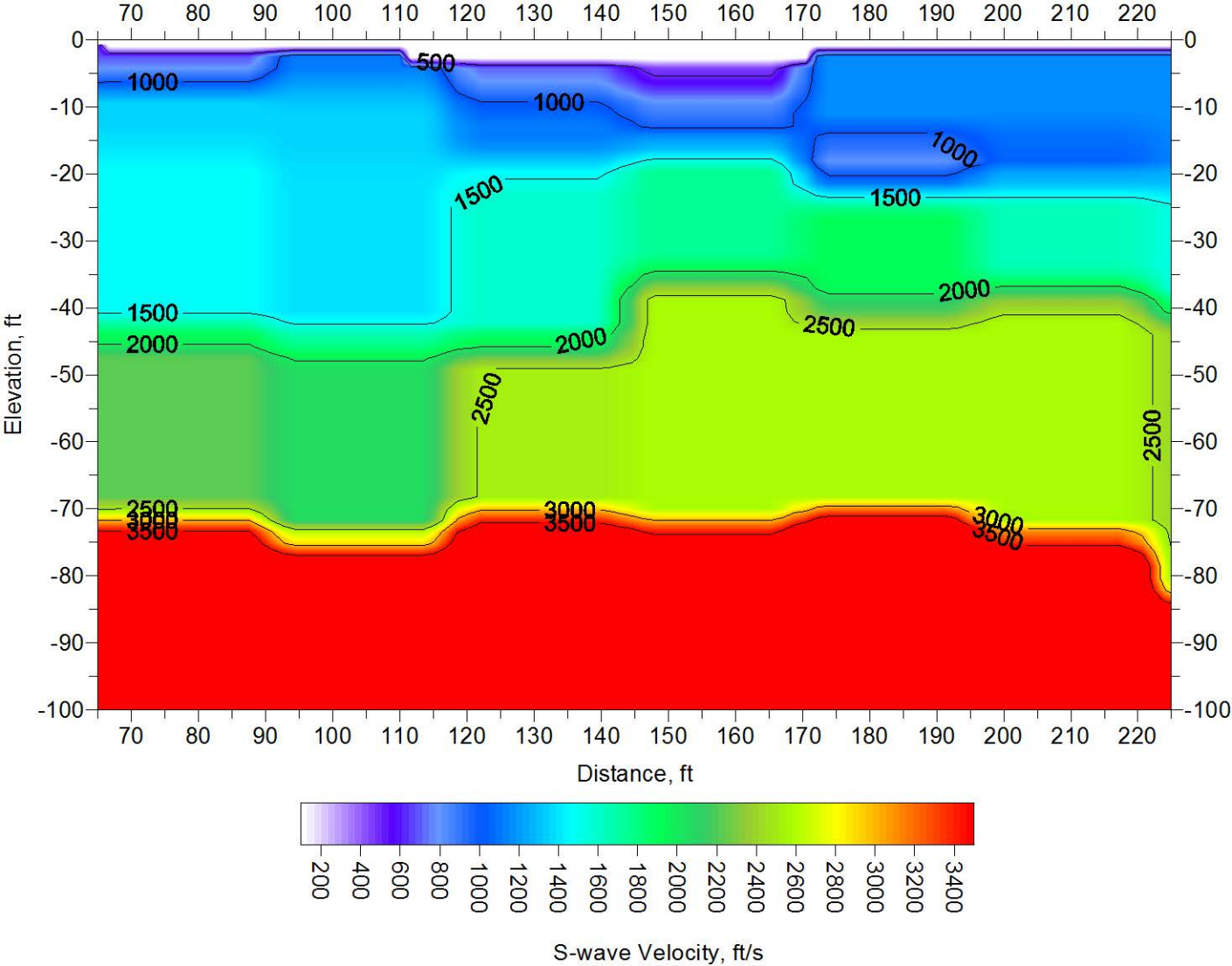
BORING LOCATION 327+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5088 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light brown, residual soil		S	EW	D	C		148	500						
			Light gray				I		25			3000					
10										119							
											1000						
											1500	4000					
20			Easy drilling							109							
30			Greenish gray, wet from 27 to 40 feet, Clay	GB A	MS	F	D	I			2000	5000	14.7	48	20	28	29.0
											2500						
												6000					
40			Gray		S	F	D	I	25	105		7000					
				GB B									7.6	33	16	17	22.5
50									25			8000					
												9000					
												10000					
60												11000					
											3000	12000					
			Gray	GB C	MS	W	M	C					5.3	29	18	11	16.8
70											3500						

Bottom of Borehole at 75.0 Feet.

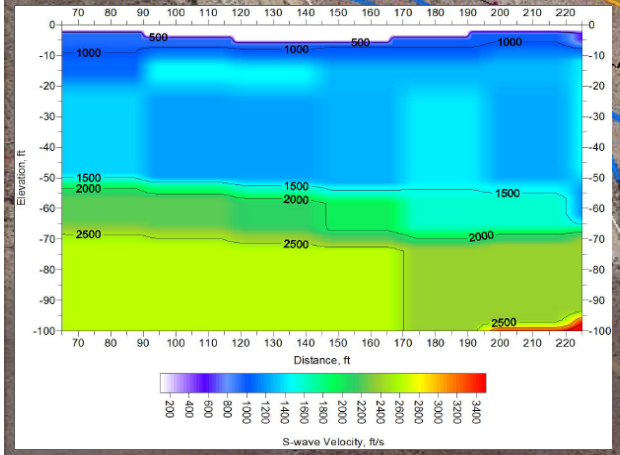

-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s

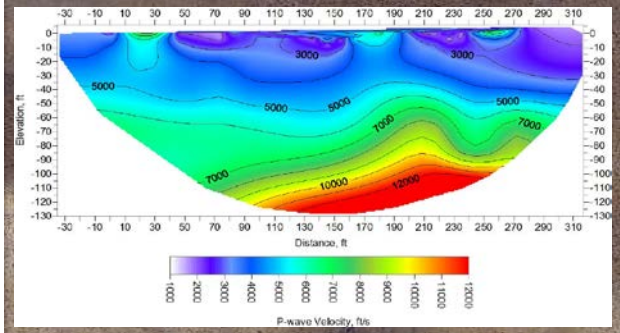

Elevation, ft
Distance, ft
S-wave Velocity, ft/s
500
1000
1500
2000
2500
3000
3500

327+00 200’R

Summary of Laboratory Test Data

TEST	327+00 200R 14.5-17.5	327+00 200R 27'-29'	327+00 200R 40'-43'	327+00 200R 78-81.5
4 - Inch Sieve	100	100	100	100
No. 4 Sieve	58	85	75	87
No. 200 Sieve	33.0	62.6	48.7	50.9
Max Liquid Limit	27	52	48	37
Max Plastic Index	10	27	22	19
USCS	SM	CH	SC	CL
Moisture Cont.	7.1	21.3	15.6	6.4






Core and Breakdown after Water

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

327+00 200' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

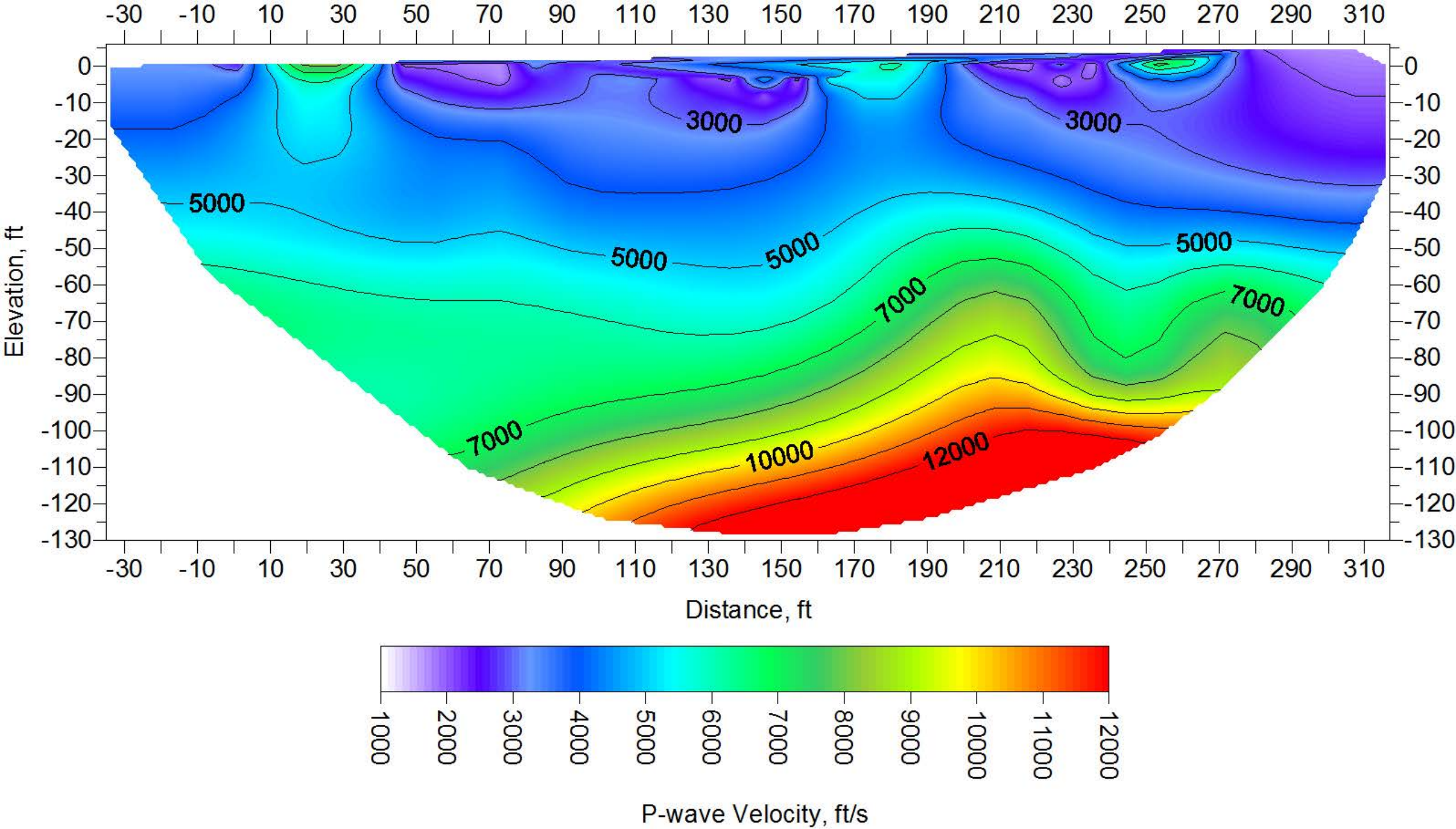
327+00 200'R

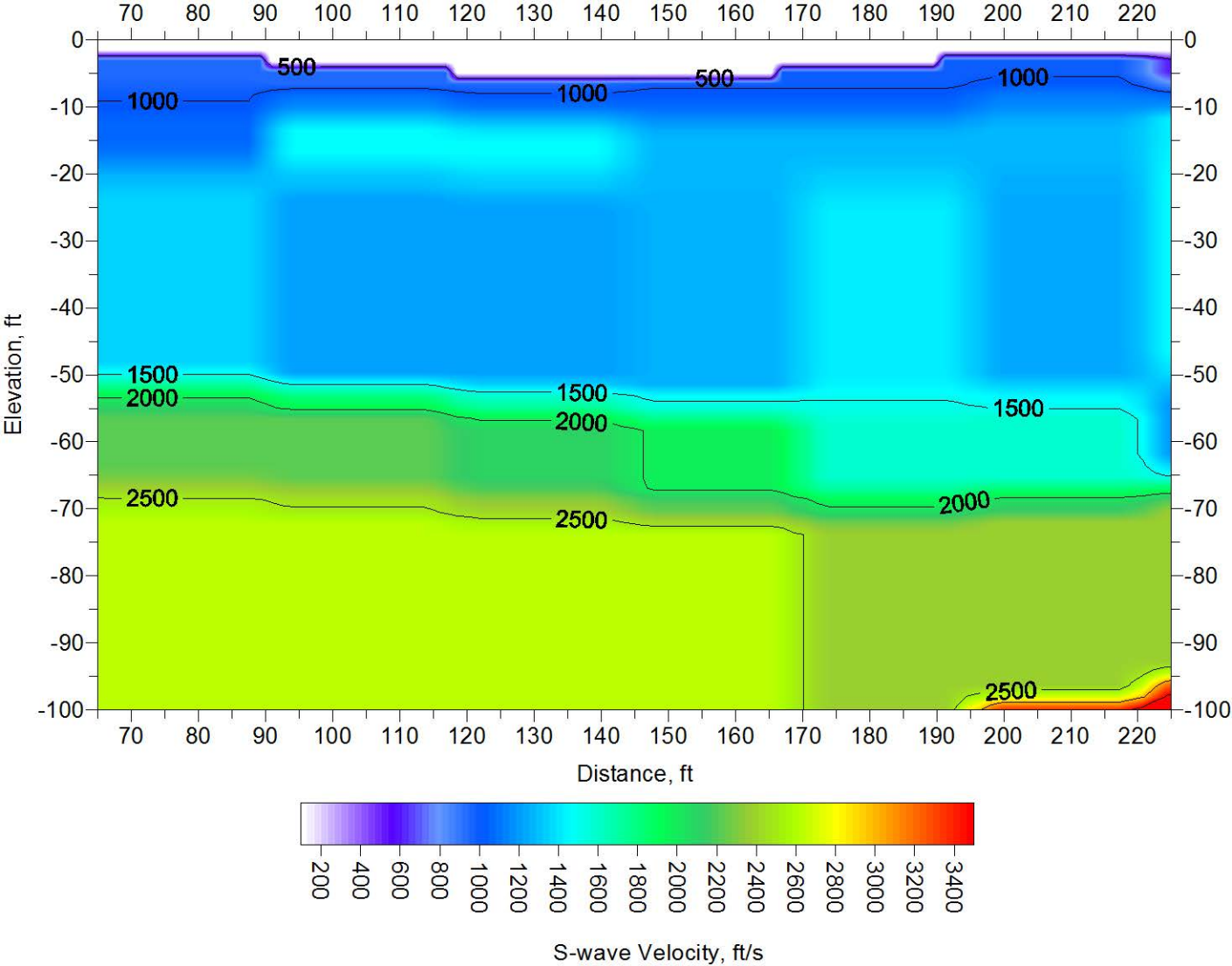
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 327+00 200'R

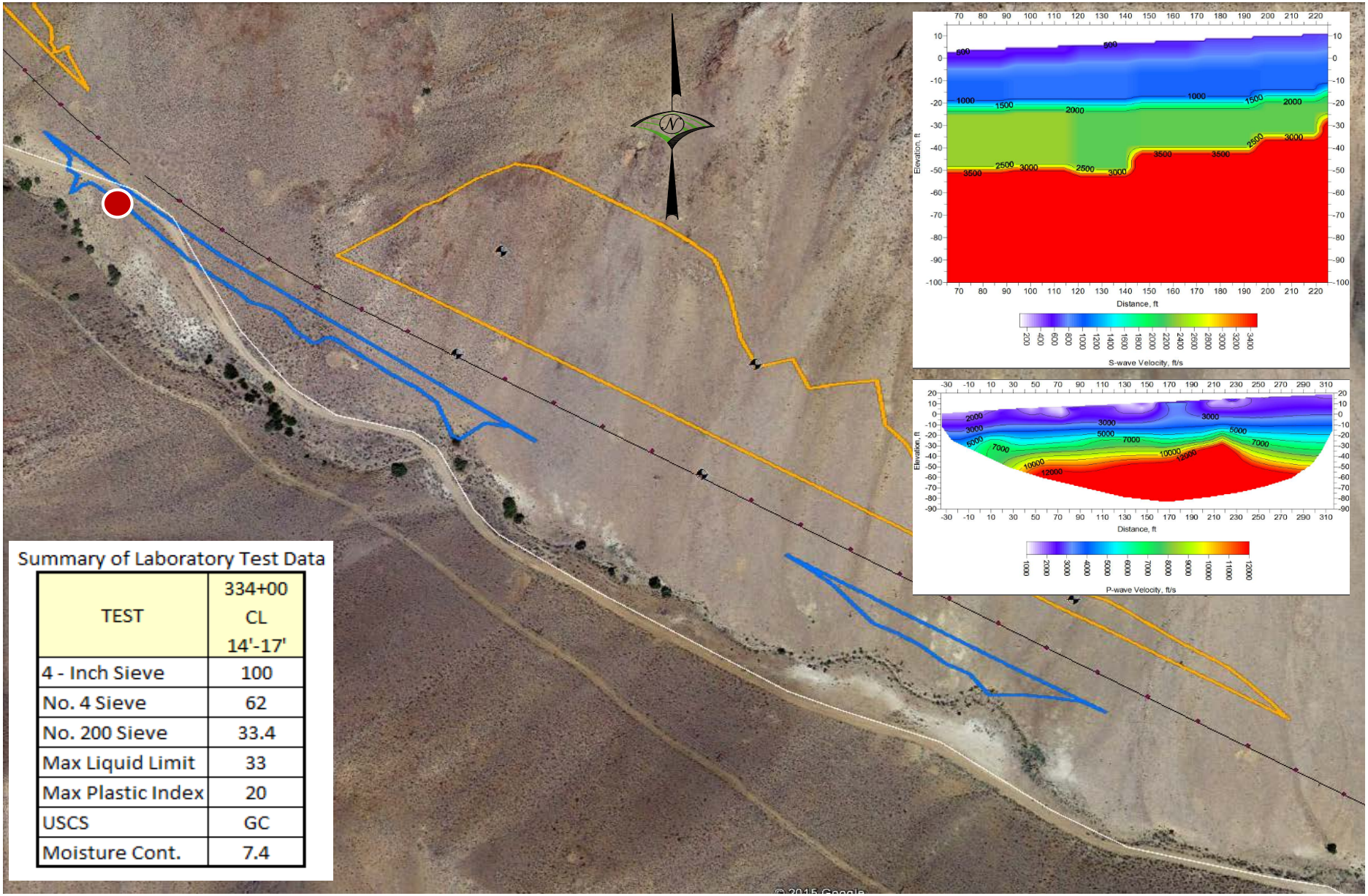
CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/19/15 **COMPLETED** 2/20/15
GROUND ELEVATION 5164 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY Blake Carter **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray		MS	W	I	I			1000	4000					
10			Light gray, pitted	GB A	MH	MS	M	I	<25	118		3000	7.1	27	17	10	34.8
20			Reddish yellow	GB B	S	VW	D	C					21.3	53	26	27	62.6
30												4000					
40			Pink, pitted	GB C	VS	W	M	I		112	1500		15.6	48	26	22	48.7
50			Dark gray, altered Gray, pitted		VS MH	EW MS	D M	M	25			5000					
60				GB D						81	2000		11.5	35	14	21	29.0
70											2500	6000					
80			Reddish yellow	GB E	MS	MS	M	I	<25	90			6.4	37	18	19	50.9
			Bottom of Borehole at 85.0 Feet.									7000					


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130
Elevation, ft
3000
3000
5000
5000
5000
5000
7000
7000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

334+00 CENTERLINE



Summary of Laboratory Test Data

TEST	334+00 CL 14'-17'
4 - Inch Sieve	100
No. 4 Sieve	62
No. 200 Sieve	33.4
Max Liquid Limit	33
Max Plastic Index	20
USCS	GC
Moisture Cont.	7.4

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

334+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

334+00 CL

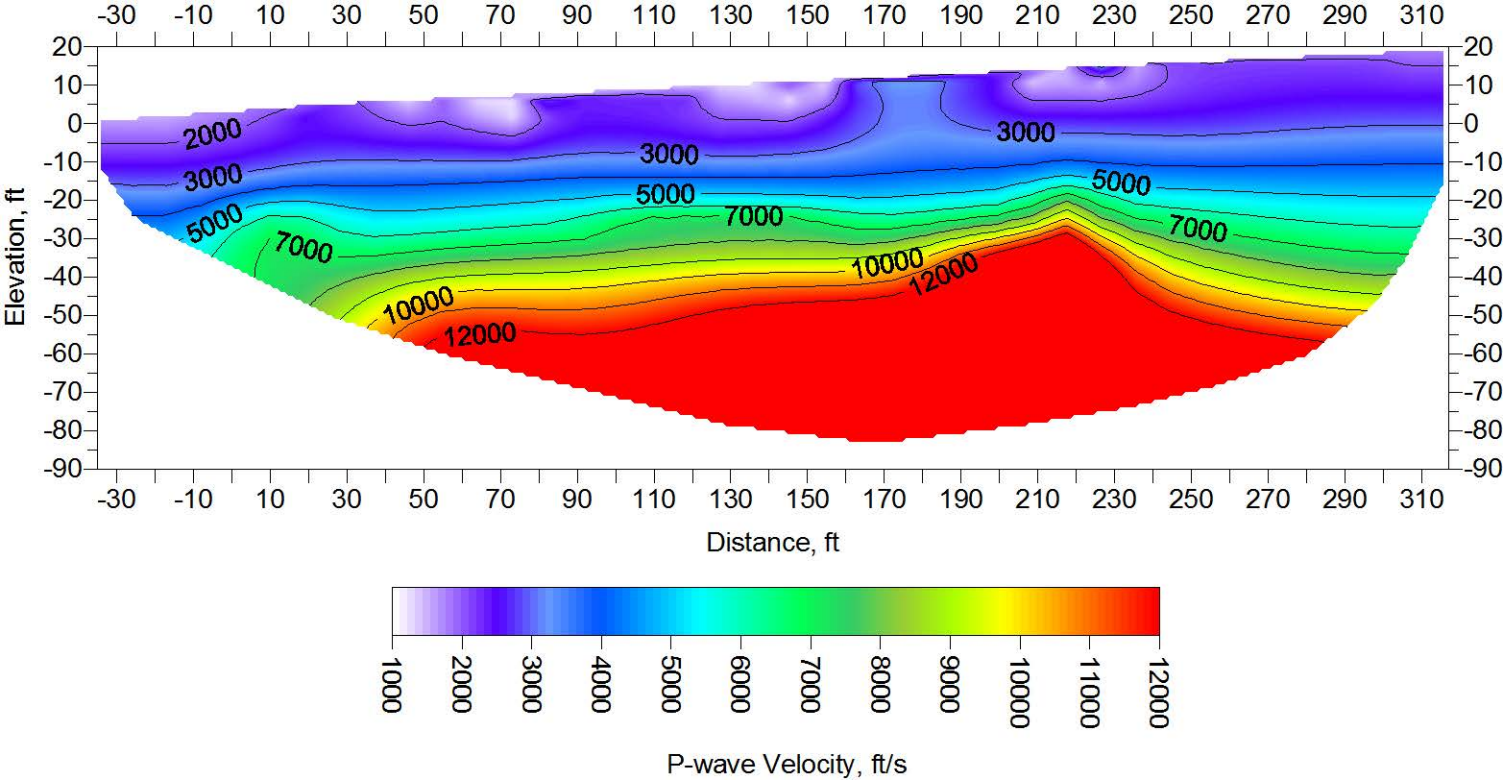
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

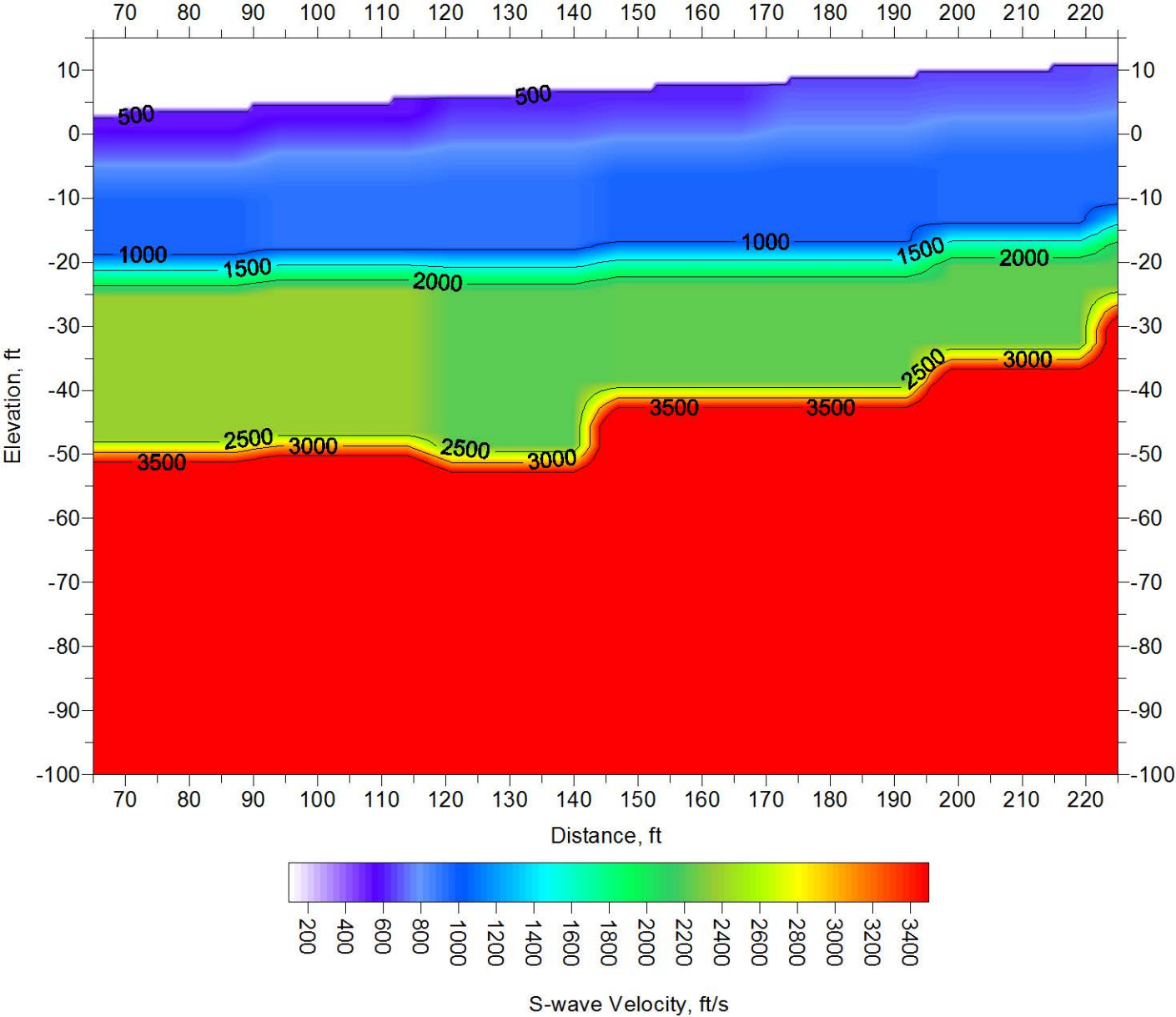
BORING LOCATION 334+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5100 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

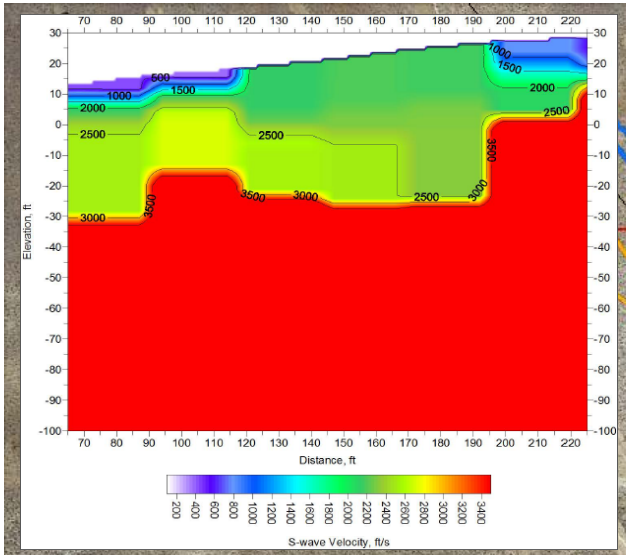
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Sandy Gravel with Some Clay (GP-GC) - medium dense to dense, slightly moist, light brown (Alluvium)		NA	NA	NA	NA	NA		500						
										90		2000					
10				GB A									7.4	33	13	20	33.4
											1000	3000					
20										131	1500						
											2000	4000					
30										98	2500	5000					

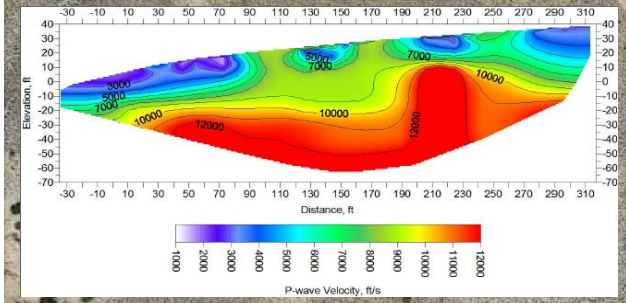
Bottom of Borehole at 30.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
Elevation, ft
2000
3000
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

340+00 CENTERLINE





Summary of Laboratory Test Data

TEST	340+00 CL 16'-20'	340+00 CL 24'-26'	340+00 CL 43'-46.5'
4 - Inch Sieve	100	100	100
No. 4 Sieve	92	41	28
No. 200 Sieve	17.1	5.9	5.0
Max Liquid Limit	NV	NV	NV
Max Plastic Index	NP	NP	NP
USCS	SM	SP	SP
Moisture Cont.	6.2	1.7	2.2

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

340+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

340+00 CL

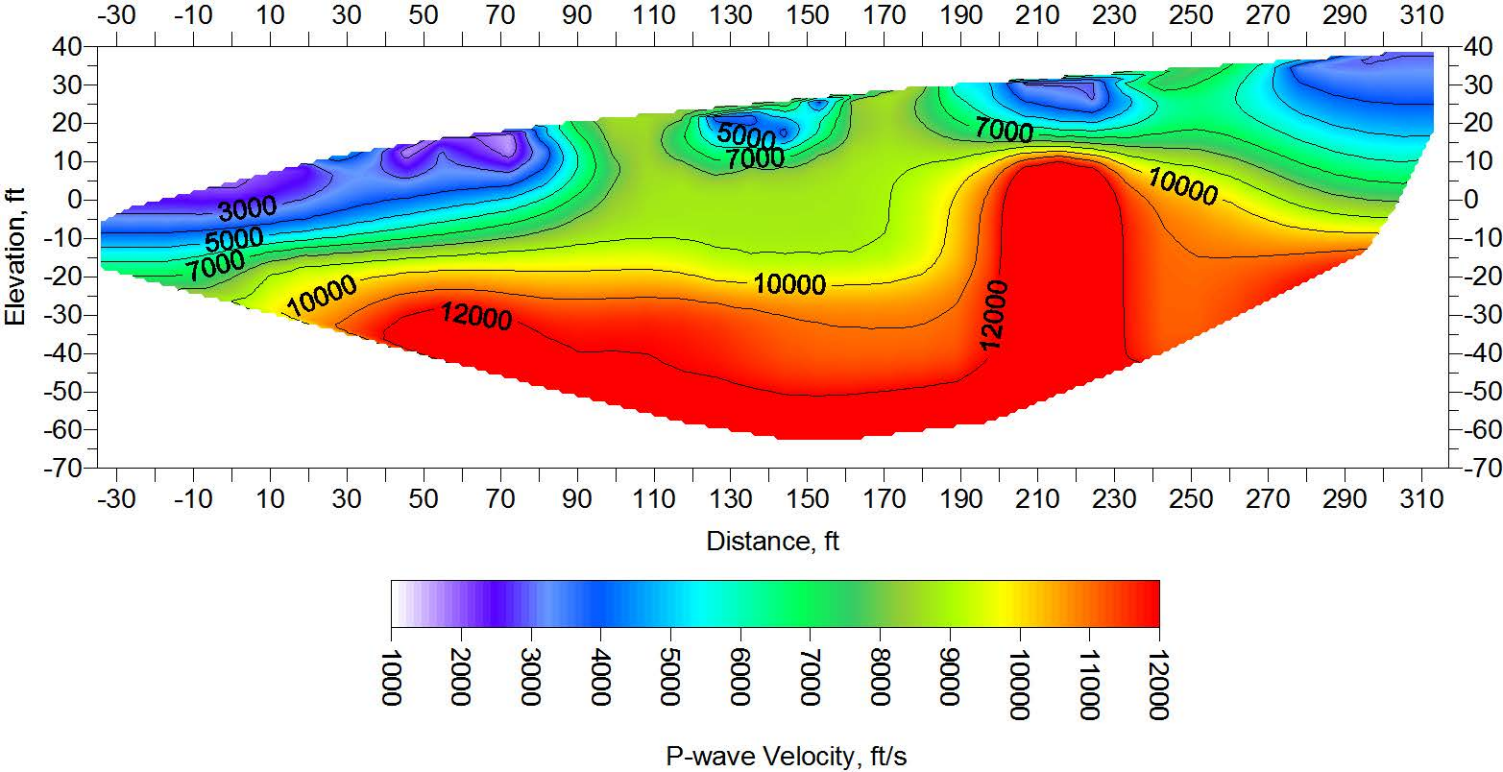
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

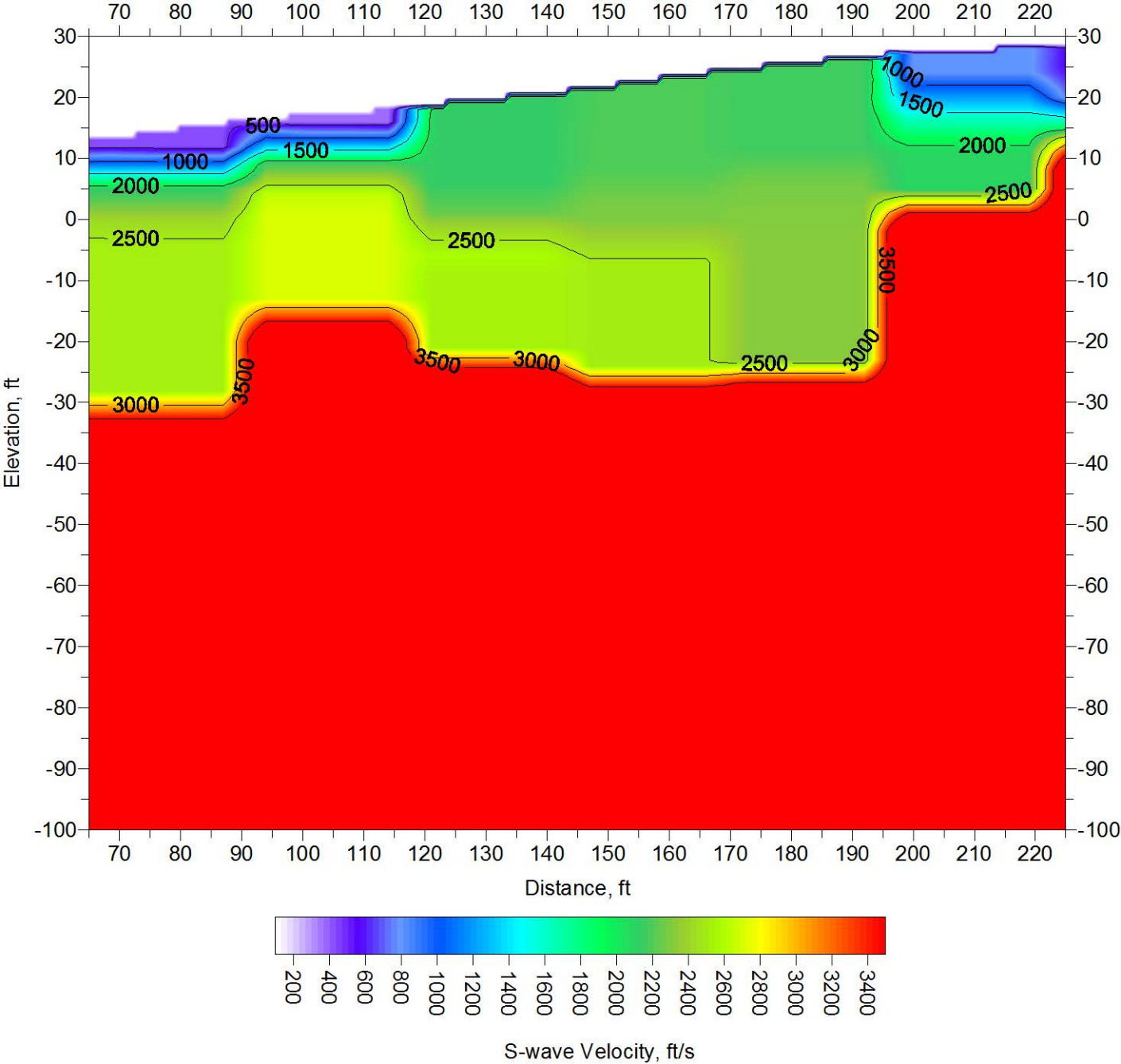
BORING LOCATION 340+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5136 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

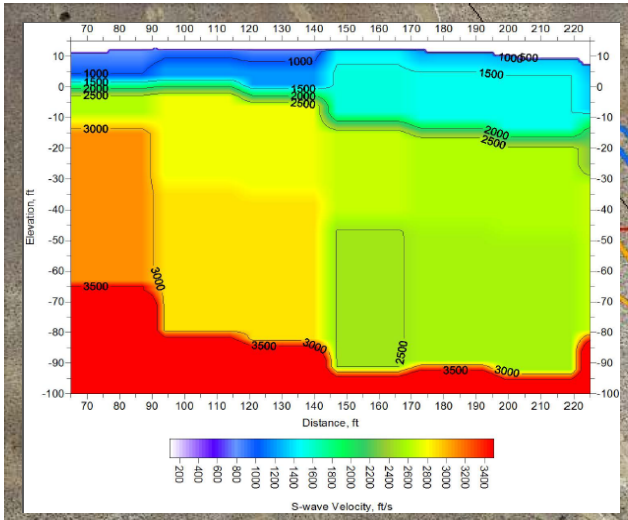
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, pink, pitted		H	S	M	I	50	144	2000	5000					
												6000					
10																	
												7000					
				GB A								8000	6.2	NP	NP	NP	17.1
20					H	S	M	C		178							
				GB B							2500		1.7	NP	NP	NP	6.6
30																	
					H			C	75								
40												9000					
											3000						
				GB C							3500		2.2	NP	NP	NP	5.0
50												10000					

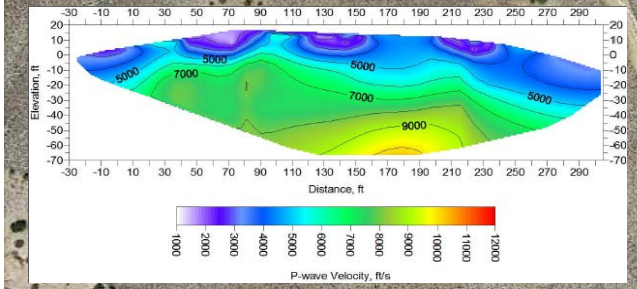
Bottom of Borehole at 50.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70
Elevation, ft
3000
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
500
1000
1500
2000
2500
3000
3500
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400

340+00 156’R





Summary of Laboratory Test Data

TEST	340+00 156R 7.5'-10'	340+00 156R 16'-18'	340+00 156R 34'-36'	340+00 156R 68'-70'
4 - Inch Sieve	100	100	100	79
No. 4 Sieve	67	47	39	25
No. 200 Sieve	32.4	26.8	16.3	11.6
Max Liquid Limit	41	20	37	29
Max Plastic Index	24	3	22	14
USCS	SC	GM	GC	GC
Moisture Cont.	8.4	5.9	5.8	2.2

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

340+00 156' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

340+00 156'R

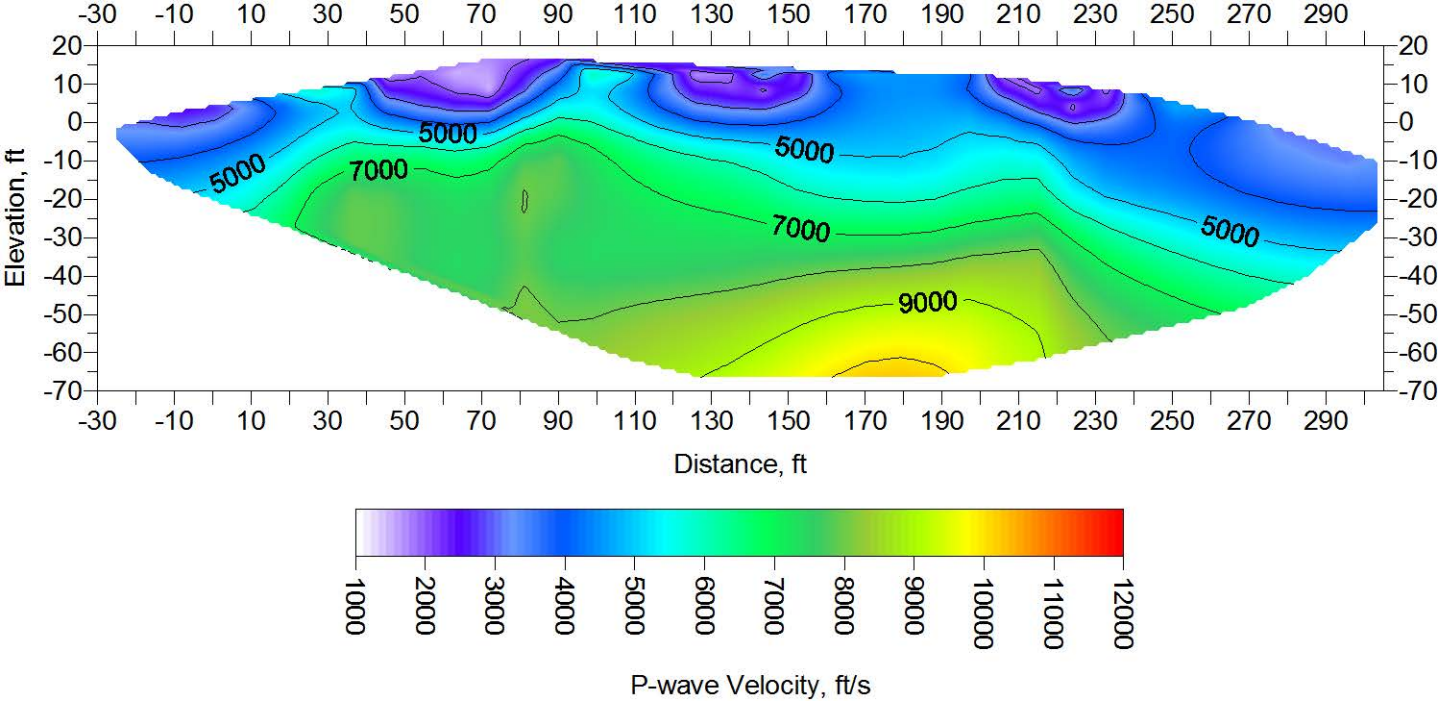
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

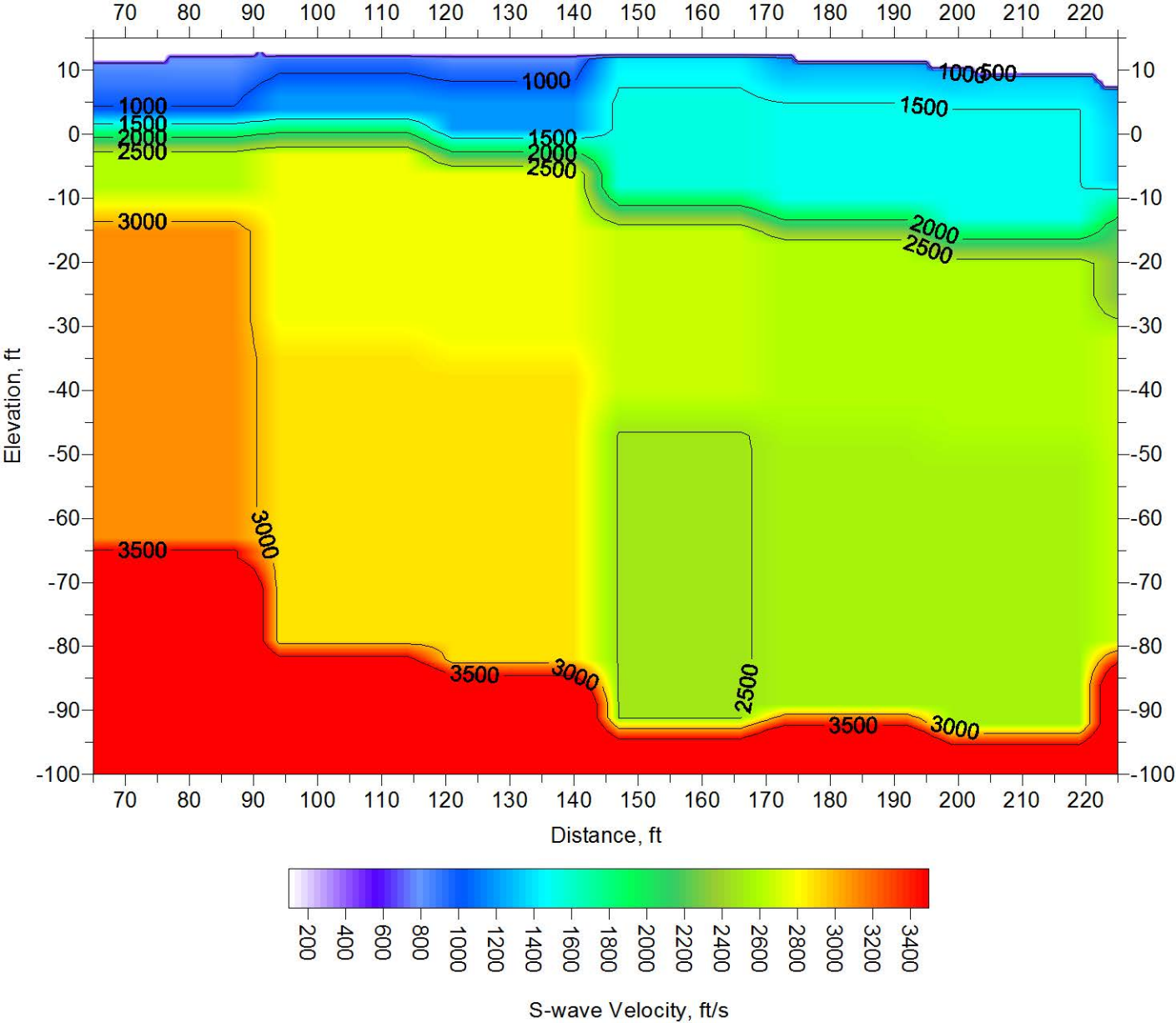
BORING LOCATION 340+00 156'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5209 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

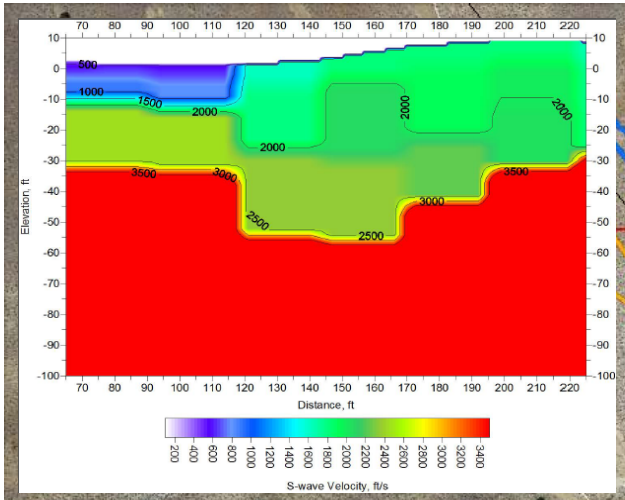
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Clayey Sand and Gravel (SC) - medium dense, moist, orange brown, (Colluvium)								1000	2000					
			Diorite - Medium Grained, greenish gray, pitted		H	VS	M	M	75	144	1500	3000					
10				GB A									8.4	41	17	24	32.4
												4000					
				GB B					25	161	2000	5000	5.9	20	17	3	35.8
20									75		2500						
30						S	S			135		6000					
				GB C									5.8	37	15	22	17.9
40									75			7000					
			Material recovered as continous core							215							
50																	
									25	91	2500	8000					
60										155							
70				GB D									2.2	29	15	14	19.2
										179		9000					
80																	
												9500					

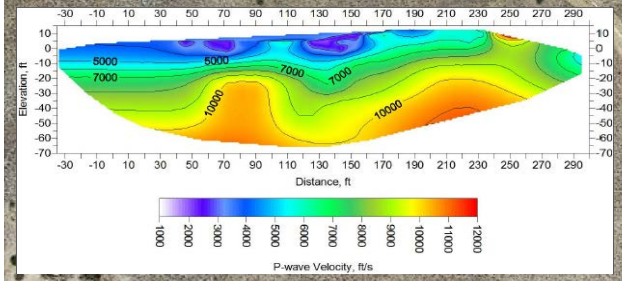
Bottom of Borehole at 85.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290
20 10 0 -10 -20 -30 -40 -50 -60 -70
Elevation, ft
5000
7000
5000
7000
5000
9000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
1000
1500
2000
2500
3000
3500

345+00 278’R





Summary of Laboratory Test Data

TEST	345+00 278R 13-15'	345+00 278R 48-51'	345+00 278R 59-61'	345+00 278R 84-86'
4 - Inch Sieve	100	100	100	100
No. 4 Sieve	35	45	50	59
No. 200 Sieve	12.1	19.3	21.9	27
Max Liquid Limit	29	30	40	35
Max Plastic Index	12	15	22	18
USCS	GC	GC	SC w/G	SC w/G
Moisture Cont.	11.5	4.8	9.6	6.5

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345+00 278' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

345+00 278'R

Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

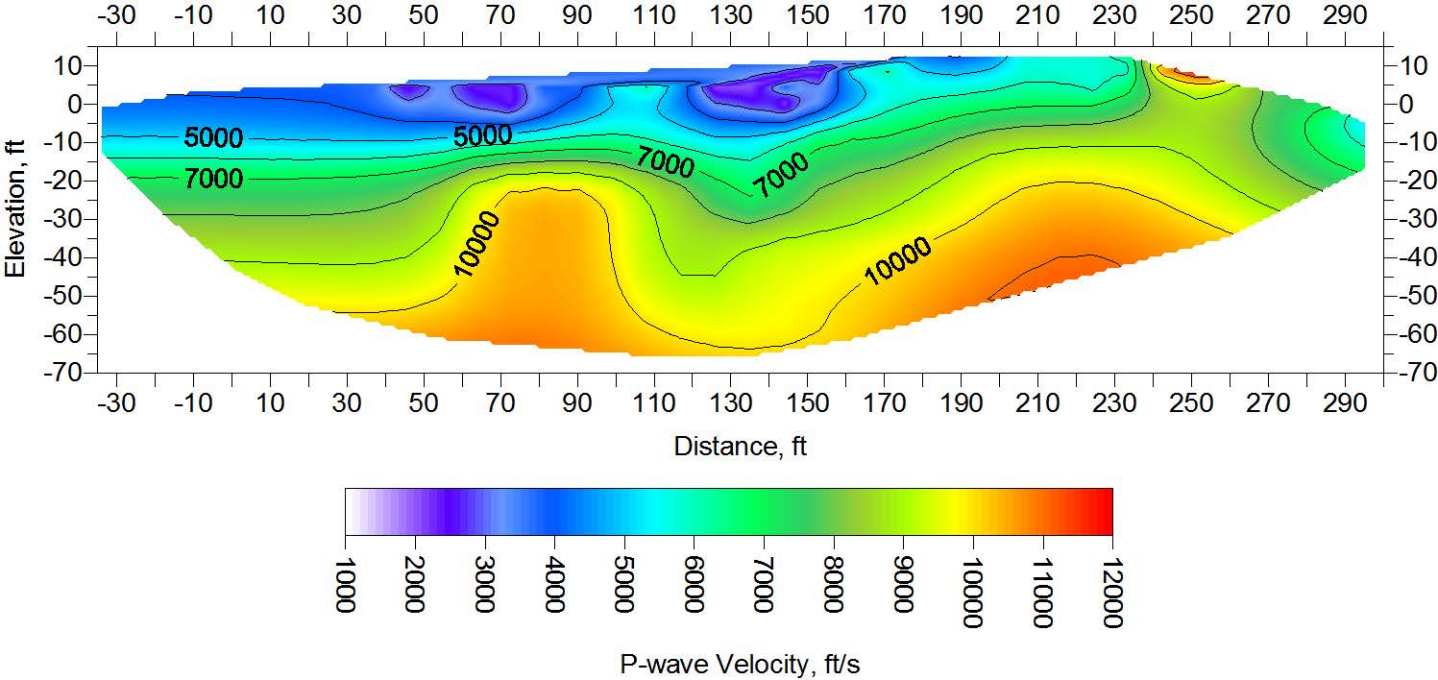
BORING LOCATION 345+00 278'R

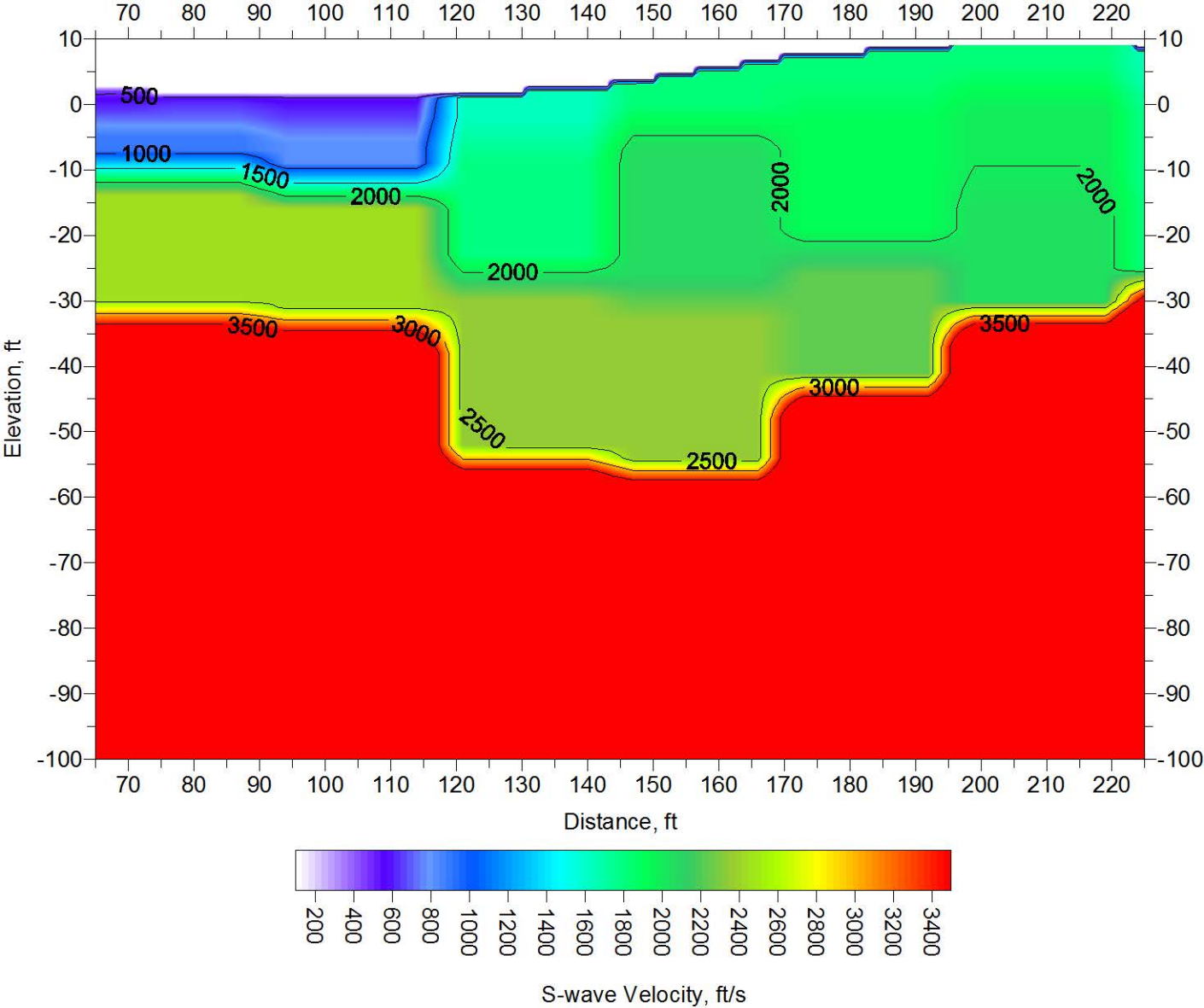
CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/26/15 **COMPLETED** 2/27/15
GROUND ELEVATION 5190 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray, pitted some iron staining		VH	VS	F	M	75		1500	3000					
										165							
10											2000	4000					
										170		5000					
				GB A	H	S	S						11.5	29	17	12	12.1
20												6000					
										180		7000					
							M										
30																	
									75	195		8000					
										170							
40					MH	VS	M					9000					
										155							
										187							
50				GB B									4.8	31	16	15	19.3
										175	2500						
										155	3500						
60				GB C									9.6	40	18	22	21.9
										168							
70					VH	VS						10000					
									25	127							
									50								
80										145							
				GB D						120			6.5	35	17	18	27.0
90																	
										146							
100					MS	W	I	C		97							

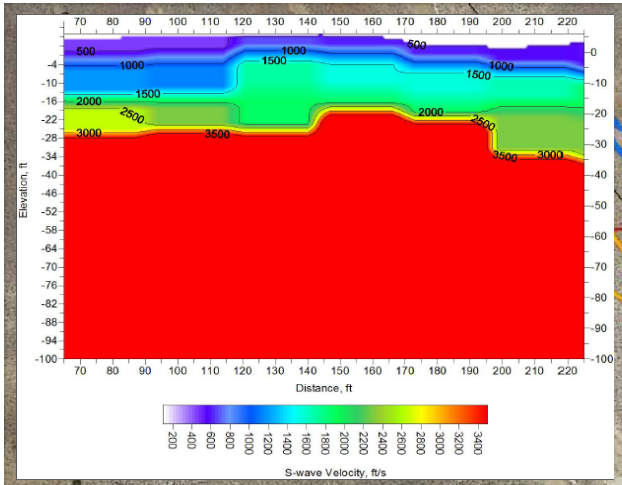
Bottom of Borehole at 100.0 Feet.

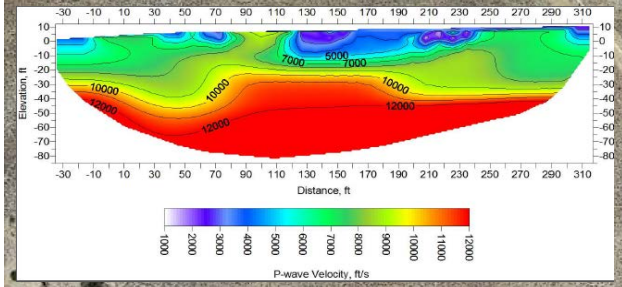
PLATE A-2j


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290
10 0 -10 -20 -30 -40 -50 -60 -70
Elevation, ft
5000
5000
7000
7000
7000
10000
10000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2000
2000
2000
3500
3000
2500
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

345+50 CENTERLINE





Summary of Laboratory Test Data

TEST	345+00 CL 10'-13'
4 - Inch Sieve	100
No. 4 Sieve	67
No. 200 Sieve	32.4
Max Liquid Limit	41
Max Plastic Index	24
USCS	SC
Moisture Cont.	8.4

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345+50 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

345+50 CL

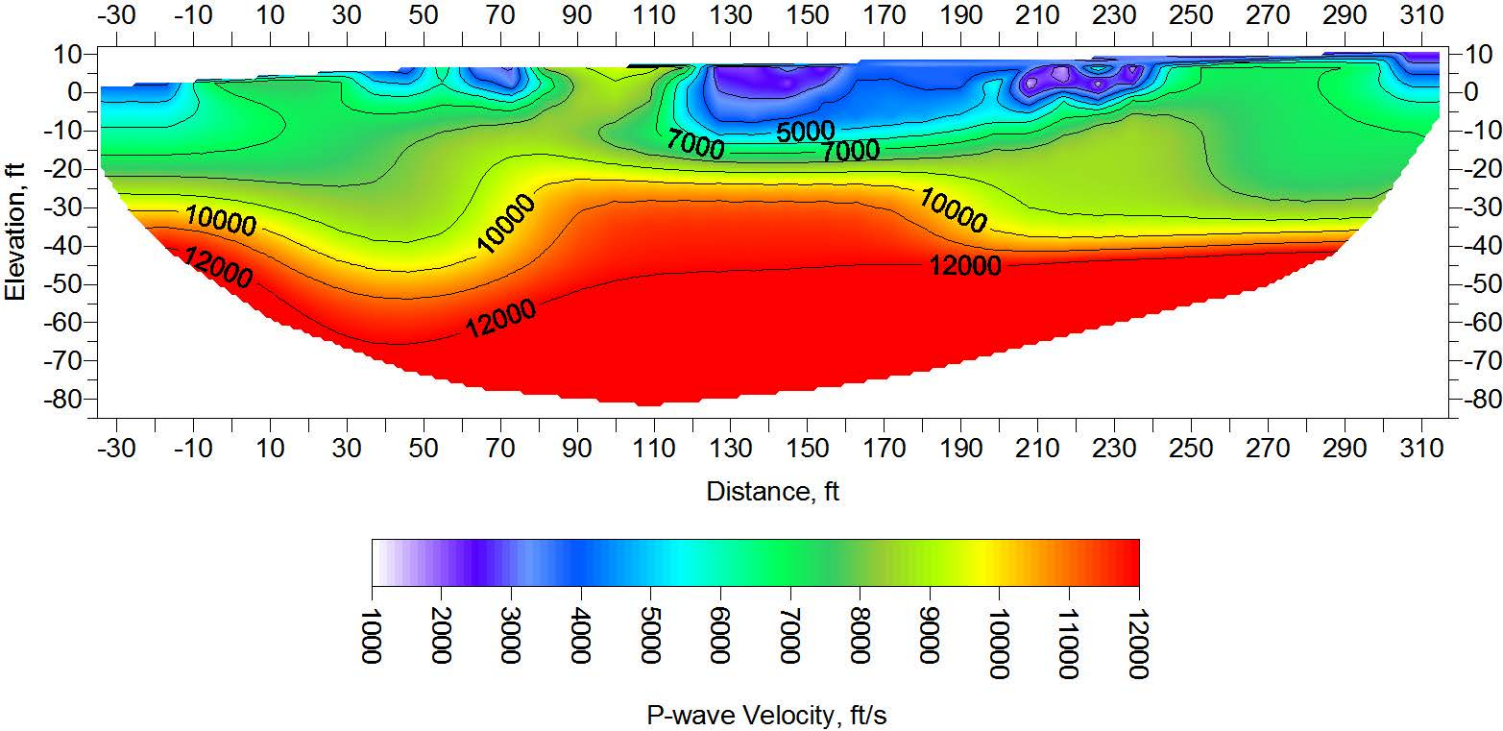
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

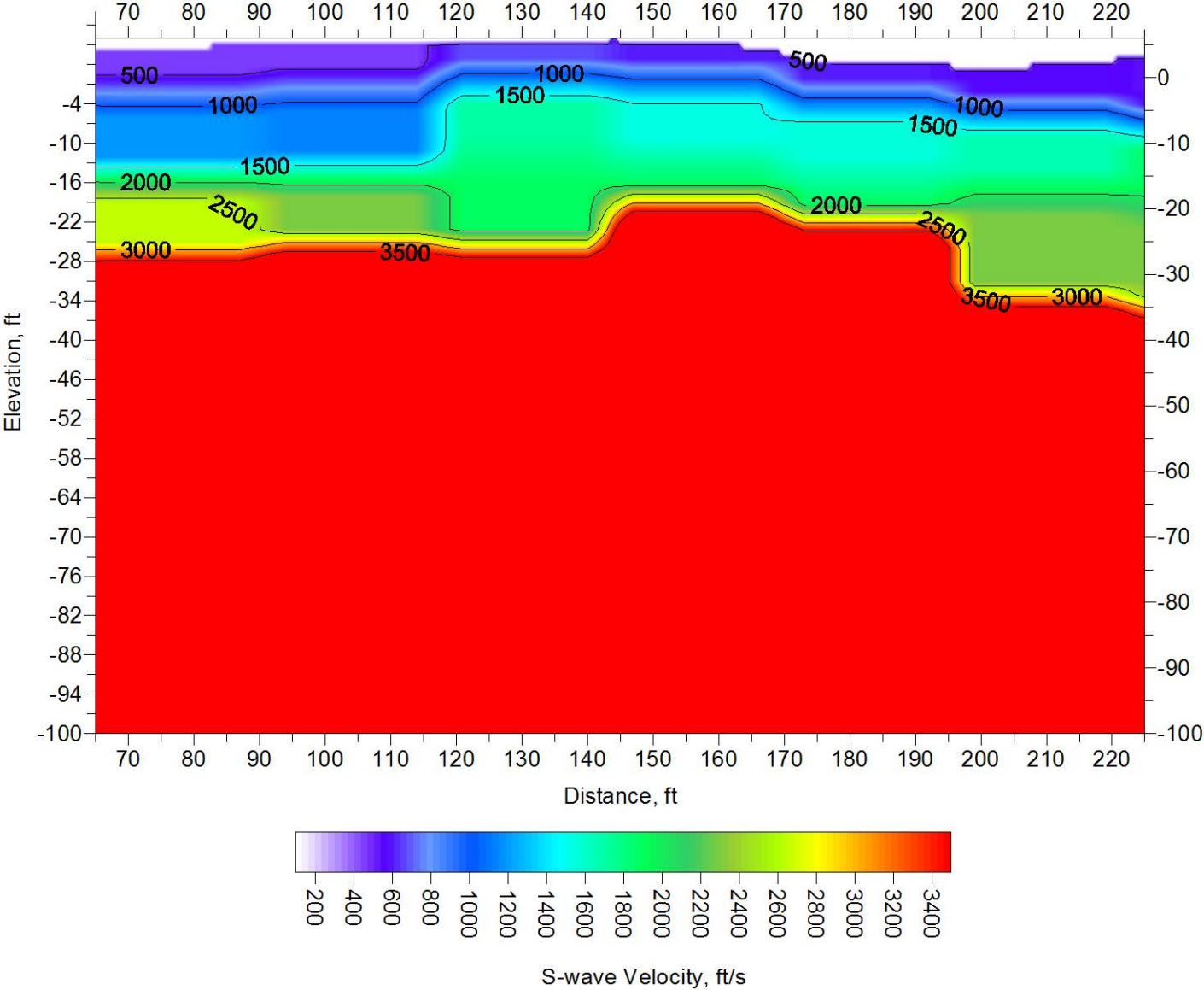
BORING LOCATION 345+50 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/14/15 **COMPLETED** 1/14/15
GROUND ELEVATION 5314 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

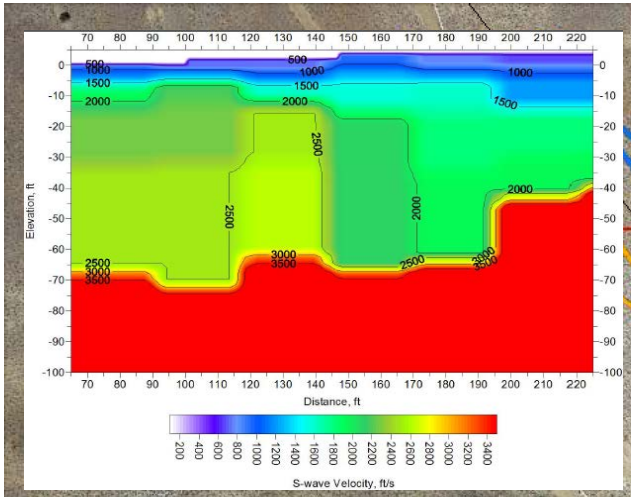
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Medium Grained, light gray, pitted		H	S	S	I	50		500	2000					
										172							
										154	1000	3000					
10				GB A							1500	4000	6.2	24	15	9	14.4
								M		143		5000					
20					H	VS	M	M	75		2000	6000					
										107	3500	7000					
												8000					
30					VH	VS	F	M				9000					
40																	

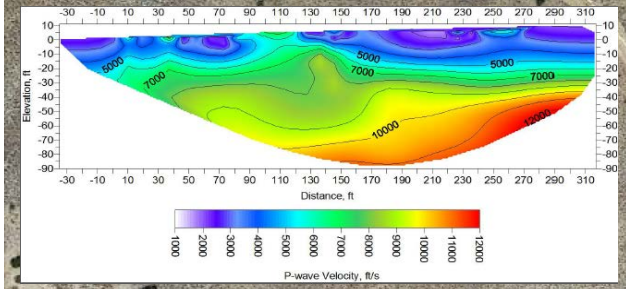
Practical Refusal at 45.0 feet.
Bottom of Borehole at 45.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80
Elevation, ft
5000
7000
7000
10000
10000
10000
12000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
500
1000
1500
2000
2500
3000
3500
Elevation, ft
0 -4 -10 -16 -20 -22 -28 -30 -34 -40 -46 -50 -52 -58 -60 -64 -70 -76 -80 -82 -88 -90 -94 -100
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

350+00 89’R





Summary of Laboratory Test Data

TEST	350+00 89R 8-13'	350+00 89R 40-42.5'
4 - Inch Sieve	100	100
No. 4 Sieve	12	34
No. 200 Sieve	4.6	17.9
Max Liquid Limit	30	26
Max Plastic Index	14	11
USCS	GP	GC
Moisture Cont.	5.1	6.8

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
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350+00 89' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

350+00 89'R

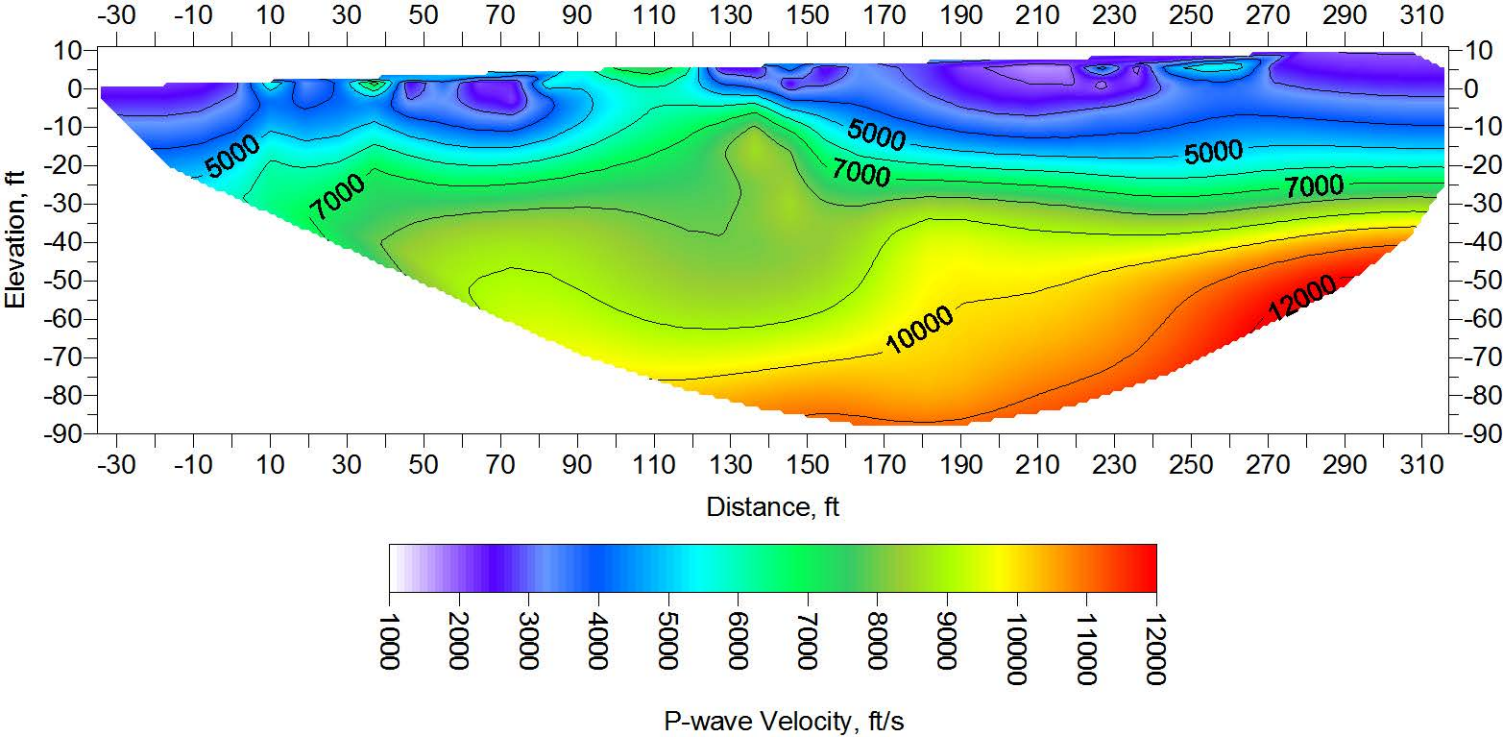
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

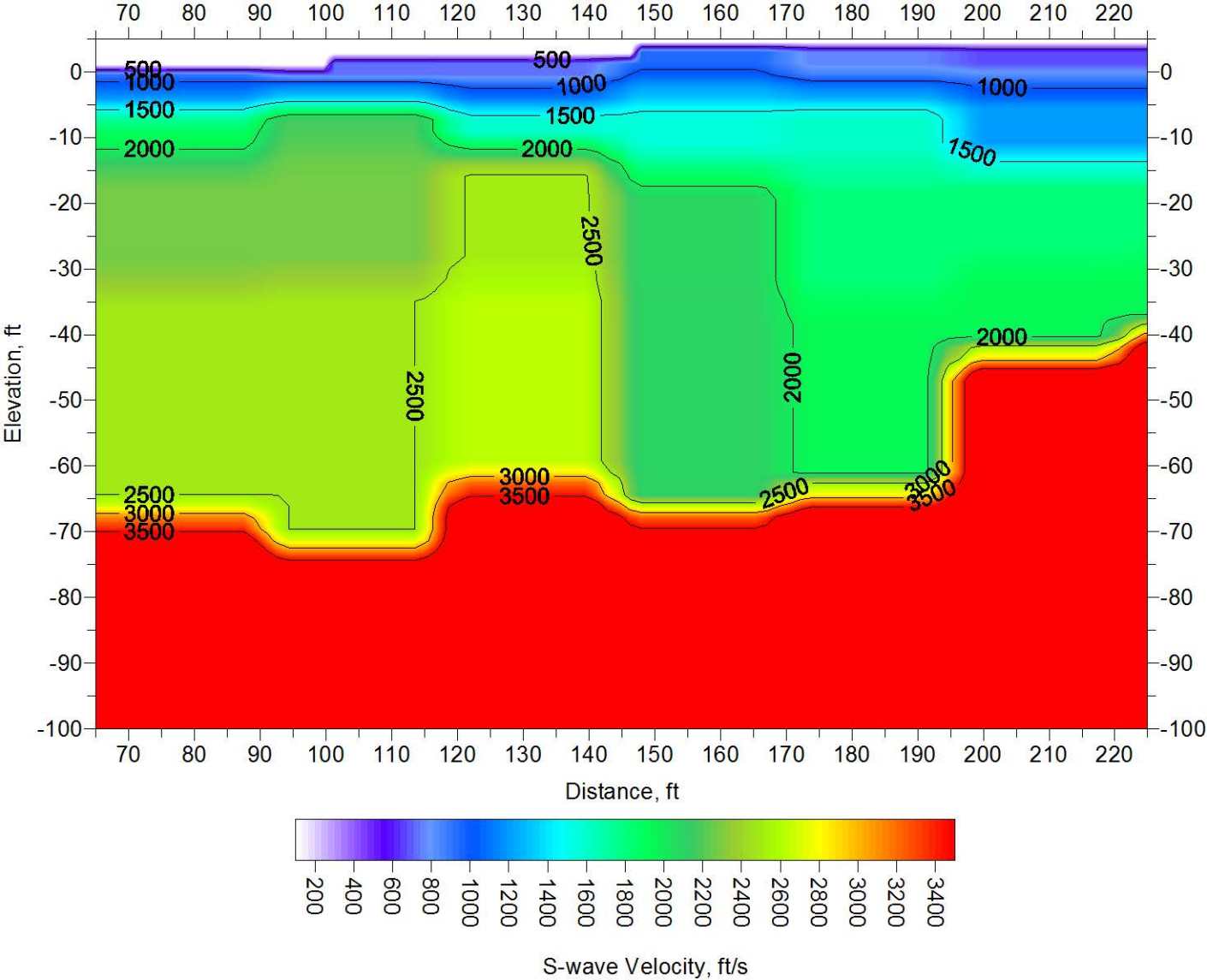
BORING LOCATION 350+00 89'R

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/18/15 **COMPLETED** 1/18/15
GROUND ELEVATION 5210 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

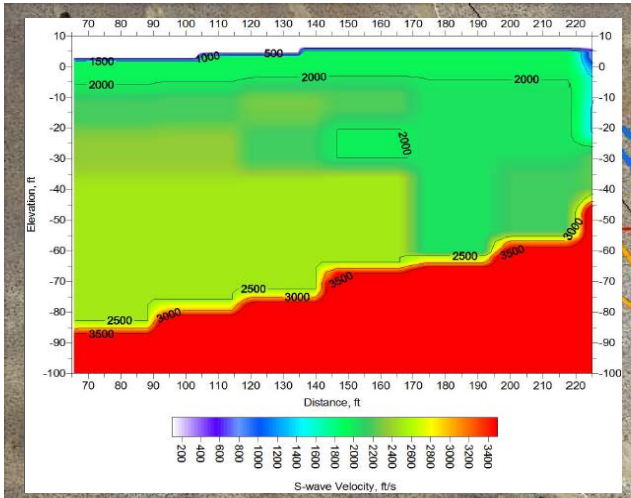
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted		H	MS	S	I	25	148	5000	2000					
											1000						
												3000					
10				GB A	MS	W	M	C			1500	4000	5.1	30	16	14	5.3
												5000					
												6000					
20												7000					
					H	MS	S	C	50	114	2000						
			Medium grained														
30					MS	W	M	C									
			Coarse grained									8000					
40				GB B									6.8	26	15	11	17.9
50										139							

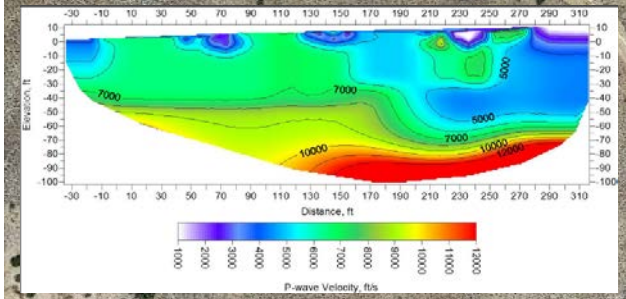
Bottom of Borehole at 50.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
Elevation, ft
5000
7000
5000
7000
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
500
1000
1500
2000
2500
3000
3500

355+00 CENTERLINE





Summary of Laboratory Test Data

TEST	355+00 CL 9.5-13'	355+00 CL 41-45'
4 - Inch Sieve	100	100
No. 4 Sieve	47	46
No. 200 Sieve	26.0	20.6
Max Liquid Limit	27	33
Max Plastic Index	12	17
USCS	GC	GC
Moisture Cont.	3.4	6.3

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

355+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

355+00 CL

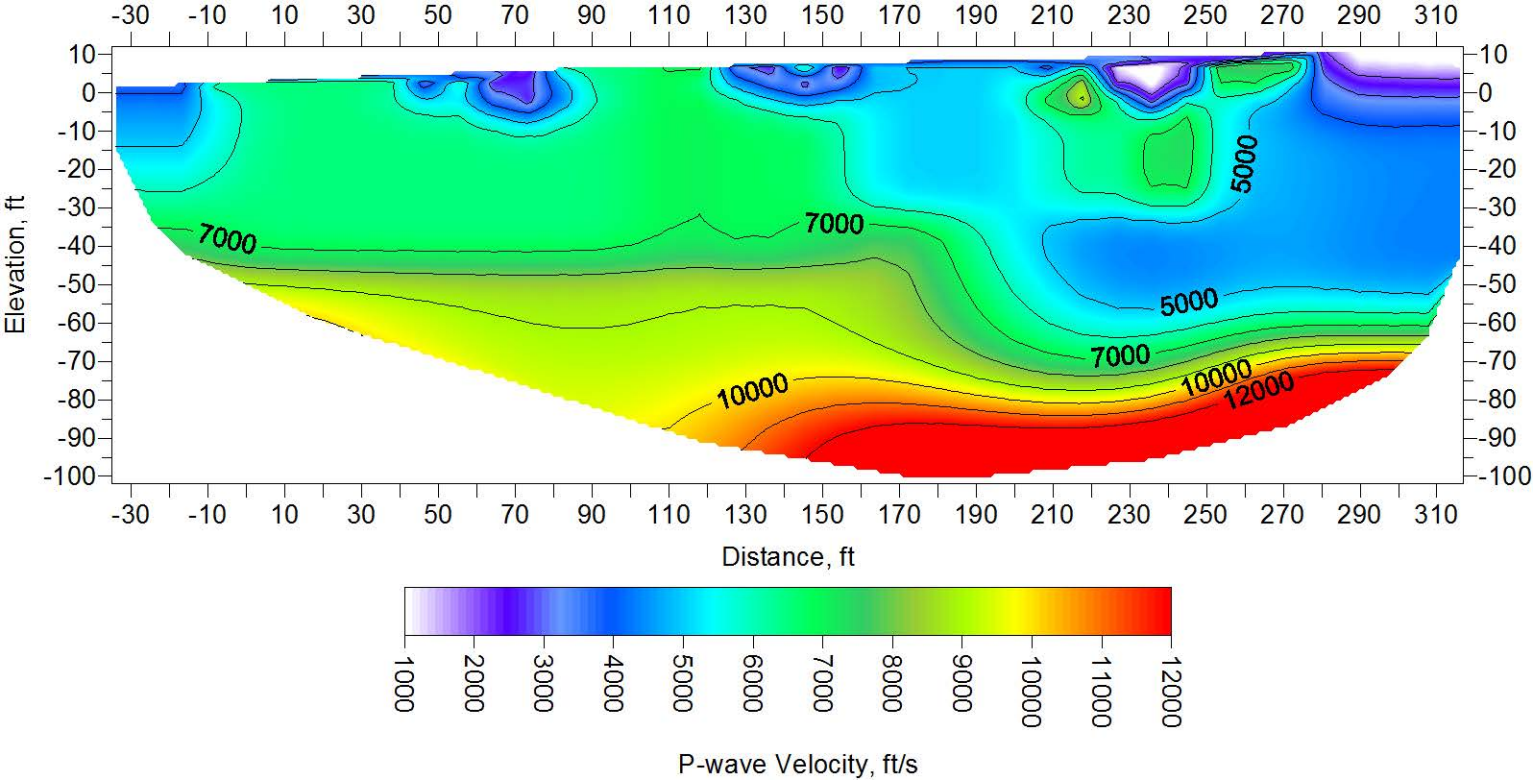
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

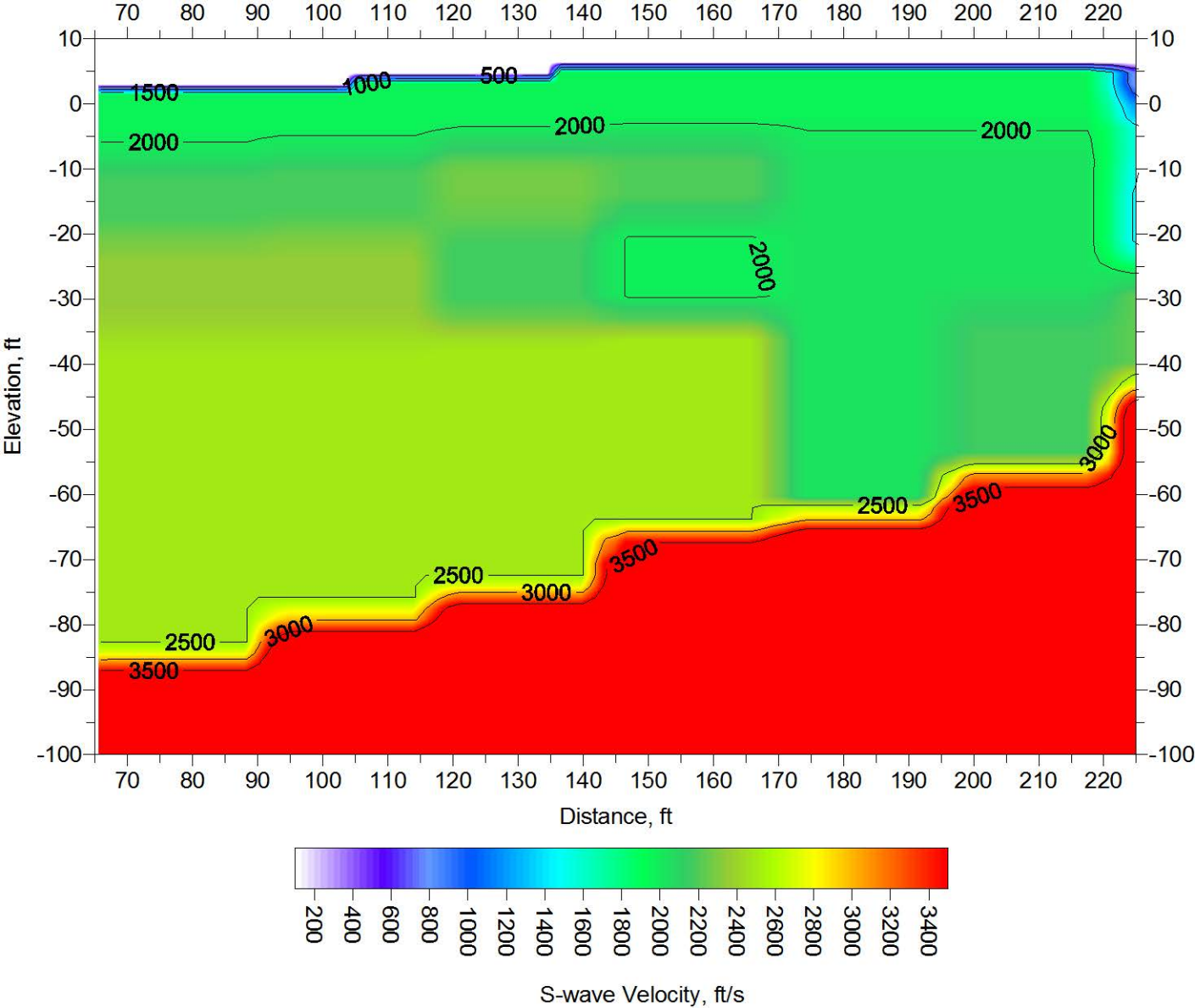
BORING LOCATION 355+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5205 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

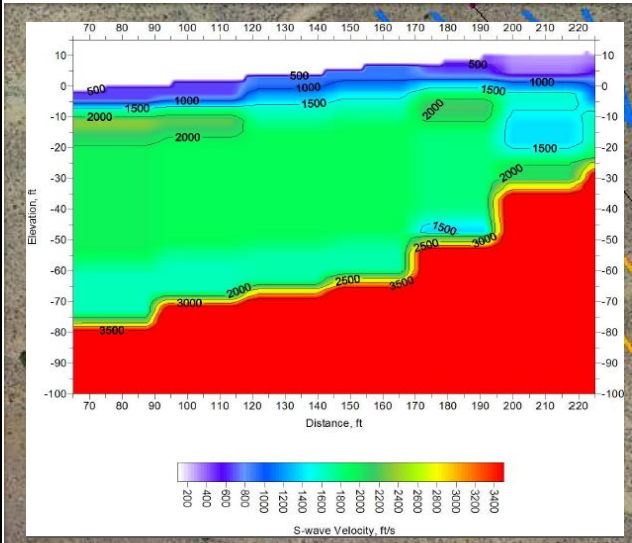
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted, with Iron Staining, Residual Soil Characteristics to 5 Feet.		S	W	M	I	25	135	1500	5000					
												4000					
10				GB A						135	2000	5000	3.4	27	15	12	26.0
			Iron Staining Increases					C	50	180		6000					
20																	
							I			160							
30											2000						
					MH	S	M			154							
40				GB B								7000	6.3	33	16	17	20.6
50										122		8000					

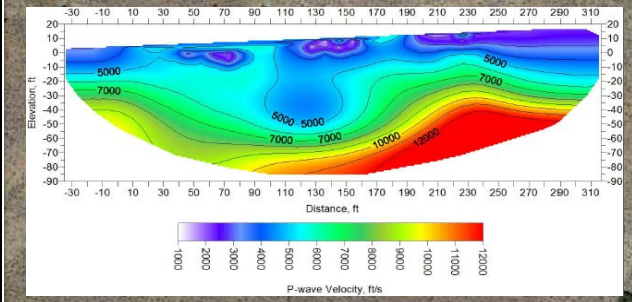
Bottom of Borehole at 50.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
7000
7000
5000
5000
7000
10000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1500
1000
500
2000
2000
2000
2000
2500
3000
3500
2500
3000
3500
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

363+59 CENTERLINE





Summary of Laboratory Test Data

TEST	363+59 CL 8-10'	363+59 CL 28-30'
4 - Inch Sieve	100	100
No. 4 Sieve	49	53
No. 200 Sieve	22.4	28.0
Max Liquid Limit	35	42
Max Plastic Index	19	21
USCS	GC	GC
Moisture Cont.	5.8	10.3

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

363+59 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

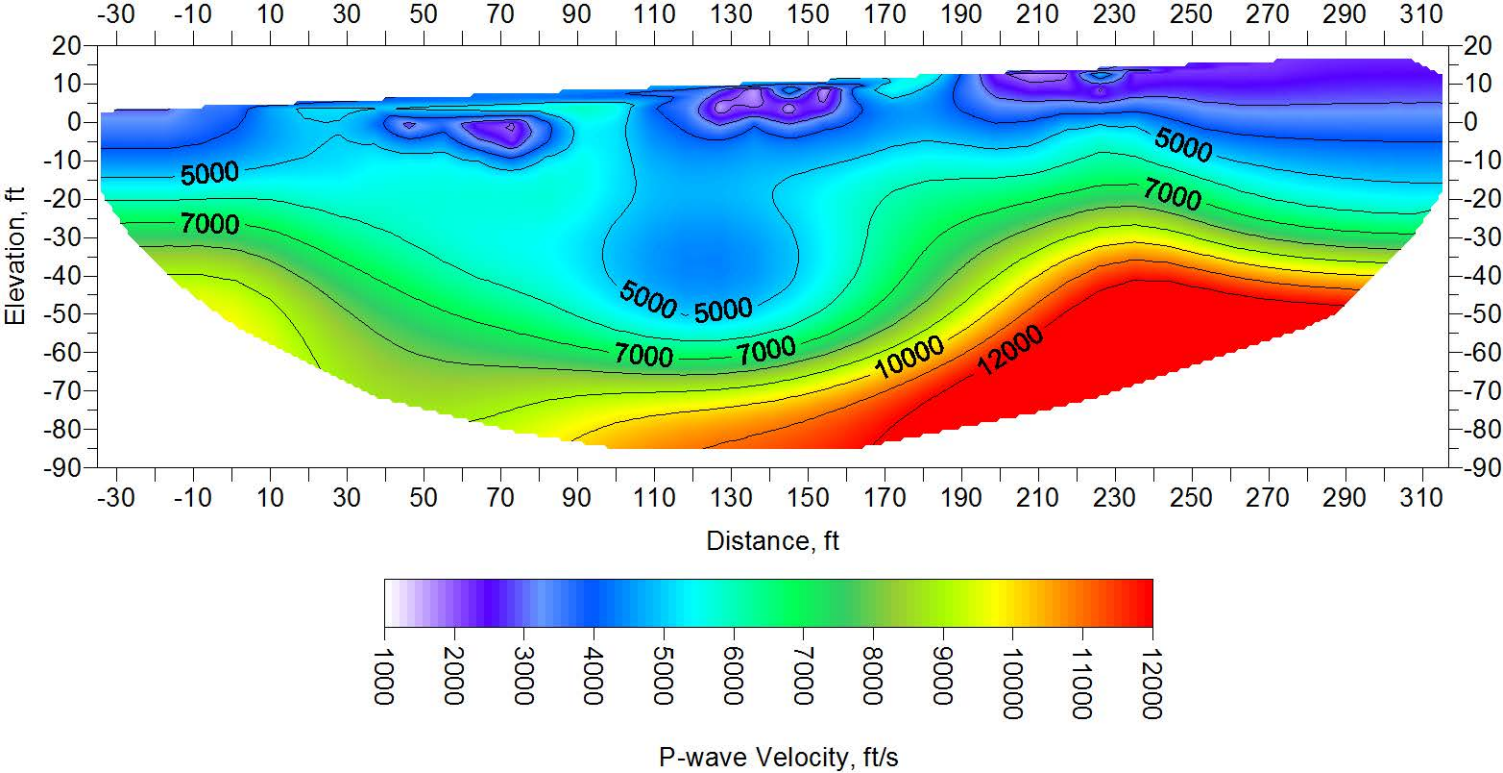
363+59 CL

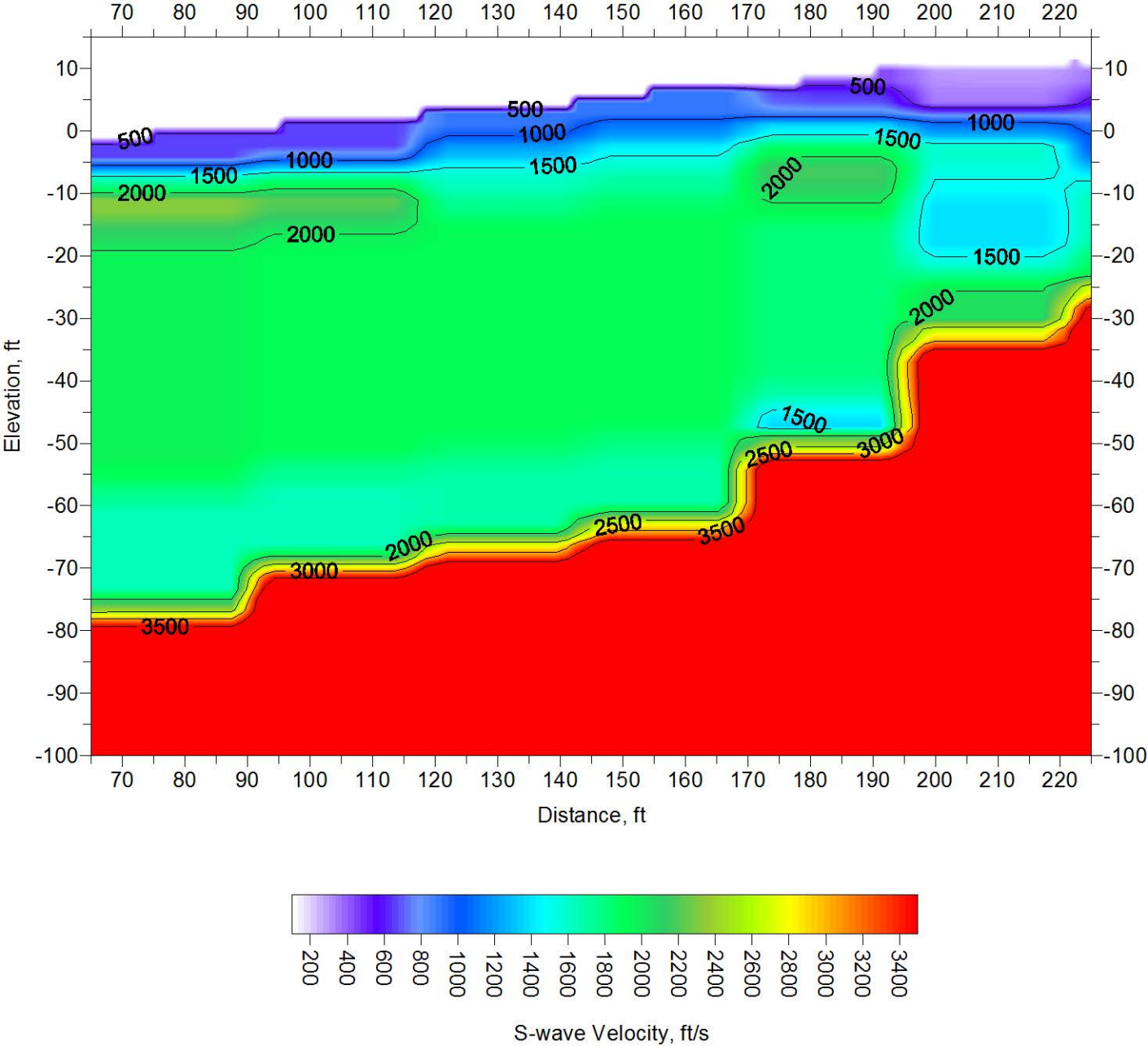
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 363+59 CL

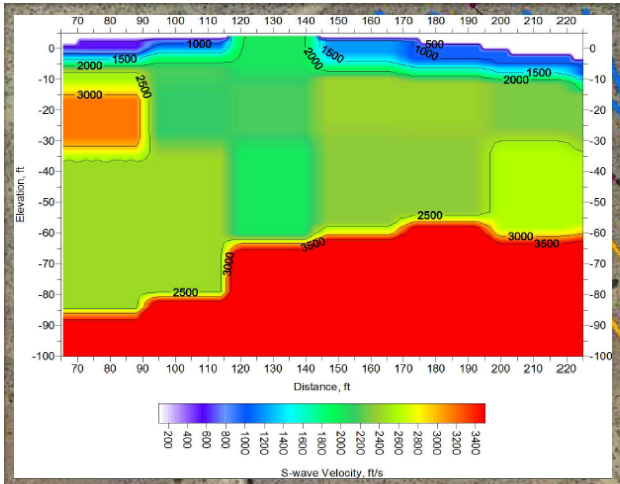
CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5223 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

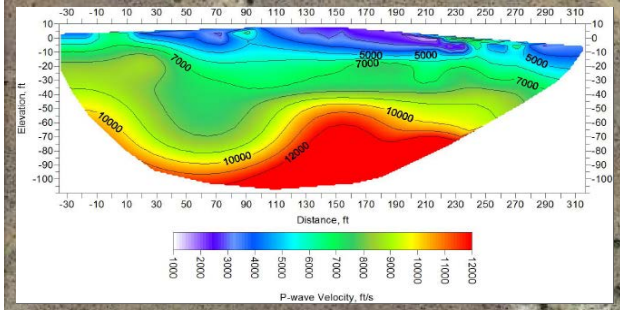
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Rhyolite - Fine Grained, light gray, pitted, Iron Staining on Fractures		MH	MS	M	M	25	111	500 1000	4000					
					H	MS						3000					
10				GB A						176	1500		5.8	35	16	19	22.4
												4000					
										92							
20							S		50								
					VH	VS				161		5000					
30			Altered zone	GB B	MS	MS	M						10.3	42	21	21	28.8
			Bottom of Borehole at 30.0 Feet.														


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
Elevation, ft
5000
7000
5000
5000
7000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
Distance, ft
500
1000
1500
2000
2500
3000
3500
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

370+00 CENTERLINE





Summary of Laboratory Test Data

TEST	370+00 CL 6-8'	370+00 CL 35-37'	370+00 CL 73-75'
4 - Inch Sieve	100	100	82
No. 4 Sieve	47	39	21
No. 200 Sieve	26.7	23.2	7.8
Max Liquid Limit	29	33	26
Max Plastic Index	14	16	5
USCS	GC	GC	GP-GC
Moisture Cont.	4.5	4.6	10.4

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

370+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

370+00 CL

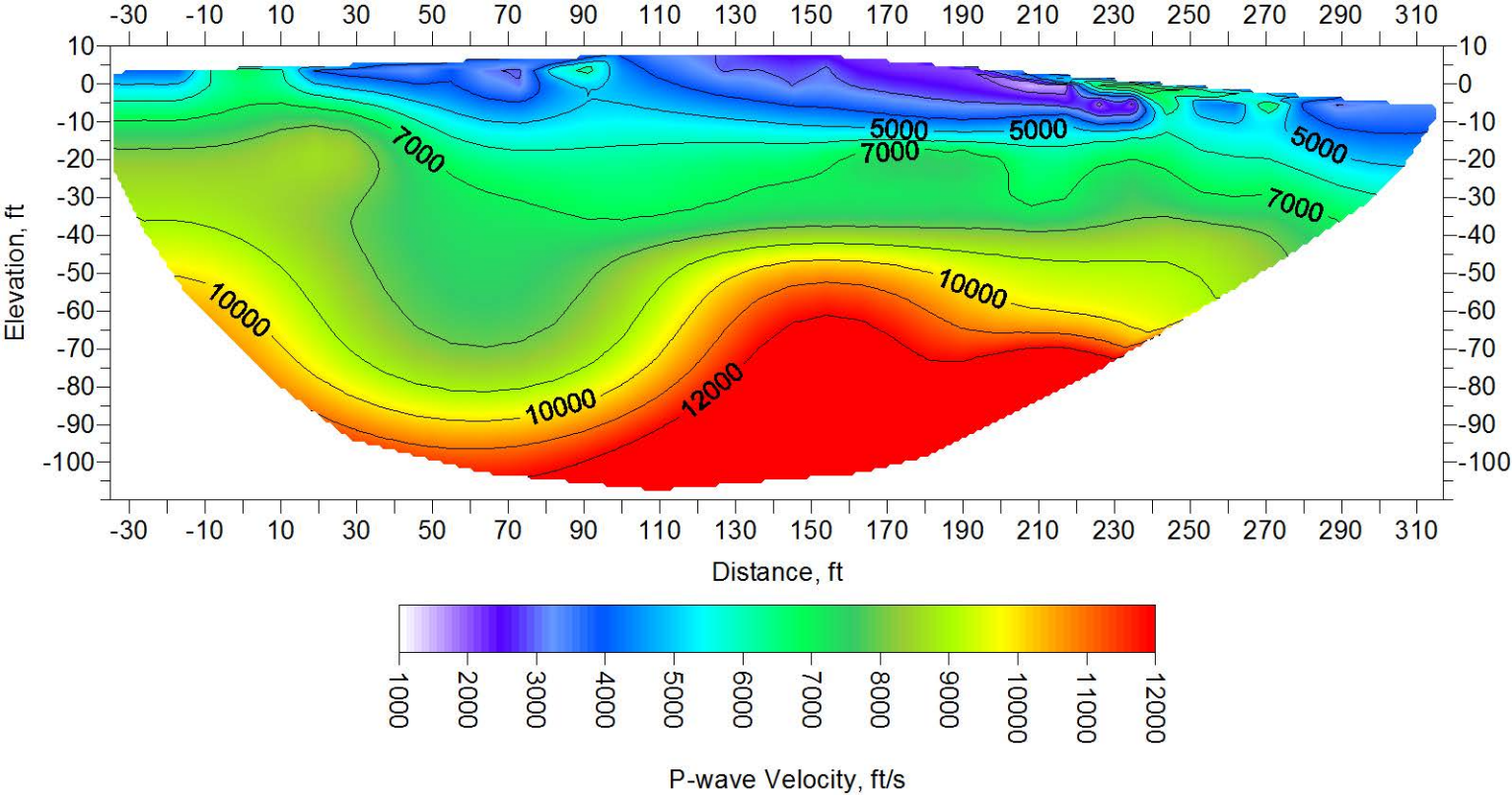
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

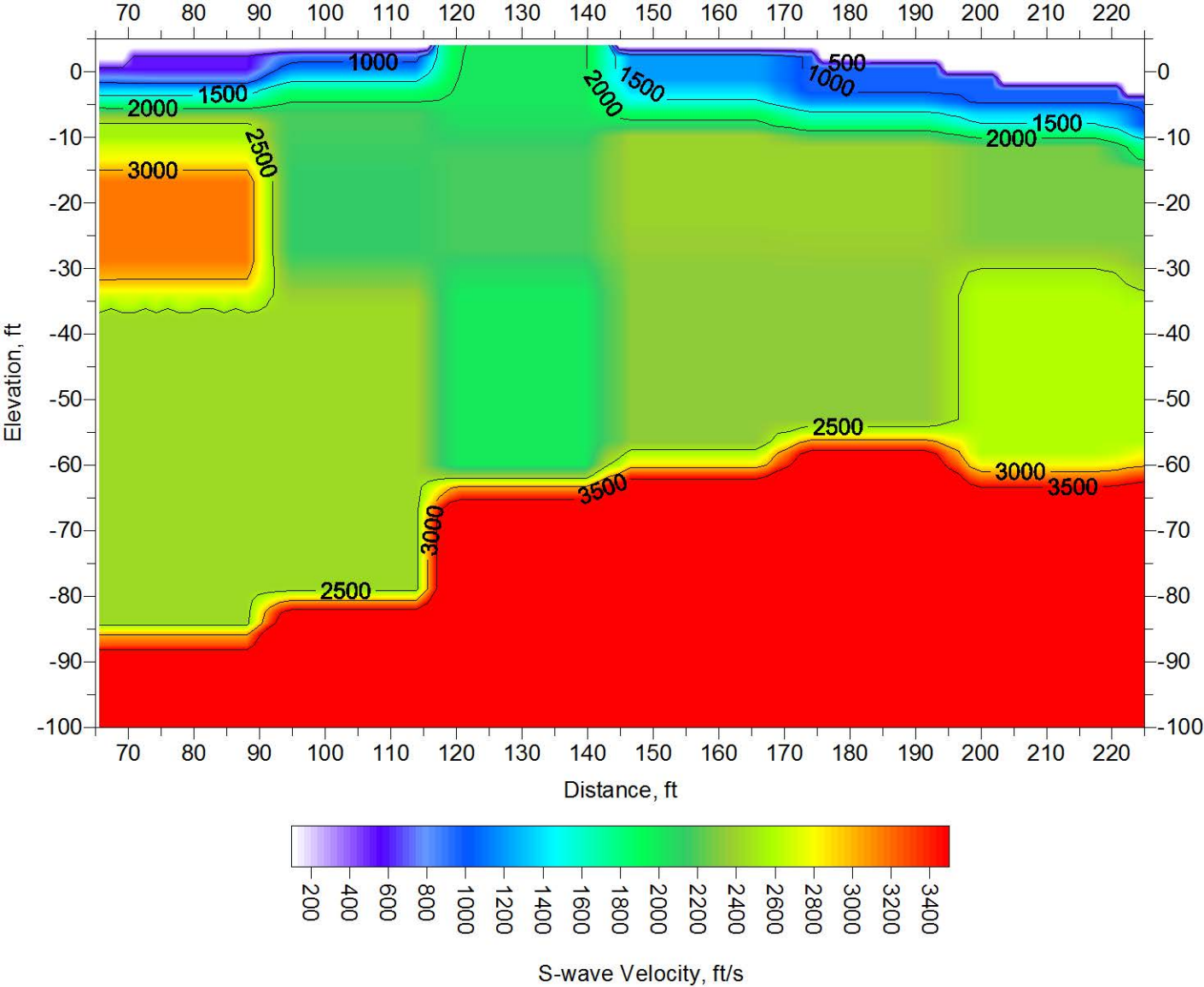
BORING LOCATION 370+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5297 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

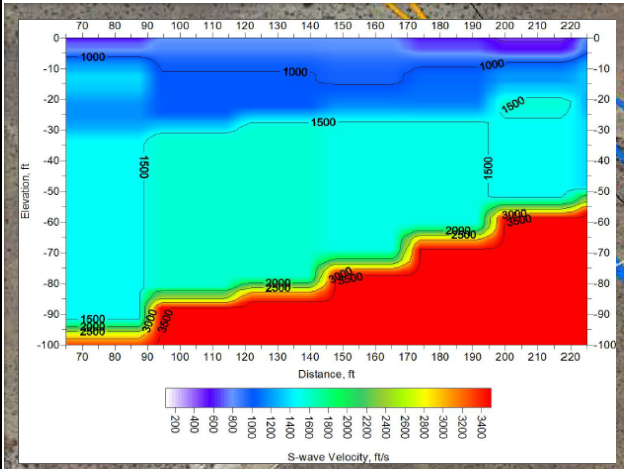
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained, light gray, pitted		MS	W	I	I	25		1000	2000					
										158		3000					
				GB A									4.5	29	15	14	30.1
10										153	1500						
											2000						
												4000					
										179							
												5000					
20			Strong brown				D										
										183							
												6000					
									25								
30																	
												7000					
										207							
				GB B									4.6	33	17	16	24.3
40			Gray,		VH			M		199							
									50	139							
												8000					
50																	
										147		9000					
					S												
					H							10000					
60																	
									75	166	2500	11000					
											3000						
					S												
			Reddish yellow								3500						
70					VH	VS	F	C									
										237		12000					
				GB C									10.4	26	21	5	9.5

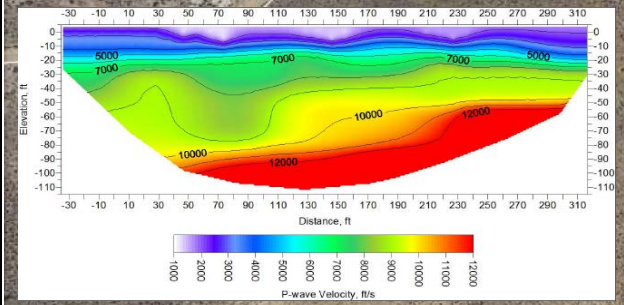
Bottom of Borehole at 75.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1000
1500
2000
2500
3000
500
1000
1500
2000
2000
1500
2500
3000
3500
3000
3500
2500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

392+00 CENTERLINE





Summary of Laboratory Test Data

TEST	392+00 CL 15-17'
4 - Inch Sieve	100
No. 4 Sieve	36
No. 200 Sieve	12.6
Max Liquid Limit	25
Max Plastic Index	9
USCS	GC
Moisture Cont.	8.1

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

392+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

392+00 CL

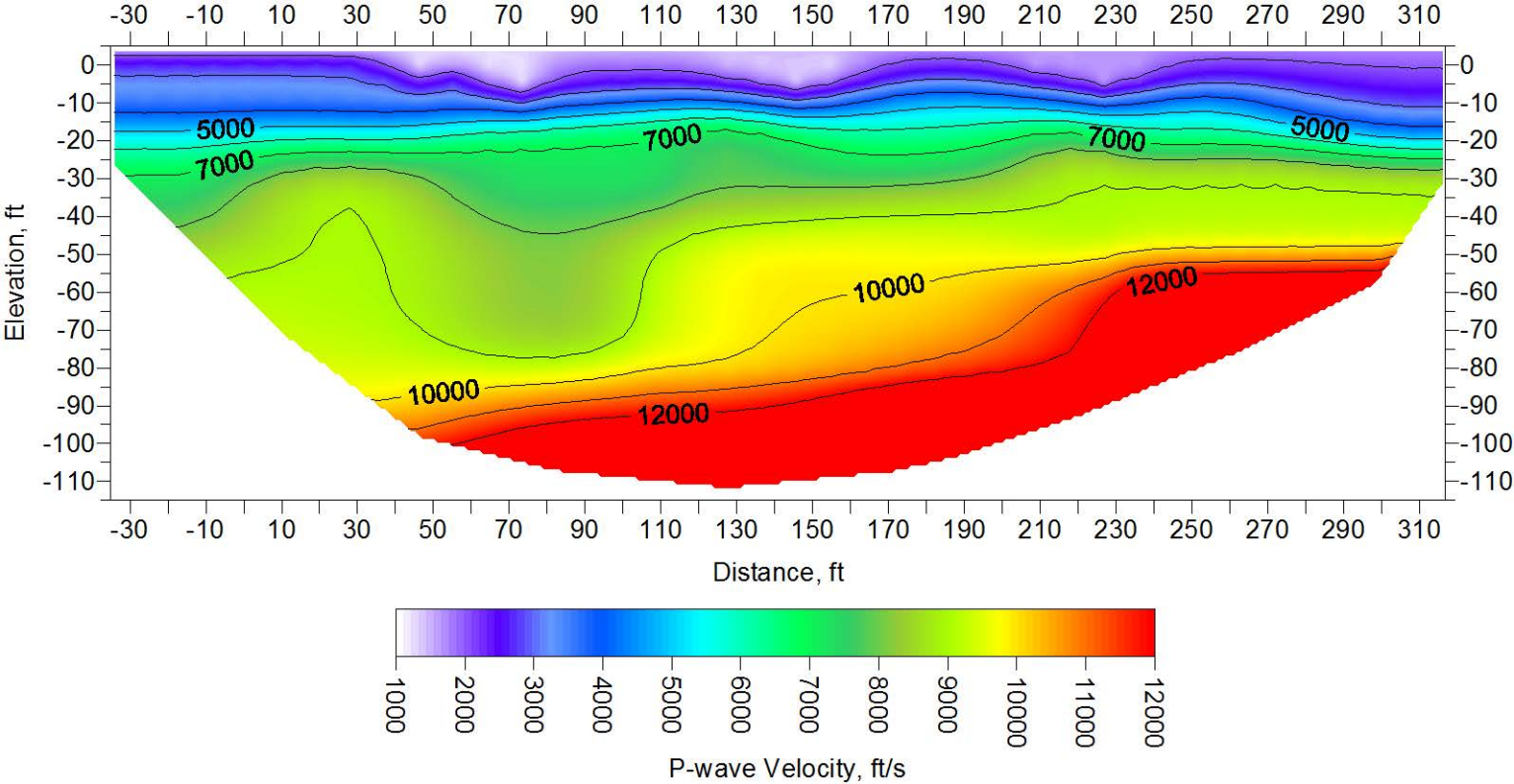
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

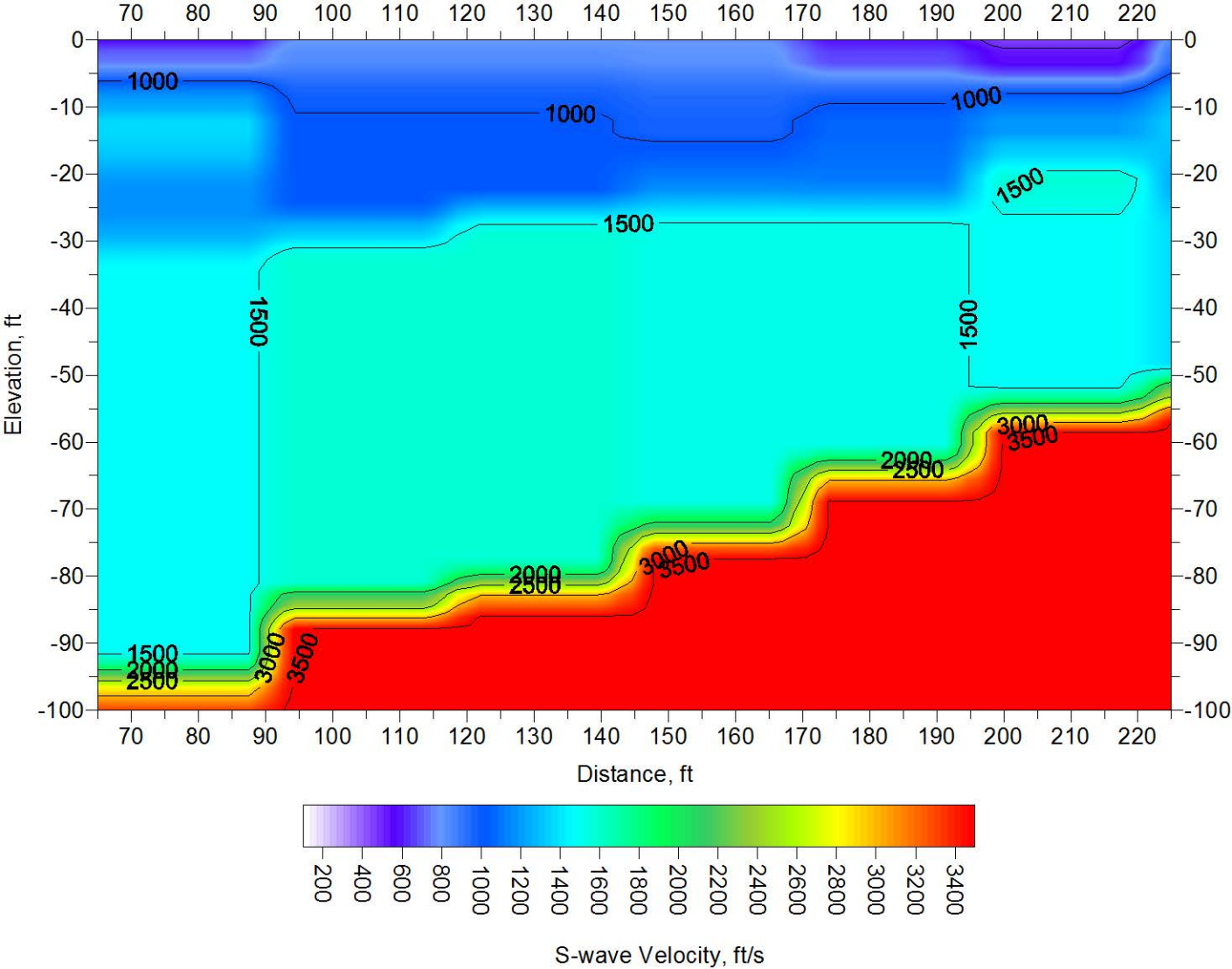
BORING LOCATION 392+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5232 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

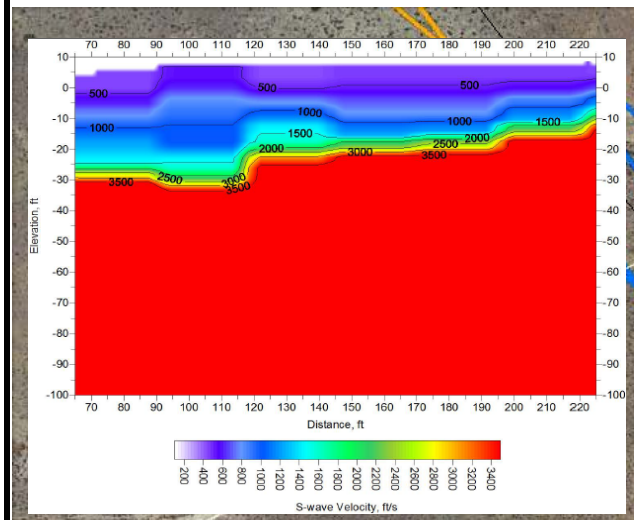
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, strong brown, pitted, Residual Soil		MS	W	I	I	25	124	500						
			Greenish gray														
10										151							
												1000					
									50			2000					
			Gray	GB A			D			157	1000	3000	8.1	25	16	9	12.6
20												4000					
												5000					
												6000					
										139		7000					
30										147							

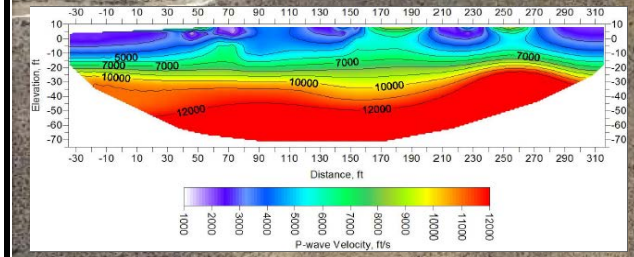
Bottom of Borehole at 30.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
5000
7000
7000
7000
5000
10000
12000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1000
1000
1000
1500
1500
1500
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

399+04 CENTERLINE





Summary of Laboratory Test Data

TEST	399+04 CL 18-20'
4 - Inch Sieve	100
No. 4 Sieve	48
No. 200 Sieve	27.6
Max Liquid Limit	32
Max Plastic Index	16
USCS	GC
Moisture Cont.	6.3

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
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399+04 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

399+04 CL

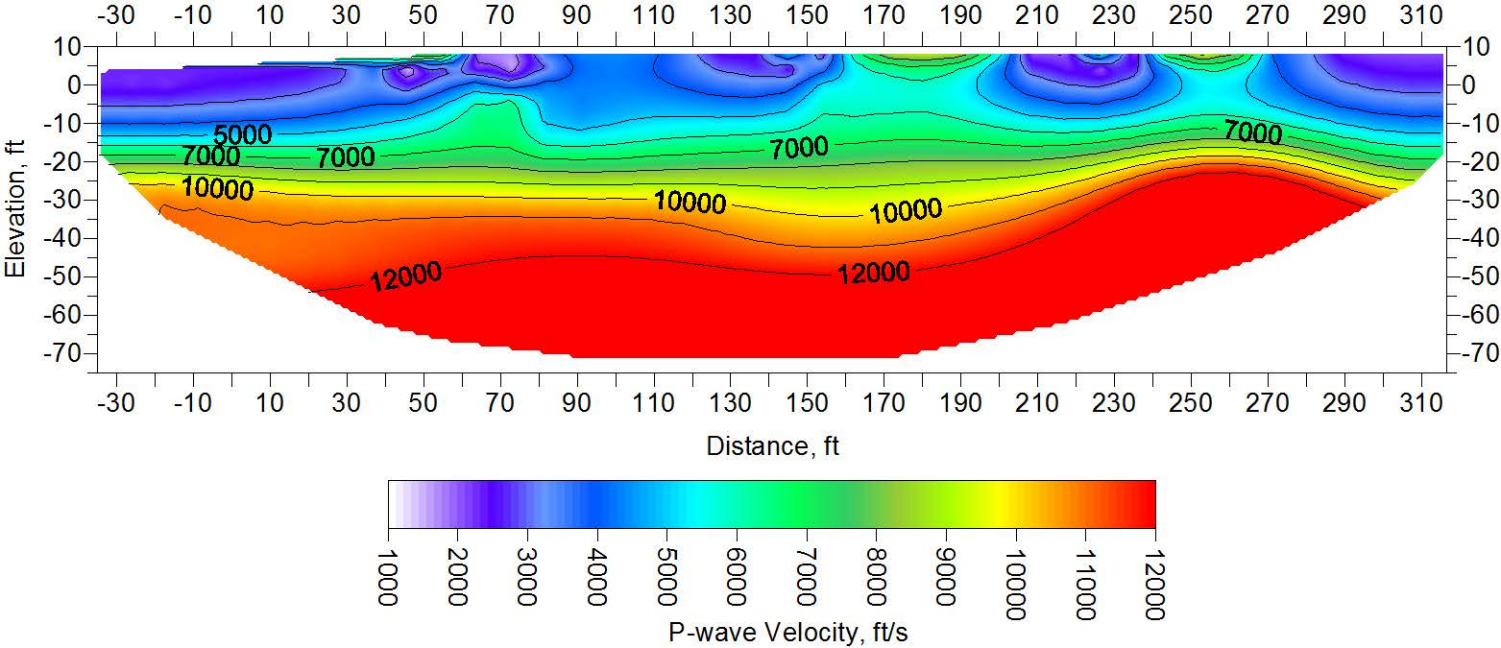
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

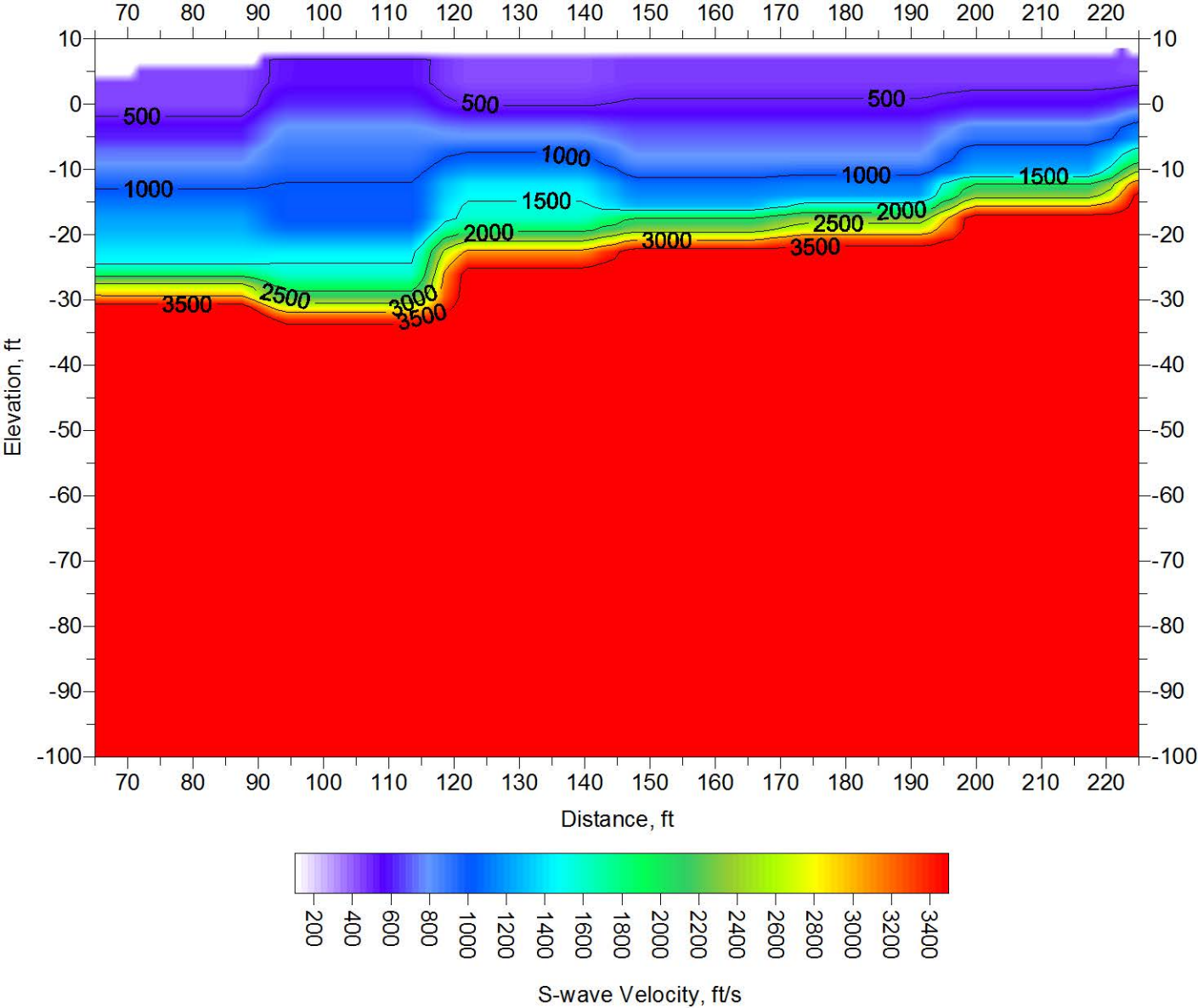
BORING LOCATION 399+04 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/29/15 **COMPLETED** 1/29/15
GROUND ELEVATION 5242 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

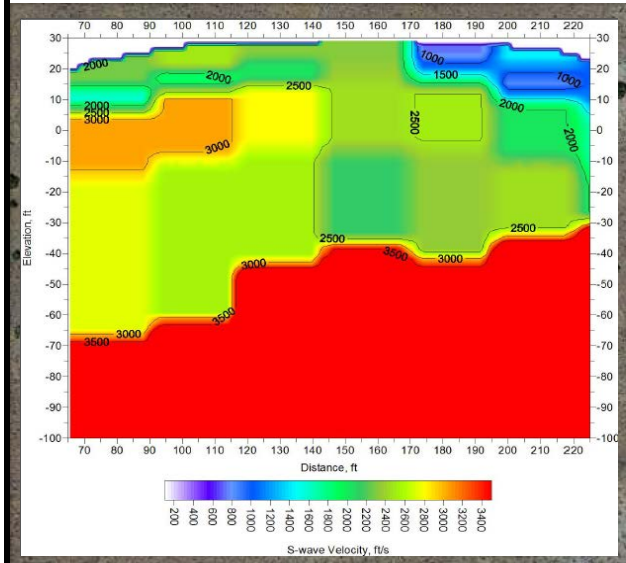
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, greenish gray		S	W	I	I	25	125		3000					
											500	4000					
10										155							
										164		5000					
											1000						
20			Gray	GB A					50	176			6.3	32	16	16	27.6
					MH	MS	I	C			1500	6000					
										162	2000						
											2500	7000					
30										167	3000						
											3500						

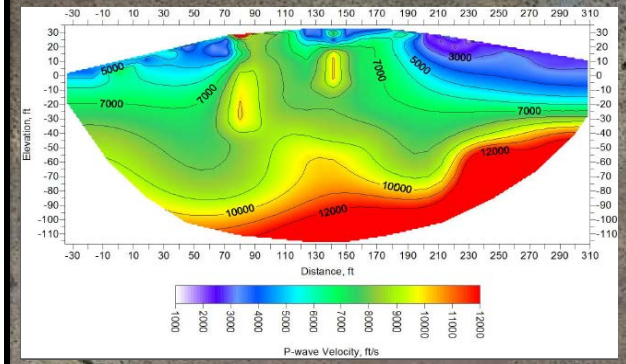
Bottom of Borehole at 30.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70
Elevation, ft
5000
7000
7000
7000
7000
10000
10000
10000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

411+74 117’R





Summary of Laboratory Test Data

TEST	411+74 117L 20'-24'	411+74 CL 68'-76'
4 - Inch Sieve	100	68
No. 4 Sieve	81	24
No. 200 Sieve	22	9.0
Max Liquid Limit	42	26
Max Plastic Index	27	10
USCS	SC	SC
Moisture Cont.	3.3	6.2

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

411+74 117' Right

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

411+74 117'L

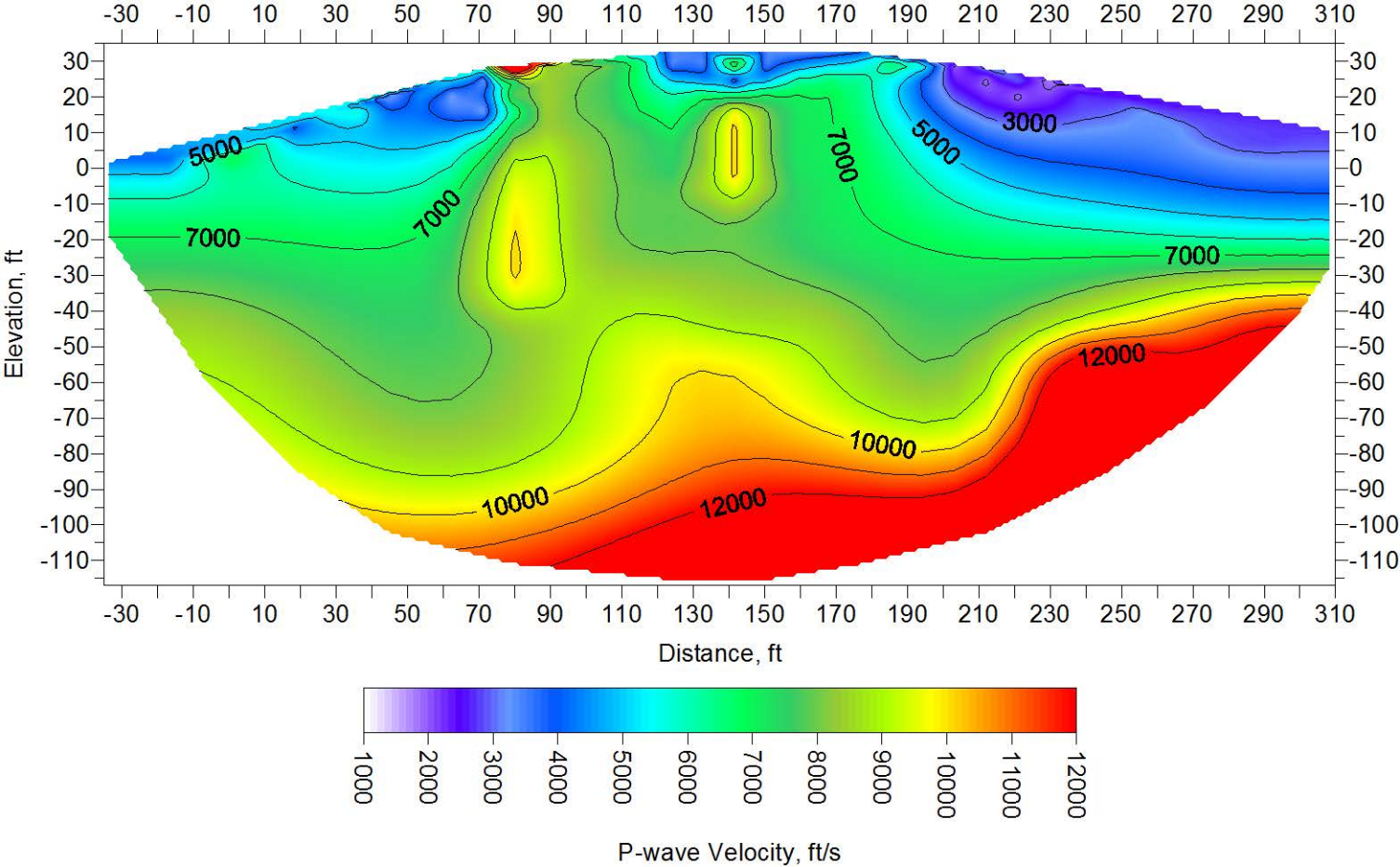
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

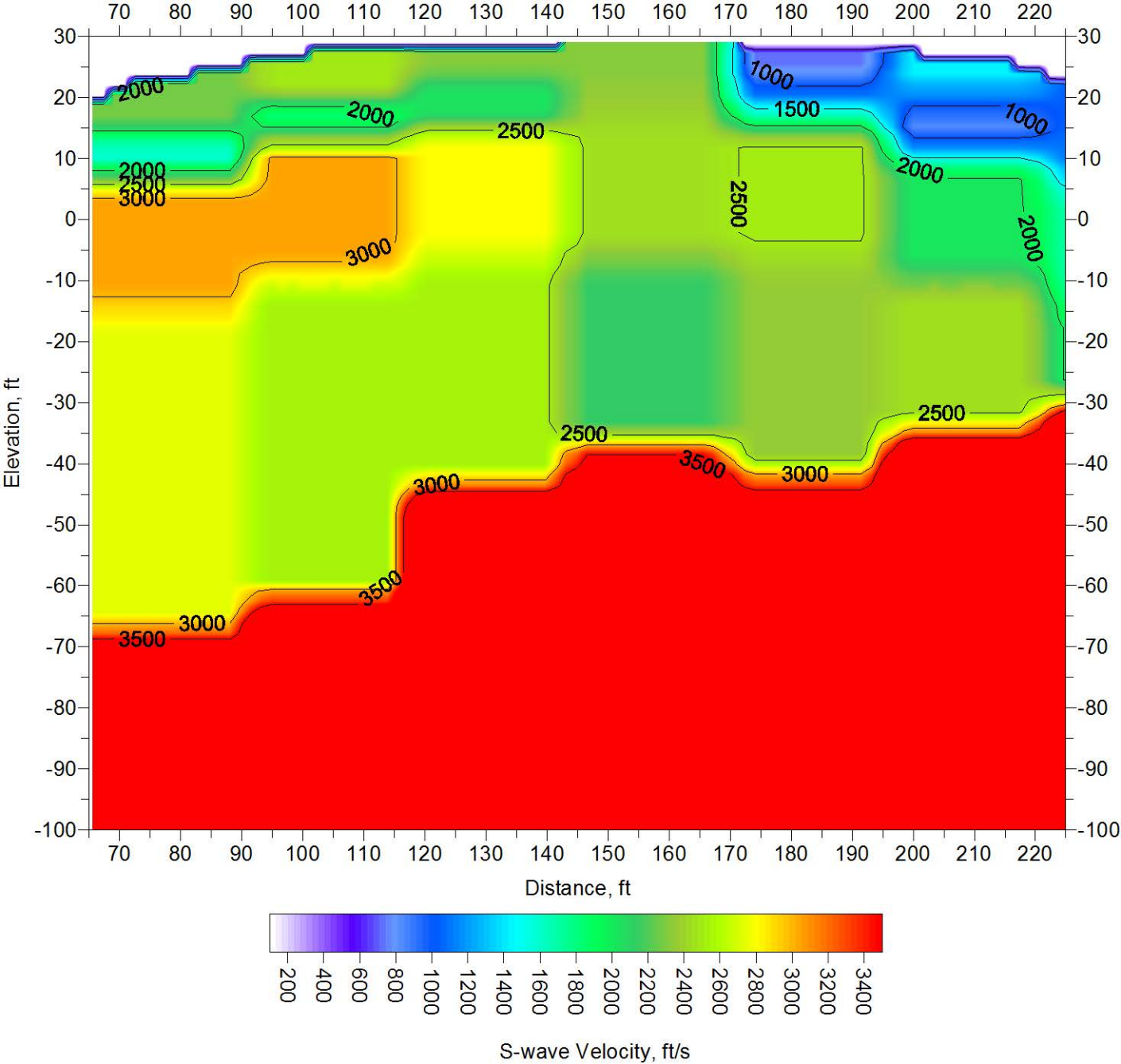
BORING LOCATION 411+74 117'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/24/15 **COMPLETED** 2/26/15
GROUND ELEVATION 5333 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

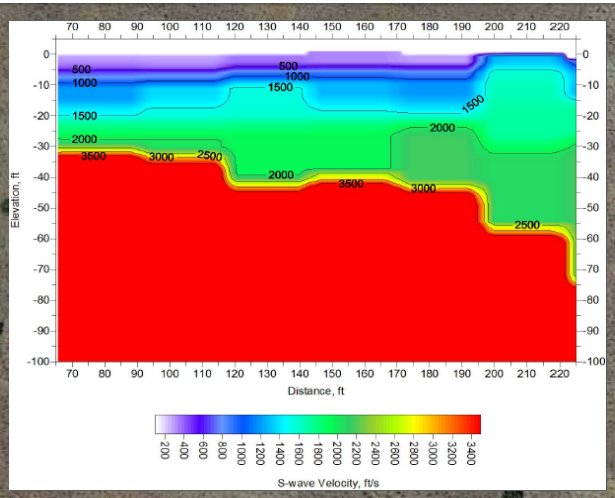
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diortite - Medium Grained, dark brown		VH	S	S	I		107	2000	7000 6000 7000					
10										172		5000					
								M	75	197		7000					
20												8000					
				GB A						163 97		9000 10000	3.3	42	15	27	15.6
										147							
30						MS		S		70							
					VH	ES		S		165		10000					
40												9000					
												8000					
								M				7000					
50					MH	MS	M	I	25	79		7000					
											2500	8000					
60											3500						
70				GB B									6.2	26	16	10	13.1

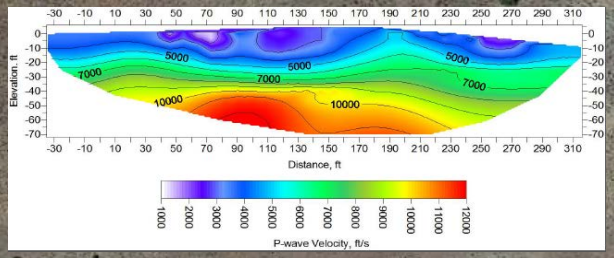
Bottom of Borehole at 76.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
3000
5000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


Elevation, ft
Distance, ft
S-wave Velocity, ft/s
70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
1000
1500
2000
2500
3000
3500
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400

417+00 100’L





Summary of Laboratory Test Data

TEST	417+00 100L 14-16'	417+00 100L 28-30'	417+00 100L 63-70
4 - Inch Sieve	100	100	100
No. 4 Sieve	68	53	45
No. 200 Sieve	28.3	20.2	15.8
Max Liquid Limit	33	33	26
Max Plastic Index	17	18	13
USCS	SC w/G	SC w/G	GC
Moisture Cont.	6.3	6.5	5.8

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

417+00 100' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

417+00 100'L

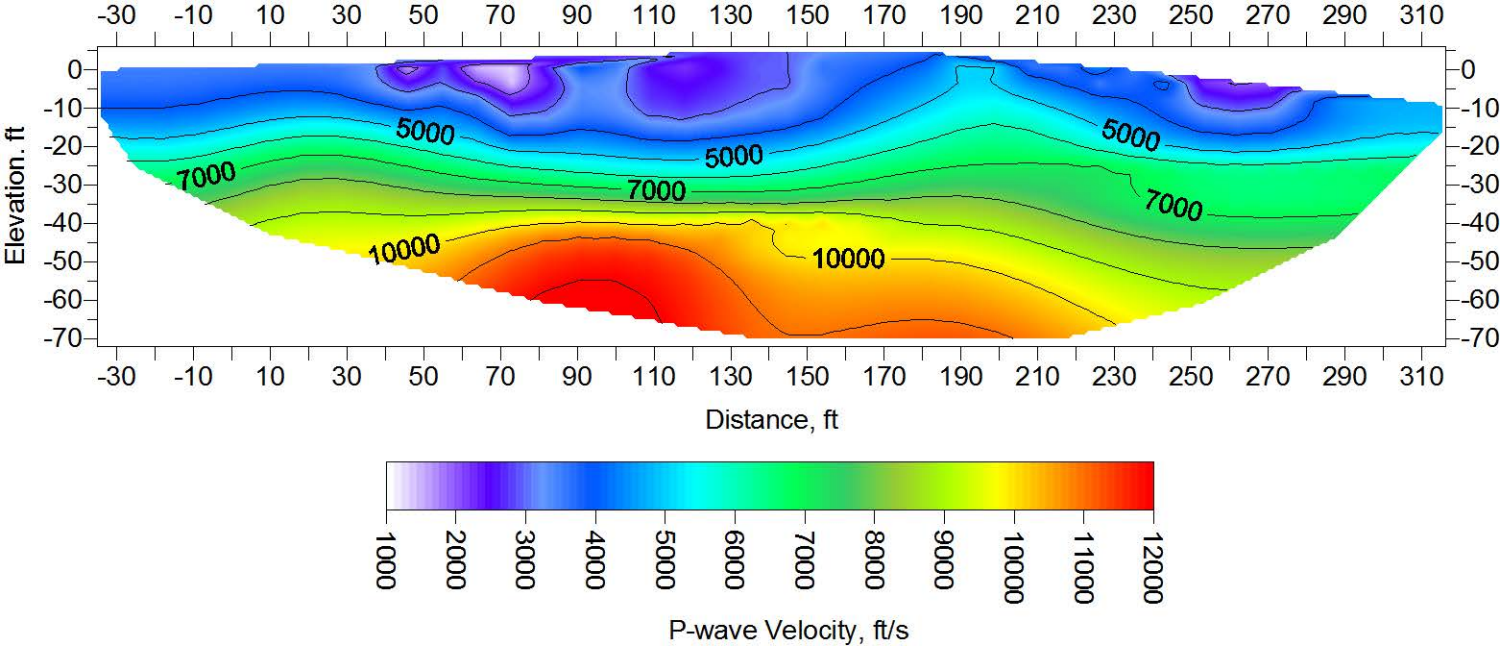
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

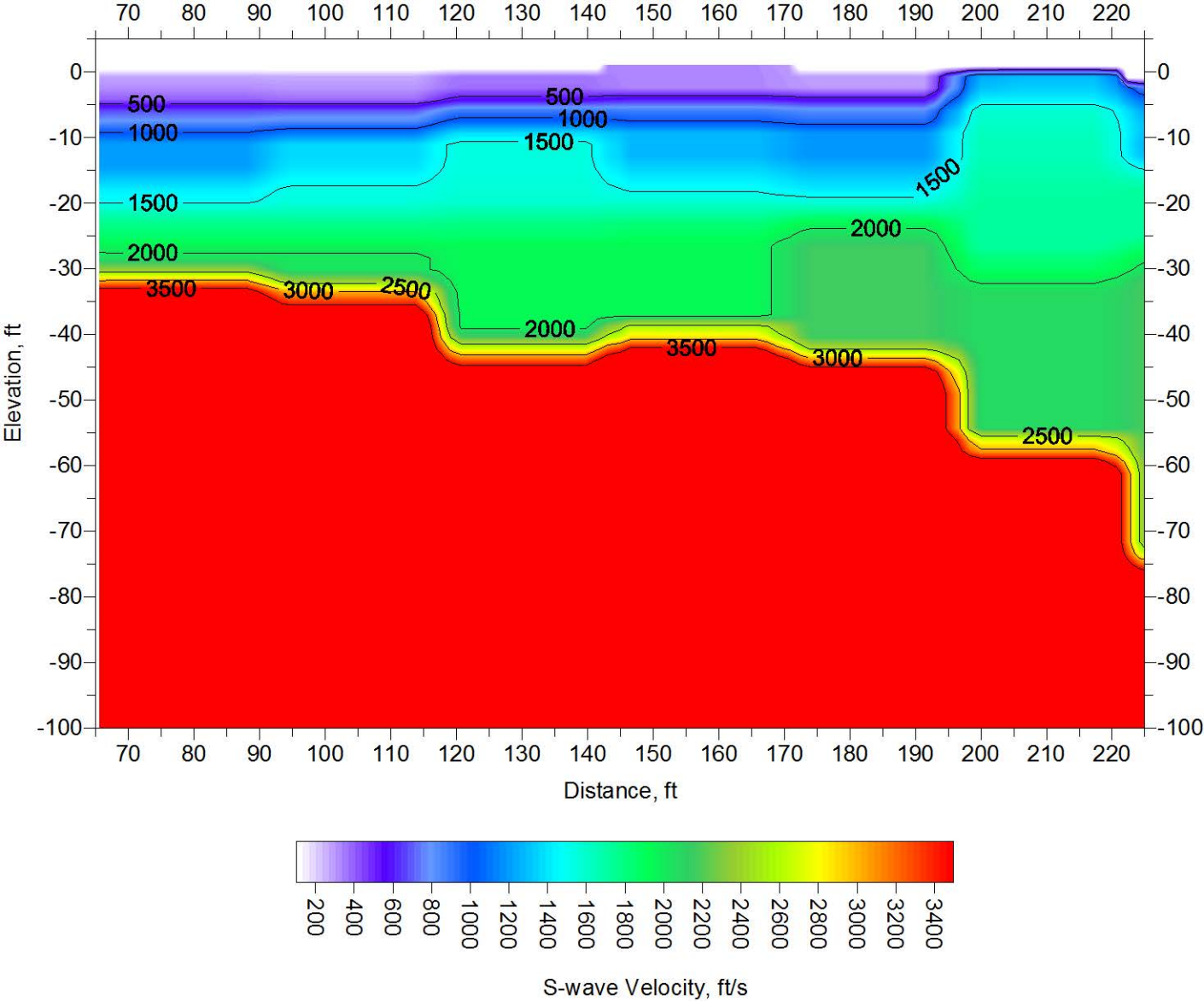
BORING LOCATION 417+00 100'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/27/15 **COMPLETED** 1/27/15
GROUND ELEVATION 5345 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

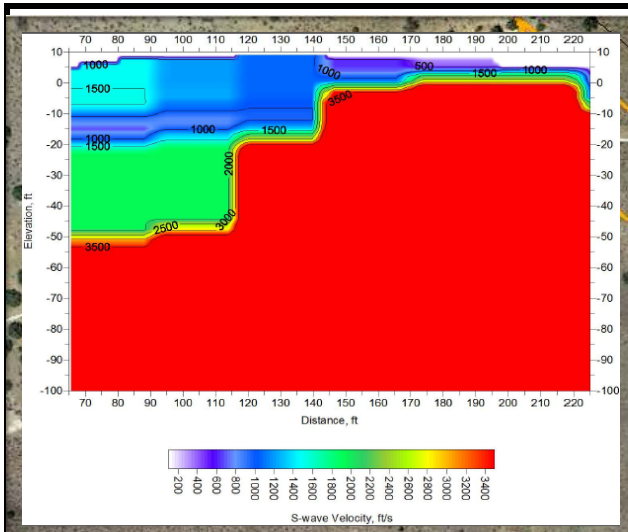
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained, strong brown		S	W	I	I	20	164		3000					
											500						
10										161	1000						
				GB A						143		4000	6.3	33	16	17	28.3
20																	
			Greenish gray		MH	MS	M	M	50	145	1500						
										155		5000	6.5	33	15	18	20.2
30				GB B						149		6000					
											2000						
										180	2500	7000					
40											3000	8000					
											3000						
					H	S	S	M		190	3500	9000					
50																	
												10000					
60									75								
70					H	S	M	M									

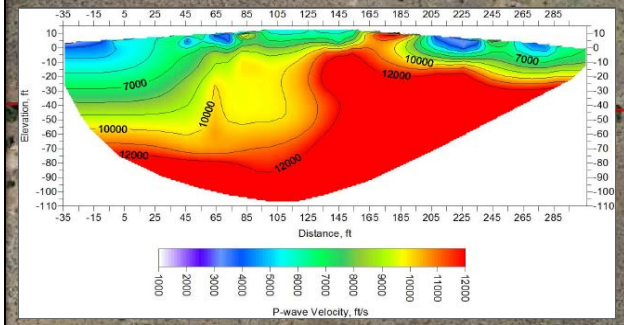
Bottom of Borehole at 78.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0
-10
-20
-30
-40
-50
-60
-70
Elevation, ft
5000
7000
10000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

428+00 122’L





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WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

428+00 122' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

428+00 122'L

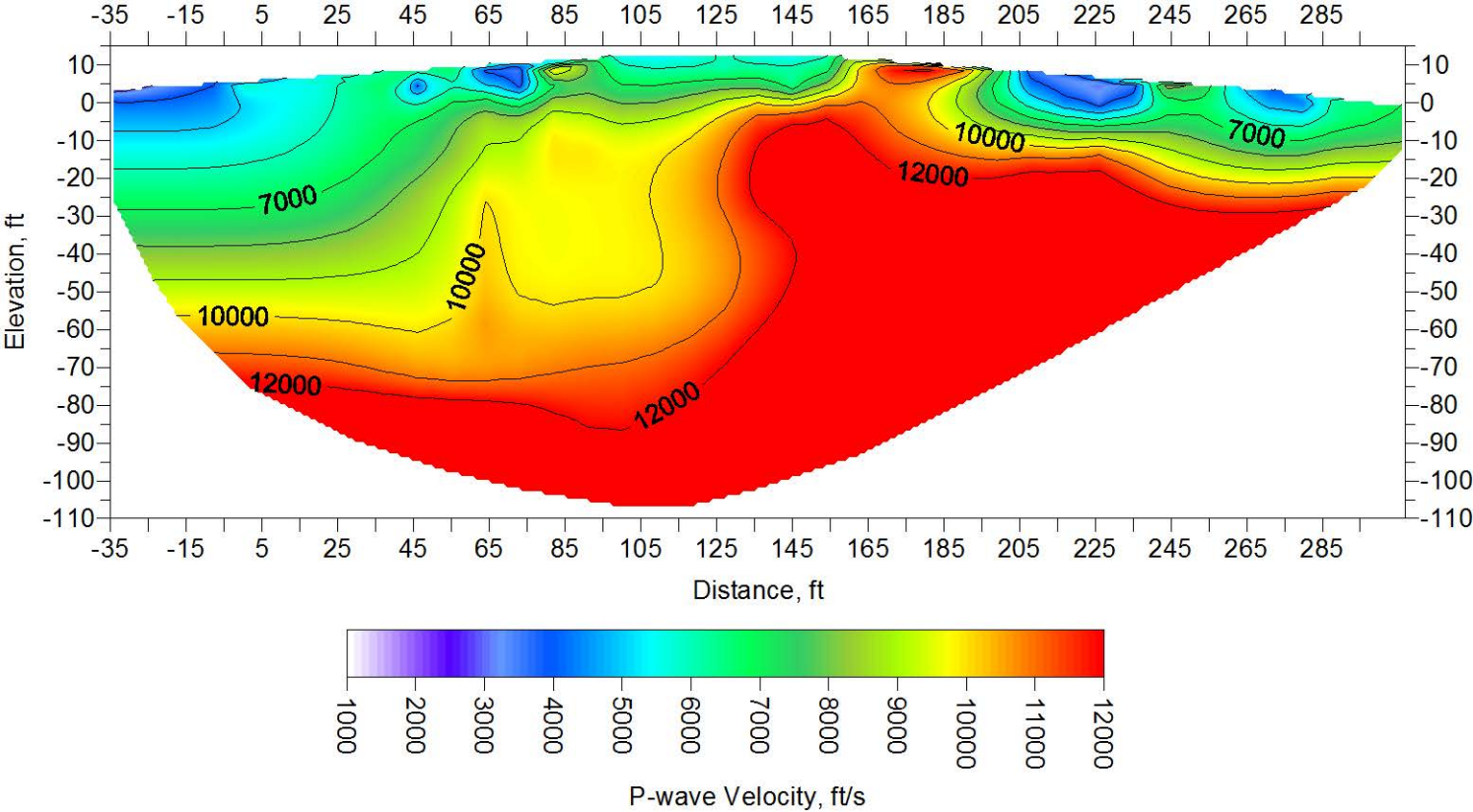
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

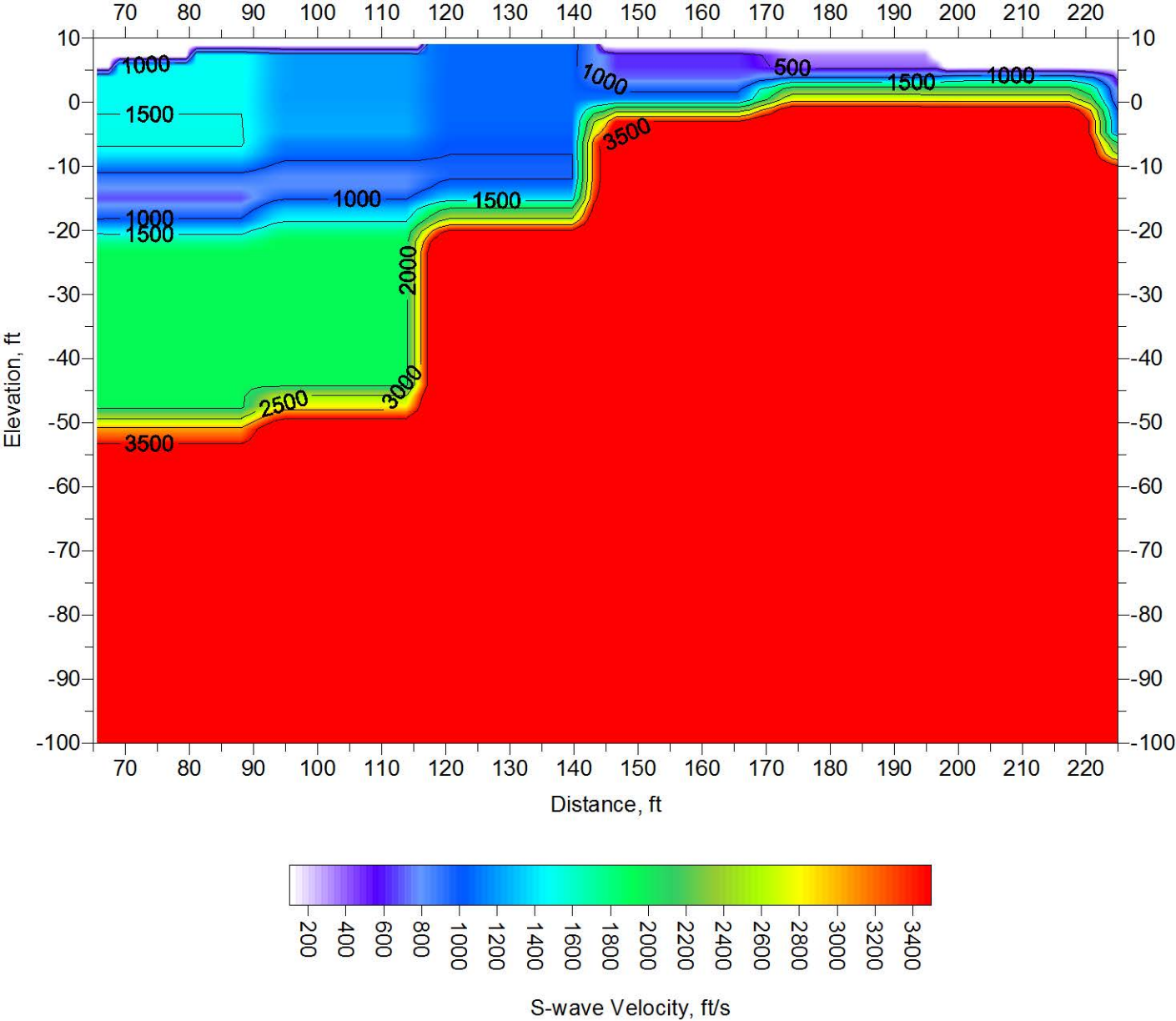
BORING LOCATION 428+00 122'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/24/15 **COMPLETED** 1/24/15
GROUND ELEVATION 5392 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

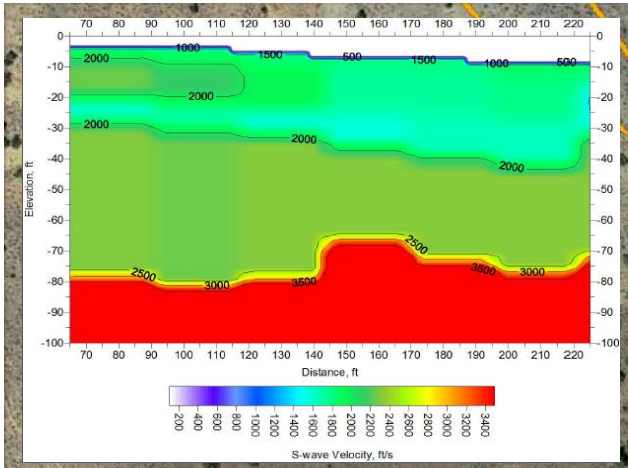
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Gabbro - Medium Grained, greenish gray, pitted		VH	VS	S	M	75	151	500	6000					
										123	1000						
10											1500						
										175	2000	10000					
										65	2500						
											3000						
20											3500						
										167		12000					
										135							

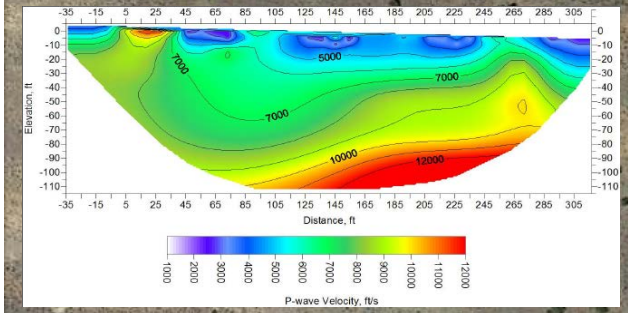
Practical Refusal at 27.5 feet.
Bottom of Borehole at 27.5 Feet.


-35 -15 5 25 45 65 85 105 125 145 165 185 205 225 245 265 285
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
1000
1500
1000
500
1500
1000
3500
1000
1500
1000
1500
2000
2500
3000
3500
Elevation, ft
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

432+00 100’L





Summary of Laboratory Test Data

TEST	432+00 100L 18-20'	432+00 100L 34-36'	432+00 100L 58.5-60'
4 - Inch Sieve	100	100	65
No. 4 Sieve	33	39	43
No. 200 Sieve	16.5	24.4	29.5
Max Liquid Limit	32	29	29
Max Plastic Index	17	13	13
USCS	GC	GC	GC
Moisture Cont.	4.4	2.0	11.3

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

432+00 100' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

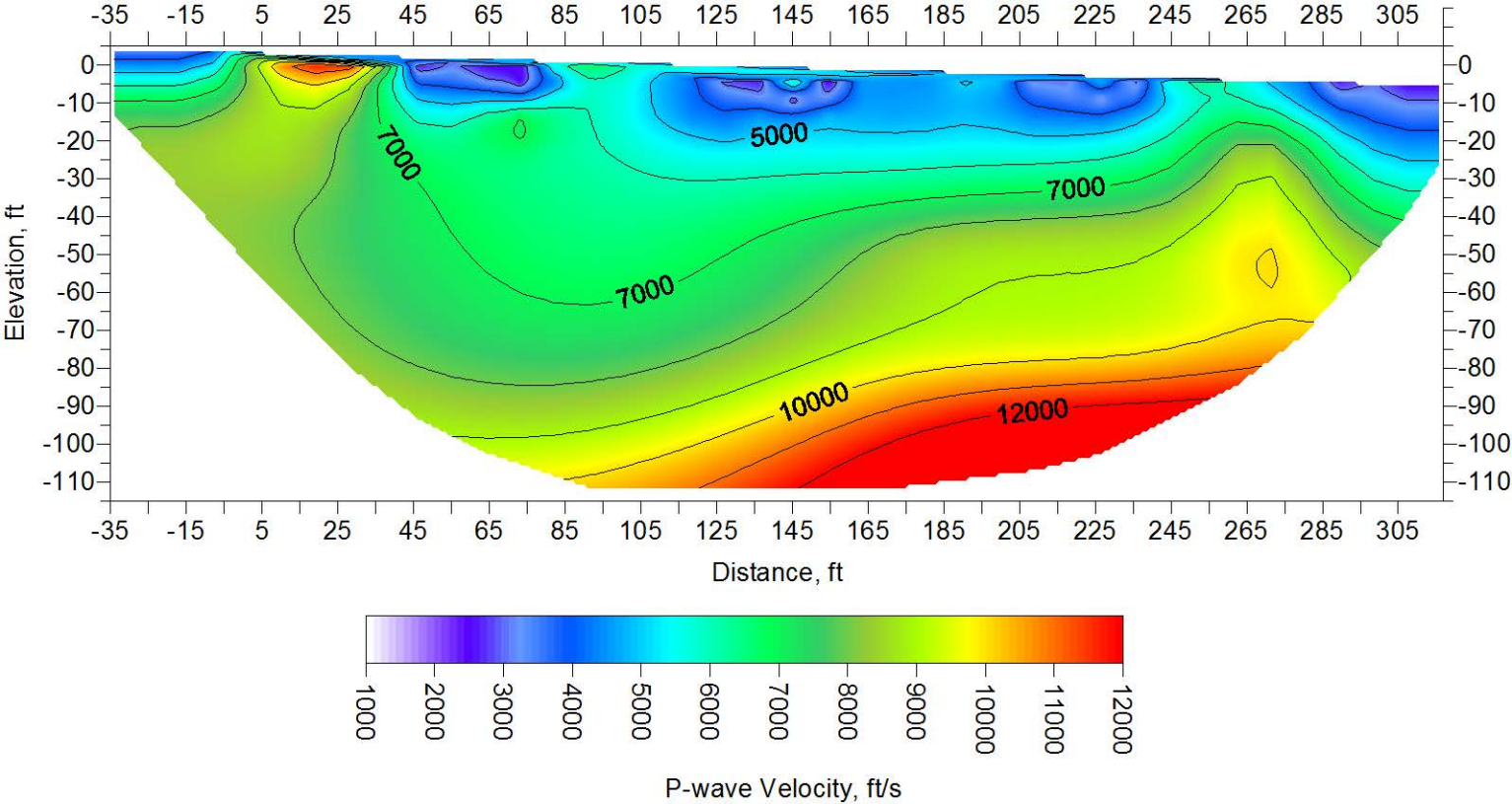
432+00 100'L

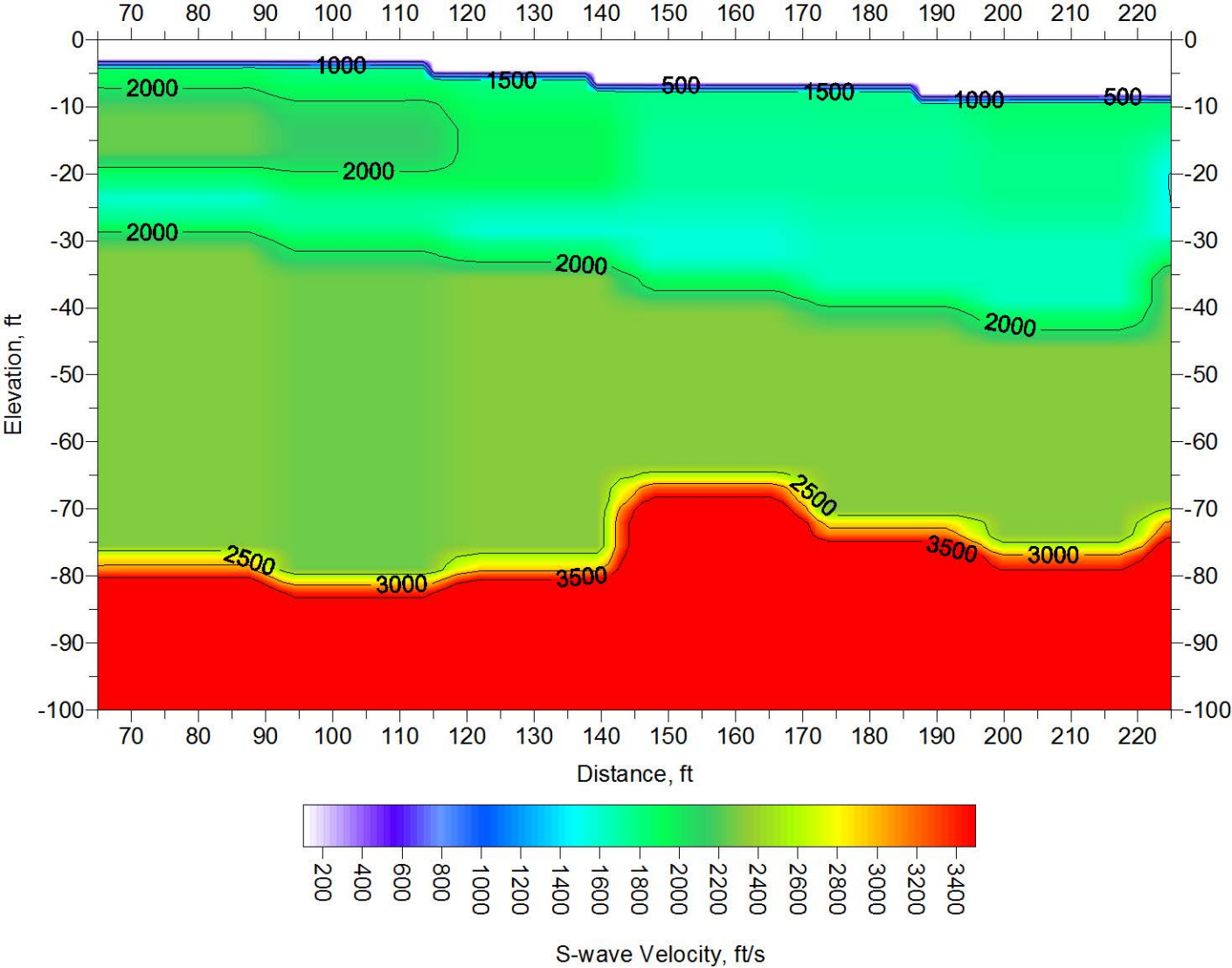
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 432+00 100'L

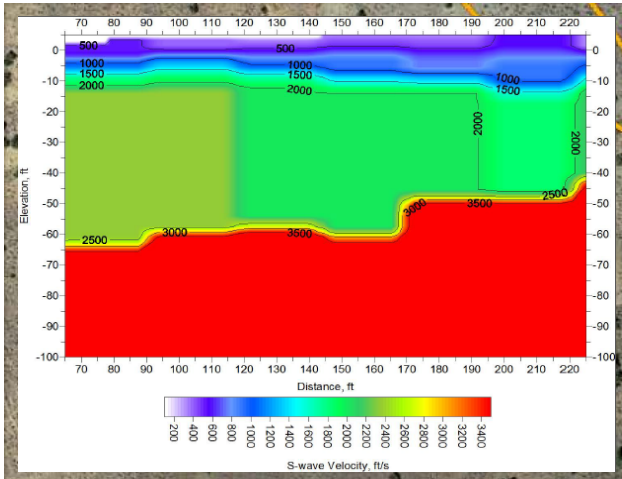
CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/23/15 **COMPLETED** 1/23/15
GROUND ELEVATION 5414 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

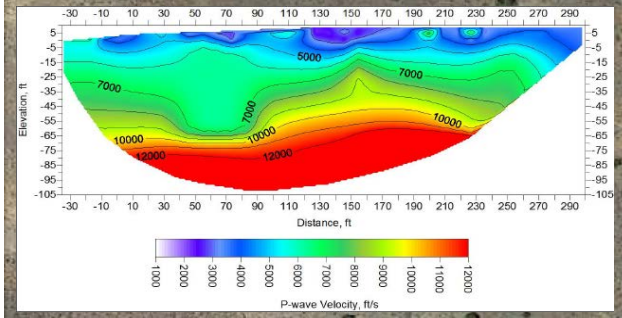
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Gabbro - Medium Grained, greenish gray, pitted		H	S	M	M			1500						
										147		4000					
10																	
			Gray							154		5000					
20				GB A									4.4	32	15	17	17.9
			Strong brown							170							
								S	50	187		6000					
30											2000						
				GB B									2.0	29	16	13	32.8
40																	
					VH	VS		M	75	187		7000					
										151							
50																	
												8000					
60				GB C							2500		11.3	29	16	13	45.4
			Bottom of Borehole at 60.0 Feet.														


-35 -15 5 25 45 65 85 105 125 145 165 185 205 225 245 265 285 305
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
7000
5000
7000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1000
1500
500
1500
1000
500
2000
2000
2000
2000
2000
2500
2500
3000
3500
3500
3000
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

436+50 144’L





Summary of Laboratory Test Data

TEST	436+50 144L 10-12'	436+50 144L 29-31'	436+50 144L 39-41'
4 - Inch Sieve	100	100	100
No. 4 Sieve	30	74	48
No. 200 Sieve	14.9	28.1	19.2
Max Liquid Limit	28	33	32
Max Plastic Index	13	16	18
USCS	GC	SC w/G	GC
Moisture Cont.	7.3	7.9	3.8

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436+50 144'L

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

436+50 144'L

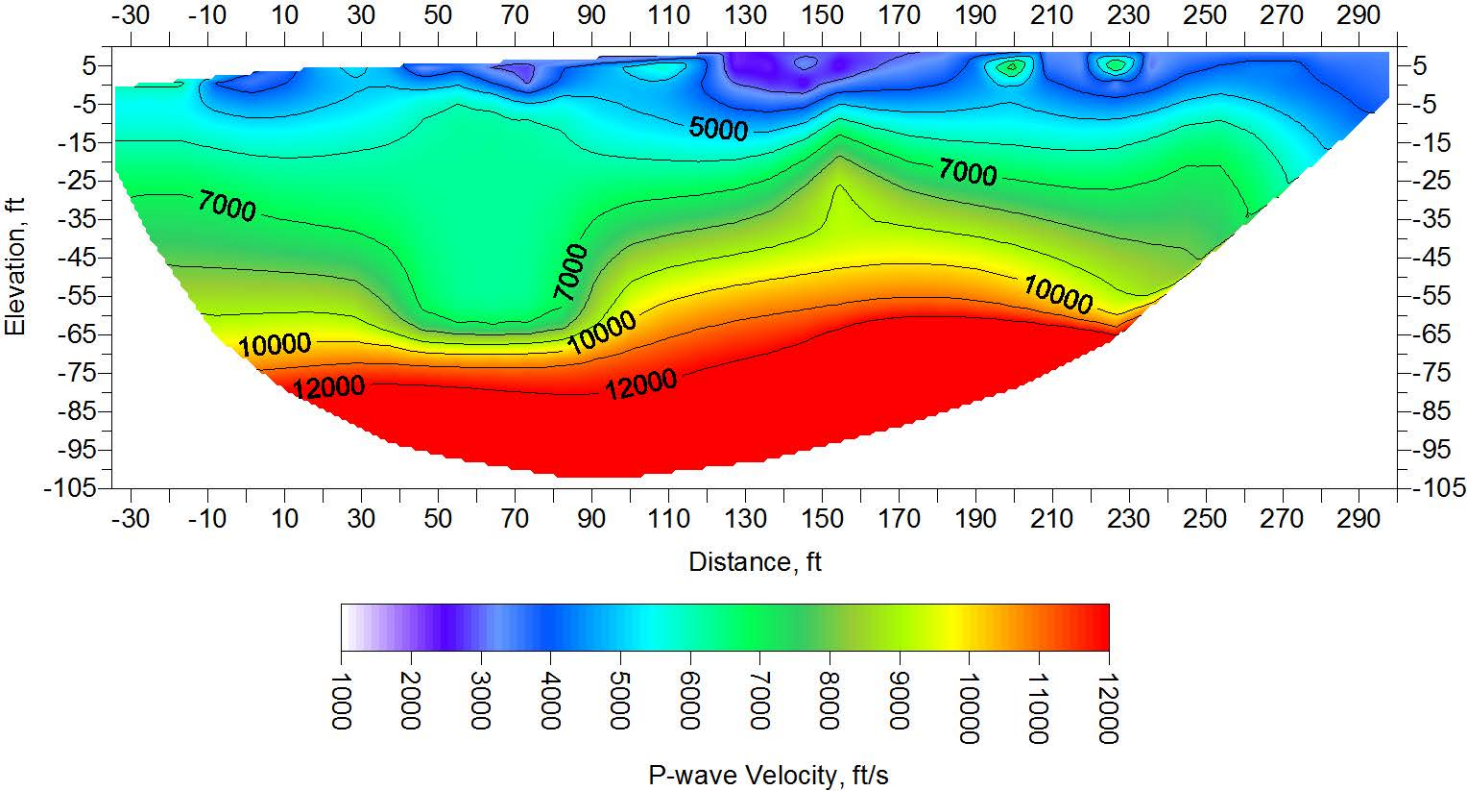
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

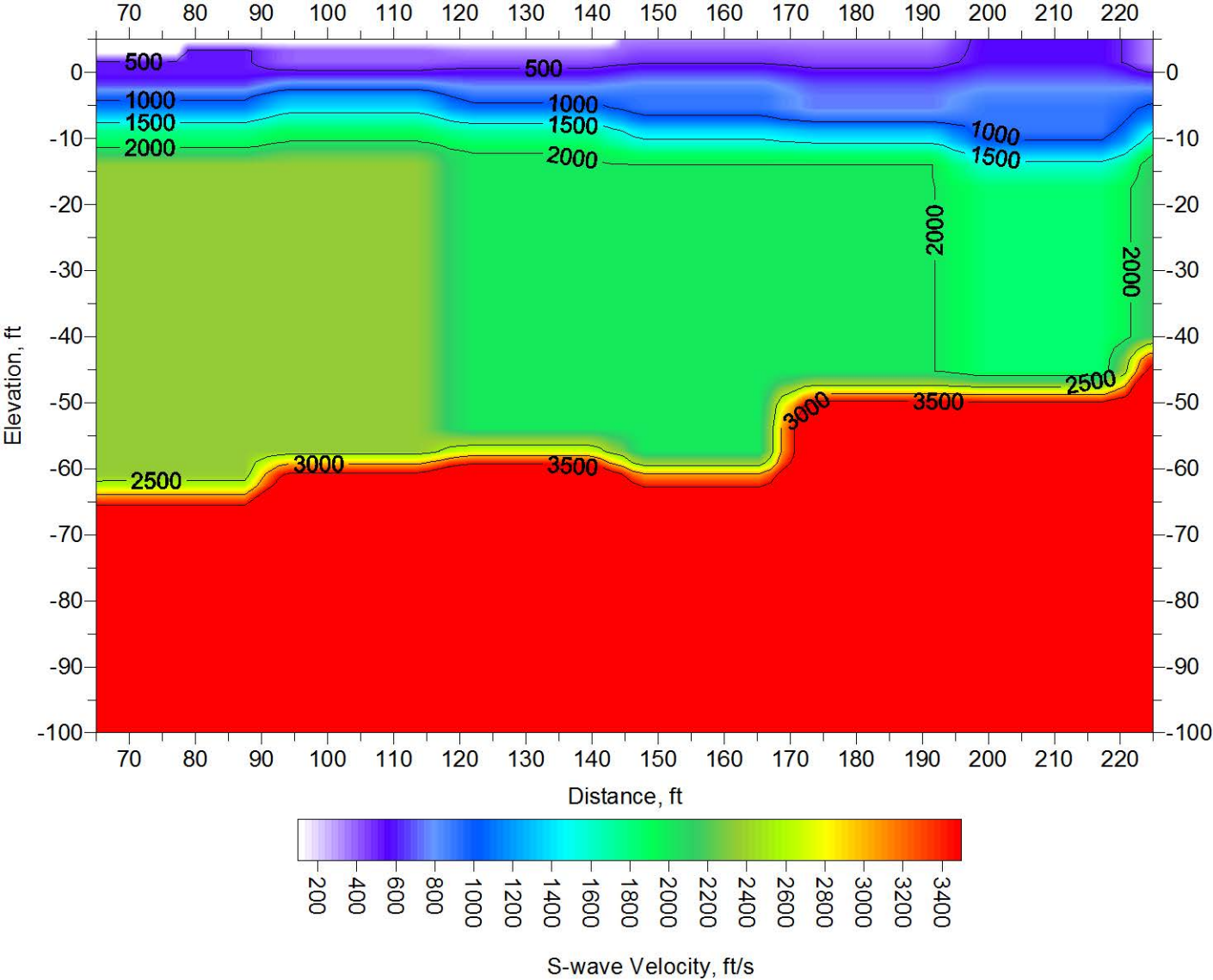
BORING LOCATION 436+50 144'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5465 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Diorite - Medium Grained		MH	MS	M	M	25	165	500	2000					
										174							
10				GB A						153			7.3	28	15	13	13.3
										140	1000	3000					
										170	1500	4000					
												5000					
20										196							
									50								
										169	2000	6000					
										135		7000					
30				GB B									7.9	33	17	16	28.1
			Strong brown				I			149		8000					
										136							
40				GB C	MH	MS	S		25				3.8	32	14	18	19.2
			Greenish gray							140							
										140							
50																	
					VH	VS			50			9000					
60												10000					
											2500						
70											3500	11000					

Bottom of Borehole at 75.0 Feet.

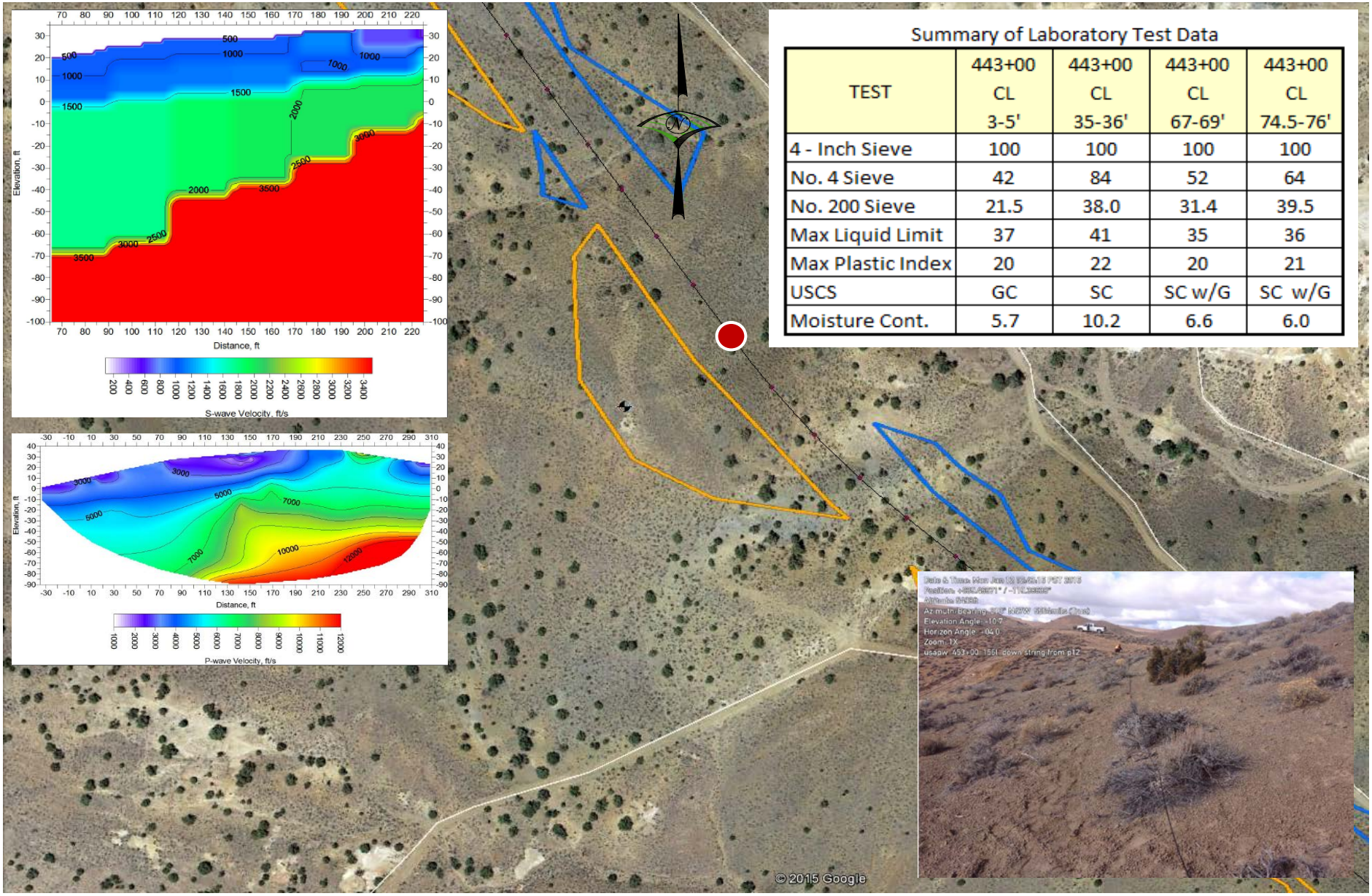

-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290
5 -5 -15 -25 -35 -45 -55 -65 -75 -85 -95 -105
Elevation, ft
5000
7000
7000
7000
10000
10000
10000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

443+00 CENTERLINE

Summary of Laboratory Test Data

TEST	443+00 CL 3-5'	443+00 CL 35-36'	443+00 CL 67-69'	443+00 CL 74.5-76'
4 - Inch Sieve	100	100	100	100
No. 4 Sieve	42	84	52	64
No. 200 Sieve	21.5	38.0	31.4	39.5
Max Liquid Limit	37	41	35	36
Max Plastic Index	20	22	20	21
USCS	GC	SC	SC w/G	SC w/G
Moisture Cont.	5.7	10.2	6.6	6.0



WOOD RODGERS
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Phone 775.823.4068 Fax 775.823.4066

443+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

443+00 CL

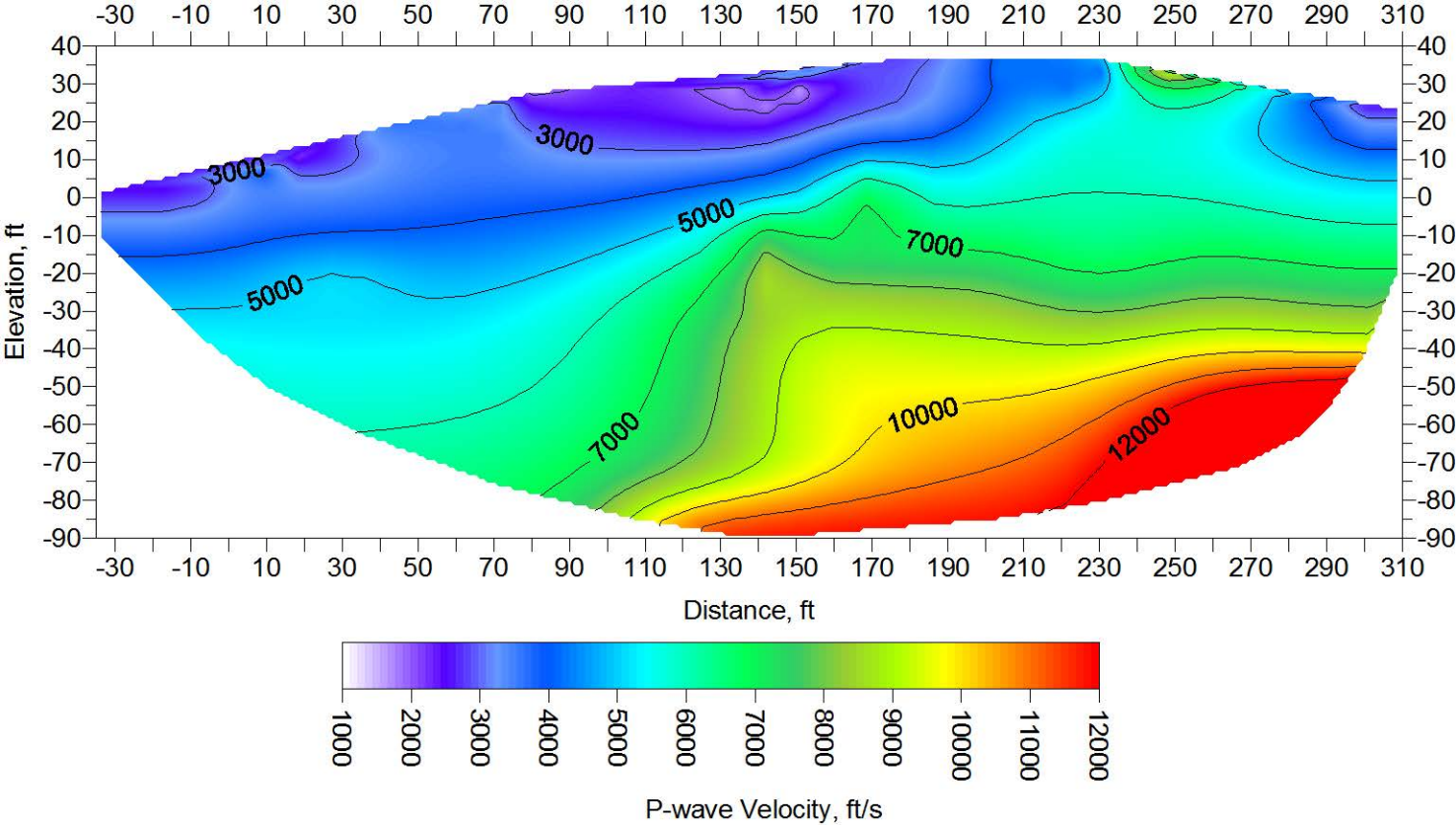
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

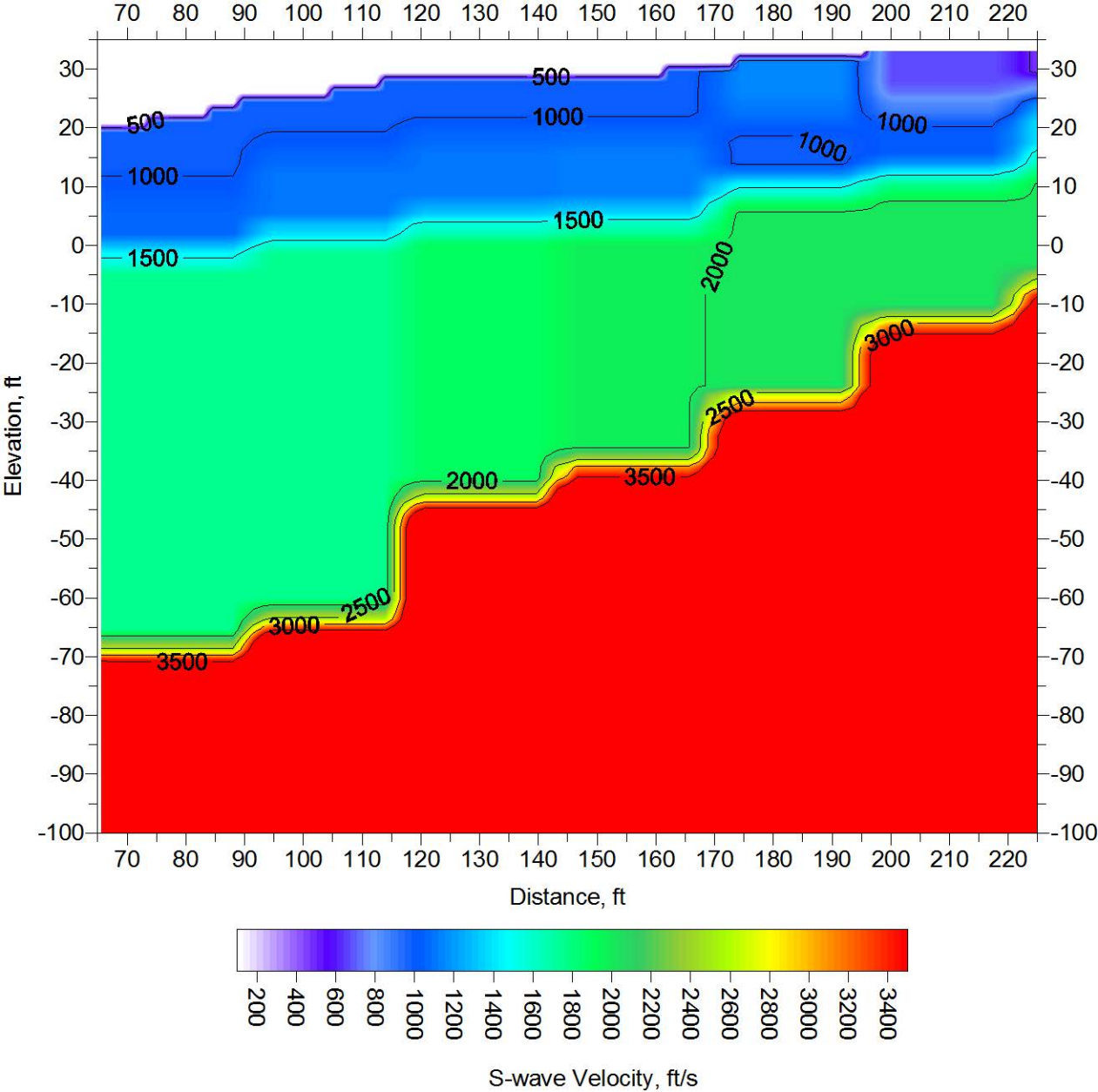
BORING LOCATION 443+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED _____ **COMPLETED** _____
GROUND ELEVATION 5532 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

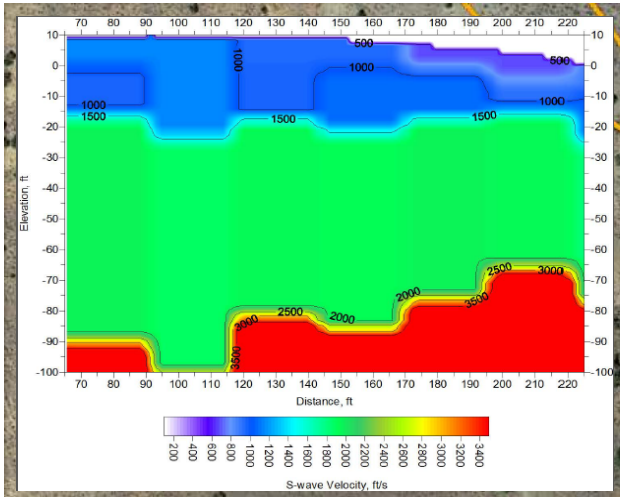
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Fine Grained, gray, pitted		MH	W	M	I	25		500						
				GB A						151		3000	5.7	37	17	20	21.5
										136	1000						
10										123		2000					
												2000					
20											1500	3000					
										129		4000					
30					MS	W	D	C		167							
												5000					
				GB B						195			10.2	41	19	22	38.0
40												6000					
					MH	MS	M	C	50	143		7000					
50										176	2000						
			Drilling becomes harder		H	S	M			150	3500	8000					
60										185							
70				GB C	H	S	S						6.6	35	15	20	31.4
				GB D	VH	VS	S	C				9000	6.0	36	15	21	43.1

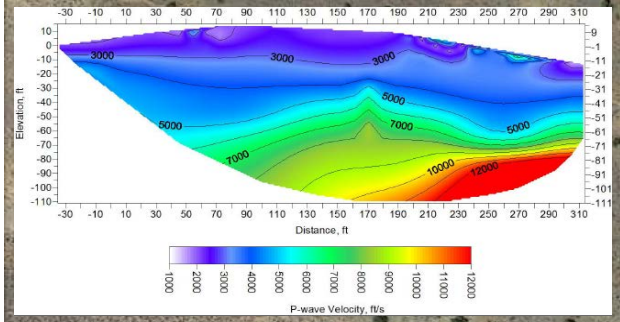
Bottom of Borehole at 76.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90
Elevation, ft
3000
3000
5000
5000
7000
7000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

443+00 194’L





Summary of Laboratory Test Data

TEST	443+00 195L 11.5-13'	443+00 195L 32-33'	443+00 195L 69-71'
4 - Inch Sieve	100	100	100
No. 4 Sieve	54	42	63
No. 200 Sieve	22.1	16.5	23.2
Max Liquid Limit	29	36	40
Max Plastic Index	15	21	23
USCS	SC w/G	GC	SC w/G
Moisture Cont.	2.6	4.5	7.1

WOOD RODGERS
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443+00 194' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

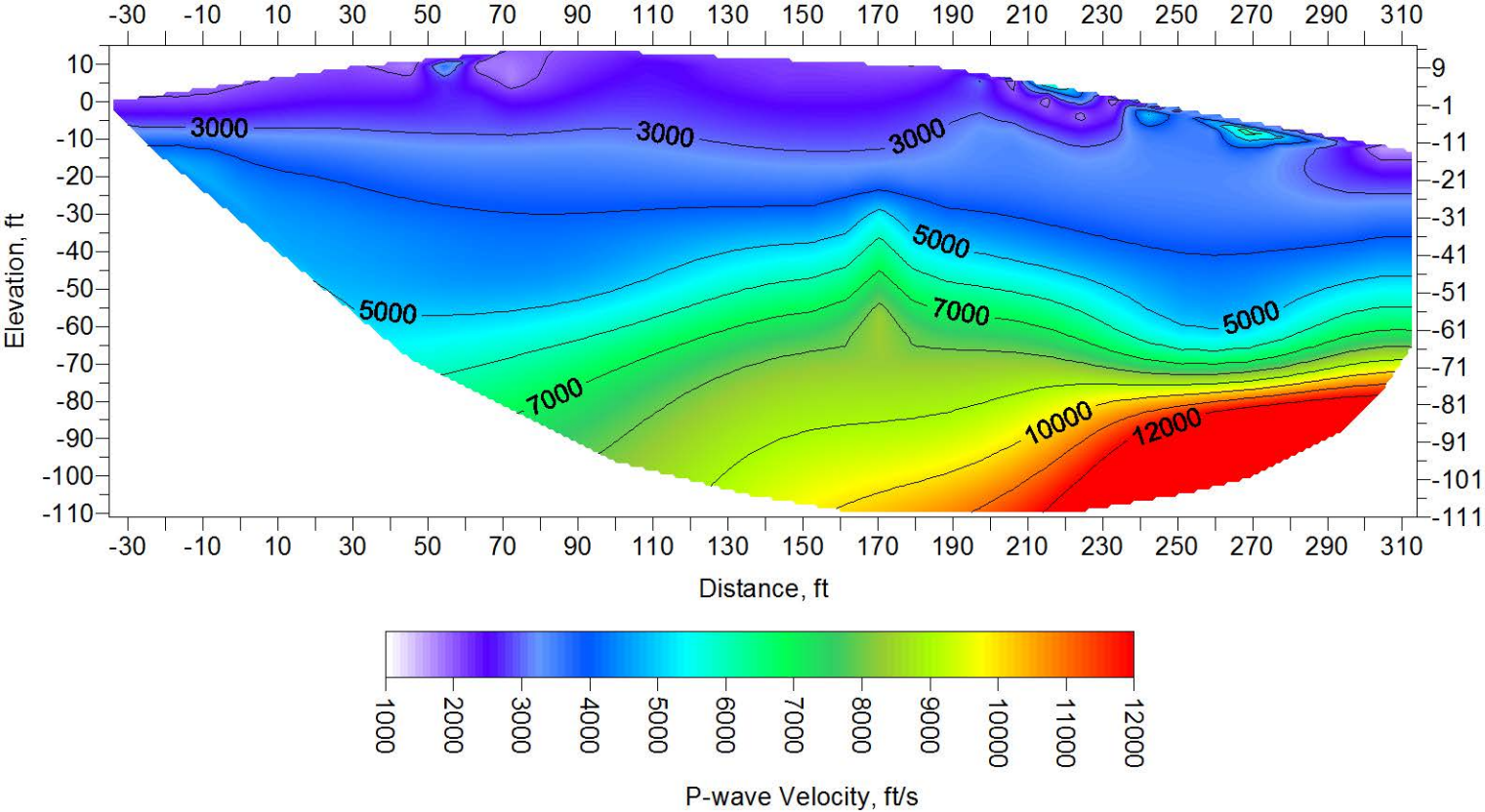
443+00 194'L

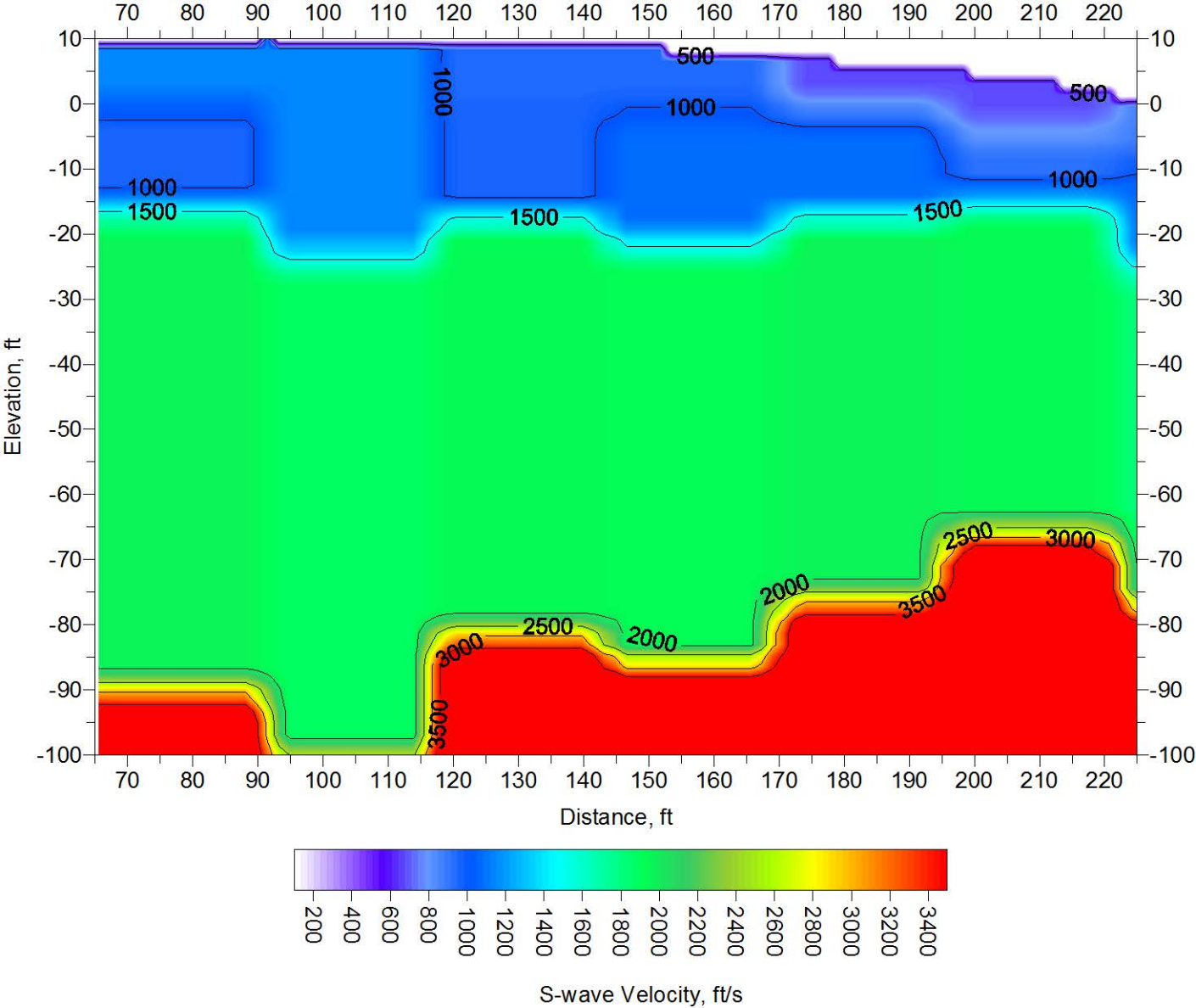
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 443+00 194'L

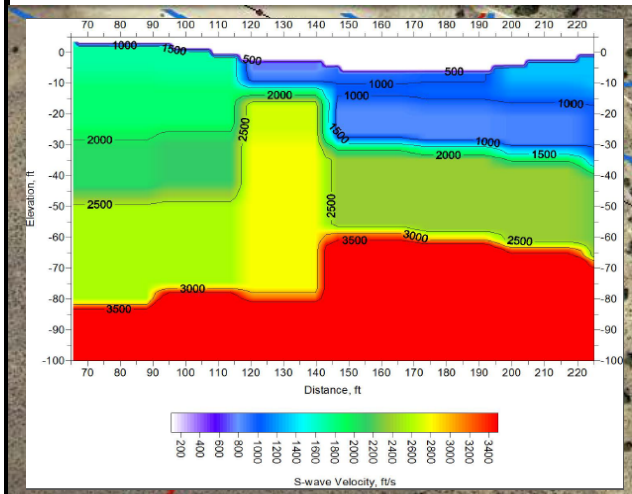
CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/20/15 **COMPLETED** 1/20/15
GROUND ELEVATION 5496 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

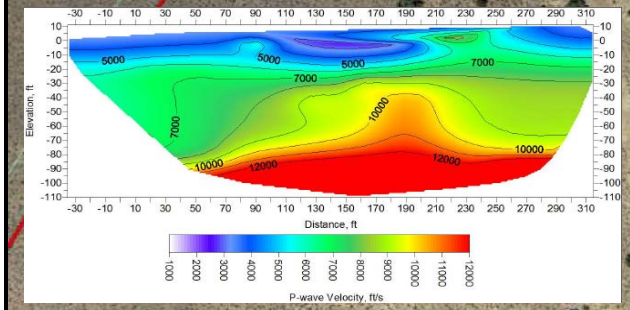
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, gray, pitted		H	VS	M	M	25	151	500	3000					
										136	1000	2000					
10				GB A	VH					123		3000	2.6	29	14	15	25.1
			Drilling slows								1500						
20										134		4000					
30				GB B					50	167		5000	4.5	36	15	21	16.5
40										195		6000					
										143							
										174		7000					
50											2000	8000					
60										150	3500						
					S	W	I	VI		185							
70				GB C									7.1	40	17	23	23.2
			Bottom of Borehole at 76.0 Feet.									9000					


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
9 -1 -11 -21 -31 -41 -51 -61 -71 -81 -91 -101 -111
Elevation, ft
3000
3000
3000
5000
5000
7000
7000
5000
10000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
500
1000
1500
2000
2500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

450+00 122’L





Summary of Laboratory Test Data

TEST	450+00 122L 5-7'	450+00 122L 40-42'	450+00 122L 63-65'
4 - Inch Sieve	100	100	100
No. 4 Sieve	84	38	52
No. 200 Sieve	19.6	17.7	25.9
Max Liquid Limit	27	36	35
Max Plastic Index	7	19	19
USCS	SC-SM	GC	SC w/G
Moisture Cont.	7.8	4.6	5.1

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

450+00 122' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

450+00 122'L

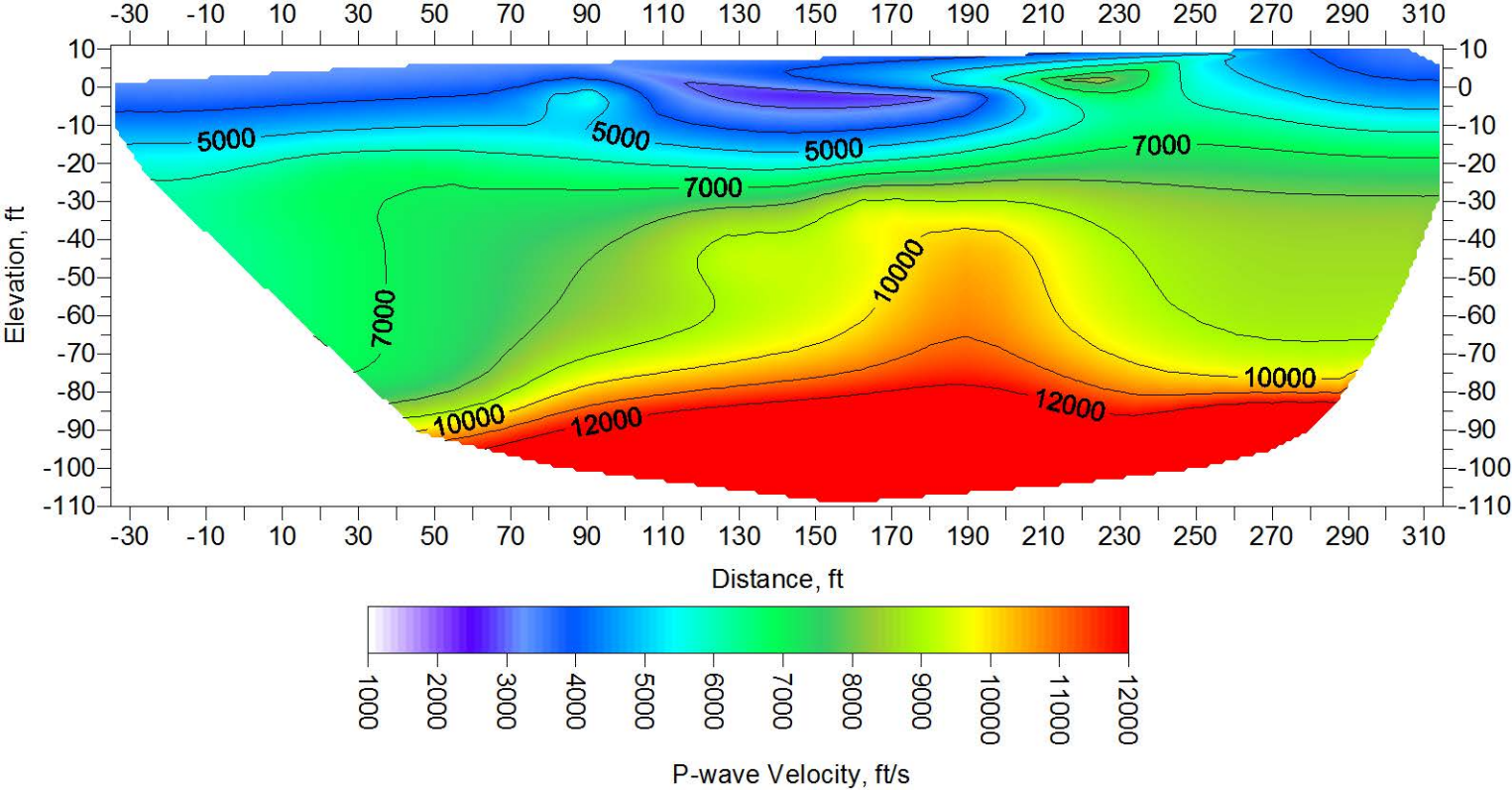
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

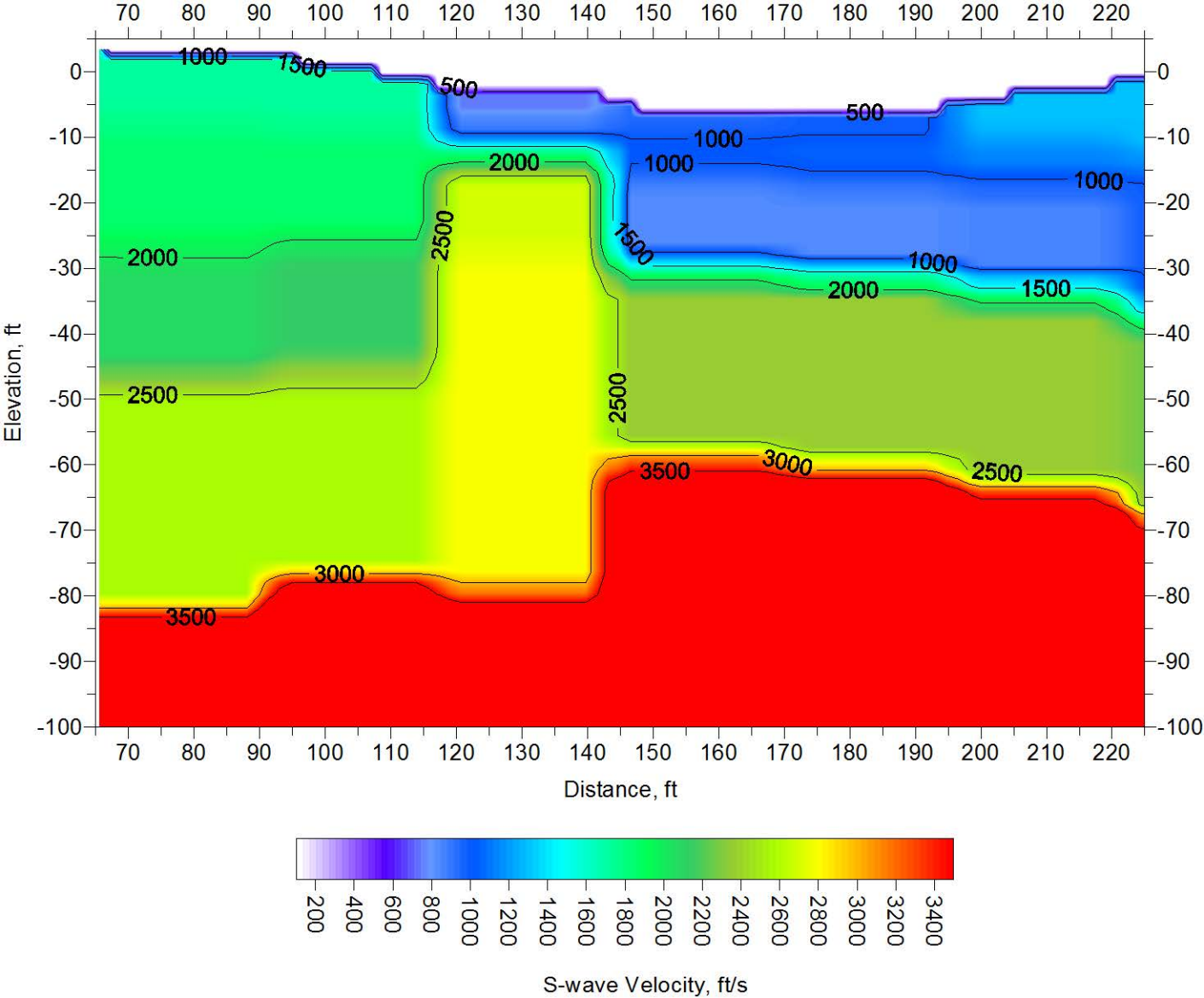
BORING LOCATION 450+00 122'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/16/15 **COMPLETED** 1/16/15
GROUND ELEVATION 5516 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

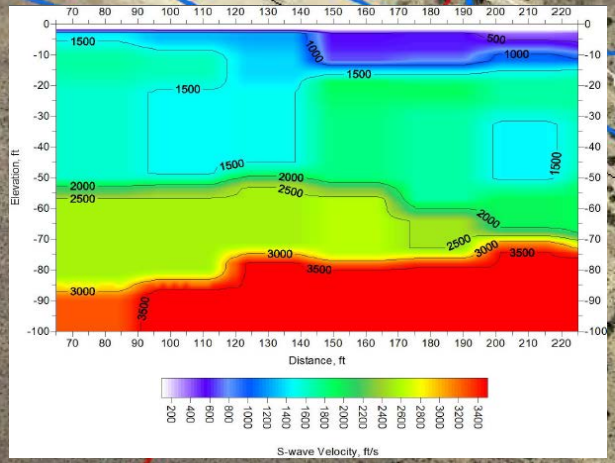
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray, Regolith, Drills like a soil		MS	W	M	I			500	4000					
				GB A					25	117	1000		7.8	27	20	7	19.6
10											1000	3000					
										166							
					MH	MS				146							
20										167		4000					
											1500						
					S			I		147	2000	5000					
30																	
			Becomes wet							155		6000					
												7000					
					MS	MS		M	50	156		8000					
40																	
				GB B									4.6	36	17	19	17.7
										172		9000					
50																	
										145	2500						
											3500						
										157							
60																	
				GB C									5.1	35	16	19	25.9
					H	MS		M	50	155							
70										130							
												1000					
										169							

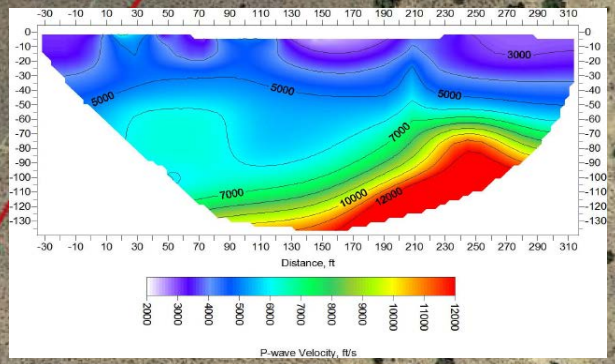
Bottom of Borehole at 75.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110
Elevation, ft
5000
5000
5000
7000
7000
7000
10000
10000
10000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
Distance, ft
1000
1500
500
1000
500
1000
1000
2000
2500
1500
1000
2000
1500
2000
2500
2500
3500
3000
2500
3000
3500
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

453+00 156’L





Summary of Laboratory Test Data

TEST	453+00 156L 10-12'	453+00 156L 23-26'	453+00 156L 46-48'
4 - Inch Sieve	100	100	100
No. 4 Sieve	75	41	39
No. 200 Sieve	41.4	22	25.1
Max Liquid Limit	44	43	39
Max Plastic Index	23	21	23
USCS	SC w/G	GC	GC
Moisture Cont.	11.1	8.8	4.6

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

453+00 156' Left

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

453+00 156'L

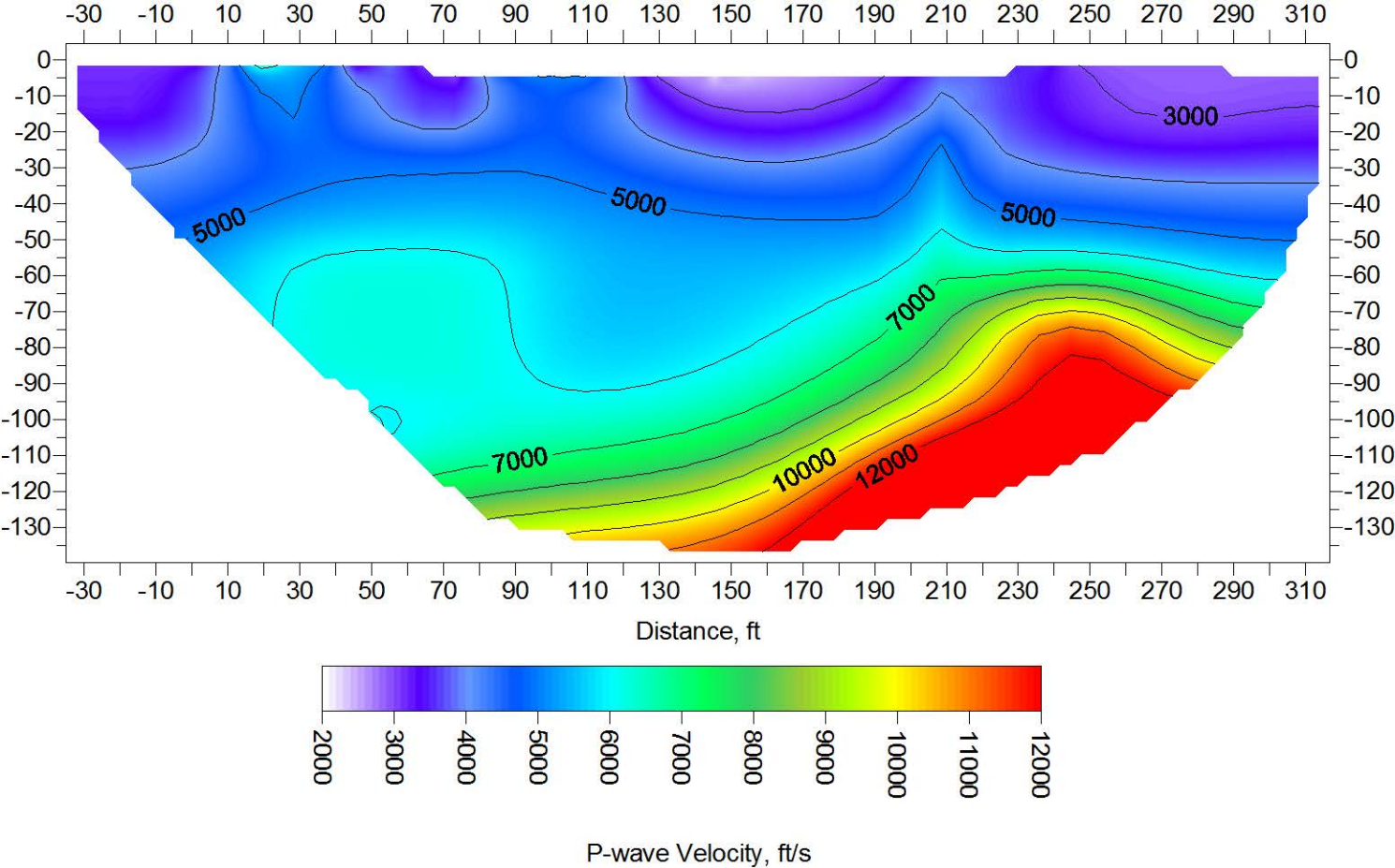
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

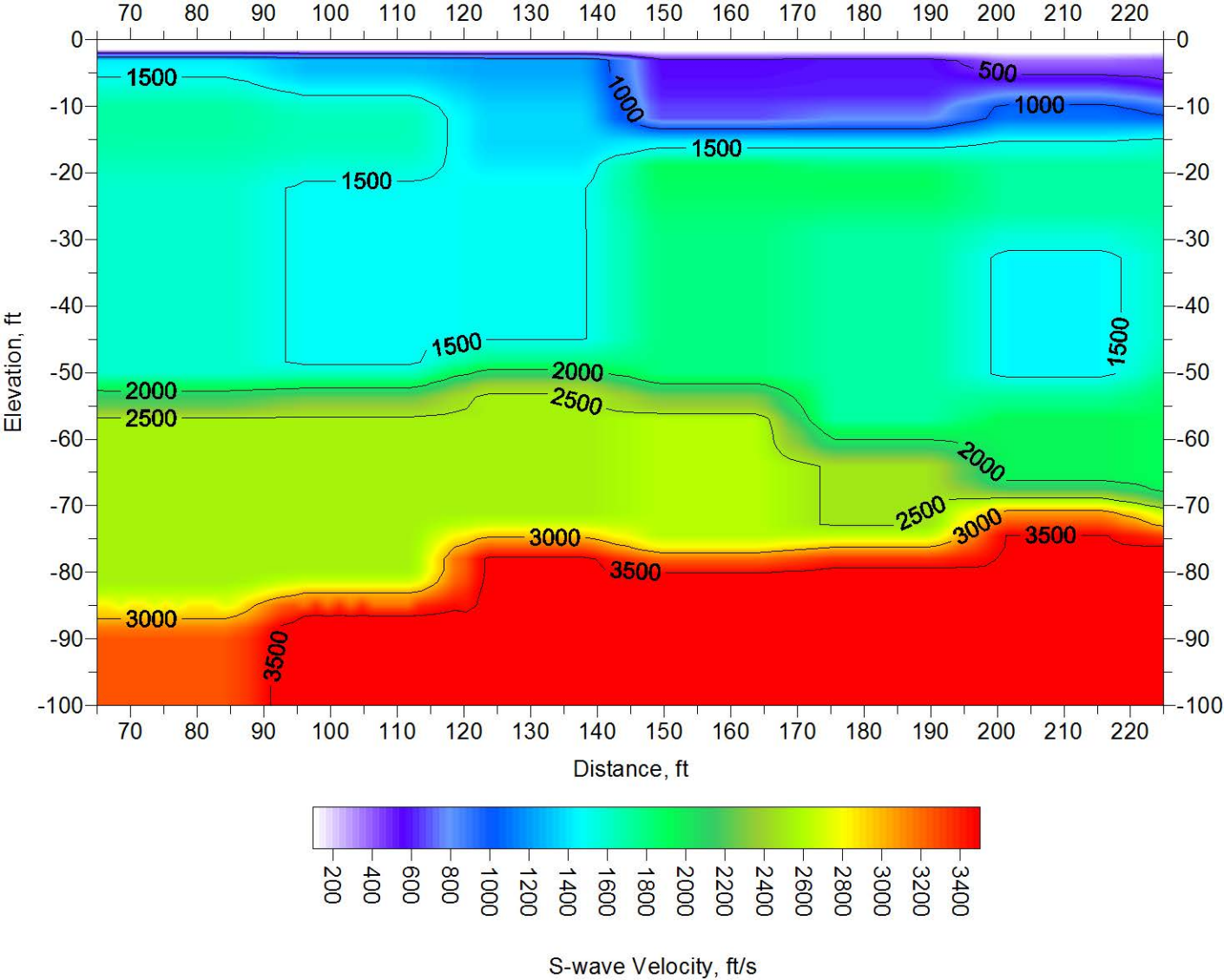
BORING LOCATION 453+00 156'L

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/15/15 **COMPLETED** 1/16/15
GROUND ELEVATION 5566 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

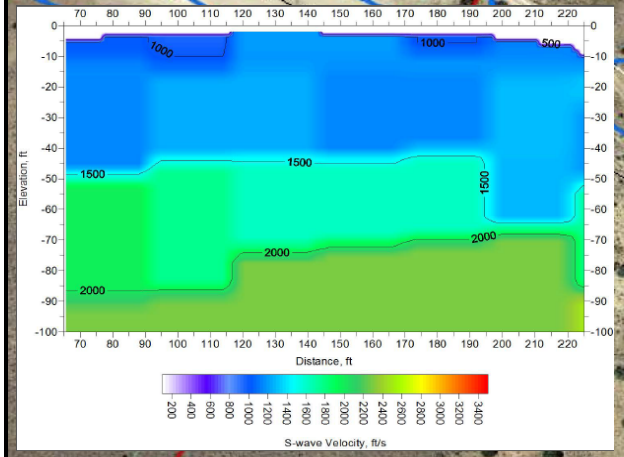
DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray, pitted		MH	W	M	I	25	153	500	2000					
10				GB A				I		133	1000	3000	11.1	44	21	23	41.4
										122	1500						
20										145							
												4000					
				GB B									8.8	43	22	21	23.1
30									25	133							
										129							
40					H	MS	S	C		151		5000					
				GB C						134			4.6	39	16	23	33.7
50					S	W	M	C			2000						
									50	191							

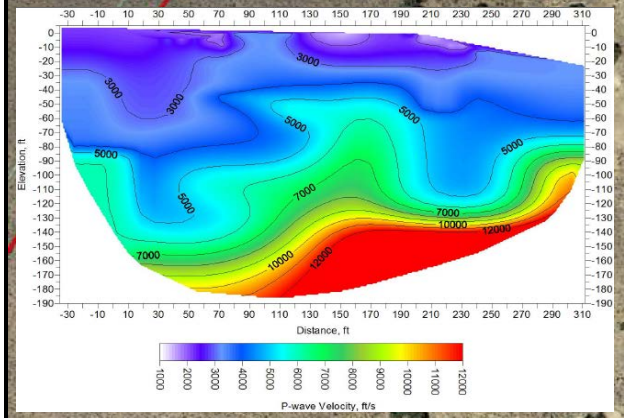
Bottom of Borehole at 55.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130
3000
5000
5000
5000
7000
7000
10000
12000
Distance, ft
2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1500
1000
500
1000
1500
1500
1500
1500
2000
2500
2000
2500
2000
2500
3000
3500
3000
3500
3000
3500
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

454+00 CENTERLINE





Summary of Laboratory Test Data

TEST	454+00 CL 2-4'	454+00 CL 28.5-29'	454+00 CL 50-52'
4 - Inch Sieve	100	100	100
No. 4 Sieve	43	48	49
No. 200 Sieve	16.1	21.3	24.2
Max Liquid Limit	35	39	38
Max Plastic Index	18	20	20
USCS	GC	GC	GC
Moisture Cont.	4.1	7.8	8.1

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

454+00 Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

454+00 CL

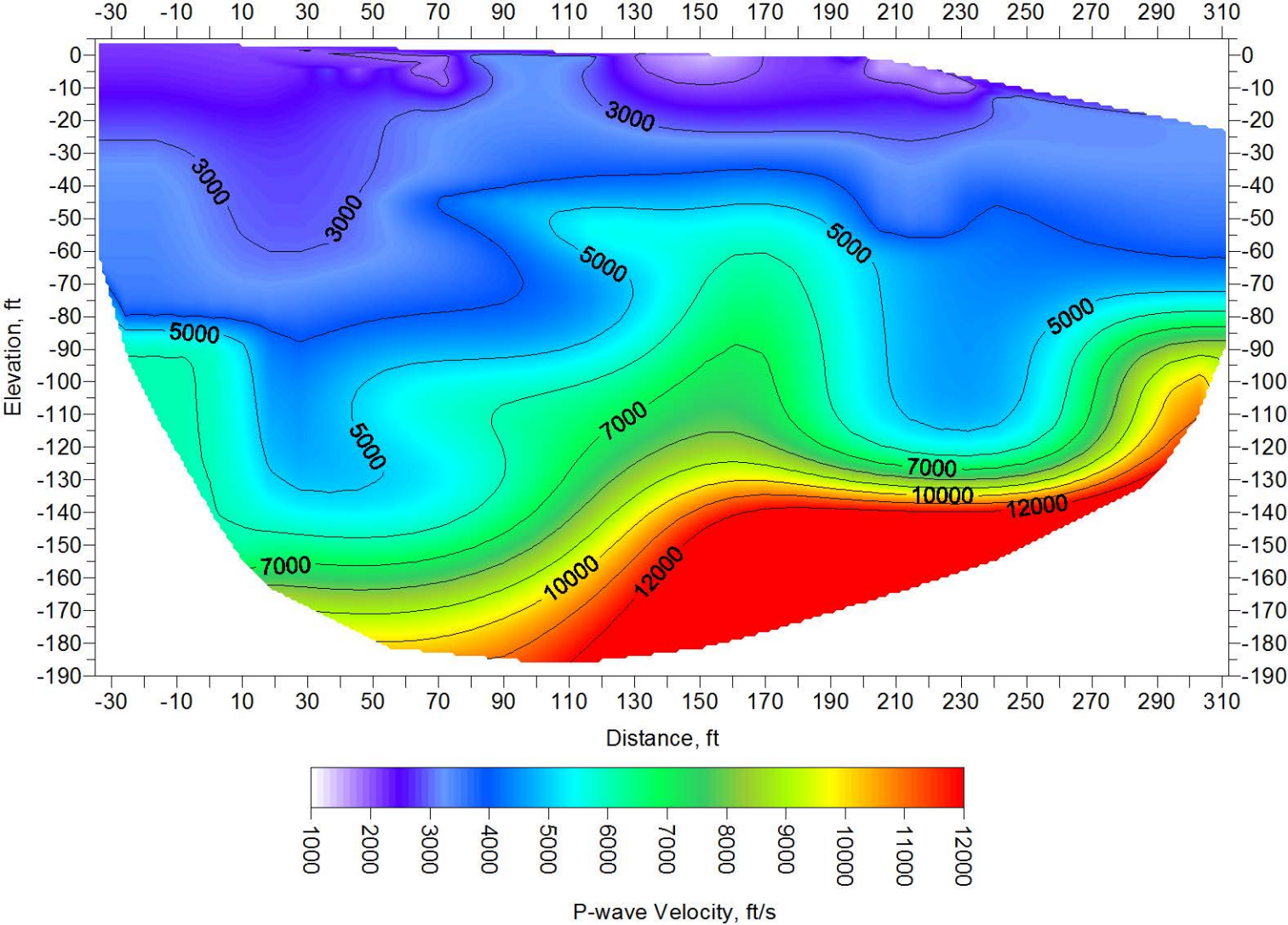
Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

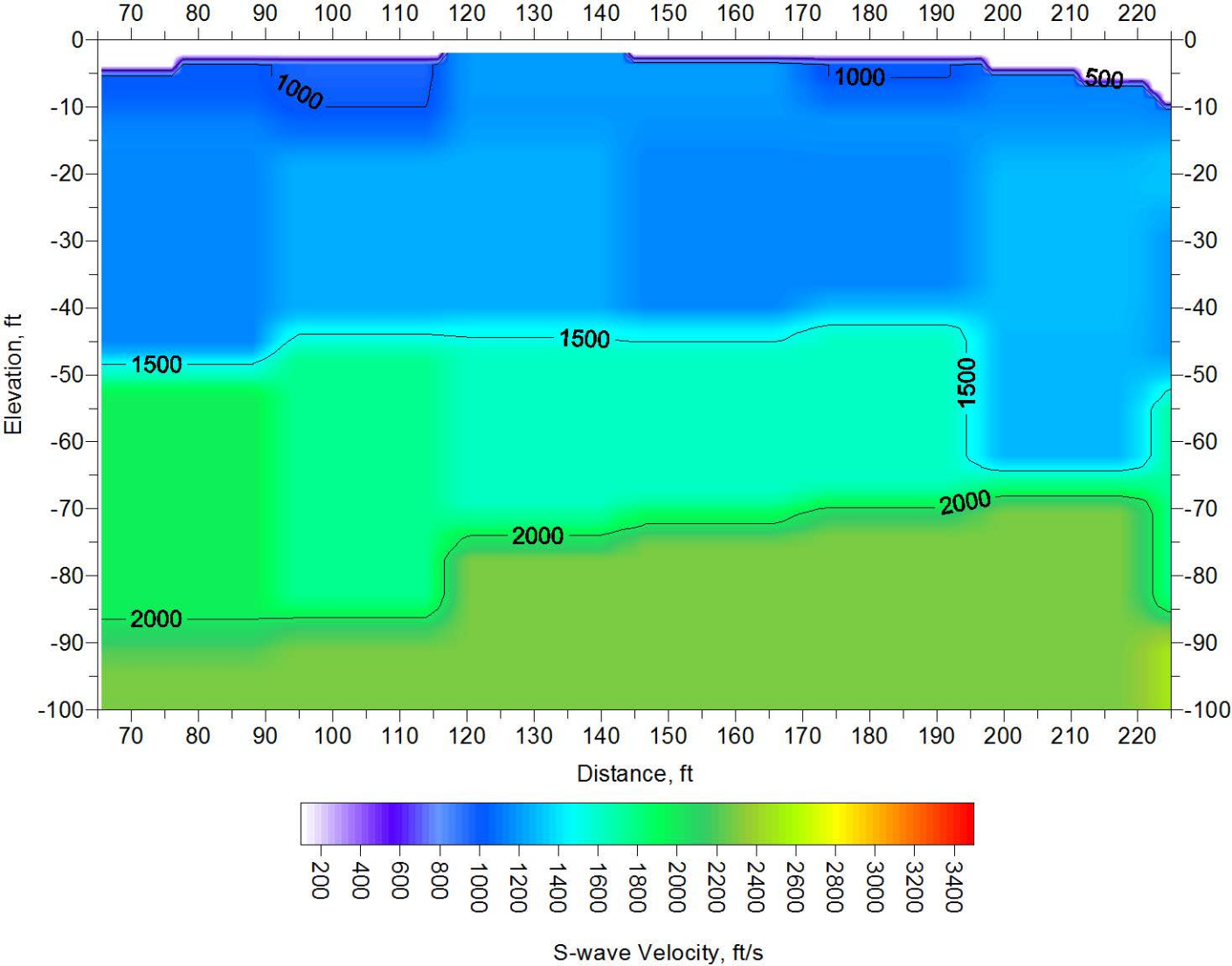
BORING LOCATION 454+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 1/14/15 **COMPLETED** 1/14/15
GROUND ELEVATION 5514 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Medium Grained, dark gray		MS	W	I	I			1000	1000					
				GB A						125			4.1	35	17	18	16.1
10									25			2000					
										155							
					MS	W	D	C									
20																	
										147		3000					
										142							
30				GB B									7.8	39	19	20	21.3
									25	151							
			Rock dills to chips		MH	MS	M	I		103		4000					
40																	
										133		4500					
							D										
50																	
				GB C	MH	MS	M	C					8.1	38	18	20	26.0
									25								
60																	
										164							
						W											
70																	
						F						6000					
											1500						

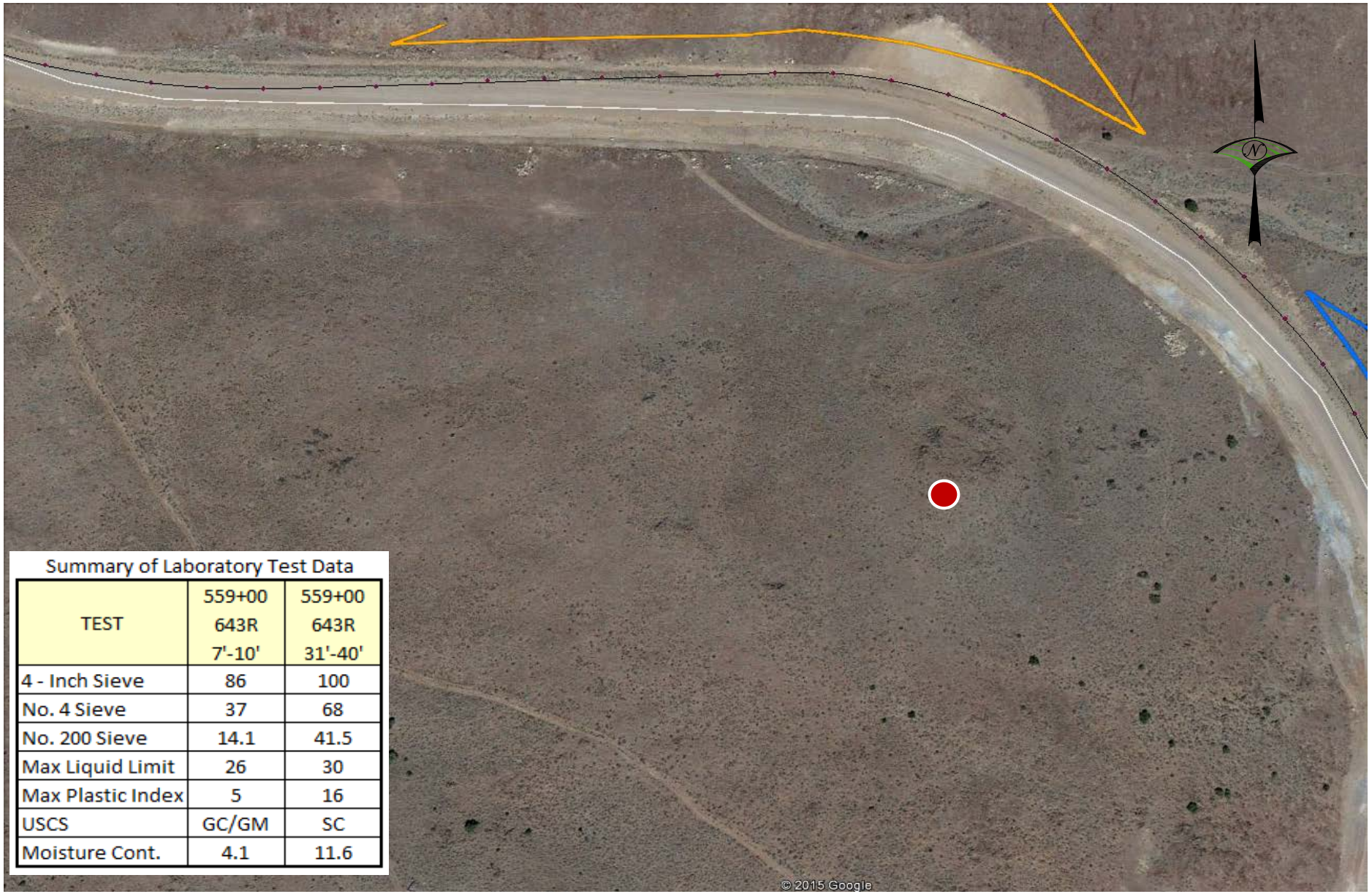
Bottom of Borehole at 75.0 Feet.


-30 -10 10 30 50 70 90 110 130 150 170 190 210 230 250 270 290 310
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190
Elevation, ft
3000
3000
3000
5000
5000
5000
5000
5000
7000
7000
7000
10000
10000
12000
12000
Distance, ft
1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 11000 12000
P-wave Velocity, ft/s


70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100
Elevation, ft
1000
1000
500
1500
1500
1500
2000
2000
2000
Distance, ft
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
S-wave Velocity, ft/s

559+00 PROXIMATE TO

NEW CENTERLINE



Summary of Laboratory Test Data

TEST	559+00 643R 7'-10'	559+00 643R 31'-40'
4 - Inch Sieve	86	100
No. 4 Sieve	37	68
No. 200 Sieve	14.1	41.5
Max Liquid Limit	26	30
Max Plastic Index	5	16
USCS	GC/GM	SC
Moisture Cont.	4.1	11.6

WOOD RODGERS
5440 Reno Corporate Drive, Reno, NV 89511
Phone 775.823.4068 Fax 775.823.4066

559+00 Proximate to New Centerline

Geotechnical Data Report

USA Parkway

Project No.: 8480.001
Date: 3.27.15

559+00 CL

Wood Rodgers, Inc.
5440 Reno Corporate Drive
Reno, NV 89511
Telephone: 775-823-4068
Fax: 775-823-4066

BORING LOCATION 559+00 CL

CLIENT Jacobs - FBO Nevada Department of Transpotation
PROJECT NAME USA Parkway
PROJECT NUMBER 8480.001
PROJECT LOCATION Storey/Lyon Counties
DATE STARTED 2/27/15 **COMPLETED** 2/27/15
GROUND ELEVATION 5492 ft **HOLE SIZE** 6 inches
DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING METHOD Sonic - SPYDER
AT TIME OF DRILLING No Free Water Encountered
LOGGED BY OJ Juneau **CHECKED BY** Mickey Smith
AT END OF DRILLING No Free Water Encountered
NOTES: See Log
AFTER DRILLING No Free Water Encountered

DEPTH (ft)	GRAPHIC LOG	DRILL INTERVAL	MATERIAL DESCRIPTION	TEST INTERVAL	HARDNESS	STRENGTH	WEATHERING	FRACTURING	GSI	BULK WET UNIT WEIGHT	S-WAVE VELOCITY	P-WAVE VELOCITY	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			Andesite - Fine Grained, pink, pitted, Residual Soil to 4 Feet		MH	MS	M	C	36	125							
										179							
10				GB A						178			4.1	26	21	5	19.0
										132							
			Altered clay zone		S	F	I	I									
20					MH	MS	M	M	50								
30																	
									25								
				GB B									11.6	30	14	16	46.2
40			Altered zone				D	I		102							

Bottom of Borehole at 40.0 Feet.