



# MEMORANDUM

## Missouri Department of Transportation Construction - Materials Central Laboratory

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**TO:** Aaron Chambers-co/gs

**CC/ATT:** Jeremy W. Hopper-sw/do  
Michael C. Middleton-sw/mt  
Gary S. Goessmann-sw/cm

**FROM:** Thomas W. Fennessey  
Geotechnical Engineer

**DATE:** January 15, 2016

**SUBJECT:** Materials  
Geotechnical Section  
Foundation Investigation for  
Springfield Maintenance Equipment Shed  
Job No. R35G-FI2366  
Greene County

General – It is understood that a single-story maintenance equipment shed is proposed to be constructed on the MoDOT SW District Maintenance Lot in Springfield, MO. While no grading information has been provided, it is anticipated that the proposed building will be constructed with minimal cut and fill. No foundations loads or additional information regarding this proposed building has been provided at this time.

Four sample borings and seven auger borings were drilled at the locations indicated on Figure 1 - Boring Location Aerial. A subsurface profile of the borings along the south side of the proposed building is presented as Figure 2. A subsurface profile of the borings along the north side of the proposed building is presented as Figure 3. Also attached are individual boring logs for each of the locations drilled.

Recommendations – The following recommendations are made based upon information provided regarding the proposed building and conditions observed during the foundation investigation.

- Remove any asphalt pavement, concrete pavement, foundations and any other existing surface or subsurface features from the proposed construction area. After making any grading excavation and before any fill placement, proof roll all cut and fill areas with a fully loaded tandem axle dump truck. Any areas exhibiting pumping or rutting should be undercut and backfilled with compacted granular fill. Prior to placement of any new fill, scarify the surface of any areas to be filled.
- It is recommended that any new fill material be lean clay or better. However, use of granular fill material is preferred if feasible. Fill should be compacted to 95% of standard Proctor maximum dry density. Non-granular fill material should be compacted at or within 3% of optimum moisture content. All fill and cut areas should be constructed to slope and drain away from the proposed building.
- An allowable bearing pressure of 2500 psf or less may be used for the design of shallow foundations constructed on or in properly compacted fill or natural soils at this site. Shallow foundations shall be embedded a minimum of 20 inches below finished grade for frost protection. Individual spread footings shall have a minimum width of 2.5 feet while strip footings shall have a minimum width of 1.5 feet.

cs  
s:\projects\shared\_documents\fi2366\_greene\_65\_main\_shed\r35g-fi2366\_itr.doc  
Attachments

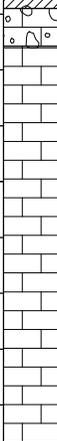
**Missouri Department of Transportation  
Construction and Materials**

**BORING NO. O-15-91**  
Page 1 of 1

Job No.: R35G-FI2366  
 Design: FI2366  
 Bent: N  
 Station: 2+20N  
 Offset: \_\_\_\_\_  
 Elevation: 1385.6  
 Requested Station: \_\_\_\_\_  
 Requested Offset: \_\_\_\_\_  
 Requested Elevation: \_\_\_\_\_  
 Drill No.: G-9462

County: Greene  
 Skew: \_\_\_\_\_  
 Logged By: Ricardo Todd  
 Northing: 513453.75  
 Easting: 1427669.59  
 Requested Northing: \_\_\_\_\_  
 Requested Easting: \_\_\_\_\_  
 Equipment: Acker Soil XLS ,Split-Spoon Sampler  
 Location Note: NW Corner  
 Hammer Efficiency: 69%

Route: 65  
 Location: SW District Maintenance Lot  
 Operator: Ray Murray  
 Date of Work: 12/21/15-12/21/15  
 Depth to Water: \_\_\_\_\_  
 Depth Hole Open: \_\_\_\_\_  
 Time Change: \_\_\_\_\_  
 Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0									
		0.0-4.2' Gray, GRAVEL scattered cobbles, very dense, moist, coarse grained	1385						
				X	72	6-12-20 (33)		PP --- tsf	
5		4.2-6.9' Red mottled, LEAN CLAY scattered cobbles, very stiff, moist	1380	X	72	7-16-7 (23)		PP --- tsf	
		6.9-7.6' Limestone, highly weathered							
		7.6-17.6' Cherty Limestone, gray, medium bedded, medium hard, slightly weathered, medium grained			100	50/0.1'		PP --- tsf	
10			1375						
15			1370						
		Bottom of borehole at 17.6 feet.							

LETTER BOREHOLE - MODOT 20150728.GDT - 1/14/16 14:32 - J:\SG\GINT\PROJECT FILES\R35G-FI2366.GPJ

N<sub>60</sub> = (Em/60)Nm    N<sub>60</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value  
 (1) = Assumed, (2) = Actual

**Coordinate System:** Modified U.S. State Plane 1983    **Coordinate Zone:** Missouri Central    **Coordinate Proj. Factor:** 1.0000772  
**Coordinate Datum:** NAD 83 (CONUS)    **Coordinate Units:** U.S. Survey Feet

\* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

**Missouri Department of Transportation  
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**BORING NO. O-15-92**  
Page 1 of 1

Job No.: R35G-FI2366  
 Design: FI2366  
 Bent: S  
 Station: 2+20S  
 Offset: \_\_\_\_\_  
 Elevation: 1387.1  
 Requested Station: \_\_\_\_\_  
 Requested Offset: \_\_\_\_\_  
 Requested Elevation: \_\_\_\_\_  
 Drill No.: G-9462

County: Greene  
 Skew: \_\_\_\_\_  
 Logged By: Ricardo Todd  
 Northing: 513393.83  
 Easting: 1427666.58  
 Requested Northing: \_\_\_\_\_  
 Requested Easting: \_\_\_\_\_  
 Equipment: Acker Soil XLS ,Split-Spoon Sampler  
 Location Note: SW Corner  
 Hammer Efficiency: 69%

Route: 65  
 Location: SW District Maintenance Lot  
 Operator: Ray Murray  
 Date of Work: 12/22/15-12/22/15  
 Depth to Water: \_\_\_\_\_  
 Depth Hole Open: \_\_\_\_\_  
 Time Change: \_\_\_\_\_  
 Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0									
		0.0-2.6' Gray, GRAVELLY LEAN CLAY scattered cobbles, stiff, moist	1385						
		2.6-7.1' Red mottled, GRAVELLY LEAN CLAY scattered cobbles, stiff to very stiff, moist		X	67	8-19-22 (42)		PP --- tsf	
5				X	67	5-8-3 (11)		PP = 1.50 tsf	
		7.1-7.4' Limestone, highly weathered	1380						
		7.4-12.4' Cherty Limestone, gray, medium bedded, medium hard, slightly weathered, medium grained							
10			1375						
		Bottom of borehole at 12.4 feet.							

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 (1) = Assumed, (2) = Actual

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**BORING NO. O-15-93**  
Page 1 of 1

Job No.: R35G-FI2366  
 Design: FI2366  
 Bent: S  
 Station: 0+00S  
 Offset: \_\_\_\_\_  
 Elevation: 1389.4  
 Requested Station: \_\_\_\_\_  
 Requested Offset: \_\_\_\_\_  
 Requested Elevation: \_\_\_\_\_  
 Drill No.: G-9462

County: Greene  
 Skew: \_\_\_\_\_  
 Logged By: Ricardo Todd  
 Northing: 513382.67  
 Easting: 1427886.36  
 Requested Northing: \_\_\_\_\_  
 Requested Easting: \_\_\_\_\_  
 Equipment: Acker Soil XLS ,Split-Spoon Sampler  
 Location Note: SE Corner  
 Hammer Efficiency: 69%

Route: 65  
 Location: SW District Maintenance Lot  
 Operator: Ray Murray  
 Date of Work: 12/22/15-12/22/15  
 Depth to Water: \_\_\_\_\_  
 Depth Hole Open: \_\_\_\_\_  
 Time Change: \_\_\_\_\_  
 Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0		0.0-1.3' Gray, GRAVELLY LEAN CLAY scattered cobbles, stiff, moist							
		1.3-9.1' Red mottled, GRAVELLY LEAN CLAY scattered cobbles, very stiff, moist							
			1385	X	75	4-31-50/0.3'		PP --- tsf	
5				X	67	13-30-10 (41)		PP --- tsf	
				X	67	3-4-13 (17)		PP --- tsf	
10		9.1-9.2' Limestone, highly weathered	1380						
		9.2-14.2' Cherty Limestone, gray, medium bedded, medium hard, slightly weathered, medium grained							
		Bottom of borehole at 14.2 feet.							

LETTER BOREHOLE - MODOT 20150728.GDT - 1/14/16 14:32 - J:\SG\GINT\PROJECT FILES\R35G-FI2366.GPJ

N<sub>60</sub> = (Em/60)N<sub>m</sub> N<sub>60</sub> - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N<sub>m</sub> - Observed N-value  
 (1) = Assumed, (2) = Actual

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri Central Coordinate Proj. Factor: 1.0000772  
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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**BORING NO. O-15-94**  
Page 1 of 1

Job No.: R35G-FI2366  
 Design: FI2366  
 Bent: N  
 Station: 0+00N  
 Offset: \_\_\_\_\_  
 Elevation: 1389.7  
 Requested Station: \_\_\_\_\_  
 Requested Offset: \_\_\_\_\_  
 Requested Elevation: \_\_\_\_\_  
 Drill No.: G-9462

County: Greene  
 Skew: \_\_\_\_\_  
 Logged By: Ricardo Todd  
 Northing: 513442.53  
 Easting: 1427889.38  
 Requested Northing: \_\_\_\_\_  
 Requested Easting: \_\_\_\_\_  
 Equipment: Acker Soil XLS ,Split-Spoon Sampler  
 Location Note: NE Corner  
 Hammer Efficiency: 69%

Route: 65  
 Location: SW District Maintenance Lot  
 Operator: Ray Murray  
 Date of Work: 12/22/15-12/22/15  
 Depth to Water: \_\_\_\_\_  
 Depth Hole Open: \_\_\_\_\_  
 Time Change: \_\_\_\_\_  
 Drilling Method: Hollow Stem Auger

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N <sub>60</sub> )	Shear Data	Field Tests	Index Tests
0									
0.0-1.7'		0.0-1.7' Gray, GRAVELLY LEAN CLAY scattered cobbles, very stiff, moist							
1.7-9.1'		1.7-9.1' Red mottled, GRAVELLY LEAN CLAY scattered cobbles, very stiff, moist							
5			1385	X	67	9-5-16 (21)		PP = 2.50 tsf	
				X	67	10-8-6 (14)		PP = 2.00 tsf	
				X	67	3-2-19 (21)		PP = 1.50 tsf	
10		9.1-9.3' Limestone, highly weathered 9.3-14.3' Cherty Limestone, gray, medium bedded, medium hard, slightly weathered, medium grained	1380						
		Bottom of borehole at 14.3 feet.							

LETTER BOREHOLE - MODOT 20150728.GDT - 1/14/16 14:32 - J:\SG\GINT\PROJECT FILES\R35G-FI2366.GPJ

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 (1) = Assumed, (2) = Actual

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**Coordinate Datum:** NAD 83 (CONUS)    **Coordinate Units:** U.S. Survey Feet

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**Missouri Department of Transportation  
Construction and Materials  
Boring Data**

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>S</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>1+75S</u>	<b>Northing:</b> <u>513391.54</u>	<b>Date of Work:</b> <u>12/22/15-12/22/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427711.49</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1387.32</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-1</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-1.9' Gray, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		1.9-8.9' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		8.9-9.3' Limestone, gray, medium hard	1380
		Bottom of borehole at 9.3 feet.	

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>S</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>1+25S</u>	<b>Northing:</b> <u>513388.99</u>	<b>Date of Work:</b> <u>12/22/15-12/22/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427761.44</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1387.89</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-2</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-2.7' Gray, GRAVELLY LEAN CLAY, stiff, moist	
		2.7-8.0' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		8.0-8.4' Limestone, gray, medium hard	1380
		Bottom of borehole at 8.4 feet.	

<b>Coordinate System:</b> <u>Modified U.S. State Plane 1983</u>	<b>Coordinate Zone:</b> <u>Missouri Central</u>	<b>Coordinate Proj. Factor:</b> <u>1.0000772</u>
<b>Coordinate Datum:</b> <u>NAD 83 (CONUS)</u>	<b>Coordinate Units:</b> <u>U.S. Survey Feet</u>	

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**Missouri Department of Transportation**  
**Construction and Materials**  
**Boring Data**

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>S</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>0+75S</u>	<b>Northing:</b> <u>513386.46</u>	<b>Date of Work:</b> <u>12/22/15-12/22/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427811.45</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1388.68</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-3</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-1.5' Gray, GRAVELLY LEAN CLAY, stiff, moist	
		1.5-9.6' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
10			1380
		9.6-10.3' Limestone, medium hard	
		Bottom of borehole at 10.3 feet.	

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>N</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>0+75N</u>	<b>Northing:</b> <u>513446.4</u>	<b>Date of Work:</b> <u>12/23/15-12/23/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427814.49</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1389.51</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-4</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-0.2' ASPHALT	
		0.2-0.5' CONCRETE	
		0.5-1.3' Gray, GRAVELLY LEAN CLAY, stiff, moist	
		1.3-10.9' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
10			1380
		10.9-11.4' Limestone, medium hard	
		Bottom of borehole at 11.4 feet.	

<b>Coordinate System:</b> <u>Modified U.S. State Plane 1983</u>	<b>Coordinate Zone:</b> <u>Missouri Central</u>	<b>Coordinate Proj. Factor:</b> <u>1.0000772</u>
<b>Coordinate Datum:</b> <u>NAD 83 (CONUS)</u>	<b>Coordinate Units:</b> <u>U.S. Survey Feet</u>	

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**Missouri Department of Transportation  
Construction and Materials  
Boring Data**

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>N</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>1+25N</u>	<b>Northing:</b> <u>513448.88</u>	<b>Date of Work:</b> <u>12/23/15-12/23/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427764.53</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1386.95</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-5</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-0.5' CONCRETE	
		0.5-1.2' Gray, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		1.2-4.9' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		4.9-5.9' Limestone, medium hard	
		Bottom of borehole at 5.9 feet.	

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>N</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>1+50N</u>	<b>Northing:</b> <u>513450.19</u>	<b>Date of Work:</b> <u>12/23/15-12/23/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427739.56</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1386.76</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-6</u>	

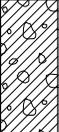
Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-1.2' Gray, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		1.2-7.2' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		7.2-7.6' Limestone, medium hard	1380
		Bottom of borehole at 7.6 feet.	

<b>Coordinate System:</b> <u>Modified U.S. State Plane 1983</u>	<b>Coordinate Zone:</b> <u>Missouri Central</u>	<b>Coordinate Proj. Factor:</b> <u>1.0000772</u>
<b>Coordinate Datum:</b> <u>NAD 83 (CONUS)</u>	<b>Coordinate Units:</b> <u>U.S. Survey Feet</u>	

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Boring Data**

<b>Job No.:</b> <u>R35G-FI2366</u>	<b>County:</b> <u>Greene</u>	<b>Route:</b> <u>65</u>
<b>Design:</b> <u>FI2366</u>	<b>Skew:</b> _____	<b>Location:</b> <u>SW District Maintenance Lot</u>
<b>Bent:</b> <u>N</u>	<b>Logged By:</b> <u>Ricardo Todd</u>	<b>Operator:</b> <u>Paul Branson</u>
<b>Station:</b> <u>1+75N</u>	<b>Northing:</b> <u>513451.44</u>	<b>Date of Work:</b> <u>12/23/15-12/23/15</u>
<b>Offset:</b> _____	<b>Easting:</b> <u>1427714.56</u>	<b>Depth to Water:</b> _____
<b>Elevation:</b> <u>1386.37</u>	<b>Requested Northing:</b> _____	<b>Depth Hole Open:</b> _____
<b>Requested Station:</b> _____	<b>Requested Easting:</b> _____	<b>Time Change:</b> _____
<b>Requested Offset:</b> _____	<b>Equipment:</b> <u>Mobile B-31 , Continuous Flight Auger</u>	
<b>Requested Elevation:</b> _____	<b>Location Note:</b> <u>Auger-7</u>	

Depth (ft)	Graphic	Description	Elevation (ft)
0			
		0.0-1.6' Gray, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
		1.6-7.4' Red mottled, GRAVELLY LEAN CLAY trace cobbles, stiff, moist	
			1380
		7.4-7.8' Limestone, medium hard	
		Bottom of borehole at 7.8 feet.	

**Coordinate System:** Modified U.S. State Plane 1983      **Coordinate Zone:** Missouri Central      **Coordinate Proj. Factor:** 1.0000772  
**Coordinate Datum:** NAD 83 (CONUS)      **Coordinate Units:** U.S. Survey Feet

\* Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.



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 1617 Missouri Boulevard  
 Jefferson City, Missouri 65109

# KEY TO SYMBOLS

CLIENT MoDOT SW District

PROJECT NAME Equipment Shed

PROJECT NUMBER R35G-FI2366

PROJECT LOCATION SW District Maintenance Lot

## LITHOLOGIC SYMBOLS (Unified Soil Classification System)

-  ASPHALT: Asphalt
-  CLG: USCS Low Plasticity Gravelly Clay
-  CONCRETE: Concrete
-  GP: USCS Poorly-graded Gravel
-  HIWEA LIMESTONE: HIWEA LIMSTONE
-  LIMESTONE: Limestone

## SAMPLER SYMBOLS

-  Split-Spoon Sampler

## WELL CONSTRUCTION SYMBOLS

## ABBREVIATIONS

- |  |                                   |
|--|-----------------------------------|
| LL - LIQUID LIMIT (%)                      | TV - TORVANE                      |
| PI - PLASTIC INDEX (%)                     | PID - PHOTOIONIZATION DETECTOR    |
| W - MOISTURE CONTENT (%)                   | UC - UNCONFINED COMPRESSION       |
| DD - DRY DENSITY (PCF)                     | ppm - PARTS PER MILLION           |
| NP - NON PLASTIC                           | ▽ Water Level at Time of Drilling |
| -200 - PERCENT PASSING NO. 200 SIEVE       | ▼ Water Level at End of Drilling  |
| PP - POCKET PENETROMETER (TSF)             | ▽ Water Level after Drilling      |
| Qu - UNCONFINED COMPRESSIVE STRENGTH (PSF) |                                   |

# Figure 1 - Boring Location Aerial



**GEOTECHNICAL SECTION**

CENTRAL MATERIALS LABORATORY  
1617 Missouri Boulevard  
Jefferson City, Missouri

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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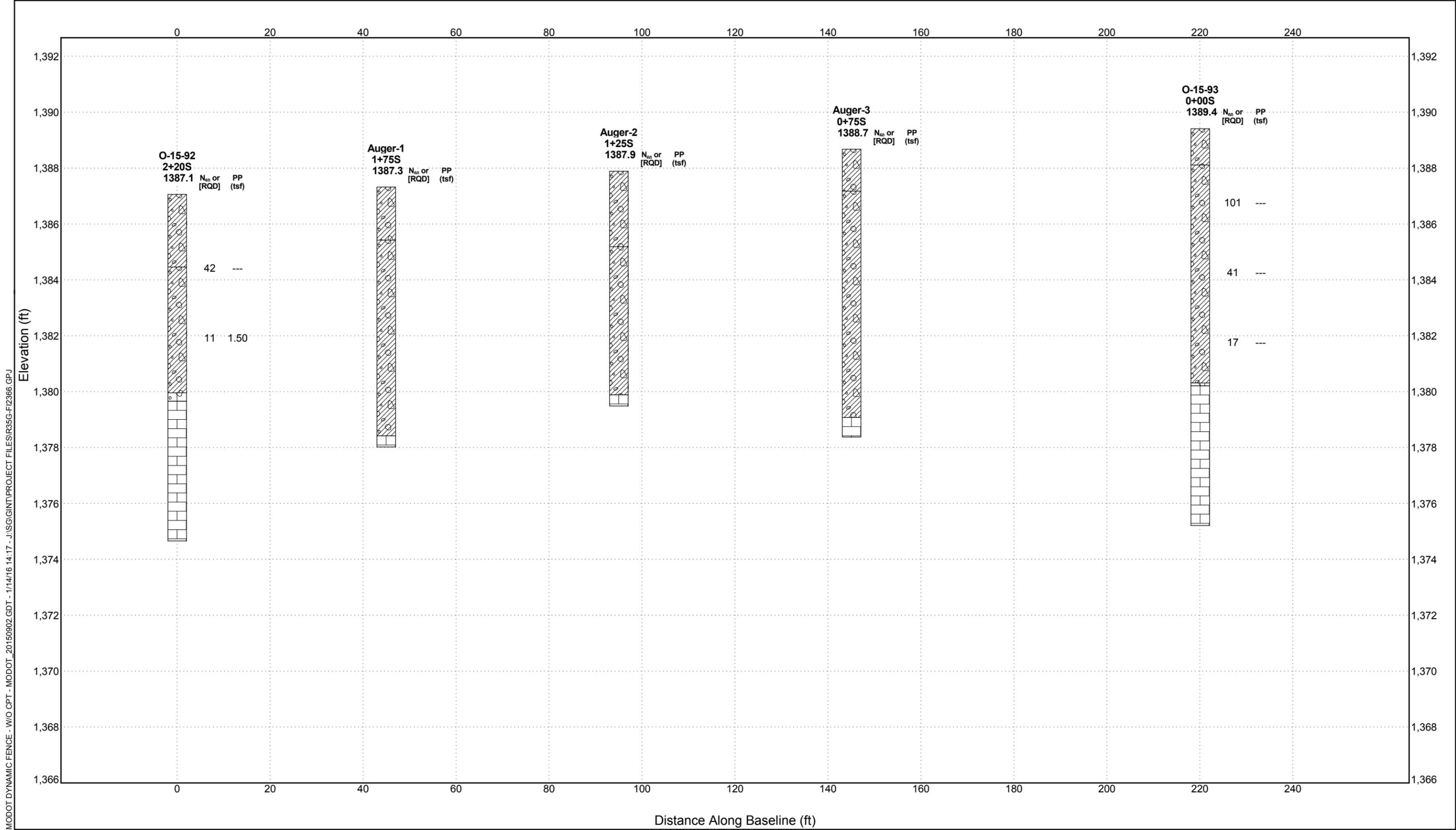
### FIGURE 2 - SOUTH SUBSURFACE PROFILE

PROJECT NAME Equipment Shed  
 PROJECT LOCATION SW District Maintenance Lot  
 CLIENT MoDOT SW District  
 PROJECT NUMBER R35G-FI2366

USCS Low Plasticity Gravelly Clay

Limestone

HIWEA LIMSTONE



MODOT DYNAMIC FENCE - W/O OPT - MODOT\_20150902.GDT - 1/14/16 14:17 - J:\SGIGINT\PROJECT FILES\R35G-FI2366.GPJ

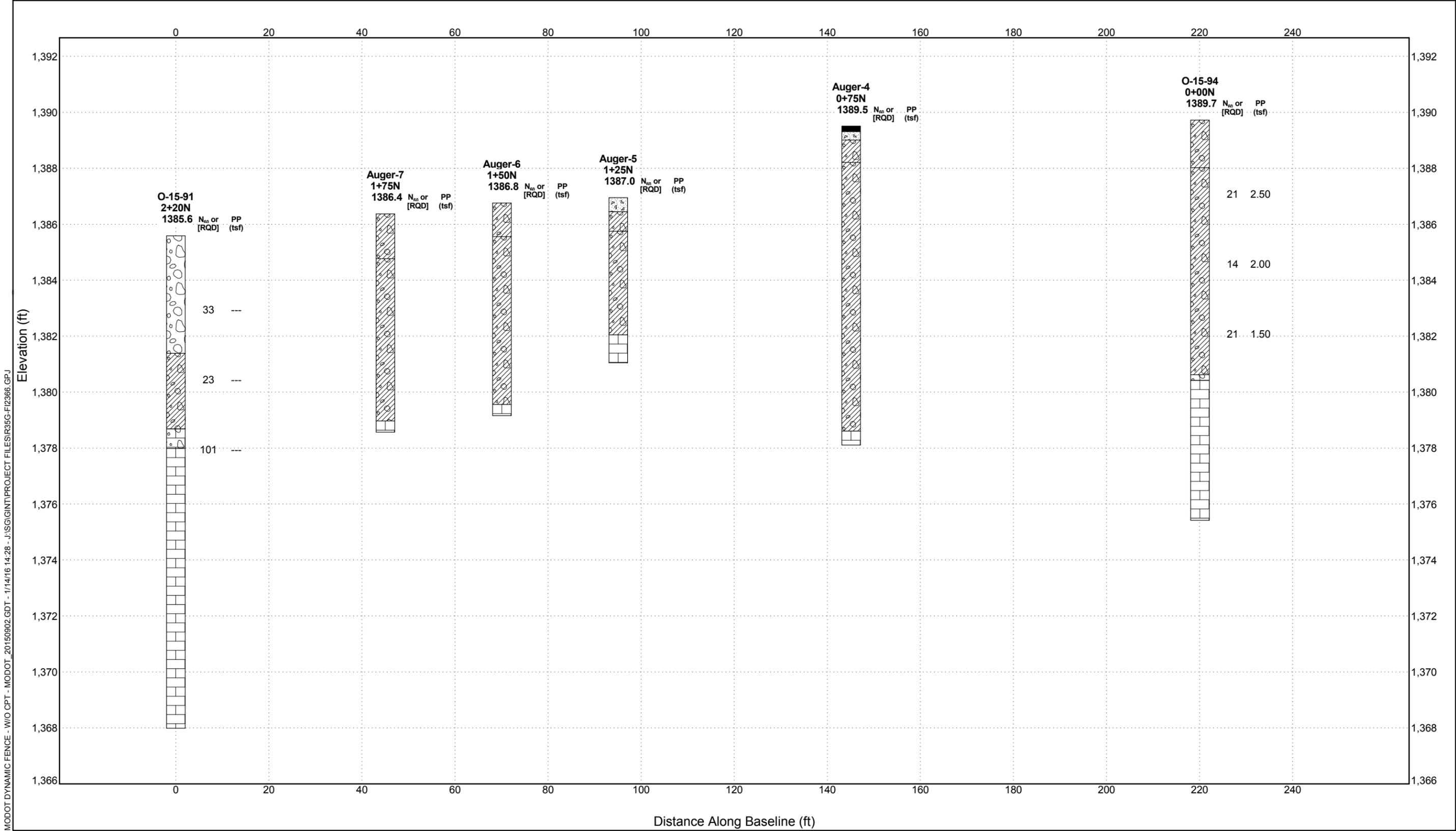


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### FIGURE 3 - NORTH SUBSURFACE PROFILE

PROJECT NAME Equipment Shed  
PROJECT LOCATION SW District Maintenance Lot  
CLIENT MoDOT SW District  
PROJECT NUMBER R35G-FI2366

 Asphalt	 Concrete	 USCS Low Plasticity Gravelly Clay
 Limestone	 USCS Poorly-graded Gravel	 HIWEA LIMSTONE



MODOT DYNAMIC FENCE - W/O OPT - MODOT\_20150902.GDT - 1/14/16 14:28 - J:\SGIGINT\PROJECT FILES\R35G-FI2366.GPJ