

GEOSCIENCE

Project: RBF/MPWSP
Monitoring Well
Project No.: 13027-14

LOG OF BORING

SHEET 1 OF 12

Location	MN-6 DEEP	Date(s) Drilled	2-19-2015	Drilling Contractor	CASCADE	Bearing (Azimuth)	
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	GOOT Pro Sonic	Plunge (Degrees) Vert	
Horizontal/Vertical Datum	+36.67704° -121.74720°	Reviewed by		Borehole Diameter (in)		Total Depth (ft)	340

Depth (ft)	Notes	Sample Information			Geologic Unit	MATERIAL DESCRIPTION	SOIL COLOR
		Penetration (Graphic)	Type and No.	Fast Drill Blows per 6-in. OR DRILL Penetration (in.)			
						CONFIDENTIAL DRAFT Subject to Revision MATERIAL DESCRIPTION	

0					(POSSIBLE UNCEUTIFIED FILL)		2.5YR 3/3
1					GRANULAR/SILTY SAND; 60% SAND + 20% SILT + 10% GRAVEL + 10% COBBLES; F-C SAND & GRAVEL; ROUNDED - ANGULAR SAND GRAVEL & COBBLES; POORLY GRADED; UNCONSOLIDATED; LOW DENSITY; QMFA; MOIST. NOTE: ASPHALT GRAVEL & COBBLES.		DARK OLIVE BROWN
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18					SILTY SAND; 60% SAND + 40% SILT; VFF-SAND; SUBANG-SUBRND; POORLY GRADED; UNCONSOLIDATED; LOW DENSITY; LOW-NO PLASTICITY; QMFA; MOIST		GRAY 1 2/5 N
19							BLACK
20							
21							
22							
23					SAND; 100% SAND; VFFW/TAAC M. GRAINS; SUBANG-SUBRND; POORLY GRADED; UNCONSOLIDATED; QMFA; MOIST		GRAY 1 4/10g
24							DARK GREENISH GRAY
25							
26					SAND; 100% SAND; F-M; SUBANG-SUBRND; POORLY GRADED; UNCONSOLIDATED; QMFA; MOIST		GRAY 1 4/10g
27							DARK GREENISH GRAY
28					SAND W/ TAAC SILT; 95% SAND + 5% SILT; F-M SAND; SUBANG-SUBRND; POORLY GRADED; UNCONSOLIDATED; LOW DENSITY; NO PLASTICITY; QMFA; MOIST		7.5YR 4/4 BROWN
29					SEE BELOW		7.5YR 5/1 GRAY
30							

30ft 80s

37'-2"

GEOSCIENCE

Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-14'

LOG OF BORING

SHEET 2 OF 12

Location	MW-6 DEEP	Date(s) Drilled	2-19-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	7-95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	Pn Sonic 600T	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

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MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Sample Information	Geologic Unit		
30					
31					
32					
33					
34					
35					
36					
37					
38	SP				
39					
40	SC/SM				
41	SP				
42					
43					
44					
45	SP				
46					
47	SP	10 3/4" DIAM CASING			
48					
49					
50					
51	SP				
52					
53	CH				
54					
55					
56					
57					
58	SP				
59	SP				
60					

37' - 27' ←

47' - 37' ↓

57' - 47' ↓

67' - 57' ↓

7.5' < 5/1
GRAY

39.5' ←

41' ←

GLEY 1 2.5'/N
BLACK

GLEY 1 3/5GY
Very Dark Greenish Gray

GLEY 1 3/5GY
II

GLEY 1 3/5GY
II

GLEY 1 3/5GY
II

GLEY 1 2.5/5GY
Greenish Black

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Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-13

LOG OF BORING

SHEET 3 OF 12

Location	MW-6- DEEP	Date(s) Drilled	2-19-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	7- 95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	Pro Sonic 600T	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft) 340

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MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Type and No.	Sample Information	Geologic Unit	
60			SP			SEE ABOVE.
61						
62						
63						
64						CLAY w/ SILT; 80% CLAY + 20% SILT;
65						LOW DENSITY; HIGH PLASTICITY; MOIST,
66						"BLUE CLAY LAYER"
67			CH			GLEY 1 3/5Gy Very DAMP GREENISH BROWN
68						
69						
70			CH			CLAY w/ SILT; 80% CLAY + 20% SILT
71						GLEY 1 3/5Gy
72						
73			MH			SANDY SILT w/ CLAY; & TRACE GRAVEL; 60% SILT + 20% SAND + 10% CLAY + 5% GRAVEL; VF SANDY F. GRAVEL; SUBANG SUBGRD; POORLY GRADED; HIGH PLASTICITY; MH DENSITY; MOIST.
74						GLEY 1 2.5 BLACK
75			CH			
76						
77						CLAY w/ SILT; 80% CLAY + 20% SILT; HIGH DENSITY; HIGH PLASTICITY; MOIST. "BLUE CLAY LAYER"
78						GLEY 1 2.5 GREENISH BLACK.
79						
80						
81						
82			CH	10 3/4" DIAM CASING		→ SAME AS ABOVE.
83						
84						
85						
86						
87			CH			CLAY; 100% CLAY; HIGH PLASTICITY; HIGH DENSITY; MOIST. "BLUE CLAY LAYER"
88						GLEY 1 2.5 10Gy
89						
90						

GEOSCIENCE

Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-134

LOG OF BORING

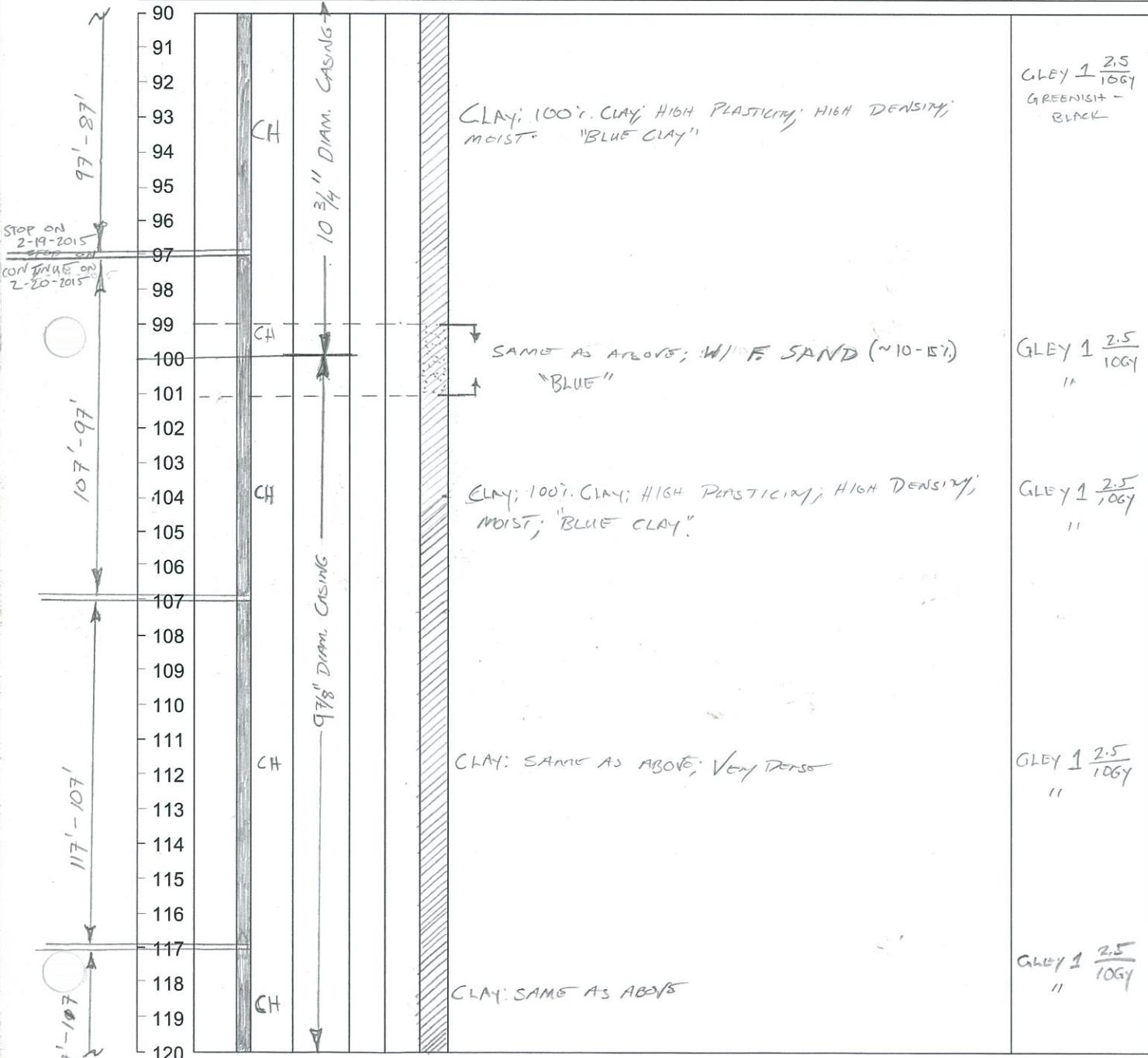
SHEET 4 OF 12

Location MW-6 DEEP		Date(s) Drilled 2-20-2015	Drilling Contractor Cascade Drilling	Bearing (Azimuth)	
Ground Surface Elevation (ft) +/- 95 ft AMSL		Logged by AZAD KHALIGI	Drill Rig Type 600T Pro-Sonic	Plunge (Degrees) Vert	
Horizontal/Vertical Datum		Reviewed by	Borehole Diameter (in)	Total Depth (ft) 340	
Depth (ft)	Notes	Sample Information	MATERIAL DESCRIPTION	SOIL COLOR	
Penetration (Graphic)	Type and No.	Blows per 6 in.	Penetration (in)	Recovery (in)	Geologic Unit

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MATERIAL DESCRIPTION



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Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-134

LOG OF BORING

SHEET 5 OF 12

Location	MW-6 DEEP	Date(s) Drilled	2-20-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	GOOT Pro Sonic	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)
Depth (ft)	Notes	Sample Information				
		Type and No. FIRST DRILL Blows-per-6-in. OVER-DRILL Penetration-(in)	Recovery (in)	Geologic Unit	CONFIDENTIAL DRAFT Subject to Revision MATERIAL DESCRIPTION	SOIL COLOR

120						
121						
122						
123	CH				CLAY; 100% CLAY; HIGH PLASTICITY; HIGH DENSITY MOIST. "BLUE CLAY"	COLEY 1 $\frac{2.5}{100}$ GREENISH BLACK
124						
125						
126						
127						
128						
129						
130						
131						
132	CH				CLAY; SAME AS ABOVE	COLEY 1 $\frac{2.5}{100}$ GREENISH BLACK
133						
134						
135						
136						
137						
138	CH	9 7/8" DIAM CASING			SILTY CLAY; 70% CLAY + 30% SILT; MEDIUM PLASTICITY; LOW DENSITY; MOIST; "BLUE LAYER"	COLEY 1 $\frac{2.5}{100}$ GREENISH BLACK
139						
140						
141						
142						
143	SP				SAND w/ TRACE SILT; 95% SAND + 5% SILT; F-C SAND; SUBANG-SUBEND; POORLY GRADED; UNCONSOLIDATED; QMF; MOIST-WET. # JACOB COBBLES	10YR 5/3 BROWN
144						
145						
146	SW				SAND w/ GRAVEL; 70% SAND + 30% GRAVEL; F-C SAND & GRAVEL; SUBANG-SUBEND SAND & GRAVEL; WELL GRADED; UNCONSOLIDATED; QMF-J WET. # VARIOUS COBBLE & GRAVEL ROCK TYPES.	10YR 5/3 BROWN
147						
148	CH				# SOME (>15i.) FINE GRAVEL = MONTEREY SHALE.	146'
149						
150					SILTY CLAY w/ TRACE SAND; 75% CLAY + 20% SILT + 5% SAND; V.F. SAND; M-H PLASTICITY; M-L DENSITY; MOIST-WET.	COLEY 1 $\frac{2.5}{100}$ BLACK

138'

142.3'

146'

147

150

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Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-134

LOG OF BORING

SHEET 6 OF 12

Location	MW - 6 DEEP	Date(s) Drilled	2-20-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	7- 95 ft AMSL	Logged by	Azad Khalighi	Drill Rig Type	600T ProSonic	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Sample Information	Geologic Unit	MATERIAL DESCRIPTION	SOIL COLOR
150					GRANELY SAND; 70% SAND + 30% GRAVEL; M-C SAND; F- GRAVEL; SUBANG-SUBRND SAND; SUBRND-RND GRAVEL; POORLY GRADED; UNCONSOLIDATED; WET; QFA.	150'
151		SP / GP			10% COBBLES	25Y 5/3
152					▼ GRANELY SAND; 50% SAND + 40% GRAVEL; F-C SAND; F-C GRAVEL; SUBANG-SUBRND SAND; SUBRND-RND GRAVEL & COBBLES; POORLY GRADED; UNCONSOLIDATED; QFA; WET (KEY TRACE >5% AMNT OF MONTEREY SHALE)	LIGHT OLIVE BROWN
153						
154						
155						
156		SP			SAND; 100% SAND; F-M SUBANG-SUBRND; POORLY GRADED; UNCONSOLIDATED; QFMA; WET.	25Y 4/3
157		CH			CLAY	OLIVE BROWN
158					W/SILT B TRACE SAND & GRAVEL; 80% CLAY + 10% SILTY SILT; GRAVEL + 5%; SAND; F-M SAND; F-GRAVEL; SUBANG-SUBRND; HIGH PLASTICITY; WET.	156' 157'
159						GLEY 1 2.5/4 BLACK
160		GP / SP			SANDY GRAVEL w/ COBBLES; 50% GRAVEL + 40% SAND + 10% COBBLES; F-C SAND & GRAVEL; POORLY GRADED SUBANG-SUBRND SAND & FINE GRAVEL; ROUNDED COBBLES & C. GRAVEL; >5% OF F. GRAVEL = MONTEREY SHALE; WET.	159'
161						5Y 4/2 OLIVE GRAY
162						
163		SP			SAND w/ TRACE GRAVEL; 95% SAND + 5% GRAVEL; F-C SAND & GRAVEL; POORLY GRADED; SUBANG-SUBRND SAND & GRAVEL; QFMA; WET.	162.5'
164						
165		SP / GP			GRAVELY SAND w/ COBBLES; 60% SAND + 30% GRAVEL + 10% COBBLES; F-C SAND & GRAVEL; SUBANG-SUBRND SAND & FINE GRAVEL; ROUNDED COBBLES & C. GRAVEL; SOME F. GRAVEL SIZED PIECE OF MONTEREY SHALE; QFA; WET.	164.5'
166						
167						
168						
169						
170		GP-SP			SANDY GRAVEL w/ COBBLES & TRACE SILT; 50% GRAVEL + 35% SAND + 10% COBBLES + 5% SILT; F-C SAND & GRAVEL; SUBANG-SUBRND SAND; SUBRND-RND GRAVEL & COBBLES; POORLY GRADED; UNCONSOLIDATED; >10% OF GRAVEL = MONTEREY SHALE; WET.	170'
171						DARK YELLOWISH-BROWN
172						
173						
174						
175						
176		SP			SAND w/ TRACE GRAVEL; 95% SAND + 5% GRAVEL; F-C SAND; F-GRAVEL; SUBANG-SUBRND SAND; SUBANG GRAVEL; POORLY GRADED; UNCONSOLIDATED; QFMA; WET. - ANGULAR BITS OF F. GRAVEL SIZED MONTEREY SHALE.	2.5Y 5/1 GRAY
177						
178		SP				
179						
180		SP			SAND; SAME AS ABOVE w/ MORE G. SAND.	2.5Y 5/1 GRAY 179.5'

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Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-13^{b4}

LOG OF BORING

SHEET 7 OF 12

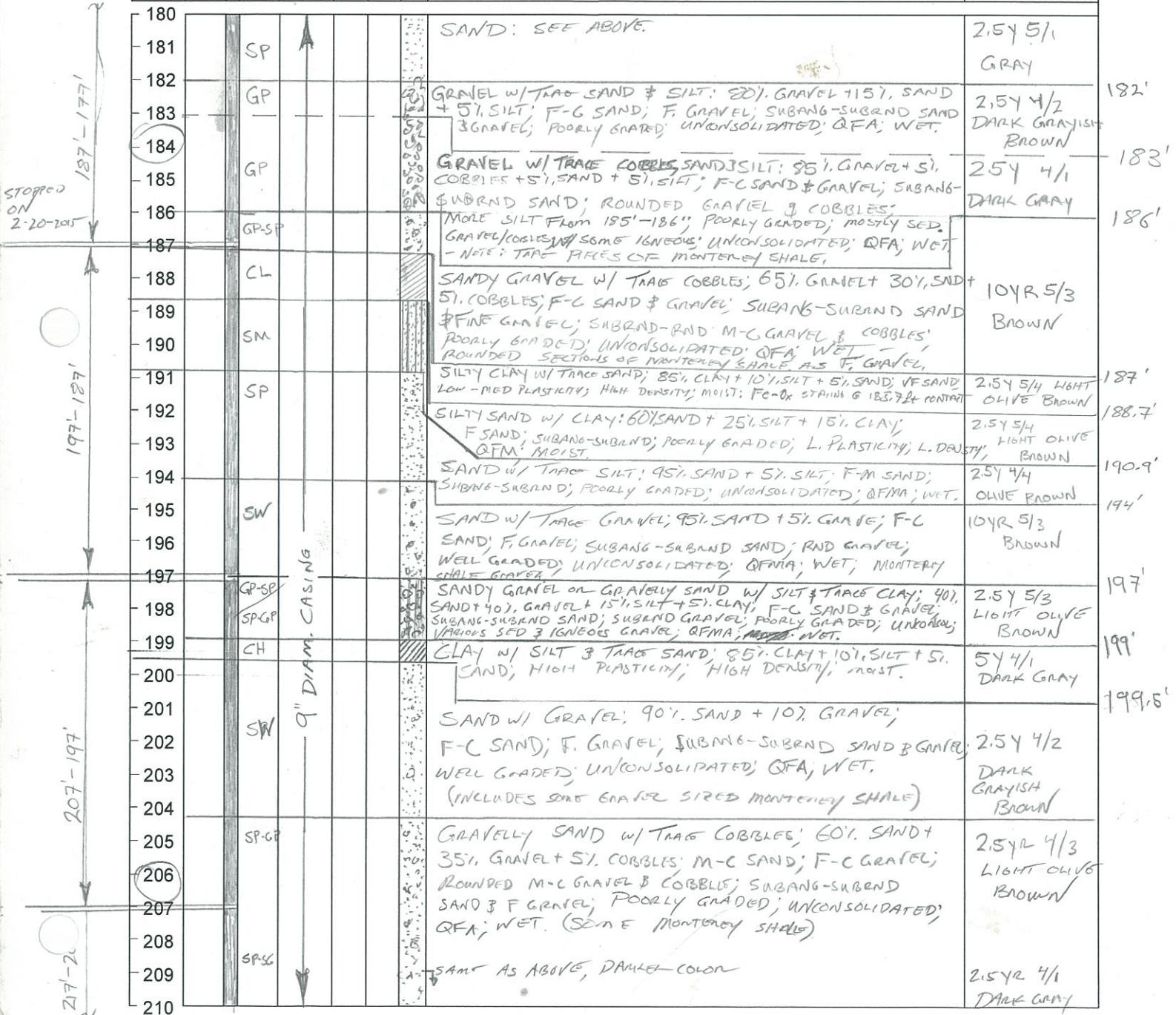
Location	MW-6 DEEP	Date(s) Drilled	2-21-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+ 95 ft AMSL	Logged by	AZND KHALIGHI	Drill Rig Type	600T Pro-Sonic	Plunge (Degrees)
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

Depth (ft)	Notes	Sample Information			Geologic Unit	CONFIDENTIAL DRAFT Subject to Revision MATERIAL DESCRIPTION	SOIL COLOR
		Penetration (Graphic)	Type and No.	Recovery (in)			
10.0			First Blow Blows per 6-in. Penetration (in)	6.0			



GEOSCIENCE

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Exploratory Boreholes
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LOG OF BORING

SHEET 8 OF 12

Location	MW - 6 DEEP	Date(s) Drilled	2-21-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	GOOT Pro Sonic	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

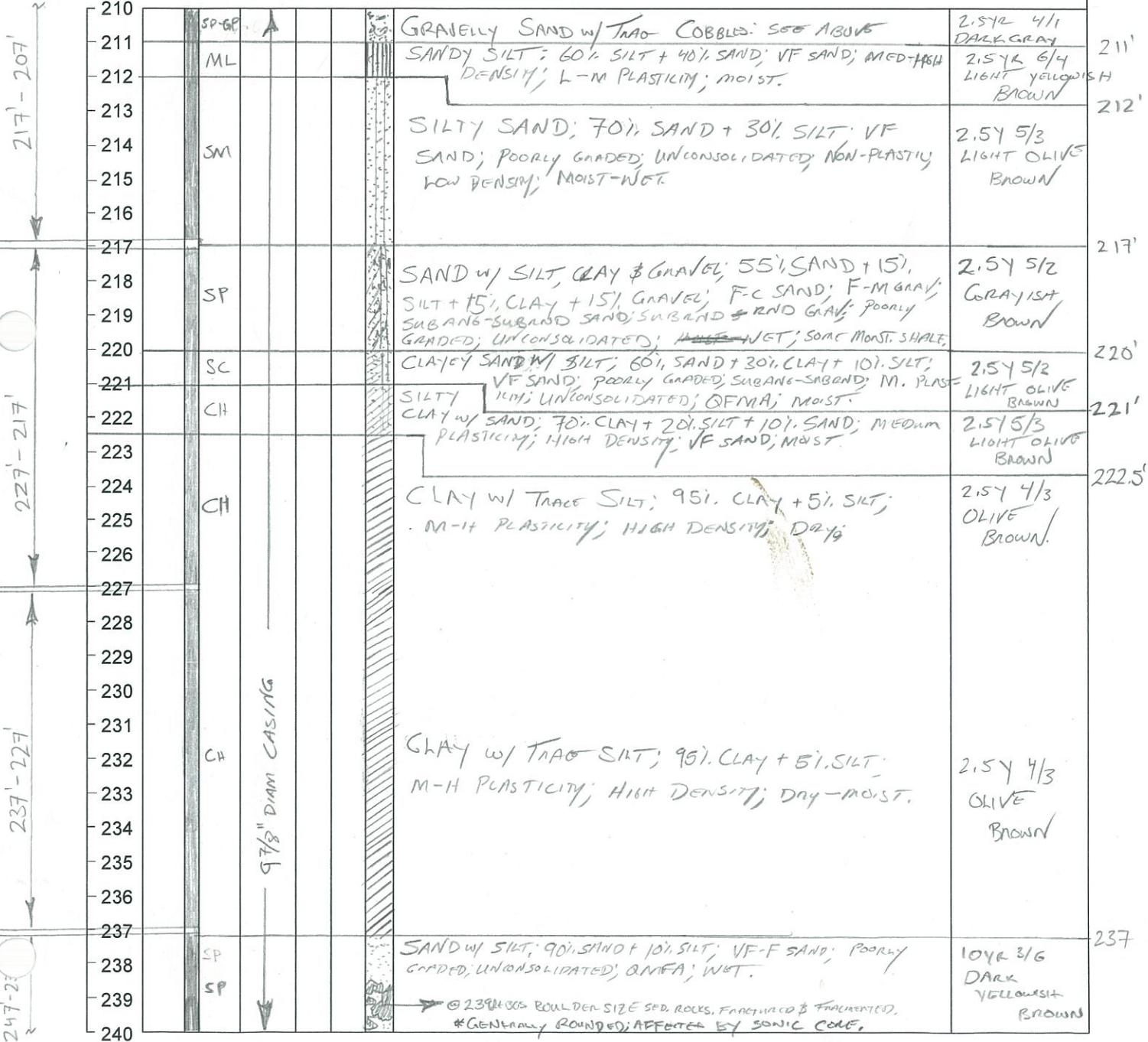
CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Type and No.	Fast Drill Blows per 6-in. Over-Density	Penetration (in)	Recovery (in)	Geologic Unit	Material Description	Soil Color
210			SP-GP					GRANULAR SAND w/ TRAC COBBLES; SEE ABOVE	2.5YR 4/1 DARK GRAY
211			ML					SANDY SILT; 60% SILT + 40% SAND; VF SAND; MED-HIGH DENSITY; L-M PLASTICITY; MOIST.	2.5YR 6/4 LIGHT YELLOWISH BROWN
212			SM					SILTY SAND; 70% SAND + 30% SILT; VF SAND; POORLY GRADED; UNCONSOLIDATED; NON-PLASTIC; LOW DENSITY; MOIST-WET.	2.5Y 5/3 LIGHT OLIVE BROWN
213			SP					SAND w/ SILT, CLAY & GRAVEL; 55% SAND + 15% SILT + 15% CLAY + 15% GRAVEL; F-C SAND; F-M GRAY; SILT + 15% CLAY + 15% GRAVEL; SUBANG-SUBAND SAND; SUBAND & RND GRAV; POORLY GRADED; UNCONSOLIDATED; LOW DENSITY ; SOME MONST. SHALE	2.5Y 5/2 GRAYISH BROWN
214			SC					CLAYEY SAND w/ SILT; 60% SAND + 30% CLAY + 10% SILT; VF SAND; POORLY GRADED; SUBANG-SUBAND; M. PLASTICITY; UNCONSOLIDATED; QFMFA; MOIST.	2.5Y 5/2 LIGHT OLIVE BROWN
215			CH					CLAY w/ SAND; 70% CLAY + 20% SILT + 10% SAND; MEDIUM PLASTICITY; HIGH DENSITY; VF SAND; MOIST.	2.5Y 5/3 LIGHT OLIVE BROWN
216								CLAY w/ TRACE SILT; 95% CLAY + 5% SILT; M-H PLASTICITY; HIGH DENSITY; DRY	2.5Y 4/3 OLIVE BROWN
217			CA					CLAY w/ TRAC SILT; 95% CLAY + 5% SILT; M-H PLASTICITY; HIGH DENSITY; DRY-MOIST.	2.5Y 4/3 OLIVE BROWN
218									
219									
220									
221									
222									
223									
224									
225									
226									
227									
228									
229									
230									
231									
232									
233									
234									
235									
236									
237									
238									
239									
240									



GEOSCIENCE

Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-13¹⁴

LOG OF BORING

SHEET 9 OF 12

Location	MW-6 DEEP	Date(s) Drilled	2-21-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	AZAD KHALIQI	Drill Rig Type	600T Pro Sonic	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)
Depth (ft)	Notes	Sample Information				
		Penetration (Graphic)	Type and No.	Recovery (in)	Geologic Unit	

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Subject to Revision
MATERIAL DESCRIPTION

SOIL COLOR

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MATERIAL DESCRIPTION

SOIL COLOR

240						
241						
242	SP			SAND w/ SILT: 90% SAND + 10% SILT; VF-F SAND; POORLY GRADED; UNCONSOLIDATED; QFM A; WET.	10YR 3/6 DARK YELLOWISH BROWN	
243				SAND w/ SILT: 85% SAND + 15% SILT.		
244						244'
245	ML	9 1/2" DIA. CHIPS		SANDY SILT w/ TAO CLAY: 70% SILT + 25% SAND + 5% CLAY; VF SAND; LOW PLASTICITY; LOW DENSITY; MOIST.	10 YR 3/6 DARK YELLOWISH BROWN	
246						
247						247'
248						
249						
250	CH			CLAY w/ SILT & TAO SAND; 85% CLAY + 10% SILT + 5% SAND; F-C SAND; SUBANG-SUBEND SAND; MED-HIGH PLASTICITY; VERY DENSE; DRY - moist,	5Y 4/2 OLIVE GRAY	
251						
252						
253						
254	SW			SAND w/ TRACE SILT & GRAVEL; 90% SAND + 5% GRAVEL + 5% SILT; F-C SAND; F GRAVEL; SUBANG-SUBEND SAND; RND GRAVEL; POORLY GRADED; UNCONSOLIDATED; QFM A; includes MONTEJOY SHALE; WET.	2.5Y 4/2 DARK GRAYISH-BROWN	253.4'
255						
256	GP- SP			SANDY GRAVEL w/ TRACE COBBLES; 55% GRAVEL + 40% SAND + 5% COBBLES; F-C SAND (mostly C); F-C GRAVEL; SUBANG-SUBEND SAND w/ FINE GRAVEL; SUBAND-RND C. GRAVEL & COBBLES; POORLY GRADED; UNCONSOLIDATED; QFM A; VARIOUS SETS & IG. GRAVEL/COBBLES; INCLUDING MONTEJOY SHALE; WET.	2.5Y 2/5 1 BLACK	256'
257	SP					
258						
259						
260	SPGP			SAND w/ GRAVEL & TAO SILT; 80% SAND + 15% GRAVEL + 5% SILT; F-C SAND; F GRAVEL; SUBANG-SUBEND SAND; RND GRAVEL; POORLY GRADED; UNCONSOLIDATED; QFM A; WET.	10YR 4/4 DARK YELLOWISH BROWN	257'
261						
262						
263	GP	8" DIA. CASE/6		GRAVELLY SAND w/ TAO COBBLES; 65% SAND + 35% GRAVEL + 5% COBBLES; F-C SAND/GRANULE; POORLY GRADED; UNCONSOLIDATED; SUBANG-SUBEND SAND + F GRANULE; RND C. GRAVEL & COBBLES; QFM A; WET.	10YR 3/3 DARK BROWN	259'
264						
265						
266						
267				SANDY GRAVEL w/ SILT & CLAY; 40% GRAVEL + 30% SAND + 20% SILT + 5% CLAY + 5% COBBLES; VF-C. SAND; F-C GRAVEL; SUBANG-SUBEND SAND; SUBAND-RND GRAVEL & COBBLES; POORLY GRADED; UNCONSOLIDATED; LOW PLASTICITY; LOW DENSITY; WET-MOIST; VARIOUS SETS & IG. GRAVEL; INCLUDING MONTEJOY SHALE; WET.	10YR 4/6 DARK YELLOWISH BROWN	261'
268	SPGP					
269						
270				GILAVELLY SAND w/ TAO COBBLES; 60% SAND + 30% GRAVEL + 10% COBBLES; F-C SAND & GRAVEL; SUBANG-SUBEND; POORLY GRADED; UNCONSOLIDATED; QFM A; MONTEJOY SHALE	2.5Y 3/3 LIGHT OLIVE BROWN	267.5'

GEOSCIENCE

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Exploratory Boreholes
Project No.: 13017-134

LOG OF BORING

SHEET 10 OF 12

Location	MW-6 DEEP	Date(s) Drilled	2-22-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	AZAD KHALIGHI	Drill Rig Type	600T ProSonix	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Type and No.	Penetration (in)	Recovery (in)	Geologic Unit	Material Description	Soil Color
270		SPGP					GRAVELY SAND w/ TRACE COBBLES; SAME AS ABOVE;	2.5Y 5/3
271								LIGHT OLIVE BROWN
272							GRAVELY CLAY w/ SAND & SILT & COBBLES; 65% CLAY + 20% GRAVEL + 5% COBBLES + 5% SAND + 5% SILT; M. SAND; F-C GRAVEL; ROUNDED SAND, GRAVEL & COBBLES; M-H PLASTICITY; HIGH DENSITY; MOIST. - INCLUDES GRAVEL/POSSIBLE SAND POUNDED CLASTS OF MONTGOMERY SHALE, AMONGST OTHER SED/BIG ROCKS.	2.5Y 5/3
273		CH/CL						272'
274								
275								
276								
277								
278								276.8'
279		SN-GW					GRAVELY SAND w/ TRACE COBBLES; 80% SAND + 15% GRAVEL + 5% COBBLES; F-C SAND & GRAVEL; SUBANG-SUBAND SAND; SUBAND-BND CONCRETE, WELL GRADED; UNCONSOLIDATED; (QFA); WET.	10YR 3/4
280								DARK YELLOWISH BROWN
281								
282		CH					GRAVELY CLAY w/ SAND & TRACE SILT & COBBLES; 45% CLAY + 35% GRAVEL + 10% SAND + 5% SILT + 5% COBBLES. SAME AS ABOVE (271'-276.3') - VERY DENSE! - INCLUDES CLASTS OF MONTGOMERY SHALE.	5Y 4/4
283								OLIVE
284								282'
285		SN-GW					GRAVELY SAND w/ SILT & TRACE COBBLES; 65% SAND + 20% GRAVEL + 10% SILT + 5% COBBLES; F-C SAND & GRAVEL; SUBANG-SUBAND SAND; ROUNDED GRAVEL & COBBLES; UNCONSOLIDATED; (QFA) - INCLUDES MONT. SHALE & VARIOUS 16.85FT. ROCKS AS GRAVELY, WET.	5Y 3/2
286								DARK OLIVE GRAY
287								
288								288'
289								
290		SP-GP					GRAVELY SAND w/ COBBLES & SILT; 60% SAND + 20% GRAVEL + 10% COBBLES + 10% SILT; FC SAND (mostly coarse); F-C GRAVEL (mostly fine); SUBANG-SUBAND SAND; SUBAND TO RND GRAVEL & COBBLES; QFA! VARIOUS 16.85 FT. SED. ROCKS/CLASTS, INCLUDING MONTGOMERY SHALE; WET POORLY GRADED; UNCONSOLIDATED.	5Y 4/2
291								OLIVE GRAY
292								
293								
294							N 295ft → A LENS OF ROUNDED COBBLES, COMPRISED OF VARIOUS SED. & BIG. ROCKS.	
295								
296		SP-GP					SILTY SAND; 60% SAND + 40% SILT; VF SAND; LOW PLASTICITY; UNCONSOLIDATED; POORLY GRADED; L-M DENSITY; WET-WEET	2.5Y 5/4
297								LIGHT OLIVE BROWN
298		SM						2.5Y 5/6
299		ML					SANDY SILT w/ CLAY; 75% SILT + 15% SAND + 10% CLAY; VF SAND; LOW PLASTICITY; MED-HIGH DENSITY; MOIST.	LIGHT OLIVE BROWN
300								

297'-297' 297'-297'

297'-29

GEOSCIENCE

Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-13/4

LOG OF BORING

SHEET 11 OF 12

Location	MN-6 DEEP	Date(s) Drilled	2-22-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	+/- 95 ft AMSL	Logged by	Azad Khalighi	Drill Rig Type	Pro SONIC 600T	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft)

CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Type and No.	Fast Blow per 6-in.	Penetration (in)	Recovery (in)	Geologic Unit	Material Description	Soil Color
300								SANDY SILT w/ CLAY; SAME AS ABOVE-	
301	ML								5Y 5/3 OLIVE
302								CLAY w/ SILT; 90% CLAY + 10% SILT; M-H DENSITY HIGH DENSITY; moist-dry.	302
303			CH						
304									5Y 5/3 OLIVE
305									
306									
307			SP-GP					SAND w/ TRAC COBBLES & GRANULES; 90% SAND + 5% GRAD + 5% COBBL; F-M SAND; F-BC, GRANUL; SUBANG-SUBANO SAND; SUBANO-RAD GRANUL & COBBLES; QFA, WET,	25Y 4/3 OLIVE BROWN
308									
309								GRAVELLY SAND w/ TRAC COBBLES & BOULDERS; 75% SAND + 20% GRANUL + 5% BOULDERS & COBBLES; F-C SAND & GRANUL; SUSANO-SUSANO SAND; SUBANO- ROUND GRANUL; ROUND GRANUL & BOULDERS; BOULDERS BROKENBY CORE BARREL, THIS PROB ARGUMENT	
310									
311								Poorly GRADED; SAND BECOMES MOSTLY CORALINE TOWARDS 312ft BGS; UNCONSOLIDATED; QFA; KOBBL &	
312								BOULDERS COMPOSED OF VARIOUS SEDIMENTARY ROCKS, INCLUDING MONTEREY SHALO; WET	
313									
314									10Y L 6/3
315									PALER
316									BROWN
317									
318									
319									
320			SP-GT					SAME w/ CORALINE SAND,	
321									
322									
323									
324			SW	8" DIAM CORE				SAND; 100% SAND; F-C; SUBANG-SUBANO; WELL GRADED; UNCONSOLIDATED; WET.	10Y N 4/6 DARK YELLOWISH BROWN
325									
326									
327			SP-GP						
328								GRAVELLY SAND w/ COBBLES & SILT & TRAC BOULDERS; F-C SAND & GRANUL; SUBANG-SUBANO SAND & FINER GRAVEL; SUBANO-RND GRANUL & COBBLES & BOULDERS; UNCONSOLIDATED; POORLY GRADED; QFA; WET	
329									
330								45% SAND + 35% GRANUL + 10% SILT + 10% COBBLES.	

GEOSCIENCE

Project: RBF/MPWSP
Exploratory Boreholes
Project No.: 13017-134

LOG OF BORING

SHEET 12 OF 12

Location	MW - G DEEP	Date(s) Drilled	2-22-2015	Drilling Contractor	Cascade Drilling	Bearing (Azimuth)
Ground Surface Elevation (ft)	7-95 ft AMSL	Logged by	AZAD / KHALIGHI	Drill Rig Type	Pao SONIC 600T	Plunge (Degrees) Vert
Horizontal/Vertical Datum		Reviewed by		Borehole Diameter (in)		Total Depth (ft) 340

CONFIDENTIAL DRAFT

Subject to Revision

MATERIAL DESCRIPTION

SOIL COLOR

Depth (ft)	Notes	Penetration (Graphic)	Type and No.	Blows-per-6-in.	Penetration (in)	Recovery (in)	Geologic Unit	Material Description	Soil Color
330									
331									
332	SP-GP							GRAY SAND w/ COBLES & SILT & TWO BOULDERS: SAME AS ABOVE.	2.5Y 4/2 DARK GRAY/SIL BROWN
333									
334									
335									
336									
337								GRANULAR CLAY w/ SAND & trace SILT & COBBLES; 45% CLAY + 35% GRAY + 10% SAND + 5% COBBLIST + 5% SILT; F-L SAND & GRAVEL; POORLY GRADED; SMOOTH-SABANT, SAND, SURROUNDED TO RND GRAVEL, COBBLES & BOULDERS; BOULDERS FRACTURED BY SONIC TOOL; INCLUDES FRACMENTS OF MONTEREY SHALIN GRAVEL - Boulders SIZE, METH PLASTICITY; HIGH DENSITY, WET.	5Y 4/2 OLIVE GRAY
338									
339									
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