

DRILLING LOG

HOLE NO. Z1050

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Property: UMore Park Property

Location: City of Rosemount & Empire Township, Dakota County, Minnesota

UTM Zone 15/NAD83/NAVD88

493,400.08 mE +/- 0.02 m 4,951,049.49 mN +/- 0.02 m

Elevation (ft.): 941.9 +/- 0.1 ft.

Ground Water Depth (ft.): Ground water not encountered

Ground Water Elevation (ft.):

Site: Snow covered soybean stubble field at natural grade.

Drilling Method: 9-inch flight auger

Started: 3/4/08 4:10 PM

Drilling Contractor: Braun Intertec

Completed: 3/4/08 5:10 PM

Drill Rig: CME-750

Logged By: J.D. Lehr

		DRILLING & SAMPLING					TEST RESULTS (%)					Geologic Interpretation	Economic Classification
Graphic Log	Depth (ft.)	Gravel Per Drill Action	Sample Runs	Sampled Intervals	Total + #4 Sieve	+ 1.5 Inch	1.5 Inch to 3/4 Inch	3/4 Inch to #4 Sieve	Sample Wt. (lbs)				
1.0	TOPSOIL. Silty, black.											Loess	
2.5	SILT. Brown.											Superior lobe outwash	34.4 % + #4
5.0	SAND & GRAVEL. Fine to coarse sand. Gravel to 1-1/2 inches.				21.0	5.4	6.6	9.0	47.5				
10.0	SAND. Fine to coarse sand. Minor gravel to 3 inches.				24.4	4.2	4.8	15.4	37.4				
15.0	SAND. Fine to coarse sand. Minor gravel to 2-1/2 inches.				43.0	6.3	14.1	22.7	42.6				
20.0	GRAVEL & SAND. Fine to coarse sand. Gravel to 2 inches.				30.4	0.9	7.7	21.8	32.9				
25.0	SAND & GRAVEL. Fine to coarse sand. Gravel to 1 inch.				55.5	8.6	26.5	20.4	39.6				
30.0	GRAVEL & SAND. Fine to coarse sand. Gravel to 2 inches. Very rocky (drill action) from 25 to 28 feet.				33.5	6.8	8.6	18.1	37.5				
35.0	SAND & GRAVEL. Fine to very coarse sand. Gravel to 2 inches.				40.6	5.9	11.9	22.8	23.7				
39.0	GRAVEL & SAND. Fine to coarse sand. Gravel to 2-1/2 inches.												
40.0	NO RECOVERY. Very tight drilling 39 to 40 feet. Expected to see silt/clay/till on bit, but nothing. Refusal at 40 feet.												
	T.D. 40 ft.												

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DRILLING LOG

HOLE NO. Z1250

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Property: UMore Park Property

Location: City of Rosemount & Empire Township, Dakota County, Minnesota

UTM Zone 15/NAD83/NAVD88
 493,400.22 mE +/- 0.02 m 4,951,249.40 mN +/- 0.02 m
 Elevation (ft.): 942.1 +/- 0.1 ft.
 Ground Water Depth (ft.): 60.0
 Ground Water Elevation (ft.): 882.1
 Site: Snow covered field at natural grade.

Drilling Method: 9-inch flight auger Started: 3/5/08 10:30 AM
 Drilling Contractor: Braun Intertec Completed: 3/5/08 11:55 AM
 Drill Rig: CME-750 Logged By: J.D. Lehr

		DRILLING & SAMPLING				TEST RESULTS (%)					Geologic Interpretation	Economic Classification
Graphic Log	Depth (ft.)	Gravel Per Drill Action	Sample Runs	Sampled Intervals	Total + #4 Sieve	+ 1.5 Inch	1.5 Inch to 3/4 Inch	3/4 Inch to #4 Sieve	Sample Wt. (lbs)			
2.0 TOPSOIL. Silty, black.	940.1										Loess	20.9 % + #4
4.0 SILT. Brown.	938.1											
5.0 SAND. Fine sand, slightly dirty. Very minor gravel to 1 inch. Small sample volume.	937.1									Superior lobe outwash		
10.0 SAND. Fine to coarse sand. Very minor gravel to 1-1/2 inches.	932.1				14.1	0.0	5.5	8.5	33.4			
15.0 SAND. Fine to coarse sand. Very minor gravel to 1 inch.	927.1											
20.0 SAND. Fine to medium sand. Very minor gravel to 1-1/2 inches.	922.1				7.2	0.8	2.4	3.9	28.4			
25.0 SAND. Fine to medium sand. Very minor gravel to 1 inch.	917.1									Superior lobe outwash		
GRAVEL & SAND. Fine to very coarse sand. Gravel to 2-1/4 inches. Very rocky (drill action) from 25 to 30 feet.	912.1				44.1	19.9	9.6	14.7	40.7			
SAND. Fine to very coarse sand. Minor gravel to 2-1/4 inches.	907.1				24.4	1.6	4.8	18.0	13.1			
SAND & GRAVEL. Fine to coarse sand. Gravel to 1-1/4 inches. Small sample volume.	902.1				32.7	3.3	6.9	22.5	30.6			
45.0 SAND. Fine to medium sand. Very minor gravel to 3/4 inch. Higher percentage gravel indicated by drill action. Small sample volume.	897.1									Older outwash		
50.0 SAND & GRAVEL. Fine to coarse sand. Gravel to 2 inches. Yellowish brown color.	892.1				31.2	3.3	9.4	18.5	34.5			
SAND. Fine to coarse sand. Minor gravel to 1-1/2 inches. Yellowish brown color. Small sample volume.					17.0	0.0	2.6	14.4	34.9			
62.0 TILL. Clayey, gray.	880.1									Till		
65.0	877.1											
T.D. 65 ft.												

Large rocks (8-10") in 25 to 35 foot interval disrupted samples from 34 to 45 while tripping out. Not enough material to sample 40 to 45 feet.

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