Appendix B

Boring Logs, Test Trench Logs, Sealing Records, Spatial Data Reporting Form, and Groundwater Sampling Forms

LOG OF WELL SOC1-GP1

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/5/09 Ended 6/8/09 | Elevation 944.2

Location 4953492.8 UTMN, 492303.4 UTME | Logged By JME/EJC | Total Depth 68 | Screened Interval 58-68'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic Silt (OL): brown, roots, dry. [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None**	
		1	0	Silt with Sand (ML): brown (10YR 4/3), dry, 90% non-plastic fines, 10% sand, trace gravel. [Loess]		
5		2	0	Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), dry, 95% medium-grained sand, 5% coarse-grained sand and fine gravel. [Outwash]	RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-58'** GROUT Type: **None** Interval: **None**	940
10		3	0	Medium-grained sand.	SEAL Type: **None** Interval: **None** SANDPACK Type: **None** Interval: **None**	935
15		4	0	Few medium gravel.	SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **58-68'** BOREHOLE Diameter: **2"**	930
20		5	0	Few bedding planes.		925
		6	0	Coarser than above.		
25		7		Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 90% medium and coarse-grained sand, 10% fine gravel.		920
				Sand grades from fine to medium-grained.		915
				29.5-30': Abundant gravel.		

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP1

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4953492.8 UTMN, 492303.4 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Dual Tube
Drilling Started 6/5/09 Ended 6/8/09
Logged By JME/EJC

Elevation 944.2
Total Depth 68
Screened Interval 58-68'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
		8		Poorly Graded Sand (SP) *(continued)*		
		9		1" thick Clay (CL) lens. 100% fine sand, laminated.		910
35				Silt (ML) with Clay (CL) interbedded: dark yellowish brown (10YR 4/4), moist, 100% fines. [Lacustrine] Clay interbeds approximately 1 to 3 inches thick.		
		10		Poorly Graded Sand (SP): brown, dry, 100% fine sand, laminated. [Outwash]		905
40						
		11		100% medium-grained sand.		
				44-45': Few gravel.		900
45		12		100% fine-grained sand, laminated.		
				Abundant coarse-grained sand.		895
50		13		Few fine gravel.		
				52.5-54': Medium to coarse-grained sand.		
		14		100% fine-grained sand.		890
55				Abundant medium gravel.		
		15		Medium and coarse-grained sand.		885
				(continued)		

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP1

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4953492.8 UTMN, 492303.4 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Dual Tube
Drilling Started 6/5/09 Ended 6/8/09
Logged By JME/EJC

Elevation 944.2
Total Depth 68
Screened Interval 58-68'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Poorly Graded Sand (SP) *(continued)*		
				Fine to medium gravel, 25%.		
		16		Medium to coarse-grained sand, wet at 62' bgs, heaving sand.		
65						880
		17		Fine to medium-grained sand, coarsening slightly.		
				End of Boring - 68 feet		
70						875
75						870
80						865
85						860
						855

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC1-GP2

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/8/09 Ended 6/8/09 | Elevation 923.9

Total Depth 20

Location 4953442.9 UTMN, 492299.5 UTME | Logged By EJC | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): very dark brown (10YR 2/2), moist, (0/0/100). [Topsoil]	
				Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained, moist. [Fill?]	
				Lean Clay (CL): brown (10YR 4/3), moist, oxidation stains.	
		1	0	Clayey Silt (ML): very dark grayish brown (10YR 3/2), (0/0/100), oxidation staining. [Loess]	
					920
5			0		
		2			
					915
				Poorly Graded Sand (SP): dark brown (10YR 3/3), medium to coarse-grained, moist. [Outwash]	
10			0		
				Sandy Lean Clay (CL): brown (10YR 4/3), medium-grained sand, moist. [Till]	
		3			
			0		910
15					
				Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained sand. [Outwash]	
		4	0		
					905
20				End of Boring - 20 feet	
					900
25					
					895

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. Borehole sealed on 6/8/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF WELL SOC1-GP3

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/9/09 Ended 6/9/09 | Elevation 912.2

Location 4953524.7 UTMN, 492534.3 UTME | Logged By EJC | Total Depth 44

Screened Interval 29-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic-rich Silty Soil (OL): very dark brown (10YR 2/2), (0/0/100). [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None**	
				Silty Sand (SM): very dark grayish brown (10YR 3/2), some organic content, (0/60/40), moist.		
		1	0	Silty Organic-rich Clay (CL): black (10YR 2/1), bright red veins, roots, moist.		910
5		2	0		RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-29'**	
					GROUT Type: **None** Interval: **None**	905
10		3	0		SEAL Type: **None** Interval: **None**	
				Lean Clay with Silt (CL): olive brown (10YR 4/3), (0/0/100), trace oxidation mottling and black coloration along microfractures, moist. [Lacustrine]	SANDPACK Type: **None** Interval: **None**	900
		4		Two inch layer of dark reddish brown clayey sand.		
15				Poorly Graded Sand (SP): dark yellowish brown (10YR 3/4), medium grained, (0/95/5), moist. [Outwash] Coarsening with depth.	SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **29-44'**	
		5	0	Fine gravel at 18'.		895
20				Fine to medium-grained sand.	BOREHOLE Diameter: **2"**	
		6				890
25		7		Silty lens. 1/4 inch thick at 25', underlain by six inches of fine gravel and coarse-grained sand.		
						885
				Medium to coarse-grained sand, fining downward, wet.		

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. DTW = 37'. Temporary well installed and removed on 6/9/09. Borehole sealed on 6/9/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP3

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/9/09 Ended 6/9/09 | Elevation 912.2

Location 4953524.7 UTMN, 492534.3 UTME | Logged By EJC | Total Depth 44

Screened Interval 29-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
		8		Poorly Graded Sand (SP) *(continued)*		
				Silty Sand (SM): wet.		880
35		9				
				Poorly Graded Sand (SP): medium to coarse-grained, wet.		875
		10				
40				Medium to coarse-grained, fining with depth.		
		11				870
				End of Boring - 44 feet		
45						865
50						860
55						855

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No unusual odor or discoloration. DTW = 37'. Temporary well installed and removed on 6/9/09. Borehole sealed on 6/9/09.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC1-GP3R

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Geoprobe

Number 23/19-0B05 | Drilling Started 9/11/09 Ended 9/11/09 | Elevation 912.2

Location 4953524.7 UTMN, 492534.3 UTME | Logged By EJC | Total Depth 44 | Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC1-GP3.	PRO. CASING Diameter: **None** Type: **None** Interval: **None** RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-34'** GROUT Type: **None** Interval: **None** SEAL Type: **None** Interval: **None** SANDPACK Type: **None** Interval: **None** SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **34-44'** BOREHOLE Diameter: **2"**	910 905 900 895 890 885
5						
10						
15						
20						
25						

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 38.15' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC1-GP3R

Client University of Minnesota
Drill Contractor Matrix Environmental LLC
Project Name UMA Phase II Investigation
Drill Method Geoprobe
Number 23/19-0B05
Drilling Started 9/11/09 Ended 9/11/09
Location 4953524.7 UTMN, 492534.3 UTME
Logged By EJC
Elevation 912.2
Total Depth 44
Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC1-GP3. *(continued)*		
35						880
40						875
45				End of Boring - 44 feet		870
50						865
55						860
						855

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 38.15' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC3-GP1

Client University of Minnesota
Drill Contractor Matrix Environmental LLC
Project Name UMA Phase II Investigation
Drill Method Direct Push - Macrocore
SHEET 1 OF 1
Number 23/19-0B05
Drilling Started 6/4/09 Ended 6/4/09
Elevation 945.0
Total Depth 20
Location 4951472.2 UTMN, 492838.7 UTME
Logged By JME
Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Soil (OL): black, dry. [Topsoil]	
		1	0	Silt (ML): yellowish brown (10YR 5/6), moist, 95% fines, 5% sand. [Loess]	
5				Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 80% medium-grained sand, 20% medium to fine gravel. [Outwash] Dry at 5'.	940
		2	0	7.5-9': Abundant gravel.	
10				10.5-12': Grades to coarse-grained sand with gravel.	935
		3	0		
15					930
		4	0	17.5-18': Fine gravel lens.	
20				End of Boring - 20 feet	925
25					920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No odors or discoloration, moisture in headspace baggie samples.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF WELL SOC3-GP2

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/5/09 Ended 6/5/09 | Elevation 936.0

Location 4951569.5 UTMN, 493051.5 UTME | Logged By JME | Total Depth 44

Screened Interval 33.5-43.5'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
			0	Organic-rich Soil (OL): black, roots, dry. [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None**	935
		1	0	Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), moist, 95% medium-grained sand, 5% fine gravel. [Outwash]	RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-33.5'**	
5		2	0	Few roots.	GROUT Type: **None** Interval: **None**	930
			0	Trace coarse gravel, remainder is medium-grained sand.	SEAL Type: **None** Interval: **None**	
10		3			SANDPACK Type: **None** Interval: **None**	925
		4	0	Fine to medium-grained sand, horizontal bedding planes. 13.5-14': Grades from fine to medium-grained sand.	SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **33.5-43.5'**	
15					BOREHOLE Diameter: **2"**	920
		5	0	95% medium to coarse-grained sand, 5% fine gravel.		
20				Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), moist, 80% medium and coarse-grained sand, 20% fine gravel.		915
		6	0			
25		7	0	Medium-grained sand, trace gravel.		910
				Coarse-grained sand with some gravel.		

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/5/09. Well removed and sealed on 6/9/09. DTW = 37.07'. No unusual odors or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP2

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/5/09 Ended 6/5/09 | Elevation 936.0

Location 4951569.5 UTMN, 493051.5 UTME | Logged By JME | Total Depth 44 | Screened Interval 33.5-43.5'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
		8	0	Poorly Graded Sand (SP) *(continued)* 30.5': Dry.		
				Sandy Lean Clay (CL): yellowish brown (10YR 5/6), 70% fines, 30% sand and gravel, hard, massive, strong reaction to HCl. [Till]		905
		9		Sand seams at 34' (fine-grained sand) and 34.5' (medium-grained sand), both wet and less than one inch thick.		
35						
		10		36.5': Three inch medium-grained sand seam, wet.		900
		11				
40						
		12		Firm to hard, dry, sandier than above.		895
		13				
				End of Boring - 44 feet		
45						890
50						885
55						880

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/5/09. Well removed and sealed on 6/9/09. DTW = 37.07'. No unusual odors or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC3-GP2R

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Geoprobe

Number 23/19-0B05 | Drilling Started 9/9/09 Ended 9/9/09 | Elevation 936.0

Location 4951569.5 UTMN, 493051.5 UTME | Logged By EJC | Total Depth 43 | Screened Interval 33-43'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP2.	PRO. CASING Diameter: **None** Type: **None** Interval: **None** RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-33'** GROUT Type: **None** Interval: **None** SEAL Type: **None** Interval: **None** SANDPACK Type: **None** Interval: **None** SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **33-43'** BOREHOLE Diameter: **2"**	935
5						930
10						925
15						920
20						915
25						910

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 35.0' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC3-GP2R

SHEET 2 OF 2

Client University of Minnesota
Drill Contractor Matrix Environmental LLC
Project Name UMA Phase II Investigation
Drill Method Geoprobe
Number 23/19-0B05
Drilling Started 9/9/09 Ended 9/9/09
Location 4951569.5 UTMN, 493051.5 UTME
Logged By EJC
Elevation 936.0
Total Depth 43
Screened Interval 33-43'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP2. *(continued)*		905
35						900
40						895
				End of Boring - 43 feet		
45						890
50						885
55						880

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 35.0' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF WELL SOC3-GP3

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/4/09 Ended 6/4/09 | Elevation 942.6

Location 4951438.8 UTMN, 492757.8 UTME | Logged By JME | Total Depth 60

Screened Interval 45-60'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic-rich Soil (OL): black, roots. [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None**	
		1	0	Silt (ML): yellowish brown (10YR 5/6), dry, 100% fines, trace sand, massive, soft. [Loess]		940
				Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 90% medium-grained sand, 10% fine gravel. [Outwash]	RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-45'**	
5		2	0		GROUT Type: **None** Interval: **None**	935
		3	0	Approximately 60% medium-grained sand, 40% coarse-grained sand, few medium gravel.	SEAL Type: **None** Interval: **None**	
10					SANDPACK Type: **None** Interval: **None**	930
		4		90% medium-grained sand, 10% coarse-grained sand and fine gravel.	SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **45-60'**	
15					BOREHOLE Diameter: **2"**	
		5	0	Trace gravel.		925
20						
		6		Abundant coarse-grained sand and fine to medium gravel.		920
				Coarse gravel.		
25		7				915
				80% medium-grained sand, 20% fine gravel.		

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/4/09. Well removed and sealed on 6/10/09. DTW = 54.16'. No unusual odors or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP3

SHEET 2 OF 2

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4951438.8 UTMN, 492757.8 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Dual Tube
Drilling Started 6/4/09 Ended 6/4/09
Logged By JME

Elevation 942.6
Total Depth 60
Screened Interval 45-60'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
		8		Poorly Graded Sand (SP) *(continued)*		
		9		100% medium and coarse-grained sand.		910
35		10		37.5-38.5': Abundant gravel.		905
40		11		Silty Sand (SM): strong brown (7.5Yr 4/6), moist, 60% fine-grained sand, 40% fines. One inch thick sand seams at 41.5' and 42.75', dry.		900
45		12		Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), dry, 100% medium-grained sand.		
				Silty Sand (SM): brown (7.5Y 4/4), wet, approximately 70% fine-grained sand, 30% fines, firm, cohesive.		895
50		13		Abundant fine to medium-grained sand seams, ranging in thickness from 1 cm to 2 inches, wet.		
				Silty Sand (SM): strong brown (7.5YR 4/6), wet, 70% fine-grained sand, 30% fines.		890
		14		Sandy Silty with Gravel (ML): brown (7.5YR 4/4), moist, 60% non-plastic fines, 40% sand and gravel, firm, gravel mineralology includes fine-grained mafics, no reaction to HCl. [Till]		
55				No sample.		885
				End of Boring - 60 feet		

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/4/09. Well removed and sealed on 6/10/09. DTW = 54.16'. No unusual odors or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring SOC3-GP3R

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Geoprobe

Number 23/19-0B05 | Drilling Started 9/9/09 Ended 9/9/09 | Elevation 942.6

Location 4951438.8 UTMN, 492757.8 UTME | Logged By EJC | Total Depth 67 | Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP3.	PRO. CASING Diameter: **None** Type: **None** Interval: **None** RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-37'** GROUT Type: **None** Interval: **None** SEAL Type: **None** Interval: **None** SANDPACK Type: **None** Interval: **None** SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **37-67'** BOREHOLE Diameter: **2"**	940 935 930 925 920 915
5						
10						
15						
20						
25						

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC3-GP3R

Client University of Minnesota
Drill Contractor Matrix Environmental LLC
Project Name UMA Phase II Investigation
Drill Method Geoprobe
Number 23/19-0B05
Drilling Started 9/9/09 Ended 9/9/09
Location 4951438.8 UTMN, 492757.8 UTME
Logged By EJC
Elevation 942.6
Total Depth 67
Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP3. *(continued)*		
35						910
40						905
45						900
50						895
55						890
						885

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring SOC3-GP3R

Client University of Minnesota
Drill Contractor Matrix Environmental LLC
Project Name UMA Phase II Investigation
Drill Method Geoprobe
Number 23/19-0B05
Drilling Started 9/9/09 Ended 9/9/09
Location 4951438.8 UTMN, 492757.8 UTME
Logged By EJC
Elevation 942.6
Total Depth 67
Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
65				Blind drilled to water. See log for SOC3-GP3. *(continued)*		880
				End of Boring - 67 feet		875
70						870
75						865
80						860
85						855

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP4

SHEET 1 OF 2

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4951455.8 UTMN, 492945.2 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Dual Tube
Drilling Started 6/5/09 Ended 6/5/09
Logged By JME

Elevation 937.8
Total Depth 44
Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Silty Soil: brown, abundant roots. [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None**	
		1	0	Poorly Graded Sand (SP): yellowish brown (10YR 5/4), dry, 95% medium-grained sand, 5% gravel. [Fill] Black and white poly - likely former lagoon liner.		935
5		2	0	Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), dry, 95% medium and coarse-grained sand, 5% fine gravel. [Outwash]	RISER CASING Diameter: **1"** Type: **PVC** Interval: **0-34'** GROUT Type: **None** Interval: **None**	930
			0.5			
10		3		10': Abundant fine gravel.	SEAL Type: **None** Interval: **None**	
			0.2	Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 70% sand, 30% gravel.	SANDPACK Type: **None** Interval: **None**	925
		4				
15					SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **34-44'**	
			0.2	Abundant coarse gravel.		920
		5			BOREHOLE Diameter: **2"**	
20				Advanced borehole to 38' with sampling in accordance to work plan.		
						915
25						
						910

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/5/09. Well removed and sealed on 6/10/09. DTW = 44.64'. No unusual odors or discoloration. No water observed. Set temporary well at top of Diamicton to see if any infiltrates for sampling.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP4

SHEET 2 OF 2

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4951455.8 UTMN, 492945.2 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Dual Tube
Drilling Started 6/5/09 Ended 6/5/09
Logged By JME

Elevation 937.8
Total Depth 44
Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Poorly Graded Sand (SP) *(continued)*		
35						905
						900
		6		Sandy Lean Clay (CL): brown (7.5YR 4/4), moist, 70% non-plastic fines, 30% sand and gravel, hard, massive, strong reaction to HCl. [Diamicton]		
40		7				
		8		Clayier than above, few gravel.		895
				End of Boring - 44 feet		
45						
						890
50						
						885
55						
						880

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Temporary well installed on 6/5/09. Well removed and sealed on 6/10/09. DTW = 44.64'. No unusual odors or discoloration. No water observed. Set temporary well at top of Diamicton to see if any infiltrates for sampling.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC6-GP1

Client University of Minnesota | Drill Contractor Matrix Technologies

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/10/09 Ended 6/10/09 | Elevation 945.5

Total Depth 26

Location 4950064.6 UTMN, 492032.2 UTME | Logged By EJC | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): black (10YR 2/1), (0/0/100), moist. [Topsoil]	945
		1	0	Silt (SM): dark yellowish brown (10YR 4/4), (0/0/100), moist. [Loess]	
				Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained sand, (5/95/0), moist. [Outwash]	
5		2	0		940
				20% fine-grained gravel, mostly granitic.	
10		3	0	25% fine to coarse-grained gravel, granitic.	935
				30% fine to coarse-grained gravel, granitic.	
		4	0		
15					930
				10% fine-grained gravel, granitic.	
				5% fine-grained gravel, granitic.	
		5	0		
20					925
				Lean Clay (CL): dark yellowish brown (10YR 4/4), medium to coarse-grained sand, (0/5/95), moist. [Till]	
		6		Very dark gray (5Y 3/1), medium to coarse-grained sand, (0/10/90), hard, stiff.	
				Dark yellowish brown (10YR 4/4).	
				Poorly Graded Sand (SP): yellowish brown (10YR 5/6), fine to coarse-grained, (5/90/5), moist.	
25		7		Sandstone: light yellowish brown (10YR 6/4), very fine-grained, moist, strong reaction to HCl. [Weathered St. Peter Sandstone?]	920
				Refusal. End of Boring - 26 feet	

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No odor or discoloration observed. No well installed. Refusal at 26'.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC6-GP2

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/10/09 Ended 6/10/09 | Elevation 945.2

Total Depth 20

Location 4950086.2 UTMN, 492032.5 UTME | Logged By EJC | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): black (10YR 2/1), moist. [Topsoil]	945
				Silt (ML): very dark grayish brown to dark yellowish brown (10YR 4/4), (0/0/100), dry. [Loess]	
		1		Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), fine to coarse-grained sand with 5% fine-grained gravel, granitic, (5/95/0), moist. [Outwash]	
5				5-6': Fine to medium-grained sand, coarsening to medium to coarse-grained sand with 15% fine to coarse-grained gravel below 6'.	940
		2			
10					935
		3		35% fine to coarse-grained gravel, granitic.	
15				Lean Clay (CL): dark brown (10YR 4/3), medium to coarse-grained carbonate sand, (0/5/95), moist. [Till] Very dark gray (5Y 3/1), very stiff.	930
		4		16.5-19.5': Brown (10YR 4/3), some oxidation mottling.	
20				Sandstone: light yellowish brown (10YR 6/4), very fine-grained, moist. [Weathered St. Peter Sandstone?]	925
				Refusal. End of Boring - 20 feet	
25					920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No odor or discoloration observed. Refusal at 20'.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC6-GP3

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Dual Tube

Number 23/19-0B05 | Drilling Started 6/9/09 Ended 6/9/09 | Elevation 944.8

Location 4950104.9 UTMN, 492032.4 UTME | Logged By EJC | Total Depth 28 | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): black (10YR 2/1), (0/0/100), moist. [Topsoil]	
		1	0	Silt (ML): very dark grayish brown (10YR 3/2), (0/0/100), dry. [Loess] 2-4': Dark yellowish brown (10YR 4/4), moist.	
				Silty Sand (SM): yellowish brown (10YR 5/4), fine-grained, (0/80/20), moist.	
5		2	0	Poorly Graded Sand (SP): yellowish brown (10YR 5/4), medium to coarse-grained, (5/95/0), moist. [Outwash]	940
				Medium to coarse-grained with 5% gravel.	
10		3	0		935
				Coarse-grained sand with 10% fine gravel.	
		4	0		
15					930
				Lean Clay (CL): dark yellowish brown (10YR 4/4), coarse-grained carbonate sand and oxidation mottling, (0/15/85). [Till] Dark gray (10YR 3/1), trace sand and gravel, (2/2/96), moist, very stiff.	
		5	0		
20				No recovery 20-24' - driller indicates interval felt like clay from 16-20'.	925
		6			
				Sandstone: light yellowish brown (2.5Y 6/4), fine-grained, few pieces of mafic igneous fine gravel. Very dense, cohesive, moist to dry, oxidation mottling. Slow drilling. [Weathered St. Peter Sandstone?]	
25		7			920
				Refusal. End of Boring - 28 feet	
					915

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
No odor or discoloration observed. No well installed. Refusal at 24' on first attempt, moved 5' south and redrilled blind. Refusal at 28' on second attempt.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP4

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

Number 23/19-0B05 | Drilling Started 6/3/09 Ended 6/3/09 | Elevation 946.3

Location 4950254.2 UTMN, 492025.9 UTME | Logged By JME | Total Depth 51.5

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
		1	1.4	Silty Sand (SM): brown (10YR 4/3), dry, few roots. [Topsoil]	945
				Silt (ML): dark yellowish brown (10YR 4/4), moist, approximately 95% fines, 5% fine-grained sand, non-plastic, soft to firm, massive. [Loess]	
5		2	0.3	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 4/4), moist, 90% medium-grained sand, 10% gravel, trace fines. [Outwash]	940
			0.7	Poorly Graded Gravel with Sand (GP): dry, mineralologies include basalts and granites.	
10		3	1.9	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 4/4), moist, 90% medium to coarse-grained sand, 10% fine gravel.	935
		4	1.9		
15			1.0		930
		5		Cobble. Rock obstruction resulted in poor recovery. Cleared rock with center bit.	
20		6		Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), moist, approximately 95% medium-grained sand, 5% coarse-grained sand and fine gravel.	925
				Weak lamination with subtle grain size variations between approximately 4 inch intervals (i.e., fine sand, coarse sand, medium sand).	
25		7		Few dark bedding plane traces.	920
				Approximately 100% medium-grained sand, trace coarse-grained sand.	

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Location from building 706 (NE corner) - 21' N, 11.5' E. No well installed. Refusal at 51.5'. No unusual odor or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP4

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4950254.2 UTMN, 492025.9 UTME

Drill Contractor Matrix Environmental LLC
Drill Method Direct Push - Macrocore
Drilling Started 6/3/09 Ended 6/3/09
Logged By JME

Elevation 946.3
Total Depth 51.5
Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
		8		Poorly Graded Sand (SP) *(continued)*	
					915
		9		Increasing coarse-grained sand content with depth.	
35					
				Abundant gravel.	910
		10			
40				40-41': Approximately 100% medium-grained sand.	
				41-42': 90% coarse-grained sand and fine gravel, 10% medium-grained sand.	905
		11			
45				Coarse-grained sand, moist.	
		12			900
				Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), moist, 70% medium-grained sand, 30% fine gravel.	
50		13			
				Sandstone: white, dry. [St. Peter Sandstone]	895
				Refusal at 51.4' bgs. End of Boring - 51.5 feet	
55					
					890

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Location from building 706 (NE corner) - 21' N, 11.5' E. No well installed. Refusal at 51.5'. No unusual odor or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP5

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

Number 23/19-0B05 | Drilling Started 6/4/09 Ended 6/4/09 | Elevation 946.1

Location 4950049.9 UTMN, 491998.5 UTME | Logged By JME | Total Depth 20 | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Soil: roots, dry. [Topsoil]	
		1	0	Silt (ML): yellowish brown (10YR 5/6), moist, 100% non-plastic fines, trace sand. [Loess]	945
5		2	0.9	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 70% medium-grained sand, 30% gravel. [Outwash]	940
10		3	0.8	12-13': Abundant fine gravel.	935
15		4	1.0	Abundant gravel.	930
				Sandy Lean Clay (CL): dark yellowish brown (10YR 4/6), moist, 70% medium plasticity fines, 30% sand and gravel, firm, massive, weak reaction to HCl. [Till]	
20				Color grades to greenish black (10R 2.5/1).	
				End of Boring - 20 feet	925
25					920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Moisture in headspace bags. No well installed. No unusual odor or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF WELL SOC6-GP6

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/3/09 Ended 6/3/09 | Elevation 945.5

Location 4950028.3 UTMN, 492028.2 UTME | Logged By JME | Total Depth 25

Screened Interval 11-21'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic-rich Soil (OL): black, grass, roots. [Topsoil]	PRO. CASING Diameter: **None** Type: **None** Interval: **None** RISER CASING Diameter: **1"** Type: **PVC** Interval: GROUT Type: **None** Interval: **None** SEAL Type: **None** Interval: **None** SANDPACK Type: **None** Interval: **None** SCREEN Diameter: **1"** Type: **10 Slot, PVC** Interval: **11-21'** BOREHOLE Diameter: **2"**	945
		1	1.4	Silt with Sand (ML): brown (10YR 4/3), moist, 85% fines, 15% fine-grained sand, firm, massive. [Loess]		
5			2.4	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 85% medium-grained sand, 15% coarse-grained sand and gravel. [Outwash]		940
		2		8-9': Gravel lens.		
10				Few coarse gravel at 11' bgs.		935
		3				
15						930
		4		100% medium-grained sand, wet from 18.5' to 19.5'.		
20				Lean Clay with Sand (CL): dark yellowish brown (10YR 4/4), moist, 90% medium plasticity fines, 10% sand. [Till]		925
		5		Yellowish brown (10YR 5/6), moist, abundant mottles and oxidized traces.		
				Silty Sand (SM): brownish yellow (10YR 6/6), moist, 70% fine-grained sand, 30% fines.		
25				End of Boring - 25 feet		920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 17.5' bgs. Temporary well installed on 6/3/09. Well removed and sealed on 6/9/09. No unusual odor or discoloration.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC6-GP7

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/3/09 Ended 6/3/09 | Elevation 946.8

Total Depth 20

Location 4950233.8 UTMN, 492015.8 UTME | Logged By JME | Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Topsoil (OL)	
				Gravel	945
		1	0	Sandy Silt (ML): dark yellowish brown (10YR 4/4), moist, 70% non-plastic fines, 30% fine-grained sand, firm, massive. [Loess]	
5					
			0	Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 80% medium-grained sand, 20% fine gravel. [Outwash]	940
		2			
10			0		
				70% medium-grained sand, 30% fine gravel.	935
		3			
15					
					930
		4			
				Few coarse gravel.	
20				End of Boring - 20 feet	
					925
25					
					920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Sample SOC6-GP7 0-4' collected at 14:15. No well installed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF BORING SOC6-GP8

Client University of Minnesota | Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation | Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05 | Drilling Started 6/4/09 Ended 6/4/09 | Elevation 946.0

Location 4950049.9 UTMN, 492020.9 UTME | Logged By JME | Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Gravel Ground Cover (Fill)	
				Organic-rich Soil (OL): dark. [Topsoil]	945
		1	0	Silt (ML): dark yellowish brown, moist, 95% non-plastic fines, 5% sand, trace fine gravel. [Loess]	
5				Poorly Graded Sand with Gravel (SP): light yellowish brown, dry, 90% sand, 10% medium gravel. [Outwash]	
			0		940
		2			
10					
				Abundant coarse-grained sand and gravel.	935
			0		
		3			
15					
					930
		4			
			0		
				Lean Clay with Sand (CL): yellowish brown (10YR 5/4), moist, 95% lean clay, 5% sand and gravel, firm to hard, massive, sand/gravel includes felsic clasts, weak reaction to HCl. [Till]	
20				End of Boring - 20 feet	
					925
25					
					920

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Sample SOC6-GP8 2-4' collected. No well installed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring MW-E2-012

SHEET 1 OF 3

Client University of Minnesota
Project Name UMA Phase II Investigation
Number 23/19-0B05
Location 4950337.9 UTMN, 492396.1 UTME

Drill Contractor SDE
Drill Method HSA
Drilling Started 9/25/09 Ended 9/28/09
Logged By EJC

Elevation 945.3
Total Depth 75
Screened Interval 60-70'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
0				Soil (OL): black. [Topsoil]	PRO. CASING Diameter: **8"** Type: **Steel** Interval: **0-4'**	945
				Silt (ML): yellowish brown. [Loess]	RISER CASING Diameter: **2"** Type: **Threaded Black Steel** Interval: **0-60'**	
5				Sand and Gravel (SP): yellowish brown. [Outwash]	GROUT Type: **Cement** Interval: **1-51'**	940
				Gravel at 7' bgs.	SEAL Type: **Bentonite** Interval: **51-53'**	
10				Gravel at 12' bgs.	SANDPACK Type: **Naturals** Interval: **53-75'**	935
15					SCREEN Diameter: **2"** Type: **10 Slot, Stainless Steel** Interval: **60-70'**	930
20					BOREHOLE Diameter: **8.5"**	925
25						920

(continued)

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring MW-E2-012

Client University of Minnesota | Drill Contractor SDE

Project Name UMA Phase II Investigation | Drill Method HSA

Number 23/19-0B05 | Drilling Started 9/25/09 Ended 9/28/09 | Elevation 945.3

Location 4950337.9 UTMN, 492396.1 UTME | Logged By EJC | Total Depth 75

Screened Interval 60-70'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Sand and Gravel (SP): yellowish brown. [Outwash] *(continued)*		915
35						910
40						905
45				Gravel from 45' to 50' bgs.		900
50						895
55						890
				(continued)		

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

LOG OF Boring MW-E2-012

Client University of Minnesota | Drill Contractor SDE

Project Name UMA Phase II Investigation | Drill Method HSA

Number 23/19-0B05 | Drilling Started 9/25/09 Ended 9/28/09 | Elevation 945.3

Location 4950337.9 UTMN, 492396.1 UTME | Logged By EJC | Total Depth 75

Screened Interval 60-70'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Sand and Gravel (SP): yellowish brown. [Outwash] *(continued)*		885
65						880
70						875
75				End of Boring - 75 feet		870
80						865
85						860

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

Barr - Elmore

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL AND BORING NO. 770718

WELL OR BORING LOCATION

County Name: Dakota

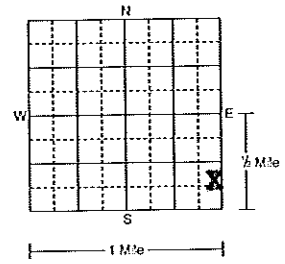
Township Name	Township No.	Range No.	Section No.	Fraction
Empire Twp.	114N	29W	4	NE SE SE

GPS LOCATION: Latitude ____ degrees ____ minutes ____ seconds ____ Longitude ____ degrees ____ minutes ____ seconds ____

House Number, Street Name, City, and Zip Code of Well Location: approx. 1300 ft NW of Station Trl and 170th St, Rosemount MN 55024

or Fire Number:

Show exact location of well/boring in section grid with "X." Sketch map of well/boring location. Showing property lines, roads, buildings, and direction.



MW-E2-012

see attached map

PROPERTY OWNER'S NAME/COMPANY NAME: University of Minnesota

Property owner's mailing address if different than well location address indicated above.
Boynton Health Center, RM W-140
410 Church St.
Minneapolis, MN 55455

WELL OWNER'S NAME/COMPANY NAME: University of Minnesota

Well/boring owner's mailing address if different than property owner's address indicated above.
501 23rd Ave SE
Minneapolis, MN 55414

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
top soil	tan		0	3
sand & gravel	gray		3	70

Use a second sheet, if needed.

REMARKS, ELEVATION, SOURCE OF DATA, etc.

WELL CONTRACTOR COPY 770718

WELL/BORING DEPTH (completed): 70 ft. DATE WORK COMPLETED: Sept. 28, 2009

DRILLING METHOD: ☐ Cable Tool ☐ Driven ☐ Dug ☒ Auger ☐ Rotary ☐ Jetted ☐

DRILLING FLUID: ----- WELL HYDROFRACTURED? ☐ Yes ☒ No From ____ ft. To ____ ft.

USE: ☐ Domestic ☒ Monitoring ☐ Heating/Cooling ☐ Noncommunity PWS ☐ Environ. Bore Hole ☐ Industry/Commercial ☐ Community PWS ☐ Irrigation ☐ Remedial ☐ Elevator ☐ Dewatering ☐ ____

CASING MATERIAL: ☒ Steel ☐ Plastic Drive Shoe? ☐ Yes ☒ No ☒ Threaded ☐ Welded ☐ ____

CASING Diameter / Weight / Specifications:
2 in. to 60 ft. ____ lbs./ft. ____
____ in. to ____ ft. ____ lbs./ft. ____
____ in. to ____ ft. ____ lbs./ft. ____

HOLE DIAM.:
8¼ in. to 70 ft.
____ in. to ____ ft.
____ in. to ____ ft.

SCREEN Make: Johnson Type: SS Diam.: 2" Slot/Gauze: 10 Length: 10' Set between 60 ft. and 70 ft. FITTINGS: thread

OPEN HOLE From ____ ft. To ____ ft.

STATIC WATER LEVEL: 61 ft. ☒ Below ☐ Above land surface Measured from: grade Date measured: 9/28/09

PUMPING LEVEL (below land surface): ____ ft. after ____ hrs. pumping 1 g.p.m.

WELLHEAD COMPLETION
☐ Pitless/adapter manufacturer ____ Model ____
☒ Casing Protection 8" x 6' ☒ Casing above grade 24"
☐ At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION
Well grouted ☒ Yes ☐ No
Grout materials ☒ Neat cement ☐ Bentonite ☐ Concrete ☐ Other ____
From 0 To 55 ft. 16 ☐ Yds. ☒ Bags
From ____ To ____ ft. ____ ☐ Yds. ☐ Bags
From ____ To ____ ft. ____ ☐ Yds. ☐ Bags

NEAREST KNOWN SOURCE OF CONTAMINATION: ____ feet ____ direction ____ type

Well disinfected upon completion? ☐ Yes ☒ No

PUMP
☒ Not installed Date installed ____
Manufacturer's name ____
Model Number ____ HP ____ Volts ____
Length of drop pipe ____ ft. Capacity ____ g.p.m.
Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating ☐ Jet ☐ ____

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

VARIANCE
Was a variance granted from the MDH for this well? ☐ Yes ☒ No TN# ____

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name — Lic. or Reg. No.

Certified Representative Signature — 556 — 10/6/09
Certified Rep. No. — Date

Randy Johnson
Name of Driller

UMP007411

IC 140-0020 HE-01205-11 (Rev. 3/07)

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
Minnesota Statutes, Chapter 103I

Minnesota Well and Boring Sealing No. H 280656
Minnesota Unique Well No. or W-series No. (Leave blank if not known)

WELL OR BORING LOCATION

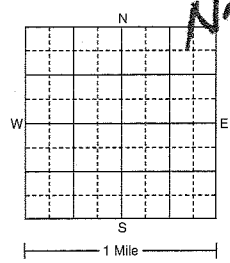
County Name: Dakota

Township Name	Township No.	Range No.	Section No.	Fraction (sm. → lg.)
	114N	19W	4	NE NW NE

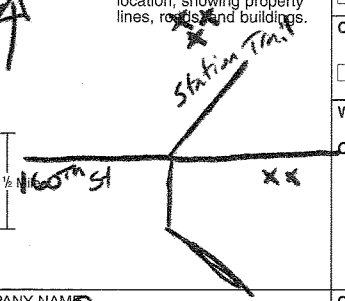
GPS LOCATION: Latitude_____ degrees_____ minutes_____ seconds; Longitude_____ degrees_____ minutes_____ seconds

Numerical Street Address or Fire Number and City of Well or Boring Location: 1605 160th St. W, Rosemount

Show exact location of well or boring in section grid with "X." NA



Sketch map of well or boring location, showing property lines, roads and buildings.



PROPERTY OWNER'S NAME/COMPANY NAME: U. of MN c/o Barr Engineering

Property owner's mailing address if different than well location address indicated above: 1605 160th St. W. Rosemount, MN 55024

WELL OWNER'S NAME/COMPANY NAME: SAA

Well owner's mailing address if different than property owner's address indicated above: SAA

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
If not known, indicate estimated formation log from nearby well or boring.				
Organic Top Soil	Black	Soft	0	3
Fine/med Sand	Brown	mod	3	40
Silty Clay Till	Gray	mod	40	42
med SD	Brown	mod	42	68

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

IMPORTANT-FILE WITH PROPERTY PAPERS-WELL OWNER COPY — H 280656

Date Sealed: 6/3-10/09

Date Well or Boring Constructed: 6/3-10/09

Depth Before Sealing: 45-68 ft.

Original Depth: 45-68 ft.

AQUIFER(S): ~~Single Aquifer~~ ☐ Multiaquifer

STATIC WATER LEVEL: ☐ Measured ~~Estimated~~ Date Measured 6/3-10/09 — 45-60 ft. ~~Below~~ ☐ above land surface

WELL/BORING: ☐ Water-Supply Well ~~Monit. Well~~ Turf ☐ Env. Bore Hole ☐ Other_____

CASING TYPE(S): ☐ Steel ~~Plastic~~ ☐ Tile ☐ Other_____

WELLHEAD COMPLETION

Outside: ☐ Well House ☐ At Grade ☐ Pitless Adapter/Unit ☐ Buried NA ☐ Well Pit ☐ Other_____

Inside: ☐ Basement Offset ☐ Well Pit ☐ Buried ☐ Other_____

CASING(S)

Diameter	Depth	Set in oversize hole?	Annular space initially grouted?
_____ in. from_____	to_____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
_____ in. from_____	to_____ ft. NA	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown
_____ in. from_____	to_____ ft.	☐ Yes ☐ No	☐ Yes ☐ No ☐ Unknown

SCREEN/OPEN HOLE: Screen from_____ to_____ ft. ~~Open Hole~~ NA from_____ to_____ ft.

OBSTRUCTIONS: ☐ Rods/Drop Pipe ☐ Check Valve(s) ☐ Debris ☐ Fill ~~No Obstruction~~

Type of Obstructions (Describe)_____

Obstructions removed? ☐ Yes ☐ No Describe_____

PUMP: Type_____ ☐ Removed ~~Not Present~~ ☐ Other_____

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:

~~No Annular Space Exists~~ ☐ Annular Space Grouted with Tremie Pipe ☐ Casing Perforation/Removal

_____ in. from_____ to_____ ft. ☐ Perforated ☐ Removed

_____ in. from_____ to_____ ft. ☐ Perforated ☐ Removed

Type of Perforator_____

☐ Other_____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)

Grouting Material: ~~Bentonite~~ Grout from 0 to 45-68 ft. 4 yards_____ bags

_____ from_____ to_____ ft._____ yards_____ bags

_____ from_____ to_____ ft._____ yards_____ bags

OTHER WELLS AND BORINGS: Other unsealed and unused well or boring on property? ☐ Yes ☐ No How many?_____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION

This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Matrix Environmental, LLC — 1916
Licensee Business Name — *License or Registration No.*

Dan Thompson — 1200 — 6/15/09
Certified Representative Signature — *Certified Rep. No.* — *Date*

Guy Paquette
Name of Person Sealing Well or Boring

HE-01434-11 IC# 140-0423 2/08R

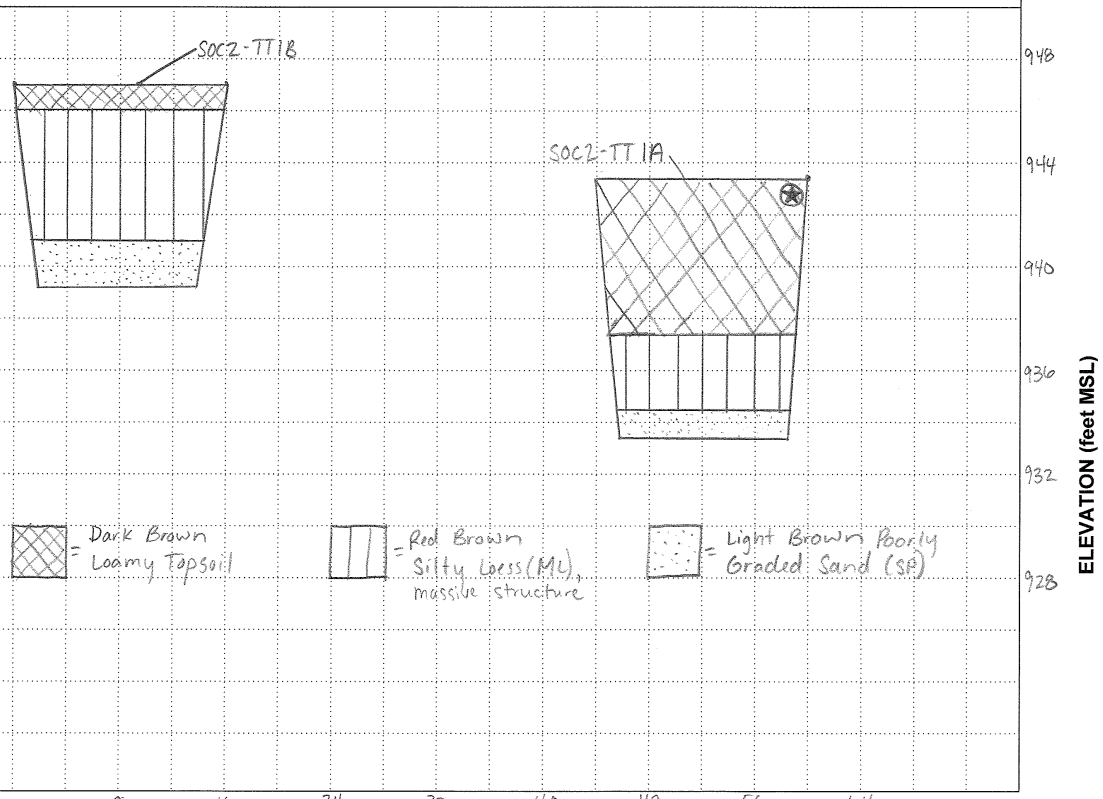
UMP007412

Project Name: UMore Park	**Log of Test Pit No.** SOC2-TT1	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 943.614-947.034' MSL	**Total Depth:** 10 feet
Location: SOC2	**Date Started:** 6/5/09	**Ended:** 6/5/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KLB/LMC2	

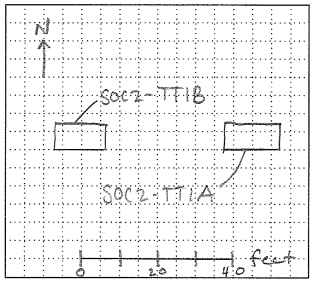
◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC2-TT1-0-1.5'	2.2	None	None	0-1.5
TT1B	1.8	None	None	6-8'

DESCRIPTION



Map View



Remarks:

* Samples SOC2-TT6-0-1.5' and SOC2-TT6R-0-1.5' collected from test trench SOC2-TT6A

⊛ Approximate Sample Location

Figure

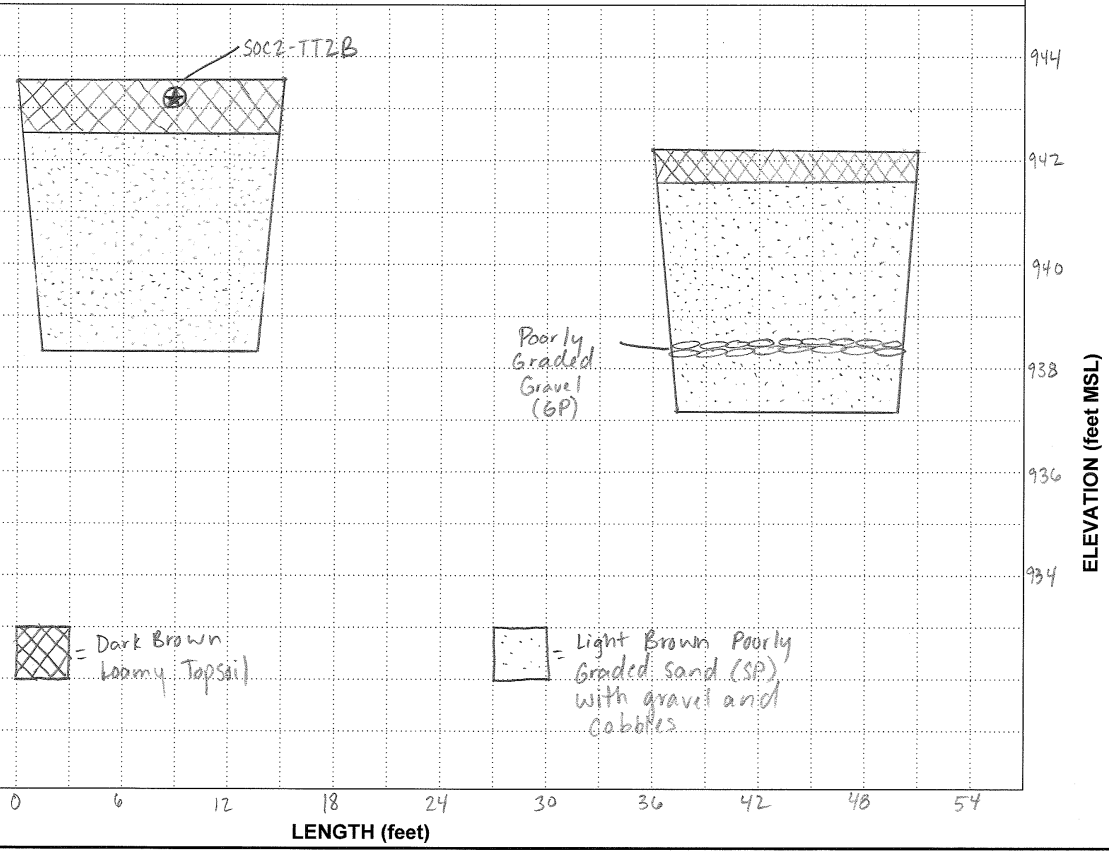
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

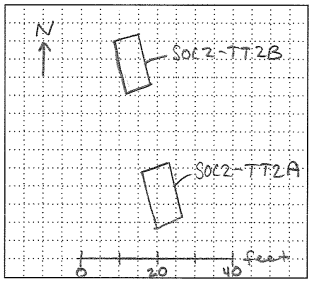
Project Name: UMore Park	Log of Test Pit No. SOC2-TT2	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 942.366-943.442' MSL	Total Depth: 5 feet
Location: SOC2	Date Started: 6/5/09	Ended: 6/5/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMC2	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC2-TT2-0.5-1.5'	0.3	None	None	0.5-1'
TT2A	2.6	None	None	1-5'



Map View



Remarks:

* Sample SOC2-TT2-0.5-1.5' collected from test trench SOC2-TT2B

⊛ = approximate sample location

* Stratification and cross bedding observed in sand and gravel layers

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

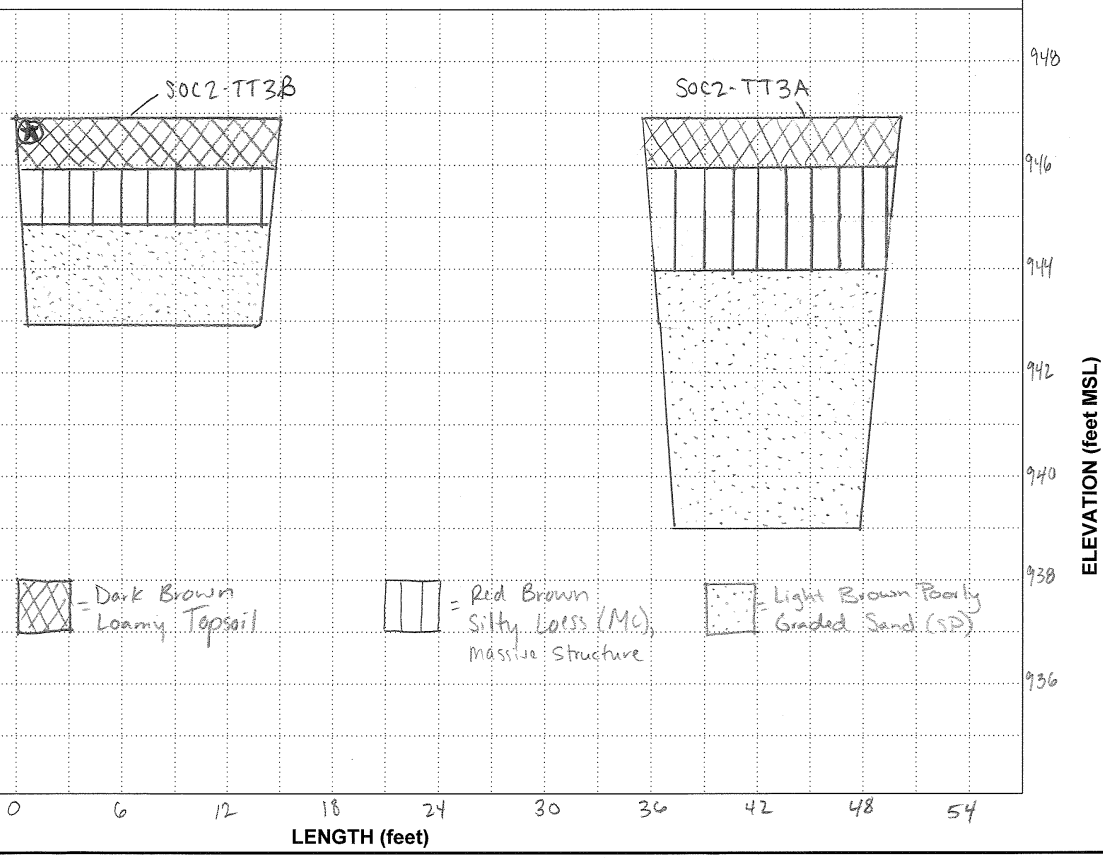
TEST PIT LOG PAGE 2392894.GPJ BARRLOG.GDT 6/18/09

UMP007414

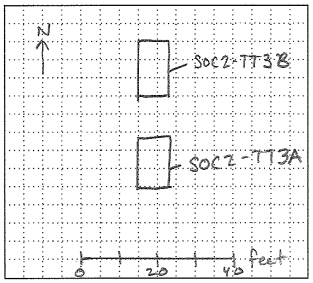
Project Name: UMore Park	**Log of Test Pit No.** SOC2-TT3		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 946.889 - 946.891' MSL	**Total Depth:** 8 feet	
Location: SOC 2	**Date Started:** 6/5/09	**Ended:** 6/5/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LMLZ		

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC2-TT3-0.5-1'	0.3	None	None	0.5-1'
TT3A	2.6	None	None	0.5-5'



Map View



Remarks:

* Samples SOC2-TT3-0.5-1' and SOC2-TT3B-0.5-1' collected from test trench SOC2-TT3B

⊛ Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

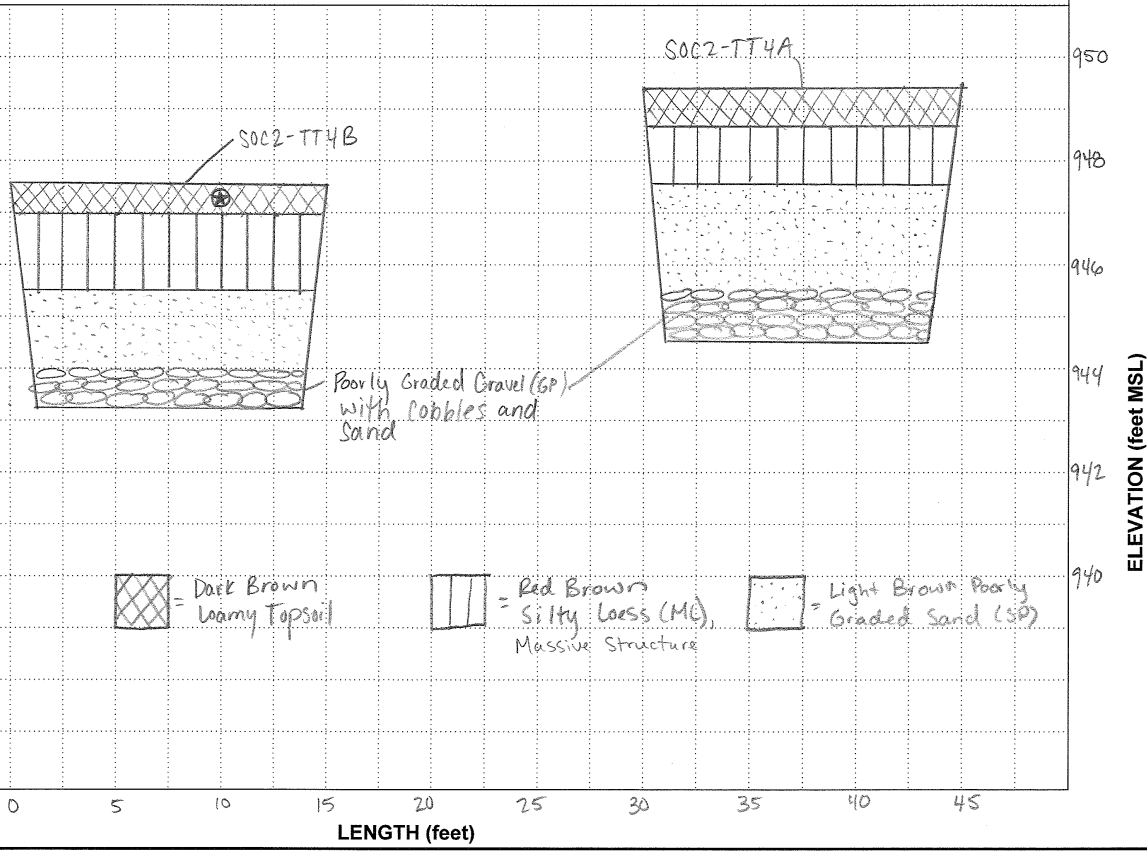
TEST PIT LOG PAGE 2382884.GPJ BARR.LOG.GDT 6/16/09

UMP007415

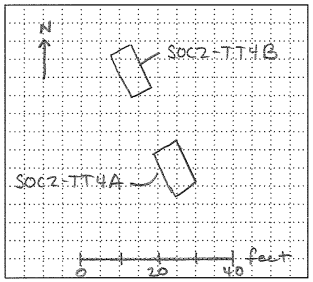
Project Name: UMore Park	Log of Test Pit No. SOC2-TT4	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 947.631-948.489' MSL	Total Depth: 5 feet
Location: SOC2	Date Started: 6/5/09	Ended: 6/5/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4A	2.1	None	None	0-1'
SOC2-TT4-0.5-1'	0.0	None	None	0.5-1'



Map View



Remarks:

* Samples SOC2-TT4-0.5-1' and SOC2-TT4B-0.5-1' collected from test trench SOC2-TT4B

⭐ = Approximate sample location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

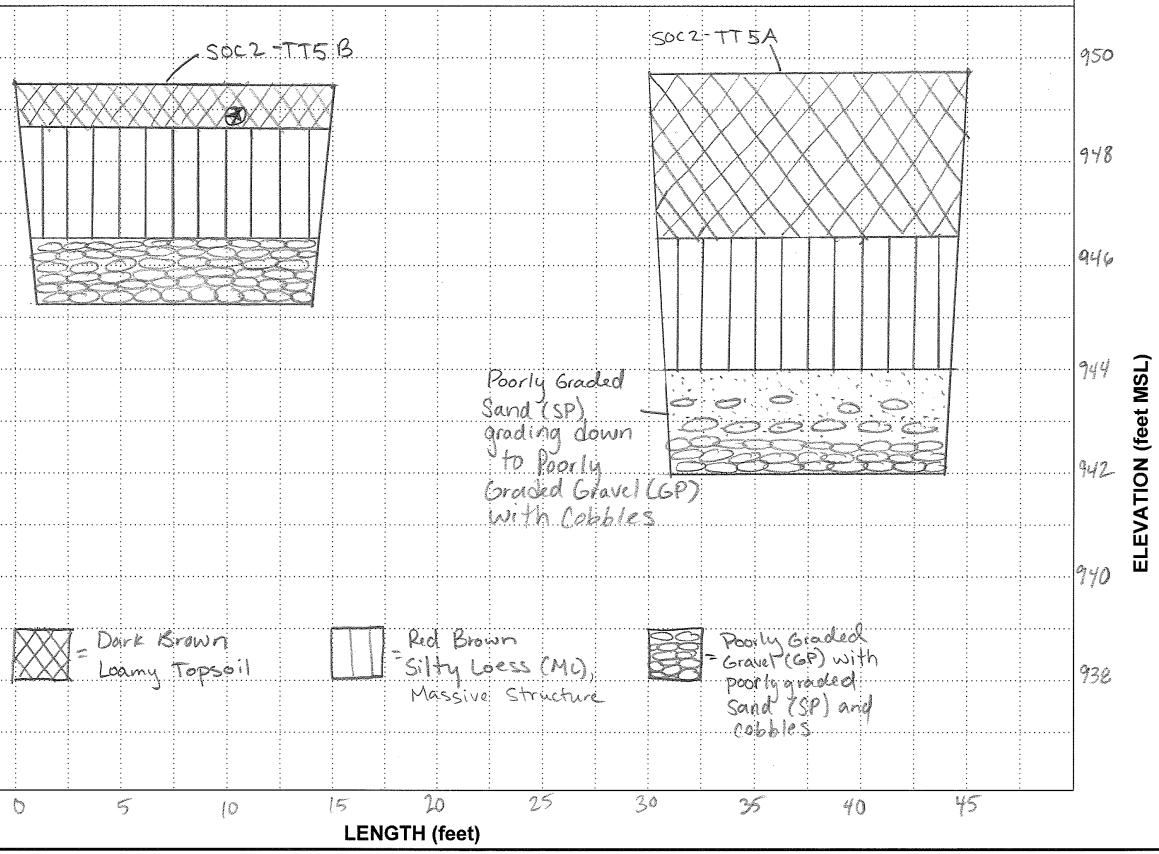
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007416

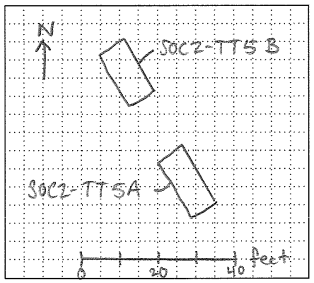
Project Name: UMore Park	Log of Test Pit No. SOC2-TT5	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 947.49 - 947.765' MSL	Total Depth: 7.5 feet
Location: SOC2	Date Started: 6/5/09	Ended: 6/5/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMC2	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC2-TT2-0.5-1'	3.0	None	None	0.5-1'
TT2A	6.2	None	None	2-5'



Map View



Remarks:

* Samples SOC2-TT5-0.5-1' and SOC2-TT5R-0.5-1' collected from test trench SOC2-TT5B.

⊛ Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

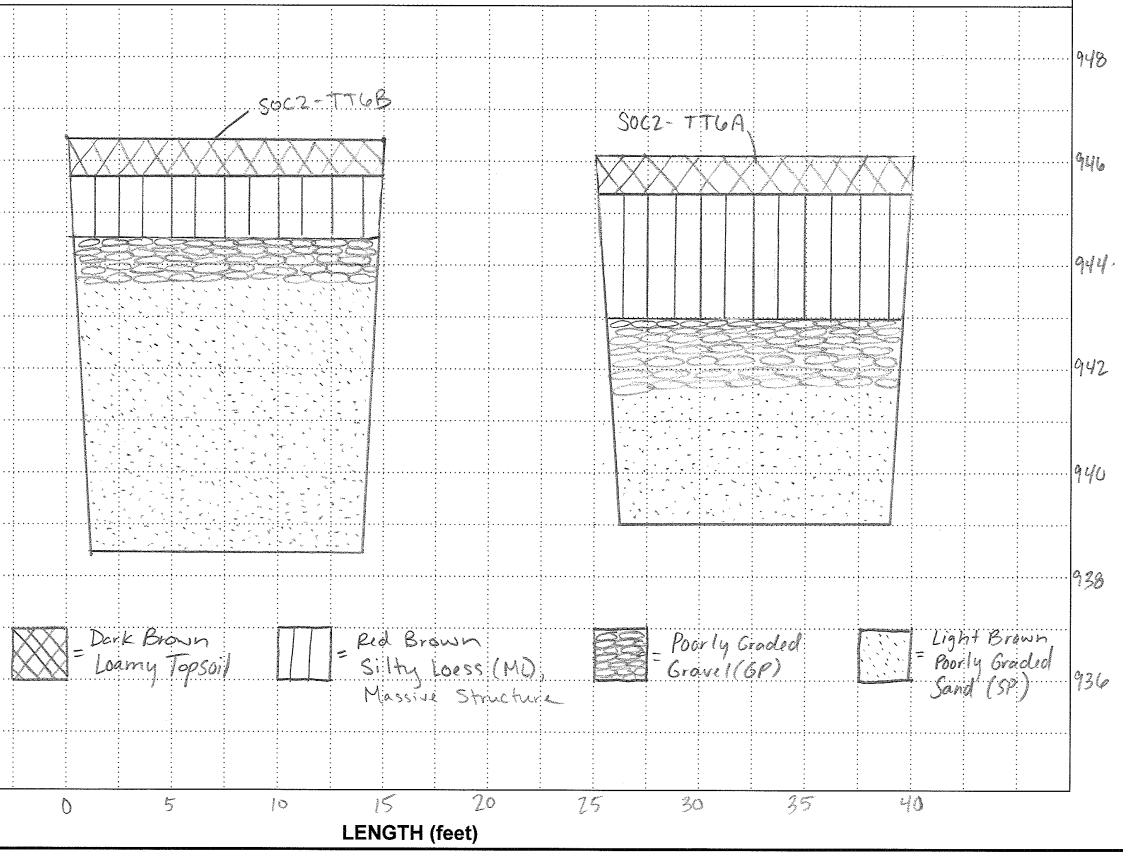
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/16/09

UMP007417

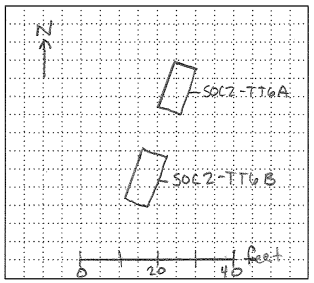
Project Name: UMore Park	Log of Test Pit No. SOC2-TT6	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.101 - 946.566' MSL	Total Depth: 8 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT6B	1.1	None	None	0-0.5'
TT6A	0.5	None	None	1-3'



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT9.
* Laminations and bedding observed in the sand and gravel layers.

Figure

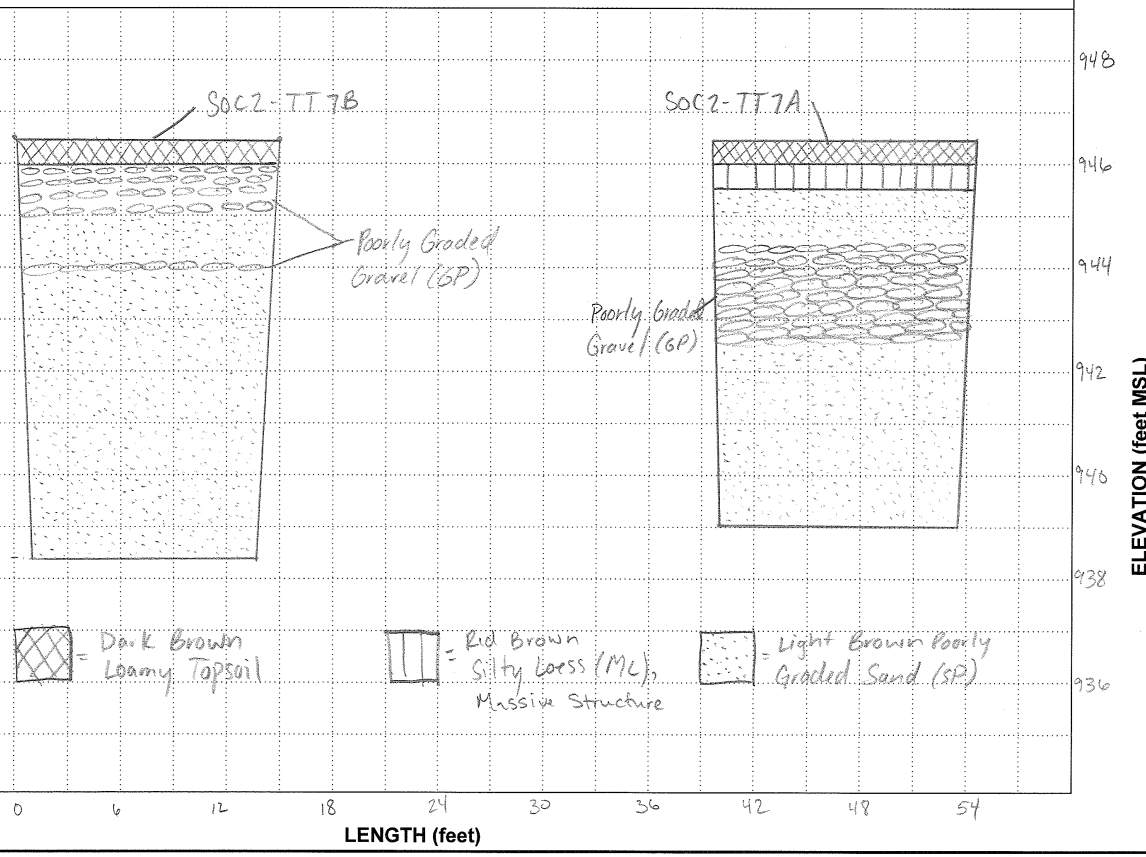
BARR
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

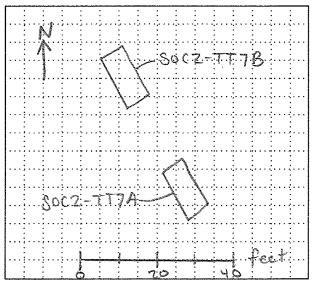
Project Name: UMore Park	Log of Test Pit No. SOC2-TT7	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.122-946.506' MSL	Total Depth: 8 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

NW ◄ ► SE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT7A	0.1	None	None	0.5-6'
TT7B	0.0	None	None	1-6'



Map View



Remarks:

*No analytical samples were collected from test trench SOC2-TT7

Figure

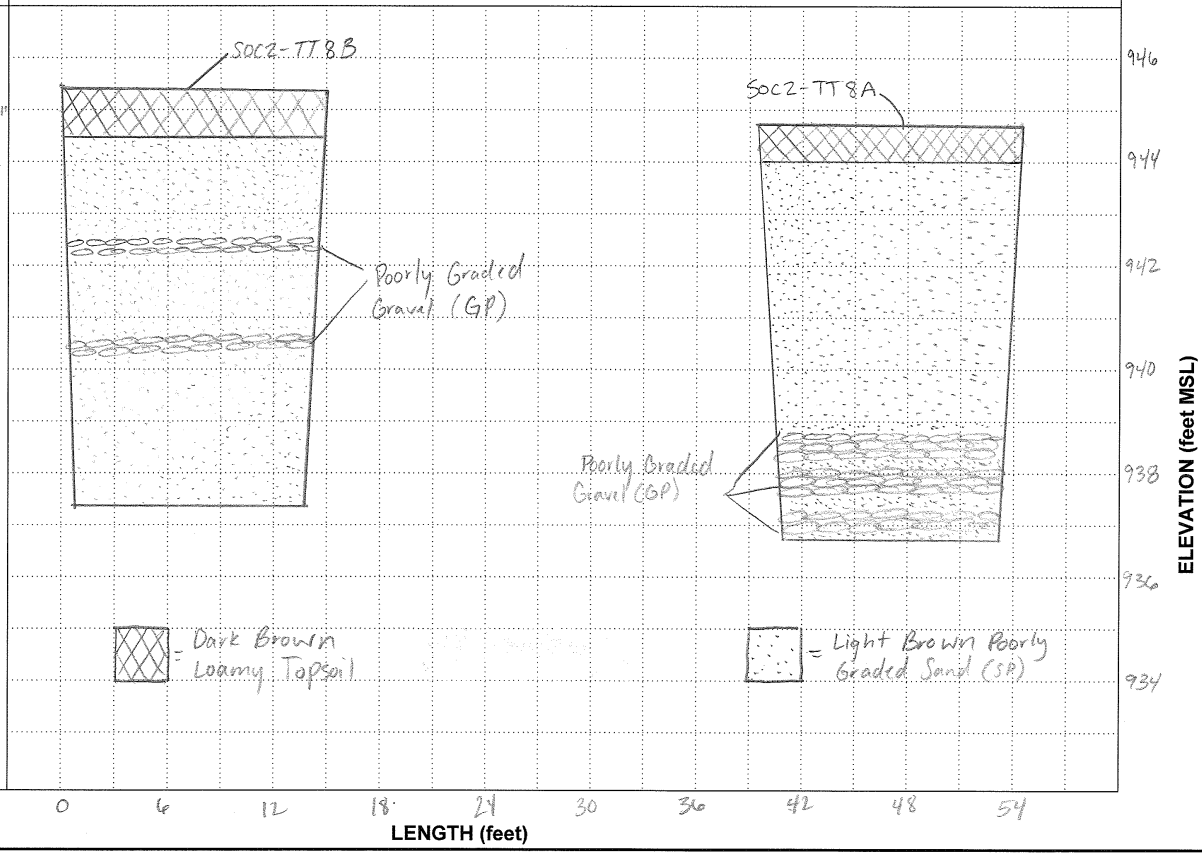
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

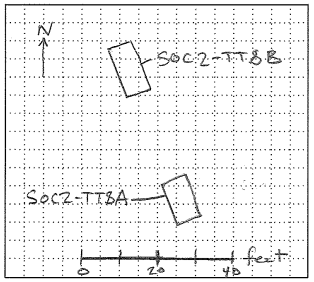
Project Name: UMore Park	Log of Test Pit No. SOC2-TT8	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 944.855 - 945.473' MSL	Total Depth: 8 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LML2	

NW ◀ ▶ SE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT8B	6.1	None	None	0-8"
TT8A	0.2	None	None	8"-8'



Map View



Remarks:

*No analytical samples were collected from test trench SOC2-TT8

Figure

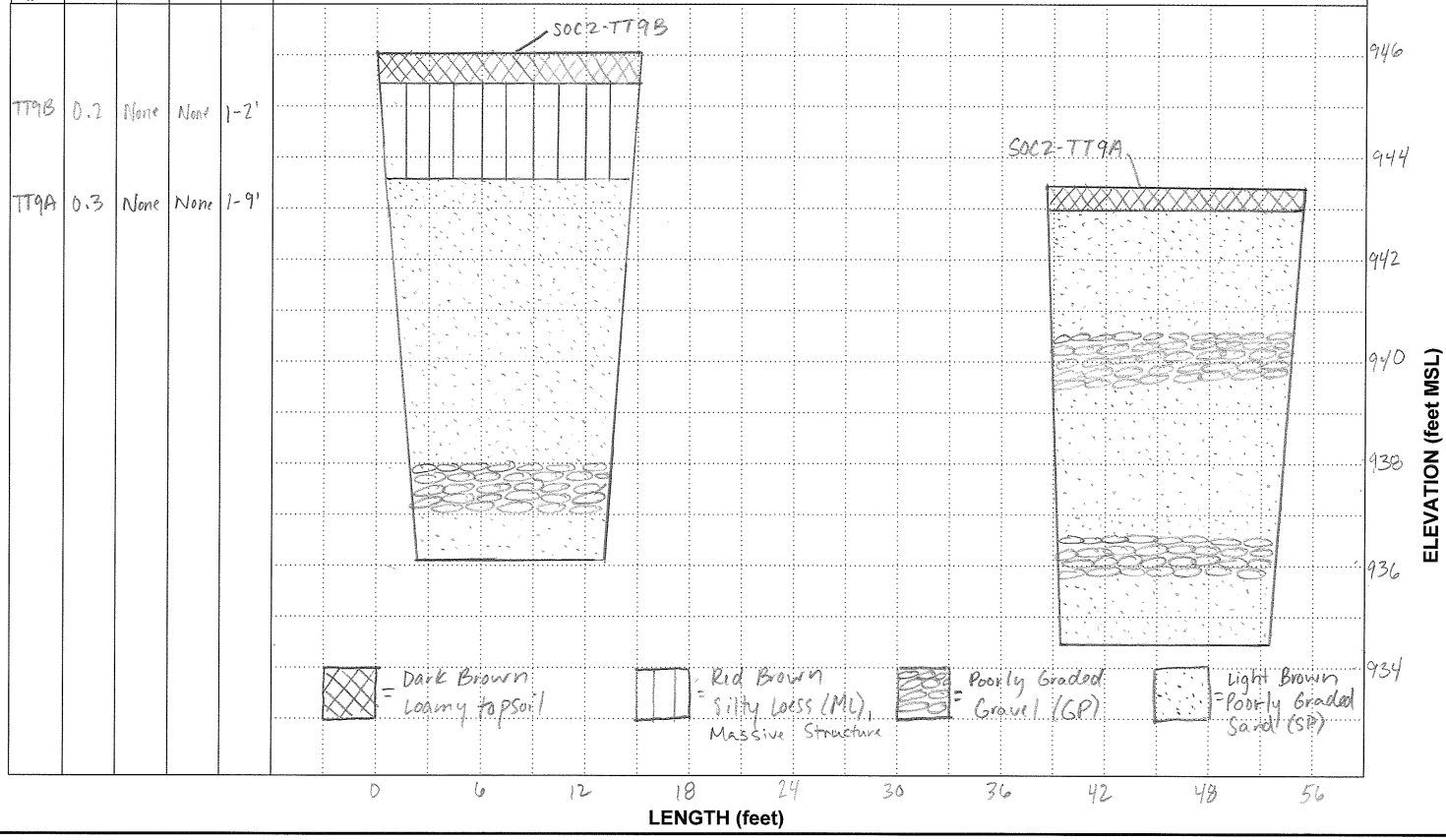
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2862884.GPJ BARRLOG.GDT 6/19/09

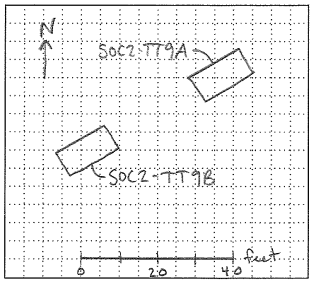
Project Name: UMore Park	Log of Test Pit No. SOC2-TT9	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 943.529-946.102' MSL	Total Depth: 10 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT9B	0.2	None	None	1-2'
TT9A	0.3	None	None	1-9'



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT9.
* Laminations and bedding observed in sand layers.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

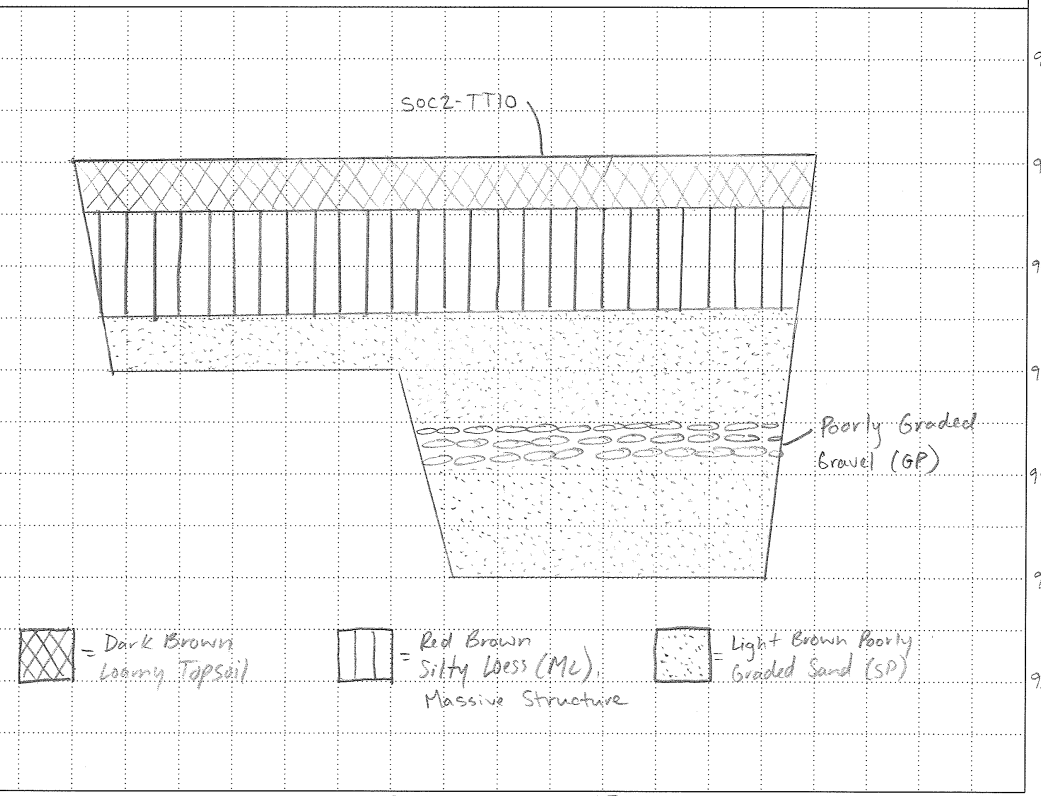
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/19/09

UMP007421

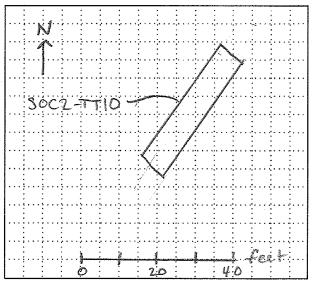
Project Name: UMore Park	**Log of Test Pit No.** SOC2-TT10	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 946.058-946.281' MSL	**Total Depth:** 8 feet
Location: SOC2	**Date Started:** 6/4/09	**Ended:** 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LMLZ	

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT10	0.3	None	None	1-3'
TT10	0.3	None	None	3-5'



Map View



Remarks:

*No analytical sample was collected from test trench SOC7-TT10.

Figure

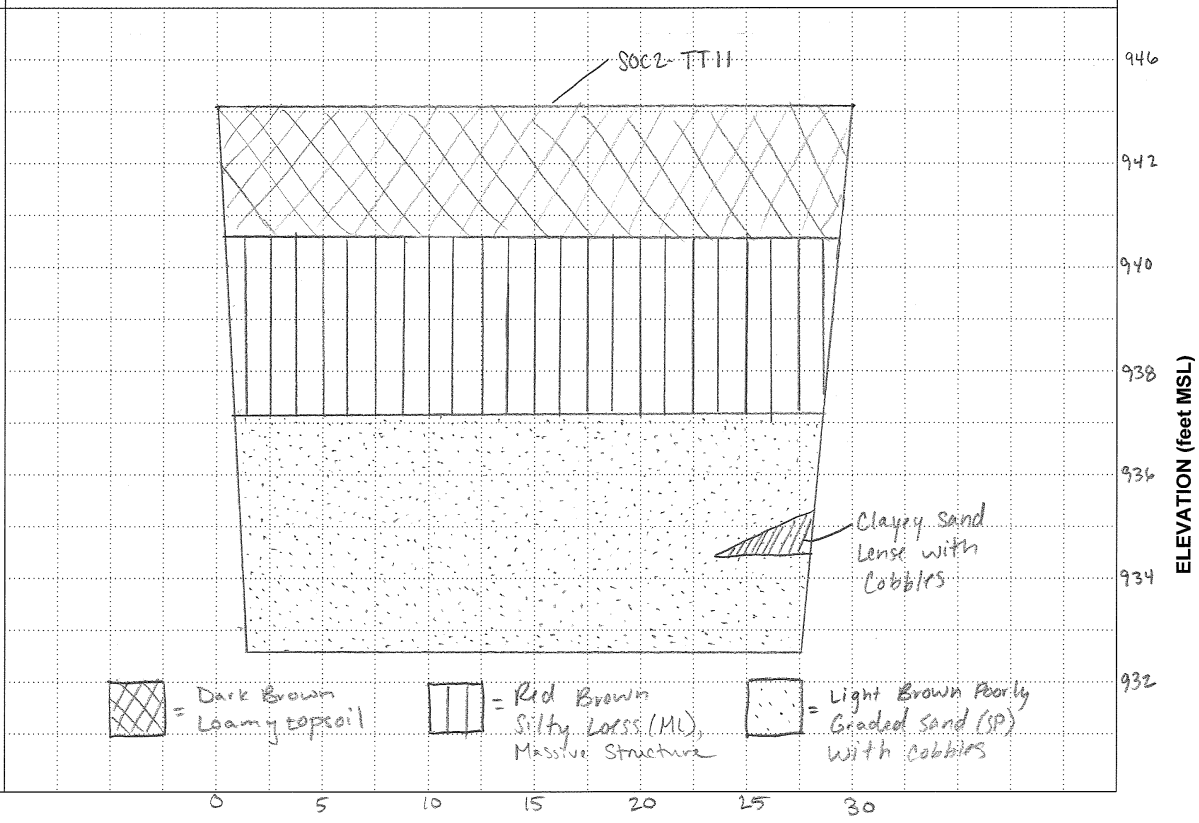
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2392884.GPJ BARRLOG.GDT 6/18/09

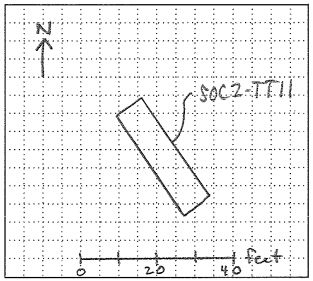
Project Name: UMore Park	Log of Test Pit No. SOC2-TT11	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 945.047-945.218' MSL	Total Depth: 10.5 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT11	0.4	None	None	1.5'
TT11	0.1	None	None	7'



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT11.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

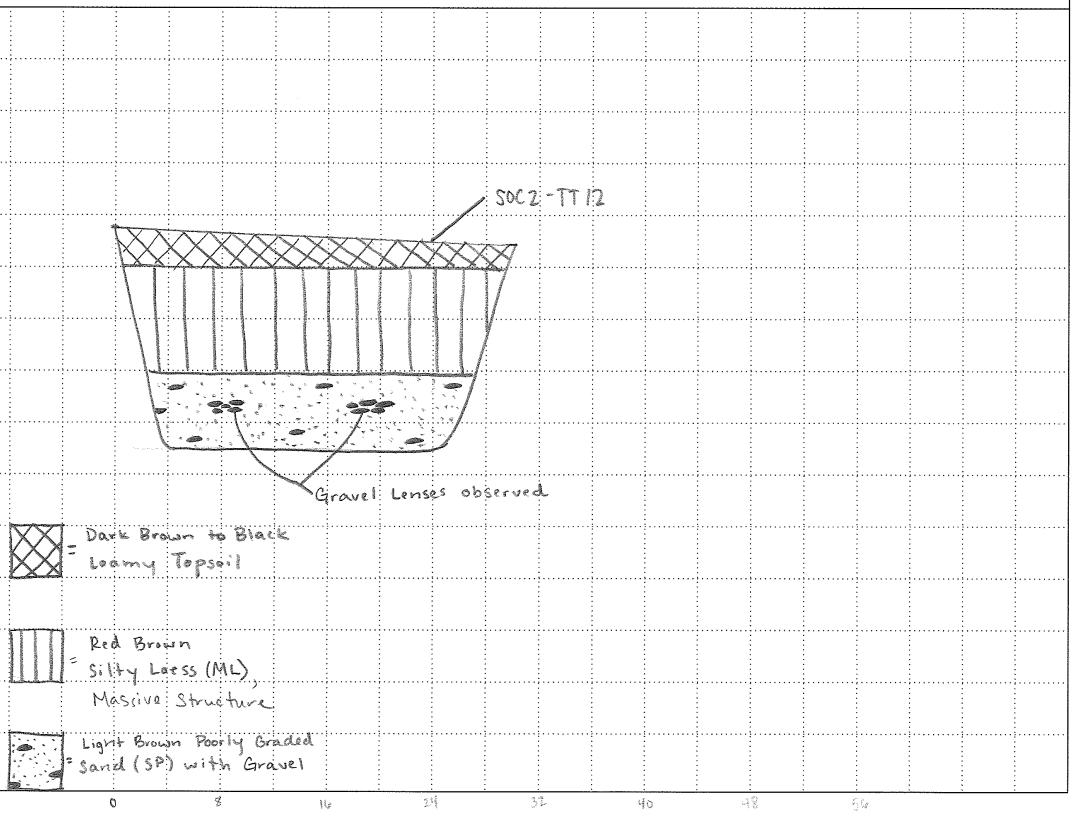
UMP007423

Project Name: UMore Park	**Log of Test Pit No.** SOC2-TT12	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 942.37 - 943.44' MSL	**Total Depth:** 4 feet
Location: SOC 2	**Date Started:** 6/4/09	**Ended:** 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LMLZ	

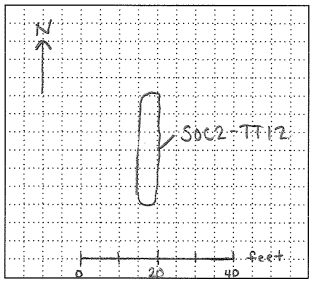
◀ S N ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT12	0.5	None	None	1.5'
TT12	0.4	None	None	4'

DESCRIPTION



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT12.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

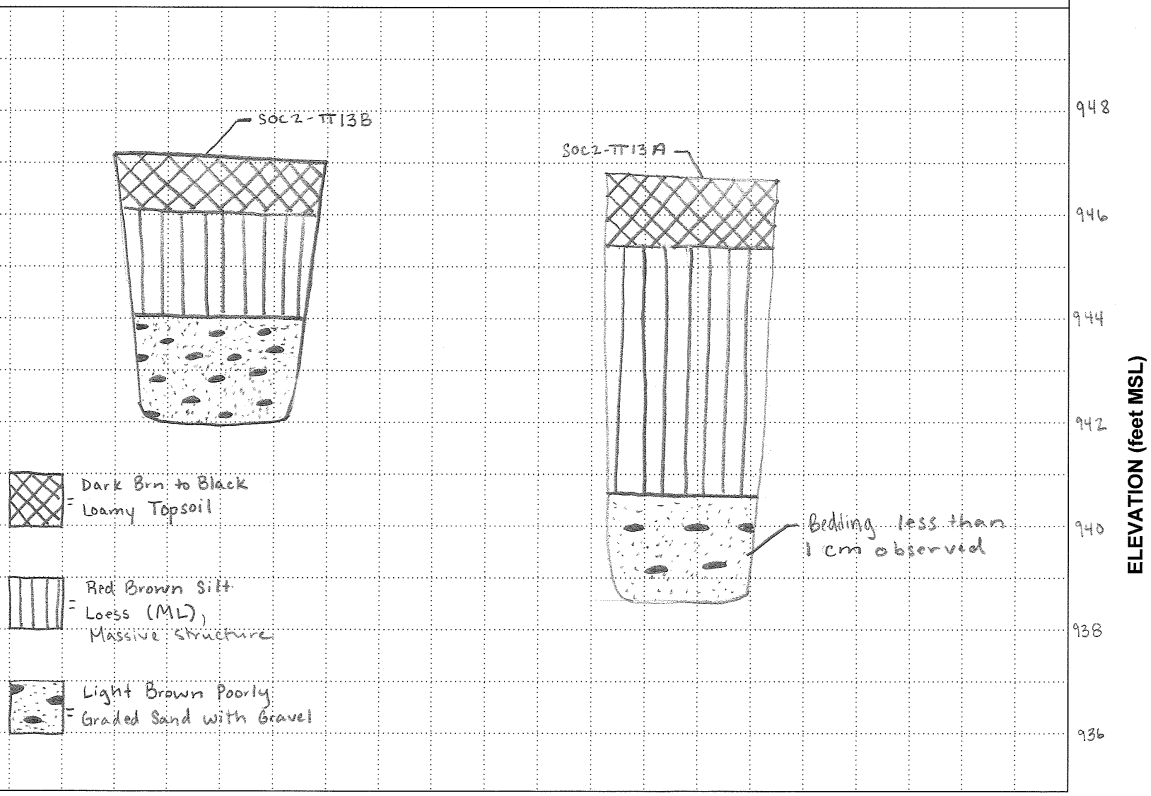
TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

Project Name: UMore Park	Log of Test Pit No. SOC2-TT13	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.68 - 947.11' MSL	Total Depth: 8 feet
Location: SOC2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

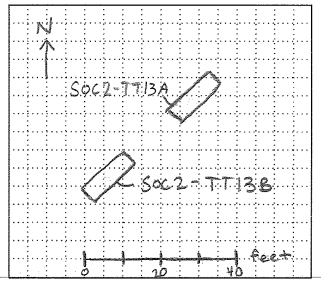
◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT13B	0.5'	None	None	0.5
TT13A	0.1	None	None	6-8

DESCRIPTION



Map View



Remarks:

*No analytical samples were collected from test trench SOC2-TT13

Figure

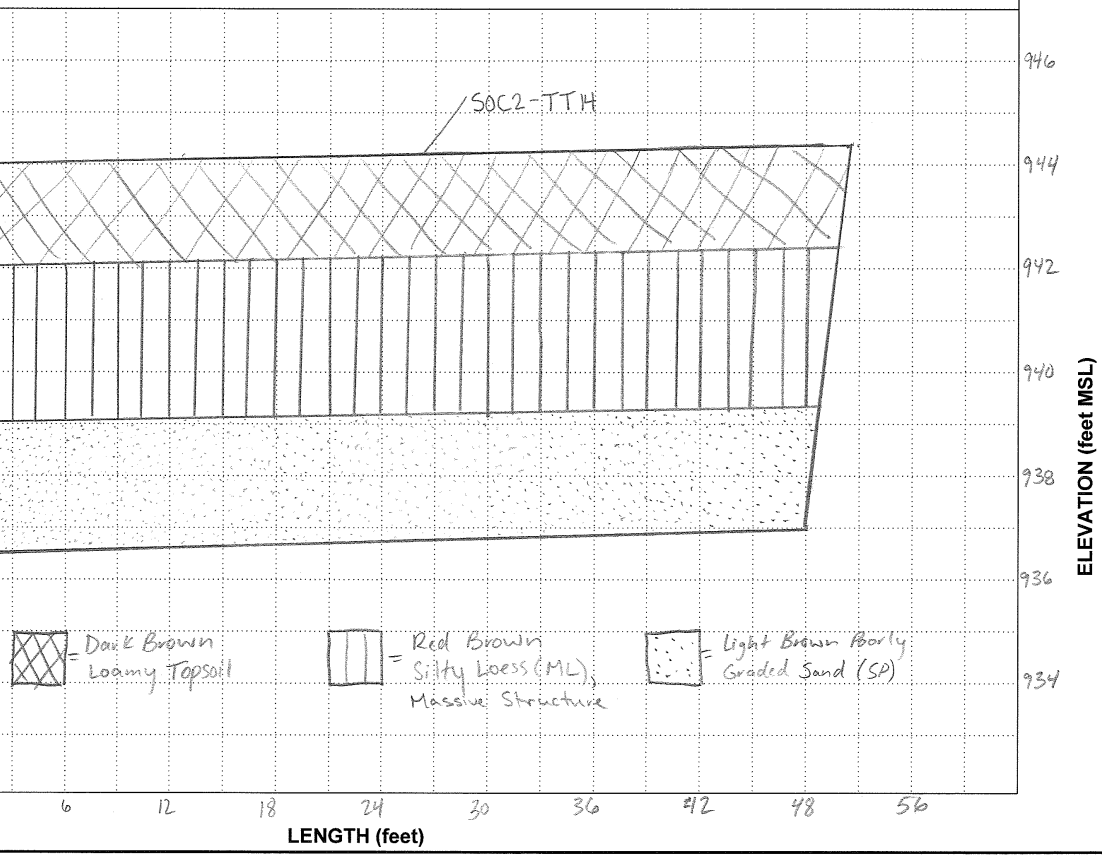
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2382884.GPJ BARRLOG.GDT 6/18/09

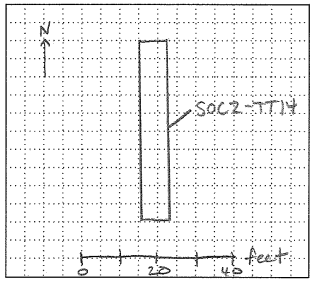
Project Name: UMore Park	Log of Test Pit No. SOC2-TT14	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 944.044 - 944.446' MSL	Total Depth: 7.5 feet
Location: SOC 2	Date Started: 6/4/09	Ended: 6/4/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT14	0.4	None	None	0-1.5'
TT14	0.4	None	None	1.5-5'



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT14

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

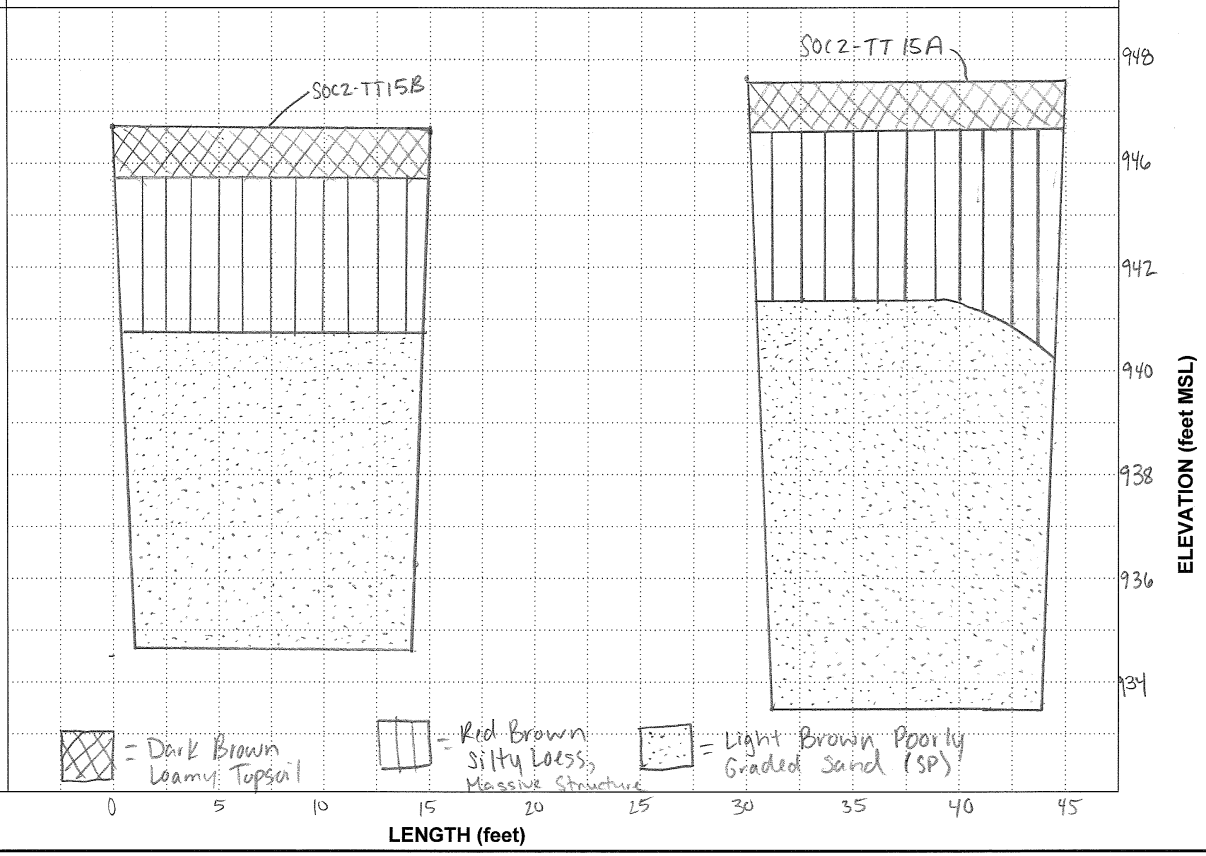
TEST PIT LOG PAGE 2392884.GPJ BARRLOG.GDT 6/18/09

UMP007426

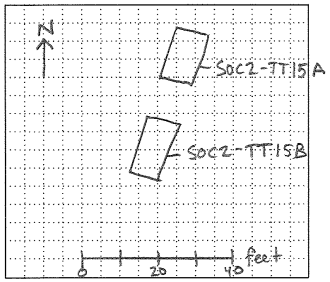
Project Name: UMore Park	**Log of Test Pit No.** SOC2-TT15		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 946.666-947.498' MSL	**Total Depth:** 12 feet	
Location: SOC2	**Date Started:** 6/5/09	**Ended:** 6/5/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LML2		

SW ◄ ► NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT15A	1.1	None	None	1-4'
TT15B	1.2	None	None	9-10'



Map View



Remarks:

*No analytical samples were collected from test trench SOC2-TT15

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

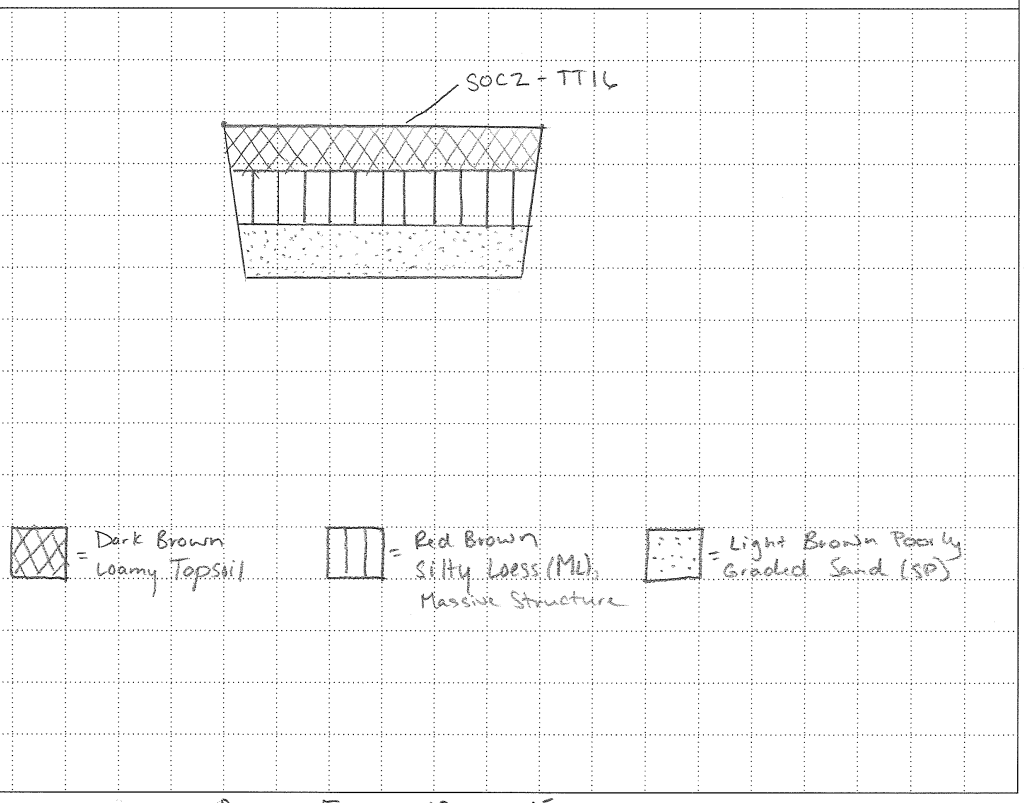
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007427

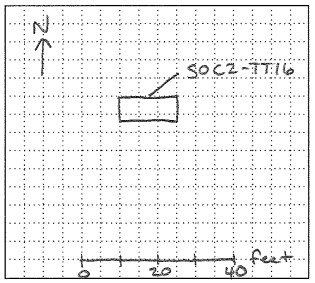
Project Name: UMore Park	Log of Test Pit No. SOC2-TT16	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.827' MSL	Total Depth: 3 feet
Location: SOC2	Date Started: 6/5/09	Ended: 6/5/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT16	0.0	None	None	0.5'	



Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT16

Figure

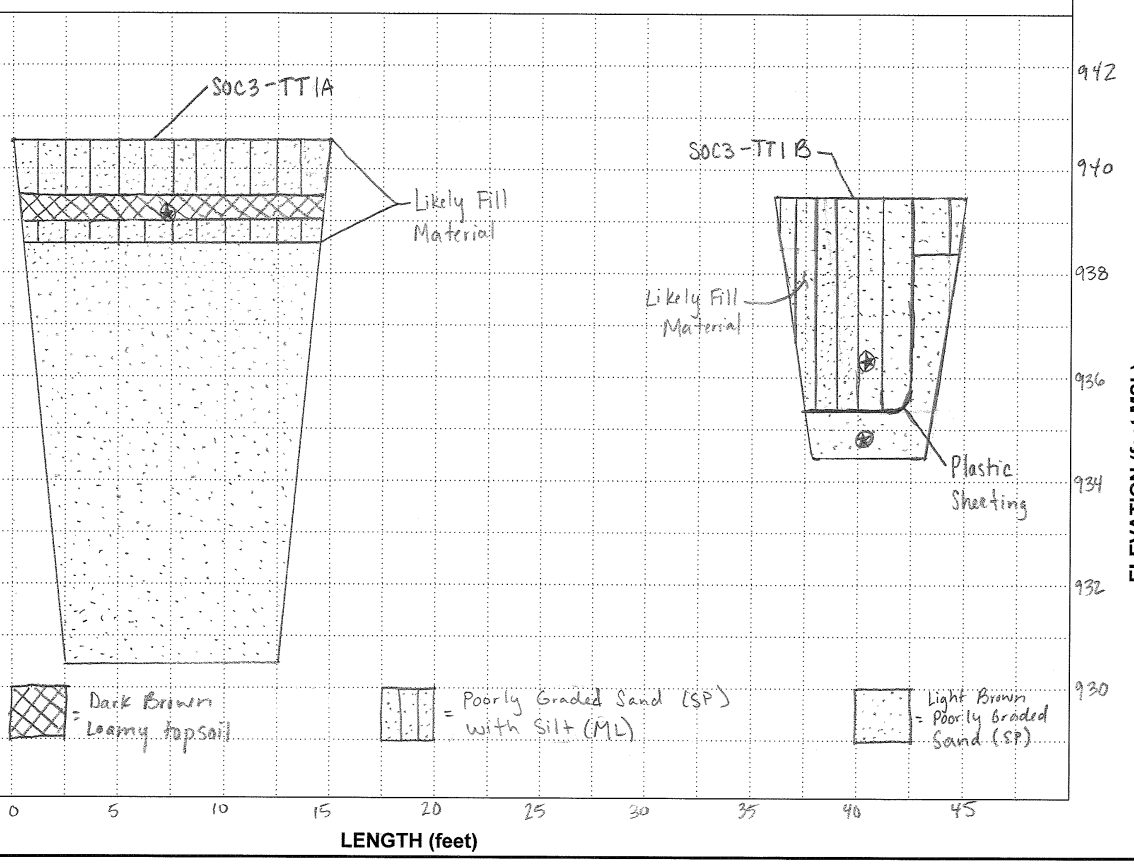
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2952884.GPJ BARRLOG.GDT 6/18/09

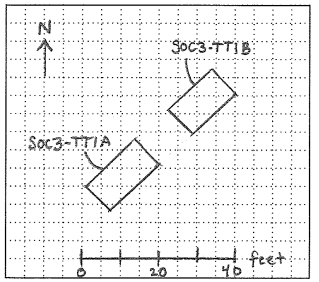
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT1		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 939.584-940.55'MSL	**Total Depth:** 10 feet	
Location: SOC3	**Date Started:** 6/9/09	**Ended:** 6/9/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC1 TT1-1-2'	0.0	Light	None	1-2'
SOC1-TT1S-3-4'	0.1	None	None	3-4'
SOC1-TT1S-5'	0.2	None	None	5'



Map View



Remarks:

* Sample SOC3-TT1-1-2' was collected from test trench SOC3-TT1A.
* Samples SOC3-TT1S-3-4' and SOC3-TT1S-5' were collected from Test trench SOC3-TT1B.
* Stratification and bedding observed in Sand layer
* Fill material above Plastic Sheeting
⊗ = approximate sample location

Figure

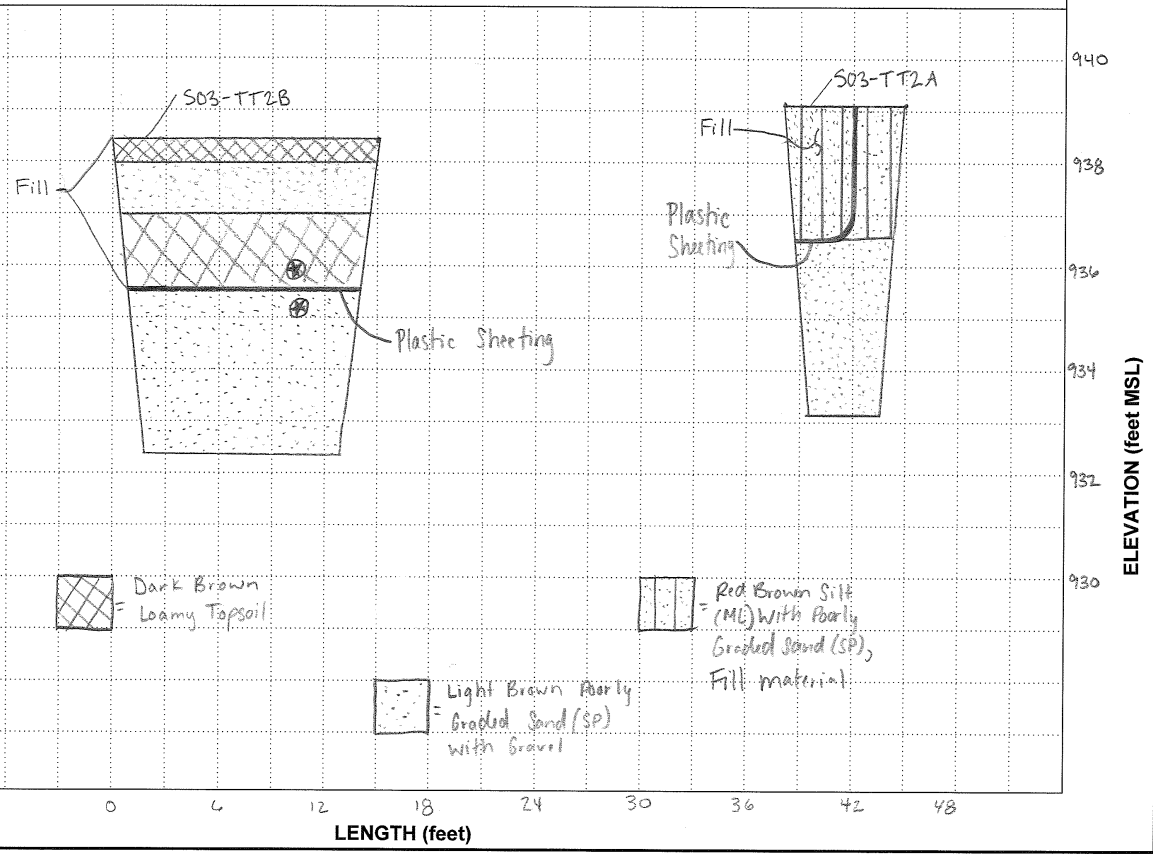
BARR
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

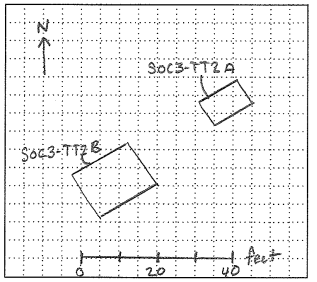
Project Name: UMore Park	**Log of Test Pit No.** SOC3 - TT2	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 938.53 - 939.17' MSL	**Total Depth:** 6 feet
Location: SOC 3	**Date Started:** 6/9/09	**Ended:** 6/9/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT2-3-4'	0.0	None	None	3-4'
SOC3-TT2-5'	0.0	None	None	5'



Map View



Remarks:

* Samples SOC3-TT2-3-4' and SOC3-TT2-5' were collected from test trench SOC3-TT2B

* Debris encountered in the fill above the plastic sheeting included metal, wood and PVC

⊛ = Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

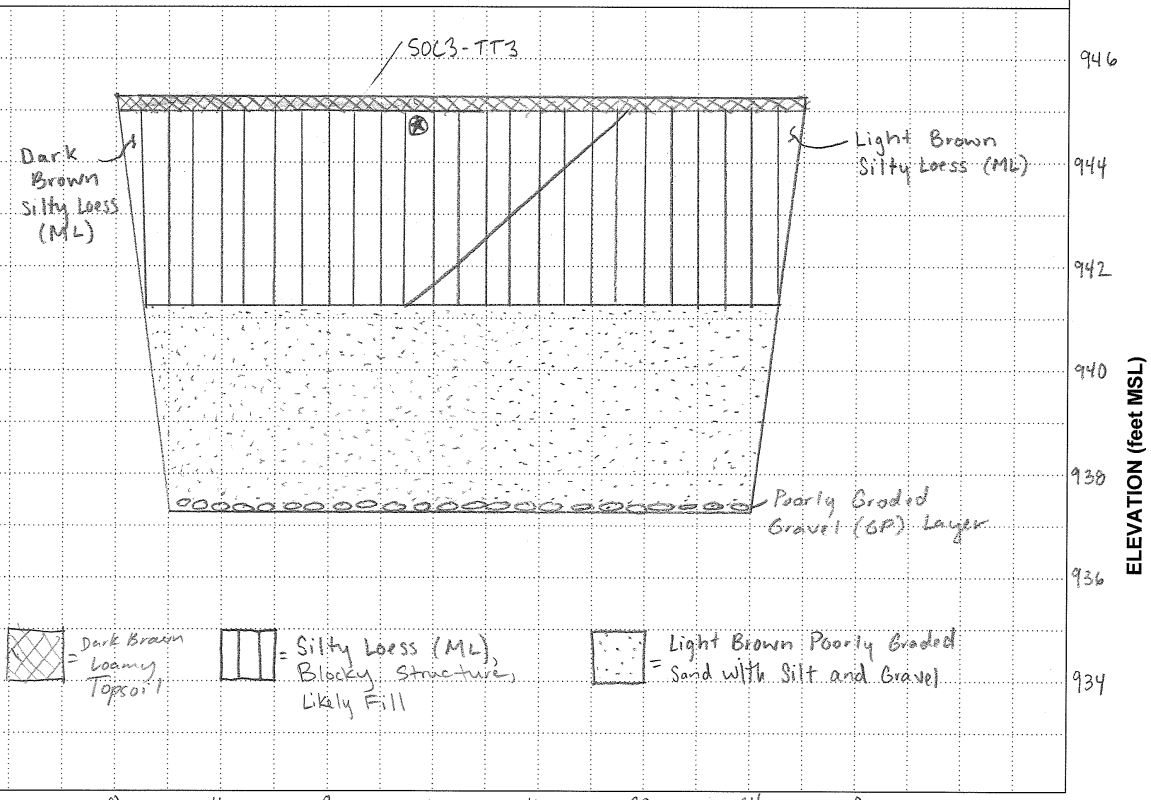
TEST PIT LOG PAGE 2382894.GPJ BARRLOG.GDT 6/18/09

UMP007430

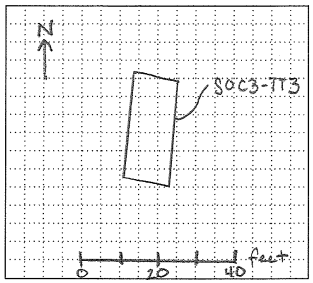
Project Name: UMore Park	Log of Test Pit No. SOC3-TT3	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 945.38-945.385	Total Depth: 8 feet
Location: SOC3	Date Started: 6/12/09	Ended: 6/12/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3	0.0	None	None	2'



Map View



Remarks:

* Sample SOC3-TT3-0.5' was collected from test trench SOC3-TT3
* Silty Layer appeared to be fill

⊛ Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

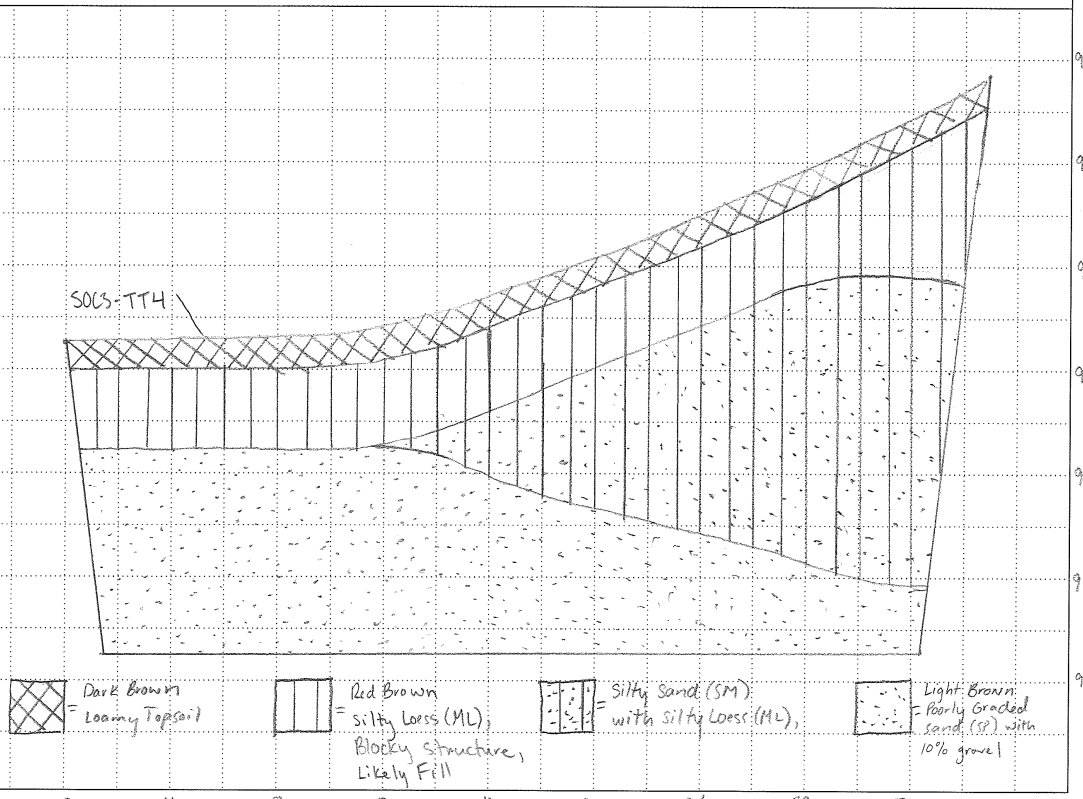
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007431

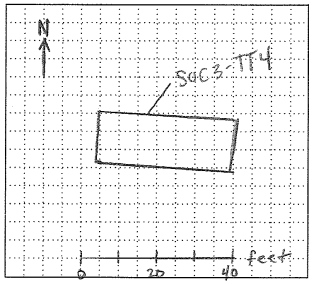
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT4		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 940.53 - 945.772' MSL	**Total Depth:** 11 feet	
Location: SOC 3	**Date Started:** 6/12/09	**Ended:** 6/12/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KLB		

W ◀ ▶ E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT4	0.0	None	None	2'



Map View



Remarks:

* No analytical sample was collected at test trench SOC3-TT4.
* Bedding observed in sand and gravel layer.
* Silty Loess likely fill

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

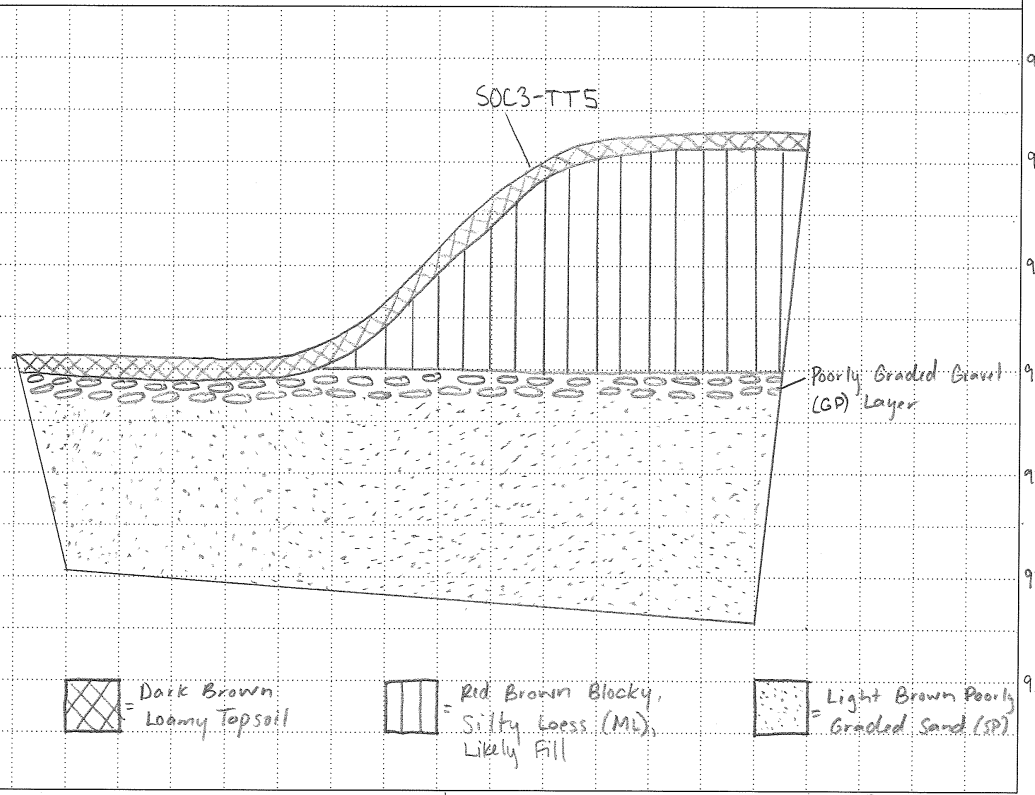
TEST PIT LOG PAGE 2362894.GPJ BARRLOG.GDT 6/18/09

UMP007432

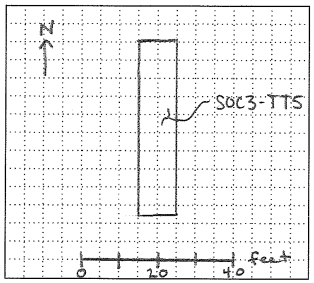
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT5
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 940.224 - 944.419' MSL **Total Depth:** 10 feet
Location: SOC3	**Date Started:** 6/12/09 **Ended:** 6/12/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT5	0.0	None	None	3'	



Map View



Remarks:

* No analytical samples were collected from test trench SOC3-TT5
* Silty layer appeared to be fill
* Stratification and Bedding observed in the Sand and gravel layer

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

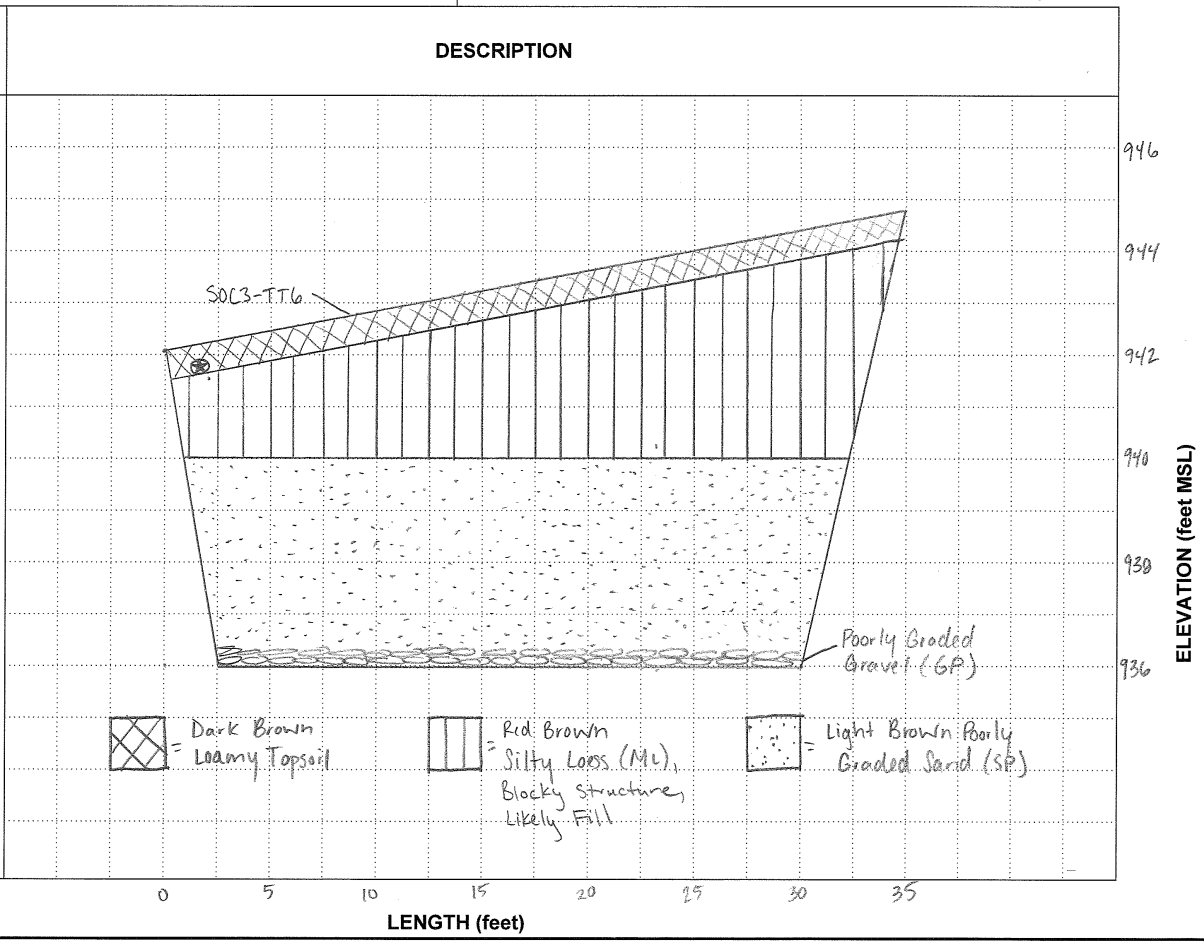
TEST PIT LOG PAGE 2362684.GPJ BARRLOG.GDT 6/18/09

UMP007433

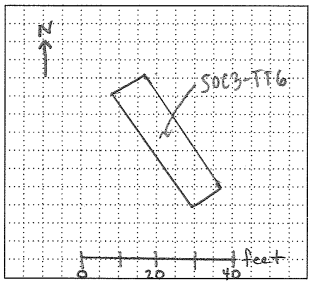
Project Name: UMore Park	Log of Test Pit No. SOC3-TT6	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 942.087 - 944.809' MSL	Total Depth: 9 feet
Location: SOC3	Date Started: 6/15/09	Ended: 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT6	15.0	None	None	0-1'
TT6	2.4	None	None	0-1'
TT6	115.0	None	None	0-1'
TT6	4.7	None	None	0-1'
TT6	2.8	None	None	0-1'
SOC3-TT6-0-1'	3.4	None	None	0-1'



Map View



Remarks:

* Samples SOC3-TT6-0-1' and SOC3-TT6R-0-1' collected from trench SOC3-TT6 in the area of elevated headspace.
* Bedding and Stratification observed in the sand and gravel layer
* Silt layer appeared to be fill
⊛ Approximate sample location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

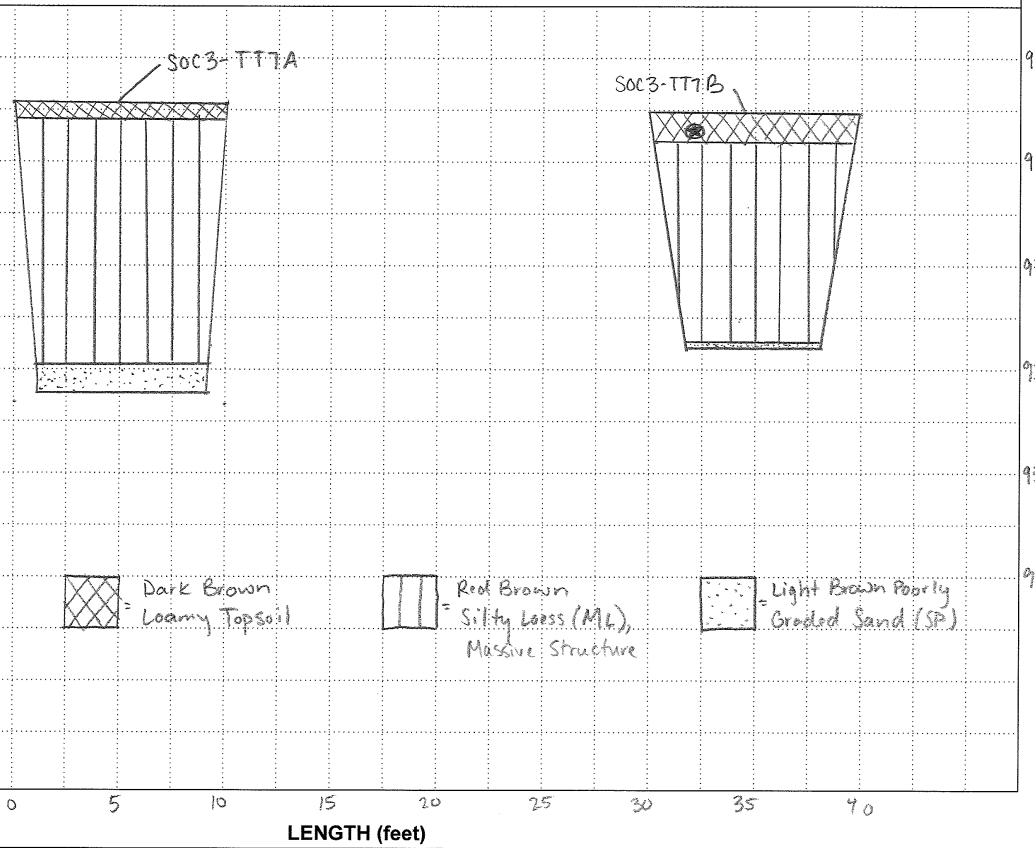
TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

UMP007434

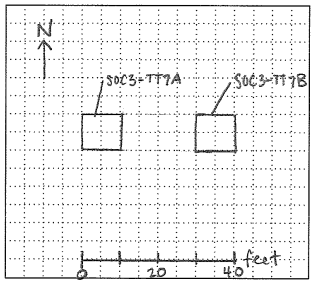
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT7	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 943.989 - 944.227' MSL	**Total Depth:** 11 feet
Location: SOC3	**Date Started:** 6/8/09	**Ended:** 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

W ◄ ► E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT7-0-1'	0.0	None	None	0.5-1'
TT7A	0.0	None	None	3'



Map View



Remarks:

* Sample SOC3-TT7-0.5-1' collected from test trench SOC3-TT7B

⊗ Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

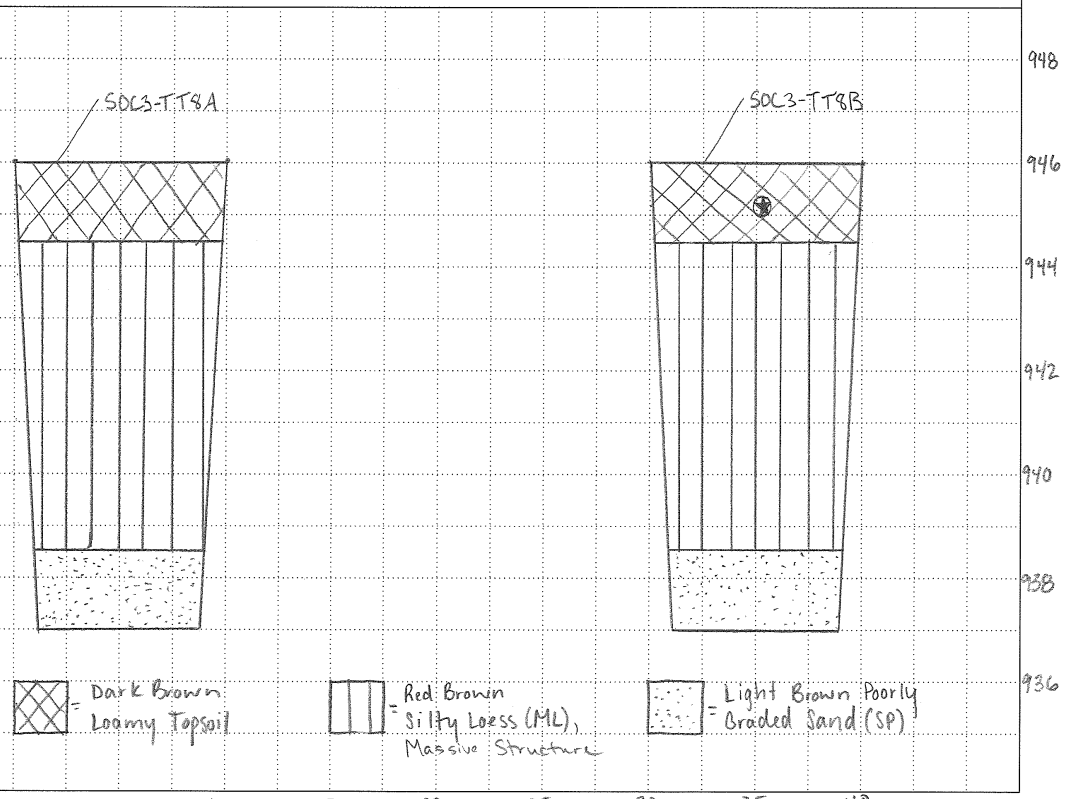
TEST PIT LOG PAGE 2 2802884.GPJ BARRLOG.GDT 6/18/09

UMP007435

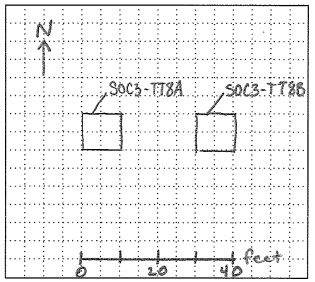
Project Name: UMore Park	Log of Test Pit No. SOC3-TT8	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.029-946.138' MSL	Total Depth: 9 feet
Location: SOC3	Date Started: 6/8/09	Ended: 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT8-0.5-1'	0.0	None	None	0.5-1'
TT8A	0.0	None	None	3-4'



Map View



Remarks:

* Sample SOC3-TT8-0.5-1' collected from test trench SOC3-TT8B

⊛ Approximate Sample Location

Figure

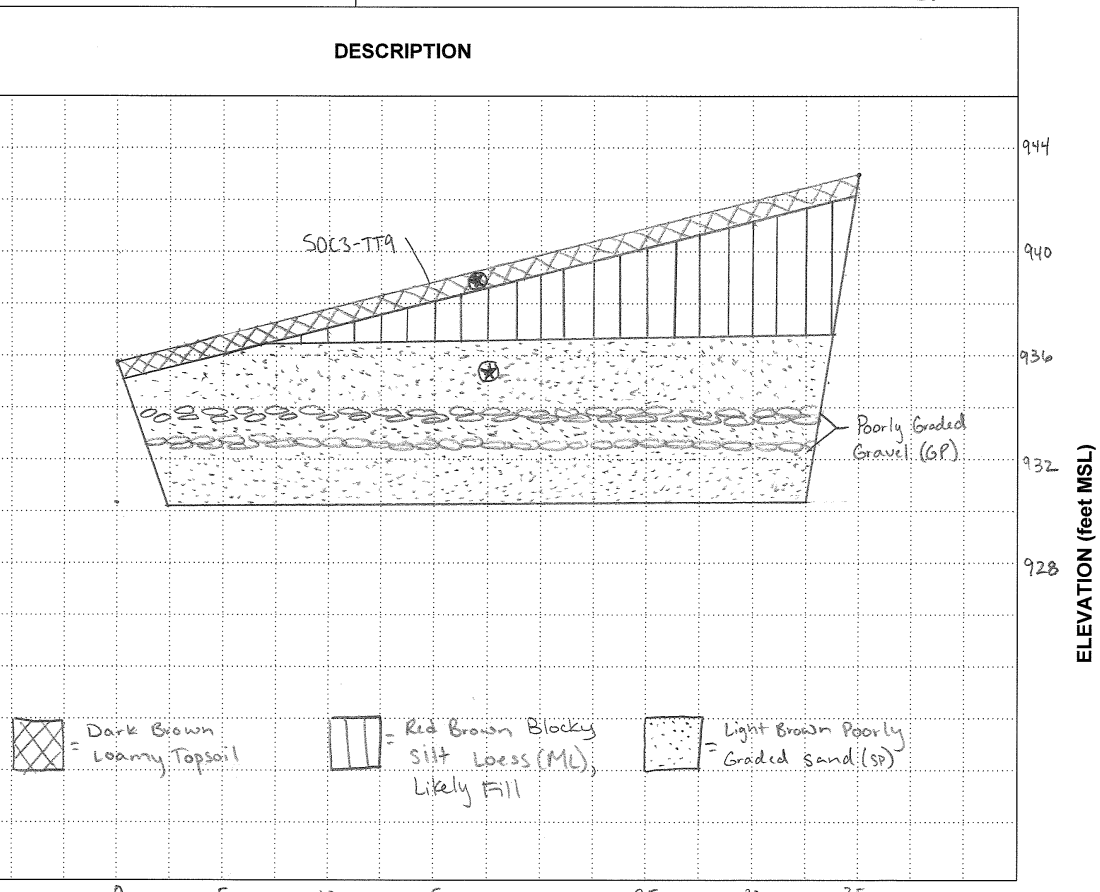
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2862884.GPJ BARRLOG.GDT 6/18/09

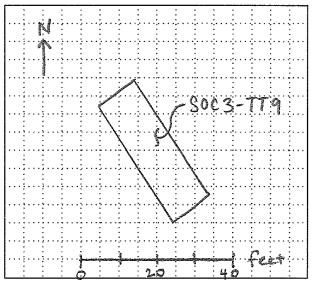
Project Name: UMore Park	Log of Test Pit No. SOC3-TT9	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 935.761-943.013' MSL	Total Depth: 12 feet
Location: SOC3	Date Started: 6/12/09	Ended: 6/12/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT9-0.5'	0.0	None	None	0.5'
SOC3-TT9-7-8'	0.0	None	None	7-8'



Map View



Remarks:

* Samples SOC3-TT9-0.5' and SOC3-TT9-7-8' were collected from test trench SOC3-TT9
* Silty layer appeared to be fill. Concrete, wood, and metal debris encountered.
* ⊕ Approximate Sample Location

Figure

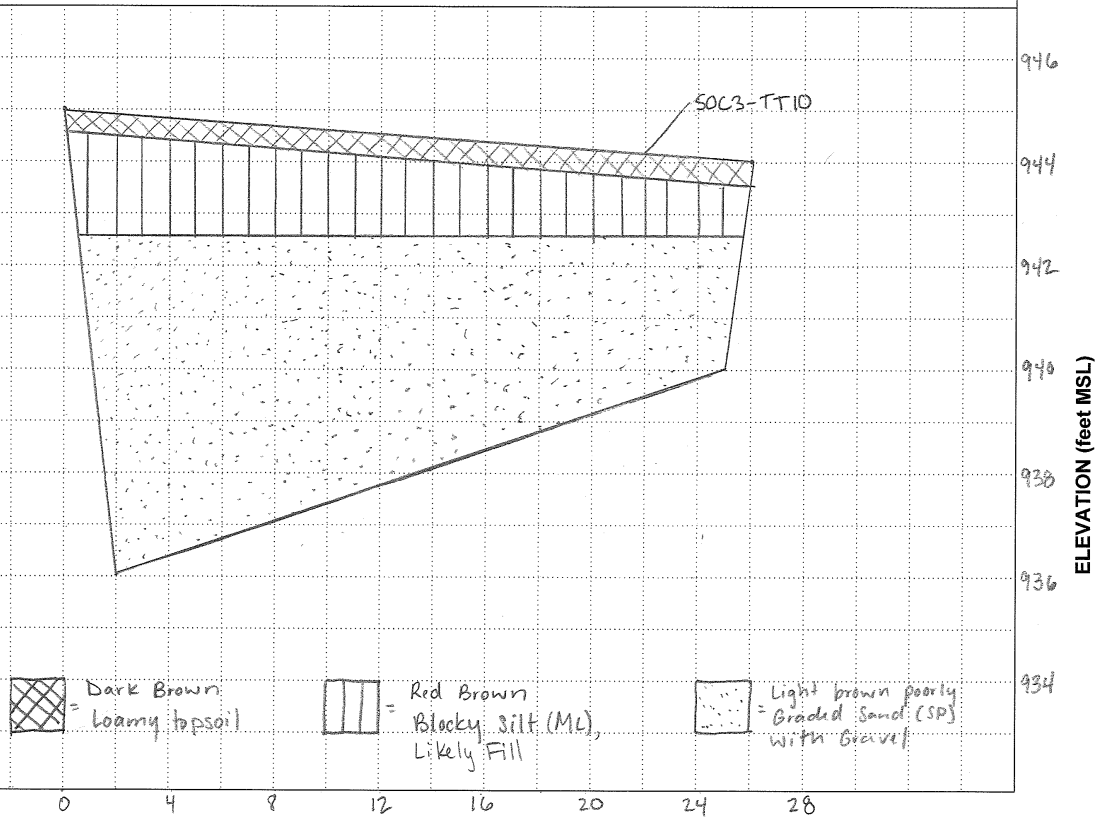
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2392864.GPJ BARRLOG.GDT 6/18/09

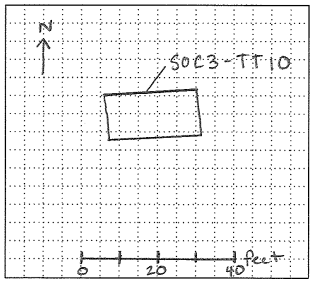
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT10		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 943.902 - 944.98' MSL	**Total Depth:** 9 feet	
Location: SOC3	**Date Started:** 6/12/09	**Ended:** 6/12/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT10	0.0	None	None	2'	



Map View



Remarks:

* No analytical samples collected at test trench SOC3-TT10
* Silty layer appeared to be fill
* Stratification and bedding observed in sand and gravel layer

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

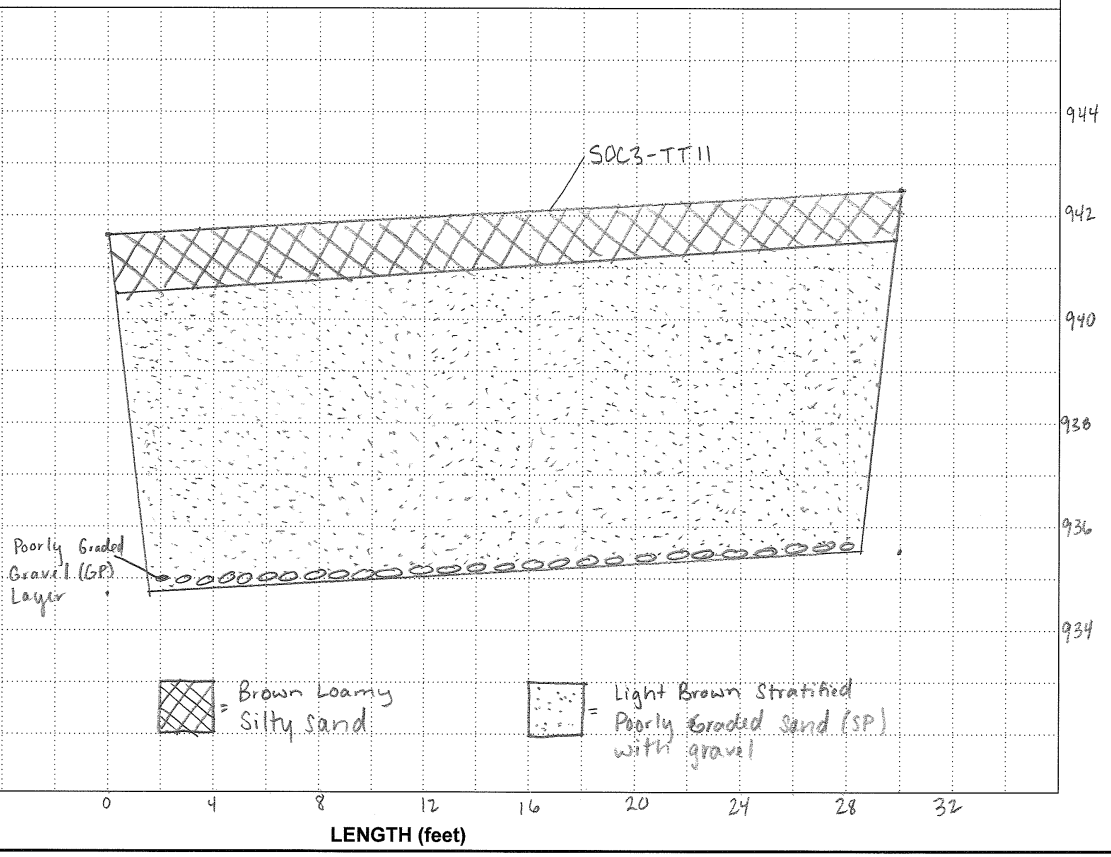
TEST PIT LOG PAGE 2362894.GPJ BARRLOG.GDT 6/18/09

UMP007438

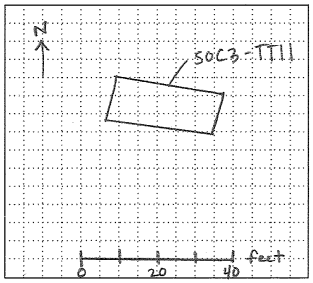
Project Name: UMore Park	Log of Test Pit No. SOC3-TT11	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 941.619-942.518' MSL	Total Depth: 7 feet
Location: SOC3	Date Started: 6/15/09	Ended: 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT11	0.8	None	None	0-1'



Map View



Remarks:

* No analytical sample collected at test trench SOC3-TT11

* Stratification and Bedding observed in Sand and gravel layer

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

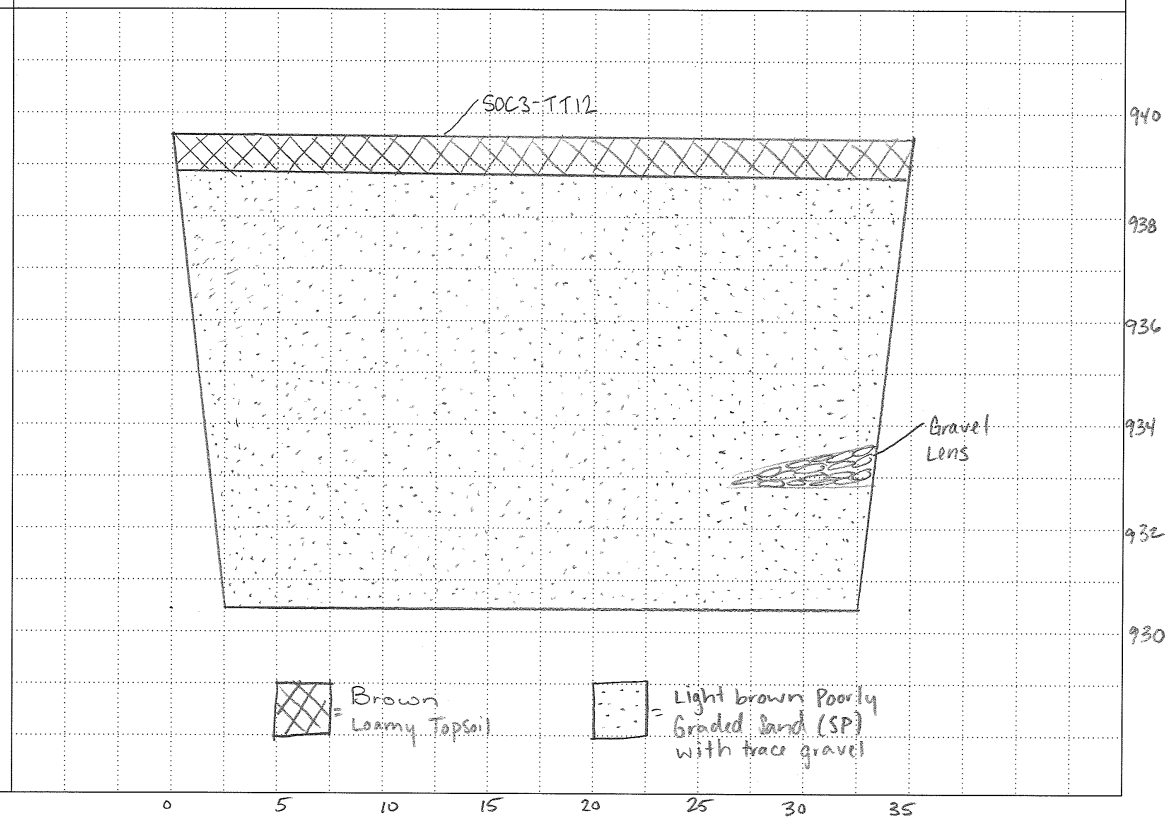
UMP007439

Project Name: UMore Park	Log of Test Pit No. SOC3 -TT12	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 939.409- 939.584' MSL	Total Depth: 9 feet
Location: SOC3	Date Started: 6/15/09	Ended: 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

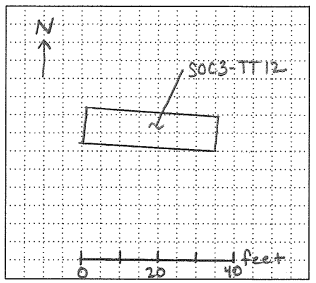
W ◀ ▶ E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT12	0.2	None	None	6'

DESCRIPTION



Map View



Remarks:

* Analytical Samples were not collected from test trench SOC3-TT12

* Bedding and Stratification observed in the sand and gravel layer

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

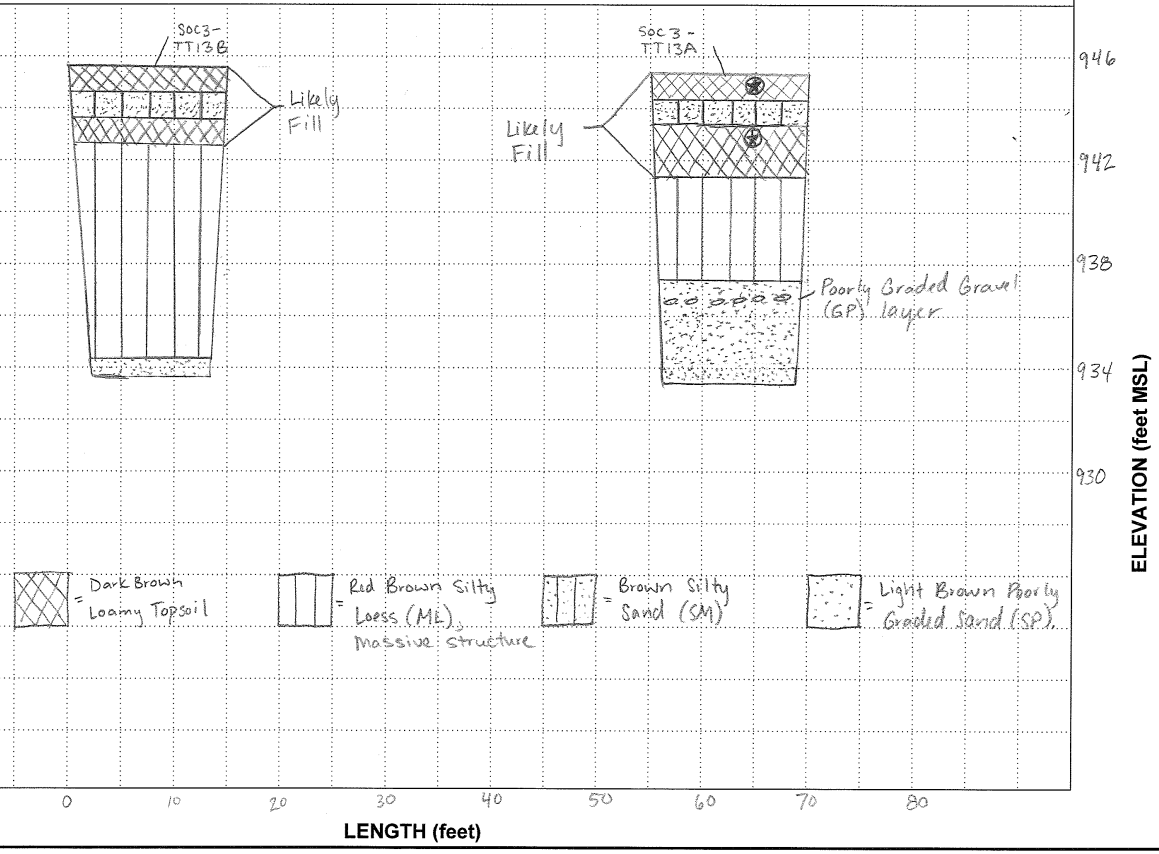
TEST PIT LOG PAGE 2362894.GPJ BARRLOG.GDT 6/18/09

UMP007440

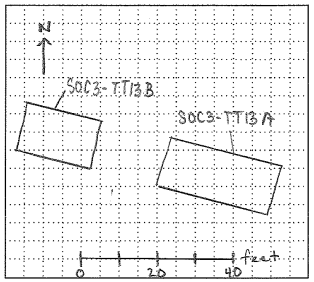
Project Name: UMore Park	Log of Test Pit No. SOC3-TT13	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 945.453 - 945.694' MSL	Total Depth: 12 feet
Location: SOC3	Date Started: 6/15/09	Ended: 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT13B	0.1	None	None	0-1'
TT13B	0.1	None	None	1-2'
TT13A	0.0	None	None	3-12'



Map View



Remarks:

* Samples SOC3-TT13-0.5' and SOC3-TT13-1' collected from test trench SOC3-TT13A
* Stratification and cross-bedding observed in sand and gravel layer in test trench SOC3-TT13A.
* SOC3-TT13A conducted to extent of excavator reach.

Ⓐ Approximate Sample Location

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

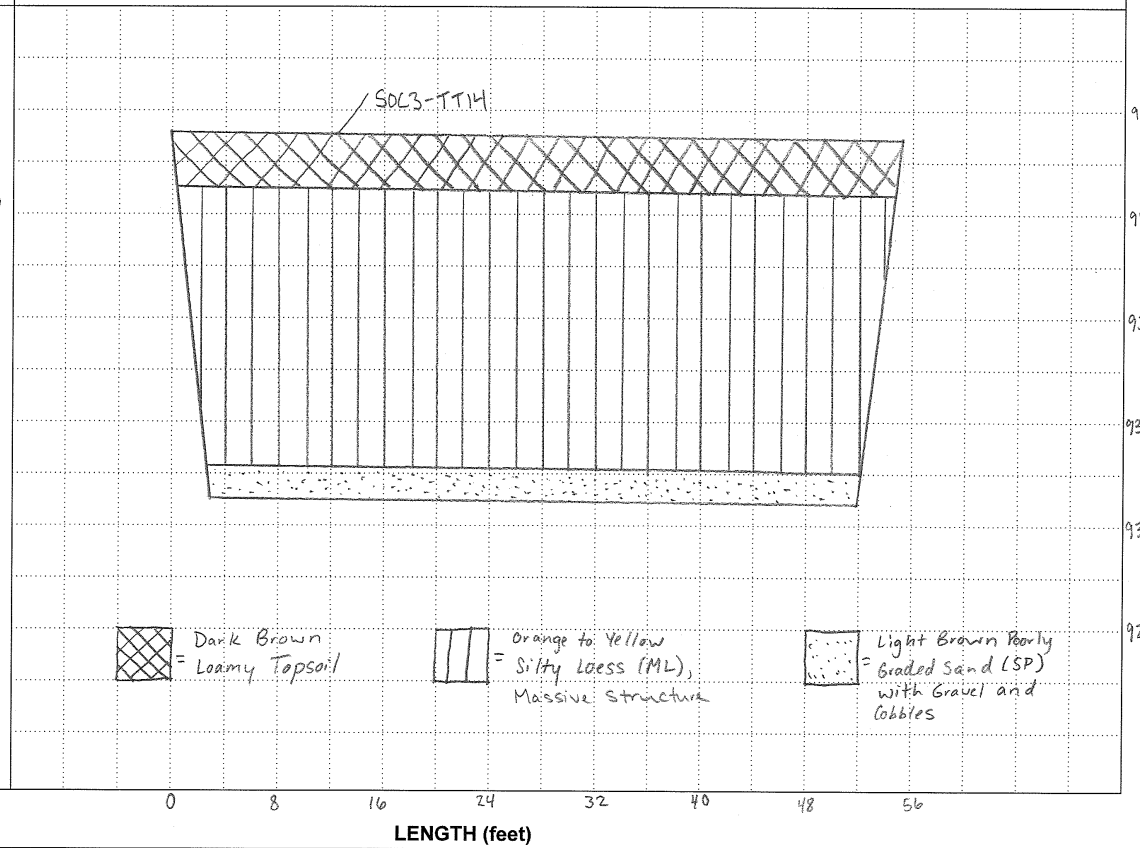
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007441

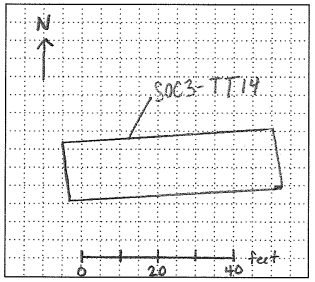
Project Name: UMore Park	**Log of Test Pit No.** SOC3 -TT14	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 944.814 - 945.283' MSL	**Total Depth:** 14 feet
Location: SOC3	**Date Started:** 6/12/09	**Ended:** 6/12/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

W ◄ ► E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT14	0.0	None	None	2-4'



Map View



Remarks:

* No analytical sample was collected from test trench SOC3-TT14

Figure

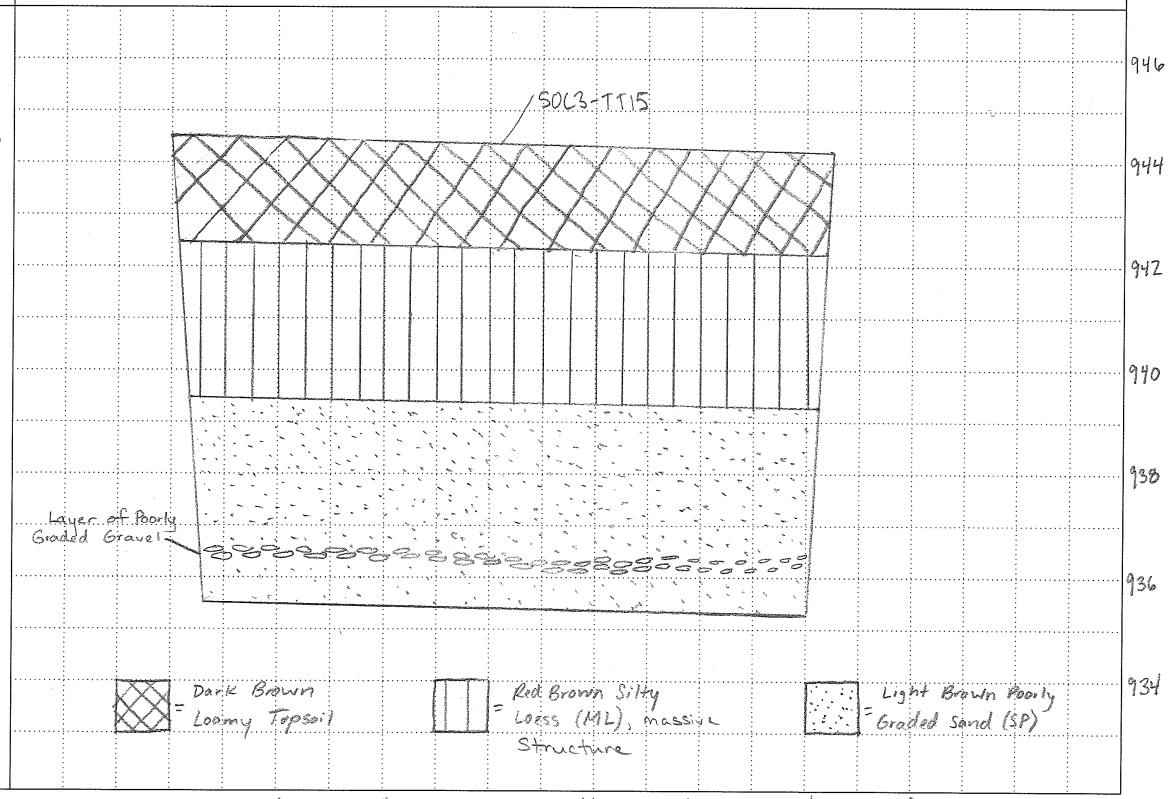
BARR
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

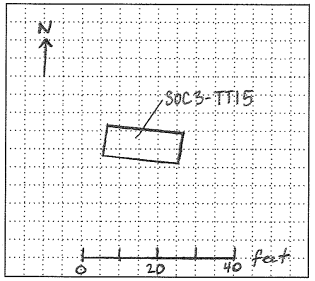
Project Name: UMore Park	Log of Test Pit No. SOC3-TT15	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 944.365- 944.452'MSL	Total Depth: 9 feet
Location: SOC 3	Date Started: 6/15/09	Ended: 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

W ◀ ▶ E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT15	0.8	None	None	0-2'



Map View



Remarks:

* No analytical sample collected from SOC3-TT15

Figure

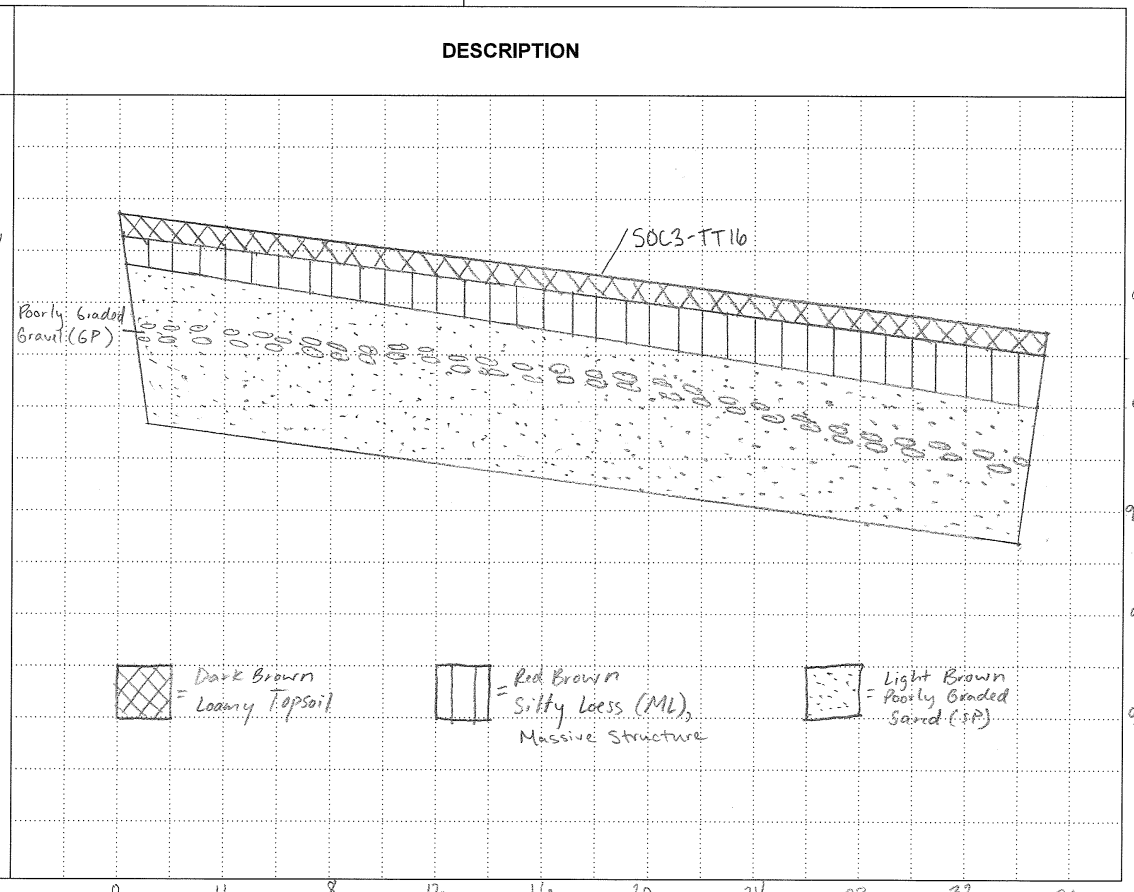
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362804.GPJ BARRLOG.GDT 6/18/09

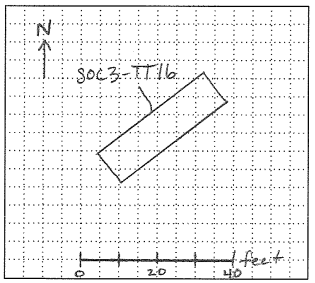
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TT16
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 938.847-943.486' MSL **Total Depth:** 8 feet
Location: SOC3	**Date Started:** 6/15/09 **Ended:** 6/15/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT16	0.4	None	None	1-3'	



Map View



Remarks:

*No analytical samples were collected from test trench SOC3-TT16

Figure

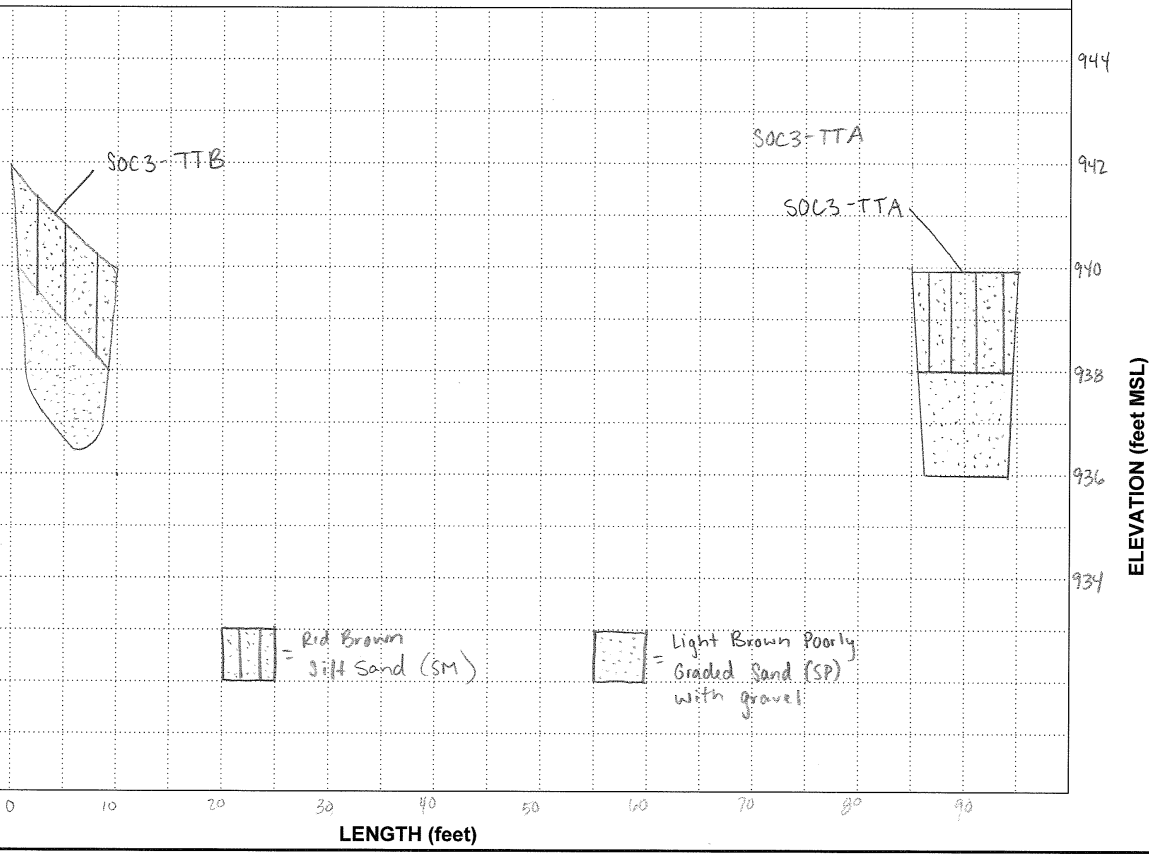
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

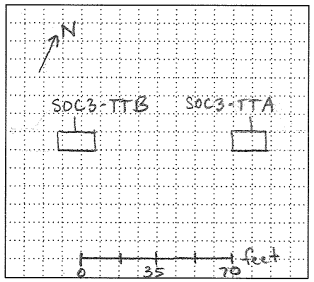
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TTA, SOC3-TTB	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 939.843 - 942.20 'MSL	**Total Depth:** 4 feet
Location: SOC3	**Date Started:** 6/9/09	**Ended:** 6/9/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KAB	

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TTA	0.0	None	None	0-1'
TTB	0.0	None	None	3'



Map View



Remarks:

* No analytical samples collected from test trenches SOC3-TTA or SOC3-TTB

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

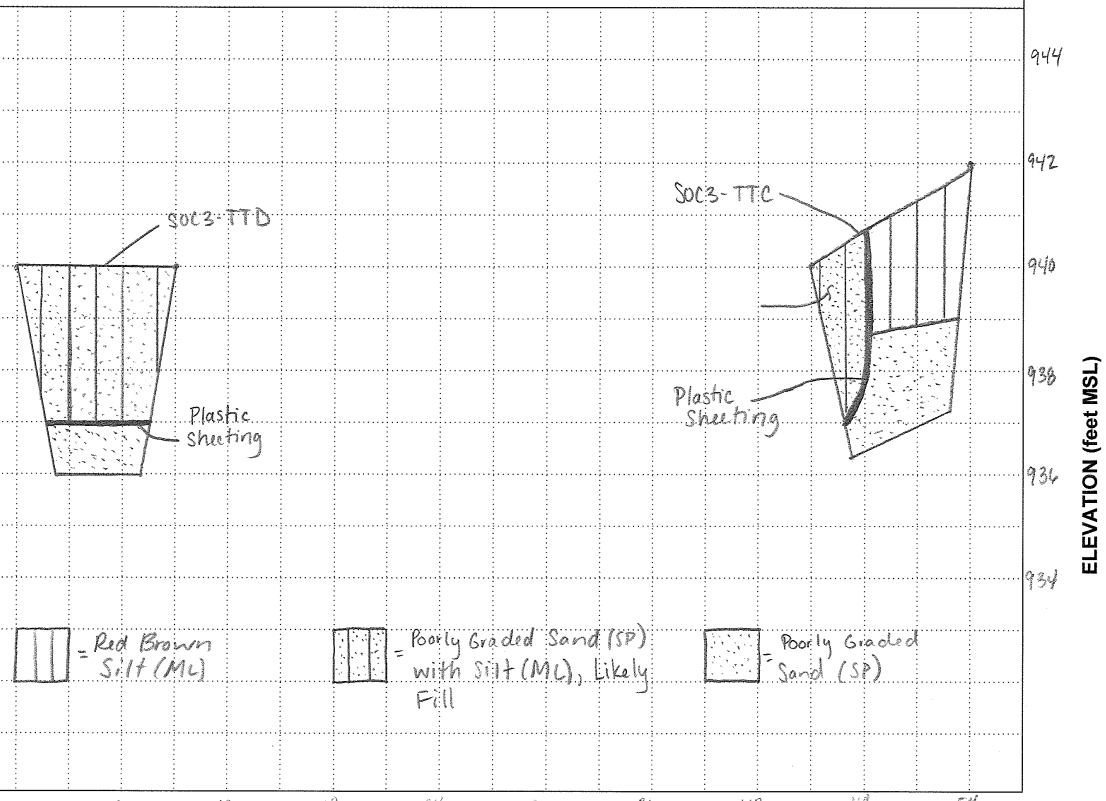
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007445

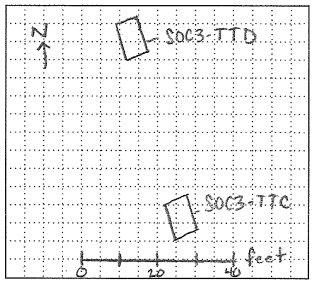
Project Name: UMore Park	**Log of Test Pit No.** SOC3-TTC, SOC3-TTD
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 939.921 - 942.201 MSL **Total Depth:** 4 feet
Location: SOC3	**Date Started:** 6/9/09 **Ended:** 6/9/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TTC	0.0	None	None	1-2'	
TTD	0.0	None	None	3-4'	



Map View



Remarks:

* No analytical samples were collected from test trenches SOC3-TTC or SOC3-TTD.
* Fill soil above plastic liner

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

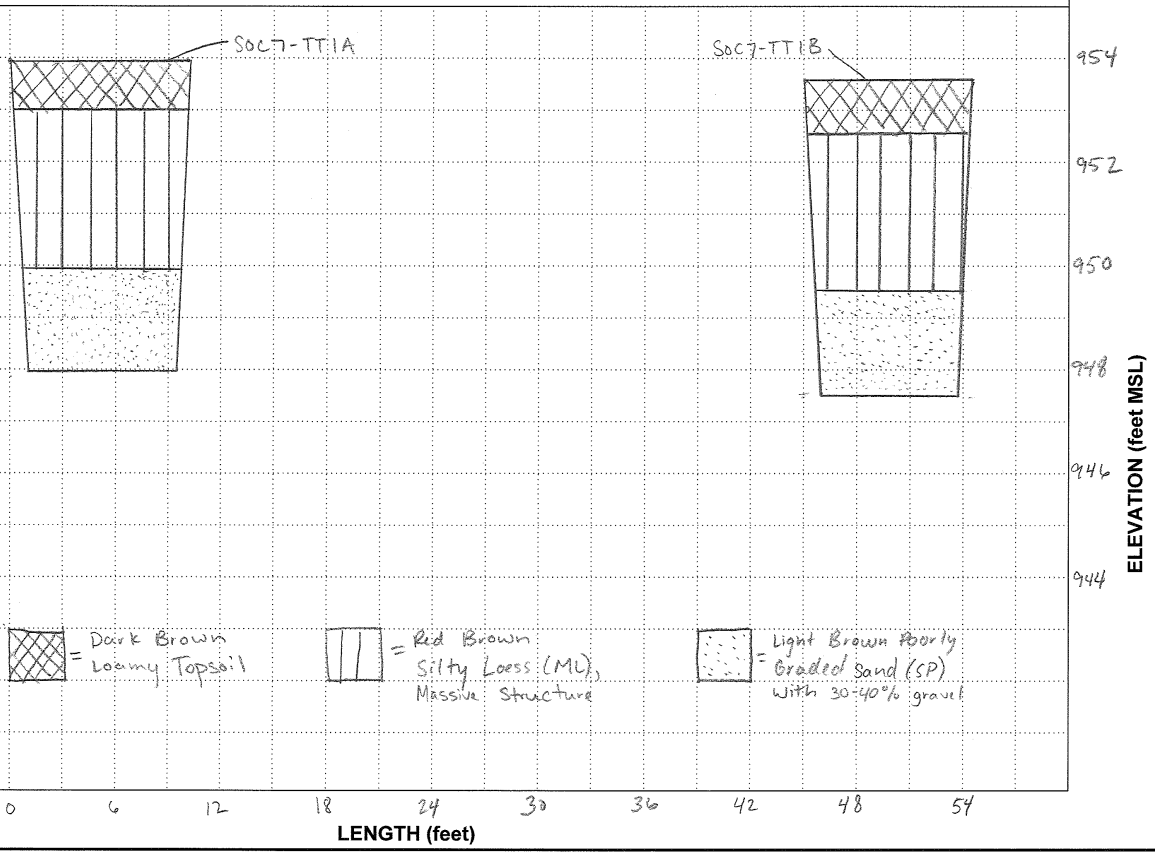
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007446

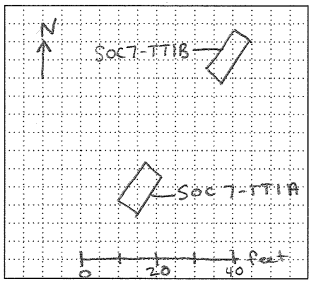
Project Name: UMore Park	**Log of Test Pit No.** SOC7-TT1		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 953.552-953.962'MSL	**Total Depth:** 6 feet	
Location: SOC7	**Date Started:** 6/8/09	**Ended:** 6/8/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT1A	0.0	None	None	0.5'
TT1B	0.0	None	None	2'



Map View



Remarks:

*No analytical samples were collected from test trench SOC7-TT1

Figure

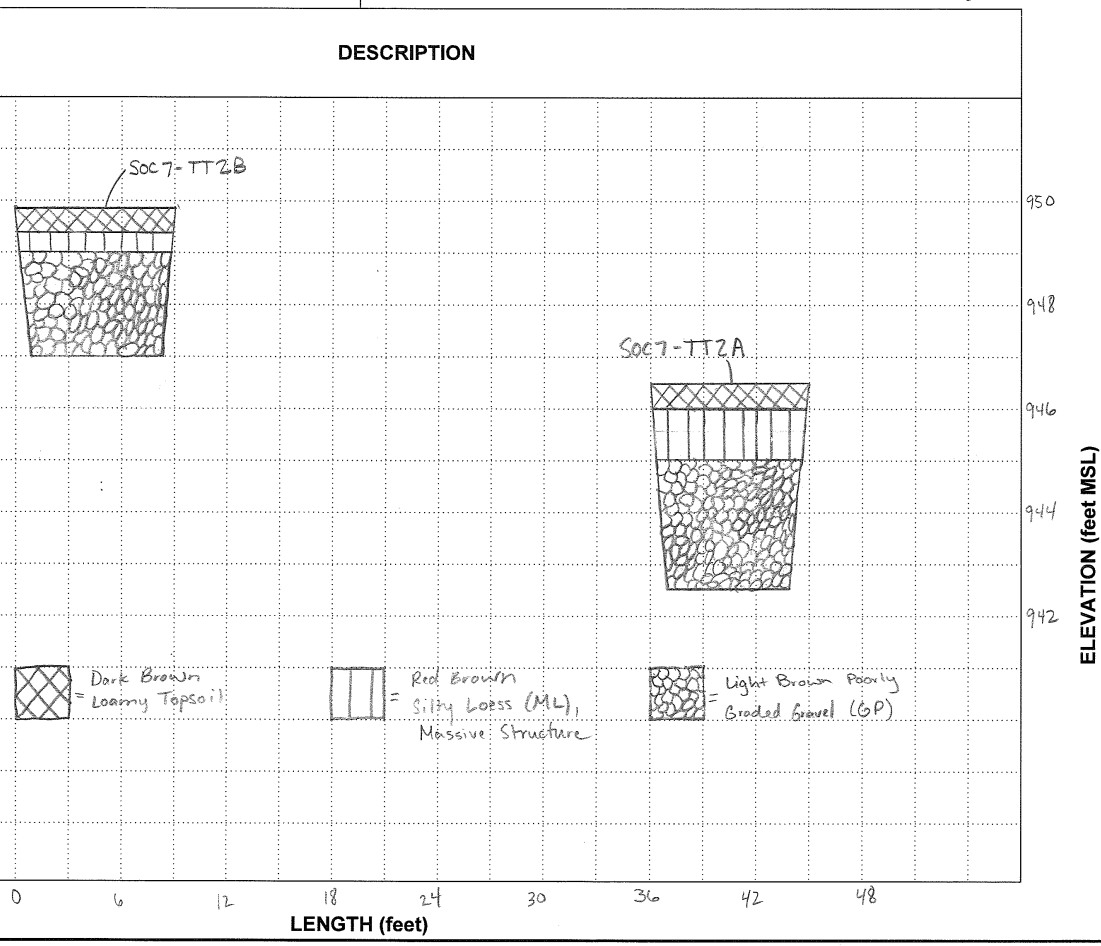
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/16/09

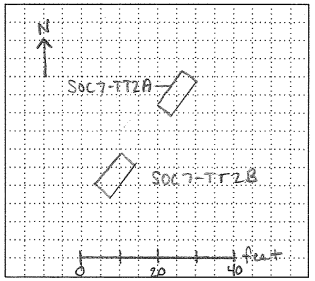
Project Name: UMore Park	Log of Test Pit No. SOC7-TT2	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.51 - 949.81' MSL	Total Depth: 4 feet
Location: SOC7	Date Started: 6/8/09	Ended: 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

SW ◄ ► NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC7-TT2B	0.0	None	None	1'
SOC7-TT2A	0.0	None	None	0.5'



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT2.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

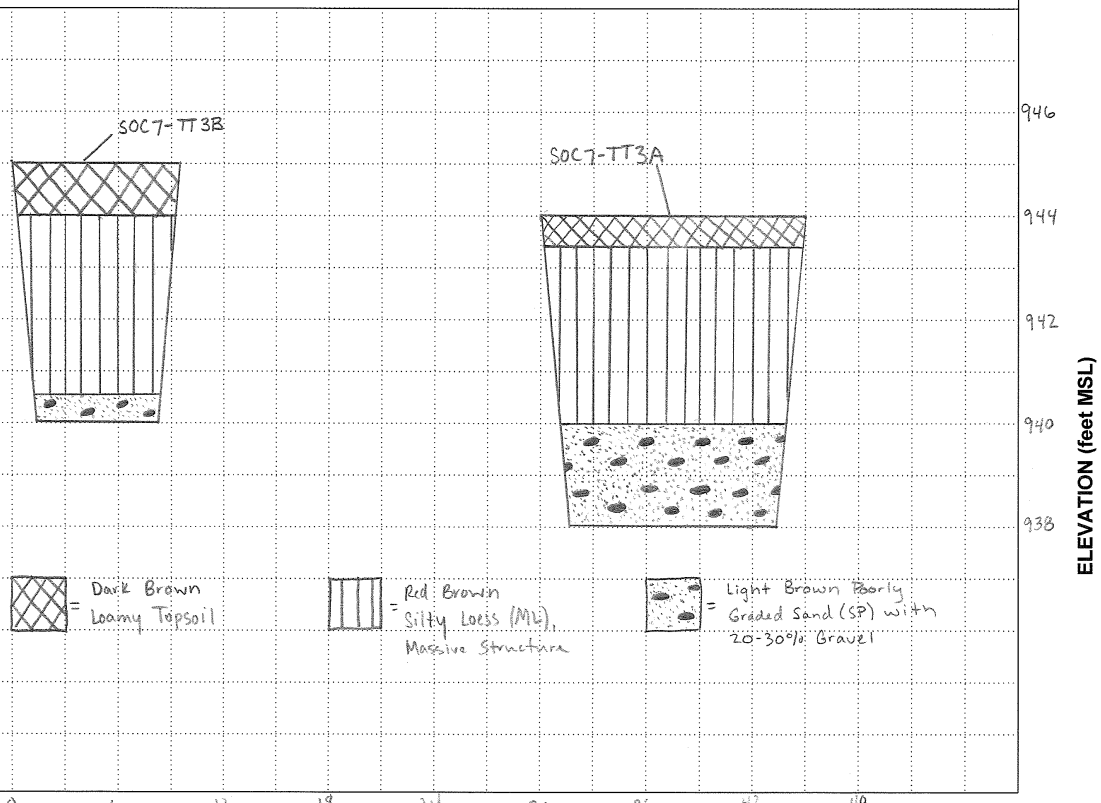
TEST PIT LOG PAGE 2392884.GPJ BARRLOG.GDT 6/18/09

Project Name: UMore Park	Log of Test Pit No. SOC7-TT3	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 944.02 - 945.17' MSL	Total Depth: 6 feet
Location: SOC7	Date Started: 6/8/09	Ended: 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

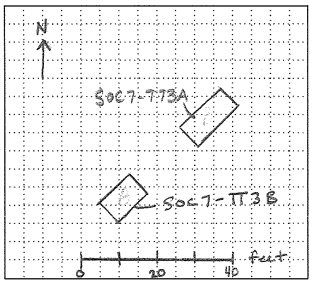
◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3A	0.2	None	None	1-2'
TT3B	0.0	None	None	5'

DESCRIPTION



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT3

Figure

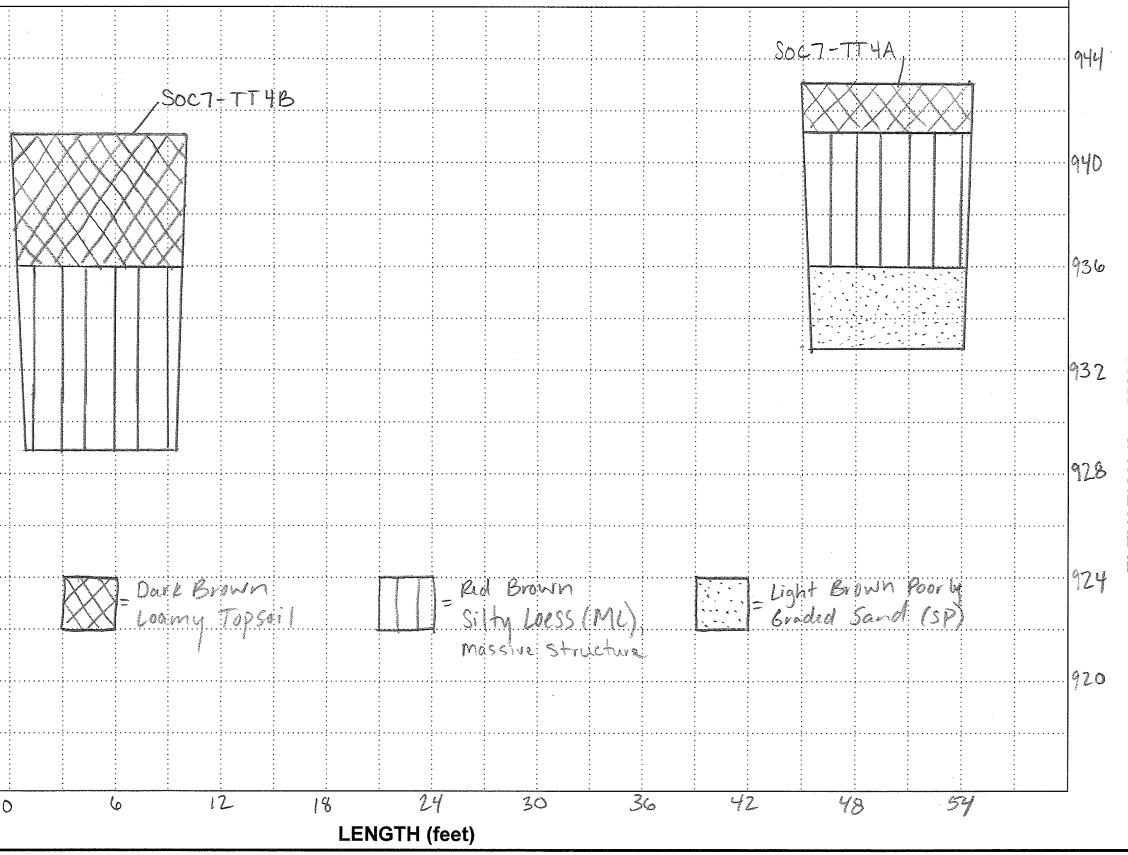
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2392884.GPJ BARRLOG.GDT 6/19/09

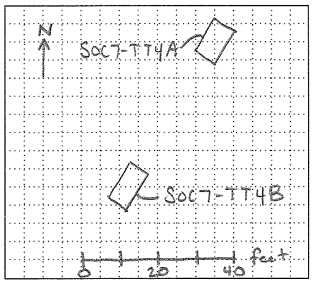
Project Name: UMore Park	Log of Test Pit No. SOC7-TT4	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 941.368 - 942.987' MSL	Total Depth: 12 feet
Location: SOC7	Date Started: 6/8/09	Ended: 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4A	0.0	None	None	8'
TT4B	0.0	None	None	10'



Map View



Remarks:

*No analytical samples were collected from test trench SOC7-TT4.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

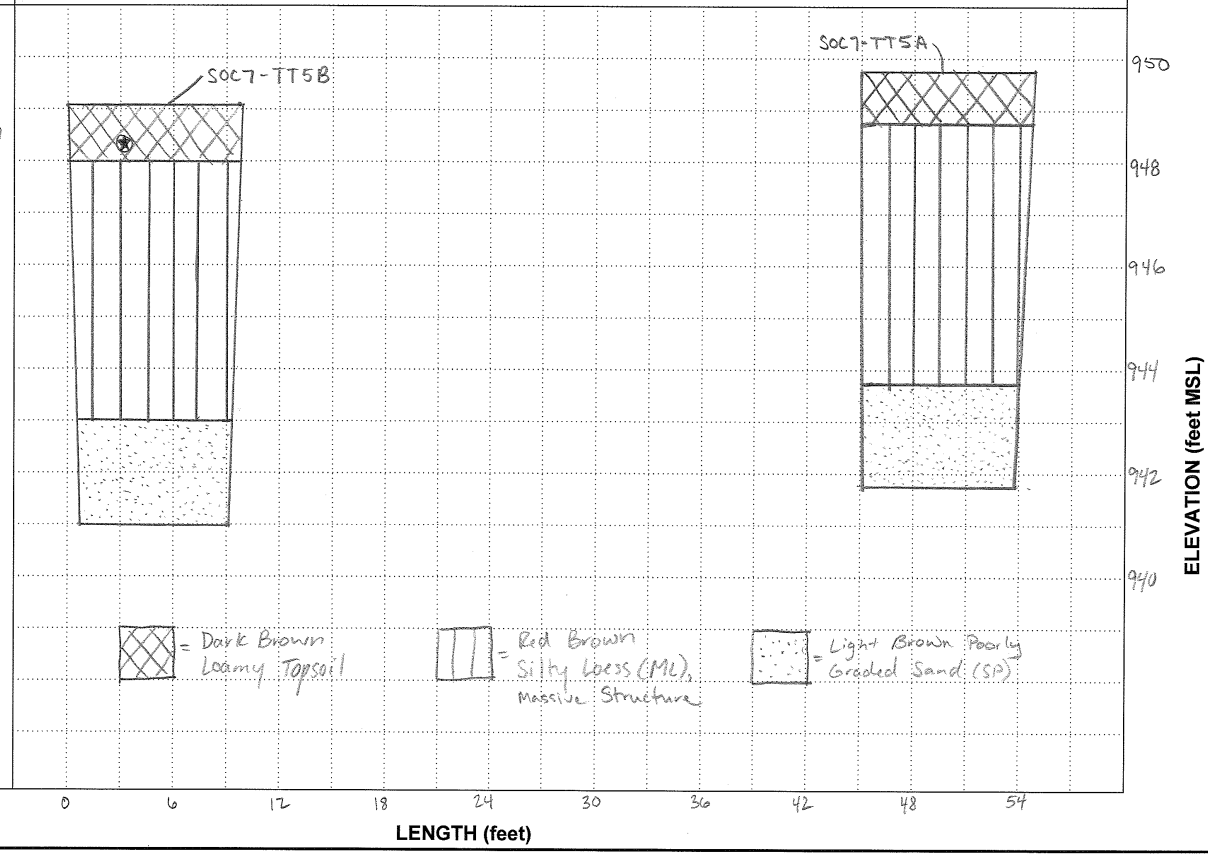
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007450

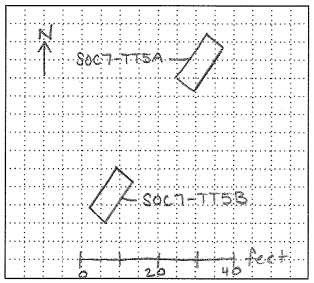
Project Name: UMore Park	Log of Test Pit No. SOC7-TT5	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 949.126 - 949.743' MSL	Total Depth: 8 feet
Location: SOC7	Date Started: 6/8/09	Ended: 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

SW ◀ ▶ NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC7-TT5-0.5-1'	0.0	None	None	0.5-1
TT5A	0.0	None	None	6'



Map View



Remarks:

* Sample SOC7-TT5-0.5-1' was collected from test trench SOC7-TT5B

Ⓧ Approximate Sample Location

Figure

BARR
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

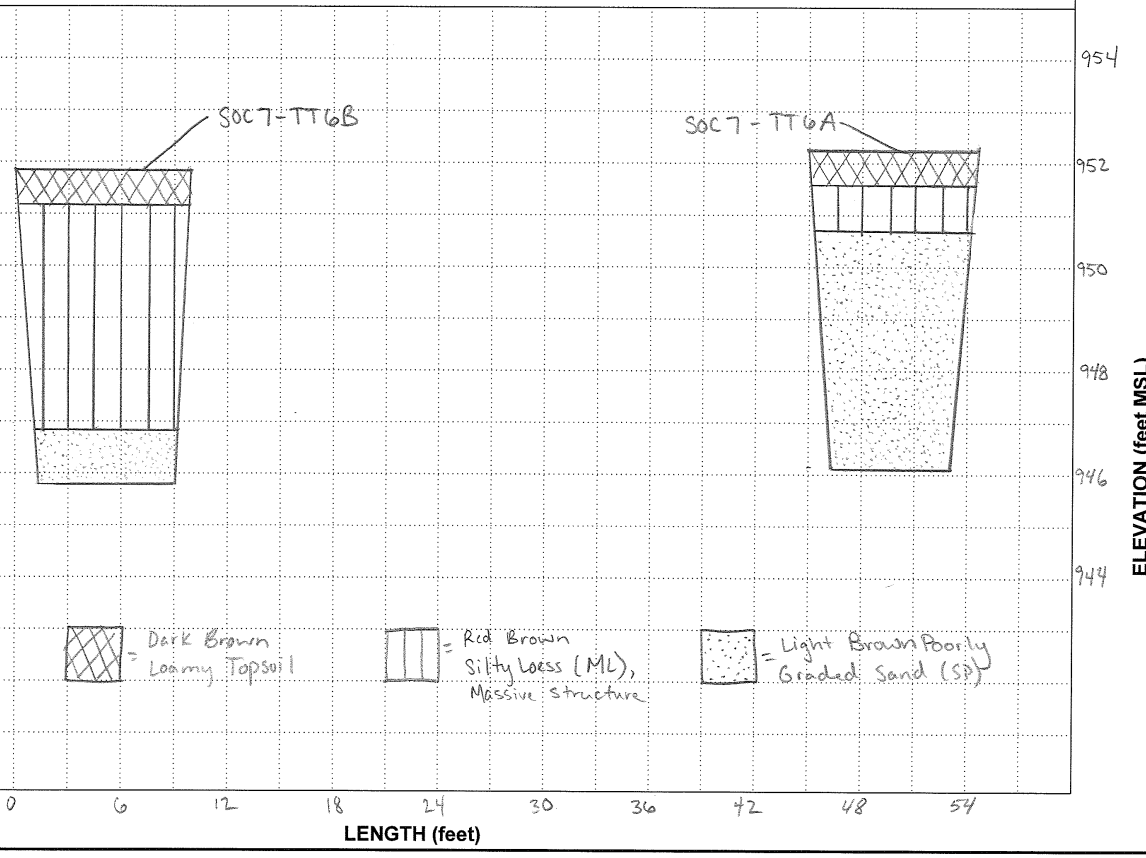
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007451

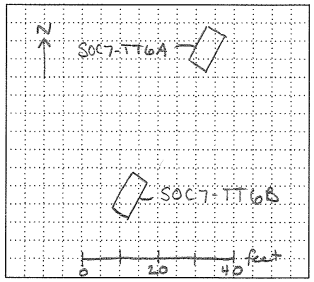
Project Name: UMore Park	**Log of Test Pit No.** SOC7-TT6	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 951.823-952.385	**Total Depth:** 6 feet
Location: SOC7	**Date Started:** 6/8/09	**Ended:** 6/8/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT6B	0.0	None	None	0.5'
TT6A	0.0	None	None	6'



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT6

Figure

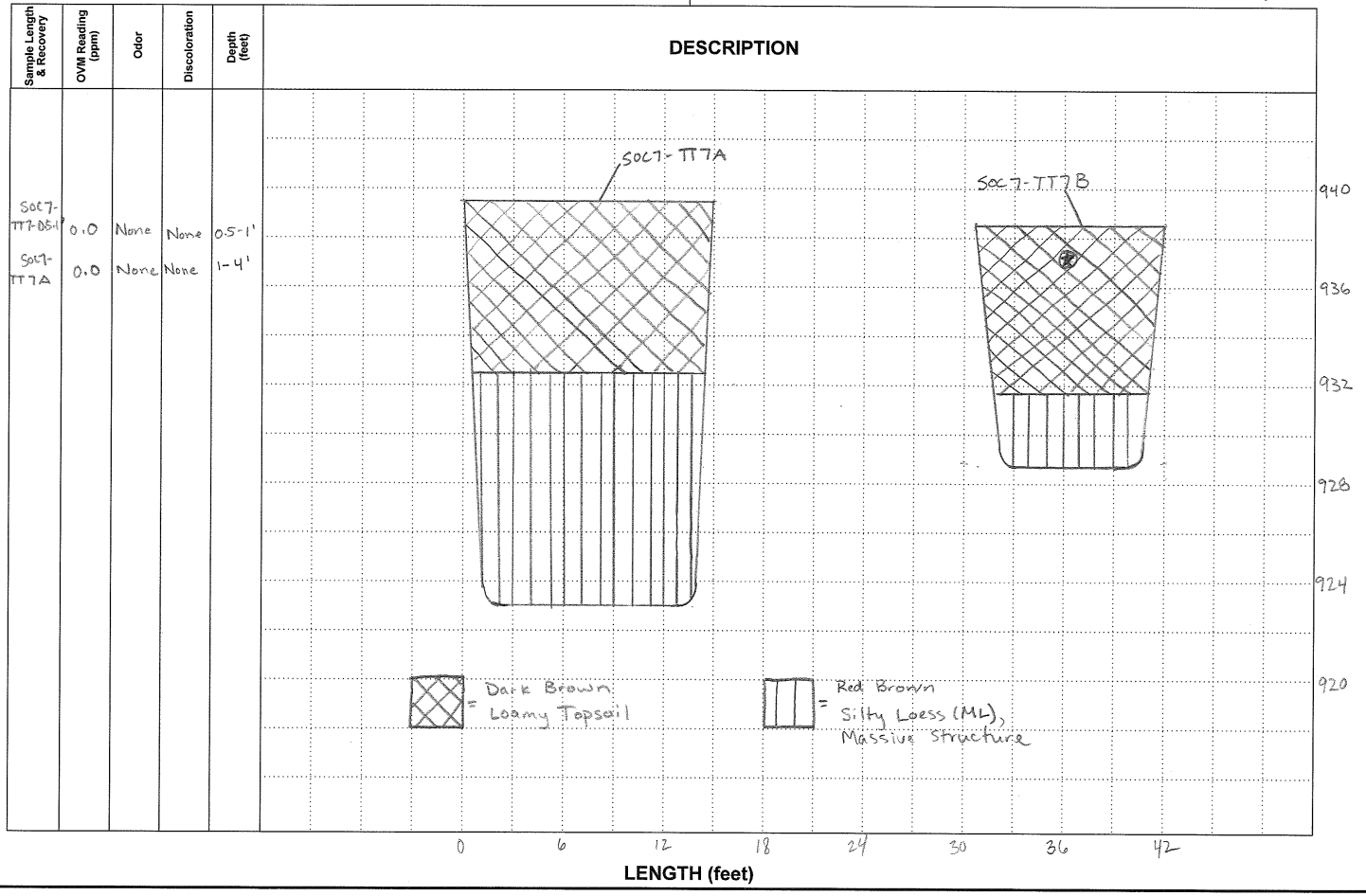
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

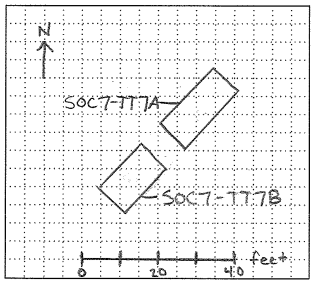
Project Name: UMore Park	**Log of Test Pit No.** SOC7 - TT7		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 939.24 - 939.74' MSL	**Total Depth:** 17 feet	
Location: SOC7	**Date Started:** 6/8/09	**Ended:** 6/8/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

◀ NE SW ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC7-TT7-0.5-1'	0.0	None	None	0.5-1'
SOC7-TT7A	0.0	None	None	1-4'



Map View



Remarks:

* Test trench SOC7-TT7A was excavated to the maximum depth possible with the equipment onsite. The sand and gravel layer was not encountered.

* Sample SOC7-TT7-0.5-1' was collected from test trench SOC7-TT7B

⊗ Approximate Sample Location

Figure

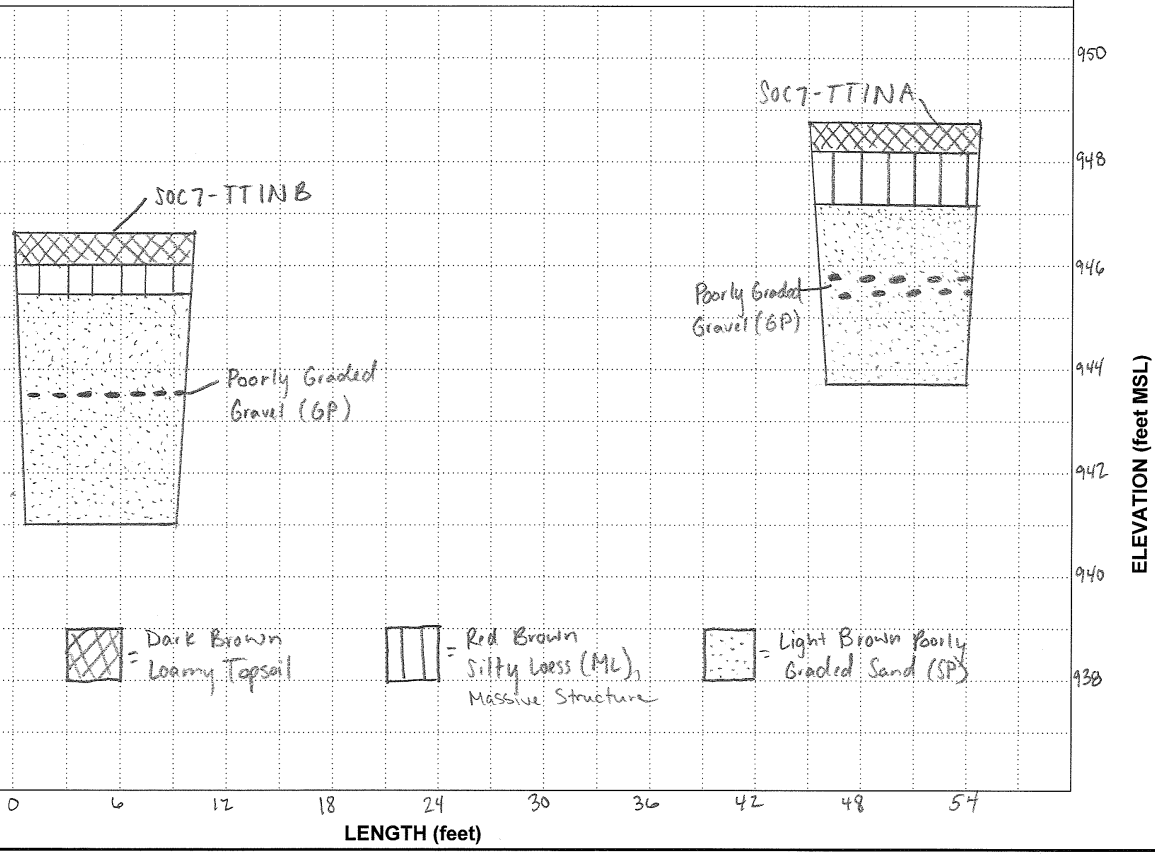
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

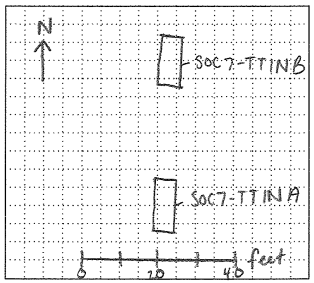
Project Name: UMore Park	Log of Test Pit No. SOC7-TTIN	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 946.768 - 948.777' MSL	Total Depth: 5.5 feet
Location: SOC7	Date Started: 6/11/09	Ended: 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KEB	

◀N S▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TTINB	0.6	None	None	0-0.5'
TTINA	0.0	None	None	3-4'



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TTIN
* Stratification and bedding observed in sand layer

Figure

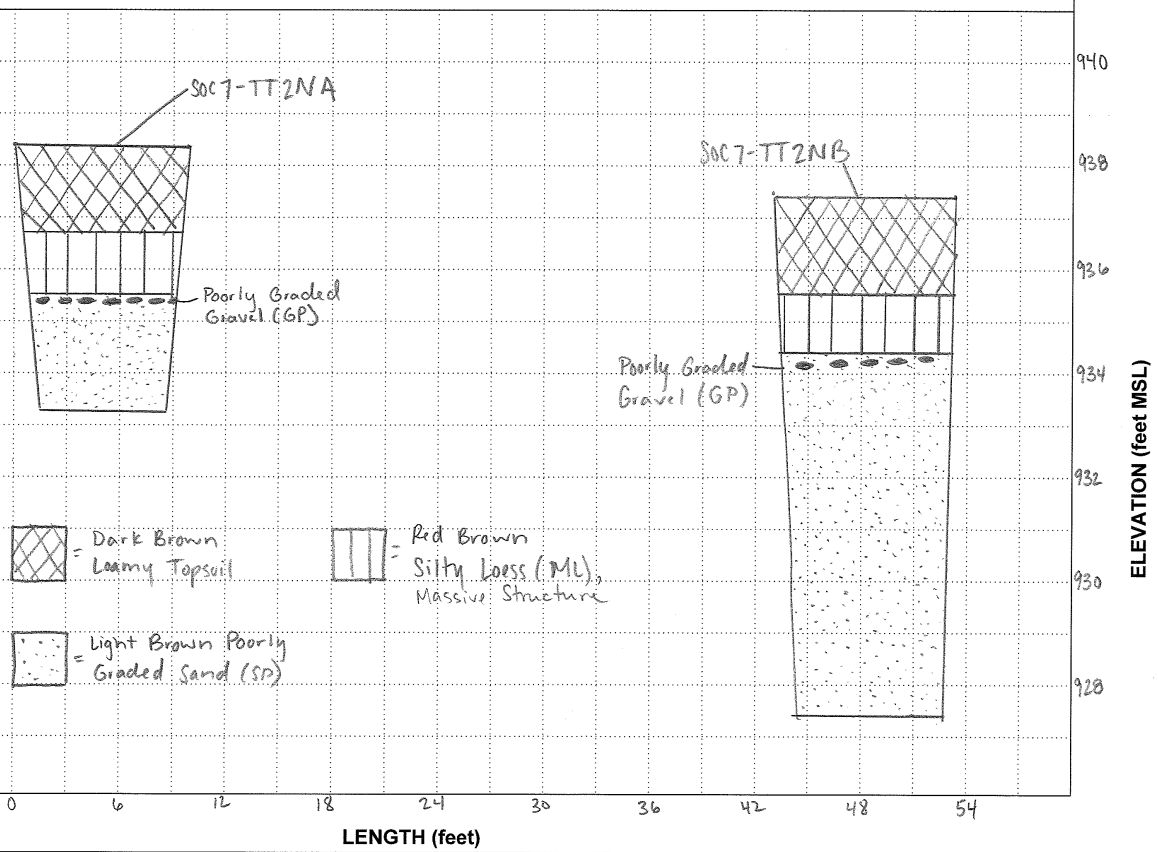
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

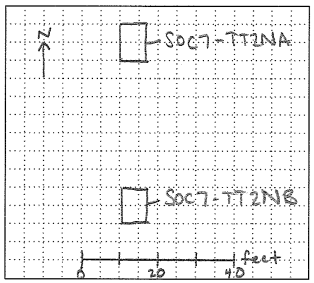
Project Name: UMore Park	**Log of Test Pit No.** SOC7-TT2N		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 937.454 - 938.391' MSL	**Total Depth:** 10 feet	
Location: SOC7	**Date Started:** 6/11/09	**Ended:** 6/11/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KeB		

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT2NB	0.3	None	None	0-1'
TT2NA	0.2	None	None	5'



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT2N
* Stratification and bedding observed in sand layer

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

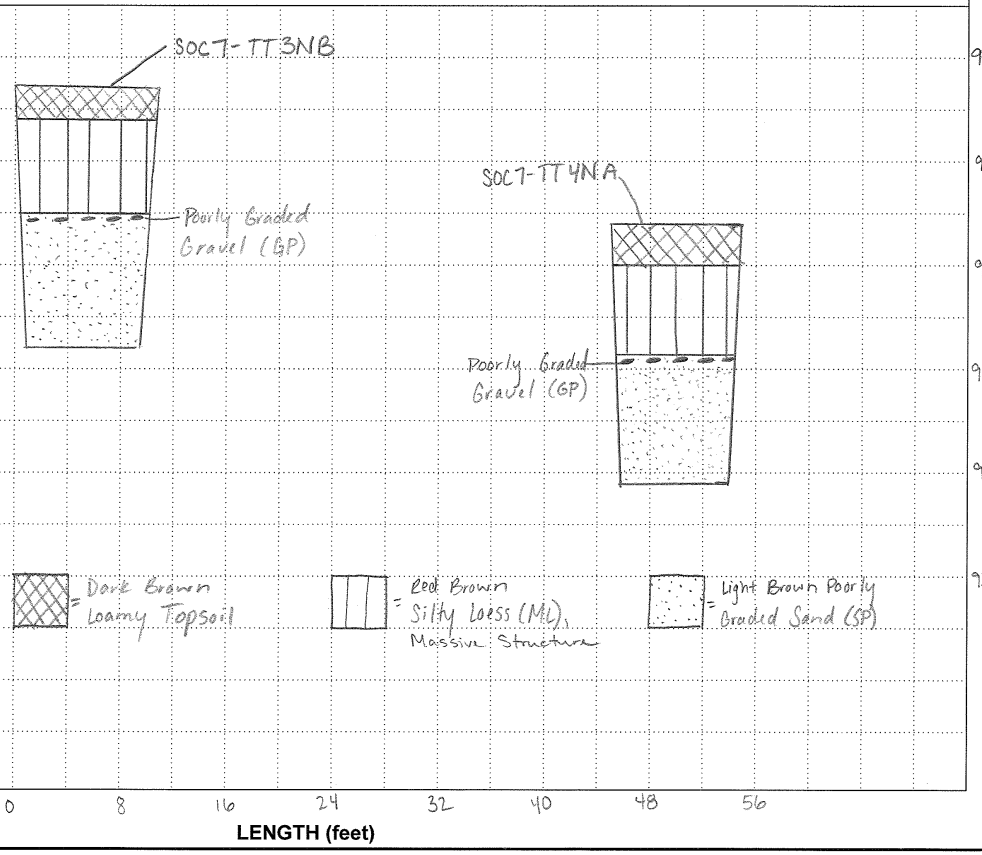
TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

UMP007455

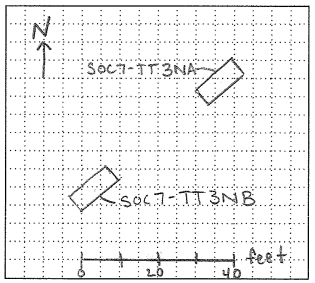
Project Name: UMore Park	**Log of Test Pit No.** SOC 7-TT 3N	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 944.818-947.477' MSL	**Total Depth:** 5 feet
Location: SOC7	**Date Started:** 6/11/09	**Ended:** 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

SW ◄ ► NE

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3NB	0.0	None	None	2-3'
TT3NA	0.0	None	None	5'



Map View



Remarks:

* No analytical samples were collected at test trench SOC7-TT3N

Figure

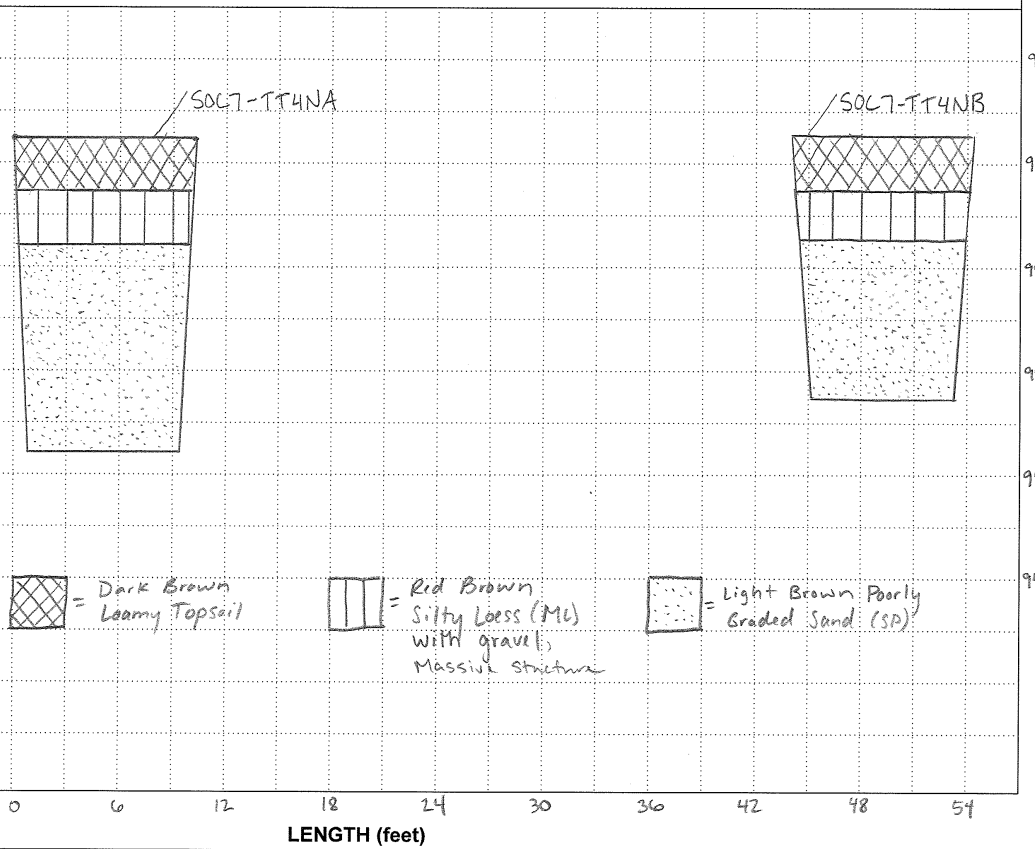
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

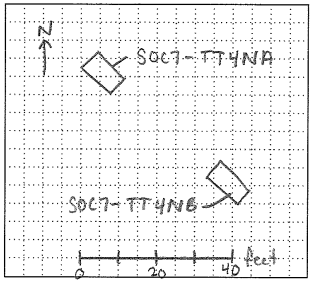
Project Name: UMore Park	**Log of Test Pit No.** SOC7 - TT 4N		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 950.506 - 950.605	**Total Depth:** 6 feet	
Location: SOC7	**Date Started:** 6/11/09	**Ended:** 6/11/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KLB		

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4A	0.0	None	None	0-1'



Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT4N

Figure

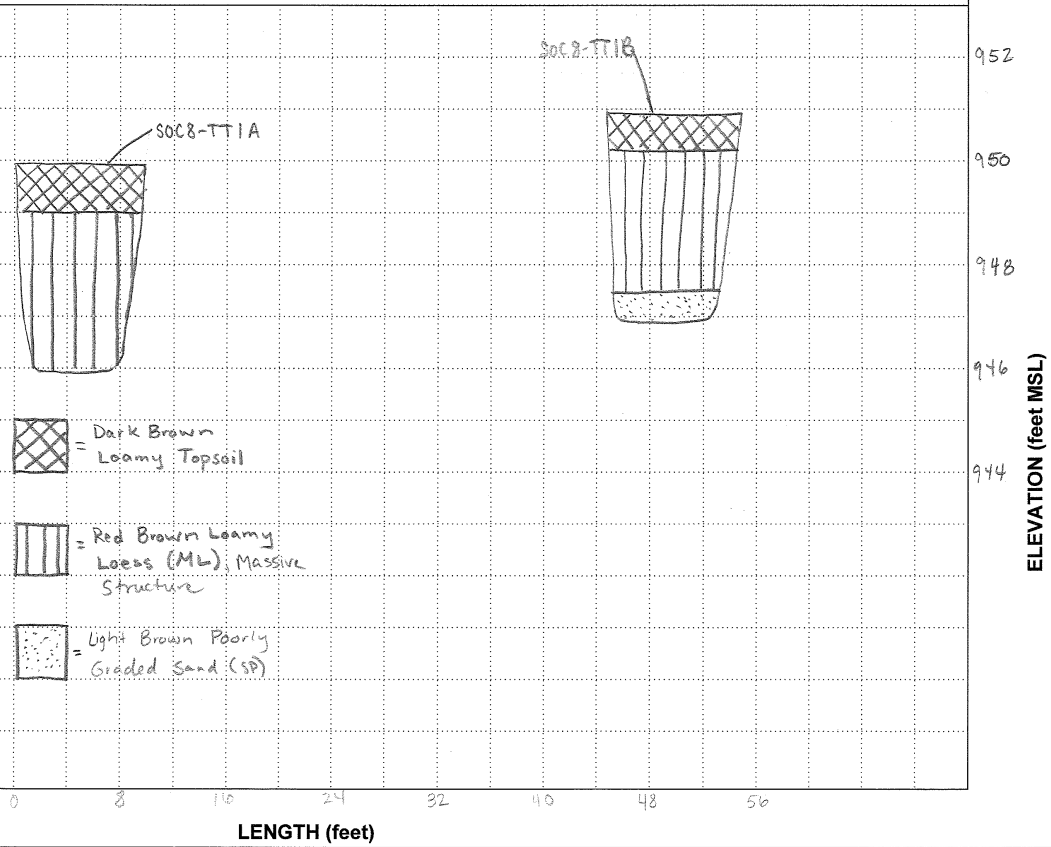
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

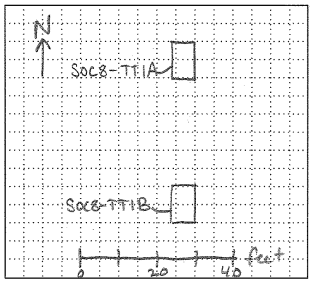
Project Name: UMore Park	**Log of Test Pit No.** SOC8 - TT1		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 949.91 - 950.91' MSL	**Total Depth:** 4 feet	
Location: SOC 8	**Date Started:** 6/3/09	**Ended:** 6/3/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LMLZ		

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT1B	0.5	None	None	1.5'
TT1A	0.1	None	None	3'



Map View



Remarks:

* Asbestos Containing Material (ACM) observed near SOC 8-TT1 including transite shingles and tiles.
* All ACM debris was surficial.
* No analytical samples were collected from test trench SOC 8-TT1

Figure

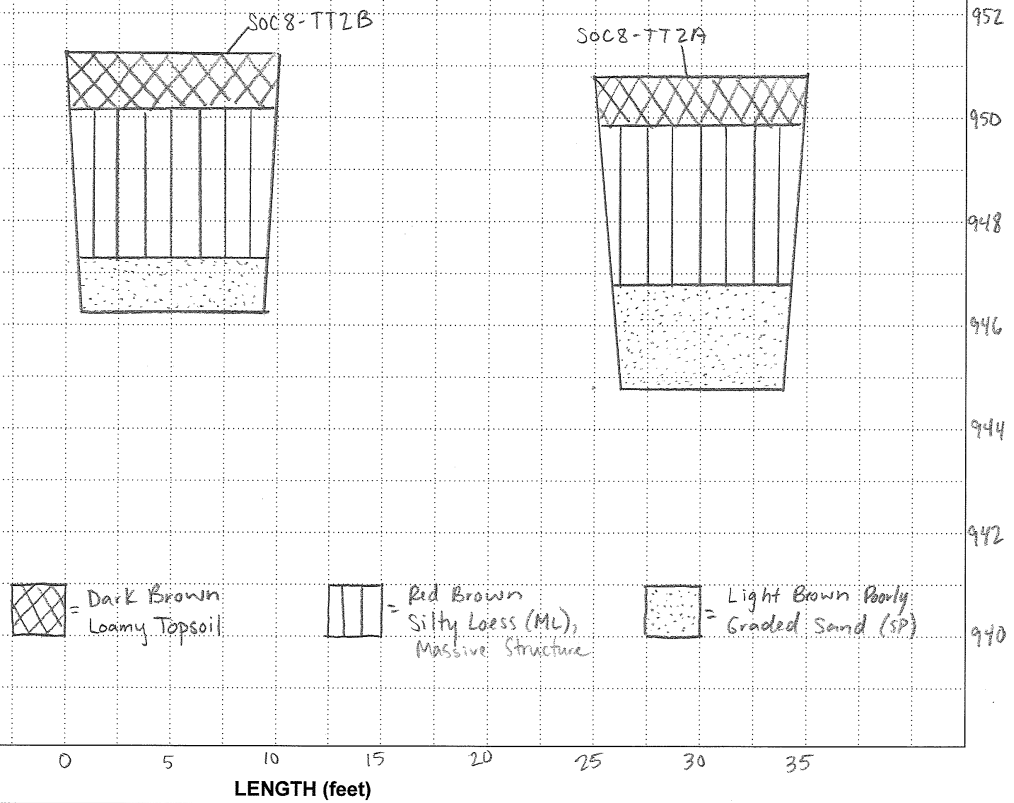
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

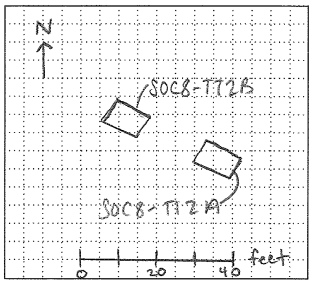
Project Name: UMore Park	Log of Test Pit No. SOC8-TT2	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 950.823-951.319' MSL	Total Depth: 6 feet
Location: SOC8	Date Started: 6/11/09	Ended: 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT2A	0.0	None	None	0-1
TT2B	0.0	None	None	5'



Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT2

Figure

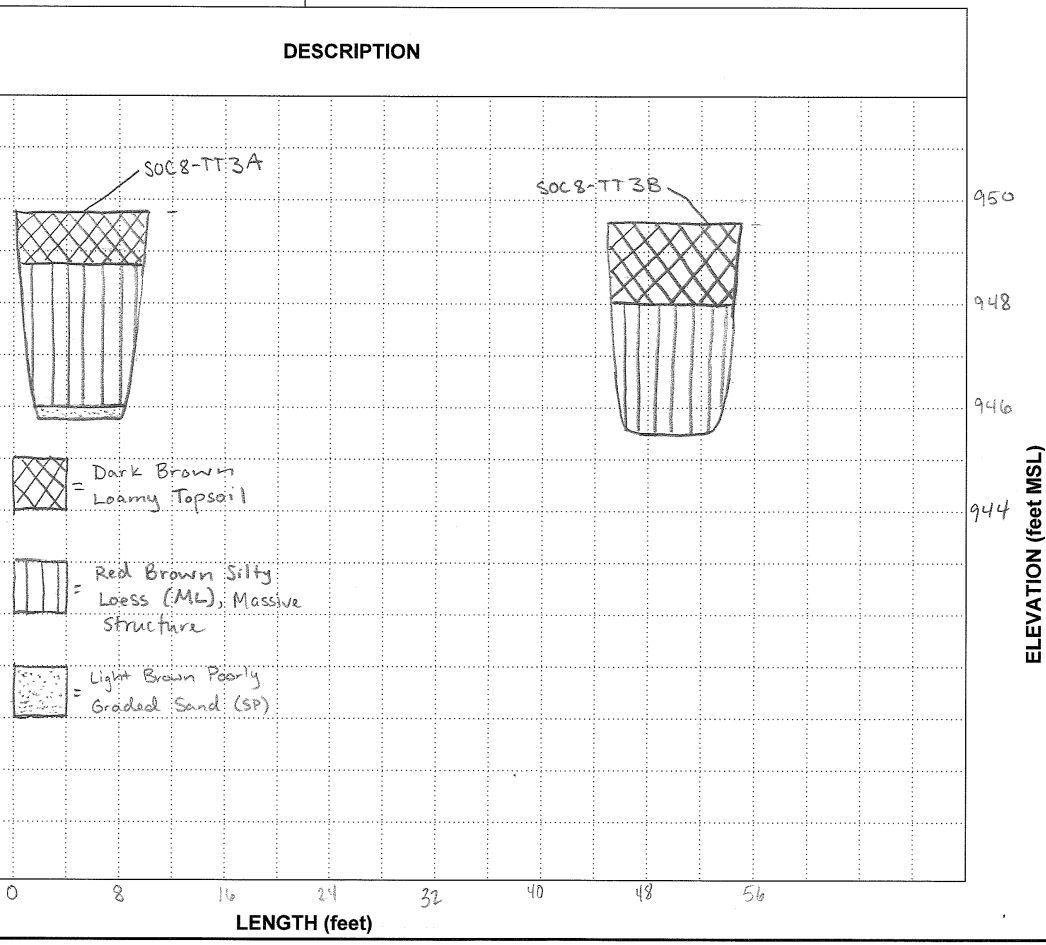
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

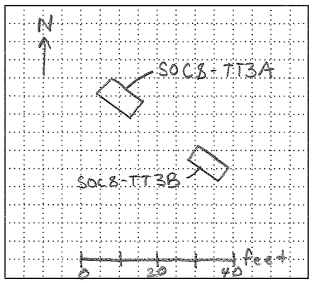
Project Name: UMore Park	Log of Test Pit No. SOC8-TT3	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 949.48-949.73' MSL	Total Depth: 4 feet
Location: SOC 8	Date Started: 6/3/09	Ended: 6/3/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LML2	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3B	0.3	None	None	0.5'
TT3A	0.5	None	None	1-4'



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT3

Figure

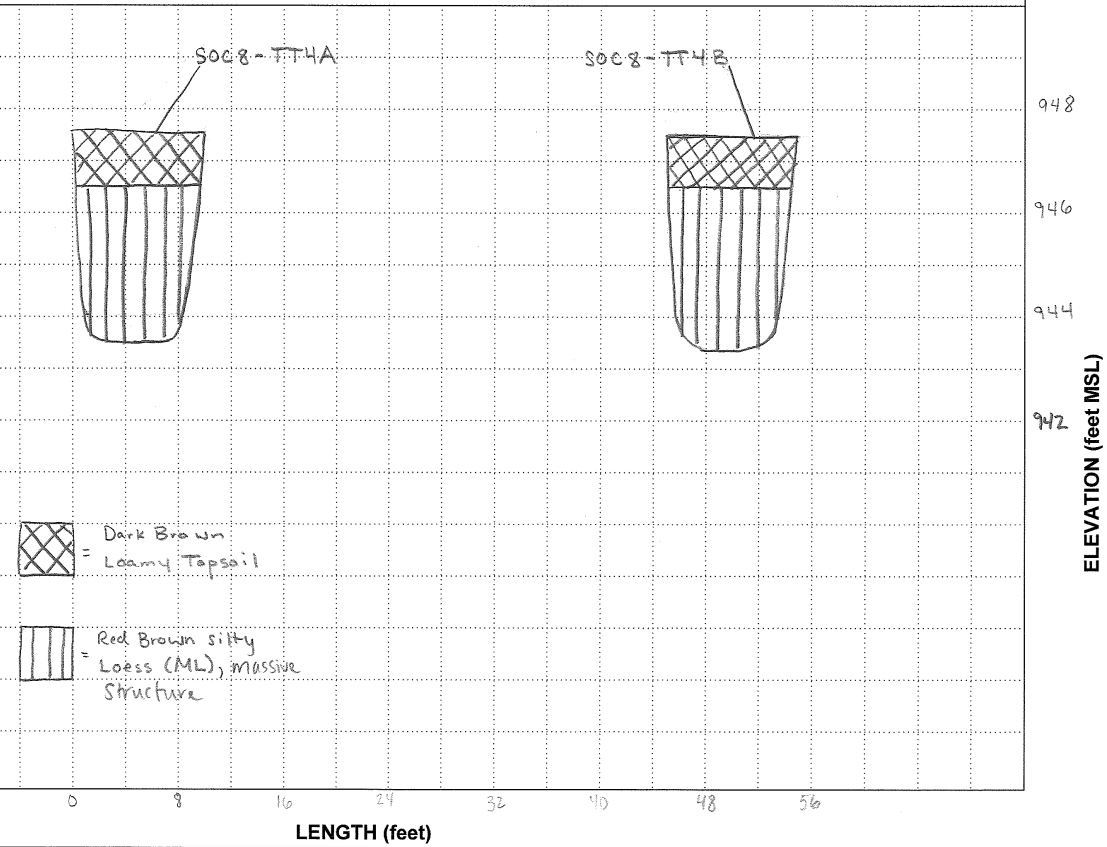
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

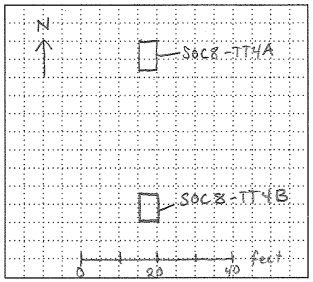
Project Name: UMore Park	Log of Test Pit No. SOC8-TT4	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 948.42 - 948.53 'MSL	Total Depth: 4 feet
Location: SOC 8	Date Started: 6/3/09	Ended: 6/3/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LMLZ	

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4B	1.1	None	None	1'
TT4A	1.4	None	None	2.5-4'



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT4

Figure

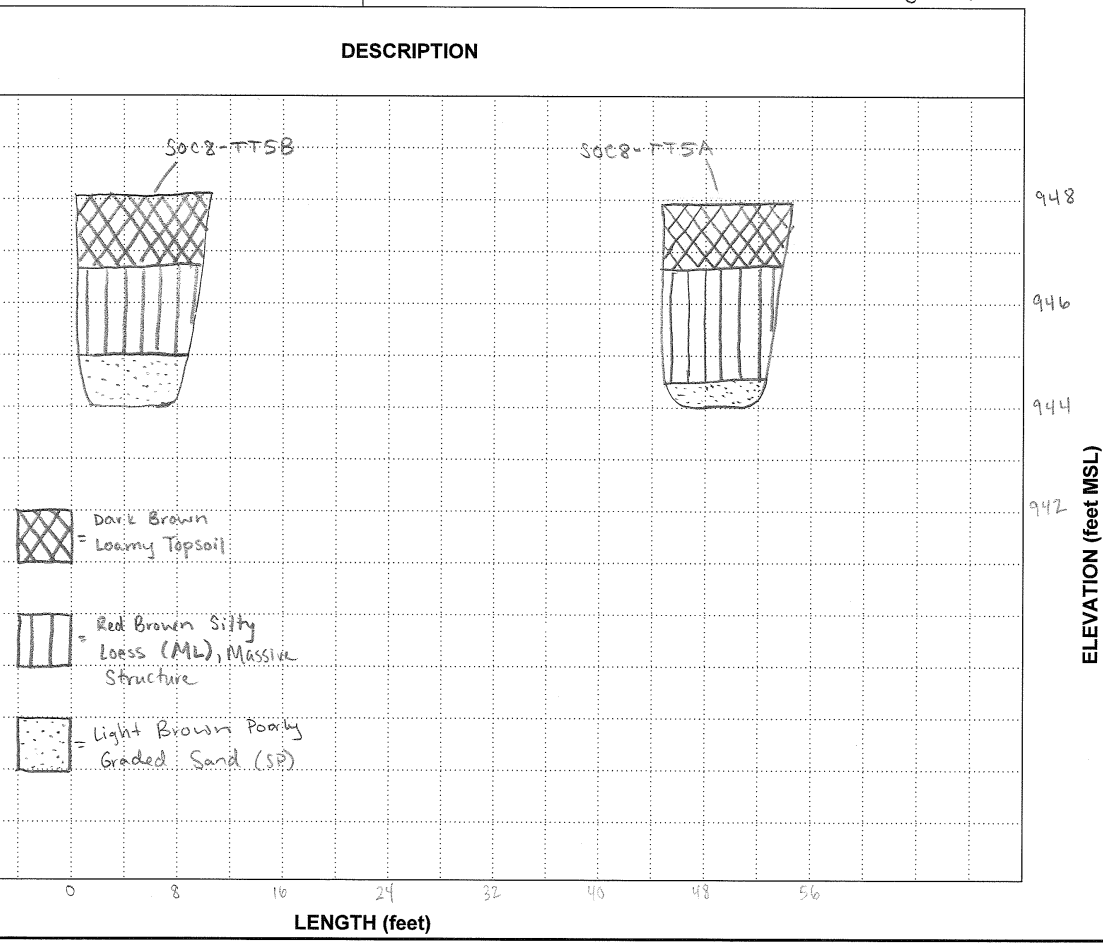
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

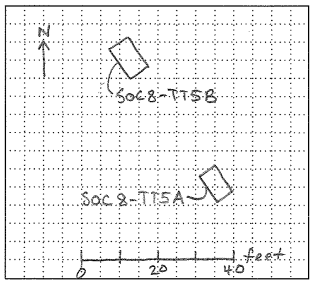
Project Name: UMore Park	Log of Test Pit No. SOC8-TT5	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 947.93 - 948.18' MSL	Total Depth: 4 feet
Location: SOC 8	Date Started: 6/3/09	Ended: 6/3/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: LML2	

◀ NW SE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT5B	0.2	None	None	1'
TT5A	0.4	None	None	3-4'



Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT5

Figure

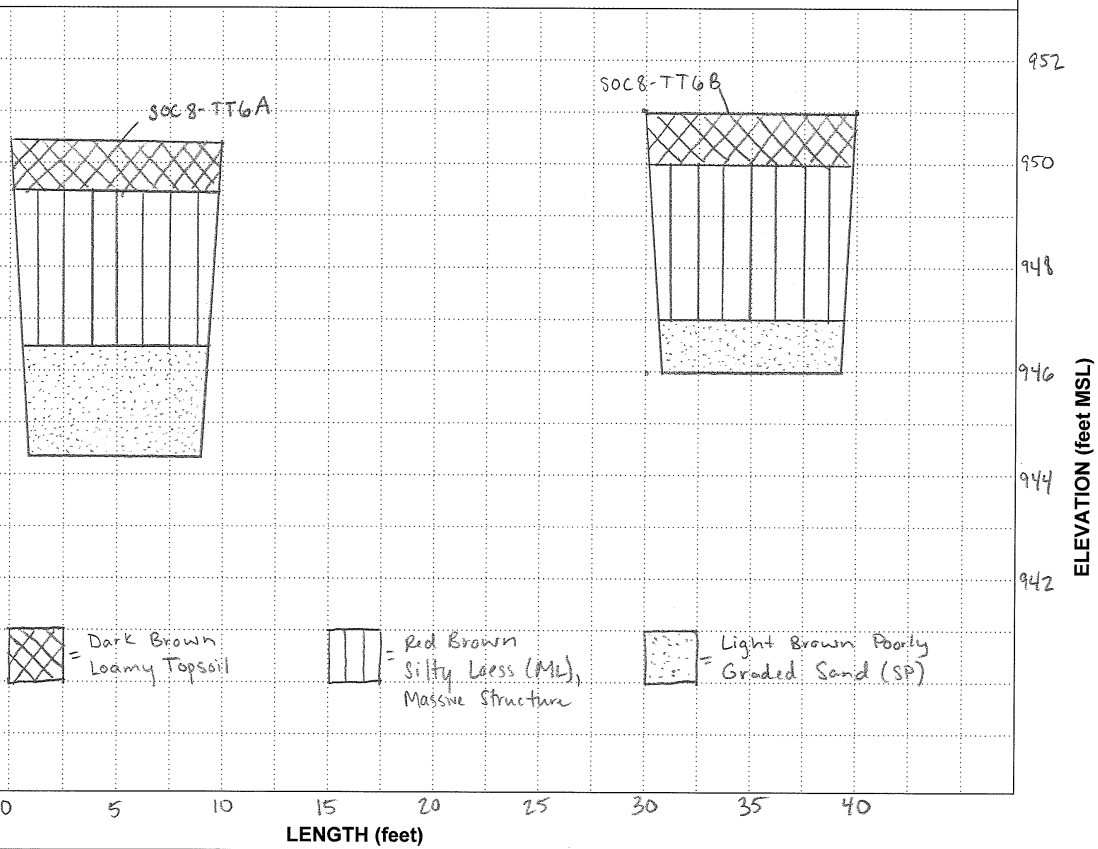
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

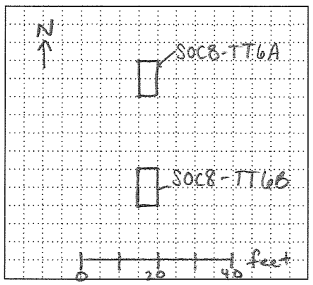
Project Name: UMore Park	Log of Test Pit No. SOC8-TT6	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 950.653-951.043' MSL	Total Depth: 6 feet
Location: SOC8	Date Started: 6/11/09	Ended: 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KLB	

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT6B	0.0	None	None	0-1'
TT6A	0.0	None	None	5-6



Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT6.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

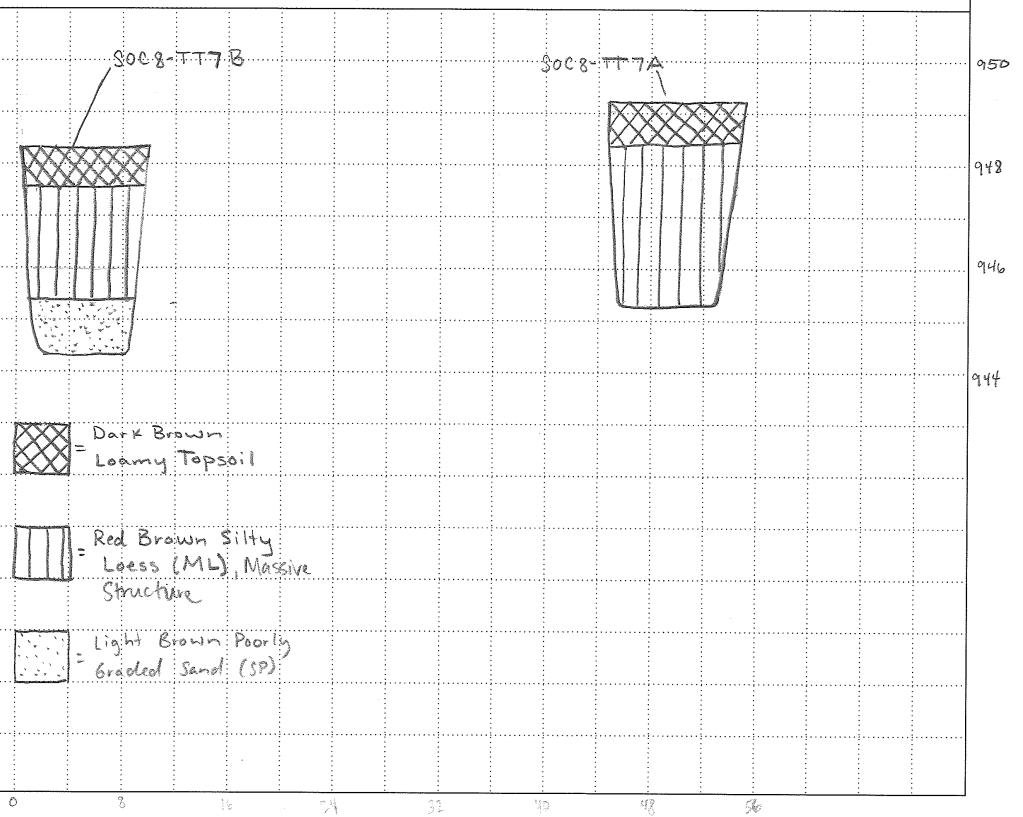
TEST PIT LOG PAGE 2362894.GPJ BARRLOG.GDT 6/18/09

Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT7		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 948.29-949.33'MSL	**Total Depth:** 4 feet	
Location: SOC8	**Date Started:** 6/3/09	**Ended:** 6/3/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** LMLZ		

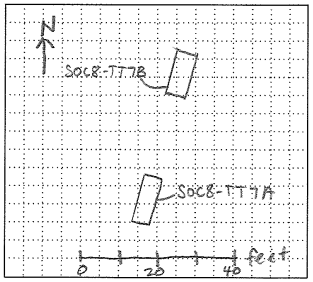
◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT7B	0.0	None	None	0.5'
TT7A	2.7	None	None	2-3'

DESCRIPTION



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT7

Figure

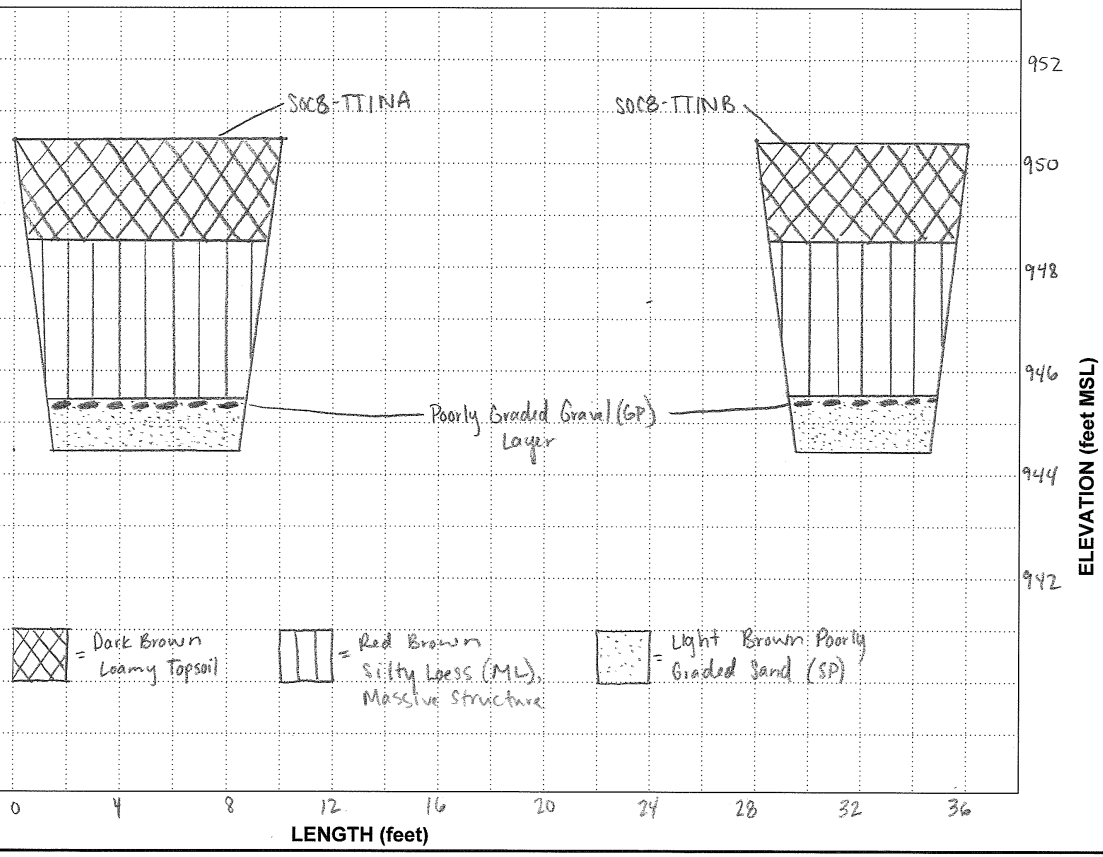
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362684.GPJ BARRLOG.GDT 6/18/09

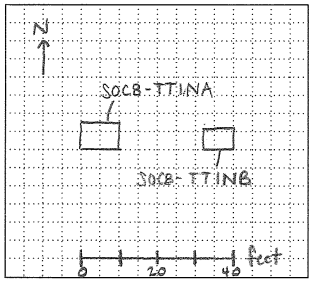
Project Name: UMore Park	**Log of Test Pit No.** SOC8-TTIN		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 950.226-950.418' MSL	**Total Depth:** 6 feet	
Location: SOC 8	**Date Started:** 6/10/09	**Ended:** 6/10/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

W ◄ ► E

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TTINA	0.0	None	None	0-1'
TTINB	0.0	None	None	2-3'



Map View



Remarks:

*No analytical samples were collected from SOC 8-TTIN

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

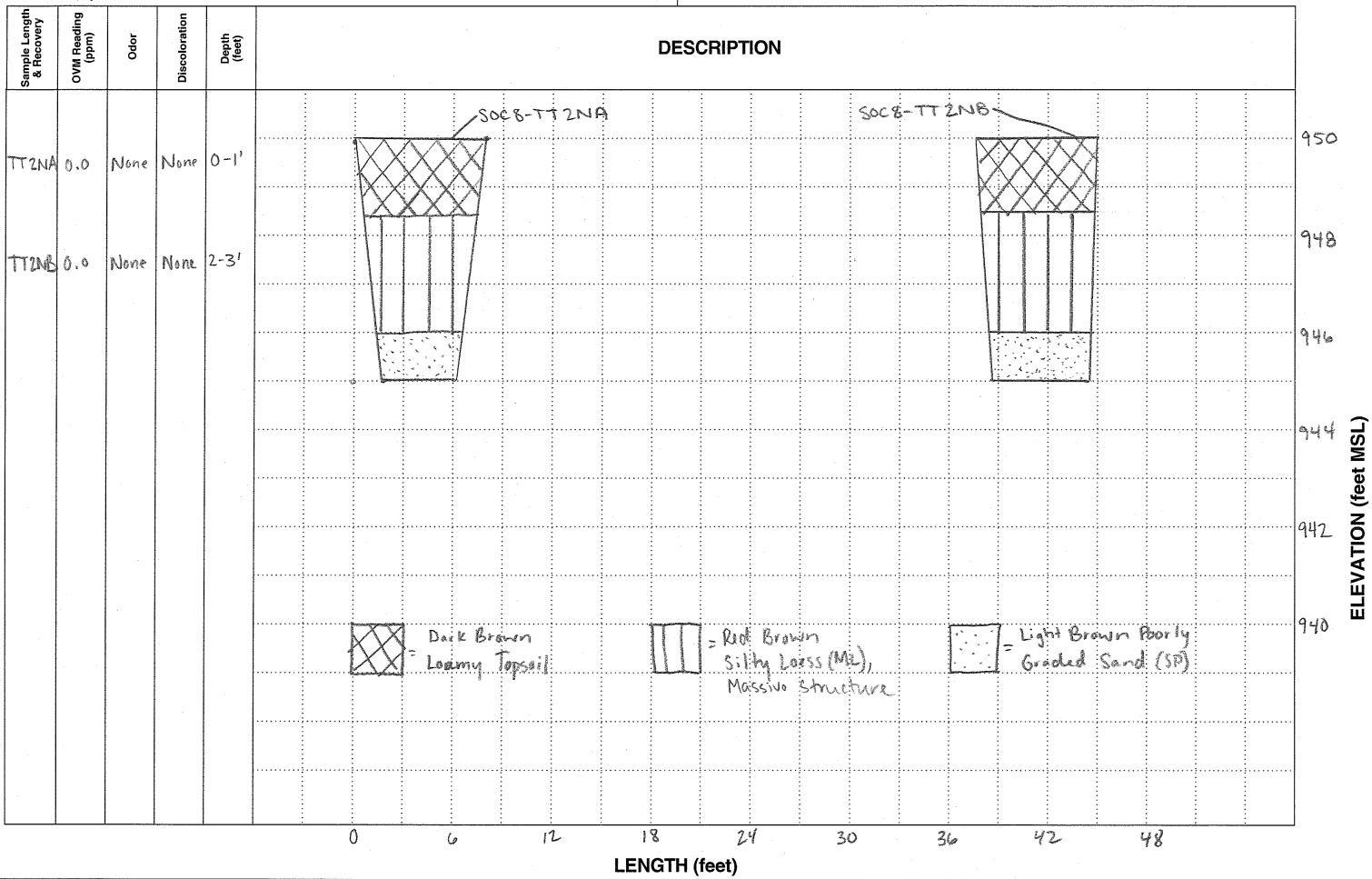
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

Project Name: UMore Park	**Log of Test Pit No.** SOC8 - TT2N
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 949.755 -949.894' MSL **Total Depth:** 5 feet
Location: SOC8	**Date Started:** 6/10/09 **Ended:** 6/10/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KcB

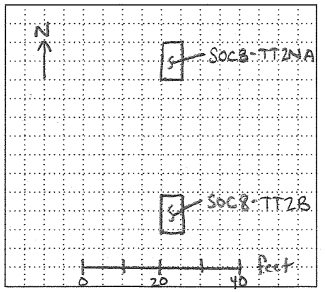
◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT2NA	0.0	None	None	0-1'
TT2NB	0.0	None	None	2-3'

DESCRIPTION



Map View



Remarks:

*No analytical samples were collected at test trench SOC8-TT2N

Figure

BARR
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2382984.GPJ BARRLOG.GDT 6/19/09

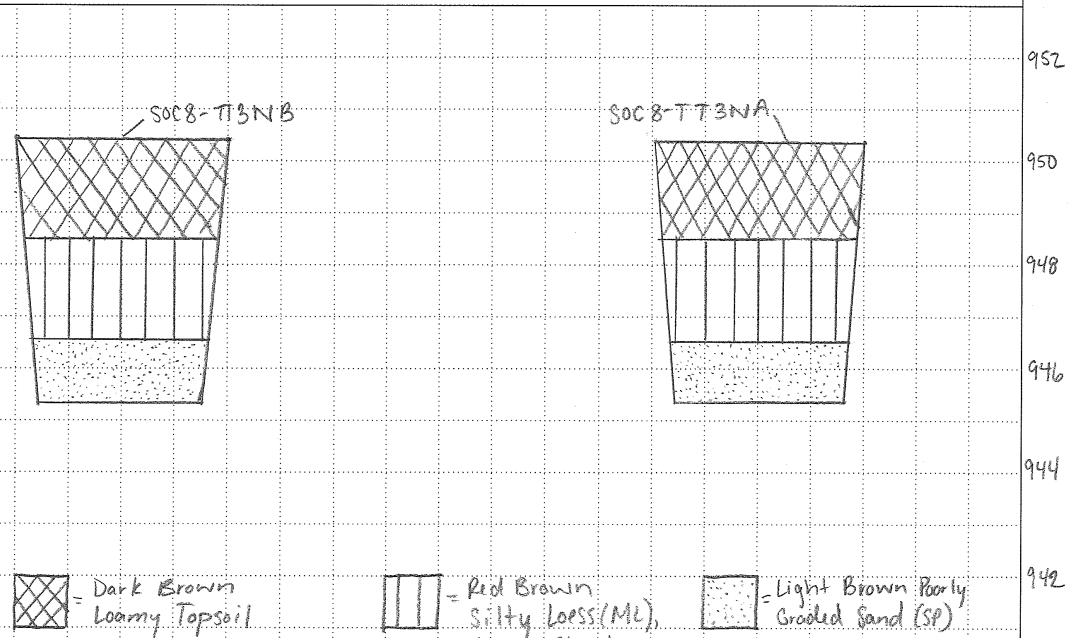
UMP007466

Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT3N	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 950.503-950.613	**Total Depth:** 5 feet
Location: SOC 8	**Date Started:** 6/11/09	**Ended:** 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

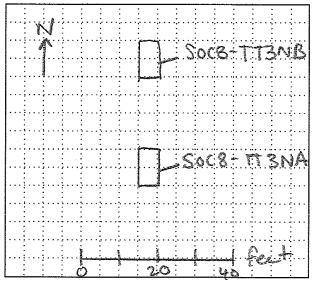
◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3NA	0.0	None	None	0-1'
TT3NB	0.0	None	None	2-3'

DESCRIPTION



Map View



Remarks:

*No analytical samples were collected at test trench SOC 8-TT3N

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

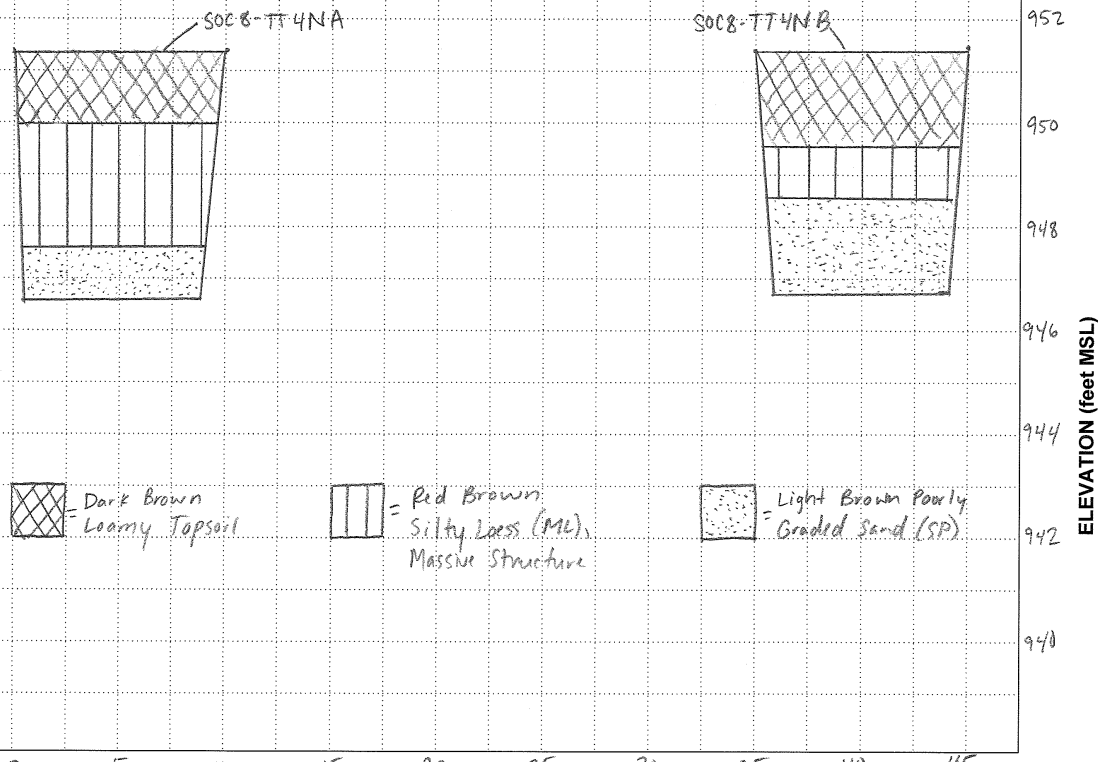
TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

UMP007467

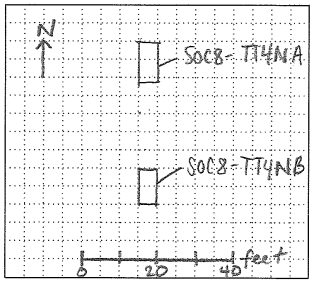
Project Name: UMore Park	Log of Test Pit No. SOC8-TT4N	
Client: University of Minnesota		
Number: 23190B05.07	Elevation: 951.483 - 951.643' MSL	Total Depth: 5 feet
Location: SOC8	Date Started: 6/11/09	Ended: 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	Logged By: KCB	

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4NA	0.0	None	None	0-1'
TT4NB	0.0	None	None	5'



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT4N.

Figure

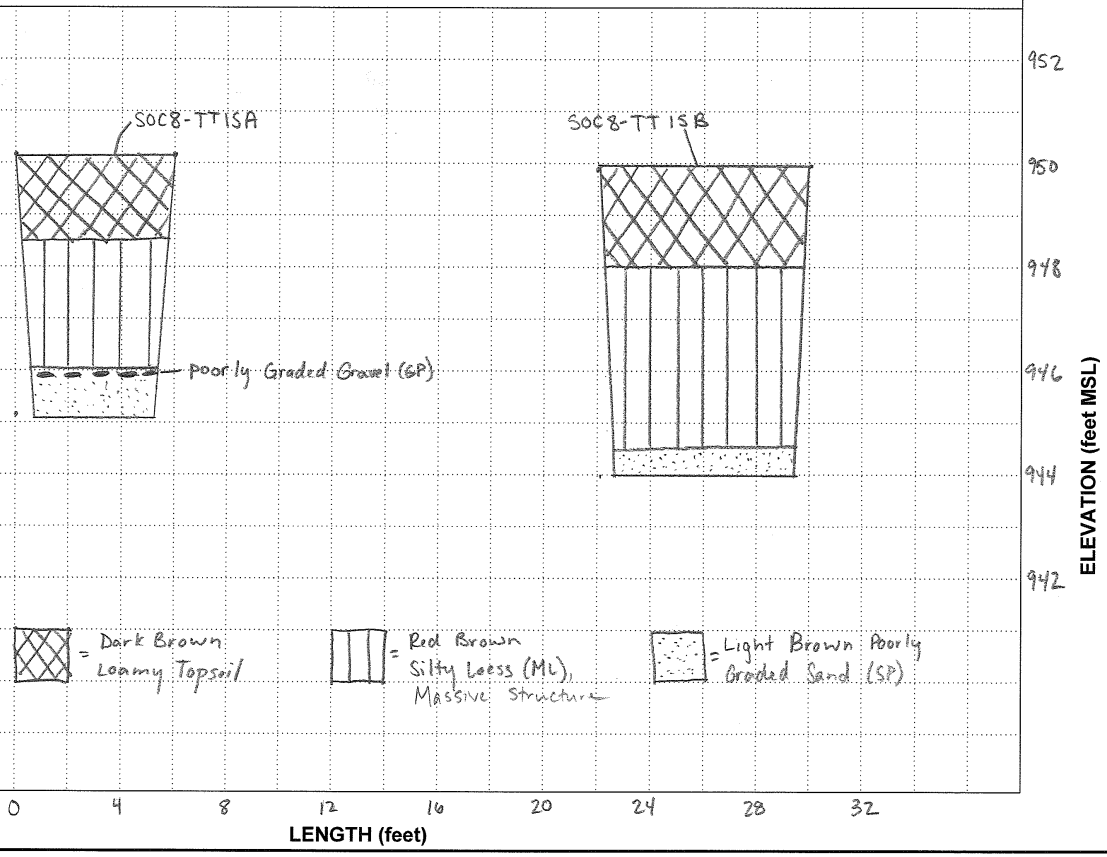
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

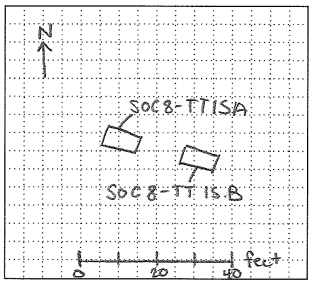
Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT1S		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 949.769-950.293' MSL	**Total Depth:** 6 feet	
Location: SOC 8	**Date Started:** 6/10/09	**Ended:** 6/10/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT1SA	0.0	None	None	0-1'
TT1SB	0.0	None	None	5'



Map View



Remarks:

* No analytical samples were collected at test trench SOC8-TT1S.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

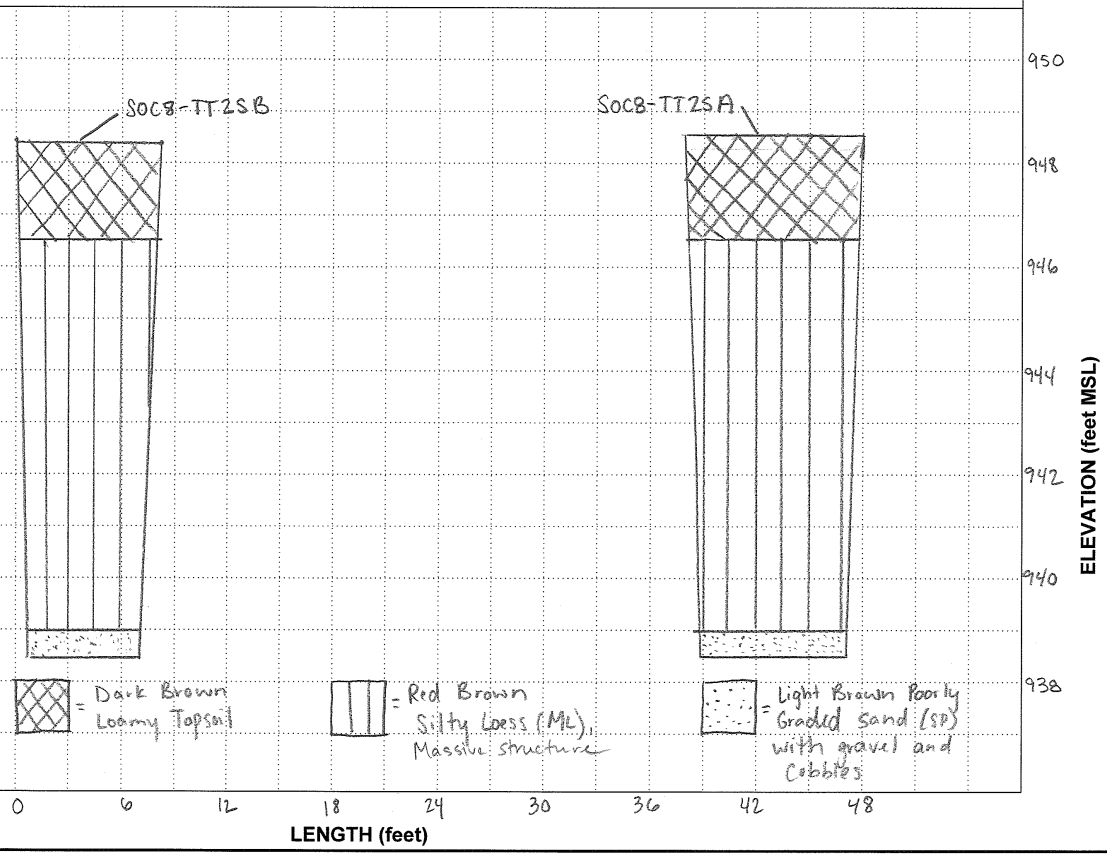
TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007469

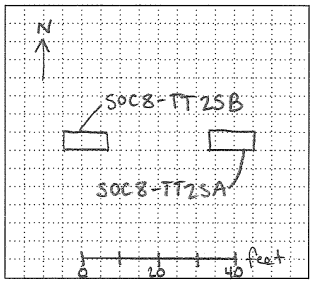
Project Name: UMore Park	**Log of Test Pit No.** SOC 8 - TT2S	
Client: University of Minnesota		
Number: 23190B05.07	**Elevation:** 948.652 - 948.674	**Total Depth:** 10 feet
Location: SOC 8	**Date Started:** 6/10/09	**Ended:** 6/10/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB	

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT2SA	0.0	None	None	0-1'
TT2SB	0.0	None	None	2-3'



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT2S.

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

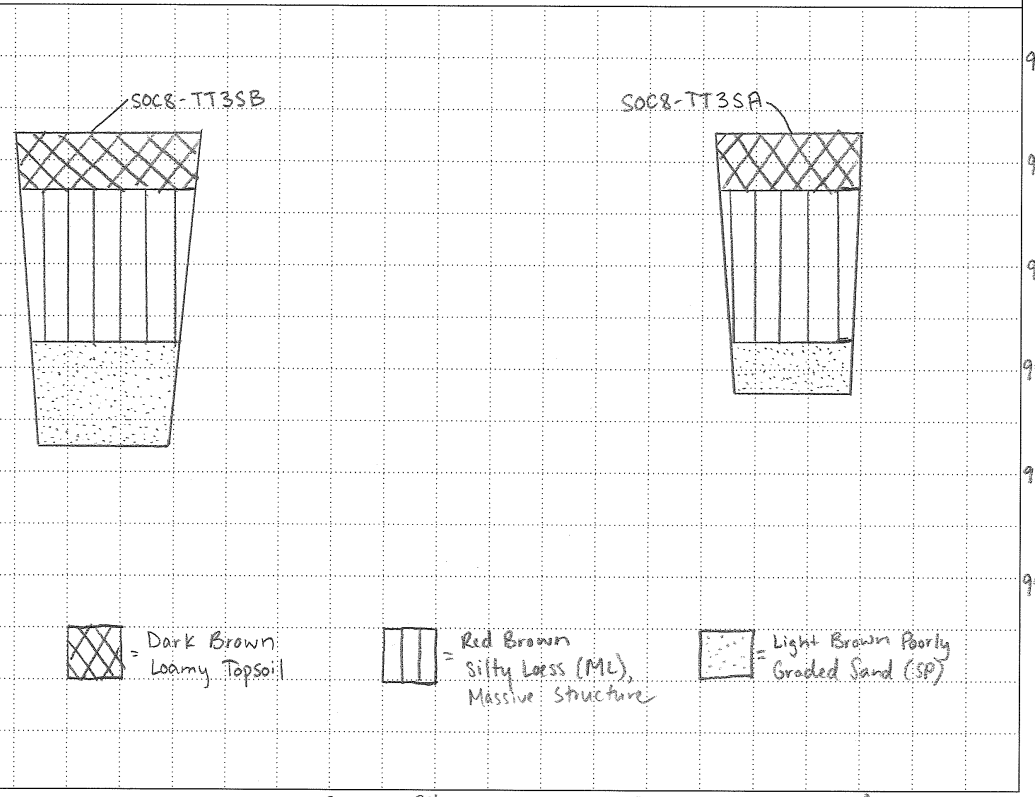
TEST PIT LOG PAGE 2392894.GPJ BARRLOG.GDT 6/19/09

Project Name: UMore Park	**Log of Test Pit No.** SOC8 - TT3S
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 948.423-948.551' MSL **Total Depth:** 6 feet
Location: SOC8	**Date Started:** 6/10/09 **Ended:** 6/10/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB

◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT3SA	0.0	None	None	0-1'
TT3SB	0.0	None	None	2-3'

DESCRIPTION



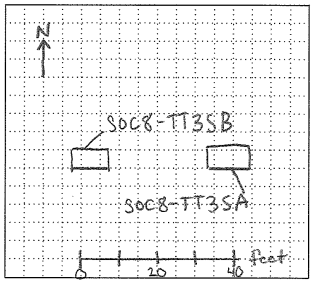
ELEVATION (feet MSL): 950, 948, 946, 944, 942, 940

0 6 12 18 24 30 36 42 48

LENGTH (feet)

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

Map View



Remarks:

*No analytical samples were collected at test trench SOC8-TT3S

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

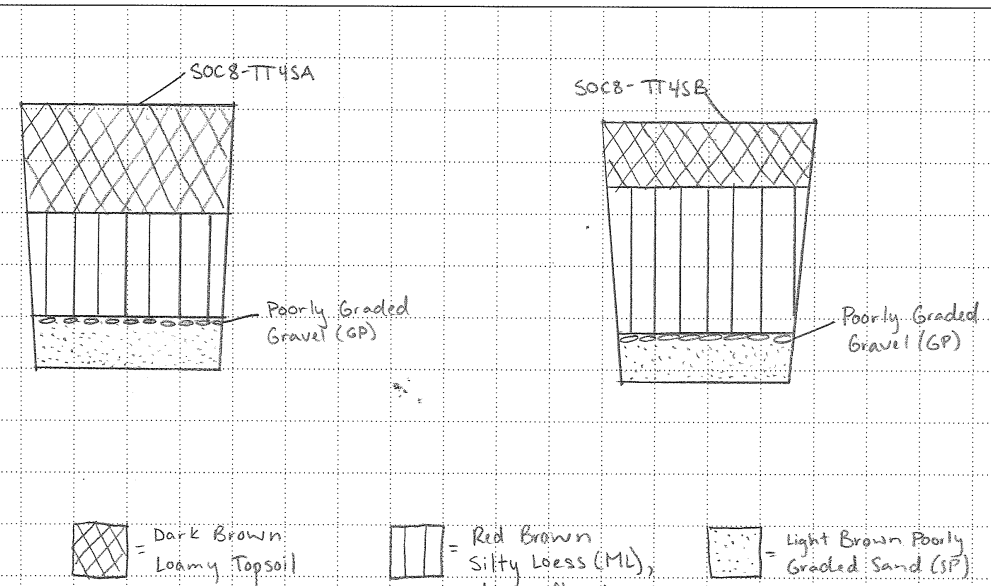
UMP007471

Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT4S		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 950.786 - 951.014' MSL	**Total Depth:** 5 feet	
Location: SOC8	**Date Started:** 6/11/09	**Ended:** 6/11/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

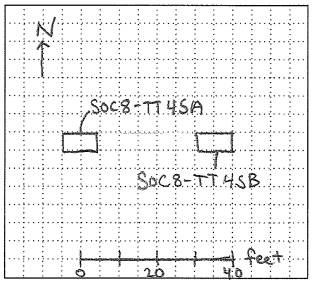
◀ W E ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT4SA	0.0	None	None	0.5'
TT4SB	0.0	None	None	5'

DESCRIPTION



Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT4S.

Figure

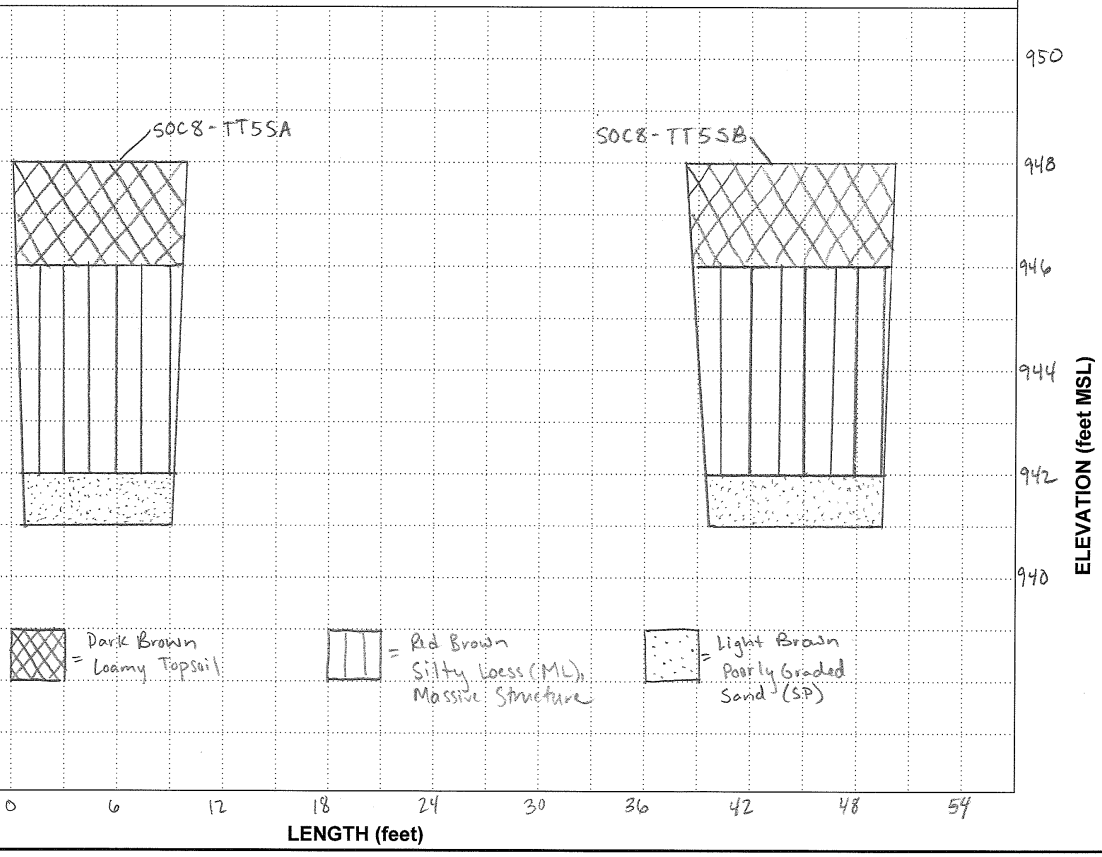
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2862864.GPJ BARRLOG.GDT 6/18/09

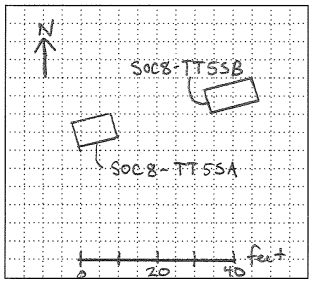
Project Name: UMore Park	**Log of Test Pit No.** SOC 8-TT5S
Client: University of Minnesota	
Number: 23190B05.07	**Elevation:** 948.016-948.215' MSL; **Total Depth:** 7 feet
Location: SOC8	**Date Started:** 6/11/09; **Ended:** 6/11/09
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB

◀ SW NE ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT5SA	0.0	None	None	0-1'
TT5SB	0.0	None	None	3-4'



Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT5S

Figure

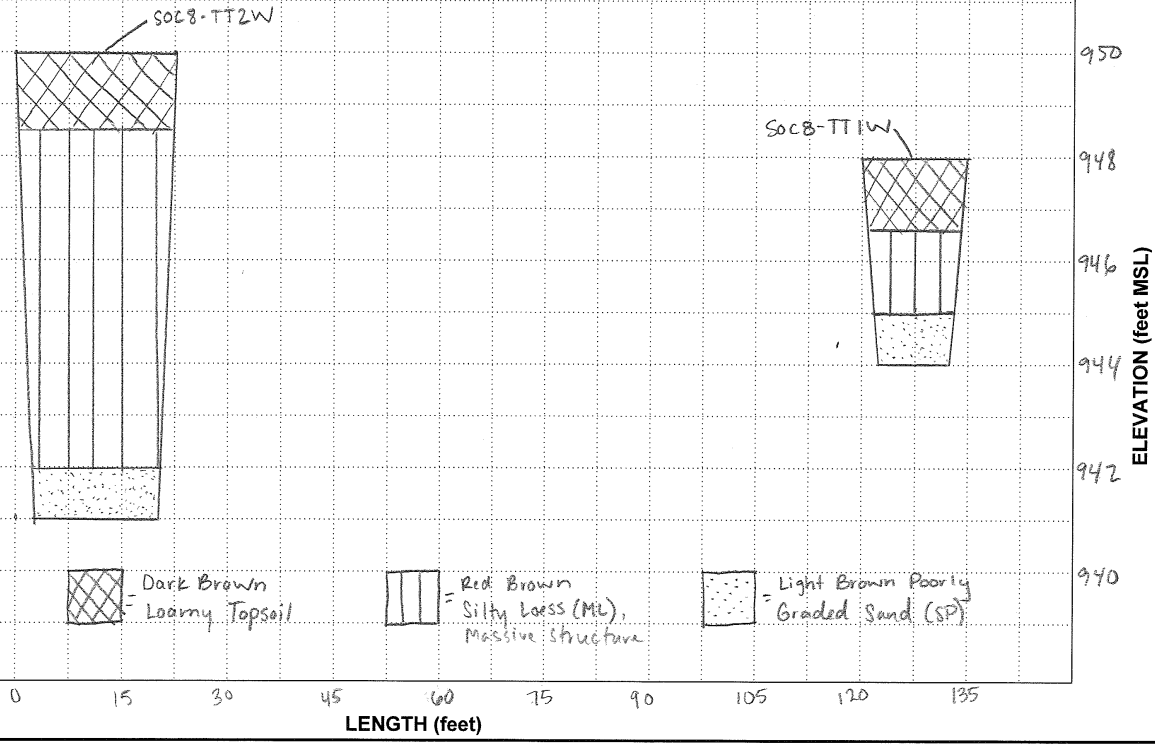
Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2392884.GPJ BARRLOG.GDT 6/18/09

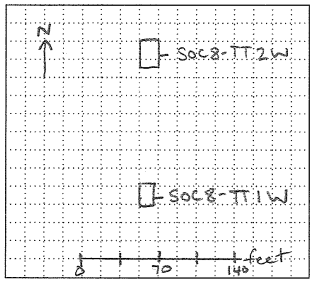
Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT1W, SOC8-TT2W		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 948.116-949.749' MSL	**Total Depth:** 9 feet	
Location: SOC8	**Date Started:** 6/10/09	**Ended:** 6/11/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KLB		

◀ N S ▶

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT2W	0.0	None	None	2-3'
TT1W	0.0	None	None	2-3'



Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT1W or SOC8-TT2W

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

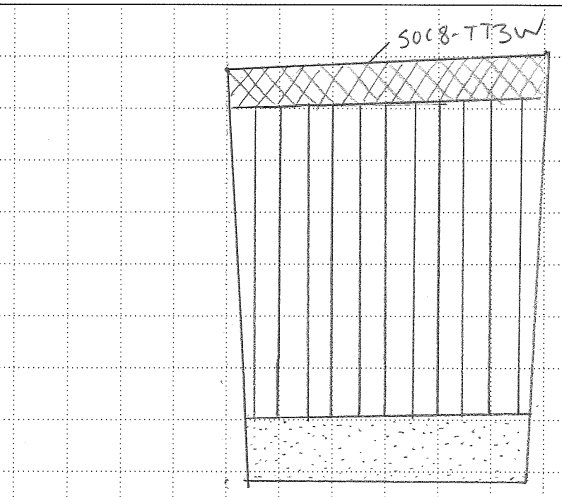
TEST PIT LOG PAGE 2362864.GPJ BARRLOG.GDT 6/18/09

UMP007474

Project Name: UMore Park	**Log of Test Pit No.** SOC8-TT3W		
Client: University of Minnesota			
Number: 23190B05.07	**Elevation:** 951.721-952.105' MSL	**Total Depth:** 8 feet	
Location: SOC8	**Date Started:** 6/11/09	**Ended:** 6/11/09	
Contractor: Stevens Drilling and Environmental Services, Inc.	**Logged By:** KCB		

◀ N S ▶

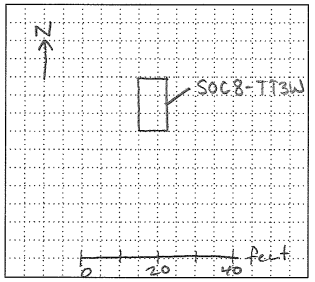
Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT3W	0.0	None	None	0.5'	



952
950
948
946
944
942
ELEVATION (feet MSL)

0 5 10 15
LENGTH (feet)

Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT3W

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
BARR Telephone: 952-832-2600
Fax: 952-862-2601

TEST PIT LOG PAGE 2362884.GPJ BARRLOG.GDT 6/18/09

UMP007475

SPATIAL DATA REPORTING FORM

Site Location Data Reporting Form

Background

Remediation Program:	Superfund
Site Program ID:	
Site Name:	UMore Park - UMore Mining Area

Site Location Data

Site Location Point Description	Center of Site
Latitude/Easting/X Coordinate	491908.21
Longitude/Northing/Y Coordinate	4951565.37
Collection Method	GPS - Survey Quality
Collection Date	6/19/2009
Organization Name	Barr Engineering Company
Organization Type	Consultant

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Boring	Boring	Boring
Station Name	SOC1-GP1	SOC1-GP2	SOC3-GP1
Latitude/Easting/X Coordinate	4953492.798	4953442.896	4951472.15
Longitude/Norhting/Y Coordinate	492303.4079	492299.5261	492838.6571
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	944.192	923.907	945.047
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Boring	Boring	Boring
Station Name	SOC3-GP2	SOC3-GP3	SOC3-GP4
Latitude/Easting/X Coordinate	4951569.492	4951438.817	4951455.805
Longitude/Norhting/Y Coordinate	493051.4713	492757.7965	492945.2495
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	936.028	942.55	937.83
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Boring	Boring	Boring
Station Name	SOC6-GP1	SOC6-GP2	SOC6-GP3
Latitude/Easting/X Coordinate	4950064.618	4950086.203	4950104.9
Longitude/Norhting/Y Coordinate	492032.2319	492032.5486	492032.4065
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	945.548	945.193	944.81
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Boring	Boring	Boring
Station Name	SOC6-GP4	SOC6-GP5	SOC6-GP6
Latitude/Easting/X Coordinate	4950254.237	4950049.914	4950028.327
Longitude/Norhting/Y Coordinate	492025.9063	491998.4651	492028.1803
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	946.308	946.094	945.528
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Boring	Boring	Test Trench Sample
Station Name	SOC6-GP7	SOC6-GP8	SOC2-TT1
Latitude/Easting/X Coordinate	4950233.816	4950049.86	4951896.148
Longitude/Norhting/Y Coordinate	492015.7832	492020.906	492406.829
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	946.783	945.965	947.034
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT10	SOC2-TT11	SOC2-TT12
Latitude/Easting/X Coordinate	4951870.495	4951852.192	4951812.37
Longitude/Norhting/Y Coordinate	492471.1573	492489.2594	492451.4989
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	946.058	945.218	945.772
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT13	SOC2-TT14	SOC2-TT15
Latitude/Easting/X Coordinate	4951819.961	4951829.936	4952136.442
Longitude/Norhting/Y Coordinate	492434.0928	492494.6264	492486.5778
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	946.683	944.044	946.666
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT2	SOC2-TT3	SOC2-TT4
Latitude/Easting/X Coordinate	4951928.878	4951908.221	4951964.598
Longitude/Norhting/Y Coordinate	492507.456	492476.4801	492439.3331
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	943.442	946.891	948.489
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT5	SOC2-TT6	SOC2-TT7
Latitude/Easting/X Coordinate	4952016.957	4952004.504	4951929.249
Longitude/Norhting/Y Coordinate	492393.9354	492439.8436	492479.1211
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	947.49	946.566	946.122
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT8	SOC2-TT9	SOC3-TT1
Latitude/Easting/X Coordinate	4951912.446	4951899.325	4951496.563
Longitude/Norhting/Y Coordinate	492491.8692	492491.3475	492938.9749
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	944.855	946.102	940.55
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TT10	SOC3-TT11	SOC3-TT12
Latitude/Easting/X Coordinate	4951556.134	4951545.748	4951508.11
Longitude/Norhting/Y Coordinate	493040.8022	492976.6792	492959.9
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	943.902	941.619	939.584
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TT13	SOC3-TT14	SOC3-TT15
Latitude/Easting/X Coordinate	4951511.129	4951504.728	4951534.241
Longitude/Norhting/Y Coordinate	492995.7271	493011.8869	493028.7521
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	945.694	945.283	944.452
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TT16	SOC3-TT2	SOC3-TT3
Latitude/Easting/X Coordinate	4951530.764	4951437.597	4951523.597
Longitude/Norhting/Y Coordinate	493055.8739	492935.3844	493007.8256
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	943.486	938.53	945.385
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TT4	SOC3-TT5	SOC3-TT6
Latitude/Easting/X Coordinate	4951518.212	4951552.208	4951541.543
Longitude/Norhting/Y Coordinate	492969.8995	493024.2275	493013.9348
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	940.53	944.419	944.809
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TT7	SOC3-TT8	SOC3-TT9
Latitude/Easting/X Coordinate	4951424.898	4951550.176	4951565.897
Longitude/Norhting/Y Coordinate	492877.9643	492880.469	493040.8792
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	943.989	946.138	935.761
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TTA	SOC3-TTB	SOC3-TTC
Latitude/Easting/X Coordinate	4951428.957	4951426.486	4951445.411
Longitude/Norhting/Y Coordinate	492940.7977	492922.8586	492920.0933
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	939.843	942.201	939.921
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC3-TTD	SOC7-TT1	SOC7-TT1N
Latitude/Easting/X Coordinate	4951446.395	4951336.022	4951501.152
Longitude/Norhting/Y Coordinate	492959.663	491313.2732	491356.1005
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	941.918	953.552	946.768
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC7-TT2	SOC7-TT2N	SOC7-TT3
Latitude/Easting/X Coordinate	4951333.508	4951520.166	4951296.485
Longitude/Norhting/Y Coordinate	491377.6099	491284.2788	491459.6399
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	949.809	938.391	945.174
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC7-TT3N	SOC7-TT4	SOC7-TT4N
Latitude/Easting/X Coordinate	4951436.587	4951232.139	4951484.403
Longitude/Norhting/Y Coordinate	491286.4317	491412.112	491220.3243
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	947.477	942.987	950.605
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC7-TT5	SOC7-TT6	SOC7-TT7
Latitude/Easting/X Coordinate	4951262.685	4951271.597	4951345.931
Longitude/Norhting/Y Coordinate	491276.5063	491361.0556	491457.3059
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	949.743	951.823	939.735
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT4N	SOC8-TT3N	SOC8-TT4S
Latitude/Easting/X Coordinate	4951472.899	4951425.71	4951278.209
Longitude/Norhting/Y Coordinate	491801.5862	491844.2347	491826.7797
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	951.483	950.613	950.786
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT2W	SOC8-TT5S	SOC8-TT1
Latitude/Easting/X Coordinate	4951263.299	4951192.745	4951507.465
Longitude/Norhting/Y Coordinate	491775.1405	491791.5136	491799.3503
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	949.749	948.016	950.909
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT1N	SOC8-TT1S	SOC8-TT1W
Latitude/Easting/X Coordinate	4951413.57	4951286.731	4951207.876
Longitude/Norhting/Y Coordinate	491894.5137	491886.8528	491776.2802
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	950.226	950.293	948.116
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT2	SOC8-TT2N	SOC8-TT2S
Latitude/Easting/X Coordinate	4951392.689	4951353.426	4951210.726
Longitude/Norhting/Y Coordinate	491828.743	491891.0147	491887.9106
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	950.823	949.755	948.652
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT3	SOC8-TT3S	SOC8-TT4
Latitude/Easting/X Coordinate	4951253.093	4951155.468	4951182.545
Longitude/Norhting/Y Coordinate	491864.8872	491865.6854	491832.6412
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	949.726	948.551	948.526
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT5	SOC8-TT6	SOC8-TT7
Latitude/Easting/X Coordinate	4951115.97	4951325.535	4951497.943
Longitude/Norhting/Y Coordinate	491857.2357	491847.4826	491885.5347
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	948.176	951.043	948.295
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Surface Sample	Surface Sample	Surface Sample
Station Name	SOC1-SS1A	SOC1-SS1B	SOC1-SS1C
Latitude/Easting/X Coordinate	4953558.006	4953554.266	4953548.052
Longitude/Norhting/Y Coordinate	492134.608	492132.2152	492135.9458
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	938.499	942.212	939.773
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Surface Sample	Surface Sample	Surface Sample
Station Name	SOC1-SS2A	SOC1-SS2B	SOC1-SS2C
Latitude/Easting/X Coordinate	4953563.377	4953550.246	4953524.645
Longitude/Norhting/Y Coordinate	492519.9312	492523.91	492536.3494
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	924.402	933.662	912.218
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Well
Station Name	MW-E2-012
Latitude/Easting/X Coordinate	4950337.948
Longitude/Norhting/Y Coordinate	492396.106
Collection Method	GPS - Survey Quality
Collection Date	10/2/2009
Organization Name	Barr Engineering Company
Organization Type	Consultant
Ground Elevation	945.3
Unique Well Number	770718
Top Screen Elevation	885.3
Bottom Screen Elevation	875.3
Comments	

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC1-GP1
Location: UMore Park	**Date:** 6/9/09
Project #: 23/19-0B05.07	**Sample Time:** 1100

GENERAL DATA		STABILIZATION TEST						
Barr lock:	None							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	68							
Static water level:*	62.02							
Water depth:*	5.95							
Well volume: (gal)	0.24							
Purge method:	None							
Sample method:	Check valve							
Start time:	1115	Odor: None						
Stop time:	1145	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2- Mn2- Fe(T)- Fe2-						

Others present: Guy & Sam (Matrix)	Well Condition: OK

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary

VOC-Y semi-volatile-Y general- Y nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal-Y methane- filter-

Others: Pesticides

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC1-GP3
Location: UMore Park	**Date:** 6/9/09
Project #: 23/19-0B05.07	**Sample Time:** 1345

GENERAL DATA		STABILIZATION TEST						
Barr lock:	None							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	44							
Static water level:*	39.81							
Water depth:*	5.19							
Well volume: (gal)	0.21							
Purge method:	None							
Sample method:	Check valve							
Start time:	1400	Odor: None						
Stop time:	1430	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2-		Mn2-		Fe(T)-		Fe2-

Others present: Guy & Sam (Matrix)	Well Condition OK

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary

VOC-Y semi-volatile-Y general- Y nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal-Y methane- filter-

Others:Pesticides

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: do/M	**Monitoring Point:** SOC31-GP3 (deep) R
Location: UMore Park	**Date:** 9-1-09
Project #: 23/19-805	**Sample Time:** 1115

GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1"							
Total well depth:*	44							
Static water level:*	39.75 - 1.6 = 38.15							
Water depth:*	5.85							
Well volume: (gal)	0.24							
Purge method:	check valve							
Sample method:	check valve							

Start time:		Odor: None	
Stop time:		Purge Appearance: opaque, chocolate brown	
Duration: (minutes)		Sample Appearance:	
Rate, gpm:		Comments: 1L. plastic → siphon → filter → 500 ml preserved	
Volume, purged:	1 gal		
Duplicate collected?	None		
Sample collection by:	ESC	CO2- Mn2- Fe(T)- Fe2-	

Others present: Matrix (Guy, Pat) | Well Condition:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other: temporary well

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- X methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC3-GP2
Location: UMore Park	**Date:** 6/9/09
Project #: 23/19-0B05.07	**Sample Time:** 1000

GENERAL DATA		**STABILIZATION TEST**						
Barr lock:	No							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	44							
Static water level:*	37.07							
Water depth:*	6.93							
Well volume: (gal)	0.28							
Purge method:	None							
Sample method:	Check valve							
Start time:	1015	Odor: None						
Stop time:	1045	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2- Mn2- Fe(T)- Fe2-						

Others present: Guy & Sam (Matrix)	Well Condition: OK

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary

VOC-Y semi-volatile-Y general- Y nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal-Y methane- filter-

Others: Pesticides

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC3 - GP2 (R) (Dup)
Location: SOC3	**Date:** 9/9/09 - purge 9-10-09- sample
Project #: 23/19-805	**Sample Time:** 0910

GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1"							
Total well depth:*	43' 37.9-2.4							
Static water level:*	~~41.26 2.4~~ ~~41.86~~ 35							
Water depth:*	8							
Well volume: (gal)	0.328							
Purge method:	Check valve							
Sample method:	check valve							
Start time:		Odor: None						
Stop time:		Purge Appearance: Tan, opaque but clearing						
Duration: (minutes)		Sample Appearance: tan, opaque						
Rate, gpm:		Comments: Purged on 9/9/09						
Volume, purged:	1½ gal	Sampled on 9/10/09 - filled 1 plastic liter bottled, allowed it to settle, then decanted, filtered, and preserved in 500mL.						
Duplicate collected?	No							
Sample collection by: ESC		CO2- Mn2- Fe(T)- Fe2-						

Others present: Matrix (Guy, Pat) | Well Condition:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other: temporary well

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- X methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC3-GP3
Location: UMore Park	**Date:** 6/8/09 – 6/10/09
Project #: 23/19-0B05-.07	**Sample Time:** 1630

GENERAL DATA		**STABILIZATION TEST**						
Barr lock:	None							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	60							
Static water level:*	54.16							
Water depth:*	5.84							
Well volume: (gal)	0.24							
Purge method:	None							
Sample method:	Check valve							
Start time:	1645 on 6/8/09	Odor: None						
Stop time:	0845 on 6/10/09	Purge Appearance: n/a						
Duration: (minutes)	n/a	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Not purged before sampling. Sample collected over a period of three days because the well was pumped dry quickly. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	No							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present: Guy & Sam (Matrix)	Well Condition: OK

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary

VOC-Y semi-volatile-Y general- Y nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal-Y methane- filter-

Others: Pesticides

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: UofM	**Monitoring Point:** SOC3-GP3, ~~(Dup)~~ R
Location: SOC3	**Date:** ~~9-9-09~~ 9-9-09 and 9/10/09
Project #: 23/19-805	**Sample Time:** 0900

GENERAL DATA	
Barr lock:	None
Casing diameter:	1"
Total well depth:*	67'
Static water level:*	~~52.75 - 56~~ 55.16 - 3.25 = 51.91
Water depth:*	15.09
Well volume: (gal)	0.62
Purge method:	check valve
Sample method:	check valve
Start time:	1100
Stop time:	1130
Duration: (minutes)	
Rate, gpm:	
Volume, purged:	4gal
Duplicate collected?	None
Sample collection by:	ESC

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance

Odor: None

Purge Appearance: Opaque, tan

Sample Appearance: Tan, opaque

Comments: Purged on 9/9/09

sampled on 9/10/09 - 1L. placed in unp. plastic bottle, ~~ther~~ allowed to settle, then decanted and filtered, then preserved in 500mL jar

CO2- Mn2- Fe(T)- Fe2-

Others present: Well Condition:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- X methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC3-GP4
Location: UMore Park	**Date:** 6/9/09
Project #: 23/19-0B05.07	**Sample Time:** 0900

GENERAL DATA		**STABILIZATION TEST**						
Barr lock:	None							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	44							
Static water level:*	44							
Water depth:*	< 1 ft							
Well volume: (gal)	<0.041							
Purge method:	None							
Sample method:	Check valve							
Start time:	0915	Odor: None						
Stop time:	1845	Purge Appearance: n/a						
Duration: (minutes)	n/a	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Only VOCs were collected because the well could only produce approximately 40 ml before running dry.						
Volume, purged:	n/a							
Duplicate collected?	No							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition: OK						

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary

VOC-Y semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U of M	**Monitoring Point:** SOC6-GP6
Location: UMore park	**Date:** 6/8/2009
Project #: 23/19-0B05.07	**Sample Time:** 1500

GENERAL DATA		STABILIZATION TEST						
Barr lock:	None							
Casing diameter:	1" PVC	Time/ Volume	Temp. ºC	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	25							
Static water level:*	20.22							
Water depth:*	4.78							
Well volume: (gal)	0.20							
Purge method:	None							
Sample method:	Check valve							
Start time:	1515	Odor: None						
Stop time:	1530	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before collecting sample						
Volume, purged:	None							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2- Mn2- Fe(T)- Fe2-						

Others present: Guy & Sam (Matrix)	Well Condition: OK

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:Temporary well

VOC- semi-volatile- general- Yes nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others: Pesticides

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: U MORE	**Monitoring Point:** MW-BI-001
Location: Rosemount	**Date:** 6/11/09
Project #: 23/19-0B056WAS330	**Sample Time:** 1055

GENERAL DATA

Barr lock:	NO-"U"
Casing diameter:	2"
Total well depth:*	72.0
Static water level:*	65.58
Water depth:*	6.4
Well volume: (gal)	1
Purge method:	Submersible
Sample method:	"
Start time:	1015
Stop time:	1047
Duration: (minutes)	32
Rate, gpm:	.25
Volume, purged:	8 gal
Duplicate collected?	no
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1027 / 3g.	10.21	454	7.67	148	7.74	clear
1031 / 4g.	10.10	460	7.57	159	7.88	"
1035 / 5g.	10.08	464	7.49	154	8.39	"
1039 / 6g.	10.12	463	7.45	151	8.60	"
1043 / 7g.	10.17	465	7.49	153	8.83	"
1047 / 8g.	10.19	464	7.53	152	8.77	"

Odor: none detected

Purge Appearance: begin-cloudy, silty brown/end-

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 3 semi-volatile- 5 general- nutrient- 1 cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: UMORE	**Monitoring Point:** MW-E2-209
Location: Rosemount	**Date:** 6/11/09
Project #: 23/19-0B05 GWAS330	**Sample Time:** 1310

GENERAL DATA

Barr lock:	no "u"
Casing diameter:	2"
Total well depth:*	127.2
Static water level:*	62.78
Water depth:*	64.4
Well volume: (gal)	11
Purge method:	Submersible
Sample method:	"
Start time:	1149
Stop time:	1306
Duration: (minutes)	77
Rate, gpm:	1
Volume, purged:	77 gal
Duplicate collected?	no
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1222/33g	9.67	424	7.80	-234	Ø.48	clear
1233/44g	9.64	418	7.65	-190	Ø.40	"
1244/55g	9.72	423	7.55	-163	Ø.38	"
1255/66g	9.67	423	7.45	-148	Ø.35	"
1306/77g	9.64	425	7.37	-134	Ø.36	"

Odor: none detected

Purge Appearance: clear

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 3 semi-volatile- 6 general- nutrient- 1 cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: UMORE	**Monitoring Point:** MW-EZ-009
Location: Rosemount	**Date:** 6/11/09
Project #: 23/19-OBOS GWAS330	**Sample Time:** 1435

GENERAL DATA	
Barr lock:	no "u"
Casing diameter:	2"
Total well depth:*	69.6
Static water level:*	63.22
Water depth:*	6.4
Well volume: (gal)	1
Purge method:	Submersible
Sample method:	"
Start time:	1355
Stop time:	1423
Duration: (minutes)	28
Rate, gpm:	.4
Volume, purged:	8 gal
Duplicate collected?	MS/MSD
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1405/3g.	10.77	1021	7.41	-59	6.48	clear
1408/4g.	10.89	930	7.40	-45	3.12	"
1411/5g.	11.01	845	7.36	-32	4.80	"
1415/6g.	11.12	749	7.35	-28	5.12	"
1419/7g.	11.24	690	7.34	-27	5.39	"
1423/8g	11.32	586	7.34	-29	5.61	"

Odor:

Purge Appearance: Clear - begin cloudy brown

Sample Appearance: Clea

Comments: FB-1 collected @ 1525

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 9 semi-volatile- general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

Barr Engineering Company
Field Log Data Sheet

Client: UMORE	**Monitoring Point:** WSW-207605
Location: Rosemount	**Date:** 6/11/09
Project #: 23/19-0805 GWAS330	**Sample Time:** 1635

GENERAL DATA		STABILIZATION TEST						
Barr lock:	no							
Casing diameter:		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*		1610	11.09	481	7.36	25	2.36	clear
Static water level:*		1625	11.05	482	7.40	17	2.25	"
Water depth:*								
Well volume: (gal)								
Purge method:	Dedicated							
Sample method:	Grab							
Start time:	1555	Odor: none detected - slg						
Stop time:	1625	Purge Appearance: clear - slightly cloudy - initial						
Duration: (minutes)	30	Sample Appearance: clear						
Rate, gpm:	≈ 2-3	Comments:						
Volume, purged:	≈ 60-90 gal							
Duplicate collected?	no							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- 3 semi-volatile- 6 general- nutrient- 1 cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- 1 filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY

PROJECT U More Park
TECHNICIAN KSJ

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
6/11/09	NNE	5-10	57-70	20%	

Meter type and number	Date	Time	Temperature C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 556	6/11/09	0945	18	7/10	7.00/10.00	1000umho	239mV

231+,- 10mV @ 25C

231mV = Display Value + [(Display Temp. - 25 C) x (1.3 mV)]

Barr Engineering Company
Field Log Data Sheet

Client: U MoRE	**Monitoring Point:** WSW- 207605
Location: Rosemount	**Date:** 6/18/09
Project #: 23/19-0805	**Sample Time:** 14/10

GENERAL DATA		STABILIZATION TEST						
Barr lock:	no							
Casing diameter:		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*		1350	9.69	476	7.20	6	1.12	clear
Static water level:*		1405	9.85	471	7.20	9	1.25	"
Water depth:*								
Well volume: (gal)								
Purge method:	Dedicated							
Sample method:	Grab							
Start time:	1335	Odor: non detected						
Stop time:		Purge Appearance: clear						
Duration: (minutes)		Sample Appearance: clear						
Rate, gpm:		Comments:						
Volume, purged:								
Duplicate collected?	no							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- 3 general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- methane- filter-

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client: KMORE	Monitoring Point: MW-D3-007
Location: Rosemount	Date: 9/29/09
Project #: 23/19-0805 SOC 325	Sample Time: 1530

GENERAL DATA		STABILIZATION TEST						
Barr lock:	NO							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	71.8	1502/6g	9.71	612	7.47	62	6.44	mud cloudy
Static water level:*	62.06	1506/8g	9.67	615	7.37	66	6.87	clearing
Water depth:*	9.7	1510/10g	9.70	613	7.26	62	7.09	"
Well volume: (gal)	1.6	1514/12g	9.71	614	7.15	58	7.21	clear
Purge method:	Submersible	1518/14g	9.72	612	7.27	61	7.29	"
Sample method:	"	1522/16g	9.74	609	7.33	63	7.37	"
Start time:	1450	Odor: none detected						
Stop time:	1522	Purge Appearance: begin - cloudy black/end - clear						
Duration: (minutes)	16	Sample Appearance: clear						
Rate, gpm:	.5	Comments:						
Volume, purged:	32 gal							
Duplicate collected?	NO							
Sample collection by:	KSS	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- 6 general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

P:\23\19\268\LTF\FieldLogDataSheet-LTF.doc

BARR

Barr Engineering Company
Field Log Data Sheet

Client: U MORE	Monitoring Point: MW-E2-305
Location: Rosemount	Date: 9/29/09
Project #: 23/19-0805 SOC 325	Sample Time: 1735

GENERAL DATA		STABILIZATION TEST						
Barr lock:	No							
Casing diameter:	2"	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	77.0	1644/12	9.88	401	8.76	78	1.96	clear
Static water level:*	55.33	1650/16	9.82	430	7.89	59	3.49	"
Water depth:*	21.7	1658/20	9.80	457	7.65	48	5.57	"
Well volume: (gal)	3.6	1704/24	9.81	489	7.41	37	6.03	"
Purge method:	Submersible	1714/28	9.78	517	7.29	33	6.30	"
Sample method:	"	1722/32	9.79	532	7.	28	6.57	"
Start time:	1618	Odor: None detected						
Stop time:	1727	Purge Appearance: Begin - slightly cloudy / end - clear						
Duration: (minutes)	64	Sample Appearance: Clear						
Rate, gpm:	.5	Comments:						
Volume, purged:	32 gal							
Duplicate collected?	NO							
Sample collection by:	KSJ	CO2-	Mn2-	Fe(T)-	Fe2-			

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- 6 general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR

Barr Engineering Company
Field Log Data Sheet

Client: UMORE	Monitoring Point: MW-EZ-009
Location: Rosemount	Date: 9/30/09
Project #: 23/14-0805 SOC 325	Sample Time: 1305

GENERAL DATA	
Barr lock:	Umore
Casing diameter:	2"
Total well depth:*	69.6
Static water level:*	64.08
Water depth:*	5.5
Well volume: (gal)	.9
Purge method:	Submersible
Sample method:	"
Start time:	1235
Stop time:	1259
Duration: (minutes)	24
Rate, gpm:	.3
Volume, purged:	6 gal
Duplicate collected?	NO
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
1245/3g.	10.44	569	7.64	97	1.42	clear
1248/4g.	10.59	558	7.52	85	3.45	"
1252/5g.	10.69	552	7.41	76	4.12	"
1259/6g.	10.78	549	7.37	71	4.40	"

Odor: none detected

Purge Appearance: begin - slightly cloudy/brown - clear

Sample Appearance: clear

Comments:

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- 6 general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

P:\23\19\268\LTF\FieldLogDataSheetLTF.doc

BARR

Barr Engineering Company
Field Log Data Sheet

Client: UNIMORE	Monitoring Point: MW-EZ-01Z
Location: Rosemount	Date: 9/30/09 / 10/2/09
Project #: 23/19-0805 SAC 325	Sample Time: 1140

GENERAL DATA	
Barr lock:	YES
Casing diameter:	2"
Total well depth:*	72.4
Static water level:*	63.02 ✓
Water depth:*	9.2
Well volume: (gal)	1.5
Purge method:	Submersible
Sample method:	"
Start time:	9/30/09 0940 10/2/09 1040
Stop time:	1120 1112
Duration: (minutes)	1+12 26
Rate, gpm:	~ 2/.5
Volume, purged:	13 gal
Duplicate collected?	MW-1
Sample collection by:	KSJ

STABILIZATION TEST

Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
9/30/09 0940/2g	9.75	708	7.40	80	6.93	dk brown
1020/6g	9.90	704	7.34	67	7.89	Med brown
1050/10g	9.98	693	7.35	59	8.37	dk. brown
1120/ 20g	10.05	646	7.41	68	8.26	"
10/2/09 1050/5g	9.97	713	7.35	84	7.52	Slightly cloudy
1054/7g	9.88	714	7.32	82	7.95	"
1058/9g	9.90	711	7.30	79	8.15	clear
1104 11g 1112/13g	9.88	710	7.29	77	8.21	"

Odor: None detected

Purge Appearance: beg. in - dk brown / end - clear

Sample Appearance: clear

Comments: Developed MW-EZ-01Z on 9/30/09
Collected samples on 10/2/09

CO2- Mn2- Fe(T)- Fe2-

Others present:

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP: COLLAR: LOCK: OTHER:

MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:

VOC- semi-volatile- 6+6 general- nutrient- cyanide- DRO- Sulfide-

oil,grease- bacteria- total metal- filtered metal- 1+1 methane- filter- 1

Others:

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY

PROJECT U-MORE
TECHNICIAN KST

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
9/29/09	NW	5-15	41-60	50%	
9/30/09	SE	5-15	42-62	Clear	
10/2/09	SE	5-10	46-56	overcast	rain / drizzle

Meter type and number	Date	Time	Temperature C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 556	9/29/09	0955	11	7/10	7.00/10.00	1000 umhos	250mV
YSI 556	9/30/09	0915	10	7/10	7.00/10.00	1000 umhos	250 mV
YSI 556	10/2/09	0935	11	7/10	7.00/10.00	1000 umhos	252 mV

231 +,- 10mV @ 25C

231mV = Display Value + [(Display Temp. - 25 C) x (1.5 mV)]

Calibrate