FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5 Inlet	Structure B-5-689	County Brown	Sheet 1 Of 1
Project 1133-03-02	Road STH-29 EB To USH-41 S.B.		
Station 820+10	Offset 128' RT of 29EB To 41SB R/L	Surface Elevation 601.5'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief Ruch | Start 4-20-10 | Finish 4-20-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					SILT, DARK BROWN - LOOSE TOPSOIL		3"	A
							CASING		
	W					SILT, FINE SAND, BROWN, LOOSE			
						5'	5'		
1		1	2		5				
1	M	3	4			CLAY, SILTY BROWN - STIFF	1.50		
2		1	3		7		1.50		
2		4	4			SILT, SOME CLAY GRAY, LOOSE	1.00		
3		2	2		5				
3		3	3			10' W/BROWN CLAY SEAMS	10' .75		2 1/4
4	W	0	0		0	V-LOOSE	.50		RB
4		0	2				.25		DM
5		0	0		0		0		
		0	0				0		
						15'	15' 0		
6		0	0		0		0		
7		0	0		0		0		
		0	0				0		
8		0	0		0		0		
		0	1			20' SILT, SOME CLAY, LT. SAND GRAY, V-LOOSE	20' .25		
							.25		
9	W	0	0		0	25' V-LOOSE	25'		
		0					0		
10	W	0	0		0	30' BROWN, V-LOOSE	30'		
		0					.25		
	M					CLAY, SILTY, GRAY W/BROWN - HARD			
11		7	11		23	35'	35'		
		12					4.5		

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Final

End of B-5 36.5'

Boring No. 5

Boring No. 7 OUTLET	Structure B-5-689	County Brown	Sheet 1 Of 1
Project 1133-03-02	Road STH-29 EB To USH-41 SB		
Station 817+81	Offset 142' LT 29 EB To 41SB R/L	Surface Elevation 601.0'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Roda
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 4-21-10	Finish 4-21-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					601.0 TOPSOIL		3" CASING	A
	WET					599.0 SILT F-SANDY, BROWN			
	M					592.0' CLAY, SILTY, BROWN, V-STIFF			
1		2	4		9	5'	2.5		
		5	8				2.50		
2		2	3		7		2.00		2 7/8
		4	4				1.25		RB
3	W	0	1		3	592.0' 10' CLAY, SILTY, GRAY/BROWN - SOFT	.25		DM
		2	2			590.0'	0		
4		0	0		0	SILT, SOME CLAY, GRAY, W/ BROWN CLAY SEAMS	0		
		0	0			V-LOOSE	0		
5		0	0		0		0		
		0	0				0		
6		0	0		0	15'	0		
		0	0				0		
7		0	0		0		0		
		0	0				0		
8		0	0		0	20'	.50		
		0	1				.50		
						578.0' SILT, LT. CLAY, LT. SAND, GRAY, V-LOOSE			
9	W	3	2		4	25'	1.00		
		2				574.0' CLAY, SILTY, TRACE GRAVEL, BROWN			
						STIFF			
10	M	1	4		8	30'	1.50		
		4							
11	M	1	4		8	35' STIFF	1.25		
		4				565.0'			

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Final

End of B-7 36.5'

Boring No. 7 OUTLET

35'

DT1434 96, (Replaces EL3A(S)) **FIELD BORING LOG** Wisconsin Department of Transportation

Boring No. HF 822 Structure HF County Brown Sheet 1 of 2

Project 9202-07-01 Road STh 29 + USH 41

Station 822+00 Offset 29EB 41SB Ramp G Surface Elevation 604.1

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 4-27 Unit 3

Finish 4-28-10 Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	DM					Sand + Gravel			A	3" Cy
						Silt Br				
						Dark Br Silt Top Soil				
						5 Grey Silt 5				
1	M	4 9	9		18	Firm Sand Br F				
2		3 4	3		7	10 loose Clay Red little Silt 10	20		SS	
3	MW	0 0	0		0	15 Silt Grey tr Clay 15 Vloose Small Clay layer silty	.02		SS	
4	W	6 1	5		6	20 loose Silt Grey 20	4.0 1.0		SS	
5		0 3	5		8	25 Silt Grey Some Sand ~~Silt~~ Some Gravel 25			SS	
6	M	4 9	5		14	30 Firm Clay Some Gravel Tr Sand 30	30		SS	
7		18 30	22		52	35 Sand Silty little Gravel 35			SS	
10	D	11 18	13		31	40 Clay Red + Grey Tr Gravel 40	4.5		SS	

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Final 71½

Boring No. HF 822

SO Rot
Rt 40 Bk

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-822 Structure HF County Brown Sheet 2 of 2

Project 9202-07-01 Road STH 29 + USH 41

Station 822+00 Offset 29 EB 41 SB Ramp ℄ Surface Elevation 604.1

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 4-27 Unit 3

Finish 4-28-10 Chief

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	D					Clay Red + Grey to Gravel			WA	
(9)	M	3 4	3		7	5 45 loose Clay Red + Grey little Silt	2.0		SS	
(10)	MW	2 3	3		6	10 50 loose Silt grey ~~to~~ Clay	1.0		SS	
						Small layer Red clay	1.5			
(11)		2 3	3		6	15 55 loose Silt Grey little Clay	1.0		SS	
						Small Clay layers	2.0			
(12)	M	3 3	3		6	20 60 loose Clay grey some Silt	1.25		SS	
(13)		7 13	10		23	25 65 Firm Clay Red little Silt some Gravel	2.0		SS	
(14)		24 33	30		63	30 70 V Dense Sand F Silty little Gravel			SS	
						71½ EOB HF-822				
						35 75				
						40 80				

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Final 71½

Boring No. HF-822

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF 825 Structure HF County Brown Sheet 1 of 2

Project 9202-07-01 Road STH 29 + US 41

Station 825+00 Offset 29 OB - 41 SB Ramp ℄ Surface Elevation 607.0

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start 4-28 Unit 3

Finish 4-28-16 Chief

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	D					2½ Bgl				
	M					Br Sand & Silt Med Gravel			A	3 Mag
						Dark Br Sand Silty + Gravel				
		1	2			Clay Some Gravel				
		2				5 4 V loose Clay Some Silt & Gravel No Recov			SS	
						10				
		4	5			10 No Recov				
		4			9	loose			SS	
						15				
1	MW	0	2			Silt Some Clay Red 15				
		2			4	V loose	0.11		SS	
						20				
2	W	0	0			Silt Grey Little Sand 20				
		0			0	V loose	0.5		SS	
						Gravel layer				
						25				
3	MW	18	3			← 18 First one 25				
		3			6	V loose Clay Silty Some Sand	5		SS	
						30				
4	D	4	7			30				
		4			18	Firm Clay Red Little Gravel Silt Grey	4.0		SS	
						35				
5		6	9			35				
		10			19	Firm Clay Red Silty Silt Grey Clayey Little Gravel	4.5		SS	
						40				
6		9	21			40				
		23			45		4.8		SS	

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Final 66½

Boring No. HF 825

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF825 Structure HF County Brown Sheet 2 of 2

Project 9202-07-01 Road STH 29 + USH 41

Station 825+00 Offset 29 EB 41 SB Ramp ℄ Surface Elevation 607.0

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 4-28 Unit 3

Finish 4-28-10 Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	D					Clay Red Silty Silt Grey Sobayey little Gravel			WA	
7	DM	9 10	8		18	5 45 Firm Silt Grey Clayey little Gravel Small Red Clay	2.5		SS	
8	M	5 5	4		9	10 50 loose Silt Clayey Grey Small Red Clay layers Tr Gravel			SS	
9	M	3 5	5		10	15 55 loose Silt Grey Red layer clay	2.5		SS	
10	MW	4 13	8		21	20 60 Firm Silt Some Clay Sand Gravel Gray + Red	20		SS	
11		32 35	26		61	25 65 V Dense Sand Silty Some Gravel ~~Sand + Gravel Some Silt~~			SS	
						66½ EOB HF825				
						30 70				
						35 75				
						40 80				

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Final 66½

Boring No. HF825

DT1434 2/2007

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #20	Structure HIGH FILL	County Brown	Sheet 1 Of 1
Project 9202-07-02	Road USH-41 SB TO STH-29 WB Ramp		
Station 1078+00	Offset 50' Rt of Ramp R/L	Surface Elevation 603.5'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Rush
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 2-10-10	Finish 2-10-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					TOPSOIL		3"	A
						CLAY, SILTY, Red/Brn		casing	
1	M	8 14	9		23	5' SILT, Some CLAY Red/Brn, Firm 5'	4.5+		
						CLAY, SILTY, Red/Brn - STIFF			2 7/8
2	M	2 4	3		7	10' 10'	1.50		RB DM
3	M	2 3	2		5	15' 15'	1.00		
4	M	11 40	25		65	20' SILT, Some CLAY, TRACE GRAVEL GRAY V-Dense 20'	4.5+		
5	M	10 33	20		53	25' 25'	4.5+		
						End of HF-29 #20 26.5'			
						30' 30'			
						35' 35'			

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DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #19 Structure High Fill County Brown Sheet 1 of 1

Project 9202-07-02 Road USH-41 SB TO STH-29 WB

Station 1081+00 Offset 40' RT of R/L Surface Elevation 600.3'

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 2-17-10 Unit 7
Finish 2-17-10 Chief Rueda

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M					SILT, Little organics, DARK BROWN, V-Loose			A	3" Casing
1	M	1	1 2		3	5	1.50		2 7/8 RB DM	
2	MW	1	1 2		3	10 SILT, Some clay, Brown, V-Loose	1.00			
	W					SILT, Some F-sand, TRACE CLAY, GRAY, V-LOOSE				
3	W M	1	1 3		4	15	.50 1.50			
						SILT, Some clay, GRAY/BRN - FIRM				
4	M	11	7 14		25	20 FIRM	4.5	+		
5	M	11	8 13		24	25 FIRM	4.5	+		
						End of B-HF-29 #19 26'				
						30				
						35				
						40				

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Boring No. HF-29 #19

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #18 Structure HIGH FILL County Brown Sheet 1 of 1

Project 9202-07-02 Road USH-41 SB TO STH-29 WB

Station 1084+00 Offset 30' Rt of RIL Surface Elevation 595.7'

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start 2-17-10 Unit 7

Finish 2-17-10 Chief RWA

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	m					TOPSOIL			A	3"
										CASING
	mw					SILT, Some CLAY, GRAY/BRN - Loose				
1	m	2	2 3		5	5	1.25		2 1/8 RB DM	
2	m	2	2 2		4	10 SILT, Some CLAY, LT. SAND, GRAY, V-Loose 10	1.50			
3	m	4	2 7		11	15 SILT, LT. CLAY, BROWN, Firm 15	3.00			
4	m	14	4 20		34	20 SILT, LT. CLAY, LT. SAND, GRAY - Dense 20	4.5+			
5	m	14	8 17		31	25 Firm 25	4.5+			
						End of B-HF-29 #18 26'				
						30 30				
						35 35				
						40 40				

Checked by _____ Final _____ Boring No. HF-29 #18

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29#17 Structure High Fill County Brown Sheet 1 of 1

Project 9202-07-02 Road USH-41 SB To STH-29 WB Ramp

Station 087+00 Offset 20' Rt of Ramp B11 Surface Elevation 597.2'

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start 2-16-10 Unit 3

Finish 2-16-10 Chief Rudy

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M					TOPSOIL			A	Bu
	DRY					SILT, TRACE CLAY, Red/Brn				Casing
1	M	4 3	3		6	5	1.00			
	W					SILT, Some CLAY, Red/Brown, Loose			27%	
2	W	0	1 1		1	10 V-Loose	0			
3	m	5	5 8	X	13	15 - DROVE A STONE NO RECOVERY CLAY, LT. SILT. TRACE GRAVEL, Red/Brn STIFF				
4	m	3	2 7		10	20 CLAY, SILTY, TRACE GRAVEL, V-STIFF	1.75			
5	m	8	4 10		18	25 CLAY, SILTY V-STIFF/HARD GRAY	3.50			
						End of B-HF-29#17 26'				
						30				
						35				
						40				

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Boring No. HF-29#17

DT1434 2/2007

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #16	Structure High Fill	County Brown	Sheet 1 Of 2
Project 9202-07-02	Road USH-41 SB To STH-29 WB Ramp		
Station 1090+00	Offset On R/L	Surface Elevation 606.2'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Rod A
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 2-4-10	Finish 2-5-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					Topsoil		3"	A
						Fine Sand - Silty		Casing	
						Silt, Lt. Clay, Brn			
						CLAY, Silty, Brown, Stiff			
						5'	5'		
1	M	1 3	2		5		1.25		
									2 1/4
						10' Silt, Lt. Clay, Brown, Firm	10'		RB
2	MW	2 3	5		10		1.00		DM
						15' V-Loose - Gray	15'		
3	W	0 0	0		0		0		
						20'	20'		
4	W	0 0	0		0		0		
						25' Silt, F-Sandy, Gray, Loose	25'		
5	W	1 2	2		4		0		
						30' CLAY, Silty, Med. Gray/Brn	30'		
6	MW	2 3	3		6		.75		
						Silt, Some Clay, Trace Sand & Gravel			
						35' Gray - Dense	35'		
7	M	6 18	14		32		4.5+		

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Boring No. HF-29 #16

DT1434 2/2007

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #16	Structure High Fill	County Brown	Sheet 2 Of 2
Project 9202-07-02	Road USH-41 SB To STH-29 WB Ramp		
Station 1090+00	Offset On RIL	Surface Elevation 606.2'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief RWA
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 2-4-10	Finish 2-5-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					SILT, Some clay, Trace Sand & Gravel, Gray Dense	4.5+		2 1/4 RB DM
8	m	3 5	4		9	5' 40' CLAY, SILTY, TRACE GRAVEL GRAY STIFF 40' 5'	1.25		
9	m	4 9	8		17	10' 45' STIFF 45' 10'	2.00		
						End of HF-29 #16 46.5'			
						15' 50' 50' 15'			
						20' 20'			
						25' 25'			
						30' 30'			
						35' 35'			

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Boring No. HF-29 #16

DT1434 2/2007

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5-29-HF #15	Structure HIGH Fill	County Brown	Sheet 1 Of 2
Project 9202-07-02	Road STH-29 @ USH-41 Interchange 41 SB To 29 WB Ramp		
Station 1093+00	Offset ON R/2	Surface Elevation 608.5'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief RJOA
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 2-4-10	Finish 2-4-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					TopSoil		3"	A
						Silt, Some Clay, Brn	Casing		
1	M	5 / 8	6		14	5' CLAY, SILTY, Brown, V-STIFF 5'	2.75		2 7/8 RB DM
2	M	4 / 6	5		9	10' 10'	2.75		
						Silt, Some clay, Gray/Brn, V-Loose			
3	W	0 / 1	0		1	15' w/Brown Brown clay layers 15'	.50		
						Silt, Lt. Sand, Trace Clay, Gray			
4	W	0 / 0	0		0	20' V-Loose 20'	0		
5	W	0 / 0	0		0	25' 25'	0		
6	W	1 / 2	1	X	3	30' 30'	.25		
						CLAY, SILTY, Lt. Sand, Brown			
7	MW	2 / 5	5		10	35' STIFF 35'	1.25		

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Boring No. HF-29 #15

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 # 15	Structure HIGH FIN	County Brown	Sheet 2 Of 2
Project 4202-07-02	Road USH-41 SBT. STH-29 WB Ramp		
Station 1093+00	Offset On R/L	Surface Elevation 608.5'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Rudd
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 2-4-10	Finish 2-4-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					CLAY, SILTY, LT. SAND, BROWN STIFF	1.25		2¼
									RB
						SILT, LT. CLAY, GRAY - DENSE			DM
									↓
						40' 40'			
8	M	4 29	18		47		4.5+		
						End of B-HF-29 #15 41.5'			
						45' 45'			
						15' 15'			
						20' 20'			
						25' 25'			
						30' 30'			
						35' 35'			

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Boring No. HF-29 #15

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29#4 E. ABUT	Structure B-5-661	County Brown	Sheet 1 Of 3
Project 9202-07-02	Road STH-29 & USH-41 INT. STRUCTURE OVER ROUNDABOUT		
Station 1096+40	Offset ON R/L	Surface Elevation 602.8'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Duda
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 1-28-10	Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					TOPSOIL		3"	A
						CLAY, SILTY, BROWN, STIFF		Casing	
	M								
1	M	1 3	2	X	5	5'			
									27/8 RB DM
2	MW	0 0	0		0	10' CLAY, SILTY, GRAY, V-SOFT	.25		
3	MW	0 0	0		0	15'	0		
4	W	0 2	2		4	20' SILT, F-SANDY, TRACE CLAY GRAY, LOOSE	.50		
5	W	1 4	3	X	7	25' LOOSE			
6	M	1 5	3		8	30' SILT, SOME CLAY, LT. SAND & GRAVEL GRAY, FIRM	1.00		
7	M	4 8	7		15	35' FIRM	1.50		

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Boring No. S-29#4 E. ABUT

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5-29 #4 E. ABUT.	Structure B-5-66 /	County Brown	Sheet 2 Of 3
Project 9202-07-02	Road STH-29 & USH-41 INT. STRUCTURE OVER ROUNDABOUT		
Station 1096+40	Offset On RIG	Surface Elevation 602.6'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Rudh
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 1-28-10	Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS		Unconfined Strength	Boulders	Drilling Method
	M					SILT, Some Clay, LT. SAND & GRAVEL, GRAY Firm		1.50		2 7/8 RB DM
8	M	4 8	8		16	5' 40'	40 5'	1.50		
9	M	3 4	3		7	10' 45' SILT, Some CLAY, GRAY, Loose W/ BROWN CLAY SEAMS	45 10'	1.00		
10	M	5 6	7		13	15' 50' Firm	50 15'	1.00		
11	MW	2 4	3		7	20' 55' LOOSE	55 20'	1.00		
12	MW	2 5	4		9	25' 60' Loose	60 25'	1.00		
13	M	14 6	4		10	30' 65' Firm	65 30'			
	W					35' 70' Limestone Bedrock AT 70'	35'			BQ CORE

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Final 69.5'

Boring No. 5-29 #4 E. ABUT

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5-29 #4 E. ABUT	Structure B-5-66	County Brown	Sheet 3 Of 3
Project 9202-07-02	Road STH-29 & USH-41 INT.		
Station 1096+40	Offset on R/L	Surface Elevation 602.8'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief Roth
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 1-28-10	Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
						Limestone Bedrock at 69.5'			
BQ						BQ Core 70.5' - 75.5'			BQ
Core						100% Recovery			Core
						75'			
						End of 5-29 #4 75.5'			
						80'			
						15'			
						20'			
						25'			
						30'			
						35'			

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Boring No. 5-29 #4 E. ABUTMENT

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #3 PIER	Structure B-5-661	County Brown	Sheet 1 Of 3
Project 9202-07-02	Road STH-29 & USH-41 INT. STRUCTURE OVER ROUNDABOUT		
Station 1098+15	Offset ON R/L	Surface Elevation 608.6'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit #3	Chief RUDA
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 1-27-10	Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS		Unconfined Strength	Boulders	Drilling Method
	M					SILT, Some CLAY, LT. SAND BRN			3" CASING	A
1	M	3 8	6		14	5' CLAY, SILTY, BRN, V-STIFF	5'	3.00		2 7/6 RB
2	W	1 2	2		4	10' SOFT	10'	1.50		DM
3	W	0 0	0		0	15' SILT, Some CLAY, GRAY, V-LOOSE	15'	0		
4	W	0 0	0		0	Few CLAY SEAMS 20'	20'	0		
5	W	0 0	0		0	25' V-LOOSE - SATURATED	25'	0		
6	M	0 3	2	X	5	30' CLAY, SILTY, LT. SAND & GRAVEL BRN STIFF	30'			
7	M	1	5		12	35'	35'	1.50		

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Boring No. S-29 #3 PIER

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #3 Pier	Structure B-5-66	County Brown	Sheet 2 Of 3
Project 9202-07-02	Road STH-29 & USH-41 Int. Structure over Roundabout		
Station 1098+15	Offset on R/L	Surface Elevation 608.6'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit #3 | Chief Ruda | Start 1-27-10 | Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					CLAY, Silty, Lt. Sand & Gravel, Brn Stiff			2 1/8 RB DM
8	M	7 10	8		18	5' 40' Stiff 40' 5'	2.00		
9	MW	2 3	3		6	10' 45' 45' 10'	1.00		
10	MW	3 4	4		8	15' 50' Silt, Some Clay, Gray - Loose w/ Brown Clay Seams 50' 15'	1.25		
11	MW	4 5	4		9	20' 55' Loose 55' 20'	1.25		
12	MW	3 4	4		8	25' 60' Med. 60' 25'	.75		
13	MW	6 7	7		14	30' 65' 65' 30'	.75		
14	M	4 7	4		11	35' To Silt, Some Clay Lt. Sand & Gravel, Gray Firm 70' 35'	1.00		

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #3 Pier	Structure B-5-66 /	County Brown	Sheet 3 Of 3
Project 9202-07-02	Road STH-29 & USH-41 INT. STRUCTURE OVER ROUNDABOUT		
Station 1098+15	Offset on R/L	Surface Elevation 608.6'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Unit 3 | Chief Ruda
Start 1-27-10 | Finish 1-28-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	MW					SILT, Some CLAY, LT. SAND & GRAVEL GRAY. FIRM			27/8 RB DM
						SILT, F-m SANDY, LT. GRAVEL, GRAY Dense			
15		100/1"		X	100	75' 75'			
						LimeStone BedRock AT 75'			
						80' End of S-29 #3 Pier 77' 80'			
						15' 15'			
						20' 20'			
						25' 25'			
						30' 30'			
						35' 35'			

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #2 W.ABUT	Structure B-5-661	County Brown	Sheet 1 Of 3
Project 9202-07-02	Road STRUCTURE OVER ROUNDABOUT		
Station 1099+70	Offset ON RIL	Surface Elevation 608.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE	DRILLING METHOD				Unit 3	Chief RJA
D = Damp M = Moist W = Wet	HS = Hollowstem WA = Wash Ahead RB = Rockbit	ST = Shelby Tube SS = Splitspoon DM = Drilling Mud	A = Auger C = Coring W = Wash	E = Easy M = Medium H = Hard	Start 1-27-10	Finish 1-27-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					SILT, Some CLAY, BRown		3" CASING	A
	MW								
1	MW	4 14	12		26	5' Fine Sand, SILTY, BRown, Firm 5'			
	M								2 1/4 RB
2	M	3 6	5		11	10' CLAY, SILTY, BRown, V-STIFF 10'	2.50		DM
3	MW	0 2	1		3	15' GRAY/BRn SOFT 15'	.50		
4	W	0 0	0		0	20' SILT, GRAY, Loose, w/BRown CLAY LAYERS 20'	0		
5	W	0 0	0		0	25' V-Loose 25'	0		
6	W	0 0	0		0	30' V-Loose 30'	0		
7	M	3 9	5		14	35' SILT, Some CLAY, Lt. GRAVEL, GRAY Firm 35'	3.00		

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Boring No. S-29 #2

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #2 W. ABUT	Structure B-5-661	County Brown	Sheet 2 Of 3
Project 9202-07-02	Road STRUCTURE OVER ROUND ABOUT		
Station 1099+70	Offset on R/L	Surface Elevation 608.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief RWA | Start 1-27-10 | Finish 1-27-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					SILT, Some CLAY, LT. GRAVEL, GRAY, FIRM	3.00		27/6 RB DM
8	M	4 9	8		17	5' 40 CLAY, SILTY, GRAY/BROWN V. STIFF 40 5'	2.75		
9	M	8 24	16		40	10' 45 SILT, Some CLAY, GRAY, Dense 45 10'	4.5	+	
10	M	2 4	3		7	15' 50 CLAY, SILTY, GRAY/BRN STIFF 50 15'	1.25		
11	MW	2 3	3		6	20' 55 W/ GRAY, SILT LAYERS 55 20'	1.00		
12	MW	2 3	3		6	25' 60 STIFF 60 25'	1.00		
						SILT, GRAY, Loose, W/BROWN CLAY Some CLAY LAYERS			
13	MW	2 4	3		7	30' 65 65 30'	1.00		
14	MW	2 4	3		7	35' 70 70 35'	1.00		

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5-29 #2 W.ABUT	Structure B-5-661	County Brown	Sheet 3 Of 3
Project 9202-07-02	Road Structure over Roundabout		
Station 1099+70	Offset on R/L	Surface Elevation 608.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 Chief Rudh

Start 1-27-10 Finish 1-27-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	MW					Silt, Some clay, Gray, loose w/Brown clay/ Seams			2 1/4
									RB
									DM
	M					Silt, f-m Sandy, Some Gravel, Gray			1
15	D	60/1"		X	60	75' 75' Weathered Limestone Bedrock 75'			
Core						BQ Core 77'-82'			BQ
						80' 100% Recovery 80'			C O R E
						End of B-5-29 #2 82'			
						85' 85'			
						90' 90'			
						95' 95'			
						100' 100'			
						105' 105'			

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Boring No. 5-29 #2 W.ABUT

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #13	Structure HIGH FILL	County Brown	Sheet 1 Of 2
Project 9202-07-02	Road USH-41SB to 29 WB Ramp		
Station 1100+00	Offset on R/L	Surface Elevation 606.8'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief RWDA | Start 1-26-10 | Finish 1-26-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					TOPSOIL		3"	A
	W					SILT, Fine Sandy, BROWN		CASING	
	M								
1	M	4 8	7		15	5' CLAY, SILTY, Red/Brown V-STIFF 5'	2.75		2 1/8 RB DM
2		4 7	5		12				
						10' 10'	2.25		
	W					CLAY, SILTY, GRAY/BRN, V-SOFT			
3	W	0 1	0		1	15' 15'	.25		
						20' V-SOFT 20'			
4	W	0 0	0		0		0		
						25' SILT, Some CLAY, GRAY, V-Loose w/BROWN CLAY SEAMS 25'			
5	W	0 0	0		0		0		
						30' SILT, F-C SANDY, LT. CLAY GRAY, V-Loose 30'			
6	W	0 0	0		0		0		
						35' SILT, F-SANDY, GRAY, LOOSE 35'			
7	W	4 4	4		8		1.25		

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Boring No. HF-29 #13

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29 #13	Structure HIGH FILL	County BROWN	Sheet 2 Of 2
Project 9202-07-02	Road USH-41 SB TO STH-29 WB RAMP		
Station 1100+00	Offset ON R/L	Surface Elevation 606.8'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief [illegible] | Start 1-26-10 | Finish 1-26-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	W					SILT, F-SANDY, GRAY, LOOSE	1.25		2 7/8 RB DM
8	MW	2 4	3		7	5' 40 SILT, SOME CLAY, GRAY, LOOSE 40 5'	.75		
9	M	4 6	4		10	10' 45 CLAY, SILTY, GRAY/BRN STIFF 45 10'	1.75		
10	M	2 7	3		7	15' 50 STIFF 50 15'	1.00		
11	M	2 4	3		7	20' 55 STIFF 55 20'	1.25		
12	M	0 4	3		7	25' 60 SILT, GRAY, LOOSE W/BROWN CLAY SEAMS 60 25'	1.00		
13	M	2 5	3		8	30' 65 65 30'	1.50		
						End of HF-29 #13 66.5'			
						35' 70 70 35'			

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. 5-29-#1 W. ABUT.	Structure B-5-660	County Brown	Sheet 1 Of 3
Project 9202-07-02	Road USH-41 N. To STH-29 West		
Station 1100+79	Offset 15' Left of R/L	Surface Elevation 605.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief Ruda | Start 1-25-10 | Finish 1-26-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					TopSoil		3"	A
						Silt, V-Fine Sandy, Lt. Brn		Casing	
						CLAY, Silty, Red/Brn, V-Stiff			
1			4						
1	M	6	8		14	5' 5'	3.25		
									2 7/8
									RB
2									DM
2	W	4 6	4		10	10' Fine Sand, Lt. Silt. Brn, Loose 10'			
3						CLAY, Silty, Brown, medium			
3	MW	1 2	2		4	15' 15'	.75		
4									
4	W	0 0	0		0	20' Soft 20'	.25		
5									
5	W	0 0	0		0	25' V-Soft 25'	0		
6									
6	W	0 0	0		0	30' V-Soft 30'	0		
7									
7	W	0	0 0		0	35' 35'	0		

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FIELD BORING LOG

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Boring No. S-29#1 W.ABUT	Structure B-5-660	County Brown	Sheet 2 Of 3
Project 9202-07-02	Road USH-41 N TO STH-29 WEST		
Station 1100+79	Offset 15' LT of RIL	Surface Elevation 605.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

* DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief RWA | Start 1-25-10 | Finish 1-26-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	W					CLAY, SILTY, GRAY-BROWN, V-SOFT	0		2 7/8 RB DM
8	W	0	0 0		0	40' GRAY, TRACE SAND 40' 5'	0		
9	M	6 8	9		17	45' 45' 10' CLAY, SILTY, BROWN, W/ GRAY SILT SEAMS STIFF	2.00		
10	MW	1 2	3		5	50' 50' 15'	1.00		
11	M	2 4	4		8	55' 55' 20'	1.25		
12	MW	2 4	3		7	60' 60' 25' SILT, GRAY, W/ BROWN CLAY SEAMS LOOSE	1.25		
13	MW	3 4	3		7	65' LOOSE 65' 30'	1.50		
	V					CLAY, SILTY, BROWN, V-STIFF			
14	M	6 12	8		20	70' 70' 35'	2.50		V

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FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. S-29 #1 W. ABUT	Structure B-5-660	County Brown	Sheet 3 Of 3
Project 9202-07-02	Road USH-41 N TO STH-29 WEST		
Station 1100+79	Offset 15' LT ℄ RIL	Surface Elevation 605.9'	

GROUND WATER OBSERVATIONS

Streambed Elevation:	Time After Drilling:					
Water Elevation:	Depth to Water:					
Top of Well Elevation:						

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Unit 3 | Chief Rick | Start 1-25-10 | Finish 1-26-10

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method
	M					CLAY. SILTY. BROWN, V-STIFF			2 7/8
	D					SILT, F-m SANDY, LT. GRAVEL GRAY / V-DENSE			RB DM
						75' Limestone SLAB 74'-75' SILT & GRAVEL LAYER 75'-76' 75'			
						Limestone BEDROCK 76'			
						BQ Core Run 77'-81.5'			BQ CORE
						80' 90% Recovery 80'			
						End of B-5-29 #1			
						85' 81.5' 85'			
						20' 20'			
						25' 25'			
						30' 30'			
						35' 35'			

Checked By | Final | Boring No. S-29 #1

DT1434 96, (Replaces EL3A(S)) **FIELD BORING LOG** Wisconsin Department of Transportation

Boring No. HF-29-11 Structure Fill County Brown Sheet 1 of 2

Project 9202-07-02 Road [illegible] W Bound on Ramp

Station [illegible] Offset RL [illegible] Surface Elevation [illegible]

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 1-2 Unit [illegible]
Finish 1-22-10 Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M					Sand Silty				3 4 [illegible]
1	D	26 47	3 [illegible]	[illegible]	[illegible]	5 Silt Sands Some Gravel V Dense			SS	
2	M	15 16	16	[illegible]	[illegible]	Dense 10 Sand F some Silt			SS WH	
3		3 5	3	[illegible]	8	15 loose Clay Red little Silt	1.7		SS	
4	WW	0 0	0	[illegible]	0	20 V loose Clay Red Silty	.2		SS	
5		0 0	0	[illegible]	0	25 V loose Silt Clayey Grey	.0		SS	
6	W	0 0	0	[illegible]	0	30 V loose Clay Silty Red	0		SS	
7		0 0	0	[illegible]	0	35 V loose Silt Some Clay	0		SS	
8		0 0	0	[illegible]	0	40 V loose	0		SS	

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Boring No. HF-29-11

DT1434 96, (Replaces EL3A(S)) **FIELD BORING LOG** Wisconsin Department of Transportation

Boring No. HF 29-11 Structure Fill County Brown Sheet 2 of 2

Project 9902-07-02 Road USH 41 + STH 29 W On Ramp

Station 1106+00 Offset RL 29 W On Ramp Surface Elevation 610.8

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 1-21 Unit 3
Finish 1-22-10 Chief [signature]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
									EA	
9	W	0 0	0		0	5 45 Silt tr Clay Gray 0 Vloose Small Clay Silty Seams R 12	0 .2		SS	
10	MW	0 0	0		0	10 50 Silt little Sand tr Gravel Vloose	0		SS	
11		0 6	0 10		6	15 55 loose			SS	
12		5 13	7		20	20 60 Silt Some Clay Rms little Sand tr Gravel			SS	
						25 65 61½ EOB#11				
						30 70				
						35 75				
						40 80				

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Boring No. HF 29-11

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF2940 Structure Fill County Brown Sheet 1 of 2

Project 9202-07-02 Road USH 41 + STH 29

Station 1109+00 Offset 35 RT 29 WB Surface Elevation 611.3

GROUND WATER OBSERVATIONS

on Ramp RL

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start 1-21 Unit 3

Finish 1-21-10 Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M								A	3 Keg
1		5	5			Firm Silt Sandy Br				
		6	6		11				SS	
2		6	7			5 Sand F tr Silt 5				
		7	9		14	Firm			SS	
3		5	35							
		60/5			60/5	V Dense Sand Silty Br Silt Layer			SS	
4	W	11	13			Dense				
		18	20		31	10 Sand F-M Tr Silt 10			SS	
5	M	5	6							
		8	8		14	Firm Clay ~~Sa~~ Silty Red Br	2.0		SS	
6		4	6							
		8	10		12	Firm Clay Red little Silt	1.5		SS	
7		1	3							
		5	5		8	15 Loose Clay Some Silt Red 15	1.0		SS	
									WA	
8	MW	0	0			20 Clay Silty Red 20	0		SS	
		0			0	V loose				
9		0	0			25 V loose 25	0		SS	
		0			0					
10		0	0			30 V loose 30	.1		SS	
		0			0					
11		0	0			35 V loose 35	0		SS	
		0			0					
12	W	0	0			40 Silt Clay [illegible] 40	0		SS	
		0								

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Boring No. HF2940

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF29-10 Structure [illegible] County [illegible] Sheet 2 of 2

Project 92 02-07-02 Road [illegible] 29

Station 1109+20 Offset [illegible] Surface Elevation 611.3

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE	DRILLING METHOD			
D = Damp	HS = Hollowstem	ST = Shelby Tube	A = Auger	E = Easy
M = Moist	WA = Wash Ahead	SS = Splitspoon	C = Coring	M = Medium
W = Wet	RB = Rockbit	DM = Drilling Mud	W = Wash	H = Hard

Start 1-20 Unit 3

Finish Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	W					Silt clayey Gravel				
						Larger Clay Stiff Red				
						5 45				
13		0	0		0	V loose Silt gr to clay	0		SS	
						10 50				
14		0	0		0	V loose Small Clay layer [illegible]	0		SS	
						15 55 Silt little Sand				
15	D	7	3		14	Firm to Clay	45		SS	
						56½ EOB#				
						20 60 HF 29-10				
						25 65				
						30 70				
						35 75				
						40 80				

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Filed [illegible] Boring No. HF29-10

56½

DT1434 96, (Replaces EL3A(S)) A

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF 29-10 Structure Fill 22' County Brown Sheet 1 of 1

Project 9202-07-02 Road USH 41 + Sth 29

Station 1109+00 Offset 15' RT 41524W Ramp Surface Elevation 612.8

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE	DRILLING METHOD				
D = Damp	HS = Hollowstem	ST = Shelby Tube	A = Auger	E = Easy	Start 1-20-8 Unit 3
M = Moist	WA = Wash Ahead	SS = Splitspoon	C = Coring	M = Medium	Finish Chief [illegible]
W = Wet	RB = Rockbit	DM = Drilling Mud	W = Wash	H = Hard	

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M								A	
									1	
1		4	17			Sand F-M Silty			SS	
		60				Dense limestone Bolder				
						5				
						Moved 15' RT				
						To Miss old Rod				
						Approx 3'-8"				
						10				
						15				
						20				
						25				
						30				
						35				
						40				

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Boring No. HF 29-10A

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29-10B Structure Fill County Brown Sheet 1 of 1

Project 9202-07-02 Road [illegible] STH 29

Station 1109+00 Offset 30' Rt 29 [illegible] Surface Elevation 611.8

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start [illegible] Unit 3

Finish Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M								A	
5		5	6			Firm Sand Silty Br			SS	
		7	7		13				SS	
5		3	10							
		13	14		23	Firm Silt Sand + Gravel			SS	
						Moved 5' More				
						Hit hard Again				

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Boring No. HF-29-10B

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HF-29-12 Structure Fill County Brown Sheet 1 of 2

Project 920207-02 Road USH 41 STH 29 W Bond Ramp

Station 1103+00 Offset RL 29 WB Ramp Surface Elevation 607.4

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE
D = Damp
M = Moist
W = Wet

DRILLING METHOD
HS = Hollowstem
WA = Wash Ahead
RB = Rockbit
ST = Shelby Tube
SS = Splitspoon
DM = Drilling Mud
A = Auger
C = Coring
W = Wash
E = Easy
M = Medium
H = Hard

Start 1-22 Unit 3

Finish 1-22-10 Chief [illegible]

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M					Sand some silt F			A	3 1/2 Cas
1		7 / 17	12		20	Firm			SS / WA	
2		2 / 4	4		6	loose Clay to Silt	2.2		SS	
3	MW	0 / 2	2		4	V loose Clay Silty Red	.3		SS	
4		0 / 0	0		0	V loose	.1		SS	
5		0 / 0	0		0		.1		SS	
6	W	0 / 0	0		0	Silt Grey Tr Clay small clay seams	0		SS	
7		0 / 0	0		0		0		SS	
8	MW	0 / 0	0		0	Silt Grey Tr Sand	.1			

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Boring No. HF-29-12

DT1434 96, (Replaces EL3A(S))

FIELD BORING LOG

Wisconsin Department of Transportation

Boring No. HP 29 12 Structure Fill County Brown Sheet 2 of 2

Project 9302-07-02 Road USH 41 + STH 29 W Bound Ramp

Station 1103+00 Offset RL 29 WB Ramp Surface Elevation 667.4

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____

Water Elev. _____

Top of Well Elev. _____ Depth to Water _____

MOISTURE: D = Damp, M = Moist, W = Wet

DRILLING METHOD: HS = Hollowstem, WA = Wash Ahead, RB = Rockbit, ST = Shelby Tube, SS = Splitspoon, DM = Drilling Mud, A = Auger, C = Coring, W = Wash, E = Easy, M = Medium, H = Hard

Start 1-22 Unit 3

Finish 1-22-10 Chief

Sample No.	Moisture	Blows on Sampler 0/6	Blows on Sampler 6/12	Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
	M								LMX	
1		2	5			5 45 Fine Silt some Clay Tr Sand Tr Cobble	15		SS	
		7			12					
10		5	9			10 50 Firm	30		SS	
		10			19					
						5 1/2 EOB #12				
						15 55				
						20 60				
						25 65				
						30 70				
						35 75				
						40 80				

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Boring No. HP-29-12

Attachment 2
Soils Laboratory Test Results

REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Systems Development
Bureau of Technical Services
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-15-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	8	5	10	1133-02-02	**190**	**2**	3 Tubes

County: Brown	Project Name: STH 29 - USH 41
Contractor:	
Material: Soil	
Source: B-804-ST / R-5-67	
Tests Requested By: CO / NE Region	
Submitted by: Jeff Horsfall	Date: 8/5/2010

BORING NUMBER	804	804	804	804	804	804
SAMPLE NUMBER	bot	mid	top	bot	mid	top
DEPTH, FT.	8-10	8-10	8-10	25-27	25-27	25-27
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)		19			1	
Silt (Pass #200 - Ret. 0.002mm)		66			53	
Clay (Pass 0.002mm)		15			46	
LIQUID LIMIT (AASHTO T-89)		NON-COH			36	
PLASTICITY INDEX (AASHTO T-90)		NP			19	
UNIFIED CLASSIFICATION (ASTM D 2487)		ML			CL	
AASHTO CLASSIFICATION (AASHTO M-145)		A-4			A-6	
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	19.1		21.3	37.1		39.2
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %		21.7			33.1	
UNIT WEIGHT, PCF		111			92.3	
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF		1974			525	
CONSOLIDATION TEST (AASHTO T-216)	Horizontal	Vertical		Horizontal	Vertical	
MOISTURE BEFORE, %	19.5	22.5		42.8	43.0	
MOISTURE AFTER, %	17.0	20.9		30.0	29.9	
COMPRESSION INDEX	0.12	0.15		0.29	0.33	
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Systems Development
Bureau of Technical Services
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-12-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	7	13	10	1133-02-02	**190**	**2**	3 TUBES

County: Brown	Project Name: STH 29 - USH 41
Contractor:	
Material: Soil	
Source: R-5-67	
Tests Requested By: Central Office	
Submitted by: Jeff Horsfall	Date: 7/29/2010

BORING NUMBER	tube3	tube3	tube3			
SAMPLE NUMBER	bot	mid	top			
DEPTH, FT.	45-47	45-47	45-47			
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)						
Silt (Pass #200 - Ret. 0.002mm)		72				
Clay (Pass 0.002mm)		28				
LIQUID LIMIT (AASHTO T-89)		27				
PLASTICITY INDEX (AASHTO T-90)		10				
UNIFIED CLASSIFICATION (ASTM D 2487)		CL				
AASHTO CLASSIFICATION (AASHTO M-145)		A-4(9)				
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	26.5		28.5			
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %		27.0				
UNIT WEIGHT, PCF		97.8				
PENETRATION RESISTANCE, TSF	0.1		0.1			
UNCONFINED COMPRESSION, PSF		779				
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %		28.1				
MOISTURE AFTER, %		20.1				
COMPRESSION INDEX		0.14				
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Systems Development
Bureau of Technical Services
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-12-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	7	13	10	1133-02-02	**190**	**2**	3 TUBES

County: Brown	Project Name: STH 29 - USH 41
Contractor:	
Material: Soil	
Source: R-5-67	
Tests Requested By: Central Office	
Submitted by: Jeff Horsfall	Date: 7/29/2010

BORING NUMBER	tube1	tube1	tube1	tube2	tube2	tube2
SAMPLE NUMBER	bot	mid	top	bot	mid	top
DEPTH, FT.	15-16.5	15-16.5	15-16.5	30-32	30-32	30-32
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)						
Silt (Pass #200 - Ret. 0.002mm)		67			63	
Clay (Pass 0.002mm)		33			37	
LIQUID LIMIT (AASHTO T-89)		29			32	
PLASTICITY INDEX (AASHTO T-90)		13			15	
UNIFIED CLASSIFICATION (ASTM D 2487)		CL			CL	
AASHTO CLASSIFICATION (AASHTO M-145)		A-6(12)			A-6(15)	
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)		28.0		32.2		32.6
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %	26.6		28.6		29.9	
UNIT WEIGHT, PCF	101.5		98.7		97.8	
PENETRATION RESISTANCE, TSF				0.3		0.3
UNCONFINED COMPRESSION, PSF	836		1107		1006	
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %		27.2		31.2		
MOISTURE AFTER, %		19.5		22.8		
COMPRESSION INDEX		0.20		0.22		
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Systems Development
Bureau of Technical Services
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-10-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY	
	6	24	10	1133-03-02	**190**	**2**	15	jars

County: Brown	Project Name: USH 41 STH 29 Ramp
Contractor:	
Material: Soil	
Source: B-5-663	
Tests Requested By: Central Office	
Submitted by: Jeff Horsfall	Date: 7/7/2010

BORING NUMBER	9					
SAMPLE NUMBER	7, 8					
DEPTH, FT.						
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)						
Silt (Pass #200 - Ret. 0.002mm)	75					
Clay (Pass 0.002mm)	25					
LIQUID LIMIT (AASHTO T-89)	26					
PLASTICITY INDEX (AASHTO T-90)	9					
UNIFIED CLASSIFICATION (ASTM D 2487)	CL					
AASHTO CLASSIFICATION (AASHTO M-145)	A-4(7)					
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	27.7					
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %						
UNIT WEIGHT, PCF						
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF						
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %						
MOISTURE AFTER, %						
COMPRESSION INDEX						
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

DISTRIBUTION: Geotechnical Unit
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REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Systems Development
Bureau of Technical Services
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-10-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	6	24	10	1133-03-02	**190**	**2**	15 jars

County	Brown
Project Name	USH 41 STH 29 Ramp
Contractor	
Material	Soil
Source	B-5-663
Tests Requested By	Central Office
Submitted by:	Jeff Horsfall
Date	7/7/2010

BORING NUMBER	8	8	8	9	9	9
SAMPLE NUMBER	1, 2	3, 4	5, 6, 7	1, 2	3, 4	5, 6
DEPTH, FT.						
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)	1	1	1	1		
Silt (Pass #200 - Ret. 0.002mm)	70	59	71	67	65	61
Clay (Pass 0.002mm)	29	40	28	32	35	39
LIQUID LIMIT (AASHTO T-89)	33	33	27	30	34	32
PLASTICITY INDEX (AASHTO T-90)	17	17	9	14	18	15
UNIFIED CLASSIFICATION (ASTM D 2487)	CL	CL	CL	CL	CL	CL
AASHTO CLASSIFICATION (AASHTO M-145)	A-6(16)	A-6(16)	A-4(8)	A-6(13)	A-6(18)	A-6(15)
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	23.4	33.5	27.8	24.9	30.9	38.3
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %						
UNIT WEIGHT, PCF						
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF						
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %						
MOISTURE AFTER, %						
COMPRESSION INDEX						
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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REPORT ON TESTS ON SOILS
EL140(L) 1-78

Wisconsin Department of Transportation
Div. of Transportation Infrastructure Development
Bureau of Highway Construction
3502 Kinsman Blvd., Madison, Wi 53704 - 2507

TEST NUMBER
230-4-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	3	9	10	9202-07-01	**190**	**2**	4 tubes

County: Brown	Project Name: STH 29 High Fill Area
Contractor:	
Material: Soil	
Source:	
Tests Requested By: Central Office	
Submitted by: Jeff Horsfall	Date: 3/25/10

BORING NUMBER	HF-29-4	HF-29-4	HF-29-4	HF-29-4	HF-29-4	HF-29-4
SAMPLE NUMBER	tube3bot	tube3mid	tube3 top	tube4bot	tube4mid	tube4top
DEPTH, FT.	30-32	30-32	30-32	53-55	53-55	53-55
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)					8	
Coarse Sand (Pass #10 - Ret. #40)					6	
Fine Sand (Pass #40 - Ret. #200)					26	
Silt (Pass #200 - Ret. 0.002mm)		60			47	
Clay (Pass 0.002mm)		40			13	
LIQUID LIMIT (AASHTO T-89)		36			17	
PLASTICITY INDEX (AASHTO T-90)		19			5	
UNIFIED CLASSIFICATION (ASTM D 2487)		CL			CL-ML	
AASHTO CLASSIFICATION (AASHTO M-145)		A-7-6(19)			A-4(0)	
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)						
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %	37.6		37.6			
UNIT WEIGHT, PCF	90.6		89.3			
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF	810		875			
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %		34.9			12.2	
MOISTURE AFTER, %		24.4			9.7	
COMPRESSION INDEX		0.53			0.06	
TRIAXIAL COMPRESSION TEST (UNCONSOLIDATED - UNDRAINED) (AASHTO T-297)						
INITIAL MOISTURE, %				17.5	13.2	11.7
AT TEST MOISTURE, %				13.3	11.5	10.4
ANGLE OF INTERNAL FRICTION, DEGREES						
TOTAL					29.6	
EFFECTIVE					27.6	
COHESION, PSF						
TOTAL					374	

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TEST NUMBER
230-4-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	3	9	10	9202-07-01	**190**	**2**	4 tubes

County: Brown	Project Name: STH 29 High Fill Area
Contractor:	
Material: Soil	
Source:	
Tests Requested By: Central Office	
Submitted by: Jeff Horsfall	Date: 3/25/10

BORING NUMBER	HF-29-1A	HF-29-1A	HF-29-1A	HF-29-1A	HF-29-1A	HF-29-1A
SAMPLE NUMBER	tube1bot	tube1mid	tube1 top	tube2bot	tube2mid	tube2top
DEPTH, FT.	30-32	30-32	30-32	50-52	50-52	50-52
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						3
Coarse Sand (Pass #10 - Ret. #40)						3
Fine Sand (Pass #40 - Ret. #200)					2	12
Silt (Pass #200 - Ret. 0.002mm)		62			86	58
Clay (Pass 0.002mm)		38			12	20
LIQUID LIMIT (AASHTO T-89)		33			24	22
PLASTICITY INDEX (AASHTO T-90)		16			5	8
UNIFIED CLASSIFICATION (ASTM D 2487)		CL			CL-ML	CL
AASHTO CLASSIFICATION (AASHTO M-145)		A-7-6(16)			A-4(3)	A-4(4)
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)		32.8	31.5	35	32.4	20.2
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %	28.92					
UNIT WEIGHT, PCF	97.3					
PENETRATION RESISTANCE, TSF	0.2	0.3	0.2	0.1	0.1	0.8
UNCONFINED COMPRESSION, PSF	1121					
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %			32.3			36.9
MOISTURE AFTER, %			22.6			31.8
COMPRESSION INDEX			0.24			0.32
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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TEST NUMBER
230-1-11

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	2	8	11	9202-07-01	**190**	**2**	23 JARS

County: Brown	Project Name:
Contractor:	
Material: Soil	
Source: STH 29 - Ramps	
Tests Requested By: Central Office / NE Region	
Submitted by: Jeff Horsfall	Date: 1/20/2011

BORING NUMBER	785	1019	1019	1020		
SAMPLE NUMBER	6, 7	5, 6, 7	8, 9	7, 8, 9		
DEPTH, FT.						
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)				2		
Coarse Sand (Pass #10 - Ret. #40)	7			2		
Fine Sand (Pass #40 - Ret. #200)	8	1	1	7		
Silt (Pass #200 - Ret. 0.002mm)	61	62	73	62		
Clay (Pass 0.002mm)	24	37	26	27		
LIQUID LIMIT (AASHTO T-89)	23	33	27	28		
PLASTICITY INDEX (AASHTO T-90)	8	15	10	12		
UNIFIED CLASSIFICATION (ASTM D 2487)	CL	CL	CL	CL		
AASHTO CLASSIFICATION (AASHTO M-145)	A-4(4)	A-6(15)	A-4(9)	A-6(9)		
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	26.5	33.1	32.2	21.7		
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %						
UNIT WEIGHT, PCF						
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF						
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %						
MOISTURE AFTER, %						
COMPRESSION INDEX						
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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TEST NUMBER
230-1-11

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	2	8	11	9202-07-01	**190**	**2**	23 JARS

County: Brown	Project Name:
Contractor:	
Material: Soil	
Source: STH 29 - Ramps	
Tests Requested By: Central Office / NE Region	
Submitted by: Jeff Horsfall	Date: 1/20/2011

BORING NUMBER	5	545	545	547	547	785
SAMPLE NUMBER	2, 3	5, 6	7, 8	4, 5	6, 7, 8	3, 4
DEPTH, FT.						
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)	1	1				
Coarse Sand (Pass #10 - Ret. #40)	1	1				
Fine Sand (Pass #40 - Ret. #200)	9	1	1	2	1	1
Silt (Pass #200 - Ret. 0.002mm)	72	39	76	59	67	72
Clay (Pass 0.002mm)	17	58	23	39	31	27
LIQUID LIMIT (AASHTO T-89)	29	44	25	33	30	28
PLASTICITY INDEX (AASHTO T-90)	12	25	8	16	12	11
UNIFIED CLASSIFICATION (ASTM D 2487)	CL	CL	CL	CL	CL	CL
AASHTO CLASSIFICATION (AASHTO M-145)	A-6(9)	A-7-6(26)	A-4(6)	A-6(18)	A-6(11)	A-6(10)
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)	25.9	45.4	28.3	33.9	32.3	23.8
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %						
UNIT WEIGHT, PCF						
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF						
CONSOLIDATION TEST (AASHTO T-216)						
MOISTURE BEFORE, %						
MOISTURE AFTER, %						
COMPRESSION INDEX						
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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TEST NUMBER
230-15-10

	MO.-DAY-YR.			PROJECT ID	TEST CODE		QUANTITY
	8	5	10	1133-02-02	**190**	**2**	3 Tubes

County: Brown	Project Name: STH 29 - USH 41
Contractor:	
Material: Soil	
Source: B-804-ST / R-5-67	
Tests Requested By: CO / NE Region	
Submitted by: Jeff Horsfall	Date: 8/5/2010

BORING NUMBER	804	804	804			
SAMPLE NUMBER	bot	mid	top			
DEPTH, FT.	35-37	35-37	35-37			
MECHANICAL ANALYSIS (AASHTO T-88)						
Boulders (Ret. 3")						
Gravel (Pass 3" - Ret. #10)						
Coarse Sand (Pass #10 - Ret. #40)						
Fine Sand (Pass #40 - Ret. #200)						
Silt (Pass #200 - Ret. 0.002mm)		54				
Clay (Pass 0.002mm)		46				
LIQUID LIMIT (AASHTO T-89)		31				
PLASTICITY INDEX (AASHTO T-90)		13				
UNIFIED CLASSIFICATION (ASTM D 2487)		CL				
AASHTO CLASSIFICATION (AASHTO M-145)		A-6				
LOSS ON IGNITION, % (AASHTO T-267)						
MOISTURE, % (AASHTO T-265)		32.1	35.8			
UNCONFINED COMPRESSION TEST (AASHTO T-208)						
MOISTURE CONTENT, %	32.6					
UNIT WEIGHT, PCF	86.6					
PENETRATION RESISTANCE, TSF						
UNCONFINED COMPRESSION, PSF	313					
CONSOLIDATION TEST (AASHTO T-216)	Horizontal	Vertical				
MOISTURE BEFORE, %	32.0	31.8				
MOISTURE AFTER, %	23.2	22.5				
COMPRESSION INDEX	0.19	0.27				
DIRECT SHEAR TEST (AASHTO T-236)						
MOISTURE CONTENT, %						
ANGLE OF INTERNAL FRICTION, DEGREES						
COHESION, PSF						

Remarks

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Attachment 3
WisDOT Soil Consolidation Parameters

WisDOT Soil Consolidation Parameters									
Soil Type	Location			Consolidation Parameters					
	Station	Offset	Elev.	Total Unit Weight (pcf)	Void Ratio	Precons. Pressure (tsf)	Compression Index / Recompression Index	Coefficient of Consolidation @ 2 tsf loading ($feet^2$/day)	Modified Secondary Compression Index
WisDOT Test Results									
CL	804+00	50’ lt FES	578.7’	118.3	0.956	3.1	0.738 / 0.091	0.15	0.0030
CL-ML	804+00	50’ lt FES	555.7’	145.7	0.307	1.7	0.072 / 0.015	0.09	0.0090
CL	795+00	15’ lt FES	585.0’	120.5	0.884	2.0	0.342 / 0.039	0.16	0.0031
CL	795+00	15’ lt FES	564.0’	109.4	1.104	2.4	0.529 / 0.174	0.14	0.0030
CL	810+00	38’ rt FES	591.5’	124.3	0.767	1.8	0.240 / 0.054	11.04	0.0054
CL	810+00	38’ rt FES	576.5’	120.0	0.879	2.0	0.302 / 0.034	0.05	0.0020
CL	810+00	38’ rt FES	561.5’	124.6	0.765	2.4	0.215 / 0.017	0.10	0.0023
ML	804+00	30’ rt FES	599.2’	127.4	0.621	2.8	0.160 / 0.045	2.04	0.0011
CL	804+00	30’ rt FES	582.2’	111.0	1.202	1.7	0.805 / 0.126	0.03	0.0047
CL	804+00	30’ rt FES	572.2’	131.4	0.869	1.4	0.549 / 0.012	0.53	0.0030

Attachment 4
WisDOT Soil Shear Strength Parameters

Soil Shear Strength Parameters							
Soil Type	Location			Shear strength Parameters (Qu)			
	Station	Offset	Elev.	Total Unit Weight (pcf)	Moisture Content	Shear Strength-Peak (psf)	Shear Strength-Residual (psf)
CL	795+00	15’ lt FES	583.0’	125.4	28.9	560	543
CL	804+00	50’ lt FES	578.4’	124.7	37.6	405	290
CL	804+00	50’ lt FES	578.4’	122.9	37.6	437	405
ML	804+00	30’ rt FES	599.2’	135.1	21.7	987	806
CL	804+00	30’ rt FES	582.2’	122.8	33.1	262	254
CL	804+00	30’ rt FES	572.2’	114.8	32.6	156	145
CL	810+00	38’ rt FES	591.1’	128.5	26.6	418	418
CL	810+00	38’ rt FES	591.1’	126.9	28.6	553	544
CL	810+00	38’ rt FES	576.1’	127.0	29.9	503	387
CL	810+00	38’ rt FES	561.1’	124.2	27.0	389	304

WisDOT Soil Shear Strength Parameters					
Soil Type	Location			Shear strength Parameters (Field Vane Shear Test)	
	Station	Offset	Elev.	Shear Strength-Peak (psf)	Shear Strength-Residual (psf)
CL	795+00	15’ lt FES	594.0’	1,554	907
CL	795+00	15’ lt FES	574.0‘	777	414
CL	804+00	50’ lt FES	589.7’	1,036	311
CL	804+00	50’ lt FES	569.7’	518	259
CL	804+00	30’ rt FES	593.2’	1,554	466
CL	804+00	30’ rt FES	588.2’	907	259
CL	804+00	30’ rt FES	578.2’	596	207
CL	804+00	30’ rt FES	568.2’	337	207
CL	804+00	30’ rt FES	563.2’	466	363
CL	804+00	30’ rt FES	558.2’	1,166	414
CL	810+00	38’ rt FES	597.1’	2,585	1,293
CL	810+00	38’ rt FES	587.1’	907	363
CL	810+00	38’ rt FES	582.1’	842	311
CL	810+00	38’ rt FES	572.1’	1,036	311
CL	810+00	38’ rt FES	567.1’	518	337
CL	810+00	38’ rt FES	557.1’	907	311