# **APPENDICES**

# APPENDIX 3

**Boring Logs** 

BORING No.	C-1-05
DOM: 140.	

#### BORIN

IG LOG	SHEET	1_	OF	_3

CLIENT	Aggregate Industries Chelsea, Michigan		
PROJECT	Sand and Gravel Exploration in Chelsea, MI	JOB No. 133873	_
GROUND EL	EV. METHOD SONIC	LOCATION OF BORING : As Directed	
DRILLING C	OMMENTS	DATE STARTED 3/21/2005	
		DATE ENDED 3/21/2005	
		DRILLERS JK, TW, SW	

ОЕРТН, FT	SAMPLE NO.	DEP OF SAMPLI	:	BLOWS ON SAMPLER PER 6" INTERVAL	DEPTH OF STRATUM, FT	GRAPHICS	CLASSIFICATION OF MATERIAL  Major Component: Minor Component Term Gravel Trace 1-10% Sand Some 11-35% Silt And 36-50%	SPT "N" OR RECOVERY
		FROM	то			}	Clay	
1-							Brown Sand and gravel	
2-					1			
3-					-			
4-					4.0	20.	Day of Conduction of the stable	
5						9	Brown Sand and gravel with cobbles	
-						) 		
6-								
7-						000		
8-					1			
9					9.0	0,	Brown Sand and gravel, some cobbles	
10-						.5	Brown Sand and graver, some copples	
11-				411		J		
-					1			
12-						00.		
13-						0.		
14						8.0		
15-						).		
4								
16								
17								
18						.al		
19-								
20-								
۷٠ -						.0		
20-				DE	PTH	000	DATE A SPLIT SPOON E AUGER CUTTINGS	

GROUND WATER OBSERVATIONS

INITIAL \_ AT COMPLETION

OTHER

Ä

▼ 3/21/2005 C - SHELBY TUBE



BORING No. C-1-05

REPORT No. <u>133873</u> SHEET 2 OF CLASSIFICATION OF MATERIAL STRATUM, FT DEPTH, FT BLOWS ON GRAPHICS SAMPLE NO. DEPTH Major Component: Minor Component Term DEPTH OF SAMPLER Gravel Trace 1-10% Some 11-35% OF PER 6 IN Sand SAMPLE, FT INTERVAL Silt And 36-50% FROM TO Clay 22 23 24-25 26 27-28 29 30-31 32 33 34 35 36 37.0 37 Brown, gravel 38 39.0 39 Brown Sand, traces of cobbles 40 41 42 43 44 45 46 47 48 49 50-A-SPLIT SPOON E-AUGER CUTTINGS DEPTH DATE GROUND ☑ 3/21/2005 B-ROCK CORE BOWSER MORNER INITIAL ₮ 3/21/2005 WATER AT COMPLETION C - SHELBY TUBE

D-SONIC

OBSERVATIONS

OTHER

C-1-05 BORING No.

REPORT No. 133873

SHEET 3 OF 3 CLASSIFICATION OF MATERIAL Major Component: Minor Component Term RECOVERY Gravel Trace 1-10% Sand Some 11-35% Silt 36-50% And Clay

Gray silty Clay, some sand, trace cobbles

STRATUM, FT GRAPHICS

DEPTH OF

55.5

BLOWS ON

SAMPLER

PER 6 IN

INTERVAL

DEPTH

OF

SAMPLE, FT

FROM TO

DEPTH, FT

56

58 59

OBSERVATIONS

OTHER

SAMPLE NO.

BOB 59.0'

A-SPLIT SPOON E-AUGER CUTTINGS DATE DEPTH ☑ 3/21/2005 B-ROCK CORE GROUND INITIAL ₮ 3/21/2005 C-SHELBY TUBE WATER AT COMPLETION

D-SONIC



	C-2-05
BORING No.	U-2-00

SHEET 1 OF 3

#### **BORING LOG**

CLIENT	Aggregate Industries Chelsea, Michigan	 
PROJECT	Sand and Gravel Exploration in Chelsea, MI	JOB No. <u>133873</u>
		LOCATION OF BORING : As Directed
GROUND EL	EV METHOD SONIC	A. W. Tyn opposite

DATE STARTED 3/21/2005 DATE ENDED 3/21/2005 DRILLERS JK, TW, SW

							4		
					<u> -</u>		CLASSIFICATIO	ON OF MATERIAL	
DEPTH, FT	SAMPLE NO.	DEF	TH	BLOWS ON	DEPTH OF STRATUM, FT	GRAPHICS	Major Component: Gravel	Minor Component Term Trace 1-10% Some 11-35%	SPT "N" OR RECOVERY
E	₫ o	. 0	F	SAMPLER	Ers	天	Gravel	Trace 1-10%	- M -
a.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	•		PER 6"	DEPTH OF RATUM,	\₹	Sand	Some 11-35%	1208
ā	0)	SAMPI		INTERVAL	- E	G	Silt	And 36-50%	(A)
		FROM	TO		0)	L	Clay		
						٥٠.٠ د	Brown Sand and gravel		
1-						.8.	-		
						<b>D</b>			
2-	-				-	000			
-		-	··		1	0			
3	-				-	°0°.			
-		l			1	3.00			
4-					1	2.00			
5-						ǰ,°			
J .						3.0			
6-						. co.			
-					-	3:0			
7-					4	000			
-					4	3000			
8-					-	0.			
					9.0	\$000			
9-					1	0000	(Cobbles in Bit)		
10-						.5.	,		
10						3			
11-						.00			
-						0.00			
12-						0.0			
-									
13-		-			1	000			
-					1	0, .			-
14-					1	.8.7			
15-					]	, p.,			
13									
16-					1	0,00			
-						000			
17-					-	0.00			
-					1	:: 6			-
18-					-	300			
-		-			19.0	300			
19-					19.0	3000	Brown Sand and gravel w/cobbles		
-						100	Promit Salid and graver wicophies		
20~					1	1			-
1	l				1	r 200°			

GROUND WATER OBSERVATIONS

DRILLING COMMENTS

DEPTH INITIAL

A-SPLIT SPOON E-AUGER CUTTINGS

AT COMPLETION OTHER

DATE A — SPLIT SPOON

▼ 3/21/2005 B — ROCK CORE

▼ 3/21/2005 C — SHELBY TUBE **A** 

D-SONIC



BORING No.

C-2-05

MORNER,

REPORT No. 133873 SHEET 2 OF CLASSIFICATION OF MATERIAL STRATUM, FT GRAPHICS Minor Component Term DEPTH, FT **BLOWS ON** Major Component: SAMPLE NO. DEPTH Trace 1-10% SAMPLER Gravel OF Some 11-35% PER 6 IN Sand SAMPLE, FT Silt 36-50% INTERVAL And FROM TO Clay 22 23 24 25 26 27 28 29 30 31 32 33 34 35-36 37 38 39 40 41 42 43 44 45 46 47 48 49 50-A - SPLIT SPOON E - AUGER CUTTINGS DEPTH DATE ☑ 3/21/2005 GROUND INITIAL B-ROCK CORE BOWSER  $\ensuremath{\,\mathbb{Y}}$  3/21/2005 C—SHELBY TUBE AT COMPLETION

D-SONIC

WATER

OBSERVATIONS

OTHER

BORING No.

C-2-05

REPORT No. <u>133873</u> SHEET <u>3</u> OF <u>3</u>

DEPTH OF SAMPLE, FT   FROM TO   TO   SAMPLE, FT   FROM TO   SAMPLE, FT   FROM TO   SAMPLE, FT   FROM TO   SAMPLE, FT   FROM TO   SAMPLE, FT   SAMP					T -		CLASSIFICATION OF MATERIAL	
51	FI,	쁘	DEPTH	1	T >	SSI	Major Component: Minor Component Term	ERY C
51	Ĕ	MON O	OF	1	발유 달	F	Graver Frace 1-10%	F 8 9
51	i ii	S.	SAMPLE, F		IRA DI	3R	Silt And 36-50%	SP CE
52	_		FROM TO		S			(X)
52					-	\$		
53	51-					.0	•	
53	52-					, co.		
54.0 54.0 Gray silty Clay, some sand 55.5 56 57.0 Brown gray Sandy silt 58.5 50.0	-				-	0.05		
55 Gray silty Clay, some sand 55 Brown gray Sandy silt 58 50 0	53-				-	0	• }	
55 - 57 - 57 - 57 - 57 - 58 - 59 - 50 - 50 - 50 - 50 - 50 - 50 - 50	54-				54.0	3000	0	
56 57.0 57.0 Brown gray Sandy silt	-				-		Gray silty Clay, some sand	
57.0 Brown gray Sandy silt	55-				1			
57.0 Brown gray Sandy silt	56-							
Brown gray Sandy silt	-				57.0			
58	57-				1 37.0		Brown gray Sandy silt	
50.0	58-							
1 50 (   1   1   1   1   1   1   1   1   1	-				-			
59 BOB 59	59-	Ĺ	L		1 29.0	FFI.	BOB 59	L

A - SPLIT SPOON E - AUGER CUTTINGS DEPTH DATE INITIAL \_\_ GROUND WATER AT COMPLETION T OBSERVATIONS OTHER D-SONIC



BORING No.	C-3-05
BORING No.	C-3-05

SHEET 1 OF 2

#### **BORING LOG**

CLIENT	Aggregate Industries Chelsea, Michigan	
PROJECT	Sand and Gravel Exploration in Chelsea, MI	JOB No. 133873
		LOCATION OF BORING : As Directed

DATE STARTED 3/21/2005

						DATE ENDED 3/21/2005	
						DRILLERS JK, TW, SW	
						CLASSIFICATION OF MATERIAL	
DEPTH, FT	SAMPLE NO.	DEPTH OF SAMPLE, FT FROM TO	BLOWS ON SAMPLER PER 6" INTERVAL	DEPTH OF STRATUM, FT	GRAPHICS	Major Component: Minor Component Term Gravel Trace 1-10% Sand Some 11-35% Silt And 36-50% Clay	SPT "N" OR RECOVERY
					\$	Brown Sand & Gravel	
1-				1.0	0.0	Brown Sand & gravel w/cobbles	
2-					0,0		
3-				_	500		
				-	0		-
4-	-			_	)		
5							
6-				-	.0.		
7-					, p.		
8-					0.		
	-			_	5000		
9-					0.0		
10	<u> </u>				3,7		
11					, D.		
12	<u> </u>				9.		
	-			$\exists$	3		
13				7	0.		
14					00.0		
15	-			15.0	7.0	Brown Sandy Gravel	
16					8.0	Brown during Claron	
				$\dashv$	3		ļ
17					0.5		
18				_	000,0		
19	-			_	0.		
20	1			20.0	00.0		
20	-					Gray Sandy Silt, some gravel and trace of cobbles	

GROUND 
 GROUND
 INITIAL

 ⊈ 3/2 1/2005

 B − ROCK CORE

 WATER
 AT COMPLETION

 ⊈ 3/21/2005

 C − SHELBY TUBE

 OBSERVATIONS
 OTHER

 ⊈ D − SONIC

GROUND ELEV. METHOD SONIC

DRILLING COMMENTS

DATE A - SPLIT SPOON E - AUGER CUTTINGS

DEPTH DATE A - SPLIT SPOON E - INITIAL o 3/21/2005 B - ROCK CORE



BORING No. C-3-05

REPORT No. 133873

SHEET 2 OF 2

				Ī.		CLASSIFICATION OF MATERIAL	
<u> -</u>	,,,	DEPTH	BLOWS ON	DEPTH OF STRATUM, FT	δί	Major Component: Minor Component Term	SPT "N" OR RECOVERY
DEPTH, FT	SAMPLE NO.		SAMPLER	DEPTH OF RATUM,	GRAPHICS	Major Component: Minor Component Term Gravel Trace 1-10%	SPT "N" OR ECOVER
<del> </del>	N N	OF	PER 6 IN	田の子	AP	Sand Some 11-35% Silt And 36-50%	F 0 0
👸	S	SAMPLE, FT	INTERVAL	JO 55	3R.	Silt And 36-50%	S SE(
		FROM TO	1	S	_	Clay	
<del></del>		TROW TO		+	3		
-				1	0		
22-				]			
23-							
25				-	9		
24-				-	3		
				-	0		
25-				-	6		
	·			-			
26-				1			
27-					9		
21					3		
28-				4			-
	-	<u> </u>		-			
29-	-			-			
	+			1	3		
30-					9		
31-							
31							
32-				4	8		
	<u> </u>			$\dashv$			
33-	<del> </del>	<del> </del>	<del>                                     </del>	-			
١.,							
34-				7	8		
35	I				8		
30					3 9		
36		<del> </del>		-	3		-
-	-	-		-	2		
37	+	1		-	0		
	+			38.0			
38				,		BOB 38	***************************************

 DEPTH
 DATE
 A — SPLIT SPOON
 E — AUGER CUTTINGS

 GROUND
 INITIAL

 □ 3/21/2005

 B — ROCK CORE

 WATER
 AT COMPLETION

 □ 3/21/2005

 C — SHELBY TUBE

D-SONIC

OTHER

OBSERVATIONS



BORING No.	C-	4-05	
SHEET	_1_	OF	3_

## **BORING LOG**

CLIENT	Aggregate Industries Chelsea, Michigan	
PROJECT	Sand and Gravel Exploration in Chelsea, MI	JOB No. 133873
		LOCATION OF BORING : As Directed
GROUND E DRILLING C	LEV METHOD SONIC	DATE STARTED 3/22/2005  DATE ENDED 3/23/2005
		DRILLERS JK, TW, SW

				<u> </u>		CLASSIFICATION OF MATERIAL	
ОЕРТН, FT	щ	DEPTH	BLOWS ON	DEPTH OF STRATUM, FT	GRAPHICS	Major Component: Minor Component Term Gravel Trace 1-10%	SPT "N" OR RECOVERY
Ĭ	SAMPLE NO.	OF	SAMPLER	DEPTH OF RATUM,	동	Gravel Trace 1-10%	SPT "N" OR
<u> </u>	\$Z		PER 6"	N N N	3	Sand Some 11-35%	900
ä	0)	SAMPLE, FT	INTERVAL	STE	0	Silt And 36-50%	0
		FROM TO		ļ		Clay	
_				-	٥٠٠,	Sand and gravel	
1-				4	.8.		
-				2.0	, p		
2-	1			4.0	0000	Brown Sand and gravel, trace of cobbles	
3-				_	.8.	<b>3</b>	
) J-				J	5		
4-				-	.00		
`	1	-		-	0		
5-	<del> </del>		ļ	-	0,0		
-				1			
6-				1			
7-					0,00		
,					1000		
8~					.00		
				-	5.5		
9-				-	.0.0		-
				1	3000		
10-					0.0		
11-					\$		
					.0.		
12-				_	200		
-	<del> </del>	<del>  </del>		-			
13-		<del> </del>	-	-	,,,,,		
٠	<del> </del>				3.00		-
14-				7	0.		
15					00.00		
'	-			-	.8.0		
16-				16.0	30.00		
	ļ	-	<del> </del>	-	0	Brown Sandy gravel (wet)	
17-				-	000		ļ
	<u> </u>			1	1.8		
18-	1				1.0		
19-					0.		
15							
20-			<del> </del>	_	0.		
	<u> </u>	-		21.0	0.0		ļ
	<u> </u>	<u> </u>			10.0	DATE A SPLIT SPOON E AUGER CUTTINGS	
GROU	מאו			EPTH 6.0	∇.		NAICED
WATE		ΔT CO!	MPLETION	<u> </u>			WSER
	RVATI			Т	<b>A</b>		RNER
OBOE	IVAN III	0140	OTTLE			D OOMO	



C-4-05 BORING No.

REPORT No. 133873 SHEET 2 OF 3

CLASSIFICATION OF MATERIAL

ОЕРТН, FT	SAMPLE NO.	DEPT OF SAMPLE FROM		BLOWS ON SAMPLER PER 6 IN INTERVAL	DEPTH OF STRATUM, FT	GRAPHICS	Major Component: Gravel Sand Silt Clay	Minor Compone Trace 1-1 Some 11-3 And 36-5	5%	SPT "N" OR RECOVERY
 22						٠٠٠٠ ١٥٠٠	Brown Sand and gravel			
23-					1	, , ,				
-		-			-	0,				
24~										
25-					-	٠.٠٩ ٥٠.٠٩				
26-					-	30.0				
27 -						, C				
28-					_	900				
29-		-								
30-						0000				
31-					1	) .p.				
32										
33-						9:0:0				
34-										
						.00.				
35-						3.5				
36-	-					0				
37-					1	0.				
38-						0.00				
39-					-	0.00				
40-										
41-						0.00				
42-					-	9.00				
43						0				
					_	3				
44-					-	0				
45-						3,0,				
46-						000				
47-						.0.				
48						.00				
49-					-	0,00				
50									and the second of the second o	
GROU				D INITIAL 1	EPTH 6.0	Ā	DATE A — SPLIT SPOON 3/22/2005 B — ROCK CORE	E — AUGER CUTTINGS	<b>BOW</b>	SER
WATE	ER		AT COM	MPLETION		Ā	3/23/2005 C-SHELBY TUBE	Ī	WOR NOR	NER.
OBSE	RVAT	ONS		OTHER	T	4	N D-SONIC		9686	

C-4-05 BORING No.

REPORT No. 133873 SHEET 3 OF \_3 CLASSIFICATION OF MATERIAL STRATUM, FT SPT "N" OR RECOVERY DEPTH, FT BLOWS ON GRAPHICS Major Component: SAMPLE NO. DEPTH Minor Component Term SAMPLER Gravel Trace 1-10% OF PER 6 IN Sand Some 11-35% SAMPLE, FT INTERVAL Silt 36-50% And FROM TO Clay 51 52 53 54 55 56 57 58 59.0 59 Brown gray silty Sand 60 61 62 63 64 65 66 67 68 69 70 71.0 71 Gray silty Clay, some sand 72 73 74 75 76 77 78 79.0 79 BOB 79.0 A-SPLIT SPOON E-AUGER CUTTINGS DEPTH DATE 16.0 ☑ 3/22/2005 GROUND INITIAL B-ROCK CORE BOWSER ¥ 3/23/2005 WATER AT COMPLETION C-SHELBY TUBE MORNER

V

D-SONIC

OTHER

OBSERVATIONS

BORING No.	C-5-05
DOMING NO.	

SHEET 1 OF 2

## **BORING LOG**

CLIENT	Aggregate Industries Chelsea, Michigan	
PROJECT	Sand and Gravel Exploration in Chelsea, MI	JOB No. 133873
		LOCATION OF BORING : As Directed
GROUND E	LEV. METHOD SONIC	
DRILLING C	COMMENTS	DATE STARTED 3/23/2005
		DATE ENDED 3/23/2005
		117 77 01 0101

			Water 2010 M 417 (177 )			DRILLERS JK, TW, SW	
						CLASSIFICATION OF MATERIAL	
оертн, ғт	ш	DEPTH	BLOWS ON	DEPTH OF STRATUM, FT	GRAPHICS	Major Component: Minor Component Term Gravel Trace 1-10% Sand Some 11-35%	=
Ĭ	SAMPLE NO.	OF	SAMPLER	DEPTH OF RATUM,	불	Gravel Trace 1-10%	SPT "N"
ᆸ	₹ž		PER 6"	当の資	AP	Sand Some 11-35%	ĮĘ c
Ш	N)	SAMPLE, FT	INTERVAL	T K	GR	Silt And 36-50%	S
		FROM TO	1	S		Clay	
					\$	Sand and Gravel	
1-				1.0	8.1		
٠.				-	3.	Brown Sand and gravel, trace of cobbles	
2-				-	.8.		-
-				-	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		-
3~	<b></b>	<u> </u>	<del> </del>	-			-
, -				-	0.00		-
4-					900		
5-					0.		
J				_	0.0		<u> </u>
6-				-	8.0		ļ
		<u> </u>			3		-
7-	<u> </u>		1	-	. 20		-
				-	0.		
8-	<del>                                     </del>			-	00.		
^	<u> </u>			_	9.		
9-					ي م		
10-				10.0	000		
٠.				_	0	Brown sandy Gravel	<u> </u>
11-	-		ļ		.8.0		
	ļ			-			
12~			<u> </u>	12.5			-
	-			12.0	ÎŤ	Brown sand Silt	
13-				13.5		$\nabla$	
14-						Brown fine Sand (wet)	
147				_			
15-	<u> </u>		ļ	_			
	<del> </del>		<del> </del>	-	0.00		
16-	ļ			-			
	+		<u> </u>		0 0		
17-	<del>                                     </del>			1			-
40	1			1			<u> </u>
18-	1						
19-					, , ,		
13"							
20-		ļ		_	5 7		
	-				000		
	<u></u>	<u> </u>		EPTH	°°°	DATE A - SPLIT SPOON E - AUGER CUTTINGS	

GROUND WATER AT COMPLETION OBSERVATIONS

INITIAL OTHER \_\_ DEPTH DATE 13.5

▼ 3/23/2005 B-ROCK CORE

 ▼ 3/23/2005
 C — SHELBY TUBE

 ▼ N
 D — SONIC



BORING No. C-5-05

							REPORT No. <u>133873</u> SHEET <u>2</u> (	OF 2
ОЕРТН, FT	SAMPLE NO.	DEP OI SAMPL FROM	=	BLOWS ON SAMPLER PER 6 IN INTERVAL	DEPTH OF STRATUM, FT	GRAPHICS	CLASSIFICATION OF MATERIAL  Major Component: Minor Component Term Gravel Trace 1-10% Sand Some 11-35% Silt And 36-50% Clay	SPT "N" OR RECOVERY
-								
22-								
23-								
24-	<u>                                     </u>							
25-					-			
26-								
	<u> </u>					200		
27					1			
28-								
29-						****		
30-						3 3 9		
31-								
32 -								
					33.0			
33 -					1		Gray Sand and gravel with silty	
34-					1			
35-						0		
36-					-			
37 -	<b></b>				37.0			
38-					-		Gray sandy Clay with gravel	
					39.0			
39-	1	]	WII 52- 2-1-1-1-1		1 08.0	YZZX	BOB 39.0'	1

		DEPTH		DATE	A-SPLIT SPOON	E - AUGER CUTTI
GROUND	INITIAL	13.5	Ž	3/23/2005	B-ROCK CORE	
WATER	AT COMPLETION		Ā	3/23/2005	C - SHELBY TUBE	
OBSERVATIONS	OTHER	T	¥	N	D-SONIC	

