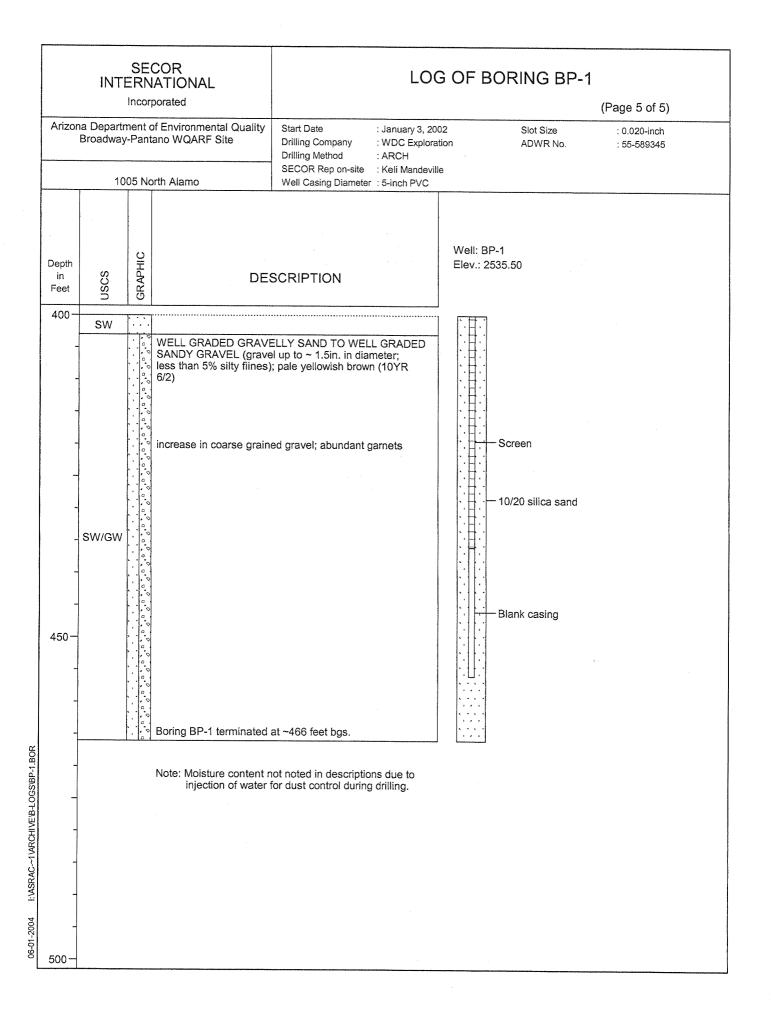
APPENDIX D BP-SERIES WELL BORING LOGS REMEDIAL INVESTIGATION REPORT GROUNDWATER OPERABLE UNIT Arizona Department of Environmental Quality Broadway-Pantano Water Quality Assurance Revolving Fund Site June 1, 2012

	INT	ERN	COR IATIONAL		LOG	OF BORING BP-1	
Arizon	Broadway	ment o y-Pant	porated of Environmental Quality ano WQARF Site orth Alamo	Start Date Drilling Company Drilling Method SECOR Rep on-site Well Casing Diameter	: January 3, 2002 : WDC Exploratio : ARCH : Keli Mandeville : 5-inch PVC	on ADWR No.	(Page 1 of 5) : 0.020-inch : 55-589345
Depth in Feet	nscs	GRAPHIC	DES	SCRIPTION		Well: BP-1 Elev.: 2535.50	
0	SW		WELL GRADED GRAVE sand grains; fine grained silty fines ~ 10-15%); gra slight decrease in grada to ~ 15% and silty fines to ~ 15% and silty fines	I subangular gravel ~ ayish orange (10YR 7 tion; slight decrease in to less than 5%	25-30%; /4) n gravel sand: silty	Cover Portland cement	
	SP						

		ERN	COR IATIONAL		LOG	OF	BORING BP-1	l
		Incor	porated					(Page 2 of 5)
Arizon	a Departn Broadway	nent o -Pant	of Environmental Quality ano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 3, 2002 : WDC Exploration : ARCH : Keli Mandeville		Slot Size ADWR No.	: 0.020-inch : 55-589345
	10	05 No	orth Alamo	Well Casing Diameter	: 5-inch PVC			
Depth in Feet	USCS	GRAPHIC	DES	SCRIPTION		Well: Elev.:	BP-1 2535.50	
100- 	SP		sand finer grained (fine f continuously less graded sand becoming continue sand slightly more grade medium grained with ~ 1 increase in silty fines to 6/4) WELL GRADED GRAVE subangular; fine to medi to ~ 0.5in. in diameter) ~ fines); grayish orange (1 brown (10YR 6/2)	d; less than 5% silty fin busly finer grained and coarser grained 10% coarse grained si ~ 10-15%; light brown ELLY SAND (sand mo um grained angular g - 10-15%; less than 5 0YR 7/4) to pale yello to ~ 15-20%, gravel n	d (mostly and); i (5YR pstly ravel (up % silty pwish		Volclay grout	
- 005-10-2004 - 005							Bentonite seal	

	IINI		ATIONAL porated		200	OF BORING BP-	(Page 3 of 5)		
Arizon I	Broadwa	ment c y-Pant	of Environmental Quality ano WQARF Site	Drilling Company			(Fage 3 01 5) : 0.020-inch : 55-589345		
				Weil Casing Diameter	. S-INCITEVC				
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION					
200-	SW								
-	SP		POORLY GRADED SIL medium grained; silty fir gravel up to 1in. in diam (10YR 7/4)	nes ~ 5-10%; medium	grained	– – – Bentonite seal			
- - 250 —			WELL GRADED GRAVI in diameter ~10%; silty f (10YR 7/4) gravel fine grained, incre ~ 20-25%	înes ~ 5%); grayish or	range	· · · · · · · · · · · · · · · · · · ·			
	SW		sand moderately well gr ~ 10-15% (up to ~ 0.5in	aded; decrease in gra in diameter)	vel to				
T T	SP		POORLY GRADED GR grained with ~ 10% coar ~ 10%); grayish orange	rse grained sand; fine	medium gravel				

		NATIONAL		LUG	OF BORING		
Arizona De Broa	epartment	rporated of Environmental Quality ttano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 3, 2002 : WDC Exploration : ARCH : Keli Mandeville	Slot Siz ADWR	ce	age 4 of 5) : 0.020-inch : 55-589345
	1005 N	orth Alamo	Well Casing Diamete				Alley
Depth in Feet	USCS GRAPHIC	DE	SCRIPTION		Nell: BP-1 Elev.: 2535.50		
300	SP SS	slight increase in gradat ~ 15%; increase in grair ~ 0.75in. in diameter	ion; increase in grav I size of gravel to up	el to to			
-		WELL GRADED GRAV grained gravel up to ~ 1 5% silty fines); grayish o	in. in diameter ~15%	medium ; less than	· · · · · · · · · · · · · · · · · · ·	a sand	
350 - - - - - - - - - - - - - - - - - - -	· · · · · · · · · · · · · · · · · · ·	sand coarser grained; s ~ 20%; slight increase in moderate yellowish brow	n silty fines to ~ 5-10	vel to %;	Screen		°.
-		gravel up to ~ 1.5in. in o to less than 5%; color d variation of grain compo brown (10YR 6/2); garn muscovite, quartz and f fragmented dioritic gnei	ifficult to distinguish osition, generally pale ets present; visible c eldspar; gravel comp	due to e yellowish rvstals of			



	INT	FERN	COR IATIONAL		LOG	G OF E	BORING BP-	2
			porated					(Page 1 of 5)
Arizon	a Depar Broadwa	tment o ay-Pani	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method	: December 6, 2 : WDC Explorati : ARCH		Slot Size ADWR No.	: 0.020-inch : 55-589349
,	60	63 Eas	t Rosewood	SECOR Rep on-site Well Casing Diameter	: Ed Vandegrift : 5-inch PVC			
Depth in Feet	nscs	GRAPHIC		SCRIPTION		Well: B Elev.: 2		
50	SP		POORLY GRADED SAN grained; silty fines ~ 259 6/6); small amount of ca reactive to HCI)	<ol><li>dark vellowish orai</li></ol>			Volclay grout	

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		INT	SE ERN	COR JATIONAL		LOG	OF B	ORING BP	2-2	
			Incor	porated					(Page 2	of 5)
	Arizor	na Depar Broadwa	tment iy-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: December 6, 2 : WDC Explorati : ARCH : Ed Vandegrift		Slot Size ADWR No.	: 0.020 : 55-58	
	~	606	53 Eas	t Rosewood	Well Casing Diameter					
	Depth in Feet	nscs	GRAPHIC	DES	SCRIPTION		Well: BP- Elev.: 254			
	100	SP		grayish orange (10YR 7/ WELL GRADED SAND ( yellowish brown (10YR 5				Volclay grout	ж	
I: MSRAC1 MRCHIVE & LOGS BP-2 BOR		SW		POORLY GRADED SAN grained) fine grained gravel prese				Blank casing		
06-01-2004	200-	100-10-10-10-10-10-10-10-10-10-10-10-10-								

		Incor	COR ATIONAL porated		LOG	OF BO	RING BP-2	2 (Page 3 of 5)
Arizon	Broadway	y-Pant	of Environmental Quality ano WQARF Site	-	: December 6, 20 : WDC Exploration : ARCH : Ed Vandegrift		Slot Size ADWR No.	: 0.020-inch : 55-589349
	606	3 East	t Rosewood	Well Casing Diameter	: 5-inch PVC			
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION	Well: BP-2 Elev.: 2540	.49		
200	SP		>			B4	entonite seal	
- 250	GW		WELL GRADED GRAVE to 0.5" in diameter); gray			`. <mark>· · </mark> BI ` `	ank casing	
	sw		WELL GRADED SAND; 5/4)	moderate yellowish b	rown (10YR		0/20 silica sand	

06-01-2004 I: VASRAC---1 VARCHIVE/B-LOGS/BP-2/BOR

		INT	ERN	COR IATIONAL porated		LO	G OF B	ORING BP-2		
	Arizor	Broadwa	ment o y-Pant	of Environmental Quality ano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site Well Casing Diameter	: December 6, : WDC Explora : ARCH : Ed Vandegrif : 5-inch PVC	ation	Slot Size ADWR No.	(Page 4 of 5) : 0.020-inch : 55-589349	
	Depth in Feet	nscs	GRAPHIC		SCRIPTION		Well: BF Elev.: 25			
06-01-2004 I:\ASRAC1\ARCHIVE'B-LOGS\BP-2.BOR	300-	SW		fine to medium grained a diameter), likely of gneiss increase in silt fraction to POORLY GRADED GR/ diameter); very pale orar	o ~ 25%			- 10/20 silica sand - Screen		

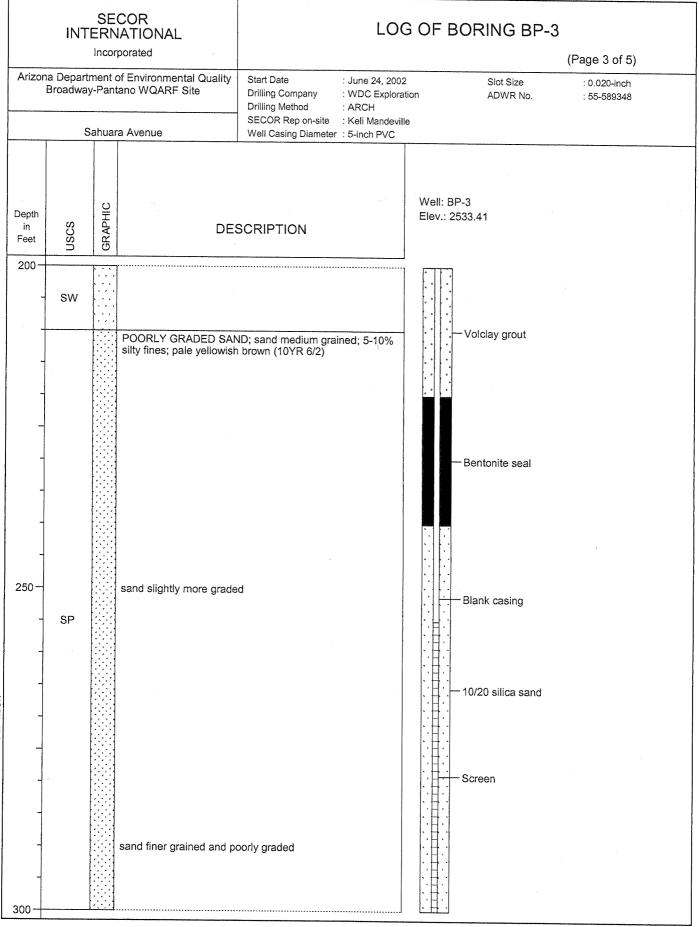
		INT	ERN	COR IATIONAL		LOG	G OF B	ORING BP-2	
	Arizor	na Departi Broadway	ment o	porated of Environmental Quality ano WQARF Site	Drilling Method	: December 6, 2 : WDC Explorati : ARCH : Ed Vandegrift		Slot Size ADWR No.	(Page 5 of 5) : 0.020-inch : 55-589349
		606	3 Eas	t Rosewood	Well Casing Diameter				
	Depth in Feet	USCS	GRAPHIC	DES	SCRIPTION		Well: BF Elev.: 25		
	400-	GP							
	-	GW/SP		WELL GRADED SANDY GRAVELLY SAND (sand composed of a fragment garnets abundant	( GRAVEL TO POOR d fine grained); gravel ied granitic schist or g	LY GRADED likely neiss;			
		SW		WELL GRADED SAND ' gravel up to 0.5" in diam gravel larger grained, up	eter); garnets abunda to 2" in diameter	nt		- Screen	
		GW		WELL GRADED GRAVE brown (10YR 6/2) to mod 5/4) Boring BP-2 terminated a	derate yellowish browr	yellowish n (10YR		- Blank casing	
4 I: VASRAC-~1 VARCHIVE B-LOGS BP-2. BOR	,			Note: Moisture content n injection of water for	ot noted in descriptior dust control during d	as due to illing.			
06-01-2004	- 500 —						New York States & Doctored		

		NATIONAL rporated					(Page 1 of 5)
Broadwa	ay-Pan	of Environmental Quality tano WQARF Site ra Avenue	Start Date       : June 24, 2002         Drilling Company       : WDC Exploration         Drilling Method       : ARCH         SECOR Rep on-site       : Keli Mandeville         Well Casing Diameter       : 5-inch PVC		'n	Slot Size ADWR No.	: 0.020-inch : 55-589348
Depth in S Feet S	GRAPHIC	DE	SCRIPTION		Well: BP- Elev.: 253		
0 		WELL GRADED GRAVE gravel mostly subangula diameter; ~5-10% silty fi slight decrease in gravel light brown (5YR 6/4) decrease in silty fines to gravel to ~15%; sand me orange (10YR 7/4) to pa slight increase in silty fin gravel up to ~1.25" in dia 7/4) to light brown (5YR decrease in silty fines to gravel to ~15%; gravish yellowish brown (10YR 6	r; ~10-15% gravel up nes; grayish orange ( ; grayish orange (10Y less than 5%; slight i edium to coarse grain e yellowish brown (10 es; slight decrease in imeter; grayish orang 5/4) less than 5%; slight ir prange (10YR 7/4) to	to 0.75" in 10YR 7/4) R 7/4) to ncrease in ed; gravish JYR 6/2) gravel; e (10YR		Portland cement	

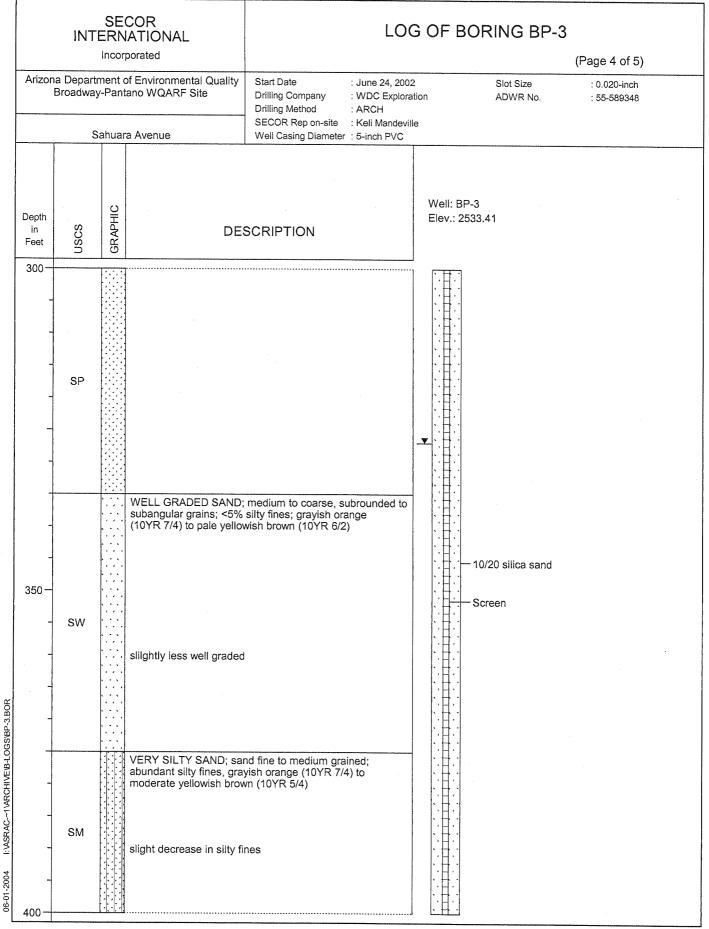
06-01-2004 I:VASRAC-~1VARCHIVE/B-LOGS/BP-3.BOR

INTE	SECOR ERNATIONAL Incorporated	LOG	OF BORING BP-	3 (Page 2 of 5)
Broadway-	nent of Environmental Quality Pantano WQARF Site ahuara Avenue	Start Date       : June 24, 2002         Drilling Company       : WDC Explorat         Drilling Method       : ARCH         SECOR Rep on-site       : Keli Mandeville         Well Casing Diameter       : 5-inch PVC	ion ADWR No.	: 0.020-inch : 55-589348
Depth in SO Feet SO	о Н	SCRIPTION	Well: BP-3 Elev.: 2533.41	
100 		; sand less well graded t; sand well graded; pale 5/2) es: pale yellowish brown (10YR 0YR 7/4)	Volclay grout	

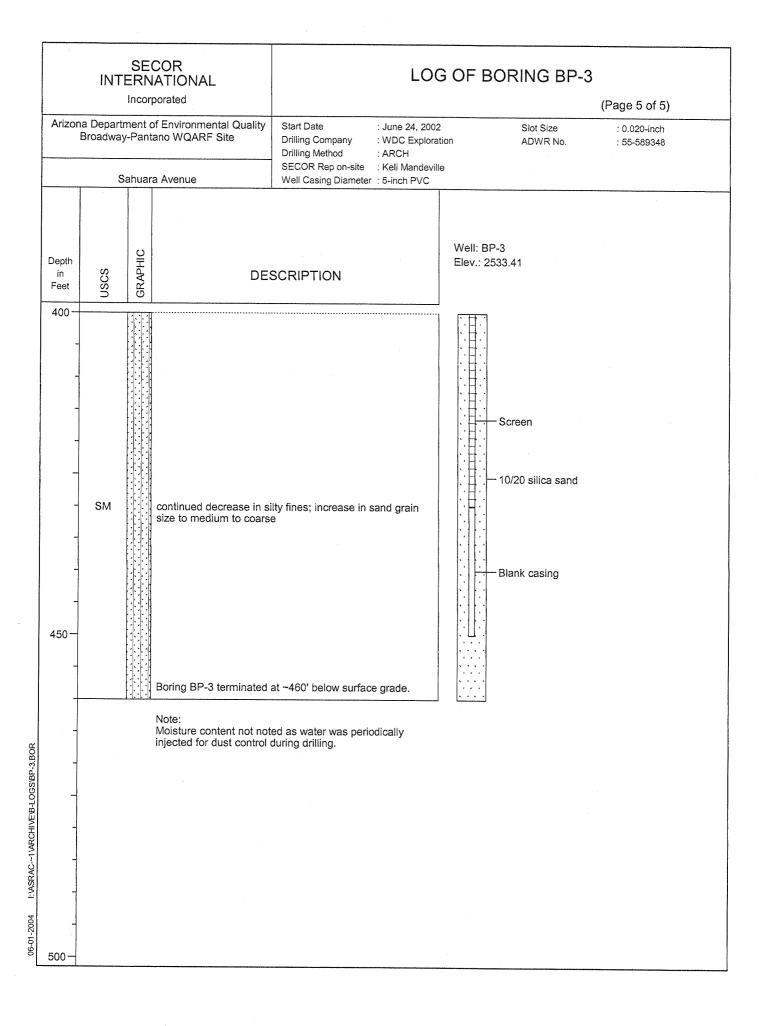
06-01-2004 I:VSRAC-~1 VARCHIVE'B-LOGS'BP-3.BOR



I: VASRAC-~1 VARCHIVE &-LOGS &P-3. BOR 06-01-2004



I: VASRAC-~1 \ARCHIVE'B-LOGS\BP-3.BOR



	INT		JATIONAL porated				ORING BP-4	
Arizon	Broadway	nent ( /-Pan	of Environmental Quality tano WQARF Site Baker Street				Slot Size ADWR No.	(Page 1 of 5) : 0.020-inch : 55-589347
	0000	Lasi		Weil Casing Diameter	: 5-inch PVC			
Depth in Feet	nscs	GRAPHIC	DES			Well: BP-4 Elev.: 2547.31		
0	SM		SILTY SAND (sand fine amount of angular grave moderate yellowish brow	up to 0.25" in diamet	nall ter);		Cover Portland cement	
	SW		WELL GRADED SAND ( gravel up to 0.25" in diar 7/4)	trace amounts of rour neter); grayish orange	nded (10YR		Volclay grout Blank casing	· ·
	SM		SILTY SAND (sand med 35-40%; no gravel)	ium grained; silty fines	5~			

	INT	ERN	COR IATIONAL <sup>porated</sup>		LOG	OF BO	ORING BP-4	4 (Page 2 of 5)
Arizona E	Broadwa	y-Pant	of Environmental Quality tano WQARF Site		: December 18, : WDC Explorati : ARCH : Ed Vandegrift		Slot Size ADWR No.	: 0.020-inch : 55-589347
	6056	East	Baker Street	Well Casing Diameter	: 5-inch PVC			
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: BP- Elev.: 254		
100	SM		POORLY GRADED CLE grained); very pale oran	AN SAND (sand coar ge (10YR 8/2)	se			
	SW		WELL GRADED SAND moderate yellowish brov	vn (10YR 5/4)	es);		Volclay grout	
	SM		SILTY SAND WITH GR. angular gravel up to 1" i yellowish brown (10YR s	AVEL (silty fines ~ 30' n diameter ~ 20%); m 5/4)	%; oderate		Blank casing	
_			gravel no longer present to ~ 35%	; slight increase in sill	y fines			

	INT	SECOR ERNATIC			LOG	G OF E	BORING BP-4	-
Arizor	na Depart Broadway		onmental Quality	Start Date     : December 18, 2001       Drilling Company     : WDC Exploration       Drilling Method     : ARCH			Slot Size ADWR No.	(Page 3 of 5) : 0.020-inch : 55-589347
	6056	East Baker	Street	SECOR Rep on-site Well Casing Diameter	: Ed Vandegrift : 5-inch PVC		·······	
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: E Elev.: 2	3P-4 2547.31	
200-	SM						— Volclay grout	
	SP	POOF mediu (10YF	m grained; silty fin	ND WITH SILT (sand t es ~ 10%); grayish or	ine to ange		— Bentonite sea!	4
250 —	GW	o in diar	neter: sand ~ 15%	EL WITH SAND (grave ; less than 5% silty fir 0YR 6/6); gravel most tz and mica	les):		— Blank casing	
-	SM	SILTY ~ 40% (10YR	: no gravel presen	to medium grained; si t); moderate yellowish	Ity fines brown		— 10/20 silica sand	
	GW	in dian Se in dian	neter: sand ~ 15%	EL WITH SAND (grave ; less than 5% silty fin 0YR 6/6); gravel most z and mica	es):		Screen	

06-01-2004 I: VASRAC---1 VARCHIVE &-LOGS &P-4. BOR

		INT	SE FERN	COR JATIONAL		LOC	G OF B	DRING BP-4	4
			Incor	rporated					(Page 4 of 5)
	Arizon	na Depar Broadwa	tment ay-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: December 18, : WDC Explorat : ARCH : Ed Vandegriff	lion	Slot Size ADWR No.	: 0.020-inch : 55-589347
ļ		605	6 East	Baker Street	Well Casing Diameter	: 5-inch PVC			
	Depth in =eet	nscs	GRAPHIC	DES	SCRIPTION	· · · ·	Well: BP- Elev.: 254		·
;	300 —	GW	0.0	•					
	-	sw		WELL GRADED SAND gravel present); dark yel	(less than 5% silty fin lowish orange (10YR	ies; no 6/6)			
6-01-2004 I:MSRAC1WRCHIVEB-LOGSBP-4.BOR		SM		SILTY SAND (sand fine ~ 35-40%; no gravel pres (10YR 6/2) slight increase in silt frac WELL GRADED GRAVE diameter; less than 5% s (10YR 8/2); gravel appea schist	tion :LLY SAND (gravel up ilty fines): very pale o	orown		10/20 silica sand Screen	
- 4	00+		<u>r · · </u>						

		INT	ERN	COR IATIONAL porated		LOG	G OF E	BORING BP-4	
	Arizor	Broadwa	tment ( y-Pan	of Environmental Quality tano WQARF Site Baker Street	Drilling Company Drilling Method	: December 18, . : WDC Explorati : ARCH : Ed Vandegrift		Slot Size ADWR No.	(Page 5 of 5) : 0.020-inch : 55-589347
	Depth in Feet	nscs	GRAPHIC		SCRIPTION		Well: B Elev.: 2		
	400	SW		WELL GRADED SILTY yellowish brown (10YR 6	SAND (silty fines ~ 35 5/2)	%); pale		- Screen	
	- - 450 -	SW		WELL GRADED SAND in diameter); pale yellow Boring BP-4 terminated a		el up to 2"		-Blank casing	
004 I: VASRAC-~1 VARCHI VE'B-LOGS/BP-4. BOR				Note: Moisture content n		ns due to drilling.			
06-01-2004	500 -								

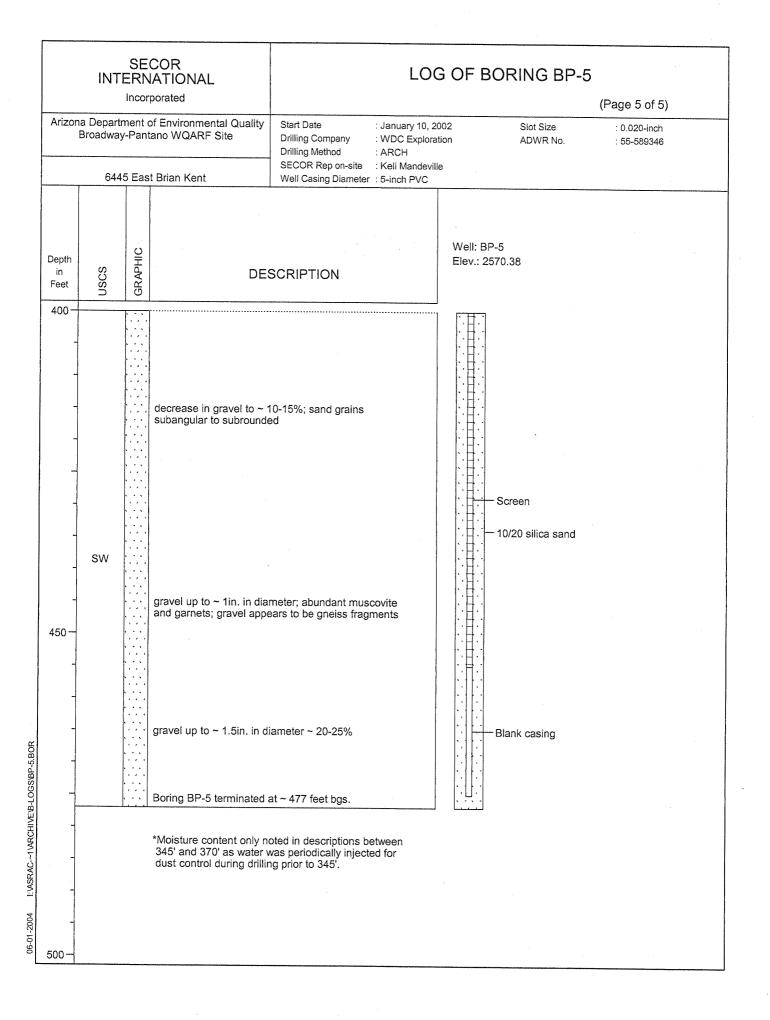
		Incor	rporated	(Page 1 of 5					
Arizon I	a Depart Broadwa	ment y-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 10, 200 : WDC Exploratio : ARCH : Keli Mandeville		Slot Size ADWR No.	: 0.020-inch : 55-589346	
	644	5 Eas	st Brian Kent	Brian Kent Well Casing Diameter : 5-inch PV					
Depth in Feet	nscs	GRAPHIC	DES	SCRIPTION		Well: BP- Elev.: 257			
0			very hard, consolidated approximately 3 to 6 fee	t below grade	τ		Cover		
+	SM		SILTY SAND (sand moc ~ 25%); grayish orange of caliche still present	erately well graded; si (10YR 7/4); small frag	ilty fines ments		Portland cement		
-	SW	0.0	WELL GRADED SILTY medium and coarse grai ~ 0.5in. in diameter ~ 15	ned: angular gravel ur	oto				
-	GW	0000	Orange (10YR 7/4) WELL GRADED SAND angular gravel [up to ~ 0 coarse grained; silty fine	.75in. in diameter]; sa s less than 5%); color	nd difficult				
			to distinguish due to vari gravel, most like pale ye WELL GRADED SILTY medium and coarse grai ~ 0.5in. in diameter ~ 15 orange (10YR 7/4) subangular to subrounded diameter; increase in silt	Ilowish brown (10YR 6 GRAVELLY SAND (sa ned; angular gravel up %; silty fines ~ 10%); ed gravel up to ~ 1in. in	5/2)/ and mostly o to grayish n				
50-	SW		(5YR 6/4)						
			sand slightly less well gra to ~ 5%; pale yellowish b	aded; decrease in silty rown (10YR 6/2)	/ fines		Volclay grout		
							Blank casing		
	SP		POORLY GRADED SAN medium grained sand; le grayish orange (10YR 7/	ss than 5% silty fines)	ounded, );				

	INI		ATIONAL porated		LOO		ORING BP-{	(Page 2 of 5)	
Arizon	a Depart Broadwa	ment y-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 10, 200 : WDC Exploratio : ARCH : Keli Mandeville		Slot Size ADWR No.	: 0.020-inch : 55-589346	
	644	5 Eas	st Brian Kent	Well Casing Diamete					
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: BP Elev.: 25			
100	SP		slight increase in gradati		(R 6/2)		Volclay grout		
	SW		WELL GRADED GRAVE subangular to subrounde subangular gravel ~ 10% orange (10YR 7/4) increase in silty fine fract ~ 0.5in. in diameter; gray brown (5YR 6/4)				Blank casing		

		Incor	porated					(Page 3 of 5)
Arizona I Bro	Arizona Department of Environmental Quality Broadway-Pantano WQARF Site			Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 10, 2002 : WDC Exploration : ARCH : Keli Mandeville		Slot Size ADWR No.	: 0.020-inch : 55-589346
	6445	5 Eas	t Brian Kent	Well Casing Diameter				
Depth in Feet	USCS	GRAPHIC	DE	SCRIPTION		Well: BP Elev.: 25		
200			gravel up to ~ 1.5in. in d fraction to less than 5%; pale yellowish brown (10 increase in gravel to ~ 2 7/4)	grayish orange (10Y YR 6/2)	R 7/4) to		Volclay grout	
250-	SW		slight increase in silty fin gravel to ~ 10-15%	ies to ~ 10%; decreas	se in		Bentonite seal	
			increase in gravel to $\sim 2^{\circ}$ slight decrease in gradat $\sim 10\%$		rel to		Blank casing 10/20 silica sand Screen	

	INT	ERN	COR IATIONAL		LOG	OF BC	RING BP-5	
Arizoi	na Departi Broadway	nent	porated of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: January 10, 200 : WDC Exploration : ARCH : Keli Mandeville		Slot Size ADWR No.	(Page 4 of 5) : 0.020-inch : 55-589346
	644	5 Eas	t Brian Kent	Well Casing Diamete				
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: BP-5 Elev.: 257		
300	SW		POORLY GRADED GR/ (subrounded, medium gr grained gravel ~ 5-10%; orange (10YR 7/4)	ained sand; subang	ular fine			
- 350 — -	SW		MODERATELY WELL G (sand coarser grained ar subangular, fine grained diameter] ~ 10%; less th yellowish brown (10YR 6	nd mostly subangula gravel [up to ~ 0.75i an 5% silty fines); pa	r; n. in ale	▼  ,	0/20 silica sand Screen	
-	GW/SW	000000	WELL GRADED SANDY GRAVELLY SAND (suba diameter; subrounded to grained sand); pale yello moist*	angular gravel up to rounded, medium to	~ 1in. in			
	SP		POORLY GRADED SILT (sand medium to coarse rounded; silty fines ~ 10- to ~ 0.75in. in diameter ~ 7/4) to pale yellowish bro	grained and subrour 15%; subrounded gr - 10%); grayish oran	nded to avel up ge (10YR			
_	GW		WELL GRADED SANDY mostly coarse grained [u coarse grained sand ~ 10	p to ~ 2in. in diamete	ngular and er];			
-	SW	· · · · · · · · · · · ·	MODERATELY WELL G (sand subrounded to rou mostly fine grained [up to less than 5% silty fines);	nded; gravel angular > ~ 0.5in. in diameter	and 1 ~ 20%:			

06-01-2004 I: VASRAC-~1 VARCHIVE &-LOGS&P-5.BOR



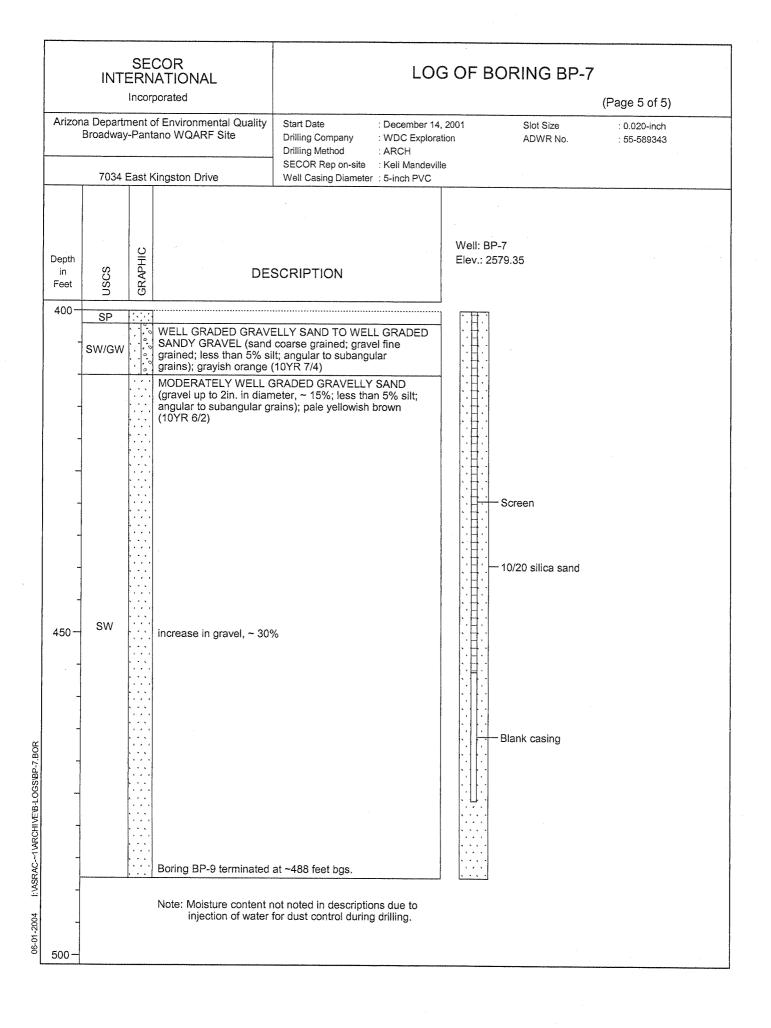
	INT		IATIONAL porated		LUG	UF BU	ORING BP-7	
Arizon	na Departi Broadway	ment	of Environmental Quality ano WQARF Site	Start Date Drilling Company Drilling Method	: December 14, 2 : WDC Exploration : ARCH		Slot Size ADWR No.	(Page 1 of 5) : 0.020-inch : 55-589343
	7034	East ł	Kingston Drive	SECOR Rep on-site Well Casing Diameter	: Keli Mandeville : 5-inch PVC			
Depth in Feet	USCS	GRAPHIC	DE	SCRIPTION		Well: BP-7 Elev.: 2579.35	79.35	
0	SP		POORLY GRADED GR/ coarse grained and subr subangular; less than 59 brown (10YR 5/4) gravel no longer present	ounded; gravel ~ 10- <sup>~</sup> % silt); moderate yello	15% and wish		Cover Portland cement	
50	SW		WELL GRADED GRAVE amount of gravel, ~ 30% subangular grains); mod 5/4) slight decrease in gravel	; less than 5% silt; mo erate yellowish brown ; slightly less well grad	ostly (10YR ded		Volclay grout ` Blank casing	
	SP		POORLY GRADED SAN grained and mostly subro gravel and silt); moderate	טו (sand medium to c bunded; less than 5% e yellowish brown (10	oarse fine YR 5/4)			

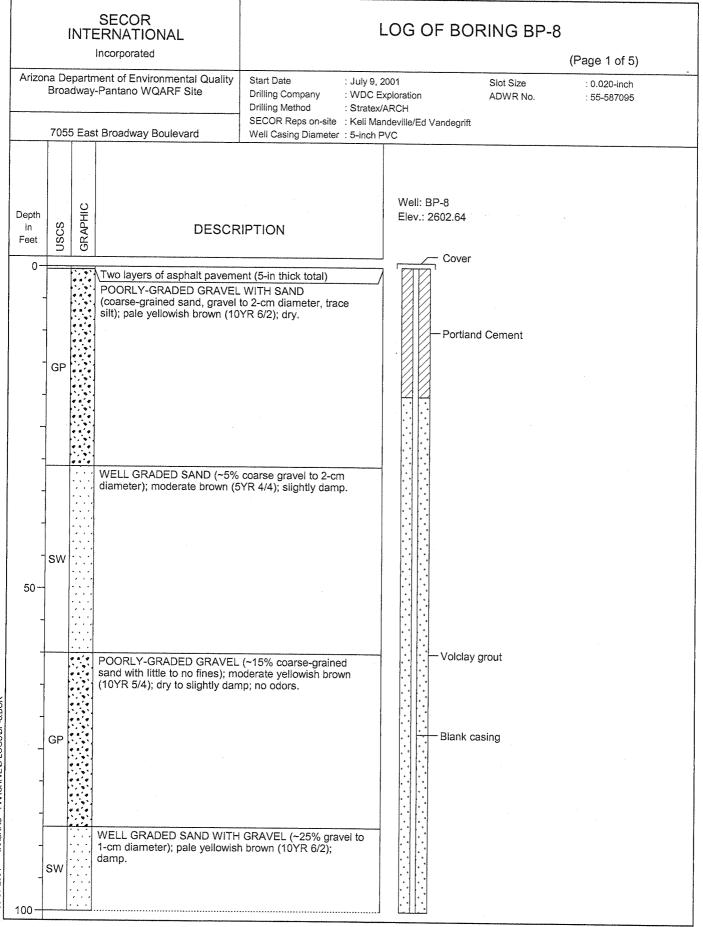
				LOG OF BORING BP-7						
Arizona B	Departi roadway	ment	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method	: December 14, : WDC Explorati : ARCH	on	Slot Size ADWR No.	(Page 2 of 5) : 0.020-inch : 55-589343		
	7034	East	Kingston Drive	SECOR Rep on-site Well Casing Diamete		: 				
Depth in Feet	nscs	GRAPHIC	DES	SCRIPTION		Well: BP Elev.: 25				
	SP		fine gravel ~ 10-15% gravel no longer present MODERATELY WELL G	RADED GRAVELLY	SAND		Volclay grout			
	SW		(gravel mostly fine graine grains mostly subrounde brown (10YR 5/4) gravel fine to medium gra		sh		Blank casing			

06-01-2004 I:VASRAC-~1 \ARCHIVE'B-LOGS'BP-7.BOR

	INT	ERN	COR JATIONAL	LOG OF BORING BP-7					
			rporated					(Page 3 of 5)	
Arizon I	Broadwa	y-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	Drilling Company     : WDC Exploration     ADWR No.       Drilling Method     : ARCH       SECOR Rep on-site     : Keli Mandeville			: 0.020-inch : 55-589343	
	7034	East	Kingston Drive	Well Casing Diamete	r : 5-inch PVC				
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: BP- Elev.: 257			
200	SW		POORLY GRADED SAM				Volclay grout		
	SP		grained and mostly subr gravel and silt); moderat	e yellowish brown (1	0YR 5/4)		Bentonite seal		
	SW		WELL GRADED GRAVE ~ 30-35%; less than 5% subrounded grains); pak	silt; subangular to	Ū				
	SP		POORLY GRADED GR/ coarse grained; fine grav grains mostly subrounde (10YR 6/2) to moderate	vel ~ 10%; less than ed); pale vellowish br	5% silt; own		Blank casing 10/20 silica sand		
-	SW		MODERATELY WELL G (fine gravel ~ 10-12%; le subrounded grains); gray pale yellowish brown (10	ss than 5% silt; suba yish orange (10YR 7	angular to		Screen		

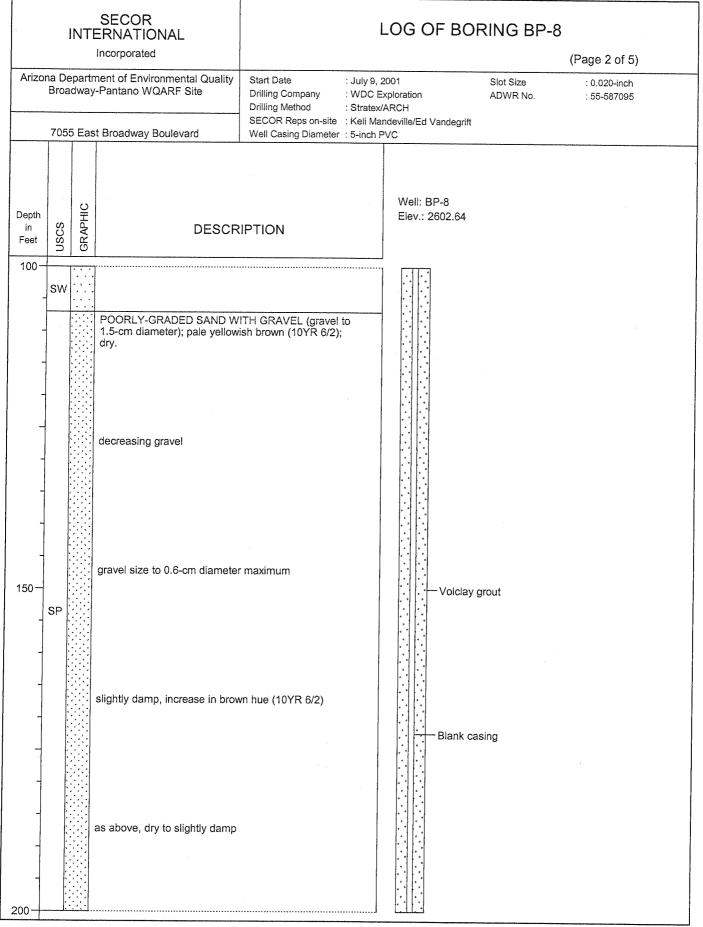
		Incor	porated					(Page 4 of 5)
Arizon E	a Departi 3roadway	ment o y-Pant	of Environmental Quality ano WQARF Site	Drilling Company Drilling Method	: December 14, 2 : WDC Exploration : ARCH : Keli Mandeville	on	Slot Size ADWR No.	: 0.020-inch : 55-589343
	7034	East ł	Kingston Drive	Well Casing Diameter	: 5-inch PVC			111 h
Depth in Feet	USCS	GRAPHIC	DES	DESCRIPTION			.7 79.35	
300-	SW							
<ul> <li>POORLY GRADED SAND (sand medium to coarse grained and mostly subrounded; less than 5% fine gravel and silt); grayish orange (10YR 7/4)</li> <li>SP</li> <li>WELL GRADED GRAVELLY SAND (fine to medium</li> </ul>				oarse fine				
-	SW		grained gravel ~ 25-30% yellowish brown (10YR 6	; less than 5 <sup>'</sup> % silt); pa 3/2)	ale			
-	SM		SILTY SAND (appreciab amount of clay present)				10/00 10	
350-	GW		SANDY WELL GRADED than 5% silt); gneiss/sch	ist fragments with gar	nets -		10/20 silica sand	
	SP		POORLY GRADED GR/ grained; gravel mostly fit ~ 5-8%; grains mostly su yellowish brown (10YR 5 slight increase in silt, ~ 1 coarse grained and suba (10YR 7/4)	ne grained, ~ 15-20%; brounded); moderate 5/4); garnets abundant 0-15%; sand medium	to		Screen	





1: VASRAC-~1\ARCHIVE\B-LOGS\BP-8.BOR

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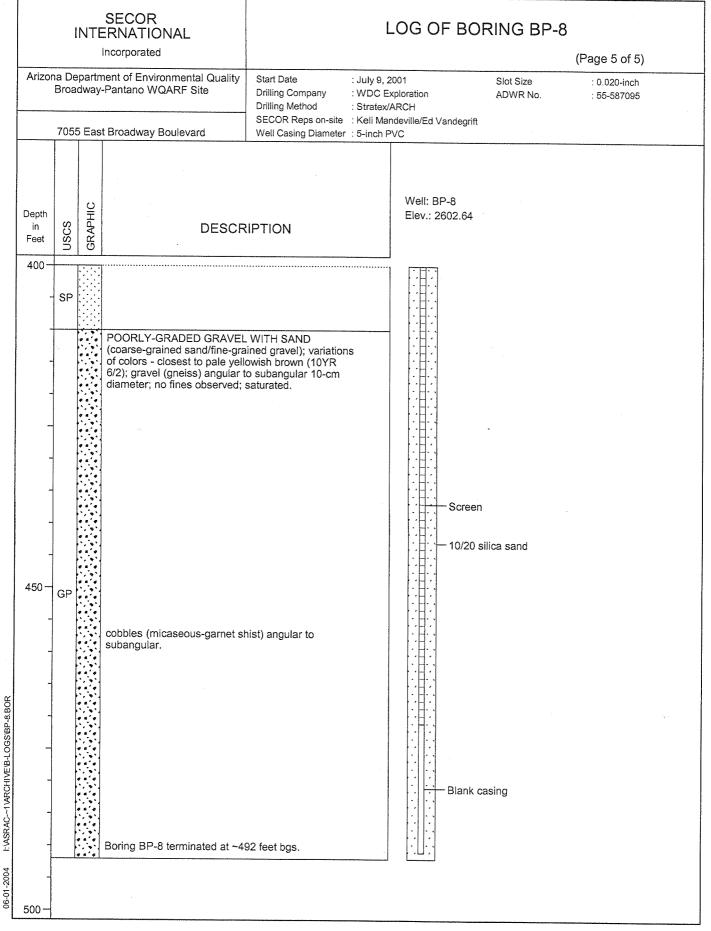


I: VASRAC---1 VARCHI VE/B-LOGS/BP-8.BOR 06-01-2004

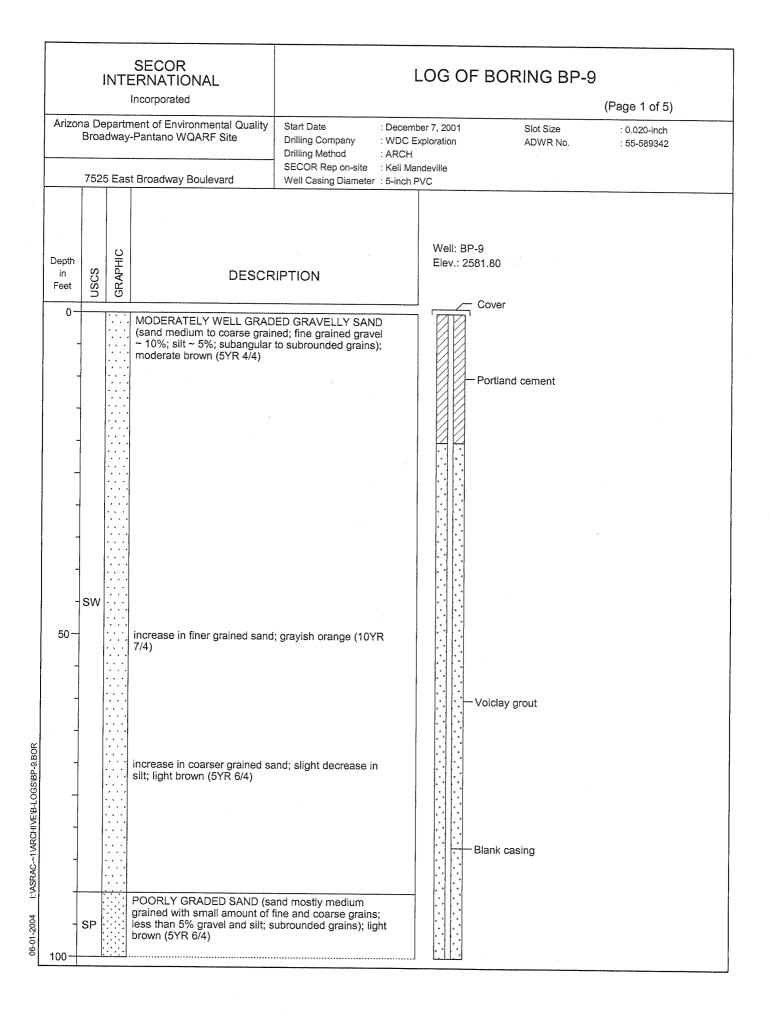
			ERNATIONAL	LOG OF BORING BP-8			
			Incorporated				(Page 3 of 5)
	Broad	dway	nent of Environmental Quality -Pantano WQARF Site 	Start Date Drilling Company Drilling Method SECOR Reps on-site Well Casing Diameter	: July 9, 2001 : WDC Exploration : Stratex/ARCH : Keli Mandeville/Ed Vand	Slot Size ADWR No. legrift	: 0.020-inch : 55-587095
Depth in Feet	uscs	GRAPHIC	DESCR	IPTION	Well: BP-8 Elev.: 2602		
200	SP		POORLY-GRADED SAND W 1.5-cm diameter); pale yellow dry. decreasing coarse-grained sa to 5-cm diameter as above coarse-grained sand; pale yel 6/2)	ish brown (10YR 6/2) and and with gravel (gneis	s)	olclay grout	
-			trace silty fines (~5%); angula	r rock (aneiss)		ank casing entonite seal 0 transition sand	
-			trace silty fines (~5%); angula fragments to 7-cm diameter	נפוסווע) אסטר (שווט		/20 silica sand	

	I		SECOR ERNATIONAL	LOG OF BORING BP-8			
			Incorporated		(Page 4 of 5)		
Arizo	na De Broa	partn dway	nent of Environmental Quality -Pantano WQARF Site	Start Date Drilling Company Drilling Method	: July 9, 2001 Slot Size : 0.020-inch : WDC Exploration ADWR No. : 55-587095 : Stratex/ARCH		
	7055 East Broadway Boulevard			Well Casing Diameter	e : Keli Mandeville/Ed Vandegrift r : 5-inch PVC		
Depth in Feet	USCS	GRAPHIC	DESCR	IPTION	Well: BP-8 Elev.: 2602.64		
300-	SP		WELL GRADED SAND (~5-1	LL GRADED SAND (~5-10% fine gravel with			
-		· · · ·	gneiss fragments); pale yellow slightly damp to damp.	vish brown (10YR 6/2	2);		
	SW		gneiss fragments to 3-cm dia				
-			POORLY-GRADED SAND W fine gravel, trace (5%) silty fin brown (10YR 6/2); no odor. increasing silty fines (10%), d color to grayish orange (10YR	es); pale yellowish ecreasino oravel (10%			
	SP		increasing coarse-grained sar observed at approximately 37	nd. Groundwater first 8 feet.	st		

06-01-2004 I:VASRAC-~1VARCHIVE'B-LOGS'BP-8.BOR



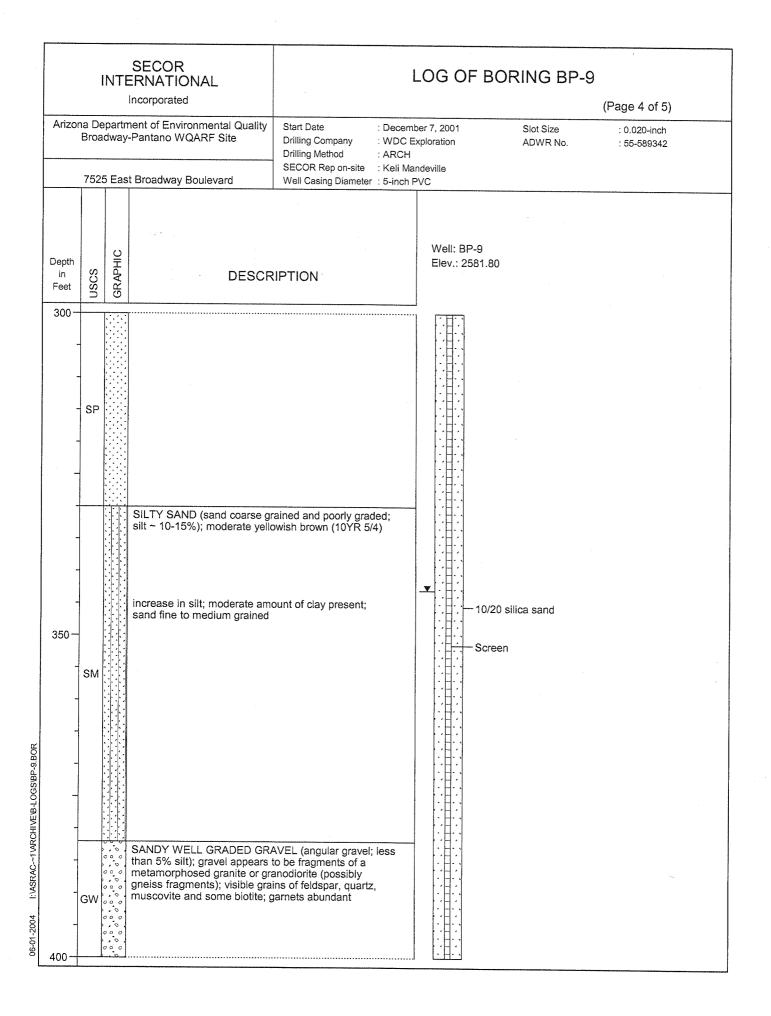
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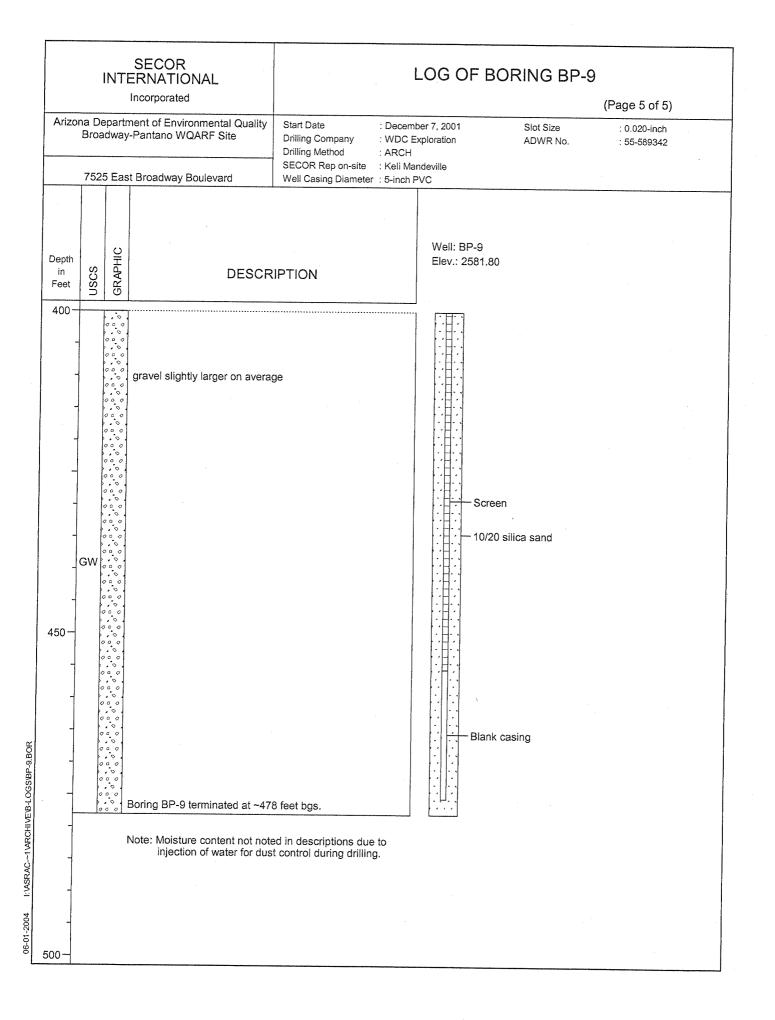


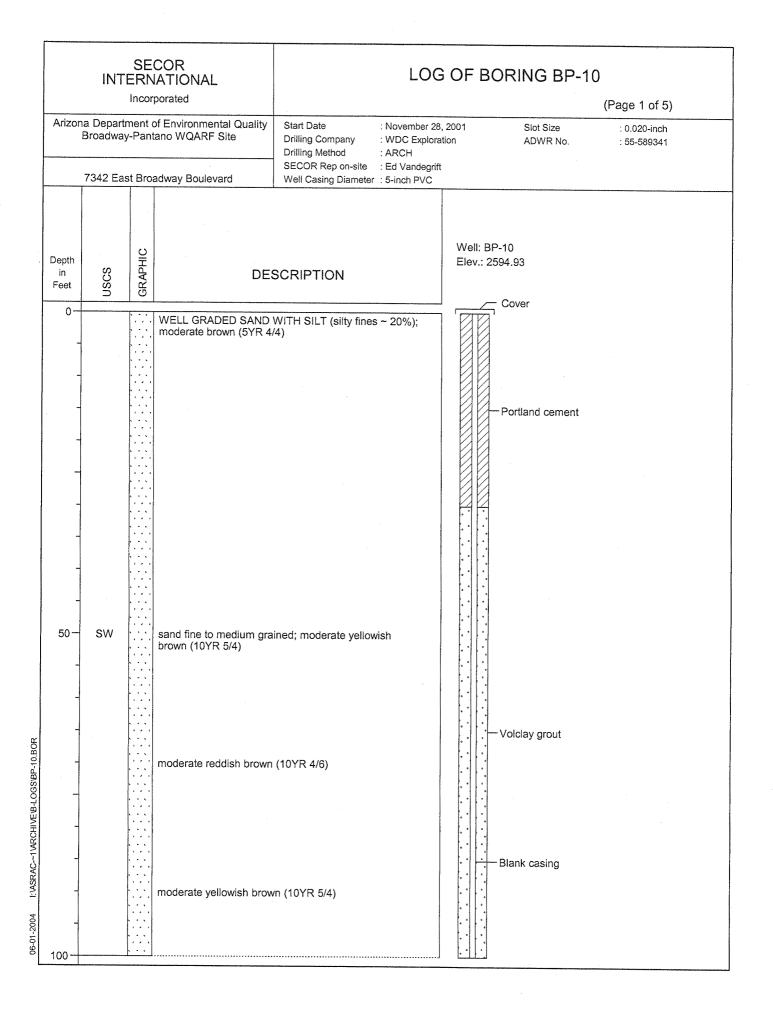
		INT	SECOR ERNATIONAL Incorporated		L	OG OF	BORING BP	-9 (Page 2 of 5)	
Arizo	ona De Broa	epartr Idway	nent of Environmental Quality /-Pantano WQARF Site	Start Date Drilling Company Drilling Method	: Decembe : WDC Exp : ARCH		Slot Size ADWR No.	: 0.020-inch : 55-589342	
	752	5 Eas	t Broadway Boulevard	SECOR Rep on-site Well Casing Diameter	: Keli Mand : 5-inch PV				
Depth in Feet	USCS	GRAPHIC	DESCRI	PTION		Well: BP-9 Elev.: 2581			
100	SP		slight increase in silt; grayish o	ange (10YR 7/4)					
150 - 5	δM	sie c	SILTY SAND (sand medium to grained gravel less than 5%; silf yellowish brown (10YR 5/4) slight decrease in silt; fine and n ess than 5% (up to ~ 1in. in diar oarser grained sand; light brown	~ 10-15%); modera nedium grained grave neter); increase in n (5YR 6/4)	9)	· · · · · · · · · · · · · · · · · · ·	clay grout		
- SF - 200 -		- CC	OORLY GRADED GRAVELLY parse grained; fine to medium g p to ~ 1in. in diameter)); light br	rained gravel ~ 5-7%	n to	Blan	k casing		

06-01-2004 I: WSRAC--1 VARCHIVE B-L OGSBP-9.BOR

		IN I	ERNATIONAL	:		ORING BP-9	9		
			Incorporated				(Page 3 of 5)		
Arizo	na D Broi	epart adwa	ment of Environmental Quality y-Pantano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	Drilling Company : WDC Exploration ADWR No.				
	752	5 Ea	st Broadway Boulevard	Well Casing Diameter					
Depth in Feet	USCS	GRAPHIC	DESCR	IPTION	Well: BP-9 Elev.: 2581.8				
200-	SP		gravel no longer present; silt p subrounded to rounded sand ( yellowish brown (10YR 5/4)	present (less than 5% grains; moderate	1 1.11.1	clay grout			
- 250 —	sw		MODERATELY WELL GRADI (sand medium to coarse grain less than 5% silt; subangular t grayish orange (10YR 7/4) slight decrease in gravel; light	ed; fine gravel ~ 15% o subrounded grains)		tonite seal			
	SP		POORLY GRADED SAND (sa grained; less than 5% gravel a rounded grains); moderate yell 5/4)	nd medium to coarse nd silt; subrounded to owish brown (10YR	Blani	k casing ) silica sand			
-			sand fine to medium grained; g 7/4)	rayish orange (10YR	· · · · · · · · · · · · · · · · · · ·	en			



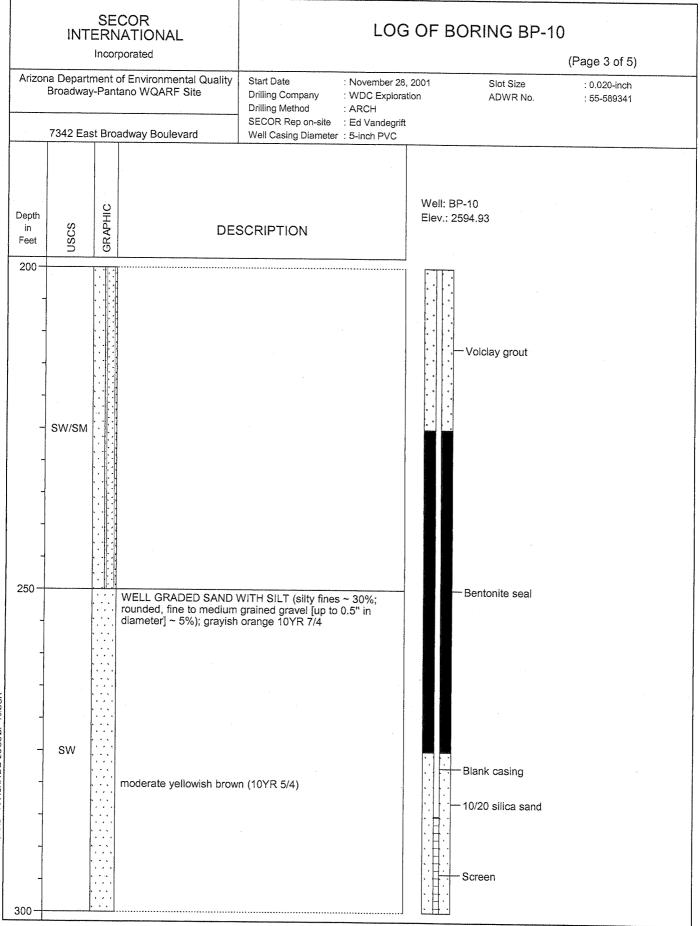




	INTE	SE ERN	COR NATIONAL		LOG	OF B	ORING BP-1	0
		Inco	rporated					(Page 2 of 5)
Arizo	na Departn Broadway	nent -Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: November 28, : WDC Explorati : ARCH : Ed Vandegrift		Slot Size ADWR No.	: 0.020-inch : 55-589341
	7342 Eas	t Bro	adway Boulevard	Well Casing Diamete				
Depth in Feet	USCS	GRAPHIC	DES	SCRIPTION		Well: E Elev.: 2	3P-10 2594.93	
100-	- sw							
	- SW/SM		WELL GRADED SILTY a moderate yellowish brow trace amounts of angular diameter); grayish orang	n (10YR 5/4) fine gravel (up to 0. e (10YR 7/4)	25" in			
-	SW		WELL GRADED SAND medium grained gravel [u grayish orange (10YR 7/4 silty fines present, ~ 15-2 (1-2" in diameter) also pr	up to 0.5" in diamete	r] ~ 30%);		— Volclay grout	
200	SW/SM		WELL GRADED SILTY S angular, fine to medium g diameter] ~ 5-10%); mod	AND (silty fines ~ 4) grained gravel [up to erate brown (5YR 4/	0%; 1" in 4)			

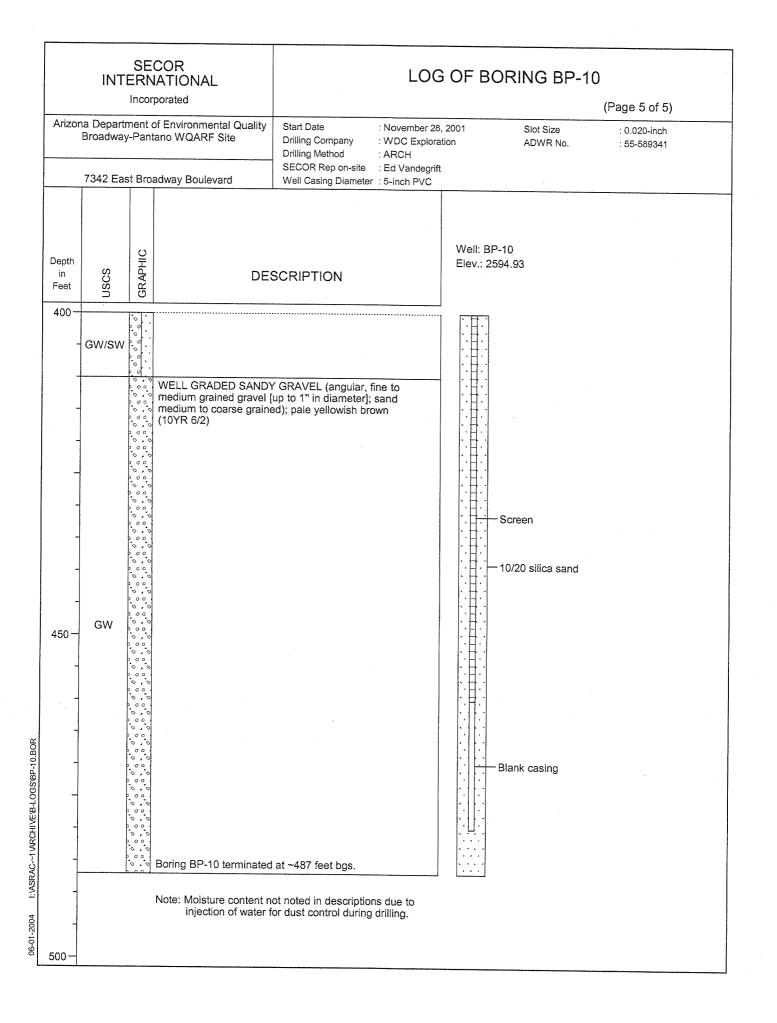
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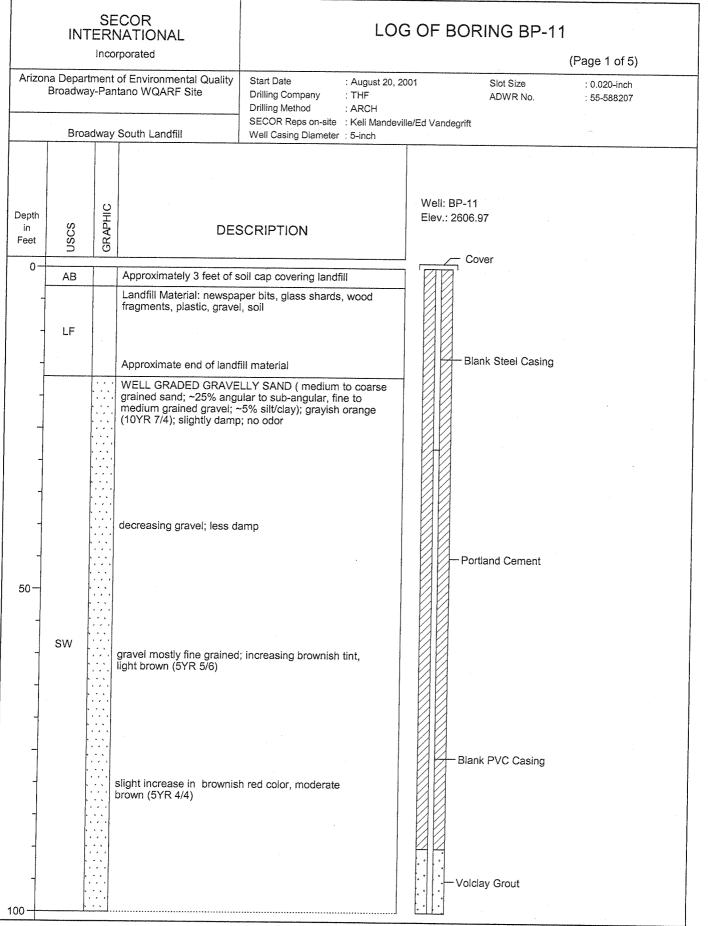
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I: VSRAC-~1 VARCHIVE B-LOGS BP-10. BOR 06-01-2004

		Incor	porated			(F			
Arizor	na Departi Broadway	ment ( /-Pan	of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site	: November 28, 2 : WDC Exploration : ARCH : Ed Vandegrift		Slot Size ADWR No.	: 0.020-inch : 55-589341	
	7342 Ea	st Bro	adway Boulevard	Well Casing Diameter	: 5-inch PVC				
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION	142	Well: BP Elev.: 259			
300	SW		angular gravel up to 2" i	n diameter					
-	SW/SM		WELL GRADED SILTY angular, fine grained gra ~5%); grayish orange (1	SAND (silty fines ~ 35 ivel [up to 0.25" in dia 0YR 7/4)	5-40%; meter]		10/20 silica sand		
350	SW		WELL GRADED SAND present); moderate yello	(silty fines ~ 10%; no wish brown (10YR 5/4		▼	Screen		
	GW/SW	000000000000000000000000000000000000000	WELL GRADED SAND GRAVELLY SAND (silty	( GRAVEL TO WELL fiines ~ 10%)	GRADED				





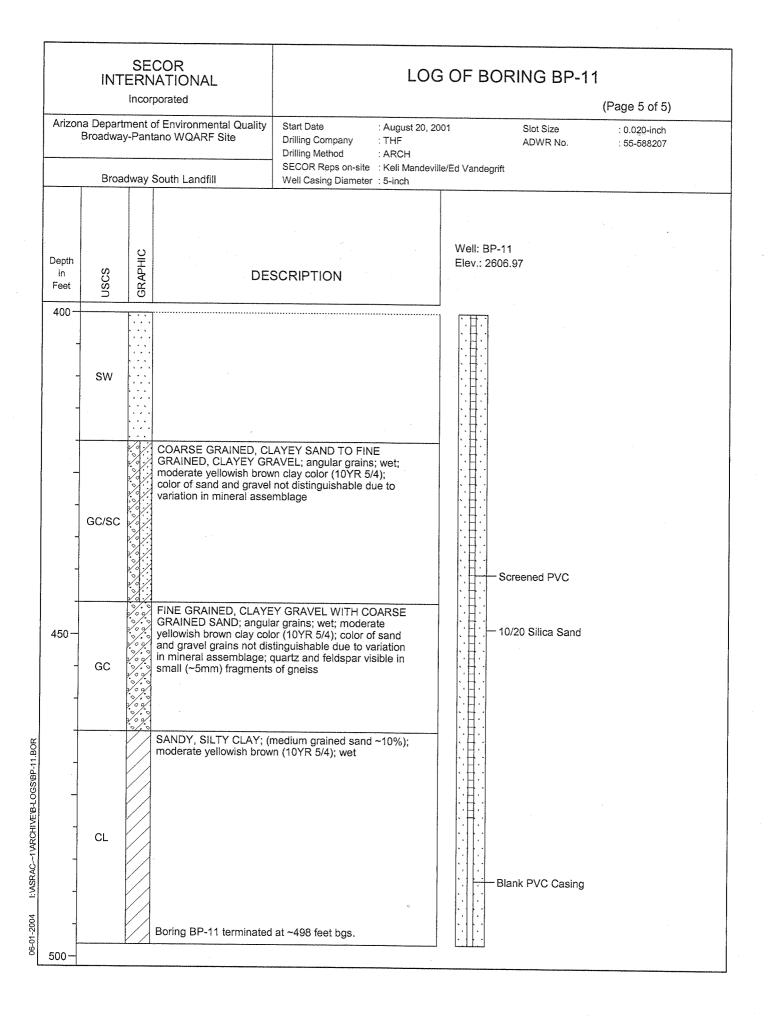
06-01-2004 I: ASRAC---1 \ARCHIVE'B-LOGS'BP-11.BOR

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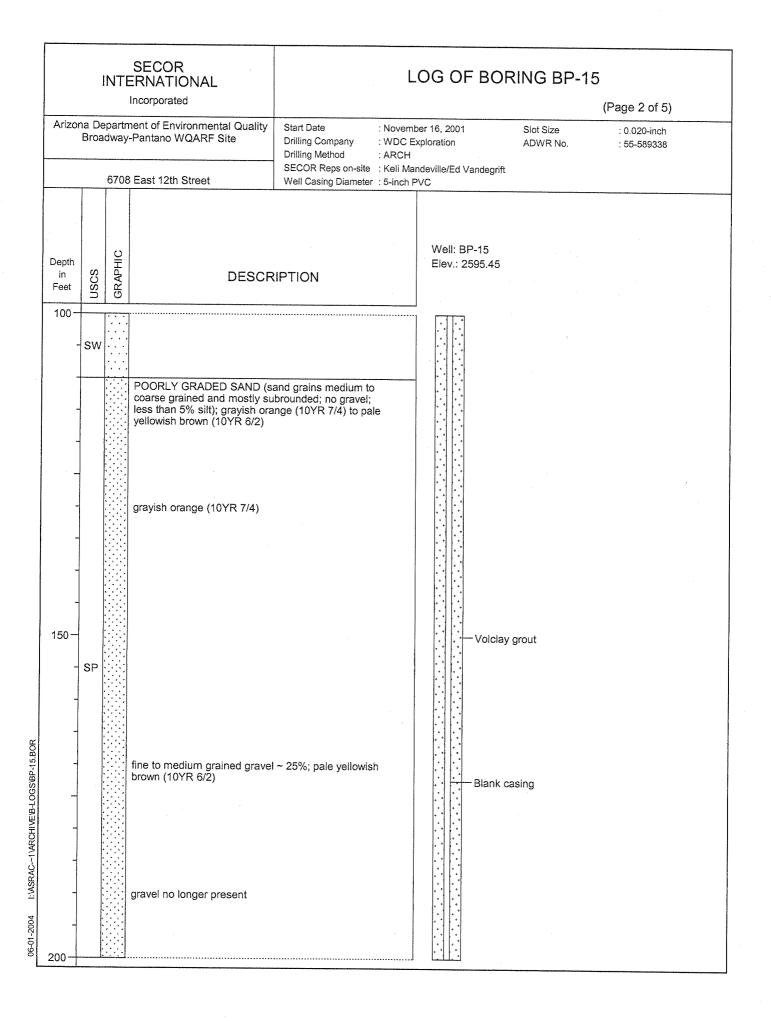
			IATIONAL porated				RING BP-11	(Page 2 of 5)
Arizor	na Departr Broadway	ment ( /-Pani	of Environmental Quality ano WQARF Site	Start Date Drilling Company Drilling Method SECOR Reps on-site	: August 20, 2001 : THF : ARCH : Keli Mandeville/E	d Vandeorif	Slot Size ADWR No.	: 0.020-inch : 55-588207
	Broad	dway	South Landfill	Well Casing Diameter	: 5-inch		•	
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION	1	Well: BP- Elev.: 260		
100	SW		CLEAN, SANDY GRAVI	EL TO GRAVELLY S	AND			
	GW/SW	000000000	(medium to coarse grain gravel); quartz and felds observed in larger grains grayish orange (10YR 6,	ed sand; fine grained par visible in gravel, f s: definite color chanc	l, angular			
-			WELL GRADED GRAVE grained sand; ~5-7% fin subangular gravel); light slightly damp; no odor	e grained, angular to				
-		· · · · ·	increasing dampness					
150 -			decreasing gravel				Volclay Grout	
-	SW						Blank PVC Casing	
-			slight increase in yellowi (10YR 6/2)	sh tint, pale yellowish	brown			
Ŧ			grains less well graded; in yellowish tint, light bro	no gravel or fines; de	crease			

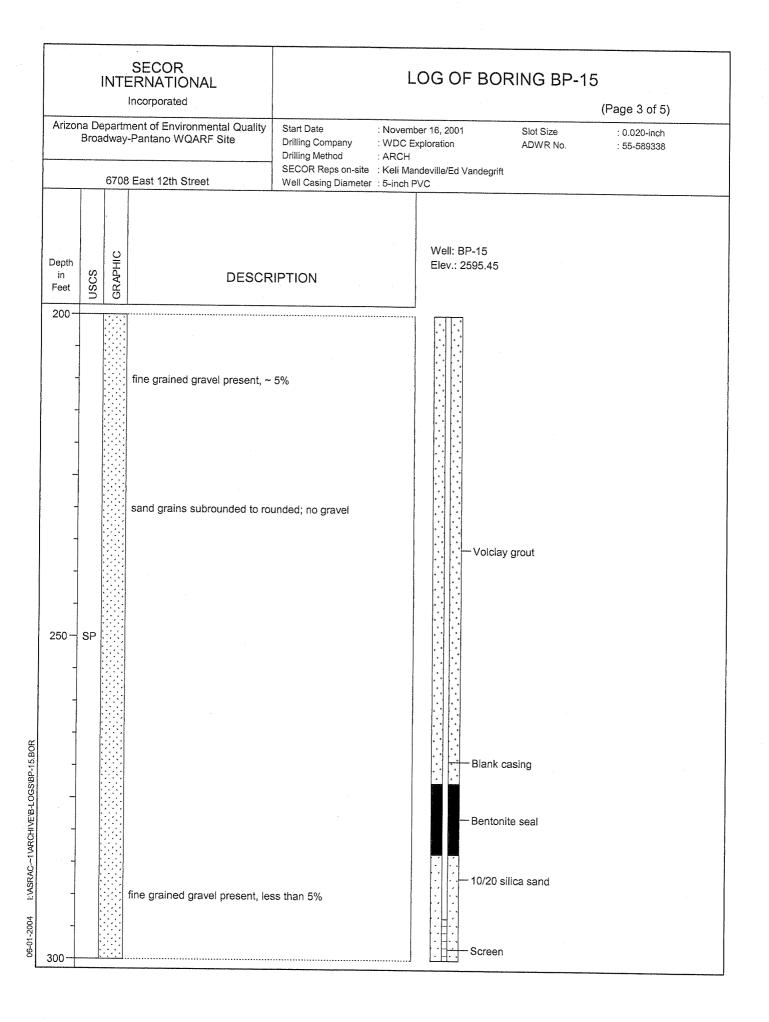
	11 11 1		NATIONAL rporated				RING BP-1	(Page 3 of 5)	
Arizon	a Departi Broadway	ment y-Pan	of Environmental Quality tano WQARF Site	Start Date : August 2 Drilling Company : THF Drilling Method : ARCH SECOR Reps on-site : Keli Mane			Slot Size ADWR No.	: 0.020-inch : 55-588207	
	Broa	dway	South Landfill	Well Casing Diameter		Ed Vandegri	π		
Depth in Feet	nscs	GRAPHIC	DE	SCRIPTION		Well: BP- Elev.: 260			
200	SW		~20-25% fine grained sa brown (10YR 6/2) decrease in fine grained present; light brown (5YI	sand: ~5-7% silt/clay				.*	
- 250 — - -	SP		POORLY GRADED SAN sand; ~5% silt/clay); gra	yish orange (10YR 7/	(4); dry		Volclay Grout Blank PVC Casing		
-	SW		WELL GRADED SAND ( to coarse grained sand); 6/2); dry ~10-15% silt/clay presen grayish orange (10YR 7/ decrease in coarse grain fine to medium grained s	t; less brown in color 4) ed sand, increasing a	1				

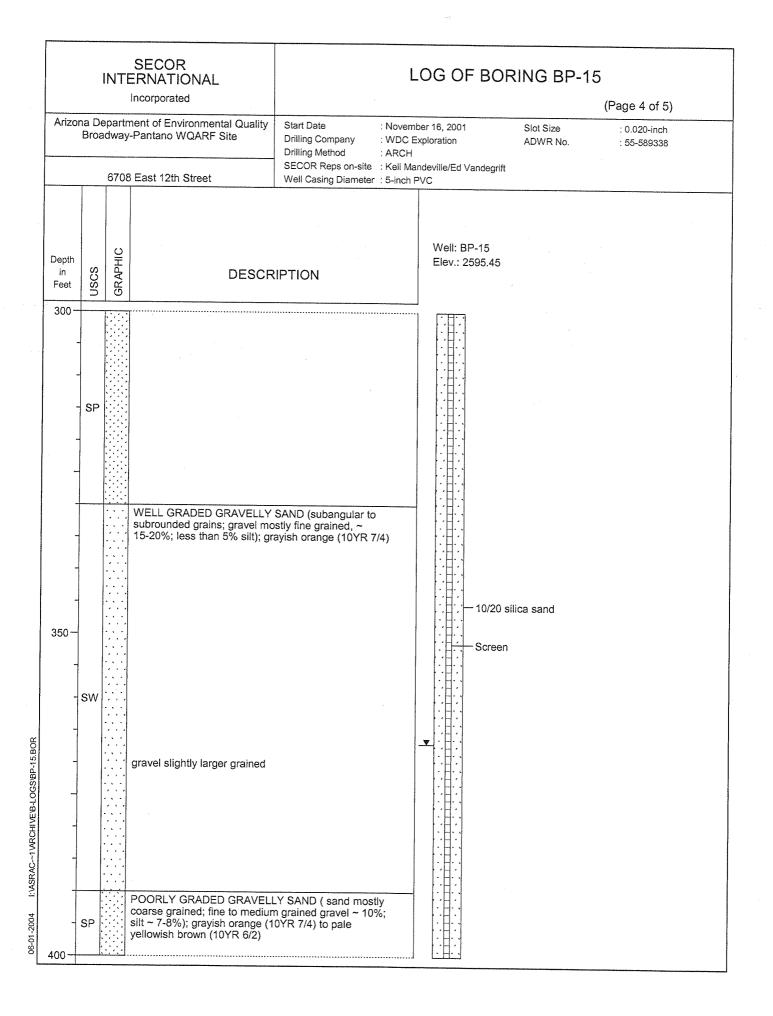
		INT	ERN			LOG	OF BORING BP-11
	Arizor	na Departr Broadway	ment	rporated of Environmental Quality tano WQARF Site	Start Date Drilling Company Drilling Method SECOR Reps on-site	: August 20, 2001 : THF : ARCH	ADWR No. : 55-588207
		Broad	dway	South Landfill	Well Casing Diameter	: 5-inch	eu vandegnπ
	Depth in Feet	uscs	GRAPHIC	DES	SCRIPTION		Well: BP-11 Elev.: 2606.97
	300	SW		increasing amount coars grained gravel; slightly di	e grained sand, ~209 amp to damp	6 fine	Volclay Grout
I: VASRAC1 VARCHI VE'B-L OGS/BP-11.BOR				sand mostly coarse grain grained gravel; moderate quartz and feldspar visibl observed in select grains	yellowish brown (10) e in larger grains: foli	(R 5/4)	<ul> <li></li></ul>
06-01-2004 I:VA	400			sand ranging from fine to mostly fine grained, some possible metamorphosed	e clasts recognizable	ivel as	

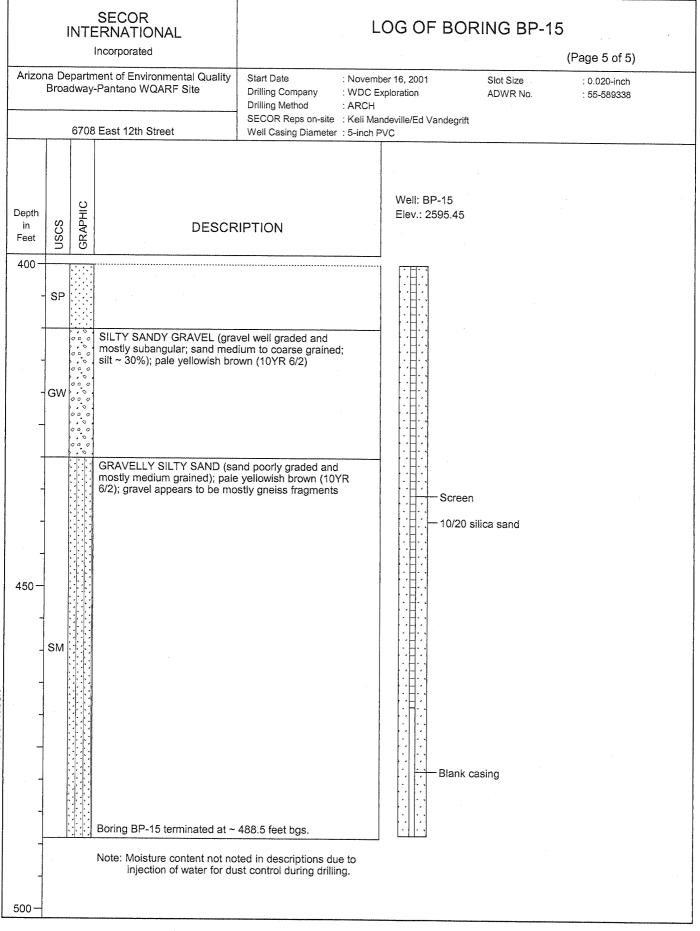


			ERNATIONAL		LOG OF BC		5
			Incorporated				(Page 1 of 5)
Arizor	na De Broa	idway	ment of Environmental Quality /-Pantano WQARF Site	Start Date Drilling Company Drilling Method SECOR Reps on-site	: November 16, 2001 : WDC Exploration : ARCH : Keli Mandeville/Ed Vandegr	Slot Size ADWR No.	: 0.020-inch : 55-589338
	1	6708	3 East 12th Street	Well Casing Diameter	5-inch PVC		
Depth in Feet	USCS	GRAPHIC	DESCR	IPTION	Well: BP-15 Elev.: 2595.45	5	
0-						er	
-			Thin layer of gravel and asph WELL GRADED GRAVELLY subangular to subrounded; fir gravel ~ 7-8%; less than 5% (10YR 7/4); no odor; visible n grains	SAND (sand grains ne to medium grained silt): gravish orange		land cement	
	sw		sand coarser grained and les in gravel to ~ 40%; color diffic variation in grain composition yellowish brown (10YR 6/2) a (10YR 7/4)	ult to distinguish due	se to		
50			POORLY GRADED SAND ( s grained and mostly subround and silt); grayish orange (10Y	ed: less than 5% arav	rel	lay grout	
	SP		sand slightly coarser grained; gradation of grains	slight increase in	Blani	k casing	
	sw		FAIRLY WELL GRADED GR/ (subangular to subrounded gr coarse grained; fine to mediur ~ 5% silt); grayish orange (10 yellowish brown (10YR 6/2)	ains; sand medium to n grained gravel ~ 25			



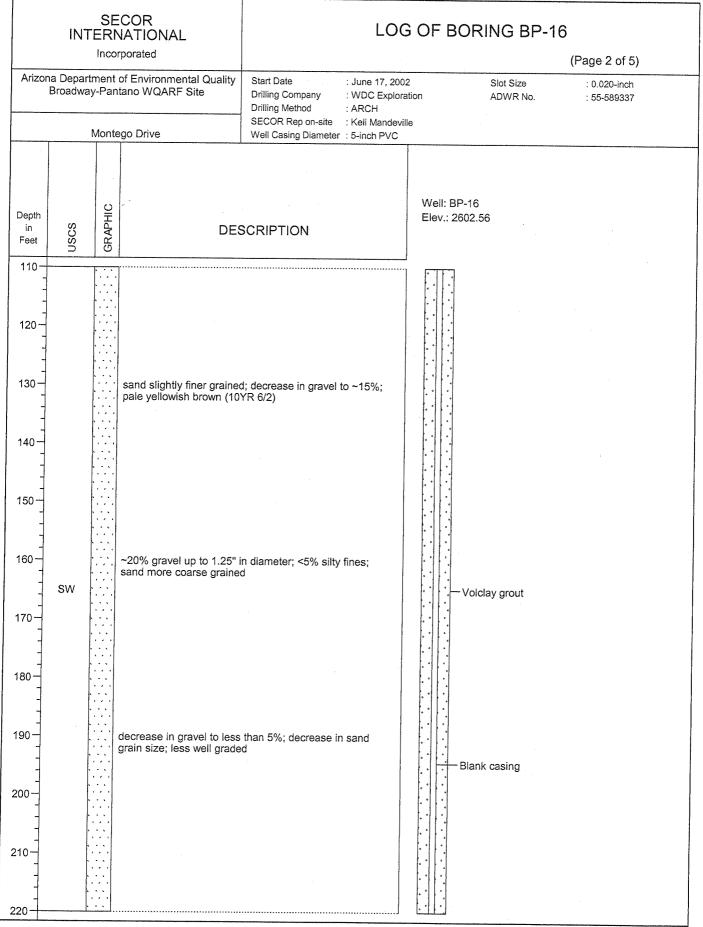




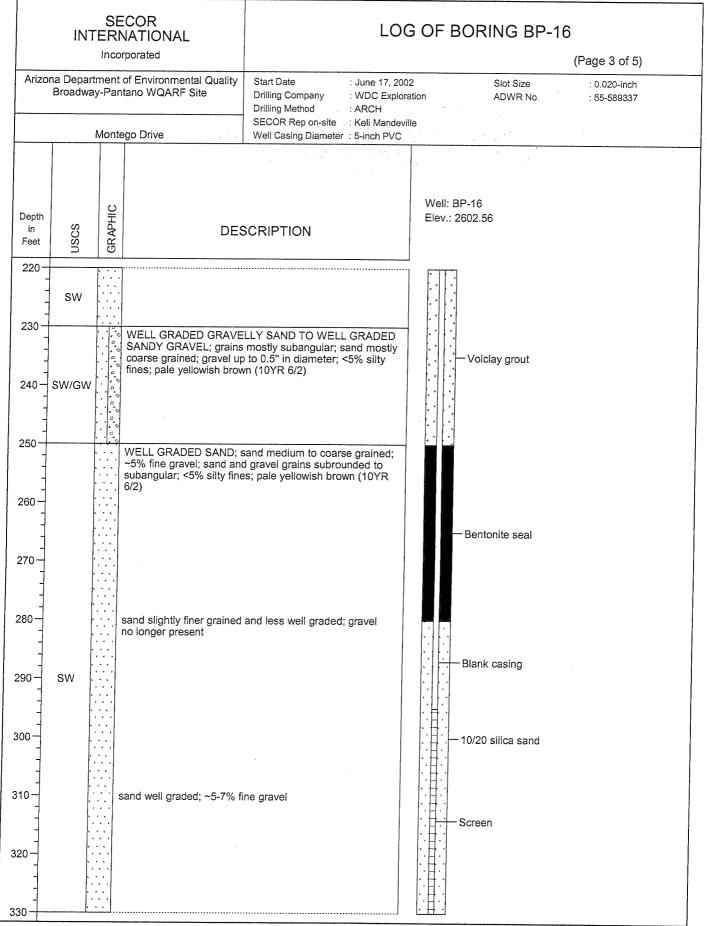


I: VASRAC-~1 VARCHIVE/B-LOGS/BP-15/BOR 06-01-2004

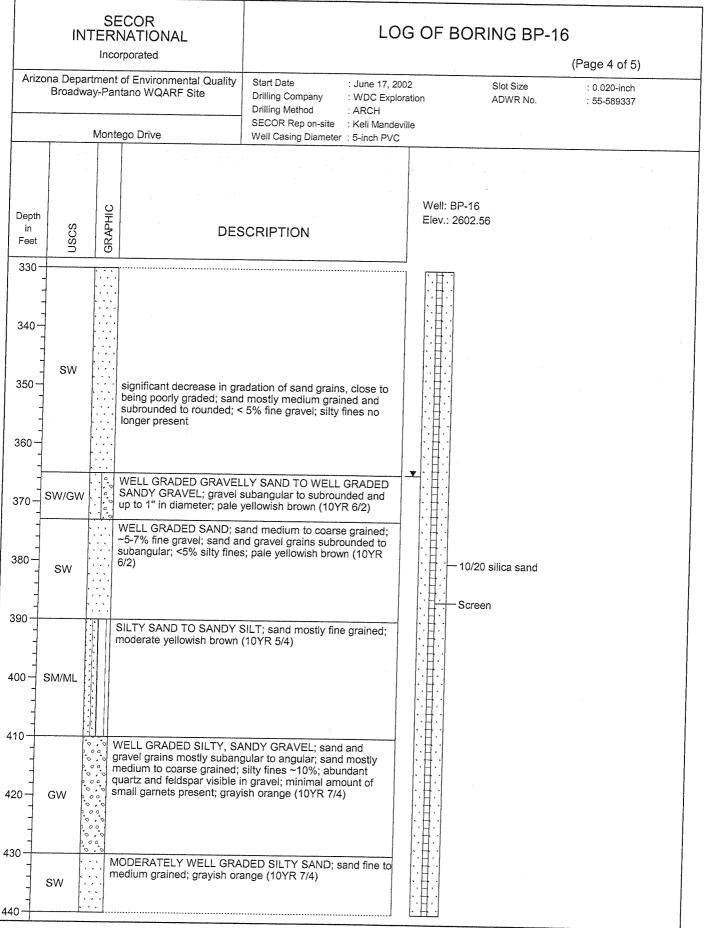
	INT		IATIONAL porated		LUG	OF BO	RING BP-16	) (Page 1 of 5)
Arizon [	Broadway	y-Pant	of Environmental Quality ano WQARF Site go Drive	Start Date Drilling Company Drilling Method SECOR Rep on-site Well Casing Diameter	: June 17, 2002 : WDC Exploration : ARCH : Keli Mandeville : 5-inch PVC	n	Slot Size ADWR No.	: 0.020-inch : 55-589337
Depth in Feet	USCS	GRAPHIC	DES	SCRIPTION		Well: BP- Elev.: 260	02.56	
0			Sand, gravel and cobble caliche layer from appro grade WELL GRADED SILTY,	x. 3 to 5' below below	/ surface		Cover Portland cement	
20	SM		gravel no longer present less well graded	15-20% gravel up to ( fines; moderate yello	0.5" in wish brown			
50			WELL GRADED GRAVE coarse grained; ~20% fir gravel and sand grains; ; 6/2) to gravish orange (1	ie gravel: subangular	to angular		/olclay grout	
- 70- - - - 80-	SW		slight decrease in gravel					
90			slight increase in gravel				Blank casing	
1 1 1			20-25% gravel; ~5% silty					



06-01-2004 I: VASRAC-~1\ARCHIVE\B-LOGS\BP-16.BOR

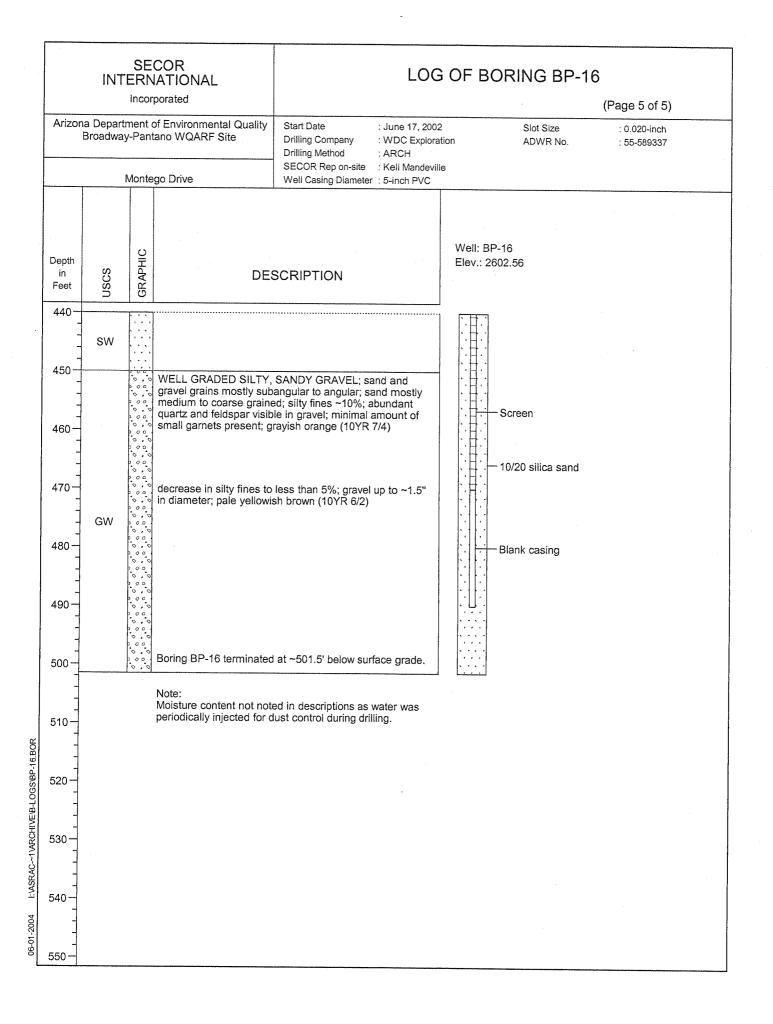


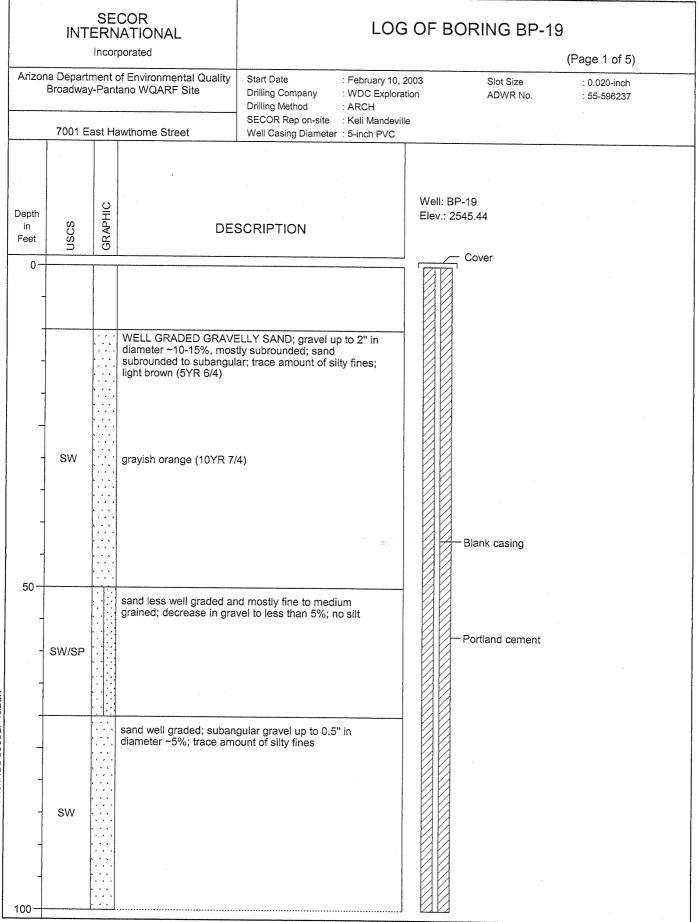
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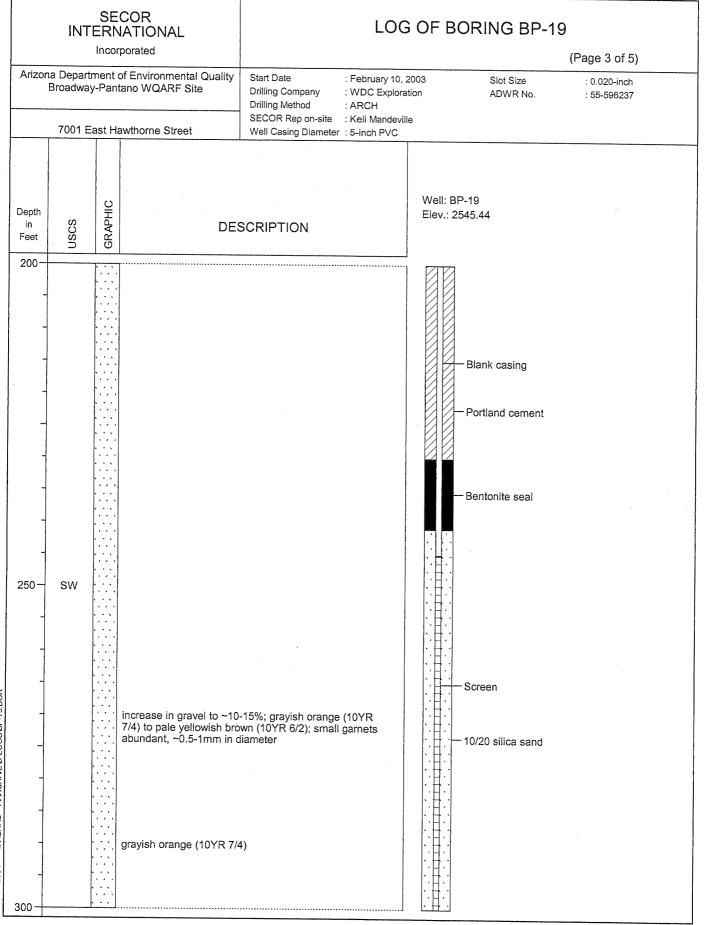


I: VASRAC-~1 \ARCHIVE'B-LOGS\BP-19.BOR

06-01-2004

INT	SECOR ERNATIONAL	LOG OF BORING BP-19					
	Incorporated	<i>i</i> .	(Page 2 of 5)				
Arizona Depart Broadwa	ment of Environmental Quality y-Pantano WQARF Site	Start Date     : February 10, 2       Drilling Company     : WDC Explorat       Drilling Method     : ARCH	tion ADWR No.	: 0.020-inch : 55-596237			
7001 E	ast Hawthorne Street	SECOR Rep on-site : Keli Mandeville Well Casing Diameter : 5-inch PVC	8				
lepth in S Feet S	GRAPHIC GRAPHIC	SCRIPTION	Well: BP-19 Elev.: 2545.44				
100 		4); slight increase in gravel silt	Blank casing				

,



06-01-2004 I: \ASRAC--1\ARCHIVE'B-LOGS\BP-19.BOR

Broadway-Pantano WQARF Site     Drilling Company     : WDC Exploration     A       Drilling Method     : ARCH       SECOR Rep on-site     : Keli Mandeville       Well Casing Diameter     : 5-inch PVC	(Page 4 of 5) Slot Size : 0.020-inch DWR No. : 55-596237
Broadway-Pantano WQARF Site     Drilling Company     : WDC Exploration     A       Drilling Method     : ARCH       SECOR Rep on-site     : Keli Mandeville       Well Casing Diameter     : 5-inch PVC	
Depth in SU EV.: 2545.44 Feet SD ESCRIPTION	ì
Depth in FeetDESCRIPTIONElev.: 2545.44	
300	n silica sand

			ERN	COR IATIONAL porated		LOG	OF BORING B	(Page 5 of 5)
	Arizon	a Departr Broadway	nent o ⁄-Pant	of Environmental Quality ano WQARF Site	Start Date Drilling Company Drilling Method SECOR Rep on-site Well Casing Diamete			 : 0.020-inch : 55-596237
	Depth in Feet	USCS	GRAPHIC	DE:	SCRIPTION	3	Well: BP-19 Elev.: 2545.44	
	400	SP					Screen	
	-			Boring BP-19 terminated	d at ~443' below suri	face grade.	<ul> <li>10/20 silica s</li> <li></li> <li></li> <li></li> <li>Blank casing</li> <li></li> <li></li> <li></li> <li></li> </ul>	
	450-			Note: Moisture content not not injected for dust control	ted as water was per during drilling.	riodically		
IP-19.BOR	-							
I: VASKAC-~1 VARCHI VE B-LOGSBP-19.BOR	-							
06-01-2004 I:VA	- 500							



Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

				SUE	3SUR	FACE PROFILE		1	
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		SW SC	40 0 20	60 20 80	0 80 0	Ground SurfaceSILTY SANDvery pale orange (10 YR 8/2), very angularto angular sands, well graded, fine tocoarse sands up to 10 mm, gneiss andquartz clasts with some muscovite, nocementationGRAVELLY SANDvery pale orange sands (10 YR 8/2), whiteand gray clasts, very angular to angular,well graded, fine sand to fine gravel up to25 mm, chert, quartz, gneiss, andmuscovite, no cementationCLAYEY SANDpale yellowish brown (10 YR 6/2), angularto subangular sands, moderately graded,fine to medium sands, granite, gneiss,quartz, no plasticity, no cementationCLEAN SANDvery pale orange (10 YR 8/2), subangular tosubrounded, moderately graded, fine tocoarse sands up to 5 mm, granite, chert,quartz, gneiss, no cementation	20 60 40 48	$\begin{bmatrix} 0 \\ 2 \\ 4 \\ 6 \\ 10 \\ 12 \\ 14 \\ 16 \\ 12 \\ 24 \\ 26 \\ 30 \\ 32 \\ 34 \\ 36 \\ 38 \\ 40 \\ 44 \\ 46 \\ 48 \\ 50 \\ \end{bmatrix}$	Bentonite Slurry 5" Sch 80 PVC - Blank Neat Cement (Type I/II) 6" Steel Sleeve ASTM 53B
		B <b>y:</b> Layne Shod: Ca				bany ker Hammer	Hole Datu	Size: 1	0.5"
		<b>e:</b> 8/11/2				· · · · · · · · · · · · · · · · · · ·			0
	Page: 1 of 10								



Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

				SUE	3SUR	FACE PROFILE		1		
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Wo Comp Det	letion
52 54 56 58		SW	0	100	0	<b>CLEAN SAND</b> very pale orange (10 YR 8/2), subangular to subrounded, moderately graded, fine to coarse sands up to 5 mm, granite, chert, quartz, gneiss, no cementation	48	52- 54- 56- 58-		
60 62 64 66 66 68		SC	20	80	0	<b>CLAYEY SAND</b> pale yellowish brown (10 YR 6/2), subangular to subrounded, poorly graded, mostly fine to medium sands, granite, quartz, muscovite, gneiss, low plasticity, light reaction to HCI.	55	60 62 64 66 68	Bentonite Slurry	
70 72 74 76 76 80 80 80 82		SC/SM	80	20	0	<i>SILTY SANDY CLAY</i> pale yellowish brown (10 YR 6/2), subangular to angular sands, poorly graded sands, fine to medium grained, quartz and muscovite, moderate plasticity, no cementation		70 72 74 76 78 80		
84 86 90 92 94 94 98 98			60	40	0	increase in sand size to coarse grained and increase in percent sands		82 84 86 90 92 92 94 94 98 98 98	5" Sch 80 PVC - Blank	
100루								100-	8	
	Drilled By: Layne Christensen Company						Hole	Hole Size: 10.5"		
	Drill Method: Casing Advance - Becker Hammer							Datum:		
Dri	Drill Date: 8/11/2005 to 8/22/05								0	

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Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

		SUE	3SUR	FACE PROFILE	Τ	1	[
Depth Symbol Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
102       sc         104       106         108       100         108       100         108       100         110       112         114       116         118       120         122       124         126       128         130       132         134       136         138       140         140       5c/Gc         144       5c/Gc         148       5c/Gc	20 30 30	80	0	CLAYEY SAND pale yellowish brown (10YR 6/2), subangular to subrounded, moderately graded, fine to coarse sand up to 5 mm, granite, quartz, muscovite, gneiss, low plasticity, light reaction to HCI. slight increase in clay content slight increase in clay content <i>GRAVELLY CLAYEY SAND</i> pale brown (5 YR 5/2), angular to subangular, well graded, fine sands to fine gravels up to 25 mm, quartz, gneiss, muscovite, biotite, moderate plasticity, no cementation.	55	102	Bentonite Slurry
Drilled By: Layne	Chris	tensen	Comp	pany	Hole	Size: 1	0.5"
Drill Method: Cas				ker Hammer	Datur	<i>n:</i> <sup>`</sup>	
Drill Date: 8/11/2	005 to	8/22/0	5	-	Page	: 3 of 1	0



Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-20

			······································	SUI	<b>3SUR</b>	FACE PROFILE		1	
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
152 154 156 158 160 162 164 166 168 170 172 174 176 178 180 182 184 186 188 190 192		GC y: Layne	20 20 10	20 40 40	60 40 50 Comp	CLAYEY SANDY GRAVEL         pale yellowish brown (10 YR 6/2), very         angular to angular, well graded, fine sands         to coarse gravel up to 70 mm, gneiss,         quartz, biotite, possible feldspar, low         plasticity, no cementation         increase in gravel size, appearence of         cobbles up to 120 mm, and decrease in         percent fines. Cobbles are Catalina gneiss.         fewer cobbles and gravel, smaller sand size         angular to subangular grains	33 27 28	152 154 156 158 160 162 164 166 168 170 172 174 176 180 182 184 188 190 192 194 196	5" Sch 80 PVC - Blank Bentonite Slurry
						ker Hammer	Hole Datui	Size: 1 m·	0.0"
		<b>:</b> 8/11/2						: 4 of 1	.
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Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

			SUE	3SUR	FACE PROFILE		<u> </u>		
Depth	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bis)	Well Completion Details	
202 204 206 208 210 212 214 216 218 220 222 224 224 226 230 232 234 230 232 234 236 238 230 232 234 236 238 230 232 234 236 238 240 248	GC SP	10	40	50	CLAYEY SANDY GRAVEL pale yellowish brown (10 YR 6/2), angular to subangular, well graded, fine sands to coarse gravel, gneiss, quartzite, no cementation, fewer fines, fewer cobbles than previous depths. SILTY GRAVELLY SAND WITH COBBLES pale yellowish brown (10 YR 6/2), angular gravels, subrounded sands, poorly graded sands, mostly coarse grained clasts up to 150 mm, gneiss gravels and cobbles, quartz sands, some feldspar in sands, no cementation.	20	202 204 206 208 210 212 214 216 218 220 222 224 226 230 232 234 236 238 230 232 234 236 238 236 238 238 238 238 238 240 242 244 246 248 248	onite Slur	
250							250		
Drilled B					•	Hole	Size: 1	0.5"	
					ker Hammer	Datu	Datum:		
Drill Date	<b>9:</b> 8/11/20	005 to	8/22/0	95	· · · · · · · · · · · · · · · · · · ·	Page	: 5 of 1	0	



772.0

Log of Borehole: BP-20

Project: Broadway N. Landfill

Project No.: 23444449

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

	SUBSURFACE PROFILE								
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
252 254 256 258 260 262		GW SM/GM	0 60	40 20	60 20	CLEAN SANDY GRAVEL multi-colored sands and gravels, angular to subangular gravels, subangular to subrounded sands, well graded, coarse sand to coarse gravel up to 30 mm, gneiss, schist, quartz, no cementation. GRAVELLY SANDY SILT pale yellowish brown silts (10 YR 6/2),	48	252 254 256 258 260	<b>bud</b>
264 266 268 270		GW	0	40	60	multicolored gravels, subangular to subrounded, poorly graded, silt to fine sands with fine gravels up to 12 mm, gneiss schist, and quartz clasts, no cementation CLEAN SANDY GRAVEL		262 264 266 268 270 272	olorado Silica
272 274 276 278 278						multi-colored sands and gravels, angular to subangular gravels, subangular to subrounded sands, well graded, coarse sand to coarse gravel up to 30 mm, gneiss, schist, quartz, no cementation.		272 274 276 278 280	
282 284 yourner 286 288 290 292 292 294 296 298		SW	0	70	30	<b>CLEAN GRAVELLY SAND</b> multi-colored sands and gravels, angular to subangular gravels, subangular to subrounded sands, well graded, coarse sand to coarse gravel up to 30 mm, gneiss, schist, quartz, no cementation		282 284 286 288 290 292 292 294	C - 0.020 Slot S
300	TIN IS							298 300-	
		<b>3y:</b> Layne					Hole	Size:	10.5"
						ker Hammer	Datu	m:	•
Dı	ill Dat	te: 8/11/2	2005 to	8/22/0	)5		Page	: 6 of 1	0



URS Corporation 7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

## Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

	SUBSURFACE PROFILE													
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details					
302 304 306 308 308		SC/GC	20	17	302- 304- 306- 308-	10/20 Colorado Silica Sand								
312- 314- 316- 318-		SP	24	310 312 314 314 316 318										
320 322 324 326 328		SW	10	70	20	<b>GRAVELLY SAND</b> pale yellowish brown (10 YR 6/2), subangular to subrounded sand and gravel, well graded, coarse gravel up to 70 mm, quartz, gneiss, and schist clasts, slickenslides noted, no cementation.		320 322 324 326 328	32					
330 332 334 336			5	80	15		42	330 332 334 336	- 0.020 Slot Screen					
338 340 342 344 346 348 348 350	340       sc       35       60       5       CLAYEY SAND       54       340         342       344       pale yellowish brown (10 YR 6/2), subangular to subrounded, fine to coarse sand, well graded, quartz, quartzite, and gneiss clasts, no plasticity, no cementation.       54       340       342         346       348       346       346       346       348													
Drille	ed By	y: Layne	Chris	tenser	l Comp	pany	Hole	Size: 1	0.5"					
				•		ker Hammer	Datu	m:						
Drill	Date	: 8/11/2	005 to	8/22/0	)5		Page	:7 of 1	0					



Log of Borehole: BP-20

Project: Broadway N. Landfill

Project No.: 23444449

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

SUBSURFACE PROFILE												
	Lithology % fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Co	Well mpletion Details				
352 354 356 358 360	sc 3:		5 25	CLAYEY SAND pale yellowish brown (10 YR 6/2), subangular to subrounded, fine to coarse sand, well graded, quartz, quartzite, and gneiss clasts, no plasticity, no cementation CLEAN GRAVELLY SAND light brown sand (10 YR 8/3), dark gray with light gray speckles for gneiss, subangular to subrounded, fine grained sand and gravel, well graded, quartz and gneiss clasts, no plasticity, no cementation.	46	352 354 356 358 360 362 364 364						
370 372 374 376 378					35	368 370 372 374 374						
380	SP 1(	0 80	10	<b>POORLY GRADED SAND</b> light brown (10 YR 8/3), subangular to subrounded, gravel is subangular, fine sand, trace silt, trace fine gravels, quartz and gneiss clasts, no plasticity, no cementation.	37	378 380 382 384 384 386 388	C - 0.020 Slot Screen					
390 392 394 396 398 400	390       \$\$ \$\$ \$\$ \$5\$       \$40       \$\$ CLEAN GRAVELLY SAND       \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$											
Drilled By:	Layne Ch	iristensei	n Comp	bany	Hole	Size: 1	0.5"					
Drill Method	d: Casing	Advanc	e - Bec	ker Hammer	Datu	m:	ŀ					
Drill Date: 8	8/11/2005	to 8/22/	05		Page	: 8 of 1	0					

URS Corporation 7720 N. 16th Street, Suite 100 Phoenix, Arizona

Project No.: 23444449

Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

	SUBSURFACE PROFILE												
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details				
402- 404- 406- 408- 408-		SW	<5	55	40	<b>CLEAN GRAVELLY SAND</b> light brown (10 YR 8/3), subangular to subrounded, fine sand to coarse gravel, well graded, quartz and gneiss clasts, cobbles to 110 mm, no plasticity, no cementation.	60	402 404 406 408	lica Sand				
412 414 416 418 418 418 418			<5	65	30		50	410 412 414 414 416 418 418	0/20 Colorad				
422 424 426 428							12	422 424 426 428					
430 432 434 434			<5	55	40	subrounded gneiss cobbles up to 100 mm	31	430 432 434					
438 440 442 444							20	436 438 440 442 442	0 PVC - B				
448	446 448 450 450												
		<b>bod:</b> Car			-	bany ker Hammer		<b>Size:</b> 1	0.5"				
						ker nammer	Datu						
	Drill Date: 8/11/2005 to 8/22/05 Page: 9 of 10												



URS Corporation 7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Log of Borehole: BP-20

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

u         v				SUE					
452       40       452         454       456         456       subangular to subrounded, medium sand to coarse gravel, well graded, gneiss and quartz clasts, no plasticity, no cementation, cobbles up to 200 mm present.       456         460       462         464       466         466       468         470       472         474       474         466       470         477       472         478       474         486       488         480       486         482       484         486       488         482       484         486       488         487       476         488       486         488       486         488       486         489       480         482       484         484       486         484       486         488       490         492       494         492       494         492       494         496       498         500       500            <	Depth		% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bis)	Completion
500     430       500     500       Drilled By: Layne Christensen Company     Hole Size: 10.5"       Drill Method: Casing Advance - Becker Hammer     Datum:	452 454 456 458 460 462 464 464 466 468 470 472 474 476 478 480 482 484 486 488 480 482 484 486 488 490 492 494			<u> </u>		dark gray with light gray speckles, subangular to subrounded, medium sand to coarse gravel, well graded, gneiss and quartz clasts, no plasticity, no cementation.	40	452 $454$ $456$ $460$ $462$ $464$ $466$ $468$ $470$ $472$ $474$ $476$ $478$ $480$ $482$ $484$ $486$ $490$	Cap
Drilled By:       Layne Christensen Company       Hole Size:         Drill Method:       Casing Advance - Becker Hammer       Datum:         Drill Date:       8/11/2005 to 8/02/05	1 3							=	
Drill Method: Casing Advance - Becker Hammer Datum:	Drille	d By: Layr	e Chris	tenser	n Comp	pany	Hole	l	0.5"
Drill Datas 9/11/2005 to 0/00/05	Drill I	Method: Ca	asing A	dvance	e - Beci	ker Hammer			
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7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Log of Borehole: BP-21

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

			1.					
Depth Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
0 2 4 10 12 14 16 18 10 22 24 24 26 28 30 32 34 36 38 40 32 34 40 42 44 46 48 40 42 44 46 48 40 42 44 46 48 40 42 44 46 48 40 47 40 47 47 47 47 47 47 47 47 47 47 47 47 47	SM SW	40 10 15 Chris	60 60 50 50	0 30 40 35		60 150 100	$\begin{array}{c} 0 \\ 2 \\ 4 \\ 10 \\ 11 \\ 11 \\ 11 \\ 11 \\ 11 \\ 11 $	5" Sch 80 PVC - Blank Neat Cement (Type I/II) 6" Steel Sleeve ASTM 53B
	thod: Cas				ker Hammer	Datum:		
	e. 0/23/2	<b>Page:</b> 1 of 10						



7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-21

Depth Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
52 54 56 58 60	SW	<5	90	<5	<i>CLEAN SAND</i> brownish yellow (10 YR 6/8), subangular to subrounded, well graded, fine to coarse sands, quartz and gneiss clasts, no plasticity, no cementation.		52 54 56 58	
62 64 64 66 68 70	SW/GW	10	55	35	<b>GRAVELLY SAND</b> pale yellowish brown (10 YR 6/2), subangular to subrounded, well graded, fine to coarse sands, quartz and gneiss clasts, gravel up to 40 mm, no plasticity, no cementation.	75	60 62 64 66 66 68	Bentonite Slurry
70 72 74 76 78 80	SW	5	85	10	WELL GRADED CLEAN SAND pale yellowish brown (10 YR 6/2), subangular to subrounded, well graded, fine to coarse sands, quartz and gneiss clasts, no plasticity, no cementation		70 72 74 76 78	
82 84 86 88 88 90	SC	40	55	5	<b>CLAYEY SAND</b> pale yellowish brown (10 YR 6/2), subangular to subrounded grains, sand and clay mixtures, quartz grains, low plasticity, no cementation.		80 82 84 86 88 88	80 PVC - Blank
92 94 96 98 98 98 98 98 98	SW	<5	70	25	<b>GRAVELLY SAND</b> pale yellow brown (10 YR 6/2), angular to subrounded particles, well graded, fine to coarse sand, quartz and gneiss clasts, no plasticity, no cementation.		86 88 90 92 94 94 96 98 96 100	5" Sch 80
Drilled E	By: Layne	e Chris	stenser	n Com	bany	Hole	Size:	10.5"
Drill Me	hod: Ca	sing A	dvance	ə - Bec	ker Hammer	Datu	m:	
Drill Dat	e: 8/23/2	005 to	8/26/0	)5		Page	: 2 of 1	0



7720 N. 16th Street, Suite 100 Phoenix, Arizona

Project No.: 23444449

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-21

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Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
102 104 106 108 108		SC SC/SW	40	55	5	<b>CLAYEY SAND</b> pale yellowish brown (10YR 6/2), subangular to subrounded, sand and clay mixtures, quartz grains, low plasticity, no cementation.	66	102 104 106 108 108 110 112	
112 114 116 118 120 122 124 126 128		00,000	30	45	25	<b>CLAYEY SAND/GRAVELLY SAND</b> pale yellowish brown (10 YR 6/2), angular to subrounded, well graded, fine to coarse grained, gneiss and quartz clasts, cobbles up to 240 mm, low plasticity, no cementation.	75	112 114 116 118 120 122 122 124 126 128	Bentc
130 132 134 136 138 140		SC	40	50	10	<i>CLAYEY SAND</i> pale yellowish brown (10 YR 6/2), subangular to subrounded, well graded, fine to coarse sands, quartz and gneiss clasts, low plasticity, no cementation.	60	130 132 134 136 138	5" Sch 80 PVC - Blank
142 144 146 148 148								142- 144- 146- 148- 148- 150-	
[		: Layne od: Casi				any er Hammer		Size: 10	.5"
		8/23/20		<i>Datum:</i> <i>Page:</i> 3 of 10					



URS Corporation 7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Log of Borehole: BP-21

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

		-y		· · · ·			1				
	Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bis)	Com	/ell pletion tails
1 1 1 1 1 1 1 1 1 1	152 154 156 160 162 164 166 170 172 174 176 178 180 182 84 86 88 90 92 94 96 90 90 90 90 90 90 90 90 90 90 90 90 90		SC/SP SC/SW	40 35 25 30	50 50 45	10 15 25 25	CLAYEY SAND/GRAVELLY SAND pale yellowish brown (10 YR 6/2), angular to subrounded, poorly graded - missing intermediate sizes, gneiss and quartz clasts, no plasticity, no cementation. CLAYEY SAND WITH GRAVEL pale yellowish brown (10 YR 6/2), angular to subrounded, well graded, fine to coarse sands, quartz and gneiss clasts, no plasticity, no cementation. CLAYEY SAND/GRAVELLY SAND pale yellowish brown (10 YR 6/2), angular to subangular, well graded, fine to coarse grained, gneiss and quartz clasts, no plasticity, no cementation.	66 60 42 50			
			Layne					Hole	<b>Size:</b> 10	).5"	
							er Hammer	Datur	n:		
L	Drill	Date:	8/23/20	05 to 8	8/26/05	5		Page:	: 4 of 10		

URS Corporation 7720 N. 16th Street, Suite 100

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Phoenix, Arizona

Project No.: 23444449

## Log of Borehole: BP-21

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

				1	1						
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details		
202 204 206 210 212 212 214 216 218 220		SC	35	55	5	<i>CLAYEY SAND</i> pale yellowish brown (10 YR 6/2), angular to subrounded gravel, well graded fine to coarse sand, gneiss and quartz clasts, low plasticity, no cementation.	46 35 54	202 204 206 210 212 214 214 216 218 220	onit		
222 224 226 228 230					•			222 224 226 228 230	VC - Blank		
232 234 236 238 238 240			40	55	10		100	232 234 236	ets 5" Sch 80 PVC		
242 244- 246 248 250			35	60	5	slightly more sand, gravel up to 90 mm.	54	238 240 242 244 244 246 248 248 250	1/4" Bentonite Pellets		
		<b>y:</b> Layne					Hole	<b>Size:</b> 1	0.5"		
						ker Hammer	Datui	m:			
Dril	Drill Date: 8/23/2005 to 8/26/05 Page: 5 of 10										



7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-21

	······			SUI	T				
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
252 254 256 258 260 262 262		SC SC/SW	35 30	60	5	CLAYEY SAND pale yellowish brown (10 YR 6/2), angular to subrounded gravel, well graded fine to coarse sand, gneiss and quartz clasts, low plasticity, no cementation. CLAYEY SAND/GRAVELLY SAND pale yellowish brown (10 YR 6/2), angular to subrounded, well graded, fine to coarse sand, gneiss and quartz clasts, low	46 60	252 254 256 258 260 262	
266 268 270 272 274 274 276						plasticity, no cementation.	40	262 264 266 270 272 274 274	
280 282 284 286 288 288 288 290		SC	45	50	5	<b>CLAYEY SAND</b> pale yellowish brown (10 YR 6/2), subangular to subrounded sand, well graded, fine to coarse sand, gneiss and quartz clasts, low plasticity, no cementation.	54	278 280 282 284 284 286 288	- 0.020 Slot Screen
292 294 296 298 300			40	50	10	slightly more gravel	60	290 292 294 296 298 300	5" Sch 80 PVC - 0
		y: Layne			-		Hole	Size: 1	0.5"
						ker Hammer	Datu	n:	
Dri	ll Date	ə: 8/23/2	005 to	8/26/0	5		Page	: 6 of 1	0



Log of Borehole: BP-21

Project: Broadway N. Landfill

Project No.: 23444449

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

	SUBSURFACE PROFILE												
Depth	Symbol Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details					
302 304 306 308 310 312 314 316 318 320 322 324 326 328 330 322 324 326 330 332 334 336 332 334 336 338 330 332 334 336 338 330 332 334 336 338 336 337 337 337 337 337 337 337 337 337	SC	40 45 30	50	10	CLAYEY SAND pale yellowish brown (10 YR 6/2), subangular to subrounded sand, well graded, fine to coarse sand, gneiss and quartz clasts, low plasticity, no cementation. slightly less gravel	60 54 60 75	302 304 306 308 310 312 314 316 318 320 322 324 328 320 322 324 328 320 322 324 328 320 322 324 328 320 322 324 328 320 322 324 328 320 322 324 328 320 322 324 326 328 320 322 324 326 327 326 327 327 327 327 327 327 327 327 327 327	10/20 Colorado Silica Sand					
350													
	e <b>d By:</b> Lay					Hole	Size: 1	0.5"					
					ker Hammer	Datu	m:						
Drill	Date: 8/23	/2005 to	8/26/0	)5		Page	:7 of 1	0					



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Phoenix, Arizona

Project No.: 23444449

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-21

Depth Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details	
352 354 356 358 360 362 364 366 368	SC SC/SW	30 25	60 50	10 25	CLAYEY SAND pale yellowish brown (10 YR 6/2), subangular to subrounded sand, well graded, fine to coarse sand, gneiss and quartz clasts, low plasticity, no cementation. CLAYEY SAND/GRAVELLY SAND pale yellowish brown (10 YR 6/2), subangular to subrounded, well graded fine to coarse sand, quartz and gneiss clasts, no plasticity, no cementation.	100	352 354 356 358 360 362 364	10/20 Colorado Silica Sand	
370 372 374 374 376 378	GW	0	10	90	<b>CLEAN GRAVEL WITH TRACE SAND</b> multicolored clasts (most white/gray and black), subangular to subrounded, well graded fine to coarse gravels with coarse sand, gravels up to 60 mm, gneiss and quartz clasts, no cementation.		368 370 372 374 376 378		
380 382 384 386 386 388 390 390 390 392 394 396 396 396 396 396 396 396 396	GP GP	0	30	70	<b>SANDY GRAVEL</b> multicolored clasts (most white/gray and black), subangular to subrounded, poorly graded fine to coarse gravels with coarse sand, gneiss and quartz clasts, trace cobbles up to 100 mm, no cementation.	60	380 382 384 386 388 390 392 394 394 394 398 398		
	By: Layn				-		Size:	10.5"	
	Drill Method: Casing Advance - Becker Hammer Datum:								

Drill Date: 8/23/2005 to 8/26/05

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Phoenix, Arizona

Project No.: 23444449

## Log of Borehole: BP-21

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

				SUI	BSUR	FACE PROFILE	1			
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bis)	Coi	Well mpletion Details
402 404 406 408 408 410		SW	0	70	30	<b>GRAVELLY SAND</b> multicolored sand and gravels, subangular to subrounded, well graded coarse sand with fine gravels up to 30 mm, quartz and gneiss clasts, no cementation.	85	402- 404- 406- 408-	lica Sand	
412 414 416 418 418 420	50°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°5°	GP	0	40	60	<b>SANDY GRAVEL WITH COBBLES</b> multicolored clasts (most white/gray and black), subangular to subrounded, poorly graded fine to coarse gravels with coarse sand, gneiss and quartz clasts, trace cobbles up to 80 mm, no cementation.		410 412 414 414 416 418	Colorado	
422 424 426 428 430 432 434 436 438 436 438 440 442 444 446		SW	0	70	30	<b>GRAVELLY SAND WITH COBBLES</b> multicolored sands and gravels, angular to subrounded, well graded, coarse sand to coarse gravel with some cobbles up to 100 mm, gneiss and quartz clasts (more mafic than previous), no cementation.	30	420 422 424 426 428 430 432 434 436 438 440 442 444 446	5" Sch 80 PVC - Blank	
450								448 450		
Dril	lled B	<b>y:</b> Layne	Christ	tensen	Comp	any	Hole	<b>Size:</b> 1	0.5"	
						er Hammer	Datu	m:		
Dril	I Date	€: 8/23/2	005 to	8/26/0	5		Page	: 9 of 1	0	



1-1-1

7720 N. 16th Street, Suite 100 Phoenix, Arizona Project No.: 23444449

Project: Broadway N. Landfill

Client: City of Tucson Environmental Services

Project Manager: Chris Courtney, R.G.

Logged by: Chris Courtney, R.G. and Mike Makerov

Log of Borehole: BP-21

-				SL	IBSU	RFACE PROFILE			1
Depth	Symbol	Lithology	% fines	% sand	% gravel	Description	Penetration Rate (ft/hr)	Depth (feet bls)	Well Completion Details
452 454 456 460 462 464 466 468 470 472 474 476 478 480 482 484 488 480 492 494 496 498 500 - <b>Drille</b>	d By:	sw	O	70	30 Compa	GRAVELLY SAND WITH COBBLES multicolored sands and gravels, angular to subrounded, well graded, coarse sand to coarse gravel with some cobbles up to 100 mm, gneiss and quartz clasts (more mafic than previous), no cementation.	40	452 454 456 458 460 462 464 464	Stainless Steel Threaded End Cap
						r Hammer			5"
		3/23/200					Datum	•	
	aie: (	5/20(	8 03 CU	5/26/05			Page: 1	10 of 10	

-	DRILLING INSTALL/ DRILLING DRILLING	DN: <u>T NUM</u> G: ATION G COM G EQU G METI	BER: STA : STA PANY IPMEN HOD:		Ad NOI LAT GRO INIT STA WE	RTHING (ft): TUDE: OUND ELEV TAL DTW (ft): TIC DTW (ft)	(ft): : 403.70 : DIAMETE	PAGE 1 0 0 5/5/06 ER (in): 1,4	F 14 EASTIN LONGI <sup>T</sup> TOC EL BOREH WELL I	TUDE: LEV (ft): IOLE DEF DEPTH (ft IOLE DIA	∑ E C © R → TH (ft): 458.0 ): 458.0 METER (in): 10 3/4 2. Pollock
	Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headspace PID	(units) Depth (feet)		Well Construction
-	- - - 5- -		-sc	Fill Material consists of silt, clay, sand, and gravel, Boring post hole dug to approx. 2.5 feet bgs CLAYEY SAND WITH GRAVEL; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; dense; dry; no odor; none cementation; subangular; well graded; 55% sand, 30% clay, 15% fine to coarse (5-35mm), subangular gravel Medium dense; slight odor	A A A A A A A A A A A A A A A A A A A	1633 - soil		3.2		1 × 11 × 11 × 11 × 11 × 11 × 11 × 11 ×	<ul> <li>Above ground dog house vault with 1 inch and 4 inch PVC caps</li> <li>4 inch schedule 80 PVC, Blank</li> </ul>
06	- 10 - - - -			Loose; 55% sand, 30% fine (5-15mm), subangular gravel, 15% clay, trace of trash - glass, wood, plastic	X X X X X	1641 soil 1647		3.5		KU   KU   KU   KU   KU   KU   KU   KU	Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	15 - - - - - 20 -		SM	SILTY SAND WITH GRAVEL; SM; 10YR 2/2 dark yellowish brown; fine to coarse-grained; non plastic; loose; dry; strong odor; none cementation; subangular; well graded; 40% sand, 25% silt, 25% (5-35mm), subangular gravel, 10% trash-glass, plastic, wood, metal 15% trash - glass pieces, wood fragments, plastic, paper, trace of clay	* * * * * * * * * * * * * * * * * * *	soil 1650 soil		6.8		1 X 1 1 X 1 1 X 1 1 X 1 1 X 1 1 X 1 1 X 1	
P-1, BSDP-2, BSDP-3, BSDP-4, BP-22, /	- 25		-sc	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; medium dense; dry; slight odor; none cementation; subangular; well graded; 40% sand, 35% fine (5-15mm), subangular gravel, 25% clay	× × × × ×	1700 - soil		7.8	25-	1 × 11 × 11 × 11 × 11 × 11 × 11 × 11 ×	1 inch schedule 80 PVC, Blank Casing with cement grout
GEO FORM 304 BORING LOGS BSD	- 30 – - - - -			40% sand, 30% clay, 20% fine (5-15mm), subangular gravel	A Y Y X X X X	1706 soil 1710		12.0	) 30-	<u>XVIIXIIIXIIXIIXIIXX</u> XVIIXIIXIIXIIXXI XVIIXIIXIIXVIIXVI	

PROJEC LOCATIC PROJEC	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	d		OLE / BORE	2 OF	14		SECOR
DRILLING DRILLING DRILLING	ATION G COM G EQUI G METI	: STA PANY IPMEN HOD:		LAT GR INI <sup>T</sup> ST/ WE	RTHING (ft): FITUDE: OUND ELEV TIAL DTW (ft): ATIC DTW (ft): ELL CASING E GGED BY: K.	403.70 5/5 : DIAMETER (ir Harker	L 7 5/06 E 1,4 E 0): 1,4 E	VELL D BOREH( CHECKE	UDE: EV (ft): OLE DEP EPTH (ft) OLE DIAN	TH (ft): 458.0 : 458.0 1ETER (in): 10 3 . Pollock
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet) Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
		SM	SILTY SAND; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; slight odor; none cementation; subangular; poorly graded; 85% sand, 15% silt, trace of fine (5 mm), subangular gravel and clay	X X X X	- soil 1713		5.5		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
40-		SM	<b>CLAYEY SAND WITH GRAVEL</b> ; SM; 5YR 4/4 brown; fine to coarse-grained; low plasticity; medium dense to loose; dry; slight odor; none cementation; subangular; well graded; 55% sand, 30% fine (5-10mm), subangular gravel, 15% clay	X X X X	- soil		3.7	40	0211021102110 0211021102110 021102110211	<ul> <li>4 inch schedule 80 PVC, Blank Casing with cement grout</li> </ul>
45 -		SW	<b>SAND WITH GRAVEL</b> ; SW; 5YR 5/6 light brown; fine to coarse-grained; loose; dry; slight odor; none cementation; subangular; well graded; 75% sand, 25% fine (5-10mm), subrounded gravel, trace of silt	X X X X X	1755 - soil		1.6	45-	X	
		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; medium dense to loose; dry; slight odor; none cementation; subangular; well graded; 60% sand, 20% clay, 20% fine to coarse (5-40mm), subrounded gravel	X X X X	1800 - soil		6.9	50	1   X   X	
55- 5 5		SM	SILTY SAND WITH GRAVEL; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 50% sand, 30% fine (5-7mm), subangular gravel, 20% silt, trace of clay	X X X X	1805 - soil		4.4	55-		— 1 inch schedule 80 PVC, Blank
5 60-			45% sand, 40% fine (5-7mm), subangular gravel, 15% silt, trace of clay	X X X X	1812 - soil		3.8	60	X ( 1 X 1 1 X 1 X 1 X 1 X 1 X 1 X 1 X 1	Casing with cement grout
			<b>SILTY SAND</b> ; 5YR 5/6 light brown; fine to medium-grained; poorly graded; 60% sand, 40% silt, trace of fine (5 mm), subrounded gravel	X X X X X	1814 - soil		4.2	65	LLAVILAVILAVILA 11/2/1/2/1/2/1/2/1/2/ 11/2/1/2/1/2/1/2/	
GEO FORM 304					1820					

	PROJECT LOCATIOI PROJECT	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	d WE	LL / PROBEH						SECOR
	DRILLING DRILLING DRILLING	TION: COM EQUI	STA PANY PMEN HOD:		LAT GRO INIT STA WE	RTHING (ft): TUDE: DUND ELEV TAL DTW (ft): TIC DTW (ft)	(ft): : 403.7 : DIAMETI	0 5/5/ ER (in) e <b>r</b>	E L 7 (06 E V : 1,4 E	ASTIN ONGIT OC EL OREH VELL D OREH CHECK	UDE: EV (ft): OLE DEP DEPTH (ft): OLE DIAM	TH (ft): 458.0 458.0 IETER (in): 10 3/4 . Pollock
	Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
	-		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; loose; dry; slight odor; none cementation; subangular; well graded; 60% sand, 30% clay, 10% fine (5-10mm), subangular gravel	X X X X	- soil 1828			6.8	-	AUNAUNAUNAU AUNAUNAUNAU AUNAUNAUNAU AUNAUNAUNAU	
	75 - - -			Non plastic; no odor; 70% sand, 15% clay, 15% fine to coarse (5-25mm), subangular gravel, trace of silt	X X X X	soil			5.8	75 — - - -	<b>V</b> A 1 1 VA 1 1 VA 1 1 VA 1 VA 1 1 VA 1 1 VA 1 1 VA 1 VA 1 1 VA 1 1 VA 1 1 VA 1 VA 1 1 VA 1 1 VA 1 1 VA 1 VA 1 1 VA 1 1 VA 1 1 VA	<ul> <li>4 inch schedule 80 PVC, Blank Casing with cement grout</li> </ul>
	80 — - -			Low plasticity; 50% sand, 30% fine to cobbles (5-75mm), subangular gravel, 20% clay	X X X X	1830 - soil			4.1	80— - -	1121122112211221122 112112211221122 112112	
ECOR INTL.GDT 10/23/06	85 — - -			<b>CLAYEY SAND</b> ; 5YR 5/6 light brown; fine to medium-grained; low plasticity; loose; dry; no odor; none cementation; subangular; poorly graded; 80% sand, 20% clay, trace of fine (5-10mm), subrounded gravel	X X X X	0931 - soil			7.0	85— - -	11121122112211221122112211221122112211	
4, BP-22, AND BP-23.GPJ SI	- 90 — - -			WITH GRAVEL; 5YR 4/4 brown; medium plasticity; medium dense to loose; 70% sand, 15% clay, 15% fine to coarse (5-40mm), subrounded gravel	X X X X	0936 - soil			1.2	- 90 - - -	X11/X11/X11/X11 X11/X11/X11/X11 X11/X11/	— 1 inch schedule 80 PVC, Blank
2-1, BSDP-2, BSDP-3, BSDP-	- 95 — - -			<b>CLAYEY SAND</b> ; fine to coarse-grained; low plasticity; loose; well graded; 85% sand, 15% clay, trace of fine (5-7mm), subangular gravel	X X X X X	0942 soil			1.7	- 95 — - -	1) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2) 2)	Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	- 100 — - -			WITH GRAVEL; 60% sand, 20% clay, 20% fine to coarse (5-20mm), subangular gravel	X X X X	0945 - soil			0.7	- 100— - -	1112111221	
GEO FO.	-					0951						

	PROJECT LOCATIO PROJECT	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	d	BP-		BOREHOLE N PAGE 4 OF	14		S E C O R
	drilling Drilling Drilling	ATION G COM G EQUI G METI	: STA PANY IPMEN HOD:		LAT GR INIT ST/ WE	RTHING (ft): TIUDE: OUND ELEV TIAL DTW (ft): ATIC DTW (ft) LL CASING D GGED BY: K.	403.7	L T 70 5/5/06 E V ER (in): 1,4 E er C	OREH VELL D OREH CHECK	UDE: EV (ft): OLE DEP DEPTH (ft): OLE DIAM	ГН (ft): 458.0 458.0 IETER (in): 10 3/4 . Pollock
	Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headspace PID (units)	Depth (feet)		Well Construction
	- - -		SW	SAND WITH GRAVEL; SW; 10YR 7/4 grayish orange; fine to coarse-grained; loose; dry; no odor; none cementation; subangular; well graded; 85% sand, 15% fine to coarse (5-25mm), subrounded gravel, trace of silt	XXXXX	- soil 1004		2.2	-	X11XX11XX11X11 X11XX11XX11X11 X11XX11XX	
	- 110 - - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to medium-grained; low plasticity; medium dense to loose; dry; no odor; none cementation; subangular; well graded; 45% sand, 30% fine to coarse (5-40mm), subrounded gravel, 25% clay	X X X X	soil		0.0	110— - - -	•V111×111×111×111× 1×111×111×111×111× 1×111×111×111×111×	<ul> <li>4 inch schedule 80 PVC, Blank Casing with cement grout</li> </ul>
	115 - -			<b>CLAYEY SAND</b> ; fine to coarse-grained; loose; 80% sand, 20% clay, trace of fine (5-7mm), subangular gravel	X X X X	1009 - soil		0.9	115— - -	1121122112211221122 112112211221122 112112	
SECOR INTL.GDT 10/23/06	120 - - -			WITH GRAVEL; 50% sand, 35% fine (5-15mm), subangular to subrounded gravel, 15% clay	X X X X	1013 - soil		2.7	120— - -	11121122112211221122112211221122112211	
-4, BP-22, AND BP-23.GPJ S	- 125 - -			<b>CLAYEY SAND</b> ; fine to medium-grained; subrounded; poorly graded; 80% sand, 20% clay, trace of fine (5-7mm), subrounded gravel and silt	X X X X	1017 soil		1.6	- 125 — - -	X1//X1//X1//X1//X1// X1//X1//X1//X1//X1/	— 1 inch schedule 80 PVC, Blank
<b>DP-1, BSDP-2, BSDP-3, BSDP</b>	- 130 — - -			WITH GRAVEL; fine to coarse-grained; medium plasticity; medium dense to loose; well graded; 45% sand, 35% fine to coarse (5-45mm), subangular to subrounded gravel, 20% clay	X X X X	1026 - soil		1.2	- 130— - -		Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ	- 135 — - -			Low plasticity; loose; 70% sand, 15% clay, 15% fine to coarse (5-20mm), subrounded gravel	X X X X	1044 - soil		5.1	- 135 — - -	X   1   X   1	
GEO F	-					1053					

	DRILLING INSTALLA DRILLING DRILLING DRILLING	N: - NUMI - NUMI 	BER: STA STA PANY PMEN HOD:	IT: Becker Hammer Percussion-Hammer	Ad NOF LAT GRO INIT STA WE	TIC DTW (ft)	(ft): : 403.7 : DIAMET	<u>PAGE</u> 70 5/5/ TER (in)	<u>5 OF</u> E L 7 (06 E V 2 : 1,4 E	14 ASTIN ONGIT OC EL BOREH VELL D BOREH	UDE: EV (ft): OLE DE EPTH ( OLE DI	SECOR SECOR PTH (ft): 458.0 ft): 458.0 AMETER (in): 10 3/4
	Time & Depth (feet)	Graphic Log	JIPME	NT: Cyclone Description	Sample	GGED BY: K. Time Sample ID	Measured Recov. (feet)		Headspace PID (units)		ED BY:	C. Pollock Well
	ËQ£	es ///	SC	Medium plasticity; 50% sand, 30% fine to coarse (5-20mm), subangular gravel, 20%	Sa	Method - soil	Mea Re (f	οŭ Ω	неас Неас 4.1	Ŭ.		Construction
	- - - 145 - - -			45% sand, 35% clay, 20% fine to coarse (5-20mm), subangular to subrounded gravel	X X X X X X X X X	1100 soil			4.2	- - - 145 - -		4 inch schedule 80 PVC, Blank Casing with cement grout
	- 150 - -			Low plasticity; 65% sand, 20% clay, 15% fine to coarse (5-20mm), subangular gravel	X X X X	1117 soil			4.0		1   X   1   X	
R INTL.GDT 10/23/06	- 155 — - -			Poorly graded; 60% sand, 30% clay, 10% fine (5-15mm), subrounded gravel	X X X X	1124 soil			3.5			1 inch schedule 80 PVC, Blank Casing with cement grout
P-22, AND BP-23.GPJ SECC				Fine to medium-grained; 60% sand, 30% clay, 10% finr (5-10mm), subrounded gravel	XXXX	1133 - soil			5.8	160-		⊷4 inch schedule 80
, BSDP-2, BSDP-3, BSDP-4, B	- 165 — - -			Fine to coarse-grained; well graded; 55% sand, 30% fine to coarse (5/10mm), subangular gravel, 15% clay, trace of silt	X X X X X	1146 soil			4.9	- 165 — -		PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	- 170 - - -		SM	SILTY SAND WITH GRAVEL; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 50% sand, 30% fine to coarse (5-20mm), subrounded gravel, 20% silt, trace of clay		1157 soil			5.7	- 170 — - - -		<ul> <li>         — 1 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal     </li> </ul>

[	PROJECT LOCATIO PROJECT	N:	BER:	Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	d	LL / PROBEH	-	-	OF	14			S E C O R
	DRILLING DRILLING DRILLING	ATION: 6 COM 6 EQUI 6 METH	: STA PANY PMEN HOD:		LAT GR INIT ST/ WE	RTHING (ft): FITUDE: OUND ELEV ( FIAL DTW (ft): ATIC DTW (ft): LL CASING D <u>GGED BY: K.</u>	403.70	ER (in): r	L T 06 E V 1,4 E	OREH VELL D OREH CHECKI	UDE: EV (ft): OLE DE EPTH ( OLE DI	EPT (ft): /	н (ft): 458.0 458.0 ЕТЕR (in): 10 3/4 <u>Pollock</u>
	Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headsnare	(units)	Depth (feet)			Well Construction
-	-		SM	65% sand, 20% silt, 15% fine to coarse (5-20mm), subrounded gravel	X X X X	soil			2.9	-			-4 inch schedule 80 PVC, Blank
	-   -			55% sand, 30% fine to coarse (5-20mm), subrounded gravel, 15% silt	X X X X X	1234 - soil			4.1	- 180 — - -			Casing with bentonite 3/8" chip and 1/4" pellet seal
	- 185 — - -			<b>SILTY SAND</b> ; fine to medium-grained; poorly graded; 80% sand, 20% silt, trace of fine (5-10mm), subrounded gravel and clay	X X X X	1310 - soil			2.8	- 185 — - -			- 1 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal
SECOR INTL.GDT 10/23/06	- 190 — - -		SC	CLAYEY SAND WITH GRAVEL; SC; 5YR 4/4 brown; fine to medium-grained; medium plasticity; medium dense to loose; dry; no odor; none cementation; subrounded; poorly graded; 55% sand, 35% clay, 10% fine (5-10mm), subrounded to rounded gravel, trace of silt	X X X X	1323 - soil			1.8				← 1 inch and 4 inch schedule 80
, BP-22, AND BP-23.GPJ S	195 — - -		SM	SILTY SAND WITH GRAVEL; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 50% sand, 30% fine (5-7mm), subangular gravel, 20% silt, trace of clay	X X X X X	1342 soil			4.1	195			PVC, Blank Casing with filter sand 8-12 ← 1 inch schedule 80
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ	- 200 — - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; loose; dry; no odor; none cementation; subrounded; poorly graded; 50% sand, 35% clay, 15% fine to coarse (10-30mm), subrounded to rounded gravel	X X X X	1350 - soil			1.8	200			PVC, 0.02 inch slotted casing, filter sand 8-12 1 inch PVC end plug, filter sand 8-12
RM 304 BORING LOGS BSD	- 205 — - -			Subangular; well graded; 50% sand, 30% clay, 20% fine (5-15mm), subangular to subrounded gravel	X X X X X	1416 soil			3.9	- 205			
GEO FO	-					1430				-			

PROJEC LOCATIC PROJEC	DN:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	we ad	ILL / PROBEF						S E C O R
DRILLING INSTALL DRILLING DRILLING	G: ATION G COM G EQUI G METI	STA : STA PANY IPMEN HOD:	RTED5/2/06COMPLETED:5/11/06RTED5/2/06COMPLETED:5/11/06::Layne Christensen Company	LAT GR INI <sup>T</sup> ST/ WE	RTHING (ft): FITUDE: OUND ELEV FIAL DTW (ft) ATIC DTW (ft)	(ft): : 403.7 ): DIAMET	70 5/5/ ER (in) er	E L 7 /06 E V : 1,4 E	EASTIN LONGIT FOC EL BOREH WELL D BOREH CHECKI	UDE: EV (ft): OLE DE EPTH ( OLE DI	EPTH (ft): 458.0 (ft): 458.0 AMETER (in): 10 3 <u>C. Pollock</u>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
		GW- GC	<b>GRAVEL WITH SAND AND CLAY</b> ; GW-GC; N6 light gray; fine-grained; medium plasticity; loose; dry; no odor; none cementation; well graded; 45% (5-15mm), subangular to subrounded gravel, 35% fine to coarse-grained sand, 20% clay	X X X	- soil 1438			2.0	-		
215-		SC	CLAYEY SAND; SC; 5YR 4/4 brown; fine to medium-grained; medium plasticity; dense; dry; no odor; none cementation; subrounded; poorly graded; 60% sand, 40% clay	X X X	soil			0.5	215		<ul> <li>4 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal</li> </ul>
220-		SM	SILTY SAND; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 70% sand, 30% silt, trace of fine (5-7mm), subangular gravel and clay	X X X	1450 - soil 1455			1.3	220		
225 -		GP- GC	<b>GRAVEL WITH SAND AND CLAY</b> ; GP-GC; N7 - 5YR 4/4 light gray to brown; fine-grained; medium plasticity; loose; dry; no odor; none cementation; poorly graded; 55% (5-10mm), subangular to angular gravel, 30% fine to coarse-grained sand, 15% clay	X X X X X	soil			1.2	225		
230-			Low plasticity; 45% (5-15mm), subangular to subrounded gravel, 40% fine to coarse-grained sand, 15% clay	X X X X	1457 - soil			1.5	230-	-	- — 1 inch schedule 80 PVC, Blank Casing with
235-		SW	<b>SAND</b> ; SW; 5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; none cementation; subangular; well graded; trace of fine (5-10mm), subrounded gravel and clay	X X X	1506 - soil			0.8	235-		bentonite 3/8" chip and 1/4" pellet seal
240-			Trace of silt	X X X X	1511 - soil			0.9	240		<ul> <li>1 inch and 4 inch</li> </ul>
	- • • • • • • • • • • • • • • • • • • •				1522						schedule 80 PVC, Blank Casing with

PROJECT LOCATIOI PROJECT	N:	BER:	Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	ad			BOREH	3 OF	14		S E C O R
DRILLING DRILLING DRILLING	TION COM EQUI	: STA PANY IPMEN HOD:		LAT GR INI <sup>T</sup> ST/ WE	ATIC DTW (ft)	403.7	ER (in): er	L T 06 E V 1,4 E	SOREH VELL D SOREH CHECK	UDE: EV (ft): OLE DE DEPTH (f OLE DIA	PTH (ft): 458.0 i): 458.0 METER (in): 10 3 <u>C. Pollock</u>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	neauspace PID (units)	Depth (feet)		Well Construction
		SC	CLAYEY SAND WITH GRAVEL; SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; loose; dry; no odor; none cementation; subangular; well graded; 45% sand, 30% fine (5-15mm), subangular gravel, 25% clay		- soil 1535 - soil			<u>0.7</u>	- - - 250		filter sand 8-12 1 inch schedule 80 PVC, 0.02 inch slotted casing, filter sand 8-12 1 inch PVC
- - 255 -			<b>CLAYEY SAND</b> ; medium plasticity; medium dense to loose; 70% sand, 30% clay, trace of fine (5 mm), subangular gravel	A X X X X X X X X X X X X X X X X X X X	1548 - soil			2.3	- - 255— - -		end plug, filter sand 8-12
260			<b>WITH GRAVEL</b> ; low plasticity; 55% sand, 25% fine (5-10mm), subangular gravel, 20% clay	A X X X X X X	1601 - soil			0.9	- 260— - -		← 4 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet
265-		SM	SILTY SAND WITH GRAVEL; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 65% sand, 20% silt, 15% fine (5-10mm), subangular gravel	× × × × × ×	1612 - soil			5.1	- 265— - -		seal
5 270 — 7 -			Fine (5-15mm), subrounded gravel	× × × ×	1628 soil			5.2	- 270- -		<- 1 inch
			65% sand, 20% fine (5-15mm), subrounded gravel, 15% silt	X X X X X X X	1640 - soil			5.7	- 275 - - -		schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal
GEO TOTA 304					1700				_		

PROJECT LOCATIO PROJECT	N:	BER:	Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	d	LL / PROBEHOL		9 OF	14	Secor
drilling Drilling Drilling	ATION G COM G EQUI G METI	: STA PANY PMEN HOD:		LAT GR INIT ST/ WE	<u>GGED BY: K. Ha</u>	03.70 5/ METER (iii arker	ן - 5/06 ני ח): 1,4 ני ע	BOREH WELL E BOREH CHECK	. ,
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	(feet) Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
- - -		SW	SAND; SW; 5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; none cementation; subrounded; well graded; trace of fine (5 mm), subrounded gravel and silt	X X X	- soil 1715		7.9	-	- ← 4 inch - schedule 80 PVC, Blank - Casing with bentonite
285 — - - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; loose; dry; no odor; none cementation; subangular; well graded; 50% sand, 35% clay, 15% fine (5-10mm), subrounded gravel	XXXXX	- soil 1727		5.5	285-	- 1/4" pellet - seal - 1 inch - schedule 80 PVC, Blank Casing with
290 — - - -			5YR 6/4 light brown; fine to medium-grained; low plasticity; 70% sand, 15% clay, 15% fine (5-10mm), subrounded gravel	X X X X	soil		6.3	290-	bentonite 3/8" chip and 1/4" pellet seal 
295 — - -			5YR 4/4 brown; fine to coarse-grained; 50% sand, 35% clay, 15% fine (5-10mm), subangular gravel	X X X X	soil		6.9	295	Casing with filter sand 8-12 - 1 inch schedule 80 PVC, 0.02 inch slotted casing, filter
300 - -	00000000000000000000000000000000000000	GP- GM	<b>GRAVEL WITH SAND AND SILT</b> ; GP-GM; 5YR 6/4 light brown; fine-grained; non plastic; loose; dry; no odor; none cementation; subangular; poorly graded; 70% gravel, 20% fine to coarse-grained sand, 10% silt	X X X X	1751 - soil		5.4	300-	casing, filter sand 8-12 1 inch PVC end plug, filter sand 8-12
305 — - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; dense; dry; no odor; none cementation; subangular; well graded; 55% sand, 30% clay, 15% fine to coarse (5-20mm), subangular gravel	X X X X	1030 - soil		6.2	305	
310 - -			Low plasticity; 50% sand, 30% clay, 20% fine (5-10mm), subangular gravel	X X X X	1042 soil		5.2	310-	
-					1105			-	

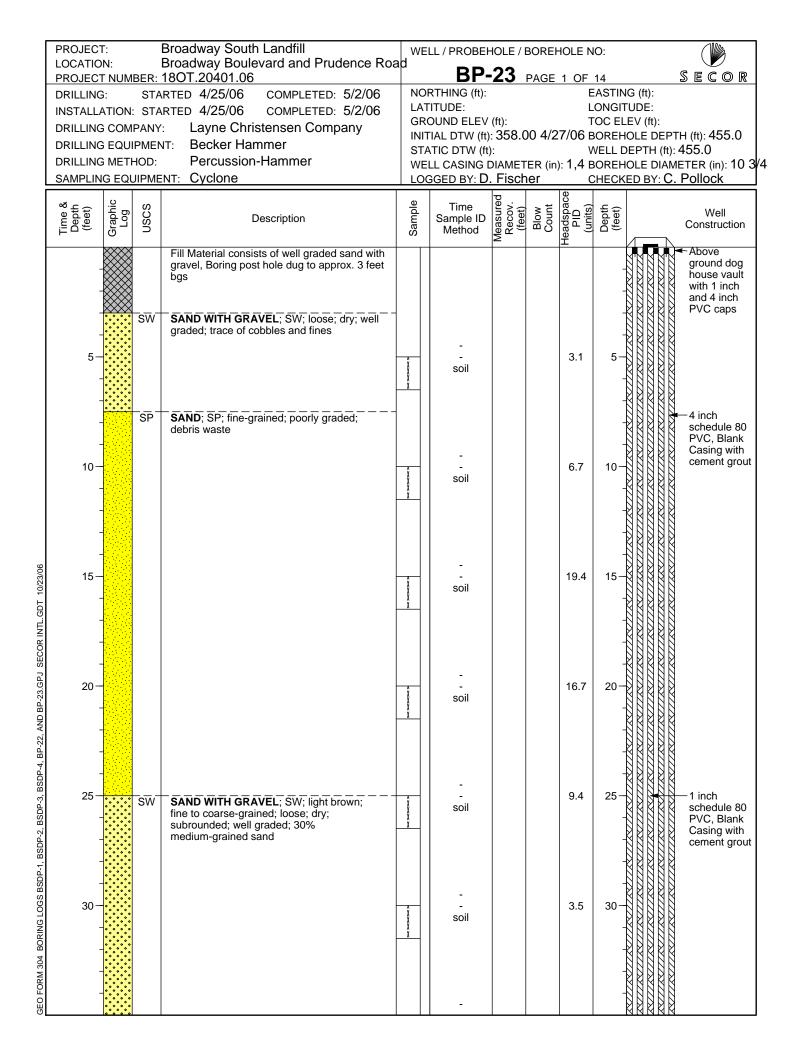
LOCATIO PROJECT			Broadway Boulevard and Prudence Roa 18OT.20401.06		BP-	<b>22</b>	PAGE	10 OF	14		SECOR
DRILLING DRILLING DRILLING	ATION: G COM G EQUI G METH	STA PANY PMEN IOD:		LA <sup>-</sup> GR INI <sup>-</sup> ST/ WE	ATIC DTW (ft) ILL CASING D GGED BY: K.	403.7 : DIAMET Harke	ER (in) er	L 7 /06 E V : 1,4 E	BOREH VELL D BOREH <u>CHECK</u>	UDE: EV (ft): OLE DEF DEPTH (ft) OLE DIAI	ттн (ft): 458.0 :: 458.0 метег (in): 10 :. Pollock
Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
-		SC	Medium plasticity; subrounded; 45% sand, 40% clay, 15% fine (5-10mm), subangular gravel	X X X X	- soil			5.8	-		
- 320 — - -			Low plasticity; subangular; 50% sand, 30% clay, 20% fine to coarse (5-20mm), subangular gravel	X X X X	1121 - soil			4.5	- 320— - -		
- 325 — - -		SM	SILTY SAND; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subrounded; well graded; 75% sand, 25% silt, trace of fine (5 mm), subrounded gravel and clay	X	1131 - soil			7.0	- 325 — - -		← 4 inch schedule 80 PVC, Blank Casing with bentonite
- 330 — - -		SC	CLAYEY SAND WITH GRAVEL; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; dense; dry; no odor; none cementation; subangular; well graded; 60% sand, 25% clay, 15% fine (5-10mm), subangular sand	X X X X	1219 - soil			5.3	- 330— - -		3/8" chip an 1/4" pellet seal
- 335 — - -			<b>CLAYEY SAND</b> ; subrounded; 60% sand, 40% clay, trace of fine (5-10mm), subangular gravel	X X X X	1224 soil			4.4	- 335— - -		
- 340 - -		SW	SAND WITH GRAVEL; SW; 5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; none cementation; subangular; well graded; 70% sand, 30% fine (5-7mm), subangular gravel, trace of clay	× × × ×	1251 - soil			4.3	- 340— - -		
- 345 — - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; loose; dry; no odor; none cementation; subangular; well graded; 55% sand, 35% clay, 10% fine (5-10mm), subangular sand	× × × ×	1308 - soil			4.4	- 345 — - -		
-					1325				-		

PROJECT LOCATIO	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	ad WE	LL / PROBEH		OREHOLE		S E C O R
DRILLING INSTALLA DRILLING DRILLING DRILLING	: TION COM EQUI	STA : STA PANY IPMEN HOD:	RTED5/2/06COMPLETED:5/11/06RTED5/2/06COMPLETED:5/11/06::Layne Christensen Company	LAT GR INI <sup>T</sup> ST/ WE	RTHING (ft): FITUDE: OUND ELEV ( FIAL DTW (ft): ATIC DTW (ft):	(ft): 403.70 : HAMETE	) 5/5/06 R (in): 1,4 r	EASTIN LONGIT TOC EL BOREH WELL E BOREH CHECK	NG (ft): TUDE:
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headspace PID	(units) Depth (feet)	Well Construction
- - -		SW	SAND WITH GRAVEL; SW; 5YR 7/2 grayish orange pink; fine to coarse-grained; loose; dry; no odor; none cementation; subrounded; well graded; 80% sand, 20% fine (5-10mm), subrounded gravel, trace of clay	X X X X X	- soil 1405		3.1	-	← 4 inch schedule 80 PVC, Blank Casing with filter sand
355 - - -		SM	SILTY SAND WITH GRAVEL; SM; 5YR 6/4 light brown; fine to coarse-grained; non plastic; loose; dry; no odor; none cementation; subangular; well graded; 60% sand, 30% silt, 10% fine (5-15mm), subrounded gravel, trace of clay	X X X X X	- soil 1431		2.6	355-	8-12
360 - - -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; loose; dry; no odor; none cementation; subangular; well graded; 40% sand, 35% clay, 25% fine to coarse (5-20mm), subangular to subrounded gravel	X X X X X	soil		4.6	360-	
365 — - -			Subrounded; 55% sand, 25% fine to coarse (5-20mm), subangular gravel, 20% clay	X X X X X	1442 - soil		4.2	365-	
370 - -		SW	<b>SAND WITH GRAVEL</b> ; SW; 5YR 7/2 grayish orange pink; fine to coarse-grained; loose; dry; no odor; none cementation; subangular; well graded; 75% sand, 25% fine to coarse (5-20mm), subangular to angular gravel, trace of clay	X X X X	1451 - soil		3.3	370-	4 inch schedule 80 PVC, 0.02 inch slotted casing, filter
375 — - -		-sc	CLAYEY SAND WITH GRAVEL; SC; 5YR 6/4 - 4/4 light brown to brown; fine to coarse-grained; medium plasticity; medium dense to loose; moist; no odor; none cementation; subangular; well graded; 45% sand, 30% fine to coarse (5-20mm), subangular gravel, 25% clay	X X X X	1457 - soil		2.3	375	sand 8-12
- 380 — - -			5YR 4/4 brown; saturated; 60% sand, 25% clay, 15% fine to coarse (5-20mm), subangular gravel	X X X X X	1530 - soil		2.5	380-	
_					1610			-	

	DRILLING INSTALL DRILLING DRILLING DRILLING	DN: <u>T NUM</u> G: ATION: G COM G EQUI G METH	BER: STA STA PANY PANY HOD:		ad NC LA GF INI ST WE	DRTHING (ft): TITUDE: ROUND ELEV TIAL DTW (ft) ATIC DTW (ft)	(ft): : 403.7	<u>PAGE 1</u> 70 5/5/( TER (in):	1 <u>2 OF</u> E L T 7 06 E V 1,4 E	E 14 EASTIN ONGII OC EL BOREH VELL D BOREH	rude: Lev (ft): Iole dep Depth (ft) Iole diam	<u>S E C © R</u> TH (ft): 458.0 : 458.0 /ETER (in): 10 3/4 . Pollock
	Time & Depth (feet)	Graphic Log	uscs	Description	Sample		Measured Recov. (feet)		PID (units)			Well Construction
			SC	50% sand, 25% clay, 25% fine to coarse (5-20mm), subangular gravel	X X X X	- soil 1616		<u> </u>	2.5			
	390 -		GW- GC	<b>GRAVEL WITH SAND AND CLAY</b> ; GW-GC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; dense; saturated; no odor; none cementation; subangular; well graded; 40% gravel, 30% fine to coarse-grained sand, 30% clay	XXXXX	soil			2.5	390 - - -		
	395 -		SC	<b>CLAYEY SAND WITH GRAVEL</b> ; SC; 5YR 4/4 brown; fine to coarse-grained; medium plasticity; medium dense; wet; no odor; none cementation; subangular; well graded; 50% sand, 25% clay, 25% fine (5-10mm), subangular gravel	X	soil			1.9	395 - - -		
SECOR INTL.GDT 10/23/06	400 -			Saturated; 60% sand, 20% clay, 20% fine (5-10mm), subangular gravel	X X X X	1754 - soil			8.7	400 - - - -		-4 inch schedule 80 PVC, 0.02
	405 -			45% sand, 35% fine (5-10mm), subangular gravel, 20% clay	XXXX	1815 - soil			6.8	405 - -		inch slotted casing, filter sand 8-12
P-1, BSDP-2, BSDP-3, BSDP	410-			50% sand, 30% fine to coarse (5-25mm), subangular to subrounded gravel, 20% clay	X X X X	1830 			6.1	- 410- - -		
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ	415-		SW	<b>SAND WITH GRAVEL</b> ; SW; 5YR 6/4 light brown; fine to coarse-grained; loose; saturated; no odor; none cementation; subangular; well graded; 65% sand, 35% fine to coarse (5-25mm), subangular gravel, trace of clay	X X X X	0936			6.4	- 415 - -		
GEO FC		••••• •••••				0942				-		

PROJECT LOCATIO PROJECT	N:		Broadway South Landfill Broadway Boulevard and Prudence Ro 18OT.20401.06	ad			BOREHO		1	S E C O R
DRILLING INSTALLA DRILLING DRILLING DRILLING	B: ATION COM EQUI METI	STA : STA PANY IPMEN HOD:	RTED5/2/06COMPLETED:5/11/06RTED5/2/06COMPLETED:5/11/06::Layne Christensen Company	LA GR INI ST	PRTHING (ft): TITUDE: COUND ELEV TIAL DTW (ft) ATIC DTW (ft)	(ft): : 403.7 ): DIAMET	70 5/5/00 ER (in): 1 er	EAS LON TOC 6 BOF WEL ,4 BOF <u>CHE</u>	TING (ft): GITUDE: ELEV (ft): REHOLE DEP L DEPTH (ft)	TH (ft): 458.0 : 458.0 1ETER (in): 10 3/
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headspace	PID (units) Depth	(feet)	Well Construction
- - - 425		SC	CLAYEY SAND WITH GRAVEL; SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; medium dense; saturated; no odor; none cementation; subangular; well graded; 60% sand, 20% clay, 20% fine to cobbles (5-110mm), subangular gravel 70% sand, 15% clay, 15% fine to coarse (5-30mm), subangular gravel		soil 1000 soil			5.4 42		
- - 430 -		S₩- SC	<b>SAND WITH GRAVEL AND CLAY</b> ; SW-SC; 5YR 4/4 brown; fine to coarse-grained; low plasticity; loose; wet; no odor; none cementation; subangular; well graded; 60% sand, 30% fine (5-15mm), subangular gravel,	X	1048 - soil		6	5.0 43		← 4 inch schedule 80 PVC, 0.02 inch slotted casing, filter sand 8-12
			10% clay	X	1059 soil		Ę	5.9 43	15	
440		-sw	<b>SAND WITH GRAVEL</b> ; SW; 5YR 6/4 light brown; fine to coarse-grained; loose; wet; no odor; none cementation; subangular; well graded; 60% sand, 40% fine to coarse (5-40mm), subangular gravel, trace of silt	XXXX	1117 - soil		6	5.8 44		
			Fine to cobbles (5-110mm), subangular gravel	X X X X	1124 soil		Ę	5.8 44		<ul> <li>4 inch schedule 80 PVC, Blank Casing with filter sand 8-12</li> </ul>
1440				X X X X	1136 - soil		5	5.8 45	- - - - - - - - - - - - - - - - - - -	<ul> <li>4 inch PVC end plug, filter sand 8-12</li> </ul>
GEO FORM 304					1248					

DRILLING INSTALLA DRILLING DRILLING DRILLING	DN: <u>T NUMI</u> G: ATION: G COMI G EQUI G METH	I <u>BER: '</u> STA I: STA IPANY: IPMEN HOD:		BP-22         PAGE 14 OF 14         S E C O R           NORTHING (ft):         EASTING (ft):           LATITUDE:         LONGITUDE:           GROUND ELEV (ft):         TOC ELEV (ft):           INITIAL DTW (ft): 403.70 5/5/06         BOREHOLE DEPTH (ft): 458.0           STATIC DTW (ft):         WELL DEPTH (ft): 458.0           WELL CASING DIAMETER (in): 1,4 BOREHOLE DIAMETER (in): 10         LOGGED BY: K. Harker										
Time & Depth (feet)	Graphic Log	nscs	Description	Sample		Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID	(units) Depth (feet)	Well Construction			
- - - 460 - -		SW	SAND; 5YR 4/4 brown; saturated; subrounded; trace of fine (5 mm), subangular gravel and clay Hole terminated at 458 feet.			- soil			5.2	460-				
- - 465 - -										465 -	-			
- 470- - -										470-				
- 475 — - -										475-				
- 480 — - -										480-				
- 485 — - -										485-	-			
 -											-			

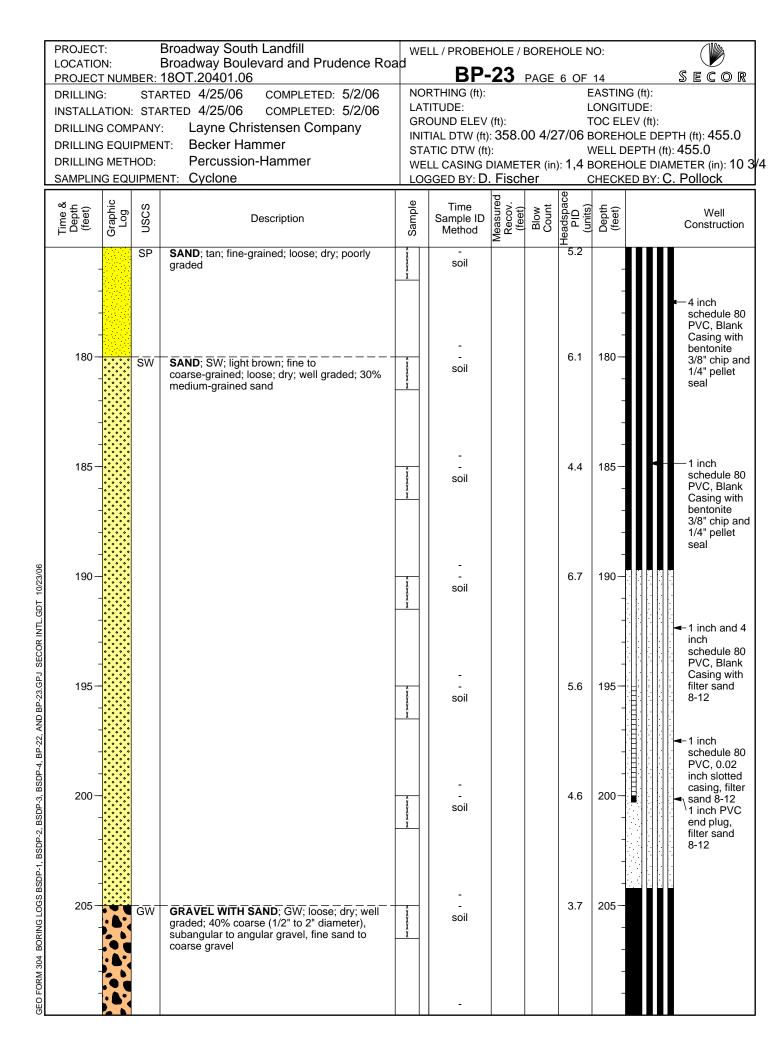


	DRILLING INSTALL DRILLING DRILLING	DN: <u>T NUM</u> G: ATION: G COM G EQUI G METH	BER: STA STA PANY PMEN HOD:	IT: Becker Hammer Percussion-Hammer	Ad NO LAT GR INIT ST/ WE	BP- RTHING (ft): TITUDE: OUND ELEV TIAL DTW (ft) ATIC DTW (ft) LL CASING E	(ft): : 358.0 :: DIAMET	ן - 00 4/27/06 ו י ER (in): 1,4 ו	14 EASTIN LONGIT TOC EL BOREH WELL D BOREH	G (ft): <sup>-</sup> UDE: .EV (ft): OLE DEPTH DEPTH (ft): 45 OLE DIAMET	5.0 ER (in): 10 3/4
	Time & Depth (feet)	Graphic Log	JIPME SOSN	NT: Cyclone Description	Sample	GGED BY: D. Time Sample ID Method				ED BY: C. P	OIIOCK Well Construction
-	40 -		SW	Some fines SAND; SW; tan; fine to coarse-grained;		- soil - soil - soil	2	<u>Ť</u> 7.9 6.7 4.7			4 inch schedule 80 PVC, Blank Casing with cement grout
OR INTL.GDT 10/23/06	50-			30% fine-grained sand, trace of fine gravel	X X X X X X X X X X X X	- - soil		3.5		11 X 11	
-4, BP-22, AND BP-23.GPJ SE	55 -				× × × × ×	- soil		4.5			1 inch schedule 80 PVC, Blank
DP-1, BSDP-2, BSDP-3, BSDP	60 -				X X X X	- - soil		6.7	60		Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	65 -					- soil		9.3	65	222112211221122112212221222 22221222122	

	DRILLING INSTALLA DRILLING DRILLING DRILLING	N: <u>F NUM</u> S: ATION S COM S EQU S METI	BER: STA : STA PANY IPMEN HOD:		Dad NC LA GF INI ST WE	ORTHING (ft): TITUDE: COUND ELEV TIAL DTW (ft) ATIC DTW (ft)	(ft): : 358.0 :: DIAMET	PAGE 3 00 4/27 FER (in): her	3 OF E T 7/06 B V 1,4 B	14 ONGIT OC ELI OREH VELL D OREH CHECKE	UDE: EV (ft): OLE DEP EPTH (ft) OLE DIAI	TH (ft): 455.0 : 455.0 METER (in): 10 3/4 . Pollock
	Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	nreauspace PID (units)	Depth (feet)		Well Construction
	- - - - 75 - -		SP	SAND; SP; light brown; fine to coarse-grained; dry; poorly graded; 50% medium-grained sand, trace of fine gravel and fines		- soil - soil			7.6		11XX/1XX/1XX/1XX/1XX/1XX/1XX/1XX/1XX/1X	4 inch schedule 80 PVC, Blank Casing with cement grout
	- 80 — - - -				X X X X	- - soil			4.0	80	K     K	
GPJ SECOR INTL.GDT 10/23/06	85 - - - 90			Tan; 40% fine-grained sand, trace of fines	X X X X	soil			<ul><li>4.3</li><li>6.0</li></ul>	85		
-3, BSDP-4, BP-22, AND BP-23.GPJ	90 - - - - 95		SW	SAND; SW; light brown; fine to coarse-grained; dry; well graded; 30% fine-grained sand with fines, trace of fine gravel		soil			6.9	90		1 inch schedule 80 PVC, Blank Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22,	- - - 100-				X X X X	soil			7.0		1118/118/118/118/118/118/118/118/118/11	
GEO FORM 304 BORING	-				X X X							

	PROJEC <sup>-</sup> LOCATIO PROJEC <sup>-</sup>	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	we ad	LL / PROBEH			4 OF	14		S E C O R
	DRILLING DRILLING DRILLING	ATION: G COM G EQUI G METH	: STA PANY PMEN HOD:		NORTHING (ft):       EASTING (ft):         LATITUDE:       LONGITUDE:         GROUND ELEV (ft):       TOC ELEV (ft)         INITIAL DTW (ft): 358.00 4/27/06 BOREHOLE D         STATIC DTW (ft):       WELL DEPTH         WELL CASING DIAMETER (in): 1,4 BOREHOLE D         LOGGED BY: D. Fischer       CHECKED BY							: 455.0 /IETER (in): 10 3/4
	Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
	- - - - 110- -		SW	<b>SAND</b> ; light brown; fine to coarse-grained; loose; dry; well graded; 30% fine-grained sand with fines, trace of fine gravel	A Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	- soil - - soil			17.4	- - - 110- - -	X [ [ X ] [	- 4 inch schedule 80 PVC, Blank Casing with cement grout
	- - - - -				X X X X	- - soil			6.8	- - 115— - -	11 X 1 1 X 1 1 X 1 X 1 X 1 X 1 X 1 X 1	
	- 120 - - -				X X X X X	- soil			8.0	- 120— - -	7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.7.	
4, BP-22, ANU BP-23.GPJ St	- 125 - - -		sw	SAND WITH GRAVEL; SW; fine to coarse-grained; loose; dry; trace of fines	X X X X	- soil			5.4	- 125— - -		1 inch schedule 80 PVC, Blank
2-1, BSUP-2, BSUP-3, BSUP-1	- 130 - - -				X X X X X	- soil			6.2	- 130— - -	XX///XX///XX///XX// XX///XX///XX///XX/	Casing with cement grout
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	- 135 - - -				A X X X X X	- soil			5.1	- 135— - -	V   1 × 1   × 1	
6FC 70	-					-				_		

	DRILLING INSTALLA DRILLING DRILLING	N: <u>FNUM</u> S: ATION: COM GEQUI GMETH	BER: STA STA PANY PMEN HOD:		NOI LAT GRO INIT STA WE	TIC DTW (ft)	(ft): : 358.0 :: DIAMET	<u>PAGE</u> 00 4/2 ER (in)	<u>5 OF</u> E L 7/06 E V 5: 1,4 E	14 EASTIN LONGIT FOC EL BOREH WELL D BOREH	UDE: EV (ft OLE [ DEPTH OLE [	): DEP <sup>-</sup> I (ft): DIAN	∬ <u>S</u> <u>E</u> <u>C</u> <u>O</u> <u>R</u> (ft): 455.0 455.0 HETER (in): 10 3/4 Pollock
	Time & Depth (feet)	Graphic Log	nscs	Description	Sample		Measured Recov. (feet)		Headspace PID (units)			<u></u>	Well Construction
	- - - 145 -		SW	<b>SAND</b> ; fine to coarse-grained; loose; dry; 30% fine-grained sand with fines, trace of fine gravel		- soil - - soil			7.1	- - - 145 - -	X///X///X///X///X///X///X///X///X///X/	XV11XV11XV11XV11XV11XV11XV11X	<ul> <li>4 inch schedule 80 PVC, Blank Casing with cement grout</li> </ul>
	- 150 - -				X X X X	- soil			6.5	- 150- - -	1/1X/1/1X/1/1X/1/1X/1/1X 1/1X/1/1X/1/1X	<u> </u>	— 1 inch schedule 80 PVC, Blank Casing with cement grout
DR INTL.GDT 10/23/06	- 155 — - -				X X X X	- - soil			6.7	- 155 — - -			
BP-22, AND BP-23.GPJ SEC	- - 160 - -				X X X X	- soil			7.6	- 160 - -			← 4 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal
P-1, BSDP-2, BSDP-3, BSDP-4,	- - 165 - -				X X X X	- soil			4.9	- 165 - -			
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	- - 170 - - - -		SP	SAND; SP; tan; fine-grained; loose; dry; poorly graded	X X X X	- soil			9.2	- 170 - - -			<ul> <li>1 inch schedule 80</li> <li>PVC, Blank</li> <li>Casing with bentonite 3/8" chip and 1/4" pellet seal</li> </ul>



PROJEC LOCATIO PROJEC	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	WE d	LL / PROBEF						S e C	OR
DRILLING INSTALL/ DRILLING DRILLING DRILLING	3: ATION: G COMI G EQUI G METH	STA STA PANY PMEN IOD:	RTED4/25/06COMPLETED:5/2/06RTED4/25/06COMPLETED:5/2/06:Layne Christensen Company	NORTHING (ft):       EASTING (ft):         LATITUDE:       LONGITUDE:         GROUND ELEV (ft):       TOC ELEV (ft):         INITIAL DTW (ft): 358.00 4/27/06 BOREHOLE DEPTH (ft): 455.0         STATIC DTW (ft):       WELL DEPTH (ft): 455.0         WELL CASING DIAMETER (in): 1,4 BOREHOLE DIAMETER (in): 10         LOGGED BY: D. Fischer       CHECKED BY: C. Pollock								n): <b>10 3/</b> 4
Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		W Const	ell ruction
-		SW	SAND; SW; light brown; loose; dry; subangular; well graded; 25% medium-grained sand with fines, trace of fine to coarse (to 2' diameter) gravel	X X X X	- soil			7.3	-		<b>■</b> —4 inct	
215				X X X X	soil			6.4	215— - - -		scheo PVC, Casir bento	dule 80 Blank og with nite ship and
220-				X X X X X	- soil			6.1	220			
225		SP	SAND; SP; light brown; medium-grained; loose; dry; subangular; poorly graded	X X X X	- soil			5.1	225 — - -			
- 230				X X X X X	- soil			6.6	- 230			n Jule 80 Blank
235			Tan; fine to coarse-grained; 50% medium-grained sand, trace of fines	X X X X X	soil			9.8	- 235		Casir bento	ig with nite hip and
			_	X X X X X	- - soil			7.9	- 240 -			and 4
					-				-		inch scheo PVC,	dule 80 Blank Ig with

-	DRILLING	N: <u>NUMI</u> :: ATION: 6 COMI	<u>BER:</u> STA STA PANY	NT: Becker Hammer	NOI LAT GRO INIT	BP- RTHING (ft): TITUDE: DUND ELEV	<b>23</b> (ft): 358.0	L 1 00 4/27/06 e	14 EASTIN ONGIT FOC EL BOREH	FUDE: _EV (ft):	∑ E C © R TH (tt): 455.0 : 455.0
	DRILLING SAMPLIN			Percussion-Hammer		LL CASING D GGED BY: D.		er (	CHECK	IOLE DIAI	METER (in): 10 3/4 . Pollock
	Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count Headspace PID (units)	Depth (feet)		Well Construction
-	- - - 250 - - - - - - - - - - - - - - - - - -		SP	SAND; SP; tan; fine to coarse-grained; loose; dry; subangular; poorly graded; 50% medium-grained sand, trace of fines and subrounded gravel		soil - - soil - soil		8.5 12.4			filter sand 8-12 1 inch schedule 80 PVC, 0.02 inch slotted casing, filter sand 8-12 1 inch PVC end plug, filter sand 8-12
COR INTL.GDT 10/23/06	- - 260 - - -				х Х Х Х Х	- soil		7.5	- 260- - -		<ul> <li>4 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet</li> </ul>
BP-22, AND BP-23.GPJ SE	- 265 - -				X X X X X	- soil		8.3	- 265 - - -		seal
3SDP-2, BSDP-3, BSDP-4,	- 270- - -				X X X X	- soil		7.7	- 270- -		<ul> <li>1 inch</li> </ul>
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23, GPJ SECOR INTL.GDT 10/23/06	- 275 - -				X X X X	- soil		7.0	- 275- - -		schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal
GEO FOR	-					-			-		

PROJECT LOCATIO PROJECT	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	we ad	LL / PROBEH		REHOLE N	-		S E C O R
DRILLING INSTALLA DRILLING DRILLING	G: ATION: G COM G EQUI G METH	STA STA PANY PMEN HOD:	RTED 4/25/06 COMPLETED: 5/2/06 RTED 4/25/06 COMPLETED: 5/2/06 : Layne Christensen Company	LAT GR INIT ST/ WE	RTHING (ft): FITUDE: OUND ELEV FIAL DTW (ft): ATIC DTW (ft)	(ft): 358.00 : PIAMETEI	E 1 4/27/06 V R (in): 1,4 E r (in): 0	EASTIN LONGI <sup>T</sup> TOC EL BOREH WELL E BOREH <u>CHECK</u>	TUDE: _EV (ft): IOLE DE DEPTH (f IOLE DI/	PTH (ft): 455.0 t): 455.0 METER (in): 10 3/ <u>C. Pollock</u>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Count Headspace PID (units)	Depth (feet)		Well Construction
	Ō	SP	SAND; SP; tan; fine to coarse-grained; loose; dry; subangular; poorly graded; 50% medium-grained sand, trace of fines		Method soil soil soil soil soil		7.9 7.9 13.6 6.8 9.2 8.1 7.1			<ul> <li>4 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal</li> <li>1 inch schedule 80 PVC, Blank Casing with bentonite 3/8" chip and 1/4" pellet seal</li> <li>1 inch and 4 inch schedule 80 PVC, Blank Casing with filter sand 8-12</li> <li>1 inch schedule 80 PVC, 0.02 inch slotted casing, filter</li> <li>sand 8-12</li> <li>1 inch PVC end plug, filter sand 8-12</li> </ul>
310- - - -				XXXXX	- soil -		5.1	310-	-	

PROJECT LOCATIO PROJECT	N:	BER:	Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	ad	ELL / PROBEH			10 OF	- 14		SECOR
DRILLING INSTALLA DRILLING DRILLING DRILLING	COM EQUI	STA STA PANY PMEN HOD:	RTED 4/25/06 COMPLETED: 5/2/06 RTED 4/25/06 COMPLETED: 5/2/06 : Layne Christensen Company	LA GF IN ST W	Drthing (ft): .Titude: Round Elev Itial DTW (ft) Tatic DTW (ft)	(ft): : 358.0 :: DIAMET	00 4/2 ER (in) her	נ ר 7/06 פ 1,4 פ ג ג	EASTIN LONGIT FOC EL BOREH WELL D BOREH CHECK	rude: .ev (ft): Iole def Depth (ft Iole dia	<sup>2</sup> TH (ft): 455.0 ): 455.0 METER (in): 10 <u>2. Pollock</u>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
- - 320 – - -		SP	<b>SAND</b> ; SP; tan; fine to coarse-grained; loose; dry; subangular; poorly graded; 50% medium-grained sand, trace of fines	× × × × ×	soil - - soil			6.2	- - - 320- - -		
- 325 — - -				A X X X X X	- soil			12.0	- 325 - -		<ul> <li>4 inch schedule 8 PVC, Blank Casing with bentonite 3/8" chip au 1/4" pellet</li> </ul>
- 330 — - -				X X X X X	- - soil			5.3	- 330- - -		seal
- 335 — - -			Tan; medium-grained; dry	A X X X X	- - soil			8.1	- 335 - -		
- 340 — -				X X X X X	soil			8.0	- 340- - -		
- 345 — - -			Fine to coarse-grained; dry; 50% medium-grained sand, trace of fines and fine gravel	X X X X X	- soil			8.9	- 345 — - -		✓ 4 inch schedule 8
-					-				-		PVC, Blank Casing with filter sand

PROJEC LOCATIC PROJEC	N:		Broadway South Landfill Broadway Boulevard and Prudence Roa 18OT.20401.06	we ad	LL / PROBEH						Secor
DRILLING INSTALL DRILLING DRILLING DRILLING	G: ATION: G COM G EQUI G METH	STA STA PANY PMEN HOD:	RTED4/25/06COMPLETED:5/2/06RTED4/25/06COMPLETED:5/2/06:Layne Christensen Company	LAT GR INIT ST/ WE	RTHING (ft): TUDE: OUND ELEV TAL DTW (ft) ATIC DTW (ft) LL CASING E GGED BY: D.	(ft): : 358.( ): DIAMET . Fisch	00 4/2 ER (in) 1er	נ ר 7/06 פ ג 1,4 פ ג	EASTIN LONGI FOC EL BOREH VELL E BOREH CHECK	DEPTH (ft):	IETER (in): 10
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
355 -		SP	<b>SAND</b> ; SP; tan; fine to coarse-grained; loose; dry; subangular; poorly graded; 50% medium-grained sand, trace of fines and fine gravel		- soil - - soil			9.8	355 - ⊻		8-12
360 -			Moist; 40% coarse-grained sand, trace of fines and fine gravel	× × × × × ×	- soil			10.7	360-		
365 -				X	- soil			5.2	365 -		←4 inch schedule 8 PVC, 0.02
370 -				× × × × ×	- soil			2.4	370-		inch slotted casing, filte sand 8-12
375 -				* * * * * * * * * * * * * * * * * * *	- soil			3.1	375-		
370				A X X X X X X	- soil			3.5	380-		

	DRILLING	N: <u>TNUM</u> 3: ATION: 5 COM 5 EQUI	BER: STA STA PANY PMEN		ad NOI LAT GRO INIT STA	RTHING (ft): TITUDE: OUND ELEV (ft) TIAL DTW (ft): 38 ATIC DTW (ft):	<b>3</b> ра	<u>GE 12 OF</u> E L 4/27/06 E	E 14 EASTIN LONGIT FOC EL BOREH WELL D	. ,
L			JIPME	INT: Cyclone		GGED BY: D. F				ED BY: C. Pollock
	Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID Method	Recov. (feet) Blow	Count Count Headspace (units)	Depth (feet)	Well Construction
	- - - 390 - - - 395 - - - - - - - - - - - - - - - - - -		SP	SAND; SP; tan; fine to coarse-grained; loose; saturated; subangular; poorly graded; 50% medium-grained sand, trace of fines and fine gravel		soil		2.7	- - 390- - - 395- - - - -	
ECOR INTL.GDT 10/23/06	- 400 — - -		GW	<b>GRAVEL</b> ; GW; tan; fine to coarse-grained; loose; saturated; subrounded; well graded; 70% fine (to 3" diameter) gravel, trace of coarse-grained sand	X	- soil		2.7	- 400 - -	4 inch schedule 80 PVC, 0.02
DP-4, BP-22, AND BP-23.GPJ S	- 405 - -				X X X X	soil		2.0	- 405 - - -	inch slotted casing, filter sand 8-12
BSDP-1, BSDP-2, BSDP-3, BS.	410 - - -		SP	SAND; SP; tan; fine to coarse-grained; loose; saturated; subangular; poorly graded; 40% coarse-grained sand	X X X	soil		2.3	410	
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-3, BSDP-4, BP-22, AND BP-23.GPJ SECOR INTL.GDT 10/23/06	415 - - - -			WITH GRAVEL; medium to coarse-grained; fine to coarse gravel		- soil		3.9	415— - - -	

DRILLING INSTALL DRILLING DRILLING	DN: <u>T NUM</u> G: ATION G COM G EQU	I <u>BER:</u> STA : STA IPANY IPMEN	IT: Becker Hammer	ad NO LA GR INI ST	ATIC DTW (ft)	(ft): : 358.(	<u>PAGE</u> 00 4/2	<u>13 OF</u> E L 7 7/06 E	E 14 EASTIN LONGIT FOC EL BOREH WELL E	TUDE: _EV (ft): IOLE DEP DEPTH (ft):	
DRILLING SAMPLIN			Percussion-Hammer		ELL CASING E GGED BY: D		ner	(	CHECK		1ETER (in): 10 3 . Pollock
Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID Method	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
425 - 430 - 430 - 435 - 440 - 440 -		SW	SAND; SW; brown; fine to coarse-grained; medium dense; saturated; subangular; well graded; 30% coarse-grained sand, trace of fines and fine to coarse (to 3" diameter) gravel					NR NR -	425 - - 430 - - - - - - - - - - - - - - - - - -		<ul> <li>4 inch schedule 80 PVC, 0.02 inch slotted casing, filter sand 8-12</li> </ul>
* 445 - 445 -				X X X X X	-			-	- 445 - - -		<ul> <li>4 inch schedule 80 PVC, Blank Casing with filter sand 8-12</li> </ul>
GEO FORM 304 BORING LOGS BSDP-1, BSDP-3, BSDP-4, BP-22, AND BP-23, CAN 304 BORING LOGS BSDP-1, BSDP-3, BSDP-4, BP-22, AND BP-23, CAN 304 BORING LOGS BSDP-1, DATA 445 -				X X X X X	-			-	450 - - -		← 4 inch PVC end plug, filter sand 8-12

DRILLING	N: <u>F NUM</u> 3: ATION: 5 COM 5 EQUI	E <u>BER: 1</u> STAI : STAI PANY: PMEN	•	COMPLETED: COMPLETED: COMPLETED: stensen Comp	5/2/06 5/2/06	NOI LAT GRO INIT ST/	RTHING (ft): TTUDE: OUND ELEV TAL DTW (ft) ATIC DTW (ft)	• <b>23</b> (ft): :: 358.0	<u>PAGE</u> )0 4/2	<u>14 OF</u> E L T 7/06 B	14 ASTINO ONGITI OC ELE OREHO	UDE:
Time & Depth (feet)	Graphic Log		NT: Cyclone	Description			GGED BY: D Time Sample ID		er	Headspace PID (units) O	HECKE	BY: C. Pollock Well Construction
j≞ ∩ ₩	<u>5</u> _	5				Sa	Method	Mea Re (f	шО	неа - Неа		
-											-	
-											-	
460-											460-	
-											-	
-	-										-	
465-											465	
-											-	
-											_	
- 90/c) 470-											470-	
ч11. GD1 10/23/06 											-	
											-	
- SECC	-										-	
9.5-475 - 											475	
22, AND											-	
SDP-4, BF											-	
8 r. 480 –											480-	
SDP-2, B(											-	
SDP-1, B.											-	
GEO FORM 304 BORING LOGS BSDP-1, BSDP-2, BSDP-2, BSDP-2, BSDP-4, BP-23, GPJ SECOR 											485	
- BORING											-	
- DRM 304											-	
GEO F(											_	

LOCATIO	N: <b>Gr</b>	een   IBER:	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08		LL / PROBEF			1 OF	4		SECOR
DRILLING DRILLING DRILLING	TION: COMF EQUIF METH	STAF PANY: PMEN <sup>:</sup> IOD: <b>A</b>	T: <b>Star 30K</b>	LATI GRC INITI STA <sup>-</sup> WEL	THING (ft): TUDE: DUND ELEV ( AL DTW (ft): TIC DTW (ft): L CASING DI GED BY: <b>M</b>	335 336.4 IAMETE	5 12 ER (in): on	)7 2/13/0 5	BOREHOL CHECKED	DE: (ft): PTH (ft E DEF E DIA	): <b>355.0</b> PTH (ft): <b>358.0</b> METER (in): <b>10</b> C <b>POIIOCK</b>
Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
5 10 15		SW- SM	Asphalt SAND WITH SILT AND GRAVEL ; SW-SM; 5YR 4/6 yellowish red; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 50% sand, 30% gravel, 10% cobbles, 10% silt 7.5YR 6/6 reddish yellow; Approx. 60% sand, 30% gravel, 10% silt	_	1131 12/5/07 1317			0.0	5 10 15		← Neat Cemen
20			Note: All lithologic descriptions are based on visual examination of drill cuttings		1329			0.0	20-		
30					 1348 			0.0	30- 35- 40-		
45					. 1354 			0.0	45		— Blank 5" SCH. 80 PVC
55					. 1443 			0.0	55 60 65		- Bentonite Grout
70-			7.5YR 6/4 light brown		1451 			0.0	70-		
75 — - 80 —		SW- SM	SAND WITH SILT ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subrounded; well graded; Approx. 80% sand, 10% gravel, 10% silt	_	1542			0.0	80		
85 - 90 - -					1554 			0.0	85-		
95 — - - -					1632				95		

LOCATIO PROJEC	N: <b>Gr</b> T NUM	een I IBER:	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08		LL / PROBEF			2 OF	4		S E C O R
DRILLING DRILLING DRILLING	TION: COMF EQUIF METH	STAF PANY: PMEN <sup>-</sup> IOD: <b>A</b>	T: Star 30K	LATI GRC INITI STA WEL	THING (ft): TUDE: DUND ELEV ( AL DTW (ft): TIC DTW (ft): L CASING D GED BY: <b>M</b>	335 336.4 IAMETE	<b>5 12</b> ER (in):	)7 2/13/0 5	<b>B</b> OREH BOREH <u>CHECK</u>	UDE: EV (ft): EPTH (f OLE DE OLE DIA	t): <b>355.0</b> PTH (ft): <b>358.0</b> .METER (in): <b>10</b> <b>C Pollock</b>
Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
105- 110- 110-		SW- SM SW- SM	SAND WITH SILT ; SW-SM; 10YR 5/4 yellowish brown; fine to coarse-grained; loose; dry; no odor; no staining; subrounded; well graded; Approx. 80% sand, 10% gravel, 10% silt		 1648 			0.0	105-(17) 110-(17) 110-(17) 115-(17)		
113 - - 120 - - - - - - - - - - - - - - - - - - -				_	. 1740 			0.3	120-125-		
130-					1751 			0.4	130		
140 – 140 – 145 –				_	0811 12/6/07			0.3	140		
150 – 150 –				-	0817			0.5	150		Blank 5" SCH. 80 PVC
160 - 160 - 165 -				-	0858			0.0	160		Bentonite Grout
170 - 					0909			0.6			
175		SW- SC	SAND WITH CLAY AND GRAVEL ; SW-SC; 7.5YR 5/4 brown; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 70% sand, 20% gravel, 10% clay		0946			1.1			
185					0955			1.5	185		
195					1033						

LOCATION: Gr	een H	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08	WE	LL / PROBEF						Secor
DRILLING: INSTALLATION: DRILLING COMP DRILLING EQUIP DRILLING METH SAMPLING EQU	STAR PANY: PMENT IOD: <b>A</b>	WDC r: Star 30K	LATI GRC INITI STA <sup>-</sup> WEL	THING (ft): TUDE: VUND ELEV ( AL DTW (ft):	ft): 335 336.4 IAMETI	<b>12/6/(</b> 5 12	)7 2/13/0 <sup>-</sup> 5	EASTIN LONGI TOC E WELL I BOREN BOREN CHECK	TUDE: LEV (ft): DEPTH (f HOLE DE HOLE DI/	t): <b>355.0</b> PTH (ft): <b>358.0</b> AMETER (in): <b>10</b> C Pollock
Time & Depth (feet) Graphic Log	uscs	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
	SW- SC SW-	SAND WITH CLAY AND GRAVEL ; SW-SM; as above					0.0			
205	SM- SM- SM	<b>SAND WITH SILT AND GRAVEL</b> ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 80% sand, 10% gravel, 10% silt	-	1046 			0.1	205		
215				1120			0.1	215-		
225		Moist						225		
230			_	1129 			0.3	230-		×
235			_	1318 			0.0	235		
245			_	1340			0.0	245		Blank 5" SCH. 80 PVC
255			_	1435 			0.0	255		Bentonite Grout
265	SM	<b>SILTY SAND</b> ; SM; 10YR 6/4 light yellowish brown; fine to medium-grained; loose; dry; no odor; no staining; subangular; poorly graded; Approx. 80% sand, 20% silt		1454 			0.0	265-		
275	SW- SM	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 6/3 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 80% sand, 10% silt, 10% gravel		1550 			0.0	275-		×
270 - 275 - 280 - 285 - 290 -		1070 graver		1606				285		
290				1606 			0.0	290-		
				1702						

LOCATION	N: Gre	een H	ay-Pantano WQARF Site Iills Ave. between 5th St. & Baker I8OT.20401.08	WE	LL / PROBE					<u>e</u>	SECOR
DRILLING: INSTALLAT DRILLING ( DRILLING I DRILLING I	FION: COMF EQUIF METH	STAR STAR PANY: PMENT OD: <b>A</b>	TED         12/5/07         COMPLETED:         12/7/07           TED         12/7/07         COMPLETED:         12/12/07           WDC         T:         Star 30K         Star 30K	LATI GRC INITI STA <sup>-</sup> WEL	THING (ft): TUDE: PUND ELEV ( AL DTW (ft):	ft): 335 336.4 IAMETE	1 <b>2/6/0</b> 5 12 ER (in): <b>on</b>	07 /13/07 5	EASTI LONG TOC E WELL BORE BORE <u>CHEC</u>		H (ft): <b>358.0</b> ETER (in): <b>10</b>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
305-		SW- SM SW- SM	SAND WITH SILT AND GRAVEL ; SW-SM; as above						305-		-Bentonite Grout -8-12 Sand
310 310 315 		GP	<b>GRAVEL WITH SAND</b> ; GP; 7.5YR 6/4 light brown; fine-grained; loose; dry; no odor; no staining; subangular; poorly graded; Approx. 75% gravel, 20% sand, 5% silt		1730 			0.0	310- 315-		Bentonite TR30 Pellets
320 - 					0841 12/7/07			0.2	320-		-Blank 5" SCH. 80 PVC
330	>     > <td>SW- SM</td> <td>SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 5/4 brown; fine to coarse-grained; loose; moist; subrounded; well graded; Approx. 50% sand, 30% gravel, 20% silt</td> <td></td> <td>0910 </td> <td></td> <td></td> <td>0.3</td> <td>330-</td> <td></td> <td></td>	SW- SM	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 5/4 brown; fine to coarse-grained; loose; moist; subrounded; well graded; Approx. 50% sand, 30% gravel, 20% silt		0910 			0.3	330-		
335 			First encounter of groundwater Dry; Approx. 80% sand, 10% gravel, 10% silt	_	1016 			0.5	340-		-8-12 Sand -0.020 Slotted 5" SCH. 80 PVC
345- 				_	1041 			0.2	345- 350-		
355 			Moist; Approx. 50% sand, 30% gravel, 20% silt Hole terminated at 358 feet.	-	1105 			0.1	355 - 360 -		
365									365-		
370									370- 375-		
370 375 380 385 390 395									380-		
385 -									385-		
390									390- 395-		

LOCATIO	N: <b>Gr</b>	een H	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08	WE	LL / PROBEF		-	-	-		S E C O R
DRILLING DRILLING DRILLING	TION: COMF EQUIF METH	STAF PANY: PMEN <sup>-</sup> IOD: <b>A</b>	⊺: Star 30K	LATI GRO INITI STA WEL	THING (ft): TUDE: PUND ELEV (f AL DTW (ft):	ft): 335 335.0 IAMETE	<b>11/28</b> / <b>2 12</b> ER (in):	/07 /6/07 5	EASTING LONGITU TOC ELE WELL DE BOREHO BOREHO	JDE: EV (ft): EPTH (f DLE DE DLE DIA	t): <b>405.0</b> PTH (ft): <b>414.0</b> METER (in): <b>10</b> C Pollock
Time & Depth (feet)	Graphic Log	nscs	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
5		SW- SM	Asphalt SAND WITH SILT AND GRAVEL ; SW-SM; 5YR 4/6 yellowish red; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 50% sand, 30% gravel, 10% cobbles, 10% silt Note: All lithologic descriptions are based on visual examination of drill cuttings		0821 11/27/07			0.0	5		-Neat Cement
15- 20- 25-		SM	SILTY SAND WITH GRAVEL ; SM; 5YR 4/6 yellowish red; fine to medium-grained; loose; dry; no odor; no staining; subrounded; poorly graded; Approx. 55% sand, 30% silt, 15% gravel		1006			0.0	20-25-		
30-			Approx. 70% sand, 15% gravel, 15% silt		1014 			0.0	30-35-		
40-				_	1058 			0.1	40-		
45-		SM	SILTY SAND ; SM; 7.5YR 6/4 light brown; fine to medium-grained; loose; dry; no odor; no staining; subrounded; poorly graded; Approx. 70% sand, 25% silt, 5% gravel		1108 			0.0	45		Blank 5" SCH. 80 PVC
55 - 60 -					1126 			0.0	60		Bentonite Grout
65- 808/2 70-		SW- SM	<b>SAND WITH SILT AND GRAVEL</b> ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 70% sand, 15% gravel, 15% silt		1133 			0.2	65 70		
					1149 			0.1	80		
GEO FORM 304 BP-24 CLUSTER.GPJ SECOR INIT.GDT 3/18/08 1 - 0.0 90					1153 			0.0	85-		
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					1213				95		

GEO FORM 304 BP-24 CLUSTER.GPJ SECOR INTL.GDT 3/18/08

	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08	WE	LL / PROBEH					S E C O R
DRILLING: STA INSTALLATION: STA DRILLING COMPANY DRILLING EQUIPMEN DRILLING METHOD:	RTED 11/26/07       COMPLETED: 11/29/07         RTED 11/29/07       COMPLETED: 12/4/07         WDC       T: Star 30K	LATI GRO INITI STA WEL	THING (ft): TUDE: PUND ELEV (f AL DTW (ft):	ft): 335 335.0 IAMETE	11/28/ 2 12 ER (in): on	/07 /6/07 5	EASTING (ft): LONGITUDE: TOC ELEV (ft WELL DEPTH BOREHOLE I BOREHOLE I CHECKED BY	):
Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
105-       SW-SM-SM-SM-SM-SM-SM-SM-SM-SM-SM-SM-SM-SM-	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 70% sand, 15% gravel, 15% silt		 1219  1422  1427  1445  1449  1507  1512  1512  1539  1539  1539 			$\frac{1}{0.5}$ 0.5 0.1 0.0 0.5 1.3 0.0 0.0 0.0 0.0 0.0	105 $110$ $110$ $110$ $110$ $115$ $120$ $125$ $130$ $135$ $140$ $145$ $140$ $145$ $160$ $165$ $170$ $175$ $180$ $185$ $190$ $195$	Blank 5" SCH. 80 PVC Bentonite Grout

LOCATION: C	ireen l	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08	WE	ELL / PROBE						SECOR
DRILLING: INSTALLATION DRILLING CON DRILLING EQU DRILLING MET	STAF J: STAF JPANY: JIPMEN THOD: <b>F</b>	RTED 11/26/07       COMPLETED: 11/29/07         RTED 11/29/07       COMPLETED: 12/4/07         WDC       T: Star 30K	LAT GRO INIT STA WEI	RTHING (ft): ITUDE: DUND ELEV ( IAL DTW (ft):	(ft): 335 335.0 IAMETI	<b>11/28</b> 1 <b>2 12</b> ER (in): <b>DN</b>	/07 2/6/07 5	EASTI LONG TOC E WELL BORE BORE CHEC	HOLE DIA	): <b>405.0</b> PTH (ft): <b>414.0</b> METER (in): <b>10</b> <b>C POIIOCK</b>
Time & Depth (feet) Graphic	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
205 -	SW- SM SW- SM	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 70% sand, 15% gravel, 15% silt		 1611 			0.0	205-		
215	SM	SILTY SAND; SM; 7.5YR 6/4 light brown; fine-grained; loose; dry; no odor; no staining; subangular; poorly graded; Approx. 80% sand, 20% silt	-	1655 			0.1	215-		
225	SW-	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 70% sand, 15% gravel, 15% silt	-	1702 			0.2	225-		
240-	• • • • • • • • • • •		_	1720			0.2	240-		
250 -	<mark>。。。。。。。。。。。。。。</mark>		-	1727			0.3	250-		— Blank 5" SCH. 80 PVC
255	SM	SILTY SAND; SM; 7.5YR 6/4 light brown; fine to medium-grained; loose; dry; no odor; no staining; subangular; poorly graded; Approx. 70% sand, 25% silt, 5% gravel	_	0856 11/28/07			0.3	255-		Bentonite Grout
			_	0903			0.2	265-		
	SW- SM	SAND WITH SILT AND GRAVEL ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 60% sand, 30% gravel, 10% silt		0936			0.1	275-		
285   285   285   290   290   1   295   1   295   1	• • • • • • • • • •			0948			0.2	285-		
	**************************************			1015				295-		

LOCATION: Green PROJECT NUMBER:			L / PROBE			4 OF	5		SECOR
INSTALLATION: STAI DRILLING COMPANY: DRILLING EQUIPMEN DRILLING METHOD: <b>/</b>	WDC ⊺: Star 30K	LATI GRO INITI, STAT WEL	THING (ft): TUDE: UND ELEV ( AL DTW (ft):	ft): 335 335.0 IAMETE	<b>11/28</b> 2 12 ∃R (in): <b>∑n</b>	/07 2/6/07 5	EASTI LONG TOC E WELL BORE BORE CHEC	HOLE DIA	t): <b>405.0</b> PTH (ft): <b>414.0</b> METER (in): <b>10</b> <u>C Pollock</u>
Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
305 310 315 315 315 315 315 315 315 315 315 315	SAND WITH SILT AND GRAVEL ; SW-SM; as above GRAVEL WITH SAND ; GP; 7.5YR 6/4 light brown; fine to coarse-grained; loose; dry; no odor; no staining; angular; poorly graded; Cuttings appear to be approx. 60% sand-sized, 40% gravel-sized; granitic cobbles predominate		 1033 			0.2	305- 310- 315-		
			1117 			0.0	320-		Blank 5" SCH. 80 PVC
			1138 			0.1	330-		Bentonite Grout
335 - SM SM 340 - SM	<b>SAND WITH SILT AND GRAVEL</b> ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 70% sand, 20% gravel, 10% silt		1321 			0.1	340-		
345	<b>GRAVEL WITH SAND AND SILT</b> ; GP-GM; 7.5YR 6/4 light brown; loose; moist; no odor; no staining; angular; poorly graded; Cuttings appear to be approx. 70% sand-sized, 15% silt, 15% gravel; granitic cobbles predominate		1337 			0.0	345-		
	Wet		1453 			0.0	360-		
365 - 9 H - SP- SC 370 -	CLAYEY SAND ; SP-SC; 7.5YR 6/4 light brown; medium to coarse-grained; loose; wet; subangular; poorly graded; Approx. 60% sand, 40% clay		1524 			0.3	365- 370-		<ul> <li>8-12 Sand</li> <li>Bentonite</li> <li>TR30 Pellets</li> </ul>
375	<b>SAND WITH SILT AND GRAVEL</b> ; SW-SM; 7.5YR 6/4 light brown; fine to coarse-grained; loose; wet; angular; well graded; Approx.		1610 			0.1	375-		
385	70% sand, 20% gravel, 10% silt		1656 			0.1	385-		8-12 Sand
	GRAVEL WITH SAND ; GP; see below		0844				395-		0.020 Slotte 5" SCH. 80 PVC

LOCATIO PROJECT	N: <b>Gr</b> T NUM	een I Ber:	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 180T.20401.08		ELL / PROBE		BOREH PAGE		5	S E C O R
DRILLING DRILLING DRILLING	TION: COMF EQUIF METH	STAF PANY: PMEN OD: <b>A</b>	⊤: <b>Star 30K</b>	LAT GR INI ST/ WE	RTHING (ft): TITUDE: OUND ELEV ( TIAL DTW (ft): ATIC DTW (ft): LL CASING D GGED BY: M	NG (ft): ITUDE: :LEV (ft): DEPTH (ft): <b>405.0</b> HOLE DEPTH (ft): <b>414.0</b> HOLE DIAMETER (in): <b>10</b> KED BY: <b>C Pollock</b>				
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
405 410 415 420 425 430 435 440 445 455 460 465 460 465 470 475 480 485 480		GP GP	GRAVEL WITH SAND ; GP; fine-grained; loose; wet; no odor; no staining; angular; poorly graded; Approx. 70% gravel, 30% sand. color ranges from white to black						405 410 415 420 425 430 435 430 435 440 445 455 460 465 460 465 460 465 460 465 480 485	
490 — - - 495 — - -									490-	

LOCATIO	N: <b>Gr</b>	een l	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08		ELL / PROBE				5		Secor
DRILLING DRILLING DRILLING	TION: COMF EQUIF METH	STAF PANY: PMEN IOD: <b>A</b>	T: <b>Star 30K</b>	LAT GRO INIT STA WEI	L CASING D	345 335.6 AMETE	5 <b>4 11</b> ER (in): <b>5n</b>	)7 /26/0 5	BOREHO BOREHO CHECKE	UDE: EV (ft): EPTH (f DLE DE DLE DIA	it): <b>460.0</b> PTH (ft): <b>462.0</b> AMETER (in): <b>10</b> <u>C Pollock</u>
Time & Depth (feet)	Graphic Log	NSCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
5		SW- SM	Asphalt SAND WITH SILT AND GRAVEL ; SW-SM; 5YR 4/6 yellowish red; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 50% sand, 35% gravel, 10% silt, & 5% cobbles	-	1443 11/5/07 0943 11/6/07			0.3	5-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		- Neat Cement
15			Note: All lithologic descriptions are based on visual examination of drill cuttings Dry; Approx. 60% fine to coarse sand, 30% fine gravel, 10% silt. subangular to subrounded	-	0951			0.6	15-		
25			Subiounded		1014 			0.6	25- 30- 35-		
40				_	1021 			0.7	40-		
50- 55- 55-			10YR 6/6 brownish yellow	_	1100 			0.0	50-		Blank 5" SCH. 80 PVC
60 - 65 -					1121 			0.1	60		Bentonite Grout
70					_ 1223 			0.0	70-		
75 - 80 - 85 - 90 - 95 -			Subangular; Approx. 60% fine to coarse sand, 20% gravel, 20% silt		1229 			0.3	80-		
90					1248 			0.0	90		

	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08		LL / PROBEF						Secor
DRILLING: STAF INSTALLATION: STAF DRILLING COMPANY: DRILLING EQUIPMEN DRILLING METHOD: <b>A</b>	RTED       11/5/07       COMPLETED:       11/15/07         RTED       11/19/07       COMPLETED:       11/21/07         WDC       T:       Star 30K	LATI GRO INITI STAT WEL	THING (ft): TUDE: UND ELEV (f AL DTW (ft): FIC DTW (ft): L CASING DI	ft): <b>345</b> <b>335.6</b> IAMETE	11/7/0 4 11 ER (in): <b>DN</b>	)7 /26/0 <sup>-</sup> 5	EASTII LONGI TOC E WELL BOREI BOREI CHECI	TUDE: LEV (ft): DEPTH (f HOLE DE HOLE DIA	t): <b>460.0</b> PTH (ft): <b>462.0</b> .METER (in): <b>10</b> C Pollock
Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
110- 115- 115-	SAND WITH SILT AND GRAVEL ; SW-SM; 5YR 4/6 yellowish red; fine to coarse-grained; loose; moist; no odor; no staining; subrounded; well graded; Approx. 50% sand, 35% gravel, 10% silt, & 5% cobbles Approx. 60% fine to coarse sand, 30% fine gravel, 10% silt		 1449 			0.1	105		
120-		_	1456 			1.8	120- 		
130		_	1519 			0.0	130 130 135		
140			1531 			0.0	140 		
150-	Approx. 75% fine to coarse sand, 20% silt, 5% fine gravel	_	1602 			0.2	150-		Blank 5" SCH. 80 PVC
		_	1612 			1.3	160 		Bentonite Grout
170			1624 			0.0	170- 		
180	10YR 6/4 light yellowish brown; Approx. 60% fine to coarse sand, 30% gravel, 10% silt		1632 			0.9	180— 		
170 175 180 185 190 195	5YR 6/6 reddish yellow		0839 11/7/07			0.2	190 190 195		
			0847				-		

	en H			ELL / PROBE	_			5		S E C O R
INSTALLATION: S DRILLING COMPA DRILLING EQUIPM DRILLING METHOR	STAR NY: <b>V</b> //ENT	NDC : Star 30K	LAT GR INIT STA WE	LL CASING D	345 335.6 IAMETE	5 <b>4 11</b> ER (in):	)7 /26/0 <sup>-</sup> 5	LONG TOC E WELL BORE BORE	HOLE DE HOLE DI/	ft): <b>460.0</b> :PTH (ft): <b>462.0</b> AMETER (in): <b>10</b> C Pollock
	USCS NIIN	Description	Sample		Measured Recov. (feet)		Headspace PID (units)			Well Construction
205 210 215 225	SW- SM SW- SM/ SM/	SAND WITH SILT AND GRAVEL ; SW-SM; as above SILTY SAND ; SM; 10YR 6/4 light yellowish brown; fine to medium-grained; loose; dry; no odor; no staining; subrounded; poorly graded; Approx. 70% fine to medium sand, 30% silt	-	0902  0908 			<u>–</u> 0.8 1.0 2.2	205- 210- 215- 220-		
- <mark> .∘.†.</mark>  \⊃	SM- SM	SAND WITH SILT AND GRAVEL ; SW-SM; 10YR 6/4 light yellowish brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 60% fine to coarse sand, 20% gravel, 20% silt	-	0918  0927 			1.6 2.8	230- 235- 240- 245-		
250			-	0946			0.0	250-		Blank 5" SCH. 80 PVC
255 •••14 s	SM	<b>SILTY SAND</b> ; SM; 5YR 6/4 light reddish brown; fine to medium-grained; loose; dry; no odor; no staining; subrounded; poorly graded; Approx. 70% fine to medium sand, 30% silt	-	1005 			1.0	255-		Bentonite Grout
270	SM-	SAND WITH SILT AND GRAVEL ; SW-SM; 10YR 6/4 light yellowish brown; fine to coarse-grained; loose; dry; no odor; no staining; subangular; well graded; Approx. 70% fine to coarse sand, 20% fine gravel, 10% silt	-	1016			0.8	265-		
275			-	1033			0.8	275-		
285				1041			0.6	285-		
295				1103				295-		

LOCAT	ION: Gree	en H	ay-Pantano WQARF Site Iills Ave. between 5th St. & Baker I8OT.20401.08	W	EL	L / PROBEH						S E C O R
DRILLIN INSTALI DRILLIN DRILLIN DRILLIN	IG: S LATION: S IG COMPA IG EQUIPM IG METHO	STAR STAR NY: <sup>V</sup> MENT D: <b>A</b>	TED 11/5/07       COMPLETED: 11/15/07         TED 11/19/07       COMPLETED: 11/21/07         WDC       T: Star 30K	LA <sup>-</sup> GR INI <sup>-</sup> ST WE	TIT OI TIA AT	THING (ft): FUDE: UND ELEV (f AL DTW (ft): TC DTW (ft): CASING DI	ft): <b>345</b> <b>335.6</b> AMETE	11/7/0 4 11 ER (in): on	)7 /26/0 5	EASTING ( LONGITUD TOC ELEV WELL DEP BOREHOL BOREHOL CHECKED	É: (ft): TH (ft) E DEP E DIAN	: <b>460.0</b> TH (ft): <b>462.0</b> METER (in): <b>10</b> : <b>Pollock</b>
Time & Depth (feet)	Graphic Log	USCS	Description	Sample		Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
305 310 315 320 325 330		3P	<b>GRAVEL WITH SAND</b> ; GP; 5YR 6/4 light reddish brown; loose; dry; no odor; no staining; subangular; poorly graded; Appears as approx. 60% sand, 40% gravel. Coarse and hard gravel layer, drilling slow, angular chips			 1136  1349  1621 			0.5 0.3	305 310 315 320 325 330		
335 340 345			Wet; Cuttings are moist, likely first encounter of groundwater			1654  1749			1.2	3335 340 345 350		—Blank 5"
355		ЭM	10YR 6/4 light yellowish brown; medium-grained; loose; wet; angular; poorly graded; Approx. 80% fine gravel, 20% fine sand <b>SILTY GRAVEL WITH SAND</b> ; GM; 10YR 6/3 pale brown; medium-grained; dense; wet; no odor; no staining; subrounded; poorly graded; Approx. 50% fine gravel, 30% fine sand, 20% silt	$\times$		 1850 BP24B-355 11/8/07 1051 11/9/07	1.5	54	0.1	355		SCH. 80 PVC Bentonite Grout
370 375 380 385	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	SP- SM	SAND WITH SILT AND GRAVEL ; SP-SM; 10YR 6/3 pale brown; medium to coarse-grained; medium dense; wet; no odor; no staining; subrounded; poorly graded; Approx. 70% medium to coarse sand, 15% fine to fine gravel, 15% silt	$\times$		1455 BP24B-375 1615 	1.5	6 8 16	0.0	370 375 380 385		
385 390 395			Gravel/cobbles present	~		1430 BP24B-395 11/12/07	.5	32	0.3	390		

LOCATION: Gr	een H	ay-Pantano WQARF Site Hills Ave. between 5th St. & Baker 18OT.20401.08	WE	ELL / PROBER		-	-	-		SECOR
DRILLING COMF DRILLING EQUIF DRILLING METH	STAF PANY: PMEN <sup>-</sup> OD: <b>A</b>	T: Star 30K	LAT GRO INIT STA WEI	RTHING (ft): ITUDE: DUND ELEV ( TAL DTW (ft): TIC DTW (ft): LL CASING D	ft): <b>345</b> <b>335.6</b> IAMETI	11/7/0 34 11 ER (in):	)7 /26/0 <sup>*</sup> 5	EASTII LONGI TOC E WELL BOREI BOREI	HOLE DIAI	): <b>460.0</b> PTH (ft): <b>462.0</b> METER (in): <b>10</b> <b>POIIOCK</b>
Time & Depth (feet) Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
405	SP- SM SP- SM	SAND WITH SILT AND GRAVEL ; SP-SM; 10YR 6/3 pale brown; medium to coarse-grained; medium dense; wet; no odor; no staining; subrounded; poorly graded; Approx. 70% medium to coarse sand, 15% fine to fine gravel, 15% silt CLAYEY SAND WITH GRAVEL ; SC; 10YR	_	1556 			0.0	405-		← Bentonite Grout
415		7/3 pale brown; coarse-grained; dense; wet; no odor; no staining; subrounded; poorly graded; Approx. 40% coarse sand, 30% fine to medium gravel, 30% clay	$\times$	2010 BP24B-415	1	8 33	0.1	415-		
425			-	0910 11/13/07			0.3	425-		<ul> <li>Bentonite</li> <li>TR30 Pellet</li> </ul>
	GP	<b>GRAVEL WITH SAND</b> ; GP; very dense; wet; no odor; no staining; subangular; poorly graded; Granitic; approx. 80% gravel, 20% sand No recovery	~	1205 BP24B-435	.5	30		430-		— Blank 5" SCH. 80 PVC
				1403 			0.2	440		⊷8-12 Sand
		No recovery	~	1810 BP24B-455	.5	37		450-		— 0.020 Slotte 5" SCH. 80 PVC
460 - 0 0		Hole terminated at 462 feet.	_	1059 11/15/07			0.2	460		
470								470-		
480								480		
485								485-		
495								495		

	PROJECT: LOCATION: PROJECT NUMBER:	Broadway Pantano WQARF Site North Center Drive 180T.20401.08	WE	LL / PROBEH	юсе / в • <b>25</b> р					Secor
	INSTALLATION: ST. DRILLING COMPAN DRILLING EQUIPME DRILLING METHOD:	Y: Yellow Jacket Drilling NT: Speedstar 50K	LAT GRO INIT STA WE	RTHING (ft): ITUDE: DUND ELEV IAL DTW (ft) ITIC DTW (ft) LL CASING E GGED BY: M	(ft): : 325 5, : 311.8 DIAMETE	/1/08 34 5/9/ ER (in): n	E L T (08 V 5 E	EASTING (ft LONGITUDE FOC ELEV ( BOREHOLE WELL DEPT BOREHOLE CHECKED E	ft): DEP1 H (ft): DIAM	ETER (in): 10
	Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
-	5	Fill Soil <b>SAND WITH SILT AND GRAVEL</b> ; SP-SM; 7.5YR 5/6 dark brown; medium to coarse-grained; loose; dry; no odor; no staining; subangular; poorly graded; Approx. 60% sand, 30% fine gravel, 10% silt	_	0855 5/1/08 0859  0907 			0.0 0.0 0.0	5- 10- 15- 20-		⊢ Concrete ⊢ Neat Cement
	25	<b>GRAVEL WITH SAND AND SILT</b> ; GP-GM; 7.5YR 5/6 dark brown; medium to coarse-grained; loose; dry; no odor; no staining; subrounded; poorly graded; Approx. 60% gravel, 30% coarse sand, 10% silt		0916 			0.0	25		
	35 <u>5</u> <u>5</u> <u>5</u> <u>5</u>	CLAYEY SAND WITH GRAVEL; SC; 5YR 5/4 reddish brown; fine to coarse-grained; loose; dry; no odor; no staining; subrounded; well graded; Approx. 60% sand, 25% fine gravel, 15% clay		0955 			0.0	35 40 45		
	50			0958 			0.0	50		— Blank 5" SCH. 80 PVC
	60			1016 			0.0	60		Bentonite Grout
6/3/08	70-			1020 			0.0	70		
SECOR INTL.GDT 6/3/08	80			1030 			0.0	80		
GEO FORM 304 BP-25.GPJ	90			1034 			0.0	90		
GEO FC				1047						

		Broadway Pantano WQARF Site North Center Drive	WEI	L / PROBEH						Secor
	DRILLING: STA INSTALLATION: STA DRILLING COMPANY DRILLING EQUIPMEN DRILLING METHOD:	ARTED 5/1/08 COMPLETED: 5/2/08 ARTED 5/5/08 COMPLETED: 5/9/08 7: Yellow Jacket Drilling	LAT GRO INIT STA WEI	RTHING (ft): ITUDE: DUND ELEV IAL DTW (ft) TIC DTW (ft) LL CASING E GGED BY: M	(ft): : 325 5 : 311.3 DIAMET Newto	5/1/08 84 5/9 ER (in) on	E L 7 8 9/08 9:5 E	EASTIN LONGIT FOC EL BOREH WELL D BOREH CHECKI	UDE: EV (ft): OLE DEP EPTH (ft)	TH (ft): 380.0 : 375.0 /IETER (in): 10
	Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
GEO FORM 304 BP-25.GPJ SECOR INTL.GDT 6/3/08	I       I       SC         105       I       I         110       I       I         110       I       I         110       I       I         120       I       I         120       I       I         120       I       I         125       I       I         135       I       I         135       I       I         140       I       I         155       I       I         155       I       I         160       I       I         165       I       I         170       I       I         185       I       I         190       I       I         195       I       I			 1051  1106  1108  1126  1130  1139  1139  1143  1151 	M N		<ul> <li>2</li> <li>0.2</li> <li>0.2</li> <li>0.0</li> </ul>	105 107 107 110 110 115 120 125 130 140 145 140 145 165 165 170 165 170 185 190 195		Blank 5" SCH. 80 PVC Bentonite Grout
GEO FO				1205						

		Broadway Pantano WQARF Site North Center Drive 18OT.20401.08	WEI	L / PROBEH		-	-	-		SECOR
		RTED 5/1/08COMPLETED: 5/2/08RTED 5/5/08COMPLETED: 5/9/08:Yellow Jacket DrillingIT:Speedstar 50KAir Rotary Casing Hammer	LAT GRO INIT STA WEI	RTHING (ft): ITUDE: DUND ELEV IAL DTW (ft) TIC DTW (ft) LL CASING E GGED BY: M	(ft): : 325 5 : 311.8 DIAMET	5/1/08 84 5/9 ER (in) on	E L 7 6/08 5 5 6	EASTING LONGITU FOC ELE BOREHO WELL DE	DE: √ (ft): LE DEP <sup>™</sup> PTH (ft) LE DIAN	IETER (in): 10
	Time & Depth (feet) Graphic Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
J SECOR INTL.GDT 6/3/08	E       0       5         205       SC         210       SC         210       215         220       225         230       235         240       SP         255       SC         265       C         265       C         270       SC         265       C         260       C         265       C         260       C         260       C         260       C         265       C         260       C         260       C         260       C         260       C         260       C         270       SC         280       C         280       C         280       C         280       C	<ul> <li>SAND WITH CLAY AND GRAVEL; SP-SC;</li> <li>7.5YR 5/4 brown; medium to coarse-grained; dense; dry; no odor; no staining; subangular; poorly graded; Approx. 50% sand, 40% fine to coarse gravel, 10% clay</li> <li>GRAVEL WITH SAND; GP; 7.5YR 5/4 brown; medium to coarse-grained; very dense; moist; no odor; no staining; subangular; poorly graded; Approx. 80% gravel, 20% medium to coarse sand</li> <li>CLAYEY SAND WITH GRAVEL; SC; 7.5YR 5/4 brown; fine to coarse-grained; dense; dry; no odor; no staining; subangular; poorly graded; Approx. 80% gravel, 20% medium to coarse sand</li> <li>CLAYEY SAND WITH GRAVEL; SC; 7.5YR 5/4 brown; fine to coarse-grained; dense; dry; no odor; no staining; subangular; well graded; Approx. 60% sand, 25% fine gravel, 15% clay</li> <li>GRAVEL WITH SAND AND CLAY; GP-GC; 7.5YR 5/4 brown; medium to coarse-grained; very dense; moist; no odor; no staining; subangular; poorly graded; siliceous; Approx. 70% gravel, 20% coarse sand, 10% clay</li> </ul>		 1210  1222  1226  1240  1243  1243  1432  1432  1437  1455 	Revenue		0.0 0.0 0.0 0.0 0.0 0.0 0.0	205 210 210 210 210 220 230 235 240 245 255 260 265 270 275 280 285 280		<ul> <li>Bentonite Grout</li> <li>Blank 5" SCH. 80 PVC</li> <li>Bentonite/ Cement Grout</li> <li>Sentonite/ Cement Grout</li> </ul>
GEO FORM 304 BP-25.GPJ	290-0	. e. signation, 2010 oburido dunida, 1070 oldy	-	1511 			0.1	290		Pellets
GEO FORM 3	295-0			1539				295-		← 8-12 Sand

	PROJECT: Broadway P LOCATION: North Cente PROJECT NUMBER: 18OT.20401		WE	LL / PROBEF						S E C O R
	DRILLING: STARTED 5/1/08 INSTALLATION: STARTED 5/5/08 DRILLING COMPANY: Yellow DRILLING EQUIPMENT: Speeds	COMPLETED: 5/2/08 COMPLETED: 5/9/08 Jacket Drilling tar 50K ary Casing Hammer	LAT GRO INIT STA WE	RTHING (ft): ITUDE: DUND ELEV IAL DTW (ft) ITIC DTW (ft) LL CASING E GGED BY: M	(ft): : 325	5/1/08 84 5/§ ER (in) on	E L 7 6 9/08 9:5 E	EASTIN LONGIT FOC EL BOREH WELL E BOREH CHECK	rude: .ev (ft): Iole dept Depth (ft):	ETER (in): 10
	Time & Depth (feet) Log USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)		Well Construction
GEO FORM 304 BP-25.GPJ SECOR INTL.GDT 6/3/08	GP- GC 305- 310- 315- 320- 325- 333- 335- 340- 340- 355- 355- 365- 365- 370- 370- 370- 370- 370- 370- 370- 370	ed at 381.5 feet.		 1551  1612  1649  0755 BP-25-335 1420 5/2/08 1426  1444  1450  1450  1450 	.5	NA	m ⊂ 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	305 310 315 320 322 332 330 335 340 345 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 340 345 345 340 345 340 345 345 340 345 340 345 340 345 345 340 345 345 345 340 345 345 345 345 345 345 345 345		-0.020 Slotted 5" SCH. 80 PVC ←8-12 Sand
GEO								-		