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Contract No. DE-AC05-81OR20722

RADIOLOGICAL, CHEMICAL, AND HYDROGEOLOGICAL CHARACTERIZATION REPORT FOR THE ST. LOUIS DOWNTOWN SITE IN ST. LOUIS, MISSOURI

GEOLOGIC DRILL LOGS

September 1990



RADIOLOGICAL, CHEMICAL, AND HYDROGEOLOGICAL CHARACTERIZATION REPORT FOR THE ST. LOUIS DOWNTOWN SITE IN ST. LOUIS, MISSOURI

GEOLOGIC DRILL LOGS

SEPTEMBER 1990

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-810R20722

By

M. E. Redmon, M. E. Kaye,C. A. Clark, and C. M. Sekula

Bechtel National, Inc.
Oak Ridge, Tennessee

Bechtel Job No. 14501

	G	EC	LC)GI	C D	RIL	L LO	G	PROJE	-1		FUSR.	AP			JOB NO 1450	- 1	EET NO.	HOLE NO. B16C01
ITE				_				COORDII	NATES									ROM HORIZ	
EGU				Do v	DRILL		e	<u> </u>			N 2,1	AND MO	E 1,50	7 SIZE	OVE D	BURDEN		tical	TOTAL DEP
		8 4			1		-Wes	tern, C	1			hamme		4.0"	1 -	10.5	~~	.K (F1.)	10.5
								ESEL. T				EL.		EL. GRO /412.8	_ L		DEPT	H/EL. TOP	
		_/	- · · · <u>-</u>	=			5					20.3	1 ¥ /	1/412.8				/	<u>' </u>
AMP	LE H		R WE Nome		/FALL	CAS	SING LE	FT IN H	ole: DI one	A./LE	NGTH	LOGGED	BY:		_	. Che	 .		
u T	•1		•			JATER	₹	170	one	П	ĭ	<u> </u>	~~			r. Cno	erry		
AND DIAM.	SAMP. ADV.	SAMPLE REC.	SAMPLE BLOWS "N"	% CORE RECOVERY	LOSS IN G.P.M	PRESS. SSS	RE	ELEV.	DEP.	GRAPHICS SAPPLE		DESCRI	PTION	AND	CLASS	SIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC
SS		1.2	-					419.9		22:	0.0	0 - 0.4 F	t. CON	CRETE	<u> </u>			0-10.5	Ft., 2-inch
SS	2.0	1.3									0.4	- 8.5 F RUBBI (10YR5 Low mo Rubble materia	E. Mod (4) to go sisture consists	derate y rayish b ontent (of slag	ellowis prown (to mois carbo	n brown 5YR3/ t, loose naceous	3	with ele jackhar	ectric
		-:-							5.									Hole re	amed with
SS	2.0	1.6							¥									4-inch Top of	split spoon. undisturbed ll at 8.5 Ft.
ss	2.0	2.0						411.8	Τ.		8.	5 - 10.5 ; gray (N plastic.	Ft. Silt 3). Moi	y CLAY	(CL). um stif	Dark f, slight	tly	Radiolo	
+		\vdash	-					409.8	10-		\	plastic. trace of	Trace organic	of very i <u>materi</u>	fine-gra al as bl	sined sa	and,	sampled gamma	d and -logged by Eberline.
											Bo	ottom of oring gro bentoni	uted to	at 10.5 l bottom nt grout	of cone		ith	Color d	escriptions e GSA Roct hart (1948)
									.4									identifi	tion and cation by examination
					= SHE		, 200	SITE				is Do			C:			HOLE NO	

	_		EC	LOG		DII I		·C	PROJE	CT			<u></u>	JOB N		SHEE	T NO.	HOLE NO.
	SITE		EC	LUG		KIL	LLO	COORDINA	TFS	·		FUSRAP		145			OF 1	B16C02
	•		Lo	uis Do	wntow	n Sit	e				N :	2,065 E 1,52	1		1	/erti]	
	BEGL		1	MPLETED					- 1	DRILI			SIZE	OVERBURDE		ROCK	(FT.)	TOTAL DEPTH
				-22-88				tern, Co		ING		ckhammer	4.0"	10.0		EDTH/	EL. TOP	10.0
			/		İ		5					420.3	5/414.8	ND WATER		LF III)	/	O! KOCK
ĺ	SAMF	LE H		R WEIGHT	/FALL	CAS	ING LE			A./L	ENG	TH LOGGED BY:						
	E+1			Чове	L	JATER)	Nor	1e	T	Т			G. Ch	erry			·····
	P. TYPE	P. ADU	LE REC	SAMPLE BLOWS "N" % CORE RECOVERY	PR S E	ESSU	RE S	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION	AND C	LASSIFIC	CATI	i		ON: LEVELS, RETURN.
	SAMP.	3AM LE	£ 00	20 20 20 20 20 20 20 20 20 20 20 20 20 2	LDSS IN G.P.M	PRESS. P.S.I.	E NE	400.0	0	GR	ğ							TER OF
	SS		0.8			0.0		420.3 419.9		€	\pm	0.0 - 0.4 Ft. CON	CRETE.				0-10.0 F	t. 2-inch
	SS		1.7					·	•			0.4 - 6.5 Ft. Silty RUBBLE. Mo (10 YR5/4) to a moisture content	derate yel grayish bl:	lowish brow ack (N2). I	/n /ow	_/	split spo with ele- jackham	
	SS	2.0	1.0						5_			Rubble consists material, grave	of slag, o	arbonaceou	18			
	SS	2.0	1.7				:	2	? .				_				4-inch s	med with plit spoon.
	SS	2.0	1.7			i		412.8_	•			6.5-7.5 Ft. Sile yellowish brown (5Y4/1). Moist coarse-grained	t, soft; me	dium	-	- 1	Radiolog sampled gamma- TMA/E	
ļ								410.3_	10 .			7.5 - 10.0 Ft. Silt gray (N3). Moi consistency. M very fine-grain	st soft to	medium-st	iff	 •	VOA sa 4.0-6.0	mple collected
)												material as bled Bottom of boring : Boring grouted to bentonite ceme	at 10.0 Ft	f concrete v	vith		Top of u material	ndisturbed at 7.5 Ft.
				_								bentomite ceme	ne groue e	on 4 /20/00.			from the	scriptions GSA Rock nart (1948).
																	Descript identific visual ex soils.	
									*			·			·			
						;												
				POON; ST ; P = PI			J-,	ITE	S	it.	Lo	uis Downte	own S	Site			HOLE NO.	6C02

							PROJEC	• T	JOB NO	ICUE	ET NO.	HOLE NO.
	GE (OLOG	IC D	RIL	L LO)G [r KOJE L	• 1	FUSRAP 145	1	OF 1	B16C03
SITE						COORDINA	TES				OM HORIZ	
		uis Do			e	1			1 2,088 E 1,547	Vert		
BEGUN 4-1-	- 1	OMPLETED 4-1-88	i i		_Wac	tern, Co		DRILL	MAKE AND MODEL SIZE OVERBURDEN CME-55 6.5" 10.5	ROCI	K (FT.)	TOTAL DEPTH
		RY (FT./2				ESEL. TO		NG K	ROUND EL. DEPTH/EL. GROUND WATER	DEPTH	/EL. TOP	OF ROCK
	/	,			5				419.9		/	
		R WEIGHT	-	CAS	SING LE			A./LE	NGTH LOGGED BY:			
		bs./30		JATER	·	Non	1e		G. Cho	rry	Т	
SAMP. TYPE AND DIAM. SAMP. ADV.	SAMPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	SSOJ NI N.T.G.	ESSU	RE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFIC	ATION	WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
SS 1.4		33-3-3/5	_			419.3_			0.0 - 0.6 Ft. CONCRETE. 0.6 - 1.2 Ft. Sandy GRAVEL (GP).			t. advanced inch O.D.
SS 2.0	0.0	3 2-4-2				418.7_	- - 5_		1.2 - 7.8 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR2/1) grayish black (N2). Low moisture co loose. Rubble consists of carbonaceo material, slag and sand. Fe staining; patches of moderate yellowish brown (10YR5/4) silty clay.			stem auger.
SS 2.0	0 1.6	1-2-3	-				-				sampled gamma TMA/E	and logged by berline.
SS 2.0	0 1.9	3-4-5				412.1_	- 10_		7.8 - 10.5 Ft. Silty CLAY (CL). Mediu dark gray (N4) to dark gray (N3). Medium-stiff consistency; slig plastic. Minor amounts of organics a blebs.	htly	Top of materia	undisturbed l at 7.8 Ft.
									Bottom of boring at 10.5 Ft. Boring grouted to bottom of concrete we bentonite cement grout on 4/12/88.	th	from th	escriptions e GSA Rock hart (1948).
											identific	tion and ation by xamination of
		SPOON; S1			,,,	ITE ·	S	it. I	ouis Downtown Site		HOLE NO	.6C03

		· E C	LOG	IC D	DII I	10		PROJE	T	1	T NO. HOLE NO.
SIT			LUG		KILI	LLO	COORDINA	TEC			OF 1 B16C04 M HORIZBEARING
3111		Lo	uis Dov	wntow	n Sit	e	COOKDIAA	(IES]	1 2,038 E 1,550 Vert	1
BEG			MPLETED	DRILL	ER		<u> </u>	1			(FT.) TOTAL DEPTH
	1-8		4-1-88				tern, Co			CME-55 6.5" 10.5	10.5
CORI	REC	OVER'	r (FI./X	S) CORE	BOXE	S SAMPL	ESEL. 10	P CAS	ING	ROUND EL. DEPTH/EL. GROUND WATER DEPTH, 420.0 ₹ 6.0/414.0 4/1/88	'EL. TOP OF ROCK
SAM	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./LE	IGTH LOGGED BY:	/
	14	10 II	os./30	in.			No	ne		G. Cherry	
Н.	S m	ပ္ဖိုင္ပ		PR	JATER				90		
SAMP . TYPE	SAMP. ADU.	E RE	SAMPLE LOWS "N" X CORE	_σ Σ	ESTS		ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS,
器	SAMP	BAMPL CORE	BLOWS % CO RECOU	P. P.	PRES P.S.	F NI	420.0	ŏ	aRA A		WATER RETURN, CHARACTER OF DRILLING, ETC.
							419.3_			0.0 - 0.7 Ft. CONCRETE.	D-10.5 Ft. advanced with 6.5-inch O.D.
	1.0	0.5	6-4				418.8_	•		0.7 - 1.2 Ft. <u>Sandy GRAVEL</u> (GP).	hollow-stem auger.
SS	2.0	1.4	4-7-4 3				-			1.2 - 7.4 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR2/1) to gravish black (N2). Low moisture to moist	
SS	2.0	0.9	1-1-1					8_		grayish black (N2). Low moisture to moist, loose. Rubble consists of carbonaceous material, slag and gravel. Fe staining. Patches of dark yellowish brown (10YR4/2)	
	<u> </u>						Z	[°-		to moderate yellowish brown (10YR5/4) silty clay.	Radiologically sampled and
SS	2.0	1.4	1-2-1				412.6_	Ī .			gamma-logged by TMA/Eberline. Top of undisturbed
SS	2.0	2.0	1-2-3				112.0_			7.4 - 10.5 Ft. Silty CLAY (CL). Dark gray (N3). Moist, soft to medium-stiff	material at 7.4 Ft.
			4							consistency, moderately plastic. Trace of organic material as blebs.	
-							409.5_	10_			
										Bottom of boring at 10.5 Ft. Boring grouted to bottom of concrete with bentonite cement grout on 4/12/88.	Color descriptions from the GSA Rock Color Chart (1948).
	; ;										Description and identification by visual examination of soils.
								<i>,</i> 9			
				:						·	
			POON; ST			,,	ITE	S	t. l	ouis Downtown Site	B16C04

		3E	:O	LOC	- 31	C D	RIL	L LO	G	PROJEC	T	FUSRAP		JOB NO 145		HEET NO.	HOLE NO. B16C05
ITE									COORDINA	TES					ANGLE	FROM HOR	
		. 1		IS DO	_	DRILL		e	<u> </u>			1,757 E 1,780	136	01/50011005		rtical	
E GU		QQ	1	-11-8	_		_	-Was	tern, Co	- 1	JKILL	VAKE AND MODEL S CME-55	12E 6.5"	OVERBURDEN 14.0		OCK (FT.)	TOTAL DEP
									ESEL. TO		NG G	OUND EL. DEPTH/E	L. GROUN	ND WATER		TH/EL. TO	P OF ROCK
			1					7				419.0	/408.2	4/11/88			/
AMP			_	WEIGH	•		CAS	ING LE			A./LEN	GTH LOGGED BY:		G 61	_		-
11		1		s./30			IATE	?	No	ne	П			G. Ch	erry	 	
SAMP DIAM.	SAMP. ADU.	SAMPLE DEC	CORE REC.	BLOWS "N"	RECOVERY	PR	ESSU ESTS SO SO SO SO SO SO SO SO SO SO SO SO SO	RE	ELEV. _419.6	DEPTH	GRAPHICS SAMPLE	DESCRIPTION			CATION	WATE	S ON: R LEVELS, R RETURN, ACTER OF LING, ETC
SS	2.0]	1.6	7-8-10 9	6				419.1_	_		0.0 - 0.5 Ft. Sandy 0.5 - 8.5 Ft. Silty (RUBBLE.	CRAYE LAY (C	L (GP).		with 6	Ft. advanced .5-inch O.Dstem auger.
SS	2.0	7	1.7	19-40-	31					-		0.5-1.5 Ft. Mod (10YR5/4). Low medium-stiff con brick.	moistur	e content,			
SS			1.7	3-3-6						5_		1.5-8.5 Ft. Brow grayish black (N loose, Rubble co	2). Low naists of	moisture co	ontent,	Radio	logically edjand
SS	2.0		2.0	2-2-3	1					_		material, slag, gr particle board.	avel, bri	ck, sand an	d	gamm TMA/ Top o	a-logged by Eberline. I undisturbed ial at 12.0 Ft.
SS	2.0	1	2.0	1-1-2					411.1_	-		8.5 - 14.0 Ft. Silty	•	•		- maser	ge a2.V E t.
SS	2.0		2.0	1-1-4					Ź	10_		8.5-12.0 Ft. Grato olive gray (5Y of organic materifragments, pebbl glass.	4/1). M	loist, soft. bs. Some b	Trace rick		
ss	2.0	1	1.3	3-6-7 6					405.6_	-		12.0-14.0 Ft. Ol soft to medium-s to moderately pl	tiff cons astic. Mi	istency, slig	ghtly		
												Bottom of boring at Boring grouted to st cement grout on	14.0 Ft.	ith bentoni	te	ال ∫ from t	descriptions he GSA Rock Chart (1948).
																Descri identi	ption and lication by
										ņ						visual soils.	examination
į						İ											
						= SHEL CHER;		,,	ITE	S	t. L	ouis Downto	wn S	Site		HOLE	16C05

	(GΕ	0	LC)G	IC	D	RIL	LL	0	G	PROJE	CT		1	FUS	SD.	ΑĐ		-			J	08 N				NO.	HOLE NO.	
SITI											COORD IN	TES				r US	OK/	MP						14	501		FROM		B16C0 BEARING	6.4
		. I	Lou	is :	Do	wn	tow	n Si	te	_ [ľ	¥ 1,7	80	E	1.	,89	0					["		ertic			
BEG			1.	MPLE		- 1	RILL						DRI		MAKE					\$12	E	01	ÆRB	URDE	N			(FT.)	TOTAL DE	PT
	11-										ern, Co					E-:					5.5"			4.3		\bot			4.3	
CORI	RE	COV	ERY /	(F	Ι./χ	()	CORE	BOXE	SSAF	IPLE 2	SEL. TO	P CAS	ING	IG	ROUND			DEF	?TH/ /	EL.	GRO	JND	WAT	rer		DEP	TH/E	L. TOP	OF ROCK	
MA	PLE	HAM	/ Mer	WE!	IGHT	/F/	ALL	CA	SING		T IN HO	F: Di	IA.	/L E		0.0			<u>.</u> —							<u> </u>				
			_	s./:							No		,		~~			•	•				G	. CI	heri	rv				
ኯ.			·····			7	L	JATE		Т		<u> </u>	T	T				_					<u> </u>							
SAMP DIAME	SAMP. ADV.	MPLE RE	ORE REC	BLOWS "N"	X CORE	LOSS		PRESS. ISS		Į.	ELEV.	DEPTH	GRAPHICS	SAMPLE	D	ESC	RIF	PTI	ON	AI	אם כ	CLA	. 33:	IFİ	CAT	'IOI	7 0	JATER	ON: LEVELS RETURN CTER OF	í,
	2.0		0	<u> </u>	-	_	G	<u>q.</u>			420.0		٢	<u>' </u>													. 1		ING, ET	
55	2.0	1	2	10-1	12-8 7	1					419.6_				\						RAY			P). ——			⋰	with 6.5	. advance -inch O.D) .
77		↓_	_																		AY (holiow-	stem auge	r.
	2.0			4-12	7						415.7					0.4-: (10Y medi rubb	/R5/ ium	Ft. /4). -sti	Mo Lo ff co	der w n	ate ye noistu stenc	elio ire y.	wish cont Som	bro tent, te br	wn ick					
86-	0.3	T	.3	-50,	74"				ŀ		415.7_	_	-		Γ	2.7-4 black	4.3 I	Ft.	Oliy	ve g	ray (v moi	5 Y	4/1)	to	live		\int	Radiolo	rically	
			ļ							į				l		medi	ium	stif	ff, so	me	grav	el.					11:	sampled	by berline.	
										Į.					Box	ring :	grou	uted	i to	sur	.3 Ft. face v 14/8	vith	uge: be:	r refi	usal. ite			Auger r Ft.	efusal at 4	l.3
											• • •																		scriptions	
											•																		e GSA Roc hart (1948	
														ı	ļ															
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			-										l																	
																											;	Descript	ion and	
														1													i	dentific	ation by	n
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	C	EC	LOG	IC D	RIL	L LO	G	PROJEC	- I		FUSRAP	JOB NO 145		ET NO.	HOLE NO.
SIT							COORDINA	TES			FUSRAF	1 143		OF 1	B16C06B
	-	. Lo	uis Do	wntow	n Sit	e				N	1,785 E 1,890		1	tical	
BEG			MPLETED					ļ				OVERBURDE		K (FT.)	TOTAL DEPTH
			-11-8				tern, Co			_	CME-55 6.5"	16.0			16.0
CORI	REC	OVER	Υ (FT./%	CORE	BOXE	1	ESEL. TO	P CAST	NG	GR	DUND EL. DEPTH/EL. GROUNI 7.8/412.2 4/		DEPTH	/EL. TOP	OF ROCK
SAMI	OLE H	/	R WEIGHT	/FALL	iras	5	FT TH HO	F. 01	<u> </u>	Enc	420.0 \\ \frac{1}{2} \]/ 1.0/412.2 4/		L	/	· · · · · · · · · · · · · · · · · · ·
300			bs./30	-	Γ ~ 3	, ind FE	Noi No		۸./٤	ENL	III ILUGUED BT:	G. Ch	AFFY		
lu					JATER	₹	1401		1	П		G. CI	еггу	T	
SANT DIAME	SAMP. ADU LEN CORE	BAMPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	Loss IN G.P.H	ESSU	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CL		CATION	WATER CHARA	ON: LEVELS, RETURN, CTER OF ING, ETC.
							419.6_			H	0.0 - 0.4 Ft. GRAYEL (GW)) .		10.1001	54 - J
								-			0.4 - 10.0 Ft. Silty CLAY (C	L) and	/	with 6.5	ft. advanced i-inch O.D.
								-			RUBBLE.			nonow-	stem auger.
								-			0.4-2.7 Ft. Moderate yello (10YR5/4). Low moisture medium-stiff consistency.	content,			
								5			2.7-4.0 Ft. Olive gray (5) black (5Y2/1). Low moist medium stiff. Some gravel	ure conten	live t,		to collect at 4.0-6.0 Ft.
SS	2.0	1.8	4-2-2					_			4.0-5.5 Ft. Rubble.			due to r	
SS	2.0	1.5	3-2-2				Ž	7 -			5.5-10.0 Ft. Grayish black moisture content to moist, consists of carbonaceous n	, loosé. Ri	ubble	Radiolo sampled gamma-	
							410.0	10_			particle board and gravel.	-	ica,	VOA sa 6.0-8.0	mple collected
SS	2.0	1.6	WH-2-2 3								10.0 - 16.0 Ft. Silty SAND (SM).		7 0	- ••
SS		1.9	1-2-6 12					-			10.0-13.1 Ft. Greenish gradark greenish gray (5GY4). Some brick fragments and board. At 10.0 Ft. sample by the weight of the hamm no weight drop.	/1). Mois pieces of per advance	í, soft. particle ed 6 in.	Top of a	undisturbed l at 13.1 Ft.
			7				404.0_	15_			13.1-16.0 Ft. Olive gray (soft to medium-stiff consist plastic. Very fine-grained	stency, slig	Moist, thtly	Cala- A	
:											14.5-16.0 Ft. Clay stringe plastic, trace of organic ma		, <u> </u>	from the	escriptions e GSA Rock hart (1948).
								<i>,</i> •			Bottom of boring at 16.0 Ft. Boring grouted to surface wit cement grout on 4/14/88.	h bentonit	ie	identific	tion and ation by kamination of
								•							
											·				
														<u>L</u>	
			POON; ST			U-,	ITE	S	t.	Lo	uis Downtown Si	ite		HOLE NO	C06B

	PROJECT JOB NO. ISI	HEET NO. HOLE NO.
GEOLOGIC DRILL LO		1 OF 1 B16C07
	OORD INATES ANGLE	FROM HORIZBEARING
St. Louis Downtown Site BEGUN COMPLETED DRILLER		rtical
4-6-88 4-6-88 Layne-West		12.0
CORE RECOVERY (FT./%) CORE BOXES SAMPLE	V 75/4125 //4/88	TH/EL. TOP OF ROCK
/ 6 SAMPLE HAMMER WEIGHT/FALL CASING LEF	IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None G. Cherry	
ATER PEC. CORE LE REC. CORE LE	E SON THE SON	NOTES ON:
SAMP. ADU. SAMPLE REC. CORE REC. CORE REC. CORE REC. SAMPLE REC. CORE REC. CORE REC. CORE REC. CORE REC. CORE REC. CORE REC. CORE RECORET TINE STESS. TINE TINE TINE TINE TINE TINE TINE TINE TINE	ELEV. HE DESCRIPTION AND CLASSIFICATION	WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 1.6 1.0 11-7-6 3/1"	118:3- 0.0 - 0.3 Ft. ASPHALT.	0-12.0 Ft. advanced with 6.5-inch O.D.
SS 2.0 1.3 9-8-2 7	0.3 - 0.7 Pt. Sandy GRAVEL (GM). 0.7 - 8.1 Ft. Sity CLAY (CL) and	hollow-stem auger.
SS 2.0 1.5 7-3-2 10	0.7 - 8.1 Ft. Silty CLAY (CL) and RUBBLE. Grayish brown (5YR3/2) to brownish black (N2. Low moisture content to moist, loose. Rubble consists of slag, carbonaceous material and gravel. Fe staining.	•
SS 2.0 2.0 19-18-13 13		Radiologically sampled and gamma-logged by TMA/Eberline. Top of undisturbed
SS 2.0 1.6 2-2-2 2	8.1 - 12.0 Ft. Suty CLAY (CL).	material at 8.1 Ft.
SS 2.0 1.6 1-2-3 3	8.1-11.4 Ft. Moderate brown (5YR4/4). Moist, soft, moderately to highly plastic. Trace of very fine-grained sand.	
	11.4-12.0 Ft. Olive gray (5Y4/1) to olive black (5Y2/1). Moist, soft, slightly to moderately plastic. Trace of organic material as blebs. Minor amounts of medium-grained quarts sand.	Color descriptions from the GSA Rock Color Chart (1948).
	Bottom of boring at 12.0 Ft. Boring grouted to bottom of asphalt with bentonite cement grout on 4/8/88.	
		Description and identification by visual examination of soils.
SS = SPLIT SPOON; ST = SHELBY TUBE; SI'D = DENNISON; P = PITCHER; D = OTHER	St. Louis Downtown Site	B16C07

CE	01.00	יוכ ח	DII I	10	<u> </u>	PROJEC	T		1 1	EET NO.	HOLE NO.
SITE	OLOC		KILI	LLU	COORDINA	TFS		FUSRAP	1	1 OF 1 FROM HORIZ	B16C08
1	Louis Do	wntow	n Sit	e			N	1,694 E 1,678	ĺ	rtical	
BEGUN	COMPLETE	1						· - · · · · · · · · · · · · · · · · · ·		CK (FT.)	TOTAL DEPTH
4-25-88					tern Co			Tobile B-40 6 3/4" COUND EL. DEPTH/EL. GROUND I	18.0	TH/EL. TOP	DE ROCK
LONE REGOV	/ /	7		8				419.5		/	,
SAMPLE HAM		-	CAS	ING LE			A./LE	GTH LOGGED BY:			
	lbs./30		JATER	,	No	ne			Γ.F. Mullen	-	
SAMP. TYPE SAMP. ADU. LEN CORE BAMPLE REC	CORE REC. SAMPLE BLOWS "N"	LOSS NI A.P. A.	ESSU S S S S S S S S S S S S S S S S S S	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLAS	SSIFICATION	WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
	1.0 4-4				418.7_			0.0 - 0.8 Ft. <u>CONCRETE</u> .		─ with 6 \$	Ft. advanced 3/4-in. O.D.
	0.3 1-1-1				·	 		0.8 - 8.6 Ft. FILL. Dusky brow 2/2) grading to greenish blas Silt, clay, and crushed rock. gravelly with depth. Wet an Pieces of wood.	ck (5G 2/1).	Radiolo	stem auger. gically l and -logged by berline, Inc.
SS 2.0 1	6-4-6					5_					
SS 2.0 1	3-1/1					-					
SS 2.0 1	3-2-1				410.9_	10_		8.6 - 18.0 Ft. Silty CLAY (CL greenish gray (5G4/1) gradi olive green (5GY3/2). Mois). Dark ng to grayish t. firm	VOA sa collecte	mples d 8-9 Ft.
SS 2.0 1	1.3 1-1-1				;			consistency. Increases in sill plasticity with depth. Brittl when deformed. Small black probably decomposed organi	t content and le rupture s specks,	Top of materia	undisturbed l at 8.6 Ft.
SS 2.0 2	2-2-1							producty decomposed organi			
SS 2.0 2	2.0 2-2-3					15_				from th	escriptions e GSA Rock hart (1948).
					401.5_			Bottom of boring at 18.0 Ft. Borehole backfilled with benton	-ita aamant		
								4/25/88.	nce cement,	identifi	tion and cation by xamination of
						."					
				:							
SS = SPLIT D = DENNIS	-			,,,	ITE ·	S	t. L	ouis Downtown Sit	е	HOLE NO	6C08

Γ					-			PROJEC	ī			·			JOB NO	. SH	EET NO.	HOLE NO.
		EC	LOG	IC D	RIL	L LO					FUSR.	AP		.	1450		1 OF 1	B16C09
SITI		T ~	uis Do	wn to	m Cid	•	COORDINA	TES		N 1	664 E	1 47	4				ROM HORIZ	BEARING
SEG			MPLETED					k		N 1,	AND MOD	1,674	SIZE	OVE	RBUROEN		tical	TOTAL DEPTH
			-25-8				tern Co			Mob	ile B-4	1	6 3/4	1"	18.0		(,	18.0
CORI	REC	OVER	Y (FT./7	() CORI	BOXE	1	ESEL. TO	P CASI	NG			DEPTH/	EL. GR	OUND W	ATER	DEPT	H/EL. TOP	OF ROCK
SAME	PLE H	AMME	R WEIGHT	/FALL	CAS	9 SING LE	FT IN HO	E: DI	A./L		19.5	BY:		-		!	/	·
	14	40 II	bs./30	in.			No							Т	.F. Mı	ıllen		
ם.	j m	ပ္ပုံ	SAMPLE BLOWS "N" % CORE RECOVERY	PF	WATER		3		9					 				······································
orAM.	4 8	E E	12 W 20 2	<u> </u>	TESTS		ELEV.	OEPTH	GRAPHICS	SAMPLE	DESCRI	PTION	AND	CLAS	SIFIC	ATION	NOTES	ON: LEVELS,
₩	άZ	7 8	FO SO	SS T	85	HAY!			₫								WATER	RETURN,
SAMP	SAMP. ADU.	F S	, ¹ , , 5	7,9	PRESS. P. S. I.	E.E	419.5		9									CTER OF ING, ETC.
SS		1.5	1				419.0_		<u>-21</u>	0. 0.	0 - 0.5 F 5 - 10.4 I brown ((5YR3/	CON	CRET	ky vell	owish			t. advanced 1/4 in. O.D.
77											brown ((5YR3/	10YR2/ 2) and t	2) becc lack (l	oming g	rayish l h depth	orown	hollow-	stem auger.
SS	2.0	1.7	6-6-13 13					_			Clayey is slag. W	ilt to greet with	ravellý petroci	silt, co hemica	al, and I smell.		Radiolo sampled gamma	gically l and logged by berline.
SS	2.0	1.5	7-7-10 13					5_									Top of	undisturbed
SS	2.0	2.0	6-9-6 10					-									Ft.(?)	l at 18.0
SS	2.0	1.5	4-7-7					1										
SS	2.0	0.7	3-3-1				409.0_	10_									_	
	:		1					-		10	.4 - 18.0 gray (5)	Ft. <u>Sil</u> (3/2). S	oft con	Y (CL)). Olive y, mode	rately		
SS	2.0	1.4	2-2-3					-			plastic. Dark str Black st	eak, por reaks th	ssible d in out.	lecomp	with de osed org	pth. anics.		
SS	2.0	2.0	1-1-1/1			!		15_										
SS	2.0	2.0	2-2-1 1				•	-			15.0 Ft. blow.	Sample	er adva	inces 1.	0 Ft. wi	th one	Color de	escriptions GSA Rock
							401.5_			\								hart (1948).
										Bo	ottom of lorehole be	sckfilled	at 18. with b	0 Ft. œntoni	te cemei	nt		
											grout, 4	/25/88.					identific	tion and ation by kamination of
								'n										
														-				
	,																	
			POON; ST : P = PI			,,,	ITE		 + 1	011	is Do	wnta	MAIP	Site			HOLE NO	6C09
<u>.</u>	UENN	. 3UK	, Pl	I UNEK;	U = U	HEK		3	t. E		יטע נו	ALLIFC	7 YY (JILE			DI	ししひろ

	G	EC	LOG	IC	D	RILI	LLO	G	PROJEC	• I		FUSRAP	JOB NO 145		ET NO.	HOLE NO. B16C10
ITE		·	.i. P		.	- C!		COORDINA	TES			1 700 F 1 646			OM HORIZ	
EGU			MPLETED		RILL		e	<u> </u>				1,708 E 1,646 AKE AND MODEL SIZE OVE	ERBURDEN	Vert	tical K (FT.)	TOTAL DEP
			-19-8				-Wes	tern Co	1	J N 1 L		obile B-40 6 3/4"	13.0	, ROC	K (F1.)	13.0
			Y (FT./					ESEL. TO		NG		OUND EL. DEPTH/EL. GROUND		DEPTH	/EL. TOP	OF ROCK
							6				L	419.5			/	<u> </u>
AMP			r WEIGH bs./30	-		CAS	ING LE			A./L	.EN(TH LOGGED BY:	TE M			
u i				_		ATER	}	Not	16	<u> </u>	П		T.F. M	ullen	1	
AND DIAM.	SAMP. ADU.	SAMPLE REC	BLOWS "N" % CORE	LOSS	PR	ESTS ESTS IN IN RE	ELEV.	ОЕРТН	٥	SAMPLE	DESCRIPTION AND CLAS			WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC	
ss		1.5	5-9-34	J				419.0_	-			0.0 - 0.5 Ft. CONCRETE. 0.5 - 8.2 Ft. FILL and clayer : Dusky yellowish brown (10 Y	SILT (M) (R2/2).	L). Silt,	with 6-	Ft. advanced 3/4 in. O.D. stem auger.
SS			18-31-3 52						-			coal, and slag. Dry and loos	se.		Radiolo sampled gamma- TMA-E	gically l and -logged by berline.
SS		1.9	10-27-1 16 7-7-5						5_			4.0 Ft. Clayey silt is greenis (5G2/1) to grayish olive (10 slightly plastic. Crumbles w	sh black 1Y4/2). I hen defo	Moist, rmed.		undisturbed l at 8.2 Ft.
ss	2 0	0.7	1-1-5					411.3_	- -							
,5	2.0	0.7	7		į				- 10_			8.2 - 13.0 Ft. Silty CLAY (CL gray (5Y3/2) to light olive g Wet, moderately plastic, sof). Olive	5/2).		
SS	2.0	2.0	0-1-1-						-			content at 10 Ft.	ases in ci	ау		
								406.5_	-			10.0 Ft. Sampler advances 6 of rods and hammer upon se	6 in. by wating.	veight 		
,							! !					Bottom of borehole at 13.0 Ft. Borehole backfilled with benton 3/19/88.	nite ceme	nt,		
															from the	escriptions e GSA Rock hart (1948).
															identific	tion and ation by xamination
									.4							
						:										
											(
	i			}												
			POON; ST				J-,	ITE		<u> </u>	 	ouis Downtown Sit	e		HOLE NO	.6C10

Γ								PROJEC	`T		Lion vo. Teus	ET NO NO E NO
	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	.1	FUSRAP	_ l l	OF 1 B16C11
SITE							COORD I NA	TES		IOSKAI		ROM HORIZBEARING
	St	. Lo	uis Dov	wntow	n Sit	e				1,650 E 1,645	Ver	tical
BEGL		1	MPLETED	F				- 1			VERBURDEN ROC	K (FT.) TOTAL DEPTH
			-21-88				tern Co			1obile B-40 6 3/4"	20.0	20.0
CORE	: KEU	OVEK	(() 1 . / %	.) LUKI	BUXE	9	ESEL. TO	P CASI	NG G	ROUND EL. DEPTH/EL. GROUND 419.5 量 /	WATER DEPT	I/EL. TOP OF ROCK
SAME	LE H	AMMEI	WEIGHT	/FALL	CAS	 _	FT IN HOL	E: DI	A./LE			
	14	40 II	s./30	in.	-		No				T.F. Mullen	
Ä.	31	ပါ	£		JATER							
透	68		규모		TESTS			Ξ	l ä lu			NOTES ON:
.0			폴레임	ω_E	йн	₩_÷	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLA	RSSIFICATION	WATER LEVELS, WATER RETURN,
SAND DIAM.	SAMP. ADU. LEN CORE	FIS FIS	SAMPLE BLOWS "N" % CORE RECOVERY	LDSS IN P. T	H o	ALINE SIN		۵	1 26 16			CHARACTER OF
8,5	<u>ω,</u>	8,0		- 6	<u>g</u> a		419.5		9.	0.0 - 0.7 Ft. CONCRETE.		Boring advanced
SS	1.3	1.1	8-7-5		ļ		418.8_	-			(M) and	0-16.0 Ft. with 6-3/4 in. O.D. hollow-stem
99	0.2	0.0	20/2		1			-		0.7 - 3.4 Ft. SILTY SAND (S FILL. Dusky yellowish bro to dark yellowish brown (1)	own (10YR 2/2)	auger. Advanced 16-20.0 Ft.
]		416.1			Dry, loose consistency. Sla with depth.	g. Gets wet	with 4 in. O.D. solid-stem auger.
55	2.0	1.4	4-1-4		1		415.6		22	\\\ 3.4 - 3.9 Ft. CONCRETE.		A some stem auger.
			9		}			5_		<u> </u>) and PII !	
ge	2.0	1.0	10-3-2					.		3.9 - 8.3 Ft. Silty SAND (SM Grayish black (N2) to greet (5CV2/1) Silty and and	nish black	
33	2.0	1.0	10-3-2							(5GY2/1). Silty sand and Saturated after 5 Ft. Loos	e.	Radiala-is-ll-
CC	2.0	1.0	3-2-4				411.2_					Radiologically sampled and
33	2.0	1.6	5				-		\prod	8.3 - 10.5 Ft. SILT (MH). Li gray (5Y5/2). Wet. Slight	ght olive	gamma-logged by TMA-Eberline.
							400.0	10_		gray (5Y5/2). Wet. Slights consistency.	ly plastic, firm	
SS	1.5	1.5	2-2-3		ŀ		409.0_			10.5 - 14.0 Ft. Silty CLAY (C	CL). Color	Top of undisturbed material at 8.3 Ft.
					ŀ					varies from dusky yellow grayish olive green (5GYS/ Consistency becomes stiffer	reen (5GY5/2) to 2) with depth.	
SS	2.0	1.8	1-1-2	ĺ	•					decreases with depth. Mois	r ås silt content st, slightly	
					ŀ		405.5_			plastic.		_
SS	2.0	0.5	1-1-1					15_		14.0 - 20.0 Ft. Clayer SILT (olive gray (5 Y 5/2). Moist,	ML). Light	
<u></u>										consistency.		
SS	2.0	2.0	5-2-2			ļ						Color descriptions from the GSA Rock
						}						Color Chart (1948).
SS	2.0	1.0	1-4-4 3					•	1			
						ļ	399.5_	20				
]]		Bottom of borehole at 20.0 Ft		Description and identification by
										Borehole backfilled with bento 3/21/88.		visual examination of
										4) = 2) 40.		
1						1		."				
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]								
					ĺ	}						
					İ]				
<u></u>	<u> </u>	<u></u>				<u> </u>	<u> </u>	L			<u> </u>	1
			POON; ST			,,,	ITE	C	. 1	ouis Downtown Si	to	B16C11
P =	UENN	1 20N	P = PI	IUNEK;	U = (JIREK			, L. L	ouis Downtown St	<u></u>	DIOCII

	G	EC	LOG		RIL	L LO	G	PROJEC	I		FUSRAP		JOB NO 145	-	SHEET NO.	HOLE NO. B16C12
SITE					_		COORDINA	TES		•		"	1 240		FROM HOR	
			uis Do			te	<u> </u>	1		N 1,6			· ·······	-	ertical	
BEGU 31		1	MPLETED -18-8			o_Wos	tern Co				AND MODEL	51ZE 6 3/4"	OVERBURGE		ROCK (FT.)	
			Y (FT./	K) COR	E BOXE	SSAMPL	ESEL. TO	P CASI		GROUNG	IE B-40		15.0		PTH/EL. TO	15.0 OP OF ROCK
		1				6				41	9.5 \\ ₹ /	•			,	/
AMP			R WEIGH	-	CAS	ING LE			A./L	ENGTH	LOGGED BY:					<u></u>
			os./30				No	ne	·				T.F. M	ullen	1	·
ANG DIAM.	SAMP. ADU.	SAMPLE REC.	SAMPLE BLOWS "N" % CORE	Loss IN P. T.	WATER ESSU TEST: ON	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	ESCRIPTIO	N AND C	LASSIFIC	CATIC	N WATE WATE CHAR	S ON: R LEVELS, R RETURN, ACTER OF LING, ETC
SS			10-35-2				419.0_		ङ्ख		- 0.5 Ft. CO - 2.6 Ft. FII	NCRETE	ellowish hea	W D	0-15.0	Ft. advanced 5-3/4 in. O.D.
SS			11-20/2				416.9	-			- 2.6 Ft. FII (10YR4/2) to (10YR2/2). C sand grains. I	dusky yell layey silt	owish brown and slag, com	ntains	hollow	v-stem auger.
55	0.0	0.0	20/0"	1			110.5_	-			at 2.3 Ft.		ose. Seconi		П	logically
SS	2.0	1.1	7-8-7	1			415.2_	_			- 4.3 Ft. <u>CO</u>				sampl	ed and
ss	2.0	1.1	7					5		4.3	- 8.2 Ft. <u>FII.</u> brown (10YR: silt and slag. dark yellowish	L. Dusky (72). Claye Small amo	yellowish by silt and grounts of sulfu OVR6/6)	ravelly ir;	' TMA-	a-logged by -Eberline.
SS	1.5	1.8	1 1-1/1.0				411.3_	-			8.0 Ft. Sampl				Top o	f undisturbed ials at 8.2 Ft.
			, -:-					•	Seattle of		blow.				_	
SS	2.0	1.8	1-1-2					10	S. S. S. S. S. S. S. S. S. S. S. S. S. S		- 15.0 Ft. Cl olive gray (5Y decreasing wit from saturated Consistency be increases.	h depth. I I to moist	Moisture vai with depth.	ries		
							404.5_	15	1							
										Bo	ttom of boreho rehole backfill 3/18/88.			ent,	from t	descriptions he GSA Rock Chart (1948)
								ŗ							identi	ption and fication by examination
						·										
												ς.				
			POON; ST			,,,	ITE		<u></u>		s Downt	own (Site		HOLE A	16C12

				_					220156						la		
	C	E(OLOG	ilC	: D I	RIL	L LO	G	PROJEC	. I		FUCDAD		JOB N		EET NO.	HOLE NO.
SIT		_						COORDINA	TES			FUSRAP		145		1 OF 1 ROM HORIZ	B16C13
	_	T.o	uis Do	wn	tow	n Sit	e	COCKO I NA			N 1.	703 E 1,75	n			rtical	PERKING
BEG			OMPLETE		RILL		<u></u>	.	1			AND MODEL	SIZE	OVERBURDE		CK (FT.)	TOTAL DEPTH
4.	-5-8	8	4-5-88	- 1			-Wes	tern, Co).		C	ME-55	6.5"	14.0			14.0
								ESEL. TO		ING		D EL. DEPTH	EL. GROL	IND WATER		H/EL. TOP	
		/					7				4	19.0	0/412.0 4	1/5/88		/	,
SAM	PLE H	LAMME	R WEIGH	T/F/	ALL	CAS	ING LE	FT IN HO	LE: DI	A./L	ENGT	LOGGED BY:					
L	1		bs./30					No	ne					G. Ch	erry		
Ш.	SAMP. ADV.	ပြု	SAMPLE BLOWS "N" % CORE	_		ATER ESSU								•			
SAMP TYPE	60	2 7		Ľ		ESTS		.	E	BRAPHICS	H					NOTES	
ءَ ِ			문화입	9 0	_ =	ю́н	ш_•	ELEV.	DEPTH	Ŧ	SAMPLE	DESCRIPTION	AND C	LASSIFI	CATION		LEVELS, RETURN,
段	当点	五品	85 %		NI G	PRES:	HINE SIN		₫	Į Ž	8 8					CHARA	CTER OF
8,0	81-	RIC		1-	9	āa		419.0	<u> </u>	-	Ц.,						ING, ETC.
			1					418.5_	_ ا	<u>्ट्र</u>	1 8	0 - 0.5 Ft. COP 5 - 10.5 Ft. Silv RUBBLE. Br	CRETE.	(CL) and			Ft. advanced -inch O.D.
SS	0.8	0.5	10-7/4	7								RUBBLE. Brograyish black (wnish bla	ck (5YR2/1	l) to ontent	hollow-	stem auger.
SS	2.0	1.3	7-11-8	7	1				-			to moist, loose	to mediu	m-stiff		İ	
			"						٠			carbonaceous r	naterial, g	ravel and s	and. Fe		
SS	2.0	1.7	6-7-14	d					-			carbonaceous r staining. Pate (5Y6/1) to mo (10YR5/4) silt	nes of ligh lerate yel	it olive gray lowish brow	'n		
			35						5_			(10YR5/4) silt	y clay.			Radiolo	gically
50	2.0	1 2	27-15-1		i				-		H					sampled	and
		.	14	1	- 1			Ž	ļ .							TMA/E	logged by berline.
L			ļ	_					Ι.								
SS	2.0	D.8	1-1-1/1	1													
				1													
SS	2.0	1.9		1				4D8.5_	10_								mple collected
1	ŀ		5						-		1	0.5 - 13.3 Ft. Si gray (5Y4/1) t (5GY4/1). Mo	o dark gr	(CL). Oliv enish gray	'e	6.D-8.0	Ft.
SS	2.0	1.2	2-2-2	-					-			(5GY4/1). Mo Minor amounts	ist, soft,	moderately	plastic.	Top of	undisturbed
			1	}	i			405.7_	-								l at 10.5 Ft.
<u> </u>	ļ	<u> </u>		4	- 1			405.0_			1	.3 - 14.0 Ft. Si	ty SAND	(SM). Oli	/e	7	
]											gray (5Y4/1) fine-grained sa	Moist, soi nd.	t. Very line	:- to	from th	escriptions e GSA Rock
1		1		1			·		ŀ							Color C	hart (1948).
	ł	1			ļ					1	B	ottom of boring oring grouted to	at 14.0 Ft	i. Fannareta u	vish	1	
	1	1			- 1						~	bentonite ceme					
•	Į																
1	1	l															
	ł	1		1	- 1				1							D	
1				1	- 1						}					identific	tion and ation by
1]	1		1												visual e	xamination of
									-			•					
				1					1								
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L			<u></u>	1						L	Ц						
ss :	= SPL	IT S	POON; S	T =	SHEL	BY TU	BE; S	ITE	_							HOLE NO	
0 =	DENN	ISON	; P = P	1 T CH	iER;	0 = 0	THER		S	t.	Lou	is Downt	own S	Site		B1	6C13

	GEOLOGIC DRILL LOG PROJECT JOB NO. SHEET NO. HOLE NO. 14501 1 OF 1 B16C36 TE COORDINATES ANGLE FROM HORIZBEARING													
		EC	LOG	IC D	RIL	<u>L LO</u>					FUSRAP			
SITE		T a	uis Dov	watow	n Sit	Α.	COORDINA	ATES		N	1,525 E 2,306	1	ROM HORIZ rtical	BEARING
BEGL			MPLETED				1	k					CK (FT.)	TOTAL DEPTH
			-20-88				tern, Co					17.0	<u></u>	17.0
CORI	REC	OVER'	Y (FT./%	() CORE	BOXE	S SAMPL	ESEL. TO	P CASI	NG	GR	DUND EL. DEPTH/EL. GROUND WA ▼ 15.3/408.9 4/20/ ▼ /	TER DEPT	H/EL. TOP	OF ROCK
SAME	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./L	ENG	TH LOGGEO BY:			
			Мопе				No	ne	·-··-		G	. Cherry		
SAND DIAM.	ADU. CORE	REC.	SAMPLE BLOWS "N" % CORE RECOVERY	PR	ATER ESSU ESTS	RE 3	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASS	IFICATION	NOTES WATER	ON: LEVELS,
SAMP.	SAMP.	SAMPL	BLOW RECO	LOSS IN P. P. A	PRESS P.S.I	H NY	424.2	8] - [WATER CHARA	RETURN, CTER OF ING, ETC.
SS	1.5	0.9					423.7_	-			0.0 - 0.5 Ft. CONCRETE. 0.5 - 15.0 Ft. Silty CLAY (CL) a RUBBLE. Brownish black (5) grayish black (N2). Low moist	and		Ft. advanced
SS	2.0	1.4						-			grayish black (N2). Low moist to moist, loose, soft. Rubble co brick, gravel, slag, carbonaceou pebbles and porcelain. Fe stai Patches of moderate yellowish	onsists of us material,		inch split in an electric nmer.
SS	2.0	1.7			l			5_			Patches of moderate yellowish (10YR5/4). 2.4-5.3 Ft. Three 2 to 4-inch		Hole re	amed with
SS	2.0	2.0									medium- to coarse-grained sar	nd.	4-inch	split spoon.
SS	2.0	1.3											Radiolo	mically
SS	2.0	1.8			į			10_			•		sampled gamma TMA/E	f and -logged by Sberline.
SS	2.0	1.8												undisturbed d at 15.0 Ft.
SS	2.0	1.8					409.2	Ł			15.0 - 15.9 Ft. Silty CLAY (CL). gray (5Y4/1) to dark yellowish	Olive	_	
SS	1.0	1.0					408.3_ 407.2_	-			gray (5Y4/1) to dark yellowish (5GY4/1). Moist, medium stift plastic. Trace of very fine-gra Trace of organic material as bl	II, moderately ined sand.		escriptions .
											15.9 - 17.0 Ft. Silty SAND. Oliv (5Y4/1), saturated, soft, very fine-grained sand.	re gray fine- to	Color C	e GSA Rock Thart (1948).
	;										Bottom of boring at 17.0 Ft. Boring grouted to bottom of conc. bentonite cement on 4/29/88.	rete with		
								C.						
									╽					
			POON; ST ; P = PI			,,,	ITE	S	St.	Lc	uis Downtown Site		HOLE NO	16C36

	(GI	ΕO	LC)G		DRI	ILL	. LO	G	PROJEC	ī		1	EET NO.	HOLE NO. B16C33
SAMP. TYPE	_	ORE	•.	™ ‡			WAT RESS TES	TER SUR STS	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES WATER WATER CHARA	<u></u>
SG .	36		SA SA					. a						16.0 Ft. Abundant olive black spots (1.5 mm). Trace of fibrous organics. Bottom of borehole at 18.0 Ft. Borehole backfilled with bentonite cement, 4/28/88.	DRILL	ING, ETC.
SS =	= SF	PLI	T SF SON;	POON	; ST = PI	= SH TCHER	ELBY	= 01	, ,	1TE	S	t.	L	ouis Downtown Site	HOLE NO	6C33

GEOLOGIC DRILL LO		NO. SHEET NO. HOLE NO.
SITE	FUSRAP 1	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,661 E 2,285	Vertical
BEGUN COMPLETED DRILLER	DRILL MAKE AND MODEL SIZE OVERBUI	
CORE RECOVERY (FT./X) CORE BOXES SAMPL		3.0 18.0
CORE RECOVERY (F1.72) CORE BOXES SAFE	424.0	R DEPTH/EL. TOP OF ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LE	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None G.	Cherry
SAMP. TYPE SAMP. ADU. LEN CORE SAMPLE REC. CORE REC. SAMPLE RECOUERY LOSS "N" X CORE RECOUERY LOSS IN TANE TIME SAMPLE RECOUERY IN TANE TIME SAMPLE ACCOUERY IN TANE MIN.	ELEV. HE DESCRIPTION AND CLASSIF	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
PR G L R G C F F	424.0	DRILLING, ETC.
SS 1.5 0.9 3-12-4/5	423.4 422.8 - 0.0 - 0.6 Ft. ASPHALT. 0.6 - 1.2 Ft. Sandy GRAYEL (GP)	0-18.0 Ft. advanced with 6.5-inch O.D.
SS 2.0 1.5 3-6-9 8	1.2 - 4.3 Ft. Silty CLAY (CL). Moyellowish brown (10YR5/4) to ligray (5Y6/1). Dry to low moists medium stiff, trace of gravel.	derate tht olive
SS 2.0 1.8 4-8-9 6	419.7 5 4.3 - 14.5 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR	2/1) to Radiologically
SS 2.0 1.8 2-2-4	RUBBLE. Brownish black (5YR grayish black (N2). Low moistur to moist, loose. Rubble consists carbonaceous material, sand, grabrick.	of slag, gamma-logged by
SS 2.0 1.8 1-3-3 4	6.9-12.3 Ft. Light olive gray (5) medium gray (N5). Moist, soft t	(6/1) to o medium ight olive
SS 2.0 1.1 2-4-6 5	brown (5Y5/6) Fe staining. Tra- and gravel.	Top of undisturbed material at 14.5 Ft.
SS 2.0 0.9 3-3-4 SS 2.0 1.7 3-3-12	12.3-14.5 Ft. Brownish black (5 grayish black (N2). Moist, loose consists of carbonaceous materia brick. Patches of light olive gray	Rubble
SS 2.0 1.7 3-3-12 16	408.7 15_ to greenish gray (5G6/1) silty cli	ay. /
SS 2.0 1.4 7-6-6	14.5 - 15.3 Ft. Silty CLAY (CL). 1 gray (N5) to dark gray (N3). Mo medium stiff, moderately plastic. amounts of organics as blebs.	Minor
	15.3 - 18.0 Ft. Silty SAND (SM). gray (5Y4/1) to light olive gray Moist, medium stiff, slightly plas Light brown (5YR5/6) Fe stainin amounts of clay.	tic. Color Chart (1948).
	16.5-16.8 Ft. Very coarse-grain well-sorted quarts sand with tra- well-rounded chert pebbles.	ed visual examination of
	16.8-17.2 Ft. Silt with moderate brown (10R4/6) Fe stained dessi cracks.	
	Bottom of boring at 18.0 Ft. Boring grouted to bottom of asphalobentonite cement on 3/31/88.	: with
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. B16C34

4-18-88 4-18-88 Layne-Western, Co. Jackhammer 4.0" 17.0 17.0					16.5				PROJEC	T		JOB NO.	HEET NO. HOLE NO.		
St. Louis Downtown Site N 1.505 E 2.771 Vertical Vertica			iEC)LUG	IC D	KIL	L LO								
Second Color Col	SIT		T o	uic Do	wntou	n Sit	· A	COORDINA	ITES		N	1	i		
COME BOOKES SAMPLE METORY COME BOOKES SAMPLE SELL TO P CASH CASUND EL. DEPTIVEL. CORONATE DEPTIVEL. COME DEPT	BEG							<u> </u>	į	RIL					
SAMPLE NAMES RECENTIFIED None															
Sample American Electrical Mone Comparison	COR	E REC	OVER /	Y (FT./%	() COR	E BOXE	l l	ESEL. TO	P CASI	NG	GF	T 17 7//10 5 //10/00 1	TH/EL. TOP OF ROCK		
Second S	SAMI	PLE P			/FALL	CA:				A./I	LEN	GTH LOGGED BY:			
SS 1.3 0.8 0.7 - 3.7 Pt. CONCRETE 0.7 Pt. CONCRETE 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 Pt. 0.7 P	3	•1				WATER	?	No	<u>ie</u>	Ī	П	G. Cherry	·		
SS 1.3 0.8	SAM DIAM.	SAMP. ADU	BAMPLE REC	SAMPLE BLOWS "N' % CORE RECOVERY	E SECOND NI CO	TEST	RE S		нтезо	-	\prod		WATER LEVELS, WATER RETURN, CHARACTER OF		
SS 2.0 1.4 421.0 55 2.0 1.5 5 2.0 1.6 5 2.0 0.0 5 2.0 0.0 5 2.0 0.0 5 2.0 0.0 5 2.0 0.0 5 2.0 0.0 5 2.0 0.0 6			1		-			423.5_			П				
SS 2.0 1.5 SS 2.0 1.0 SS 2.0					1				_			0.7 - 3.2 Ft. Gravelly SAND. Medium- to coarse-grained sand.	with 2-inch split spoon on an electric		
SS 20 20 1.8 SS 20 1.2 SS 20 1.0 SS 20 1.								421.0_	-			99 - 15 2 Pt Giller (TAV (CT) and			
SS 2.0 0.0 SS 2.0 1.8 SS 2.0 1.0 SS 2.0	SS	to moist, loose. Rubble consists of H carbonaceous material, slag, brick, gravel, 4													
SS 2.0 1.8 SS 2.0 1.2 SS 2.0 1.0 SS 1.0 0.8 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 1.0 0.8 SS 2.0 1.0 SS 2.0	SS	2.0	2.0		1				-			carbonaceous material, slag, brick, gravel, sand, wood and glass.	4-inch split spoon.		
SS 2.0 1.8 SS 2.0 1.0 SS 1.0 0.8 18- 18- 18- 18- 18- 18- 18- 1	SS	2.0	sampled and												
SS 2.0 1.2 SS 2.0 1.0 SS 1.0 0.8 15.2 - 17.0 Ft. Silty CLAY (CL). Olive gray (5 \(\frac{4}{2} \) to 0.1 to 0.2 (5 \(\frac{4}{2} \) to 0.8 (5 \(\frac{4}{2} \) to 0.8 (5 \(\frac{4}{2} \) to 0.8 (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.8 to dark greenish gray (5 \(\frac{4}{2} \) to 0.5 to descriptions from the GSA Rock Color Chart (1948). Bottom of boring at 17.0 Ft. Silty CLAY (CL). Olive gray (5 \(\frac{4}{2} \) to 0.5 to 0									-				TMA/Eberline.		
SS 2.0 1.0 SS 1.0 0.8 409.0 15.2 - 17.0 Pt. Silty CLAY (CL.). Olive ray, (SY4/1). Ito that greening ray (SY4/1). Ito the moderately plastic. Trace of very fine-grained sand. Trace of organic material as blobs. Bottom of boring at 17.0 Pt. Boring grouted to bottom of concrete with bentonite cement on 4/29/88. SS = SPLIT SPOON; ST = SNELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER SITE St. Louis Downtown Site HOLE NO. B16C35	SS	2.0	1.8						10_				VOA sample collected 10.0-12.0 Ft.		
SS 1.0 0.8 407.2 15.2 - 17.0 Ft. Silty CLAY (CL). Olive gray, (SY4/1) to dark greenish gray (SY4/1). Moist, medium stiff, moderately plastic. Trace of very fine-grained sand. Trace of organic material as blebs. Bottom of boring at 17.0 Ft. Boring grouted to bottom of concrete with bentonite cement on 4/29/88. Description and classification of soils by visual examination. SS = SPLIT SPOON; ST = SHELBY TUBE; SITE DO DOWNTOWN Site St. Louis Downtown Site HOLE NO. B16C35	SS	2.0	1.2		,			_					Top of undisturbed material at 15.2 Ft.		
SS 1.0 0.8 407.2 15.2 - 17.0 F, Silty CLAY (CL). Olive gray (SY4/1) to dark greening gray (SY4	SS	2.0	1.0					409.0	15_			•			
plastic. Trace of very fine-grained sand. Trace of organic material as blebs. Color Chart (1948). Bottom of bottom of concrete with bentonite cement on 4/29/88. Description and classification of soils by visual examination. SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site HOLE NO. B16C35	SS	1.0	0.8						-			15.2 - 17.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1) to dark greenish gray (5GY4/1) Moist medium stiff moderately			
Boring grouted to bottom of concrete with bentonite cement on 4/29/88. Description and classification of soils by visual examination. SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site HOLE NO. B16C35												\ plastic. Trace of very fine-grained sand.	Color descriptions from the GSA Rock		
Description and classification of soils by visual examination. SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site HOLE NO. B16C35									•			Boring grouted to bottom of concrete with			
Description and classification of soils by visual examination. SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site HOLE NO. B16C35						<u>.</u>									
SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site Classification of soils by visual examination.					İ				<i>P</i>		П	•			
SS = SPLIT SPOON; ST = SHELBY TUBE; De PITCHER; O = OTHER SITE St. Louis Downtown Site HOLE NO. B16C35													classification of		
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16C35															
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16C35															
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16C35															
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16C35															
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16C35															
				-			,,,,	ITE	S	t.	L	ouis Downtown Site			
											_				

Г	C	:FC	LOG	וכ ח	RII		G.	PROJEC	T				108 M		SHE	ET NO.	HOLE NO.
SIT					1115		COORDINA	TEC			FUSRAP		14:			OF 1	B16C37
3	_	Tο	uis Do	wntow	n Sii	۵	COOK D. NA	IIES		N	1,506 E 2,44	15			.e rki Vert	OM HORIZ	BEARING
BEG			OMPLETED				<u> </u>	ŀ	_	_	AKE AND MODEL		OVERBURDE			(FT.)	TOTAL DEPTH
3-	21-8	38 3	3-21-8	8 1	Layne	-Wes	tern, Co				CME-55	6.5"	16.0			,	16.0
COR	E REC	OVER	Y (FT./7	() CORE	BOXE	1	ESEL. TO	P CASI	NG	GR	10 /	/EL. GROUN			EPTH,	/EL. TOP	
SAM	PLE H	AMME	R WEIGHT	/FALL	CAS	8	FT IN HO	F: DI	A./ L	EM	422.1 \$ /					/	
			bs./30	•			No		, -				G. CI	erry	,		
W.		oi.		1	JATE					П			<u> </u>	,		T	· · · · · · · · · · · · · · · · · · ·
SAMP DIAM.				PR	ESSU FESTS			I	BRAPHICS	Щ						NOTES	nn:
Į.	10	ᄪᄣ	토리 02	m I	- H	ш	ELEV.	ОЕРТН	몵	SAMPLE	DESCRIPTION	N AND CL	ASSIFI	CATI	ON	WATER	LEVELS,
毁	무교	힏쭕	89,20	LOSS NIN P. F.	В В В В	HAH		8	Œ							1	RETURN, TER OF
84	% ~	ğ ö	SAMPLE BLOWS "N" % CORE	7 6	η. Μ.	FΣ	422.1		-								NG, ETC.
	<u> </u>	L]			421.4_ 421.0_			Ц	0.0 - 0.7 Ft. <u>CO</u>	NCRETE.					t. advanced -inch O.D.
SS	1.1	0.9	5-9-3/2				421.0-				0.7 - 1.1 Ft. San	dy GRAVE	L		Γ		tem auger.
SS	2.0	1.5	6-13-12 7					-			1.1 - 12.5 Ft. Sil RUBBLE.	ty CLAY (C	IL) and				
								_			1.1-3.3 Ft. Bi	rownish blac	k (5YR2/	1) to			•
SS	2.0	1.2	4-5-2					S _			grayish black loose. Rubble	(N2). Low reconsists of	moisture c brick, slas	onten	ıt,		
											carbonaceous	material, pe	bbles and	glass.	•	Radiolog sampled	gically and
SS	2.0	1.4	1-1-2					-			3.3-12.5 Ft. I Low moisture	ight olive g	ray (5Y6/	1). Mir	105	gamma- TMA/E	logged by
					ŀ			_		ı	amounts of gri Light brown (vel, brick,	and and	wood.	•••		
SS	2.0	1.5	0-1-2-2		,			_			8.0 Ft. Sampl					ļ	
•								10_			of hammer and	l rods upon	seating.	weign	••		
SS	2.0	1.0	1-2-3]				10_		H						Top of u	indisturbed at 12.5 Ft.
ŀ								-		B						material	at 12.5 Ft.
SS	2.0	1.3	1-2-3]			409.6_	-	31111	Ł	12.5 - 15.5 Ft. 8	II- CTAY	CIT OF	70		-	
								•			gray (5Y4/1) (5GY4/1). M	o dark gree	nish gray	danst	als:		
SS	2.0	1.6	3-6-13 18								plastic. Trace blebs.	of organic	material a	6	ery]	
			••				406.6 406.1	15_		L							
				1			400.1_	-	1	П	15.5 - 16.0 Ft. S gray (5Y4/1). plastic. Very	Moist, medi	ium stiff, i	re lightl	ly [scriptions GSA Rock
										Ш	prastic. Very	mie-Rraniec	sand.			Color Ci	nart (1948).
										$\ \ $	Bottom of boring Boring grouted to	at 16.0 Ft.	concerte t	vi+h			
											bentonite cem			*1611		•	
										П							
				İ						H							
								p		П	•						
		ŀ	•														
																Descript	
																classifica	tion of
																examina	
1																	
															ı		
_	L			L	L		TE.		L	Ц						NOI 5 NO	
			POON; ST ; P = PI			,	ITE	S	t.	Lc	uis Downt	own S	ite			HOLE NO.	6C37

	<u> </u>	EC	LOG	IC D	RIL	L LO	G	PROJEC	CT		FICDAD	J08 N0		EET NO.	HOLE NO.
SITE							COORDINA	TES			FUSRAP	145		1 OF 1	B16C38 BEARING
	St		uis Do			e	<u> </u>				1,506 E 2,555		Ve	rtical	
BEGL		1	MPLETED	ı		Was		E E	DRILL			OVERBURDEN	I RO	CK (FT.)	TOTAL DEPTH
			-21-80 Y (FT./2				tern, Co		ING		CME-55 6.5" DUND EL. DEPTH/EL. GROUNI	19.0	DEPT	H/EL. TOP	0F ROCK
		/				9					422.9			/	,
SAMP			R WEIGHT	-	CAS	ING LE			A./L	ENG	TH LOGGED BY:	-			
			os./30		JATE!		No	ne	† 			G. Ch	erry		
SAMB DIAM.	LEN CORE	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	PR. S. S. S. S. S. S. S. S. S. S. S. S. S.	HATER ESSU TESTS OH NO NO NO NO NO NO NO NO NO NO NO NO NO	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CL	ASSIFIC	:ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
9,	,,,	w.			111		422.9 422.7		7-1	+	0.0 - 0.2 Ft. ASPHALT.			/	
SS	1.0	1.0	1-2	i		:	422.1 <u>=</u> 421.9	1			0.2 - 0.8 Ft. <u>CONCRETE</u> .	<u> </u>		with 6.1	Ft. advanced 5-inch O.D.
SS	2.0	0.9	2-3-4	1			421.1-	-			0.8 - 1.0 Ft. Sandy GRAVE	L (GP).		nonow-	stem auger.
					1		,	-		į	1.0 - 1.8 Ft. SAND. Trace gr	ravel.	-	7	
SS	2.0	1.0	1-2-2	1	1			5_			1.8 - 15.0 Ft. Silty CLAY (CRUBBLE.	L) and		,	
								"-			1.8-6.0 Ft. Dark yellowish	h brown		Radiolo	gically i and
SS	2.0	1.7	2-3-8 6								(10YR4/2). Low moisture Minor amounts of rubble of fragments, carbonaceous n pebbles. Patches of light of	e content, a consisting on naterial, sa	oft. of brick and and	gamma TMA/E	logged by berline.
SS	2.0	1.1	2-4-2								(5Y6/1) to moderate yello (1DYR5/4).	wish brow	n		
SS	2.0	1.3	2-2-3	ł				10_			6.0-8.2 Ft. Brownish black grayish black (N2). Low r loose. Rubble consists of a carbonaceous material. P.	moisture co slag and atches of li	ntent,		undisturbed l at 15.0(?)
SS	2.0	1.4	3-3-2					-			olive gray (5Y6/1) silty cli 8.2-15.0 Ft. Light brown moderate yellowish brown moisture content to moist	(5YR5/6)	to). Low		
SS	2.0	1.8	2-2-2				407.9_	15_			moisture content to moist, stiff. Minor amounts of ru of brick, particle board an staining.	ibble consi	sting	4	
SS	2.0	1.3	1-2-3				403.9	-			15.0 - 19.0 Ft. Silty CLAY (gray (5Y3/2). Moist, medi moderately plastic. Trace material as blebe including of decayed wood.	CL). Oliveium stiff, of organic g a 3/4-in.	piece		
							400.3 _	•			Bottom of boring at 19.0 Ft. Boring grouted to bottom of a bentonite cement on 3/24,		h	from th	escriptions e GSA Rock hart (1948).
								.0							
											•				
					•										
			POON; ST ; P = Pl			,,,	ITE	S	[] St.	Lo	ouis Downtown S	ite		HOLE NO	6C38

	PROJECT JOB NO	. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	T OSKAI 145	01 1 of 1 B16C39
1 -		ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,511 E 2,654 DRILL MAKE AND MODEL SIZE OVERBURDEN	Vertical ROCK (FT.) TOTAL DEPTH
3-22-88 3-22-88 Layne-West		19.0
CORE RECOVERY (FT./%) CORE BOXES SAMPLE		DEPTH/EL. TOP OF ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LEF	423.4 \$ //	
140 lbs./30 in.	None G. Cho	erry
WATER PRESSURE		
TESTS	ELEV. HE STILL DESCRIPTION AND CLASSIFIC	WATER RETURN, CHARACTER OF
6- 0, 6	423.4 0.0 - 0.7 Ft. CONCRETE.	DRILLING, ETC.
SS 1.3 1.1 4-5-4/3	0.7 - 15.6 Ft. Silty CLAY (CL) and	0-19.0 Ft. advanced with 6.5-inch O.D.
SS 2.0 1.5 2-5-4	RUBBLE. 0.7-6.3 Ft. Dark yellowish brown	hollow-stem auger.
SS 2.0 1.5 4-4-4 5	(10YR4/2). Low moisture content, s medium stiff. Minor amounts of rubb consisting of brick, gravel, carbonace material, slag, sand and pebbles. Lig	ous
SS 2.0 1.8 1-14-20	brown (5YR5/6) Fe staining.	Radiologically sampled and
SS 2.0 1.5 6-5-3	6.3-15.6 Ft. Brownish black (5YR2/ grayish black (N2). Low moisture co to moist, loose. Rubble consists of	ntent
33 2.0 1.0 0-3-3	carbonaceous material, slag, brick, gl and wood. Patches of dark yellowish (10YR4/2) silty clay. Fe staining.	prown
SS 2.0 1.0 2-2-2	10_	Top of undisturbed material at 15.6 Ft.
SS 2.0 1.5 3-2-3 3	•	
SS 2.0 1.6 2-8-3 2	407.8	
SS 2.0 1.8 1-2-3 7	15.6 - 17.2 Ft. Sity CLAY (CL). Onvegray (5Y4/1) to dark greenish gray (5GY4/1). Moist, medium stiff, mod plastic. Trace of organic material as	erately
	plastic. Frace of organic material as blebs including several 1/2-in. pieces decayed wood.	of
	17.2 - 19.0 Ft. Silty SAND (SM-ML) Olive gray (5Y4/1). Moist, soft to me stiff, slightly plastic. Very fine-grain sand.	edium Color descriptions from the GSA Rock Color Chart (1948).
	Bottom of boring at 19.0 Ft. Boring grouted to bottom of concrete wi bentonite cement on 3/22/88.	th
		Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SI'D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. B16C39

	PROJECT JOS	NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LOG		4501 1 OF 1 B16C40
SITE COORD I	NATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,446 E 2,225	Vertical
BEGUN COMPLETED DRILLER 3-11-88 3-11-88 Layne-Western, C	ORILL MAKE AND MODEL SIZE OVERBUR O. CME-55 6.5" 16	
CORE RECOVERY (FT./X) CORE BOXES SAMPLES EL. 1	OP CASING GROUND EL. DEPTH/EL GROUND WATER	DEPTH/EL TOP OF ROCK
/ 8	422.2 \$\frac{12.0/410.2 3/11/88}{2.0}	/
SAMPLE HAMMER WEIGHT/FALL CASING LEFT IN H	OLE: DIA./LENGTH LOGGED BY:	
	one G. (Cherry
SAMPLE ABULTAPE ABULT TAPE ABULT TESTS SAMPLE REC. SAMP	9	
SAMPLE ADV. LEN CORE SAMPLE RECORE SAMPLE LESTS LESTS LEN CORE SAMPLE LESTS LESTS ARCOCORE ARCOCORE LESTS ARCOCORE ARCOCOR	HE DESCRIPTION AND CLASSIF	NOTES ON: WATER LEVELS,
O O O O O O O O O O O O O O O O O O O	H DESCRIPTION AND CLASSIF	WATER RETURN,
SAMPLE SAMPLE TO		CHARACTER OF DRILLING, ETC.
	00-02 Ft ASPHALT	C 0-18.0 Ft. advanced
SS 1.5 0.5 12-11-8 421.	0.2 - 0.5 Ft. GRAVEL (GW).	with 6.5-inch O.D. hollow-stem auger.
SS 2.0 1.1 5-5-3 420.2		
4 419.0	0.5 - 2.0 Ft. Silty CLAY (CL). Pal brown (5YR5/2) to grayish black Dry, medium stiff. Some gravel s	(N2).
SS 2.0 0.7 3-1-1	carbonaceous material.	
	5_ 2.0 - 3.2 Ft. Sandy GRAVEL (GP)	/ Radiologically
SS 2.0 1.5 2-2-2	3.2 - 12.5 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5Y2) grayish black (N2). Low moistur	sampled and
	grayish black (N2). Low moistur to moist, loose. Rubble consists of	1) to gennuz-logged by TMA/Eberline.
SS 2.0 1.0 2-3-3	brick, carbonaceous material, gla gravel. Fe staining. Patches of gr	ss and
55 2.0 1.0 2-3-3	gray (5G6/1) to olive gray (5Y3/	2) silty
	10 clay.	
SS 2.0 1.3 2-2-2		Top of undisturbed material at 12.5 Ft.
	₩	
SS 2.0 1.4 2-5-8 14 409.5	12.5 - 16.0 Ft. Sandy SILT (ML).	
	12.5 - 16.0 Ft. Sandy SILT (ML). Medium dark gray (N4) to dark g Low moisture content, medium st	rray (N3).
SS 2.0 1.6 2-8-12 18	slightly plastic. Minor amounts of	of very
406.	medium-grained quartzose sand.	Trace of
		Color descriptions from the GSA Rock
	Bottom of boring at 16.0 Ft. Boring grouted to bottom of asphalt	
	bentonite cement on 3/21/88.	
	1 1	1
		<u> </u>
		Description and classification of
		soils by visual examination.
10.00		HOLE NO.
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; D = OTHER	St. Louis Downtown Site	B16C40
LIICUEN, U - UINEN	or, Found Domittomit Offe	

	GEOLOGIC DRILL LOG PROJECT JOB NO. SHEET NO. HOLE NO. FUSRAP 14501 1 OF 1 B16C42													
}	(EC	LOG	IC D	RILI	L LO	G						1	
SITE		-					COORDIN	ATES			<u></u> -	FROM HORIZ		
ŀ	St	. Lo	uis Dov	vntow	n Sit	e	1			N	1,442 E 2,700 V	ertical		
BEG		1	MPLETED	Γ.	ER			į.	DRIL	L I	MAKE AND MODEL SIZE OVERBURDEN F	OCK (FT.)	TOTAL DEPTH	
			-25-88				tern, C			_	CME-55 6 3/4" 17.5		17.5	
COR	REC	OVER	Y (FT./%) CORE	BOXE	1	ESIEL. TO	OP CASI	NG	GF	V 12 4/411 7 3/7/88	PTH/EL. TOP	OF ROCK	
CAMI	15 0	AMME!	R WEIGHT	/5A11	CAS	12	ET IN HO	1 E . D1	A /	LEN	424.1 The LOGGED BY:			
SATI			bs/30 i	-		ING EE	No		A./	LEM	T.F. Mullen			
ш					JATE	2		T T	Т	П	I.I. Mulicu			
SAMP . TYPE		M C	BLOWS "N" X CORE	PR	ESSU			-	BRAPHICS	Ш		NOTES	nn:	
H	S	<u>_</u>	1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	" I	•••		ELEV.	ОЕРТН	불	SAMPLE	DESCRIPTION AND CLASSIFICATION	N WATER	LEVELS,	
<u>+</u>	PZ	김씨	\$3,00 0,00	LOSS IN G.P.	3.0 3.1	HINE NIN			\$	d			RETURN, CTER OF	
g₹ St	SPI	[풽당	, 9 , 5	D	PRE P.S	FE	424.1		9	[]		1	ING, ETC.	
SS	2.0	1.7	16-7-5 5								0.0 - 16.4 Ft. Silty CLAY (CL) and RUBBLE. Brick fragments, slag		. advanced 3/4 in. O.D.	
		1						-			products, crushed limestone fill throughout. Column held together with		stem auger.	
SS	1.5	1.1	5-11-10								varying clay matrices.	Radiolo		
L								1 .			0.2-2.0 Ft Silty CLAY (CL). Brownish		-logged by	
SS	1.5	1.1	4-4-3					.			black (5YR2/1). Very hard, possibly frozer Fine-grained sand.		berline.	
SS	1.5	1.2	2-2-2					5_			2.0-3.5 Ft. Silty SAND. Grayish red			
SS	1.5	1.1	2-2-9								(5R4/2). Fine- to medium-grained sand. 3.5-5.0 Ft. CLAY. Moderate brown			
SS	1.0	0.9	2-2					.			(5YR4/4). Hard, possibly frozen. 4.5-5.0 Ft. Brownish black (5YR2/1). Dr	y, VOA sa	imples d from 8-10	
SS	1.0	1.0	2-2					-			soft, crumbles easily.	Ft.	a from 8-10	
SS	1.5	0.8	1-2-1					10_			5.0-6.5 Ft. Silty CLAY. Moderate yellowish brown (10YR5/4). Small amoun of fine-grained sand.	Top of materia	undisturbed l at 16.4 Ft.	
SS	1.5	1.3	2-1-4					¥ .			6.5-8.0 Ft. Moderate brown (5YR4/4). Moist. Fine-grained sand. Organics.			
SS	1.5	0.8	3-4-4				:				8.0-10.0 Ft. Medium gray (N5). Stiff consistency, slightly plastic, moist.			
SS	1.5	0.6	2-2-2	1				15_			10.0-11.5 Ft. Dark gray (N3). Firm, moist, moderately plastic.			
SS	1.5	1.2	1-3-7				407.7 _. 406.6	1 .			11.5-16.4 Ft. Light olive gray (5Y5/2). Increase in moisture. Becomes saturated a approximately 13.2 Ft. Moderately plastic.	t / from th	escriptions e GSA Rock hart (1948).	
\vdash						1	400.0	1		T	71	기시 20:01 2	natt (1940).	
											16.4 - 17.5 Ft. CLAY (CH). Grayish black (N2). Varies from soft near top to stiff near bottom. Highly plastic, stiff thread, homogeneous.			
						! !					Bottom of borehole at 17.5 Ft.	_ _		
											Borehole backfilled with bentonite cement, 3/11/88.			
											·			
												Descrip	tion and	
			ļ									soils by	visual	
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_	L	<u> </u>	20011 - 27			IDE . le	ITE ·	1		Ш		HOLE NO		
•			POON; ST ; P = P1			,,,		S	St.	L	ouis Downtown Site		16C42	

								220 150				Lion via	1
	G	EC	LOG	IC D	RILI	L LO	G	PROJEC	C1		FUSRAP	1 1	et NO. HOLE NO. OF 1 B16C43
SITE							COORDIN	ATES			POSKAI		OM HORIZBEARING
	St	Lo	uis Do	wntow	n Sit	e	<u>l</u>			N	1,400 E 3,050	Ver	tical
BEG		- 1	MPLETED						DRIL			1	(FT.) TOTAL DEPTH
			-24-8				tern, Co				obile B-53 8 1/4"	16.0	16.0
CORI	E KEU	UVEK	1 (11./2	s) cust	BUXE	8	ESEL. TO	P (AS)	ING	I GK	DUND EL. DEPTH/EL. GROUND 11.1/411.6 3/7		/EL. TOP OF ROCK
SAMI	PLE H	AMME!	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./L	ENG	TH LOGGED BY:	11	/
İ	14	10 II	bs./30	in.			No					G.Cherry	
按.	31	ပြု			JATEF ESSU	2				П			
陸	98	RES			ESTS			Æ	ű	H			NOTES ON:
<u> </u>			투리임	£.	йн	¥ - ÷	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SSIFICHTION	WATER LEVELS, WATER RETURN,
SAND DIAM.	E	FR	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	ည်း	HINE AIN.		•	E G	M			CHARACTER OF
SS	1.8	1.3	7-8-15	- 6	<u>a</u> .a.		422.7 422.5	 	-	Н	D.0 - 0.2 Ft. GRAVEL.		DRILLING, ETC.
33	1.6	1.3	19					.			0.2 - 13.0 Ft. Silty CLAY (CL	and	with 8 1/4-inch O.D. hollow-stem auger.
SS	2.0	1.2	7-8-8								RUBBLE.		
			10				•] .			0.2-1.2 Ft. Moderate yellow (10YR5/4). Dry, stiff. Fe s	vish brown	1
SS	2.0	1.3	7-8-8								1.2-6.0 Ft. Moderate yellow	-	
			10				i	5_			(10YR5/4). Dry to low mois medium stiff. Rubble consis	ture content,	Radiologically
SS	2.0	1.5	4-4-4								coarse sand, glass and slag. staining.	Prominent Fe	sampled and
33		1.0	14					.			6.0-13.0 Ft. Brownish black	(5 VR 2/1) +^	gamma-logged by TMA/Eberline.
99	2.0	1.3	8-5-4								grayish black (N2). Low mo to moist, loose. Rubble cons	isture content	
33	2.0	1.5	3								slag, glass, gravel and partic	le board.	
SS	2.0	0.6	2-4-3					10_					Ton of undiaturbed
33	2.0	0.0	5				7	፟ -					Top of undisturbed material at 13.0 Ft.
66	2.0	0.0	5-7-5		,			Ϊ.					
SS	2.0	0.0	3				409.7_	┨ .			100 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7. O.	_
-		•	4 4 5				'		$\ \ $		13.0 - 16.0 Ft. Sandy SUT (M gray (5Y4/1) to greenish gra Moist, slightly plastic, soft. ' fine-grained sand. Trace of	y (5GY4/1).	
SS	2.0	2.0	4-4-5 3					15_			fine-grained sand. Trace of	very organic	
							406.7_	┨.			material.		
								t		$\ $	Bottom of borehole at 16.0 Ft.		Color descriptions from the GSA Rock
										П	Borhole grouted to surface with cement, 3/9/88.	bentonite	Color Chart (1948).
										Н			
								!		П			
								."	1		•		
										$\ \ $			
										$\ \ $			Description and
										$\ \ $			classification of soils by visual
										$\ \ $			examination.
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	<u></u>			لــــا			175	<u> </u>	<u> </u>	Ш			HOLE NO.
			POON; ST ; P = PI			,,,,	ITE	S	it.	1	uis Downtown Sit	e	B16C43
	~ ~ ~ ~ ~ ~		, , - ,,	. Unex,	(_		_	A.3 DOMILLOWII DIL	~	1

	GE	ΞΟ	LOG		RIL	L LO	G	PROJE	CT		FUSR	A P		J08 1	io. 501		T NO. OF 1	HOLE NO.
SITE							COORDINA	TES			I USK	7.		14			M HORIZ	B16C44 BEARING
	St.		is Do			e					416 E			,		erti	ical	
BEGUN	_ 00	100	MPLETED -18-8			_W	tern Co				AND MOD			OVERBURDI	·	ROCK	(FT.)	TOTAL DEPT
							ESEL. TO				LE B-		6 3/4"	19.0		PTH/	EL. TOP	19.0 OF ROCK
		/				8				4:	25.0	₹ /				,	/	O. NOOR
SAMPLE			WEIGHT	•	CAS	ING LE	FT IN HOL		A./L	ENGTH	LOGGED	BY:					.	
	140	lb •	s./30	ln.	WATER	·····	Not	1e						T.F. N	<u> Aullen</u>	<u> </u>		-
SAMP. TYPE AND DIAM. SAMP. ADV.	LEN CORE	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS NI P. P. A	TEST	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRI	PTION	AND CL	.ASSIFI	CATIO	או	WATER CHARAC	ON: LEVELS, RETURN, TER OF
	- 1						424.1			0.0	0 - 0.9 Ft	CON	CRETE.				0-19 Ft.	advanced
SS 2.		1.5	10-10-5 4 8-6-3				421.5			0.9	9 - 3.5 Ft Silty, loc and bric	pull peely pa k.	. Olive blacked. Pie	ack (5Y2) sees of lim	1). estone		hollow-s Radiolog sampled	
			4				420.2	Б.	\coprod	3.	(5Y4/1).	. Moist	(ML). O hard con ak thread	sistency,	se.		тма-е	berline.
SS 2.	0	1.8	2-4-12 5				419.8- 419.1_ 418.9-				3 - 5.2 Ft	PILL	Black (I	N1). Silty		-//		
SS 2.	0	1.1	3-3-3				416.9_			5.:	2 - 5.9 Ft	. CLA	Y (CL). C	live grav	,			
SS 2.	0 (0.9	3-3-3 7					10_		11	9 - 6.1 Ft			41.			Ton of u	ndisturbed
SS 2.	0 :	1.8	7-5-2								Brownisi gray (5Y stiff cons amounts	h gray (4/1). sistency of slag	SILT (PERSON SILT) BYR4/1) Dry. Slight, weak the products	grades to stly plasti read. Sma and coal.	olive c. il			at 15.1 Ft.
SS 2.		0.8	7-5-4 4 3-4-5				409.9_	15_	<i></i>		(5Y2/1). Bands of slightly:	. Moist clay.	L. Olive b. Coal and Firm cons	l slag prod istency an		_	5 bars, 7	alarm: LEI Toxic: 10 nted hole to
			6					-			greenish plastic, r medium	gray (5 moist, fi -stiff th	AY (CL). GY4/1). irm consistread.	Moderate tency,	ly		reduce p hazards.	otential
							406.0_	•				ckfilled	at 19.0 F with ben		nent,		from the	scriptions GSA Rock part (1948).
																	Descript classifics soils by examina	tion of visual
			00N; ST P = PI			UL,	ITE	S	<u> </u>	Loui	is Do	wnto	wn S	ite			HOLE NO.	6C44

SITE COORDINATES St. Louis Downtown Site N 1,392 E 2,550 Vertical	TAL DEPT
St. Louis Downtown Site N 1,392 E 2,550 Vertical - BEGUN COMPLETED DRILLER DRILLER DRILL MAKE AND MODEL SIZE OVERBURDEN ROCK (FT.) TO 3-29-88 3-29-88 Layne-Western Co. Mobile B-40 6 3/4" 19.0 CORE RECOVERY (FT./%) CORE BOXES SAMPLES EL. TOP CASING GROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF	TAL DEPT
BEGUN COMPLETED DRILLER DRILL MAKE AND MODEL SIZE OVERBURDEN ROCK (FT.) TO 3-29-88 3-29-88 Layne-Western Co. Mobile B-40 6 3/4" 19.0 CORE RECOVERY (FT./%) CORE BOXES SAMPLES EL. TOP CASING GROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF	
3-29-88 3-29-88 Layne-Western Co. Mobile B-40 6 3/4" 19.0 CORE RECOVERY (FT./%) CORE BOXES SAMPLES EL. TOP CASING GROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF	
[T] [T]	19.0
/ 425.0 \\ \\ / \	ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LEFT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in. None T.F. Mullen	
WATER PRESSURE TESTS ON THE PRESSURE TESTS	
PRESSURE TESTS LOUGH LENGTH FOR THE PRESSURE TESTS LOUGH LENGTH FOR THE PRESSURE TESTS LOUGH LENGTH FOR THE PRESSURE TESTS NOTES OF THE PRESSURE TESTS NOTES	
MATER III	ETURN,
WATER RIPERSON BUT THE 425.0	
424.1 0.0 - 0.9 Ft. CONCRETE. 0-19 Ft. ac with 6.3/4	
55 2.1 1.7 5-9-5 brown (10YR2/2) to brownish black hollow-ster	m auger.
(5YR2/1). Coal, slag, broken glass. Dry, Radiological Islam, Pieces of brick.	nd .
SS 2.0 1.6 1-3-4 gamma-log TMA-Eber	ged by line.
SS 2.0 1.2 2-8-8 5 4.3-4.6 Ft. CLAY. Grayish orange (10YR7/4) to mottled greenish gray	
SS 2.0 1.2 2-8-8 (10YR7/4) to mottled greenish gray (5G6/1). Firm consistency, slightly plastic, moist. Blocky structure.	
SS 2.0 1.8 3-2-2 5.3-5.9 Ft. CLAY, dusky yellowish green (10GY3/2) to grayish green (10GY5/2). Moderately plastic, medium-stiff thread,	
SS 2.0 1.6 2-4-3 firm consistency, moist.	
5.9-6.2 Ft. SILT and FILL. Dark greenish gray (5G4/1). Blocky structure, stiff Top of und	listurbed
SS 2.0 1.1 2-2-5 consistency, nonplastic, moist. Limestone material at gravel.	17.3 Ft.
7.5-7.9 Ft. CLAY. Light olive gray	
SS 2.0 1.7 1-2-4 dry strength. (5Y6/1). Dry, blocky stucture. Very low dry strength.	
9.5-10.2 Ft. CLAY. Light bluish gray	
SS 2.0 1.5 4-4-3 Sightly plastic, blocky structure.	arm: LEL
13.2-14.7 Ft. CLAY, grayish green ppm. Vento	ed hole to
SS 2.0 1.6 1-2-2 407.7 moderately plastic, firm consistency. Contains brick, coal, and slag. Color descr	
406.0 15.0-15.8 Ft. CLAY. Olive gray (5Y4/1). Color Char	SA Rock
Dry, firm consistency.	(,-
17.0 Ft. Fill becomes wet.	
17.3 - 19.0 Ft. Silty CLAY (CL). Medium gray (N5). Weak thread, slightly plastic,	
moist, stiff consistency.	
Bottom of borehole at 19.0 Ft.	
Borehole backfilled with bentonite cement, 3/29/88.	
Description classification	on of
soils by vist examination	
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.	
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16	C45
III- 4 8	

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	СТ		FUCDAD		JOB NO		SHEET		HOLE NO.
SITE		_					COORDINA	TES	····		FUSRAP		145		1 OF	HORIZ	B16C46
	St.	Lo	uis Do	wntov	n Sit	e	1			N 1	,323 E 2,58	2			ertica		
BEGU			MPLETED	F								SIZE	OVERBURDE		ROCK (F	T.)	TOTAL DEPT
			-30-88				tern Co				bile B-40 ND EL. DEPTH/	6 3/4"					19.0
CURE	KEU	OVEK	(FI./A	s, cur	E BUXE	9	ESEL. IU	P CASI	ING		125.0 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	EL. GROU	ND WATER	DE	EPTH/EL.	. TOP /	OF ROCK
SAMP	LE H	AMHEI	WEIGHT	/FALL	CAS		FT IN HOL	E: DI	A./Li								
	14	<u> </u>	s./30	in.			No	ne					T.F. M	luller	1		
SAND DIAM.	SAMP. ADU. LEN CORE	E REC.	SAMPLE BLOWS "N" % CORE RECOVERY	m ₽	WATER ESSU TEST:	RE	ELEV.	ОЕРТН	аварнісэ	SAMPLE	DESCRIPTION	AND C	LASSIFI	CATIO		TES	ON: LEVELS,
28. 25. 25. 25. 25. 26. 26. 26. 26. 26. 26. 26. 26. 26. 26	SAMP	BAMPL CORE	BLOW % (LOSS IN P.P.	PRESS P. S. I	HIN HIN.	425.0	30	-						СН	ARA	RETURN, CTER OF ING, ETC
SS		1.8	5-3-3 6				424.1_	•		J	0.0 - 0.9 Ft. <u>CON</u> 0.9 - 17.3 Ft. FIL. brick.		slag, and		wi	th 6-3	. advanced 3/4 in. O.D. stem auger.
SS	2.0	1.2	3-9-5					-			0.9-2.7 Ft. Bromoisture, loose.		sck (5YR2/	1). Lo	OW Sal	mpled	gically l and -logged by berline.
SS	2.0	1.4	2-1-2					5_			1.5-2.0 Ft. San fine-grained. V 2.7-5.8 Ft. Dur	ery light	gray (N8).			•	
SS	2.0	1.1	5-2-2					-			(10YR2/2). So 5.0 Ft. Fill made	me organ	ics present.				
SS :	2.0	1.1	2-2-2					10_			5.8-6.4 Ft. CL. (10YR6/2). Fire slightly plastic, amounts of rub	m consistemoist. Co	ency. weak	thread	i,		
SS	2.0	0.9	4-8-7					-		e e	7.0-7.4 Ft. Mix coal. Saturated 7.4-11.3 Ft. CI	l. Black (N1).		als	ırm: I	ENMET LEL: >20%,
SS :	2.0	0.2	6-4-5					- -			(5GY4/1). Mot (5B5/1). Stiff of plastic, medium increased plasti	tled medi consistence consistence	um bluish g y, slightly ead. moist.		. Ve	nted	hole to redu l hazards.
SS :	2.0	1.7	2-4-5					15_ -			13.D Ft. Fill be	comes sai	turated.	ark	als	rm: I	ENMET LEL: 50%, 00 ppm.
SS	2.0	1.7	2-3-3				407.7_	-		1	greenish gray (5 wet, moderately 7.3 - 19.0 Ft. Sil-	G4/1). So plastic,	Soft consiste soft thread.	ency,	/ P°	nted tentia p of u	hole to redu il hazards. indisturbed at 17.3 Ft.
							406.0_	-			gray (N4). Firm moderately plas present.	tic, moist	ncy, stiff the control of the contro	read,			escriptions
								."		E	Sottom of borehole Sorehole backfilled 3/30/88.	e at 19.0 l with ber	Ft. itonite cem	ent,			e GSA Rock hart (1948).
															cla	ssific	tion and ation of visual ation.
			,														
	1							:									
			OON; ST P = PI			DC,	ITE			01	is Downto	wn S	Site		HOL	E NO	6C46

1		PROJECT		JOB NO. SHE	ET NO. HOLE NO.
GEOLO	SIC DRILL LO	G	FUSRAP	1	of 1 B16C47
SITE		COORDINATES		ANGLE FR	OM HORIZBEARING
	wntown Site Driller	ļ ba	N 1,401 E 2,945 ILL MAKE AND MODEL SIZE OVE	Vert	
3-25-88 3-25-8			Tripod 4"	RBURDEN ROCK	(FT.) TOTAL DEPTH
	%) CORE BOXES SAMPL			<u></u>	/EL. TOP OF ROCK
/	9		425.0 🖢 /		/
SAMPLE HAMMER WEIGH 140 lbs./30	1	FT IN HOLE: DIA. None	/LENGTH LOGGED BY:	r F. Madlan	
		None		r.F. Mullen	
SAMP. TYPE SAMP. ADV. LEN CORE SAMPLE REC. CORE REC. SAMPLE REC. SAMPLE REC.	PRESSURE TESTS TESTS N. D. D. N. N. N. N. N. N. N. N. N. N. N. N. N.	425.D	DESCRIPTION AND CLAS	SIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
	_	424.0	0.0 - 1.0 Ft. <u>CONCRETE</u> .		0-19 Ft. advanced with 3 1/2 in. O.D.
SS 2.0 1.9 9-10-1	7		1.0 - 17.7 Ft. FILL. Brownish (5YR2/1). Mottled moderat	e vellowish	split spoon.
88 60 10 10			brown (10YR5/4). Dry, loos Coal and slag.	e consistency.	Radiologically sampled and
SS 2.0 1.0 10-11-5		5_	3.0-4.0 Ft. Pieces of limesto crushed brick. Some clayey Very low dry strength, slight	silt. Dry.	gamma-logged by TMA/Eberline.
SS 2.0 0.2 6-5-4			5.0-7.0 Ft. Clay, pale yellow	vish brown	
SS 2.0 1.3 3-3-3	-	-	(10YR6/2). Intermixed with Clay is moist, firm consistence plastic.	coal and slag. cy, slightly	
			7.0-8.3 Ft. Clay, olive gray Moist. Wood and porcelain	(5Y4/1). chips.	
		10_			Top of undisturbed
SS 2.0 2.0 4-4-5	-	•			material at 17.7 Ft.
SS 2.0 1.0 3=13= 3	<u>-</u>	-	13.0 Ft. Fill becomes wet.		:
SS 2.0 0.7 4-4-2		. 15_			
SS 2.0 1.3 4-8-6		407.3	15.6-15.7 Ft. Silty CLAY (C (N3). Highly plastic, mediur soft consistency. Organics p	n-stiff thread,	Color descriptions from the GSA Rock Color Chart (1948).
4		7 -	17.7 - 19.0 Ft. Silty CLAY (CF. Medium dark gray (N4). High Wet. Firm consistency, med thread, highly plastic. Organ	ium-stiff /	
			Bottom of borehole at 19.0 Ft. Borehole backfilled with benton	ite cement,	
		."	3/25/88.		
				·	Description and classification of soils by visual examination.
SS = SPLIT SPOON; SD = DENNISON; P = P	- 3/10001 10001	TE St	. Louis Downtown Site	<u> </u>	HOLE NO. B16C47

	G	EC	LOG	IC D	RIL	LLO	G	PROJEC	T		FUCDAD		JOB NO.		ET NO.	HOLE NO.
SITE	_							FUSRAP 14501 1 CORDINATES ANGLE FR							OF 1	B16C48
	St.		uis Do			e		N 1,330 E 2,901 Vert								
BEGUI		-	MPLETED					- 1					RBURDEN	ROCK	(FT.)	TOTAL DEPT
			-16-88				ESEL. TO				 	3/4" GROUND I	19.0) FPTH	/FL TOP	OF ROCK
		/				9					425.0	uncons		, E	/ /	OI KOCK
SAMPI			R WEIGHT		CA:	ING LE			Ä./L	ENG	TH LOGGED BY:	_				
T	14	0 11	os./30	in.	JATE		No	<u>e</u>	Τ				r.F. Mulle	n	 	
SAMP . TYPE AND DIAM.	LEN CORE	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN P. H. G	ESSU	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION A	AND CLAS	SSIFICATI	ON	WATER CHARAC	ON: LEVELS, RETURN, CTER OF
		U .					424.1_			\parallel	0.0 - 0.9 Ft. CONC	RETE.			0-19 Ft.	advanced
SS :	2.0	1.5	1-6-8	1			423.9	-			0.9 - 1.1 Ft. <u>VOID</u> .					3/4 in. O.D. stem auger.
								-			1.1 - 16.0 Ft. FILL.				Radiolog	gically
SS 2	2.0	1.0	4-10-8 5								1.1-1.5 Ft. CLA? Dry, firm conister	Y. Olive gracy.	ay (5Y4/1).		gamma- TMA/E	logged by
SS 2	2.0	0.8	2-3-9 10				:	5_			1.5-3.0 Ft. FILL consistency. Pred Trace of brick and	ominantly (siag and coal			
SS 2	2.0	1.5	2-7-4 3				•	-			3.0-3.5 Ft. CLAY Dry, firm consiste	Y. Olive gr ency, weak	ay (5Y4/1). thread.			indisturbed
ss 2	2.0	0.8	3-1-1					•			3.5-5.5 Ft. FILL, and loose. Slag, la	, black (N1 arge pieces). Silty, dry of limestone.		material	86 10.U F 6.
SS 2		0.3	3-3-5					10_			5.5-6.0 Ft. SILT. brown (10YR5/4) weak thread, non- brick and fill.). Dry, stiff	consistency,		VOA sai	mples i from 9-11
SS 2		0.5	5 2-2/1' 2					-			6.0-16.0 Ft. FILI (10YR2/2) gradin Silty, dry, loose. organics througho	ig to olive b	olack (5Y2/1	wn .).		
SS 2	.0	1.1	3-3-24					15_			13.0 Ft. Fill beco					
SS 2	3.0	1.2	3 1-1-2 3				409.0_ 406.0_	- -	Second Software		16.0 - 19.0 Ft. Silty Grayish black (N2 medium-stiff thre rapid dilatancy, n	2). Firm co	onsisténcy, itely plastic.		from the	scriptions GSA Rock nart (1948).
								-			Bottom of borehole a Borehole backfilled w 3/16/88.	at 19.0 Ft. with benton	ite cement,			
								2								
															Descript classifica soils by examina	tion of visual
			POON; ST P = P1			, L	ITE.	S	t.	Lo	uis Downtov	wn Site	e		HOLE NO.	6C48

CECLOCIC PRILLIC	PROJECT	JOB 8	NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO		FUSRAP 14	501 1 of 1 B16C49
SITE St. Louis Downtown Site	COORDINATES	N 1 203 E 2 005	ANGLE FROM HORIZBEARING
BEGUN COMPLETED DRILLER		N 1,302 E 2,885 . MAKE AND MODEL SIZE OVERBURDI	Vertical EN ROCK (FT.) TOTAL DEPTI
3-16-88 3-16-88 Layne-Wes	i i	MOBILE B-40 6 3/4" 18.	
	SEL. TOP CASING		DEPTH/EL. TOP OF ROCK
/ 8		425.0	
SAMPLE HAMMER WEIGHT/FALL CASING LE 140 lbs./30 in.	T IN HOLE: DIA./L None		Mullen
	None	1.F.	viunen
SAMPLE REC. CORE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. TIME RES. TIME RES. TIME RES. TIME REC. TI	ELEV. HE GENERAL STATES	DESCRIPTION AND CLASSIFI	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
	424.2	0.0 - 0.9 Ft. CONCRETE.	0-18 Ft. advanced with 6-3/4 in. O.D.
SS 2.0 0.9 3-2-2 2	424.0 423.1	0.9 - 1.0 Pt. <u>YOID</u>	/ hollow-stem auger.
SS 2.0 1.3 2-1-3		1.0 - 1.9 Ft. Clayer SILT (ML). Brownish gray (5YR4/1). Slightly soft consistency, weak thread. Slow dilatancy. Some rubble as brick an limestone particles.	/ (famma-logged by
SS 2.0 1.7 3-1-2	5_	1.9 - 15.1 Ft. FILL. Olive gray (5Y4 Large pieces of broken brick and co	oncrete.
SS 2.0 1.6 4-4-5	-	Random broken glass and pieces of Some clay and silt throughout inte Dry, slightly plastic. Brownish gra (5YR4/1) mottled olive gray (5Y4/	rval. Ži).
SS 2.0 1.6 2-4-3	10_		Top of undisturbed material at 15.1 Ft.
SS 2.0 1.3 4-3-1	-	101 D. DUL.	indicate at 10.2 Pt.
SS 2.0 0.6 1-1-1	-	12.1 Ft. Fill becomes wet.	
SS 2.0 1.1 1-2-2 3	409.9 15	15.1 - 18.0 Ft. Silty CLAY (CH). Medium gray (N5). Moist, stiff con- highly plastic. Organics and mica	sistency, flakes. Color descriptions from the GSA Rock Color Chart (1948).
		Bottom of borehole at 18.0 Ft. Borehole backfilled with bentonite cen 3/16/88.	nent,
	."	·	
			Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; D = OTHER	St.	Louis Downtown Site	HOLE NO. B16C49

GEOLOGIC DRILL LO	G PROJECT JOB NO. 1450	SHEET NO. HOLE NO. 1 1 OF 1 B16C50
SITE	COORDINATES	NGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,350 E 2,180 DRILL MAKE AND MODEL SIZE DOVERBURDEN	Vertical
3-7-88 3-7-88 Layne-West	ern, Co. CME-55 6.5" 18.0	18.0
CORE RECOVERY (FT./%) CORE BOXES SAMPL	V 7 5//20 7 7/50/00	DEPTH/EL. TOP OF ROCK
	424.2 \$ 3.37420.7 3710700 T IN HOLE: DIA./LENGTH LOGGED BY:	/
140 lbs./30 in.	None G. Che	rry
SAMP. TAMP. SAMP. ADU. SAMP. ADU. CORE REC. CO	ELEU. II DESCRIPTION AND CLASSIFICA	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC
SS 1.5 0.5 2-8-3	0.0 - 0.3 Ft. Sandy GRAYEL (GP).	0-18.0 Ft. advanced with 6.5-inch O.D.
SS 1.5 0.9 3-3-2	0.3 - 13.5 Ft. FILL.	hollow-stem auger.
SS 2.0 1.7 2-1-1 3	0.3-3.5 Ft. Silty CLAY. Moderate yellowish brown (10YR5/4) to browning black (5YR2/1). Low moisture content to medium stiff. Trace of gravel, carbonacous material, and particle box	sh it, soft ard.
SS 2.0 0.8 4-3-3 5	5 Fe staining. 3.5-3.7 Ft. SAND. Medium-grained quartsose sand.	Radiologically sampled and gamma-logged by TMA/Eberline.
SS 2.0 1.5 2-2-4 5 SS 2.0 1.1 8-3-4	3.7-13.5 Ft. Silty CLAY and RUBBL Light olive gray (5Y5/2) to brownish (5Y2/1). Moist, loose. Rubble consist brick, gravel, carbonaceous material,	E. black to of VOA sample collect 7.0-9.0 Ft.
SS 2.0 1.0 2-2-4	glass, pebbles and sand.	Top of undisturbed material at 13.5 Ft.
SS 2.0 0.3 3-4-3 5	410.7	
SS 2.0 1.3 4-6-6 8	13.5 - 18.0 Ft. Clayer SILT (ML). Olive gray (5Y4/1). Moist, soft to medium s slightly plastic. Minor amounts of ver fine-grained sand. Trace of organic material as blebs.	iff, y
	Bottom of borehole at 18.0 Ft. Boring grouted to surface with bentonite cement, 3/10/88.	Color descriptions from the GSA Rock Color Chart (1948)
		Description and classification of soils by visual examination.
S = SPLIT SPOON; ST = SHELBY TUBE; SI = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. B16C50

		EC	LOG	וכ ח	DII I	10	G	PROJEC	T				JOB NO		EET NO.	HOLE NO.
SITE			LUG		VIL	LLO	COORDINA	TES			FUSRAP		145		OF 1 ROM HORIZ	B16C51
3116		. Lo	uis Do	wntow	n Sit	e	000.00]	N 1	,255 E 2,181	l		i	rtical	
BEGL			MPLETED				<u>. </u>	C		MAK	E AND MODEL	SIZE	OVERBURDER	ROC	CK (FT.)	TOTAL DEPTH
	1-8		3-1-88				tern, Co		1		ME-55	6.5"	18.0			18.0
CORE	REC	OVER: /	Y (FT./7	() CORE	BOXE	S SAMPL	ESEL. TO	P CASI	NG		ND EL. DEPTH/ 124.0 ₹ 3.3	EL. GROU /420.7 3	ND WATER /10/88	DEPT	H/EL. TOP	OF ROCK
SAME	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HOL	E: DI	A./L		H LOGGED BY:				/	
			bs./30				No	ne					G. Ch	еггу		
SAME DIAM.	SAMP. ADU.	BAMPLE REC.	BLOWS "N" % CORE	PR WI O	PATEI ESSU EST: ON WELL	IRE S	424.0	DEPTH	GRAPHICS	Series	DESCRIPTION			ATION	WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
33	2.0	0.9	10				423.8-	- -		\ \	0.0 - 0.2 Ft. Sand 0.2 - 15.5 Ft. Silt: RUBBLE. 0.2-2.0 Ft. Gri moisture conter	y CLAY	CL) and		/ with 6.	Ft. advanced 5-inch O.D. stem auger.
	2.0 2.0	1.4	4					5 -			of brick and sla 2.D-13.5 Ft. M (10YR5/4) to d (10YR4/2). Lo medium stiff. F gravel, slag and	oderate y ark yello w moistu tubble co	wish brown re content t nsists of bri	o moist,	Radiolo sample gamma TMA/F	
SS SS	2.0	1.6	2					10_								undisturbed l at 15.5 Ft.
	2.0	2.0	4					- 15_			13.5-15.5 Ft. E	12). M oi	st, loose. R	ubble		
SS	2.0	1.2	1-1-2				408.5_	-			consists of brick coarse-grained 5.5 - 18.0 Ft. Sil- gray (5Y4/1) to Moist, medium Trace of organi- rootlets. Trace- sand and well-r	ty CLAY orgreenish stiff, mode c materia of coarse- ounded c	(CL). Oliving ray (5GY) derately plass including grained quihert pebble.	e 6/1). stic. artzose	from th	escriptions e GSA Rock hart (1948).
								,4			cement, 3/10/8		entoni			
			POON; S'; P = P			JJC,	SITE	S	St.	Loi	uis Downto	own S	 Site		HOLE NO	16C51

٠		G	EC	LO	GI	C D	RIL	L LO	G	PROJEC	T		FUSRAP	JOB NO. S	HEET NO.	HOLE NO.	
SIT		_							COORDINA	TES					ANGLE FROM HORIZBEARIN		
EG		St.	_	uis I		DRILL		e	<u> </u>				1,277 E 2,649		rtical		
		_ Q	1	-29-		F		-Wes	tern Co		OKILL		IAKE AND MODEL SIZE OVI CME-55 6 3/4"	ERBUROEN RO	XX (FT.)	TOTAL OEP	
									ESEL. TO		NG	GR	OUNO EL. DEPTH/EL. GROUNO		TH/EL. TOP	16.0	
								8					422.0			/	
		14	0 11	s./3	0 i	D.	CAS	ING LE	FT IN HOL		A./L	EN	GTH LOGGED BY:	T.F. Mullen			
AND DIAM.	SAMP. ADV.	LEN CORE	CORE REC.	BLOWS "N"	RECOVERY	LOSS IN B.P.M	ESSU ESTS ON ON O	RE	ELEU.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SSIFICATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETO	
SS	2.0	0	1.8	2-2-	- ə							İ	0.0 - 13.4 Ft. Silty CLAY (CL RUBBLE.	and	0-16.0	Ft. advance 3/4 in. O.D	
SS SS			1.7		-4				·	5_			0.0-5.1 Ft. CLAY (CL). M brown (10YR5/4) to dark y (10YR4/2). Mottled greenis wet for first 0.2 feet, moist of column. Moderately plast consistency. Also pieces of w glass, and small amounts of	ellowish brown sh gray (5G6/1) for remainder tic. firm	h Radiolo sampled	stem auger. Ogically	
SS			0.6	3-2-3						-			5.1-8.3 Ft. FILL. Grayish Wet. Held together by clay Predominantly slag, crushed fragments, and bricks. Confine-grained sand particles t	. Nonplastic. I limestone tains			
SS	2.0	,	0.5	2-1- 3	-2			:		10			5.3-6.0 Ft. Fill is moist. 6.0-8.3 Ft. Fill becomes wet at 8.0 Ft.			undisturbed l at 13.4 Ft	
SS	2.0	7	1,4	2-2-					408.6_	-			8.3-10.0 Ft. Silty CLAY, gr (5G6/1). Moist, highly plas amounts of mottling modera brown (10YR5/4).	reenish gray stic. Small ste yellowish			
SS	2.0	7	1.9	2-3- 3	-2				406.0	15_			10.0-13.4 Ft. FILL. Small: silty clay, greenish gray (5G contains pieces of building ri porcelain, and rubber. Wet,	6/1). Fill ubble, slag,			
							:		2000_				13.4 - 16.0 Ft. CLAY (CH). M gray (N4). Stiff consistency, plastic, homogeneous, wet.	Aedium dark highly	from th	escriptions e GSA Roc hart (1948)	
													Bottom of borehole at 16.0 Ft. Borehole backfilled with benton 2/29/88.	nite cement,			
						= SHEL CHER;		J.,	ITE	S			ouis Downtown Sit	e	HOLE NO	6C52	

	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	G FUSRAP	14501 1 OF 1 B16C53
SITE	COORDINATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,268 E 2,506 DRILL MAKE AND MODEL SIZE DOV	Vertical
BEGUN COMPLETED DRILLER 3-1-88 3-1-88 Layne-West		TERBURDEN ROCK (FT.) TOTAL DEPTH 18.0
CORE RECOVERY (FT./%) CORE BOXES SAMPL	ESEL. TOP CASING GROUND EL. DEPTH/EL. GROUND	WATER DEPTH/EL. TOP DF ROCK
/ 9	425.2	//88 /
] 1	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None	G. Cherry
SAMP. ADU. SAMP. ADU. SAMPLE REC. CORE REC. CORE REC. CORE REC. CORE REC. CORE REC. CORE LOSS LN RCCORE LN RCCORE TIME TIME TIME TIME TIME TIME TIME TIM	ELEV. THE DESCRIPTION AND CLA	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 1.7 4-7-5	425.0 0.0 - 0.2 Ft. Sandy GRAVEL	(GP). 0-18.0 Ft. advanced with 6.5-inch O.D.
	0.2 - 15.6 Ft. Silty CLAY (CI RUBBLE:	hollow-stem auger.
SS 2.0 1.6 4-8-4	0.2-3.2 Ft. Dark yellowish	brown
SS 2.0 1.8 3-6-3	(10YR4/2). Low moisture of Minor amounts of rubble cobrick, slag and ash.	content, stiff.
'	3.2-15.6 Ft. Brownish blac grayish black (N2). Moder	k (5YR2/1) to Radiologically sampled and
SS 2.0 1.2 3-4-1 8	content to saturafed, loose. consists slag, brick, gravel, pieces of porcelain. Minor i	Rubble gamma-logged by TMA/Eberline.
SS 2.0 1.2 12-8-4	moderate yellowish brown (VOA sample collected 10.0-12.0 Ft.
SS 2.0 1.2 3-2-2 1	10_ ▼	
SS 2.0 1.0 2-1-1	11.5-15.6 Ft. Saturated, de from 1/8" to 1/4" in daimet	Top of undisturbed material at 15.6 Ft.
SS 2.0 2.0 1-4-1 SS 2.0 2.0 2-1-3	409.6_ 15.6 - 18.0 Ft. Silty CLAY (Correction of the correction o	ish gray stiff, moderately
	plastic. Trace of organic m	Color descriptions
	Bottom of borehole at 18.0 Ft. Boring grouted to surface with cement, 3/10/88.	from the GSA Rock
		Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DEMNISON; P = PITCHER; D = OTHER	St. Louis Downtown Sit	te B16C53

			100	IC D	DIL	10		ROJEC	Τ.		JOB NO.	SHE	ET NO.	HOLE NO.
L		EU	LOG		KILI	L LO				FUSRAP	14501		OF 1	B16C14
SI		¥	uis Dov		- C14	•	COORDINA	TES	•	1 405 E 1 705			OM HORIZ	BEARING
BE			MPLETED			<u>e</u>	<u>.i.</u>	ŀ		1,685 E 1,795 WAKE AND MODEL SIZE OVER	BURDEN	Vert	(FT.)	TOTAL DEPTH
F-1	-5-8		1-5-88			-Wes	tern, Co			CME-55 6.5"	10.5			10.5
CO	E REC	OVER	(FT./%				ESEL. TO		NG G	OUND EL. DEPTH/EL. GROUND W		EPTH,	/EL. TOP	OF ROCK
				45.11	lass	5				410.0	•		/	
SA			R WEIGHT		CAS	ING LE	FT IN HOL		A./LE		G. Cherry			
E					JATER	5	1101	16	T		J. Cherry			
SAMP. TYPE	SAMP. ADU.	YPLE REC	SAMPLE BLOWS "N* % CORE RECOVERY	L039 XN A.P.A	ESSU ESTS SH SH		ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLASS	SIFICATI	0N	WATER	ON: LEVELS, RETURN, CTER OF
8	8 7	g ö	<u>e</u> , n	م ر	<u>g</u> .	F	418.6		-				<u> </u>	NG, ETC.
SS	1.5	0.9	3-5-3				11 9:3=	_	G2:	0.0 - 0.4 Ft. CONRETE.	70	/r	with 6.5	t. advanced -inch O.D.
SS	2.0	1.2	5-3-1					-		0.4 - 0.7 Ft. Sandy GRAVEL (C. 0.7 - 7.6 Ft. Silty CLAY (CL) a RUBBLE. Brownish black (5 grayish black (N2). Low mois to moist, loose. Rubble consi	nd YR2/1) to		 pollom-	stem auger.
SS	0.5	0.3 1.5	28 14-7-10					5_		carbonate, loose. Rubble consistent of the consistency of the carbonaceous material, gravel concrete, brick, pebbles and well the concrete of the carbonal statement of the ca	l, sand,		Radiolo	
SS	2.0	2.0	4-4-4				411.0_	<u> </u>					1	logged by berline.
SS	2.0	1.8	4-5-6 6				408.1	10_		7.6 - 10.5 Ft. Suby CLAY (CL). gray (5Y4/1) to dark greenist (5GY4/1). Moist, soft to mec consistency, moderately plast very fine-grained sand. Trace material as blebs, including p	dium-stiff ic. Trace of e of organic	Ī		indisturbed at 7.6 Ft.
							408.1_			decayed wood. Bottom of boring at 10.5 Ft. Boring grouted to bottom of con-	crete with		from the	escriptions GSA Rock hart (1948).
								·		Boning grouted to bottom of con- bentonite cement grout on 4/	crete with 14/88.		visual e	ation by
			POON; ST			,,,	ITE .	S	e. I	ouis Downtown Site	2		HOLE NO	6C14

	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	G FUSRAP	14501 1 of 1 B16C15
SITE	COORDINATES	ANGLE FROM HORIZBEARING
St. Louis Dwontown Site	N 1,616 E 1,557 DRILL MAKE AND MODEL SIZE OV	Vertical
BEGUN COMPLETED DRILLER 4-12-88 4-12-88 Layne-West		/ERBURDEN ROCK (FT.) TOTAL DEPTH
CORE RECOVERY (FT./%) CORE BOXES SAMPL		
/ 5	421.0	/
	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None	G. Cherry
SAMP. TYPE SAMP. ADU. LEN CORE SAMPLE REC. CORE REC. SAMPLE REC. SAMPLE REC. CORE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. TORS TIME TIME TIME TIME TIME TIME TIME TIME TIME TIME TIME TIME	ELEV. HILL DESCRIPTION AND CLA	NOTES ON: WATER LEVELS, WATER RETURN,
SAMP. LEN SAMPLE SAMPL	421.0	CHARACTER OF DRILLING, ETC.
SS 1.6 1.0 8-25-18 2/1"	0.0 - 0.4 Ft. ASPHALT. 0.4 - 0.8 Ft. Sandy GRAVEL.	
SS 2.0 1.4 14-15-12 8	0.8 - 7.4 Ft. Silty CLAY (CL RUBBLE. Grayish brown grayish black (N2). Low m to moist, loose. Rubble con	and (5YR3/2) to oisture content
SS 1.7 1.3 1-9-25 50/3*	carbonaceous material, silty gravel. Fe staining. Patche yellowish brown (10YR5/4)	r clay, and so of moderate Radiologically
SS 2.0 1.8 4-10-9	413.6_	sampled and gamma-logged by TMA/Eberline. Top of undisturbed
SS 2.0 1.5 1-3-5 5	413.0 7.4 - 8.0 Ft. Silty SAND (SM gray (5Y4/1). Low moisture medium stiff. Very fine-gray). Olive material at 7.4 Ft. e content, sined sand.
	411.0 10 8.0 - 10.0 Ft. Silty CLAY (CI gray (5Y4/1). Moist, soft to moderately plastic. Trace of material as blebs.	Color descriptions from the GSA Rock Color Chart (1948).
	Bottom of boring at 10.0 Ft. Boring grouted to bottom of a bentonite cement grout on	
		Description and identification by visual examination of soils.
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Dwontown Si	te HOLE NO. B16C15

							_	PROJE	CT		· · · · · · · · · · · · · · · · · · ·	JOB NO.	SHE	ET NO.	HOLE NO.
	G	EC	DLOG	IC D	RIL	L LO)G				FUSRAP	1450	l l	OF 1	B16C16
SIT	E						COORDINA	TES						OM HORIZ	
	St	Lo	uis Dw	ontow	n Sit	te				N	1,550 E 1,573		Vert	1	
BEG	UN	C	MPLETED	DRILL	.ER				DRIL			ERBURDEN		(FT.)	TOTAL DEPTH
4-	14-8	8 4	-14-8	B I	.ayne	-Wes	tern, Co).			CME-55 6.5"	10.5			10.5
COR	E REC	OVER	Y (FT./%				ESEL. TO		ING	GR	OUND EL. DEPTH/EL. GROUND	WATER	DEPTH	/EL. TOP	
1		/				5	.				420.6	3/88		/	
SAH	PLE H	AMME	R WEIGHT	/FALL	CAS	SING LE	FT IN HO	LE: DI	A./L	EN	GTH LOGGED BY:				
	14	10 11	bs./30	in.	- 1		No	ne			İ	G. Chei	rrv		
ш					JATER				T	П					
Σ.Ε	김분	E C	SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU rests			_	BRAPHICS	Ш				NOTEC	6 114
	띡망	<u>"</u> ≅	4 8 8	m E	• •		ELEV.	DEPTH	보	SAMPLE	DESCRIPTION AND CLAS	SSIFICA	TION	NOTES	LEVELS,
100	<u>a</u> z	김씨	£300	SZ.	80 H	Fzz		Ä	1 0					WATER	RETURN,
₫Ž		£ 0	[8일]/8	LOSS IN G. P.	PRES P. S.	HAY.		_	8	n					CTER OF ING, ETC.
					0.0	 	420.6 420.3-		_	Ш	√0.0 - 0.3 Ft. ASPHALT.				t. advanced
SS	1.6	1.2	14-22-20 3/1)	l	İ	420.5] .			L			with 6.5	-inch O.D.
		·	3/1]		l					0.3 - 8.1 Ft. Silty CLAY (CL) RUBBLE. Dark vellowish	and rown		hollow-	stem auger.
SS	1.8	1.7	10-9-8 50/4"					•			RUBBLE. Dark yellowish (10YR4/2) to grayish black	(N2). Lov	•	ŀ	
			50,4		1	ŀ		-			moisture content, loose-stiff consists of brick, gravel, car	ponaceons		l	
		_		1	ĺ	1	7	z .		П	material, sand and wood.				
SS	1.5	0.5	23-3-1	1	1		•	5							•
					1									Radiolog	gically and
cc	2.0	0.8	4-4-4					'						gamma-	logged by berline.
33	2.0	0.8	14				ļ	-						VOA sa	berline. mmple
						1	412.5_	∤ .	yuuu	, .	8.1 - 10.5 Ft. Silty CLAY (CL	1 (1546)		collected	i 6.5-8.5 Ft.
SS	2.0	1.5	2-2-4	1			İ				gray (5Y4/1). Moderate mo	isture cont	ent,		indisturbed
			•				<u> </u>	10_			soft, moderately plastic. Tr fine-grained sand. Trace of	ace of very	•	material	at 8.1 Ft.
<u> </u>							410.1_				material as blebs.			.د	
1					ļ '	İ		ļ		Ш	Bottom of boring at 10.5 Ft. Boring grouted to bottom of as			from the	scriptions GSA Rock
İ					İ				İ	Ш	Boring grouted to bottom of as bentonite cement grout on 4	phalt with		Color Cl	hart (1948).
											bentonite content Broat on 1	1, 20,00.			
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88		IT 67	2004 - 57		DV T.	10E. C	ITE	L		ш				HOLE NO.	
			POON; ST			,,,		C	+	1	uis Dwontown Sit	P		R1	6C16
<u></u>	J-44	. JUN ;	r - F1	- CALK;		, nek			· L .		Juis Davillowii Sit	<u> </u>		101	OCIU

0701001600011110	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	TOSKAI	14501 1 of 2 B16C17
SITE SA La La Danna Sina	COORDINATES	ANGLE FROM HORIZSEARING
St. Louis Downtown Site	N 1,832 E 2,267	Vertical DVERBURDEN ROCK (FT.) TOTAL DEPTH
4-19-88 4-19-88 Layne-Wes		20.0
	ESEL. TOP CASING GROUND EL. DEPTH/EL GROUN	
/ 10	421.6	
I I	FT IN HOLE: DIA./LENGTH LOGGED BY:	C. A. Clast.
140 lbs./30 in.	None	C.A. Clark
PRESSURE TESTS	ELEV. HT BESCRIPTION AND CL	WATER RETURN,
AND SAMPLEN IN TIME TIME TIME TIME TIME TIME TIME TIME		CHARACTER OF DRILLING, ETC.
SS 2.0 1.5 5-31-11	421.6 421.8 0.0 - 0.3 Ft. Sandy LOAM.	<u> </u>
SS 2.0 1.5 3-2-3-3	419.4 419.4 0.0 - 0.3 Ft. Sandy LOAM. brown (5YR3/3). Dry. G Largely undecomposed. V fine- to coarse-grained; si coarse-grained gravel-sise particles. Loose, dense.	ibangulars. Some Radiologically sampled and
SS 2.0 1.3 2-2-2-3	0.3 - 0.7 Ft. CONCRETE. brown rounded chert aggressia with hammer into coarse-	grained gravel. 19.5 Ft. Top of undisturbed material at 13.2 Ft.?
SS 2.0 1.3 2-3-4-3	0.7 - 2.2 Ft. Silty SAND (S) black (5YR2/1). Dry. M dense, well graded, fine-t subangular sand. Silt is s biotite-mafic flakes.	M). Brownish oderately loose, to coarse-grained ome
SS 2.0 1.0 1-0-2-4	1.3 Ft. Abundant rubble Decreased cohesion; incre	as coal slag.
SS 2.0 1.8 1-1-2-2	2.2 - 13.2 Ft. FILL.	
SS 2.0 1.9 1-1-1-1	2.2-3.8 Ft. SILT with SA brownish black (5YR2/1) little cohesion, low moistus slightly plastic. Dense. Sfine- and medium-grained resistance to deformation.	. Slightlý moist, ire content, and is <15% 1. Moderate □
SS 2.0 1.9 1-3-6-6	15 2.9 Ft. Brick with white	powder.
SS 2.0 2.0 1-3-7-4 SS 2.0 2.0 1-2-2-2	3.1-3.8 Ft. Clayey SILT yellowish brown (10YR5/slightly plastic, medium-s Weak thread, little resists deformation, dense. Hom structure.	itiff consistency.
	3.8-13.2 Ft. Sandy SILT black (5YR3/4). Slightly cohesive, soft. Abundant saturated. Most (80%) depermeable, fibrous. Sand subangulars, stiff, resistand deformation, breaks sharp	organics, some composed, soft, is fine-grained it to Description & classification of soils by visual examination of
	6.8 Ft. Becoming saturat random organics have hig content. A 1-2" clay laye sone contact.	hest moisture
	8.0-12.0 Ft. Abundant ruslag, coal fragments, brich glass. Adhesion increases increased organics.	concrete,
	13.2-13.6 ft. CLAY (CL). If yellowish brown (10YR2/cohesive, dense, non-stick plasticity. Thread is weal resistance to deformation Very stiff. trace organic	y, low k. Moderate and rupture.
	13.6 - 20.0 Ft. Interbedded SILT and SILT with silty (SM-ML). Olive gray (5) becoming saturated at 1-6 alternation of layers 2 - 8 layers show inclined lamir (inclined to sampler axis)	SAND (4/1). Moist, 4. Ft. Randon " thick. Silt nae of 3-5 degrees
SS = SPLIT SPOON; ST = SHELBY TUBE; D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown S	HOLE NO.

		C		71	Λ	C	C [) E	>II I	L LO	G	PROJEC	T		, i		HOLE NO.
								_			7			П	FUSRAP 14501 2	OF 2	B16C17
SAND OTAPE	SAMP. ADV.	LEN CORE	SAMPLE REC.	SAMPLE	BLOWS "N"	RECOVERY	LDSS	RE	PRESS. ESTA	RE I	EL E V.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	WATER CHARAC	ON: LEVELS, RETURN, TER OF
							= SH				TITE				mafic/biotite flakes. Clayey silt layers show higher plasticity; moderate thread, ruptures easily. Silty sand layers show well-sorted fine-grained quarts sand. Layer shows higher moisture and dilatancy; increase in permeability. Bottom of boring at 20.0 Ft. Borehole backfilled with bentonite cement, 4-28-88.	HOLE NO	
o =	DE	NNI	SON	; 1) z	PI	TCHER	;	0 = 0	THER		S	t.	L	ouis Downtown Site	B1	6C17

	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LOG	FUSRAP	14501 1 OF 1 B16C18
SITE COORDI		ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,830 E 2,395	Vertical
BEGUN COMPLETED DRILLER		BURDEN ROCK (FT.) TOTAL DEPTH
3-17-88 3-17-88 Layne-Western, Core Recovery (FT./%) CORE BOXES SAMPLES EL.		16.0 16.0 ATER DEPTH/EL. TOP OF ROCK
/ 8	422.8	
SAMPLE HAMMER WEIGHT/FALL CASING LEFT IN H		
	one (G. Cherry
AND DIAMPE AND DIAMPE	6	
TESTS ELEV.	DESCRIPTION AND CLASS	NOTES ON: SIFICATION WATER LEVELS,
AND DE LONG TINE TINE TINE TINE TINE TINE TINE TINE	H DESCRIPTION AND CLASS	WATER RETURN,
SAMPLE PRESIDE LENY CORE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RECOUNTY OF SAMPLE RESULTS OF SAMPLE RECOUNTY		CHARACTER OF DRILLING, ETC.
SS 2.0 1.6 3-6-6 422.0	- 0.0 - 0.3 Ft Silty CLAY (CL)	Moderate = 0-16.0 Ft advanced
	yellowish brown (10YRb/4). content, medium stiff.	Low moisture with 6.5-inch O.D. hollow-stem auger.
SS 2.0 1.8 5-7-11	0.3 - 12.5 Ft. Silty CLAY (CL)	and
16	1 RUBRIE Brownish black (5)	YR2/1) to
SS 2.0 1.7 5-6-6	grayish black (N2). Low mois to moist, loose. Rubble consis brick and coarse sand. Fe sta	its of slag, ining,
	5 patches of moderate yellowish (10YR5/4) and olive gray (5Y	4/1) silty Radiologically
SS 2.0 1.3 3-3-4	- clay.	sampled and gamma-logged by TMA/Eberline.
	1 - 1 - 1	TMA/Eberline.
SS 2.0 1.7 3-2-2	₹ -	VOA sample collected
	•	6.0-8.0 Ft.
SS 2.0 1.1 5-8-5	10_	Top of undisturbed
	-	material at 12.5 Ft.
SS 2.0 1.3 2-2-2 410.3		
3 1	12.5 - 16.0 Ft. Silty CLAY (CL) gray (5Y3/2). Moist, medium	. Olive
SS 2.0 1.3 1-2-3	gray (5Y3/2). Moist, medium moderately plastic. Minor am organic material as blebs.	ounts of
3 .	15_	
406.1		Color descriptions
	Bottom of boring at 16.0 Ft. Boring grouted to surface with be	from the GSA Rock
	cement grout on 3/21/88.	-0.00 -0.000
		Description and
		identification by visual examination of
		soils.
	1	
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE	C. I. I. D	HOLE NO.
D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	B16C18

	-	EC	LOG	IC D	DII I	10	G	PROJEC	T	_		1 1	ET NO. HOLE NO.
SITE		360			1/12		COORDINA	TES			FUSRAP		OF 1 B16C19
	St		uis Do			e					1,831 E 2,493	Ver	tical
BEGU		1-	MPLETED 3-17-88	l l		_Was	tern, Co		DRIL	L	CME-55 6.5"	/ERBURDEN ROC	K (FT.) TOTAL DEPTH
							ESEL. TO		NG	GR	OUND EL. DEPTH/EL. GROUND	WATER DEPTH	/EL. TOP OF ROCK
2445	· - ·	/	0 151647	75411	lead	8	F7 IN 1101	<u> </u>	<u> </u>		422.6	8/88	/
	1	40 I	R WEIGHT bs./30	ln.			No		A./I	LEN	GTH LOGGED BY:	G. Cherry	
SAMP DIAM.	SAMP, ADV.	CORE REC.	BLOWS "N" % CORE	LOSS IN G.P.M. J	PRESS. 1.8.4	RE	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLA	SSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.0	1.5	9-6-6				433.0				0.0 - 13.5 Ft. Silty CLAY (CI RUBBLE.	() and	0-16.0 Ft. advanced with 6.5-inch O.D.
SS	2.0	1.3	5-2-4				·	-			0.0-0.5 Ft. Moderate yellov (10YR5/4), low moisture co stiff, some gravel.	wish brown ontent, medium	hollow-stem auger.
SS	2.0	1.4	3-2-2					5_			0.5-13.5 Ft. Brownish blac grayish black (N2). Low m to moist, loose. Rubble con carbonaceous material, coar	oisture content isists of slag,	Radiologically
SS	2.0	1.5	1-1-1				Ž	- 			and glass. Patches of mode brown (10YR5/4) silty clay staining.	rate yellowish	sampled and gamma-logged by TMA/Eberline.
SS	2.0	1.1	4-3-1					-					
SS		0.3	4					10					Top of undisturbed material at 13.5 Ft.
SS		1.0	2				409.1_	-	<i>'' </i>		13.5 - 16.0 Ft. Silty CLAY (C	CL). Olive	
SS	2.0	1.2	1-2-28				· 40 6.6_	15_			13.5 - 16.0 Ft. Silty CLAY (C gray (5Y3/2). Moist, soft to moderately plastic. Minor a organic material as blebs. I pieces of partially decayed	o medium stiff, umounts of Large 1/2-in. wood.	Color descriptions
					l						Bottom of boring at 16.0 Ft. Boring grouted to surface with cement grout on 3/21/88.	bentonite	from the GSA Rock Color Chart (1948).
													Description and identification by visual examination of soils.
								."			•		
					:			ł					
					i								
			POON; ST ; P = PI			,,,	ITE -	S	t.	L	ouis Downtown Sit	te	HOLE NO. B16C19

	G	EC)LOG		RIL	L LO	G	PROJEC	-1		FUSRAP		J08 N0		HEET NO.	HOLE NO. B16C20
ITE		-					COORDINA	TES							FROM HOR	IZBEARING
			uis Do			e	<u> </u>			N 1,8					ertical	
EGU		- 1	MPLETED			Was	40== Ca		DRILL			SIZE	OVERBURDE		OCK (FT.)	1
			-16-80				tern, Co		NG K	ROUNG	IE-55	6.5"	14.0		TH/EI T	14.0 OP OF ROCK
		/				7					1.4 ₹ 8.3	7413.1 3	718/88	[-	111/22. 1	/ /
AMP	LE H	AMME	R WEIGHT	/FALL	CAS	ING LE	FT IN HOL	E: DI	A./LE	_	LOGGED BY:					
	14	10 11	bs./30	in.			No	ne				•	G. Ch	erry		
DIAM.	SAMP. ADU.	E REC.	SAMPLE BLOWS "N" % CORE RECOVERY	en E		RE S	E LEV.	DEPTH	GRAPHICS SAMELE		ESCRIPTION	AND C	LASSIFIC	OITA	WATE	S ON: R LEVELS,
PAND	SAMP	SAMPI	8 9 × 5 × 5 × 5 × 5 × 5 × 5 × 5 × 5 × 5 ×	LOSS	E E	HIN.	421.4	8	GRA						CHAR	R RETURN, ACTER OF LING, ETC
S	1.8	1.8	9-9-5 4/4"				421.2 <u></u>			1/	- 0.2 Ft. <u>CON</u> - 0.5 Ft. <u>Silty</u> brown (5YR2/2		CL). Dusky		_/□ with 6	DFt. advanced 3.5-inch O.D. v-stem auger.
	2.0	0.8	3-5-10 8					-		0.5	- 1.0 Ft. Sand	m stiff. y GRAY	EL (GP).			
S	2.0	1.7	5-7-3 3				416.4_	5_		1.0	- 5.0 Ft. Silty RUBBLE. Brograyish black (1	12). Mod	lerate moist	lire	Radio	logically
s	2.0	1.8	3-3-3 3				415.2_	-			content, loose. carbonaceous m Patches of mod (10YR5/4) silty	aterial, s	and and gra	vel.	gamm TMA	ed and na-logged by Eberline.
S	2.0	2.0	3-2-12 12				Ĭ	-		5.0	- 6.2 Ft. Silty olive gray (5Y5 content, soft. F	CLAY (C/2). Mode e stainin	CL). Light erate moistu	ire		
S	2.0	1.7	2-8-3 4				409.9_	10_	·www.		- 11.5 Ft. Silts RUBBLE. Brow grayish black (1	r CLAY (wnish bla v2). Mod	CL) and ck (5YR2/1 lerate moist) to ure	Top o mater	f undisturbed ial at 11.5 Ft.
S	2.0	1.4	2-3-3				405.4	, -		11.	content to mois of slag, brick, se 5 - 14.0 Ft. Sil	ind and g	(CL). Oliv]	
							407.4_	-			gray (5Y4/1). No moderately plas organics as bleb	tic. Mines and roc	dium stiff, or amounts otlets.	of	/ from t	descriptions the GSA Rock Chart (1948)
										Bo	ttom of boring a ring grouted to cement grout or	surface w	ith bentonit	ie		
															identi	iption and fication by examination
								ŗ							Solis.	
	SPL		POON; ST			BE; S	ITE				s Downto		···		HOLE	16C20

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T		FUSRAP	JOB NO 145	- I	EET NO. 1 OF 1	HOLE NO. B16C21
SITE							COORDINA	TES					ANGLE F	ROM HORIZ	
			uis Do			e	1				1,829 E 2,809			rtical	
BEGL		1	MPLETED -16-8	_		- Was	tern, Co		DRILI		AKE AND MODEL SIZE OVER CME-55 6.5"	RBURDEN	RO	CK (FT.)	TOTAL DEPT
							ESEL. TO		NG			16.5	DEPT	H/EL. TOP	DF ROCK
		1	•			8	-				420.3	88		.,,	/
SAMF			R WEIGH		CAS	ING LE	FT IN HO		A./L	ENG	TH LOGGED BY:	G. Ch	errv		
۳ <u>.</u>					WATER				_	П		· · · · · · · · · · · · · · · · · · ·			·
SAND DIAME	LEN COR	AMPLE REC	SAMPLE BLOWS "N" % CORE RECOURBY	Loss IN G.P.M	TESTS		ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC
SS	1.9	1.2	0-2-3	 	0.0		420.1=				10.0 - 0.1 Ft. GRAVEL.				Ft. advanced
			3/5"				419.9	-			0.1 - 0.3 Ft. Sandy GRAVEL (GP).		/ with 6.5	5-inch O.D. stem auger.
SS	2.0	1.6	2-2-5 5					-			0.3 - 11.5 Ft. Silty CLAY (CL) RUBBLE.	and		'	
SS	2.0	1.3	2-2-4	-				- 5_			0.3-2.5 Ft. Moderate yellowi (10YR5/4) to brownish black Low moisture content, soft. R	: /6YR2	/1).		
								•-			of brick, carbonaceous materi pebbles.	ial and	·~11619 <i>6</i> 2	Radiolo	and
SS	2.0	1.3	2-2-2 3					-			2.5-7.2 Ft. Moderate yellowi (10YR5/4) to light olive gray	sh brow	n l). Low	gamma	-logged by Sberline.
SS	2.0	1.6	2-4-11				Ž	- ¥ -			moisture content, soft to med Minor amounts of rubble con- brick, carbonaceous material	lium sti: sisting (ff. of	i i	mple collect Ft.
SS	2.0	1.7	9-3-1 2					10_			7.2-11.5 Ft. Brownish black grayish black (N2). Moderat content to moist. Loose, Ru	è moisti bble coi	ure nsists		undisturbed l at 11.5 Ft.
SS	2.0	1.2	4-11-14 5				408.8_				of angular fragments (1/8-1/ intermixed with fine- to medi sand. Patches of dark yellow (10YR4/2) silty clay. Fe stai	4-in.) o ium-gra ish brov	f brick lined	Д	
SS	2.0	0.8	5-5-5 6					15_			11.5 - 16.5 Ft. Silty CLAY (CL gray (5Y4/1) to dark greenisl (5GY4/1). Moist, soft to mediately plastic. Trace of fine-grained sand. Large 1/2	h gray dium sti	iff.	'	
							403.8_	-			partially decayed wood. Bottom of boring at 16.5 Ft. Boring grouted to surface with b cement grout on 3/18/88.			from th	escriptions e GSA Rock hart (1948).
											coment group on 5/10/66.			identific	tion and cation by xamination
								ŗ			·				
								<u> </u> 			·				
						16	TYE							HOLE NO	
			POON; ST ; P = PI			,55,	ITE	S	t.	Lc	ouis Downtown Site	2			6C21

		
GEOLOGIC DRILL LO	PROJECT FLICT AD	JOB NO. SHEET NO. HOLE NO.
TITE	FUSRAP	ANGLE FROM HORIZIBEARING
St. Louis Downtown Site	N 1,841 E 2,877	Vertical
EGUN COMPLETED DRILLER		RBURDEN ROCK (FT.) TOTAL DEPTI
3-16-88 3-16-88 Layne-Wes		13.0
ORE RECOVERY (FT./%) CORE BOXES SAMPL	V 0 7//10 3 3/18	ATER DEPTH/EL. TOP OF ROCK
/ 6 AMPLE HAMMER WEIGHT/FALL CASING LE	420.0 \(\frac{1}{2} \)	/
140 lbs./30 in.	FT IN HOLE: DIA./LENGTH LOGGED BY: None	C. Charre
	None	G. Cherry
SAMP. ADV. LEN CORE SAMPLE REC. CORE REC. CORE REC. SAMPLE REC. CORE REC. CORE RCCORE	ELEV. HE SOLD DESCRIPTION AND CLAS	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
55 1.9 1.2; 2-1-3	0.0 - 9.7 Ft. Silty CLAY (CL)	and 0-13.0 Ft. advanced
3/5° SS 2.0 1.3 2-3-5	BUBBLE. 0.0-0.9 Ft. Grayish black (Notes to the loose. Rubble consists of slag carbonaceous material.	with 6.5-inch O.D. hollow-stem auger. g and
SS 2.0 1.8 2-3-4 SS 2.0 1.3 2-3-4	0.9-6.5 Ft. Moderate yellow (10YR5/4) to grayish black (moisture content, soft. Mino rubble consisting of slag, bric carbonaceous material. Patches of light clive gray (5	N2). Low r amounts of kk and Radiologically sampled and
3 SS 2.0 1.4 2-2-3	clay. 6.5-9.7 Ft. Dusky yellow greenish gray (5GY6/1). Locontent to moist, soft. Minor	TMA/Eberline.
SS 2.0 0.8 2-2-2	content to moist, soft. Minor grayish black (N2) rubble cor slag, brick fragments, pebbler medium-grained sand.	asisting of Top of undisturbed
	9.7 - 13.0 Ft. Silty CLAY (CL) gray (5Y4/1) to dark greenis (5GY4/1). Moist, medium st plastic. Minor amounts of or as blebs.	Olive h gray iff, moderately ganic material Color descriptions from the GSA Rock
	Bottom of boring at 13.0 Ft. Boring grouted to surface with to cement grout on 3/18/88.	Color Chart (1948).
	, a	Description and identification by visual examination of soils.
S = SPLIT SPOON; ST = SHELBY TUBE; ST = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. B16C22

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T		FUCDAD	JOB NO	I	ET NO.	HOLE NO.
SITE							COORDINA	TES			FUSRAP	145	O1 1	OF 1	B16C23
	St	Ţ.n	uis Dov	wntow	n Si	e				N	1,700 E 2,244		Veri		DEAK ING
BEGUN			MPLETED				<u> </u>					RBURDEN		(FT.)	TOTAL DEPTH
		1 -	-24-88	- F		-Wes	tern, Co	T I		- '	CME-55 6.5"	14.5		~ (110)	14.5
							ESEL. TO		NG	GR	OUND EL. DEPTH/EL. GROUND	WATER	DEPTH	/EL. TOP	OF ROCK
		1				7					422.4			/	,
SAMPLE	E KJ	MME	R WEIGHT	/FALL	CAS	ING LE	FT IN HO	LE: DI	A./L	EN	GTH LOGGED BY:				
	14	0 11	os./30	in.			No	ne				G. Ch	erry		
H	ilu.	ပ္ပုံ :	<u> </u>		JATER				_	П		<u></u>			
SAMD DIAM.	LEN CORE	BAMPLE RECORE REC	SAMPLE BLOWS "N" % CORE RECOUERY	LOSS IN G.P.M	ESTS		ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SSIFIC	ATION	WATER CHARA	ON: LEVELS, RETURN, CTER OF ING, ETC.
<u>ee 1</u>							421.B_				0.0 - 0.6 Ft. ASPHALT.	· · · · · · · · · · · · · · · · · · ·			t. advanced
SS 1.	•	1.0	3-13 4/5"					-			0.6 - 10.5 Ft. Bilty CLAY (CL.) RUBBLE.	T #DG			inch O.D. stem auger.
SS 2.	.0	1.7	3-3-4 3					-			0.6-1.2 Ft. Moderate yellow (10YR5/4). Low moisture costiff. Trace of gravel.	rish brow ontent, r	n nedium		
SS 2.	.0	1.0	1-2-2	1				-			1.2-10.5 Ft. Brownish black	(5YR2/	1) to		
j								5_			grayish black (N2). Low mo to moist, loose. Rubble cons	ists of sl	ag,	Radiolo	
SS 2.	.0	0.7	1-4-5					-			carbonaceous material, brick and wood. Patches of light	i, gravel, olive gra	giass y	sampled gamma-	l and -logged by berline.
			3					-			(5Y6/1) to moderate yellowi (10YR5/4) silty clay.	sh brow	n	TMA/E	berline.
SS 2.	.0	1.2	3-2-3 5								, , , , ,				
SS 2.	.0	1.8	1-2-2				411.9	10_						Top of	undisturbed
			4					-			10.5 - 12.8 Ft. Silty CLAY (CI olive gray (575/2). Moist, s moderately plastic. Trace or	L). Ligh	t	materia	l at 10.5 Ft.
SS 2.		2.0	1-2-4								moderately plastic. Trace or as blebs.	ganic m	aterial		
- -	1	J. V	7				409.6_	-		1		(I) (V)		1	
+							407.9	-			12.8 - 14.5 Ft. Clayer SILT (Mgray (5Y4/1). Moist, medium	n stiff, s	ve ightly		
							401.9_	,	ш	H	plastic. Trace very fine-grai Minor amounts of organics a	ned sand s blebs.	i. /		escriptions
							•				Bottom of boring at 14.5 Ft. Boring grouted to bottom of aspectonite cement grout on 3	phalt wit /31/88.	:h		e GSA Rock hart (1948).
													·	identific	tion and ation by kamination c
			OON; ST			J-,	ITE	S	<u>.</u>	L	ouis Downtown Site	<u> </u>		HOLE NO	6C23

GEOLOGIC DRILL LO	PROJECT	1	T NO. HOLE NO.
SITE	FUSRAP FUSRAP	14501 1 ANGLE FRO	OF 1 B16C24 M HORIZBEARING
St. Louis Downtown Site	N 1,799 E 2,448	Verti	cal
BEGUN COMPLETED DRILLER	DRILL MAKE AND MODEL SIZE	i i	(FT.) TOTAL DEPTH
3-15-88 3-15-88 Layne-West			EL. TOP OF ROCK
/ 9	424.6 \\ ₹ /		
140 lbs./30 in.	IN HOLE: DIA./LENGTH LOGGED BY: None	T.F. Mullen	
SAMP. TYPE SAMP. ADU. LEN CORE BLOME REC. CORE	LEV. I DESCRIPTION AND) CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 1.5 10-11-10	0.0 - 0.4 Ft. <u>CONCRE</u> 0.4 - 2.5 Ft. <u>GRAVEL</u>		0-20.0 Ft. advanced with 6-3/4 in. O.D. hollow-stem auger.
SS 2.0 1.1 2-3-6 15	2.5 - 17.7 Ft. FILL. Do 2/2) clayey silt, grav and loose.	usky brown (5YR	Radiologically sampled and gamma-logged by TMA-Eberline.
SS 2.0 1.9 8-14-14 12	5.0 Ft. Becoming me	oist with depth.	
SS 2.0 1.6 1-1-6	9.0-13.0 Ft. Grayish	brown (5VR3/2) to	Top of undisturbed material at 17.7 Ft.
SS 2.0 0.9 3-2-4 6	dusky brown (5YR2) brick, and pieces of g crumbly.	brown (5YR3/2) to 2) silty clay. Crushed class. Moist and	
SS 2.0 1.9 3-3-3 SS 2.0 1.9 3-1/1'-3	13.0-14.1 Ft. Clay. (5GY6/1) to greenish very stiff consistency	Greenish gray n gray (5G6/1). Moist,	
SS 2.0 1.8 1-2-3 3	silt, wet. 14.5-16.1 Ft. Grayis	h black (N2) to olive and, gravel, coal, and	Color descriptions from the GSA Rock Color Chart (1948).
	16.1-17.7 Ft. Grayis silt. Wet to moist.	th black (N2) clayey	Description and identification by
	gray (N4). Stiff consi slightly plastic.	stency, moist,	visual examination of soils.
	Bottom of borehole at 2 Borehole backfilled with 3/15/88.		
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown	1	HOLE NO. B16C24

	GEOLOGIC DRILL LOG PROJECT FUSRAP JOB NO. SHEET NO. HOLE NO. 14501 1 OF 1 B16C25 ANGLE FROM HORIZBEARING St. Louis Downtown Site N 1.761 E 2.540 Vertical													
CIT		JEC	LUG		IXIL:	LLO		TEC			FUSRAP			
211		. Lo	uis Dov	wntow	n Sit	e	COORDINA	A1E3		N	1,761 E 2,540	İ	rtical	
BEG			MPLETED			-			DRIL				CK (FT.) TOTAL DEPTH	
	5-8		4-6-88				tern Co				iobile B-40 6 3/4"	18.0	18.0	
COR	E REC	OVER'	Y (FT./%	() CORE	BOXE	S SAMPL	ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/EL. GROUND	WATER DEPT	TH/EL. TOP OF ROCK	
SAH	PLE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./L	EN	424.6 \\ \\ \' \' \' \' \' \' \' \' \' \' \'			
	1	40 II	bs./30	in.			No					T.F. Mullen		
NO DIAM.	MP. ADV.	MPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	P. H. B. B. B. B. B. B. B. B. B. B. B. B. B.	PATER ESSU FESTS ON ON ON ON ON ON ON ON ON ON ON ON ON O	RE	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLA	SSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF	
8₫	817	द्वाठ	5 12	7 0	g a	FΣ	424.6		-	Ц			DRILLING, ETC.	
							424.1_ 423.6_ 421.9_				0.0 - 0.5 Ft. CONCRETE. 0.5 - 1.0 Ft. GRAVEL FUL. 1.0 - 2.7 Ft. CONCRETE.	, ,	0-18.0 Ft. advanced with 6-3/4 in. O.D. hollow-stem auger. Radiologically	
SS	2.0	1.6	7-15-15 13							J	2.7 - 15.9 Ft. FILL. 2.7-6.8 Ft. Brownish black	(5YR2/1) to	sampled and gamma-logged by TMA-Eberline.	
SS	2.0	Top of undisturbed material at 15.9 Ft.												
SS	2.0	1.8	6-14-3					-			6.2 Ft. Silty clay lense. Moyellowish brown (10YR5/4) consistency, slightly plastic.	. Stiff		
SS	2.0	1.5	2-3-1		!		,	10_			6.8-13.2 Ft. Dusky yellowis (10YR2/2) to grayish brown Clayey silt and charred woodry strength.	sh brown n (5YR3/2). nd. Dry. Low	VOA samples	
	2.0	0.8	4-4-3					-					collected 9-11 Ft.	
SS	2.0	1.4	2-4-2 3					-			13.0 Ft. Fill becomes satur			
SS	2.0	1.8	1-2-3				408.7_	15_	<i>'''''</i>		13.2-13.8 Ft. White (N9) s Saturated. 13.8-15.0 Ft. Clay. Dark g	-	Color descriptions	
							406.6_	-			(5GY4/1). Stiff consistency moderately plastic. 15.0-15.9 Ft. Silty sand. S	, moist,	from the GSA Rock Color Chart (1948).	
											Very fine-grained. Small co 15.9 - 18.0 Ft. CLAY (CL). (5Y4/1). Medium-stiff three	oncrete pieces.	Description and	
											moderately plastic, very stif	f consistency.	identification by visual examination of soils.	
								."			Borehole backfilled with bento: 4/6/88.	nite cement,		
									:					
<u>_</u>		<u> </u>					I TE		L	Ц			HOLE NO.	
			POON; ST ; P = PI			UL,		S	t.	Lo	uis Downtown Sit	:e	B16C25	

SITE St. Louis Downtown Site N 1,610 E 2,442 SEGUN COMPLETED DRILLER 3-18-88 3-18-88 Layne-Western Co. CORE RECOVERY (FT./X) CORE BOXES SAMPLES EL. TOP CASING GROUND EL. 8 424.6				100	16 1	וופר	110)G	PROJEC	T			ET NO.	HOLE NO.
St. Louis Downtown Site	TE		E	LUG	ונו	וואכ			TEC		FUSRAP	1 1 -		B16C27
SEGUM COMPLETED PILLER Layne-Western Co. PRILL MAKE AND MODEL SIZE DOVERBURDEN ROCK (FI.) TOTAL DEF NOTAL DEF ROCK PRILL MAKE AND MODEL SIZE DOVERBURDEN ROCK (FI.) TOTAL DEF ROCK PRILL MAKE AND MODEL SIZE DOVERBURDEN ROCK (FI.) TOTAL DEF ROCK PRILL MAKE AND MODEL SIZE DOVERBURDEN ROCK (FI.) TOTAL DEF ROCK PRILL MAKE AND MODEL SIZE DEFINITION ROCK PRILL MAKE AND MODEL SIZE DEFINITION ROCK PRILL MAKE AND MODEL SIZE DOVERBURDEN ROCK (FI.) TOTAL DEF ROCK	ai i E		. Lo	uis Do	wnto	wn S	ite	THE PART OF THE	1123	N	1,610 E 2.442	.1		DEARING
CORE RECOVERY (FT./X) CORE BOXES SAMPLES L. TOP CASING GROUND E. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF ROCK A 24.6 \$ /		N	Cα	MPLETED	DRI	LLER	-			DRILL	NAKE AND MODEL SIZE OVE			TOTAL DEPTH
SAMPLE NAMER MEIGHT/FALL 140 lbs./30 in. None None T.F. Mullen													(E) TOO	
Add 140 185, /30 18. Add Add	CORE	KEC	OVEK	T (F1./2	., [KE BUA		LESEL. 10	P LAS	ING IG	177	MATER DEPTH	/EL. 10P	UP ROCK
	SAMP	LE H	AMME	R WEIGHT	/FALI	. с		EFT IN HO	LE: DI	A./LE	GTH LOGGED BY:			
SS 1.5 1.0 6-10-4 10/0* 423.1 421.8 420.7 1.6 - 2.8 Ft. FILL. SS 2.0 2.0 4-12-23 24 SS 2.0 1.5 2-9-6 5 SS 2.0 1.5 2-9-6 5 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS								No	ne	,		Γ.F. Mullen		
SS 1.5 1.0 6-10-4 10/0* 423.1 421.8 420.7 1.6 - 2.8 Ft. FILL. SS 2.0 2.0 4-12-23 24 SS 2.0 1.5 2-9-6 5 SS 2.0 1.5 2-9-6 5 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS 2.0 3-3-6 3 SS	SAN DIAM.	SAMP. ADU.	SAMPLE REC.	BLOWS "N" % CORE	LOSS NI	TES	URE	424.6	DEPTH	Ш		SSIFICATION	WATER WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
10/0" 1.5 - 2.8 Ft. FILL. Radiologically sampled and gamma-logged by TMA-Eberline. 2.8 - 3.9 Ft. CONCRETE. 3.9 - 16.2 Ft. FILL. Top of undisturbed material at 16.2 Ft. SS 2.0 0.0 2-2-4 SS 2.0 1.5 2-9-6 SS 2.0 2.0 3-3-6 SS 2.0 2.0 4-6-7 SS 2.0 2.0 4-6-7 Bottom of borehole at 20.0 Ft. Glaver SILT (ML-CL). Greenish black (5GY7/1) to olive gray (5Y4/1). Moist, stiff consistency, crumbles when threaded. Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, 31/8/88.	1			L]				.		0.5 - 1.5 Ft. <u>GRAVEL FILL</u> .		with 6-	3/4 in. O.D.
SS 2.0 2.0 4-12-23	35	1.5	1.0	10/0					ļ .		1.5 - 2.8 Ft. FILL.		l	-
SS 2.0 2.0 4-12-23 SS 0.0 0.0 30/0" SS 2.0 1.0 4-5-3 SS 2.0 1.5 2-9-6 SS 2.0 0.0 2-2-4 SS 2.0 2.0 3-3-6 SS 2.0 2.0 4-6-7 20 16.2 - 20.0 Ft. Claver SILT (ML-CL). Greenish black (SGY2/1) to olive gray (5Y4/1). Moist, stiff consistency, crumbles when threaded. Color descriptions from the GSA Roc (Color Chart (1948) 404.6-20 Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, 31/8/88.					1	Ì		1 -	┨ .		28.39 Pt CONCRETE		- sampled	and
SS 0.0 0.0 30/0°	SS	2.0	2.0		Į			420.7_	-	<i>3.</i>			TMA-E	berline.
Top of undisturbed material at 16.2 Ft								1	5_					
10 Top of undisturbed material at 16.2 Ft	SS	0.0	0.0	30/0*										
SS 2.0 1.5 2-9-6 Top of undisturbed material at 16.2 Ft SS 2.0 2.0 3-3-6 SS 2.0 2.0 4-6-7 20	SS	2.0	1.0						:					
SS 2.0 2.0 3-3-6 SS 2.0 2.0 4-6-7 SS 2.0 2.0 4-6-7 Bottom of borehole at 20.0 Ft.	SS	2.0	1.5						10_					
SS 2.0 2.0 3-3-6 SS 2.0 2.0 4-6-7 SS 2.0 2.0 4-6-7 SS 2.0 2.0 4-6-7 Bottom of borehole at 20.0 Ft. Bottom of borehole at 20.0 Ft. Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, soils.	SS	2.0	0.0										Insteria	1 at 10.2 Ft.
SS 2.0 2.0 4-6-7 20 16.2 - 20.0 Ft. Clayer SILT (ML-CL). Greenish black (5GY2/1) to olive gray (5Y4/1). Moist, stiff consistency, crumbles when threaded. Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, soils. Description and identification by visual examination soils.		-		5										
16.2 - 20.0 Ft. Clayey SILT (ML-CL). Greenish black (5GY2/1) to olive gray (5Y4/1). Moist, stiff consistency, crumbles when threaded. Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, soils.	33	2.0	2.0						15_					
Bottom of borehole at 20.0 Ft. Borehole backfolled with bentonite cement, visual examination soils.	SS	2.0	2.0					400.4		Street South Street South	16.2 - 20.0 Ft. Clayer SILT (M. Greenish black (5GY2/1) to (5Y4/1). Moist, stiff consist crumbles when threaded.	AL-CL). olive gray ency,	from th	e GSA Rock
\$1/8/88. soils.								404.6_	20 .			nite cement.	identifi	cation by
									e.			,		
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site HOLE NO. B16C27				-				SITE			ouis Downtown Sit			
D = DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site III-29		UENN	1 20M	; r = p	CHE	(; U =	UINER						<u> </u>	.0021

	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	G FUSRAP	14501 1 of 1 B16C28
SITE	COORDINATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,613 E 2,540	Vertical
BEGUN COMPLETEO DRILLER		RBUROEN ROCK (FT.) TOTAL DEPTH
deligation 4-6-88 Layne-West Core Recovery (FT./%) CORE BOXES SAMPLI		20.0 20.0 ATER DEPTH/EL. TOP OF ROCK
/ 8	424.6 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	TIER DEPTHYEL: TOP OF ROCK
L	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None T.	.F. Mullen
WATER PRESSURE		
TESTS TESTS	ELEV. HE SO DESCRIPTION AND CLASS	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
A LOS CORE LOS CORES CORE CORE CORE CORE CORE CORE CORE CORE	424.6	DRILLING, ETC.
	424.2 0.0 - 0.4 Ft. CONCRETE.	0-20.0 Ft. advanced with 6-3/4 in. O.D.
	423.1 422.6 1.5 - 2.0 Ft. CONCRETE	hollow-stem auger.
SS 2.0 1.5 6-6-5 5	2.0 - 16.2 Ft. FILL. Moderate y brown (10YR5/4) to dark yell (10YR4/2) clayey silt, crushed	rellowish Radiologically sampled and
	(10YR4/2) clayey silt, crushed coal. Dry, compacted, and fir	d brick, and gamma-logged by TMA-Eberline.
SS 2.0 1.6 3-3-5	That Borning.	
SS 2.0 1.8 3-3-6 8		
SS 2.0 1.6 3-4-3	8.0 Pt. Fill becomes moist.	
SS 2.0 2.0 2-2-3	10	VOA samples
	10.0-16.0 Ft. Silty CLAY. O (5Y4/1) to greenish gray (5G)	live gray collected 8-10 Ft.
SS 2.0 1.8 7-2-3	and crumbly.	Top of undisturbed material at 16.2 Ft.
SS 2.0 1.9 2-2-4	15_	
SS 2.0 1.2 8-8-6 5	15.2-15.7 Ft. Silt. Very p. (10YR8/2). Moist.	Color descriptions
	16.2 - 20.0 Ft. Silty CLAY (CL-Olive gray (5Y4/1). Dry, crus strength.	ML). Color Chart (1948).
	404.6 20	Description and
	Bottom of borehole at 20.0 Ft. Borehole backfilled with bentonit 4/6/88.	identification by visual examination of soils.
SS = SPLIT SPOON; ST = SHELBY TUBE; ST D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. B16C28

	GEOLOGIC DRILL LOG PROJECT FUSRAP JOB NO. SHEET NO. HOLE NO. B16C29														
		GŁ	<u>:U</u>	LOG	IC D	KIL	L LO					FUSRAP		-	
SIT		4 1	T	uis Dov		- Ci		COORDINA	TE\$		NJ	1 600 F 2 606	l l	OM HORIZBEARING	
BEG		ι		MPLETED			<u>.e</u>	<u> </u>		DRIL		1,609 E 2,606 WAKE AND MODEL SIZE OV		K (FT.) TOTAL DEPTH	
	4-1			I-5-88				tern Co			M	lobile B-40 6 3/4"	17.0	17.0	
COR	E RE	COV	ÆRY	(FT./%	CORE	BOXE		ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/EL. GROUND	WATER DEPTH	I/EL. TOP OF ROCK	
SAH	PLE	HA	MER	WEIGHT	/FALL	CAS	7	FT IN HO	LE: DI	A./	LEN	424.6			
	1	40	16	s./30	in.			No	ne				T.F. Mullen		
SAMP DIAME	SAMP. ADV.	ROMDI F DEC	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	Loss in G.P.M.	PESSU TESTS ON ON O	RE	ELEU. 424.6	ОЕРТН	GRAPHICS	Ш	DESCRIPTION AND CLA	SSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
								424.1_ 423.6_		(** <u>*</u>		0.0 - 0.5 Ft. CONCRETE. 0.5 - 1.0 Ft. GRAVEL PILL. 1.0 - 3.8 Ft. CONCRETE.		0-17.0 Ft. advanced with 6-3/4 in. O.D.	
	1.3		0.6 1.3	5-9-4 2-3-4 4				420.8 _	5_			3.8 - 15.6 Ft. FILL. Dusky ye brown (10YR2/2) to dusky (5YR2/2). Clay, silt, crushfill gravel. Soft consistency	ed brick and	hollow-stem augers. Radiologically sampled and gamma-logged by TMA-Eberline.	
SS	SS 2.0 1.7 4-3-9 13														
SS	2.0	†	1.7	2-4-2					1D_					Top of undisturbed material at 15.6 Ft.	
SS	2.0		1.1	2-5-3										material at 13.0 f.t.	
	2.0		2.0	2-4-4 3				409.0	15_			13.D-15.6 Ft. Clayey SILT. (5YR2/1) to grayish brown Glass, and coal. Becomes n and saturated at 15.0 Ft.			
		1.		7				407.6_				15.6 - 17.0 Ft. Silty CLAY. G gray (5GY6/1). Stiff consist moderately plastic, medium	-stiff thread.	Color descriptions from the GSA Rock Color Chart (1948).	
	1				1							Bottom of borehole at 17.0 Ft. Borehole backfilled with benton 4/4/88.			
] 			,		Description and identification by visual examination of soils.	
				'		:			1						
ce				OON; ST	- eur		IDE - IS	ITE	<u> </u>	<u> </u>	11			HOLE NO.	
				P = PI			,,,		S	St.	L	ouis Downtown Sit	te	B16C29	

GEOLOGIC DRILL LO)G	ROJECT		EVCD . D		ET NO.	HOLE NO.
SITE	COORDINATE	ES		FUSRAP	=	OF 1	B16C30
St. Louis Downtown Site			N	1,791 E 2,749	.	tical	
BEGUN COMPLETED DRILLER	4	DRI	ILL I			K (FT.)	TOTAL DEPT
3-14-88 3-14-88 Layne-We CORE RECOVERY (FT./%) CORE BOXES SAME		CASING	GF	CME-55 6.5" OUND EL. DEPTH/EL. GROUND W	16.0	/FL TOP	OF ROCK
/8				420.9	/88	/ / /	,
			/LEN	GTH LOGGED BY:			
140 lbs./30 ln. WATER	None	2	··i i		G. Cherry		
SAMP. TYPE AND DIAM. LEN CORE SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. CORE N. CORE TINE TINE TINE TINE TINE TINE TINE SAMPLE BLOWS TINE TINE TINE TINE TINE TINE TINE TINE	ELEV.	DEPTH	SAMPLE	DESCRIPTION AND CLAS	SIFICATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC
	420.2_	S.		0.0 - 0.7 Ft. CONCRETE.			Ft. advanced
SS 1.2 0.8 4-3-1/2 SS 2.0 1.8 7-4-4 3	419.4_	•		0.7 - 1.5 Ft. Sandy GRAVEL. 1.5 - 12.5 Ft. Silty CLAY (CL) RUBBLE. Brownish black (I grayish black (N2). Low moi to moist, loose. Rubble consi slag, ash, wood, gravel and lo	and 5YR2/1) to sture content ists of brick,		stem auger.
SS 2.0 1.1 3-2-3		5_		Prominent Fe staining. Pate moderate yellowish brown (10 greenish gray (5G6/1) silty c	hes of 0YR5/4) to	Radiolo	gically
SS 2.0 1.2 1-3-5 2		-				gamma- TMA/E	l and logged by berline.
SS 2.0 1.4 2-2-2 3	¥	-				VOA sa 8.0-10.0	mple collecto
SS 2.0 1.1 2-1-2		10_					
SS 2.0 1.3 1-2-2 2	408.4_	-		12.5 - 16.0 Ft. Silty CLAY (CL gray (5Y3/2). Moist, medium moderately plastic. Trace of	i stiff,	Top of materia	undisturbed l at 12.5 Ft.
SS 2.0 1.3 3-3-4 5	404.9	15_		fine-grained sand. Minor am organic material as blebs.	ounts of		
				Bottom of boring at 16.0 Ft. Boring grouted to bottom of con bentonite cement on 3/15/88	crete with	from the	escriptions e GSA Rock hart (1948).
						identific	tion and ation by kamination o
		.4					
S = SPLIT SPOON; ST = SHELBY TUBE; = DENNISON; P = PITCHER; O = OTHER	SITE	St.	Lo	ouis Downtown Site	2	HOLE NO	6C30

		EC	LOG	IC D	RIL	L LO	G	PROJEC	T		FUSRAP	JOB NO. 14501	1	ET NO.	HOLE NO. B16C31
SAMP. TYPE	SAMP. ADV.	SAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOUERY	LOSS IN G.P.M	SSESTI SS.I.S.	IRE S	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	WATER RETURN, CHARACTER OF DRILLING, ETG			ON: LEVELS, RETURN, CTER OF
											moisture. Parallel lamination thick. Generally low permeab of high capillary pressure. 21.1-25.0 ft. SANDY SILT (SM gray (574/1) and olive black interbedded clayey silt (ML). saturated sones. Introduce trand fine grain silica sand. Mc cohesion, soft consistency, slip plastic; organic silt(?). Abun silt flakes. 22.4 ft. Clean, undecomposed (very pale orange - 10YR8/2 23.5-23.9 ft. PEAT. severely organics. Loose compaction, for porous. Organic odor. Hair? CLAYEY SILT layers show slin plasticity, resistance to to deformation. Little resistance advancing sampler. Some mottled dark organic bl. Bottom of borehole at 25.0 ft. Borehole backfilled with bentoni 4/28/88.	ility; capable (5Y2/1). W Moist wuth race % v. fin- oderate ghtly dant black d wood chips); wet. y decompose ibrous, very Very dirty. light increase e to lebs.	· /		
			POON; ST ; P = PI			, ,	ITE	S	t.	Lo	ouis Downtown Site	2		HOLE NO	6C31

	PROJECT		JOB NO. SH	EET NO. HOLE NO.
GEOLOGIC DRILL LO		FUSRAP		1 OF 2 B16C31
St. Louis Downtown Site	COORDINATES N 17	93.00; E 2900.00	1	ROM HORIZBEARING
BEGUN COMPLETED DRILLER				CK (FT.) TOTAL DEPTH
4-15-88 4-26-88 Layne-Wes		ile Drill B53 8 1/4"	18.0	25.0
CORE RECOVERY (FT./%) CORE BOXES SAMPL		UND EL. DEPTH/EL. GROUND W	ATER DEPT	H/EL. TOP OF ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LE	FT IN HOLE: DIA./LENG	422.50		
140 lbs./30 in.	None		C.A. Clark	
	S			
TESTS TESTS	ELEV. F SH	DESCRIPTION AND CLAS	SIFICATION	NOTES ON: WATER LEVELS,
NO DE LENGE LOWIS SAME LOWIS SAME LOWIS ST. O. O. O. O. O. O. O. O. O. O. O. O. O.	DEPTH			WATER RETURN,
SAMP. ADU. LEN CORE SAMPLE REC. CORE REC. CORE REC. CORE REC. SAMPLE RECOURY IN RECOURY IN RECOURY IN RECOURY IN RECOURY IN RECOURY IN RESS. CORE IN RECOURY IN RESS. CORE IN RESS. CORE IN RECOURY IN RESS. CORE IN	422.5			CHARACTER OF DRILLING, ETC.
SS 2.0 1.3 2-2-2-2	422.1_	0.0-0.4 ft. GRAVEL (GM). Lt. (5Y6/1). Dry. No cohesion. F	olive gray	0-18 ft. advanced using 8 1/4" hollow
		angular, coarse limestone grave compaction. Good drainage.	vel. Loose	stem auger.
SS 2.0 1.5 6-4-6-4	-	0.4-3.3 ft. <u>SILTY SAND</u> (SM).	Moderate	18-25 ft. advanced using 7 1/4" hollow
	419.2	yellowish brown (10YR3/4) tyellowish brown (10YR4/2). little cohesion. Moderate con	o dark	stem auger.
SS 2.0 1.3 2-2-3-4	5_	permeability. Abundant rubl	npaction, good ble as slag,	
	416.4	coal, bricks, and concrete.		Sampled and gamma logged to 25 ft. by
SS 2.0 1.3 2-3-2-3		3.3-6.1 ft. CLAYEY SILT (ML) yellowish brown (10YR4/2).	. Dark Slightly moist,	TMA/Eberline.
SS 2.0 1.0 1-2-2-3	414.3	moderate cohesion. Medium consistency, moderate compa plasticity. Weak thread. Mod	still ction, slight	
SS 2.0 1.0 1-2-2-3		resistance to rupture and defe 4.6 ft. Abundant rubble as of	ormation.	
SS 2.0 1.4 2-4-4-2	10_	1		0-18 ft. 8" PVC
33 2.0 1.4 2-4-4-2		6.1-8.2 ft. CLAY, CLAYEY SIL SILT (CL, ML, SM). Randor alternations of variable thicks	2000	conductor casing installed.
SS 2.0 1.8 1-1-1-1	410.0	6.1-6.9 ft. CLAY (CL). Darl	k greenish t. medium	Top of undisturbed
		stiff, dense compaction. Some	e librous L	material at 12.5 (?)
SS 2.0 1.7 2-2-5-6	. - 	6.9-7.2 ft. CLAYEY SILT (N	AL). Olive	
	15_	consistency, weak thread. Ruy	ptures easily	
SS 2.0 1.7 3-3-3-3		7.2-7.6 ft. SANDY SILT (SM black (N2). Moist, mod. coher	1). Grayish sion, slightly	
	-	sticky. Inclusions of decompo	sed fibrous	
		greater dilatancy. Sand is we fine grain, round qtz.	ell sorted,	
		greenish gray (5GY4/1) with	abundant	
	20	rubble. Medium stif consists compaction. Probable low pe		
	401.4	8.2-12.5 ft. SANDY SILT (ML)	Mostly	H
		olive black (5Y2/1). Moist, a cohesion, dense consistency.	Sand is fine	
		and medium grain. Higher m content, dllatancy and shine.	Abundant	
	907.5	rubble; coarse sand sized bric 10.8 ft. A 1/4 " layer of coars		
	397.5 25	qtz. sand. 11.6-12.1 ft. Abundant organ	nics as bark	Description &
		and roots; largely decomposed loose compaction, fibrous, god		classification of soils by visual examination of
		excellent permeability. 12.5-21.1 ft. SILTY CLAY inter	rhedded	cuttings.
		with CLAY (CL). OLive blace Moist with saturated sones.	:k (5Y2/1).	
		ft. a moderately decomposed gray (N7) mush. Coarse grav	layer of light	
		fragments. Soft, cheesy struct Particles are clay coated. Cru	ure.	
		slight finger pressure. Silty clay layers show dilatan		
		stiff consistency, stiff mold. w moderate resistance to deform	rith	
		rupture, Organic(?) silt.	į	
	<u> </u>	CLay layers show no dilatanc consistency, slight plasticity. weak, but increases with addi	Thread is	
33 - SELLI SECON, CA - CALLIONNIA,	ITE CA L			HOLE NO.
D = DENNISON; P = PITCHER; O = OTHER	St. Lo	uis Downtown Site	3	B16C31

								PROJE	CT.		JOB NO. SI	HEET NO. HOLE NO.			
1	G	EC	LOG	IC D	RIL	L LO	G		•	FUSRAP	1 1	1 of 1 B16C32			
SITE							COORDINA	TES				FROM HORIZBEARING			
	St.	Lo	uis Do	wntow	n Sit	e			1	N 1,698 E 2,760	Ve	rtical			
BEGU		1	MPLETED	1			_	- 1	DRILL	MAKE AND MODEL SIZE	1 1	CK (FT.) TOTAL DEPTH			
3-1	4-8	8 3	-14-88	8 1	ayne	-Wes	tern, Co).	1110 6	CME-55 6.5" ROUND EL. DEPTH/EL. GROU	16.0	16.0			
CORE	KEU	OVEK	r (F1./A	s) CURI	BUXE	S SAMPL	ESEL. IU	PLAS	ING R	ROUND EL. DEPTH/EL. GROU 421.7 ₹ 10.0/411.7	3/14/88	TH/EL. TOP OF ROCK			
SAMP	LE H	AMME	R WEIGHT	/FALL	CAS	_L	FT IN HOL	E: DI	A./LE	NGTH LOGGED BY:					
	14	10 It	os./30	in.			No				G. Cherry				
ш.					JATE										
픋	SERVICE	띮낊		PH	ESSU TESTS			Ŧ	l ä l			NOTES ON:			
[3,	. 0		훔킮임얼	m_r	ğ.∺	₩	ELEV.	DEPTH	RAPHIC	DESCRIPTION AND C	LASSIFICATION	WATER LEVELS,			
SAMP DIAM.	SAMP. ADV. LEN CORE	FIR	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN P. T.	3. S. I.	HAN.		6	GRAPHICS			CHARACTER OF			
€ C	מו	810		- 6	<u>g</u> .	_	421.7		1 - 1	0.0 - 0.8 Ft. CONCRETE.		O-16.0 Ft. advanced			
SS	1.0	0.9	3-7	ł			420.9_			0.8 - 12.5 Ft. Silty CLAY	(CL) and	with 6.5-inch O.D. hollow-stem auger.			
SS		1.5	4-5-3	}]				RUBBLE. Brownish bla grayish black (N2). Low	ck (5 Y R.2 / 1) to	nonow-stem auger.			
33	2.0	1.5	3				·			to moist loose Rubble	consists of brick.				
	slag, ash, gravel, coarse sand and gravel. Prominent Fe staining. Patches of dark yellowish brown (10YR4/2) to greenish gray [5G6/1] silty clay.														
35	∡.U	1.4						5_		yellowish brown (10YR4) (5G6/1) silty clay.	/ ±) to greenish gray	1			
	Radiolo														
SS	SS 2.0 1.5 3-4-4 gamma-logged by TMA/Eberline.														
SS	2.0	1.8	2-2-1 2		ļ										
					Ì		7	Z 1D-							
SS	2.0	0.9	3-2-2			:	7			:		Top of undisturbed material at 12.5 Ft.			
1 1			-												
SS	2.0	1.2	2-2-2	1	1		409.2_		://///	12.5 - 15.5 Ft. Silty CLAY	(CL) Olive	_			
			_							gray (5Y4/1). Moist, me moderately plastic. Min	dium stiff,				
SS	2.0	1.5	2-6-10	1				٠		organic material as blebs	i.				
			۔				406.2_ 405.7	15.		15.5 - 16.0 Ft. Silty SAND	7810 Olivo				
				1			400.7_	1		\ gray (5Y4/1). Moist, me	dium stiff, slightly	Color descriptions from the GSA Rock			
									1 1	plastic. Very fine-graine organic material as lami	nse.	Color hart (1948).			
1 1									1			'			
		1								Bottom of borhole at 16.0 F Borehole grouted to bottom	of concrete with				
									1 1	bentonite cement on 3/1	8/88.	Description and			
			ļ					ļ				identification by visual examination of			
							Ì					soils.			
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				•											
				<u></u>			<u>L</u> _								
			POON; \$1			JGE,	ITE					HOLE NO.			
D =	DENN	I SON	; P = P	TCHER;	0 = (OTHER			ot. l	ouis Downtown S	oite	B16C32			

								PROJEC	Ť		JOB NO.	SHE	ET NO.	WOLE NO.
	G	GEC	DLOG	IC D	RIL	L LO	G	PROJEC	, 1	FUSRAP	14501		OF 2	B16C33
SIT	E						COORDINA	TES		TOSKAI			OM HORIZ	
	St		uis Do			e			N	1,651 E 2,900			tical	
BEG			OMPLETED	- 1			_					OCI	K (FT.)	TOTAL DEPTH
			1-15-88				tern Co			bile Drill B53 8 1/4" COUND EL. DEPTH/EL. GROUND W	18.0		151 700	18.0
r car	E KEL	.UVER /	: (ri./*	CORE	BUAL	9	23,22. 10	r CASI		422.5 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	IATEK DE	חוץ	/EL. TOP	OF ROCK
SAH	PLE H	IAMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./LEI	GTH LOGGED BY:			/	
	14	40 11	bs./30	in.			No	ne			C.A. Clark			
W	ساد	ان ا	5. >	, DD	JATER								T	·
SAMP. TYPE	SAMP. AD	CORE REC	BLOWS "N" % CORE	LOSS IN G.P.M	ESTS		ELEU.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLAS	SSIFICATIO	N	WATER CHARAC	ON: LEUELS, RETURN, CTER OF ING, ETC.
	2.0	m	2-14-16				422.0_			0.0 - 0.3 Ft. GRAVEL (GM). gray (5Y6/1). Dry. Poorly gr	Light olive		0-18 Ft	advanced
SS	2.0		4-4-10				420.4_	-		gray (5Y6/1). Dry. Poorly gr coarse-grained angular, elong fragments. Silt coats particle Noncohesive, no compaction.	gated es.		using 8 hollow-	1/4 in. stem auger.
			15					-		0.3 - 2.2 Ft. Silty SAND (SM). yellowish brown (10 YR4/2).	Dark	-	Radiolo	gically
SS	2.0		10-10-9		,		417.1_	5_		yellowish brown (10YR4/2). Soft to medium-stiff consiste cohesion. Good compaction. fine- and medium-grained su and feldspar. Trace of clay.	ncy. Moderat Sand is 40%	•	sampled gamma- TMA/E	logged by
SS	2.0		1-1-1-1				416.3_	-		inches is interbedded gravels. brick and concrete.	. Rubble as		+	
SS	2.0		1-1-1-2					-		2.2 - 5.4 Ft. Sandy SILT (SM). black (5YR2/1). Slightly mo cohesion, lean, lower limit on chart. Sand is 20% fine- and	. Brownish pist. Slight plasticity		VOA sa 6-8 Ft.	mple collected
SS	2.0		1-2-1-2					10_		medium-grained silica and fe Slightly cemented, low dry st Breaks easily in fingers.	eldspar.			
SS	2.0		2-4-5-2				409.8_	-		2.7 Ft. A 2" layer of pulveris fragments. Grayish red purpl Abundant rubble.	zed brick (?) le (5RP4/2).		Top of	ındisturbed
	2.0		1-1-2-3 4-5-7-5				408.9_	- 15_ -		5.4 - 6.2 Ft. SILT (ML). Mode yellowish brown (10YR5/4) r black (N1). Slightly moist, so consistency, no thread. Dens Stringers of dark olive black fibrous organics - fine roots. inclusions of rounded coarse-	oft se compaction. silt. Trace Trace of	- 11		at 13.7 Ft.
							404.5_	-		6.2 - 12.7 Ft. Sandy SILT (SM-Moderate yellowish brown (1 light brown (5YR5/6). Moist consistency, slightly cohesive compacted. Sand is 20% fine and feldspars. Lower range chart. Flakey platey texture	OYR5/4) and t, soft c, moderately e-grained silicately of plasticity	`		
										9.3-10.1 Ft. Layer of mediur sand-sized pulverised brick fr 2.7 Ft.).	m-grained ragments (as			
								٠,		10.1 Ft. Silt becomes browni (5YR2/1). Trace of clay. In moisture content. Abundant slag, and broken glass.	crease	۱,	Descript	
										12.7 - 13.6 Ft. GRAVEL with S (GM). Brownish black (5YR Saturated. Coarse, elongate, gravel. Unconsolidated, loose Viscous hydrocarbon(?) mate gravel fragments. Oily film s particles.	.2/1). subangular compaction. crial coats		classification in classificati	visual tion of
										13.6 - 18.0 Ft. Clayer SILT (M black (5Y2/1). Moist, mediur consistency, slightly plastic. thread, ruptures easily. Mod resistance to penetration with deformation. Dense. Slow di	m-stiff Weak lerate h finger and ilatancy.			
c c	501	LT S	2000	- ene	BY TI	DE. IS	ITE			13.6-14.1 Ft. Coated with vi material.	scous black		HOLE NO	
			POON; ST ; P = PI			,,,	-	S	t. L	ouis Downtown Site	е			6C33

	GEOLOGIC DRILL LOG PROJECT JOB NO. SHEET NO. HOLE NO. FUSRAP 14501 1 OF 1 B16C54 SITE COORDINATES ANGLE FROM HORIZBEARING																
		JE	:U	LUG	110	ע .	KILI	LLU		NTEC			FUSRAP				
SITE		t 1	[.ni	is Do	wı	ntow	n Sit	e	COORDINA	41E2		N	1,265 E 2,693	ANG	Vert		BEARING
BEGL	_	•		MPLETE				<u> </u>			DRII			ERBURDEN		(FT.)	TOTAL DEPTH
				-24-8					tern, Co			1	CME-55 6 3/4"	17.8			18.0
CORE	RE	COV	ÆRY /	(FT./	ኤ)	CORE	BOXE	SISAMPL 9	ESEL. TO	P CAS	ING	G	OUND EL. DEPTH/EL. GROUND 1	WATER	DEPTH,	EL. 10P/ /	OF ROCK
SAME	LE	HAP	MER	WEIGH	T/I	FALL	CAS		FT IN HO	LE: DI	A./	LEN	GTH LOGGED BY:	<u></u>			
	2017			s./30		١		***	No	ne			1	T.F. Mulle	en		
SAMP DIAM.		CORE SAME	CORE REC.	BLOWS "N" % CORE	אברטטפא ז	PR	ESSUS ESTS OF STS	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS		ION	WATER CHARA	ON: LEVELS, RETURN, CTER OF ING, ETC.
SS	2.0		1.6	5-8-5 5									0.0 - 10.5 Ft. Silty CLAY (CL RUBBLE: Moist, firm. Piec and slag products throughou) and ces of brick, ut.		with 6-	Ft. advanced 3/4 in. O.D. stem auger.
SS	5 2.0-3.5 Ft. Silty CLAY (CL). Moderate															Radiolo sampled gamma- TMA/E	
	5_ 2.0-3.5 Ft. Silty CLAY (CL). Moderate yellowish orange (10YR7/6). Dry. Slightly cohesive.																
	3.5-3.7 Ft. Sandy CLAY (CL). Dark yellowish brown (10YR4/2). Medium-grained particles distributed throughout a firm, slightly plastic, moist																
	Medium-grained particles distributed throughout a firm, slightly plastic, moist clay. Medium-grained particles distributed throughout a firm, slightly plastic, moist clay. 4.0-6.0 Ft. Silty CLAY (CL). Moderate brown (5YR4/4). Moist, soft, slightly																
	2.0			3-3-4					411.5_			Section Section	plastic. Lenses of grayish bli- clay.	lack (N2)			undisturbed l at 10.5 Ft.
	2.0		1.8	2-3-6] .								6.0-10.5 Ft. SILT (ML). Digrading into moderate yellow (10YR7/6). Dry from 6.0-7. becomes moist. Loosely bou	wish orange '.1 Ft., then			
	2.0		1.9	1-2-2					•	15_	1.50		10.5 - 18.0 Ft. CLAY (CH). M gray (N6). Medium-stiff thre plastic, soft consistency, hon moist. Colors vary from medium.	ead, highly nogeneous,		Color d	escriptions
		1	_		-				403.8_				(N6) to dark gray (N3).				e GSA Rock hart (1948).
													Bottom of borehole at 18.0 Ft. Borehole backfilled with benton 2/24/88.	nite cement,			
								i									
										."							
			i														
				OON; S				,,,	ITE .		St.	L	ouis Downtown Sit	e		HOLE NO	6C54

GEOLOGIC DRILL LOG PROJECT JOS NO. SHEET NO. HOLE NO. 14501 1 OF 1 B16C55 COORDINATES ANGLE FROM HORIZIBEARING														
	1 CDRAI	270000												
St. Louis Downtown Site		ertical												
BEGUN COMPLETED DRILLER	DRILL MAKE AND MODEL SIZE OVERBURDEN R	OCK (FT.) TOTAL DEPTH												
3-11-88 3-11-88 Layne-Wes		TH/EL. TOP OF ROCK												
/ / / / / / / / / / / / / / / / / / / /	422.0	/ /												
l I	FT IN HOLE: DIA./LENGTH LOGGED BY:													
140 lbs./30 in.	None G. Cherry													
SAMP. TYPE SAMP. ADU. CORE SAMPLE REC. CORE SAMPLE REC. CORE RECOUERY LOSS IN CORE RECOUERY LOSS IN TIME TIME TIME TIME TIME TIME TIME TIME	NOTES ON: NUMBER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.													
	421.5 0.0 - 0.5 Ft. GRAYEL	0-18.0 Ft. advanced												
SS 2.0 0.9 3-1-2 SS 2.0 1.0 1-2-2	0.5 - 11.0 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5Y2/1) to grayish black (N2). Low moisture content to moist, loose. Rubble consists of slag, carbonaceous material, gravel, brick, glass and sand. Patches of moderate yellowish brown (10YR5/4) to dark yellowish brown (10YR4/2) silty clay.	with 6.5-inch O.D. hollow-stem auger.												
SS 2.0 1.0 1-2-2 (10YR4/2) silty clay. 5 4.0-4.3 Ft. SAND. Coarse-grained quartsose sand. Radiologically sampled and														
SS 2.0 1.2 1-1-2	-	gamma-logged by TMA/Eberline.												
SS 2.0 0.9 2-5-3 5														
SS 2.0 1.6 3-2-2	411.0	Top of undisturbed material at 11.0 Ft.												
SS 2.0 1.6 5-3-2 6	11.0 - 14.0 Ft. Sandy SILT (ML). Dark yellowish brown (10YR4/2). Moist, soft, very fine-grained sand. Trace of organic material as blebs. Light brown (5YR5/6) F staining. Thinly bedded clay laminae of 1/4"; slightly plastic.	î e												
	Bottom of borehole at 14.0 Ft. Boring grouted to surface with bentonite cement, 3/15/88.	Color descriptions from the GSA Rock Color Chart (1948).												
SC - SPLIT Spows ST - SUFERVIRE-	ITE	Description and classification of soils by visual examination.												
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	B16C55												

										_		11			·
	G	EC	LOG	IC D	RIL	L LO	G	PROJE	CT		EUCDAD	JOB NO.	1	T NO.	HOLE NO.
SITE							COORDINA	ATES			FUSRAP	14501		OF 1	B16C56A
		Lo	uis Dov	vntow	n Sid	e				N	1,332 E 3,058	li li	Verti		DEARING
BEGL			MPLETED									ERBURDEN		(FT.)	TOTAL DEPTI
2-2	25-8	8 2	-25-88	3 L	ayne	-Wes	tern, Co				obile B-53 8 1/4"	4.0		,	4.0
COR	REC	OVER	Y (FT./%) CORE	BOXE	SSAMPL	ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/EL. GROUND		EPTH/	EL. TOP	OF ROCK
						2					423.0 ¥ / N/A			/	·
SAMF			R WEIGHT	• • • • • •	CAS	SING LE			A./L	EN	TH LOGGED BY:			_	
			os./30 i				No	ne				G.Cherry			
PostAM.	A CORE	LE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	PR ST	SATER ESSU FESTS	RE S	ELEV.	ОЕРТН	BRAPHICS	SAMPLE	DESCRIPTION AND CLA	BSIFICATI	ON	NOTES WATER WATER	ON: LEVELS, RETURN,
器	필	對於	le 기사	LOSS IN G.P.M	PRES.	ALINE A ALINE ALINE ALINE ALINE ALINE ALINE ALINE ALINE ALINE ALINE ALIN		"	ğ	И				CHARA	CTER OF
		<u> </u>			<u>aa</u>	-	423.0 422.7-	 	20	Н	\0.0 - 0.3 Ft. GRAVEL (GP).				ING, ETC.
SS	0.5	0.5	8-32/0*				400.1] .		Ħ		. 1		with 8 1	/4-inch O.D
p.e			44-12		}			.			0.3 - 4.0 Ft. Silty CLAY (CL) RUBBLE.	ang		nollow-	stem auger.
33	1.1	1.1	11-18 30/1								0.3-0.8 Ft. Dark yellowish	brown			
					ļ		419.0	'		П	(10YR4/2). Dry, medium at rubble consisting of loose sa	tiff Trace			
	}	ŀ						1 '		П	with minor amounts of slag.	na ana grave.	Γ		
								-	1	$\ $	0.8-2.0 Ft. RUBBLE.			Radiolo sampled	gically
										П	2.0-3.1 Ft. Dark yellowish	brown	- {	TMA/E	by berline. No
								l		$\ $	(10YR4/2). Dry, stiff. Rubl brownish black (5YR2/1) by	ble consists of rick, slag and		gamma-	·log.
										$\ $	gravel.	. •			
										$\ $	3.1-4.0 Ft. RUBBLE.			Auger 5	efusal at 4.0
										$\ \ $	Bottom of borehole at 4.0 Ft.			Ft.	
											Boring grouted to surface with cement, 2/27/88.	bentonite			
											Centent, 4/41/00.				
I															
										$\ $					escriptions e GSA Rock
														Color C	hart (1948).
							•								
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-													į		
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-														Descript	tion and
														classific	ation of
1														soils by examina	
ı															
										Ц					
			POON; ST			,,	ITE	_			wia Dannata Ch	_		HOLE NO	
=	DENN	i son ;	P = PI	TCHER;	0 = 0	THER		5	E.	L(uis Downtown Sit	е		RI	5C56A

	<i>c</i> .	:FC	LOG	ור ח	RII	110)G	PROJE	T			JOB NO.		ET NO.	HOLE NO.
SIT					1/12		COORDINA	TFC			FUSRAP	14501		OF 1	B16C56B
3	_	Lo	uis Do	wntow	n Sit	te		1163		N	1,337 E 3,058	A	Vert	OM HORIZ	BEARING
BEG			MPLETED				<u> </u>	į				ERBURDEN		(FT.)	TOTAL DEPTH
			-25-8				tern, Co			M	lobile B-53 8 1/4"	16.0			16.0
COR	REC	OVER'	Y (FT./3	() CORE	BOXE	SSAMPL	ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/EL. GROUND 423.1	WATER 6/88	DEPTH.	/EL. TOP	OF ROCK
SAM	LE H	AMME	R WEIGHT	/FALL	CA!		FT IN HO	LE: DI	A./L	EN	745.1		1	/	
	14	10 11	os./30	in.			No	ne				G.Cherr	у		
SAMP DIAM.	걸삝			PR	JATE! ESSU	RE			ရွ						
LA	₹Ö	8 8	F. 89	<u> </u>	TESTS		ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	BSIFICAT	ION	NOTES	ON: LEVELS,
<u>ئ</u>	ğΖ	김씨	£300	LOSS IN P. P. M	8) +	E ZZ	1	<u> </u>	<u>a</u>					WATER	RETURN,
SE SE	8	젊	SAMPLE BLOWS "N" % CORE RECOVERY	P	д. По	E.E	423.1	_	6	n					TER OF
							422.8-		Ł	H	_0.0 - 0.3 Ft. GRAVEL .			0-16.0 F	t. advanced
											0.3-13.0 Ft. Silty CLAY (CL)	and			/4-inch O.D. tem auger.
					ĺ			-		Ш	RUBBLE. Brownish black (grayish black (N2). Low mo	isture conte	nt		
	ŀ							-			to moist, loose. Rubble consilag, wood, glass, coarse-gra	ined sand a	r, nd		
SS	2.0	1.2	5-4-1				ŀ	ַ '		Н	gravel.				
			•				ļ	5_						Radiolog	gically
SS	2.0	1.0	4-4-5	1				-						sampled gamma-	and logged by berline.
			•					-						TMA/E	berline.
SS	2.0	0.9	3-3-2	1				-						VOA sai 8.0-10.0	mple collected
							ļ	10_						8.0-10.0	Ft.
SS	2.0	0.8	1-1-1		İ		_	_ *•-						Top of u	ndisturbed at 13.0 Ft.
			_				į	-						"""	3. 10.01.
SS	2.0	1.2	2-2-4 6		l		410.1_	-							
]	\prod		13.0 - 16.0 Ft. Sandy SILT (M gray (5Y4/1) to greenish gre Moist, soft, slightly plastic. ' fine-grained sand. Trace of material as blebs.	L). Olive	<u> </u>	1	
SS	2.0	0.7	2-2-3					15_			Moist, soft, slightly plastic. I	Very	, .		
							407.1_				material as blebs.				
							-	_		П	Bottom of borehole at 16.0 Ft.				scriptions GSA Rock
											Boring grouted to surface with cement, 2/27/88.	bentonite			hart (1948).
										Ш	, ,,				
					!										
}															
					<u> </u>		<u>.</u>							Ï	
				1	;			."			•				
1															
					 									Descript classifics	ion and
					r	ĺ				П				soils by	visual
														examina	tion.
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1															
1															
ss =	SPL	LT SP	POON; ST	= SHFI	BY TI	BE: S	ITE		L	Ш				HOLE NO.	
			P = PI			,,,		S	t.	Lr	ouis Downtown Site	e		B16	C56B

05010010 5511110	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	LUSKAI	14501 1 OF 1 B16C57
St. Louis Downtown Site	COORDINATES N 1,260 E 1,330	ANGLE FROM HORIZBEARING Vertical
BEGUN COMPLETED DRILLER	DRILL MAKE AND MODEL SIZE OV	ERBURDEN ROCK (FT.) TOTAL DEPTH
3-30-88 3-30-88 Layne-West		10.0 10.0 WATER DEPTH/EL. TOP OF ROCK
core recovery (F1.72) core socies sample	ESEL. TOP CASING GROUND EL. DEPTH/EL. GROUND 424.8 3.4/421.4 3/3	1/88 /
SAMPLE HAMMER WEIGHT/FALL CASING LE	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs./30 in.	None	G. Cherry
SAMP. TYPE SAMP. ADU. LEN CORE SAMPLE REC. CORE REC. CORE REC. CORE REC. CORE SAMPLE S	ELEV. HE DESCRIPTION AND CLA	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 1.7 2-2-2	424.8 0.0 - 6.3 Ft. Silty CLAY (CL) RUBBLE. Brownish black grayish black (N2). Low me to moist, loose. Rubble con carbonaceous material, bric. wood. Several patches of lig (5Y6/1) silty clay.	and (5YR2/1) to bisture content sists of
SS 2.0 1.8 1-1-1 SS 2.0 1.7 1-1-1	5_ 418.5_	Radiologically sampled and gamma-logged by TMA/Eberline.
SS 2.0 1.3 1-2-3 3	6.3 - 10.0 Ft. Silty CLAY (CL gray (5Y4/1). Moist, soft, n plastic. Trace of very fine-medium-grained sand. Tramaterial as blebs.	to
	Bottom of borehole at 10.0 Ft. Boring grouted to surface with cement, 3/31/88.	bentonite Top of undisturbed material at 6.3 Ft.
		Color descriptions from the GSA Rock Color Chart (1948).
		Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Sit	HOLE NO. B16C57

GEOLOGIC DRILL LOG PROJECT FLISDAD	1 1	HEET NO. HOLE NO.
SITE COORDINATES	1 1	1 OF 1 B16C58 FROM HORIZBEARING
St. Louis Downtown Site N 1,180 E 1,179	ì	rtical
BEGUN COMPLETED DRILLER DRILL MAKE AND MODEL SIZE ON	į.	CK (FT.) TOTAL DEPTH
3-28-88 3-28-88 Layne-Western, Co. CME-55 6.5" CORE RECOVERY (FT./%) CORE BOXES SAMPLES EL. TOP CASING GROUND EL. DEPTH/EL. GROUND	8.0	8.0
CORE RECOVER (71.74) CORE BOXES SAFEES EL. TO CASTAG GROUND EL. DEFIN/EL. GROUND	WATER DEFT	/ / / / / / / / / / / / / / / / / / /
SAMPLE HAMMER WEIGHT/FALL CASING LEFT IN HOLE: DIA./LENGTH LOGGED BY:		
140 lbs./30 in. None	G. Cherry	
SOUND CLASTS LEN CONSTITUTE	SSIFICATION	WATER RETURN, CHARACTER OF
		O-8.0 Ft. advanced
SS 1.2 0.7 3-3-3/3' 427.7 0.0 - 0.3 Ft. ASPHALT. 0.3 - 0.8 Ft. GRAVEL.		with 6.5-inch hollow-stem auger.
SS 2.0 1.6 2-3-5 0.8 - 4.2 Ft. Silty CLAY (CL)	and	
SS 2.0 1.8 2-4-5 6 0.8-3.7 Ft. Dark yellowish to grayish brown (5YR3/2) content, soft. Some gravel. (5YR4/6) Fe staining.	brown (10YR4/2 . Low moisture Light brown	Radiologically sampled and
SS 2.0 1.8 3-5-6 8 3.7-4.2 Ft. Grayish black (moisture content, medium a consists of carbonaceous materials)	itiff. Rubble iterial and slag.	gamma-logged by TMA/Eberline.
4.2 - 8.0 Ft. Silty CLAY (CL gray (5Y4/1) to light olive Low moisture content, med of very fine-grained sand. organic material as blebs. (5YR5/6) Fe staining. Bottom of borehole at 8.0 Ft. Boring grouted to bottom of a bentonite cement, 3/31/88.	gray (5Y5/2). ium stiff. Trace Trace of Light brown	Top of undisturbed material at 4.2 Ft.
		Color descriptions from the GSA Rock Color Chart (1948).
		Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; 0 = OTHER St. Louis Downtown Sit	te	HOLE NO. B16C58

		EO	LOG	CD	DII	10	·C	PROJEC	CT			JOB NO.	1	ET NO.	HOLE NO.
SITI		IEU	LUG		KIL	<u> </u>	COORD IN	ATEC			FUSRAP	1450		OF 1	B16C59
3111		Lo	uis Dov	vntow	n Sit	e	CORDIN	AIE3		N	1,135 E 1,337	ľ	Vert		BEAKING
BEG			MPLETED				1,		DRIL			OVERBURDEN		(FT.)	TOTAL DEPTH
			-30-88				tern, Co			1==	CME-55 6.5"	10.0			10.0
COR	REC	OVERI /	/ (FI./X) CORE	BOXE	SSAMPL 5	ESEL. TO	P CAS	I NG	GR	OUND EL. DEPTH/EL. GROUI	ND WATER	DEPTH	/EL. TOP	OF ROCK
SAHI	PLE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./	LEN	GTH LOGGED BY:		1	/	
	14	10 IL	os./30	in.			No	ne				G. Che	rry		
H.	SAMP, ADU. LEN CORE	ပ္ပုံ	SAMPLE BLOWS "N" 7 CORE RECOVERY	PR	JATER				90						
SAMP DIAM.	4 8	RE	7. SP	<u> </u>	TEST:		ELEV.	E	BRAPHICS	SAMPLE	DESCRIPTION AND CL	_ASSIFICA	TION	NOTES	ON: LEVELS,
60	ξZ	무	F 000	S Z T	89.5	EZZ.]	DEPTH	ğ					WATER	RETURN, CTER OF
S S	SA	緩망	2,5	S. P.	5.	HINE NIN	424.8		ð						ING, ETC.
88	2.0	1.1	1-3-4								0.0 - 3.8 Ft. Silty CLAY (C RUBBLE. Brownish blac grayish black (N2). Mois	L) and k (5 YR2/1)	to		Ft. advanced 5-inch O.D.
				}			•				grayish black (N2). Mois consists of carbonaceous	t, loose. Ru material, bri	bble ck	hollow-	stem auger.
SS	2.0	1.7	2-5-4 5				·				and slag.			1	
						İ	421.0	↓ .	:////					-	
SS	2.0	1.8	1-1-1 3				i I	5_			3.8 - 10.0 Ft. Silty CLAY (•		- ו-:נ- מ	minaller
ee	2.0	1.8	2-2-2								3.8-9.4 Ft. Moderate yel (10YR5/4). Moist, soft, plastic. Trace of organic	moderately		Radiolo	fand
33	5	1.6	3					.			blebs.	**************************************		TMA/E	logged by berline.
SS	2.0	1.8	1-2-4		1				-					VOA sa	mple collected
			4					.	-					2.0-4.0	Ft.
\vdash		-					414.8	10.			9.4-10.0 Ft. Olive gray (medium stiff, slightly pla very fine-grained sand.	5Y4/1. Moi stic. Trace o	st, of	1	
					İ					Ш	very fine-grained sand. material as blebs.	Trace of orga	nic		
										Ш					undisturbed
										Н	Bottom of borehole at 10.0 I Boring grouted to surface wi	rt. ith bentonite		materia	l at 3.8 Ft.
										$\ $	cement, 4/8/88.				
							ŀ			$\parallel \parallel$					
-							•			Ш				Ì	
				}]								
					İ					\prod				1	
										$\ $				Color d	escriptions e GSA Rock
				}]		İ					Color C	hart (1948).
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						1		.*] .	
	1					1			}	$\ \ $				Desarie	tion and
	ł													classific	ation of
				l						$\ $				examin	
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ss	= SPL	IT SI	POON; ST	= SHE	LBY TI	JBE; S	ITE .						_	HOLE NO	
			, P = PI					S	St.	L	ouis Downtown S	iite		B:	16C59

								PROJEC		_			1.00		laugae	Total Comment
	C	EC	LOG	IC D	RIL	L LO	G	PKOJE	. 1		FUSRAP		JOB N		SHEET NO.	HOLE NO.
SIT							COORDINA	TES			FUSKAF		14:		1 OF 1 E FROM HORIZ	B16C60
		. Lo	uis Dov	wntow	n Si	te				N	1,080 E 1,223				ertical	DEARING
BEG			MPLETED			-	·					IZE	OVERBURDE		ROCK (FT.)	TOTAL DEPTH
3-	28-8	38 3	-28-88	8 I	ayne	-Wes	tern, Co				CME-55	6.5"	12.0			12.0
COR	E REC	OVER	Y (FT./%				ESEL. TO		NG	GR			D WATER		EPTH/EL. TOP	
		_/				6					427.0				/	<u>'</u>
SAM			R WEIGHT		CA:	SING LE			A./L	EN	TH LOGGED BY:					
			os./30				No	ne	,	_			G. Cl	erry		
SAMP DIAM.	SAMP. ADV.		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATE! JESSU				9							
땹	될	5 H	12.18.	-	TEST:	3	ELEV.	Ŧ	GRAPHICS	SAMPLE	DESCRIPTION	AND CI	ASSTET	-AT 1	NOTES	
	az		E 200	SZ-		単っさ		DEPTH	Ē		DEGUNZI (2011)			JA 1 2	WATER	LEVELS, RETURN.
髮	E	1	N 2 × 5	LOSS I.P.I	PRES. 7	HAN.		"	B	7					CHARA	CTER OF
0,-	ימו	m'		-	0.0	 	427.0 426.5	 -		Н	0.0 - 0.5 Ft CONC	RETE				ING, ETC.
SS	1.5	1.2	4-3-4				-	-			0.0 - 0.5 Ft. CONC 0.5 - 7.2 Ft. Silty C RUBBLE. Brow	XAY (C	L) and	١ ٠٠	with 6.5	-inch O.D.
20	2.0	1.8	1-2-3		ļ						grayish black (N. soft, loose. Rubb	2). Low	moisture c	onten	i, nonow-	stem auger.
33	4.0	1.8	2 2		l		·				carbonaceous ma	terial, sl	ag, brick, s	and		
											and gravel. Patc brown (10YR4/2) to mod	erate vello	sh wish		
SS	2.0	1.0	1-1-2					5_			brown (10YR5/4) silty cl	ay.			
L	L							-		į					Radiolo	gically Land
SS	2.0	1.5	2-2-2				4200	-							gamma-	logged by berline.
							419.8_	-		H	72 120 Pt Gil-	CT AV (CI) Dowl			bernne.
SS	2.0	1.7	2-3-4					•			7.2 - 12.0 Ft. Silty yellowish brown moisture content	(ĬŎŶŔ4)	2). Moder	ate		
			6					-			moderately plasti	ic. Light	c) aword a	1 K5/t	s)	
SS	2.0	2.0	2-2-4					10_			Fe staining. Trac blebs.	e of orga	inic matèri	al as	Top of	undisturbed
			4					-							materia	l at 7.2 Ft.
<u> </u>		-					415.0_	-							— Color d	escriptions
											Bottom of borehole Boring grouted to be	at 12.0 F	řt.	.:42	from the	e GSA Rock
										Н	bentonite cement	3/31/8	8.	/icn	Color C	hart (1948).
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	Ī															
															Descript classific	ation of
															soils by	
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-																
<u> </u>		لــا							Ш							
1			OON; ST				ITE	C	+ 1	٠	uis Downto	wn C	ite		HOLE ND	.6C60
		,	1	· ····································	0	· · · · · ·			• •	_	AIS DOMILLO	4411 Q	166		1 61	~~~

								PROJEC	.,		JOB NO.	eucc	T NO.	UO. 5. VO.
	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	.1	FUSRAP	14501	1	OF 1	HOLE NO. B16R01
SITE	-						COORDINA	TES			ANI		M HORIZE	
			MPLETED			e	J			2,137 E 1,470 MAKE AND MODEL SIZE O	WERBURDEN	Verti	(FT.)	
BEG.		1	-12-88			-Wes	tern, Co		PRICE	CME-55 6.5"	8.0	, acc	(11.)	TOTAL DEPTH
							ESEL. TO		NG G	OUND EL. DEPTH/EL. GROUND	WATER	DEPTH/	EL. TOP	
CAME	DIE M	AMME	R WEIGHT	/FALL	ICAS	1 4	FT IN HO	F. DI	A. /I FI	420.0 \$ / GTH LOGGED BY:		<u> </u>		
Poor			s./30				No		~-/	STR COGGES ST.	G. Cheri	гу		
н.	5 m	ပ္ပံုး	د رځ	PP	ATE				90		* * * · · · · · · · · · · · · · · · · ·			
[참	88	REC	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		EST		ELEV.	DEPTH	걸出	DESCRIPTION AND CLA	ASSIFICAT		NOTES WATER	ON: LEVELS,
ANG OIAM.	SAMP, ADV. LEN CORE	7 2	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS P.F.		FILE	İ		GRAPHICS SAMPLE				WATER	RETURN,
\$₹	98 L		. E	7,9	17.0 m. 0.0	FE	420.0]					NG, ETC.
SS		0.6	5-5-3				118.5			0.0 - 0.4 Pt. CONRETE.	(02)			advanced
- 20	2.0	1.2	1/1"				1	.		0.4 - 0.8 Ft. Sandy GRAVEI				with 6.5-inch low-stem
33	2.0	4.4	2 2				416.3_	.		0.8 - 3.7 Ft. Silty CLAY (CL yellowish brown (10YR5/4 content, soft. Some grave)). Low moist	ure	Top of u	ndisturbed at 3.7 Ft.
55	2.0	1.9	1-2-3	1	•		410.3	1 .		carbonaceous material. Ps gray (5Y4/1) silty clay.	stches of olive	• /		,
			5					5_		3.7 - 8.0 Ft. Silty CLAY (CL). Pale		Radiolog sampled	
SS	2.0	2.0	2-3-4			ŀ		-		3.7 - 8.0 Ft. Silty CLAY (CL yellowish brown (10YR5/2 yellowish brown (10YR5/4 moisture content, soft. Tr). Moderate	e c	gamma- TMA/E	and logged by berline.
<u> </u>							412.0_			material as blebs.			,_	
					ļ					Bottom of borehole at 8.0 Ft.				
										Boring grouted to bottom of a bentonite cement, 4/12/88	concrete with 3.		Color de	escriptions
													from the	GSA Rock
								}					l l	
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								1					Descript	
													soils by	visual
	ļ	ł												
		1			<u> </u>]								
]													•
			}			}								
		ļ	}											
		•	}			1								
ss :	SPL	IT SI	POON; ST	= SHE	LBY TI	UBE;	SITE		 _				HOLE NO	
b =	DENN	I SON	; P = P1	TCHER;	0 =	OTHER		S	st. L	ouis Downtown Si	īte		B1	.6R01

			N 00		DIL		<u></u>	PROJEC	Τ.			JOB NO.	SHEE	T NO.	HOLE NO.
SIT		EC	LOG		KIL	LLU	COORDIN	ATES		:	FUSRAP	14501		OF 1	B16R02
			uis Dov			e					1,710 E 1,573		Vert		
BEG			MPLETED - 20-88			-Wes	tern Co		DRIL		IAKE AND NODEL SIZE OVI	ERBURDEN 11.0	ROCK	(FT.)	TOTAL DEPTH
							ESEL. TO		NG	_	OUND EL. DEPTH/EL. GROUND		DEPTH/	EL. TOP	OF ROCK
SAM	DIF N	AMME!	R WEIGHT	/FALL	CAS	5	ET IN NO	F. DI	A /1	EN	419.5 \$ / GTH LOGGED BY:	· -· · · · · · · · · · · · · · · · · ·	<u> </u>		·
	1	40 1	bs/30	in			No		~-,		•	r.F. Mull	en		
SAMP TYPE	SAMP. ADV.	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	HATER ESSU TESTS ON	RE	ELEU. 419.5	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	BSIFICAT		WATER CHARA	OH: LEVELS, RETURN, CTER OF ING, ETC.
	1.5		6-25-19	1			419.0_		92	Ħ	0.0 - 0.5 Pt. CONCRETE. 0.5 - 2.3 Pt. FILL. Brownish	black			e advanced . with 6-3/4
	2.0	1.4	3		-		417.3_	5_	a assessor a		(5YR2/1) clayey silt. Moist Patches of moderate yellowis 5/4) clayey silt. Slag. 2.3 - 8.2 Ft. Silty CLAY (CL). 2.3-6.7 ft. Moderate yellowis (10YR5/4). Firm consistence softer with depth. Moist, sli	to wet, loos sh brown (1	OYR	in. O.D auger. Radiolo sampled gamma- TMA/E	hollow-stem gically and longed by berline, Inc.
SS	2.0	2.0	1-3-6 5						Section 200		plastic. Small pieces of fill n 6.7-8.2 Ft. Dark gray (N3).	Stiff		materia	l at 8.2 Ft.
SS	2.0	2.0	1-2-3	• ·			411.3_	10_	W. C. W.		consistency, slightly plastic, moist. Very small pieces of 8.0 Ft. Small patch of dusk (5GY5/2).	crushed brid	- 1		
							408.5_				8.2 - 11.0 Ft. Silty CLAY (CL gray (N3). Stiff consistency plastic, moist. Bottom of borehole at 11.0 Ft. Borehole backfilled with benton 3/20/88.				
														from th	escriptions e GSA Rock hart (1948).
	V							,u							
			POON; ST ; P = PI			~-,	ITE .	S	t.	_	ouis Downtown Sit	e		HOLE NO	6R02

_				-				PROJEC	ī		JOB NO.	Chei	T NO.	HOLE HO		
	G	EC	LOG	IC D	RIL	L LO	G		••	FUSRAP	14501	1	OF 1	B16R03		
SIT						· · · · · · · · · · · · · · · · · · ·	COORDINA	TES	_		ANG		ON HORIZE			
250			MPLETED			e	<u></u>			2,047 E 1,490 VAKE AND MODEL SIZE DOVI		Vert				
BEG ⊿.		1-	-12-88	ı	-	-Wes	tern, Co		KILL	CME-55 6.5"	ERBURDEN 10.0	ROCK	(FT.)	TOTAL DEPTH		
							ESEL. TO		NG G	CUND EL. DEPTH/EL. GROUND	UATER E	EPTH,	EL. TOP	OF ROCK		
					-	5				421.0	88		/			
SAM			r WEIGHT s./30-i		CAS	SING LE	FT IN HOI Noi		A./LEN	GTH LOGGED BY:	G. Cherry	.,				
¥ .					ATE		110.	ue .			G. Cherry	<u> </u>				
SAT DIA	SAMP. ADV.	CORE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN B.P.M	ESSU SOLUTION SOLUTIO		ELEV.	DEPTH	GRAPHICS SATPLE	DESCRIPTION AND CLAS	BSIFICAT:	(ON	WATER CHARAC	ON: LEVELS, RETURN, CTER OF ING, ETC.		
	1.5	1.2	9-6-6							0.0 - 7.5 Pt. FILL.	******		Borehole	e advanced with 6.5-incl		
						ł				0.0-0.1 Ft. Asphalt.				llow-stem		
SS	2.0	1.0	4-3-1				,			0.1-0.7 Pt. Brick.						
_E	2.0		1 1 1 1							0.7-1.0 Ft. Sandy GRAVEI	` '			indisturbed at 7.5 Ft.		
33	4.U	0.6	1-1-1				2	5_		1.0-7.5 Pt. Silty CLAY (CL Brownish black (5YR2/1) to (N2). Low moisture content	grayish black	LE. Ek	Dediate:	rie aller		
SS	2.0	1.8	8-2-1					-		loose. Rubble consists of six carbonaceous material and s	Mg.		Radiolog sampled	and		
-			1				413.5_			staining.			TMA/E	logged by berline.		
SS	2.0	1.8	1-3-3				4	-		7.5 - 10.0 Ft. Silty CLAY (CL gray (5Y4/1). Moist, soft, m plastic. Trace of organic ma blebs.	oderately					
		2.0 1.8 1-3-3 gray (5Y4/1). Moist, soft, moderately plastic. Trace of organic material as														
								,4,					Descript classifica soils by examina	stion of visual		
			POON; ST ; P = PI			~-,	ITE	 S	t. L	ouis Downtown Sit	e	•	HOLE NO	6R03		

ſ									PROJE	CT	JOB NO. SHEET NO. HOLE NO	
ļ			EC	LOG	IC D	KIL	L LO		L		FUSRAP 14501 1 OF 1 B16R	
f	SITE	Ē						COORDIN	ATES	,	N 2,048 E 1,434 Vertical	
ŀ	BEGL	JN	ja	MPLETED	DRILI	ER			1		N 2,048 E 1,434 Vertical NAKE AND MODEL SIZE OVERBURDEN ROCK (FT.) TOTAL DI	EPTH
				-21-8				tern, Co			Jackhammer 8.0)
ľ	CORE	REC	OVER.	Y (FT./%	() CORI	BOXE	SSAMPL	ESEL. TO	P CAS	ING K	GROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF ROCK 422.7 7.5/415.2 /	
ŀ	SAMP	LE H	AMME	R WEIGHT	/FALL	CA:	SING LE	FT IN HO	LE: DI	A./LE	ENGTH LOGGED BY:	
		······································									G. Cherry	
	AND DIAKE	SAMP, ADV. LEN CORE	CORE REC.	SAMPLE BLOWS "N" X CORE RECOUERY	D. T. G. B.	HESSU TESTS ON HOUSE	RE	ELEV.	DEPTH	GRAPHICS	NOTES ON: DESCRIPTION AND CLASSIFICATION WATER LEUELS WATER RETURN CHARACTER OF	٧,
	84	39	S O	<u> </u>	9 ر	ă a	FE	422.7		1 - 1	DRILLING, ET	
1		1.5	1.1					422.3_		-23 (2) (2) (3)	0.5 - 8.0 Pt. Silty CLAY (CL) and advanced 0.8 Ft. using an electric iackhammer.	
		2.0	2.0								0.5-5.0 Ft. Light olive gray (5Y6/1) to grayish black (N2). Low moisture content, loose to soft. Rubble consists of carbonaceous material, slag and brick. Top of undisturbmaterial at 5.0 Ft.	ed t.
		2.0	2.0					414.7	5 _		5.0-8.0 Ft. Silty CLAY. Moderate yellowish brown (10YR5/4) to light olive gray (5Y8/1). Moist, soft, moderately plastic. Trace of very fine-grained sand.	
								414.7_			Bottom of borehole at 8.0 Ft. Boring grouted to bottom of concrete with bentonite cement, 4/28/88. Radiologically sampled and gamma-logged by TMA/Eberline.	у
											Color description from the GSA Ro Color Chart (194	ock
											Description and classification of soils by visual examination.	
				POON; ST ; P = PI			,	ITE .	L	1	HOLE NO. B16R04	

								PROJEC	`T		LIOB NO. SHE	ET NO. HOLE NO.			
		SEC	LOG	IC D	RIL	L LO	G		• •	FUSRAP	1	of 1 B16R0			
SIT	E						COORDINA	TES		TOOKAI		OM HORIZBEARING			
		. Lo	uis Do	wntow	n Sit	te			1	1 1,817 E 1,548	Vert				
BEG			MPLETED					k				(FT.) TOTAL DEP			
4-	13-	88 4	-13-88	8 I	ayne	-Wes	tern, Co	.		CME-55 6.5"	12.0	12.0			
							ESEL. TO		NG G	ROUND EL. DEPTH/EL. GROUND I	MATER DEPTH	/EL. TOP OF ROCK			
ļ		1				6	•		1	420.5		. /			
SAH	PLE I	HANNE	R WEIGHT	/FALL	CAS	SING LE	FT IN HOL	E: DI	A./LE	IGTH LOGGED BY:					
1	1	140	bs/30	io			No	ne			G. Cherry				
'n.	-1.	. lúl .			ATE										
SALP DIAN	SAMP. ADV.		SAMPLE BLOUS "N" X CORE RECOVERY	PR	ESSU FEST!			I	GRAPHICS SARDIF			NOTES ON:			
ق	ع ["		重四层景	m E	***	I	ELEV.	DEPTH	RAPHIC	DESCRIPTION AND CLAS	SSIFICATION	WATER LEVELS.			
90	무금	티토	\$9.70	LOSS IN P. P	80 . 80 .	HAH			1 ₹ 9			WATER RETURN, CHARACTER OF			
186	g _			7 6	PRES P. S.	FLE	420.5		9 .			DRILLING, ETC			
	1					† — <u> </u>	419.9			0.0 - 0.6 Pt. ASPHALT.		Borehole advanced			
88	1.3	1.0	13-12-6			,		-		U.S - 8.5 Ft. Balty CLAY (CL).		0-12 Ft. with 6.5-in O.D. hollow-stem			
22	2.0	179	4-6-9					-		0.6-4.3 Ft. Moderate yellow	ish brown	auger.			
33		1	9							(10YR5/4). Low moisture co stiff. Some gravel, sand and	siag.				
	SS 2.0 1.6 2-3-3														
SS	5_4.3-8.5 Ft. Light olive gray (5Y6/1). Moderate moisture content, soft to medium														
-	5 4.3-8.5 Ft. Light olive gray (5Y6/1). Moderate moisture content, soft to medium stiff. Patches of grayish black (N2) and greenish gray (5G6/1).														
SS	Moderate moisture content, soft to medium stiff. Patches of gravish black (N2) and														
	S 2.0 1.8 3-8-8 greenish gray (5G6/1).														
L.	8 S 2.0 1.9 2-4-8 412.0														
SS	2.0	-													
-								10_		8.5 - 12.0 Ft. Silty CLAY (CL) gray (5Y4/1) to dark greenis (5GY4/1). Low moisture con	h gray				
SS	2.0	1.0						10_		stiff, moderately plastic. Tri fine-grained sand, trace of or	sce of very				
	1	1	6					-	1	fine-grained sand, trace of or material as blebs.	rganic				
\vdash	┼	┼	 				408.5_	-				Color descriptions			
		İ								Bottom of borehole at 12.0 Ft.		from the GSA Rock			
			•			İ '				Borehole backfilled to top of conbentonite cement, 4/13/88.	ncrete with	Color Chart (1948).			
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1	1	1										Description and			
1												classification of			
	1	1										soils by visual examination.			
	1			!]			
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1		1													
<u></u>		<u> </u>			L		l								
			POON; ST			~~,	ITE	_		5		HOLE NO.			
D =	DENN	I I SON	; P = PI	TCHER;	0 = 0	THER		<u>S</u>	t. L	ouis Downtown Site	e	B16R05			

ſ					<u> </u>	<u> </u>			PROJE	CT		"	JOB NO. SHE	ET NO. HOLE NO.
			iEC	LOG	CD	KIL	L LO					FUSRAP	. 1 1	of 1 B16R06
٦	SITE		T a	uis Dov	vntow	n Sid	•	COORDIN	ATES		N	1,750 E 1,661	i	tical
į	BEGL			MPLETED			· C	ــــــــــــــــــــــــــــــــــــــ				AKE AND MODEL SIZE		K (FT.) TOTAL DEPTH
ļ		6-8		4-8-88	<u> I</u>	ayne	-Wes	tern, C	o			CME-55 6.5"	14.0	14.0
ľ	ORE	REC	OVER'	Y (FT./%) CORE	BOXE	SSAMPL 7	ESEL. TO	P CAS	ING	CR	OUND EL. DEPTH/EL. GROU 420.4 ₹ / 4/6/88	ND WATER DEPTH	/EL. TOP OF ROCK
	AMF	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	IA./L	EN	GTH LOGGED BY:		
				bs/30 l				No	ne		.		G. Cherry	
	₽ €	χ Ξ	S S	SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATER ESSU	RE			ñ				
ŀ	AME DIAM.	절	2 H	PLE ORE	. E	rest:		ELEV.	DEPTH	DRAPHICS	NAME OF	DESCRIPTION AND C	LASSIFICATION	NOTES ON: WATER LEVELS,
	<u>1</u> 9	₽ X	그 뿐	SO SO	ENT.	80 °	HINE HINE		8	1				WATER RETURN, CHARACTER OF
	₹ŧ	8	S S	, E	2.9	7.0 5.0 5.0	FE	470.4		-	П			DRILLING, ETC.
F	j	0.6	<u> </u>	15-50/2				419.9	┧ .			0.0 - 0.5 Ft. CONCRETE 0.5 - 10.0 Ft. Silty CLAY RUBBLE. Brownish bla	CL) and	Borehole advanced 0-14 Ft. with 6.5-inch
ı				1]						Fravish black (N2). Low	moisture content	O.D. hollow-stem auger.
f	5 5	0.3	0.8	50/4 *				to moist, loose to mediur consists of slag, carbonac brick, pebble and sand. I yellowish brown (10YR5 yellowish brown (10YR4	n stiff. Rubble					
	إ	, .												
	33	1.7	Padiologicalle											
F	<u> </u>	2.0	1.7	17-9-6		•			١.	-				Radiologically sampled and gamma-logged by
			•••	6					1 .					TMA/Eberline.
ŀ	ss	2.0	0.8	3-3-1						-				
				2					· ·	-				
F	SS	2.0	0.6	1-3-2				410.4	10_	1	ŀ	10.0 - 14.0 Ft. Silty SAND	(SM). Olive	Top of undisturbed
				2		ŀ			} .	$\{ \mid \mid$		10.0 - 14.0 Ft. Silty SAND gray (5Y4/1). Moist, soft highly plastic clay. Very	t, minor amounts of fine-grained	material at 10.0 Ft.
-	SS	2.0	1.7	1-1-2								sand.		
				3]	400.4	'	11 1				
)	_					į		406.4	1 .	+		Pattern of handals at 140	D.	Color descriptions from the GSA Rock
			ł								П	Bottom of borehole at 14.0 Boring grouted to bottom o bentonite cement, 4/8/8	f concrete with	Color Chart (1948).
							1	·			$\ $	bentomite tement, 4/0/6	o .	
			}			ŀ	•				$\ $			
											Н			
											П			
											$\ $			
-			ľ								$\ $			
-	j											•		
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1											$\ $			Description and classification of
														soils by visual examination.
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1			1								$\ $			
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-									1		$\ $			
									1		$\ \ $			
) 		CD 1	17 6	POON; ST	- 615	DY 71	me. Is	I TE	<u> </u>		Ц			HOLE NO.
				; P = PI			, , , , , , , , , , , , , , , , , , ,		S	St.	L	ouis Downtown S	Site	B16R06
L														<u> </u>

ſ						•	-	-	PROJE	CT					Line	NO.	SHE	ET NO.	HOLE NO.
1		G	EC	LOG	IC D	RIL	L LO	G		•		FUSR	A P		1	4501		OF 1	B16R08
	ITE	:						COORDINA	TES									OM HORIZ	
ł		St.	Lo	uis Dov	vntow	n Sit	e	1		1	N 1,6	534 E	1,68	3			Vert	ical	
Ì	EGL	IN	CC	MPLETED	DRILL	ER				DRILL	MAKE	AND HOD	EL	SIZE	OVERBUR	DEN	ROCK	(FT.)	TOTAL DEPTH
				-21-88				tern Co				le B-4		6 3/4"		.0			23.0
)	CORE	REC	OVER'	Y (FT./%) CORE	BOXE		ESEL. TO	P CASI	ING C	ROUNI		DEPTH/	EL. GROU	ND WATER	t	DEPTH	EL. TOP	OF ROCK
	AME	15 4		. IEICUT	/EALL	ica:	10	FT 111 115	F. 01			9.6						/	
f				R WEIGHT bs/30 i			ING LE	FT IN HO		A./LE	: N 1 N	LOGGED	BT:		T.F.	Mart	lon		
ŀ	10					ATE		140	16					er i frita.	1.F.	MILL	ш		
1	AMB DIAKE	정문	M C	SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU ESTS	RE		_	8									
ł	-11	48		F 8 8 3	E			ELEV.	DEPTH	DRAPHICS		ESCRI	PTION	AND C	LASSIF	ICAT	TION	NOTES	LEVELS,
-	10	P Z	78	\$0 %B	LOSS IN	8 8	ENE Energia			3	100								PETURN, CTER OF
	₹₹	S 3	질망	≅	ق تر	PRES P.S.	F 2	419.6		9	Ί								ING, ETC.
I		1.5	0.7					419.1		927	Ď	- 0.5 Ft	CON	CRETE		3			e advanced
-	33	1.5	0.7	2-3 1D/0*							U.1	yellowis	prowi	Predon (10YR 1 of rubble	(2) clay	ausky ey silt	with	in. O.D.	with 6-3/4 hollow-stem
ł	-											coal and	pieces	of rubble	. Wet an	d loos	e.	auger. Radiolo	gically
-											1							sampled gamma-	logged by
ł	S S	2.0	1.5	21-5-1				414.9_	•		1							TMA/E	berline, Inc.
ł				1				414.7	5		\neg	4.0-4.7]	Pt. Oli	ve gray (t	Y3/2) si	lt, sar	nd, ſ	1	
ŀ	SS	and gravel mixture. Wet and loose. S 2.0 2.0 6-4-3 S 2.0 2.0 6-4-3 S 2.0 2.0 6-4-3 S 3 (N3). Wet, very fine-grained, well graded. Some clay throughout. Pieces of fill																	
ļ		Bome clay throughout. Pieces of fill material. Becomes saturated after 6.0 Ft.															ied.	1	
ŀ		Some clay throughout. Pieces of fill material. Becomes saturated after 6.0 Ft. 7.0-10.0 Ft. FILL. Black (N1). Mixture															Ft.		
1	33	S 2.0 0.9 2-2-3 The state of th															re		
		S 2.0 0.9 2-2-3 7.0-10.0 Ft. FILL. Black (N1). Mixture of clay, silt, sand, and gravel along with coal and slag. Saturated.															<u> </u>]	
	ss	7.0-10.0 Ft. FILL. Black (N1). Mixture of clay, silt, sand, and gravel along with coal and slag. Saturated.																	undisturbed l at 10.0 Ft.
-																			
Ī	SS	2.0	1.9	1-1-1					'		11	.7 - 13.9	Ft. 81	CLAY	(CL). C	live	40ft	į	
	- 1			•				405.7	•			consiste	ncy. R	Wet, mode uptures w	hen brok	en.	5011		
)	ss	2.0	1.9	1-1-1					1'		13	.9 - 17.0	Ft. C	AY (CL) doist, slig	. Light	olive			
	1			3					15_			stiff con	sistency	Black opening	specks th	rough	out		
t	\neg								١.		1	matter.	σecom!	ociec rail	s and or	Rauic			escriptions
ł	SS	2.0	0.4	1-2-1				402.6_	٠ ١		17	.0 - 21.0	Ft. Cl	STET SILE	[(ML).	Olive			e GSA Rock hart (1948).
-				2		l				- I •	l	gray (5)	(3/2). N ncy. Bi	Moderatel	y plastic is throug	, soft hout			
ŀ	SS	2.0	0.0	2-3-4	•		•	. ′		-		sample.	Ruptu	res when	broken.				
ł			J.0	5					20_	-									
-	90	2.0	1.8	3-4-5				398.6_				0 - 99 0	F. 07	(47)	Oliva -	P91'		-	
1	33	2.0	1.6	6						4111		(5Y3/2)	. Slight	LT (ML). ly plastic	Minor	amoui amoui	nts	•	
						}		396.6_		ШЦ	ļ	OI DIRCE	STICALI	arranged	norison	wily.		1	
ı														e at 23.0					
-						Ì				1	Bo	3/21/88		i with ber	ntonite c	ement	•		
	Ì																		tion and ation of
			1	1														soils by	visual
											1							- Continuit	
						1												1	
					1														
-											1								
											1								
			Ì															1	
-																		}	
									ł										
			<u> </u>	<u> </u>	L		<u> </u>	<u> </u>	<u> </u>									HOLE NO	
				POON; ST ; P = PI			70C, -	ITE	C	i t 1	CII	is Da	wnt	own S	Site				6R08
	, E	VERK	i SUR	; F = PI	i UNEK;	<u> </u>	, nek			/L.		3 00	44111	JWII S)ILE				31,00

ſ			EC	OLOG	:10	ח	RII I	10	G.	PROJE	CT		JOB NI		EET NO.	HOLE NO.
8	ITE						1716		COORDIN	ATES			FUSRAP 145		OF 1	B16R09
ſ			. Lo	uis Do	wn	tow	n Sit	e				N	1,628 E 1,815		rtical	BEARING
18	EGL	IN	C	OMPLETER) p	RILL	ER		<u> </u>				AKE AND NODEL SIZE OVERBURDE		CK (FT.)	TOTAL DEPTH
				1-14-8					tern, C			1	CME-55 6.5" 16.0			16.0
ľ	ORE	REC	OVER /	Y (FT./	*)	CORE	BOXE	S SAMPL	ESEL. TO	OP CAS	ING		T 4 0//12 7 //12/88	DEPT	H/EL. TOP	OF ROCK
s	AMP			R WEIGH	•	NL L	CAS	1 -	FT IN HC	XE: DI	À./L	EN	418.3 \$ /.07412.3 4/12/00 GTH LOGGED BY:		/	
				lbs/30					No	ne	-	•	G. Ch	erry		
	AND DIAM.	SAMP, ADV.	CORE REC.	SAMPLE BLOWS "N" % CORE	LOSS	PRI W. d. o	ESTS ON U.S.	ŔE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFIC	CATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
		1.5	0.7	4.	J	\neg			418.1 417.8	3	3		0.0 - 0.2 Ft. ASPHALT.		Borehol	e advanced
Ι.		0	"	• • •		l			417.1	† '		ł	0.2 - 0.5 Ft. CONCRETE.			. with 6.5-inch llow-stem
E	SS	0.7	0.5	6-30/3	1					'			0.5 - 1.2 Ft. Sandy GRAVEL.		auger.	
					1					'			1.2 - 11.8 Ft. Silty CLAY (CL) and RUBBLE.		` 	
ļ	SS	2.0	1.8	5-8-5	1					8_			1.3-8.5 Ft. Dark yellowish brown ()	INYR4/2	, `	
	SS	2.0	1.5	3-6-6 5					,	*			to grayish black (N2). Low moistur content to moist, loose to medium s Rubble consists of carbonaceous ma gravel, pebbles and sand.	e iff.	Radiolo sampled	and logged by
-	SS	2.0	1.8	1-4-7	4	-										
		•.•		7									8.5-11.0 Ft. Olive gray (5Y4/1) to	dark	İ	
H	35	2.0	1.8	2-7-9	-					10_			greenish gray (5GY4/1). Moist, soft medium stiff. Minor amounts of ver	to	Top of	andisturbed
1.	-	J.¥		8					406.5				fine-grained sand. Some carbonace material, brick fragments and pebbl	ous	materia	at 11.8 Ft.
Ļ	SS	2.0	1.8		Ч											
		2.0	1.7	6					404.6				11.0-11.8 Ft. Grayish black (N2). I soft to medium stiff. Some gravel, b and pebbles. 11.8 - 13.7 Ft. Silty SAND (SM). Oliv	rick		
				4					402.3	15_			gray (5 ¥4/1). Moist, medium stiff, a plastic. Very fine- to fine-grained s Trace amounts of clay.	lightly and.		escriptions
													13.7 - 16.0 Ft. Silty CLAY (CL). Oliv gray (5Y4/1). Moist, soft, moderate plastic. Trace of organic material as blebs.	У		e GSA Rock hart (1948).
													Bottom of borehole at 16.0 Ft. Boring grouted to bottom of concrete we bentonite cement, 4/14/88.	rith		
		i														
											,		·			
						}									Descript classifica soils by examina	ation of visual
				POON; ST ; P = PI				٠-, ا	ITE	S	it.	Lo	ouis Downtown Site		HOLE NO	6R09

	- C	EC	LOG	ור ח	RII I	10	G	PROJEC	CT .	JOB NO. SHEET I	1
SIT					1/161		COORDINA	TES		FUSRAP 14501 1 OF	1 B16R10A
			uis Dov			e	<u> </u>			1,545 E 1,660 Vertica MAKE AND NODEL SIZE OVERBURDEN ROCK (F	
BEG		- 1	MPLETED -14-88	1		-Wesi	tern, Co		DKILL	NAKE AND NODEL SIZE OVERBURDEN ROCK (F	T.) TOTAL DEPTH
) CORE	BOXE	SAMPL	ESEL. TO	P CAS	NG	ROUND EL. DEPTH/EL. GROUND MATER DEPTH/EL.	TOP OF ROCK
SAH	PLE H	AMMEI	R WEIGHT	/FALL	CAS	1 2	FT IN HOL	E: DI	A./L	420.2 \$ /	
			bs/30				No	ne	, ,	G. Cherry	
SAMP OTAME	SAMP. ADV.	BAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M.	PRESS. 1.8.4	RE	ELEV.	нтязо	GRAPHICS	· DF	TES ON: TER LEVELS, TER RETURN, MARACTER OF VILLING, ETC.
SS	1.7	1	23-28-27 14/3"				420.0		5		orehole advanced 2.2 Ft. with 6.5-in. D. hollow-stem
55	2.0	1.4	20-36-59				418.5_				iger. iger refusal 2.2 Ft.
			33				416.2_			1.8 - 4.0 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR2/1) to grayish black (N2). Low moisture content, loose. Rubble consists of gravel, brick, slag, carbonaceous material and particle board.	
			1					-		Sabu	ampled 2.0-4.0 Ft. it unable to auger 4.0 FT.
										l faa	adiologically mpled by MA/Eberline.
										fro	olor descriptions om the GSA Rock plor Chart (1948).
		1									
										cl:	escription and assification of ils by visual amination.
						!					
			POON; ST ; P = PI			,,,	ITE		St.	ouis Downtown Site	B16R10A

	G	EC	LOG	IC D	RIL	L LO	G	PROJE	СТ		FUSRAP			4	6 NO.	1 .	ET NO.	HOLE NO.
SIT							COORDIN	ATES			FUSKAP				14501 ANG	, -	OF 1	B16R10B BEARING
			uis Dov			te					1,545 E 1,					Vert	ical	
BEG		- 1	OMPLETED	1		Waa	tern, Co	- 1	DRILI		AKE AND MODEL CME-55	SIZE	5"	OVERBL		ROCI	(FT.)	TOTAL DEPTH
					BOXE	SSAPL	ESEL. TO	P CAS	ING		NUND EL. DEP	TH/EL.	GROUN	D WAT	4.0 R	DEPTH	/EL. TOP	OF ROCK
		_/				4				L	420.2	7.0/413 <u>/</u>	.2 4/	13/88			/	·
SAM			R WEIGHT lbs/30		CA:	SING LE	eft in ho No		A./L	ENG	TH LOGGED BY:			G	Cherr	v		
w.					ATE		110		Ī.,						Chen	<u>y</u>	T	*:
SAIP DIAF.	SAMP. ADU.	AMPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	COSS IN E.P.S	ESST:		ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTI	ON ANI	D CIL	.ASSI	FICAT:	ION	WATER	LEVELS, RETURN, CTER OF
P	1001	<u> </u>			80		420.2 420.0	-		#	(0.0 - 0.2 Ft. A	SPHAL	ř.					ING, ETC.
							418.4	•	••		0.2 - 1.8 Ft. S			L.			0-14 Ft 0.D. ho	. with 6.5-incl llow-stem
SS	2.0	1.3	9-38-15 24				430.4				1.8 - 11.3 Pt. 1 RUBBLE. grayish black to moist, loo gravel, brick sand and pa	, carbon	BCCOU	(5Y) k (5Y) moistu ensists is mat	d (2/1) to re conte of erial, sla	nt g,	auger.	
66	0.9	٥٤	24-55/5°								-						Radiolo sampled	[and]
33	0.9	0.5	24-35/5	ļ			,	¥ .									TMA/E	logged by berline.
SS	2.0	1.9						10_									Top of	undisturbed
			4				408.9_	┤ .			11 0 14 0 PA	6:14 CT		OF)	011		materia	l at 11.3 Ft.
SS	2.0	1.8	2-3-3 5				406.2_				11.3 - 14.0 Ft. gray (5Y4/1 plastic. Tra Trace of org). Moist ce of ver	soft, y fine terial	mode: e-grain	rately led sand os.	•	Color de	escriptions
				-							Bottom of bore Boring grouted bentonite ce	to botto	m of	asphal	t with		from the	e GSA Rock hart (1948).
SS:	SPL SPL	IT SI	POON; ST	- SHE	BY TL	BE; S	ITE										Descript classific soils by examina	ation of visual tion.
			P = PI			,,,	- · -	S	it.	Lo	uis Down	tow	n Si	ite				R10B

	_	ŝΕ	O	LOGI	C D	RIL	L LO	G	PROJEC	CT		ET NO. HOLE NO. OF 1 B16R11			
SITE								COORDINA	TES		ANGLE FR	OM HORIZBEARING			
DECI				IS DOV		_	e	<u></u>			MAKE AND MODEL SIZE OVERBURDEN ROCI				
BEGL				14-88			-Wesi	tern, Co		DKILL	CME-55 6.5" 14.0	((FT.) TOTAL DEPTH			
					CORE	BOXE	SAMPL	ESEL. TO	P CAS	ING	ROUND EL. DEPTH/EL. GROUND HATER DEPTH	/EL. TOP OF ROCK			
SAME	LE I	HAM	/ IER	WEIGHT	/FALL	CAS	ING LE	FT IN HO	LE: DI	A./L	418.7 \$ /.3/4/3.2 4/12/66	/			
				s/30 i				· No		,	G. Cherry				
ANT DIAME	SAMP, ADV.	LE REC.	R REC.	BLOWS "N" X CORE RECOVERY	PR	ESSU ESTS	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN,			
發	- P		8	집서의	LOS: IN G.P.	PRESS. P. S. I.	HIN MIN MIN.	418.7		8		CHARACTER OF DRILLING, ETC.			
SS		\prod		-7-2/3		u.u.		418.5 417.9		£29.	0.0 - 0.1 Ft. ASPHALT. 0.1 - 0.8 Ft. CONCRETE.	Borehole advanced 0-14 Ft. with 6.5-incl O.D. hollow-stem			
SS	2.0	1.	3	4-8-4							0.8 - 11.6 Ft. Silty CLAY (CL) and RUBBLE.	auger.			
SS	2.0														
SS	to moist, loose. Rubble consists of slag, carbonaceous material, gravel, sand and pebbles. Fe staining.														
SS	S 2.0 1.5 2-1-1														
SS	2.0	1.	6	1-1-2					10_		8.7-11.6 Ft. Moderate brown (5YR4/4). Moist, soft. Trace of organic material as blebs. Some carbonaceous material.	Top of undisturbed material at 11.6 Ft.			
SS	2.0	1.	4	2-2-4				407.1_			11.6 - 14.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1). Moist, soft, moderately plastic. Minor amounts of very fine-grained sand. Trace of organic	interior at 11.0 Ff.			
		igert	+	•				404.7_			material as blebs.	Color descriptions			
				:							Bottom of borehole at 14.0 Ft. Boring grouted to bottom of concrete with bentonite cement, 4/14/88.	from the GSA Rock Color Chart (1948).			
									.*			Description and classification of soils by visual examination.			
				OON; ST P = PI			,,	ITE	S	i it.	ouis Downtown Site	HOLE NO. B16R11			

		`E/	OLO		<u> </u>	DIL	10		PROJEC	T	1	EET NO. HOLE NO.
SIT		יבו		71	CD	KIL	LLU	COORDINA	TES			OF 1 B16R12 ROM HORIZBEARING
3111		. Lo	uis D	o w	ntow	n Sit	e			N		tical
BEG			OMPLETE							RILL	MAKE AND MODEL SIZE OVERBURDEN ROC	K (FT.) TOTAL DEPTH
			1-29-					tern Co			DIL DE DE DE DE DE DE DE DE DE DE DE DE DE	H/EL. TOP OF ROCK
		/		, ~,			9				420.4	/
SAHI			R WEIG	•		CAS	ING LE	-		A./LEI	GTH LOGGED BY:	
			lbs/30			ATE	2	Not	ne	П	C.A. Clark	
and oran.	AMP. ADV	MPLE REC	BLOWS "N" X CORE	RECOVERY	PR NI Para	EST	RE	ELEV.	DEPTH	GRAPHICS SMIPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS SS	2.0	0.3	7-8-8-	13		0.0	<u> </u>	420.4 420.1-			70.0 - 0.3 Pt. ASPHALT.	Borehole advanced
SS	2.0	0.8	18-14- 10 4-6-6	-8		-			- - 5		0.3 - 9.5 Ft. FILL. 0.3-4.2 Ft. Sandy LOAM. Brownish black (5YR2/1). Dry to slightly moist at 4 Ft. Moderately cohesive, slight to moderate compaction. Cohesion increases with increase of moisture content with depth. Dependant upon sand percent. Sand is medium- to coarse-grained subangular particles. Slightly cemented, low dry strength. Abundant organics, largely	0-18 Ft. with 8 1/4" O.D. hollow-stem auger. Radiologically sampled and gamma-logged by TMA/Eberline. Top of undisturbed material at 9.5 Ft.
SS	2.0	1.1	1-1-2	-2					-		undecayed twigs, roots, and bark. Abundant rubble. 4.2-9.5 Ft. Sandy SILT (SM). Brownish black (5YR2/1). Moist, moderately cohesive,	
SS	2.0	0.5	2-3-1	-1				410.9_ 410.3_	10_		slightly plastic. Weak thread. Ruptures easily. Moderate resistance to deformation. Low moisture content, flakey.	A
SS	2.0	1.5	2-1-3	-4				408.6_			Moderate compaction, low permeability, dense, slow dilatancy. Slightly cemented, breaks in fingers. Sand is 15% fines. Medium-grained. Abundant silt as dark mafic/biotite flakes. Abundant rubble.	
	2.0		6-7-6					406.2_	- 15_ -		9.5 - 10.1 Ft. Clayer SILT (ML). Dark greenish gray (5GY4/1), motified with olive gray (5Y4/1). Dry to very slightly moist; distinct loss of moisture. Slow to no dilatancy, slightly plastic, weak thread. Ruptures easily. Some resistance to	Description and classification of soils by visual
								402.4_	7		deformation. 10.1 - 11.8 Ft. Sandy SILT (SM). Olive black (5Y2/1). Moist, gap-graded sand. Mostly fine with some coarse-grained subangular particles. Moderate cohesion, dense, very slightly sticky, low moisture content, rapid dilatancy, slightly plastic. Deforms with moderate finger pressure. Weak mold, ruptures easily. 11.8 - 14.2 Ft. CLAY (CL). Olive black (5Y2/1). Slightly moist, moderate cohesion, dense. trace of silt as biotite flakes. Stiff clay, slightly moist, moderate cohesion, dense. trace of silt as biotite flakes. Stiff clay, slight deformation with moderate finger pressure. Crumbles when rolled. Mottled dark olive spots. May be organic(?); trace of root fibers with increased silt %. 14.2 - 18.0 Ft. Silty SAND (SM-ML) with interbedded silts. Olive black (5Y2/1). Moist, moderately cohesive, slightly plastic, medium-stiff consistency, dense compaction. sand is fine- and medium-grained subangular particles. Silt is abundant dark flakes. Silt layers are random in alternation and thickness (2-4"). No deviation in color or structure. Trace very fine-grained sand. Slightly sticky. Dilatancy increases. Bottom of borehole at 18.0 Ft. Borehole backfilled with bentonite cement, 4/29/88.	examination of split-spoon samples.
ł .			 POON;				~:,	ITE .	ــــــ S	it. L	ouis Downtown Site	HOLE NO. B16R12

			E :			· · · · · · · · · · · · · · · · · · ·		·	
GEOL	OGIC DRILL L	OG	PROJEC	T	FILOD AD	J08		SHEET NO.	HOLE NO.
SITE		COORDIN	ATES		FUSRAP	14	1501	1 OF 1	B16R13
I -	Downtown Site			N	1,831 E 2,607			ertical	BEAKING
	LETED DRILLER		Ъ		MAKE AND MODEL SIZE	OVERBURG		ROCK (FT.)	TOTAL DEPTH
3-17-88 3-1	8-88 Layne-W	estern, Co	o.		CME-55 6.	5" 16.	.0		16.0
CORE RECOVERY (FT./%) CORE BOXES SA	PLESEL. TO	P CASI	NG G	COUND EL. DEPTH/EL.	GROUNO WATER .0 3/18/88	DE	PTH/EL. TOP	OF ROCK
/		8			744.4	.0 3/10/00		/	·
SAMPLE HAMMER W				A./LEN	GTH LOGGED BY:		••		
140 lbs		No	ne			<u>G. C</u>	herry		·
SAMP DIAM. SAMPLE REC. SAMPLE SAMPLE	PRESSURE TESTS TESTS TESTS TO DO O O O O O O O O O O O O O O O O O	ELEU.	ОЕРТН	GRAPHICS SAPPLE	DESCRIPTION AND			WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
35 2.0 1.3 7	-5-7 6 -2-3 4			į	0.0 - 0.3 Ft. Silty CLA yellowish brown (10 content, medium stif 0.3 - 12.5 Ft. Silty CL RUBBLE.	AY (CL) and		e Borehol 0-13 Ft O.D. ho auger.	e advanced . with 6.5-incl llow-stem
	-2-3		5.		0.3-2.0 Ft. Brownisi grayish black (N2). loose. Rubble consist carbonaceous materi fragments.	Low moisture its of slag.	content	Radiolo	
SS 2.0 1.8 14- SS 2.0 1.5 1	-2-4 11	;	¥ -		2.0-5.5 Pt. Moderat (10YR5/4) to light o moisture content, so 5.5-12.5 Pt. Browni grayish black (N2).	olive gray (5Y) ft. Fe staining sh black (5YR	3/1). Le 5 :2/1) to	TMA/E	logged by berline.
SS 2.0 1.3 12-	11-1-28		10-		content to moist, loo consists of slag, brick material and sand.	se to stiff. Ru	bble		undisturbed l at 12.5 Ft.
	-2-3 4	409.7_	15_		12.5 - 16.0 Ft. Silty CI gray (5Y3/2). Moist moderately plastic. organic material as b	Minor amount	ive s of		
		406.2_		<i>Hu</i>	Bottom of borehole at 1 Boring grouted to surfa- cement, 3/18/88.		nite	from th	escriptions e GSA Rock hart (1948).
		·							
								Description classific soils by examins	stion of visual
	N; ST = SHELBY TUBE; = PITCHER; O = OTHER	SITE	S	 t. L	ouis Downtown	n Site		HOLE NO	

		GI	ΕO	LOG	IC D	RIL	L LO	G	PROJE	CT		FUSRAP	JOB NO. 14501	SHEET NO. HOLE NO. 1 OF 1 B16R14
SITE	<u> </u>			·				COORDIN	ATES			IOMAI		FROM HORIZBEARING
		t.		uis Dov			te	<u> </u>				1,737 E 2,190 KE AND MODEL SIZE C		ertical
BEG. 4-1		88		-29-88	i		-Wes	tern, Co	- 1	DKILL		CME-55 6.5"	OVERBURDEN R	OCK (FT.) TOTAL DEPT
							SSAMPL	ESEL. TO		ING	CRO	UND EL. DEPTH/EL. GROUNE		PTH/EL. TOP OF ROCK
CAMD) E	MA	<u>/</u>	WEIGHT	/FALL	icas	8	ET IN NO	IE. DI	A //		421.9		
				/auge	•		,, wo FE	No		M./L	ENG	IN LOUGED BY:	G. Cherry	
ANG DIAM.	SAMP, ADV.	NU CONTRACTOR	ORE REC	SAMPLE BLOWS "N" % CORE RECOVERY	NY T	PRO . H . H . H . H . H . H . H . H . H .		ELEV.	DEPTH	GRAPHICS	S(8)191 F	DESCRIPTION AND CL	ASSIFICATIO	WATER RETURN, CHARACTER OF
SS	2.0	4	1.2		- 6	100	-	421.9			4	0.0 - 11.1 Pt. Silty CLAY (C RUBBLE, Brownish black	Ll and	0-16 Ft. with 6.5-in
SS	2.0	1	1.7									RUBBLE. Brownish black grayish black (N2). Low r to moist, loose to soft. Ru of gravel, slag, carbonaceo sand, pebbles and lime. P gray (544/1) to dark yello (104R4/2) silty clay.		O.D. hollow-stem auger.
รร	2.0	+	0.1						8_			gray (5Y4/1) to dark yello (10YR4/2) silty clay.	owish brown	Radiologically sampled and gamma-logged by TMA/Eberline.
SS	2.0	+	0.8											
SS	2.0	+	0.0											į
SS	2.0	+	1.5					410.8_	10_	///	_	11.1 - 13.0 Ft. Silty CLAY (gray (6Y4/1). Moist, medi	CL). Olive	4-6 and 8-10 Ft. samples grabbed fro drilling spoils due to poor recovery.
SS	2.0		1.8					408.9_				moderately plastic. trace material as blebs. 13.0 - 16.0 Ft. Silty SAND (gray (5Y4/1) to dark yello (10YR4/2). Moist soft. v sand. Fe staining (lamina	of organic	
								405.9_	15_			(10YR4/2). Moist, soft. V sand. Fe staining (lamina	Very fine-grained le).	
												Bottom of borehole at 16.0 Fi Boring grouted to surface wit cament, 4/29/88.		Color descriptions from the GSA Rock Color Chart (1948)
							,							
									."					Description and classification of soils by visual examination.
		,												
		i												
				POON; ST			~-,	ITE	S	St.	∐ Lo	uis Downtown S	ite	HOLE NO. B16R14

C	EO	LOG	וכ ח	DII I	10	G	PROJE	CT	JOB NO. SHEET NO. HOLE NO.
SITE	EU	LUG		MILI	LU	COORDIN	ATES		FUSRAP 14501 1 OF 1 B16R15.
		uis Dov			e	<u> </u>			N 1,750 E 2,370 Vertical
BEGUN 3-23-8	- 1	MPLETED	i i		-West	tern, Co		DRILL	MAKE AND MODEL SIZE OVERBURDEN ROCK (FT.) TOTAL DEPT 6.0 6.0
								ING	PROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF ROCK
SAMPLE N	AMER	WEIGHT	/FALL	CAS		FT IN HO	LE: D	IA./L	422.5
		bs/30		10.755		No	ne	7	G. Cherry
SAND DIAH.	AMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	Loss IN B.P.H.	ATESTS .I.S. G	RE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC
SS 1.4				a.a.		422.5 421.9_			0.0 - 0.6 Ft. ASPHALT. Borehole advanced
85 2.0 S5 0.7		9-11 6/5" 10-5-5 6				421. D_	5.	40	0.8 - 1.8 Ft. Sandy GRAVEL (GM). 1.6 - 4.7 Ft. Silty CLAY (CL). Moderate yellowish brown (10YRb/4) to dark yellowish brown (10YR4/2). Dry to low moisture content, medium stiff. Minor amounts of rubble consisting of brick and slag.
						416.5_]		4.7-6.0 Ft. RUBBLE. Sampled by TMA/Eberline.
									Bottom of borehole at 6.0 Ft. Boring grouted to bottom of asphalt with bentonite cement, 3/24/88. Auger refusal 6.0 Ft
									Color descriptions from the GSA Rock Color Chart (1948).
		•							Description and classification of soils by visual examination.
SS = SPL	IT SE	POON: ST	s SHF	LBY TI	RE: S	ITE			HOLE NO.
		P = PI			,		S	8t.	Louis Downtown Site B16R15A

		C	Eſ) (G	CD	RII I	L LO	G	PROJE	CT			JOB NO.	1	ET NO.	HOLE NO.
SIT	E						IXIL:	LLO	COORDIN	ATES			FUSRAP	14501 ANGL		OF 1	B16R15B
		St.				vntow		e	<u> </u>				1,758 E 2,368		<u>Ve</u> rt	ical	*****
BEG	-		- 1	3424 3-24		DRILL		Was	tern, Co		DRII	LL	CME-55 6.5"	VERBURDEN 18.0	ROCK	(FT.)	TOTAL DEPTH
											ING	GR	OUND EL. DEPTH/EL. GROUND		EPTH,	/EL. TOP	OF ROCK
		e u		- · -	I C U T	/FALL	- lead	7	- IN 110	V E . 01		LEN	422.5 ½ /			/	
544	IPL.		-	lbs/				ING LE	No		,	LEM	LOGGED BT:	G. Cherry	,		
E.	Ī	u k	ပ္ပုံ	-	· >	PR	ATE					П					
SAIT or TATE	1	뜅		SAMPLE BLOWS "N"	SPE	~ E	EST		ELEV.	DEPTH	BRAPHICS	SEMPLE.	DESCRIPTION AND CLA	ASSIFICATI	ON	NOTES WATER	ON: LEVELS,
100	9	Z	可滿	80	ж <u>п</u>	L033	PRESS.	記号			1						RETURN, CTER OF
80			ğ Ö	<u> </u>		9 ر	ga	- Σ	422.5		L		OO OF PA ASSURANT	····		<u> </u>	ING, ETC.
									421.9	1 .			0.0 - 0.6 Ft. ASPHALT. 0.6 - 15.0 Ft. Bilty CLAY (C) RUBBLE.	[] and		0-18 Ft	e advanced . with 6.5-incl llow-stem
														wish brown		auger.	
										1			0.5-4.6 Ft. Moderate yello (10YR5/4) to dark yellowis (10YR4/2). Dry to low moi medium stiff. Minor amou	sn brown isture content, nts of mibble :	, ind		
35	SS 2.0 1.9 3-6-9 1D slag. 4.6-6.4 Ft Brownish black (5YR2/1) to																
	4.6-6.4 Ft. Brownish black (5YR2/1) to grayish black (N2). Low moisture content,														nt,	Radilog	ically sampled nma-logged by berline.
33	S 2.0 1.9 3-4-3 loose. Rubble consists of slag, carbonaceous material and brick.															Samplin	g began at 4.
SS	S 2.0 0.8 2-3-4 (10YR4/2). Low moisture content to moist, soft to medium stiff. Minor amounts of														ist,	Ft. Sar	nples from 0-ceted in 15A.
				'	4			1					rubble consisting of carbon	r amounts of naceous materi	al,		
SS	2	.0	0.5	6-5	0-57 1					10.			brick, sand and wood.			Top of materia	indisturbed at 13.0 Ft.
SS	2	ا ٥.	0.3		5-3 2				409.5	-	R Z		19.0 - 18.0 Ft Silty SAND (S	SM) Olive		1	
SS	2	.0	1.4		-12								13.0 - 18.0 Ft. Silty SAND (Sgray (5Y4/1). Moist, soft to Very fine-grained sand wit	o medium stiff	ts		
				1	2					15.	-		of medium-grained sand. Sclay.	Trace amounts	of		
SS	2	.0	1.5		9-6 7												
									404.5		1						
													Bottom of borehole at 18.0 Ft			from th	escriptions e GSA Rock
												Ш	Boring grouted to bottom of a bentonite cement, 3/24/88.			Color C	hart (1948).
												П					
								İ				$\ \ $					
													•				
		1		1						1	1	$\ \cdot\ $					tion and ation of
									1							examin	
								1									
																	•
SS		SPL	IT S	POON	; ST	= SHE	LBY TI	BE; S	ITE	1		П			<u>-</u>	HOLE NO	
						TCHER;					<u>st.</u>	L	ouis Downtown Si	te		B1	6R15B

	G	EC	LOG	IC	DI	RILI	LLO	G	PROJEC	7		FUSRAP	JOS NO. 1450		T NO. OF 1	HOLE NO. B16R16A
SITE								COORDINA	ATES		_			IGLE FR	M HORIZ	
			uis Do				e	<u> </u>				1,776 E 2,670		Vert		 Incompany
BEG		- 1	MPLETER	- 1			_Was	tern, Co	1)KIL		AKE AND MODEL SIZE OVI CME-55 6.5"	ERBURDEN 4.2	RUCK	(FT.)	TOTAL DEPT
					CORE	BOXES	SSAMPL	ESEL. TO	P CASI	NG	_	DUND EL. DEPTH/EL. GROUND		DEPTH,	EL. TOP	OF ROCK
		1					2					422.7			/	
AMF			R WEIGH	•	LL	CAS	ING LE	FT IN HO		A./L	EN	TH LOGGED BY:	G. Cher	rev		
W .						ATER		110		T	П		G. Chei	,		
Secondary.	AMP. ADV	MPLE REC	SAMPLE BLOWS "N" X CORE	-039		SSUESTS STOSTS STOSTS STOSTS STOSTS STOSTS STOSTS STOST STOSTS STOSTS STOSTS STOST STOSTS STOST		ELEV.	ОЕРТН	DRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SSIFICA	TION	WATER CHARA	LEVELS, RETURN, CTER OF
					-	<u>E</u> 0	-	422.7 422.3-	 -	نو ت	Н	0.0 - 0.4 Ft. CONCRETE.				ING, ETC.
SS	0.8	0.7	6-20/2	1					.			0.4 - 4.2 Pt. Bilty CLAY (CL)	and		0-4.2 F	t. with
35	2.0	1.1	24-30-5									RUBBLE.				stem auger.
			31						-			0.4-1.1 Ft. Brownish black grayish black (N2). Low mo loose. Rubble consists of gr	(5YK2/1) outure con-	to tent,	ļ	
				1				418.5_	1 .		f	and sand, patches of dark you (10YR4/2) silty clay.	ellowish br	own [1	
					ĺ				-	1	$\ $	1.1-2.0 Ft. Rubble.		}	Auger r Ft.	efusal at 4.2
											$\ $	2.0-4.0 Ft. Brownish black	(5YR2/1).	Low		
			! !								$\ $	moisture content, loose. Ru of brick, sand and gravel.	IDDIC COURT			
												4.0-4.2 Ft. Concrete.			}	
												Bottom of borehole at 4.2 Ft. Boring grouted to bottom of co- bentonite cement, 3/18/88.	oncrete wit	h	from the	escriptions e GSA Rock hart (1948).
			:													
												·				
						!										
	}	1	}			İ	•		."		$\ $	•				· · · · · · · ·
	ŀ				ļ										classific	tion and ation of visual
											$\ $				examin	
							l				$\ $					
												•				
	ŀ				į						$\ $					
				}	}			}			$\ \ $				}	
					•						$\ $					
			 POON; S ; P = P				,,,	ITE	S	it.	L	ouis Downtown Sit	te		HOLE NO	6R16A

GEOLOGIC DRILL LOG	PROJECT FUSRAP	JOB NO. SHEET NO. HOLE NO. 14501 1 OF 1 B16R16B
	INATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,767 E 2,670	Vertical
BEGUN COMPLETED DRILLER 3-15-88 3-18-88 Layne-Western,	1 1	/ERBURDEN ROCK (FT.) TOTAL DEPTH
CORE RECOVERY (FT./%) CORE BOXES SAMPLES EL.	TOP CASING GROUND EL. DEPTH/EL. GROUND	
/ 0	422.8	
1	HOLE: DIA./LENGTH LOGGED BY:	G. Cherry
Walter WATER		G. Cherry
AND DIANT CORE BECOURTY CORE BECOURTY CORE R	SOLUTION AND CLA	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
で	.8]	DRILLING, ETC. Borehole advanced
421	Bubble. Brownish black grayish black (N2). Low m loose. Rubble consists of m and sand. Patches of dark (10YR4/2) slity clay. Bottom of boring at 1.8 Ft. Boring grouted to bottom of cobentonite cement, 3/18/88.	Attempted to advance auger to 4.0 Ft. and
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Sit	HOLE NO. B16R16B

	G	FC	LOG	ור ח	RII)G	PROJE	CT			JOB NO.		ET NO.	HOLE NO.
SITI			LUG		IVIL		COORDINA	TFS			FUSRAP	14501		OF 1	B16R16C
		Lo	uis Do	wntow	n Sit	te				N	1,771 E 2,666		Vert		BEARING
BEG			MPLETED				<u></u>	1				OVERBURDEN		(FT.)	TOTAL DEPTH
			-14-8				tern, Co			_	CME-55 6.5"	6.5			6.5
CORI	REC	OVER'	Y (FT./7	() CORE	BOXE	S SAMPL	ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/EL. GROUNI	D WATER	DEPTH,	/EL. TOP	OF ROCK
SAHI	LE M	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./L	EN	GTH LOGGED BY:		<u> </u>	/	
	1	40 <u>l</u>	bs/30	in		****	No	ne				G. Cherr	гу		
M.	文비	ပ္ပါ္ပင္ပ	 ≵ ≿	PR	MTER ESSU	RE			9)	П					
AME or TAP.	E S	R A	7. 89		EST:	5	ELEV.	Ē	GRAPHICS	= (4,4)	DESCRIPTION AND CL	ASSIFICAT	ION	NOTES	ON: LEVELS,
9	를 X	2 8	£200	SZ I	. 135	FRE		HE ST	1	9.5				WATER	RETURN,
188	32		SAMPLE BLOWS "N" X CORE RECOVERY	SN.	PRESS.	L.E	422.5	_	8		·				TER OF ING, ETC.
SS	0.7		36-50/2				422.0_		-23		0.0 - 0.5 Ft. CONCRETE. 0.5 - 6.5 Ft. Silty CLAY (C) RUBBLE. Brownish black Low moisture content, stiff	() and			advanced with 6.5-inch
											RUBBLE. Brownish black	k (5YR2/1). I. Some stav	el		llow-stem
											and sand.				
											1.2-6.5 Ft. Concrete and	rubble.			
			i					5_							
														through	ed to core rubble and
							416.0_			\dagger	6.2 Ft. 2 sections of 1/4-i	in. rebar.	Γ	core bar	with 6.5-inch rel. Cored to
							İ				Bottom of boring at 6 5 Ft	· · ·			out unable to ough rebar.
											Bottom of boring at 6.5 Ft. Borehole backfilled with bent 4/14/88.	ionite grout,			
											1,11,00.				
														Auger N	efusal at 6.0
										İ				Ft.	
									i					No samp	oles taken.
										ı					
										ı				Color de	escriptions GSA Rock
														Color C	hart (1948).
			·												
					'				li					1	
										۱					
										۱				1	
										1					
										۱					
			·					."			•				
										ı					
										ı				Descript classifics	tion of
														soils by examina	
															į
															ļ
			i												
ss =	SPL	IT SP	POON; ST	= SHEL	BY TU	BE: S	ITE							HOLE NO.	
			P = PI					S	t.	Lc	ouis Downtown Si	ite		B16	R16C

		EC	100		DIL	10	<u></u>	PROJEC	T	JOB NO. SHEET NO. HOLE	NO.
SITE		EC	LOG		KIL	LLU	COORDINA	ATES		FUSRAP 14501 1 OF 1 B16	R16D
3111		Lo	uis Dov	wntow	n Sit	e		1,25	1	1,782 E 2,064 Vertical	NU
BEGL		- 1	MPLETED	- F	_		_	- 1		MAKE AND MODEL SIZE OVERBURDEN ROCK (FT.) TOTAL	L DEPTH
			-28-88	3 ICORE	ROYE	-Wes	tern, Co	P CASI	MG I	CME-55 6.5" 8.7 E	8.7
CORE	. NEU	/	. (11./4	, ,	-	2		· CAS		422.5 \\ \frac{1}{2}' \\	
SAMF			R WEIGHT	•	CAS	ING LE			A./LE	GTH LOGGED BY:	
mı			bs/30		ATER		No	ne	7	G. Cherry	
SAUT DIAM.	SAMP, ADV.	SAMPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN P. M.	EST	RE	ELEU. 422.5	HTGEOTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION WATER LEVEN WATER RETURN CHARACTER DRILLING,	URN, OF
8 S		1.4					422.0_	-	S-231	0.0 - 0.5 Ft. CONCRETE 0.5 - 8.7 Ft. Silty CLAY (CL) and RUBBLE. 0.5 - 8.7 Ft. Silty CLAY (CL) and O.D. hollow-s auger.	1 6.5-in
SS	1.4	1.0	10-15 34/4.5"					5_		0.5-2.0 Ft. Brownish black (5YR2/1) to olive gray (5Y4/1). Low moisture content, loose. Rubble consists of brick, sand and gravel. 2.0-4.0 Ft. Concrete and gravel. Used 6.75-includiameter milli to drill through rebar.	ing tool
							·	-		4.0-5.4 Pt. SAND. Medium-to coarse-grained sand. Some 1-2 in. pieces of angular limestone gravel. 5.3 Pt. Wood. Water introdu hole to cool bi milling tool.	
							413.8_			5.4-8.7 Ft. Concrete and rebar (?). 5.5 Ft. Rebar. 8.6 Ft. Rebar. Bottom of borehole at 8.7 Ft. Boring grouted to bottom of concrete with bentonite cement, 4/28/88. Radiologically sampled and gamma-logged TMA/Eberlin Color descript from the GSA Color Chart (:	d by ie. tions Rock
										Description ar classification of soils by visual examination.	of
			POON; ST ; P = PI			,	ITE	S	it. 1	ouis Downtown Site HOLE NO. B16R1	6D

	(Gi	EO	LOG	IC I)R	ILI	L LO	G	PROJEC	T	-	FUSRAP	JOS NO. 14501	- 1	ET NO. OF 1	HOLE NO.
SIT									COORDINA	TES		-	PUSKAI		_ 1 -	OM HORIZ	B16R17
		it.		uis Do				<u>e</u>	<u> </u>				1,640 E 2,173		Vert		
BEG		. 00	- 1	MPLETED -15-8				_Was	tern, Co	- 1	DRIL	L	MAKE AND MODEL SIZE OVER CME-55 6.5"	RBURDEN 14.0	ROCI	((FT.)	TOTAL DEPTH
									ESEL. TO		MG	G	ROUND EL. DEPTH/EL. GROUND W		DEPTH	/EL. TOP	OF ROCK
L			1				,	7					422.0				
SAH				R WEIGHT	•		CAS	ING LE			A./L	E¥.	IGTH LOGGED BY:	Cha			
ш	_	14	:	bs/30	10	HA.	TER	?	No	ae	_	П		G. Cherr	<u>y</u>	T	
SAT DIAN	SAMP, ADV.	LEN CORE	CORE REC.	BLOWS "N" X CORE	LOSS IN IN	- I en	STS		ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASS	SIFICAT:	ION	WATER CHARAC	ON: LEVELS, RETURN, CTER OF ING, ETC.
	2.0	1	1.4	4-13-10 10		1			123.0				0.0 - 11.0 Pt. FILL.			Borehol	e advanced with 6.5-incl
SS	2.0	+	1.8	10-24-1									0.0-0.8 Ft. Silty CLAY (CL). yellowish brown (10YR4/2). Some gravel.	. Dark Dry, soft.		O.D. ho auger.	llow-stem
	l			11	ļ								0.8-1.2 Ft. Sandy GRAVEL	(GM).		İ	
SS	2.0	1	1.3		1					S_			1.2-11.0 Pt. Silty CLAY (CL' RUBBLE. Grayish black (N2) and			
]					-			moisture content, loose. Rubl of carbonaceous material, slag	ble consists	•	Radiolo	
SS	2.0	1	1.3			1						H	lime and particle board.			TMA/E	logged by berline.
66	2.0	1	2.0														
33	2.0		2.0									ľ					
SS	2.0	+	1.8		Ì					10_						Top of 1	ındisturbed
									411.0_	٠	444		11.0 - 13.7 Ft. Silty CLAY (CL)). Olive		material	at 11.0 Ft.
SS	2.0	+	1.2							-			gray (5Y4/1). Low moisture of medium stiff, moderately plass	ontent, soi tic. Trace	of		
					ŀ				408.3_				very fine-grained sand and or as blebs.	ganic mate	erial		
				-					408.0-	-			13.7 - 14.0 Ft. Silty SAND (SM) moisture content, soft. Fine is black (N1) organics.). Low aminae of		Ft. obta	from 4-14 ined by ng sampler augerhead.
									•				Bottom of borehole at 14.0 Ft. Borehole backfilled with bentonit 4/15/88.	te cement,		No blow	counts taken
																from the	escriptions e GSA Rock hart (1948).
										."						Descript classifica soils by examina	ation of visual
							•										
1				OON; ST				~~,	ITE	S	t.	L	ouis Downtown Site	}		HOLE NO	6R17

	(GI	EC	LOC	31	C D	RIL	L LO	G	PROJE	СТ		1 1	ET NO. HOLE NO. OF 1 B16R18
SIT					_				COORDINA	ATES				OF 1 B16R18 ROM HORIZBEARING
BEG		t.		uis Do	_			e						tical
F		-88	- 1	-24-8		i i		-Wes	tern, Co		DKI	LL	MAKE AND MODEL SIZE OVERBURDEN ROC CME-55 6.5" 18.5	K (FT.) TOTAL DEPTH
COR	E RE	ω	VER	(FT./	/ %)			SSAMPL	ESEL. TO		ING	G	ROUND EL. DEPTH/EL. GROUND WATER DEPTH	I/EL. TOP DF ROCK
SAM	PLE	HAI	MEI	RWEIGH	iT/	/FALL	ICAS	9	FT IN HO	LE: DI	A./	/LEI	424.0 \$ /	/
		14	0 1	bs/30	i				No				G. Cherry	
뿐	וֹצֵן!	w S	<u>cc.</u> c.	SAMPLE BLOWS "N" X CORE	≿	PR	ATER ESSU	RE			7			
LA	₹		7 2	± 8 €		. E	ESTS		ELEV.	HE PT	Į		DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS,
SANG DIAN.	d L		S S	× Cag		SH G	88.0 H.H	HAN.		8	BRAPHICS	2		WATER RETURN, CHARACTER OF
à,α	9.	<u>-</u> 4	i O	<u> </u>	+	_ 6	<u> </u>		424.0 423.4		L	<u>'</u>	0.0 - 0.6 Pt. ASPHALT.	DRILLING, ETC. Borehole advanced
SS	1.3	\dagger	1.0	7-6-5/	4				423.4				U.S - 18.5 Ft. Bilty CLAY and RUBBLE.	0-18.5 Ft. with 6.5-in. O.D.
SS	2.0	+	1.8		ᅱ								0.6-8.8 Ft. Silty CLAY (CL). Dark yellowish brown (10YR4/2). Dry to low moisture content, medium stiff. Minor amounts of rubble consisting of brick,	hollow-stem auger.
				13									moisture content, medium stiff. Minor amounts of rubble consisting of brick,	
33	2.0	1	1.6	4-7-10 10	ಠ								gravel and pebbles. Moderate yellowish brown (10YR5/4) Fe staining.	
-00		┵		100						-				Radiologically sampled and
33	2.0		1.5	4-6-6 6	`									gamma-logged by TMA/Eberline.
SS	2.0	+	1.6	3-5-4	\dashv									
				4									8.8-15.3 Ft. Silty CLAY (CL) and	
SS	2.0	\dagger	2.0	6-4-4	H					10_			RUBBLE. Brownish black (5YR2/1) to grayish black (N2). Low moisture content to moist, loose. Rubble consists of slag,	Top of undisturbed material at 15.3 Ft.
	_												carbonaceous material, brick, sand and pebbles. Patches of olive gray (5Y4/1)	material at 10.5 Ft.
SS	2.0	l	2.0	3-3-3 5	1								silt and dark yellowish brown (10YR4/2) silty clay. Light brown (5YR5/6) Fe	
SS	2.0	+	1.8	2-2-6						.			staining.	
			•	7					408.7_	15_	•	,,,	14.5-15.0 Pt. Lime; moist, gritty.	
SS	2.0	\dagger	1.4	5-16-1	3				·407.5_	.			_ 15.3 - 16.5 Ft. Silty CLAY (CL). Olive	
		ŀ		10									gray (5Y4/1) to dark greenish gray (5GY4/1). Moist, medium stiff, moderately plastic. Trace of organic material as	
					1				405.5_		1	4	blebs, including several rootlets. Dessication cracks.	Color descriptions
					١	-							16.5 - 18.5 Ft. Silty SAND (SM). Olive	from the GSA Rock Color Chart (1948).
													gray (5Y4/1). Low moisture content, stiff, slightly plastic. Very fine-grained sand.	
						l							Bottom of borehole at 18.5 Ft.	
						l							Borehole grouted to bottom of asphalt bentonite cement, 3/24/88.	
					ł	ļ				."		Ш	·	
					ł									Description and classification of
					ļ							Ш		soils by visual examination.
	1													
			ļ											
	l													
	<u> </u>	\perp	_		1				175					UOLE NO
				OON; S P = P				J-,	ITE	S	it.	L	ouis Downtown Site	B16R18
<u> </u>			/	· · · · ·		,								

		_	E	71.0	26		ור)II I	L LO	G	PROJ	ECT			T NO. HOLE NO.
SIT	E				JG			\IL.		COORDII	NATES				OF 1 B16R19 OM HORIZBEARING
		St.						Sit	e					1,694 E 2,439 Vert	ical
BEG		-8	- 1		ETED -88	- 1			Was	tern C	٠_	DR		MAKE AND MODEL SIZE OVERBURDEN ROCK Mobile B-40 6 3/4" 20.0	(FT.) TOTAL DEPTH
							RE	BOXE	SAMPL	ESEL. 1	O. TOP CA	SIN			20.0
			_/						8					424.6	
SAM	PLI				EIGHT /30 1		•	CAS	ING LE		one OLE: 1	DIA.	./LE	IGTH LOGGED BY: T.F. Mullen	
쁑.								ATER				T			
SAN DIAN	Ē	LEN CORE	R		X CORE RECOVERY		TI	ESTS		ELEU.	Ę		GRAPHICS KANDI E	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS,
<u>ار</u>	ş	Z	7 3		S CO	LOSS	I.	PRESS. P. S. I	HINE Fire		DEPTH	1	RAPHIC KAMPI P		WATER RETURN, CHARACTER OF
8 ₹	9		BAT	3	;"`æ	٣,	o	P. C	££	434.0					DRILLING, ETC.
	ļ									424.1 423.8		4		0.0 - 0.5 Ft. CONCRETE. 0.5 - 1.1 Ft. Gravel FILL.	Borehole advanced 0-20 Ft. with 6-3/4
SS	1,		2 (16-1	9-19					422.7	7-		•	1.1 - 1.9 Ft. CONCRETE. 1.9 - 16.2 Ft. FILL. Dusky yellowish	in. O.D. hollow-stem auger. Radiologically
	٦				16		1					1		brown (10YR 2/2) to brownish black (5YR 2/1) clavey silt and silty sand, crushed	sampled and gamma-logged by TMA/Eberline, Inc.
SS	2	.0	0.9	6-1	6-18							. 1		brick and gravel, and pieces of coal. Dry and loose. Lenses of dark yellowish orange (10YR 6/6) clay throughout interval.	TMA/Eberline, Inc.
				1	•						'	5 –		Moist, slightly plastic, and crumbly.	
SS	2	.0	1.9	4-	7-7 5]			
SS		^	1.7		-2-7							4			
33	1	.0	1.4] 3.	6							4			
SS	2.	.0	1.7	3-	-2-2						10	P-		•	
	l				5							1			
SS	2.	.0	1.9	1-	4-3			:				1			
	L]			
SS	2.	.0	1.8	1-	1-2						11	5_			
SS	2.	.0	2.0	9-	7-3					408.4	4	-			Top of undisturbed
		i			7							-		16.2 - 20.0 Ft. Silty SAND (SM). Light olive gray (5 Y5/2). Moderately plastic.	material at 16.2 Ft.
	╁			╁╌								4		Moisture varies from wet to moist with depth. Loose and crumbly. Organics	
										404.6	B 2 (present.	
											1			Bottom of borehole at 20.0 Ft.	Color descriptions from the GSA Rock
									:					Borehole backfilled with bentonite cement, 4/7/88.	Color Chart (1948).
											1	,,			
											1				Description and classification of
															soils by visual examination.
			<u> </u>	<u> </u>		<u>. </u>							\perp		
								BY TU	BE; S	ITE		St	<u>.</u> 1	ouis Downtown Site	B16R19
				, ,	- F1	· Unc	`,							odis Domitomii Oite	

-	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T	FUSRAP 145		ET NO. HOLE NO. OF 1 B16R20
SITE							COORDINA	TES			ANGLE FRO	OM HORIZBEARING
BEGU			HPLETED			e	<u> </u>	-		1,680 E 2,545 WAKE AND MODEL SIZE OVERBURDEN	Vert	
	" 6-8:	1	1-6-88			e-Wes	tern Co	- 1		lobile B-40 6 3/4" 18.0	ROCK	(FT.) TOTAL DEPT
) CORE	DOXE	SAMPL	ESEL. TO	P CASI		OUND EL. DEPTH/EL. GROUND MATER	DEPTH	/EL. TOP OF ROCK
CAMP	I E M	AMME	R WEIGHT	/FALL	ICAS	1 7	FT IN NO	F. DI	A /1 E1	424.6 \$ / GTH LOGGED BY:		
-			bs/30	•			No		~./ 	T.F. M	ullen	
<u>.</u>	刘n	ပ္ပုံ	خراخ	PR	ATER				9			
ANG DIA	SAMP, ADV.	AMPLE RICORE RE	SAMPLE BLOWS "N" X CORE RECOVERY	LOSS IN P.P.	EST:		ELEV.	HTGG	GRAPHICS SACTOLE	DESCRIPTION AND CLASSIFIC	ATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
","	₩»	w,		_	0.0		424.6 424.2	 		0.0 - 0.4 Ft. CONCRETE.		Borehole advanced
SS	2.0	1.1	4-8 10/0*				400.5	•		0.4 - 2.1 Ft. Gravel FILL.		0-18 Ft. with 6-3/4 in. O.D. hollow-sten
			10/0				422.5_	-	2	3.1 - 3.3 Ft. CONCRETE.		auger. Radiologically sampled and
SS	2.0	0.2	5-5-4 3				431.3	5_		3.3 - 14.6 Ft. FILL. Crushed concrete, gravel, brick, and slag. Clayey silt varying from dusky yellowish brown (10 YR2/2) to dark yellowish brown		gamma-logged by TMA/Eberline, Inc.
ss	2.0	1.4	2-1-2					-		(10YR4/2). Dry and loose.		
ss	2.0	1.0	2-1-1 1							7.0-7.4 Ft. Sandy SILT (ML). Sand white to clear. Very fine-grained and subrounded.	is i	
SS	2.0	1.2	3-4-3					10_				Top of undisturbed material at 14.6 Ft.
SS		1.7	7-4-2 5							11.1-14.6 FT. Silty CLAY (CL) gradually SAND (SM). Silt is light olive (5Y5/2), silty CLAY is dark yellowis brown (10YR4/2) to light brown (5Y Moist. Clay is moderately plastic. Si	n R5/6). and is	
SS	2.0	1.9	5-3-4 5				410.0_	15_	nifinitarium.	poorly graded. 14.6 - 18.0 Ft. Sulty CLAY (CL). Olive gray (5Y4/1). Moderately plastic, sti consistency, moist, medium-stiff three Possible reworking?	n e	Color descriptions
							406.6_			Pattern of hand all the Pa		from the GSA Rock Color Chart (1948).
						·		7		Bottom of borehole at 18.0 Ft. Borehole backfilled with bentonite ceme 4/6/88.	nt,	
												Description and classification of soils by visual examination.
			POON; ST ; P = P1			~ , j	ITE .	S	it. L	ouis Downtown Site		HOLE NO. B16R20

		EC	LOG	IC I	DRII	L LC)G	PROJE	T			ET NO. HOLE NO.
SITE	=						COORDIN	ATES				OF 1 B16R21 OM HORIZBEARING
			uis Do			te					1,704 E 2,613 Vert	ical
BEGL	jn 1-8	- 1	MPLETED 4-1-88	- 1		. Was	C	I	DRIL	_	· · · · · · · · · · · · · · · · · · ·	(FT.) TOTAL DEPTH
			Y (FT./				ESEL. TO		NG	_		Z0.0 /EL. TOP OF ROCK
		1				8					424.6	/
	1	40 1	R WEIGH lbs/30	in		SING LE	FT IN HO		À./I	LEN	GTH LOGGED BY: T.F. Mulien	··
P.	Sim	<u>نا</u> ز:	BLOWS "N" X CORE		WATE			·		П		
ANG DIAM	5 2	RE	J. 80	<u> </u>	TEST	s	ELEU.	F	GRAPHICS	THEFT	DESCRIPTION AND CLASSIFICATION	NOTES ON:
5 to	Q Z	7 2	FROC	e z	PARSS.	HAN.		DEPTH	1	ä	200012F1201 F130 023021 2041201	WATER LEVELS, WATER RETURN,
**	18 J	E 0	a Ply	SH.	a Ku	HHH	424.6	-	8	n		CHARACTER OF DRILLING, ETC.
	-						424.0		-5	Ш	0.0 - 0.6 Ft. CONCRETS.	Borehole advanced
SS	2.0	1.6	14-31-2	d				.		۲	0.6 - 16.2 Ft. FILL.	0-20 Ft. with 6-3/4 in. O.D. hollow-stem
			13	ļ				1 .			0.6-1.0 Ft. Gravel fill material.	auger. Radiologically sampled and
SS	2.0	1.7	4-5-8 14								1.0-2.6 Pt. Crushed gravel, clayey silt. Moderate yellowish brown (10YR5/4) to dusky brown (5YR2/2). Dry and loose.	sampled and gamma-logged by TMA/Eberline, Inc.
SS	2.0	1.8	9-4-7	1				8_		ı	2.6-16.2 Pt. Clayey silt to silty gravel fill. Dusky yellow green (5GY5/2) silt	
			5	1	ŀ	1]	-			coating on sample surface. Clayey silt is dusky yellowish brown (10YR2/2), dry and	
SS	2.0	1.5	3-3-2	1				-			firm consistency.	
			2					•				
SS	2.0	1.7	4-3-3	1				.				
			12	ł	Ì			10_				Top of undisturbed
SS	2.0	1.6	4-4-5	1	ŀ							material at 16.2 Ft.
		}	4									
SS	2.D	2.0	1-1-2	1				-				
			2									
SS	2.0	2.0		1				15_				
			3				408.4	- ∤	31			Color descriptions
				1		:				H	16.2 - 20.0 Pt. Silty CLAY (CL). Dark greenish gray (5G4/1). Moist, stiff	from the GSA Rock Color Chart (1948).
						ŀ		•			consistency, slightly plastic. Breaks up when rolled. Small pieces of decomposed	` ′
								•			twigs.	
							404.6_	20 .		₩		1
								1			Bottom of borehole at 20.0 Ft. Borehole backfilled with bentonite cement,	
					ŀ	1				П	4/1/88.	
					1				1		•	
					1				l		•	
				1			}	1 "		$\ $		Description and
									l			classification of
										$\ $		soils by visual examination.
							1					
							[1		$\ $		
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		l		<u> </u>		┸——	<u> </u>	<u> </u>		Ц		
			POON; \$1			,	ITE	6			ouis Downtown Site	HOLE NO. B16R21
ש ע	UENN	, SUN	P = PI	IUNER	; U =	UINER		<u>_</u> 3	L.	F.	dais Domittown Site	DIOUSI

	G	FC	LOG	IC D	ŔII	LIO	G	PROJEC	T					'n	08 NO.		ET NO.	HOLE NO.
SITE					1112		COORDINA	TES			FUSE	AP		L	14501		OF 1	B16R22A
		Lo	uis Do	wntow	n Sit	e			ı	V 1.6	40	E 2,67	0			Vert		PEAKING
BEGL			MPLETED					ŀ	RILL	NAKE	AND N	DEL	SIZE	OVERE	URDEN		(FT.)	TOTAL DEPTH
3-1	15-8	8 3	-15-8	B I			tern, Co				IE-55		6.5"	<u> </u>	0.6			0.6
CORE	REC	OVER'	(FT./3	() CORE	BOXE		ESEL. TO	P CASI	NG G			DEPTH,	EL. GROU	IND WA	TER	DEPTH,	EL. TOP	OF ROCK
SAME	LE N	AMMEI	R WEIGHT	/FALL	CAS	O LE	FT IN HOL	F: DI	A./LE		3.9	I# /				l	/	
			bs/30				No		,					G	. Cherr	·y		
M.	-:	ပ် .			MTE	₹							. <u></u>				 	
SAT DIAME	SAMP. ADV.	REC	SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU FEST:			Ŧ	GRAPHICS SAROLE								NOTES	ON:
ق ا	. 0		F 2000	o_E	ě.	W	ELEV.	DEPTH	RAPHIC	D	ESCR:	(PTION	I AND C	LASS	IFICAT	ION		LEVELS, RETURN,
器	E	FIX.	多い。	LOSS IN G.P.M	PRESS. P. S. I.	FHE		۵	8	İ							CHARAC	TER OF
8,4	€D;	B O		- 6	<u> </u>		423.9 423.3_		24.	0.0	- 0.6	t CO	CRETE.					NG, ETC.
							425.5_			1						-	10-0.6 Ft	with 6.5-in.
										Bo	rehole	patched	at 0.6 Ft. with conc	:rete, S	/15/88.		auger.	
						1				•								
]	_		İ							Auger	efusal at 0.6
									1								Ft. (sub	surface 3/4" oke a U-joint
									1								on the r	ig).
																	İ	
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			1			ļ												
			POON; ST			~-,	ITE										HOLE NO	
D =	DENN	SON;	P = PI	TCHER;	0 = 0	THER		S	t. L	.oui	s De	ownt	<u>own S</u>	oite			RI	R22A

	(GE	0	LO	GI	C D	RIL	L LO	G	PROJEC	T		FUSRAP	JOB NO 145	1	ET NO. OF 1	HOLE NO. B16R22B
SITE									COORDINA	TES					ANGLE FR	-	
88.0	_	<u>i. 1</u>				ratow		e	<u> </u>	1			1,702 E 2,083	la manus s	Vert		
BEGU 4-1		22		-27-		DRILL		_Wes	tern, Co		ORILL		AKE AND MODEL SIZE CME-55 6.5"	OVERBURDEN	ROCK	(FT.)	16.0
									ESEL. TO		NG			ND WATER	DEPTH	/EL. TOP	OF ROCK
SAMP				bs/3		/FALL	CAS		FT IN HO		A./Li	ENG	TH LOGGED BY:	G. Ch	errv		
Ņ.							ATE					Ī		0.02]	
ANG DIAH.	SAMP, ADV.	PLE RE	PE REC	BLCUS "N"	ECOVER'	LOSS IN F.T.	ESSU FESTS		ELEV.	DEPTH	GRAPHICS	16 T F	DESCRIPTION AND C	LASSIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF
\$₹	₹ -	J g	ដ	1	Œ	79	PARS.	FI	423.9		1 ⁻ 1	1		•			ING, ETC.
			\perp	_					423.2_		27]	0.0 - 0.7 Ft. CONCRETE.				e advanced with 6.5-ine
SS			1	5-7-3	· }					•			0.7 - 13.5 Ft. Silty CLAY (RUBBLE.	(CL) and			llow-stem
SS	2.0	1	.5	7-22 15						-			0.7-2.4 Pt. Pale yellowis to moderate yellowish br Dry to low moisture cont	own (10YRs	74).		
SS	2.0	1	.3	4-2-	-1				·	5_			Rubble consists of brick, material and sand.	carbonaceo	15	Radiolo	gically
SS	2.0	1	.2	2-4- 3						-			2.4-13.5 Pt. Brownish bi grayish black (N2). Low to moist, loose. Rubble c carbonaceous material, si	moisture co	ntent	sampled gamma- TMA/E	l and logged by berline.
SS	2.0	1	.6	2-3-	-2					-			carbonaceous material, al brick and wood. Patches brown (10YR4/2) silty cl olive brown (5Y4/4) silty	s of dark yell lay and mod y sand.	owish erate		
ss	2.0	1	.8	1-1-3		·				10_							indisturbed at 13.5 Ft.
SS	2.D	1	.5	1-1-2					410.4_	7 -							
SS	2.0	1	.2	2-2-	-4	:			407.9_	15_			13.5 - 16.0 Pt. Silty CLAY gray (5Y4/1). Moist, soft slightly plastic. Minor as fine-grained sand. Fine (N1) organics.	mounts of ve	ry		
									200.0	-			Bottom of borehole at 16.0 l Borehole backfilled with ber 4/27/88.		nt,	from the	escriptions e GSA Rock hart (1948).
										p						Descript classific soils by examina	ation of visual
						= SHEE		~~,	ITE	S	t.	Lo	ouis Downtown S	Site		HOLE NO	6R22B

		EC	LOG	IC D	RIL	L LO	G	PROJEC	T .	JOB NO 145	01 1	ET NO. OF 1	HOLE NO. B16R23
SITE	St.		uis Dov			e	COORDINA			1,506 E 2,216	Vert		
BEGL 3-2		- 1	MPLETED -28-88	· I		-West	tern, Co		RILL	CME-55 6.5" 16.0	ROCI	((FT.)	TOTAL DEPTH
CORE	REC	OVER	Y (FT./%	CORE	BOXE	S SAMPL	ESEL. TO	P CASI	NG G	OUND EL. DEPTH/EL. GROUND WATER \$ 10.8/410.3 3/28/88	DEPTH	/EL. TOP	OF ROCK
SAMP			R WEIGHT	•	CAS	_			A./LE	GTH LOGGED BY:	!	/	
Ψ.	سبسبر	ببحوبسني	bs/30		MIE	?	No	ne		G. Ch	erry	Ī	Company of the section
AM OIAR	LEN CORE	AMPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	Loss IN P.P.A	ESSU ESTS ON		ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
		L			0.0		421.1 420.5_		£2)	0.0 - 0.6 Pt. CONCRETE.		Borehol	e advanced with 6.5-inc
8S 8S		L	2-7-7/3' 12-13-9 5							0.0 - 0.6 Ft. CONCRETE. 0.6 - 12.7 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR2/1) grayish black (N2). Low moisture co to moist, loose. Rubble consists of carbonaceous material, slag, gravel, and sand. Light brown (5YR5/6) Fe	/! !CE		stem auger.
SS	2.0	0.8	3-4-7					5		staining.		Radiolo	gically
SS	2.0	0.5	2-2-2					-				sampled gamma- TMA/E	and logged by berline.
SS	2.0	1.6	2-2-3										
SS	2.0	1.4	1-2-2				2	10_					undisturbed l at 12.7 Ft.
SS	2.0	1.1	3-2-3 8				408.4_		38				
SS	2.0	0.8	4-9-9 6					15_		12.7 - 16.0 Ft. <u>Silty CLAY</u> (CL). Olive gray (5Y4/1). Moderate moisture cormedium stiff, moderately plastic. Trorganic material as blebs including servotiets.	tent, see of veral		
							. 40 5.1_	-		Bottom of borehole at 16.0 Ft. Boring grouted to bottom of concrete with bentonite cement, 3/28/88.	th	from the	escriptions e GSA Rock hart (1948).
								.7				Descrip classific soils by examina	visual
			POON; ST ; P = P1			~-,	ITE	S	t. L	ouis Downtown Site		HOLE NO	6R23

	C	FC	DLOG	:10		RII	10	G	PROJEC	T		FICE	4.5				08 NO.		ET NO.	HOLE NO.
SITE								COORDINA	ATES			FUSR	AP			1_	1450		OF 1	B16R24
		. Lo	uis Do	W	ntow	n Sit	e				N 1,5	60 I	€ 2,2	91			[tical	
BEGL		1-	OMPLETE		DRILL		•••			DRILL		AND NO	DEL	SIZE		OVERBL		ROC	K (FT.)	TOTAL DEPTH
			3-25-8					tern, Co		ING	CM GROUND	E-55	DEDT	6. H/EL.	5"		21.0	DEDT	/EI T00	21.0
	, RE		1 (11.7	~,			9	2322. 70	r uns			3.6	₹ 7	.5/416	5.1 3/	23/88	EK	DEFIR	1/EL. 10P	OF RUCK
SAMP	LE I	AMME	R WEIGH	T/	FALL	CAS		FT IN HO	LE: DI	A./Li			BY:						/	
			bs/30					No	ne	, ,						<u>G.</u>	Cher	ry		
AND DIAM.	SAMP. ADV.	AMPLE REC.	BLOUS "N" X CORE	MECCOERT.	PR	ESSU: ESSU: SOURCE SOUR	RE	ELEV.	ОЕРТН	GRAPHICS		ESCRI	PTIC	ON AN	ם מג	ASSI	(FICA	TION	WATER CHARA	ON: LEVELS, RETURN, CTER OF ING, ETC.
			l			E.C.		423.6 423.0_			0.0	- 0.6 F	t. AS	PHAL	T.				Boreho	le advanced
SS			6-7-8/5	╛				422.5_		-0	0.6 1.1	- 1.1 F - 15.0 RUBBI	t. Sa Ft. S	lty CL	AY	عد (باز	иd] 0-21 Ft	. with 6.5-inc blow-stem
SS	2.0	1.5	5-7-8									1.1-4.6 (10YR5	Ft. 16	doderat	te yell vellow	owish ish br	brown own			
SS	2.0	1.8	4-10-1 31	1					5_			(10YR4 stiff. M materia olive gr	/2). L Linor : l. peb	ow mo mount bles an	isture is of co id sand	conte	nt, me		Radiolo	gically
SS	2.0	1.3	10-3-5 15					<u> </u>	-			4.6-15.0 grayish to mois	OFt.	Brown	ish bla	nck (5° moistu onsists	YR2/1 ire con slag.	to ent	gamma	i and -logged to 18 FMA/Eberlin
SS	2.0	1.6	2-4-7	1				•				carbons Patches greenis! brown (of lig	mater ht oliv	ial, gr e gray S/I) ei	avel a (5Y6 ilty cli	nd bric	k.		
SS	2.0	1.7	2-3-5	1					10_				(0 2 2 2 2 2	, •, - •		. .			on 3/25	ed 18-21 Ft. 5/88 with no 1 taken.
SS	2.0	0.8	2-5-7 5	$\frac{1}{2}$					-											
SS	2.0	2.0	2-4-4	-				408.6_	15_	/////	18	0 - 17.2	· Fr.	sie C	7 X V 7	en	Oliva			
SS	2.0	1.7	6-10-1- 15	4			-	406.4_	ļ			FTBY (5) (5GY4/ plastic. as blebs	Y4/1) '1). M Mino inclu	to dar loist, n or amou ding sr	k gree nediun unts of nall sl	nish g n stiff, f orga	ray , moder nic mat	rately serial		
									20		17.	partiali 2 - 21.0 gray (5 fine-gra	Ft. (Silty S. Moist	AND (SM). ium st	Olive	/ &		undisturbed I at 15.0 Ft.
								402.6_			1	dessicat reddish between	ion cr browi	acks.	String	ers of	moder	ate	from th	escriptions e GSA Rock
									. ,		Bo	ttom of ring gro bentoni	uted t	o botto	om of	aspha	lt with		Color C	Chart (1948).
:																				
			POON; S ; P = P				,,,,	ITE	S	t.	Loui	s Do	wn	tow	n S	ite		_,_ <u>_</u> _	HOLE NO	6R24

	G	EC	LOG	IC D	DIL	10	G	PROJEC	T.		E NO.
SITE			LOG		IVIL	LO	COORDINA	ITES		FUSRAP 14501 1 OF 1 B	RING
			uis Dov			e				N 1,515 E 2,351 Vertical -	
BEGU		1 -	MPLETED -24-88			Wast	C.		DRILL	1 1 1	AL DEPTI
							tern, Co		NG G	CME-55 6.5" 16.5 ROUND EL. DEPTH/EL. GROUND MATER DEPTH/EL. TOP OF	16.5 ROCK
		/_			la c	8				422.0	
SAMP			bs/30	•	CAS	ING LE	Pi IN NOI Noi		A./LE	MGTH LOGGED BY: G. Cherry	
W .					ATER					3. 0.0	·
ANG DIAH.	LEN COR	ORE REC	SAMPLE BLOWS "N" % CORE RECOVERY	Loss IN G.P.H	ESTS		ELEV.	DEPTH	GRAPHICS	1	VELS, TURN, R OF
6 04	ه.) P		- 6	Ēα		422.0 421.4	! !		DRILLING 0.0 - 0.6 Ft. ASPHALT. Borehole ad	<u> </u>
\$ S	1.0	0.9	8-13					•		0.6 - 13.0 Ft. Silty CLAY (CL) and 0-16.5 Ft. w	rith
SS	2.0	1.5	9-9-14 5		•			-		0.6-6.9 Ft. Dark yellowish brown (10YR4/2). Dry to low moisture content, medium stiff. Minor amounts of rubble	auger.
SS	2.0	1.7	5-6-6 9					5_		consisting of slag, brick, gravel, sand and glass. Light brown (5YR5/6) Fe staining. Radiological	llv
SS	2.0	1.7	4-2-4					-		sampled and gamma-log TMA/Eberi	d zed by
SS	2.0	1.7	4-4-4					_		6.9-13.0 Ft. Brownish black (5YR2/1) to grayish black (N2). Low moisture content, loose. Rubble consists of slag, carbonaceous material, brick and grayel.	
SS	2.0	1.7	2-4-4 5					10_		Patches of dark yellowish brown (10YR4/2) to light olive gray (5Y6/1) silty clay. Light brown (5Y5/8) Fe staining. Top of undimaterial at	
00								-			
SS	2.0	1.8	3-3-5 5				409.0_	-		13.0 - 16.5 Pt. Silty SAND (SM). Olive gray (5Y4/1). Low moisture content, soft to medium stiff, slightly plastic. Very	
SS	2.0	1.0	2-4-5 10			:		15_		medium stiff, slightly plastic. Very fine-grained sand.	
							408.5_			Bottom of borehole at 16.5 Ft. Borehole grouted to bottom of asphalt with bentonite cement, 3/24/88. Color descriptom the GS Color Chart	A Rock
								<u>, n</u>		Description classification soils by visu examination	n of Ial
			POON; ST			, ,	ITE .			ouis Downtown Site HOLE NO. B16F	226

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	:T		T NO. HOLE NO. OF 1 B16R27
SITE							COORDINA	ITES		ANGLE FRO	M HORIZBEARING
BEGUI			MPLETED			te	<u> </u>			11,447 E 2,365 Verti	
		- 1	-10-8		_	-Wes	tern, Co	i i		Mobile B-53 8 1/4" 18.0	(FT.) TOTAL DEPTI
CORE	REC	OVER	Y (FT./X	CORE	BOXE	S SAMPL	ESEL. TO	P CASI	NG C	177 47 37/00 7 7/7/00	EL. TOP OF ROCK
SAMPI	E N	ANNE	R WEIGHT	/FALL	CA:	1 -	FT IN HOL	E: DI	A./LE	422.9 \$ 13.27409.7 377/88	
			bs/30				No	ne		G. Cherry	
AND DIAN.	LEN CORE	SAMPLE REC.	SAMPLE BLOWS "N" X CORE RECOVERY	P. H. H. G. P. H. H. H. H. H. H. H. H. H. H. H. H. H.	HATEI ESSU TEST: On on on	RE	ELEU. 422.9	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
8S 2	2.0	1.2	4-5-7 13	-			422.7			0.0 - 0.2 Pt. Sandy GRAVEL.	Borehole advanced 0-18 Ft. with 8
SS 2		Λ 0	4-7-13							0.2 - 13.7 Pt. Silty CLAY (CL) and RUBBLE.	1/4-in. O.D. hollow-stem auger.
SS 2		1.2	13					- -		0.2-3.0 Ft. Moderate yellowish brown (10YR5/4) to dark yellowish brown (10YR4/2). Dry, stiff. Trace amounts of rubble consisting of brick, slag and coarse sand. Fe staining.	
SS 2	2.0	0.8	3-4-5 6					-		3.0-13.7 Ft. Brownish black (5YR2/1) to grayish black (N2). Low moisture content to moist, loose. Rubble consists of brick, slag, gravel, glass, particle board,	Radiologically sampled and gamma-logged by TMA/Eberline.
SS 2	≀.0	1.2	3-2-1					-		concrete and coarse-grained sand. 5.0-5.6 Ft. Clear glass.	
					 			10_		OUT OUT TO COTTAC BIASE.	
SS 2		1.2	4-2-1								Top of undisturbed material at 13.7 Ft.
SS 2	2.0	1.2	3-4-3 4				2	2 -			
SS 2		0.0	4-4-5 8				409.2	15		13.7 - 18.0 Ft. Claver SUT (ML). Dark greenish gray (5G Y4/1). Moist, soft to medium stiff, slightly plastic. Trace amounts of medium-grained sand. Trace	
SS 2	2.0	1.5	3-6-8 11				404.9_	-		amounts of organic material as blebs and stringers.	
										Bottom of borehole at 18.0 Ft. Boring grouted to surface with bentonite cament, 3/10/88.	Color descriptions from the GSA Rock Color Chart (1948).
											Description and classification of soils by visual examination.
			POON; ST P = PI			,	ITE	S	t. L	ouis Downtown Site	HOLE NO. B16R27

CEOLOGIC DRIL	PROJEC	et e	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRIL	L	FUSRAP	14501 1 of 1 B16R28
St. Louis Downtown Si	COORDINATES	N 1 444 E 2 511	ANGLE FROM HORIZBEARING
BEGUN COMPLETED DRILLER		N 1,444 E 2,511 DRILL MAKE AND MODEL SIZE	Vertical OVERBURDEN ROCK (FT.) TOTAL DEPTH
F	e-Western, Co.	CME-55 6 3/4	The state of the s
CORE RECOVERY (FT./%) CORE BOXE	SAMPLESEL. TOP CASI	ING GROUND EL. DEPTH/EL. GRO	UND WATER DEPTH/EL. TOP OF ROCK
/	8	423.9	/
SAMPLE NAMER WEIGHT/FALL CA: 140 lbs/30 ln	SING LEFT IN HOLE: DI	A./LENGTH LOGGED BY:	T.F. Mullen
	R		A.A. Watered
AND DIAN. SAMP DIAN. SAMPLE REC. CORE REC.	S ELEV. F	SO N I D DESCRIPTION AND (NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
8S 2.0 1.5 5-6-10 15		0.0 - 14.0 Ft. FILL.	Borehole advanced 0-16 Ft. with 6-3/4
SS 2.0 1.4 6-12-12		0.5-8.0 Pt. CLAY (CL consistency. Pieces of f alag products dispersed mottled throughout ent 0.5-1.0 Pt. Moderate y	Moist, firm in. O.D. hollow-stem auger. Radiologically sampled and gamma-logged by
SS 2.0 0.6 7-6-9 8	5_	(10YR5/4).	
SS 2.0 1.5 4-7-4		(10YR2/2). 2.0-2.4 Pt. Mottled wit (10Y6/2).	h pale olive
SS 2.0 1.3 2-3-9 6		2.4-6.0 Pt. Dusky yello (10YR2/2). Dry, held	wish brown loosely together.
SS 2.0 1.5 3-2-4	10_	6.0-8.0 Pt. Pale olive (firm consistency, moder moist.	10Y6/2). Soft to ately plastic, Top of undisturbed material at 14.0 Ft.
SS 2.0 1.5 3-2-5	409.9	8.0-14.0 Pt. Silty CLA (10Y6/2) to grayish oliv moderately plastic. Sma and limestone fill mater throughout.	Y (CL). Pale olive re (10Y4/2). Moist, ill pieces of brick
SS 2.0 1.5 2-3-7 14	407.9_	11.0 Pt. Clay becomes 12.0-14.0 Pt. Siltier. S Pine coal particles prese	tains black.
		14.0 - 16.0 Pt. CLAY (Cl gray (5Y4/1). Firm con highly plastic, somewha amounts of mica minera	r-CH). Olive Color Chart (1948). sistency, moist, t 'fatty'. Small
		Bottom of borehole at 16.0 Borehole backfilled with be 2/23/88.	Ft.
			Description and classification of soils by visual examination.
SS = SPLIT SPOON; ST = SHELBY TO D = DENNISON; P = PITCHER; O = (UBE; SITE OTHER S	t. Louis Downtown	Site HDLE NO. B16R28

	(GE	OL	.OG	IC I	DI	RIL	L LC	G	PROJ	ECT		1	T NO. HOLE NO. OF 1 B16R29
SIT	_			-			- 614		COORDI	NATES			ANGLE FRO	M HORIZBEARING
BEG				S DOY				e	<u> </u>		DR		N 1,441 E 2,768 Verti	(FT.) TOTAL DEPT
2-	19-			19-88					tern, C		L		CME-55 6 3/4" 16.0	16.0
CORI	E RE	COVE	RY	(FT./X	·) α	ЖE	BOXE	SISAMPI 8	ESEL. 1	TOP CAS	SIMO	; G	ROUND EL. DEPTH/EL. GROUND WATER DEPTH/ 423.0 \$\frac{1}{2}\$ 11.5/411.5 3/2/88	EL. TOP OF ROCK
SAMI				JE I GHT	•	L	CAS				IA.	/LE	NGTH LOGGED BY:	
le i		_	1 44 41.	/30			ATE)	No.	опе	_		T.F. Muilen	The state of the s
AME OIATE	SAMP, ADV	AMPLE REC	SAMPLE	RECOUERY	Loss	PRE	EST	RE	ELEV.			GRAPHICS CAMPIE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
<u>\$</u> S	1.5	1.3	3 (8-5-4	_		u.u.		423.0	1			0.0 - 8.0 Ft. Silty CLAY (CL) and RUBBLE.	Borehole advanced 0-16 Ft. with 6-3/4
	2.0	1.4		7-4-4							1		0.0-5.4 Ft. CLAY (CL). Dark yellowish orange (10YR6/6). Moist, crumbly. Occasional pieces of brick, crushed limestone fill material, and slag products.	in. O.D. hollow-ster auger. Radiologically sampled and gamma-logged by TMA/Eberline, Inc.
SS	2.0	1.4		2-3-5						5				•
SS	2.0	1.4	1 :	2-9-7 9					415.0		-		5.4-7.5 Ft. Silty CLAY (CL). Dark yellowish orange (10YR6/6). Moist, soft crumbly consistency. Trace of very fine-grained sand.	
SS	2.0	0.9		2-3-2					414.1	7	1		7.5-8.0 Ft. LIMESTONE. Light bluish gray (5B7/1). Broken up pieces, approximately 1/2-1 inches in diameter.	
	2.0	1.		1-3-2						¥	1		8.0 - 8.9 Ft. <u>SAND</u> (SM). Dark gray (N4). Predominantly fine- to medium-grained, well sorted, wet, nonstratified.	Top of undisturbed material at 14.0 Ft.
SS	2.0	1.3		2-1-3		1					-		8.9 - 14.0 Ft. Silty CLAY (CL). Grayish black (N2).	
SS	2.0	1.3	1	3-7-8 8					409.0	15	1		8.9-12.0 Ft. Slighty moist, soft and crumbly. Some bands of fine-grained sands throughout.	
													12.0-14.0 Ft. Saturated. Slightly plastic. Contains small pieces of particle board and slag products.	Color descriptions from the GSA Rock Color Chart (1948).
													14.0 - 16.0 Ft. Clayer SILT (ML-MH). Dark gray (N3). Wet, moderately plastic. Firm consistency. Medium-stiff thread.	
													Bottom of borehole at 16.0 Ft. Borehole backfilled with bentonite cement, 2/19/88.	
											٦.		·	Description and classification of soils by visual examination.
				ON; ST				,,,	SITE		St		ouis Downtown Site	HOLE NO. B16R29

GEOLOGIC DRILL LOC	PROJECT FUSRAP		OF 1 RIGHT
SITE	ORD I NATES		OF 1 B16R30 OM HORIZBEARING
St. Louis Downtown Site BEGUN COMPLETED DRILLER	N 1,432 E 2,870 DRILL MAKE AND MODEL SIX	Vertize loverburden rock	
2-19-88 3-9-88 Layne-Weste		1/4" 18.0	(FT.) TOTAL DEPTH
CORE RECOVERY (FT./%) CORE BOXES SAMPLES	7 10 04	GROUND WATER DEPTH	EL. TOP OF ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LEFT	422.2 ₹ / 10.9/1		/
140 lbs/30 in	None	G. Cherry	
SAMP DIAN. SAMPLE REC. SAMPLE	EU. HE DESCRIPTION A	ND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
	421.5 0.0 - 0.7 Ft. CONCE	ETE.	0-18.0 FT advanced
SS 2.0 1.5 16-15-8	0.7 - 15.5 Ft. Silty C RUBBLE. Brown grayish black (N2) Rubble consists of glass, coarse-grain	. Dry to moist, loose. bricks, coal, gravel.	with 8 1/4" O.D. hollow stem auger.
SS 2.0 1.2 3-3-3 SS 2.0 1.1 4-5-3	5-		Sampled and gamma logged by TMA/Eberline.
SS 2.0 1.2 5-4-3 3			·
SS 2.0 0.7 6-2-3	10_ ¥		Top of undisturbed material at 15.5 ft.
SS 2.0 1.2 4-2-2 3 SS 2.0 1.0 0-0-2-2			
SS 2.0 1.3 0-0-0-2	18 14-15 Ft., and 16- advances upon sea 15.5 - 18.0 Ft. Silty (gray (574/1) to di (5GY4/1). Moist, Organic fragments in. piece of driftwo	ting of hammer and rods. LAY (CL). Olive ark greenish gray soft, moderately plastic. and blebs including a 1/2	
	Bottom of borehole a Boring grouted to bot bentonite, 3/9/88.	tom of concrete with	Color descriptions from the GSA Rock Color Chart (1948).
SS = SPLIT SPOON; ST = SHELBY TUBE; SIT D = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtov	n Site	HOLE NO. B16R30

		· E /	21.00	IC D	DII I		C !	PROJEC	T	_		JOB NO.	SHE	EET NO.	HOLE NO.
SITE		ובנ	OLOG		KIL.	LLU	COORDINA	TES			FUSRAP	1450		OF 1	B16R31
		_Lo	uis Dov	wntow	n Sit	te					1,418 E 2,980	「		tical	
BEGL		- 1	OMPLETED			. 11/-	4 ^			. 1	AKE AND MODEL SIZE OVE	ERBURDEN	ROC	K (FT.)	TOTAL DEPT
	29-8		3-2-88				tern, Co		NG		OUND EL. DEPTH/EL. GROUND N	18.0	DEPTI	I/EL. TOP	0F ROCK
						9		<u> </u>		Ĺ	422.9	2/88		/	
SAMF		_	R WEIGHT Ibs/30	•	CAS	SING LE	FT IN HOL		A./L	EN	GTH LOGGED BY:	G.Che			
ш.		200 F			JATE		1101	16		П		G.Che	rry		
SANT DIAK	P. ADV	LE RE	SAMPLE BLOWS "N" X CORE RECOVERY	o E	ESSU EST:	5 T	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	BSIFIC	ATION		ON: LEVELS, RETURN,
器	BAH LE	E 2	S S S S S S S S S S S S S S S S S S S	LOSS AN P. T.	PRESS P. S. I	HIN.	422.9	J	8	٦					CTER OF ING, ETC.
]			422.1_		**	H	0.0 - 0.8 Ft. CONCRETE.			1	T advanced
\$S			B-10-2/2					•			0.8 - 14.5 Ft. Silty CLAY (CL) RUBBLE.) and		with 8 1	/4" O.D. stem auger.
SS		0.0	1					-			0.8-3.0 Ft. Moderate yellow (10YR5/4). Dry, stiff. Mind rubble consisting of brick, lo	or amoun	ts of		
SS	2.0	0.9	2-2-2 3					5_		ľ	pebbles.				
SS	2.0	0.7	1-2-3		-						3.0-14.5 Ft. Brownish black grayish black (N2). Low mo to moist, loose. Rubble cons slag, gravel and coarse-grain	isture consists of branch sand.	i) to ntent ick,	logged t	i and gamma by berline.
SS	2.0	1.0	2-2-1				:	•							
SS	2.0	0.4	2-1-D-0				7	10_ Z -			9.7-10.0 Ft. 4-in. layer of gr (5GY6/1) silty clay with low	reenish g v moistur	ray t	Top of materia	undisturbed l at 14.5 ft.
SS	2.0	1.0	2-1-3								content; stiff. 11.0-12.0 Ft. Sampler advances and rods.	nces upor	1		
SS	2.0	1.6	1-4-3				408.4_	15	<i>''''</i>		14.5 - 18.0 Ft. Bilty CLAY (CI	Ll. Olive		_	
SS	2.0	1.7	1-1-4					•			14.5 - 18.0 Ft. Silty CLAY (CI gray (5Y4/1) to olive black (Moist, soft, moderately plast organic material as blebs.	(5Y2/1). tic. Trace	of		
						<u> </u>	404.9_		Mille						
								_			Bottom of borehole at 18.0 Ft. Boring grouted to bottom of con- bentonite cement, 3/2/88.	ncrete wi	th	from th	escriptions e GSA Rock hart (1948).
								ņ							
				:											
	a)														
			POON; ST ; P = PI			,,,	ITE	S	it.	L	ouis Downtown Site	<u> </u>	·	HOLE NO	6R31

		F	OLOG	IC F)RII	110	G	PROJEC	T		· · · · · · · · · · · · · · · · · · ·	I-	HEET NO.	HOLE NO.				
SITI			<i>-</i>	. C L			COORDINA	TFC		_	FUSRAP 1	14501	1 OF 1 FROM HOR12	B16R32				
31 11		. Lo	uis Do	wntov	vn Si	e				N	1,411 E 2,560		rkom nokiz ertical	BEAKING				
BEG	•		OMPLETEC				<u> </u>				MAKE AND MODEL SIZE OVERBUI		OCK (FT.)	TOTAL DEPT				
			3-30-8				tern Co					0.0		20.0				
CORI	E REC	XOVER	Y (FT./	K) COR	E BOXE		ESEL. TO	P CASI	ING	C	OUND EL. DEPTH/EL. GROUNO WATE	R DEP	TH/EL. TOP	OF ROCK				
RAM	PLE N	LANNE	R WEIGH	T/FALL	CAS	9	FT IN HOL	F: DI	A . /i	Į.	425.0 1 / gth Logged By:			<u>/</u>				
			lbs/30				Noi		^.,			Mullen						
빛.	1.	i i			WATE				_	Π								
AND DIAM	LEN CORE	AMPLE REC	SAMPLE BLOWS "N" % CORE	LOSS	TEST:		ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIF	FICATION	WATER CHARA	LEVELS, RETURN, CTER OF				
<u>m -</u>	6 0,	<u> </u>	1 -	-	0.0		426.0		3.0	₩	0.0 - 1.0 Ft. CONCRETE.			ING, ETC.				
SS	2.0	1.6		1			424.0_	-		Ц	1.0 - 17.4 Pt. PILL Brownish blac	· k	with 6-	3/4 in. O.D. stem auger.				
55	2.0	1.9	3-10-14 5								(5YR2/1) to brownish gray (5YR Contains brick, gravel fill, coal, a clay. Dry and loose.	(4/1). ilt and	Sample	d and gamma				
SS	2.0	1.7	9-6-4					5_ -			4.6-4.9 Ft. CLAY. Light olive g (5Y6/1). Stiff consistency, alight plastic, moist. Crumbles when be Contains pieces of limestone grav	ily alled.						
	2.0	1.1	3-4-4					-			5.0-8.1 Ft. CLAY and FILL. Co from grayish green (10GY5/2) to (5Y4/1). Stiff consistency, crum Fill contains limestone gravel fill.	olor varies olive gray bles.						
SS	2.0	2.0	2 4-5-4					10_			and coal mixture. Loose and dry 9.0-9.7 Ft. CLAY. Dark greenis (5G4/1) changing to light bluish (5B7/1) with depth. Plasticity in	h gray		Top of undisturbed material at 17.4 ft.				
	2.0	1.9	7				:	16_			with depth. 10.0-17.4 Ft. CLAY to silty CL/ green (10GY5/2) to grayish olive Silt content increases with depth Moderately plastic, moist.	AY. Gravis	ıh					
	2.0	2.0	2-3-4				407.6_	-	8				from th	escriptions e GSA Rock hart (1948).				
			5				405.0_	30 .	Sec. Company		17.4-20.0 Ft. Silty CLAY (CL). Dr greenish gray (5GY4/1) to dark (Stiff consistency, moderately plas stiff thread, moist.	ark gray (N3). stic,						
											Bottom of borehole at 20.0 Ft. Borehole backfilled with bentonite c 3/30/89.	ement,						
								."										
s =	SPL	IT SI	POON; ST	= SHF	LBY TI	BE: S	ITE						HOLE NO					
			; P = PI				•	S	t.	L	ouis Downtown Site		B1	6R32				

TE			LOG		KIL	LLU	COORDINA	TEC		FUSRAP 14501 1	OF 1 B16R3
115		Lo	uis Do	wntow	n Sit	e	COORD! NA	163	N	1,325 E 2,600 Vertic	1 -
GU			MPLETED			•	·	F			(FT.) TOTAL DEP
			-28-8				tern Co.			Iobile B-40 6 3/4" 21.0	21.0
ЖE	REC	OVER /	Y (FI./X	() COR	E BOXE	10	ESEL. TO	CASI	NG G	COUND EL. DEPTH/EL. GROUND WATER DEPTH/E	EL. TOP OF ROCK
MP	LE H	AMME	R WEIGHT	/FALL	CA:		FT IN HOL	E: DI	A./LE	GTH LOGGED BY:	
	1	40 I	bs/30	in			Nor	1e		T.F. Muilen	
AND DIAM.	SAMP, ADV. LEN CORE	CORE REC.	SAMPLE BLOWS 'N' X CORE RECOVERY	LOSS IN A.P. H		RE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC
+	•	S			1		425.0		3.		0-21.0 ft. advanced
s	2.0	1.2	8-4-1				43 4.0_		PARE	1.0 - 17.5 Pt. Silty CLAY (CL) and RUBBLE.	with 6-3/4 in. O.D hollow stem auger.
S	2.0	1.2	3-3-2		} }		·	•		1.0-3.0 Ft. Limestone gravel and slag.	Sampled and gamm logged by TMA/Eberline, Inc
S	2.0	1.8						8 _		1.5-2.2 Ft. Clayey SILT. Moderate yellowish brown (10YR5/4) to dusky yellowish brown (10YR2/2). Balls up, nonplastic, moist.	Top of undisturbed material at 17.3 ft.
s	2.0	1.4	3-3-4							3.0-3.4 Ft. CLAY. Moderate yellowish brown (10YR5/4). Moist, moderately plastic, soft thread, homogeneous.	
S	2.0	0.8	3-4-5					10_		3.4-5.0 Ft. FILL. Brick, limestone gravel, elag. Small amounts of clayey silt, dusky yellowish brown (10YR2/2).	
s	2.0	1.5	4-5-7					-		5.0-6.5 Ft. CLAY. Moderate yellowish brown (10YR5/4) to dark yellowish brown (10YR4/2). Firm, slightly plastic, moist. Pieces of fill material throughout.	•
s	2.0	0.2	8-7-4 5					-		6.5-7.0 Ft. FILL. Dusky yellowish brown (10YR2/2). Slag, brick, and limestone gravel. Loose.	
	2.0	0.5	3				407.7_	15_		7.0-11.8 Ft. CLAY. Moderate yellowish brown (10YR5/4) to dark greenish gray (5GY4/1). Slightly plastic, medium stiff thread, firm consistency, moist. Small amounts of fill.	ENMET alarm: LE 20%, Toxic 5 bars. Vented hole to red potential hazards. Color descriptions
	2.0	1.7	4					20		11.8-12.5 Ft. FILL. Black (N1). Silty, coal, some clay particles. Moist. Small amounts of pieces of brick and limestone gravel.	from the GSA Roc Color Chart (1948
\dashv		_					404.0_			13.0-13.2 Ft. CLAY. Grayish black (N2). Thin thread, moderately plastic, moist.	
										15.0 Ft. Fill becomes saturated. Organics present, slightly plastic.	
							e.			17.3 - 21.0 Pt. CLAY (CL-CH). Greenish black (5GY2/1) to olive black (5Y2/1). Stiff thread, moderately plastic, moist, firm consistency. Organics.	
										Bottom of borehole at 21.0 Ft. Borehole backfilled with bentonite cement, 3/28/88.	
				 			:				
			POON; S1; P = PI			~-,	ITE	S	· ·	ouis Downtown Site	HOLE NO. B16R33

		EC	LOG	וכ ח	DII		6	PROJE	СТ					ŀ	JOB NO.		ET NO.	HOLE NO.
SITE		EC	LUG		KIL	LLO	COORDINA	TES			FUSR	AP			1450		OF 1	B16R34
		Lo	uis Do	wntow	n Sit	e				N 1,	382 1	E 2,88	2			Ver		
BEGU		1-	MPLETED			Was	Ca	1			AMD NO		SIZE	OVER	BURDEN	ROC	K (FT.)	TOTAL DEPTH
							tern Co			GROUN	Ile B-4		/EL. GRO	OUND WA	20.0	DEPTH	I/EL. TOP	OF ROCK
CAMDI		/ A MUS	R WEIGHT	ZZEALL	le s	9	FT IN HOL	F. 01			22.5	¥ /					/	·
SAMP			bs/30			NAME TO	Noi		.A./L	EMGIN	LOGGE	BT:		Т.	F. Mul	len		
AND DIAM.	SAMP, ADV. LEN CORE	AMPLE REC.	SAMPLE BLOUS "N" X CORE RECOVERY	SSOJ NI NI G.P.G	MATER ESSU TEST: OH OH OH OH OH	RE	ELEV.	DEPTH	GRAPHICS	3,845	DESCRI	PTIO	I AND	CLASS	IFICA	TION	WATER CHARA	LEVELS, RETURN, CTER OF
5	€D!	6		- 3	60		422.5			0.0	0 - 1.0 P	t. <u>CO</u>	CRETE	3 .			0-20.0 (t. advanced
SS	2.0	1.8					431.5_	•		1.0	0 - 17.9 RUBBI	Fi. Ch	ver SIL	T (CL)	and		with 3-: split-sp	1/2 in. O.D. oon.
SS :		0.5						5_			1.0-13. brown (5YR2/ small a	5 Ft. F (5YR3/ 1). Co mounts	ill varies 2) to bro ntains co of porce ying am	oal, bric dain and	rayish black ik, slag, d glass. f silt and	Dry I	logged t	d and gamma by berline, Inc.
		0.0									5.0-5.5	Ft. Cl	yey SIL	T. Ligi	ht olive	ray		
SS :	2.0	1.5						-			(5 Y6/1). Dry.						
SS :	2.0	1.8						10_										
SS :	2.0	0.7																indisturbed at 17.9 ft.
SS :		0.8						15_			13.6-13 gray (5 consists	.8 Ft. : GY4/1)	Silty CL. . Moder et. Organ	AY, dai ately pl	rk greeni astic, soi	sh 't		
SS	2.0	1.5									15.0-17	.9 Ft.	•	turated	. Contai	ns	from the	escriptions SSA Rock hart (1948).
+							404.6_ 402.5_	20 .	Sec. Vindicol	17	.9 - 20.0 greenis modera	Ft. So gray (ilty CLA 5G4/1). stic, den	Y. Dan Stiff couse structure	rk onsistenc ture, mo	y, oist.		` ,
												ackfille	e at 20.6 d with b		e cement	•		
								.4										
			POON; ST			,	ITE	S		Loui	is Do	wnt	own	Site			HOLE NO	6R34

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T		FUSRAP		EET NO.	HOLE NO. B16R35
SITE						···	COORDINA	TES			TODRAI		ROM HORIZE	
	St.		uis Dov			e					307 E 2,921	Ver	tical	
BECU		- 1	MPLETED	1					DRILL			i i	K (FT.)	TOTAL DEPT
	8-89		3-9-88				tern Co		NC.		DIL B-40 6 3/4" DEPTH/EL. GROUND	20.0	H/EL. TOP	20.0
		/	. (, .			9					25.0		/ / L. IOP	OF ROLL
SAMP	LE K	AME	R WEIGHT	/FALL	CA!	ING LE	FT IN HOL	LE: DI	A./L		LOGGED BY:	l		
		_	bs/30				No	ne			•	T.F. Mullen		
AND DIAM.	SAMP, ADV. LEN CORE	CORE REC.	SAMPLE BLOWS "N" X CORE RECOVERY	P. H. H. G. B.	ATEI ESST: On a call	ŔE	ELEV. 425.0	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLA	SSIFICATION	WATER CHARAC	LEVELS, RETURN,
							424.0_			(0 - 0.8 Pt. CONCRETE.		0-20.0 ft	advanced
SS	2.0	1.1	2-5-7 11				434.0_	-		1	0 - 0.8 Pt. CONCRETE. 0.8-1.0 Pt. VOID. 0 - 14.5 Pt. Silty CLAY (CL) and		/4 in. O.D. em auger.
SS	2.0	0.2						-			RUBBLE. 1.0-1.4 Pt. CLAY (CL). O (5Y4/1). Mottled pale yello (10YR6/2). Moist, slightly thread. Also very small piecematerial.	wish brown	Sampled logged by TMA/Eb	and gamma erline, Inc.
SS	2.0	0.0	4-4-4 6					-8			1.4-4.8 Ft. FILL. Grayish Dry and sooty. Mostly slag	black (N2). products.	Top of us material ft.	ndisturbed at 14.5(?)
SS	2.0	0.0	8-5-2					-			4.7-5.1 Ft. CLAY. Modera brown (10YR5/4). Mottled (N2). Dry, firm consistency	te yellowish grayish black , slightly		
SS			12-8-5					10_			plastic, unable to roll into the state of th	lack (5Y2/1), vn (10YR4/2).	obtained samples f	erline, Inc. auger or 5-11 ft. or recovery
SS		0.3	2-2-1					-			consistency, soft thread. Sn brick and limestone fill, app 9.0-14.5 Pt. Clayey SILT (black (5YR2/1). Dry, very i	nall pieces of roximately 2%.		·
SS SS		1.5	3-2 2-1-2 1				410.5_	18_	5 8500 9	L	sand and very small pieces of consistency, nonplastic, rapi	of rubble. Soft id dilatancy.	Ч	
SS	2.0	2.0	2-2-1				· 408.6 _	<u>-</u> د			13.0 Ft. Becomes saturated 14.0-14.5 Ft. Clayey silt be saturated.		Color des	criptions GSA Rock
											1.5 - 16.4 Ft. Silty SAND (SI Dark gray (N3). Saturated. consistency. Highly plastic.	Soir	Color Ch	art (1948).
							405.0_	20		۲,	3.4 - 20.0 Ft. Silty CLAY (C. Medium dark gray (N4). Hi stiff consistency, stiff thread	H). ghly plastic, , moist.	d	
							·	.,,			ottom of borehole at 20.0 Ft. orehole backfilled with bentor 3/9/88.	nite cement,		
			:											
			OON; ST P = PI			UC,	ITE		t. 1	<u>ا</u>	is Downtown Sit		HOLE NO.	6R35

	GEOLOGIC DRILL LOG PROJECT JOB NO. SHEET NO. HOLE NO.											
SITE			LOG		IXIL		COORDINA	TES			OF 1 B16R37 M HORIZBEARING	
Ĺ.,		. Lo	uis Dov	vntow	n Sit	e			1	1,334 E 2,700 Vert	7	
BEG		1	MPLETED	[DRILL		(FT.) TOTAL DEPTH	
			-22-88				tern, Co		MG I	CME-55 6 3/4" 16.0 ROUND EL. DEPTH/EL. GROUND WATER DEPTH/	16.0	
		/				8				423.0	/	
	1	40 1	bs/30	in			FT IN HOL Not		A./LE	IGTH LOGGED BY: T.F. Mullen		
AND DIAP	SAMP, ADV.	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN B.P.R.	ASST. I.S. 4	RE	ELEV. 423.0	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.	
		<u> </u>	L				422.2_		23	0.0 - 0.8 Pt. <u>CONCRETE</u> .	0-16.0 ft. advanced with 6-3/4 in. O.D.	
	1.2	1.0	5-7							0.8 - 14.0 Pt. CLAY (CH) and RUBBLE.	hollow stem auger.	
SS	2.0	1.5	4-4-5							0.8-2.5 Pt. Grayish black (N2). Slag, brick fragments. Some clay adhesion to debris. Moist. Nonplastic.	Sampled and gamma logged by TMA/Eberline, Inc.	
SS	2.0	1.2	3-5-5					5_		3.5-4.0 Ft. CLAY (CH). Dark yellowish brown (10YR4/2). Moist, highly plastic.		
S S	2.0	0.8	1-1-1							4.0-14.0 Ft. Black (N1). Moist, nonplastic, crumbles easily. Brick, coal and slag products. Stains black with gritty texture. Clay adheres to particles.	Top of undisturbed material at 14.0 t.	
SS	2.0	1.2	1-3-5					•		Organic debris.	Detected 20% LEL at 10-12 ft. interval.	
SS	2.0	1.3	9-4-4				. 2	2 10_ -			Static Water Level measured at 10.13 ft.	
99	2.0	0.4	3-4-2					-		·	on 2/23/88.	
	2.0	0.1	3					-				
SS	2.0	1.8	2-2-2 5				409.0_	15_	as equipass	14.0 - 16.0 Ft. CLAY (CH). Medium dark gray (N4.5). Moist, firm consistency, highly plastic.		
							.407.0_			Bottom of borehole at 16.0 Ft. Borehole backfilled with bentonite cement, 2/22/88.	Color descriptions from the GSA Rock Color Chart (1948).	
			POON; ST; P = PI			,	ITE	S	it. l	ouis Downtown Site	HOLE NO. B16R37	

		`E/) (C	C D	DII	10	<u> </u>	PROJE	CT	_	1 1	EET NO. HOLE	NO.
SITI		75	JLC			KIL	L LO	ICOORD I N	ATES				OF 1 B10	5R38
J. 11		. Lo	uis]	Dov	rntow	n Si	e				N	ì	ticai	
BEG		- 1	_		DRILL						L	AKE AND MODEL SIZE OVERBURDEN RO	K (FT.) TOTAL	DEPT
			2-27					tern, Co		IMG		Obile B-53 8 1/4" 18.0	H/EL. TOP OF RO	8.0
····			., ,,,	., ~	,		9				Γ	422.0 ¥ 9.7/412.3 2/26/88	/ / / / / / / / / / / / / / / / / / /	LK
SANF			R WEI			CAS	ING LE	FT IN HO		A./L	EN			
h i			lbs/3			MTE	3	No	ne	_	П	G. Cherry		
AND DIAM.	SAMP. ADV.	BAMPLE REC	SAMPLE BLOWS "N"	X CORE RECOUERY	E P. H.	ESSU	RE	ELEV. 422.0	ОЕРТН	GRAPHICS	3.44PLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVE WATER RETU CHARACTER DRILLING,	IRN, OF
SS		1	2-1-	i i				431.4		2		0.0 - 0.6 Ft. CONCRETE. 0.6 - 14.5 Ft. Silty CLAY (CL) and RUBBLE. Brownish gray (5YR2/1) to grayish black (N2). Dry to moist, loose. Rubble consists of brick, coal, slag, concrete, particle board, gravel and	0-18.0 FT adv with 8 1/4-inc hollow stem au	h O.I
	2.0	0.7	2									Rubble consists of brick, coal, slag, concrete, particle board, gravel and coarse-grained sand.		
SS		1.0	1						5_				Sampled and g	
\$S SS		0.6	4										TMA/Eberline	.
SS			0-0-					;	, 10_				m	
SS		1.2										10.0 Ft. Sampler advanced 1.5 Ft. upon seating by weight of rods and hammer.	Top of undistumaterials at 14 ft.(?)	
ss		0.9	2					407.5_						
SS	2.0	0.6	WH-	2-2					15_			14.5 - 18.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1) to dark greenish gray (5GY4/1). Moist, soft, moderately plastic. Trace of organic material as blebs.		
			3					404.0_] :					
												Bottom of borehole at 18.0 Ft. Borehole grouted to bottom of concrete with bentonite cement, 2/27/88.	Color descripti from the GSA Color Chart (1	Rock
								·	,,,			·		
						;								
			_		= SHEL		, ,	ITE		<u></u>		ouis Downtown Site	HOLE NO. B16R3	Ω

	-	\	·	16.5				PROJE	CT			JOB NO.	SHEE	T NO.	HOLE NO.
		E	OLOG	IC D	KIL	L LU	G				FUSRAP	14501	1	OF 1	B16R39
SIT							COORDIN	ATES				ANG	LE FRO	M HORIZ	BEARING
\perp			uis Do			te	1				1,354 E 3,010		Verti		
BEG		. [*	OMPLETED	F			_		DRIL		1 1	ERBURDEN	ROCK	(FT.)	TOTAL DEPTH
			<u>3-2-88</u>	3]	Layne	-Wes	tern, Co). <u> </u>	• • • •		lobile B-53 8 1/4"	30.0			30.0
COR	E KE(XVER ,	Y (FT./	E) COR	E BOXE	1	ESEL. TO	P CAS	ING	P	[77 44 4 // 44 # 7 /5	WATER 2/88	DEPTH/	EL. TOP	OF ROCK
CAM	DIF A	AMME	R WEIGH	T/FALL	ICAS	11	FT IN HO	F. DI	A /I	EM	422.9 Y			/	
			bs/30	•			No					G. Cherry	.,		
			0.5/50		MATE	2	140		7	П		G. Cherry	y		
SALT DIAN.	임뾦		BLOUS "N" X CORE	PF	ESSU TEST	RE		_	8	Ш					
12	୩ଥ		T 2 2			1	ELEV.	DEPTH	GRAPHECS	Star Zi	DESCRIPTION AND CLAS	SSIFICATI		HOTES WATER	UN: LEVELS,
90	g z	금	EB	oz.	8 H	FYY	1		1	3			ł	WATER	RETURN,
经	٦	£ 8	2 2 2	P. P.	PRES P. S.	THE		-	8	Π					CTER OF ING, ETC.
SS	1.8	1.6		 	1 11 11	 	422.9 422.7			₩	0.0 - 0.2 Ft. GRAVEL.				T advanced
			7/4				422.4				0.2 - 0.5 Pt. Sandy GRAVEL	(CP)	/	with 8 1	/4-inch O.D. tem auger.
20	2.0	1 8	2-5-11	ļ						Ħ		·		попом в	sem auger.
33	2.0	1.0	9	1				١.			0.5 - 13.0 Pt. Silty CLAY (CL. RUBBLE.	1 200	1		
	İ]							0.5-3.2 Ft. Moderate yellow	rish brown	I		
SS	2.0	1.2	4-5-4]	1		İ	` ا			(10YR5/4). Low moisture c Fe staining. Trace of organi	ontent, stiff,	_		
1	l	1		}				•-			blebs.	ic minetial of	•		and gamma
SS	2.0	1.0	2-2-1	1			1				3.2-13.0 Ft. Brownish black	(5YR2/1) t	。	logged b	y berline.
	l		3		1			•			grayish black (N2). Low moto moist, loose. Rubble con	sisture conter	n t		
55	2.0	1.2	3-3-2	┨	ſ						coal, slag, glass, coarse-grain gravel and particle board.	ned sand,	'		
"	0	•••	2 2								gravel and particle board.				
]			1	10_							
SS	2.0	1.5	4-2-2	ł			١,						1		indisturbed at 13.0 ft.
							•								
SS	2.0	1.2	1-3-3	1			409.9_	'							
			ů				409.9_				13.0 - 29.8 Ft. Sandy SILT (M	L). Dark			
SS	2.0	1.5	1-3-4	1				١ .	11]		greenish gray (5GY4/1) to r gray (N4). Moist, soft, sligh Very line-grained sand. Ble	nedium dark tly plastic.			
	ļ		6					15_	11. [Very line-grained sand. Ble material including rootlets.	bs of organic	:		
\vdash		\vdash		-				.							
								Ι.							
L_									[]:						
SS	2.0	1.9	2-3-5 5												
								••							
				1	1			-0-	1]	П					
						j ,		٠							
								-					į		
SS	2.0	1.8	3-5-10	1				: ا	{				İ		
[,			9					"	} {						
<u></u>		<u> </u>		1	l			25_	}						
								ľ.	[[]	11					
				1									l		
	i							'							
88	2.0	2.0	1-1-5	1				•					ŀ		
							#Q# 1	•	1						
\vdash				1			\$93.1_ \$93.9	3 0 .		F	29.8 - 30.0 Ft. Silty CLAY (CF	I). Olive	~;	Color de	scriptions
											29.8 - 30.0 Ft. Silty CLAY (CF gray (5Y4/1) to dark greenis (5GY4/1). Moist, soft to me	h gray	- []	from the	GSA Rock part (1948).
				1							highly plastic. Blebs of orga	nic material.	- []	JU101 OI	(2040).
					١ ،						D		_		
										Ш	Bottom of borehole at 30.0 Ft. Boring grouted to surface with	bentonite	1		
				<u></u>	L						cament, 3/2/88.				
ss •	SPL	IT SI	POON; \$1	= SHE	LBY TU	BE; S	ITE.			_		· · · · · · · · · · · · · · · · · · ·		HOLE NO.	
D =	DENN	I SON ;	P = P1	TCHER;	0 = 0	THER		S	t.	Lc	ouis Downtown Sit	е		B1	6R39

SITE St. Louis Downtown Site N 1,273 E 2,910	CEOLOGIC PRILL LO	PROJECT	JOB NO. SHEET NO. HOLE NO.
St. Louis Downtown Site N 1,273 E 2,910 Vertical		1 USKAI	
Comparing Comp			1
Code Part Code	BEGUN COMPLETED DRILLER	DRILL MAKE AND MODEL SIZE OVER	BURDEN ROCK (FT.) TOTAL DEPTH
August A		tern, Co. CME-55 6.5"	
			B DEPTH/EL. TOP OF ROCK
Color Chart (1948) Color C		FT IN HOLE: DIA./LENGTH LOGGED BY:	
\$\frac{\frac		None	Cherry
\$\frac{\frac	PRESSURE TESTS OTATION PRESSURE TESTS OTATI	ELEV. E DESCRIPTION AND CLASS	SIFICATION WATER LEVELS,
\$\frac{\frac	終 20 mm 20 mm 20 mm 1 mm 1 mm 1 mm 1 mm 1	422.0	CHARACTER OF DRILLING, ETC.
SS 2.0 0.4 2-1-2 SS 2.0 1.3 2-2-3 SS 2.0 1.0 2-3-3 SS 2.0 0.8 2-0-0 SS 2.0 0.9 2-1-2 SS 2.0 0.7 5-4-4 406.0 10.513.0 Ft. Sampler advances upon sessing of hammer and rods. 11.5-12.0 Ft. Sitty CLAY (CL). Olive, gray (SY4)1 to greenish gray (SGY4)1. Moist, medium shift, moderately plastic. Trace of organic material as 13.0 ft. Bortom of borbole at 16.0 Ft. Bortom of borbole at 16.0 Ft. Bortom of borbole at 16.0 Ft. Color descriptions from the CSA Rock Color Chart (1948). SS = SPLIT SPOON: SI = SHELBY TUBE: SITE	SS 2.0 1.212-14-13	0.5 - 1.3 Ft. Bandy GRAVEL (G	P). 0-16.0 FT advanced with 6 5/8-inch O.D. hollow stem auger.
\$\frac{10}{5\frac{1}{2}\cdot 2} \\ \frac{1}{2}\cdot 2} \\ \frac{1}{3	SS 1.5 0.5 9-11-7	moisture content, loose. Rubi	ole consisted
SS 2.0 1.3 2-2-2		of bricks, coal, slag, pieces of e sand, gravel, glass and particle 5	e board.
10			logged by
10.5-12.0 Ft. Sampler advances upon seating of hammer and rods. 13.0 - 16.0 Ft. Shity CLAY (CL). Olive gray (5Y4/1) to greening gray (5Y4/1). Trace of organic materials at 13.0 ft.			
10.5-12.0 Ft. Sampler advances upon seating of hammer and rods. 13.0 - 16.0 Ft. Sitty CLAY (CL). Olive Ft. (GY4/1) to greenish gray (GY4/1). Trace of organic material as blebs. 15.	SS 2.0 0.8 2-0-0-0		materials at 13.0 ft.
SS 2.0 0.7 5-4-4 406.0 18.0 - 16.0 Fr. Shifty CLAY (CL). Olive gray (6 Y4/1) to greenin gray (6 Y4/1). Moist, medium shift, moderately plastic. Trace of organic material as blebs. Color descriptions from the GSA Rock Portable grouted to bottom of asphalt with bentonite cament, 3/10/88. Color Chart (1948). SS = SPLIT SPOON; SI = SHELBY TUBE; SITE		seating of hammer and rods.	es upon
Bottom of borehole at 16.0 Ft. Borehole grouted to bottom of asphalt with bentomite cament, 3/10/88. Color Chart (1948).		13.0 - 16.0 Ft. Silty CLAY (CL) gray (5Y4/1) to greenish gray Moist, medium stiff, moderate	Olive (5GY4/1). ly plastic.
Bottom of borehole apphalt with Borehole grouted to bottom of asphalt with Color Chart (1948). SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO			
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.		Borehole grouted to bottom of as	from the GSA Rock
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.			
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.			
		4	
. a provincent, n a professor a grupps: — — — — — — — — — — — — — — — — — — —	SS = SPLIT SPOON; ST = SHELBY TUBE; SD = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	·

								PROJEC	T		JOB NO.	SHEET NO. N	OLE NO.
		EC	LOG	IC D	RIL	L LO		<u> </u>		FUSRAP	14501		B16R42
SITE		Ta	uis Dov	vntaw	n Cir	·e	COORDINA	ITES	,	1,313 E 1,234	ANG	LE FROM HORIZBE Vertical	ARING
BEGL			MPLETED			. 	J				OVERBURDEN	 _	OTAL DEPTH
4-	4-8	8 4	-12-88	3 L			tern, Co			CME-55 6.5"	6.0		6.0
CORE	REC	OVER	Y (FT./%	CORE	BOXE	1	ESEL. TO	P CASI	NG G	ROUND EL. DEPTH/EL. GROUND	D WATER	DEPTH/EL. TOP O	FROCK
SANF	LE N	AMME!	R WEIGHT	/FALL	CAS	3 SING LE	FT IN HO	LE: DI	A./LE	426.2 ½ /			
			bs/30	-			No				G. Cherr	у	
뿐.	ᆟᆔ	ġ,	=, >	90	ATE				9				
Mr. o. T.	CORE	REF	의 HR		ESTS	3	ELEU.	E		DESCRIPTION AND CL	ASSIFICAT:	NOTES O	
6 .0	o z	집	SAMPLE BLOWS "N" X CORE RECOVERY	SZ.	₩	E SE		DEPTH	GRAPHICS SAMPLE			WATER R	ETURN,
桑	SAMP.	E 8	a 된 스타	SN.	g c	무무분	426.2	_	8			CHARACT	
88		1.1	3-2-2				135.8			0.0 - 0.3 Ft. ASPHALT.		0-6.0 FT with 6.5-i	
			2/2"				424.2	-		0.3 - 0.6 Pt. Sandy GRAVE	L (GP).	hollow ste	
\$8	2.0	1.3	2-3-4					1 -	8.00	0.6 - 2.0 Pt. Silty CLAY (CI gray (5Y4/1) to olive blac	L). Olive k (\$Y2/1). L		
!							,	•	N. W.	moisture content, soft. Li. (5YR5/6) Fe staining.	ght brown	11	
SS	2.0	1.7	2-3-4 6					5_			L). Light		
		<u> </u>					420.2_	-		2.0 - 6.0 Ft. Silty CLAY (CI olive gray (5Y6/1) to olive Low moisture content, soft	e gray (5Y4/1) t to medium st	Sampled a logged by TMA/Ebe	ind gamma
										fine-grained sand. Trace of	very of organic	/ TMA/Eb	erline, Inc.
					Ì					material as blebs.	 		
										Bottom of borehole at 6.0 Ft. Borhole grouted to bottom of	Faanhalt with		
										bentonite cement, 4/12/88	8.	Top of un	disturbed
			•									material s	t 2.0 ft.
			,					1	1 1				
					1]				Color des	riptions
										•		from the Color Cha	GSA Rock art (1948).
												•	
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					1								
	<u> </u>	<u> </u>			<u> </u>	<u> </u>							
			POON; ST			,	ITE	6	. I	ouis Downtown S	ita	HOLE NO.	R42
. =	DENN	1 20H	; P = PI	TCHER;	0 = 0	THER		3	L. L	ouis Downtown S	ire	D10	1742

	C	:FC	LOG	ור ח	Ril	110	G	PROJE	T				-		B NO.	- 1	ET NO.	HOLE NO.											
SIT	_		LUG		- I		COORDINA	TEC			FUSR	AP			14501		OF 1	B16R41											
3		Lo	uis Do	wntow	n Si	te		1163	1	V 1 4	195 E	1 1 22	7			Vert	OM HORIZ	BEARING											
BEG			MPLETED				<u> 1.</u>		DRILL	NAKE	AND NO	DEL	SIZE	OVERBU			(FT.)	TOTAL DEPTH											
			4-8-88		ayne	-Wes	tern, Co	.		CM	IE-55		6.5"	1	0.0			10.0											
		1			BOXE	S SAMPL	ESEL. TO	P CASI	NG C		EL. 26.3	DEPTH,	/EL. GROU	ND WATE	R	DEPTH,	/EL. TOP	OF ROCK											
	1	40 I	R WEIGHT	in	CA!	SING LE	FT IN HOUND		A./LE	NGTH	LOGGED	BY:		G.	Cherry	v													
Ψ.	3,,,	ပဲ	SAMPLE BLOWS "N" 7. CORE RECOVERY		MTE	R							* 																
AND DIAN.	88	M D	n	-	ESSU EST:			Ξ	GRAPHICS	4 _							HOTES	ON:											
Ö,	107		출회임형	0 T	ĎΗ.	¥:	ELEV.	DEPTH	RAPHIC	ט	escri	PTION	I AND C	LASSI	FICATI	EON		LEVELS, RETURN,											
器		튀었	호리스턴	LOSS IN G.P.E	PRESS. P. S. I.	HAH HAY		•	ğ	Ī							CHARAC	TER OF											
90,4	6 01	810	-	- 6	Εc	-	426.3]	0.0	- 1.0 F		AD PARTY					T Advanced											
85	1.0	0.4	1-2	į			425.3_							শ্ব ১ ৯৯১			with 6.5	-inch O.D.											
	2.0	1.0	2-3-4	:						1.0	RUBBI	B. Br	which blanks (N2). Low consists of	ck (5Yh	2/1) to	_4	nonow s	tem auger.											
33		1.0	3	ļ			·				loose. I	Supple (consists of	carbon	eceons	at,													
20	A A										yellowis	h brow	nd brick. n (10YR4)	Patche 2) to o	s of dari live gray	K.													
33	2.0	1.5	3-4-3	ļ				5_			(5Y6/1)	silty c	laý.																
							i										Sampled logged b	l and gamma y											
SS	2.0	0.9	3-3-4														logged b	berline.											
L				ŀ			418.3_	_																					
SS	2.0	1.9	1-1-1							8.0	- 10.0]	t. Silt	Y CLAY	CL). O	live]												
							416.3	10			highly p	lastic.	Moist, soft Trace of	organic	material														
				Ì				20.		1			e at 10.0 l	F+			Top of u	indisturbed at 8.0 ft.											
										Box	rehole g	routed	to bottom nt, 4/8/8	of conc	rete witl	þ	1118161181	2. 0.0 1.											
			٠							1	Den tom	ne cemie	ms, 4/0/04	0.															
																	ļ												
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									1 1								Color de	scriptions											
																	from the	GSA Rock hart (1948).											
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ss :	SPL	IT SF	POON; ST	= SHE	BY TL	ÆE; S	ITE			1							HOLE NO.												
							•	S	t. l	.oui	s Do	wnt	own S	Site			B1	6R41											
									I	II-	111							= DENNISON; P = PITCHER; O = OTHER St. Louis Downtown Site B16R41											

											,	
	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	CT	FUSRAP	JOB NO. S 14501	HEET NO. HOLE NO.
SITE							COORD I NA	TES		FUSKAF		1 OF 1 B16R43 FROM HORIZBEARING
		Lo	uis Do	wntow	n Sit	le			?	1,238 E 1,218		ertical
BEG		ı	MPLETEO							MAKE AND MODEL SIZE OVI	ERBURDEN RO	OCK (FT.) TOTAL DEPTH
			-31-8				tern, Co			CME-55 6.5"	8.0	8.0
CORI	REC	OVER'	Y (FI./X	() CORE	BOXE	SSAMPL	ESEL. TO	P CAS	ING C	ROUND EL. DEPTH/EL. GROUND	WATER DEP	TH/EL. TOP OF ROCK
SAM	LE N	AMME	R WEIGHT	/FALL	CAS	ING LE	FT IN HO	LE: DI	A./LE	428.6 ½ /		
			bs/30	•			No			1	G. Cherry	
W.	4	ပ်၊			JATE							
12	58	E S		-	ESSU TESTS			E	DRAPHICS			NOTES ON:
قر	1		돌리임	D_I	ดู้ห่	<u>u</u>	ELEV.	DEPTH	RAPHIC	DESCRIPTION AND CLAS	SSIFICATION	WATER LEVELS, WATER RETURN,
AME braff.	SAMP. ADV.	SAMPLE REC.	SAMPLE BLOWS "N" X CORE RECOVERY	SH	P. 9.	FAR		•	Š			CHARACTER OF
9,4	8	310	-	- 6	<u>E</u> 0	-	428.6 428.4	 		_0.0 - 0.2 Ft. ASPHALT .		DRILLING, ETC.
88	1.5	1.0	15-10-7				427.4	-	3	0.2 - 1.2 Ft. Sandy GRAVEL	(GP)	with 6.5-inch O.D. hollow stem auger.
88	2.0	1.5	5-3-3	}							• •	/ I
			i				494.0			1.2 - 8.7 Ft. Silty CLAY (CL) RUBBLE. Brownish black (grayish black (N2). Low mo	(SYR2/1) to	
SS	2.0	1.1	1-2-3				424.9_		777	loose. Rubble consists of sla carbonaceous material, brich	MZ.	Ч
			14					5_		staining.	and sand. Fe	Samulad and many
SS	2.0	1.5	2-3-3	-						3.7 - 8.0 Ft. Silty CLAY (CL). olive gray (5Y6/1) to pale y (10YR6/2). Low moisture c	. Light	J Sampled and gamma logged by TMA/Eberline, Inc.
		-:-	1 4		ŀ					(10YR6/2). Low moisture c soft. Trace of very fine-grain	ontent to moist	, INLA, Ebernine, mc.
				1			420.6_			Trace of organic material as brown (5YR5/6) Fe staining	blebs. Light	4
										Drown (51 K5/6) Fe staining	<u>. </u>	J
										Bottom of borehole at 8.0 Ft.		
										Borhole grouted to bottom of a bentonite cement, 3/31/88.	sphalt with	Top of undisturbed materials at 3.7
									1			ft.(?)
									1			
									1 1			
						İ						
										**		Color descriptions from the GSA Rock
								ł				Color Chart (1948).
				i					1 1			
									1 1			
								,		•		
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					ļ							
										•		
ss =	SPL	 T SF	POON; ST	= SHF	BY TI	BE S	ITE	l				HOLE NO.
			P = PI					S	it. L	ouis Downtown Sit	:e	B16R43

	G	SEC	LO	GI	C D	RIL	L LO	G I	PROJEC	CT		FUSF	AD		- 1	8 NO. 145(SHEE	T NO. OF 1	HOLE NO.
SII								COORDINA	TES			FUSI	(AP					L	M HORIZ	B16R44
	_	. Lo	uis I	юv	rntow	n Sit	le				N 1.	040	E 1,32	5		ſ		erti	1	
BE			MPLET		DRILL							AND M		SIZE	OVERBL	RDEN			(FT.)	TOTAL DEPTH
	-4-8		4-8-		I	ayne	:-Wes	tern, Co				ME-55		6.5"		4.0				14.0
CO	E REC	OVER	Y (FT	./%	CORE	BOXE	S SAMPL	ESEL. TO	P ČASI	NG		D EL. 24.9	DEPTH,	EL. GROU	IND WAT	ER	DE	PTH/	EL. TOP	OF ROCK
SA			R WEII	-		CAS	ING LE	FT IN HO		A./L	ENGTH	LOGGE	D BY:		G	Che	PPV			
111						ATER	₹	110			П			_	<u> </u>	Circ				***************************************
SAMP L. TYPE	SAMP. ADV	AMPLE REC	BLOUS "N"	RECOVERY	LOSS IN G.P.H	PRESS. I.S. C	3	ELEV.	DEPTH	GRAPHICS	SBITE .	DËSCR:	IPTION	I AND C	LASSI	FIC	ATIC	אכ	WATER CHARAC	ON: LEVELS, RETURN, CTER OF ING, ETC.
	2.0	1.6	5-5	-7		<u>nu</u>	 	434.9			0.	0 - 9.5	Pt. Bilt.	CLAY (CL) and	<u> </u>			0-14.0 F	T advanced
	2.0	1.6	8									grayish to moi of cart gravel (N3) si	LE. Brond black (st. soft to conaceou and pebilty clay.	CLAY (ownish bla N2). Low o loose. I s materia bles. Pat	moistu tubble of l, slag, l ches of	R2/1) are col consis brick, dark (to ntent ts gray			-inch O.D. tem auger.
3.	12.0	1.0	3						5_										C1-d	l and gamma
SS	2.0	2.0	1-1-	-1					-										logged b	berline, Inc.
SS	2.0	1.8	1-2-	-2				415.4_		e meas		· 10 %	PA GIJA	_ GAN TO	(e) () (Olina				
SS	2.0	1.3	1-3-	4					10_		ľ	gray (I fine-gr organi	Y4/1). rained sa	Y SAND Moist, sof and. Mind	t. Very	nts of	•		Top of u material	indisturbed at 9.5 ft.
SS	2.0	1.4	1-3-	4				411.2_ 410.9			723	3.7 - 14. stiff, n	0 Ft. Si	ity CLAY	(CL).	Medi	um			
								•			L B	ottom o	f boreho	le at 14.0 to surface	Ft.				from the	escriptions c GSA Rock hart (1948).
									."											
					= SHE		~-,	ITE	S	St	Lou	is D	ownt	own S	Site				HOLE NO	6R44

	G	EC	אר	iC D	DII		G	PROJEC	T		JOB NO. 1	HEET NO. HOLE NO.
		EC	LUG		KIL	LLU		1		FUSRAP	14501-116	
SIT		Ta	uia Da	wntow	- CI		COORDIN	KIE2		1 3 103 E 1 400		FROM HORIZBEARING
BEG				DRIL			٠		MILL	2,197 E 1,400 MAKE AND NODEL \$121		ertical OCK (FT.) TOTAL DEPTH
		1	2-8-8	1		-Wes	tern, Co				6" 3.8	3.8
				X) CORE	BOXE	SSAPL	ESEL. TO	P CASI	MG C			TH/EL. TOP OF ROCK
						2				425.7 王 /		/
SAN			R WEIGH		CA	SING LE	FT IN NO	LE: DI	A./LE	MGTH LOGGED BY:		
<u> </u>			bs/30	_			30	<u>ne</u>	-		G. Cherry	
braff.	Ź뽀	REC.			MTE	RE			2			
FE	SOR S	A C			EST	3	ELEV.	IE	GRAPHICS	DESCRIPTION AN	ND CLASSIFICATIO	NOTES ON:
1	o z	7 12	S C S	SZ.	8 H	E A E	1	HT-GE	1			WATER RETURN,
器	SAFP.	CORE		P. P.	PRESS. P. S. I.	HHH	405.5	-	8			CHARACTER OF DRILLING, ETC.
\vdash				 	4.0		425.7 425.5 425.1	} —			6r.	7
85	1.4	0.8	7-7-4/5	3			435.1] -		0.3 - 0.6 Ft. GRAVE		0-3.8 ft. advanced with 6-inch O.D.
SS	1.8	1.7		┨			•	-		1		bollow stem auger.
				1				-		0.6 - 3.8 Pt. SILTY C RUBBLE. Brownis Low moisture conte	sh black (5YR2/1).	
				-			421.9_	1		COMPRESS OF DESCR. Size	ag, and carbonaceous	Auger refusal 3.8 ft.
ļ							İ	_]	material.		
							i			Bottom of borehole at	3.8 Ft. Borehole	
				1			•			backfilled with bent	tonite cement, 12/8/88.	
ļ		' i				}	ļ	1				Description and classification by
}			,	1				ļ				visual examination.
												1
								1				
				İ								
												No ground water
								:				observed, 12/8/88.
							ļ					
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ss •	SPLI	T SP	OON; \$1	= SHE	BY TU	BE; S	ITE					HOLE NO.
				TCHER;				S	t. L	ouis Downtow	n Site	C100A

	G	EC	LOG	IC D	RIL	L LC)G	PROJE	ÇŢ		PLICAL	JOB NO.		ET NO. HOLE NO.
SIT							COORD I NA	ATES			FUSRAP		116 1	OF 1 C100B ON HORIZBEARING
			uis Do			te	<u> </u>				2,192 E 1,399		Vert	ical
BEG			PPLETED			Wan	C		DRILI		CARE AND MODEL SIZ	1	ROCK	(FT.) TOTAL DEPTH
				b) CORE	BOXE	S SAPI	tern, Co	P CAS	ING			6" 10.0	DEPTH	/EL. TOP OF ROCK
		1				3					425.7	GROUND WATER 17.6 12/8/88		/
SAM			R WEIGHT	•	CAI	EING LE			A./L	EN	GTH LOGGED BY:	0.01		
		.:1	bs/30		MTE	2	■ BOI	<u>ne</u>		П		G. Che	ггу	1
15	88	REC.	SAMPLE MCOUS N X CORE RECOVERY	PR	ESSU	RE	ļ		HICS	V				NOTES ON:
bid	70	CORE RE	E 2 09	97_E	. i	w	ELEV.	E P	E		DESCRIPTION AN	ND CLASSIFICA	TION	WATER LEVELS,
\$2 \$2	SEN .	Fig	S X	P.N.	7 9.0	FYE		5	8					MATER RETURN, CHARACTER OF
B)	€D1	3,0	_	- 6	<u>a</u> a	_	425.7 435.1-	-		H	0.0 - 0.3 Ft. ASPHAL	LT.		DRILLING, ETC.
							435.1-] .		IT	0.3 - 0.6 Ft. GRAVE			Borehole advanced 0-10 Pt. with 6-inch
İ				•				-			1 —			O.D. bollow-stem auger.
							٠.	•			0.6 - 6.5 Ft. Silty CL. RUBBLE. Brownis Moist, loose. Rubb	sh black (5YR2/1), ole consists of brick	,	
S S	2.0	1.3	1-1-1	1				٠.			slag and carbonace	ous material.		Sampled and
							<u> </u>	5_		ľ				gamma-logged by TMA/Eberline.
SS	2.0	1.7	1-2-2			1	419.2_		18	ŀ	6.5 - 10.0 Pt Rilty C	LAV (Ct.) Olive		Top of undisturbed
<u> </u>							١,		S. SAM		6.5 - 10.0 Pt. Silty Cl gray (5Y4/1) to gre Moust, soft, modera	eenish gray (5GY4)	1). biack	material at 6.5 Ft.
SS	1.5	1.1	1-3-5				•		1		(N1) organics.			
\vdash							415.7_	10.	1					
			,				ĺ				Bottom of borehole at	10.0 Ft. Borehole		Description and classification of
											backfilled with bent	tonite cement, 12/	5/ 8 8.	soils by visual examination.
							1	•						
									11					
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			OON; ST			,	ITE			_ ا را	wis Downtow	n Site		HOLE NO.

								PROJE	r T				luga ua	- L.		1
		GE(DLOG	IC D	RIL	L LO)G	ROJE	. ,		FUSRAP		J08 NO	. SHE -116 1	ET NO.	MOLE NO.
SIT	E					· · · · · ·	COORD I N	ATES			1 001011			ANGLE FR		
			uis Do			le	<u> </u>				216 E 1,54	5		Vert		
BEG		- 1	OPPLETED			22/		ı	DRILI		AND NODEL	SIZE	OVERBURDEN	ROCI	(FT.)	TOTAL DEPT
			12-8-8				tern, Co		INC .		ME-750 D EL. DEPTH/	6"	18.0	DEDZU	/2: 244	18.0
	_ ~_	/		'		9	7:				24.6 ¥ /	EL. GRUL	MAN WATER	DEPIN	/EL. IUP	OF ROCK
SAM	PLE I	WOU	R WEIGHT	/FALL	CA		FT IN NO	LE: DI	A./L		LOGGED BY:				/	
	1	140	lbs/30	in			201	16					G. Cb	erry		
۲.	واج	jė,	; 5 , ≻	P-6	HATE				3				,			
ANT DIAT.	SAMP. ADV.	MANNE REC.	1年9175万	LOSS IN F. T.	SEST:	F Z Z	ELEU.	ОЕРТН	GRAPHICS	SACPLE	DESCRIPTION	AND C	LASSIFIC	ATION	WATER CHARA	ON: LEVELS, RETURN, CTER OF ING, ETC.
			<u>† </u>				424.3			70	0 - 0.3 Ft. ASP	HALT.			 	
88	1.1	0.8	13-16	1				٠		ā	3 - 10.3 Ft. PIL	L.			0-18.0 1	e advanced t. with 6-in
85	2.0	1.3	12-16-8	1				٠			0.3-2.0 Pt. Sia	g and bri	ck.		enter.	llow-stem
]	l			-			2.0-4.2 Ft. An	gular lim	stone gravel		1	
35	2.0	1.1	2-2-2	1				_ '			Angular limeste		or \ = .			
				}	1			5-			4.2-10.2 Ft. Si yellowish brown gray (5Y6/1).	10YR	(1) to light o	live	Radiolo	
ŠŠ	2.0	1.0	1-2-1	1				•			gray (5 Y 6/1). fragments and (staining.	moust, so	n, some brick ous material	, Pe	sampled gamma	logged by
				1				•			staining.				TMA/E	berline.
SS 2.0 1.6 WH-1-1																
SS	2.0	1.8	2-5-7				414.4	10_	29/	_						from 4-6 F
			**					-		1	.2 - 13.5 Pt. Bil gray (5Y4/1).	4oist, me	dium-stiff, s	ome	and 16-	18 Ft. d for metals.
SS	2.0	1.7						•			wood and brick	fragment	ts, Fe stainin	g.		
			8				411.1_	•	III.						ļ	
SS	2.0	1.9					i	٦		1:	5.5 - 18.0 Ft. Sil gray (5Y4/1) to	Ereenish	(CL). Olive	/1).		indisturbed at 13.5 Ft.
		ļ	8					15_			Moist, medium- trace of black (stin, mo	derately blas	tic,		
SS	2.0	1.9					•	•			·				İ	
			7												ļ	
_	-	\vdash					406.6_	-	://;	┪			 		Descript	ion and
										В	ottom of borehole backfilled with	e at 18.0 bentonite	Ft. Borehole cement, 12/	: 8/88.		ation of visual
								٠							No grou	ndwater i, 12/8/88.
	ŀ															
		}														-
			}				l									
s :	SPL	IT S	POON; ST	= SHEL	BY TU	BE: S	ITE			1					HOLE NO.	
			P = PI					S	t. I	.ou	is Downto	own S	ite		C	101

		G	EC	LOG	IC D	RIL	L LO	G	ROJE	CT		FUSRAP		JOS N	D. SHEI	ET NO. HOLE NO. C102
	SITE			uis Do		- 614		COORDINA	TES	,	N 4				ANGLE FR	OM HORIZBEARING
	BEGL			MPLETED			<u> </u>	<u> </u>				,130 E 1,42		OVERBURDE	Vert	(FT.) TOTAL DEPTH
				2-1-88				tern, Co		ING.		ME-750	EL. GROUN	8.0	DERTH	8.0
			1				4					425.7	V417.9 12	2/8/88	DEPTH	/
Ī	SAMP			R WEIGHT bs/30		CAS	ING LE	FT IN NOL		A./LI	ENG	H LOGGED BY:		G. Ch	PTTV	
	Ľ:					ATE				92				<u> </u>	,	<u> </u>
	DIAT	48	E E	2 S S S S S S S S S S S S S S S S S S S	n E	EST:		ELEV.	DEPTH	H		DESCRIPTION	AND CL	.ASSIFI	CATION	NOTES ON: WATER LEVELS,
		EN S	F S	SAMPLE BLOUS "N" X CORE RECOVERY	P. P.	PRESS P. S. I	HAY.			DRAPHICS			·			WATER RETURN, CHARACTER OF
r	8S		1.1	\$-6- \$	- 0	Ea	-	425.7 435.1-		32		0.0 - 0.4 Pt. CON	CRETE.			DRILLING, ETC.
-								420.1	-).4 - 0.6 Pt. SAN	D and GR	AVEL.		Borehole advanced 0-8.0 Ft. with 6-inch O.D. hollow-stem
	88	2.0	1.5	3-3-4).6 - 6.5 Ft. Silty gray (5Y4/1) to	CLAY (C	L). Olive yellowish	brown	auger.
+	33	2.0	1.7	3-3-8					•			gray (\$Y4/1) to (10YR5/4). De plastic. Trace (disturbed).	of black (N	um-stm, al 11) organic	ightly	1
				6					5			` ,				Radiologically sampled and
ſ	SS	1.5	1.5	2-3-4				419.2_	•		-	3.5 - 8.0 Pt. Silty	CLAY (C	L). Light		gamma-logged by TMA/Eberline.
İ								417.7		1	╁	3.5 - 8.0 Ft. Silty olive gray (5 Y6 medium-stiff, a dessication crac	/1). Low lightly plants and Fe	moisture c stic. Some staining.	ontent, '	Samples from 0-2 Ft.
											\	Bottom of borehol				4-6 Ft., and 6-7.5 Ft. analysed for metals.
												backfilled with				Top of undisturbed material at 6.5 Ft.
١																
																Description and classification of
					:			İ								soils by visual examination.
													•			
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												•				
															;	
				OON; ST			,	ITE	S	t. I	LO!	is Downto	own S	ite		HOLE NO. C102
Ŀ			<u> </u>				1_									3-0-

ſ		G	EC	LOG	IC D	RIL	L LO	G	ROJEC	:T		FUSRAP		JOS N		ET NO.	MOLE NO.
s	ITE						·	COCRDINA	TES			FUSRAL	-, -	14301	-116 1		
	EG.			uis Do			le	<u> </u>				,133 E 1,53	5 SIZE	OVERBURDE	Vert	ical (FT.)	TOTAL DEPTH
	1-	6-8	9 1	-10-8	9	Layne		tern, Co	.]		1	PC-1A	6"	10.0	1	(71.7	10.0
Ē	ORE	REC	OVER	Y (FT./	X) COR	E SCOKE	SSMPL	ESEL. TO	CAS	MG		MD EL. DEPTH/	EL. GROU	NO WATER	DEPTH,	/EL. TOP	OF ROCK
5	ANP	LE M	AUE	R WEIGH	T/FALL	CAI	ING LE	FT IN HOL	E: DI	A./U		H LOGGED BY:	·				
	·			bs/30				BOB	<u>e</u>	, ,	- -			G. Ch	еггу	_	
	ż	SAMP, AOV.		SAMPLE BLOWS "N" X CORE	Pf	HATEI ESSU TEST:	RE		•	8						NOTES	CALL
	AND DIAH.	98		£ 2 0 5	9 I	T		ELEV.	DEPTH	DRAPHICS		DESCRIPTION	AND C	LASSIFIC	CATION	WATER	LEVELS,
1	3		CORE R	S X	LOSS IN P	PRESS. P. S. I	HAE HAE		8	ğ	9					CHARA	RETURN, CTER OF
1	-	€,	310		- 6	T.C.	_	425.7		32	+).0 - 0.1 Pt. ASP	HALT.		7	+	ING, ETC.
]			425.3	•		-T-\).1 - 0.7 Ft. <u>CON</u>	CRETE.		<u>-</u>	0.7-10.0	e advanced) Ft. with
1	15	2.0	1.9		1.	}			•		1	0.7 - 7.0 Ft. Silty	CLAY (JL) and	ive	6-inch bollow-	o.D. stem auger.
									.]			20BBLE Gragray (5Y4/1), i medium stiff.	ow moist	ure content, naists of sla	soft to		
	,2	2.0	1.1	<u> </u>	1				8_			brick and grave pale brown (5Y	u. Fe sta	ining, paici	es of	Radiolo	mine No.
-	SS	2.0	1.6		┨				•							sampled	and
	SS 2.0 1.6 418.9 7.0 - 10.0 Ft. Silty CLAY(CL). Olive gray (5Y4/1) to greenish gray (5GY6/1).														berline.		
5	Mil amount, soit sugnity plantic, some black Samples from 4-0 ft.																
L	(N1) organics. Samples from 4-6 Ft. and 8-10 Ft. analysed for metals.																
											1	Sottom of borehol	e at 10.0	Pt. Boreho)e	Top of	undisturbed
												backfilled with	bentonite	cement, 1/	10/89.		l at 7.0 ft. tion and
																classific	ation of visual
																examin	ation.
	1																
						1									•		indwater d, 1/10/89.
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		ļ															
												•					
																 	
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c		S P1 1		POON; ST	= CHE	I RY TI	2 .am	ITE .			<u> </u>	 -				HOLE NO	
				P = PI			~~,	•	S	t. l	.Ol	is Downto	own S	Site			103

	G	FO	LOG	IC D	RII	LLO	G	PROJEC	T	FICDAD		JOS NO			MOLE NO.
SIT							COORDINA	TES		FUSRAP			-116 1	OF 1	C105 BEARING
	St.		uis Do			le				2,100 E 1,48				tical	
BEG		1	PLETED					- 1	RILL	MAKE AND MODEL	SIZE	OVERBURDEN	ROC	K (FT.)	TOTAL DEPTH
1.	E REC	OVER	-10-89) CORE	AYDO	S SAIPL	tern, Co	P CASI	MG G	PC-1A ROUND EL. DEPTH	6"	10.0	DEPT	/EL. TOP	OF ROCK
						5				425.5				/	·
SAM		-	RWEIGHT		CAS	SING LE			A./LE	IGTH LOGGED BY:			·- ·		
-	1.	40	bs/30		ATE	<u> </u>	B 01	<u>se</u>				G. Ch	erry		
5	P. ADV.	1 000	uZ uč	PR	ESSU EST:	RE			8					NOTES	ON:
DIAT.	98	4	F 2 2 2	e I			ELEV.	HLL	RAPHIC	DESCRIPTION	-	Lassific	ATION	WATER	LEVELS,
**	LEH	COR	SAMPLE MLOUS "N" X CORE RECOVERY	LOSS IN IN	PRESS.	FRE		8	GRAPHICS					CHARAC	RETURN, CTER OF
20	8-	ğl0	8 -	7 0	<u>ta</u>	-	425.5 425.3-			_0.0 - 0.3 Ft. <u>CO</u>	ICD PAG			DRILL	ING, ETC.
85	1.5	1.3						-				CL). Dark		Borehol 0.5-10 I	e advanced Pt. with 6-inch
88	2.0	1.3						-		0.3 - 3.8 Ft. Elly yellowish brow (5YR5/2). Lo	n (10YR) w moistur	/2) to pale to content, so	Kown K.	O.D. bo	llow-stem
							421.7_	-		alightly plastic	; some Fe	staining.	•	•	
55	2.0	1.0		1		İ	421.7	-		3.8 - 10.0 Ft. Silt gray (5Y4/1).	CLAY	(CL). Olive		1	
								8_	100	anma black (N	ll overanic	e including		Sample	d and
35	2.0	2.0		1			l		an in	rootlets. Trac wood at 7-8 P	e of brick t.	nagments st	10	TMA/E	logged by berline.
						1	İ	•	S.Mr.					-	
SS	2.0	2.0					[Anticipal abole Wester in contribution					Samples	from 2-4 Ft. Ft. analysed
							415.5_	10						for met	als.
							415.5_	10.		Bottom of boreho	le at 10.0	Ft Borehol	•	Top of	undisturbed l at 3.8 Ft.
						ļ				backfilled with	bentonit	cement, 1/	10/89.		
		l					ļ							classific	tion and ation of
								ļ						soils by	visual
1	[.			[
							l .			i				No	
							Ì							opeciae	ındwater d, 1/10/89.
i							ĺ	l							
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\mathbf{I}_{-}															
			POON; \$1			,,,	ITE	6		ouis Dames		 Siec		HOLE NO	2105
P =	DENN	1 20N	; P = PI	TCHER;	0 = (THER		<u> </u>	E. L	ouis Downt	OMU ?	DIFE			-103

_		-	· · · ·	· C D	D			PROJE	CT	· · · · · · · · · · · · · · · · · · ·		JOS NO.	SHE	ET MO.	MOLE NO.
SIT		יבנ	DLOG		KIL	L LU	COORDINA	TEC		FUSRAP		14501-			C106
-11	_	. Lo	uis Do	wetow	n Sit	te	100		1	N 1,955 E 1,4	95	ľ	NGLE FR Vert	OM HORIZ	BEARING
BEG		- 1	OMPLETED	Γ						MAKE AND NODEL	SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
			2-8-80 Y (FT./2				tern, Co		I MG	CME-750	6"	13.5 MD WATER 12/8/88	DEDTH	/EL. TOP	13.5
						7				422.0	8/412.2	12/8/88	DEFIN	/cc. 10 /	OF ROCK
SAN	-		R WEIGHT lbs/30	•	CAI	ING LE			A./U	MGTH LOGGED BY:		C (C)			
ν.	_		1		MTE		HOI	ie		<u> </u>		G. Cher	ту		
DEAT.	2000	REC.	BLOUS "N" X CORE RECOVERY	PR	ESSU	3	ELEV.	E	BRAPHICS	DESCRIPTIO	N AND C	LASSIFICA	TION	NOTES	ONI LEVELS,
	E E		25 × 5	SUN G		i i i		DEPTH	\$					WATER	RETURN, CTER OF
श ्	81-	E 8	2, c	, 9	E a	FE	422.0								ING, ETC.
88	1.1	0.8	5-5	1			421.2		43	0.0 - 0.8 Pt. CO asphalt on sur	NCRETE.	1/2-inch of	_		e advanced
88	2.0	0.9	1/1° 2-3-2							0.8 - 10.6 Pt. 80 RUBBLE, M	ty CLAY	(CL) and			llow-stem
			3					•		(10YR5/4) to (10YR4/2). I consists of sla	dark yello	llowish brown wish brown st, soft. Rubb	le		
35	2.0	1.3	1-1-1					E.		carbonaceous	r, gravel, i material.	orick, and			
हर	2.0	0.0	• • •											Radiolog	and
<i>3</i> 3	۵.0	0.8	3-2-2											TMA/E	logged by berline.
SS	2.0	1.5	1-1-2					•						Samples	from 4-6 Ft.
			2				4	- 7 10_						and 12.0	0-13.5 Ft. d for metals.
SS	2.0	1.5	1-3-4				411.5_	10_		10.5 - 13.5 Ft. 4	Hy CLAY	(CL) Oliva		Top of	andisturbed
66	, -	,.	, ,						Shine	10.5 - 13.5 Ft. 2 gray (5Y4/1). plastic. Some	Moist, sol black (N1	t, moderately) organics.		material	at 10.5 Ft.
33	1.5	1.1	1-4-3				408.5_				•				
										Bottom of boreho backfilled with	le at 13.5 bentonit	Ft. Borehole cement, 12/8	3/88.	Descript classifica soils by examina	ation of visual
,															
				,								•			
							1								
							İ								
						- 1-	ITE		Ш					WOL E 115	
			POON; ST				1 'E	S	t. I	ouis Downt	own S	Site	ı	HOLE NO.	106
-	DENN	SON;	P = P1	TCHER;	0 = 0	THER		_ 5	t. L	ouis Downt	own S	oite		C	106

Г	C	:E/	LOG	ור ח	DH	1.10	G	PROJEC	:1			JOS NO.	l l		HOLE NO.
SI			LUG		KIL	LLU	ICOORD I III	ATEC			FUSRAP	14501-1		OF 1	C107
Ρ.		ī.	uis Do	watow	m Sit	te		MIES		N	1,845 E 1,708		Vert		BEAKING
BE			MPLETED				ــــــــــــــــــــــــــــــــــــــ					OVERBURDEN			TOTAL DEPTH
			2-1-88		Ayne	-Wes	tern, Co	s.			CME-550 6"	12.0			12.0
60	E REC	OVER	Y (FT./3	() CORE	BOXE		ESEL. TO	P CASI	MG	OX.	IV 6 3// 10 % 19	D WATER	DEPTH	/EL. TOP	OF ROCK
EA	DIE		R WEIGHT	/EAL 1	- Icai	8	ET 14 40	15. 01	A (1		419.5 \$ /.2/410.3 12 GTH LOGGED BY:				
	_		bs/30			DING LE	80		۸./د	E III	UIN COURS UI.	G. Pai	\$		
¥					MIE	₹			-	Π			<u> </u>	T T	
T. T.	500	REC.	7. S.	P	ESSU	RE 3		=	5	H				NOTES	ON:
į	'! ॴ	1784	ほうしつ	9 I	ө н		ELEV.	DEPTH	E		DESCRIPTION AND CL	assifica'	rion		LEUELS, RETURN.
3	LEN S	400	9급×ñ	SNG	PRESS. P. S. I.	FRE		5	GRAPHICS	H				CHARAC	TER OF
2	<u> m </u>	1810	B -	- 0	<u>Ea</u>	<u> </u>	419.5 418.9	 		$\!$	0.0 - 0.6 Ft. CONCRETE.			DRILLI	NG, ETC.
88	1.4	1.3					410.9	1 .			0.6 - 8.5 Ft. GRAVRL, RUS SILTY CLAY (CL). Brow (5YR4/1) to dark yellowis (10YR4/2). Moderate moi	BULK, and			advanced t. with 6-inch
85	1.0	0.8		{	l	1		.			(5YR4/1) to dark yellowid	sh brown	.		llow-stem
L	1.0	0.5	 			ľ		١.		ı	moderately plastic. Trace	of organics	ind		
	2.0	1.5			İ	l		-		ı					
			l		ļ			8_				*		Radiolog	rically
SS	2.0	1.3	<u> </u>		İ		i i	-						sampled	and logged by
1								.						TMA/E	berline.
SS	2.0	1.5		ĺ	İ		411.0_] -		ı]	
				}							8.5 - 12.0 Pt. Silty CLAY (Caray (5G4/1), Moderate E	CL). Olive	ent.	Top of u	indisturbed at 8.5 Ft.
SS	1.0	1.0			ĺ			10_			8.5 - 12.0 Pt. Silty CLAY (6 gray (5G4/1). Moderate moderately plastic, slightly of organics and rootlets.	y sandy. Tr	ce		
SS	1.0	1.0			İ	1		•	100						
-	┼	-					407.5_	┧ ・						Descript	ion and
				}	İ	j					Bottom of borehole at 12.0 F backfilled with bentonite	t. Borehole cement, 12/1	/88.	classifica	visual
								ĺ		П				examina	tion.
	1							}							
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1		<u> </u>	L	<u> </u>		<u></u>	<u> </u>	L		Ц				1000 000	····
ss	= SPL	IT S	POON; ST	= SHE	LBY TL	BE; S	ITE	C	:		nuis Downtown S	ita		HOLE NO	107

	C	EC	LOG	ור ח	RII	1.10	G	PROJEC	CT						NO.	_		HOLE NO.
SIT			LOG				COORDIN	ATES			FUSR	AP		14:	501-1		OF 1	C108
[. Lo	uis Do	watow	n Si	te				N 1	,951 1	E 1.80	0		Γ,	Vert		
BEG			MPLETED	DRILL	.ER			1			E AMD NO		SIZE	OVERBU				TOTAL DEPTH
11.	-22-	88 1	2-1-8	BL	Ayne	-Wes	tern, Co).			ME-550		6"		2.0			12.0
COR	E REC	OVER'	r (FT./X	() CORE	BUXE	7	ESEL. TO	P CAS	ING		NO EL.	DEPTH.	/EL. GROU	12/1/88	R	DEPTH	/EL. TOP	OF ROCK
SAM	PLE M	NOE	NEIGHT	/FALL	CAI	1	FT IN NO	LE: DI	A./L			BY:				<u> </u>		,,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
L	1		bs/30	in	\perp		201	De						G	. Pais			
E	걸때	REC.	ځ∟≿	PR	LATE	RE												
or AT	€ 8	E			EST:	5	ELEV.	F	Į.	Ĭ	DESCRI	PTION	I AND C	LASSI	FICAT	ION	NOTES	ON: LEVELS,
100			SAMPLE M. CORE X. CORE RECOVERY	SZ.	8) H	E ZZ		DEPTH	BRAPHICS	(8.8)							WATER	RETURN,
1		200		SH.	PRESS. P. S. I.	E.E	418.6	_	8									CTER OF Ing, etc.
ec	1.4	1.1					418.0		23	0	.0 - 0.6 7	t. 00	CREIE. BLE. Ven (10 YR.2 to high metic. Rubical solida	ev duale	,		Borehol	e advanced
	1	•			İ			'			yellowi	prow	n (10YR)	/3) to gr	rayish p	ink	0.7-12 F	t. with 6-inch llow-stem
33	2.0	1.0			İ			•			modera	tely pla	stic. Rub	ble cons	ists of	•	auger.	
	<u> </u>						•					-,					1	
SS	2.0	0.8				ļ		5.		ľ							İ	
]	ĺ	1	1	₹ .									Radiolo	and
SS	2.0	1.3					j '	Ι.									TMA/E	logged by berline.
66		10		ľ														
33	2.0	1.9			1	[409.6_				0 100	DA CIN	- M AV	7 261 - 2	Nine.		- - 	
66	1.0	1.0				ĺ		10_		•	gray (5	$G_4/I)$	Moderate stic. Tra	moistu	re conte	ent,	materia	indisturbed l at 9.2 Ft.
SS		1.0] .			modera	tely pia	Stic. 1784	ce or org	anics.			
-	1.0	1.0		•	ļ		406.6_	ݫ.		!							Descript	tion and
					i			i		1	lottom of	boreho	le at 12.0 bentonite	Ft. Bor	ehole . 12/1/	ar.	classific	ation of
			٠		ĺ		İ								,, -,		examins	tion.
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SS			200N; ST			~-,	ITE	S	:	l ai	iis Do	wnt	own S	Site			(108

Г		GEC	DLOG	IC D	RIL	L LO	G	PROJE	CT	FUSRAP		EET NO. HOLE NO.
SI							COORD IN	ATES		FUSKAF	14501-116 1	OF 1 C109 ROM MORIZBEARING
	St	. Lo	uis Do	witow	n Si	te			,	N 1,850 E 1,900		tical
BE	GLIN		PLETED	DRILL	ER					L MAKE AND MODEL SIZE		K (FT.) TOTAL DEPTH
			1-23-8				tern, Co			CME-550 6"	12.0	12.0
	RE RE	COVER /	Y (FT./3	() CORE	BOXE	S SAIPL	ESEL. TO	P CAS	ING	GROUND EL. DEPTH/EL. GRE 419.7	TIMO WATER DEPTI	I/EL. TOP OF ROCK
SAI			R WEIGHT	•	CAS		FT IN NO	LE: DI	A./L	ENGTH LOGGED BY:		
-			bs/30		ATE		801	16	_		G. Pais	
Seep. Type	SAMP. ADV.	CORE REC.	SAMPLE BLOUS "N" X CORE RECOVERY	LOSS IN G.P.M	EST:	ŔE	ELE U.	HLL	0	DESCRIPTION AND		NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF ORILLING, ETC.
1	1	1							3	0.0 - 1.3 Ft. CONCRET	and ASPHALT.	Borehole advanced
	1.7	0.6					418.4_		¥-28	1.3 - 9.3 Pt. RUBBLE an (CL). Dusky yellowish Moderate to high mois	d Silty CLAY brown (10YR2/2). ture content,	1.3-12 Ft. with 6-inch O.D. hollow-stem auger.
	2.0	1.4					. 2			moderately plastic. Ru organics, slag, coal, and products.	chemical	
SS	2.0	1.4						8_				Radiologically sampled and gamma-logged by TMA/Eberline.
SS	2.0	1.4					·	-				
20	1.0	0.8					410.4	10_		9.3 - 12.0 Pt. Silty CLAY gray (5Y4/1) Moderat	(CL). Olive	Top of undisturbed material at 9.3 Ft.
	1.0	0.9					407.7_	-	Manny	moderately plastic. Tr dessication cracks.	ace of organics,	
							401.12	•		Bottom of borehole at 12 backfilled with bentoni	Ft. Borehole te cement, 11/23/88.	Description and classification of soils by visual examination.
										·		
	<u> </u>											
			OON; ST			, ;	ITE	S	+ 1	Louis Downtown	Site	HOLE NO. C109

	G	EC	LOC	310	DE	>11 1	10	G	PROJEC	CT		_	JOB NO		SHEET N	ю.	NOLE NO.
SIT	_	EC		<u> </u>				COORDIN	TEC		FUSRAP				1 OF	1	C110
3 11		T.A	uis Do	awa t	.wz	Sit	•		1169	,	N 1,973 E 1,963	2			ertica		RAKING
BEG			MPLETE					_1				BIZE	OVERBURDE		ROCK (F		TOTAL DEPTH
			2-1-8					tern, Co			CME-550	6"	12.0				12.0
COR	E REC	OVER	Y (FT./	75)	ORE	BOXES	1	ESEL. TO	P CAS	MG G	ROUND EL. DEPTH/	/410.4 1	MD WATER 2/1/88	D€	PTH/EL.	TOP	OF ROCK
RAM	PLF M	AME I	R MEIGH	IT /FAL	1	EAS	7	FT IN MC	E: DI	A./LE	419.2 \$ 7.0			!_			
	1	40 1	bs/30					B 01		,			G. P	ais			
W .	4	ů.	•		, Like	ATER	~							الباسند			
brai	58		n's S	<u> </u>		<u> </u>	, E	 	Ξ	GRAPHICS	4					TES	
قر			23 8	8 2	.티	giri	W	ELEV.	DEPTH	14	DESCRIPTION	AND C	LASSIFIC	ATIC			LEUELS, RETURN,
22	S S	3 8	92 ×			Press. P. S. I.	EAE	Ì	 		Ž.				jсн	ARAC	TER OF
		7			7	20		419.2 418.7_			0.0 - 0.5 Ft. CON	CRETE.			_ 		
88	3.0			1				ļ			0.6 - 9.0 Pt. Alty	CLAY (C			0.5	-12 F	advanced t. with 6-inch
				╛			1				0.5-6.0 Pt. Bro Moderate moist	ure conte	nt. moderal). ely		D. hol ger.	low-stem
				İ			·				plastic. Coal, s	sudy, org	anics.			_	
1				1	- 1		•		٠ ا								
				1			İ		5-							diolog	
													254 (4) 1		E57	mpled	and logged by berline.
1				1	1		'	1	١.		6.0-9.0 Ft. Oliv brownish gray (5YR4/1)	Moderate	. .	TA	AA/E	berune.
						1		410.3	2		moisture content in places. Trace	of organ	nics and coa	l.			
				ļ				410.23	10_	*	9.0 - 12.0 Pt. Bilt	CLAY	CL). Olive		To	p of u	ndisturbed at 9.2 Ft.
									10-		gray (5Y4/1). alightly to mode organics.	rately pl	astic. Trace	of	'	P-41 INT	a. y., r
							1	407.2_	·		organics.						
					-			100.2	1		Bottom of borehole	at 12.0	Ft. Borehol	•	De	script	ion and ation of
				İ			ĺ			1 1	backfilled with	bentonite	cement, 13	/1/88	. s oi	ils by	visual
							1			1 1							
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ss	SPL	17 51	POON; S		MELE		BE: S	ITE ·	L	لــــا	1				HO	LE NO.	
	DENN						-,		C	: • I	Quie Downte	war 6	ita.		ł		110

	_	-	N 00	ור ח	DII I			PROJEC	CT		1 1			HOLE NO.
L		E	LOG		KIL	L LU				FUSRAP	14501-116	_		C111
SIT	_	_					COORDINA	ITES	_		1		M HORIZ	BEARING
<u></u>			uis Do			te	<u></u>			1,910 E 2,020			icai	
BEG		- 1	MPLETED			887	4. 6.	1	DRILL	I		rocx	(FT.)	TOTAL DEPTH
			1-29-8				tern, Co		.ua	CME-550 6"	12.0			12.0
COR	E REC	OVEK	7 (11./2	c) CORE	BUXE	6	ESEL. 10	P CAS		17 4 3//1/ 1 10	1/29/88 DE	PIH/	EL. IOP	OF ROCK
CAM	DI E M	Abbeti	RWEIGHT	/FALL	PAC		ET IN NO	F . D1	A /15	420.3 7.2/31311				
			bs/30	-		,, mu	BOI		M./ LE	iain (code) si:	G. Pais			
					MIE		201	16			G. FEIS			
Dr. A.F.	정말	EC.	SAMPLE BLOWS "N" X CORE RECOVERY	PR	ESSU EST:	RE		_	8				l	
172	200	1	5, 82			T	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CL	_ASSIFICATIO	ж	NOTES	LEVELS,
موا	Q'Z	CORE	£308	LOSS IN B.P.M	PRESS. P. S. I.	FAE	1		2				WATER	RETURN,
199	8	CORP		27:	F.	HH		_	8					TER OF Ing, ETC.
-	97	<u> </u>			8.0		420.3 419.7			0.0 - 0.6 Pt. CONCRETE.				
88	1.4	0.6		1 1		ł]			0.0 - 0.6 Ft. CONCRETE. 0.5 - 8.0 Ft. Suby CLAY (C gray (5YR4/1). Moderate moderately plastic. Coal,	L). Brownish			e advanced 't. with 6-inch
										moderately plastic. Coal,	, sandy, organics.	•,	O.D. ho	llow-stem
83	2.0	1.5		1			1						auger.	
1						İ	1 : 1							
33	2.0	1.6		1				٠ .						
	[[5_					Radiolog	gically
SS	2.0	1.9					2						sampled	and logged by
								,					TMA/E	logged by berline.
-						ŀ	412.3_				AV			
33	2.0	0.4					l i	١.		8.0 - 12.0 Pt. Silty CLAY (-		1	
						1		10_		8.0-9.0 Ft. Olive gray (5 gray (5YR4/1). Moderat slightly plastic. Trace of coal; sandy in places.	Y4/1) to brownis	nt.		
SS	2.0	1.3		1						slightly plastic. Trace of	organics and	,	Top of	indisturbed at 9.6 Ft.
								٠	1				materia:	1 Mt 9.0 Ft.
<u> </u>				{			408.3_		:://	9.0-12.0 Ft. Olive gray (5 moisture content, slightly	Y4/1). Moderate to moderately	• ୮	Descript	ion and
										plastic. Trace of organics	i. •	- [classifica	stion of
				1		1				Basses of basses of a control of	A	_	examina	tion.
									1 1	Bottom of borehole at 12.0 F backfilled with bentonite	cement, 11/29/8	8.		
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55	. SDI	17 21	POON; ST	E CHE	BY TI	BE. IS	ITE		 				HOLE NO	•
			· D = DI			,		C	+ 1	ouis Downtown S	ito			111

_								PROJEC	et e		LICE NO. SHE	ET NO INOLE NO			
	G	SEC	DLOG	IC D	RIL	L LO	G		••	FUSRAP	14501-116 1	ET NO. HOLE NO. C112			
SIT	_						COORDIN	ATES			ANGLE FR	OM HORIZBEARING			
			uis Do			e				1,743 E 1,600	Vert				
BEG 11-	_		омриетер 1-30-8	l l		-Wes	tern, Co	- 1	MILL.			(FT.) TOTAL DEPTH			
							ESEL. TO		NG G	CME-550 6" COMD EL. DEPTH/EL. GROUN 420 8 \$ 5.9/423.6 12	D WATER DEPTH	/EL. TOP OF ROCK			
		_/.	<u></u>		- 1.	15				747.3 3 /	/1/58				
SAR			R WEIGHT	,	CAS	ING LE			A./LEI	GTH LOGGED BY:	C P-1-				
		1	bs/30	_	ATE	2	201	<u>re</u>	1		G. Pais				
Mr. DIM.	SOO S		SAMPLE M. CORE X. CORE RECOVERY	PR	ESSU EST	RE 3	elev.	DEPTH	GRAPHICS SATPLE	DESCRIPTION AND CL	ASSIFICATION	NOTES ON: WATER LEVELS,			
3 2	S N	E 800	S ×	LOSS F.P. F	PRESS P. S. I	i i	439.5		L - 11			WATER RETURN, CHARACTER OF DRILLING, ETC.			
85	2.0	1.8					429.0_			0.0 - 0.5 Ft. CONCRETE 0.5 - 8.5 Ft. RUBBLE and 5 (CL). Brownish gray (5 YB6/1). brownish gray (5 YB6/1). moisture content, slightly	lity CLAY R4/1) to light	Borshole advanced 0.5-30 Ft. with 6-inch O.D. hollow-stem			
85	1.5	1.1								moisture content, slightly plastic. Organics, coal, tr	to moderately ace of wood.	auger.			
88	2.0	1.5						S				Radiologically			
SS	SS 2.0 1.5 SS 2.0 2.0 421.0														
SS															
SS	2.0	material at 7.8 Ft.													
\$ \$	2.0														
SŠ	2.0	1.8						15_							
SS	2.0	1.8						•••							
SS	2.0	2.0							Zeigen Zein						
SS	2.0	1.8						20	Smichinis						
S S	2.0	1.4							William Str.						
8\$	2.0	2.0						25_	a en elle kom a mikilikan andalah en elektrista da ek						
8 S	2.0	1.5							mingue.						
88	2.0	1.8							8. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.						
_		_					399.5_	20				Description and			
										Bottom of borehole at 30.0 Pe backfilled with bentonite of	t. Borehole ement, 12/1/88.	classification of soils by visual examination.			
			POON; ST				ITE				· · · · · · · · · · · · · · · · · · ·	HOLE NO.			
, -	NN		: b = b1.	I CHEK;	J - 0	INSK		3	t. L	ouis Downtown Si	LE	C112			

Γ	(:FC	LOG	IC D	RIL	L LO	G	PROJEC	CT	FICDAD		JOS NO.	I	ET NO.	HOLE NO.
\$1							COORDIN	TES		FUSRAP		14501-		OF 1	C113 BEARING
L			uis Do			te	<u> </u>			N 1,719 E 1,678	8		Vert		
Ε-	NU.		MPLETER	1		Waa	· C		DRILL	-	512E	OVERBURDEN	ROCI	(FT.)	TOTAL DEPTH
			1-21-8 Y (FT./				tern, Co ESEL. 10		ING I	CME-750 GROUND EL. DEPTH/	EL. GROU	11.5	DEPTH	/EL. TOP	0F ROCK
L						6				419.6	/413.5 1	1/28/88		/	
SA			R WEIGH		CAS	SING LE			A./L	ENGTH LOGGED BY:		C Cha		`	
	_		bs/30		WATE	R	801		T			G. Chei	TY_		
T. T.	88	E S	SAMPLE X CORE X CORE	P	ESSU TEST	RE S		=	DRAPHICS	DESCRIPTION				NOTES	ON:
i			1305	2_I		¥	ELEV.	H	5	DESCRIPTION	AND C	Lassifica	TION		LEVELS, RETURN,
25		CORE	BLOUS PRODUCTO	SHO	7 7 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	H H H		•	Š	7				CHARAC	TER OF
\vdash	1			1	1 2 2	1-	419.6 419.0_	 	2	0.0 - 0.6 Ft. CON	CRETE.			 	
35	1.4	1.0	4-9-2/5]	1			•		U.5 - S.5 Pt. Bulty RUBBLE. Bro Moist, loose. R	which bla	ck (5YR2/1).		0-11.5 F	e advanced 't. with 6-inch llow-stem
55	2.0	1.7	8-6-5 23	1	·			•		gravel, and brid	r tradine	ats; Fe stainin	Æ.	auger.	now-stem
]	l		٠.							1	
SS 2.0 1.7 84-19-30 5-															
SS 2.0 1.6 7-24-13														Radiolo sampled	and
35	SS 2.0 1.6 7-24-13 9														logged by berline.
SS	2.0	1.8	1-1-1	┨			411.1_	-						Samples	from 2-4 Ft.
			3				555122	-		8.5 - 11.5 Ft. Silt- gray (5Y4/1). N plastic. Some b	CLAY	CL). Olive		and 10-	
SS	1.5	0.9	1-2-2	1]			10_		plastic. Some t including rootle	olack (N1) ita.	organics,		Top of	ındisturbed
L	↓	_			İ		408.1_	-				<u></u>			l at 8.5 Ft.
				Ì	}				1	Bottom of borehole backfilled with			9 / 22	classific	sion and ation of
				ł			-			DECEMBED WITH	centomice	Coment, 11/2	·6/ 00 .	examina	
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			POON; \$1			 ,	ITE		•					HOLE NO	
<u>P</u>	DENN	I SON	P = P	TCHER;	0 = 0	OTHER		S	t. l	Louis Downto	own S	ite			113

ſ				100		חוו		_	PROJEC	T			_		JOB NO.	SHE	ET NO.	HOLE NO.
ļ	SITE		EU	LOG		KIL	L LU	COORDINA	TEC			FUSR.	AP			-116 1		C114
ľ	2115		Lo	uis Dov	wntow	n Sit	e	COCKUINA	169	1	N 1,6	75 E	1,67	5		angle fr Vert	OM HORIZ ical	BEAKING
)	BEGL	JN	cc	MPLETED	DRILL	.ER					MAKE	AND MOD		SIZE	OVERBURDEN		(F.T.)	TOTAL DEPTH
		4-89		-10-89				tern, Co		NG K	POUNT	C-1A	DEDTH/	6"	8.0	DESTU	/EL. TOP	8.0
ľ			/	. (11.,7	,	. DONE	4		- WASI			9.5	¥ /	EL. UKOU	ND MAIER	DEPIR	/EL. 10P /	UP ROCK
Ī	SAMP			WEIGHT	-	CAS	ING LE	FT IN HOL		A./LE	NGTH	LOGGED	BY:				,	
-	tu)			bs/30		JATER)	non	e	- 1	T	ļ <u>.</u>			G. Che	ггу	T'	·
	SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU	RE		I	80	4						NOTES	ON:
	To	, C		E SOS	ω_E	йн	ш	ELEV.	DEPTH	GRAPHICS		ESCRI	PTION	AND C	LASSIFIC	HOITA	WATER	LEVELS, RETURN,
	뛇	LEP	AMP COR	R. S.	LOSS IN G.P.M	PRESS P.S.I	TIME MIN.	·	ō	GRA	ñ						CHARAC	TER OF
Ī			Ğ, ,			<u>aa</u>		419.5 418.8			0.0	- 0.7 Ft	CON	CRETE.		· · · · · ·	 	
	SS	1.2	0.8						-	Š	0.7	- 8.0 F	r. Silty	CLAY (CL) and th brown . Rubble co		0.7-8 Ft	e advanced with 6-inch
ľ	SS	2.0	1.1						-	1		(10YR4)	72). Mo	oist, loose nd gravel.	. Rubble co	nsists	auger.	llow-stem
						1			-								Radiolog	gically and
	SS	2.0	1.4						5_	ed edite.							gamma- TMA/E	logged by berline.
-	SS	2.0	2.0						-								Sample analysed	from 4-6 Ft. I for metals.
		0	0						-								4.0 Ft. (OVA reading
+								411.5_	-	- i	_						30 ppm	(in auger).
											Bo	ttom of l backfille	boreholed with	e at 8.0 F bentonite	t. Borehole cement, 1/1	0/89.	4-8 Ft.	OVA reading
-																	>1000 p auger), LEL=48	exotox
																	DDD-40	,,,,
		ļ															Descript classific	ation of
1																	soils by examina	
						,											Hole ab	andoned
																	because	of high OVA 1/5/89.
																		-, -,
																	No grou observed	ndwater 1, 1/10/89.
																		. , ,
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	s =	SPI 1	T 50	OON; ST	= QUE	BY TI	BE. S	ITE			L						HDLE NO	
				P = PI			,		S	t, L	oui.	s Do	wnto	wn S	ite			114

		G	FC	LOG	וכ ר	RIL	LLO	G	PROJEC	T		FICDAD		JOS N		1 -		HOLE NO.
	SITE							COORDINA	ATES		_	FUSRAP		1450			OF 1	C115 BEARING
				uis Do			te	I				1,671 E 1,59	0		1		tical	
Ŧ	BEGL	-		PLETE	ı		937			DRILI	L	NAKE AND MODEL	SIZE	OVERBURDE		ROC	K (FT.)	TOTAL DEPTH
				-10-8				tern, Co		ING	C 2	PC-1A OUND EL. DEPTH	/EL. GROU	14.0	_	EPTH	/EL. TOP	DF ROCK
'[7					419.5						
ľ	AMP			bs/30		CA	SING LE			A./L	EN	GTH LOGGED BY:		G. Cl				
1	Ψ.					WATE		B 01		Τ.	П			G. CI	em		1	
1	oraff.	CORE	REC.	1 S S S S S S S S S S S S S S S S S S S	P	TEST:			Ŧ	GRAPHICS	H						NOTES	ON:
1	ā			22 0 C	2-2	gH.	W-÷	ELEV.	HT-GER	Ī	1	PESCRIPTION	AND C	LASSIFI(CATI	ON		LEVELS, RETURN,
	4	SAMP.	CORE	9 일 기	SHO	PRESS. P. S. I.	E ZZ		•	ğ	7						CHARAC	TER OF
ŀ	8\$		1.0		┤	4.4		419.5 118:1	-	٥,		0.0 - 0.4 Pt. QQ	(CR.STR.				 	advanced
						l		418.2	} '	2	ŀ	0.4 - 0.7 Ft. Silts yellowish brow	CLAX (C	L). Dark		\neg	0.4-14 P	r agvanced 't. with 6-inch Llow-stem
T	85	2.0	1.8		1		f		•			medium-stiff.	u (20114)			_]	auger.	nom-stem
]	1						0.7 - 1.8 Pt. QQI				\Box		
Ì	8 5	2.0	1.7						5		H	1.3 - 6.5 Ft. Silty RUBBLE. Bro dark yellowish	which blac	L) and k (5YR2/1) to			
ļ	SS	2.0	2.0		-			413.0_	.			moisture conte	nt, soft to	loose. Rul	oble		Radiolog	ncally and logged by
l		2.0						425.5_] .	777		moisture conte consists of slas 6.5 - 11.0 Ft. Sili gray (5Y4/1). plastic.	Y CLAY	CL). Olive	lv		TMA/E	berline.
}	SS	2.0	2.0		-				.			plastic.		,	-,		Samples	from 2-4,
١	ı																8-10, an analyses	d 12-14 Ft. I for metals.
t	SS	2.0	2.0		1	1		408.5	10_								Top of u	indisturbed
								400.0_	1 .			11.0 - 14.0 Pt. C (5Y4/1). Moisi	AY (CH)	. Olive gra	ÿ		marena	86 0.5 F 6.
	SS	2.0	2.0		7	ŀ						highly plastic.	,, 50.1 10 12		••			
k								405.5_		:2					_		١	
1						1				Ì	П	Bottom of boreho backfilled with				0	Descript classifica soils by	ation of
-					1			[}		$\ $	Deckinied with	Dentoure	cement, 1	10/0	y .	examina	
1								`					•					
									İ									
1							ļ		}		$\ $						No grou	
١											H						observed	1, 1/10/89.
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			<u> </u>		1	<u> </u>		<u> </u>	<u> </u>	<u> </u>	Ц						1001 5 110	
				POON; S			~ ,	3TE	S	St.	L	ouis Downt	own S	Site			HOLE NO	115

		G	FC	LOG	IC D	RII	LLO	G	PROJEC	7	PUCD AD		JOS NO.	J		HOLE NO.
5	TE							COORD IN	ATES		FUSRAP		14501-1		OF 1 ON MORIZE	C117 BEARING
	_		Lo	uis Do	wntow	n Sit	le				1,590 E 1,70	0		Vert		
Г.	œ		- 1	MPLETED	- I			_		RILL		SIZE	OVERBURDEN	ROCK	(FT.)	TOTAL DEPTH
				1-28-8		AYDO	-Wes	tern, Co).	uc la	CME-750	6"	14.0	DEDT!	/F1 T00	14.0
۲	ЖŁ	REU	OVEK /	1 (11.//	s) Curr	. BUNE	7	ESEL. 10	P LAS		419.0	/413.5	1/28/88	DEPIN	/EL. TOP /	OF ROCK
3	UP	LE N	NOE	R WEIGH	/FALL	CAS		FT IN NO	LE: DI	A./LEI	GTH LOGGED BY:			<u> </u>		
		1	<u>40 l</u>	bs/30				B 01	ne			***************************************	G. Cher	гу		
1	i	걸빌	EC.	 ± ≿		MTEI ESSU	RE			2						-
15	OI F	58	E S			EST:		ELEV.	F	H H	DESCRIPTION	AND C	LASSIFICAT	ION	NOTES	ON: LEVELS,
9	_	-4 1	48	S S S S	LOSS P. P.	80 ·	E SE		DEPTH	BRAPHICS					WATER	RETURN,
13	3		2 8		77.	PRESS. P. S. I.	FTE	419.0		9						NG, ETC.
F	3	1.5	1.1	6-13-8	1			418.5_		-28	0.0 - 0.5 Pt. CON	CRETE	(CL) and		Borehol	advanced
L								1			0.5 - 11.0 Ft. Silt. RUBBLE. Bro Moist, loose. R brick fragments	which bis	ck (5YR2/1). usists of slag at	ıd	0-14.0 F	t. with 6-inch llow-stem
8	3	2.0	1.4	4-5-8 23				i '			brick fragments	; Fe stail	ing.		auger.	
							 	,								
8	S	2.0	1.9	9-37-34 19	1	l	ł	1							1	
L					_			1 2	7						Radiolog sampled	and
S	S	2.0	1.2	8-6-4 6					▎.						TMA/E	logged by berline.
Ļ		2.0		3-9-6											8	<i></i> • 4 4
3	3	2.0	1.2	3-9-5				Ì] .						12-14 F	from 2-4 and t. analysed for
Ļ	_	2.0	1.1	1-2-1	-				10_						Historia.	
~	٦	•.•	•••	3				408.0_		77	11 0 - 14 0 Ft - Sil	e CLAV	(CL) Olive		Top of	ındisturbed
L	$\frac{1}{s}$	2.0	1.2	1-1-1	-		}	ļ		0.00	11.0 - 14.0 Pt. Sil gray (5Y4/1). A highly plastic.	doist, sol	t, moderately t	o led		at 11.0 Ft.
	1			ī					.		sand.		,		1	
\vdash	┥				1			405.0_		:///					Descript	ion and
	-										Bottom of borehole backfilled with	e at 14.0 bentonite	Ft. Borehole cement, 11/2	3/88 .	classifica	visual
	-	-													examina	ition.
		ı													1	
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	-				1				}							
F							ms. le	SITE .	<u> </u>	Щ					HOLE NO	
				POON; \$1 ; P = P1			~~,		S	it. L	ouis Downte	own S	Site			117

-	(GE(DLOG	IC D	RIL	L LO	G	PROJE	CT		EUCDAD		JOS NO	· [SHEET N		HOLE NO.
51							COORD IN	ATES			FUSRAP		14501		FROM H	1 00 1 76	C118
L	S	t. Lo	uis Do	wntow	n Si	te				N	1,420 E 1,665				ertical	- 1	
F -	GUN		OMPLETED			997			DRIL		AKE AND MODEL \$12		OVERBURDEN		OCK (FI	7.)	TOTAL DEPTH
			12-7-8				tern, Co		IMG			6"	16.0	DE	DTW/EI	TOD	16.0 OF ROCK
		/		- 1		8	-				423.3	16.9 12	2/7/88		r 1 M/ EL .	/	OF ROCK
SA			R WEIGHT	-	CAI	SING LE			A./L	EM	TH LOGGED BY:						
			lbs/30		MTE	2	201	1e	1	П			G. Che	erry			
SAMP. TYP	8		SAMPLE BLOUS "N" X CORE RECOVERY	PR	ESSU	RE		_	8	H					NO.	TES	ON:
1			#3 29	o_E	ю́н	W .	ELEV.	NE PT	GRAPHICS		DESCRIPTION A	ND CL	ASSIFIC	OITA	N WA	TER	LEVELS, RETURN.
1	1		NO X	LOSS IN P. P.	PRE58 P. 5. I	E ZZ		•	8						CH	ARAC	TER OF
	1	1			80		423.3 422.9		3,	Н	0.0 - 0.4 Pt. CONCR	ETE.					NG, ETC.
83	1.4	0.9	1-8-1/5					-		Ī	0.4 - 12.5 Ft. Silty C		Lland		0-1	6.0 F	advanced t. with 6-incl
83	2.0	1.6	3-5-18	1				-			ment one gray (5)	Y6/1).	Low moustu	T.e		D. hol ger.	low-stem
		<u> </u>						•			content to moust. I of gravel, brick, ala	ug, and	sand.	mmts.			
\vdash	0.8	1	13-50/4					5_							Ra	diolog npled	ically and
	1.0	0.8						,		ı					F.	nma-l	logged by serline.
33	2.0	0.9	2-1/18*				1								Bo:	ugh d -5.0 I	rilling from
85	2.0	0.3	WH/19*							ľ							
"		"."						-									(4 6
35	2.0	1.2	2-3-25					10							8-1	0, an	from 4-6, d 14-16 Ft. for metals.
		1	4					-								-,	tor metals.
33	2.0	1.2		1 1			410.8_	-			·						
			3					-			12.5 - 16.0 Ft. Sandy gray (5Y4/1). Mois alightly plastic. Sa fine-grained. Abus	CLAY	(SC). Oliv to medium-	e stiff,	To	p of u terial	ndisturbed at 12.5 Ft.
SS	2.0	1.6	3-3-3					٠			fine-grained. Abus organics, trace of p	and is v	ery fine- to black (N1)				
			•				407.3	15_			organics, trace of p	# DDIES	(1/ 0 -mcn).				
Г								•		Π	Bottom of borehole at	16.0 F	t. Borehole		بواء ا	scripti Milica	ion and tion of
					,						backfilled with ben	tonite	cement, 12/	7/88.	soil	s by v	risual
İ																	
								."			•				-		
															- 1		
			·														
																	i
22	= SP 1	11 5	POON; ST	= SHFI	BY TU	BE: S	ITÉ		لـــا	Ц_					HOLI	E NO.	
			P = P1			,		S	t.	Lo	uis Downtow	n S	ite				118

		G	EC	LOG	IC D	RIL	L LC)G	PROJEC	CT		F7 1070 A 70	JOS NO.		ET NO.	HOLE NO.
SI	TE	_						COORD IN	ATES		_	FUSRAP	14501-1		OF 1	C119A
		St.		uis Do			le				N	1,350 E 1,645	,	Vert		
1	CUN		- 1	MPLETED	1				•	DRIL		MAKE AND MODEL SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
녆	Z-:	5-8	8 1.	2-19-8		AYDO	- Wes	tern, Co	P. CAS	INC	—	CME-550 6"	10.5	D502#		10.5
	-	~~~	/		"		6	7	r uns	·	Γ	CUND EL. DEPTN/EL. GROU 424.3	MD MAICK	DEPIR,	/EL. 10P /	OF ROCK
SA	MPL			R WEIGHT		CAS	ING LE	FT IN HO	LE: DI	A./L	.EN	GTH LOGGED BY:		<u>. </u>		
L				bs/30	-			B 01	<u>e</u>	_			G. Pais			·
E	z z		LE REC.	אַנוּוִצִּיוּנ	PR	MTE/ E3SU	RE	i		2	U					
178	2 2	8	7			ESTS		ELEV.	HE TH	GRAPHICS		DESCRIPTION AND C	LASSIFICAT	ION	NOTES	ON: LEVELS,
8		EN	COR	S N	SSN .	PRESS. P. S. I.	FAZ			1					WATER	RETURN,
8	\$ 3			2 6	7 9	Ea.	FE	424.3] -	П					TER OF ING, ETC.
	3 2	-	1.1					423.5_			\prod	0.0 - 0.4 Ft. CONCRETE.			Borabol	advanced
~		-	•••									0.8 - 10.5 Pt. FILL. Black: (5R2/2) to very dusky re	ish red id (10R2/2).		0.8-10.5 6-in. O.	Ft. with D.
	5 1		A 8				İ					Moderate to very high m Wood chips, brick fragm	oisture content ents, sludge,	•	pollow-	item auger.
i i	5 2	- 1	0.8	: 							ľ	organics, coal, chemical i	luids.		ľ	
"	•	ا "	1.3						5 _						<u> </u>	
-	5 2	_	0.9					ļ							Radiolog sampled	rically and
3	1	."	0.5				ſ				H				TMA/E	logged by berline.
S	3 2	0	1.8	-					-							
١.		.	1.0								ı					
1 59	5 0	5	0.4					413.8	10_		ı					
Γ	T							120.0_	·			Bottom of borehole at 10.5	Pt Bombole		material	indisturbed was not abandoned
		- 1										backfilled with bentonite	cement, 12/19	/88 .	bole.	i; soandoned
		1									$\ $				Descript	ion and
		- 1													classifica	ation by
							.								VISUEL &	Cammation.
		J														
									-						ĺ	
		ı													No grou	ndwater .
															observed	1, 12/19/88.
											П					
											$\ $					
			l													
l	-	1	Į													
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_																
				OON; ST			,	ITE	2	•	,	wis Downtown S	ite		HOLE NO.	104

	C	EC	LOG	ור ח	RII		ıc.	PROJEC	:1			JCB NO		SHEET N		HOLE NO.
\$17			LUG		IVIL		COORDIN	TES		_	FUSRAP			1 OF	1	C119B
[-	. Lo	uis Do	watow	n Sit	te				N	1,350 E 1,640			Vertical		
BEG	LIN	p	PLETED	DRILL	.ER			5		.)	MAKE AND MODEL SIZE	OVERBURDE		ROCK (F	7.)	TOTAL DEPTH
			2-19-8				tern, Co		WC .		CME-750 6" OUND EL. DEPTHZEL. CRO.	20.5		EPTH/EL.	700	20.5
	E REL	JVER /	1 (71.72	., [- DUAL	11		- (43)	-		424.3	2/19/88	"	EPIN/EL.	. IUP /	OF RUCA
SAM	PLE M	NOE	R MEIGHT	/FALL	CAI		FT IN NO	E: DI	A./L	EN	GTH LOGGED BY:					
_	1	40 1	bs/30	in .			■01	e				G. Ch	erry			
ALL DATE	걸분	U C	SAMPLE N. CORE X. CORE NECOUERY	PE	LATEI ESSU FESTS	RE		_	g							-
	48	F. F.	4 m 0 5	- E		<u> </u>	ELEV.	DEPTH	Ĭ		DESCRIPTION AND C	LASSIFIC	ATI	on Jua		LEVELS,
1	S N	4 S	85 × 5	SY.	80 m	HAL		8	GRAPHICS	H				СН	ARAC	RETURN, TER OF
25	81-	क्	B . a	٥ اـ	g a	FE	424.3		_	Ц				DR	ILLI	NG, ETC.
00	1.0	0.3	1/12*				423.6_	·		₽	0.0 - 0.7 Ft. CONCRETE.	(67)				advanced
1	2.0	0.3		l	Ì			-			0.7 - 18.0 Pt. Sity CLAY	(ANT THE		0.		low-stem
"		"	3	1	1		·				0.7-14.0 Ft. Grayish br grayish black (5YR2/1).	own (SYR3/	2) to	1	ger.	
35	2.0	1.6	13-22-3					-			content to moist. Loose of slag, gravel, brick, an	Rubble co	nsists ous	'		
			12	l	1			8			content to moist. Loose of alag, gravel, brick, an material; Fe staining. T organics and patches of to greenish gray (5GY4/	race of black	(N1 Y4/1	} Ra	diolor	rically
35	2.0	1.7		}	Ì		Ì	-			to greenish gray (5GY4/	1) allty clay			mpled mms-	and logged by
Í			1				,	, -		ľ				Th	AA/E	berline.
88	Samples from 0-2, 4-6, and 18.5-20.5 ft.															
66	6 0.8 0.8 50/4" 4-6, and 18.5-20.5 ft. analysed for metals.															
33	0.2	0.2	80/2	{				10_		Ц						
			}			Ī	1	י								
SS	2.0	1.7	12-10-7	1	l					Ч						
			5	ĺ												
33	2.0	1.2	2-3-7			[15_		l	14.0-18.0 Pt. Olive gray	(5Y4/1) to	,	14	.5 Ft.	OVA reading
1					ĺ						14.0-18.0 Ft. Olive gray greenish gray (5GY4/1) medium-stiff. Fragment very fine-grained sand a	s of slag. T	race (of LE	L=80	Exotox % (in auger).
55	2.0	1.3	2-3-3	i			,	-			organics.	me prace (14	1)	16	.5 Ft.	OVA reading
	<u> </u>			1]]	406.3_	-	18 ':	ŀ	18.0 - 20.5 Pt. Sandy CLA	Y (SC). OI	ive_			indisturbed
SS	2.0	1.8	1-2-2					-			gray (5Y4/1). Moist, soft moderately plastic. Den	t, slightly to se lenses of	clay.	TO.	sterial	at 18.0 ft.
<u></u>		_	<u> </u>				403.8_	20_			Trace of black (N1) organization	nics, includ	ing	_		
				ļ	1	İ				$\ $	Bottom of borehole at 20.5			l cla	ssific:	ion and tion by
							ĺ				backfilled with bentonite	s cement, 13	/19/6	56. VI	ium e	camination.
										$\ $						
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]					1	ł	1	$\ $						
ss	= SPL	IT S	POON; \$1	= SHE	LBY TI	BE: S	ITE		 -	<u>. </u>				HO	LE NO	
7 1.	= SPLIT SPOON; ST = SHELBY TUBE; SITE SITE St. Louis Downtown Site C119B															

Γ		C	Fſ	LOG	ור ה	RII		ıc	ROJEC	T				JOS NO.		ET NO.	HOLE NO.
SI	TE			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1/16		COORDIN	ATES		_	FUSRAP		14501-		OF 1	C120
	. —	St.		uis Dov			e					1,605 E 2,15	5_		Vert	ı	*****
	GUN			MPLETED			•••		T I			WAKE AND NODEL	SIZE	OVERBURDEN	ROCK	(FT.)	TOTAL DEPTH
	- 1	R-I	OVED:	1-23-8	S Des	AYDE	- Wes	tern, Co	P CAS	MG		CME-750	6" /EL. GROU 2/413.3	16.0	DEPTH	/EL. TOP	16.0
			/				8				Γ	421.5	2/413.3	- Will		/	O' ROCA
54	MPLI			WEIGHT		CAS	ING LE	FT IN NO	LE: DI	A./L	EN	GTH LOGGED BY:					······································
-	_	1	40 I	bs/30		MIE		B 01	De	т —	11		-	G. Cher	ту		
1	F	CORE	S S S	SAPPLE BLOUS "N" X CORE RECOVERY	PR	ESSU EST:	RE		-	8							6 444
1		18		1 5 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	n E			ELEU.	DEPTH	Ŧ	10000	DESCRIPTION	I AND C	La ss ifica	TIOH		LEVELS,
18	2 3		EE	SO X	SH.	PRESS P. S. I	FRE		8	PRAPHICS						CHARAC	RETURN, TER OF
3	٤ 3		ရွာပ	-	- 6	<u>a</u>	-	421.5 421.3-			Ц	√0.0 - 0.3 Ft. ASF	WAYE			DRILLI	ING, ETC.
8	3 1	.5	0.6	27-23-1				451.5] -			\		and BURRER			e advanced t. with 6-in.
8	3 2	.0	1.0	6-6-4					-			0.3 - 13.7 Ft. CI Brownish blac moisture conte	C (SYRE)). Dry to low			llow-stem
		ŀ		8					-			Rubble consist fragments; Fe olive gray (5Y) brown (10YR5	s of grave	, slag, and bri	ck nt		
8	5 2	.0	1.4	2-2-3	1	Ì			-			olive gray (5Y) brown (10YR5	(4) to mo	derate yellow	ish		
İ				•					5-			•				Radiolo	rically
S	3 2	.0	1.6	2-4-6 7				<u> </u> 	•							sampled samma- TMA/E	logged by
						l]							IMA/E	vermie.
S	3 2	.0	1.2	2-3-2				}	1								
L								Į.	10_								
S	3 2.	.0	0.5	1-1-2												6-8, and	from 4-6, 14-16 Ft.
									} .								for metals.
S	3 2.	.0	1.7	1-2-3					-								
-	3 2		1.7	8-8-6				407.8_	┪.	: 11.	1	187 - 160 Pr - #	le GARM	(8M) Olim	····	Top of	indisturbed
			•.,	7					15_			13.7 - 16.0 Ft. Sigray (5U4/1) i Moist, medium fine-grained so	o light oli	ve brown (5Y) v fine- to	5/6).	material	6 5 14.U F L.
\vdash	+							.405.5_	} -	[1]	A	fine-grained st	ind; Fe sta	ining. Trace	of r	Descript	ion and
-									}		$\ $					classification soils by	ation of visual
												Bottom of boreho backfilled with	le at 16.0 bentonite	Pt. Borehole cement, 11/2	3/88.	examina	tion.
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e.			T er	POON; ST	eue	DV T1	BE. \$	I TE	<u> </u>	1	Ц					HOLE NO	
[3				OUN; 51			- i		6			nuis Downt		2:4.			120

Γ		G	EC	LOG	ור ח	PII)G	PROJEC	CT				JOS 110	1	SHEET		MOLE NO.
<u> </u>	ITÉ			-	<u> </u>	1112		COORDIN	ATES			FUSRAP		14501				C121 BEARING
Ţ			Lo	uis Do	wntow	m Si	te				N	1,500 E 2,16	5			ertic		PEAKING
В	CU			PLETED			-					VAICE AND MODEL	SIZE	OVERBURDEN		POCK (TOTAL DEPTH
				1-28-8				tern, Co				CME-550	6"	16.0	\perp			16.0
P	ЖE	REC	OVER	Y (FT./2	(COR	BOXE	1	ESEL. TO	P CAS	ING		17 6	EL. CROU	MD WATER 1/28/88	DE	PTH/E	L. TOP	OF ROCK
-	MD	I F M	<u>/</u>	R WEIGHT	/FALL	CA	8 ING LE	FT IN NO	F. DI	A . /I	EM	421.1	-			 -	/	
Γ	-			bs/30	• •			II. II.		,		J., 13323 J.,		G. Pa	ais			
1	١.١	_				MATE	2		<u> </u>	1_	П	- <u></u>					*	
12	DIAH.	CORE	E REC.			ESSU TEST			 	2	H					N	OTES	ON:
				F 3 88	m I	ю́н	W	ELEV.	THE DEEP	DRAPHICS	(6.0.5)	DESCRIPTION	I AND C	LASSIFIC	ATIO	1		LEVELS, RETURN,
1	\$	S S	CORE	S N	SY .	PAESS P. S. I	FYE		6	1	Ħ					c	HARAC	TER OF
		2.0	1.3		- 6	Ea		421.1	<u> </u>		Ц	0.0 - 8.0 Ft. BU		dente has		P	RILLI	NG, ETC.
1	٦	0	1.0	,	ļ				ļ.			(5YR3/4) and (10YR3/2). L	duaky ye	llowish brow	u D Liebeb	E		advanced
ŀ		2.0	1.6	ļ				1] .			plastic. Bricks	organics	, coal, slag.	erita non 1	ĮÇ	D. hol	llow-stem
	٦	•••	2.0		ļ						Ħ						mer.	
Ļ	-	2.0	1.1		Į			.	╿.									
	٦	•.0	•••	ļ					S_							.	Radiolog	-i11
4	اج	2.0	1.0	ļ	{	1]	.								ampled	and logged by
١	٦	2.0	1.0		{		1									17	MA/E	berline.
L	-	2.0	1.3		Ì		l	413.1_				80 - 19 9 Pr floor	AL POLIV	(9C) G=v	iah .			
ľ	٦	0			ļ		1	}	7			8.0 - 12.2 Pt. San brown (\$YR3/ Trace of organ	2). High	moisture con	tent.	i		
1	s	2.0	1.3		-			1	10_			Trace or organ		•		1		
		0				1												
5	s	2.0	1.8		-			409.0_		1199	,	12.2 - 16.0 Ft. Bi	RY CLAY	(CL). Olive		۔۔ا	Cop of u	ındisturbed
				ļ				Ì	.			17.7 - 16.0 Ft. 81 gray (5G4/1). moderately pl	Moderate	moisture con	ntent,			at 12.2 Ft.
) -	s	2.0	1.5		┨				•							ŀ		
ļ	-				ļ		ļ		15_							Ì		
\vdash	┪				┨			405.3	1	-//	Ħ					,	Descript	ion and
i	-										П	Bottom of borsho	le at 16.0	Pt. Borehol	e			ation by camination.
	- {			1	1		}	1			11	backfilled with	bentonite	cement, 11,	/28/88	В.		
	1			1		j	1				Ш					1		
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k		\$91	L	POON; \$1	= Ruf	LBY TI	IBE · IS	ITE	Ц		11						IOLE NO	•
				· D = D1			,		S	St.	14	ouis Downt	own S	Site			C	121

	•	SE(CLOG	IC D	RIL	L LO	G	PROJE	CT		FUSRAP	J08 NO	. SHE	ET NO. OF 1	HOLE NO.
\$11	E		·				COORDIN	ATES		_	IOGRAI			OH HORIZE	C124 BEARING
L			uis Do			te	<u> </u>			N	1,548 E 2,390		Vert	1	*****
BEC		- 1	OMPLETED	<u> </u>		***			DRIL		WAKE AND MODEL SIZE	OVERBURDEN	ROCI	(FT.)	TOTAL DEPTH
			1-28-8	to Imes	AYRO	-Wes	tern, Co	D. CASI	I MC		CME-550 6" OUND EL. DEPTH/EL. GROL	18.0	DESTU	/F1 300	18.0
		~** /	. (* 1 . / .	. [10		r uns	-	Γ	420.8	MED MATER	DEPIN	/EL. TOP	OF ROCK
SA	PLE N	WOE	R WEIGHT	/FALL	CAI			LE: DI	A./L	EM	GTH LOGGED BY:	· -			
	1	40	bs/30	in			B 01	ne .				G. Pa	ais		
12	Z w	9	# 2000 # # # 5000 # # # # # # # # # # # # # # # # # #	PR	ATE!	RE				П		•			
15	된		3. KE	1	EST:	3	ELEU.	F	띮	H	DESCRIPTION AND C		ATTOM	NOTES	
	o z	78		SNY E	80 H	E SE		1	DRAPHICS		DESCRIPTION NO C				LEVELS, RETURN,
Mr. P.M.	S S	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	21×5	24.	F.S.I.	무무분	420.8	-	8	n					TER OF
							1		•	H	0.0 - 1.0 Pt. ASPHALT an	a concre	B .		
88	1.5	1.3					419.8_	i .		Н	1.0 - 14.5 Pt. CLAY (CL)	and RUBBIA	B	1-18.0 F	advanced t. with 6-in.
	ļ.,							-			1.0-8.0 Pt. Very dusky	red (10R2/2)	to	O.D. hol	low-stem
33	1.6	1.5						-			1.0-8.0 Pt. Very dusky dusky yellowish brown (moisture content, slight)	10YR2/2). I y plastic.	øw.		
35	2.0	1.6					•	-			Coarse-grained brick fra	gments.			
								5-						Radiolog	rically
SS	2.0	1.6						-		Ī				Radiolog sampled gamma-	logged by
-	1							-						TMA/E	berline.
SS	2.0	1.6			1			-		Ħ					
	1							٠. ا			Pale brown (5YR5/2) to	andy clay (C pale yellowi	L-SC). sh		
SS	2.0	1.4						10_			8.0-14.5 Ft. Silty and so Pale brown (5YR5/2) to brown (10YR6/2) and m (10R4/8). Low moisture plastic. Brick fragments	edium red bi content, sli	rown thtly		
								-			plastic. Brick fragments organics.	, trace of			
SS	2.0	1.5						-							
								•							
SS	2.0	1.9					406.3_		'5777		CIE INDA ENGANON		·	Top of u	ndisturbed at 14.5 Ft.
	ļ							15_			14.5 - 18.0 Pt. Silty CLAY gray (5Y4/1). Low to me content, moderately plan	oderate mois	ure	material	at 14.5 Pt.
35	1.0	1.0									places. Trace of organic	s.			
22	1.0	1.0					402.8_							1	
							405.0_	•		П	Bottom of borehole at 18.0	Pr Bankalı		Descript classifica	ion and
}										П	backfilled with bentonite	cement, 11/	28/88.	visual ex	amination.
										Ш					
										$\ $]	
														No group	ndwater , 11/28/88.
1								,,			•				, II/ 60/ 90.
1														1	,
														1	
1														1	
1														1	
										$\ $					
														Ì	
l		[,													
												•			:
			CON; ST				ITE .	C	• 1	1	wis Downtown S	ile o		HOLE NO.	124

	G	FC	LOG	IC D	RII		G	PROJEC	T		FUCDAD		JOS 110.	1		HOLE NO.
SIT							COORDIN	ATES		_	FUSRAP		14501-1 M		ON HORIZ	C125 BEARING
	St.		uis Do			ie					,553 E 2,55			Vert		•••••
BEG			DWPLETED	- 1		. 11/	40 C	1	DRILL		E AND MODEL ME-750	SIZE 6"	20.0	ROCX	(FT.)	TOTAL DEPTH
			1-17-8 Y (FT./2	() CORE	BOXE	S SAMPL	tern, Co	P CASI	ING		MD EL. DEPTH	/EL. GROU	MD WATER	DEPTH,	/EL. TOP	OF ROCK
1						10				4	124.3	<u> </u>		<u> </u>	/	
SAM			R WEIGHT	•	CAS	ing LE			A./L	ENGTI	LOGGED BY:		C Char			
20	T .		bs/30		MIE		80	ne T		<u> </u>			G. Cher	<u> </u>		
15	500	REC.			ESSU	RE	ļ	=	8	H					NOTES	ON:
brat.	78		IX 4100		фH	W	ELEU.	HT-GER	DRAFHICS	B	DESCRIPTION	AND C	Lassifica [°]	TION		RETURN,
100	S N	E 8	25 × 5	LOSS IN	ñ.	E NE	}	0	8	9					CHARAC	CTER OF
		1	 		a.a.		424.3 423.8 ₋	 			0 - 0.5 Pt. AST	HALT			 	· · · · · · · · · · · · · · · · · · ·
83	1.4	1.1	3-3-2/6				ļ	•		٥	S - 16.5 Pt. Ed RUBBLE.	CLAY	(CL) and		0-20.0 1	t. with 6-in.
85	2.0	1.0	13-19-1	•]] .	•			0.5-8.5 Pt. Da loose. Rubble	rk yellow	ish brown. Mo	oist,	enter.	llow-stem
							· .	'			slag, carbonac	ous mater	rial; Fe stainin	€.		
22	2.0	1.1	1-2-2]												
]	ĺ										Radiolo sampled	and
35	2.0	1.3	2-2-7					Ι.							TMA/E	logged by berline.
80	2.0	1.7	3-2-2	1				.								
		• • •	2					.			8.5-16.5 Pt. S	ilty clay (CL). Olive gr	a y		
SS	2.0	1.6	3-2-2	1			}	10_			8.5-16.5 Ft. 8 (\$Y4/1). Mode moderately pla	rate mois	ture, soft, thes of greenis	h .		from 4-6 and
			4		ĺ			•			gray (5GY6/1 silty clay. Sor) to light one brick fr	olive brown (5) agments and s	Y5/6) lag.	18-20 F metals.	t. analysed for
SS	2.0	0.7	2-4-9	1	l			•								
								'								
88	2.0	1.7	2-2-4					15_								
SS	2.0	1.8	3-4-7	ŀ			407.8	1.		7	6.5 - 20.0 Ft. 5 gray (5Y4/1).	Ity SAND	(SM). Olive		Top of	undisturbed l at 16.5 Ft.
66	-	1.0	6-8-9			Į.				1	noncohesive, fi black (N1) org	ne-graine	d sand, with s	ome	materia	1 86 10.5 F 6.
33	2.0	1.5	7					20	$\ \ $		DISCE (111) OF	MILICO.				
-		-		4			404.3	20 .		-		<u></u>			Descrip	tion and
1	ł	1	}	}					1	E	Sottom of boreho backfilled with	le at 20.0 bentonit	Ft. Borehole cement, 11/1	7/88.		ation by xamination.
]]	
		{						1								
		ł							ŀ		•					
]		[·	ŀ						No grou	indwater d, 11/17/88.
1		1		}	1		1	1	ł							
		1			1											
					1											
		{														
1		1	1					1								
1						-		İ								
1					1	-									<u> </u>	
s	= SPL	17 \$	POON; S'	T = SHE	LBY TI	JBE; S	SITE	C	·	10.	is Downt	own (Sita		HOLE NO	125

		CE	<u> </u>	^	ור ח	DII	L LO)G	PROJEC	CT				JOS 18			ET NO.	HOLE NO.
	_	GE	<u>Ji</u>	<u>.06</u>		KIL	LLU					FUSRAP	·	14501				C126B
SI		· ·	1	- D	4	CI	4.	COORD IN	AIES		.	1 606 15 3 30	•		1		OM HORIZ	BEARING
					DRILL		ie	<u> </u>				1,595 E 2,70		OVERBURDE		Vert	(FT.)	TOTAL DEPTH
Γ-		1		23-8	- 1		-Wes	tern, Co	. I			CME-550	6"	20.0			(11.)	20.0
										NG			EL. GROU			EPTH/	/EL. TOP	
Ľ		/	,				10					424.1						
SA	W LE			ME I GHT		CAI	SING LE	FT IN HO	LE: DI	A./L	LEN	GTH LOGGED BY:						<u></u>
\vdash		_	ib	/30				20	n e					<u>G. I</u>	ais			
18	80%	E S	۔ اُذ	Zl≿		HATEI	re		Į	92	U							
F		X S			<u> </u>	TEST	<u> </u>	ELEV.	Įξ	Ħ	H	DESCRIPTION	4 AND C	ASSIFI	ATI	ON	NOTES	ON: LEVELS,
			μĘ	X CORE	SHO SNO	8) H	Yzż		THE PAR	DRAPHICS	1446						WATER	RETURN,
SALP . TIPE	9		2 8	김지원	27.9	PRES. T. B. H.	ENE		-	8	n							CTER OF ING, ETC.
-	+-	10	+				 	424.1 423.3	 		Н	0.0 - 0.8 Pt. OO	CRETE.				 	
83	113	1.:	1	_	,	Ì		1.0.0	1 .			0.8 - 16.3 Pt. RU	BBLE and	ality CLA	Y			e advanced Ft. with
85	3 2.0	1	+			[0.8 - 16.3 Ft. EU (CL). Very du yellowish brow red (10R4/2). elightly plastic	aky red (1)	0R3/2) to (2), some #	dusky ravist	, , 1	6-in. O.	D. stem auger.
1		-				l		· .	.			red (10R4/2).	Low mois	ure conten	t,			
35	3 2.0	1.	╁		}	•			.			organics and c	oal.					
						Ì			5 _								Padiata	ei e a lloc
80	3 2.0	1.0			}	1			١.								Radiolo sampled	and logged by
"	<u> </u>	`							.								TMA/E	berline.
-	2.0	1.	+						١.									
3.	` ^.\	' "	1			ļ	ļ	1										
L.,	-	1.	1				Ì		10_									
3:	3.0	1.	1					ļ									:	
	ل		\perp]			Ι.								ļ	
S	3.0	1.	3						Ι.								Ì	
			\perp		<u> </u>				١.									
SS	3 2.0	0.9	9						15.									
L		\bot			}	ļ		405.									ļ	
25	3.0	3.0	7		1	i		407.8	1 '			16.3 - 20.0 Pt. Si	Ity CLAY	(CL). Oliv			Top of a	indisturbed l at 16.3 Ft.
	1		1		•	ł		('			16.3 - 20.0 Ft. 5j gray (5Y4/1). content, model	Low to mo	derate moi	sture	.1		
SS	3.0	0.	3]	i			·			and organics.			o. co.	•		•
1	1	1	1		}			404.1	20								Ì	
	1	\top	\top]			1	1		Ħ	Battan of baselo	14 90 0 1	PA Baraka			Descrip	tion and ation by
1	1	1	1			Ì]		ł	П	Bottom of boreho backfilled with				88.	visual e	kamination.
1		-				ļ					П						}	
					Ì					-							l	
						1		1		1	$\ \ $	•						
					ł			1			$\ \ $						No grou	ndwater
		1				ļ	l	1	1		П						Opecives	1, 11/23/88.
1						ŀ			İ		П						Ì	
					1	1			1		П							
1		1			}	1	1			1	$\ \ $							
					1	1		1			$\ \ $						ļ	
									}		$\ \ $						l	
		-			1	1	1					•						
					1						$\ \ $							
							}				$\ $							
L			\perp			<u> </u>	<u></u>	<u> </u>	<u> </u>	<u></u>	Ш							
					= SHE		- , -	ITE	C		1.	ouis Downt	own S	ita			HOLE NO	126B

	C	EC	LOG	ור ח	PII	110	G	PROJEC	CT			JOS NO		ET NO.	HOLE NO.
SIT		120	LUG		- KIE	LLO	COORDIN	TEC			FUSRAP		-116 1		C127
7		. Lo	uis Do	wntow	n Si	te	-	AIES		N	1,785 E 2,865			tical	BEARING
BEG			OPPLETED				<u> </u>	7	DRILI	LH		OVERBURDEN		K (FT.)	TOTAL DEPTH
			-10-8		Ayno	e-Wes	tern, Co	<u>. </u>			PC-1A 6"	20.0			20.0
COR	E REC	OVER	Y (FT./3	() CORI	BOXE	S SAPI	ESEL. TO	P CASI	MG		QUMD EL. DEPTH/EL. GROUN	D WATER	DEPTI	I/EL. TOP	OF ROCK
SAM	PLE 1	WHE	R WEIGHT	/FALL	CA	SING LE	FT IN NO	LE: DI	A./L	EN	STH LOGGED BY:				
<u> </u>	1	· ·	bs/30			···	201	De		_		G. Pa	is		the state of the s
	500	EC.			HATE!	RE	i .		2					1	
AND DIAN	148	A SE	F 2 8 8		TEST:		ELEV.	F	GRAPHICS	7 (6 4 5)5	DESCRIPTION AND CL	ASSIFIC	ATION	NOTES	ON: LEVELS,
1	힐	178-6	S C C C C C C C C C C C C C C C C C C C	LOSS I P. I	90 H	FRE		DEPTH	\ \\\	8				WATER	RETURN,
35	S N	200	., q , , &	7.9	and and	Eng	423.0	-	8						CTER OF Ing, Etc.
	T					<u> </u>	430.0		13	H	0.0 - 1.8 Pt. CONCRETE.			1	
1				1			421.2	'	22.00	П				0-20.0 F	t. with 6-in.
32	3.0	1.4		1		1					1.8 - 16.8 Ft. PILL and CLA	Y (CL).		o.D. bo	llow-stem
					ĺ			•			1.8-6.0 Pt. Brownish blac moisture content. Brick fi	k (5YR2/1). Low		
SS	2.0	1.1		1	ĺ	ł		٠.		H	organics.	ragments, s	0064,		
-]					•-			•			Radiolog	rically
SS	2.0	1.4		1	l			•			60-140 Pt Pushu 11	wish h		gamma-	logged by
	ŀ			1						ľ	6.0-14.0 Ft. Dusky yellow (10YR2/2). Low moisture to moderately plastic. We	content, c	rumbly	TMA/E	Derune.
SS	2.0	1.2						•			fragments, slag, coal, orga	nics.			
<u>l</u> .		<u> </u>			ĺ	:		10_		ŀ					
SS	2.0	1.3]				10-							
						ŀ									
SS	2.0	1.3													
										H					
SS	2.0	1.1	-					15_			14.0-16.8 Pt. Moderate of	live brown			
				[İ					H	(5Y4/4), blackish brown (Moderate moisture conten	5YR2/2). t. Slag, co	al, and		
35	2.0	1.3			ł		406.2_			.	organics.			4	
											16.8 - 20.0 Pt. Silty CLAY (gray (5Y4/1). Moderate m	noisture con	tent.	Top of u	indisturbed at 17.0 Ft.
35	2.0	1.4				'					moderately plastic. Trace wood.	of organica	and		
L		<u> </u>					403.0_	20 .							
											Bottom of borehole at 20.0 F	t. Borehole	1	Descript classifics	tion by
											backfilled with bentonite of	tement, 1/1	0/89.	visual ex	amination.
]						
1															
								. 1						1	•
														No groun	ndwater i, 1/10/89.
															:
_				L			175	L	Ш	\perp	-			1401 5 115	
			POON; ST				. 15	C	+ 1	۸ ا	uis Downtown Si	ita		HOLE NO.	127

	<u> </u>	F	OLOG	ור ח	RII		G	PROJEC	CT .					JOB		EET MO.	HOLE NO.
SIT			, 200	5			COORDINA	TES			FUSR	AP		145	01-116 1	OF 1	C128
	St		uis Do			le			1	N 1,4	407 1	E 2,67	0			tical	
BEG		1	COPLETED			. W			DRILL		AND NO	DEL	SIZE	OVERBUR		X (FT.)	TOTAL DEPT
			1-13-8				tern, Co		NG E	ROUM	C-1A	DEPTH/	EL CROL	MO WATER		M/EL. YOP	20.0
						10			ĺ	42	22.0	量;				.,eew	/
SA4			R WEIGHT	•	CAS	ING LE	FT IN NOL		A./LE	MGTH	LOGGED	BY:					
ш.	-	1.5	lbs/30		MATE	₹	BOI	le		7	<u> </u>			<u>G. (</u>	herry		
Me bill.	SAMP. ADV.	CODE DEC	15 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	PR	ESSU TEST:	ŔE	ELEV.	DEPTH	GRAPHICS		ESCRI	PTION	AND C	LASSIF	ICATION	WATER	LEVELS, RETURN, CTER OF
₽ <u>त</u>	<u>m</u> -	Sic		- 0	ă a	-	422.0 421.4		92	1		- 70	(ઝાઇ-કેપર)			DRILL	ING, ETC.
83	1.3	1.0		1			441.4	•		0.0	PUBBI	PI. BITO	v CLAY	ICL and ick (5 YR2 0 YR4/2).	/1) to	0-20.0	e advanced Ft. with 6-in
88	2.0	0.7						-			Loose. brick fr	e contei Rubble agments	consists	DYR4/2). st, medium of slag, grand ad wood; I	n-stiff. svel,	O.D. ho	llow-stem
SS	2.0	1.8] .		}		S			sta inin _i	•					
SS	2.0	1.0														Radiolo sampleo gamma TMA/E	gically I and -logged by berline.
SS	2.0	0.6															 -
SS	2.0	0.7						10								>1000p	OVA readi
SS	2.0	0.9						-								Exotox	LEL=23%.
SS	2.0	1.4				- i		1 5 _						·		8-10, as	from 4-6, nd 18-20 Ft. d for metals.
SS	2.0	0.5					,	-									
SS	2.0	1.8					404.0_ 402.0_	-			gray (5)	Y4/1). I telv plas	Moust, so: itic. Trac	(CL). Ol it to medi se of very	um-stiff,	Top of a	undisturbed l at 18.0 Ft.
							503.0_	20 -		Bo	ttom of	borehole	at 20.0	rt. Boreh cement,	ole	classific	tion and ation by kamination.
																	ndwater d, 1/13/88.
								٠									
			POON; ST : P = PI			,	ITE .	S	t. L	oui	s Do	wnto	own S	Site		HOLE NO	128

_							1	PROJEC	7		LIGS NO. ISH	EET NO. HOLE NO.
	G	EC	LOG	IC D	RIL	L LO	G	, MODEC	• •	FUSRAP	14501-116	
SITE	:						COORDINA	TES				ROM HORIZBEARING
		. Lo	uls Do	watow	n Sit	e			N	1,515 E 2,750	Vei	tical
EG		- 1	PLETED						RILL	MAKE AND HODEL \$12E	F	CK (FT.) TOTAL DEPTH
2-	<u> 22-</u>	88	1-9-89		Ayne	-Wes	tern, Co	<u>. </u>		PC-1A. 6"	20.0	M/EL. TOP OF ROCK
ZJKI	KEU	JVEK /	1 (21./2	s) Luki	: BUME	10		P LAGI		OUND EL. DEPTH/EL. GR	CORD MATER DEPT	1/EL. 10P UF ROCK
SAN	LE N	WHE	R WEIGHT	/FALL	CAS			E: DI	A./LEN	GTH LOGGED BY:		
	1	40 1	bs/30	in			BOI				G. Pals	
ψ.		_	1		ATE							
7	. COR.	REC.	SAMPLE X CORE X CORE RECOVERY	P	ESSU TESTS] [7	BRAPHICS SATPLE			NOTES ON:
braff.	10	CORE	F 3 89	9_E	in	W_ •	ELEV.	DEPTH	RAPHI	DESCRIPTION AND	CLASSIFICATION	WATER LEVELS,
	SATE	£ 8	P S	S. F.	PARSS P. S. I	FYF		5	2 7			CHARACTER OF
क्व	<u>8</u> -	A C		- 0	<u>ta</u>	-	422.5		-	A A LABA AANADER		DRILLING, ETC.
88		١.,	ļ	1	1	İ	421.5_	١.		0.0 - 1.0 Ft. CONCRET		Borehole advanced
		1.0		1]					1.0 - 16.5 Ft. FILL, and Brownish black (\$YR: (\$Y2/1). Some dark; (10YR4/2). Low mois alightly plastic. Slag,	2/1) to light olive gray	0-20.0 Pt. with 6-in. O.D. hollow-stem
55	2.0	1.4	ĺ			İ				(10YR4/2). Low moi	rellowish brown sture content, stiff,	auger.
						ĺ				alightly plastic. Blag, wood, sandy in places	coal, organics,	
85	2.0	0.8	l]	1		5_				
]							. •	Radiologically sampled and
SS	2.0	1.2	l		•							gamma-logged by TMA/Eberline
				j								
SS	2.0	0.6			1							
		1			ţ			10_				
SS	2.0	1.2		1								
		ļ										
SS	2.0	1.3		1	l			-				1
			ļ					·				
SS	2.0	1.5		1	ļ							
		l				1	}	15_				
SS	2.0	2.0					406.0_	•		16.5 - 20.0 Ft. Bilty Cla	N//CIA Olima	Top of undisturbed
			İ		ļ			-		gray (5Y4/1). Modera	te moisture content.	material at 16.5 Ft.
SS	2.0	1.2		1	İ	1	}	-		slightly plastic. Organization	nics, wood	
				l				-				
		-		ĺ			402.5_	20 .	-7711			Description and
			Ì	ŀ	•	1		1	1	Bottom of borehole at 20 backfilled with benton	.0 Ft. Borehole lite cement, 1/9/89.	classification by visual examination.
:					İ			,				
					1			l				1
					Ì	1		, ,				
:]	1				No groundwater
;					l			I				No groundwater observed, 1/9/89.
		1	-									
						1	Ì	1			•	
			}		1	1						1
					j							
	l				1							
	1		•	Ī	1	1	1	1				
								1		•		
	1			}	ļ		1					
		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Ш			
			POON; \$1			~-,	ITE	_		aula Dannaan	Cita	HOLE NO.
) =	DENN	IZON	; P = PI	ITCHER;	0 = (THER		3)t. L	ouis Downtown	Site	C129

[G	EC	LOG	IC D	RIL	LLO	G	ROJEC	7	FUSRAP 1450). SHE	ET NO. HOLE NO. OF 1 C130
ŀ	SITE					CIA		COORDINA	TES		**************************************	ANGLE FR	OM MORIZBEARING
	E CL			uis Dov			<u>e</u>	<u> </u>			1,515 E 2,865 WAXE AND MODEL SIZE OVERBURDE	Vert	(FT.) TOTAL DEPTH
				1-9-89				tern, Co		ua la	PC-1A 6" 20.0		20.0
	ZUKE	REC	OVER	(FT./%	, CURE	BUAE	10	ESEL. IO	P LASI	#G FG	421.5 E / GROUND WATER	DEPIR	/EL. TOP OF ROCK
İ	NP			MEIGHT		CAS	ING LE	FT IN HOL		A./LE	.)ala	
ł	Ψ.		. 1	bs/30	ŀ	ATE		801	e	<u>.</u>	<u>G. I</u>	215	
	brAf.	CORE.	REC.	SAMPLE M. CORE X. CORE RECOVERY	-	ESSU ESTS		ELEU.	Ŧ	SAMPLE	DESCRIPTION AND CLASSIFI	CATTON	NOTES ON:
1	0	SOFF.	4	22	LOSS IN B.P.H	PRESS. 1.	TINE MIN.		DEPTH	1	BESONSFIED PRO GENOUSIA		MATER LEVELS, MATER RETURN, CHARACTER OF
	\$3 \$3 \$3 \$3	\$17	COR	. E	LOS: IN G.P.	a c	E-E	421.5		-			DRILLING, ETC.
-	88	2.3	2.0					420.7_	-		0.0 - 0.8 Ft. CONCRETE.	77.)	Borehole advanced 0-20.0 Pt. with 6-in.
	SS	2.0	1.8					·			0.8 - 18.0 Pt. FILL and sity CLAY (Brownish black (\$YR2/1) to light o (\$Y2/1). Some dark yellowish brow (10YR4/2). Low moisture content, elightly plastic. Slag. coal, organics	live gray stiff,	O.D. hollow-stem
									-		wood, sandy in places.	•	
	SS	2.0	1.6						5_				Radiologically sampled and gamma-logged by TMA/Eberline.
- 1	SS		1.0										TREAT EDETAILS.
	SS	2.0	1.1										
-	\$S	2.0	1.1						10_				
-	SS	2.0	0.9						-				
	SS	2.0	0.0					406.5_	15_		18.0 - 20.0 Ft. Bitty CLAY (CL). Oli	/e	
Ì	รร	2.0	0.8					,	•		gray (5Y4/1). Moderate moisture consideration of the slightly plastic. Organics, silty, wo fragments.	ontent.	Top of undisturbed material at 16.0 Ft.
ł	SS	2.0	1.0						-				
								401.5_	20 .				
							•				Bottom of borehole at 20.0 Pt. Boreho backfilled with bentonite cement, 1	ole /9/89.	Description and classification by visual examination.
													No groundwater observed, 1/9/89.
				POON; ST ; P = PI			~.,	ITE .	S	it. L	ouis Downtown Site		MOLE NO.

_								<u>C</u>	PROJEC	T			J08 #<		T NO.	HOLE NO.
	SITE		EL	LOG	U	KIL	LLO	COORDINA	TES			FUSRAP	14501	-116 1		C131
				uis Dov			e .			1	N	1,511 E 2,903		Vert		
1	ECU	-	- 1	34PLETED 2-23-8			Was	10 Co		RILL		AKE AND NODEL \$12E CME-550 6"	OVERBURDE 16.0		(FT.)	TOTAL DEPTH
					CORE	BOXE	S SAMPL	tern, Co	P CASI	NG		DUMD EL. DEPTH/EL. GROL			/EL. TOP	0F ROCK
			_/				8					421.3				
	EARP			R WEIGHT bs/30-1		CAS	ING LE	FT IN HO		A./LI	ENG	TH LOGGED BY:	G. P	ais		
İ	۳.	7	ġ.	• •	,	ATE					T				1	***************************************
ı	DIA	E S		A. K.	- "	EST:		ELEV.	F	GRAPHICS	H	DESCRIPTION AND C	1.0881FIG	ATION	NOTES	ON: LEVELS,
-		22	78	20 7 P	LOSS IN G. P. M	PRE98.	HAN.		DEPTH	\$	76497				WATER	RETURN, CTER OF
	\$₹ \$₹	317	3 18	SAMPLE BLOUS "N" X CORE RECOVERY	9 ,	Ea.	FTE	421.3							1	ING, ETC.
ŀ	8 S		1.2					420.5_				0.0 - 0.1 Ft. CONCRETE.	1 600- CT A			e advanced
I		2.0	1.4						-		ı	0.8 - 13.5 Pt. RUBBLE an (CL). Grayish brown (5 yellowish brown (10YS/4) reddish brown (10RS/4) content, slightly plastic.	YR3/2) to	lusky lark	6-in. O.	Ft. with D. stem auger.
I									-		l	reddish brown (10R3/4) content, slightly plastic.	Low moist	ure		
-	33	2.0	1.6						-			pebbles, sand, organics,	and coal.			
				•		Ì			5_						Radiolo	
Ī	S S	2.0	1.6								l				TMA/E	logged by berline.
-											ŀ					
	SS	2.0	1.1] .		ı	,				1
ł	SS	2.0	0.8						10_							
									-		ı					
t	SS	2.0	1.6					408.8_	-	///	L	12.5 - 16.0 Pt. Bilty CLAY	(CI) Alie		Ton of	undisturbed
									-		ı	gray (5Y4/1). Moderate moderately plastic. Tra	moisture co	ntent,	materia	l at 12.5 Ft.
	SS	2.0	1.5						15		H	dessication cracks, and f	luid.	,		
								405.3_	-						Darens	tion and
1												Bottom of borehole at 16.0 backfilled with bentonite			classific	ation by
									Ì					,,20,00.		
l										l					ļ	
ļ									İ						No grou	indwater d, 12/23/88.
-																
-									İ							
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	į															
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ļ																
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		,														
	\$\$ =	SPL	IT S	POON; ST	= SHE	LBY TL	BE; S	ITE			<u>ட</u>				HOLE NO	
				; P = P1					<u>S</u>	t.	L	ouis Downtown S	<u>Site</u>	<u></u>		131

	c	FC	OLOG	ור ח	RII	110)G	PROJE	CT				S NO.	I		HOLE NO.
511							COORDINA	TES		_	FUSRAP	14	501-11		OF 1	C132
		. Lo	uis Do	wstow	n Si	te				N	1,695 E 3,033			Vert	i i	
BEC			OMPLETED	1			_			L	MAKE AND MODEL SIZE				(FT.)	TOTAL DEPTH
			2-19-8		AYDO	-Wes	tern, Co	0. 606	146	-			6.0			16.0
	E REC	معادہ /	1 (71./4	., CORE	; but	8	ESEL. 10	r CAS	H G	۲	422.6 \$ 12.8/40	GROUND WATE 09.8 12/19/	58 58	EPTH/	EL. TOP	OF ROCK
SAH			R WEIGHT	•	CAS	ING LE	FT IN HO	LE: DI	A./L	EN						
-	7		bs/30		MIE		B 01	e .				G.	Cherry		,	
SALP DE LAP	5 8		COVERY	PR	ESSU	RE		_	2						İ	
	198	1	4202	- E	• •		ELEV.	DEPTH	GRAPHICS	1646	DESCRIPTION AN	D CLASSI	FICATI	ON	NOTES WATER	DN: LEVELS,
25	EN S	CORE	A STANFORM	ESS.	90 90 90 10	E HE		8	\$	3						RETURN, TER OF
30	31-	₹ IÖ	B. 6	ه د	g d		422.6]	Ц						NG, ETC.
88	1.0	0.7	15-40		·		421.3_	ļ.	•••	U	0.0 - 1.3 Ft. GRAVEL	_				advanced
L	1.8		14-18-2								1.3 - 13.0 Pt. Silty CL. RUBBLE. Dark yel (10YR4/2). Dry to soft to medium-stiff slag, gravel, brick, a	AY (CL) an	d		O.D. hol	t. with 6-in. low-stem
33	1.0	1.8	6/4		. '						(10YR4/2). Dry to	low moistur	content		auger.	Pt. Drilling
SS	2.0	1.2					·				elag, gravel, brick, a	nd sand; Fe	staining.		through	brick.
	1	ļ	3					5_							Radiolos	rically
SS	2.0	1.3	1-3-4					•							Radiolog sampled gamma-	logged by
		·						•							TMA/E	berline.
SS	2.0	1.7	2-2-4					•								from 2.2-4.0 -16.0 Ft.
								10_		ı						for metals.
SS	2.0	1.4	1-3-4]			ľ						
66	2.0	1.7								ı,						
33	2.0	1."	1-2-2				409.6	? .	- 42		190 100 50 6	M 49 7800	Ol:			
SS	2.0	1.7	3-2-3					-			13.0 - 16.0 Ft. Sandy (gray (5Y4/1). Moist moderately plastic. and some black (N1)	soft, slight	ly to		material	ndisturbed at 13.0 Ft.
			2					15_	3.87.88		and some black (N1) Dieces of wood.) organics, ir	cluding			
\vdash		 					406.6_	-							Descript	ion and
]]		Bottom of borehole at 1 backfilled with bento	16.0 Ft. Bor onite cement	whole :, 12/19/	88.	classifica Visual ex	tion by amination.
																•
l																
}																
					í			."	1						1	:
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l	}							,		l						
														ļ		
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}											·					j
$oldsymbol{ol}}}}}}}}}}}}}}}}}$									Ш							
			POON; ST		BY TU	BE; S	ITE	c	. 1	. ا	wie Deweter	n Sita			HOLE NO.	122

		G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T	FUSRAP	JOS NO. SHE	ET NO. HOLE NO. OF 1 C133
s	ITE							COORDINA	ITES			ANGLE FR	OM HORIZBEARING
-	EGU			MPLETED			<u>e</u>	<u> </u>			1 1,505 E 3,025 MAKE AND MODEL SIZE	Vert	((FT.) TOTAL DEPTH
1	2-	15-	88	1-9-89	L	ayne		tern, Co).		CME-750 6"	13.0	13.0
C	ORE	REC	OVER'	r (FT./%	() CORE	BOXE	SSAIPL	ESEL. TO	P CASI	ING K	ROUND EL. DEPTH/EL. GRO	UND WATER DEPTH	/EL. TOP OF ROCK
K	AMP	LE N	AIRE	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./LE	NGTH LOGGED BY:		
	_	_1	40 1	bs/30			-	101	ne			G. Cherry	
-	AND DIAH.	LEN CORE	THE REC.	SAMPLE BLOWS "N" X CORE RECOVERY	LOSS IN P. T. T.	ESSUEST:	RE	ELEV.	DEPTH	GRAPHICS CANADALICS	DESCRIPTION AND (CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
9	₹	<u>81-1</u>	द्वाठ	B , c	9.	ă a	F E	421.0	ļ	0			DRILLING, ETC.
L	S		0.9	3-3-3/4				420.5_		-21	0.0 - 0.5 Pt. CONCRETE 0.5 - 9.0 Pt. GRAVEL an Brownish black (5YR2) content, loose. Angular	d SLAG. 1). Low moisture limestone, some	Borehole advanced 0-13.0 Ft. with 6-in. O.D. hollow-stem
	33	2.0	1.1	3-5-3				:			carbonaceous material, wood; Fe staining.	brick, glass, and	suger.
1	35	2.0	0.8	1-1-2				·	5_				Radiologically sampled and
L		2.0	0.6	1-1-1 2 5-3-2									gamma-logged by TMA/Eberline. Samples from 0-2, 6-8, and 10-12 Ft. analysed for metals.
		2.0		2				412.0_	10_		9.0 - 13.0 Ft. Silty SAND gray (5Y4/1). Moist, so plastic, very fine-grains	(SM). Olive	Top of undisturbed material at 9.0 Ft.
	••	2.0	1.6	3-2-4						1	plastic, very tine-grain	sa.	
								408.0 _			Bottom of borehole at 13.6 backfilled with bentoni	Ft. Borehole le cament, 1/9/89.	Description and classification by visual examination.
										e.			No groundwater observed, 1/9/89.
10.00				POON; \$1 ; P = P1			, ,	I TE		St. [ouis Downtown	Site	HOLE NO.

GEOLOG	IC DRILL LO	G PROJECT	FUSRAP	, i	of 1 C134
ITE		COORDINATES			OM HORIZBEARING
St. Louis Dov			N 1836.00; E 3100.00	Vert	
EGUN COMPLETED 2-15-88 12-15-8	1		ILL MAKE AND MODEL SIZE CME-750 6"	OVERBURDEN ROCK	((FT.) TOTAL DEP
ORE RECOVERY (FT./X		ESEL. TOP CASING			/EL. TOP OF ROCK
/	7		¥ /	19/88	/
AMPLE HAMMER WEIGHT	·	FT IN HOLE: DIA.	/LENGTH LOGGED BY:	C. Charre	
140 lbs/30		none		G. Cherry	T
SAMP. ADU. LEN CORE SAMPLE REC. CORE REC. SAMPLE SAMPLE RECOUS "N" X CORE RECOURT	PRESSORE TESTS TIME TIME TIME TIME TIME		SOIH DESCRIPTION AND	CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC
SS 2.0 1.7 7-13-11			0-0.3 ft. GRAVEL 0.3-10.5 ft. SILTY CLAY RUBBLE, dark yellowi (10YR4/2), low moists loose, rubble consists of sand and carbonaceou staining.	sh brown are content-moist, of gravel, brick.	0-14.0 ft. advanced with 6-inch O.D. hollow stem auger.
S 2.0 1.2 3-5-6 S 2.0 1.0 1-1-1		5_			Sampled and gammelogged by TMA/Eberline.
S 2.0 0.8 1-1-1/1- S 2.0 1.8 1-1-1		¥ - 10_	* * * * * * * * * * * * * * * * * * * *		2-4 ft., 8-10 ft. and 12-14 ft. sample intervals analyzed metals.
S 2.0 1.7 1-1-2			10.5-14.0 ft. SILTY SAN (5Y4/1), moist, soft, v cohesive, some black (ery fine grained.	Top of undisturbed material at 10.5 ft.
			Bottom of Boring at 14.0 with bentonite cement	1. Doring Backfilled, 12/19/88.	Description and classification by visual examination
= SPLIT SPOON; CA	= CALIFORNIA; SI	TE St.	. Louis Downtown	Site	HOLE NO.

г									PROJEC	Ť		LIOS NO	EME	ET NO.	HOLE NO.
		G	EC	LOG	IC D	RIL	L LO	G	ROULE	•	FUSRAP	F	-116 1		C135
1	ITE							COORDINA	TES				ANGLE FR		
		St.		uis Do			e		_,		1,345 E 2,515		Vert	icai	
- 1	EQ.		1	MPLETED						RILL		IZE OVERBURDE	ROCK	(FT.)	TOTAL DEPTH
Ę	1-	16-	881	1-23-8				tern, Co		uc le	CME-550 ROUND EL. DEPTH/EL	6" 20.0	DEDTU	/EL. TOP	20.0
) [JJKE	REC	UVEK /	7 (71./2	., cure	BUAL	11	ESEL. 10	r CASI	יי ויי	424.3 E /	L. GROUND WATER	DEPIN	/EL. 10P /	UP ROCK
5	ANP	LE N	NOE	R WEIGHT	/FALL	CAS		FT IN NO	LE: DI	A./LE	IGTH LOGGED BY:				
		1	40 I	bs/30	in			B 01	ae			G. P	ais		
	۲.	ZIII	ġ.	د را	-	ATER							<u> </u>		
- fi	AND DIAN	SAMP, ADV.	REC.	SAMPLE BLOUS "N" X CORE RECOVERY		EST:		ELEV.	E	BRAPHICS	DESCRIPTION (AND C ARRIET	ATTON	NOTES	
-1	٥	a z		#308	87 Z	S. I	4		DEPTH	RAPHI	DESCRIPTION	MED COMPOSITION	m.201		LEVELS, RETURN,
	2		CORE	SA COURS	LOSS IN G. P.	PRESS. P. S. I	FYE			8					CTER OF ING, ETC.
ľ	_	B)	<u> </u>		-	<u>nn</u>		474.3	 	2.	0.0 - 1.0 Pt. CONC	RETE		 	
-	85	1.0	0.6					423.3_	-				<u> </u>	1-20.01	e advanced ft. with 6-in.
\mathbf{h}	35	2.0	1.3						-		1.0 - 17.0 Pt. RUB) (CL). Dunky bro (\$Y\$/2). Low m	wn (5YR2/2) to oli oisture content, slis	ve gray	O.D. bo	liow-stem
1									-		plastic. Loose. E	rick fragments, co	N,		
+	3S	2.0	0.8					·	-						
									5_					Radiolo	rically
-	SS	2.0	1.4		}				-					sampled	[and]
	-]						-					TMA/E	logged by berline.
ŀ	SS	2.0	1.4						-						
ľ			•						-					j	
ŀ	दर	2.0	0.0						10_					1	
1	33	2.0	0.0											1	
Ļ		2.0	1.6						-						
- '	33	2.0	1.0											İ	
ŀ	ee l	2.0	1.5					1							
' '	"	2.0	1.0	i					15_						
-	20	2.0	1.6					t I	-			•		}	
]	-	2.0	1.0			ļ		407.3_	∤ .		17.0 - 20.0 Ft. Bilts			Top of	undisturbed
L	00		0.0					ł			gray (5Y4/1). Mo	oderate moisture co	ntent,	materia	1 Et 10.0 Ft.
L	SS		0.9]			}	١.		coal.	ic. Wood chips, tre	ce oi		•
L	33	1.0	1.0					404.3_	20 .		· · · · · · · · · · · · · · · · · · ·			J	lion a-a
-										1 1	Bottom of borehole			classific	tion and ation by
								ļ			Dackilled with be	entonite cement, 11	/23/88.	Aranar «	xamination.
1															
									ļ						
1									/					 	, . [
-	1	1	1											Operion	ndwater d, 11/23/88.
								}	1					1	
						l]							Ì
								1						}	
ļ			ĺ		}			<u> </u>							
1]	1	1						
															İ
	; s =	SPL	IT S	POON; \$1	= SHE	LBY TU	BE; S	ITE						HOLE NO	
, ,				, P = PI					S	it. L	ouis Downto	wn Site			C135

									PROJEC	:T	LOS NO. SHEE	NO. NOLE NO.
l		G	EC	LOG	IC D	RIL	L LO	G [••	FUSRAP 14501-116 1	
SI	ΤE							COORDINA	TES			HORIZBEARING
		St.	Lo	uis Dov	watow	n Sit	e			1	1 1,410 E 2,625 Vertic	cal
BΕ	CUI	1	α	MPLETED	DRILL	ER				RILL	MAKE AND MODEL SIZE OVERBURDEN ROCK	(FT.) TOTAL DEPTH
11	-1	4-1	881	1-17-8	8 I	ayne	-Wes	tern, Co	<u>. </u>		CME-550 6" 21.0	21.0
100	RE	REC	OVER'	Y (FT./%	() CORE	BOXE	1	ESEL. TO	P CAS	MG	17 /	EL. TOP OF ROCK
SA	MDI	C W		RWEIGHT	/EALL	FAS	10		E. DI	A /II	424.5 \$ /	
	•			bs/30	-		······	BOI		A., L	G. Pais	
	7					MTER	₹ .					
12	Ě	걸빛	CORE REC.	SAMPLE X CORE X CORE RECOVERY	PR	ESSU			Ŧ	GRAPHICS		NOTES ON:
SATP. TY	5	٦٥	4	F2 88	m I	юн		ELEV.	DEPTH	HIC	DESCRIPTION AND CLASSIFICATION	MATER LEVELS,
	2	H	E &	&Q×5	S.P. I	PRESS P. S. I	I Z Z		8	2		WATER RETURN, CHARACTER OF
3	2	*	ği ü	B	7 0	Ka	FI	424.5] - [DRILLING, ETC.
	1							423.5_			0.0 - 1.0 Pt. <u>CONCRETE</u> .	Borehole advanced
8	³ ³	1.0	1.6								1.0 - 17.5 Pt. Silty CLAY (CL) and RUBBLE.	1-21.0 Pt. with 6-in. O.D. hollow-stem
									'			enter.
33	1	.0	1.0]			. !	•		1.0-5.0 Ft. Dusky red (5R3/4) to very dark red (5R2/6). Low moisture content, very slightly plastic. Loose.	
					•				١.,		engine, pressic. Doors.	
S	; :	2.0	0.5		1				5-		5000m 3/ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Radiologically
									٠		5.0-9.0 Pt. Very dusky red (10R2/2). Moderate moisture content, slightly	sampled and gamma-logged by TMA/Eberline.
S	;	1.0	1.5						•		fragments, medium- to coarse-grained	TMA/Eberline.
1	ì				Ì '						material.	
S	;	2.0	1.4		}							
									10_		9.0-13.0 Pt. Brownish gray (5YR4/1). Moderate moisture content, moderately	
-	1		1.3								plastic. Brick fragments, clay stringers throughout. Loose material in lower 6	
3.	' '	0	1.3								inches.	
L	1								١.			
S	۱:	2.0	0.8		<u> </u>						13.0-17.5 Pt. Silty clay (CL) and gravel. Brownish black (5YR2/1). Moderate moisture content, slightly plastic. Coal	·
									15_		moisture content, slightly plastic. Coal layers.	
S	3 3	.0	1.0		İ							
1	1					}]			
S	7	2.0	1.5]			407.0_	'	49	17.5 - 21.0 Ft. Silty CLAY (CL). Olive	Top of undisturbed
									·			material at 17.5 Ft.
S:	7	2.0	2.0		1						more and pressic. Linco of organics.	
	1				1			400	20_	1		
\vdash	\dagger				1			403.5_	1 .			Description and
1					1						Bottom of borehole at 21.0 Ft. Borehole backfilled with bentonite cement, 11/17/88.	elassification by visual examination.
									l			
					ļ				,			
1	-				1	l						
						1			ŀ			No groundwater
									1			observed, 11/17/88.
	1				1				1			
	1				'	1			l			
						ŀ						
						•			ŀ			
	1					İ			ŀ			
				l i	[ļ		l	l			
						1		1				
					1		l	}				
ce	_	SP!	L	POON; ST	e ent	N 41	RF. S	ITE .	L			HOLE NO.
				; P = PI			~-,	•	S	it.	ouis Downtown Site	C136

		`E(V 00	IC D	BILL		·C	PROJEC	:T			JOS NO.	SHEET	T NO.	MOLE NO.
		יבנ	DLOG	וע ט	KIL	r ro					FUSRAP	14501-116			C138
SIT	_		uis Do		- CI		COORDINA	ITES		N.	1 276 17 3 940	1		M HORIZE	BEARING
BEC			DEPLETED				<u></u>				1,375 E 2,840 WKE AND MODEL SIZE DVE		ertic	(FT.)	TOTAL DEPTH
12	-12-	88 1	-11-8	9 1	ayne	-Wes	tern, Co	1			20.44			()	20.0
cos	E REC	OVER	Y (FT./2	() CORE	BOXE	SSAPL	ESEL. TO	P CASI	NG	G	T 44 E 11 0E E 4 14	MATER DE	PTH/I	EL. TOP	OF ROCK
					-	10			لبب	L	722.0 3 /	1/09			···
54		_	R WEIGHT	•	EA:	ING LE	FT IN NO		A./L	EM	GTH LOGGED BY:	O D-1-			
			bs/30		MIE	,	801	<u>1e</u>		Т		G. Pais	_	<u> </u>	
5	138	REC.	SAMPLE M. CORE X. CORE RECOVERY	PR	ESSU FEST:	RE		_	8						
	98	4	IRBITT	- E			ELEV.	DEPTH	Ħ		DESCRIPTION AND CLAS	SSIFICATIO		NOTES WATER	DN: LEVELS,
Sar h. Tar	일종	CORP	S S S S S S S S S S S S S S S S S S S	SN. P.		FUE			GRAPHICS	6 4 5					RETURN,
83	SAMP, ADV.	S S	8 , 5	J .	PRESS. P. S. I.	FI	422.0		-					DRILLI	ING, ETC.
	I^-									П	0.0 - 1.6 Ft. CONCRETE.			Bombolo	advanced
	1	ļ					420.4_			4	1.8 - 18.8 Pt. 1054 OLAY (CD	AND PILE	- 1	0-20.0 F	t. with 6-in. low-stem
83	2.0	1.2						-					ı	auger.	TOM-SPERIT
	1	1						٠ ا		I,	1.6-14.0 Pt. Dusky yellowis (10YR2/2) to olive black (5) blackish red (5R2/2). Low t	Y2/1). Some	J		
33	2.0	1.8		1				_ `			moisture content, slightly pl Organics, trace of coal, glass	astic.			
	1	ŀ	Ì					•-		H	gravel.	, wood, stag,	- {	Radiolog	rically
SS	1.0	0.6						-					- 1	sampled	and logged by berline.
95	1.0	0.6						•					- 1	TMA/E	berline.
SS	2.0	1.3		1			!	-							
			ŀ					٠.							
SS	2.0	1.3		1				10_					- 1		
	j		1					-		ľ			1		
SS	2.0	0.6						-							
		1	1					-					i		
SS	2.0	0.0		1				•					ł		
								15_		H	14.0-18.5 Pt. Dusky yellowi (10YR2/2) to brownish black Slightly plastic, liquefied. Tr	ish brown k (5YR2/1).			
55	2.0	1.0					. 2	<u> </u>		H	Slightly plastic, liquefied. Tr organics and coal.	race of	ł		
		1						•		ŀ					
SS	2.0	0.0					403.5_	-							
		l						-		ı	18.5 - 20.0 Pt. Silty CLAY (CI gray (5Y4/1). Moderate to h content, moderately plastic.	L). Olive ugh moisture		Top of u	ndisturbed at 18.5 Ft.
-	-	 					402.0_	20 -	24	1	content, moderately plastic. organics.	Trace of	A		
	1	ļ								1			-/		
		l								1	Bottom of borehole at 20.0 Ft. backfilled with bentonite can	Borshole nent, 1/11/89.		Descript	ion and
1		l								١		• -• -•	- 1	classifica	tion by amination.
[ŀ						
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1		1													1
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1															
_	<u> </u>	<u> </u>					ITE	L	Ш	1				WO 5 46	
			POON; ST			, -	.16	S	+ 1	۱ 4	ouis Downtown Site	_		HOLE NO.	138

								PROJEC	T		JOB NO. SHE	ET MO. INOLE NO.
	G	EC	LOG	IC D	RIL	L LO	G			FUSRAP	14501-116 1	of 1 C139
SIT					-		COORDINA	TES			1	ON HORIZBEARING
BEG			MPLETED			e	<u></u>			1,330 E 2,840 MAKE AND MODEL SIZE	Veri	(FT.) TOTAL DEPTH
		1	-10-89			-Wesi	tern, Co			PC-1A 6"	20.0	20.0
COR	REC	OVER	Y (FT./%) CORE	BOXE	1	ESEL. TO	P CASI	NG C	ROUND EL. DEPTH/EL. GROL	AND MATER DEPTH	/EL. TOP OF ROCK
CAM	DIE M	AMME	RWEIGHT	/FALL	CAS	9	FT IN HO	F. DI	A /I E	422.0 ½ /		
	-		bs/30	-			BOI		~,,		G. Cherry	
<u>P.</u>	김미	ġ,	2, ≻		MTE							
ALE DIA	48	E E	# 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		ESTS		ELEV.	Ē	GRAPHICS	DESCRIPTION AND C	LASSIFICATION	NOTES ON: WATER LEVELS,
6		CORE	SAPPL SAPPL SECOVER	LOSS IN B. P. H	PRE38.	E SE		DEPTH	2			WATER RETURN, CHARACTER OF
35	SAMP, ADV.	ड्राइ	. S. E	9 د	ă.	FT	422.0	·	8			DRILLING, ETC.
										0.0 - 1.8 Ft. CONCRETE.		Borehole advanced
		100					420.2_			10 10174 674 674	(177.)	0-20.0 Ft. with 6-in. O.D. hollow-stem
33	2.0	1.0								1.8 - 16.5 Pt. Silty CLAY RUBBLE. Brownish bli dark yellowish brown (1 low moisture content, lo	ick (5YR2/1) to	auger.
व्रद	2.0	1.7								consists of size carbons	CACIIA IDALADIAL	
		-						8_		and brick fragments; Fe of moderate yellowish b	staining. Patches	Radiologically
SS	2.0	1.8						-		silty clay.	(sampled and gamma-logged by
								-				TMA/Eberline.
								-				8.0 Ft. OVA reading
35	1.5	1.0						٠.				>1000ppm (in auger). 10.0 Ft. OVA reading 200ppm (in auger).
SS	2.0	1.6						10_				Sooppin (in auger).
								1				
88	2.0	1.4										12.0 Ft. OVA reading 20ppm (in auger).
								.				
88	2.0	1.2						15_				14.0 Ft. OVA reading >400ppm (in auger).
QC	2.0	1.7	<u> </u>				405.5] .				
		•					400.0_	1 .	***	16.5 - 20.0 Ft. Bilty CLA gray (5Y4/1). Moist, so	(CL). Olive	Top of undisturbed material at 16.5 Ft.
SS	2.0	1.9		 				•		slightly plastic. Some versand. Trace of black (N	ery fine-grained	Samples from 2-4 and
) 					-		including rootlets.	2, 23,	18-20 Ft. analyzed for metals.
-	-	 					402.0_	20 .	3	Dallan (4) 1 200	Th. 19-11-11	Description and
								}		Bottom of borehole at 20.0 backfilled with bentonit		classification by visual examination.
			,									
] "				
											٠	No groundwater observed, 1/10/89.
	1											
								l				
	1	١	•									
	1											
1			1			1			1			
	1		1									
1												
SS	SPI	IT S	POON; ST	= SHE	LBY TO	BE; S	ITE		•		P	HOLE NO.
p =	DENN	I SON	; P = PI	TCHER;	0 = 0	THER		S	t. L	ouis Downtown	Site	C139

	G	EC	LOG	IC D	RIL	L LC	G	PROJEC	CT	FUSRAP	1 1 -	ET NO. HOLE NO.
517	_						COORDIN	ATES		FUSKAP	14501-116 1	OF 1 C140
	St.	Lo	uis Do	watow	n Si	le]	N 1,260 E 2,765		tical
BEG		- 1	MPLETED	1						MAKE AND MODEL SIZE		K (FT.) TOTAL DEPTH
			1-26-8	8 1	Ayne	-Wes	tern, Co	<u>.</u>		CME-750 6"	18.0	18.0
	E REC	OVEK /	f (F1./2	s) COR	BUXE	SSAPI	ESEL. TO	P CAS	ING I	CME-750 6" ROUND EL. DEPTH/EL. GROUN 422.4 2 10.8/411.6	ID WATER DEPTH	/EL. TOP OF ROCK
SAK	PLE N	AVE	R WEIGHT	T/FALL	CAS		FT IN HO	LE: DI	A./LE	MGTH LOGGED BY:	<u></u>	
	1	40 I	bs/30	in			3 01				G. Cherry	
8	Na Na	ġ,	SAMPLE X CORE X CORE	20	ATE							
bratt	88	E			EST:		ELEV.	E	GRAPHICS	000000000000000000000000000000000000000		NOTES ON:
20	i z	H w	\$308	SNI P	gH	¥zż		H	RAPE	DESCRIPTION AND CL	MSSIFICMIION	WATER LEVELS, WATER RETURN,
**	LEN	4 OS	S IN		PRESS. P. S. I.	FILE			8			CHARACTER OF DRILLING, ETC.
	 				4.11		422.4 421.9_			0.0 - 0.5 Pt. ASPHALT		
83	1.4	0.9	7-8-6/5	1	ĺ			-		0.5 - 14.0 Pt. Filty CLAY (BUBBLE. Brownish blac Dry to low moisture conte	CL) and k (5YR2/1).	Borehole advanced 0-18.0 Pt. with 6-in.
85	2.0	1.8	5-5-4	1				-		CODAUSTS OF ETRYOL, SINE, NE	mt. Rubblé id sand; Fe	O.D. hollow-stem
			3	İ			•	-		staining.	•	
22	2.0	1.0	3-3-2	i			•	-				
			1			i		5-				Radiologically
SS	1.5	0.2	2-2-2					-				sampled and gamma-logged by TMA/Eberline.
								•		•		TMA/Eberline.
SS	2.0	0.9	1-1-1	1				-				
			•					٠, ا				
SS	2.0	0.8	1-1-1	1			2	10_ 2				Samples from 2-4,
			•				`					6-8, and 16-18 Ft. analysed for metals.
35	2.0	0.5	2-2-2				:	-				
			•				408.4_	-				
SS	2.0	1.7	2-3-4				400.4	,, -		14.0 - 18.0 Ft. Sandy CLAY gray. Moist, soft to medi	(SC). Olive	Top of undisturbed material at 14.0 Ft.
								15_	4	moderately plastic. Very fine-grained sand. Some organics. Highly plastic c	fine- to block (N1)	material at 14.0 Ft.
S S	2.0	1.7	4-2-1							organics. Highly plastic c	lay lenses.	
							404.4			•		
							55 1.1 2	•	П	Bottom of borehole at 18.0 F	t Bombole	Description and classification by
										backfilled with bentonite	cement, 11/28/88.	visual examination.
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1												
		ĺ										
				L				لسنسا				
			OON; \$1			~~,	I TE	c		ouis Downtown S		HOLE NO.

Γ								_	PROJEC	:1	LICE NO. ISH	ET NO. MOLE NO.
		G	EC	LOG	IC D	RIL	L LO	G		_	FUSRAP 14501-116 1	of 1 C141
F	ITE							COORDIN	ATES	_		OM HORIZBEARING
Į				uis Do			e	<u> </u>				tical
- 1	EQ.		1	2-19-8			-Wes	tern, Co		MILL.	CME-750 6" 18.0	X (FT.) TOTAL DEPTH
										NG	POLIND FL. DEPTH/FL. GROUND WATER DEPT	/EL. TOP OF ROCK
1							9				420.6	/
ŀ	NP			R WEIGHT	•	CAI	ING LE	FT IN NO	LE: DI	A./L	NGTH LOGGED BY:	
ŀ				bs/30	_	WATE		201	ne	1 1	G. Cherry	
1	;	TON CORE	REC.	שבׁן שוב. מושוביוש	P	ESSU TEST	RE		_	8		
ľ	braf.	48	75	T. 65	_ I	1		ELEV.	DEPTH	Ŧ	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS,
	1 2		4 S	SAMPLE M. OUS "N' X. CORE RECOVERY	SH .	PRESS. T	HAY.		B	GRAPHICS		WATER RETURN, CHARACTER OF
	X	8	द्वठ	2 . 2	ه د	Ea	F E	430.6		9		ORILLING, ETC.
ŀ	88	1.4	1.0		ł			430.4	1.		0.0 - 0.3 Ft. ASPHALT.	Borehole advanced
L				6/5*]	1					0.2 - 14.5 Ft. Silty CLAY (CL) and RUBBLE.	0-12.0 Ft. with 6-in. O.D. hollow-stem
	88	3.0	1.1	10-8-7		1			Ι.		9.5-6.0 Ft. Dark yellowish brown	auger.
	أح			-, -]			•			0.5-6.0 Ft. Dark yellowish brown (10YR4/2). Low moisture content, loose. Rubble consists of slag, gravel, brick,]
	55	2.0	1.5	4-7-3		1			5_		sand, and carbonaceous material; Fe staining.	
1	_				ļ	İ] .			Radiologically sampled and
Ţ	35	2.0	1.7	1-2-3					Ι.		6.0-11.7 Ft. Olive gray (5Y4/1). Moist,	gamma-logged by TMA/Eberline.
L	00			NIV A							soft, moderately to highly plastic; Fe staining.	
١	SS	2.0	1.7	WH-2-2		ļ			.			
					1	1			10_			Samples from 8-10 and 14-16 Ft.
	SS	2.0	1.5	1-3-3 4		İ			Ι.			analysed for metals.
L					1							
}	8S	2.0	1.5	2-1-4 1		1			١.		11.7-13.0 Pt. Coarse-grained sand.	
]_	1			١.		13.0-14.5 Pt. Pale brown (5YR5/2) silty	
	SS	2.0	1.3	VR-14-1 10	2			406.1	15_	1975	sand. Moist, soft, very fine-grained. 14.5 - 18.0 Ft. Silty SAND(SM). Olive gray (5Y4/1). Moist, soft, some partially decayed wood and angular limestone.	Top of undisturbed
1]] .	$\parallel \parallel \parallel$	gray (5 Y 4/1). Moist, soft, some partially decayed wood and angular limestons.	material at 14.5 Ft.
	33	2.0	1.4	7-3-23 27				·				16.0 Ft. OVA reading 50ppm (in auger).
ļ	_				Į			402.6_	Į.	Ш		<u> </u>
-									i		Bottom of borehole at 18.0 Ft. Borehole	Description and classification by
											backfilled with bentonite cement, 12/19/88.	visual examination.
1						}			ŀ			
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		L		L	<u> </u>	1	1.		<u> </u>	\sqcup	<u> </u>	MOVE NO
				POON; \$1 ; P = P1				I TE	C	.	ouis Downtown Site	HOLE NO.
ľ	_	J C 44		,	I CHEK;		HER	•		, t. I	IVIII DUMIILUMII VILE	1 4272

		C	EC	OLOG	ic e	RIL	LLO	G	PROJE	CT			JOS NO.	_	ET MO.	HOLE NO.
s	ITE							COORDIN	ATES			FUSRAP	14501-1		OF 1	C142
		St	. Lo	uis Do	wator	vn Si	te	<u> </u>			N	1,038 E 2,952	<u></u>	Ver		
	EGU		1.	OMPLETE	1 -		•••			DRILL		AKE AND NODEL SIZE	OVERBURDEN		K (FT.)	TOTAL DEPTH
				12-7-8		Laybe	S SAIP	tern, Co	P CASI	INC	(22	CME-550 6" UND EL. DEPTH/EL. GROU	12.0	<u> </u>	<i>151</i> - 200	12.0
			1		ŀ		8					421.3	MD MENIEK	DEPIR	/EL. TOP	UF RUCK
\$	AMP			R WEIGH		CA	SING LE			A./L	ENC	TH LOGGED BY:				
h	,			bs/30	-	MATE	7	801	ne .	1		74.000	G. Pais		1	
	AND DIAH.	걿볹	CORE REC.	7 ° 0 n x m	P	ESSU TEST	RE	·	_	8					NOTES	~ !•
	إقر	70		228	m_=	gi-i		ELEV.	HL	E	716487	DESCRIPTION AND C	LASSIFICAT	ION	WATER	LEVELS,
1	3	贈	300	SANTEL COUS X COR	LOSS IN	PRESS. P. S. I.	FAE		5	GRAPHICS	9				CHARAC	RETURN,
	3	2.0	1.3		6	0.0		421.3			4	0.0 - 8.5 Pt. GRAVEL and	Silty CLAY		DRILLI	NG, ETC.
				}		ļ			-			0.0 - 8.5 Ft. GRAVEL and (CL). Dusky reddish brodusky brown (5YR2/2). moisture content, slightly of organics. Sandy in pli	wn (10R3/4) to Low to moders	te.	0-12.0 F	advanced t. with 6-in.
12	8	2.0	1.6		1				•			moisture content, slightly of organics. Sandy in pli	y plastic. Trace Ices.	•	O.D. hol	low-stem
	-		İ		1			٠.	•							
3	S	2.0	1.2		7]					ľ				ĺ	
					_	ł									Radiolog	pically and
1	- 1	1.0	0.5	ļ	4										TMA/E	logged by
L		2.0	1.8	<u> </u>	╡			413.8_	-							
			-:-					413.0_	-	"//		8.5 - 12.0 Pt. Silty CLAY (brown (5YR3/2). Moder moisture content, sandy	CL). Grayish		Top of u	ndisturbed
S	s	1.5	1.4		┨				10_		i	moisture content, sandy moderately plastic, stiff.	in places,		mereria	2. 0.0 F t.
_	٠	0.5	0.5		1		!	400.0	•			•				
۲	7		U.B		1			409.3_	_	144	1	Bottom of borehole at 12.0	Pa Basakala		Descript	
												backfilled with bentonite	cement, 12/7/	88.	classifica visual ex	tion by amination.
1						İ										
ļ		1			Ì							-				
	1							·				•			No grout	d
					1										operved	, 12/7/88.
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L	\perp				<u></u>						\perp	 				
				P = P1				ITE	S	t. l	Lo	uis Downtown S	ite	i	HOLE NO.	142

Γ		G	EC	LOG	IC D	RIL	L LC	G	PROJEC	CT		FUSRAP	•	Јов но. 14501-1		ET NO. OF 1	HOLE NO.
5	ITE							COORDIN	ATES			PUSKAI				ON HORIZ	
l		St.		uis Do			te				N	1,050 E 3,00	0		Vert	1	
- Г	CUN		- 1	PLETED				_		DRIL			SIZE	OVERBURDEN	ROCI	(FT.)	TOTAL DEPTH
				2-7-8		Layne	- Wes	tern, Co	2.	inc		CME-550 CUND EL. DEPTH	6"	14.0			14.0
	ME I	REUL	NEK /	1 (71.72	,	E BUNE	7	eset. IU	P CAS	1 # 6	٢	420.6 ¥ /.	EL. GROU 5/413.1 1	2/7/88	DEPTH	/EL. TOP	OF ROCK
1	WPL			R WEIGH	•	CA	SING LE	FT IN NO	LE: DI	A./L	EN	GTH LOGGED BY:			1		
-		_		bs/30		WATE		B 01	ne		11			G. Pair		7	
ļ	* 2	8	EG.		. 196	ESSU	RE		_	2							
1	OI S	וסן	M.	L 0 0 2	a E	T		ELEV.	DEPTH	Ħ	8	DESCRIPTION	AND C	LASSIFICAT	TON	NOTES	ON: LEVELS,
9	9	EN		\$5 × 2	NE.	1 5 C	FRE			GRAPHICS	10.00					WATER	RETURN, CTER OF
3	2 3				7.9	Ea	FTE	420.6	1	8	[]						ING, ETC.
8	8 2	0.	1.3									0.0 - 8.2 Ft. GRA (CL). Dusky b reddish brown moisture content	VEL and	Bilty CLAY		Bambal	e advanced
		ı			ł	l	i		¹			reddish brown	(10R3/4).	Low to mode	rate	0-14.0 F	t. with 6-in.
3	S 2	.0	1.3		1	l			·			of organics, san	idy.	y plastic. Trac		suger.	TOM-RESIL
		- [1	İ			'								
S	S 2	0	1.3		1				١.'								
	1					1			•-							Radiolo	gically
S	S 2	0	1.4		1				•							sampled gamma-	logged by
1								2	•							TMA/E	perune.
S	S 2.	0	1.8					412.4_			-	00 140 D. CD	67.13	(61) 6		┨	
	1	ı			}							8.2 - 14.0 Pt. Sill brown (5YR3/2 moisture conten). Moder	(CL). Grayush ate to high	١.	material	indisturbed l at 8.5 Ft.
S	S 2.	0	1.3		1				10_			moisture contein moderately place	stic, stiff.	in places,			
						1					I						
S	S 2.	0	1.0		1		1		٠								
		-						400.0	•								
	+	┪			t			406.6_	٠							Descript	tion and
	ļ]			Bottom of borehol backfilled with	e at 14.0 bentonite	Pt. Borehole cement, 12/7/	/88.	classifica	ation by xamination.
	ı	- 1															
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55	. = 5	PL I	T \$5	POON; ST	* SHF	LRY TI	RE. IS	ITE -		<u>. </u>	Ц.	- · · · · · · · · · · · · · · · · · · ·				HOLE NO.	
				P = P1			,	•	Ş	t.	L	ouis Downto	own S	ite		C	143

		G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T	FUSRAP		14501-11	1 -	T NO.	HOLE NO. C144
S	TE							COORDINA	TES		I CORAI				M HOR 12	
L	CLI			UIS DOV			<u>e</u>	<u> </u>			N 2,000 E 3,58			Vert		TOTAL DEPTH
		-	1	1-8-88			-Wes	tern, Co		MILL	CME-750	6"	20.5		(71.)	20.5
P	ЖE	REC	OVER	(FT./%) CORE	BOXE	SAMPL	ESEL. TO	P CASI	NG	10 /	EL. GROUND I	MATER D	EPTH/	EL. TOP	OF ROCK
15	UPL	E N	VOE!	E LEIGHT	/FALL	CAS	10	FT IN HOL	E: DI	A./LE	422.0 \$ /				/	
		1	40 I	bs/30 i	in			101					G. Cherry			
ě	<u>+</u>	Z Z	EC. C.	SAMPLE BLOUS "N" X CORE RECOUERY	PR	ATE	RE			2						
1	DIAH.	CORRE			. E	ESTS		ELEV.	DEPTH	Ĭ	DESCRIPTION	AND CLAS	SSIFICATI	ON		LEVELS,
3	C V	LEN	100	82 × 5	. P	PRESS. P. S. I.	I AR		8	GRAPHICS	9				CHARAC	RETURN,
	SI	5; - 1.8	410 1.5	3-8-11	- 6	80		422.0			0.0 - 2.2 Pt. Silty	CLAY (CL).	Dark		ORILL	ING, ETC.
				50/3*					-		0.0 - 2.2 Pt. Silty yellowish brow some brick frag	n (10YR4/2). poents.	Dry, stiff,		0-20.5 1	e advanced t. with 6-in.
3	3	1.4	1.1	11-11 50/5"				419.8 419.5		; >10	\2.2 - 3.5 Ft. CON	CRETE			O.D. ho	llow-stem
\vdash	\dashv	\dashv		50,5				·.			2.5 - 20.5 Ft. FII					
									5_		2.5-5.0 Pt. Gr		rete. Angula	r	.	
*	S	2.0	1.4	5-11-27 15							limestone.	ty clay (CL) s	and gravel		Radiolo	and
S	S :	2.0	0.8	13-5-9					_		5.0-6.0 Ft. Sil Dark yellowish limestone.	brown (10YR	34/2). Angul	ar .	TMA/E	logged by berline.
	-			4							6.0-9.0 Pt. Gr	avel. Angulai	r limestone.			
S	S 2	2.0	0.9	2-2-4					10_		9.0-20.5 Pt. S	ilty clay (CL)	and rubble.			
											9.0-20.5 Pt. Si Dark yellowish brownish black	brown (10YR (5YR2/1). M	R4/2) to foist, loose.		119-20.5	from 5-7 and Ft. analysed
3	S	2.0	1.3	5-4-3 6				'	-		Rubble consists	s of brick.			for met	als.
9	s :	2.0	1.2	3-4-5					-							
	-			7					-							
3	S 2	1.0	1.7	3-6-5					15_							
L				•				,								
S	S Z	2.0	1.0	4-6-5												
Ļ	S I		1.5	2-3-2												
Ľ			2.5					401.5_	20_							
											Bottom of boreho	le at 20.5 Pt.	Borehole		classific	tion and ation by
						1					backfilled with	bentonite cer	ment, 11/8/8	В.	ARRING 6	xamination.
									<u> </u>							
	1								·						No grou	indwater d, 11/8/88.
	1	Ì]]							2, 22, 0, 00 .
							ł									
	1							 								
								<u> </u>								
							ļ.									
								1								
1	<u> </u>	SPL	L SI	POON; ST	= SHE	LBY TU	BE; S	ITE		<u> </u>	<u> </u>				HOLE NO	
				P = P1					S	it. I	Louis Downt	own Sit	:e			144

								PROJEC	ī		LICE NO. SHE	ET NO. HOLE NO.
	G	EC	LOG	IC D	RIL	L LO	G			FUSRAP	4501-116 1	
\$11		_			<u></u>		COORDINA	ATES		1 400 F 2 400		OM HORIZBEARING
BEG			uis Dov			e	<u> </u>			1,800 E 3,400 MAKE AND MODEL SIZE	Veri	K (FT.) TOTAL DEPTH
40	- 28 -	881	1-15-8	8 I	Ayne	-Wes	tern, Co	. [CME-750 6"	32.0	32.0
COR	E REC	OVER	Y (FT./%	CORE	BOXE	SAMPL 16	ESEL. TO	P CASI	NG G	ROUND EL. DEPTH/EL. GRO	UND MATER DEPTH	/EL. TOP OF ROCK
SA	PLE N	WOE	R WEIGHT	/FALL	CAI			LE: DI	A./LE	IGTH LOGGED BY:		
	1	40	bs/30				B 01	n e			G. Cherry	
E	걸빛	E C	uZ u≿	PR	ATE ESSU	RE			8			
SAT D. D.	200	_]@	SAMPLE DLOUS "N" X CORE RECOVERY		EST:		ELEV.	DEPTH	DRAPHICS	DESCRIPTION AND	CLASSIFICATION	NOTES ON:
1	LEN.	£ 00	SO X P	LOSS IN G.P.F	F.S. P.			8	100			MATER RETURN, CHARACTER OF
	2.0	1.4	3-4-4	- 6	E a	-	427.0			0.0 - 19.5 Pt. Bilty CLAY	(CL) and	DRILLING, ETC.
1			•					-		0.0 - 19.5 Pt. Silty CLAY RUBBLE. Grayish bro Dry, loose. Rubble con	wn (5YR3/2). sists of brick,	Borehole advanced 0-32.0 Ft. with 6-in.
83	2.0	0.8	4-22-25 17					-		gravel, slag and glass; I Patches of moderate ye (10YR5/4) silty clay.	re staining. Llowish brown	O.D. hollow-stem auger.
		1	1					-		(101 ttb/4) stily city.		
33	2.0	1.8	9-25-38 21					5				
20	2.0	1.8	5-8-9									Radiologically sampled and
33	2.0	1.0	24									gamma-logged by TMA/Eberline.
SS	2.0	1.3	12-5-7									
1			7									
SS	2.0	1.5	6-4-3					10_				Samples from 6-8, 10-12, and 26-28 Ft.
			•								•	analysed for metals.
SS	2.0	0.8	3-3-2									
60	2.0	1.0	2-3-3									
7 33	2.0	*.0	3-3-3					15_				
SS	2.0	0.9	5-10-4									
		1	2					.				
SS	2.0	2.0	1-1-2					'				
				,			407.5_	20_	(11)	19.5 - 32.0 Ft. Sandy SIL	T (SM). Olive	Top of undisturbed
SS	2.0	1.9	2-5-3					.		19.5 - 32.0 Ft. Sandy SIL gray (5Y4/1). Moist, so slightly plastic. Grayis	h black (NZ) to	material at 19.5 Ft.
60	2.0	1.4	3-2-1							greenish gray (5GY6/1) organics, including root	ilets.	
33	1.0	*.•	2					.				
88	2.0	2.0	1-1-1					;				
			1					25_				
89	2.0	2.0	5-9-4			Ì		'				
85	2.0	2.0	3-7-5					.	$\ \cdot\ $			
0.0	2.0	2.0	2-2-4			1		30_				}
"		•••	2 2			}		.	$\{\}\}$			
-	-	 					295.0_	┤ .	411			Description and
										Bottom of borehole at 32.0 backfilled with bentonic		classification by visual examination.
			POON; ST			~-,	ITE	<u> </u>		• • •	<u> </u>	HOLE NO.
<u>P</u>	DEN	I SON	; P = PI	TCHER;	0 = (THER		<u>s</u>	t. L	ouis Downtown	Site	C145

	(3E	Ol	LOG	IC D	RIL	L LO	G	PROJEC	ī		FUSRAP		ET NO. OF 2	HOLE NO.
M. DIME	SAMP. ADV.	. 4	CORE REC.	X CORE		MATER HESSU TEST: OH OH OH OH OH OH OH OH	RES VIII	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	<u> </u>	NOTES WATER WATER CHARAC	·
											,			No grou	ndwater i, 11/15/88.
		i													
												,			
								•				•			
						4						·			
SS =	SPL DENN	IT 1 ISO	I SPOI	ON; ST P = PI	= SHEL	BY TU		ITE		니 t. i	L Lo	uis Downtown Site		HOLE NO.	145

<u> </u>		:E(LOG	ור ח	PII	10	ıc	PROJEC	T			ET NO. MOLE NO.
SITE			LUG		1/16		COORDIN	ATES		FUSRAP	14501-116 1 ANGLE FI	OF 1 C146
	St		uis Do			e	<u> </u>			1,738 E 3,618		tical
BEG.		1	MPLETED			-Wes	tern, Co	1	WILL	MAKE AND NODEL SIZE CME-750 6"	OVERBURDEN ROC 20.0	K (FT.) TOTAL DEPTH
				() COR	BOXE	SSAMPL	ESEL. TO	P CASI	NG C	COUND EL. DEPTH/EL. GROUN		I/EL. TOP OF ROCK
E A ME	DIEN		R WEIGHT	/FALL	CAS	10		1 F · D1	A // E	424.0 7 / 1 /		
			bs/30				B01		n./ LL		G. Cherry	
P .	N N	S S		PR	MATE	RE			97			
brat.	88				EST:		ELEV.	DEPTH	E E	DESCRIPTION AND CL	ASSIFICATION	NOTES ON: WATER LEVELS,
1	LEN CORE	국	S S S S S S S S S S S S S S S S S S S	SH.	PRESS P. S. I	FAR		8	SHIP E			WATER RETURN, CHARACTER OF
35	2.0	10	4-13-12		E.		434.0		0		MV and	DRILLING, ETC.
**	2.0	1.3	13					4		0.0 - 20.0 Ft. Silty CLAY (CRUBBLE, Grayish brown Dry, loose, Rubble consis	a (8YR3/2).	Borshole advanced 0-20.0 Pt. with 6-in.
35	2.0	1.3	6-11-7	}				-		gravel, and slag.	•	O.D. hollow-stem
	Ì		6]			'				
88	2.0	0.6	3-5-13									
80		<u> </u>						.				Radiologically sampled and
22	2.0	0.0	2-9-11 1									gamma-logged by TMA/Eberline.
SS	2.0	0.5		-				.				
			1			}		10_				
SS	2.0	0.8	3-5-7					10_				Samples from 2-4, 8-10, and 18-20 Ft.
				.								analysed for metals.
SS	2.0	1.2	6-3-3			}		╽.				10.0 Pt. LEL=3%.
SS	2.0	1.3	4-50-23	5				.				10.071. 222-070.
			7	Ì				15_				
55	2.0	0.9	3-4-4	1	-	1	•	.				
<u> </u>						[
SS	2.0	1.4	2-2-3		1	•]		•		18.0 Ft. OVA reading 5 ppm (inside augers)
_		_	 				404.0_	20 .				Description and
								l		Bottom of borehole at 20.0 F backfilled with bentonite	t. Borehole cement, 11/8/88.	classification by visual examination.
	1					1					•• -•	1
				1		1		1 "				
}	1			}								No groundwater observed, 11/8/88.
				}	[1
		1				Ī						
				}								
) ee	. 59	117 6	POON; \$1	l = ene	I RY T	ME . IS	SITE	<u> </u>	1_1			HOLE NO.
			; P = P			~~. ·	•	S	it. L	ouis Downtown S	ite	C146

	C.	EC	LOG	IC D	PII	10	ıG	PROJEC	T				JOB NO.	1	ET MO.	HOLE NO.
SIT			LOG		1/12		COORDIN	ATES			FUSRAP			116 1	OF 1	C147 BEARING
			uis Do			le				N 1	,500 E 3,30			Vert		
BEG		1	DAPLETED	l l		Was	tern, Co	T I	DRILI		KE AND MODEL ME-550	SIZE 6"	OVERBURDEN 19.0	ROCX	(FT.)	TOTAL DEPTH
			1-8-81 Y (FT./2				ESEL. TO		ING				UND WATER	DEPTH	/EL. TOP	OF ROCK
		_/				10					425.0				/	
SAN		_	R WEIGHT	•	CA:	SING LE			A./L	ENGT	H LOGGED BY:		S. Bed	.L		
μ.		_			HATE		201	ie		П			3. Bec		T	
7	SAMP, ADV.	SEC.	BLOUS "N" X CORE RECOVERY	P 1	ESSU	RE 3	ELEU.	E	DRAPHICS	Н					NOTES	
ALL DIE	a z		F 208	97.	SH.	Yzż		CEPTH	E		DESCRIPTION	AND C	lassifica	ITON	WATER	LEVELS, RETURN,
器		400	a Plx F	SH.	PRESS. 1	E ZZ	425.0		8				•			CTER OF ING, ETC.
88	2.0	1.2					424.5_	1	****		0.0 - 0.5 Pt. TOP	SOIL.			 	e advanced
		l							•		0.5 - 19.0 Pt. Fil material includ brick, and clay	ing slag,	concrete, red		0-20.0 1	t. with 6-in. llow-stem
85	2.0	1.3				j									auger.	
A.A.							٠.									
23	2.0	0.9	1					5_							Radiolo	ricelly
SS	2.0	1.1		-	Ì			-							Sampled	and
								-							TMA/E	logged by berline.
SS	2.0	1.6		1				-								
								10_								
SS	2.0	2.0]											18-20 F	from 2-4 and
					l										metals.	·
22	2.0	2.0] .								
SS	2.0	1.7		-				-								
			ļ		İ			15_								
SS	2.0	1.7		1			· .	-				•			•	
						Ì		-								
SS	2.0	1.7			•		406.0_								_	
		_					405.0_	20 .			19.0 - 20.0 Ft. Bij	ty CLA	((CL). Olive ack (5Y2/1).		materia	indisturbed at 19.0 Ft.
											Bottom of borehol backfilled with	at 20.0	Pt. Borehole	0 /00	classific	tion and ation by Kamination.
					l		}				DECEMBED WITH	Den tom t	e cement, 11/	5/90 .	VISUAL C	Kanumation.
										H						
				İ	l			."								
	}			}											No grou	ndwater d, 11/8/88.
								İ		П					ODDER VO	4, 11/0/00.
			}					1								
		1	•					1								
	}	1		1				}	}							
								1								
			POON; ST			~~,	ITE		•	•					HOLE NO	
Þ =	DENN	ISON	; P = PI	TCHER;	0 = 0	THER		S	it.	LO	uis Downte	own	Site		(:147

							-:		PROJEC	:T	,	LOS NO.	SHE	ET NO.	NOLE NO.
		G	EC)LOG	IC D	RIL	L LO	G		••		FUSRAP 14501-	1 -	_	C148
SI	TE		-			-		COORDIN	ATES		_	A	NGLE FRO	OH HORIZE	
				uis Do			le	<u>. </u>				1,400 E 3,400	Vert		
	CUI		- 1	MPLETED	_ F		- Was	tern, C		WILL		AKE AND MODEL \$12E OVERBURDEN CME-550 6" 20.0	ROCK	(FT.)	TOTAL DEPTH 20.0
8	RE.	REC	OVER	Y (FT./	() COR	E BOXE	SSAMPL	ESEL. TO	P CASI	NG		DUND EL. DEPTH/EL. GROUND MATER	DEPTH	/EL. TOP	
			/				13					428.0		/	
SA	ΑP			R WEIGH		CA	ING LE	FT IN NO	LE: DI	A./U	EN	TH LOGGED BY:	_		
	-		_	bs/30				80	De		T	S. Bec	<u>k</u>	,	
	į	걸炸	E E		P	WATE	RE	1		9					
SAMP. TYP		युष्ठ		SAMPLE BLOUS "N" X CORE RECOURTY	- E	TEST		ELEV.	DEPTH	GRAPHICS		DESCRIPTION AND CLASSIFICA	TION	NOTES	on: Levels,
2		취공	겉	89 X	LOSS	5.0	FRE			\$	ġ			WATER CHARAC	RETURN,
	₹	LEN CORE	द्वीध	Second And Cooling	7 6	PRESS. P. S. I.	FE	428.0		8	[]				NG, ETC.
3	8	2.0	1.3									0.0 - 20.0 Ft. FILL. Crushed fill material including red brick, glass, wo	od.	Borehole	advanced
					j	Ì						and slag.	,	0-20.0 F	t. with 6-in. low-stem
L		1.0	0.8]									suger.	3
1_	_1	1.0	1.0]	•	}		1					}	
S	SS 2.0 1.3 6-														
]									Radiolog sampled	and
\perp	SS 1.0 0.6 SS 1.0 0.7														logged by perline.
							1	İ							
S	S	2.0	1.6						١.					!	
					1			1	10_		H				
5	S	2.0	0.8						.					18-20 F	from 2-4 and analysed for
L		2.0	1.7	<u> </u>	4			<u> </u>	.					metals.	
3	۱ ا	2.0	1			j			-						
-		2.0	1.3	ļ	4	ļ			-					}	
3	۱		1.3					ļ	15_		Ħ				
S	<u>.</u>	2.0	1.4		-	İ			-				•	İ	
	-								-					ļ	
S	$\frac{1}{s}$	1.0	0.5	l	┨				-		ı			Explosiv	e Fales Were
╙	_	1.0	0.7	<u> </u>	1	1			-					detected 18.0 Ft.	e gases were at depth of
\vdash	+		 		}]	408.0	20 -		1			Descript	
	1				1				1		$\ $	Bottom of borehole at 20.0 Ft. Borehole backfilled with bentonite cement, 11/8	/88.	classifics	
	l				ļ				İ			,	-	ļ	
					1										
	1							}			$\ $			1	
	1]									No grou	dwater
	1		l						1					operved	, 11/8/88.
			ŀ			}					$\ $				
					[1		}	1		11				
			l		}						$\ $				
				1											
			1	<u> </u>	1				1						ļ
		!	1								$\ $				
				<u> </u>				<u></u>	<u>L</u> .						
				POON; \$1				ITE				Cit-		HOLE NO.	
Þ	= {	DENN	I SON	P = P	TCHER;	0 = 1	THER		5	T.	L	ouis Downtown Site			148

Г		_				5			PROJEC	T	JOB NO. SHEE	T NO. HOLE NO.
		G	EC	LOG	IC D	RIL	L LO				FUSRAP 14501-116 1	
21.	_	St	I	uis Do	wptow	a Sid	e	COORDINA	ITES	N	1,300 E 3,505 Verti	M HORIZBEARING
_	MLE		C	MPLETED	DRILL	.ER			г		MAKE AND MODEL SIZE OVERBURDEN ROCK	(FT.) TOTAL DEPTH
1	-2	-8	8 1	1-10-8				tern, Co		uc le	CME-750 6" 50.0 COUND EL. DEPTH/EL. GROUND MATER DEPTH/	50.0
	CE I	KE U	MER'	(11./2	., μωκ	. BURE	25		r LASI		430.0 EL. DEPTH/EL. GROUND MATER DEPTH/	/
S W	PU			WEIGHT	•	CA!	ING LE	FT IN HO	LE: DI	A./LE	GTH LOGGED BY:	
_	Т.			bs/30_		MTE)	B 01	e		G. Cherry	
SHE LITTE		LEN CORE	THE REC.	SAMPLE BLOWS "N" X CORE RECOVERY		ESSU	RE	ELEV.	ОЕРТН	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
8	1 9	1	ZI O		٩ و	Kai	F E	430.0		6		DRILLING, ETC.
	2		0.9	2-9-9 12 12-16-1 14					•		0.0 - 47.5 Ft. Sity CLAY (CL) and RUBBLE. Dark yellowish brown (10 YR 4/2) to moderate yellowish brown (10 YR 5/4). Dry to low moisture content, ione. Rubble consists of alag, brick, carbonaceous material, glass, gravel, and lime; Fe staining.	Borehole advanced 0-50.0 Ft. with 6-in. hollow-stem auger.
85	2	.0	1.2	3-6-9 6		 			8.			
88	2	.0	0.5	3-2-2								
85	2	.0	1.0	1-1-2					10_			
85	3	.0	1.4	3-4-4			:		10-			Radiologically sampled and gamma-logged by TMA/Eberline.
89	2	.0	1.1	2-3-2 3					•			TRIA, Boermie.
85	2	.0	0.8	3-3-2 8	<u> </u>				18_			
85	3	.0	1.1	4-3-2								
85	3	.0	0.8	3-2-5								
93	3	.0	1.7	3-2-3					20_			Samples from 8-10, 42-44, and 48-50 Ft. analysed for metals.
88	7	.0	1.7	8-2-3					-			
BI	3	.0	1.3	2-3-3					25			
81	3 3	.0	1.3	4-4-4								
31	7 3	.0	1.1	3-3-3								
8.1	3 3	.0	0.3	3-4-4					20_			
8	3 2	.0	0.6	5-4-8 4					-			
N	3 2		1.3	4				<u> </u>	-		······································	
				POON; \$1 ; P = P1			,	SITE	S	t. L	ouis Downtown Site	NOLE NO.

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T		FUSRAP	JOS NO. SHE	ET NO.	HOLE NO.
1.16	2000	PEC.	n's m'g	PR	ATER	RE	ELEU.	E	ICS				NOTES	ON:
Man of the	S S	2000 1000 1000	200 X 200 X	LOSS IN G.P.H	PRESS.	H H H	ELEU.	ОЕРТН	GRAPHICS	3.64.62	DESCRIPTION AND CLAS	SIFICATION	CHARAC	LEVELS, RETURN, CTER OF ING, ETC.
88	3.0	1.4	3-3-3					4 1			,			
88	3.0	1.3	4-4-3 8					40					1000 pp	OVA reading m, Exotox 40 augers), 60
88		1.3	3-3-3					. 40_					ppm (ar	nbient).
88 88		0.5	3-3-5 8/3*				5	7	,	_				6 114 - 12
85		1.2	4					45_					>1000 pt >100 pt LEL=6	OVA reading pm, Exotox om toxic, (in augers).
SS	2.0	1.2	4-3-2 1				382.5_	4 4		-	47.5 - \$0.0 Pt. Silty SAND (SM gray (5Y4/1). Fine- to mediu sand (quarts and feldspar). S	(). Olive im-grained aturated,	Top of u	indisturbed at 47.5 Ft.
							38 0.0_	\$ 0 _	111		noncohesive. Some angular p (1/8-inch). Bottom of borehole at \$0.0 Ft. backfilled with bentonite cem	Borehole	Descript classifica	ion and
											Decembed with Denionity Cent	ænt, 11/10/66.	Visital E	tainination.
				i										
							·							
							,							
				:										
			:											
											·			ļ
\$\$ = 0 = 1	SPL I	T SP	OON; ST P = PI1	= SHEL	BY TU	BE; SI	TE	 S:	 t. 1	Lo	uis Downtown Site		HOLE NO.	149

		SEC	LOG	IC D	RIL	L LC)G	PROJEC	CT	FUSRAP		JOS NO.	1	T NO.	HOLE NO.
\$11							COORD IN	ATES		FUSKAP		14501-1		M HORIZ	C150
L			uis Do			te				N 1,000 E 3,57	0		Vert	1	*****
EG		ı	OPPLETED					ľ	DRILL	NAKE AND NODEL		ERBURDEN	ROCK	(FT.)	TOTAL DEPTH
			11-9-8		LAYBO	SCAMP	tern, Co	D CASI	ING	CME-750 GROUND EL. DEPTH	/EL. GROUND	22.0	DEDTH	EL TOD	OF ROCK
	-	/		,		10				422.0	ret. excomp	WALES.	DEF IN	/	OF ROCK
SAM			R WEIGHT	•	CA	SING LE	FT IN NO	LE: DI	A./U	ENGTH LOGGED BY:			1		
_	~	7	bs/30	in		<u>.</u>	BO	ne			,	G. Cherr	у		
braffe	SAMP. ADV.		SLOUS "N" X CORE	Pf	MATE	RE	1		2						
15	48		5, 62		TEST:	1	ELEV.	H.L.	GRAPHICS	DESCRIPTION	I AND CLAS	SSIFICAT		NOTES	ON: LEVELS,
90		금	3908	SNT T	8:	FAZ			1					WATER	RETURN,
1	37	100	.,₽,.Æ	7.9	PARSS. 1	ELE.	422.0	_	8						TER OF Ing, etc.
88	2.0	1.4								0.0 - 22.0 Pt. Sile BUBBLE. Bro	Y CLAY (CL	and			
		ŀ								Dry, loose. Ru	ibble consists	of brick,		0-22.0 F	e advanced 't. with 6-in. llow-stem
38	2.0	1.4	26-34-10 20	ŧ				1		Dry, loose. Ru gravel, sand an Patches of mod (10YR5/4) to ((10YR4/2) silt	ierate yellowi	sh brown		enter.	nom-seem
	1				1					(10YR4/2) silt	y clay.	n pionn			
88	2.0	1.7	8-14-14 11					ו . ז							
								•-						Radiolog sampled	rically
33	2.0	1.7	4-7-8 11											TMA/E	logged by
L		<u> </u>			ļ]							oernme.
85	2.0	1.3	3-4-7]				•					:		
	<u> </u>							10_							
85	2.0	1.2	5-5-4				1							Samples 18-20 F	from 2-4 and t. analysed for
														metals.	
85	2.0	1.2	4-4-3				}								
88	2.0	1.7	3-4-7 5	ŀ				15_							
200															
55	2.0	1.4	4-3-5 5				- -				•				
00				ļ											
33	3.0	1.3	5-5-5 6											-	
	L	<u> </u>						20_							
					ŀ		400.0_								
										Bottom of borehol	e at 22.0 Ft.	Borehole		Descript classifica	tion by
1										backfilled with	bentonite cer	ment, 11/9/	58 .	Visual ex	amination.
1															
1															
														No groun	ndwater l, 11/9/88.
1					٠										i
1															
							1TE		Ш	<u></u>				HOLE NO	
1			200N; ST			- L	4 1E	C	+ 1	ouis Downt	own Sit	_		HOLE NO.	150

								PROJEC	7				JOB NO.	ENE	ET NO. HOLE NO.
	G	EC)LOG	IC D	RIL	L LO	G				FUSRAP		14501-		
SITE							COORDIN	ATES			· · · · · · · · · · · · · · · · · · ·			NGLE FR	OM HORIZBEARING
			uis Do			e	<u> </u>				,342 E 1,3		-	Vert	
BEG.			34PLETED 2-8-81			_Was	tern, Co	r	MILL.		E AND NODEL	SIZE	OVERBURDEN 12.0	ROCK	(FT.) TOTAL DEPTH
							ESEL. TO		NG		MD EL. DEPT	H/EL. G	COUND WATER	DEPTH.	/EL. TOP OF ROCK
						6					24.7	.8/417.	9 12/8/88		
SAN			R WEIGHT	•	CAS	ING LE			A./LI	ENGT	LOGGED BY:		6 6 1		
	1	40 1	bs/30		MIE	-	BOI	<u>ne</u>	1	_			G. Che	ту	
7	500	E S	n'z hiç	i po	ESSU	RE .		=	HICS	4					NOTES ON:
braff	18	4	£2 88	_ T	6.4		ELEV.	HT-GEN	Ŧ		DESCRIPTIO	M AND	CLASSIFICA	TION	WATER LEVELS,
255	SAMP.	£ 00	SZ × E	SN.	PRES P. S.	HAN T		8	3	S					WATER RETURN, CHARACTER OF
24	8-	a lo	-	- 6	ta	-	424.7 424.3		ت	٠,	.0 - 0.4 Pt. Al	DUATA			DRILLING, ETC.
83	1.2	0.8	5-4-1/2		ļ		424.3-	1		┙ \	.4 - 8.0 Ft. ZI		-		Borehole advanced 0-12.0 Pt. with 6-in.
88	20	1.2	2-2-1							•			Angular limesto	20	O.D. hollow-stem
			i				,	-					_		auger.
85	2.0	1.9	1-1-1					-		1	Brownish bla	ck (KYR	(1) to moderate	sture	
-	0.8 - 8.0 Ft. Silty clay (CL) and rubble. Brownish black (5 YR2/1) to moderate yellowish brown (10 YR5/4). Low moisture content to moist, loose. Rubble consists of slag, brick, gravel, carbonaceous material, and sand; Fe staining. Radiologically sampled and gamma-logged by TMA/Eberline.														
85	of slag, brick, gravel, carbonaceous Radiologically material, and sand; Fe staining.														
	gamina-logged by TMA/Eberline.														
88	TMA/Eberline.														
			2					-	17		olive gray (5 Moist, soft, h	Y6/1) to lighly pla	pale brown (5YI stic; Fe staining	R5/2).	and 10-12 Ft. analysed for metals.
SS	2.0	1.4	1-1-1					10_	Alle See See See See				_		Top of undisturbed
			2				4.0.0	1	40.4						material at 8.0 Ft.
						'	412.7_	-		١.		-14 90	0.84 . 8		Description and
										*			.0 Ft. Borehole lite cement, 12/8		classification by visual examination.
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			200N; ST			~~,	ITE					A -	Civ		HOLE NO.
P =	DENN	I SON ;	P = PI	TCHER;	0 = 0	THER		S	t. I	LOL	iis Down	town	Site		C151

	C.	FC	LOG	ור ח	RII	1.10		JOS NO.		ET NO.	HOLE NO.				
SI					1/16		COORDIN	ATES		FUSRAP		14501-		OF 1	C152
Γ.	_	. Lo	uis Do	wntow	n Sit	le			1	1,196 E 1,11	2		Vert	4	
BE			MPLETED	- 1				1	RILL		SIZE	OVERBURDEN	ROCK	(FT.)	TOTAL DEPTH
			2-23-8				tern, Co		we le	CME-750 ROUND EL. DEPTH/	EL. SROU	8.0	DERTH	/EI TOO	OF ROCK
٣	E REC	OVER /	1 (F1./4	, ,	-	4	ESEL. IU	- 645		427.8	EL. ELO	NU WATER	DEFIN	/EL. 107 /	OF ROLK
SN	PLE N	APPE	R WEIGHT	/FALL	CAS	ING LE	FT IN HO	LE: DI	A./LE	IGTH LOGGED BY:					
	1		bs/30	_			201	oe_				G. Cher	ту	<i>-</i>	
1	: z	REC.		PR	MTEI ESSU	OF.	1		2						
Tr.	5 6		12 N X X	5 E	EST		ELEV.	DEPTH	DRAPHICS CORD F	DESCRIPTION	AND C	LASSIFICA	TION	NOTES	ON: LEVELS,
2	3	400	29 × 21	SN P	PRESS. P. S. I.	E A E]		3						RETURN, CTER OF
200	317	ğ	1 6	7.9	E.		\$37.8		8						ING, ETC.
89	1.5	0.8	13-10-7				427.5- 426.8_		-	0.0 - 0.3 Pt. ASP					e advanced
										0.3 - 1.0 Pt. GRA				O.D. ho	i. with 6-in. llow-stem
85	2.0	1.3	3-4-6					.		1.0 - 5.0 Pt. Silty yellowish brow medium-stiff to	CLAY (C	L). Moderate /4). Dry,	•	auger.	
	1							Ι.		medium-stiff to	o stiff, slig	htly plastic.		1	
33	2.0	1.2	3-2-3			1	422.8_	5							
-	2.0	1.5	3-2-3			Ì				5.0 - 8.0 Ft. Silty gray (5Y4/1). moderately pla	Moist, soil	to medium-s	tiff,	Radiolo sampled	greatly and
"	12.0	1.5	3-2-3					.	Cine.	organics.	stic. som	a piece (M1)		TMA/E	logged by berline.
 -	 - -			 			419.8_							Samples	from 0-2 and
	{						1	1	1	Bottom of borehol backfilled with	e at 8.0 F	t. Borehole	9/88	6-8 Ft.	analysed for
]				• • • • • • • • • • • • • • • • • • • •	0 ,00.		andistu rbed
	•						ļ							materia	at 5.0 Ft.
	}				i				1 1					Descrip	tion and
]													classific	ation by
	Į.		l				l								
									1 1		•				
														No grou	ndwater
1									1 1					observe	d, 12/23/88.
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			1			1		1							
ss	= SPL	IT SI	POON; ST	= SHE		~-,	ITE		. 1	ouis Downt		it o		HOLE NO	152

		FC	LOG	IC D	RIL	LLC		ROJE	CT	FUCDAD		ET NO. HOLE NO.
SIT							ICOORD IN	ATES		FUSRAP	14501-116 1 Angle Fi	OF 1 C153 ROM HORIZBEARING
	-	Lo	uis Do	wetow	n Si	te		•	ľ	1,029 E 1,130		tical
BEG			MPLETED	- 1				- 1	DRILL	MAKE AND NODEL SIZE	J	K (FT.) TOTAL DEPTH
			2-23-8				tern, Co			CME-750 6"	8.0	8.0
COR	E REC	OVEK'	r (FI./X	s) COKE	, BUKE	5 SAP	LESEL. TO	P CAS	ING G	ROUND EL. DEPTH/EL. GROU	NO MATER DEPTI	//EL. TOP OF ROCK
SAM	PLE N	NOVE	R WEIGHT	/FALL	CAS	<u> </u>	EFT IN NO	LE: DI	A./LE	IGTH LOGGED BY:		
	1	40 I	bs/30	in			B 0	ne			G. Cherry	
W.	김m	ġ.	BLOUS "N" X CORE RECOVERY		HATE							
12	5	E N	가수없다		EST:		ELEV.	E	GRAPHICS TOTAL	DESCRIPTION AND C	ARRITETCATION	NOTES ON:
20	a z	يوالإ	\$308	NZ.	g H	¥		DEPTH	1	DESCRIPTION AND C	LASSIF I CAN I SON	WATER LEVELS, WATER RETURN,
ME DIM.	S N	4 8	N X	SN.	PRESS. P. 9. I.	FAE	425.0		18			CHARACTER OF DRILLING, ETC.
	-					 	427.0 426.8		-	0.0 - 0.2 Ft. ASPHALT.		d
88	1.5	0.8	8-5-5				426.2-	1 .		0.2 - 0.8 Ft. GRAVEL. A	rEnjet	Borehole advanced 0-8.0 Ft. with 6-in.
88	2.0	0.8	2-3-2		İ			-		limestone.		O.D. hollow-stem auger.
			4				٠.	-		0.8 - 4.2 Ft. <u>Silty CLAY</u> (C yellowish brown (10YR4	(2). Moderate (2). Low moisture	
85	2.0	1.5					422.8_	-	33	content, medium-stiff. & and gravel.	iome pieces of slag	\dashv
			6		ĺ			5-	Section Section	4.2 - 8.0 Pt. Silty CLAY (C (5Y4/1) to greenish gray	L). Olive gray	Radiologically
SS	2.0	2.0	2-4-5	1	ĺ	1		١ ٠		moisture content, mediui	m-stiff, slightly	sampled and
			7					-		plastic. Trace of black (N1) organics and	TMA/Eberline.
\vdash	-			1	1		419.0_	· ·	3//			Samples from 4-6 and
						1			1	Bottom of borehole at 8.0 F backfilled with bentonite		6-8 Ft. analysed for metals.
	1				ĺ						,	Top of undisturbed
				İ	ĺ							material at 4.2 Pt.
					ĺ	1			1 1			Description and
					ĺ				1			classification by visual examination.
					ĺ			İ				
						l	İ	i	1 1			
}					ĺ				1 1			
					ł	1			1 1			No groundwater
					ĺ				1 1			observed, 12/23/88.
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<u> </u>				L	<u></u>	<u> </u>		1				LUCY E MO
SS :	SPL	IT SI	200N; ST		BY TL	BE; S	ITE .	c	: · 1	ouis Downtown S	Sita	HOLE NO.

Γ		G	FC	OLOG	וכ ו)RI	11	10	G	PROJE	CT				JOB NO.	Γ	ET NO.	HOLE NO.
5	ITE			-					COORDINA	ATES			FUSRAP		14501-1		OF 1	C154
			Lo	uis Do	wnto	wn S	Site	e				N	1,385 E 2,66	0		Vert	. 1	
	CU	N	p	PLETE	D DRI	LLER				I	DRIL		VAKE AND MODEL	SIZE	OVERBURDEN	ROCI	((FT.)	TOTAL DEPTH
				1-17-					tern, Co				CME-550	6"	20.0	<u> </u>	/fi - 700	20.0
	ΧŁ	REC	OVER /	T (FI./	x) [C	KE BC	OCE S	12	ESEL. TO	P CAS	ING		423.3 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	/EL. GROU	NO WATER	DEPTH	/EL. TOP	OF ROCK
1	VP	LE M	AVE	R WEIGH	T/FALL		AS		FT IN NO	LE: DI	A./	LEN	GTH LOGGED BY:					
	_			bs/30	in		_		801	Be		-			G. Pai	<u> </u>		
ě	١	걸빛		n, z	- F	UAT RES	SUI	₹E			92	U					1	
15	DIS	SOR		4.8		TES	•1		ELEV.	HL dead	GRAPHICS	State	DESCRIPTION	AND C	LASSIFICAT	rion	NOTES	ON: LEVELS,
ģ			김	20 ×	LOSS IN	. 8	:	TITE TIN			3	4					WATER	RETURN,
3	₹ ₹	S S S S S S S S S S S S S S S S S S S			בן ביי	PRES. T.		F 7 E	423.3		-	11						ING, ETC.
3	8	1.5	0.8		7				422.8_		-2		0.0 - 0.5 Ft. CO)	L. Very	lusky red		Borehole	e advanced
L				<u> </u>	_	1							(10R2/2) to m (10R4/6) with	oderate re some pale	ddish brown yellowish brov	wn	6-in. O.	Ft. with D.
8	S	2.0	1.4										(10R4/6) with (10YR6/2). Si plastic, modern numpy. Trace	ilty to grav	relly, moderate moisture conte	ely int,	pollow-	stem auger.
					_[lumpy. Trace and glass fragr	of organic nents.	s, coal, bricks,		1	
3	3	2.0	1.6			İ				5.								_*. 11
1 9	8	1.0	0.6		4	ļ	Ì										Radiolog	and logged by
1_		1.0	0.8		┥	1	- {					ł					TMA/E	berline.
L	1	2.0	0.5		╣		1			.	-						-	
					-	1			v									
s	s	2.0	1.4	 	-	1				10_]	
	۱				1	•				•							Ì	
S	s	2.0	0.8		┪	1	-		i								1	
						•				•								
S	S	2.0	1.3		7					15_							1	
L					_]	1	Ì		407.5_								Top of t	andisturbed
L		1.0	1.0		4						****	(W. W.	15.8 - 20.0 Ft. Si gray (5Y4/1). moderately pla content. Trace	Low densi	(CL). Olive y, some organ	ics,	material	at 15.8 Ft.
ı		2.0		Į.	4		-			١.		W. 0.3.	content. Trace	e of coal se	rate moisture ams.		1	
		3. 0	•••		1							Section Sectio						
-	\dashv		<u> </u>		┥	ŀ	-	:	403.3_	20 .] Descript	ion and
						1	1			Ì	1	11	Bottom of boreho backfilled with	le at 20.0 l bentonite	Pt. Borehole cement, 11/1	7/88.	classifica	ation by camination.
	1											Ш			•	•	1	
					1													
											ľ	П						
ı				l													No grou	ndwater 1, 11/17/88.
	١										1	11					Operve	1, 11/1//00.
1	1				1		-					$\ \ $						
-							-					II						
					1						Ì	П						
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				<u> </u>	1	<u> </u>		e le	ITE	L	<u>L</u>	Ш					HOLE NO	
				POON; S ; P = P				.		S	St.	L	ouis Downt	own S	ite			154

						I	PROJEC	` T	Lian va la	FET NO. 10015 NO.
	GEOL	.OGI	C D	RIL	L LO	G	r RUJEL	- 1	JOB NO. S FUSRAP 14501-116	1 OF 1 R100
SITE			•			COORDINA	TES		ANGLE	ROM HORIZBEARING
	t. Loui				e					rtical
BEGUN	88 12	LETED	1	_	_Waa	tern, Co		DRILL		CK (FT.) TOTAL DEPTH
						ESEL. TO		NG (H/EL. TOP OF ROCK
	. /				4			.	425.0	/
SAMPLE		-		CAS	ING LE	FT IN HOL	E: DI	A./LE	IGTH LOGGED BY:	
	140 lbs			10.756		non	1e	T T	G. Cherry	
SAMP DIAM.	BAMPLE REC. CORE REC. SAMPLE	BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	PRESS. P.S. I.S. P. S. I.S. P. S. I.S. P. S. I.S. P. S. I.S. P. S. I.S. P. S. I.S. P. S. P	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						424.8			√0.0 - 0.2 Ft. ASPHALT .	0-8.0 ft. advanced
SS 0.6	0.6	3					-		0.2 - 4.0 Ft. PHL. 0.2-0.8 Ft. Brick.	with 6-inch hollow stem auger.
S\$ 2.0	1.6	2-4-4					-		0.8-2.2 Ft. Sand and gravel. Angular	
						421.0_	•		limestone.	
SS 2.0		2-5-5					5_ -		2.2-4.0 Ft. Silty clay (CL). Olive black (5Y2/1) to light olive brown (5Y5/6). Low moisture content, medium-stiff. Fe staining. Some brick fragments.	Sampled and radiologically logged by TMA/Eberline.
-		8				417.0_	-		4.0 - 8.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1). Moist, medium-stiff, slightly plastic. Some black (N1) organics, dessication cracks.	Top of undisturbed material at 4.0 ft.
									Bottom of borehole at 8.0 Ft. Borehole backfilled with bentonite cement, 12/8/88.	Description and classification by visual examination.
							, ,			No ground water observed, 12/8/88.
	IT SPOO		= SHEL		J.,	TE	0	• 1	ouis Downtown Site	HOLE NO.

	C	EC	LOG	:10	DPII	1 10	G	PROJEC	CT	•		JOB NO.		ET NO.	HOLE NO.
SIT					DKIL			4756			FUSRAP		116 1		R101
3111		ΙΛ	uis Do	wnto	wn Si	te	COCRDINA	AIES		N	2,278 E 1,583	į,	ngle fr Vert	OM HORIZ	BEARING
BEG			MPLETE		LLER				DRIL		MAKE AND MODEL SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
12	-2-8	8 1	2-2-8				tern, Co				CME-750 6"	8.0			8.0
COR	E REC	OVER	Y (FT./	%) CC	RE BOX	SSAMPL	ESEL. TO	P CASI	ING	G	OUND EL. DEPTH/EL. GRO	OUND WATER	DEPTH	/EL. TOP	
SAM	PLE H	AMME	R WEIGH	T/FAL	_ ICA	SING LE	FT IN HO	LE: DI	A./I	FN	423.0 \\ \frac{\pi}{2} \frac{1}{2} \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			/	
			bs/30				noı		,.		COURT DI.	G. Che	rrv		
Ä.					WATE				1	П				T	
SAMP. TYPE	58	E S	SAMPLE BLOWS "N" % CORE		RESSI TEST			I	GRAPHICS	Ш				NOTES	ON:
ā.	Ō		문학	ရှိ	E SH	. u	ELEV.	DEPTH	E	SAMPLE	DESCRIPTION AND	CLASSIFICA	TION	WATER	LEVELS,
器		E S	R D N	LOS	PRES P. S.	HAN THE		ă	E E	3.0				CHARAC	RETURN, CTER OF
N.	<u> </u>	810		 	0 10		423.0 422.8	ļ	Ľ	Ц	- 0.0 0.0 Et ACETYAY (**			DRILLI	NG, ETC.
SS	1.2	0.8	5-8-1/2	<u> </u>			422.0	-		Ц	0.0 - 0.2 Ft. ASPHALT.	. (00)		0-8.0 ft.	advanced
20	2.0	1.4	3-5-5	4		İ	İ				0.2 - 6.5 Ft. Sandy CLAY Moderate yellowish brodark yellowish brown (((SC). wn (10YR5/4)	to		nch O.D. tem auger.
		1.3	5		'										
66	2.0	1.1	5-3-6	_							fine- to fine-grained sa gravel and carbonaceou	ıs material, tra	ce of		
	2.0	* • •	3					5_			slag and brick fragmen	ts; Fe staining.		Sampled radiolog	ically logged
-	2.5		0.0.	-				.						by TMA	Eberline.
38	2.0	1.5	2-3-3 4				416.5_	1.			6.5 - 8.0 Ft. Silty CLAY gray (5Y4/1). Low moi	(CL). Olive		Top of u	ındisturbed
<u></u>	ļ			╛			415.0_] .			_ medium-stiff, slightly r	sture content, i clastic. Some b	oft to lack	material	at 6.5 ft.
										П	(N1) organics.				
											Bottom of borehole at 8.0	Ft. Borehole		Descript	ion and
					ľ		ļ		ŀ	$\ \ $	backfilled with bentoni	te cement, 12/	3/88.		camination.
İ										Ш					
					l					П					
									1	Н					
	}									П				No grou	nd water 1, 12/8/88.
										П				Observed	1, 12/0/08.
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			POON; ST			,	ITE .	c		L	ouis Downtown	Sita		HOLE NO.	101
<u></u>	O CHR	JUN ,	r = P	CHEK	, 0 = .(/INEK		<u> </u>	L.		one Domittomi	JILE			101

	-	FC	LOG	ור ח	RII	10	G	PROJE	CT			JOB NO	i i	EET NO.	HOLE NO.
SIT							COORDINA	TES	_	FUSRAP			-116	1 OF 1	R102
	-	. Lo	uis Do	wntow	n Sit	e	-	.,,,,	1	1,963 E 1,72	2			rtical	DEAKING
BEG			MPLETED					1			SIZE	OVERBURDEN		CK (FT.)	TOTAL DEPTH
			2-1-88				tern, Co			CME-550	6"	11.0			11.0
COR	E REC	OVER	Y (FT./%	CORE	BOXE		ESEL. TO	P CASI	ING C	177 4 3	EL. GROU 7/412.0 1	ND WATER 12/8/88	DEPT	H/EL. TOP	OF ROCK
SAH			R WEIGHT	•	CAS	ING LE			A./LE	418.7 ま ? · · · · · · · · · · · · · · · · · ·			L	/	
ш				1	JATER	·	not	ie	TT			G. P.	BIS	<u> </u>	
SAMP. TYPE	SAMP. ADU.	BAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M. J	ESSU	RE	ELEV.	рертн	GRAPHICS			LASSIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
66	1	1.0	ļ				417.9_			0.0 - D.8 Ft. CON	CRETE.			8-11.0	ft. advanced
	2.2	1.6								0.8 - 9.2 Ft. RUB (CL). Dusky y Moderate to his moderately plan	ellowish b th moistu	rown (10YR) re content.	<u>Y</u> 2/2).	with 6-	inch O.D.
SS	2.0	1.5						5_				mice, eiug.			
	2.0	0.4					Ž	° - } }						Sampled logged t	d and gamma by berline.
	2.0	2.0					409.5	_							
SS	2.0	1.6					407.7	10_		9.2 - 11.0 Ft. Silt gray (5Y4/1). moderately plan	Moderate	moisture co	ntent,	Top of	undisturbed l at 10.5 ft.
								•		cracks, trace of	organics.	- v			at 10.0 1t.
										Bottom of borehole backfilled with	e at 11.D i bentonite	rt. Borehold cement, 12/	8/88.	classific	tion and ation by camination.
			i												
								,**							
			POON; ST P = PI			,	TTE	S	t. L	ouis Downto	wn S	ite		HOLE NO	102

GEOLOGIC DRILL LO	PROJECT JOB NO.	SHEET NO. HOLE NO.
SITE GEOLOGIC DRILL LO	105841 14501-	116 1 OF 1 R103
St. Louis Downtown Site	N 1,900 E 1,675	Vertical
BEGUN COMPLETED DRILLER 11-22-8811-22-88 Layne-Wes	tern, Co. CME-550 6" 13.0	ROCK (FT.) TOTAL DEPTH
CORE RECOVERY (FT./%) CORE BOXES SAMP	ESEL. TOP CASING GROUND EL. DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
/ 6 SAMPLE HAMMER WEIGHT/FALL CASING U	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs/30 in	none G. Pa	is
SAMP. TYPE AND DIAM. SAMPLE REC. CORE REC. SAMPLE REC.	ELEV. HAD DESCRIPTION AND CLASSIFICA	WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 1.8	418.6 0.0 - 1.0 Ft. CONCRETE and ASPHAL 1.0 - 7.0 Ft. RUBBLE and COAL. Dusl yellowish brown (10YR2/2), moderate (5R5/4). Low moisture content, sligh	1-13.0 ft. advanced ky with 6-inch O.D.
SS 2.0 0.6	plastic, loose. Brick fragments, coal, slag, organics.	,
SS 2.0 1.0 SS 2.0 0.6	412.6 7.0 - 9.2 Ft. Silty CLAY (CL). Grayish	
SS 2.0 1.6	7.0 - 9.2 Ft. Silty CLAY (CL). Grayish green (10G4/2). High moisture contervery fluid. Trace of organics and coal 9.2 - 13.0 Ft. Silty CLAY (CL). Olive	logged by
SS 2.0 1.6	9.2 - 13.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1). High moisture content, highly plastic, fluid. Trace of organics	Top of undisturbed material at 9.6 ft.
	Bottom of borehole at 13.0 Ft. Borehole backfilled with bentonite cement, 12/1	
SS = SPLIT SPOON; ST = SHELBY TUBE; ST = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown Site	HOLE NO. R103

								PROJEC	CT			JOB NO	. SHE	T NO.	HOLE NO.
L.	G	iEC)LOG	IC D	KIL	L LO)G	1			FUSRAP	14501	-116 1	OF 1	R104
SIT	_						COORDIN	ATES					ANGLE FR	OM HORIZE	BEARING
			uis Do			te	<u> </u>				1,910 E 1,920		Vert	ical	
BEG		- 1	MPLETED						DRIL	L	MAKE AND MODEL SIZE	OVERBURDEN	ROCK	(FT.)	TOTAL DEPTH
			<u>1-23-8</u>		Layne	e-Wes	tern, Co	o.			CME-750 6"	12.0			12.0
COR	E REC	OVER	Y (FT./X	() CORE	BOXE		ESEL. TO	OP CASI	ING	GR	17 / 4//45 6	IND WATER	DEPTH,	EL. TOP	OF ROCK
					1	6					740.1 3 /			/	
SAM			R WEIGHT		CA:	SING LE			A./L	.EN	GTH LOGGED BY:				
-	1	40 1	bs/30	in .			по	ne	ф	-		G. Che	erry		
₽±	٣١٤		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATE! ESSU			ł	g,					ļ	
FE	됨		a= ##	<u> </u>	TEST:		ELEU.	E	GRAPHICS	SAMPLE			.=	NOTES	
0.0	10		F300	ης_ Σ	ñ.	₩ •	ELEV.	БЕРТН	ΙĒ	틾	DESCRIPTION AND C	CLASSIFIC	HITON		RETURN,
誤	置山	핅응	ig Əl×Ř	LOSS IN 3.F.	PRES P.S.	HHH HHH	}	5	Œ	H					TER OF
Q.α	<u>0</u>	80		0 0	00		420.1			Ш				DRILLI	NG, ETC.
1	1			j			419.6_	1		\coprod	0.0 - 0.5 Ft. ASPHALT.	(CL) and		0-120 %	. advanced
55	1.2	0.6	2-2-1/2]				-			0.5 - 10.5 Ft. Silty CLAY RUBBLE. Dark yellowi	sh brown		with 6-in	nch O.D.
SS	2.0	0.5		1							(10YR4/2). Dry, loose. gravel, brick, and slag.	Rubble cons	ists of	hollow st	tem auger.
	l		1	ļ				-							
60	2.0	1 70	vH-WH	1,			_	⊥ .			3.5-10.5 Ft. Silty clay.	Dark gray (1	13)		
33	2.0	1	2]*			1	¥ 5_			3.5-10.5 Ft. Silty clay. to light olive gray (5Y6/ moderately plastic. Som	'1). Moist, ne carbonaceo	us		
				ŀ			•				material, brick fragment angular pebbles.	s, sand, and		Sampled	and ically logged
SS	2.0	1.7	H-WH	1		1		-			angular perbles.			by TMA	Eberline.
1	1		1	İ				-		Ħ					
SS	2.0	1.3	2-3-3	i				-							
			2	}		İ		.							
						ľ	·	10_		H					
SS	2.0	1.1	1-2-1			ľ	409.6_		,,,,,,,	,	105 120 Ft CV AV (CV)	0":			ndisturbed
			•					-			10.5 - 12.0 Ft. CLAY (CL) (5Y4/1). Moist, soft, hig Trace of black (N1) orga	hly plastic.		material	at 10.5 ft.
\vdash				1			408.1_	-		Ħ	Trace of black (N1) orga	nics.		ł	
1				ļ					ł	Ш	Bottom of borehole at 12.0 backfilled with bentonite	Ft. Borehole	20 / 88	 	· •
									i		Dackinied with Dentonite	e cement, 11/	49/88.	Descript classifica	tion by
									l	П				visual ex	amination.
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ss =	SPL1	T SP	OON; ST	= SHF1	BY TI	ge S	ITE		L	ــــــــــــــــــــــــــــــــــــــ				HOLE NO.	
			D = D1			J.,	-	C			wie Downtown S	::			104

GEOLOGIC DRIL	LOG		1 1	ET NO. HOLE NO.
SITE	COORDINATES	FUSRAP	14501-116 1 ANGLE FRO	OF 1 R105 OM HORIZBEARING
St. Louis Downtown Sit		N 1,850 E 2,000	Vert	
BEGUN COMPLETED DRILLER 11-21-88 Layne	e-Western, Co.	RILL MAKE AND MODEL SIZE CME-550 6"	OVERBURDEN ROCK	(FT.) TOTAL DEPTH
CORE RECOVERY (FT./%) CORE BOXE		IG GROUND EL. DEPTH/EL. GRO	UND WATER DEPTH,	/EL. TOP OF ROCK
SAMPLE HAMMER WEIGHT/FALL CAS	6 SING LEFT IN HOLE: DIA	423.3 \$\frac{\fir}{\frac{\fir}{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac	11/29/00	/
140 lbs/30 in	none	./LENGIN LOGGED BY.	G. Pais	;
SAMP. TYPE SAMP. ADV. LEN CORE SAMPLE REC. CORE REC. CORE REC. CORE REC. CORE RECOVERY LOSS IN A	RE I	SAMPLE SAMPLE CON NOITHINGS	CLASSIFICATION	NOTES ON: WATER LEVELS,
SAND CORE CORE CORE CORE CORE CORE CORE CORE	423.3	- 11		WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 1.5	422.3_	1.0 - 9.3 Ft. RUBBLE an (CL) Pale reddish bro greenish black (5GY2/) moisture content, mode	d silty CLAY	1-13.0 ft. advanced with 6.0-inch O.D. hollow stem auger.
SS 2.0 1.5	Ψ δ_	moisture content, mode sandy. Coal, brick frag	rately plastic, ments, wood chips.	
SS 2.0 1.6 SS 2.0 1.6				Sampled and gamma logged by TMA/Eberline.
SS 2.0 1.3	414.0_		(01)	
SS 2.0 1.5	10_	9.3 - 13.0 Ft. Silty CLAY gray (5Y4/1) to light o and olive gray (5Y3/2) moisture content, highl organics.	(CL). Olive live gray (5Y5/2), Moderate to high y plastic. Trace of	Top of undisturbed material at 9.3 ft.
	410.3_	Bottom of borehole at 13.0 backfilled with bentonit		Description and classification by visual examination.
SS = SPLIT SPOON; ST = SHELBY TU D = DENNISON; P = PITCHER; O = C	JBE; SITE STEENTHER ST	t. Louis Downtown	Site	HDLE NO. R105

								PROJEC	:T	JOB NO.	CHE.	ET NO.	HOLE NO.
	_ G	EC	LOG	IC D	RIL	r ro	G			FUSRAP 14501-			R106
SIT		_					COORDINA	TES		ļaj	IGLE FR	OM HORIZ	
Dr.C.			uis Do			e	<u></u>			1,438 E 1,616	Vert		
BEGI 12		- 1	2-5-8	i		-Wes	tern, Co	ſ	OKILL	MAKE AND MODEL SIZE OVERBURDEN CME-750 6" 16.0	ROCK	(FT.)	TOTAL DEPTH
							ESEL. TO		NG G	ROUND EL. DEPTH/EL. GROUND WATER	DEPTH.	/EL. TOP	<u> </u>
						8				424.3 \$ 5.0/419.3 12/7/88			
SAMI		_	R WEIGHT	•	CA:	SING LE			A./LE	IGTH LOGGED BY:			
ш			bs/30		JATE	7	noi	ie	1	G. Cher	ry	7	
SAMP DIAM.	SAMP. ADV	CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M.	ESSU TESTS	RE S	ELEU.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLASSIFICA	TION	WATER CHARAC	ON: LEUELS, RETURN, CTER OF ING, ETC.
	1.5	1	11-11-1	J			423.9_		-	0.0 - 0.4 Ft. CONCRETE.		0-16 0 f	t. advanced
SS	2.0	1.3	5-3-4 6					-		0.4 - 11.3 Ft. Silty CLAY (CL). Dark yellowish brown (10YR4/2). Dry, medium-stiff to stiff. Some gravel and brick, trace of carbonaceous material a slag.	nd	with 6-i	nch Ö.D. tem auger.
SS	2.0	0.9	2-3-4				3	- Z 5_		4.0-11.3 Ft. Rubble. Moist, loose. SI gravel, and sand.	ag,	S)-	
SS	2.0	0.7	3-2-2					-				16.0 ft. O	ically logged Eberline.
SS	2.0	0.9	2-2-2	1				-				ippm (i	n auger).
SS	1.3	1.2	VH-3-50	 -			45.0	10_				10.0 ft.	OVA reading (in auger).
_					•		413.0_			11.3 - 12.5 Ft. <u>CONCRETE</u> .		1	5 ft. Rough
SS	1.5	0.3	3-7-5				411.8_	-	ا نوټ	12.5 - 14.0 Ft. RUBBLE. Moist, loose. Slag and sand, some olive gray (5Y4/1)	drilling.	•
SS	2.0	2.0	3-4-5				410.3_ - 408.3	15 _		silt 14.0 - 16.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1). Moist, medium-stiff, moderately to highly plastic. Some bla (N1) organics.	<u></u>	Top of u	indisturbed 14.0 ft.
							200.0_	-		Bottom of borehole at 16.0 Ft. Borehole backfilled with bentonite cement, 12/7	/88.	Descript classifica visual ex	ion and ation by camination.
								.*					
													•
			POON; ST			J-,	ITE	S	t. L	ouis Downtown Site		HOLE NO.	106

Г	_								PROJEC	CT				JOB NO	. SHE	ET NO.	HOLE NO.
_		G	EC	DLOG	IC D	RIL	r ro					FUSRAP			-116 1		R107
S1		c.	1 ~	uis Do	wntow	n Cid	•	COORDINA	ITES		M	1,347 E 1,56	 E		ANGLE FR		BEARING
BE	_			OMPLETED				<u> </u>	1			1,347 E 1,30 WAKE AND MODEL	SIZE	OVERBURDEN	Vert	(FT.)	TOTAL DEPTH
				2-9-88				tern, Co				CME-750	6"	18.0			18.0
COI	RE	REC	OVER	Y (FT./%	CORE	BOXE	i i	ESEL. TO	P CASI	ING	GR	17 6	'EL. GROU 3/418.5 1	ND WATER 2/19/88	DEPTH	/EL. TOP	OF ROCK
SA	4PL	E H	AMME	R WEIGHT	/FALL	CAS	ING LE	FT IN HO	E: DI	A./L	EN	424.3				/	
		1	40	lbs/30	ln			пог		,				G. Ch	erry		
PE		Ju	ပ္ပုံ	<u> </u>	PR	JATER				50	П					Ī .	
SAMP. TYPE			2 2	7 - R.P.		TESTS		ELEV.	Ŧ	GRAPHICS	H	DESCRIPTION	ו באם כי	LAGGTETA	ATTON	NOTES	_
نوا	3 5	ĭZ	김씨	E 500	LOSS IN G.P.M	88	TINE TINE		DEPTH	d d	SAMPLE	DESCRIPTION	HILD C		,	WATER	RETURN,
80			퉲	SAMPLE BLOWS "N" % CORE RECOVERY	3.9	PRESS P.S.I	보	424.3	_	8	n						TER OF ING, ETC.
			L	<u> </u>				423.7_		•-		0.0 - 0.6 Ft. CO	CRETE.	TT and		 	advanced
33	1	3	0.6	3-2-1/4					-			0.6 - 14.5 Ft. Sill RUBBLE. Da (10YR4/2). M	k yellowis	h brown	maiata	with 6-i	nch O.D. tem auger.
SS	2	.0	0.8	2-2-2					•			of slag, gravel, material, and s	brick, car	. Rubble co bonaceous sining	,:1210rD	HOHOW B	eem auger.
								.									
SS	2	0.0	0.5	6-3-2					5_								
								Ž			ı					Sampled	and ically logged
SS	2	0.:	0.5	WH-1/18	j"											by TMA 2.0 ft. O	ically logged /Eberline. VA reading
- 66	12		1.1													2ppm (ii	n auger).
33	֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	0	1.1						_			•				6.0 ft. O 1ppm (ii	VA reading n auger).
55	1 2		1.6	WR-31-4	6			:	10_							1,000	71/A
-				37					-		Ħ						OVA reading n auger).
SS	1 2	.0	0.9	9-8-8				1	-							1206	OVA reading
	-	ı		5					-							45ppm (in auger).
SS	2	.0	1.2	2-4-6			ľ	409.8	-							14.0 ft. (OVA reading
				9					15_			14.5 - 18.0 Ft. Si gray (5Y4/1).	ty CLAY Moist, me	(CL). Olive	e		in auger).
SS	2	.0	1.7	3-5-7				•	-			moderately to l (N1) organics,	nighly plac	stic. Some l	black	Top of u	ndisturbed
				8					-				_			material	14.5 ft.
\vdash	t							406.3_	-							Descript	
	-			·							П	Bottom of borehol backfilled with	e at 18.0 l bentonite	Ft. Borehol cement, 12,	e /19/88.	classifica	ition by amination.
											П						
		ļ															
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_	\perp										Щ						
				POON; ST			J-,	ITE .	C			uis Downte	wn S	ita		HOLE NO.	107
<u>_</u>			30N,	, r = r1	- CHER;	- 0	THER					uis DOMIIL	JWII 3	116			101

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	CT .		FUSRAP		JOB NO.	SHE	ET NO. OF 1	HOLE NO.
SITE		_					COORDINA	TES		_					OM HORIZ	
TE CI			uis Do			e	<u> </u>				1,459 E 1,720			Vert		
3E GU 17.		1	2-7-8			-Wes	tern, Co		OKILI		AKE AND MODEL SI	1 ZE 6"	OVERBURDEN 16.0	ROCI	((FT.)	TOTAL DEPI
							ESEL. TO		NG	_	OUND EL. DEPTH/EL	GROUP	D WATER	DEPTH	/EL. TOP	0F ROCK
		/				8					420.0	416.0 1	2/7/88		/	,
AMP			R WEIGHT	•	CAS	SING LE	FT IN HO	E: DI	A./L	EN	TH LOGGED BY:		 -			
			bs/30				DOI	16	, .	Y			G. Che	ггу		
SAMP DIAM.	SAMP. ADV.	BANPLE REC.	BLOWS "N" % CORE RECOVERY	B. P. G. B	JATEF ESSU PESTS SO SO SO SO SO SO SO SO SO SO SO SO SO	RE	E LE∨.	DEPTH	0	SAMPLE	DESCRIPTION (AND CL	_assifica	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC
							419.2_		**		0.0 - 0.8 Ft. CONC	RETE			0-14.06	t. advanced
SS SS	2.0		3-5 4-8-14 28 8-29-25	-		 	Ç.	- - - -			0.8 - 13.0 Ft. Silty (RUBBLE: Dark (10 YR4/2) to gramoisture content consists of gravel	yellowis yish bla to moisi	h brown ck (N2). Lo t. loose. Rub	ble	with 6-i	t. advanced inch O.D. item auger.
SS	2.0	1.7	15 13-6-9 5					5_ -							by TM.4	i and ically logge A/Eberline. VA reading (in auger).
SS SS		1.2	2-5-4 3					- 10_			8.5-13.0 Ft. Silty (5Y4/1). Moist, sand, fragments o black (NI) organi	soft. Ve of slag ar	ry fine-grain nd brick, trac	ed e of	10.0 ft.	OVA readin
SS	2.0	1.3	1-2-4				407.0_	- -	<i>'''''''</i>		190 - 160 Ft Silter	CLAY	(CL) Olivo		12.0 ft.	(in auger). OVA readin in auger).
ss	2.0	1.8	3-5-7			:	404.0_	15			13.0 - 16.0 Ft. Silty gray (5Y4/1). Lo medium-stiff, slig plastic. Some bla	htly to i	moderately			indisturbed 13.0 ft.
											Bottom of borehole a backfilled with be				Descript classific visual ex	
								<i>!</i>								
			POON; ST			- -,]	ITE	6			uis Downtov	ur C	ita	·	HOLE NO	108

	C.	:FC	CLOG	וכ ח	RII	1 10	C	PROJEC	CT				JOB NO		- 1	T NO.	HOLE NO.
SIT			-		IVIL		COORDINA	ATES			FUSRAP		14501			OF 1	R109
311	_	Lo	uis Do	wntow	n Si	te	COORDINA	1163		N	1,348 E 1,79	4			Vert	1	BEAKING
BEG			OMPLETED					ŀ			IAKE AND MODEL	SIZE	OVERBURDE			(FT.)	TOTAL DEPTH
			2-5-8				'estern				CME-550	6"	20.0				20.0
COR	E REC	OVER	Y (FT./	CORI	BOXE		ESEL. TO	P CAS	ING	GR	17 7	/EL. GROU 1/416.4	ND WATER 12/7/88	D	EPTH,	EL. TOP	OF ROCK
SAM	PLE H	AMME	R WEIGH	T/FALL	ICA:	9 SING LE	FT IN HO	LF: DI	À . /l	FN	423.5					/	
			lbs/30				noı		,.				G. P	ais			
Ä.					JATE		1			П						T	
OIAM.	SAMP. ADU.	E S	SAMPLE BLOWS "N" % CORE	PH	ESSU TEST			Į	BRAPHICS	Н						NOTES	ON:
o.	07		훔리임	<u>ω_</u> Ξ	йн	<u> </u>	ELEV.	ОЕРТН	H	SAMPLE	DESCRIPTION	I AND C	LASSIFIC	ATI	ON		LEVELS, RETURN,
器器	高山	E S	SE XE	LOSS	PRES P. S.	HAN.		•	GRA	Ħ						CHARAC	TER OF
S	Ω,	8		- 6	<u> </u>	<u> </u>	423.5	-		H	0.0 - 0.75 Ft. CO	NCRETE				DRILLI	ING, ETC.
SS	2.3	1.6		1			422.7_	٠ ٠	•	۲			·	חשים			ft. advanced nch O.D.
											0.75 - 18.0 Ft. F) (10R3/4) to bl gray (5YR4/1)	ackish red	(5R2/2), b	rown	ish		tem auger.
SS	2.0	1.3		-				-			content, moder places. Organi	ately plas	tic, very flu	id in			
								-		ł	process. C. Gant.	,				ŀ	
SS	2.0	1.2		-				5_									
								-									
SS	2.0	1.0		┨	-		7	₽ -									
1								.		ľ						Sampled	and gamma
SS	2.0	1.1		1				-								logged b	y herline
								10_								1	
SS	2.0	1.1	<u> </u>	-						ŀ							
			İ	İ				-		H							
SS	2.0	1.6	ļ	1				-									
							:	-									
SS	2.0	1.0		-				15_			•						
							•									! 	
SS	1.0	0.0		-				-								Top of u	indisturbed
i .	2.0	1.0		}			405.5_	-			18.0 - 20.0 Ft. Si	ty CLAY	(CL) Oliv	۵		material	at 16.8 ft.
					<u> </u>	ļ		· -			18.0 - 20.0 Ft. Si gray (5Y4/1). fluid. Silty, tra	Moderate	ly plastic, v	ery			
-			<u> </u>	-			403.5_	20 .								Descript	ion and
			}								Bottom of borehol backfilled with	e at 20.0	Ft. Borehol	e /7/9:	۵	classifica	tion by amination.
					}						Dacainied with	Demonite	: Cement, 12	, , , 6	.	VIBUAL EX	Califfia Giori.
																:	
							! 			l							
			ļ								,						
						}											
		1			}												
						<u> </u>	ITE	L								HOLE NO.	
			POON; ST ; P = PI			,,,,		S	t.	Lo	ouis Downt	own S	Site				109

GEOLOGIC DRILL LO	G FUSRAP	JOB NO. SHEET NO. HOLE NO. 14501-116 1 OF 1 R110
ITE C. T. T. T.	COORDINATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,700 E 2,297	Vertical
1-16-8811-16-88 Layne-Wes	tern, Co. CME-750 6	OVERBURDEN ROCK (FT.) TOTAL DEP
		TOUND WATER DEPTH/EL. TOP OF ROCK
	423.6	/
· · · · · · · · · · · · · · · · · · ·	FT IN HOLE: DIA./LENGTH LOGGED BY:	
140 lbs/30 ln	none	G. Cherry
SAMP. ADV. LEN CORE REC. C	ELEV. HE DESCRIPTION AND	OCLASSIFICATION WATER LEVELS, WATER RETURN, CHARACTER OF
	423.6	DRILLING, ETC
SS 1.4 1.15-7-3/4	423.0 0.0 - 0.6 Ft. ASPHALT	Y (CL) and 0-16.0 ft. advanced
SS 2.0 1.6 5-10-8 6	0.6 - 13.5 Ft. Suty Clar RUBBLE. Brownish Dry to low moisture consists of gravel, br material, slag and sa Patches of moderate	black (5YR2/1). content, loose. Rubble ck, carbonaceous nd; Fe staining. yellowish brown h gray (5GY6/1) silty
SS 2.0 1.4 5-4-5 4	(10YR5/4) to greening clay.	
SS 2.0 0.7 2-5-5 5		Sampled and radiologically logge by TMA/Eberline.
SS 2.0 1.8 2-2-1 2		
SS 2.0 1.9 1-1-3	10_	
SS 2.0 1.7 2-2-8 11	410.1	
SS 2.0 2.0 6-10-7	13.5 - 16.0 Ft. Silty SA gray (5Y4/1). Moist fine-grained sand, so plastic), trace of blac	, soft. Very material at 13.5 ft.
	Bottom of borehole at 1	Description and classification by visual examination.
		No ground water observed, 11/17/88
= SPLIT SPOON; ST = SHELBY TUBE; ST = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown	Site HOLE NO.

	C	:=(LOG	וכ ח	DII		9	PROJEC	T				JOB NO		ı	T NO.	HOLE NO.
SIT			LUG		NIL.		COORDINA	TEC			FUSRAP		14501				R111
3111		1.0	uis Do	wntow	n Sii	e	COOKDINA	(IES		N	1,830 E 2,35	in.		l .	e rki Verti	OM HORIZ	BEAKING
BEG			MPLETED					Ĭ			MAKE AND MODEL	SIZE	OVERBURDE			(FT.)	TOTAL DEPTH
			1-18-8				tern, Co				CME-550	6"	16.0				16.0
COR	E REC	OVER	Y (FT./%	() CORE	BOXE	1	ESEL. TO	P CASI	NG	GR	I	/EL. GROU .5/406.9	ND WATER 11/28/88	P	EPTH/	EL. TOP	OF ROCK
CAM	DIE	AMMF	R WEIGHT	/FALL	ras	8	ET IN HO	C . D!	A /I	EN	420.4 The LOGGED BY:					/	
374			bs/30	•	 `	,,,,,	m O1		۸./۱	.ER	GIN LOGGED BI.		G. P	aic			
ш,	1-1	ii.	1 .		JATE					П			<u> </u>	413			
25		REC	m'z mç	PR	ESSU rest:			I	8	Ш						NOTES	ON:
l a		삐	투하음	_ω Σ	e H	ш.	ELEV.	DEPTH	臣	SAMPLE	DESCRIPTION	AND C	LASSIFIC	ATI	ON	WATER	LEVELS,
SAMP DIAM.	指	E &	R S X	LOSS IN G.P.M	PRESS. P.S.I.	ENE.		۵	BRAPHICS.	M		•				CHARAC	RETURN, TER ÖF
8€	2.0	1.9	SAMPLE BLOWS "N" % CORE RECOVERY	7 0	ă a	-	420.4			Ш	0.0 14 4 54 50		 _			DRILLI	NG, ETC.
33	2.0	1.9	ł				ŀ	١.			0.0 - 14.4 Ft. RU (10R2/2) to di	isky yellov	any piomi ory drawn i	ed 			. advanced
88	2.0	1.4						١.			(10YR2/2). L plastic, loose.	Coal, bric	re content, : k fragments	inght ;	ly		nch O.D. tem auger.
33	2.0	1.4						١.			sandy, coarse-	-					
88	2.0	2.0									2.0-14.4 Ft. C black (5YR2/1 moisture conte), olive gr	ay (5Y2/1)	Low	,		
33	2.0	2.0	ļ					5_			moisture conte Brick fragment	nt, slighti s, organic	y plastic, sil s.	ty.			
	2.0	0.0						Ì .									
33	2.0	2.0															
CC	20	<u> </u>															
33	2.0	1.4					l									Sampled logged b TMA/E	l and gamma
	0.0]				10_								TMA/E	berline.
33	2.0	1.6					i									!	
	0.0			1				· -									
33	2.0	1.6] _	L.									
							406.0_										
22	2.0	1.8		1			100.0_	15_			14.4 - 16.0 Ft. Si	ity CLAY	(CL). Oliv	e		Top of unaterial	indisturbed at 14.3 ft.
							404.4_	.			14.4 - 16.0 Ft. Si gray (5Y4/1). content, moder	Low to m ately plas	oderate moi tic. Trace o	sture of	•		
						1				$\ \ $	organics, some	dessicatio	n cracks.		/	Descript classifica	stion by
									1	$\ \ $	Bottom of boreho	le at 16.0 l	Ft. Borehol	e		visual ex	camination.
	i									$\ \ $	backfilled with	bentonite	cement, 11	/28/8	88.		
										Ш							
							[П							
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		1															
		l							1	$\ \ $							
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		•								$\ \ $							
Ŀ		<u> </u>								Ц							
			POON; ST			,,,	ITE	<u> </u>			i- D					HOLE NO	111
P =	DENN	1 2 ON)	; P = PI	TCHER;	·0 = 0	THER		3	L.	L	ouis Downt	OWII 2	oire				711

GEOLOGIC DRILL LO	G PROJE	ECT	ETICD A P	1	ET NO. HOLE NO.
	COORDINATES	 	FUSRAP	14501-116 1 ANGLE FR	OF 1 R112 OM HORIZBEARING
St. Louis Downtown Site		N 1,	565 E 2,451	Vert	
BEGUN COMPLETED DRILLER		I	- 1 1	. 1	(FT.) TOTAL DEPTH
11-21-88 11-21-88 Layne-West			ME-750 6" OEPTH/EL. GROUN	14.0	/EL. TOP OF ROCK
/ 7			24.4	DEPTH,	/EL. TOP UP ROCK
SAMPLE HAMMER WEIGHT/FALL CASING LEF	T IN HOLE: D			<u></u>	
140 lbs/30 in	попе			G. Cherry	
SAMP. TYPE SAMPLE REC. COR	ELEV. H	GRAP	DESCRIPTION AND CL	ASSIFICATION	NOTES ON: . WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 1.3 0.8 6-14-2/- SS 2.0 1.2 5-3-4	423.8_	0	0 - 0.6 Ft. CONCRETE. 6 - 11.5 Ft. GRAVEL 0.8-10.0 Ft. Silty CLAY RUBBLE. Brownish block	(CL) and k (5YR2/1) to	0-14.0 ft. advanced with 6-inch O.D. hollow stem auger.
SS 2.0 1.3 4-6-5			grayish black (N2). Low n loose. Rubble consists of carbonaceous material, slafragments, and wood.	gravel, sand, ag, brick	
SS 2.0 0.3 5-5-2	5.	-			Sampled and radiologically logged by TMA/Eberline.
SS 2.0 0.2 5-3-2 2					
SS 2.0 1.5 1-2-3	10		10.0-11.5 Ft. Silty clay ((5Y4/1) to greenish gray soft to medium-stiff. Son	CL). Olive gray (5GY6/1). Moist.	
SS 2.0 1.9 2-4-4 5	412.9_		and coarse-grained sand ((CL). Olive	Top of undisturbed material at 11.5 ft.
	410.4_		gray (5Y4/1). Low moist slightly plastic. Some blac trace of very fine-grained ottom of borehole at 14.0 F backfilled with bentonite	ure, medium-stiff, k (N1) organics, sand. t. Borehole	Description and classification by visual examination.
					No ground water observed, 11/28/88.
	."				
SS = SPLIT SPOON; ST = SHELBY TUBE; SIT D = DENNISON; P = PITCHER; O = OTHER		St. Lou	is Downtown S	ite	HOLE NO.

	<u> </u>	EC	LOG	ור ח	RIII	10	G	PROJEC	T		EET NO. HOLE NO.
SITE			LUG		1/12		COORDINA	ATES		FUSRAP 14501-116	OF 1 R113
		Lo	uis Dov	vntow	n Sit	e			1		tical
BE GL			MPLETED	1				Г	DRILL		K (FT.) TOTAL DEPTI
			1-14-8				tern, Co		MC K	CME-750 6" 16.0 CUND EL. DEPTH/EL. GROUND WATER DEPT	16.0
CORE	. REC	/	. (,,,,,			8				424.5 ¥ 15.8/408.7	/
SAME	_		R WEIGHT	-	CAS	ING LE	FT IN HO	LE: DI	A./LE	GTH LOGGED BY:	
			bs/30			· · · · · · ·	no	ne	7 7	G. Cherry	
SAND DIAM.	SAMP. ADV. LEN CORE	MPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	PRESS. I.S. P. P. P. P. P. P. P. P. P. P. P. P. P.	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
ω _σ	S	<u>M</u>		- 6	<u> </u>	_	424.5			0.0 - 0.9 Ft. CONCRETE.	DRILLING, ETC.
SS SS	2.0	0.9	4-7 5-8-5 5		-	·	423 .6_	-		0.9 - 13.5 Ft. Silty CLAY (CL) and RUBBLE. Brownish black (5YR2/1). Dry to low moisture content, loose. Rubble consists of gravel, carbonaceous material, slag, and sand; Fe staining. Patches of moderate yellowish brown (10YR5/4) silty clay.	0-18.0 ft. advanced with 6-inch O.D. hollow stem auger.
SS	2.0	1.3	3-4-7 7					5			Sampled and radiologically logged by TMA/Eberline.
SS	2.0	0.8	3-3-4					-			
SS	2.0	1.2	2-1-1					10_			·
SS	2.0	0.8	1-1-3				411.0_	-			
SS	2.0	1.7	2-1-1				408.5	15_		13.5 - 16.0 Ft. Silty SAND (SM). Olive gray (5Y4/1). Moist, soft. Very fine-grained sand, some clay (moderately plastic), trace of black (N1) organics.	Top of undisturbed material at 13.5 ft.
										Bottom of borehole at 16.0 Ft. Borehole backfilled with bentonite cement, 11/17/88.	Description and
								9.			classification by visual examination.
			POON; ST ; P = PI			,,,	ITE	S	it. 1	ouis Downtown Site	HOLE NO.

		FC	LOG	IC D	RIL	١n	G	PROJEC	T		EXICDAD		JOB NO.		ET NO.	HOLE NO.
SIT							COORDINA	TES			FUSRAP			-116 1	OF 1	R114
		. La	uis Dov	wntow	n Sit	e			1	N 1.	700 E 2,71	0		Vert		
BEG			OMPLETED					r				SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
			1-14-8				tern, Co				IE-750	6"	18.0			18.0
COR	E REC	OVER	Y (FT./%	CORE	BOXE		ESEL. TO	P CASI	NG		17 17	EL. GROU 0/405.0	ND WATER	DEPTH	/EL. TOP	OF ROCK
		/	D / F / CII	45011	100.0	9					ZZ.U 🕎 /				/	'
SAM			R WEIGHT		CAS	SING LE			A./LE	NGTH	LOGGED BY:		C Ch			
-	,		lbs/30		JATER		DOI	ie .	Г	T	<u> </u>		G. Che	erry	1	
SAMP DIAME	SAMP. ADV.	TPLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	ESSU FESTS OH SO	RE	ELEV.	ОЕРТН	GRAPHICS		DESCRIPTION	AND C	LASSIFIC	NOITA	WATER	ON: LEVELS, RETURN, CTER OF
8₫	S	M C	₩	م د	g. g.	- Σ	422.0		-						DRILL	ING, ETC.
			1	j			421.2_			0.	0 - 0.8 Ft. <u>CON</u>	CRETE.			0-18.01	t. advanced
L	2.0	1.7	3-4-2/2° 4-10-7 6							0.	8 - 14.5 Ft. Silt RUBBLE. Dar (10YR4/2). Monosists of slag staining. Patch	k yellowii oist, loose brick, co nes of moo	to stiff. Rulat, and sand derate yellow	l'e	with 6-	inch O.D. item auger.
SS	2.0	1.0	1-2-3					5_			brown (10YR5)	(4) silty c	lay.		Sample	d and
SS	2.0	1.0	1-1-1					-							radiolog by TM	rically logged L/Eberline.
SS	1.5	0.8	2-2-2					-							Overdri	lled to 8.5 ft.
SS	2.0	1.6	1-2-1					10_								
SS	2.0	1.3	1-1-3					-								
SS	2.0	1.7	1-1-2				. 407.4_	- 15		14	.5 - 16.0 Ft. <u>Sil</u> gray (5Y <u>4</u> /1).	ty CLAY	(CL). Olive	·	Top of	undisturbed
SS	2.0	1.2	4-5-5				_0.60 4	7		\setminus	plastic. Trace and very fine-g	of organic	material (wo	ood)	materia	l at 14.5 ft.
-							404.0_	F -		16	5.0 - 18.0 Ft. Silgray (5Y4/1). slightly plastic.	ty SAND Moist, me Very fin	(SM). Olive edium-stiff, e-grained sa	nd. /		tion and ation by
	:									B	ottom of borehol backfilled with					xamination.
								."								
			1													
			POON; ST ; P = PI			,,,,	ITE	S	t. l	.ou	is Downto	own S	Site		HOLE NO	114

								PROJEC	ī		JOB NO	. SHE	ET NO.	HOLE NO.
	G	GEC)LOG	IC D	RIL	L LO	G		•	FUSRAP		-116 1	-	R115
SITI							COORDINA	ATES				ANGLE FR	OH HORIZ	
			uis Do			e	<u> </u>			1,637 E 2,753		Vert		
BEGI		- 1	OMPLETED	F		11/	10 Co	- 1	ORILL I	AKE AND MODEL SIZE PC-1A 6"	OVERBURDEN		(FT.)	TOTAL DEPTH
			-12-89				tern, Co		NG GE	PC-1A 6" OUND EL. DEPTH/EL. G			/EL. TOP	18.0
		/	. (,,,,,,	,		9				423.0 ₹ /	MODILE WATER	[]	/	
SAMI	LE P	IAMHÉ	R WEIGHT	/FALL	CAS	ING LE	FT IN HO	LE: DI	A./LEN	GTH LOGGED BY:		'		
<u></u>			bs/30			***	по	ne			G. Ch	erry		
Π.	SAMP. ADV.		SAMPLE BLOWS "N" % CORE RECOVERY	PF	WATE! RESSU				ရ ရ					
FE		E 5	7.89	ļ	TEST	1	ELEU.	Ē	[불법	DESCRIPTION AND	CLASSIFIC	ATION	NOTES	ON: LEVELS,
<u>ئ</u>	<u>a</u> z		E300	SZ	gH	ESE.		DEPTH	GRAPHICS SAMPLE				WATER	RETURN,
SAMP . TYPE		돌등	25 × E	LOSS IN P. M	PRESS. P. S. I	HHH	423.0	-	# M					TER OF ING, ETC.
	1.6	0.9		1	""		422.6	1	22	0.0 - 0.4 Ft. CONCRET	CE.			
33	1.0	0.5						-		0.4 - 2.5 Ft. Silty CLA	Y (CL). Dark		with 6-i	t. advanced nch O.D.
SS	2.0	0.8		1			420.5_] -		0.4 - 2.5 Ft. Silty CLAY yellowish brown (10Y yellowish brown (10Y	(R4/2) to mode $(R5/4)$. Dry, st	rate iff.	hollow s	tem auger.
		}		1	1		420.3	} -		Some coarse-grained	sand.		1	
SS	2.0	1.3	-	1				-		2.5 - 2.7 Ft. CONCRET				
							Ī	5_		2.7 - 16.0 Ft. Silty CLA RUBBLE. Dark yello (10YR4/2) to olive bl	wish brown	•	Sampled	and gamma
SS	2.0	1.2	-	1]	-		moisture content to n	noist, loose. Ki	rpple rom	logged t	y berline.
								-		consists of slag, brick carbonaceous materia	fragments.			
SS	2.0	0.2	 	{			į	-						
		ŀ	1	1				-					ļ	
SS	2.0	1.2		1				10_						
							į	-						
SS	2.0	0.3		┤				-						
				ł				-						
SS	2.0	0.2	-	-				-						
		ļ		İ	Ì			15_						•
SS	2.0	1.6	 	┨			407.0_	-	<i>"!!!!!</i>	16.0 - 18.0 Ft. Silty CL	AY (CL). Oliv	<u>e</u>	Top of 1	ındisturbed
}			1					-		gray (5Y4/1). Moist Trace of very fine-gra	soft to medium	n-stiff		at 16.0 ft.
		<u> </u>	ļ	-			405.0_	-		(N1) organics.			Descript	ion and
			ļ	ļ						Bottom of borehole at 18 backfilled with benton			classific	
			1							Julian Will College		20,00.		
						1								
			1											
			Ì					,	1 11				No man	nd water
	1	1	ĺ	ļ										1, 1/13/88.
				1	1									
ŀ	[
	ŀ												1	
	[,	l						
				1										
	1												}	
•					}		}						ļ	
•				1										
			1											
]			ŀ	1								1	
1														
ss :	SPL	IT S	POON; ST	= SHE	LBY T	JBE; S	ITE		·············	• -			HOLE NO	
p =	DEN	II SON	; P = PI	TCHER;	0 = 0	OTHER		S	it. L	ouis Downtown	1 Site		F	R115

		EC	LOG	ור ח	DII I		C	PROJEC	:T				108 M		SHEE		HOLE NO.
		EC	LUG		KIL	LLU	COORDINA	TEC			FUSRAP		14501			OF 1 M HORIZI	R116
SIT	-	T a	uis Do	watow	_ Sid	· _	COOKDINA	(152		N	1,653 E 2,83	ın		1	erti.		BEAKING
BEG			MPLETED				ــــــــــــــــــــــــــــــــــــــ				AKE AND MODEL	SIZE	OVERBURDE	 -			TOTAL DEPTH
		- 1	2-17-8			-Wes	tern, Co			•	PC-1A	6"	17.0	ı			17.0
							ESEL. TO		NG	GR		/EL. GROU	ND WATER	DE	PTH/	EL. TOP	OF ROCK
L						8					423.0					/	
SAM			R WEIGHT		CAS	SING LE			A./L	EN!	GTH LOGGED BY:	•					
<u></u>		40 !	bs/30	in .	IATE		100	ne	ī	ŤΤ			G. P	ais	т		
SAMP DIAM.	SAMP. ADU.	S C	SAMPLE BLOWS "N" % CORE RECOUERY	PR	JATER ESSU	RE		_	ရွ								
ĮĮ.	₹중		7.82		ESTS		ELEV.	ОЕРТН	Ħ		DESCRIPTION	N AND C	LASSIFIC	ATIC		NOTES WATER	UN: LEVELS,
100	Q Z	김분	E300	LOSS	89.	E Z Z			BRAPHICS	SAMPLE					į.	WATER	RETURN.
84	등	돈	w님~ĸ	242	PRE P.S	FE	423.0	-	8	n						_	TER OF ING, ETC.
<u> </u>	-			<u> </u>				 	*	#	0.0 - 1.0 Ft. <u>CO</u>	NCRETE.				0.17.0.6	t. advanced
SS	2.0	1.3		1		İ	422.0_	٠			1.0 - 15.2 Ft. FI	LL and sil	Y CLAY (C	L)		with 6-i	nch O.D.
							Ì				1.0 - 15.2 Ft. PI Brownish blac (10Y4/2), oliv	e Brah (PA e (PAK3\)	1/1). Low	moist onve	ure	pollom a	tem auger.
SS	2.0	1.3		1	Ì						texture. Orga	ly plastic,	sury to san	дy	ì		
								-			fragments.						
SS	2.0	1.6		{			<u> </u>	5_							İ		and gamma
		ļ		i	İ]	-								logged b	y berline.
SS	2.0	1.3		-			1	-			7.0-15.2 Ft. I	Brownish b	lack (5YR2	/1).	1		
	-										Slight to mode and loose in p	rate moist	ure content	, sand	ly		
20	2.0	0.6		4				-			inclusions, tile	fragments	i.		1		
33	2.0	0.0						10_							ł		
CC		0.5						[.		Ħ							
33	2.0	0.5				ļ		Ι.									
	<u></u>			Ţ											İ		
SS	2.0	0.6															
					ŀ		407.8	15_									
SS	2.0	1.3				<u> </u>		1.			15.2 - 17.0 Ft. S	ilty CLAY	(CL). Oliv	e		_	
	<u> </u>	<u> </u>		j			406.0_] _			15.2 - 17.0 Ft. 8 gray (5Y4/1). slightly plastic	Moderate Trace of	moisture c organics.	ontent	ŧ,	Top of u	indisturbed l at 15.8 ft.
										П	Bottom of boreho						
		l							•	Н	backfilled with	bentonite	cement, 12	/19/8	38.	Descript classifica	ion and ation of
}									1	$\ \ $					}	soils by examina	visual
					·					$\ $					l		
								1		П					- 1		
										$\ \ $					İ		nd water 1, 12/19/88.
	1					ļ		, ,	Į .	П					Į	ODBELVE	1, 12/19/00.
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S. Louis Downtown Site N 1,700 E 2,899		C	EC	OLOG	IC D	RIL	L LO	G				FUSRAP	i i	
DESCRIPTION AND CLASSIFICATION MATERIAL PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE PROPERTY (FI./X) COME BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CASING CACUND EL. SPITISTIC, GROWN WIFE BOXES SAMPLESEL. TOP CA	SITE							COORDIN	ATES					
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REFERENCE TO F. AS INC. ESTABLE PRINCES L. TOP CASING GROUND EL. AND EMANGER MEIGHT/FALL CASING LEFT IN MOLE: DIA./LENGTH COGGED BY: 140 lbs/30 in LINE LEV. AND EMANGER MEIGHT/FALL CASING LEFT IN MOLE: DIA./LENGTH COGGED BY: G. Pais TOP CASING LEFT IN MOLE: DIA./LENGTH COGGED BY: G. Pais DESCRIPTION AND CLASSIFICATION LATER LEVELS			1.		į		- West	tern C		OKILI			1 1	
Record R										NG		OUND EL. DEPTH/EL. GROU	JND WATER DEPTH	
Mote No. Mote No.	_		1									422.4	12/23/88	/
NOTES ON: NOTE	SAM				•	CAS	ING LE	FT IN HO	LE: DI	A./L	ENC	TH LOGGED BY:		
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\$ 2.0 1.6	INE INE	ADV.	REC.	ORE N.	PR	ESSU FESTS	RE	ELEV.	H	HICS		DESCRIPTION AND C	CLASSIFICATION	1
\$ 2.0 1.6	Selle.	SAMP.	CORE	BLOLUS RECO	LOSS	98ESS	HIN H	422.4	DEF	GRAP	SEL			WATER RETURN,
10 1.5 2.0 1.5 3 2.0 3 3 3 3 3 3 3 3 3		2.0			l			722.7				0.0 - 12.8 Ft. RUBBLE.	Moderate brown	0.10.00
S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 B 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 MOS. B 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 MOS. B 2.0 1.5	SS	2.0	1.6									(10YR2/2). Low moistu	ire content, slightly	with 6-inch O.D. hollow stem auger.
S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 B 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 MOS. B 2.0 1.5 S 2.0 1.5 S 2.0 1.5 S 2.0 1.5 MOS. B 2.0 1.5	दद	2.0	0.8					•	-					
S 2.0 1.5 S 3.5 1.2 S Ft. Sandy clay (SC). Crayish beroute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC). Total minute content, sandy clay (SC) Total minute content, sandy clay (SC) Total minute content, sandy clay (SC) Total minute content, sandy clay (SC) Total minute content, sandy clay									5_					Sampled and gamma logged by
8.5-12.8 Ft. Sandy clay (SC). Grayish brown (5 YR3/2): High moisture content, sandy, fluid. Trace of organics and coal. 10. 10. 10. 11. 10. 11. 11. 11. 11. 11.	SS	2.0	0.6						-					TMA/Eberline.
S 2.0 1.5 S 2.0 1.3 Description and classification by visual examination S 2.0 1.3 Bottom of borshole at 16.0 Ft. Borshole backfilled with bentonite cement, 12/23/88. Description and classification by visual examination Description and classification by visual examination	SS	2.0	1.5						-			8.5-12.8 Ft. Sandy clay brown (5YR3/2). High	(SC). Grayish moisture content,	
12.8 - 16.0 Ft. Silty CLAY (CL). Olive gray (5G4/1). Moderate moisture content, moderately plastic. Trace of organics. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination. Bottom of borehole with bentonite cement, 12/23/88.	SS	2.0	1.3				:		10_			sandy, fluid. Trace of o	rganics and coal.	·
moderately plastic. Trace of organics. 15_ 16.4	SS	2.0	1.5					409.6_		<i>'''''''</i>			(2)	Top of undisturbed
Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88. Bottom of borehole at 16.0 Ft. Borehole classification by visual examination backfilled with bentonite cement, 12/23/88.	SS	2.0	1.3					•	15			gray (5G4/1). Moderat moderately plastic. Tra	(CL). Olive e moisture content, ce of organics.	material at 12.7 ft.
Bottom of borehole at 16.0 Ft. Borehole classification by visual examination Bottom of borehole at 16.0 Ft. Borehole classification by visual examination			ļ			,		406.4_						December and
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St. Louis Downlown Site ### State S			EC	LUG		KILI	LLU				FUSRAP					R118A
ECAN COMPLETED PALLER DAYS OF SOME PROPERTY OF CASHA PROPERTY OF C	SIT					C!4		COORDINA	ITES		V 1 827 F 2 66			!		ZBEARING
12-13-88 12-13-88 Layne-Western, Co. CME-750 6° 6.0 6.0 6.0 CORE RECOVERY (FI.7A) COSE BONES SAMPLESEL. TOR CASING ACQUABLE. SEPTIFICE. GROUND MATER DEPTH/EL. TOP OF ROCK SAMPLE HAWRE WEIGHT/FALL CASING LETT IN MOLE: DIA./LENGTH COGGO BY:	DEC						e	<u> </u>					OVERRIBOEN			TOTAL DEDTH
TOTAL STATE OF SECTION	1		1		1		-Wes	tern. Co						[(OOK (1117)	
SAMPLE MANUFACT MATTER CASING LEFT IN MOLE: DIA./LENGTS LOGGED BY: LOGGED B	COR	E REC	OVER	Y (FT./	CORE	BOXE	SSAMPL	ESEL. TO	P CASI	NG C	ROUND EL. DEPTH			DE	PTH/EL. TO	
140 lbs/30 in Description and Classification Notes on: Not			1								12210					
HATER PRIVAL PRI	SAM					CAS	SING LE	FT IN HO	LE: DI	A./LE	NGTH LOGGED BY:					
SS 1.4 0.6 2-14-1 SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-	<u></u>	1	40 I	bs/30	<u>in</u>			поп	1e	т т			G. Ch	erry		
SS 1.4 0.6 2-14-1 SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-	Ğ.	2 m			PR	RESSU	RE			9]					
SS 1.4 0.6 2-14-1 SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-	LA	F	2 2	<u> </u>	ļ <u>-</u>		T	ELEU.	Ŧ	부	DESCRIPTION	N AND C	LASSIFIC	ATIC		
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SS 1.4 0.6 2-14-1 SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-	瑟	E E	돌 B		37.9	I MO	THE	400.0	-	8 6	1					
SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-14 Bottom of borehole at 6.0 Ft. Borehole backfilled with bentomite cement, 12/19/88. Bottom of borehole at 6.0 Ft. Borehole backfilled with bentomite cement, 12/19/88. No ground water observed, 12/19/88.		L	1			1				20	0.0 - 0.6 Ft. GR.	AVEL.				<u>·</u>
SS 2.0 1.2 6-7-9 SS 2.0 0.8 4-11-14 SS 2.0 0.8 4-11-14 Bottom of borehole at 6.0 Ft. Borehole backfilled with bentomite cement, 12/19/88. Bottom of borehole at 6.0 Ft. Borehole backfilled with bentomite cement, 12/19/88. No ground water observed, 12/19/88.	SS	1.4	D.6	12-14-1	1				-		RUBBLE. Da	rk yellowis	h brown		with 6	inch O.D.
SS 2.0 0.8 4-11-16 SS 2.0 0.8 4-11-16 12 416.0. Bottom of borehole at 6.0 Ft. Borehole backfilled with bentonite cement, 12/19/88. Bottom of borehole at 6.0 Ft. Borehole classification by visual examination. No ground water observed, 12/19/88.	SS	2.0	1.2	6-7-9	┨	}) -		[10YR4/2]. D	rv. loose.	Rubble com	ists o	f hollow	stem auger.
SS 2.0 0.8 4-11-14 12 5- 416.0. Bottom of borehole at 6.0 Pt. Borehole backfilled with bentonite cement, 12/19/88. Description and classification by visual examination. No ground water observed, 12/19/88.				11					-		carbonaceous	naterial.	•		Sample	ed and
Auger refusal at 5.0 ft. Bottom of borehole at 6.0 Ft. Borehole cament, 12/19/88. Description and classification by visual examination. No ground water observed, 12/19/88.	SS	2.0	0.8	4-11-14	1				-						radiolo	gically logged
Bottom of borehole at 6.0 Ft. Borehole dissification by visual examination. No ground water observed, 12/19/88.				12]	ł		į	5_						"	
backfilled with bentonite cement, 12/19/88. Description and classification by visual examination. No ground water observed, 12/19/88.	<u> </u>	 			-			416.0_								icidadi di V.O
Classification by visual examination. No ground water observed, 12/19/88.					ļ			İ							R Descrip	ation and
No ground water observed, 12/13/88.					Ì						Dacatined with	Denionise	cement, 12	, 13, 0	classifi	cation by
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		ای 	FO	LOG	ר ח	RII	10	G	PROJEC	T	[EET NO. HOLE NO.
SITE				LOG				COORDINA	ATES		FUSRAP 14501-116 ANGLE F	1 OF 1 R118B ROM HORIZBEARING
	S	t.		uis Dov			<u>e</u>					tical
BEGL		0	- 1	MPLETED	1		-Was	tern, Co	- 1	DRILL	MAKE AND MODEL SIZE OVERBURDEN ROU CME-750 6" 16.0	CK (FT.) TOTAL DEPTH
				(FT./%				ESEL. TO		NG G	COUND EL. DEPTH/EL. GROUND WATER DEPT	H/EL. TOP OF ROCK
	<u>-</u>			 	(5011	leas	5				422.0 \$ 9.2/412.8 12/19/88	
SAME				bs/30 i		LAS	ING LE	100 100		A./LE	G. Cherry	
글.		_				JATER				<u></u>		
SAND DIAM.	SAMP. ADV.	LEN COR	CORE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	EST!		ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
0, -	0).	+	<u>w</u> ,			8.0		422.0 421.4_	 		0.0 - 0.6 Ft. GRAVEL	
						-		·	5_		0.6 - 13.0 Ft. Silty CLAY (CL) and RUBBLE. Dark yellowish brown (10YR4/2). Low moisture content to moist, loose. Rubble consists of brick fragments, gravel, sand, and carbonaceous material.	Sampled and radiologically logged
SS	2.0		1.2	2-8-6 9								by TMA/Eberline.
SS	2.0	'	0.9	2-7-11 8				, ,	¥ .			
SS	2.0	, 	0.6	5-4-4 3					10_			10.0 ft. OVA reading 4ppm (in auger), 2ppm (ambient).
SS	2.0	7	0.6	1-3-3				409.0				
SS	2.0	·	2.0	2-2-4				**************************************	15_		13.0 - 16.0 Ft. Silty SAND (SM). Olive gray (5Y4/1). Moist, soft, very fine-grained.	Top of undisturbed material 13.0 ft.
-		-						· 4 06.0_	1			Description and
									."1		Bottom of borehole at 16.0 Ft. Borehole backfilled with bentonite cement, 12/19/88.	classification by visual examination.
				POON; ST ; P = PI			, ,	ITE ·	S	St. L	ouis Downtown Site	R118B

		·	1.00	·C D	D			PROJEC	T		JOB NO. SHE	ET NO. HOLE NO.
		EC	LOG	IC D	KIL	L LO		750		FUSRAP	14501-116 1	
SIT		. T.n	uis Do	wntow	n Sit	te	COORDINA	RIES	1	1,600 E 3,050	ANGLE FR Vert	OM HORIZBEARING
BEG			MPLETED				.1	i				(FT.) TOTAL DEPTH
			2-15-8				tern, Co		inc Te	CME-750 6" ROUND EL. DEPTH/EL. GROUN	16.0	/EL. TOP OF ROCK
COR	E REC	.UVER /	1 (71.//	s) COR	BUAL	8	ESPEL. TO	P CAS		421.0 \$\frac{12.5}{408.5}\$	12/23/88	/EL. TOP OF ROCK
SAM			R WEIGHT	-	CAS	SING LE	FT IN HO	LE: DI	A./LE	IGTH LOGGED BY:		
			bs/30		JATES		noı	ne .	T-1		G. Cherry	T
SAMP DIAM.	SAMP. ADU.	S 5	SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATEF LESSU TESTS	RE		_	ဦး မ			NOTES ON:
Ä	98	<u> </u>	투하	o E		T	ELEV.	DEPTH	RAPHIC	DESCRIPTION AND CL	.ASSIFICATION	WATER LEVELS,
器	FIRE	T S	ROJE SE	LOSS IN G.P.H	PRES P.S.	ENE.		ă	GRAPHICS			WATER RETURN, CHARACTER OF
_	ŧ.	1	i		āa	-	421.0 420.8					DRILLING, ETC.
SS.	1.5	0.8	5-10-14					-		0.3 - 14.0 Ft. Silty CLAY (RUBBLE: Dark yellowis	CL) and	0-17.0 ft. advanced with 6-inch O.D.
SS	2.0	1.4	6-11-15 13					:		slag, gravel, sand, and br	h brown Rubble consists of ick fragments; Fe	hollow stem auger.
SS	2.0	1.4	4-7-6					5_		staining.		
SS	2.0	1.4	4-5-8									Sampled and radiologically logged by TMA/Eberline.
			11							7.5-14.0 Ft. Slag. Brown	aigh black	
SS	2.0	1.7	14-13-6 6							(5YR2/1). Moist. Fe sta		
SS	2.0	0.8	2-6-4					10				
SS	2.0	0.5	2-1-2				7					
SS	2.0	1.4	2-1-4 6				407. 0_	15_		14.0 - 17.0 Ft. Silty SAND gray (5Y4/1). Moist, soft plastic, very fine-grained	(SM). Olive	Top of undisturbed material 14.0 ft.
		<u> </u>					404.0			plastic, very fine-grained (N1) organics.	. Trace of black	
							404.0_			Bottom of borehole at 17.0 I backfilled with bentonite		Description and classification by visual examination.
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			}			1						
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SS	= SPI	17 9	POON; ST	= SHF	BY TI	JRF. S	I TE	<u></u>				HOLE NO.
			; P = PI			, .	·	S	it. I	ouis Downtown S	ite	R119
									I	I-188		

	G	FC	LOG	וכ ח	RII	HO	og 📄	PROJEC	CT		DIIO			JOB N	I	ET NO.	HOLE NO.
SIT					*****		COORDINA	ATES			FUSE	KAP		1450	1-116 1	OF 1	R120
		. Lo	uis Do	wntow	n Sit	te	JOSEN D'INF			N 1,	700	E 3,12	5		1	tical	DEAKING
BEG	JN	C	MPLETED	DRILL	.ER						E AND M		SIZE	OVERBURDE		K (FT.)	TOTAL OEPTH
			2-12-8	8 I	ayne	-Wes	tern, Co	<u>).</u>			ME-75		6"	14.0			14.0
COR	E REC	OVER	Y (FT./7	() CORE	BOXE	S SAMPL	ESEL. TO	P CAS	ING			DEPTH/	/EL. GROU .5/409.0	ND WATER 12/19/88	DEPTH	I/EL. TOP	OF ROCK
SAH	PLE H	AMME	R WEIGHT	/FALL	CA!		FT IN HO	LE: DI	A./L		20.5	_\\		·	<u>.</u>	/	
	1	40 1	bs/30	in			поі							G. Cl	erry		
W.	ساد	ပ် .	SAMPLE BLOWS "N" % CORE RECOVERY		JATE		· · · · · · · · · · · · · · · · · · ·										
조	88	A 5	7. KR		ESSU		l	E	IC	Щ						NOTES	ON:
0.0	0 7	U U	돌림당	IN T.	E33.	ш	ELEV.	DEPTH	BRAPHICS		DESCR:	IPTION	I AND C	LASSIFI	CATION		LEVELS, RETURN,
SAND DIAM.		EN	lg임/kñ	OH.	PRE:	HAN.		•	GRA	3						CHARAC	TER OF
	<u> </u>	<u> </u>	<u> </u>	3	<u>a</u> a		420.5 419.9		-	D	0 - 0.6 1	i. GRA	VEL.			DRILLI	NG, ETC.
SS	1.5	0.8	8-40-35				120.0_	١.		Ü.	6 - 9.5 l	t. Silty	CLAY	L). Moder /4). Dry, see staining.	ate		. advanced nch O.D.
SS	2.0	1.7	10-15-1	ł			1				Some t	rick and	i gravel; F	e staining.			tem auger.
			21														
SS	2.0	1.4	5-9-7	[
			6					5_			4.7-9.5 (5YR5	Ft. Sai	ndy silt (S	M). Pale b	rown	Sampled	and
SS	2.0	1.1	2-2-4	{				-			Moist,	medium	-stiff. Ve	ray (5Y6/1 ry fine-grai	ned	radiolog	ically logged
		<u> </u>	4								· · · · · · · · · · · · · · · · · · ·	onio pio		•		6.0 ft. O	/Eberline. VA reading (in auger).
SS	2.0	1.5	3-7-5	}			:									1.0pp	(m. auger).
			7	,		ļ	411.0_	-									
SS	2.0	1.5	3-2-3	}				10_	\prod	9.	5 - 14.0	Ft. Sar	dy SILT	(SM). Oliv t, slightly	e	Top of u	ndisturbed
			3					, -			plastic	Some 1	pieces of d	lecaying wo	od.	, maseriai	3.0 16.
SS	2.0	1.8	2-2-3				=										
			3														
							406.5_	-		-						Descript	ion and
										В	ottom of	borehol	e at 14.0	Ft. Boreho cement, 12	le /10/88	classifica	
							·				000217		Demonite	cement, 12	7 197 00.	Visual Ex	annitation.
																1	•
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1																	
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			POON; ST				ITE			 - ـ د ا	: - D			\!A.c		HOLE NO.	
10 =	DENN)	SON;	P = P1	ICHER;	0 = 0	THER		2	E. I	Lou	IS DO	wnte	own S	elte		∐ K	120

	<u> </u>	GEC	LOG	IC D	RIL	L LO	G	PROJEC	СТ		NO. SHEE	T NO. HOLE NO. OF 1 R121
SITI				<u> —</u>			COORDINA	TES		100841 143		OM HORIZBEARING
			uis Do			te				1,387 E 1,410	Vert	
BEG		1-	MPLETED 2-21-8	l l		-Was	tern, Co	- 1		AKE AND MODEL SIZE OVERBUR CME-750 6" 12	DEN ROCK	(FT.) TOTAL DEPTH
					BOXE	SSAMPL	ESEL. TO	P CAS				/EL. TOP OF ROCK
L						6				423.4 7		
SAMI			R WEIGHT	• . –	CAS	SING LE			A./LEN	GTH LOGGED BY:	C1	
ш			bs/30		JATE	₹	non	ıe	ТП	G. (Cherry	<u> </u>
SAMP DIAM.	SAMP. ADU. LEN CORE	AMPLE REC	SAMPLE BLOWS "N" % CORE	LOSS IN B.P.A	ESSU. T. S.	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLASSIF	ICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF	
	2.0	0.8	4-5-5		0.0		425.4 425.2			0.0 - 0.3 Ft. ASPHALT.		DRILLING, ETC.
							424.8	•		0.3 - 0.6 Ft. GRAVEL.	/ ₋	0-12.0 ft. advanced with 6-inch O.D.
SS	2.0	1.1	5-4-4 10							0.6 - 7.0 Ft. Silty CLAY (CL) and RUBBLE. Dark yellowish brown (10YR4/2). Low moisture content	nt, loose.	hollow stem auger.
SS	2.0	1.5	2-1-2					5_		Rubble consists of slag and brick.		
SS	2.0	1.7	2-2-1		ı	:	418.4	7 ·				Sampled and radiologically logged by TMA/Eberline.
SS	2.0	1.7	WH/12"-	2						7.0 - 12.0 Ft. Silty CLAY (CL). Moderate yellowish brown (10YR dark yellowish brown (10YR4/2). soft, slightly plastic.	5/4) to Moist,	Top of undisturbed material 7.0 ft.
SS	2.0	1.9	WH-2-1					10_		son, engine, plante.		
							413.4_	•		Bottom of borehole at 12.0 Ft. Bore	hole	Description and classification by
							-			backfilled with bentonite cement,	12/23/88.	visual examination.
			: :									
	!											
												·
										·		
					•		·					
			POON; ST			,,,	ITE	S	t. L	ouis Downtown Site		R121

	PROJECT	JOB NO. SHEET NO. HOLE NO.
GEOLOGIC DRILL LO	G FUSRAP	14501-116 1 OF 1 R122
SITE SA Louis Downtown Site	COORDINATES	ANGLE FROM HORIZBEARING
St. Louis Downtown Site	N 1,836 E 3,168	Vertical OVERBURDEN ROCK (FT.) TOTAL DEPTH
12-12-88 12-12-88 Layne-West	1	20.0 20.0
CORE RECOVERY (FT./%) CORE BOXES SAMPL	ESEL. TOP CASING GROUND EL. DEPTH/EL. GROUND	ND WATER DEPTH/EL. TOP OF ROCK
/ 10	# 424.0 # // FT IN HOLE: DIA./LENGTH LOGGED BY:	2,17,00
140 lbs/30 in	none	G. Cherry
W. J. WATER		J. Cherry
SAMP. ADV. LEN CORE SAMPLE REC. CORE REC. SAMPLE REC. CORE REC. SAMPLE REC. CORE REC. LOSS IN A A A A A A A A A A A A A A A A A A	ELEV. HIGH DESCRIPTION AND C	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
A C C B B C C F C F C C F C C F C C C C C	424.0	DRILLING, ETC.
SS 1.4 0.714-8-5/-	423.2 0.0 - 0.8 Ft. GRAVEL and Angular limestone.	0-20.0 ft. advanced
SS 2.0 0.4 5-8-7	0.8 - 18.5 Ft. Silty CLAY RUBBLE. Dark yellowi (10 YR 4/2). Low moistu loose. Rubble consists o fragments, and wood.	h brown re content to moist,
SS 2.0 1.1 3-2-3 5	5_	·
SS 2.0 0.8 3-6-9 13		Sampled and radiologically logged by TMA/Eberline.
SS 2.0 1.9 2-2-8	-	
SS 2.0 1.0 5-3-3	10.5-18.5 Ft. Silty clay (5Y4/1) to olive black ((CL). Olive gray Y2/1). Moist.
SS 2.0 1.5 3-3-8 16	medium-stiff. Some pet fine-grained sand.	bles, frace of very
SS 2.0 1.4 10-11-7	15_	14.0 ft. OVA reading 2ppm (in auger).
SS 2.0 0.3 4-3-4 4		16.0 ft. OVA reading Sppm (in auger).
SS 2.0 1.8 2-3-2 4	405.5_ 18.5 - 20.0 Ft. Silty CLAY	(CL). Olive Top of undisturbed material 18.5 ft.
	gray (5Y4/1). Moist, so Some black (N1) organic rootlets.	Description and classification by visual examination.
	backfilled with bentonite	
SS = SPLIT SPOON; ST = SHELBY TUBE; ST = DENNISON; P = PITCHER; O = OTHER	St. Louis Downtown S	Site R122

\Box						·		PROJEC	T					JOB	NO leur	ET NO	HOLE NO
		SE()LOG		DRIL	L LC)G	- NOUEL	• •		FUSRA	P			NO. SHE	EET NO.	HOLE NO.
SIT	E						COORDINA	TES				-		**30		ROM HORIZ	
	St		uis Do			te						2,165	5		Ver	tical	
BEG			MPLETED	1					DRIL		AND MODE	L	SIZE	OVERBURD		K (FT.)	TOTAL DEPTH
			1-16-8				tern, Co		No	GROUN	E-550	SDTU	6"	17.		1/EL TOO	17.0
	- 751	- /	//	-,	L BUAL	8		- LAS			22.0	VET 11/1	EC. GRUU	NU WAIEK	PEPII	H/EL. TOP	UP ROCK
SAM	PLE I	IAMME	R WEIGHT	/FALL	CA		FT IN HO	LE: DI	A./L			BY:		•		/	······································
	1	40	bs/30	in			вог	ne						G.	Pais		
٣.	ساد ا	ز ایرا	- 	P	WATE				8	П							
SAMP. TYPE	SAMP. ADV.	RE	SAMPLE BLOWS "N" % CORE RECOUERY		TEST	5	ELEV.	DEPTH	BRAPHICS	SAMPLE	DESCRIP	TION	AND C	LASSIF	CATION	NOTES	ON: LEVELS,
<u>.</u>	ē Z	교뿐	F 0 0	SS	38	HAY.			2	<u> </u>						WATER	RETURN,
β₹	SAI		<u> </u>	LOSS	PRES P. S. 1	E.E	422.0		9	"							CTER OF ING, ETC.
				1	T		421.0_			0.1	0 - 1.0 Ft.	ASPI	IALT an	d CONCR	ETE.	1 17 6	advanced
SS	2.0	1.5			·		432.0_	-			0 - 11.5 Ft	. Silts	CLAY	CL) and	2) +-	with 6-	inch O.D.
Ī]	-			dusky ye	lowish	brown (ed (10R2/ 10YR2/2)	Low	TOTIOM !	stem auger.
SS	2.0	1.9		1				-			moisture Coarse-g	rained,	brick fre	gments.			
							1	· -									
SS	2.0	1.6		1				5_								Sample	d and gamma
								•								logged l	berline.
SS	2.0	1.3		1				-			7.0-11.5	Ft. Sil	ty clay (CL). Gray	yish R4/2)		
								-			Low mois	ture co	ontent, sl	ish red (5)	tic,		
SS	2.0	0.8		1							loose. Gl	жа5, СО:	al.				
								10_								1	
SS	2.0	1.1		1			410.5_	-	,,,,,,,,		E 170 *	NA - 49.9.	OY A 11	(Ct) - C'		_	
								-		11	.5 - 17.0 F gray (5Y	(/1). X	voderate	moisture e of organ	ive content,		
SS	2.0	1.5		İ				-			moderate	ih bias	tic. Trac	e of organ	1108.		
						•										Top of	undisturbed
SS	2.0	2.0		1				15_								materia	l at 14.5 ft.
		ŀ					405.0	-								}	
		<u> </u>		1			103.0	-		,	***			. 5	•	Descrip	tion and
		Ì								Bo	ttom of be backfilled			rt. Boreh cement, l		visual e	ation by xamination.
				1			[
	Į	}															
	İ															No grou	nd water
					1											observe	1, 11/17/88.
	ĺ	ł															
							ŀ										
						1											
		!															
						}											
		-		ŀ		}										}	
cc		17.00	2004 - 27			 e	ITE		Ш	<u> </u>						HOLE NO	
			POON; ST ; P = PI			,,,		S	t.	Loui	s Dov	vnto	wn S	ite			123

ļ	G	FC	LOG	IC D	RII	10	G İ	PROJEC	CT	1 1	ET NO. HOLE NO.
SIT							COORDINA	TES		FUSRAP 14501-11d 1	OF 1 R124 OM HORIZBEARING
3111		I	uis Dov	vntow	n Sit	ρ.		1123	1		tical
BEG			MPLETED				<u> </u>				(FT.) TOTAL DEPTH
1 -		1	2-17-8			-Wes	tern, Co	1		CME-750 6" 6.0	6.0
							ESEL. TO		ING (/EL. TOP OF ROCK
		1				3				425.0	
SAM	PLE H	AMME	R WEIGHT	/FALL	CAS	ING LE	FT IN HOL	E: DI	A./LE	NGTH LOGGED BY:	
			bs/30 i		<u> </u>		non	1e		G. Cherry	
핌.	ساد	ပ္ပုံ	=, >	88	JATER ESSU				6		
SAND DIAM.	SAMP. ADV.	BAMPLE RE	SAMPLE BLOWS "N" % CORE RECOVERY	LOS9 IN G. P. M	TESTS		ELEV.	ОЕРТН	BRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
84	81기	줎	<u> </u>	۾ ر	g.g.	H	425.0		0		DRILLING, ETC.
SS	1.5		15-14-7				424.8 ⁻ 424.0_		3	0.0 - 0.2 Ft. ASPHALT.	0-6.0 ft. advanced
								•		0.2 - 1.0 Ft. GRAYEL.	with 6-inch O.D. hollow stem auger.
SS	2.0	1.8	5-7-5 6	-						1.D - 5.0 Ft. SLAG. Brownish black (5YR2/1). Fe staining. 3.0-5.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1) to olive black (5Y2/1). Low	Sampled and
SS	2.0	1.6	2-3-5 8				42 0. 0 _	5_	<i>!!!!!</i> !.	moisture content, medium-still, slightly	radiologically logged by TMA/Eberline. Top of undisturbed
							419.0_			5.0 - 6.0 Ft. Silty CLAY (CL). Olive gray (5Y4/1) to greenish gray (5GY6/1). Low moisture content, soft to medium-stiff, slightly plastic.	material 5.0 ft. Description and
			:							Bottom of borehole at 6.0 Ft. Borehole backfilled with bentonite cement, 12/23/88.	classification by visual examination.
											No ground water observed, 12/23/88.
											Observed, 12/23/88.
							•	• •			
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				·							
				1							
			POON; ST			,,,	ITE ·	S	St. I	ouis Downtown Site	HOLE NO. R124

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T	FUSRAP	JOB NO. SHE	ET NO.	HOLE NO.		
SIT	<u> </u>						COORDINA	TES		TOSKAT	ANGLE FR				
			uis Do			e	<u> </u>			1,065 E 1,425	Vert				
BEGI		1	MPLETED 2-20-8	- 1		-Was	tern, Co		DRILL	MAKE AND MODEL SIZE OVER CME-750 6"	ERBURDEN ROCI	((FT.)	TOTAL DEPTH		
							ESEL. TO		NG G	ROUND EL. DEPTH/EL. GROUND	WATER DEPTH	/EL. TOP	OF ROCK		
		_/				7				424.6	23/88	/	· 		
SAMI			R WEIGHT lbs/30		CAS	SING LE			A./LEN	GTH LOGGED BY:	C Charm				
ш.					JATER	₹	поп	ie .	П		G. Cherry	Ī			
ang.orm.	P. ADU	PLE REC	BLOWS "N" % CORE	NI P. W. P.	ESSU ESTS		ELEV.	ОЕРТН	GRAPHICS SAMPLE	DESCRIPTION AND CLAS	SSIFICATION	WATER	LEVELS, RETURN,		
智	39	E S	_{0.} 5 ,5	77.9	PRE. P. S.	F - E	424.6		6			1	TER OF ING, ETC.		
SS	2.0	1.2	4-9-10				424.0			0.0 - 13.0 Ft. <u>SLAG</u> . Brownis (5YR2/1).	h black	0-14 0 4	t. advanced		
SS	2.0	1.5	1-2-3							(0112,1).		with 6-	inch O.D. item auger.		
SS	2.0	1.0	7-7-1				7	- - - 5_							
SS	Sampled and radiologically logged by TMA/Eberline. 8.0-13.0 Ft. Silty clay (CL). Moderate yellowish brown (10YR5/4) to clive gray														
SS	S 2.0 1.7 1/24" S 2.0 1.4 WH-2-S 2 8.0-13.0 Ft. Silty clay (CL). Moderate yellowish brown (10YR5/4) to olive gray (5Y4/1). Moist, soft, slightly plastic, some neighbors.														
SS	vellowish brown (10VR5/4) to give gray														
SS	2.0	1.7	2-3-4					-							
			•				411.6_ 410.6_	-		13.0 - 14.0 Ft. Silty CLAY (C) gray (5Y4/1). Moist, soft to	L). Olive		undisturbed		
							410.0_	-		slightly plastic. Some black organics.	(N1)	Descrip	l 13.0 ft. tion and ation by		
							•					visual e	xamination.		
										Bottom of borehole at 14.0 Ft. backfilled with bentonite cer					
					:										
								#							
						-									
			POON; ST P = PI			 ,	ITE	S	t. L	ouis Downtown Sit	e	HOLE NO	127		
	DENN	1 SON	; P = P1	TCHER;	0 = 0	THER				I-194	e	<u> </u>	121		

### GEOLOGIC DRILL LOG PROJECT FUSRAP														
St. Louis Downtown Site		C	FC) OG	IC D	RII	110	G	PROJEC	T		, .		
St. Louis Downtown Site St. Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark Mode: Early Mark M	SIT								TEC					
Comparison Com	ا'' ''		ΙΛ	uis Dav	vntaw	n Sid	e	THE CASE OF THE	1163		N			ì
11-9-88	BEG							1	1					
CORE SCOVERY (T. 1.7.) CORE SOMPLESSI. TOP CASING RACKNO Et. 9 1.2.1 12.2./409.9 11/23/83 SAMPLE MARKE NEIGHT/FALL 1.40 lbs/30 in 1.40 l	I		18	1-10-8	8 I	avne	-Wes	tern. Co	1				100	
SAMPLE MANUER MEIGHT/FALL ASSING LEFT IN MOLE: DIA./LENGT LOGGED 87: G. Pais G. Pais HATER FREE TESTS ELEU. L. L. L. L. L. L. L. L. L. L. L. L. L. L	-					BOXE	SSAMPL	ESEL. TO	P CAS	NG	-	OUND EL. DEPTH/EL. GROUND WATER	DEPTH.	
14 15 15 15 15 15 15 15			/				9				l	422.1	-	/
Warter Property	SAMI	PLE H	AMME	R WEIGHT	/FALL	CA:	ING LE	FT IN HO	LE: DI	A./L	EN	TH LOGGED BY:		
SS 2.0 1.3 10. 1.4								по	ne			G. Pa	is	
SS 2.0 1.3 10. 1.4	표.	سادا	ပ္ပုံ :	5 , >	j gg						П			
SS 2.0 1.3 10. 1.4	1	目				TEST!		e. e	E	IC	븹	DECORIOTION AND OLABORES	. = = =	
SS 2.0 1.3 10. 1.4	۵,	0 7	W W	#300	ω_E	n ⊨	W	ELEV.	G.	Ĭ		DESCRIPTION AND CLASSIFICE	41 TUN	WATER LEVELS,
SS 2.0 1.3 10. 1.4	器			호김성판	ÖH.	ည်တ	ÉÉÉ		0	Ř	ħ			CHARACTER OF
Light clive gray [3757] to dust yellowish brown [107R4/3]. Low moisture content, alightly plastic. Brick material, publics, sandy. 55 2.0 1.5 55 2.0 1.5 56 2.0 1.4 412.1 10 412.1	86	η (n)	80.8	<u> </u>	- 6	<u>a</u> a	· <u>-</u>	422.1	<u> </u>		Ц	OO 100 Ft Cile Of AV 1 OF AUG		DRILLING, ETC.
SS 2.0 1.3 SS 2.0 1.3 SS 2.0 1.3 SS 2.0 1.4 SS 2.0 1.5 SS 2.0 1.1 SS 2.0 2.0 SS 2		1.0	0.5									Light olive gray (5Y5/2) to dark yello	wish	
plastic. Brick material, pebbles, sandy. 5	-								١.			I I U Y KC//41. LOW moisture content al	IGNLIV	
SS 2.0 1.3 SS 2.0 1.4 412.1 10- 10.0-10.0 Ft. Silty clay (CL) and rubble. Very pale orange (10YR8/2) to olive gray (5Y4/1), some dark reddish brown (10X85/4). Moderate moisture content, alignity is listed. Sandy, angular grains, some f staining. Trace of organics. SS 2.0 1.5 SS 2.0 1.1 10- 10.0-14.0 Ft. Silty CLAY (CL). Dark come f staining. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come f staining. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the first of the staining of the staining in the first of the staining in the staining in the first of the staining in the first of the staining in the staining in the staining in the staining in the staining in the staining in the staining in the staining in the stai	22	2.0	1.0					•			Ħ	plastic. Brick material, pebbles, sandy	<i>i</i> .	
SS 2.0 1.3 SS 2.0 1.4 412.1 10- 10.0-10.0 Ft. Silty clay (CL) and rubble. Very pale orange (10YR8/2) to olive gray (5Y4/1), some dark reddish brown (10KS/4). Moderate moisture content, alignity is listed. Sandy, angular grains, some f staining. Trace of organics. SS 2.0 1.5 SS 2.0 1.1 10- 10.0-14.0 Ft. Silty CLAY (CL). Dark come f staining. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come f staining. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility material. Moderate moisture silty. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility. Trace of organics. 10.0-14.0 Ft. Silty CLAY (CL). Dark come for staining in the facility of staining in the facility of staining in the facility of staining in the facility of staining in the facility of staining in the fa														
SS 2.0 1.3 SS 2.0 1.4 SS 2.0 1.5 SS 2.0 1.6 SS 2.0 1.1 SS 2.0 1.6 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 1.1 SS 2.0 2.0 SS 2.0 1.1 SS 2.0 2.0 SS 2.0	SS	2.0	1.3						٠.					
SS 2.0 1.4 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 10.0 - 14.0 Ft. Sitty CLAY (CL). Dark reddish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4), motified with grayish pink (content, moderately plastic, slightly sitty. Trace of organics. SS 2.0 2.0 11. 408.1 408.1 18- 18- 18- 18- 18- 18- 18-														Sampled and gamma
SS 2.0 1.4 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 10.0 - 14.0 Ft. Sitty CLAY (CL). Dark reddish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4), motified with grayish pink (content, moderately plastic, slightly sitty. Trace of organics. SS 2.0 2.0 11. 408.1 408.1 18- 18- 18- 18- 18- 18- 18-	SS	2.0	TMA/Eberline.											
SS 2.0 1.4 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 412.1 10- 10.0 - 14.0 Ft. Silty CLAY (CL). Dark reddish prown [10R3/4] to dusky yellowish between [10 RR/2]) as one brownish black (SR8/2) material. Moderate moisture content, moderately plastic, slightly silty. Trace of organics. SS 2.0 2.0 408.1 408.1 16- 18- 18- 18- 18- 18- 18- 18														
SS 2.0 1.5 SS 2.0 1.1 10.0 - 14.0 Ft. Silty CLAY (Ct.). Dark reddish brown (1015)4) to dusky yellowish (STR/2) material to dusky yellowish (STR/2) material to dusky yello	SS	2.0												
SS 2.0 1.1 10.0 - 14.0 Ft. Silty CLAY (CL). Dark reddish brown (10R3/4) to dusky yellowish to dusky yellowish to dusky yellowish brown (10R3/4) to dusky yellowish to dusky yellowish to dusky yellowish to dusky yellowish to dusky yellowish to dusky yellowish yellowish to dusky yellowish to dusky yellowish														
reddish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) to dusky yellowish brown (10R3/4) pink	SS	20	1											
SS 2.0 2.0 16- 16- 18- 18- 18- 18- 18- 18- 18- 18- 18- 18	-													
SS 2.0 2.0 16- 16- 18- 18- 18- 18- 18- 18- 18- 18- 18- 18				CK										
SS 2.0 2.0 14.0 - 18.0 Ft, Sitry CLAY (CL). Olive gray (5Y4/1). Moist, medium-stiff, moderately plastic, dessication cracks. Bottom of borehole at 18.0 Ft. Borehole backfilled with bentonite cement, 11/23/88. Description and classification by visual examination.	22	2.0	1.1	e										
SE = SPLIT SPOON; ST = SHELBY TUBE; SITE SITE SITE SPOON; ST = SHELBY TUBE; SITE STEE														
moderately plastic, dessication cracks. material at 14.5 ft. Bottom of borehole at 18.0 Ft. Borehole classification by visual examination. Bottom of borehole at 18.0 Ft. Borehole classification by visual examination.	SS	2.0	2.0						15			14.0 - 18.0 Ft. Silty CLAY (CL). Olive		Top of undisturbed
Bottom of borehole at 18.0 Ft. Borehole classification by visual examination. Description and classification by visual examination.			ĺ					•	10-			moderately plastic, dessication cracks		
Bottom of borehole at 18.0 Ft. Borehole classification by visual examination. Bottom of borehole at 18.0 Ft. Borehole classification by visual examination.	SS	2.0	2.0						-					
Bottom of borehole at 18.0 Ft. Borehole classification by visual examination. Bottom of borehole at 18.0 Ft. Borehole classification by visual examination.		ŀ							-					
Bottom of borehole at 18.0 Pt. Borehole classification by visual examination. Bottom of borehole at 18.0 Pt. Borehole classification by visual examination. Classification by visual examination by visual examination. Classification by visual examination by visual examination by v		 -						404.1_	-		7			Description and
S = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.											П	Bottom of borehole at 18.0 Ft. Borehole	23/88	classification by
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.											Н	Document with behive tement, 11/	20,00.	Vibual examination.
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.											П			
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.				Ì							Ш			
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE HOLE NO.									,,		Ш			
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St. Louis Downtown Site R129	SS =	SPL	IT SF	POON; ST	= SHEL	BY TU	BE; S	TE		·				
									S	t.	Lo	uis Downtown Site		R129

	G	F(OLOG	IC I	DR	ILL	LO	G	PROJEC	T		FUSRAP	JOB NO. SHI	EET NO.	HOLE NO.
SITE								COORDINA	TES			FUSKAF		ROM HORIZ	R130
		. Lo	uis Do	wnto	wn :	Site	è					1,370 E 2,703		tical	
BEGL		1-	OMPLETED	1						RIL		MAKE AND MODEL SIZE	1 k	K (FT.)	TOTAL DEPTH
			1-14-8					tern, Co ESEL. TO		NC.		CME-550 6" OUND EL. DEPTH/EL. GR	21.0	L/EL TOO	21.0
LUKE	KEU	JVE# /	(FI./	•, μ	KE BA	UAES	10	ESEL. IU	P LASI	MG	ruk 	422.2 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	OUND WATER DEPTI	H/EL. TOP	UP ROCK
SAMP	LE H	AMME	R WEIGH	T/FALL		CAS		FT IN HOL	.E: DI	A./L	EN			/	*
			lbs/30					non	1e			•	G. Pais		
SANF DIAM.	ADU.	REC.	SAMPLE BLOWS "N" % CORE	F	TES	STS	₹E	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND	CLASSIFICATION	NOTES WATER	ON: LEVELS,
SAUF.	SAMF. ADU.	BAMPLI	810 KB	LOGS	PRESS	P. S. I	HINE HINE	422.2	i i i i	_	П			CHARA	RETURN, CTER OF ING, ETC.
					7			421.2			П	0.0 - 1.0 Ft. CONCRET		1-21.0	t. advanced
SS		1.4						_	-			1.0 - 17.3 Ft. Sandy GR. CLAY (Cl). Grayish by dark reddish brown (1) moisture content, sligh crumbly. Brick fragme	AVEL and silty rown (5YR3/2) to DR3/4). Low tly plastic,	with 6-	inch O.D. stem auger.
		•••							-			coarse-grained in part			
SS	2.0	1.2			:				5_					logged	d and gamma by Sberline.
SS	2.0	1.8							-						
SS	2.0	1.1							10_						
	2.0	1.1							-			11.0-17.3 Ft. Silty cla brown (5YR3/2) to oli to moderate moisture of plastic. Coal, bricks, t	ve gray (5Y4/1). Low content, slightly		
SS	2.0	1.3	3						· -				- ,		
SS	2.0	0.5						•	15_						
SS	2.0	1.6						404.9_	-			17.3 - 21.0 Ft. Silty CLA black (5Y2/1) to greer some olive gray (5Y4/ content, moderately pl	Y (CL). Olive		undisturbed l at 17.3 ft.
SS	2.0	1.1		1				401.2_	2 0_			content, moderately pl streaks, dessication cra silty to clay.	lj. Moderate moisture lastic, silty. Coal acks, grades from		
							:		-			Bottom of borehole at 21. backfilled with benton		classific	tion and ation by xamination.
									."						
															ind water d, 11/17/88.
						•									
•			SPOON; S'				J.,	ITE	S	it.	L	ouis Downtown	Site	HOLE NO	? ?130

			100	<u> </u>	DII I		_	PROJEC	Ť			JOB NO	. SHE	T NO.	HOLE NO.
		EU	LOG		KILI	LU		TEC			FUSRAP		-116 1		R131
SIT	_	Lo	uis Dov	vntow	n Sit	e .	COORDINA	IIE2	,	N 1.	548 E 2,303		Vert		REAKING
BEG			MPLETED			<u></u>	<u> </u>	ŀ			E AND MODEL SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
			2-16-8				tern, Co					20.0			20.0
COR	E REC	OVER'	(FT./%	CORE	BOXE	SSAMPL 10	ESEL. TO	P CASI	NG		DEPTH/EL. 23.9	GROUND WATER 18.2 1/9/89	DEPTH	/EL. TOP	OF ROCK
SAM	PLE H	AMMEI	R WEIGHT	/FALL	CAS		FT IN HO	E: DI	A./L		LOGGED BY:				<u></u>
			bs/30 i				101	1e				G. Ch	еггу	· · · · · · · · · · · · · · · · · · ·	
TYPE IAM.	ADU.	REC.	'LE "N" JRE JERY	PR	JATER ESSU FESTS	RE I	ELEV.	Ŧ	IICS	4	DESCRIPTION AN	D CLASSIFIC	ATTON	NOTES	ON: LEVELS,
SAMP. TYPE	SAMP. ADU.	CORE	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	PRESS. P. S. I.	HINE HINE	423.9	DEPTH	GRAPHICS	SAMPLE				WATER CHARA	RETURN, CTER OF ING, ETC.
	<u> </u>						423.4 423.0		٠,	ļ	0 - 0.5 Ft. ASPHAL .5 - 0.9 Ft. GRAVEI	T.	ne -	0-20.0	ft. advanced
	2.0	1.2							. – . <u></u>	\ \	.9 - 15.0 Ft. Silty CL RUBBLE, Brownia	AY (CL) and b black (5YR2/1	/],	with 6-	inch O.D. stem auger.
SS	2.0	1.0	12 3-40-14								Dry, loose. Rubble slag, brick and sand yellowish brown (10	consists of grave , patches of mod YR5/4) silty cla	l, erate y.		
			14					5_			5.5-6.5 Ft. Sand (S	W). Coarse-gra	ined.	Sample radiolog	rically logged
33	2.0	1.7	4-8-8					-			6.5-8.0 Ft. Slag. Obrownish black (5Y)			by TML	A/Eberline.
SS	2.0	1.9	2-1-3 4					. ا			8.0-8.5 Ft. Sand (S some pebbles and do (10YR4/2) silt.	P). Coarse-grainark yellowish bro	ned; wn		
SS	2.0	1.9	2-1-3					10_			8.5-15.0 Ft. Silty c Olive gray (5Y4/1) brown (10YR5/4).	to moderate yelle Moist, soft, loose	oble. owish		
SS	2.0	1.3	2-4-7 6					-			Rubble consists of s fragments, patches (5GY6/1) silty clay	lag and brick of greenish gray			
SS	2.0	1.8	1-2-4				408.9_	15_	<i></i>	1	KO - 16 KF+ Sile- C	LAV (CIA) Oliv	<u> </u>	Top of	undisturbed
SS	2.0	1.6	5-13-7 12		:		407.4_			\ \	5.0 - 16.5 Ft. Silty C gray (5Y4/1). Mois slightly plastic. Sor organics.	t, medium-stiff, ne black (N1)	· 		ll 15.0 ft.
SS	2.0	2.0	3-5-4 5				:			1	6.5 - 20.0 Ft. Sandy olive gray (5 Y 6/1) i Moist, soft, moderal	ely plastic. Very	rht YR5/2).		
<u></u>							403.9_	20 .		.	fine-grained sand; F	e staining.		Descrip	tion and
										E	ottom of borehole at backfilled with bent			classific	ation by examination.
								,,							
															und water d, 1/9/89.
				į											
			POON; ST			,,,,	ITE				· D ·		<u>-</u> .	HOLE NO	
b =	DENN	I SON	; P = PI	TCHER;	0 = 0	THER			t.	LOL	iis Downtow	n Site		<u> </u>	R131

	G	EC	LOG	ור ח	RII	110	ام. ا	PROJEC	T			JOB NO.			HOLE NO.
0.7		EC	LUG		1/16		COORDINA	TEC		FUSRAP		14501-		OF 1 OM HORIZI	R132
SIT	_	T o	uis Dov	vntow	n Sid	'Δ	COCKUINA	1153	N	1,950 E 1,41	,	'	Vert	I	SEAKING
BEG			MPLETEO			<u>.c</u>	<u> </u>				SIZE	OVERBURGEN		(FT.)	TOTAL DEPTH
1			2-20-8	1		-Wes	tern, Ca			CME-750	6"	14.0			14.0
							ESEL. TO		NG G	OUNO EL. DEPTH	EL. GROUP	NO WATER	DEPTH	/EL. TOP	OF ROCK
<u></u>					 _	7				423.0	1/414.9 1	2/23/00	1	/	
SAMI			WEIGHT		CAS	ING LE	FT IN HOL		A./LEN	IGTH LOGGEO BY:		0.01			
<u></u>			bs/30		JATER		non	1e	1 11			G. Chei	ry	T	
Ę.	SAMP. ADV.		BLOWS "N" % CORE RECOVERY	PR	ESSU	RE		_	ရှ မြ						
FI	₹8		<u> </u>	ω E	ESTS	1	ELEV.	DEPTH	草田	DESCRIPTION	AND C	LASSIFICA	TION	NOTES WATER	LEVELS,
₽-	ēΖ	급뿐	E 2000	N. P.	3.1	HAY Fra		DE	GRAPHICS SAMPLE						RETURN, CTER OF
S. S.	8 7	뛢임	N, ≅ _{1, ,} E	LOSS IN G.P.	PRESS. P.S.I.	E E	423.0	_	ا ۾ ا						ING, ETC.
SS	2.0	1.0	7-11-12 11				120.0			0.0 - 13.0 Ft. Silt	Y CLAY	CL) and		0-14 0 6	t. advanced
			••					•		RUBBLE. Bro olive black (5Y loose. Rubble	2/1). Lo	v moisture con	stent,	with 6-i	nch O.D tem auger.
SS	2.0	1.3	5-7-16 17					-		brick fragment	s, slag and	wood, some		lionow .	sem auger.
			1,					-		brick fragments patches of mod (10YR5/4) silts	erate yend y clay.	owish prown		1	
SS	2.0	1.2	2-2-3			<u> </u>		-							
			2					5						Sampled	and
SS	2.0	1.1	2-1-3					-						by TMA	ically logged Eberline.
			1					-						ļ	
SS	2.0	1.3	1-1/12"				Ž	-							
	1		'					-							
SS	2.0	1.4	3-5-12					10_							
			7					-							
SS	2.0	1.7	1-4-6					\ .							
		*''	7	İ		l	410.0_			190 - 140 F+ Q ;	IN CT AV	(CL) Oliva		Top of a	ındisturbed
							409.0_	.		13.0 - 14.0 Ft. Si gray (5Y4/1). medium-stiff, s	Low mois	ture content,	lack [material Descript	13.0 ft.
										(N1) organics.	ugnery pre	sseic. Some o	iaca	classifica	
}	1						!			Data - Charles	1 4 0 1	D. D	<i>.</i>	Visual e	Kamination.
										Bottom of borehol backfilled with	bentonite	cement, 12/2	3/88.		
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	<u> </u>	<u> </u>			<u> </u>		<u> </u>	<u> </u>							. <u> </u>
			POON; ST			,,,	ITE	C	+ 1	ouis Downt	own S	Site		HOLE NO	132

								PROJEC	T	JOB NO. SHEET NO. HO	LE NO.
L		SEC	LOG	IC D	RIL	L LO				FUSRAP 14501-116 1 OF 1	R133
SIT	_	T -	uis Dov	un to	n C:4	Δ.	COORDINA	ITES	1	N 1,228 E 2,934 Vertical -	RING
BEG			MPLETED			<u>e</u>	l	i			TAL DEPTH
			1-30-8				tern, Co).		CME-750 6" 12.0	12.0
COR	E REC	OVER	Y (FT./%) CORE	BOXE	1	ESEL. TO	P CASI	NG (ROUND EL. DEPTH/EL. GROUND WATER DEPTH/EL. TOP OF	ROCK
SAM	PIF A	AMME	R WEIGHT	/FALL	CAS	ING LE	ET IN HO	F. DI	A /LF	422.8 \$ //	
			bs/30	•		THE EL	noi	•	A./ LL	G. Cherry	
1	1				JATER ESSU	?			60		
SAMP . TYPE	SAMP. ADV.	SAMPLE RECORE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	EST	TIME IN.	ELEU.	DEPTH	GRAPHICS	NOTES ON WATER LE WATER RE CHARACTE DRILLING	VELS, TURN, R OF
							422.1_		3	0.0 - 0.7 Ft. GRAVEL.	dvanced
SS	2.0	0.8	7-9-5 5					-		0.7 - 10.5 Ft. Silty CLAY (CL) and RUBBLE. Dark yellowish brown (10 YR4/2) to brownish black (5 YR2/1). Moist, loose. Rubble consists of gravel, slag, sand, brick fragments, and carbonaceous material; Fe staining.	O.D.
	2.0	1.4	2-6-4					5_		Sampled an radiological	ly logged
	2.0	0.9	3-2-4					-		by TMA/E	oerune.
	2.0	1.3	1-3-3				412.3_	10_			
		1.0	2				410.8_	-		10.5 - 12.0 Ft. Sandy SUT (SM). Olive gray (5Y4/1). Moist, soft, slightly plastic. Very fine-grained sand, some black (N1) organics. Top of undimensional material at Description	10.5 ft.
!										Bottom of borehole at 12.0 Ft. Borehole backfilled with bentonite cement, 12/1/88.	n by
			:								
								."			
					•						
			POON; ST ; P = PI			,	ITE .	S	<u>. </u>	Louis Downtown Site R1	33

	G	EO	LOG	ור ח	DII I	10	G	PROJEC	T			JOB NO.			HOLE NO.
SIT		EU	LUG		KILI	LLO	COORDINA	TEC		FUSRAP		14501-		OF 1	R134
211		T o	uis Do	wntow	n Sit	Α.	COOKDINA	1153	N	1,108 E 2,93	R	P	Vert	1	DEAKING
BEG			MPLETED				٠			MAKE AND MODEL		WERBURDEN		(FT.)	TOTAL DEPTH
11.	30-	881	1-30-8	8 L	ayne	-Wes	tern, Co).		CME-750	6"	12.0			12.0
COR	E REC	OVER	Y (FT./2	() CORE	BOXE		ESEL. TO	P CASI	NG G	17 10	/EL. GROUNS .5/410.9 12) WATER 2/1/88	DEPTH	/EL. TOP	OF ROCK
244	N. E. W		R WEIGHT	75411	lcas.	6	ET 111 401	E. DI	1 (15)	421.4 THE LOGGED BY:				/	
SAR			bs/30		[LA	ING LE	10 E		A./LE	GIN COGGED BI:		G. Cher	PPW		
ш	1.	<u> </u>	03/30	i i	JATER	₹]	1	T			G. Che.		T	
SAMP DIAM.	CORE CORE	REG	u z w z	PR	ESSU	RE		_	GRAPHICS SAMPLE					NOTES	on:
	6	a R	토지않	m I			ELEV.	DEPTH	RAPHIC	DESCRIPTION	AND CL	ASSIFICA	TION	WATER	LEVELS,
毁	SAMP.	호유	80.5	LOSS IN G.P.M	PRESS. P.S.I.	HAN.		8	A P						RETURN, TER OF
8	8 7	SAI	SAMPLE BLOWS "N" " CORE RECOVERY	9 د	д. Р.	FΣ	431.4		1 "					DRILLI	NG, ETC.
SS	1.4		17-15-1	1			420.9_	١.	-	0.0 - 0.5 Ft. GR 0.5 - 9.0 Ft. Silts	CLAY (CI	and			. advanced
								_		0.5 - 9.0 Ft. Silis RUBBLE. Da (10YR4/2). M of gravel, slag,	rk yellowish loist, loose,	brown Rubble con	sists		nch hollow m auger.
SS	2.0	0.8	15-19-1 10	1				_		of gravel, slag, carbonaceous r	sand, brick naterial.	fragments,	and		
	1														
SS	2.0	1.2	3-5-7 9					ً ا							
								'-						Sampled	and ically logged
SS	2.0	0.8	3-2-2			}	1	•						by TMA	Eberline.
			_					•							
55	2.0	1.5	1-2-5				412.4_	•							
1	1] -			•		1,0		9.0 - 12.0 Ft. Say	dy SILT (S	M). Olive		Top of u	indisturbed at 9.0 ft.
SS	2.0	1.6	3-2-1					10_		gray (5Y4/1). plastic. Very f black (N1) org	ine-grained	sand, some		Materia	4. 3.0 1.
1	1		"				409.4_			DIACE (141) OIR	ailics.				
	┪	<u> </u>					409.4_	•	1,,,	Data at hank	l4 10 0 E/			Descript classific	ion and
	1		Ì							Bottom of boreho backfilled with	bentonite	ement, 12/	l/88.	visual e	kamination.
	1		ĺ												
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	<u>L_</u> _		L		<u> </u>	<u> </u>	<u> </u>							<u> </u>	
			POON; \$1			,	ITE			ania Dania	C	• •		HOLE NO	134
P =	DENN	I SON	; P = P1	TCHER;	0 = 0	THER			t. L	ouis Downt	own 5	ire		1	1134

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	:T	FUCDAD	1 1	ET NO.	HOLE NO.
SITE							COORDINA	TES		FUSRAP	14501-116 1 ANGLE FI	OM HORIZ	R135 BEARING
			uis Dov			e	1			1,145 E 3,013	Ver	tical	
BEGUN			MPLETED 2-2-88			-Was	tern, Co		DRILL	} 1		K (FT.)	TOTAL DEPTH
							ESEL. TO		NG G	COUND EL. DEPTH/EL. GROUND	12.0 DEPTH	/EL. TOP	0F ROCK
						6				421.0 \$ 9.5/411.5 12/3	7/88	/	
SAMPLI			e weight bs/30 i	-	CAS	ING LE			A./LE	GTH LOGGED BY:	C D:		
ш				i i	JATER	2	DOI	ie .	 		G. Pais	T	
SAMP. DIAM.	LEN CORE	BAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOUERY	LOSS IN G.P.M LW	PRESS. P. G. I.	TIME ANIN.	ELEU.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLA		WATER CHARAC	ON: LEVELS, RETURN, CTER OF ING, ETC.
SS 2.	.0	1.1						-		0.0 - 7.5 Ft. GRAVEL and sil (CL). Dusky brown (5YR2 reddish brown (10R3/4). L moisture content, slightly p of organics, sandy in places.	lastic. Trace	with 6-i	t. advanced nch O.D. tem auger.
SS 2.		1.1					•	5				Sampled logged b	l and gamma by
SS 2.	.0	1.6		·			413.5_ <u>5</u>	- - - -		7.5 - 12.0 Ft. Silty CLAY (CL brown (5YR3/2). Moderate moisture content, moderate in places, stiff.). Grayish to high ly plastic, sandy	Top of t	indisturbed
SS 2.	.0	1.4					409.0_	10 -					ion and
								ę		Bottom of borehole at 12.0 Ft. backfilled with bentonite ce			ation by camination.
			OON; ST P = P1			,	ITE	•	• 1	ouis Downtown Sit		HOLE NO	135

	G	EC	CLOG	IC D	RIL	L LO	G	PROJEC	T ,	FUSRAP		J08 NO	. SHE	ET NO.	HOLE NO.
SITE						·	COORDINA	TES		LONAL			ANGLE FR		
			uis Dov			e	1		N	2,020 E 3,43	5		Vert	ical	
BEGUN			OMPLETED					- 1	RILL			OVERBURDEN	ROCI	(FT.)	TOTAL DEPT
			0-25-8 Y (FT./X				tern, Co		NG G	CME-750	6"	28.0		/E1	28.0
UKE	KEU	UVER /	I (FI./A	CORE	BUAL	14	ESEL. IU	P CASI		422.1 量 /	EL. GROUN	D WATER	DEPIR	/EL. TOP	OF ROCK
AMPL	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	E: DI	A./LEI	IGTH LOGGED BY:				/	
	1	40 1	lbs/30	in			no					G. Ch	erry		
W	Ju	ပ်		,	JATE! ESSU	?			_					Ì	***************************************
<u>™</u>	SAMP. ADU.	REC.	SAMPLE BLOWS "N" % CORE RECOVERY		ESTS			Ξ	GRAPHICS SAMPLE					NOTES	ON:
, iii			돌림당	ກຼະ	ñΗ	<u>.</u>	ELEV.	DEPTH	RAPHIC	DESCRIPTION	AND CL	.ASSIFIC	ATION		LEVELS, RETURN,
SAMP DIAM.		CORE	25 × F	LOSS IN G.P.H	3. I	HYY.		ā	F S					CHARA	CTER OF
SS 2		1.6		1 0	<u>0</u> 0		422.1		٦	0.0 00.0 00.000	- A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			DRILL:	ING, ETC
33	4.0	1.6	16							0.0 - 22.0 Ft. Silt RUBBLE. Mod	erate yell	CL) and owish brow	n.		t. advanced
88										(10YR5/4). Di slag, brick, glas	y, stiff. R s and grav	ubble consi 'el.	sts of		nch O.D. tem auger.
SS	2.0	1.1	9-19-18 17								_				-
SS 2	2.0	1.3	4-5-3					δ_							
		 						"-						1	
SS 2	2.0	1.0	6-8-9 8											-	
							·								
SS 2	2.0	1.4	5-5-5 6					1						l	
SS 2	2.0	1.8	2-6-9					10_						Sample	and gamm
ļ			8				i	-						logged b	berline.
SS 2	2.0	1.7						-							
			7					-							
SS 2	2.0	1.2	2-2-3					-							
- 1			4					15_							
SS 2	2.0	1.2	2-6-5					-							
			4					-							
SS 2	2.0	1.0	3-5-5					-						ł	
٠		1.0	5					_							
66 6	2.0	1.4						20_							
SS 2	6.U	1.4	5-5-6 13												
							400.1_]_	
SS 2	2.0	2.0	6-9-10 13							22.0 - 28.0 Ft. Sa gray (5Y4/1).	ody SILT Very fine-	(SM). Oliv	e d, wet.		indisturbed at 22.0 ft.
								[7]		soft. Some blac rootlets and twi	k (N1) org	anics, inclu	iding		
SS 2	2.0	2.0	4-4-6					25_			·				
_			_												
SS 2	2.0	0.9	4-5-7												
							394.1	1							
\top							552.1_	1		Patter of the state	4 - 60 - 0 - 7			Descript	
										Bottom of borehold backfilled with				classification visual ex	ation by camination.
					•									No grou	nd water
															i, 11/17/88.
		L	<u>. </u>			l	175		Щ					1101 5 115	
			POON; ST	= SHEI TCHER:		J-,	ITE	C	+ 1	ouis Downto	wn E	ita		HOLE NO	136

			1.00	<u> </u>	<u> </u>			PROJEC	T		JOB NO. SH	EET NO. HOLE NO.
<u></u>	_	EC	LOG	IC D	KIL	L LO				FUSRAP	14501-116	
SIT					~.		COORDINA	ITES	_			ROM HORIZBEARING
BEG			uis Dov			<u>:e </u>	<u> </u>			1,918 E 3,315 MAKE AND MODEL SIZE		rtical
		- 1	1-1-88			-Wes	tern, Co		/	C) 47 460	140	16.0
) CORE	BOXE	SSAMPL	ESEL. TO	P CASI	NG G		COUND WATER DEPT	H/EL. TOP OF ROCK
Ŀ						8				721.0	.9 11/9/88	
SAM			R WEIGHT	-	CAS	ING LE	FT IN HO		A./LE	NGTH LOGGED BY:	6 B 1	
-	1	40 1	bs/30 i	מו	JATER		DOI	<u>ne</u>	т		S. Beck	
SAND DIAM.	吕삝	E C	աՀյան	PR	ESSU	RE			ရွ			NOTES ON
170	팅	m &	F. 83	gΣ	rests	<u> </u>	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND	CLASSIFICATION	
₽0	즐낊	耳품	\$3,50 8,50 8,50 8,50 8,50 8,50 8,50 8,50 8	L038 IN G.P.M	3.1	HAY.			4 6			WATER RETURN, CHARACTER OF
84	SA	S S	SAMPLE BLOWS "N" " CORE RECOVERY	7 9	PRESS. P.S.I.	FE	421.6		9			DRILLING, ETC.
SS	2.0	1.2								0.0 - 14.0 Ft. FILL. Crifill, including concrete	ushed granular and clay.	0-16.0 ft. advanced
								•				with 6-inch O.D. hollow stem auger.
SS	2.0	1.2		1	İ	·		·		J.		1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0
				,				·				1
SS	2.0	1.1		1				5_				·
								•-				Sampled and gamma
SS	2.0	1.1		1	ĺ	1		-				logged by TMA/Eberline.
			1	!			ļ	-				
SS	2.0	1.8		1				-				
SS	2.0	0.8		1	l			10_				
								-				
SS	2.0	1.8		1	·			-				
							407.6_	-				
SS	2.0	1.6		i	ļ	ļ	101.0	z		14.0 - 16.0 Ft. Silty CL. gray (5Y4/1).	AY (CL). Olive	Top of undisturbed material at 14.0 ft.
			i	1		i	405.6	15_		gray (514/1).		material at 14.0 it.
				•			405.6_	-		Pottern of horshole at 16	O.Ft. Parabala	Description and classification by
	į									Bottom of borehole at 16 backfilled with benton	nite cement, 11/9/88.	visual examination.
					ĺ							
									1			
					İ							
												No ground water
												observed, 11/9/88.
}				1					1 1			
		İ		}					1 1			
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1					1							
_	<u> </u>	<u> </u>			<u> </u>	125 15	I TE	L	Ш	<u> </u>		HOLE NO.
			POON; ST			, ,	SITE	S	i t 1	ouis Downtown	Site	R137

	<u> </u>	FC	LOG	ור ח	RII	IIO	G	PROJEC	T	EVIOR : 5	1	EET NO. HOLE NO.
SITE			,200	. C D	1712		COORDINA	ATES		FUSRAP	14501-116 1	OF 2 R138 ROM HORIZBEARING
3. 18		Lo	uis Do	wntow	n Sit	e			N	1,925 E 3,500	li li	tical
BEGL			MPLETED			-	<u> </u>	İ				K (FT.) TOTAL DEP
			0-25-8				tern, Co			CME-550 6"	32.0	34.0
CORE	REC	OVER	Y (FT./%	() CORI	BOXE	1	ESEL. TO	P CASI	NG G	ROUND EL. DEPTH/EL. GROUND W	MATER DEPT	H/EL. TOP OF ROCK
SAME) E H	AMME!	R WEIGHT	/FALL	ras	17	ET TH HO	E. DI	A /I EI	423.0 \$ /		
JATT			bs/30	-	<u> </u>	,, wa FE	II 1 I I I I I I I I I I I I I I I I I		M./LE	IGIN LOGGED B1:	S. Beck	
ш.				T	WATER	₹					B. Deek	1
SAND DIAM.	SAMP, ADU.	SAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	PF	TEST	3	ELEU.	ОВРТН	GRAPHICS SAMPLE	DESCRIPTION AND CLAS	BSIFICATION	NOTES ON: WATER LEVELS,
띯.	AMP.	APP.	S S S S S S S S S S S S S S S S S S S	LOSS IN G.P.F	PRESS P. S. I	TILE NIN		100	3RAP SAR			WATER RETURN, CHARACTER OF
	2.0	1.1		2 6	20		423.0		١	O O BOO DA GT AV (GV)		DRILLING, ETC
33	2.0	1.1						-		0.0 - \$2.0 Ft. CLAY (CL). Dar brown (10YR4/2) to moderat brown (10YR5/4). Very coh	rk yellowish ite yellowish iesive.	0-34.0 ft. advanced with 6-inch O.D.
SS	2.0	1.3						-				hollow stem auger.
SS	2.0	1.4						5_				
SS	2.0	1.5						-				
SS	2.0	1.6						-				
								10_				
SS	2.0	1.7] }				-		10.0-15.0 Ft. Silty clay (CL)	·).	Sampled and gamm logged by TMA/Eberline.
SS	2.0	1.4						<u> </u>				
SS	2.0	1.8						15_				
SS	2.0	1.7						<u>.</u>		15.0-32.0 Ft. Fill. Mixture of material including bricks, sla concrete, metal and clay.		
SS	2.0	1.8						-				
CC	0.0		a in the district					20_				
SS	4.U	1.9						-				
SS	2.0	1.5						,,-				
SS	2.0	1.5						25_				
SS	2.0	1.2						-				
SS	2.0	1.3						-				
SS	2.0	1.4						30_				
						:	3 91.0_] -				
SS	2.0	1.2] .		32.0 - 34.0 Ft. Sandy SILT (SM gray (5Y4/1).	M). Olive	Top of undisturbed material at 32.0 ft.
							389.0_ ITE			Bottom of borehole at \$4.0 Ft.	Borehole	Description and classification by HOLE NO.
			POON; ST ; P = PI			,,,	116	S	t. L	ouis Downtown Site	е	R138

		G	EC	LOG	IC D	RIL	L LO	G	PROJEC	Ť	•	FUSRAP			HOLE NO.
	ш.				1						П	FUSRAF	14501-116, 2	OF 2	R138
	SAMP.DIAM.	SAMP. ADV.	SAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M	ESSU ESTS SO ON ON ON ON ON ON ON ON ON ON ON ON ON	RE S NIN NIN	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS		WATER CHARAC DRILL	LEVELS, RETURN, TER OF ING, ETC.
				POON; ST				ITE				backfilled with bentonite cen	nent, 11/15/88.	visual ex	nd water
_) = (DENN	I SON ;	P = PI	TCHER;	0 = 0	THER		S	t.	Lo	ouis Downtown Site	}	R	138

		FC	LOG	ור ח	RIL		G	PROJEC	T	ELICD AD		JOB NO		ET NO.	HOLE NO.
SITE			LUG		1/12		COORDINA	TES		FUSRAP			-116 1	OF Z	R139
3111		Lo	uis Dov	wntow	n Sit	te			N	1,799 E 3,600	5	İ	Vert		
BEGL			MPLETED					F			SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
			0-26-8				tern, Co			CME-550	6"	34.0			36.0
CORE	REC	OVER'	Y (FT./%	() CORE	BOXE	S SAMPL	ESEL. TO	P CASI	NG G	OUND EL. DEPTH/	EL. GROU	ND WATER	DEPTH	/EL. TOP	OF ROCK
SAMP	LE H	AMME!	R WEIGHT	/FALL	CAS		FT IN HOL	E: DI	A./LEN			·			
		_	bs/30	-			пол					S. Be	ck		
ř					JATER				<u></u>						
SAND DIAM.	SAMP. ADU.	E REC	SAMPLE BLOWS "N" % CORE RECOUERY	σ E	TEST!	3	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION	AND C	LASSIFIC	ATION		LEVELS,
SANG PANG	LEN	BAMPLE CORE R	EC.	LOSS IN P. T	PRES P. S. J	FILE		8	GRA					CHARAC	RETURN, CTER OF ING, ETC.
SS	2.0	1.0	-	<u> </u>	100	 	424.0 423.5_	 	***	0.0 - 0.5 Ft. TOP	SOIL B	lack (N1).		 	
								-		0.0 - 0.5 Ft. TOP 0.5 - 34.0 Ft. PIL material include	L. Crushing red bi	ed fill rick, concret	e,	with 6-i	t. advanced nch O.D.
SS	2.0	0.7		1				ነ -		slag, wood and	clay.			hollow	tem auger.
								-							
SS	2.0	0.7	-	}		}		-							
					ļ	ļ		5_							
SS	2.0	1.3	<u> </u>	1				-							
								-							
SS	2.0	0.7		1											
SS	2.0	0.3	<u> </u>					10_						Sample	d and gamma
				ł	ļ			-						logged l	berline.
SS	2.0	0.7	-	1			ļ	-							
							Ì								
SS	2.0	0.3		1				15_							
							1	15-							
SS	2.0	1.3						-							
SS	2.0	1.8		1	•	ļ									
		L						20_							
SS	2.0	1.5			1										
SS	2.0	2.0						, <u>,</u>							
								Ι.						1	
SS	2.0	1.8						25_							
			ļ					١.							
SS	2.0	1.9													
	<u></u>	<u> </u>		1							•			Į	
SS	2.0	1.9													
		ļ.,						30_							
SS	2.0	1.6] .							
			ļ			}									
SS	2.0	1.1					1							}	
				1			390.0_	. ↓	·	0.4.0		(Ot) O:			ام ما دروم نام سر
	2.0	1.7	<u> </u>			<u> </u>	<u> </u>	<u></u>		34.0 - 36.0 Ft. Sil	Pockets o	(CL). Oliver of mand and i	e rravel.	materia	indisturbed at 34.0 ft.
			POON; \$1			I	SITE	c	:+ I	ouis Downt	own G	Sita		HOLE NO	139
υ =	DENN	SON	; P = PI	TUHER;	U = (UIHER		3	7L. L	onis Domiti	AAII S	JILE		1	1133

	G	EC	COLO	GIC	D	RIL	L LO	G	PROJEC	Ť	FUSRAP	JOB NO. SHE		HOLE NO. R139
SAND DIAM.	SAMP. ADV.	SAMPLE REC.		RECOUERY LOSS	PRI T	ESTS SSU SSU SSU SSU SSU SSU SSU	TIME SAN	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLAS		NOTES WATER WATER CHARAC	·
								3 88.0_	•		Bottom of borehole at 36.0 Ft. backfilled with bentonite cen	Borehole nent, 11/8/88.	Descript classifica visual ex	ion and stion by amination.
									<u>-</u>				No group observed	nd water l, 11/8/88.
									ę.					
			POON; S; P = F				, ,	lTE	S	t. Le	ouis Downtown Site		HOLE NO.	139

	-	EC	LOG	וכ ח	PILI		G	PROJĒC	T				JOB NO		T NO.	HOLE NO.
SIT		IEC	LUG		KIL		COORDINA	TEC			FUSRAP			-116 1		R140
211		La	uis Do	wntow	n Sit	e	COOKDINA	(162		N	1,700 E 3,30	0		Vert		BEAKING
BEG			MPLETED				<u> </u>	-	DRIL		MAKE AND MODEL	SIZE	OVERBURDE	* · · · · · · · · · · · · · · · · · · ·	(FT.)	TOTAL DEPTH
			1-1-88				tern, Co				CME-550	6"	19.0			20.0
COR	E REC	OVER'	Y (FT./%	() CORE	BOXE	SSAMPL 10	ESEL. TO	P CASI	NG	GR	OUND EL. DEPTH	EL. GROU	ND WATER	DEPTH	/EL. TOP	OF ROCK
SAM	PLE H	AMME	R WEIGHT	/FALL	CA!		FT IN HO	LE: DI	A./l	EN				1		
	1	40 1	bs/30	in			по	ne					S. Be	eck		
Ä.	2 11	ပ္ပါပ	SAMPLE BLOWS "N" 7 CORE RECOUERY	PR	JATER	RE			ຫຼ							
SAMP DIAM.	된양	E E	1. 89 2. 88 2. 88		TESTS		ELEV.	DEPTH	BRAPHICS	SAMPLE	DESCRIPTION	AND C	LASSIFIC	ATION	NOTES	ON: LEVELS,
90	르고	1 1 1 1	F2000	LOSS IN G. P. H	SH.	E Z Z	1	Ü	Ē						WATER	RETURN, CTER OF
SE SE	S 2		, <u> </u>	7.9	PRESS P. S. I	E.E	425.0		Ö							ING, ETC.
SS	2.0	1.4									0.0 - 19.0 Ft. PD fill material in	L. Crush	ed granular acrete, red			t. advanced
		L.,]	İ						brick, glass an	d clay.	•			nch O.D. tem auger.
SS	2.0	1.2						} .							1	
20	20	1,2			İ		·] .								
35	2.0	1.2			ĺ			5_							S	
99	2.0	1.0													logged t	l and gamma y berline
		•			İ		<u> </u>									ber mile.
SS	2.0	1.1		·			!	.								
				1	İ	İ		-			•					
SS	2.0	1.2			ĺ	i		10_								•
								\ •								
SS	2.0	1.4		1												
SS	2.0	1.6]	ĺ			15_								
	<u> </u>]		}]									
SS	2.0	1.7		1				١.								
-		20														
35	2.0	2.0			ĺ		406.0_		,,,,,,,	,	19.0 - 20.0 Ft. S	IL OT AV	(Ct \ 0):		Top of	ındisturbed
-			ļ				405.0_	20			gray (5Y4/1).	THE CHAI	(CD). Onv		material Descript	at 19.0 ft.
											Bottom of boreho backfilled with				classific	
			! !	1	l					$\ $, -,		
					ĺ			, ,		$\ $						
										$\ \ $						
					ĺ			ļ.	ŀ	$\ $					No grou	nd water
					İ										observed	1, 11/9/88.
			ļ ļ		ĺ			ļ		$\ \ $						
										П						
				1			1		1							
	}							1		$\ \ $						
					٠											
								ŀ		$\ \ $						
			<u> </u>	<u> </u>	L	<u> </u>	175			Ш					HOLE NO	
SS =	SPL DENN	IT SI	POON; ST ; P = PI	= SHE	.BY TL	JBE; S	116	S	St.	L	ouis Downt	own S	Site			140

		EC	LOG	וכ ט	DII		G	PROJEC	:T				JOB NO		SHEET NO		HOLE NO.
			LUG		KIL	LLU					FUSRAP				<u> </u>	1	R141
SIT	_	T -	uta Da		- 614	١	COORDIN	AIES		N I	1 700 E 2 500				E FROM HO	RIZE	BEARING
BEG			MPLETED			e	<u> </u>	-	PII		1,700 E 3,500 IAKE AND MODEL ST	IZE	OVERBURDEN		Vertical	$\overline{}$	TOTAL DEPTH
1		- 1	1-7-8			-Wes	tern, Co		/N1 L		CME-550	6"	22.0		NOCK (FI	.,	22.0
							ESEL. TO		NG		OUND EL. DEPTH/EL			þ	EPTH/EL.	TOP	
						11					428.0					_/	
SAM			R WEIGHT	-	CAS	SING LE	FT IN HO	LE: DI	A./L	.EN	GTH LOGGED BY:						
	1	40 1	bs/30	in			no:	<u>ne</u>		, ,			<u>G. P</u>	ais	************		
g.	2 11		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATEF JESSU	RE			ရွ								
FE	뮡벓		7. 8.		TESTS	5 1	ELEV.	F	부	Ħ	DESCRIPTION (AND CI	ASSIFIC	ATT	TON NOT		ON: LEVELS,
	عاما		E 200	SZ.	စ္တမ	₩zż		DEPTH	GRAPHICS	SAMPLE					WAT	ER	RETURN,
SAMP. TYPE	SAMP. ADV.	割品		LOSS IN P. H	PRESS. P. S. I.	FISE			A A	٦							TER OF NG, ETC.
SS	2.0	1.8	 -	-	0.0		428.0	├		₩	0.0 - 22.0 Ft. Silty	CLAY (CL) and say	ndy			
								-		Ħ	0.0 - 22.0 Ft. Silty GRAVEL. Grayi yellowish brown (5YR8/1), and bi	ish brow	n (5YR3/2	, pale	e 0-2:		s. advanced nch O.D.
SS	2.0	1.6		-							(5YR8/1), and bi	rownish	black (5YR	2/1).	holl		tem auger.
"											Bricks, coal, and	slag ma	terial.	y.			
00										Ħ							
33	2.0	1.8	}		1		İ	5_									_
L								١.							1000	ed b	and gamma
SS	2.0	1.8									6.0-22.0 Ft. Silty yellowish brown black (5YR2/1), (5YR7/2) and mo	y clay (0 (10YR2)	CL). Dusky (2) to brown	nish	TM	A/E	berline
								· •			black (5YR2/1), (5YR7/2) and mo	some gr	ayish orang	e pini	k		
SS	2.0	1.6]]		П	(10R4/6). Moder moderately plasti	rate moi	sture conte	nt,	1		
		İ						10_			moderatory practi			•			
SS	2.0	1.3						10-									
	1						<u> </u>	-									
SS	2.0	1.6		1				-									
	Į							-									
SS	2.0	1.3		1				-									
								15_									
SS	2.0	1.4		1				-									
								-									
90	2.0	1.5		1	•												
33	2.0	1.0	i														
-				-				20~									
33	2.0	1.3						.							mat	or u erial	ndisturbed at >22.0 ft.
]			406.0_	<u> </u>									
		l							l	П	Bottom of borehole	at 22.0 I	t. Borehol	e			ion and ition by
	•				ļ			۳.	İ	Н	backfilled with be					al ex	amination.
		1					[1	$\ \ $							
1										Ш					1		
	-				1					П							
					1					$\ \ $							nd water
		١			1			}	ì	11					ODS	rvea	l, 11/9/88.
					1					$\ \ $							
	}				1				1								
					[$\ $							
										$\ $					ĺ		
					i	1				$\ $							
							1			$\ \ $							
<u> </u>	l		<u> </u>	L	<u> </u>	<u> </u>	1	<u> </u>	<u> </u>	Ц					HOLE	. 110	
			POON; ST			, ,	ITE	S	it.	L	ouis Downto	wn S	Site		I HOLE		141

		EC	LOG	ור ח	DII	10	G	PROJEC	T				JOB NO.		ET NO.	HOLE NO.
SITI			LUG		KIL	LLO	COORDIN	ATEC			FUSRAP		14501-1		OF 1	R142
3111		Lo	uis Dov	vntow	n Sit	e		NIE3		N	1,635 E 3,230	0		Vert		BEAKING
BEG			MPLETED				1	·			MAKE AND MODEL	SIZE	OVERBURDEN		(FT.)	TOTAL DEPTH
			1-2-88				tern, Co				CME-550	6"	14.0	<u> </u>	-	16.0
CORE	REC	OVER'	Y (FT./%) CORE	BOXE	SISAMPL 8	ESEL. TO	P CASI	NG	GR	OUND EL. DEPTH/I	EL. GROU	14.0	DEPTH	/EL. TOP	OF ROCK
SAMI	LE H	AMME	R WEIGHT	/FALL	CAS		FT IN HO	LE: DI	A./L	.EN	GTH LOGGED BY:	· · · · · · · · · · · · · · · · · · ·		٠	/	,
	1	40 I	bs/30	n			no						S. Bec	k		
٣.	ساد	ပ္ပုံ		PR	JATER				ေ	П						
₽Ğ	BX	E E	7. 66		EST		ELEV.	Ŧ	GRAPHICS	Ц	DESCRIPTION	AND C	ASSTETCA	TTON	NOTES	
<u>-</u>	<u>a</u> z		E 2000	SN.	33.	HINE Free		DEPTH	Ę.	SAMPLE				. 20.1	WATER	RETURN,
SE SE	SAM	E S	SAMPLE BLOWS "N" " CORE RECOVERY	LOSS IN G.P.M	PRES:	HH	423.0	_	8	1						CTER OF ING, ETC.
SS	2.0	1.5					422.5_		***		0.0 - 0.5 Ft. TOP	SOIL.	ad amanulan		0.16.0.6	t. advanced
								-			0.5 - 14.0 Ft. PIL. fill, including re coal, and clay.	d brick,	lag, concrete,		with 6-i	nch O.D. tem auger.
SS	2.0	1.7						-			com, and cay.				nonow .	sem auger.
							·	•								
SS	2.0	1.5				1		5_								
				:				"-							Sampled logged b	l and gamma
SS	2.0	1.9													logged b	berline.
SS	2.0	1.5														
00								10_								
55	2.0	1.0		:												
00	2.0	1.7														
33	2.0	1.7														
55	2.0	1.4					409.0_	ᢤ.	<i>''''''</i>		14 0 - 16 0 Ft Sile	⊷ CT AV	(CI) Oliva		Top of	ındis t urbed
	•.0	***						15_			14.0 - 16.0 Ft. Sile gray (5Y4/1).	Moist at	16.0 Ft.		material	at 14.0 ft.
							407.0_								Descript	tion and
							·				Bottom of borehole backfilled with l	e at 16.0 l bentonite	Ft. Borehole cement, 11/9	/88.	classific	ation by xamination.
														,		
															No grou	nd water
						1				$\ \ $					observed	d, 11/9/88.
	ŀ							,,		$\ $						
						1				$\ $			•			
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						}										
<u> </u>						<u></u>	<u></u>	<u> </u>	<u> </u>	Ш					ļ	
			POON; ST ; P = Pl			,,,	ITE	S	it.	L	ouis Downto	own S	Site		HOLE NO	142

						-200		PROJEC	T				JOB NO.	SH	EET NO.	HOLE NO.
	G	GEC)LOG	IC D	RIL	L LO	G		••		FUSRAP		14501-1	- 1		R143
SITE					_		COORDINA	TES				_		GLE F	ROM HORIZ	
			uis Do			e	<u> </u>				1,601 E 3,39				tical	
BEGL		- 1	MPLETED 0-27-8			. Was	tern, Co	1	DRILL		AKE AND MODEL CME-550	SIZE	OVERBURDEN 18.0	ROC	K (FT.)	TOTAL DEPT
				() CORE	BOXE	SSAMPL	ESEL. TO	P CASI	NG			_		DEPT	H/EL. TOP	
		1				9	_				428.0			L	/	·
SAMP			R WEIGHT	•	CAS	ING LE	FT IN HOL	LE: DI	A./Li	ENC	TH LOGGED BY:					
		, 	lbs/30				non	1e	7 7				S. Beck	<u> </u>		· · · · · · · · · · · · · · · · · · ·
SAMP. TYPE AND DIAM.	SAMP. ADV.	SAMPLE REC.	SAMPLE BLOWS "N" % CORE	LOSS IN G.P.M. 4	PRESS. 1.8.4	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION	I AND (CLASSIFICAT	ION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
SS	2.0	1.5									0.0 - 18.0 Ft. FI material, inclu slag, metal, sa	ding cond	rete, red brick.	_	with 6-	t. advanced inch O.D. item auger.
SS		1.5						•		ļ						
	2.0	0.7						5_							Sample logged I TMA/E	d and gamma
	2.0	1.5					'								TMA/E	Cberline
SS	2.0	1.7						10_								
SS	2.0	1.4					:									
SS	2.0	1.5														
SS	2.0	1.5						15_								
SS	2.0	0.6														
							410.0_				Bottom of boreho backfilled with		Ft. Borehole e cement, 11/9/	88.	Top of materia	undisturbed l at >18.0 ft.
								,							Gases d 16.0-18	etected .0 ft. sample.
															Descrip classific visual e	tion and ation by xamination.
															No grou observe	ind water d, 11/9/88.
			POON; ST ; P = P1			,,,,	I TE				ouis Downt	own	Site		HOLE NO	R143

		G	EC	LOG	IC D	RIL	L LO	G	PROJEC	T	FUSRAP	JOB NO	. SHE	ET NO.	HOLE NO.
511	Ε							COORD I NA	TES		FUSRAF		ANGLE FR		R144 BEARING
		St.	Lo	uis Doy	vntow	n Si	e				1,610 E 3,590		Vert		
BEC	UN		C	MPLETED	DRILL	.ER						VERBURDEN		(FT.)	TOTAL DEPTH
				0-27-8				tern, Co			CME-750 6"	48.0			48.0
COR	RE I	REC	OVER	Y (FT./%) CORE	BOXE	S SAMPL	ESEL. TO	P CASI	ING G	COUND EL. DEPTH/EL. GROUNG	MATER	DEPTH	/EL. TOP	OF ROCK
SAN	IPL	E H	AJOHE	R WEIGHT	/FALL	CA:		FT IN HOL	F: DI	A /I F	427.0 ½ /			/	
				bs/30	-	-	,	nor		A., CL	5711 ESSIGED 57.	G. Ch	errv		
Ä						JATE	₹								
SAMP. TYPE	IN DIMOS	LEN CORE	CORE REC.	SAMPLE BLOWS "N" % CORE RECOUERY	LOSS IN G.P.H	PRESS. ESP	HINE SHINE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CL	ASSIFIC	ATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
SS	2	.0	1.2	3-6-9		44	 	427.0			0.0 - 45.5 Ft. Silty CLAY (C	L) and		D.C.	2110, 210.
SS	1	.3	0.9	10 9- 4 8-50-					-		RUBBLE. Dark yellowish (10YR4/2). Moist, soft. I of brick, gravel, concrete,	Rubble con	sists wood.	with 6-	t. advanced inch O.D. stem auger.
SS	2	.0	1.3	4-4-5				·	5_						
SS	2	.0	1.2	2-3-3 5					- -						
SS	2	.0	1.3	2-2-2 6					 						
SS	2	.0	1.1	43-5-5 3					10					l logged l	d and gamma by berline.
SS	2	.0	1.6	1-2-2										I MLA/E	bernne.
SS	2	.0	1.4	1-2-2					15_						
SS			1.2	1-3-2 4					-						
SS			1.8	1-2-3					20_						
SS			1.8	2-2-3 4					2 0						
SS			1.8	4					,-						
SS				1-3-4					25_						
SS			2.0	2-3-4 5					-						
SS			2.0	2-3-3 5		,			- - -						
SS				4-7-14 17					-		·				
SS				11-5-9 8					- -						
SS	1_			5-6-7 8		B:		ITE						HOLE NO	
				POON; ST			,		S	t. L	ouis Downtown Si	ite		F	144

	G	EC	LOG	C D	RIL	L LO	G	PROJEC	т	JOB NO. SI FUSRAP 14501-116	EET NO. HOLE NO. 2 OF 2 R144
SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M.d.	PRESS. F.S. I.	RE	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON:
SS		0.7	8-9-5 7					T			
SS	2.0	1.2	5-5-7 8					-			
SS		0.6	5-8-13 19					40_			
SS		1.3	9-9-9 10 7-4-3					1			
SS		1.6	2-6-9 9				381.5_	45_		45.5 - 48.0 Ft. Silty SAND (SM). Olive gray (5Y4/1). Very fine-grained sand. Moist, soft, slightly cohesive.	Top of undisturbed material at 45.5 ft.
							37 9.0_	•		Bottom of borehole at 48.0 Ft. Borehole backfilled with bentonite cement, 11/8/88.	Description and classification by visual examination.
											No ground water observed, 11/8/88.
		!									
								ŗ			
								;			
			POON; ST			,	ITE			ouis Downtown Site	HOLE NO.

		G	FC	LOG	IC I	וח	211 I	10	G	PROJEC	Ţ	-	FUCDAD		JOB NO.		ET NO.	HOLE NO.
SII	E	_	_						COORDINA	TES			FUSRAP		14501- h		OF 1	R145 BEARING
	_	St.	Lo	uis Do	wnto	wı	sit	e				N	1,500 E 3,50	0		Vert		
BEC			1-1	MPLETED	Γ		_				RILL		AKE AND MODEL	SIZE	OVERBURDEN	ROCK	(FT.)	TOTAL DEPT
				1-8-8					tern, Co				CME-550	6"	20.0	DE01 11	(E) TOO	20.0
CO	₹E	REC	OVER'	Y (FT./X	(3)	ЖE	BOXE	S SAMPL	ESEL. TO	CASI	NG	GK	427.8 ₹ /	EL. GROU	IND WATER	DEPIN	/EL. 10P	OF ROCK
SAP	IPL	E H	NHE	R WEIGHT	T/FAL	Ϊ.	CAS			E: DI	A./L	ENC	TH LOGGED BY:					···
L		1	40 I	bs/30	in				non	ıe					G. Pa	is		
H.		E.	ပ္ပုံ	SAMPLE BLOWS "N" % CORE RECOVERY	,		ATER				8	П						
\ <u>`</u>	3 3		R R			Ţ	ESTS		ELEU.	Ŧ	GRAPHICS	SAMPLE	DESCRIPTION	AND C	LASSIFICA	TION	NOTES	ON: LEVELS,
٥	ء (?	iz	3 3	E 2000	S z	S	58.	HINE NINE		DEPTH	Į.		`				WATER	RETURN,
SAMP. TYPE			£ 0		LOSS	6	PARS P. S.	HHA	427.8	_	a R	7		•				CTER OF ING, ETC.
SS	2	.0	1.5		1	┪	<u>ии</u>		427.8		7.0		0.0 - 2.0 Ft. GRA	VEL. Pi	nkish gray	· · · · · · · · · · · · · · · · · · ·	 	
	ı					1				-	•		(5YR8/1). Los Carbonaceous	naterial :	some brick	Je.	with 6-	t. advanced nch O.D.
SS	12	.0	1.8	<u> </u>	1			İ	425.8_	•	9.		fragments. 2.0 - 20.0 Ft. Sitt reddish brown	CLAY	(CL). Dark		ј ропо м (tem auger.
	1					1				-		ı	moisture conte some gravel, bi	it. Silty,	. Moderate sandy in plac	es;		
SS	2	.0	1.8		1	-				-			some gravel, bi	icks, pebi	Dies.			
										5_							Sample	d and gamma
SS	2	.0	1.9		1	1				•							logged I	
						- 1				-								
SS	2	:.0	1.9		1	ı			}	•								
	ı					ļ				-								
SS	1/2	.0	1.6	 -	1	-				10_			10.0-16.0 Ft. 1	Dusky yel	lowish brown	_ •]	
	١			 	}	-				-			(10YR2/2). M moderately pla	oderate m stic. Trad	ce of organics	nt, and	1	
SS	12	.0	2.0		1	ı				•			slag.					
			1							•								
SS	2	.0	1.4		1	-				-								
	ļ			 	}	- 1				15_							}	
SS	7	.0	2.0		1					•			16.0-20.0 Ft. I					
	ł					ı				-			Moderate mois moderately pla	stic. Trad	ce of organics.			
SS	1/2	:.0	2.0		1			•		-			gravel in places	, some pe	bbles and bri	CK8.		
				ļ	1	- [ļ		-								
H	\dagger				1	ł		ļ	407.8_	20 .					D. D. I.			undisturbed
	ļ			ļ		1							Bottom of borehol backfilled with				materia	l at >20.0 ft.
		ĺ				ŀ						$\ \ $					Descrip	tion and
l						- [ŧ		, ,								ation by xamination.
	l			ł					ŀ	•								
		į							}									
				1								$\ $						
						1						$\ $					No grou	nd water
Ì																	observe	d, 11/9/88.
				}		1						$\ $						
						1						$\ $						
									1			$\ $						
							•					$\ $						
								}				$\ $						
çe	<u>_</u>	SDI	IT C	POON; S1	 = e	HE:	RY TI	IRF. S	I TE	<u> </u>	Ь.	Ц			 		HOLE NO	•
				; P = P!				,,,		S	it.	Lo	ouis Downt	own S	Site			2145

	G	FC	LOG	ור ח	RII	110)G	PROJE	CT				JOB NO		ET NO.	HOLE NO.
SIT			LOG				COORDINA	ATES			FUSRAP			-116 1	OF 1	R146
		. Lo	uis Do	wntow	n Sit	te				N	1,400 E 3,20)5		Ver		DEAKING
BEG	UN	α	MPLETED	DRILL	.ER		· L				MAKE AND MODEL	SIZE	OVERBURDEN		((FT.)	TOTAL DEPTH
			1-3-8		ayne	-Wes	tern, Co	o.		1	CME-550	6"	14.0			14.0
COR	E REC	UVEK /	T (FI./X	S) CORE	BOXE	SSAMPL 7	ESEL. TO	P CAS	ING	Gi	OUND EL. DEPTH	/EL. GROU	ND WATER	DEPTH	/EL. TOP	OF ROCK
SAM	PLE H	AMME	R WEIGHT	/FALL	CA:	. 1	FT IN HO	LE: DI	A./L	EN	GTH LOGGED BY:					
	1	40 I	bs/30	in			no	ne					S. Be	ck		
<u>g</u> .	ساد		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATER				8	П					T	
FE	8 8	R R	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7	TEST!	5	ELEU.	Ŧ	BRAPHICS	SAMPLE	DESCRIPTION	א באח כ	ASSTETC	ATTON	NOTES	
<u>ئ</u> .	a z		£300	SZ.	38. I	Wzz		DEPTH		葛	DEGORIA 110	· MID 0	FU3311.10	11 2011		LEVELS, RETURN,
SAMP DIAM.	SAMP. ADV.	E O		L038 IN G.P.M	PRESS. P. S. I.	HIN.	423.0		8	9						CTER OF ING, ETC.
	2.0	1.5					422.5_	1	***		0.0 - 0.5 Ft. TO 0.5 - 11.0 Ft. PI	PSOIL.			<u> </u>	
											fill material in	ciuding sia	ed granular g, concrete,	red	with 6-i	t. advanced nch O.D.
SS	2.0	1.2		i				1 :			brick, and clay	7.			portow a	tem auger.
															1	
SS	2.0	1.4		1]	_ '								
			<u>,</u>					5_							Sampled logged b	and gamma
SS	2.0	0.9													TMA/E	berline.
								•								
SS	2.0	0.7						•								
								10_								
SS	2.0	1.3					412.0_	1								
											11.0 - 14.0 Ft. S gray (5Y4/1).	ity CLAY	(CL). Olive			indisturbed l at 11.0 ft.
SS	2.0	1.4														
							409.0_								_	
											Bottom of boreho	le at 14.0	Ft. Borehole	• .	classific	tion and ation by
										П	backfilled with	bentonite	cement, 11/	9/88.	visual e	xamination.
										Н						
				• •		į				H						
						ļ										
										П					No grou observe	nd water d, 11/9/88.
						:				$\ \cdot\ $						
										П						
								."		Н						
		ļ								П						
							}			П						
										П						
										П						
										Н						
										$\ $						
										$\ $						
										$\ $						
										П						,
		1								$\ $						
-			2001 - 2-		DV	 	ITE	L	1	Ц					HOLE ND	
			POON; ST			,,,		S	St.	L	ouis Downt	own S	Site	•	F	146

									PROJEC	T	_			JOB NO	SHE	ET NO.	HOLE NO.
		G	EC)LOG	IC D	RIL	L LO					FUSRAP		4501	-116 1	OF 1	R147
SII	ΙE	C.	¥ -	nia D-		C1		COORD IN	TES			400 10 0 00	^		ANGLE FR		BEARING
BEC	4UE			uis Dov			.e		ŀ			,400 E 3,60 KE AND MODEL	SIZE	OVERBURDEN	Vert	ical	TOTAL DEPTH
				0-31 -8	1		-Wes	tern, Co	- 1			ME-750	6"	20.0			20.0
COF	₹E	REC	OVER	Y (FT./%			SSAMPL	ESEL. TO		NG		ĺ∇ / Ì	EL. GROU	ND WATER	DEPTH	/EL. TOP	OF ROCK
CAN	401	E U	/	R WEIGHT	/EALL	le 4	10		F- 01	• •		427.0 1/2 / H LOGGED BY:				/	<u>'</u>
34	176			bs/30		Γ .	DING LE	10 E		A./L	ENG	H LOGGED BY:		G. Ch	AFFV		
Ä	Τ.					WATE					Т			<u> </u>		<u> </u>	
TYPE		LEN CORE	M 5	SAMPLE BLOWS "N" % CORE RECOVERY	PF	RESSU TEST:			Ξ	GRAPHICS	4					NOTES	
ع. ا	إذ	iz	SAMPLE CORE	F200	87 E	PRESS. P. S. I.	¥-;	ELEV.	DEPTH	Ĕ	3808	DESCRIPTION	AND C	LASSIFIC	ATION		LEVELS, RETURN,
SAMP			A B	BN	LOSS IN G.P.R	μ̈́ο	HAN.		٥	GR,	7					CHARA	CTER OF ING, ETC.
SS	1	2.0	1.6	2-4-9		0.0		427.0				0.0 - 20.0 Ft. Silt	Y CLAY	CL) and		DRILL	ING, ETC.
				27					-		ŀ	0.0 - 20.0 Ft. Silt RUBBLE. Bro Dry, loose. Ru	wnish gra bble consi	y (5YR4/1) ists of brick,	•	with 6-	ft. advanced inch O.D.
SS	42	2.0	1.7	8-21-21					-			gravel, sand, a	nd glass; I	e staining.		pollom (stem auger.
				22					-								
SS	†	2.0	1.2	4-3-3					- -								
				2					5_		Ī					Sample	d and gamma
SS	12	2.0	0.7						-							logged TMA/E	by Sberline.
				5					-								
SS	12	2.0	0.4	2-5-3					-							1	
	ļ		1	•					-								
SS	2	2.0	1.0	3-2-4 5					10_		į					10.0 ft.	LEL=3%.
									-								
SS	2	2.0	1.0	3-3-3					-							ļ	
				_					-								
SS	12	2.0	0.9	1-1-2					15_							-	
									15_							İ	
SS	72	2.0	1.2	2-2-1					-				-				
									_								
SS	2	0.5	1.3	2-2-2													
	\perp							407.0_	20 _								
												Bottom of borehol	e at 20.0	Ft. Borehol	e .	classific	tion and ation by
												backfilled with	bentonite	cement, 11,	/15/88.	visual e	xamination.
									.0		1						
]										No grou	ınd water d, 11/15/88.
								:									
																1	
																1	
ļ				L		<u> </u>				Ш							
				POON; ST			,,,	ITE	C	+ 1		uis Downt	own S	Site		HOLE NO	R147
<i>-</i>	ر .	LHH	3UN)	, F = P1	ICHEK;	U = L	INEK		J	L. I	-0	uis DOMIIL	O WIII C	/ILC			/17/

	1	G	FΩ	LOG	וכ ח	RII	10	G	PROJEC	T	FUCDAD		ET NO. HOLE NO.
SITE		_						COORDINA	TES		FUSRAP	14501-116 1 ANGLE FR	OF 1 R148 ON HORIZBEARING
		t.		uis Dov			e	<u> </u>			1,300 E 3,214	Vert	
BEGU 11		. Q 1	1	MPLETED 1-3-88	1		-West	tern, Co		RILL	VAKE AND MODEL SIZE COME-550 6"	OVERBURDEN ROCI	((FT.) TOTAL DEPTH
								ESEL. TO		NG G	OUND EL. DEPTH/EL. GROUN		/EL. TOP OF ROCK
<u> </u>				LETCHT	(5AL)	le s e	8	57 111 1101	5. 8 1	1 (1 5)	425.0 ¥ /		
SAMP				WEIGHT			ING LE	DOE IN HOL		A./LEJ	GTH LOGGED BY:	S. Beck	
Щ.			•.			JATER	5						
SAMP DIAM.	SAMP. ADV.	Š	REC.	SAMPLE BLOWS "N" % CORE RECOVERY	-	<u>rests</u>	5	ELEV.	Ŧ	GRAPHICS SAMPLE	DESCRIPTION AND CL	ASSTETCATION	NOTES ON:
٥.	<u>.</u>	z		ENG CCC	SS T.	ω H	HINE	LLLV.	DEPTH	RAPHIC	DESCRIPTION FIND OF	A3311 10H (10H	WATER LEVELS, WATER RETURN,
ġ₹	SAF		BAMPLE CORE I		LOSS IN G. P. M	PRESS P. S. I	보	425.0	_	8			CHARACTER OF DRILLING, ETC.
SS	2.0	7	1.8								0.0 - 14.0 Ft. FILL. Crushe fill material including con-	d granular crete, red	0-16.0 ft. advanced
											brick, and clay.		with 6-inch O.D. hollow stem auger.
SS	2.0	1	1.5										
SS	2.0	\downarrow	1.8					·	_				
-55	2.0		1.0						5_				Sampled and gamma
SS	2.0	+	1.8						-				logged by TMA/Eberline.
									-				
SS	2.0	7	1.4			•			-				
									10_				
SS	2.0	7	1.5										
-00	-	\downarrow											
SS	2.0	'	1.9						_				
SS	2.0	,	1.8					411.0_	-		14.0 - 16.0 Ft. Silty CLAY (CL) Olive	Top of undisturbed
									15_		gray (5Y4/1).	(02).	material at 14.0 ft.
		\dashv						409.0_	-				Description and
		-									Bottom of borehole at 16.0 F backfilled with bentonite		classification by visual examination.
		ı											
		١					•						
											·		No ground water observed, 11/9/88.
						}							
						1	1						
]						
		ļ											
<u> </u>	<u></u>		T 6'	2004- 57	- 645	PV T1	IDE. IS	ITE	l				HOLE NO.
				POON; ST ; P = PI			,		S	t. L	ouis Downtown S	ite	R148

								PROJEC	.T	JOB NO. SH	EET NO. HOLE NO.
		GE(OLOG	IC D	RIL	L LO	G			FUSRAP 14501-116	
SIT			· · ·		CIA	L-	COORDINA	ATES		•	ROM HORIZBEARING
BEG			uis Do			e	L				rtical
1			0-28-8			-Wes	tern, Co		,,,,,	CME-550 6" 20.0	20.0
					BOXE	j	ESEL. TO	P CAS	NG	17 /	H/EL. TOP OF ROCK
CAMI) E (R WEIGHT	T /EALL	lc a c	10	FT IN HO	F. D.		422.0 \$ /	/
SAM			lbs/30		~ .	DING LE	.FI 14 HOI 101		A./L	NGTH LOGGED BY: S. Beck	
w .	 	T.	T	T	JATE			<u> </u>		J. J. J. J. J. J. J. J. J. J. J. J. J. J	
SAND DIAME	SAMP. ADV.	E REC.	SAMPLE BLOWS "N" % CORE	P F	TEST			Ŧ	GRAPHICS		NOTES ON:
٥٠		BAMPLE	돌림당	m_E.	ğ.Η	₩	ELEV.	DEPTH	RAPHIC	DESCRIPTION AND CLASSIFICATION	WATER LEVELS, WATER RETURN,
器	E	SAMPLE		LOSS IN G.P.R	PRESS. P. S. I	HINE HINE HINE HINE HINE HINE HINE HINE		•	ğ		CHARACTER OF
SS	2.0	1.6			0.0		422.0 421.5_		****	0.0 - 0.5 Ft. TOPSOIL	DRILLING, ETC.
										0.5 - 20.0 Ft. FILL. Crushed fill material including red brick, concrete, and	0-20.0 ft. advanced with 6-inch O.D.
SS	2.0	1.5		1				-		slag.	hollow stem auger.
								.			
SS	2.0	1.1	1	1				'			
								5_			Sampled and gamma
SS	2.0	0.9	-	1				•		·	logged by TMA/Eberline
SS	2.0	0.8		1				•			
								10_			
SS	2.0	1.5						••-			
			<u> </u>					'		·	
SS	2.0	1.3			ļ						
			<u> </u>]							
SS	2.0	1.3	1					15_			
	2.0	ļ.,		ļ				Ι.			
33	2.0	1.3	'[
88	2.0	0.7		_							
33	2.0	"."				}		:			
	-	┼	-		1		402.0_	20 .			Top of undisturbed
		}								Bottom of borehole at 20.0 Ft. Borehole backfilled with bentonite cement, 11/9/88.	material at >20.0 ft.
										22/0/00	Description and
			ł					."			classification by visual examination.
								i			
					}]			
											No ground water
											observed, 11/9/88.
			,								
1											
]						
L		\perp									
			POON; ST			,,,	ITE			C:	HOLE NO.
D =	DEN	I SON	; P = PI	TCHER;	0 = 0	THER		5	t. l	ouis Downtown Site	R149

		G	EC	LOG	IC [ORIL	L LC	G	PROJEC	:T		FUSRAP		JOB NO). SHI	EET NO.	HOLE NO.
SITE	E	_	-	- 				COORDINA	TES			TOSKAI				ROM HORIZ	
	S	t.	Lo	uis Do	wnto	vn Si	te					,250 E 3,36	0		6	tical	
BEG			- 1	MPLETED						RILL			SIZE	OVERBURDE	.	K (FT.)	TOTAL DEPT
				1-8-8				tern, Co				ME-550	6"	20.0			20.0
CORI	E RE	ECC	JVER'	f (F1./7	c) CO	E ROX	S SAMPL	ESEL. TO	PCASI	NG		ND EL. DEPTH/	EL. GROU	IND WATER	DEPTI	H/EL. TOP	OF ROCK
SAMI				R WEIGHT	•	CA		FT IN HOL		A./L					•-		
n	T			bs/30		WATE	5	nor	ie .	- -	-			G. P	a 15		
AND DIAME	SAMP. ADU.	LEN CORE	SAMPLE REC	SAMPLE BLOWS "N" % CORE	LOSS TO SECULAR	RESSI	JRE S	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION	AND C	LASSIFIC	CATION	WATER CHARA	RETURN, CTER OF
SS SS	2.0		1.8		- 6	7 60	-	423.8			0	.0 - 20.0 Ft. RU	RRLR an	d silty CLA	v	DRILL	ING, ETC
55			2.0						-			(CL). Grayish content. Carbo places, trace of	black (Ni	2). Low moi material, sai	sture ndy in	with 6-	t. advanced inch O.D. item auger.
									-			-					
SS	2.0		1.6						5_			4.0-14.0 Ft. Si reddish brown (brown (10R3/4 (5R2/6) Lowe	Ity clay ((10R4/6)), some v	CL). Moder to dark redeery dark red	ate dish	Sample	d and gamma
	2.0		1.6						_			(5R2/6). Low content. Trace carbonaceous n	of organ	ics; bricks, s lessication c	ome racks.	logged b	berline
SS	2.0	'	1.1						-								
S S	2.0	·	0.6						10_								
SS	2.0	+	0.5	·					-								
	2.0		1.3						15_ -			14.0-20.0 Ft. S Black (N1), gra dusky red (10R content, moder organics, trace	filty clay yish blac 2/2). Mo ately plas	(CL) and co k (N2), and derate moist stic. Slag,	al. very sure		
	2.0		1.4						-			,		6 -			
		$\frac{1}{1}$						403.8_	20		E	ottom of borehol- backfilled with				Top of a	indisturbed l at >20.0 ft
									ŗ			DECEMBER WISH	Delitori	cement, 11	, 10, 00.	classific	tion and ation by kamination.
									:								nd water d, 11/10/88.
																:	
				POON; ST			JUL,	ITE	S	t. 1	Lou	is Downto	own S	Site		HDLE NO	150

	G	FC	LOG	וכ ח	RII	LLO	G	PROJEC	T				JOB NO.		EET NO.	HOLE NO.
SIT							COORDINA	ATES			FUSRAP				1 OF 1 ROM HORIZ	R151
	St.	Lo	uis Do	wntow	n Si	te				N	1,200 E 3,18	80	ſ		rtical	
BEG		1	MPLETED	- 1		 	-		RIL	LI	MAKE AND MODEL	SIZE	OVERBURDEN		CK (FT.)	TOTAL DEPTH
			1-7-8		Ayne	-Wes	tern, Co	<u>). </u>			CME-550 OUND EL. DEPTH	6"	18.0			20.0
LUK	E REL	UVER /	1 (11./2	s) CORE	BUXE	S SAMPL	ESEL. IC	P LASI	NG	L.K	421.6 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	/EL. GROU	NO WATER	DEPT	H/EL. TOP	OF ROCK
SAM	PLE H	AMME	R WEIGHT	/FALL	CA:		FT IN HO	LE: DI	A./L	EN	GTH LOGGED BY:			L		
			bs/30				по	ne					G. Pa	is		
SAMP DIAM.	3 111		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATER				e)							
LA H		2 2	7 " SP		rests	T	ELEV.	Ŧ	GRAPHICS	SAMPLE	DESCRIPTION	N AND C	LASSIFIC	MOITE	NOTES	ON: LEVELS,
1	<u>a</u> z	김씨	E 300	SZ	8 H	HAN T		DEPTH	ā	冒					WATER	RETURN,
S S	8 2	E S	M 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	LOSS IN G.P.M	PRESS. P. S. I.	보니보	421.6	-	æ	n						TER OF ING, ETC.
	2.0	1.5		<u> </u>	-	<u> </u>	421.0	 			0.0 - 10.2 Ft. FI fill including r	LL. Crush	ed granular			
					ĺ			-			till including r	ed brick, s	lag, and clay	•	with 6-i	advanced nch O.D.
SS	2.0	1.3		1	ĺ	1		-							ропом в	tem auger.
					ĺ			-		H						
SS	2.0	1.6		1	ĺ			5_								
															Sampled	and gamma
SS	2.0	1.0						•							logged b	berline.
								•								
										П						
							411.4_	10_								
							711.7_				10.2 - 20.0 Ft. S	ilty CLAY	(CL). Olive		Top of u	ndisturbed at 10.2 ft.
					,						10.2 - 20.0 Ft. S gray (5Y4/1). slightly plastic	Low mois	ture content, black (N1)	soft,		
}				,							organics.		(/			
								١.								
					! [15_								
					: 											
					; 			_							Descript classifica	tion by
								_							Visual ex	amination.
								_								
							401.6_	20 -		1			·		_	
										$\ \ $	Bottom of boreho	le at 20.0	Ft. Borehole	0 (00		, .
										П	backfilled with	i bentonite	cement, 11/	9/55.		nd water l, 11/9/88.
										$\ \ $						
										$\ \ $						
								ļ	}						1	
																•
			 - -													
					, 1					$\ $						
																;
					•											
					,					$\ $						
90 -		IT CE	OON; ST	_ CUE	BY TI	DE. S	ITE	L	L	Ц					HOLE NO.	
			OUN; SI			J-,		S	t	1	uis Downt	own S	Site			151

-								PROJEC	T					JOB 1	ю. Ізні	ET NO.	HOLE NO.
		EC	LOG	IC D	RIL	L LO					FUSR.	AP		1450	1-116 1		R152
SITE		ΙΛ	uis Dov	wn taw	n Sid	·e	COORDINA	TES		N 1 '	200 F	7 40	n		4	rom Horiz tical	BEARING
BEGU			MPLETED					-			AND MO		SIZE	OVERBURD		K (FT.)	TOTAL DEPTH
			1-7-88				tern, Co				E-750		6"	20.			20.0
CORE	REC	OVER'	Y (FT./%	CORE	BOXE	SSAMPL 10	ESEL. TO	P CASI	NG	GROUN!	25.0	DEPTH/	EL. GRO	JND WATER	DEPTI	H/EL. TOP	OF ROCK
SAMP	LE H	AMHE	R WEIGHT	/FALL	CAS		FT IN HDL	E: DI	A./L			BY:					<u></u>
	_		bs/30				non	ıe .			<u> </u>			G. C	herry		
Ω	⇒ <u>₩</u>		BLOWS "N" % CORE RECOVERY	PR	JATER	RE			S								
댽	된	H	3. 83 8 80 80 80 80 80 80 80 80 80 80 80 80 8		rests		ELEV.	DEPTH	H		ESCRI	PTION	AND C	CLASSIFI	CATION	NOTES	ON: LEVELS,
SAMP DIAM.	SAMP. ADU.	<u> </u>	SO ZE	LOSS IN G.P.M	PRESS.P. S. I.	HAN.			GRAPHICS	SAMPLE						WATER	RETURN, CTER OF
₩¢	<u>8</u> _	ğ ö	1	7 6	20.0	- Έ	425.0		0	1							ING, ETC.
SS	2.0	1.2	3-8-11							0.0	- 20.0 l RUBBL	Ft. Silt E. Gra	y CLAY	(CL) and wn (5YR3/: 1). Dry, loc, gravel, and slag. Frown (10YF	2) to		ft. advanced
66	• ^-		0 0 0					_			Rubble	h black consists	(5YR2/) of brick	l). Dry, loc , gravel, _	oše.	with 6- hollow	inch O.D. stem auger.
SS	2.0	1.4	3-3-3 3			Ì		_			of mode	rate ye	llowish b	and slag. Frown (10YF	atches 25/4) to		
SS	2.0	1.2	2-2-3					_			пвиг оп	ve gray	(010/1)	silty clay.			
	•	-:-	2					5_								Sample	d and gamma
SS	2.0	1.1	1-1-2					-								logged TMA/F	by Sberline.
			2					-									
SS	2.0	1.1	2-3-2					-								6.0 ft. (OVA reading
1			3	:				-								5ppm (inside augers)
SS	2.0	1.1	2-5-3					10_									
İ		0 1.7 1-3-3 0 1.8 1-4-4 0 1.7 2-3-4															
SS	2.0	Description and classification by visual examination. Description and classification by visual examination.															
								_									
SS	2.0	1.8						15_									
SS	2 0		0 0 4					_									
33	2.0	1.7						_									
SS	2 0	18	2-2-5					_									
			3					-									
-			Bottom of borehole at 20.0 Ft. Borehole classification by visual examination. Bottom of borehole at 20.0 Ft. Borehole classification by visual examination.														
l										Bo	ttom of backfille	boreholed with	e at 20.0 bentonit	Ft. Borehec cement, 1	ole 1/10/88.	classific	ation by
ł														·			
Ì								21									
								."						•			
-																10000116	_,,,,
1																	
ł																	
	CD!	17 6	2004 57	- cur	DV 71	ומב. כ			L	Ц						HOLE HO	<u></u>
			-			,55,	- · -	S	t.	Lou	is Do	wnt	own S	Site			
· '																	

	G	FC	LOG	וכ ח	RII)G	PROJEC	CT			1 1	EET NO.	HOLE NO.
SIT			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				COORDINA	ATES			FUSRAP	14501-116	OF 1	R153
		. Lo	uis Do	wntow	n Sit	le	500m3 i m			N	1,101 E 3,527	l l	tical	DEAKING
BEC	JN	CC	MPLETED	DRILL	.ER		····			LI	MAKE AND MODEL SIZE	OVERBURDEN ROC	K (FT.)	TOTAL DEPTH
			0-28-8				tern, Co				CME-550 6"	20.0		20.0
CUR	E KEC	UVEK	1 (61./2	CURE	BUXE	SSAMPL 10		P CAS	ING	GH	OUND EL. DEPTH/EL'. GR	OUND WATER DEPT	H/EL. TOP	OF ROCK
SAM	PLE H	AMME	R WEIGHT	/FALL	CAS			LE: DI	A./L	LEN	GTH LOGGED BY:		/	
			bs/30	in			no	ne				S. Beck		
E.	SAMP. ADV. LEN CORE			PR	JATER	RE			97	\prod				
FE		E E	3. B.	1	TESTS		ELEU.	∓	BRAPHICS	Ħ	DESCRIPTION AND	CLASSIFICATION	NOTES	ON: LEVELS,
9.0	g Z	김씨	E 300	SZ.	£ H	AIN MIN.		ОЕРТН	Œ	SAMPL		02/10021 20/112011	WATER	RETURN,
55	98 H	SAMPLE REC.	SAMPLE BLOWS "N" % CORE RECOUERY	LOSS IN G. P.	Д. П.	보니보	424.0	-	8	n		•		CTER OF ING. ETC.
SS	2.0	1.2					424.0	ļ · · · ·			0.0 - 20.0 Ft. FILL. Cru material including red	shed fill	0.0004	<u> </u>
								-			slag, glass, and clay.	Drick, concrete,	with 6-i	t. advanced inch O.D.
SS	2.0	1.4						'					Hollow &	tem auger.
1			ĺ					-						
SS	2.0	1.6						B_						
						1							Sampled logged b	d and gamma
SS	2.0	1.6											logged b	berline
00								١.		Ħ				
SS	2.0	1.2												
-	2.0	1.5					1	10_		H				
33	2.0	1.5] .						
SS	2.0	1.8					:	-						
								-						
SS	2.0	0.5												
								15_		ı				
SS	2.0	1.8						-						
								-						
SS	2.0	1.9			,			-		Ħ				
-]	404.0	-						
							404.0_	20 -			Data atta to a	0.FA . D		indisturbed
										$\ $	Bottom of borehole at 20. backfilled with benton	te cement, 11/9/88.	material	l at >20.0 ft.
								Ì		П			Descript	
								,	}	Ш			classifica visual ex	kamination.
								"		Ш				
]			$\ $				
										$\ $				
										$\ $			No grou	nd water 1, 11/9/88.
								:		$\ $. , ,
										$\ $				
										$\ $			1	
										$\ $:
										$\ $				
<u> </u>		لبا		<u> </u>			175	L	<u> </u>	Ц			HOLE NO	
			POON; ST				115	0		1 4	nuis Downtown	Site		153

	G	FC	LOG	IC D	RII		G	PROJE	CT		FUCDAD	J08 N			HOLE NO.
SIT							COORDINA	TES			FUSRAP	1450	ANGLE FR		R154 BEARING
	St.		uis Do			te					,032 E 3,140		Vert		
BEG			MPLETED	4		337			DRIL		E AND MODEL SI		1	(FT.)	TOTAL DEPTH
			1-7-88		BOXE	SSAMPL	tern, Co	P CAS	ING		ME-550 ND EL. DEPTH/EL.	6" 16.0 . GROUND WATER 409.1 11/9/88		/EL. TOP	0F ROCK
1		_/				8					121.1	409.1 11/9/88		/	
SAM			R WEIGHT	,	CAS	SING LE	FT IN HO	LE: DI	A./L	ENG1	H LOGGED BY:				
111	1	40	bs/30	in	JATER		ВОІ	ie	1		_1	G. I	ais	1	
<u>F</u>	SAMP. ADV.		SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU	RE	-	_	ဗ္ဗ	Щ				NOTES	ON:
Į.io	160	m g	투리유	σ Σ		T .	ELEV.	ОЕРТН	H	SAMPLE	DESCRIPTION A	ND CLASSIFI	CATION	WATER	LEVELS,
SAMP DIAM.	튎	E S	851×5	LOS IN G.P.	PRES P. S.	HAY.		ă	GRAPHICS	54				CHARAC	RETURN, TER OF
	2.0	1.6	<u> </u>	7 6	āa		421.1		188888	╙	0 - 10.3 Ft RUBB	LE and silty CLA	Y	DRILLI	ING, ETC.
							}		₩	1	(CL). Moderate re fo light brown (5Y black (5YR2/1). I content. Rubble o	eddish brown (10) (R5/6) and brown	(4/6) ish	with 6-i	t. advanced nch O.D.
SS	2.0	1.8							₩		black (5YR2/1). I content. Rubble c	Moderate moistur consists of slag, br	e icks,	hollow s	tem auger.
	}				1				₩		coal, and gravel.			 	
SS	2.0	1.2	ļ	†				_	₩						
								8-	₩					Sampled logged b	l and gamma
SS	2.0	2.0						'	 					logged b	berline.
							Ī		▓				•	1	
SS	2.0	1.2							₩						
							410.8_	10.	₩	•					Y X . A
35	2.0	1.9	ļ								0.3 - 16 Ft. Silty C gray (5Y4/1). Mo	LAY (CL). Olive			indisturbed at 10.2 ft.
25	2.0	1.8	ļ				Ž	Į .			moderately plastic slightly silty.	Trace of organi	cs,		
	1.0	1.0	ļ		ĺ]					angittly affry.			ŀ	
SS	2.0	1.5		{					₩						
								15_						Į.	
-	 	-		1			405.1_	·			2 - 4	140 Ft Broke	1.	Descript	ion and
									İ		Bottom of borehole a backfilled with bei	ntonite cement, 1	le L/9/88.	classifica visual ex	ation by xamination.
						ŀ									
					1										
		i												İ	
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1									<u> </u>						
			POON; ST			, ,	ITE .	C	St	10	is Downton	wn Site		HOLE NO	154

								PROJEC	ĊT			JOB NO. ISH	EET NO.	HOLE NO.
	G	EC	LOG	IC D	RIL	L LO)G	ROSE	. 1		FUSRAP	1555		
SIT							COORDIN	ATES		_	FUSKAF	14501-116 1	ROM HORIZ	R155
		To	uis Do	wntow	n Sid	ła		AIL3		N	1,720 E 1,810	I	tical	BEAKING
BEG			MPLETED						DRII		MAKE AND MODEL SIZE		K (FT.)	TOTAL DEPTH
1		1	1-29-8			- Was	tern, C		D		CME-550 6"	14.0	K (ri.)	
					ROXE	SISAMPI	ESEL TO	YP CASI	ING		ROUND EL. DEPTH/EL. GRO		H/EL. TOP	14.0
		/				7					419.0 ₹ 5.9/413.1	12/1/88	, EE. 107 /	OI ROCK
SAM	LE H	AMME	R WEIGHT	T/FALL	CA!	<u> </u>	FT IN HO	LE: DI	A. /l	LEN	12710	1		
}			bs/30	•			no:		,			G. Pais		
量					WATER		1 20	I I	ī	Tī		G. 1 als	Т	
SAMP DIAM.			SAMPLE BLOWS "N" % CORE RECOVERY	PR	ESSU	RE			9					
I-A	∣ਵਾਨੂ		1 <u>2</u> 1 <u>8</u> 2	<u> </u>	TESTS	5	ELEV.	DEPTH	۱Ħ	SAMPLE	DESCRIPTION AND	CI ASSTETCATION	NOTES	_
100	a z	يواترا	E3100	87 E	g H	#-÷			Ē					LEVELS, RETURN,
程	ΞŪ	E 8		LOSS IN P. H	Щ. В	HAN.		0	GRAPHICS	ñ				TER OF
	8	RIO.	D -	7 0	8.0		419.0		L	Ш			DRILLI	NG, ETC.
SS	2.0	1.6		1	1			ļ			0.0 - 10.5 Ft. RUBBLE. brown (10YR2/2). Lov	Dusky yellowish	0-14.0 6	t. advanced
	ĺ	[1			1		•			slightly plastic. Organi	cs, trace of coal,	with 6-i	nch O.D.
SS	2.0	1.1		1 '				1 .			slag.		hollow s	tem auger.
	İ	ŀ				1							1	
-		L.,				1		┨.					1	
SS	2.0	1.6	İ	,		1		5_			4.3-10.5 Ft. Silty clay Olive black (5Y2/1). H	(CL) and rubble.		
	l	1	İ				١,	,			content, moderately pla	stic. Wood chips,	Sampled	and gamma
SS	2.0	1.6		1			•	* -			organics, trace of coal.		logged b	y berline.
		l	,					.					, -	
L		<u> </u>		1		ŀ		Ι.						
SS	2.0	1.4	i					ĺ						
1		į		1				١						
SS	2.0	1.5		1 :		1	408.5_	10_						
			Ì				_] .			10.5 - 14.0 Ft. Silty CLA gray (5Y4/1). Moderat moderately plastic. Tr	Y (CL). Olive		indisturbed at 10.5 ft.
00]	ĺ						moderately plastic. Tr	see of organics,	material	86 10.5 ft.
88	2.0	1.5			1			ļ			rootlets.			
1					ĺ	ŀ	405.0	•						
				1		Į	405.0_	1 -		Ħ			Descript	ion and
1				ł				ļ		П	Bottom of borehole at 14.0 backfilled with bentonis	Ft. Borehole	classifica	ation by camination.
İ] ,		1			1	П	Datainied with Delitonia	e Cement, 12/1/00.	VIBUAL EX	Cammation.
					•		i 		1	Ш				
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<u> </u>	L	L		<u> </u>	لـــــا	L			<u></u>	П				
			POON; ST			,	ITE	S	it.	L	ouis Downtown	Site	HDLE NO.	155

	F!	LOG	ר ח	RILI	10	ıC	PROJE	CT				JOB NO).	1	ET NO.	HOLE NO.
ITE						COORDINA	IFS					<u>l</u>	ANGLE	1	OF 2	B16WU1
	SLDS	s - w.	of Pla	ant 8		COORDINA			N	2,076 E 1,086	0		L		ical	
E GUN		MPLETED				ــــــــــــــــــــــــــــــــــــــ					SIZE	OVERBURDER	ь.,		(FT.)	TOTAL DEPT
3-23-8	88 3	-30-88	ı	_ayne	-Wes	tern, Co). İ		M	obile B-53	8 1/4"	19.5			0.0	24.5
ORE REC	OVER	(FT./%) CORE	BOXE	SSAMPL	ESEL. TO	P CAS	ING	GR	OUND EL. DEPTH/	EL. GROU	ND WATER	DE	PTH	/EL. TOP	
	0.0/			0	9		26.45			420./	4/415.3				19.5/4	107.2
		R WEIGHT		CAS					EN	GTH LOGGED BY:						
		s./ 30				10 in./1	4.3 i	n.				C.A. C	lark		,	
SAMP. DIAM. SAMP. ADV. LEN CORE	LE REC.	BLOWS "N" CORE RECOVERY	LDSS IN G.P.M	PRESS. ESS. I.S. T.	RE S	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION	AND C	LASSIFIC	:ATI	NC		ON: LEVELS, RETURN,
뙲튑		2 H & H	J.F.	π. S	HIN HIN HIN Sin		"	GR	ហ							TER OF ING, ETC
SS 2.0	1.1	8-9-4-3		0.0		426.7 426.3		-		0.0-0.4 FT. GRAV	ÆL (GP)	Very light				t. advanced
						425.6_			H	grey (N8) to pi	nkish gray ılar fill.	/ (5YR8/1).	Fine	: [using 8 stem au	1/4" hollow
SS 2.D	1.1	3-1-2-1								0.4-1.1 FT. ASPH Slightly weathe Impervious top	red, little	k (N1). to no fracti	ures.	1	logged t	l and gamm y berline to a
SS 2.0	1.0	3-1-1-2					5_			1.1-8.8 FT. Silty S as FILL materi (5YR2/1). Dry	AND (SN al. Dusky to 7.2' w	() with grave yellowish there materi	rel prown		depth of	1 14 (6.
SS 2.0	1.1	0-12-4-1		:						(5YR2/1). Dry becomes moist. density. Moder adequate moist	ate compa ure conte	iction, lacks nt.	an			
SS 2.0	1.9	1-2-4-3				417.9_				3.4' Introduction coal slag, brick broken glass and Loose compacti	and conc d decomp	rete fragmei osed organi	nts, cs.	_		
SS 2.0	1.8	2-3-4-3					10_			Low dry streng Quickly absorb	ed and co th. breaks	ated with si easily in fi	lt. nøers.		Top of u	ındisturbed
SS 2.D	1.7	2-2-2-4				414.9 <u>3</u> 414.9	7		_	becoming soft. 7.2' Material be introduction of	comes mo	oist with	light		material	at 8.8 ft.
3.5	1.,	2-2-2-4						1		olive gray (5Y5 and shearing re becomes soft-sl content is in th	ightly fria	ble. Water				
SS 2.0	2.0	0-0-2-3					15_			chart. 8.2' Limestone by auger. Abser of clay with bor weathering of li	boulder. nce of oth	Possibly ac er debris. (vs dissolution	ivance Contac	ct		
SS 2.0	1.0	15-11 4-5				407.5_				8.8-11.8 FT. CLA (5Y5/2) mottle (5YR5/6). Sligl content. Cohes Pliable, modera easily. Firm wi shear strength.	d with Lightly moist ive, slight te thread	tht brown , low moisti y sticky. which rupt	ıre ures	ate [bedrock	veathered encountere th of 19.5 f
							<i>p</i>			11.2' Distinct in Silt is mafic and darkens slightly rapid, plasticity stiff.	i biotite f . Increase decrease	lakes. Colo dilatancy t and becom	r o es		Top of c elevation riser pip	n is top of
						402.2				11.8-19.2 FT. San CLAY (CL). M (10YR5/4), bec 14.4'. Slightly r fine grain, well chert. Trace cl moderate comp consistency. Cle Interbedded lay	oderate your oming oli noist to me sorted, me ay. Slight action, me an, little	ellowish bro ve gray (5Y loist. Sand ature quart: plasticity, edium firm to no organ	wn 4/1) i is v. z &	by		e completed ing well,
										(1/2"-4") clayed distinct absence Moisture conter and consistency clay layers. Mostly homoge stratifications a	y silts, when of dark in the plastic tend to in the plastic tend tend tend tend tend tend tend tend	sich show a silt size flak- ity, compac ncrease in t n some ries where	es. tion			ation of visual stion of spli
										particle size che Stratifications : micro-lamination	ons gener	ntal ally undistu	rbed.		spoon sa	ппріез.
S = SPL		POON; ST			UL,	ITE		د.	_	S - W. of I					HOLE NO	W01S

GEOLOGIC DRILL LOG	PROJE	CŤ		i i	ET NO.	HOLE NO. B16W01S
SAMP. OINT. CORE SAMPLE REC. CORE SAMPLE REC. CORE REC.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES WATER WATER CHARAC	
S = SPLIT SPOON; ST = SHELBY TUBE; SITE				TOP OF WEATHERED BEDROCK ENCOUNTERED @ 19.5'	HOLE NO	W04 C
= DENNISON; P = PITCHER; O = OTHER	···	SI	Ε.	OS - W. of Plant 8	B16	W01S

_	G	EC)LO	G١	C D	RILI	. LO	G		CT						1	T NO.	HOLE NO. B16W02
ITE		n -	<u> </u>				_	COORDINA	TES		-						M HORIZ	BEARING
EGU			Plan		Bldg		<u>E</u>	1			2,111 E		SIZE	OVERBURDE			(FT.)	TOTAL DEP
		- 1	3-31-	_	1		-Wes	tern, Co			10bile B-5		8 1/4"	32.4	1		0.0	33.1
												DEPTH/	EL. GROU	ND WATER				OF ROCK
		0.0				0	10		9.61		420.2	* /	/415.0				32.4/3	337.8
AMP			R WEIG			CAS					IGTH LOGGED	BY:		C 4 C	`11.			
<u></u>			s. / 3			ATER		0 in. /	12.0	It.				C.A. C	lark	_		
AND DIAM.	LEN CORE	CORF REC	SAMPLE BLOWS "N"	RECOVERY	LOSS IN G.P.M	ESSU	RE	ELEU.	ОЕРТН	GRAPHICS	DESCRIF	PTION	AND C	LASSIFIC	ATIO	7	WATER CHARAC	ON: LEVELS, RETURN, CTER OF ING, ETC
SS		L	1					419.6_			0.0-0.6 FT.	CONC	RETE w	th Aggrega	te			t. advanced 1/4" hollow
	2.0	1.5	2-1-3					418.8_ 417.1_			0.6-1.3 FT RUBBL (10YR6, Dry. Mo	/7 \ + ~ ~	aadamata l	brown brown brown (5YR m & coarse ant debris a	4/4). grain,		stem au	ger. I and gamm
SS	2.0	0.9	2-2-1	-3				416.6	_		glass, de cementa	cks & c compos tion du	oncrete ir ied carboi	ag., broken nates. Some noist. conte	e	F	TMA/E depth of Top of t	berline to a
SS	2.0	2.0	1-3-2	-3				414.6			1.3-3.1 FT. Moderat grayish	ncy.	•		with]	depth of	f 8.2 ft.(?)
SS	2.0	1.3	1-2-3	- 5				412.0_			Interbed	nge ot p lded lar Randon	ninations ninations n in distri	(3cm) of clubution. Cla				
SS	2.0	1.6	2-3-3	- 5				409.9_	10.	-//	thread a Layers v dilatanc	nd rup vith hig y, high	tures with	ty, a weak 1 little resist ercent show re content a	rapid			
SS	2.0	2.0	2-2-3	3 - 2							some mi to split	y, the s cro lam spoon s	inations o	is homogenerientated nontacts are	ormal	1		
									15.		3.1-3.2 FT. Grayish fine grai	SAND pink (5 n quart	(SP) wit GY4/1). z with tr			d		e completed ing well,
ss	2.0	2.0	9-2-2	-5				400.5_	20.		graded r chert. I	grey (! (4/1) b um stiff nedium little pl	GY4/1), y 6.8'. Sl consisten and coar	1) Dark becoming of ightly moist icy. Mostly se grain qui ow range of	gap artz &			
	•										coal slag with mo with san	bris as and biderate	roken glas cementati cool.	oncrete frag s. Variable on, broken	zones			on at top of s top of rise
SS	2.0	2.0	3-4-4	1 - 5				394.9_	25		stiff & s ruptures No struc flakes as	gray (yell com lightly seasily ture, c silt. T	5GY4/1). spacted. sticky. W - little pl lean with race of fi indented	'Moist, mo Low water o 'eak thread	, /biotite iics.	_		
SS	2.0		5-4-3	3-3				387.8	30		stiff con slight pl with litt content, particles	sistency asticity le resist some s	. Slightly y, modera y, weak to tence. Lo light cem ly subang	fL). Mediu moist, medite cohesion hread, rupt w moisture entation of gular mediu grain sand. oncrete frag	um with ures m & fin		soils by	ation of visual ation of spli
								387.1	7	-	8.2-10.3 F7 black (5 Moistur	l. <u>Clay</u> Y2/1). e conte	ey SILT (Slightly r nt increas	ML). Olive noist to mo es in layers	ist. with	1	Top of bedrock	weathered encountered pth of 32.4'
			•		= SHEI		, ,	SITE	·	SLE	S-Plant	_		ace v.fine gr	<u>am</u>		HOLE NO	W02S

GEOLOGIC DRILL LOG	PROJE	СТ		JOB NO. SHEET NO. HOLE NO. 2 OF 2 B:5W02S
SAMP. TYPE AND DIAM. SAMPLE REC. CORE REC. CORE REC. SAMPLE REC. CORE REC. SAMPLE REC. IN R. SAMPLE REC. IN R. SAMPLE REC. SAM	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				sand. Moderate cohesion, soft to medium stiff consistency. Good thread, rupture with some pressure. Random stratifications as horizontal micro laminations. Trace of fibrous organics. Appears dirty. 10.3-19.7 FT. SILT (SM) with interbedded Sandy SILTS and Clayey SILTS. Olive gray (Sy4/1). Moist, becoming saturated by 12.4°. Layers are random in alternation, thinnly bedded (10-3cm), with variable physical properties. Sandy SILT layers show moderate cohesion, slight plasticity with weak thread. Moistance Well is doderate with rapid distance Well is doderate with rapid distance Well is doderate content, little to no shear strength, slight plasticity with a soft to medium stiff thread. No stratification or structure. Clayey SILT layers are generally thin, with increased cohesion, stiff consistency and medium plasticity. No structure, appears clean with decrease of dark silt particles. 19.7-25.3 FT. Sandy SILT (SM). Moderate yellowish frown (10YR5/4). Moist to saturated. Mostly fine and meaning the stiff consistency. Abundant reduction spots (1-2cm) in zones with higher moisture content. Zones show increase of mafic/biotite silf fakes. Generally: low dry strength, rapid dilatancy, slightly plastic, thread is weak with moderate resistence to rupture. 25.3-32.4 FT. Clayey SILT (ML) with interbedded SILTs and Sandy SILTS. Mostly Olive gray (SY4/1) mottled with darg strated with little resistence to rupture. Low moisture content, slow dilatancy. Clean with earthy odor. No structure, trace fine fibrous organic blebs. SILT layers show increased moisture content and plasticity, slightly darker color, rapid dilatancy and biotite/mafic silf flakes. Resistence to rupture of weak thread is slight. Sandy SILT layers are as as above with increased gritty feeling. Sand is well sorted. Vinc to fine grain rounded to suffice the single of the plantace of micro laminated varves—mostly biotite/mafic flakes. Orientation is normal to sample axis. Bottom of borehole at 32.4 ft. TOP OY WEATHERED BEDROCK ENCOUNTERED @ 32.4'
SS = SPLIT SPOON; ST = SHELBY TUBE; SITE D = DENNISON; P = PITCHER; O = OTHER	5	SLE)5	S-Plant 1 Bldg. K1E HOLE NO. B16W02S

			LOG		KILI	LLU									OF 2	B16W0
TE			T DC T	114	,		COORDINA	TES		N 1 1	(46 F 1 7	46			ROM HORIZ	BEARING
GU	N		MPLETED				<u> </u>				646 E 1,7	SIZE	OVERBURDER		tical K (FT.)	TOTAL DE
	 5-88	- 1	4-8-88			-West	tern, Co				ile B-53	8 1/4"			0.0	35.7
RE	REC	OVER	Y (FT./%				ESEL. TO		ING		D EL. DEPT	H/EL GROU		DEPTH	I/EL. TOP	
		0.0/			0	12		8.12			18.8 🗶 /	.6/410.2			34.6/	384.2
MP			R WEIGHT		CAS		FT IN HOL			ENGTH	LOGGED BY:					
. T			s. / 30		JATER		10 in. /	10	It.	T			C.A. C	lark		
DIAM.	P. ADU.	PLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	SS Z C	ESSU TESTS	RE	ELEV.	ЭЕРТН	GRAPHICS	SAMPLE	DESCRIPTIO	IN AND C	LASSIFIC	CATION	WATER	LEVELS RETURN
ON O		E CO	[n] K	LOSS IN G. P. M	3.5 S.5	THE	418.8	_	8	M					1 -	CTER OF ING, ET
	1.6		5-12-10				418.4		2	0.	0-0.4 FT. CON	CRETE w	ith			t. advance
٦	1.0	1.4								Ĺ	AGGREGAT			/	stem au	1/4 in. hol gers.
s	2.0	1.3	5-2-2-2						-	U.	4-6.2 FT. <u>Silt</u> <u>RUBBLE</u> . M (10YR2/2) to Dry to 3.7 be	ostly dark brownish l coming mo	yellowish br blallck (5YR ist to satura	own 2/1). sted.	logged 1 TMA/E	berline, In
s	2.0	1.2	10-5-2-					_			With increase increased coh	esion and p	lasticity. R	ubble	to a dep	oth of 15.5
								5.			is coarse size glass, brick &	concrete fi	agments. S	ilt		undisturbe
s	2.0	0.3	0-0-0-0								and sand coa	•		igntly	materia	l at 11.6 f
									-		3.7' Moisture saturated.			14		
s	2.0	0.6	1-0-0-3				7	<u> </u>		6.	2-9.8 FT. GRA Brownish bla- compaction, o	ck (5YR2/1 dense due t). Saturate	d, loose te. No		
		<u> </u>						10.			cohesion. Sil	t & viscous	black liuid	coat		
S	2.0	1.5	0-0-2-3								gravel, coarse Gravel lithold	sand and	ilt size angu leterminate	ılars.		on of the t
							407.2_		yiiii	-	tending to be concoidal frac	elongate a	nd flat, with	rough		op of riser
S	2.0	0.7	1-2-3-3								Penetration r 8.0 ft. Hamn	esistance is	little to not	ie.		
		L									seating. Split	spoon reco	overy is poo	r. iduct		
S	2.0	1.7	2-1-1-2					15		وا	and boundage of a					
								10			8-11.6 FT. Cl Brownish bla black (5Y2/1 moisture at 1	ck (5YR2/1). Moist: d) becoming	olive of		e complete
\exists										$\prod \bigcup$	moisture at 1 consistency, f	0.2 ft. Med	lium stiff n, soft with	a	4/8/88.	
											strong thread abundant fib	. 9.8 to 10	8 ft. shows	J	-	
											to be organic		, uoes not	appear		
s	2.0	2.0	0-2-2-3	1				60		1	6-31.3 FT. S black (5Y2/1	ilty CLAY	(CH). Oliv			
1								20			and SILTS.	Moist, medi	um stiff			
				1			:				excellent thre	ad wit mod	erate resist			
											rupture. Soft little finger p 19.0 FT. Thi	ressure.				
]				,"			increased silt	percent an	d moisture			
S	2.D	2.0	0-1-0-1	1				-			becomes rapid	d. Shear st	rength decr	eases.		
								25			Layers are ra	h micro-la	minated			
\dashv				1							stratifications Increase of or	ganic decor				
											sticks, grass,	and bark.				
S	2.0	1.8	1-3-4-3	1												
j				}				30							Descrip	
\dashv		 	 	1			387.5_		-////	-					samples	ation of by visual
				Ì					- -	3:	l.3-34.5 FT. <u>Si</u> black (5Y2/1	Ity SAND (). Moist wi	SM). Olive h saturated	zones.		ation of sp
		}							-		Well sorted, subrounded	v. fine & fin	e grain			=
S	0.0	0.6	2/6"	1			384.3_		-		consistency, for resistence to	ittle plastic rupture. D	ity. Moder: ilatancy bed	ate		veathered
コ	CDI	17.0				<u>ا</u> اود. او	ITE				rapid. Silt p	articles are	biotite and	/		encounter
, =	a۲L	11 5	POON; ST	= SHE	LBT IL	າຍະ; ^ວ	l								1	SW039

	 		 EO	L	0	G	C	D	R	RIL		LO	G	ļ	PROJEC	T		JOB NO. SHEE 2	T NO. OF 2	HOLE NO. B16W03S
SAMP. TYPE AND DIAM.	SAMP. ADU.	CAMOI E DEC	CORE REC.	SAMPLE	BLOWS N.	RECOVERY	SSOT	PF	TE	TER SSTS L.S.I.	RE S	HIN.	ELE	υ.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	WATER CHARAC	
is a	<u> </u>												38	33.1	e.			mafic(?) flakes. Homogenous structure, no stratification. 34.2 FT. Coarse pebble and gravel angular limestone fragments. Highly fractured and moderately weathered. Bottom of borehole at 34.6 ft. TOP OF WEATHERED BEDROCK ENCOUNTERED AT 34.5 FT.	at 34.5 t	
										3Y TI		• •	ITE					SLDS-Plant 2	HOLE NO	w03S

		EC	LOG	IC D	RILI	L LO	G	ROJEC	'			JOB NO	•	SHEET 1 0	F 2	B16W04
ITE							COORDINA	TES			_		1			BEARING
EGU			Plant 1			82	l	10		1,089 E 1,31		OVERBURDE		ertic	<u>`</u>	TOTAL 050
		[7]	-28-88			-Wac	tern Co.			Tobile B-53	8 1/4"	27.5	1	ROCK (.0	TOTAL DEP
			Y (FT./%				ESEL. TOP				EL. GROUN					OF ROCK
		0.0/	0		0	11	1	4.78		425.5	/418.9				27.5/3	398.0
AMP	LE H	AMME	R WEIGHT	/FALL	CAS	ING LE	FT IN HOL	E: DIA	A./LEN	GTH LOGGED BY:					<u>.</u>	
			s. / 30				10 in. /	16 ft	t.			C.A. C	lark			
DIAM.	SE SE		SAMPLE BLOWS "N" % CORE RECOVERY	PR	JATER ESSU TESTS	RE		_	CS						OTES	ONI
i	⊌0		투이었었	ωΣ			ELEV.	ОЕРТН	GRAPHICS SAMPLE	DESCRIPTION	AND CL	ASSIFIC	ATIO			LEVELS,
<u>_</u>	ďΖ	디밀		LOSS IN G.P.F	. S. S.	TIME NIN		OE	3AF							RETURN TER OF
Ā	SAMP.	SA CO		7.9	PRESS P.S.I	E.E	425.5		5							ING, ET
	2.0		3-4-7-7				425.0_			0.0-0.4 FT. GRAV Brownish black	EL with S	Sandy LOA	<u>M</u> .			t. advance
					ŀ		424.3_	4		cohesion, loose	compaction	n. Coarse	gravel	Hs	tem au	
S	2.0	1.6	4-4-4-4							() Abundant debr	ar, nat & is as broke	erongate. en glass &)) S		and gam
			,					4		ceramics.				// 7		berline to
s	2.0	1.5	2-2-3-2					-		0.4-1.4 FT. Silt Lo Brownish black	OAM with (5YR2/1	Sand Dry, litt	le		lepth of	f 15.5 ft.
								5_		cohesion. Poor sand. Moderat	ly graded	fine & med	ium	٠ ٦	Cop of 1	ındisturbe
٥.	2.D	12	1-0-1-1	-				,	: . :	content. Abundant orga	-	•		/ s	oil enco	untered a
-	5	1.2					¥	• -	, J.	ine grass. Abu	ndant RUI	BBLE as bi	oken	11	acpett UI	(
_	0.0	ļ , ,					[4		glass & oxidized				_		
3	2.0	1.4	1-1-1-2					_	3	1.4-2.3 FT. Silty S black (5YR2/1 compaction. Si	Mosty d	ry, loose de	an ensity	&		
	<u> </u>	<u> </u>	<u> </u>					10_		content. Slight	lv cement	ed in coars	oisture e			
S	2.0	1.7	1-2-2-3	1						gravel size artic	les, break	s easily in				
		L					413.8_	7		Abundant RUE	BLE as co	oal slag, bro	oken sed	ل		
\$	2.0	0.0	2-3-4-5				413.8	1		organics as grad 2.3' - 11.7' Sandy	s & twigs		ht			
			.					1		olive grey (5Y5	/2). Mois	t, slight				
s	2.0	1.9	2-4-3-4					+		cohesion. Mod medium stiff. I	erately con Little plast	mpacted, so ticity, rapid	it to			
ļ								15_		dilatancy. Weak thread, rupt	ures easily	y with sligh	t			
-		-	 	1				+		finger pressure.	Lower rai	nge on plas	ticity			
					1			-		5.3 FT. Increasaturated. Incre				-11		
								-		strong.	·					
			1 0 0 -				406.8_	_		Intermittant sho	ws of RUI	tency become	mes	占		
ຮ	2.0	1.6	1-2-3-3	1			406.1_	20_		medium stiff. Variable zones,				. #		
			<u> </u>	ļ						higher moisture and tend to sho	content.	Layers are	2-4"	E		e complete ing well,
								1		silt flakes. App 6.6 FT. A 2" is	ears wash	ed.		3	3/28/88	
								1	$ \ \ $	gray (5 Y R8/1)	. Saturate	ed, medium	& fine			
								"		grain rounded cohesion, medi						
s	2.0	1.0	0-1-1-2	1				1		thread. Clean. 7.2 FT. Increa	se in organ	nics - fibrous	&			
								25_		porous. Loss of stratification of	f compacti structure	ion & densi	ty. No	E		n top of
-		<u> </u>		1				4		9.6 FT. Abund decomposed bla	lant organ	ics-thoroug	hly	. ∥∣∘	asing is	measured ser pipe.
							398.0	4		bark.			.,	- 	···	- >- P.P.
<u>.</u>	2.0	1.	12 21	1	1		398.0			11.7-18.7 FT. Clar Olive black (5)	yey SILT	(SC). Most	ly	╗		veathered
3	2.0	1.3	13-31 21-9							[5 Y 4 / 1]. Mois	t with som	ie zones sat	urated	l. a		encounter th of 27.5
]						Moderate cohes dilatancy, three	ad is stíon	u+-s∪[t&L				
									П	pliable. Resista Dense, firm cor	nce to rup	ture is mod	lerate.		Descript :lassifica	ion ation of
		-	1				394.2			cementation. I	lesistant t	o rupture,	easily	s	oils by	visual
										deformed. Slig			, ,		poon sa	tion of spi imples.
										18.7-19.4 FT. <u>CL/</u> (5G2/1). Moist	, medium	stiff consist				
										Slightly plastic structure, no st	, non stick	y. Massive	-	,		
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>			be resistant to					OLE NO	
=	: SPL	IL S	POON; ST		LBY TU O = 0	,,,	ITE	CI	חר	-Plant 10 E	- רום	. 02		"		W045

	G	EC	LOG	IC D	RIL	L LO	G	PROJEC	τ.		JOB NO.		ET NO.	HOLE NO. B16W04S
SAMP. TYPE AND DIAM.	SAMP. ADU. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE	LOSS IN G.P.M	PRESS. I.S. G. S.	RE	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICAT	EON	WATER	ON: LEUELS, RETURN, CTER OF ING, ETC.
							SITE				significant absence of dark particles. Firm clay, resistant to deformation. We thread, pliableruptures with moderate finger pressure. 19.4-27.5 FT. Sandy SILT (ML). Light olive gray (575/2). Moist, slight cohesion. Mostly silt with v.fine & fine grain silica sands. Trace biotite/muscovite flakes as silt appears metallic. Rapid dilantancy, becomes saturated wi few shakes. Little to no shear strength, resistant to deformation. No thread, ruptures with moderate finger pressure. Some decomposed organic material as fil stringers. Slight organic odor. 25.7 FT. Increase particle size to fine and medium grain silica sand. Some random reduction spots (1-2mm). 27.5 FT. TOP OF WEATHERED BEDROCK. Light olive gray (5Y5/2). Coarse gravel size angular limestone fragments. Particles are coated with san silt. Highly fractured. Loss of shear strength. Moderate to high permeability. Bottom of borehole at 27.5 FT.	d &	HOLE N	Ο.
			POON; S I; P = P			,		S	LD	<u>S</u>	-Plant 10 E. Bldg 82		B1	6W04S

SLDS-PInt 6E E. Bidg 116 N 1.601 E 2.900 MAILE FROM MORIZBERRING N 1.601 E 2.900 Vertical			16 55:		C	ROJEC	T			JOB NO	i. s	SHEET NO.	HOLE NO.
SILDS-Pint 6E E. Bidg 116		FOLOC	IC DRII	LL LO						<u> </u>		_ _	B16W05D
Comp. Comp		S-Pint 6	F Bldo	116	COORDINA	TES	N	1.601 F 2.90	n		l		BEARING
ORE SECURITY (FI. 7X) DOSE GONES SAMPLESSEL. TO CASING GROUP EL. O. 0/0 0 20 42.41 42.30 30.6392.4 74.8/348.2 AMPLE MEMBER MEIGHT/FALL ASSING LEFT IN MOLE: OR.A.EMSTH Lack Street In Mole: OR.A.E	BEGUN			110	<u> </u>	D				ERBURDE			TOTAL DEPTH
## APPLE NAMES WEIGHT FALL APPLE NAMES WEIGHT FALL APPLE NAMES WE											15.5.5		1
April Apri					1		NG GR	וֹס לַ ל		WATER	DEF		
			T/FALL C		1 .		A./LEN						
SS 2.0 1.1.18-18-17 422.5					10 in. /	18 f	t.			C.A. C	lark		
SS 2.0 1.1.18-18-17 422.5	SAMP. TYPE AND DIAM. SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC. SAMPLE BLOWS "N"	LOSS LES LES PRESS.	URE TS		DEPTH	GRAPHICS SAMPLE					WATER WATER CHARA DRILL	LEVELS, RETURN, CTER OF ING, ETC.
SS 2.0 0.3 7-7-10 SS 2.0 1.1 4-3-4-5 SS 2.0 1.1 4-3-4-5 SS 2.0 1.5 2-3-4-2 SS 2.0 1.5 2-3-4-2 SS 2.0 1.6 4-6-9 SS 2.0 1.6 4-6-4-4 SS 2.0 1.6 4-6-4-4 SS 2.0 1.7 5 Sandy SILT (SM-ML) SS 2.0 1.6 3-6-4-4 SS 2.0 1.7 5 Sandy SILT (SM-ML) SS 2.0 1.8 2-3-4-2 SS 2.0 1.9 2-2-3-4 SS 2.0 1.9 2-3-4-2 SS 2.0 1.9 2-3-4-2 SS 2.0 1.9 2-3-4-2 SS 2.0 1.9 2-3-4-2 SS 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 1.9 3-3-4-2 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 2.0 2.0 3-0-0-1 SS 3.0 3-3-3-3 SS 3.0 3-3-3-3 SS 3.0 3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-	SS 2.0	1.1 15-18-						gray (5Y6/1). compaction. T	Dry, no cohe Trace silt coat el is coarse a	sion. Loc ing on	ose	using 8	1/4" hollow gers.
subangular rand, abundant dark mafica, to 4-0.7 FT. High CPM (>700) in black allty black angulars caded with black viacous medium stiff consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity consistency. Lower range of plasticity can be consistency. Lower range of plasticity can be consistency. Lower range of plasticity can be consistency. Lower range of plasticity can be consistency. Lower range of plasticity can be consistency. Lower range of plasticity can be consistency. Lower range of plasticity and biotite. 35 2.0 1.6 4-8-4-4 405.4. 406.4. 407.1. 407.1. 407.1. 407.1. 408.1. 408.1. 409	SS 2.0	0.3 7-7-1				-		0.4-3.1 FT. Silty black (5YR2/1 some cementat	SAND (SM).). Dry, slight ion of silt wi	Brownis cohesion th coarse	h with grain	logged TMA/E	berline to a
SS 2.0 1.5 2-3-4-2 10 10 12 2-2-3-4 10 10 12 2	SS 2.0		5			5_ 		subangular san biotite as silt. 0.4-0.7 FT. H sand. Abundar	id, abundant igh CPM (>7 it fine & med	dark ma 700) in bl	ack sili n shiny	soil enc	ountered at a
SS 2.0 1.6 4-6-4-4 SS 2.0 1.6 4-6-4-4 SS 2.0 1.6 4-6-4-4 SS 2.0 2.0 1-0-0-3 405.4 406.7 406.7 406.7 406.7 407.7 407.7 407.7 407.7 407.7 408.7 409.7 408.7	SS 2.0 SS 2.0					- 10_		liquid. Moderate cohe consistency. L chart. Rapid o ruptures easily deformation. 2.5 FT. A 6" laye	sion, medium ower range o dilantancy, w . Little resis er of gravelly	stiff f plastici eak threa tance to sand. Li	ty ad, ght	casing i	neasured fron
SS 2.0 2.0 4-4-3-4 SS 2.0 2.0 2-2-2-3 SS 2.0 2.0 2-2-2-3 393.3 30.2 SS 2.0 2.0 3-0-0-1	SS 2.0 SS 2.0 SS 2.0	1.6 4-6-4-			410.7_	- - 15_		coating particl 3.1-6.5 FT. Sand- Brownish black becoming mois compaction. slightly sticky. trace medium & chert. Sit a and biotite.	es. y SILT (SM-) x (5YR2/1). t. Slight coh fedium stiff of Sand is fine grain, mostly s abundant of	ML). Dry to 4 esion, me consistence grain wi silica as lark mafi	.4', oderate cy, th quartz		
403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 20 403.3 403.3 20 403.3 403.3 20 403.3 404.4					405.4_	-		cohesion & der thread with lit deformation &	isity. Rapid o tle resistance rupture.	lilatancy to		H	
sticky. Medium stiff consistency, soft, pliable with good to excellent thread. Easily deformed with slight finger pressure, but moderate to high resistance to rupture. Bends under own weight. Dilantancy is slow to none. Moisture content is middle range between plastic and liquid limit. Homogenous with no stratification. Clean, absent of dark silt. Low organic content. 11.3-14.8 FT. Abundant RUBBLE as brick & concrete fragments, coal slag and silty sand. Slightly cemented, breaks easily with fingers. 390.2 12.3-17.6 FT. Silty SAND (SM). Olive gray (5Y4/1). Moist, medium stiff, moderate cohesion. Little plasticity, ruptures & deforms with little finger pressure. Slow to rapid dilatancy, zones with rapid HOLE NO.	55 20				403.3_	20_ - - 		(5Y4/1). Moist stiff. Good co- after few shake thread, ruptur resistance to d plasticity char massive struct micro laminate 7.6 FT. Brick coarse sand siz	t, moderate c' mpaction. Ra es. Slight places. Slight places. e easily. Mode eformation. t. No stratifiure. Random ed black silt. & concrete fi e rounded co	ohesion, pid dilan sticity, waterate Lower racation, a stringer ragments all slag.	mediur tancy reak nge on s of . Trac	Boreho monito 4/14/88	well,
SS 2.0 2.0 2-2-2-3 393.3 30 30 30 30 30 30 30	2.0	2.0				25 _ - -		sticky. Medium pliable with go Easily deformed pressure, but no rupture. Be Dilantancy is a content is mid-	m stiff consisted to excelled with slight moderate to hends under over the moderate.	tency, so nt thread finger ngh resist vn weigh Moistur	it, l. ance t. e		
SS 2.0 2.0 3-0-0-1 cohesion. Little plasticity, ruptures & deforms with little finger pressure. Slow to rapid dilatancy, zones with rapid HOLE NO.	SS 2.0	2.0 2-2-2-	-		Ž	3D_ 7 7 -		Homogenous wabsent of dark 11.3-14.8 FT. & concrete fragand. Slightly with fingers.	silt. Low or Abundant R gments, coal cemented, be	ganic con UBBLE slag and reaks eas (). Olive	tent. as bric silty ily	Descipt classific soils by examin spoon s	ation of visual ation of split
' 'I ALBO EL AME BLI ALA I BÀCUIAFR	SS 2.0 SS = SPL	<u> </u>	<u>l.,l</u> ,	TUBE: S	ITE			cohesion. Litt deforms with l to rapid dilata	le plasticity, ittle finger pr ncy, zones wi	ruptures essure. S th rapid	64	HOLE NO	

GEOLOGIC DRILL LOG	PROJECT JOB NO.	SHEET NO. HOLE NO. 2 of 3 B16W05D
SAMP. 17YPE AND DIAM. SAMP. ADU. LEN CORE REC. CORE REC. CORE REC. SAMPLE REC. CORE REC. SAMPLE REC. CORE REC. SAMPLE REC. CORE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. TORE RECCORE A. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. SAMPLE REC. TORE A. SAMPLE RE	OEPTH CARPHICS SAME WOLLD CONTROL OF THE CONTROL OF	NOTES ON: N WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS 2.0 2.0 3-2-3-4	dilatancy show dark silt flakes. Sand is v.fine & fine grain, mature, well sorted silica sand. Silt coats particles. Dense consistency. 14.5 FT. A 3-4" layer of fibrous dark organics. Mostly bark, with some light "fresh" barknot decomposed, showing properties of recent deposition. Trace silty clay.	
SS 2.0 2.0 2-2-1-3	SILT. Olive gray (5Y4/1). Moist, moderate cohesion, medium stiff consistency. Little plasticity, soft, pliable with weak thread. Ruptures easily, deforms with moderate finger pressure. Dilatancy is very slow. Tight stratum, low permeability. Compaction is resistant to penetration.	
SS 2.0 2.0 3-3-2-4	19.7-26.2 FT. Silty CLAY (CL). Olive gray (5Y4/1). Wet, moderate cohesion, slightly sticky. Medium stiff consistency. Silt is mostly mafic (?) and biotite/muscovite flakes. Slow dilatancy, moderate resistant to deformation. Good thread with moderate resistance to rupture Firm clay, ruptures in thin thread. Fairly rigid but cohesive. 24.7-25.6 FT. Interbedded layer of Silty SAND, well sorted, v.fine and fine grain	
SS 2.0 2.0 2-0-3-3	silica sand. Increase in moisture content. Slight decrease in plasticity. Increase in density, consistency, dilatancy & strength. 26.2-29.7 FT. SAND with Silt (SP-SM). Olive gray (5Y4/1). Saturated, slight cohesion. Adhesion due to moisture content. Well sorted, mature, v.fine & fine grain silica sand. Silt is mostly biotite/muscovite & mafic (?) flakes. Good to excellent permeabilty.	
SS 2.0 2.0 1-1-1-2	29.7-32.8 FT. Silty SAND (SM). Olive gray (5Y4/1). Wet, with layers of higher sand percent saturated. Sand is mostly fine & medium grain, well sorted and sub rounded. Predominately silica sand with abundant dark biotite/muscovite and mafifiakes. Interbedded layers, 1-4" of randomly alternating SILT, SAND and Silt Sand. Clean, trace organics as dark bark fibers. Homogeneous, no structure. Stratifications as changes in particle sizes.	У
SS 2.0 1.1 13-14 20-26	32.8-74.8 FT. SAND (SP). Olive gray (5Y4/1). Wet, close packed, little cohesion-adhesion due to moisture content Mostly fine & medium with some v.fine & coarse grain sand. Gap graded in alternating zones. Trace silt as biotite flakes. Excellent permeabilty-vertical and horizontal. Water can be driven off sample with slight pressure.	
SS 2.0 1.7 6-10-14 12	Medium stiff consistency, no shear strength. Dense, non plastic, resistant to deformation. No thread. 38.2 FT. Sand particles coarsen to mostly medium & coarse grain. Random alternation of grading & particle size. 50.4 FT. Color changes to Moderate yellowish brown (10YR5/4). Well sorted, sub rounded-rounded quartz (80%), chert/jasper and feldspars. Appears "clean" with loss of dark silt flakes. 59 FT. Increase in dark mafic,	
SS 0.6 1.4 12-20/17 348.2 SS = SPLIT SPOON; ST = SHELBY TUBE; SITE 0 = 0ENNISON; P = PITCHER; O = OTHER	biotite/muscovite silt size flakes. 64.2-64.5 FT. V. coarse sand & fine gravel size rounded silica. Clean, trace dark SLDS-PInt 6E E. Bldg 116	HOLE NO. B16W05D

		F	OLOG	ור ח	PII		G	PROJEC	T			JOB NO.		ET NO.	HOLE NO.
ш		,		T :	JATE		U		_	П			3	OF 3	B16W05D
SAMP. TYPE AND DIAM.	SAMP, ADV.	SAMPLE REC.	SAMPLE SAMPLE BLOWS "N" % CORE	LOSS IN G.P.M	ESSU TEST:	RE	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLAS	SIFICATI	ОИ	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
			SPOON; S			IRE. S	347.8	,			silt flakes. Well packed-clos cohesion or shear strength. P 65 FT. Mostly fine & medius silica sand. Trace dark silt flog. 6 FT. Mostly medium & silica sands with trace of coal variable lithologies. Rounde mature. 71 FT. Increase silt percent. mafic & biotite flakes. Color medium dark grey (N4), mot gray clay. 74.8 FT. TOP OF WEATHERE BEDROCK. Highly fracture limestone fragments. Silt & particles. Moderately weath decomposition of limestone. fracture dominated. Bottom of borehole at 74.8 ft.	rermeable. m grain roun akes. coarse grain rse gravel. d, clean, Mostly becomes tled with oliv	ded	Top of v	veathered encountered th of 74.8 ft.
			I; P = P					S	LD	<u>S</u> .	-PInt 6E E. Bldg 11	.6		B16	W05D

CEOLOGIC PRILL	PROJECT		JOB NO. S	HEET NO. HOLE NO.
GEOLOGIC DRILL				1 OF 3 B16W06D
SLDS-East of C,B&Q RI	COGRDINATES	1 1 6 2 0 T 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		FROM HCRIZBEARING
BEGUN COMPLETED DRILLER		1 1,629 E 3,273 MAKE AND MODEL SIZE OVE		ertical DCK (FT.) TOTAL DEPTH
1		Nobile B-53 8 1/4"	82.6	11.6 94.2
	SAMPLESEL. TOP CASING G	ROUND EL. DEPTH/EL. GROUND	WATER DEP	TH/EL. TOP OF ROCK
11.3/97 2	23 423.02	423.5 💆 31.3/392.2		82.6/340.9
*	NG LEFT IN HOLE: DIA./LEN	i i	C 4 C1 1	
140 lbs. / 30 in.	10 in. / 23.9 ft.		C.A. Clark	
P. OD THE SECOND TO THE SECOND	DEPTH GRAPHICS	DESCRIPTION AND CLAS	SSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF
	- Σ 423.5 Ö			DRILLING, ETC.
SS 2.0 1.8 4-11-10 SS 2.0 1.4 3-6-7-8	421.7_	0.0-1.8 FT. Silty Sand LOAM. black (5YR2/1). Dry, little t non plastic. Molds in hand, Sand is mostly fine & medius subangular quartz & feldspa particles, slightly cemented- moisture content. Abundan	o no cohesion, breaks easily. m grain rs. Silt coats due to low	0-82.6 ft. advanced using 8 1/4" hollow stem augers. Drill hole advanced using NX diamond impregnated bit to a
SS 2.D 0.8 8-11-5		leaves, grass, bark, fine-med	ium roots.	depth of 94.2'.
SS 2.0 1.4 3-5-7-11	- 123	Brownish black (5YR2/1) m moderate brown (5YR4/4). becoming moist. Mostly fine grain sub angular sand. Moo loose compaction, medium st	derate conesion	Sampled and gamma logged by TMA/Eberline to a depth of 25 ft.
SS 2.0 1.0 5-4-0-6	-	moderate plasticity. Lower plasticity chart, slow dilatan thread, ruptures easily. Mod resistance to deformation.	range on acy. Weak	Top of undisturbed soil encountered at a depth of 16.5 ft.(?)
SS 2.0 0.4 28-13-8 18	10_	Abundant RUBBLE as oxidi bricks & concrete fragments glass. Dry decomposed orga	and broken	depth of 16.5 it.(!)
SS 2.0 0.8 7-4-0-0		bark/limbs. Structure is homogenous, no Trace micro laminations of d flakes.	lark silt	
SS 2.0 1.3 1-1-3-1	15_	5.8-6.2 FT. Decomposed lin boulder, highly weathered, so brown silt/clay coating. 11 FT. Broken glass, fragme	oft with pale ented. Sand	
SS 2.0 1.6 1-0-0-0	407.0_	particle size and percent dec 11.9-14.2 FT. Sandy SILT (ML Brownish black (5YR2/1). I cohesion, dense compaction.	reases.). Moist, good	Top of casing elevation measured from top of riser pipe.
SS 2.D 1.6 1-1-1-0		v.fine grain subrounded silicsilt. Slightly plastic, weak the breaks easily in fingers. Litt resistance to deformation. 12.8 FT. Hammer seats 8-1:	a sand in hread, le	
SS 2.0 1.8 3-2-3-4	20_	6" advance. Some sharp angi gravel size particles, saturate viscous silt & water. Little r hammer advance.	ular coarse ed with resistance to	Borehole completed a monitoring well, 3/17/88.
SS 2.0 1.8 4-8-6-5		Inclusions of fractured glass, organic stringers & slightly obark. 14.2-16.5 FT. SILT (ML). Oliv	iecomposed e black	
SS 2 D 1 2 0 0 7 7	399.4	(5Y2/1). Moist, moderate or medium stiff consistency, dei Moderate plasticity, pliable, dilatancy. Good thread, rupl little finger pressure. Stiff mresistant to deformation. 16 and 16.5 FT. Layers (1-2 viscous hydrocarbon (?) base particles. Some coarse grave angulars. Oil film visible. 16.5-24.1 FT. SILT with trace (ML-MH). Olive black (5Y2)	ompaction, nse compaction slow tures with oold, 2") of a highly ed goop coating el size flat Sand 2(1). Moist	
SS 2.D 1.8 0-0-7-7	¥ -	with saturated zones. Sand grain rounded mature quarts abundant dark mafics/biotit Medium stiff consistancy, de Slightly plastic, weak thread resistance to deformation, we Zones with higher moisture chave higher sand content. Dincreases, plasticity decrease	t. Silt has e flakes. nse compaction . Little eak mold. content tend to ilatancy	classification of soils by visual examination of split spoon samples.
SS = SPLIT SPOON; ST = SHELBY TUBD = DENNISON; P = PITCHER; O = OT		S-East of C,B&Q R	R	B16W06D

		GE	O!	LOG	IC D	RIL	L LO	G	PROJEC	T	1 1	T NO.	HOLE NO.
SAMP. TYPE AND DIAM.	SAMP. AOU.	SAMPLE REC.	CORE REC.	BLOWS "N" % CORE RECOVERY	LOSS IN IS B. P. M. d.	PRESS. 1.5.4	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES WATER WATER CHARAC	
SS	2.0	2	.0 (8	1-3-3-4				383.1_	- - - 40_		24.1-40.4 FT. Sandy SILT (SM-ML). Olive gray (5Y4/1). Moist with saturated layers. Some v.fine grain, well sorted, mature quartz sand. Specks of dark organics. Slight cohesion, medium stiff consistency, slight plasticity. No thread, ruptures easily. Stiff mold, moderate resistance to deformation. 35.4-35.8 FT. CLAY, olive gray (5Y4/1). Moderate plasticity, soft, pliable. Good to strong thread, medium stiff consistency, breaks with moderate finger pressure. Little resistance to deformation. 36.3-36.7 FT. CLAY as above.		
SS	2.0	2	.03	-3-4-12				376.9_	- 45_ -		40.4-46.6 FT. CLAY (CL-OH). Olive gray (5Y4/1). Moist, soft-plastic clay. Bends under own weight on ejection from sampler, retaining shape. Resistant to deformation & rupture. 40 FT. Abundant decomposed organics as leaves & bark. Fibrous & permeable, trace dark silts. Appears dirty, organic odor. Trace Fe reduction spots/staining. 46.6-68.2 FT. SAND with trace Silt (SP).		
SS	2.0	2	03	-4-5-21					50_ - -		Medium gray (N4). Wet, stiff consistency, dense compaction. Close packed. Sand is predominately (80%) silica, mostly v. fine & fine grain with trace coarse & medium grain. Well graded, subrounded-rounded particles. Trace dark mafics/biotite flakes as silt. Clean.		
SS	2.0	2	.0 Б	-7-9-14					55_ - -				
SS	2.0	1	.0 4	-3-6-12					60_				
SS	2.0	1	.8 9	9-14-20 32				355.3_	65_ - - -		68.2-72.4 FT. SILT and Clayey SILTS (OL). Medium gray (N5). Wet to		
SS	2.0	1	.6	13-15 15-13				351.1_	70_ - -		saturated. Interbedded layers 2-6" of silts and clayey silts. Silts show higher moisture content, dilatancy & density. Clayey silt shows increase in plasticity, becoming soft & pliable. Moderate cohesion, medium stiff consistency. Weak thread, moderate resistance to deformation. Stiff mold, breaks with moderate finger pressure. Homogenous structure, clayey layers are dark grey. Stratification as particle size		
				OON; ST P = PI			,,,	ITE	S	LDS		HOLE NO	W06D

	_	G	ΕO	LOG	IC [ORIL	L LC)G	PROJEC	T	JOB NO. SHEET 3 OF	NO. HOLE NO. B16W06
SAMP. TYPE AND DIAM.	SAMP. ADV.	LEN CORE	SAMPLE REC. CORE REC.	BLOWS "N" % CORE	LOSS	WATE RESSI TEST I.S. d.	JRE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION W. W. C.	OTES ON: ATER LEVELS, ATER RETURN, HARACTER OF RILLING, ETC
SS	2.0	0	1.8	5-6-14 23 5-20 21-22 97%				344.1_341.2_	80 <u>-</u>		changes are normal to ss. 76 FT. Increase particle size to v.fine & fine grain quartz sand. 72.4-79.4 FT. Silty SAND (SM). Medium gray (N5) to medium dark gray (N4). Well graded, mostly fine to medium grain with trace coarse grain silica sands. Silt is dark mafics/biotite flakes, with trace decomposed organic fibers. Random alternation of clean zones-with zones of abundant silt/clay particles. Good to excellent permeability. 79.4-82.4 FT. SAND (SP). Medium gray (N4) mottled with pinkish gray (5 YR8/1).	Cop of weathered edrock encounteret a depth of 82.6'.
				POON; S; P = P			, ,	SITE		LD	S-East of C,B&Q RR	OLE NO. B16W06D

	G	EC	LOG	iC D	RIL	L L O	G	PROJE	CT .		JOB N	i	EET NO. 1 OF 3	HOLE NO.
SITE							COCRDINA	TES					ROM HORIZ	
	SI	LDS	5-E. Bu	ilding	705				1	1,300 E 3,006		1	rtical	
BEGUN			MPLETED							MAKE AND MODEL SIZ	E OVERBURDE		CK (FT.)	TOTAL DEPTH
2-2	5-8	8 3	3-1-88	I	.ayne	-Wes	tern, Co	. İ	1	Nobile B-53 8	1/4" 79.3	;	14.8	94.1
CORE	REC	OVER	Y (FT./%				ESEL. TO			ROUND EL. DEPTH/EL.	GROUND WATER		H/EL. TOP	
	15	5.0/	93	ł	2	20	42	1.34		421.9 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	192.0		79.3/3	342.6
SAMPL	E HA	AMME	RWEIGHT	/FALL	CAS	ING LE	FT IN HO	E: DI	A./LE	IGTH LOGGED BY:			, ,	
	140	lb:	s. / 30	in.		1	0 in. /	15.1	ft.		C.A. (Clark		
<u> </u>	.1	ril .	<u>.</u> .	ı	JATER	२			T T					
SAMP. TYPE AND DIAM.	IN CORE	PLE REC	SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M. d	ESSU TESTS		ELEV.	ОЕРТН	GRAPHICS SAMPLE	DESCRIPTION AN	ND CLASSIFIC	CATION	WATER	LEVELS, RETURN,
ह्य		된당	<u>, ≅</u> ,, ⊊	7.2º	PRE.	Ε.Ε.Ε.	421.0		9					CTER OF ING, ETC.
"		w.			шп		421.9 421.4_			D.D-0.5 FT. GRAVEL	(GM). Light ol	ive		t. advanced
SS 1	1.5	1.1	4-5-5							gray (5Y6/1) to pir Dry, silt & sand ad	nkish gray (5YR8	(1).	using 8	1/4" hollow
				Į				_		angular limestone d	inere to gravei. C & chert fragment	oarse 3.	stem au Sampleo	gers. I and gamma
SS 2	2.0	1.3	3-4-6-17	ſ					- :	0.5-3.1 FT. Silt LOAN	Moderate bro	wn	logged t	ру
										(5YR4/4). Slightly	moist, little cohe	sion	depth of	
SS 2	2.0	1.5	7-5-7-10	•						due to low moisture medium grain suba	ingular sand. Lo	W		le advanced . X diamond
	ŀ							5_		plasticity, weak thr Soft to medium stif	read, ruptures ea	sily.	impregn	ated bit to a pth of 94.1
SS 2		0.4	5 2 6 2		•					compaction. Some	organics as leave	s &	Top of t	indisturbed
33 4	ا ۵۰۰	0.4	5-3-6-3					_		bark. Trace to son Appears clod-like,	weakly cemented	. breaks		ountered at a f 11.5 ft.
	1									in fingers with little	e pressure. Trace	of	depin o	. 11.0 10.
SS 2	2.0	1.6	5-4-3-3					-		clay. 3.1-11.5 <u>Silty SAND</u> (black (5YR2/1). M	SM). Brownish			
i					'					black (5YR2/1). M saturated in zones	loist to 5.6, becor	ning		
			2 2 2 2					10_		percent. Sand is m	ostly medium gr	ain with		
SS 2	ا ۵۰۰	1.5	3-2-3-2						1	some fine & coarse sand. Silt is 40%, r	grain subangulai mostly dark, with	silica trace		
	- 1						410.4_			_ organic fibers. Mod	derate cohesion,	medium	\forall	
SS 2	2.0	0.8	1-2-2-1					-		stiff consistency, de compaction. Abund	ense-moderate lant RUBBLE as	brick &		
	l							-		concrete fragments	, oxidized coal sl	ag,]]	
00 -										breaks in fingers ea	sily. No to little	•		
SS 2	ا ۵۰	1.6	3-1-2-1					15_		plasticity, thread is easily.	weak & rupture	5	11	
					ŀ			10-		6 FT. decrease sand				
SS 2	2.0	1.6	1-0-0-3					-		fine grain. Gap grages grain. Density and	ded, with trace c l consistency incr	oarse ease.		n measured of riser
- 1	ļ					ı	404.7_			11.5-17.2 FT. Clayey	•		pipe.	
						i				black (5Y2/1). Moi			11	
	- 1						402.8			medium stiff consis plasticity, good thr		a	<u> </u>	
							_			Soft mold, moderat	e resistance to		H	
SS 2	2.0	1.4	5-5-6-8				401.7_	20_		homogenous in stru	ipture. Generaliy icture, some dark			e completed :
	ļ							-		decomposed organi 13.8 FT. A 2-3" la	c stringers.	n t		ing well,
										Drownish black silt	particles. Loss of	I	[] 3, 10, 88	•
					1			,,		plasticity, increase dilatancy.	moisture content	and		
										17.2-19.1 FT. CLAY (CL) Olive			
	1						207.0	•		[5Y4/1]. Moist to	saturated, low ra	nge of		
SS 2	2.0	1.9	2-2-2-4				397.0_	25_		liquid límit on plass cohesion, medium s			H	
								.		bends under own w	eight on ejection	from	!	
										split spoon. Easily moderate resistance			Y	
								•	HH	organics, largely de	composed as fibr	ous	1	
	ļ							•	1111	stringers. Slight org is homogenous, no		ture	 	
	Ì								1111	19.1-20.2 FT. Silty SA				
00 -	_						Ž	30_	L	gray (5Y4/1). Sligh	itly moist, slight			
SS 2	ا U. ا	1.4	6-5-4-5							cohesion, well comp Close packed. Mod				
								•		permeability. Sand	l is mostly v fine	& fine		
\dashv	-							-	111	grain, mature, well sand. Silt is 35%, r		quartz		
							388.6_	-		mafic/biotite flakes	. Rapid dilatano	у,		
										slight plasticity, we easily. Stiff mold, i	resists deformation	n.	\prod_{-}	
										20.2-24.9 FT. CLAY (Descript	ion & ation of soil
	CDL	T 98	POON; ST	= SHF	LBY TL	BE: S	ITE	<u> </u>	<u> </u>	<u> </u>	WHITE BLAY		HOLE NO	
ss =	2LL1	,												W07D

		GI	EC	LC)Gl	C D	RIL	L LO	G	PROJEC	T		Į. I	ET NO.	HOLE NO.
SAMP. TYPE AND DIAM.	-		•,				PRESS. I.S. P.S. I.S. P.S. I.S. I.S. I.S. I	RE	ELEV.	ОЕРТН	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
	2.0) 	1.9	20-1						-			(5Y4/1) mottled with brownish black (5YR2/1). Moist, dense compaction, stiff consistency. Highly resistent to penetration. Rigid, but cohesive. Sample is indented slightly with moderate finger pressure. Slight plasticity, weak thread, stiff mold.		al examination
SS	2.0	D	1.6		2-9					40_ - -			24.9-33.3 FT. SAND with SILT (SW-SP). Mostly medium dark gray (N4). Wet, slight cohesion, adhesion of particles due to moisture content. Gap graded, coarse and fine grain sand (80%) with trace medium grain (>3%). Silt is mostly mafic/biotite flakes. Medium dense, low-medium void ratio. Moderate permeability. 27.0 FT. Becomes well graded. Abundant silica sand. Appears washed.		
SS	2.0	D	1.9	14-1						45_			33.3-71.4 FT. SAND (SP). Light brown (5YR5/6). Saturated. Well graded, mostly medium-fine grain w/ some coarse sand, fine to coarse gravel, and a trace pea-sized gravel. Sub-rounded to rounded, predominantly quartz, chert, and feldspars. 41.6-41.8 FT. Sand w/ silt. Light brown/pale yellowish brown (10YR6/2). Well sorted, v. fine grain sand w/silt. Dense, v. close spacing. Silt on top		
SS				11-1	8					50 - - - - 55			w/fibrous organic debris.		
SS				7-11	2					- - - 60_			56.6 FT. Sand becomes well sorted, fine grain, sub-rounded/rounded quartz. Trace medium grain w/few (7-10%) black silt flakes.		·
SS			1.7	4-5	-11					- - - - 65_			62.0 ft. V. coarse grain, rounded, gravel sized quartz sand.		
SS	2.0	P	1.9	4-2-	4-15				350.5_	70_			70.0 FT. Sand is v. well sorted, fine grain w/silt. Increased adhesion due to particle size & shape. Increase in silt percent.		
						= SHEL		,	ITE.	-	SI		71.4-79.3 FT. Silty SAND (SM). Olive gray (5Y4/1). Wet, slight cohesion. Moderate grading, mostly fine & medium grain w/ few coarse sie. Silt is 20% as mafic/biotite flakes. S-E. Building 705	HOLE NO	

(GEC	LOG	IC D	RIL	L LO	G	PROJEC	T	JOB NO. SHEE	T NO.	HOLE NO.
SAMP. TYPE AND DIAM. SAMP. ADU. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS "N" % CORE RECOVERY	Loss IN A.P.B	PRESS. F.S. I.S. P.	RE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES WATER WATER CHARAC	<u>'</u>
SS 2.0 NQ 6.0		4-3-9-14 97%				342.6_	80_		Mostly as above (33.3-71.4') sand with distinct increase in silt percent. Appears dirty, increase in adhesion. 79.3-94.1 FT. LIMESTONE. Light olive gray (5Y4/1) with interbedded chert		veathered encountered
NQ 5.1	4.2	82%					85_		(medium gray-N5) intrusions. Generally hard to very hard, difficult to scratch w/knife. Slightly weathered. Very highly fractured to 84.6 ft. then mod. fractured. Fractures are 99% normal to the axis of the core. Tend to be slightly weathered, no rough edges, but no loss of strength. Competemt rock. Fractures are 80% clean, some are discolored, hematite staining. Trace have clay/mud coating.	at a dep	th of 79.3 ft.
NQ 5.0	5.0	100%					90_		Random zones (80.4-81.0; 84.7-85.0; & 88.6-89.1') where core shows higher weathering w/ medium sand size particles altering to clay. Little loss of strength. 83.6 FT. Chert inclusion. 84.7 FT. Introduction of abundant styolites, or sutures. Most are closed but influencing fracture pattern. Some are filled w/ clay & mud. May be cemented. Fractures in association with styolites have "karst" moon surfaces. V. rough		
						327.8_			w/high void ratio. Clay filled. The flow pattern is greatly affected by the fracture pattern. 89.1 FT. Core becomes massive, homogenous. Appears more competent, fresh, w/decrease in porosity/permeability. 90.3-90.5 FT. Chert inclusions. Medium gray (N2); may be dolomite(?). Shell (rogose coral) molds.		
									Bottom of boring at 94.1 Ft.		
							.0				
		POON; ST; P = PI			,,,	l TE		SI	DS-E. Building 705	HOLE NO	SW07D

	G	FC	ח כ	G	C D	RII	L LC	G	PROJEC	T		JOB NO.	L L	ET NO.	HOLE NO.
SITE						1116		COORDINA	1750			lavio		OF 3	B16W08D
3116		SL	DS-	PI.	ANT	7E		COOKDINA	4163	1	N 1,258 E 3,231	ANG	veri		BEARING
BEGUI	N		OMPLE		DRILL				1		MAKE AND MODEL SIZE	OVERBURDEN		K (FT.)	TOTAL DEPTH
3-1	1-8	8 3	3-22	-88	1	Layne	-Wes	tern, Co	- 1		Mobile B-53 8 1/4			0.0	80.7
			Y (F)					ESEL. TO		NG C	ROUND EL. DEPTH/EL. GRO	UND WATER	DEPTH	/EL. TOP	
		0.0				0	23	42	23.73		423.5 $\frac{3}{2}$ 29.7/393.8			80.7/3	342.8
SAMPI					/FALL	CAS		FT IN HO			NGTH LOGGED BY:				
			s/_				1	0 in. /	22.3	ft.		C.A. Clar	k		
SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	TPLE REC.	SAMPLE BLOWS "N"	2 CORE ECOVERY	LOSS IN G.P.M.d.	PRESS. I.S. P. S. I.S.	RE	ELEV.	DEPTH	GRAPHICS	DESCRIPTION AND (CLASSIFICAT	ION	WATER	ON: LEVELS, RETURN, CTER OF
8€	SP	<u>BAI</u>	<u> </u>	œ	م 9	a a	⊢ Σ	423.5		ן ט					NG, ETC.
SS SS	2.0	1.8	10-5 1 5-7- 1-2- 3-2-	-3-3					- - - 5_ -		0.0-2.8 FT. Sandy LOAM. (N2). Dry, loose compadense, non-cohesive. Climestone fragments. Sleaves, twigs, and roots 2.2-2.5 FT. Trace % of 2.8-8.2 FT. SILTY SAND black (5YR2/1). Moist, moderate density, non-ruptures easily. Abund glass, concrete fragment (70%) is poorly graded grain, subangulars. No homogenous. Some org undecomposed, as bark	ction. Medium oarse gravel and ome organics as (SM). Brownish moderate cohesi plastic, soft mole ant rubble as brownine and medium structure - anics, largely	on, l; oken id	using 8 stem au Sampled logged b	and gamma y berline to a
SS :	2.0	0.8	2-3-	·4-5					10_	e fer en fast en 8.8 FT. CLAY (CL). I brown (10YR4/2). Moi plasticity, good thread weight without rupture resistance to rupture, d pressure. Low permeab 8.8-10.9 FT. SILTY SANI Brownish black (5YR2/abundant rubble. Some particles; low dry streng biotite/mafic(?) flakes: 10.9-11.8 FT. CLAY (CL).	Soft, strong soft, strong seforms with sligh ility. (SM). 1). As above with slightly comments of the slightly comments.	h ed	top of ri	asing n measured a ser pipe. dvance of	
SS :	2.0		2-3-					406.7_	15_		biotite/mafic(?) flakes a 10.9-11.8 FT. CLAY (CL). (10Y4/2). Moist, moder non-sticky, soft. Shine; organics, "clean". Redu stringers. Good thread, rupture and deformatio 11.8-14.7 FT. Silty SAND Brownish black (5YR2/			auger, 1	4-16 ft.
SS :	2.0	1.4	4-6-	8-8				<u> </u>	-		fine to medium grade su abundant dark biotite/i	ib-angulars. Silt nafic lakes. Som	is is	Top of u soil enco depth of	untered at a
SS :			2-4-					402.1_ 402.1_ 401.5_			14.7-15.4 FT. SAND (SP-10/N3) with a trace dar sign poorly graded fine (20% and coarse (15%) with a sand. Little cohesion du content. No shear strenexcellent permeability. large void ratio. 15.4-16.8 FT. Silty SAND above. Decrease rubble round pods.), medium (40%, trace v. fine grae to moisture gth. Good to Poorly packed, (SM). As . Trace of 1-2 m		Borehole monitori 3/25/88	
SS	2.0	2.0	4-3-	4-4				7	- - - - - - - - - - - - - - - - - - -		16.8-21.4 FT. Clayey SILT black (5Y2/1). Moist, m consistency, little tende crumbles when rolled. I with moderate finger properties of the complex of the co	ncy to bend. ndents slightly essure. Slight stance to %) v. fine grain Olive black re, med. stiff, mo ?) No visible t, pliable, strong upture. Soft mole er pressure. Low (SM). Olive	ı, [Descript classifica by visua of split s samples.	iton of soils l examinator poon
 ss =	SPL	IT S	POON -	ST	= SHE	BY TI	IBE · S	ITE	L	<u>H::H</u>	gray (5Y4/1). Saturated	l, well-graded,		HOLE NO.	. <u></u>
			•		CHER;		,,				SLDS-PLANT 7E				W08D

		G	EC	LOG	IC D	RIL	L LO	G	PROJEC	Ţ	JOB NO. SI	EET NO. HOLE NO. 2 OF 3 B16W08D
,	SAMP. TYPE AND DIAM.			SAMPLE BLOWS "N" % CORE RECOUERY		PATER ESSU EST: .I.S.	RE	ELEV.	ОЕРТН	GRAPHICS	DESCRIPTION AND CLASSIFICATION	NOTES ON:
		2.0	2.0	3-3-3-3					40_		mostly fine (52%) grain w/some v. fine and medium (13%) grain and a trace clay (>10%). Subrounded to rounded mature silica sands. Some dark mafics(?). Moderate to strong compaction, dense, slight plasticity, good thread, ruptures with moderate finger pressure, soft consistency. 27.0 FT. Moderately decayed organics, bard tree branches, porous, fibrous. 40.9 FT. Distinct increase in clay %. Plasticity becomes moderate with good thread, stiff consistency. 41.1 FT. Begin increase in sand, v. fine & ine grain. plasticity decreases, weak thread, ruptures easily. Color becomes	Center plug removed from HSA after 30.0 ft.
	SS			20-24-6 6 14-13-1:				378.3_	45		olive black (5Y2/1). Sand is silt size, not platey or flakey. Rapid dilatancy. 45.2-59.8 FT. SAND with Silt (SW). Mostly olive black (5Y2/1) with mottled gray (5Y6/1). Saturated, sand is well graded - fine gravel to fine sand. Mostly (70%) medium grain with few (10%) coarse & fine gravel. Larger particles tend to be angular; a trace are subrounded. Adhesion due to moisture, no cohesion or plasticity. 49.0 FT. Gravelly sand, dense, well compacted, increase silt and clay %. Inclusions of layers (1/4-1/2") with low moisture content. Good compaction, close packed. Low-very low porosity/permeability.	
	SS			22-20-18 12 14-25-18				363.7_	55_		54.0 FT. Becomes mostly fine grain sand with trace gravel. 55.1 FT. Increase silt %, silty SAND. Olive gray (5Y4/1). Fine & medium grain (80%) with trace coarse subangular sand. 2% fine gravels, trace to 5% silt. Little cohesion, non-plastic.	·
	SS	2.0	1.8	14-20-18	8				65_		59.8-79.9 FT. SAND (SW). Light olive gray (5Y6/1). Saturated, very well sorted, mature, medium & fine grain sand. V. close packed, low void ratio, good compaction. Little cohesion, adhesion due to moisture content. Mostly silica sand & chert. 65.0 FT. Sand w/trace of silt. Sand as above. Dark matic flakes. Increase silt %, slight to moderate cohesion.	
	SS	2.0	1.4	6-9-14					- 70_ - -		69.0 FT. Decrease silt %; clean sand. silts are >3%. Generally moderate compaction, closed space packing - low void ratio.	
		2.0	L	12-12-9 20	<u> </u>	RY T	10E. IS	ITE	-		74.0 FT. Trace increase in silt.	HOLE NO.
				POON; ST ; P = P1			, ,	. 1 4			SLDS-PLANT 7E	B16W08D

GEOLOGIC DRILL LOG WATER PRESSURE TESTS LOCATION OF STATE OF STA	rganics.	WATE WATE CHAR DRIL	B B16W08 S ON: R LEUELS, R RETURN, ACTER OF LING, ETC
75.8 FT. Coal and decayed or SS 0.8 1.4 4-11-14			
Bottom of borehole at 80.7 FT.	compaction.	Top of bedroat a co	of weathered ck encountere lepth of 80.7'

	G	ΕO	LOG	C D	RIL!	L LO	G	PROJEC	CT .			· · · · · ·		JOB	NO.	- 1	EET NO.	HOLE NO.
SITE			<u></u>				COORDINA	TES	<u> </u>						ANG		ROM HORIZ	
			Louis I				<u> </u>				36 E			1			tical	
BEGU	אנ 30-8	1 -	MPLETED 5-7-89	DRILL		ntechr	nology	ľ	אונג	_	AND MODE	JEL	51ZE 7"	OVERBURD 58.		ROC	3.5	TOTAL DEPT
$\overline{}$			(FT./%	CORE			ESEL. TO	P CASI	NG G	ROUND		DEPTH/	EL. GROU	ND WATER	<u> </u>	DEPTI	H/EL. TOP	
		.1/8			1	18					1.9	¥ / 3	2.8				58.	2/
SAM			WEIGHT		CAS	ING LE	FT IN HOL		A./LE	NGTH	LOGGED	BY:		C 4	Cl-	_1.		
ш			/ 30-		JATER	₹	15'/	I U		<u> </u>				C.A.	Ciai	rk		
SAMP. TYPE AND DIAM.			SAMPLE BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M J	PRESS. SS		ELEU.	ОЕРТН	GRAPHICS	D	ESCRI	PTION	AND C	LASSIFI	CAT	IDN	WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
\$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	1.3 1.7 1.2 0.3 1.5 1.8 1.9	5-5-7 30 5-7-6 2	9	à		407.3_ 402.5_ 395.7_	5_ 10_ 15_ 20_		Top Ab Sar Sar 14. Slig Sor 19.	Greyish (5YR2/kg/kg/kg/kg/kg/kg/kg/kg/kg/kg/kg/kg/kg/	black (1). Dry erbedded. Soft t with riand size rates. is 1/4- ce fines with d dhesion, RUBBL d concretion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce fine- tion. stly me ce conter d A+T1. stl conter tion. The fine- ce densiti- tuptures FT. Conter ce densiti- tuptures FT. Conter ce densiti- tuptures stl conter ce densiti- tuptures stl conter ce densiti- tuptures stl conter ce densiti- tuptures ticity, m ce to de distrib FT. Conter ce densiti- tuptures random stl ded Sil 4/1). P ded	N2) to Bi 0-2', bee 0-2', bee of zones vo of medium abble ence solution in the second in slightly 1/2" angu- Sand angu- E 0-10 F ete fragm dium and grained sicles. In the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic oft consist in the plastic of content, at and less on-sticky formation of the plastic oft consist with the plastic oft consist with the plastic oft consist in alternative consist in alternative consist in alternative consist of the plastic of the pla	Olive gve black (n, medium rtends to slightly his consolid n. Crumblad.	acky not recovered to the solid state of the solid	noist sture cy, e lag, lt cod e ht ayers, lt cod e ht e ht e ht e ht e ht e ht e ht e h	Borehol using 6 hollow: a depth Drill ho using N imprent totalde; Sample logged 18 FT. Top of materia at 14.6 Descrip classific soils by examin: soon sa Soil cla UNIFIE CLASS Chart (Borehol	e advanced -1/4 inch stem auger to of 58.2 FT. le advanced Q Diamond ate bit to a oth of 61.7 F d & gamma by TMA/E to undisturbed l encountered FT. tion & ation of visual ation ofsplit mples. ssification is CD SOIL IFICATION, scriptions fro A Rock Color 1948). e completed ing well
			POON; ST			, L	ITE		St	L-l	thread r	olling v		lasticity, voture to 5		n	HOLE NO	

ſ				V 00	<u> </u>	DIL I			ROJEC	Ţ		JOB NO. SHEE	T NO.	HOLE NO.
-	1			LOG				G			П	2	OF 2	B16W09D
		SAMP. ADV. LEN CORE	SAMPLE REC.	BLOWS "N" % CORE RECOVERY	LOSS IN G.P.M Jus	PRESS. 1.8.7	RE	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	WATER CHARAC	ON: LEVELS, RETURN, STER OF NG, ETC.
	SS	2.0	1.4	WR/8" 2/4" 15-9					-			Silty sand layers are well sorted, fine-grained mature silica. Saturated, non-cohesive, rapid dilatancy.		
	SS	2.0	0.0	7-9-9					- 40			26.2 - 34.1 FT. Silty SAND (SM) Olive grey (5Y4/1). Saturated, slight to no cohesion, v.stiff consistency. Rapid dilatancy, Silt percent decreases with depth to <10% by 30 ft. Mostly v.fine-grained, well-sorted, rounded silica.		
	SS	2.0	1.6	9-13-11					45_			34.1 - 58.5 FT. SAND (SM-SP) Olive grey (5Y4/1) to light olive grey (5Y6/1). Wet, non-cohesive, adhesion due to moisture content, dense. Trace silt particles as matic flakes, decreasing to <3% by 40 ft		
	00	2.0							50_			gradation. 35-40 ft. is mostly fine and medium-grained, with some 7-9mm rounded pebbles. Sand at 40-45 ft. is coarse and v.coarse-grained subrounded to rounded. Particle size from 45 - 55 ft. is fine and medium-grained with trace rounded pebbles. Trace silt as black specs.		
	55	2.0	2.0	6-6-10								Random, thin (5-7mm) silt lenses, some parallel with bedding, some as rounded blobs: Generally lower in moisture content.		
,	SS	2.0	0.8	2-4-8		:			55_					
				12										
	NQ	3.5	3.1	89				363.4_ 360.2	60_			58.5 - 61.7 FT. <u>LIMESTONE</u> Light olive grey (5Y6/1). Fresh to slightly wenthered, little discoloration Moderately hard, moderate pressure to scratch with knife. Strong reaction to HCl.		
									<i>!</i>			Massive structure, trace 1-2mm calcite concretions, slightly darker color. Some light hematite staining. Jointing is normal to core ais, planar and smooth. Joint surfaces are mostly fresh to		
												slightly weathered. Some open micro-fractures, mostly parallel with jointing, few dipping 5-7 degrees. Bottom of borehole at 61.7 Ft. Monitor well installed in borehole, 2/89.		
												23.2.2.3.3.2.2.2.2.2.3.2.3.2.3.2.3.2.3.		
					:									
•				POON; ST ; P = PI			,,,	ITE	L	_ S	St.	. Louis Downtown	HOLE NO	:W09D

							, is	PROJEC	ī			JOB NO). [5	SHEET NO.	HOLE NO.
212		EO	LOG	IC D	RIL	L LO				FUSRAP		145		1 OF 2	B16G01
SITE		Lou	is Dov	vntow	n Sit	e	COORD I NA	IES						FROM HORIZ	BEARING
BEGL		1	MPLETED	1					DRILL	MAKE AND MODEL	SIZE	OVERBURDER	R	OCK (FT.)	TOTAL DEPTH
	1-89		-9-89 (FT./%				iology ESEL. TO	P CASI	ine le	CME-75	7"	NC WATER		TH/EL. TOP	35.5
		/	(1117	Journ	JUNE	9	13,12. 13,	CAG		▼ 10.		NO WATER	100	/ / / / / / / / / / / / / / / / / / / /	/
SAM			WEIGHT	-	CAS	ING LE	FT IN HOL 14.8'/		A./LE	IGTH LOGGED BY:		C. A. (Clark		
<u>M</u> .	-	. ن			JATER ESSU	2_	14.0 /	10				C. A. (- 	
SAMP or JAK	SAMP, ADV LEN CORE	SAMPLE RE CORE REC	BLSONS LEN		PRESS. MA	3	ELEV.	DEPTH	GRAPHICS SAMPLE	DESCRIPTION				WATER	ON: LEVELS, RETURN, CTER OF ING, ETC.
								-		0.0 - 11.4 Ft. ASF RUBBLE.		ONCRETE	, and	0.D-35. 6-1/4 i	
										0.0-0.3 Ft. Aspl 0.3-1.5 Ft. Rein		ncrete		hollow-	stem auger.
								5-		1.5-3.5 Ft. Silty brownish black (5) moist. Abundant l and slag. Noncohe rubble. 3.5-5.1 Ft. Cond	SAND as (R2/1). I prick, decessive but f		Mostly slightly ncrete to	Radiolo sample gamma TMA/I Ft.	
							7	- 7 10 -		5.1-11.4 Ft. San Brownish black (5) material covers par sand and fine-grain to moderately deco roots. Spongy and	(R2/1). ticles. Mo ned grave imposed w	Wet, viscou ostly uncons ls. Abundar	s black solidate st fresh		undisturbed
								15-		11.4 - 25.5 Ft. Alt SAND, Silty SANI gray (5Y4/1) to oli with saturated zon to moderately cohe consistency. Dense break with samplin a variable thicknes	D and SIL' ive black es at 20 to sive, med , well com ig tool. L	T (ML-CL) (5Y2/1). M o 25.5 Ft. S ium-stiff to apacted, diff ayers altern	. Olive loist lightly stiff licult to late wil	materia	al at 11.4 Ft.
										Clayey sand layer and very fine-grain Slightly cohesive, s Clay adheres to sar content.	ned matur lightly pl nd particl	e silica sand astic, will n es. Low moi	d. ot roll. isture		
								20-		Silt layers are ge slightly plastic, slig dilatancy, dull shir flakes. Liquefies w Silty sand layers	thtly cohe ie. Abund ith little s	sive. Slow ant dark m shaking.	afic	6-9-89	ve and toxic
										layers, with the inc fine-grained silica rapid dilatancy.	lusion of	30 to 50%		encoun	tered in the
							-	25-		25.5 - 30.4 Ft. Silgray (5Y5/2). Mosaturated zones. Fi	ist with in ne-graine	iterbedded ed, well-sort	ted,		
							_	30-		plastic. Thread ru structure. Lamina flakes. Reduction banded. Interior z hematite stained ri outer light-colored	ptures at e of single rings, 10- one is dar ng, 2 to 4	5 mm roll. particle m	Massiv afic r led by	Description of split sample	s.
)										Swirls of darker ba of biotite flakes. 30.4 - 35.5 Ft. SA olive gray (5Y5/2) with saturated zon	nds, singl	Silt (SM).	Light	Unified Classifi descrip GSA R Chart	cation; color tions from the ock Color
			POON; ST			,,,,	ITE	S	St. L	ouis Downt				HOLE N	o. 16G01

	·								PROJEC		_		JOB NO.			
		GEOLOGIC DRILL LOG								T		FUSRAP	1	ET NO. OF 2	HOLE NO. B16G01	
)	SAMP DIAME	CORE	SAMPLE REC. I	ISTEN CORE OVERY	PR	AATER ESSU TEST:	RE	ELEV.	ОЕРТН	GRAPHICS	שוווויי	DESCRIPTION AND CLAS	14501	<u> </u>	NOTES WATER WATER	ON: LEVELS, RETURN, CTER OF
			<u>σ</u>						.,			to very-stiff consistency. Moderwith tools to break sample. San fine-grained, predominantly qua (20%) silt, mostly as dark flakes dilatancy, nonplastic, will not roll. Structuhomogeneous, some random 2 to laminations, mostly horizontal. dark decomposed organic blebs. 32.0 Ft. Consistency softens sliginterbedded lean clay (?). Inclucoarse-grained rounded sand, <33.0 Ft. Abundant organics, dadecomposed sticks, grass blades, and spongy, swampy odor. 33.5 Ft. Increased sand size to medium-grained with some fine-rounded to subrounded quartz. Borehole abandoned at 35.5 Ft. LEL & Toxic levels. Borehole backfilled with bentoni 6/9/89.	d is well-sortertz. Little . Rapid ire is 3 mm Trace to few thtly; sions of 5%. rk, mostly bark. Porou mostly grained due to high			
				POON; ST			,,,,	ITE	S	t. L	.c	uis Downtown Site	e		HOLE NO.	6G01

















