BORING NO. B-5 DACW27-03-D-0003, WO # 0038 SHEET 1 OF 17

1. PROJECT White River/Fall Creek CSO Tunnel GRR Study	10. DATUM FOR ELEVATION SHOWN (TBM OR MSL)
2. LOCATION Indianapolis, Indiana	
3. DRILLING AGENCY FMSM Engineers, Inc.	11. DRILL METHOD 3" FJ Casing; 2" NQ WL
4. NAME OF DRILLER Greg Thompson	12. ELEVATION TOP OF HOLE
5. DRILL TYPE CME-55 Track Mount	13. TOTAL NUMBER CORE BOXES 15
6. THICKNESS OF OVERBURDEN 108.4' (Casing set @ 108.5')	14. ELEVATION GROUND WATER 30.5'
7. DEPTH DRILLED INTO ROCK 212.6'	15. DATE HOLE STARTED 8/17/05 COMPLETED 8/25/05
8. TOTAL DEPTH OF HOLE 321.1'	
9. DIRECTION OF HOLE ~~Vertical~~ 20° Angle bearing N 30° E	16. INSPECTOR M. Ashcraft / J. McTwtyre

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INCH	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
	Lean Clay w/sand										OVERBURDEN PROCESSED W/O SAMPLING. DEPTHS ARE REFERENCED ALONG ANGLE OF BORING, NOT CORRECTED TO VERTICAL DEPTH	1.1
	Sand											2, 3, 4, 5, 6, 7.8
	Organic, black											8, 9, 10, 11, 12, 12.5
	Sand											13, 14, 15, 15.2
	Lean Clay											16, 17, 18, 19, 20

LRL FORM 1202 JUNE 2000 PREVIOUS EDITIONS ARE OBSOLETE

SYMBOLS V - WATER LEVEL AT COMPLETION

PROJECT White River/Fall Creek CSO

> - PARTIAL LOSS OF DRILL FLUID

HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 2 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
	Sand											
	Sand, gravels, cobbles and boulders											28.7
											▽ @ 30.5	

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO. B-5
SYMBOLS	V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 3 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO.
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 4 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO. B-5
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 5 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO.
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 6 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	Box ~~SAMPLE~~ #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
	Top of Rock @ 108.4											108.4
	Limest[illegible] very hard [illegible] crystalline, light gray, thin to medium bedded, [illegible] throughout, fossiliferous, [illegible] Mt Vernon				NQ			2.6	100	83	Bit gauge coring @ 108.5' MB = mechanical breaks caused by inspector 110.6' : 60° J P1, SR; No, No infill stain MB@112	108.5
				1	NQ			6.5	100	93	[illegible] Lostwater @ ~116.0	111.1
					NQ			3.5	100	100		117.6

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS. V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 7 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	~~SAMPLE~~ Box #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
					NQ							121.4
				1								
											mB@122.5'	
											mB@123.3'	123.3
					NQ			10	100	100		
											mB@127.2'	127.4
	Limestone, very hard, medium to coarse crystalline, light gray with zones pinkish, thin to medium bedded, Chert seams, fossiliferous Argillaceous (sires pinkish color zones) brozen along very thin shale parting and stringers weathered on these areas, otherwise fresh			2								
												131.4
					NQ			10	100	89		
												138.3
				3								

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 8 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	Box ~~SAMPLE~~ #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
	N. Vernon											140.2
	Limestone/very hard, Krypto to micro cystalline, whitish gray, thick bedded, fossiliferous, very calcareous, several healed seams throughout, fresh Vernon Fork											141.1
					NQ			10	10	96	Healed seams @ 146.1'-146.4, 147.3'-147.5', 148.2'-148.5, 150.3'-150.6	
				3							MB@145.6'	
											MB@149.4	
												151.1
											MB@153.1 Healed seam from 153.5'-154.0' - 70° Rod chatter @ 154.0'	153.1
				4	NQ			10	100	98		

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS. V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 9 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
					NQ						healed 80° mineralized Joint rough	161.4
				4	NQ			10	100	92	Occasional Vugs from 165.3'-165.9'	1
	Limestone, very hard, Kryptotomicro crystalline, whitish gray (more tanish on fresh surface), thick bedded, calcareous, broken on calcium carbonate seam bedding planes, very thin healed seams									(1)	J: 30-40° B. joint, 1/8", black shale pritg: Wavy to planar prob. mech. @ 168.7', 170.6', 171.1', 172.0', 173.0', 174.0', 177.4', 178.0'	168.3
												171.4
	Dolomite / Dolomitic Limestone hard to very hard, micro to fine coarse grained, tanish gray, very thin to medium bedded, Zones slightly vuggy from 179.6', some intermixing of shale, broken along carbonate [illegible] bedding planes, some fossils				NQ			10	100	80		174.6
											[illegible] 178.5'-178.7'	

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 10 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
												181.7
				5								
					NQ			10	100	100		
				6								
												191.7
											Sandstone lenses from 191.7'-191.8', 195.6'-196.3', 197.2-197.5'	
					NQ			10	100	93		
												197.5
				7								

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 11 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
												201.1
	very thin bedded with irregular and some crossbedding from 202.0'-208.4'. Zones very fossiliferous and vuggy from 202.0'-211.1											
	VERNON FORK			7	NQ			10	100	100		
	209.1' change to Geneva											
	GENEVA											211.1
												211.9
											MB @ 214.6	
	Limestone, hard, micro to med. crystalline, brownish gray, thin to medium bedded, fresh to slightly weathered, very small sand lenses, calcareous, carbonaceous partings regularly broken along their bedding planes,			8	NQ			10	100	100		215.4

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO. B-5
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	>- PARTIAL LOSS OF DRILL FLUID	

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 12 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
												221
				8							MB@222.9	
					NQ			10	100	96		
											230.0'-230.5' core broken gravelly; rotational MB	231
	Very vuggy, calcareous and fossiliferous f.o.m 231.1-241.1 Highly weathered											
	231.5'-243.8' vuggy & pitted 1/4" to 1/2" vugs			9							MB@233.9	
	235.2'-237.5': 2" to 3/4" solution cavities				NQ			10	10	10		

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO. B-5
JUNE 2000	SYMBOLS: V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 13 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
				9								244
	GENEVA				NQ			10	10	100	MB@244.9	
											very thin clay seam @ 245.9' and 246.3	245
	Dolomite, very hard, microcrystalline, light gray, massive bedded, fresh										MB@246.9	
	MISSISSINEWA			10								
											MB@248.7	
											MB@249.5	
												251
					NQ			10	100	100		
												254
											MB@252.0	
											MB@258.9	

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO.
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	>- PARTIAL LOSS OF DRILL FLUID	B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No.
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 14 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
											MB@260.3	
												261
											MB@262.6	
											MB@263.6	
											MB@264.2	
				11	NQ			10	100	100		
											MB@266.1	
											MB@266.8	
											MB@267.4	
											MB@268.0	
											MB@268.9	
												271.6
											MB@273.6	
											MB@274.3	
				12	NQ			10	100	100	MB@276.0	
											Healed Seam from 277.6'-277.7'	

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO.
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 15 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
												281.1
	MISSISSINEWA			12	NQ			10	100	100	MB@281.6' MB@282.3' MB@282.7' MB@283.3' MB@284.2 MB@285.4' MB@285.7' MB@286.2'	286.1
	Dolomitic Limestone, very hard, micro crystalline, thick bedded, slightly calcareous, fresh 287.7': Change to Louisville										MB@287.1 MB@288.0' MB@289.1' MB@289.9' 293.5 End 8/23/05	291.1
	LOUISVILLE			13				10	100	100	J. McIntyre Inspector MB's @ 293.5 296.1' 297.3'	
	occasionally ~1/4"-1/2" gk. grn/gray shale pinngs.											298.9
	LIMESTONE, Lt GRAY, HARD to v. HARD, Fine to medium Xstalline GRAINED, medium to thick Bedded, Fossiliferous, ~~SCA~~ Fresh											

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO > - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 16 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
				6-1					100	100		
				13	RQ			10.0	10.0	10.0		301.1
											MB's @ 304.7' 306.4' 308.4'	
					NQ							
									100	100		
				14								
								10.0	10.0	10.0	END 8/24/05	311.1
											PARTIALLY ERODED SOFT SHALE STRINGER @ 311.5 MB's @ 312.1' 316.1'	
				315.5	NQ				100	100		
								10.0	10.0	10.0		

LRL FORM 1202	PREVIOUS EDITIONS ARE OBSOLETE	PROJECT White River/Fall Creek CSO	HOLE NO.
JUNE 2000	SYMBOLS V - WATER LEVEL AT COMPLETION	> - PARTIAL LOSS OF DRILL FLUID	B-5

BORING LOG (Cont Sheet)	ELEVATION TOP OF HOLE	Hole No. B-5
1. PROJEC White River / Fall Creek CSO Tunnel GRR Study		SHEET 17 OF 17

ELEVATION	CLASSIFIACATION OF MATERIALS	LEGEND	USCS CLASS	SAMPLE #	SAMPLE TYPE	BLOWS PER 6-INC	MOISTURE (%)	PENETRATION	RECOVERY (%)	RQD (%)	REMARKS	DEPTH SCALE (FT)
				Box 15				100	100	100		321.1
	321.1' BOH (8/25/05)											

LRL FORM 1202 JUNE 2000	PREVIOUS EDITIONS ARE OBSOLETE SYMBOLS V - WATER LEVEL AT COMPLETION	PROJECT White River/Fall Creek CSO ≥ - PARTIAL LOSS OF DRILL FLUID	HOLE NO. B-5