CONSTRUCTION QUALITY ASSURANCE
FINAL REPORT
ON-SITE DISPOSAL FACILITY, PHASE I AND LEACHATE CONVEYANCE SYSTEM

REVISION 0
JANUARY 1998
VOLUME IX

United States Department of Energy
Fernald Environmental Management Project
Fernald, Ohio

prepared by
GeoSyntec Consultants
1100 Lake Hearn Drive, NE, Suite 200
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under
Fluor Daniel Fernald
Subcontract 95PS005028

Embedment Fill

- Soil Sample Log

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FLUOR DANIEL FERNALD

SOIL SAMPLE LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: FDF - LCS CONSTRUCTION DATE: 10 APRIL YEAR: 1997

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	VISUAL DESCRIPTION	SOURCE (LOCATION/DEPTH)	MATERIAL TYPE	DATE SAMPLED (day/mo)	TEST METHODS	QA ID
			46 R1 VBS-SOL-000	PIPE EMBEDMENT FILL	Rec'd	ASTM C136, D2487	
PEF-01	97D65.2	TAN SAND	VBS SUBMITTAL	CONCRETE SAND	10 APR.		NM
PEF-02	97D67	TAN SAND	STOCKPILE POWELL GVL. & TOPSOIL	PIPE EMBEDMENT FILL CONCRETE SAND	16 APR	ASTM C136, D2487	NM
PEF-03	—	TAN SAND	ON-SITE STOCKPILE K65 AREA	PIPE EMBEDMENT FILL	8 MAY	ASTM C136, D2487	NM
PEF-04	—	TAN SAND	ON-SITE STOCKPILE	PIPE EMBEDMENT FILL	24 MAY	ASTM C136, D2487	NM
PEF-05	—	TAN SAND	ON-SITE STOCKPILE SOUTH OF 2ND ST, BLK 600262	PIPE EMBEDMENT FILL	25 JUNE	ASTM C136, D2487	PKO
PEF-06	—	TAN SAND	ON SITE STOCKPILE (REMIA) "POWELL"	PIPE EMBEDMENT FILL	22 JULY	ASTM C136, D2487	NM
PEF-07	—	TAN SAND	ON SITE STOCKPILE	PIPE EMBEDMENT FILL	30 JULY	ASTM C136, D2487	KW
PEF-08	—	TAN SAND	ON SITE STOCKPILE	PIPE EMBEDMENT FILL	30 JULY	" "	KW
PEF-09	—	TAN SAND	ON SITE STOCKPILE	"	06 AUG	" "	NM
PEF-10	—	TAN SAND	ON SITE STOCKPILE	"	04 SEPT	" "	NM
PEF-11	—	TAN SAND	ON SITE STOCKPILE	"	19 Sept.	" "	NM

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NOTES:

- Laboratory Test Summary

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FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. _____

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 10 day APR. month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL — QA ID: NM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM C 136 ~~D 422~~ SIEVE	GRAIN SIZE: ASTM C 136 ~~D 422~~ HYDR.	ATTERBERG LIMITS ASTM D 4318: LL (%)	ATTERBERG LIMITS ASTM D 4318: PL (%)	ATTERBERG LIMITS ASTM D 4318: PI	SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION ASTM D 698 (or) ASTM D 1557: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL QUANT. PLACED (APPROX) (yd^3)
PEF-01	97D65.2	— / —	1.5	✓	—	—	-	-	—	SP	—	—	—	—	—	—	—	P	SUB. 46 R-1 SUPPLIER STOCKPILE
PEF-02	97D67	— / —	1.0	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	
PEF-03	—	— / —	0.4	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	25
PEF-04	—	— / —	0.2	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	1000
PEF-04.1	—	— / —	0.2	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	1000
PEF-05	—	4.6 / 4.6	0.3	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	1800
PEF-06	—	— / —	0.2	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	2700
PEF-07	—	— / —	0.6	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	3700
PEF-08	—	— / —	0.7	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	4600
PEF-09	—	— / —	1.1	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	5600

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COMMENTS: _____

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF N/A.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF N/A.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. _____

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: FDF - LCS CONSTRUCTION DATE: 04 day SEPT month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL QA ID: NM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE			ATTERBERG LIMITS ASTM D 4318			SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557		PERMEABILITY ASTM D 2434[1] (or) ASTM D 5084[2]			PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX)
			PASSING NO. 200 SIEVE ASTM D 1140 (%)	ASTM C136 ~~D 422~~ SIEVE	ASTM C136 ~~D 422~~ HYDR.	LL (%)	PL (%)	PI					MAX. DRY UNIT WT. (pcf)	OPT. MOIST. CONT. (%)	DRY UNIT WT. (pcf)	MOIST. CONT. ASTM D 2216 (%)	HYDRAULIC COND'VITY (cm/sec)		(yd^3)
PEF-10	—	—	0.5	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	6500 ~~5000~~ 7300 9/22/97
PEF-11	—	—	0.3	✓	—	—	—	—	—	SP	—	—	—	—	—	—	—	P	~~10000~~ 9/22/97

COMMENTS: _____

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF NA.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF NA.

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- **Laboratory Testing**

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 8 day MAY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-03

SOURCE: ON SITE STOCKPILE

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		1	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	208.2	
WT. OF TARE	(grams)	7.2	
WT. OF DRY SAMPLE	(grams)	201.0	

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
4	4.75	0	0	100	~~90-100~~ ~~95-100~~ Hem
8	2.36	16.8	New 5/14/97 ~~8.4~~ 8.1	New 5/14/97 ~~99.9~~ 91.6	~~70-100~~
16	1.18	62.5	31.1	68.9	~~38-80~~
30	0.60	122.2	60.8	39.2	~~18-60~~
50	0.30	181.5	90.3	9.7	~~7-40~~ ~~5-30~~ Hem
100	0.150	198.5	98.8	1.2	~~1-10~~
200	0.075	200.1	99.6	0.4	~~0-10~~ ~~0-5~~ Hem
PAN	—	200.6			
					* ODOT 703.06

%FINER = 100 − Σ % RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ C 136 & ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

DESCRIPTION: LCS CONSTRUCTION

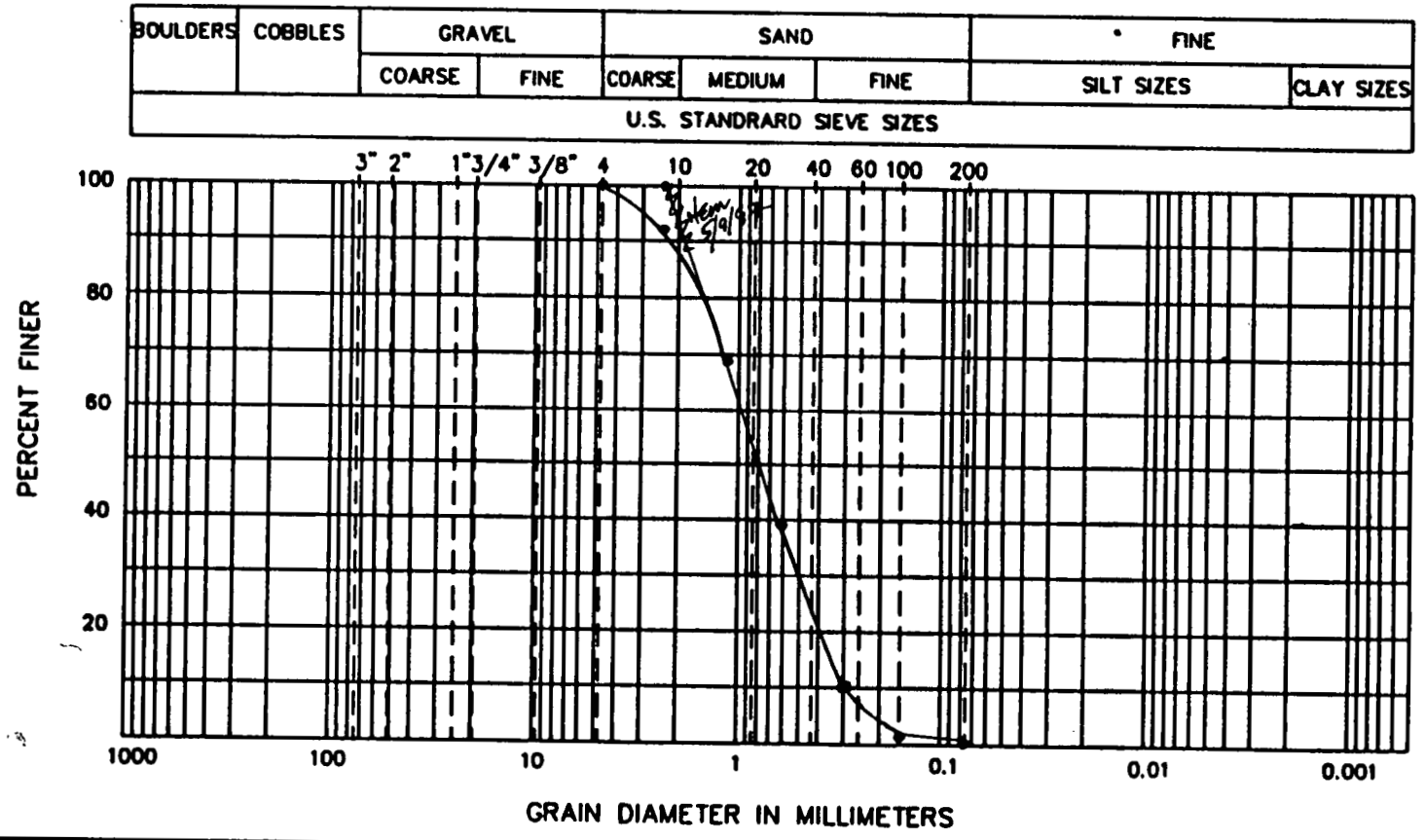
MATERIAL TYPE: PIPE EMBEDMENT FILL

PROJECT NO.: GQ0166 TASK NO.: 04.1

DATE: 8 day MAY month 1997 year

SAMPLE NO.: PEF-03 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{.96}{.30} = 3.2$ $(C_C)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{.25}{.29} = .86$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	
NO. 4	100.0
NO. 8	91.4 5/9/97
NO. 16	68.9
NO. 30	39.2
NO. 50	9.7
NO. 100	1.2
NO. 200	0.4

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP - POORLY GRADED SAND

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136 Hem 5/27/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 27 day MAY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-04
SOURCE: ON SITE STOCKPILE - K-65

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		Hem 5/28/97 ~~4~~ 6	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	330.8	
WT. OF TARE	(grams)	Hem 5/28/97 ~~101.7~~ 7.6	
WT. OF DRY SAMPLE	(grams)	323.2	

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT * SPECIFICATIONS
3/8"	9.5	Ø	Ø	100.0	
4	4.75	Ø	Ø	100.0	~~95-100~~ 90-100 Hem
8	2.36	16.7	5.2	94.8	~~70-100~~
16	1.18	86.7	26.8	73.2	~~38-80~~
30	0.600	192.2	59.5	40.5	~~18-60~~
50	0.300	297.5	92.0	Hem 5/28/97 8.0	~~5-30~~ 7-40 Hem
100	0.150	321.0	99.3	0.7	~~1-10~~
200	0.075	322.6	99.8	0.2	~~0-5~~ 0-10 Hem
PAN	—	323.2	—	—	

* ODOT 703.06
~~AASHTO M 80~~ Hem

%FINER = 100 − Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ & ASTM D 2487) Hydrom 5/27/97 C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

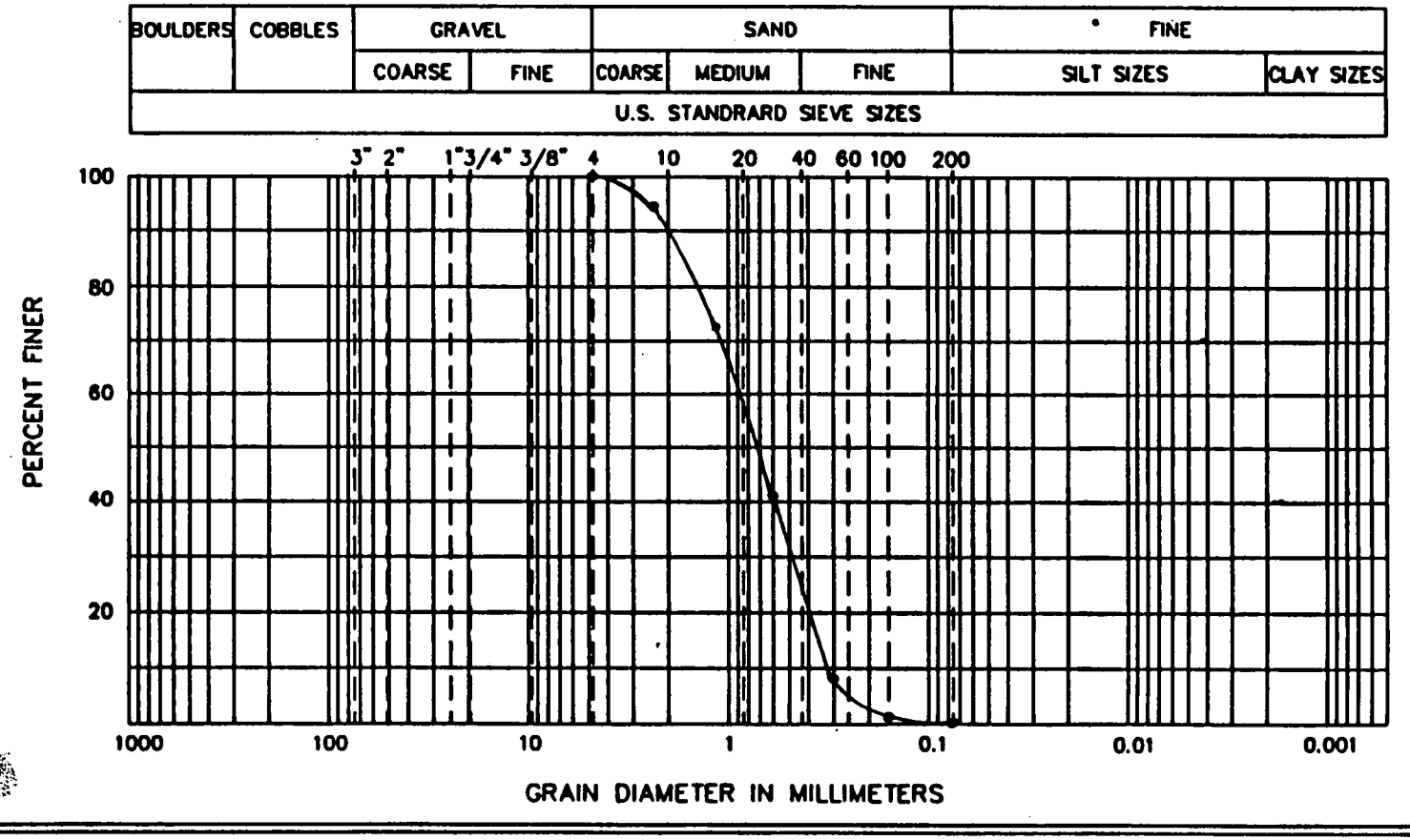
DESCRIPTION: LCS CONSTRUCTION

DATE: 27 day MAY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL

SAMPLE NO.: PEF-04 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{.9}{.32} = 2.8$ $(C_C)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{0.24}{.9 \times .32} = .83$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100.0
NO. 4	100.0
NO. 10	94.8
NO. 20	73.2
NO. 40	30 40.5
NO. 60	50 8.0
NO. 100	0.7
NO. 200	0.2

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED SAND (SP)

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136 Hem 5/29/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 29 day MAY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-04.1
SOURCE: ON SITE STOCKPILE K-65

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		N	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	449.5	
WT. OF TARE	(grams)	101.7	
WT. OF DRY SAMPLE	(grams)	347.8	

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT * SPECIFICATIONS
3/8"	9.5	Ø	Ø	100.0	
4	4.75	Ø	Ø	100.0	90-100 ~~95-100~~ Hem
8	2.36	18.7	5.4	94.6	~~70-100~~
16	1.18	91.0	26.2	73.8	~~38-80~~
30	0.600	202.9	58.3	41.7	~~18-60~~
50	0.300	317.2	91.2	8.8	7-40 ~~5-30~~ Hem
100	0.150	344.2	99.0	1.0	~~1-10~~
200	0.075	341.0	99.8	0.2	0-10 ~~0-5~~ Hem

* ODOT 703.06 ~~AASHTO No. 89~~ Hem

%FINER = 100 − Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ & ASTM D 2487)

Hem 5/29/97 C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

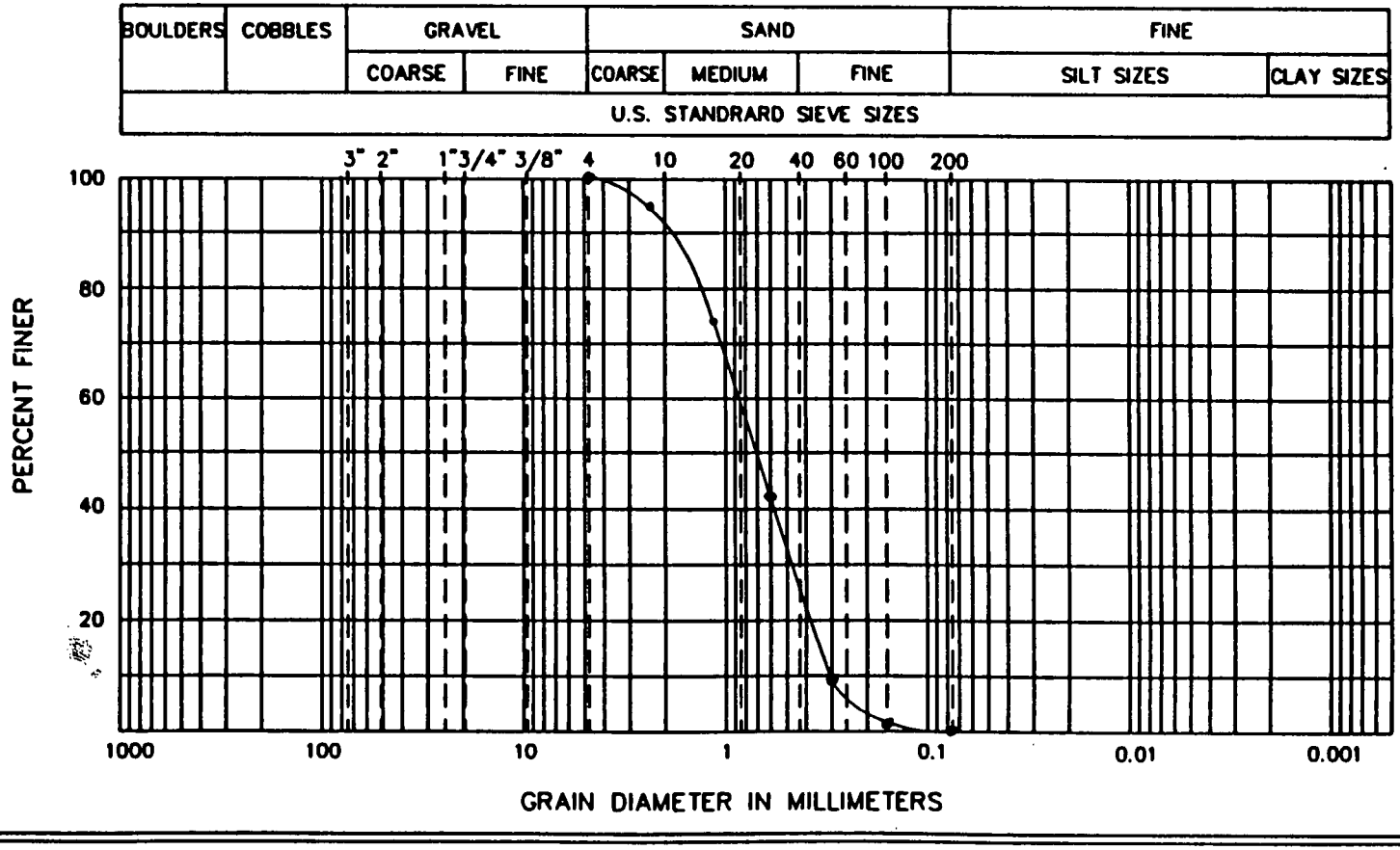
DESCRIPTION: LCS CONSTRUCTION

DATE: 29 day MAY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL

SAMPLE NO.: PEF-04.1 QA ID: NM

CURVE COEFFICIENTS: $(C_u)\ \frac{D_{60}}{D_{10}} = \frac{.86}{.30} = 2.87$ $(C_c)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{.23}{.30 \times .86} = 0.89$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100.0
NO. 4	100.0
NO. 10 B	94.6
NO. 20 16	73.8
NO. 40 30	41.7
NO. 60 50	8.8
NO. 100	1.0
NO. 200	0.2

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED SAND (SP) Hem 5/31/97

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SHEET NO. 2 OF 2

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FLUOR DANIEL FERNALD

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOIL

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 25 day JUNE month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: DEF-05

OVEN METHOD (ASTM D 2216): Recommended Mass Of Moist Sample Weight QA ID: PKO

100% PASING THE NO. 10 (2-mm) SIEVE	20 grams
100% PASSING THE NO. 4 (4.75-mm) SIEVE	100 grams
100% PASSING THE NO. 3/8-in. (9.5-mm) SIEVE	500 grams
100% PASSING THE NO. 3/4-in. (19-mm) SIEVE	2.5 kilograms

	TARE NO. _____	3				
A	WT. OF TARE	7.52				
B	WT. OF WET SOIL & TARE	260.0				
C	WT. OF DRY SOIL & TARE	Old ~~249~~ 249.0				
D	WT. OF WATER = B-C	11.0				
E	WT. OF DRY SOIL = C-A	241.5				
F	MOISTURE CONTENT = (D/E) X 100	4.6				

MICROWAVE METHOD (ASTM D 4643): Recommended Mass Of Moist Sample Weight QA ID: PKO

90% PASSING THE NO. 10 (2-mm) SIEVE	100 TO 200 grams
90% PASSING THE NO. 4 (4.75-mm) SIEVE	200 TO 500 grams
90% PASSING THE 3/4-in. (19-mm) SIEVE	500 TO 1000 grams

INITIAL SETTING TO BE AT 3.0 MINUTES, CONTINUE DRYING SAMPLE AT 1.0 MINUTE SETTING UNTIL MOISTURE CONTENT VARIATION BETWEEN SETTINGS IS LESS THAN 0.1%

	TARE NO.	III				
A	WT. OF TARE	132.0				
B	WT. OF WET SOIL & TARE	366.6				
C	WT. OF DRY SOIL & TARE	356.4				
D	WT. OF WATER = B-C	10.2				
E	WT. OF DRY SOIL = C-A	224.4				
F	MOISTURE CONTENT = (D/E) X 100	4.6				

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 26 day JUNE month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-05

SOIL SAMPLE SIZE

SOURCE: ON-SITE STOCKPILE, SOUTH OF 2ND ST., DWG G-G 00262

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		3	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	249.0	
WT. OF TARE	(grams)	7.52	
WT. OF DRY SAMPLE	(grams)	241.48	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
4	4.75	0	0	100	90 - 100
8	2.36	14.6	6.1	93.9	
16	1.18	68.3	28.3	71.7	
30	0.60	146.3	60.6	39.4	
50	0.30	221.2	91.6	8.4	7 - 40
100	0.150	238.7	98.8	1.2	
200	0.075	240.7	99.7	0.3	0 - 10
PAN	—	241.32	—	—	

*ODOT 703.06

%FINER = 100 − Σ % RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM ~~D 422~~ C136 & ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

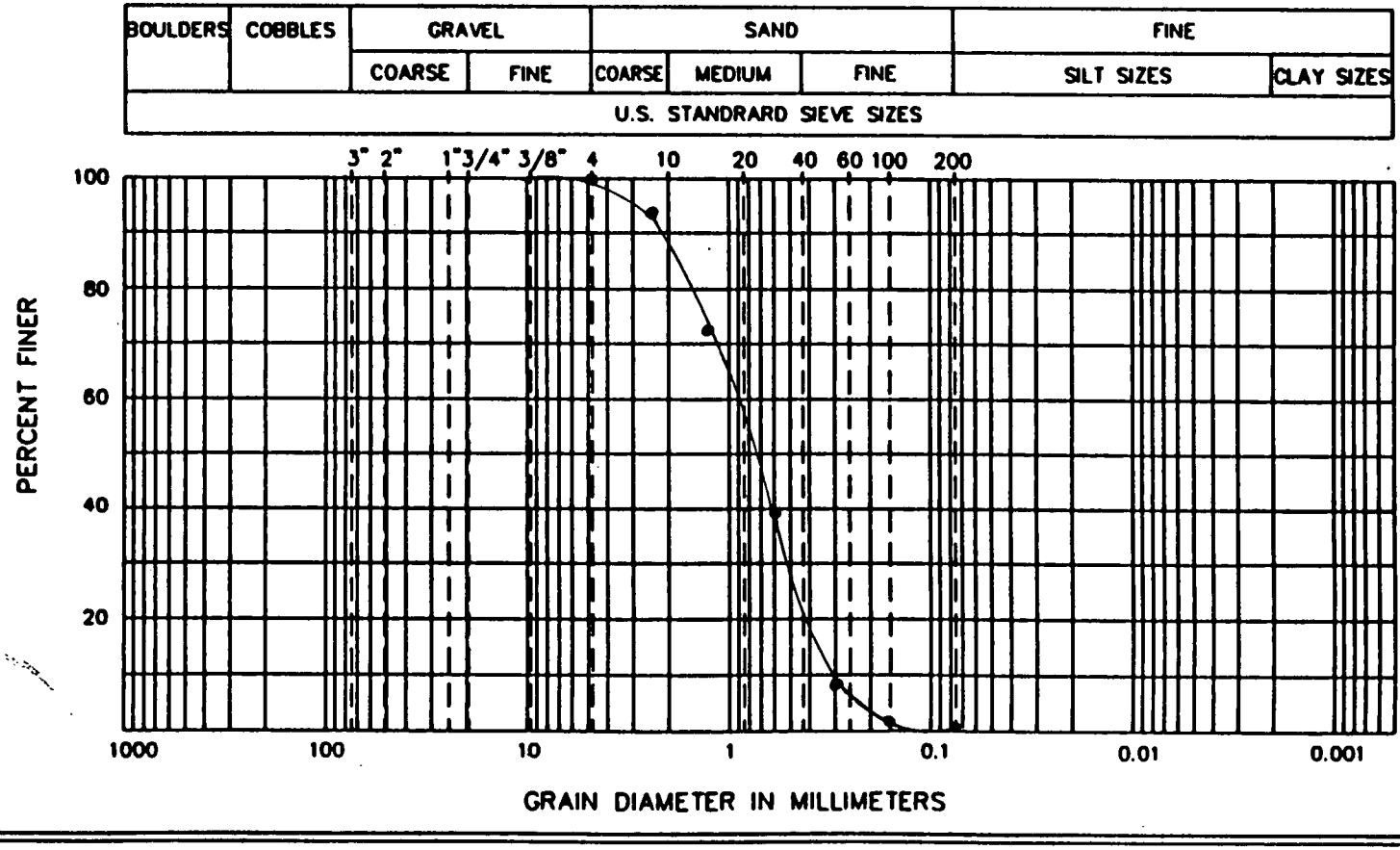
LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 26 day JUNE month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL — SAMPLE NO.: PEF-05 QA ID: PKO

SOURCE: ON-SITE STOCKPILE, SOUTH OF 2ND ST., DWG-G00262

CURVE COEFFICIENTS: $(C_u) = \frac{D_{60}}{D_{10}} = \frac{0.9}{0.3} = 3.0$ $(C_c) = \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{0.28}{0.9 \times 0.3} = 1.0$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	
NO. 4	100
NO. ~~10~~ 8	93.9
NO. ~~20~~ 16	71.7
NO. ~~40~~ 30	39.4
NO. ~~60~~ 50	8.4
NO. 100	1.2
NO. 200	0.3

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP - POORLY GRADED SAND

GeoSyntec Consultants FILE NO. 2-16-PSD CHECKED BY: Hem

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 23 day JULY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-06

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		5	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	266.4	
WT. OF TARE	(grams)	7.6	
WT. OF DRY SAMPLE	(grams)	258.8	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
3/8"	9.5	Ø	Ø	100	
4	4.75	Ø	Ø	100	90-100
8	2.36	14.3	5.5	94.5	
16	1.18	70.9	27.4	72.6	
30	0.600	152.0	58.7	41.3	
50	0.300	238.0	92.0	8.0	7-40
100	0.150	256.4	99.1	0.9	
200	0.075	258.4	99.8	0.2	0-10
					*ODOT 703.06

* COMPLIES WITH PROJECT SPECIFICATION - ODOT 703.06

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

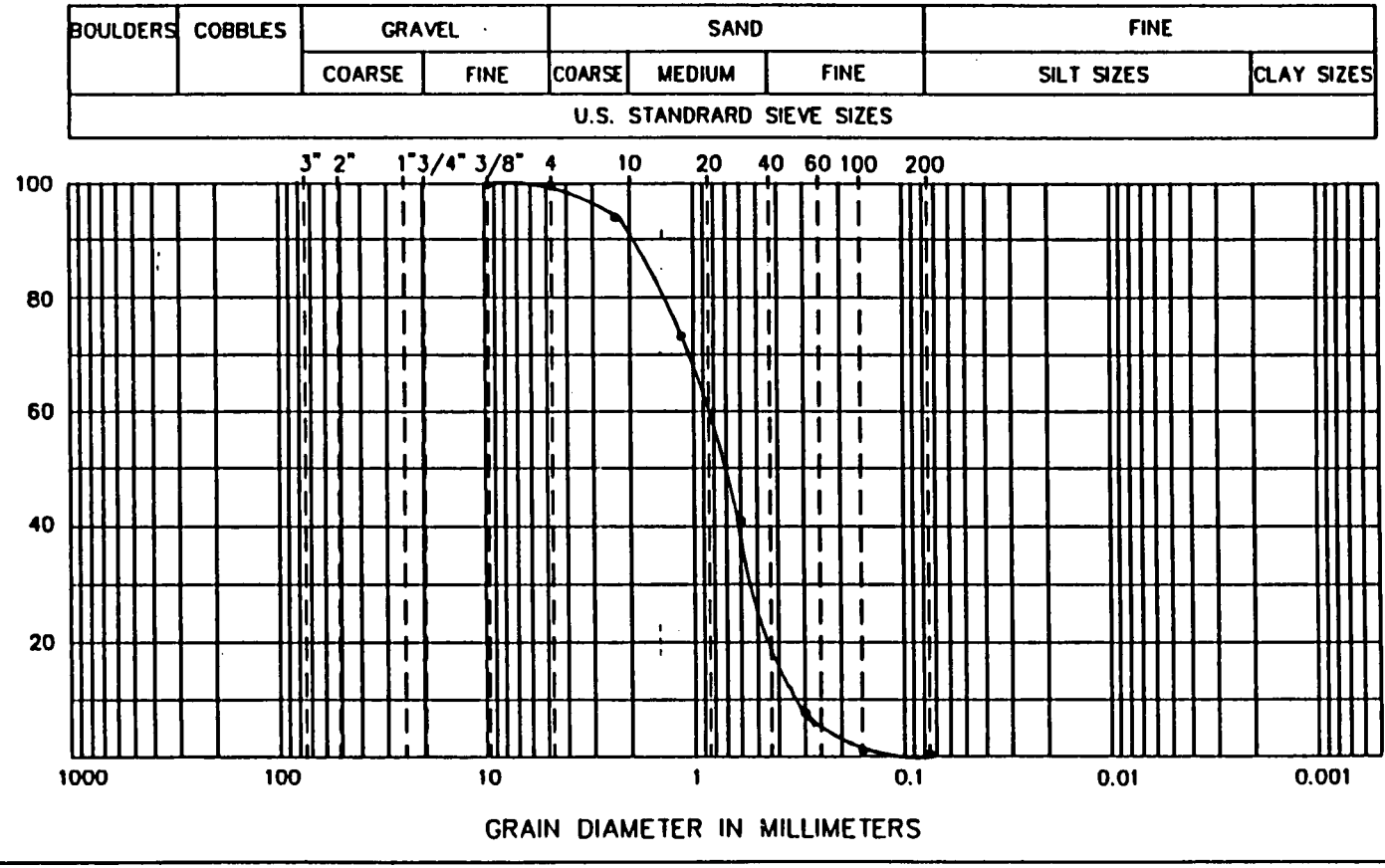
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 23 day JULY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-06 QA ID: PKO

CURVE COEFFICIENTS: $(C_U) = D_{60}/D_{10} = 0.85/0.35 = 2.4$ $(C_C) = D_{30}^2/(D_{60} \times D_{10}) = 0.30/(0.85 \times 0.35) = 1.0$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100
NO. 4	100
NO. ~~10~~ 8	94.5
NO. ~~20~~ 16	72.6
NO. ~~40~~ 30	41.3
NO. ~~60~~ 50	8.0
NO. 100	0.9
NO. 200	0.2

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): TAN POORLY GRADED SAND - SP

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD

(ASTM ~~D 422~~ C 136) 8/2/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 31 day July month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-07

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		R	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	280.4	
WT. OF TARE	(grams)	15.6	
WT. OF DRY SAMPLE	(grams)	264.8	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/8"	9.5	Ø	Ø	100	
4	4.75	Ø	Ø	100	90 - 100
8	2.36	18.7	7.1	92.9	
16	1.18	79.0	29.8	70.2	
30	0.600	158.8	60.0	40.0	
50	0.300	240.3	90.7	9.3	7-40
100	0.150	260.2	98.3	1.7	
200	0.075	263.1	99.4	0.6 ✓	0-10
					* ODOT 703.06

* SATISFIES ODOT 703.06 - PROJECT SPECIFICATION

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

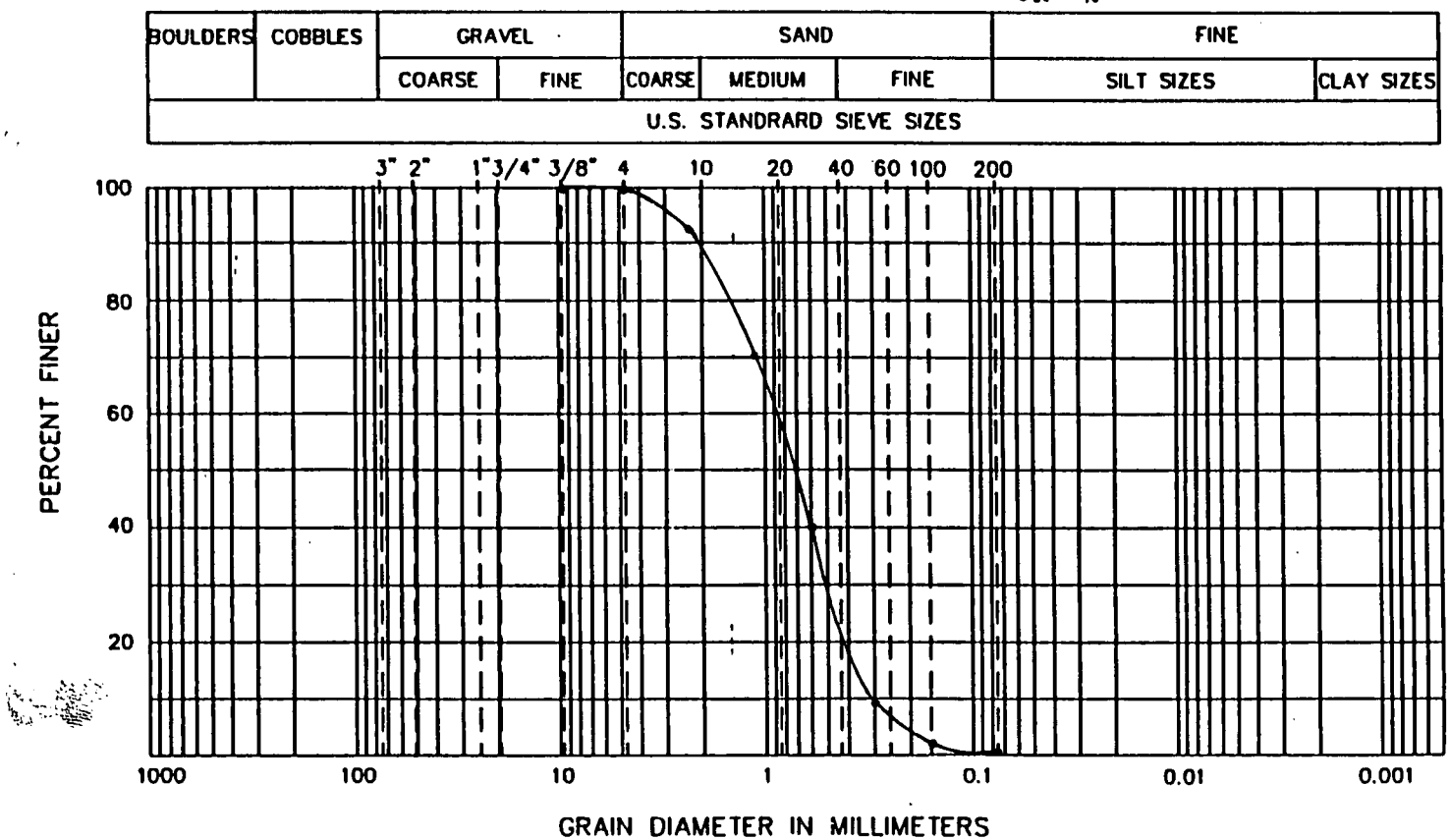
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 31 day JULY month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-07 QA ID: PKO

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{0.88}{0.32} = 2.8$ $(C_C) = \frac{D_{30}^2}{D_{60} \times D_{10}} = \frac{0.27}{0.88 \times 0.32} = 0.96$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100
NO. 4	100
NO. ~~10~~ 8	92.9
NO. ~~20~~ 16	70.2
NO. ~~40~~ 30	40.0
NO. ~~60~~ 50	9.3
NO. 100	1.7
NO. 200	0.6

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP- POORLY GRADED SAND

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~ C 136) 8/21/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 01 day ~~August~~ month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-08

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		21	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	316.1	
WT. OF TARE	(grams)	8.4	
WT. OF DRY SAMPLE	(grams)	307.7 ✓	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	PROJECT SPECIFICATIONS
3/8"	9.50	Ø	Ø	100	
4	4.75	Ø	Ø	100	90-100
8	2.36	26.7	8.7	91.3	
16	1.18	101.4	33.0	67.0	
30	0.60	190.9	62.0	38.0	
50	0.30	278.6	90.5	9.5	7-40
100	0.15	302.7	98.4	1.6	
200	0.075	305.6	99.3	0.7	0-10
PAN	—	307.4	—	—	
					*ODOT 703.06

* SATISFIES THE PROJECT SPECIFICATION - ODOT 703.06

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/D 422) (ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

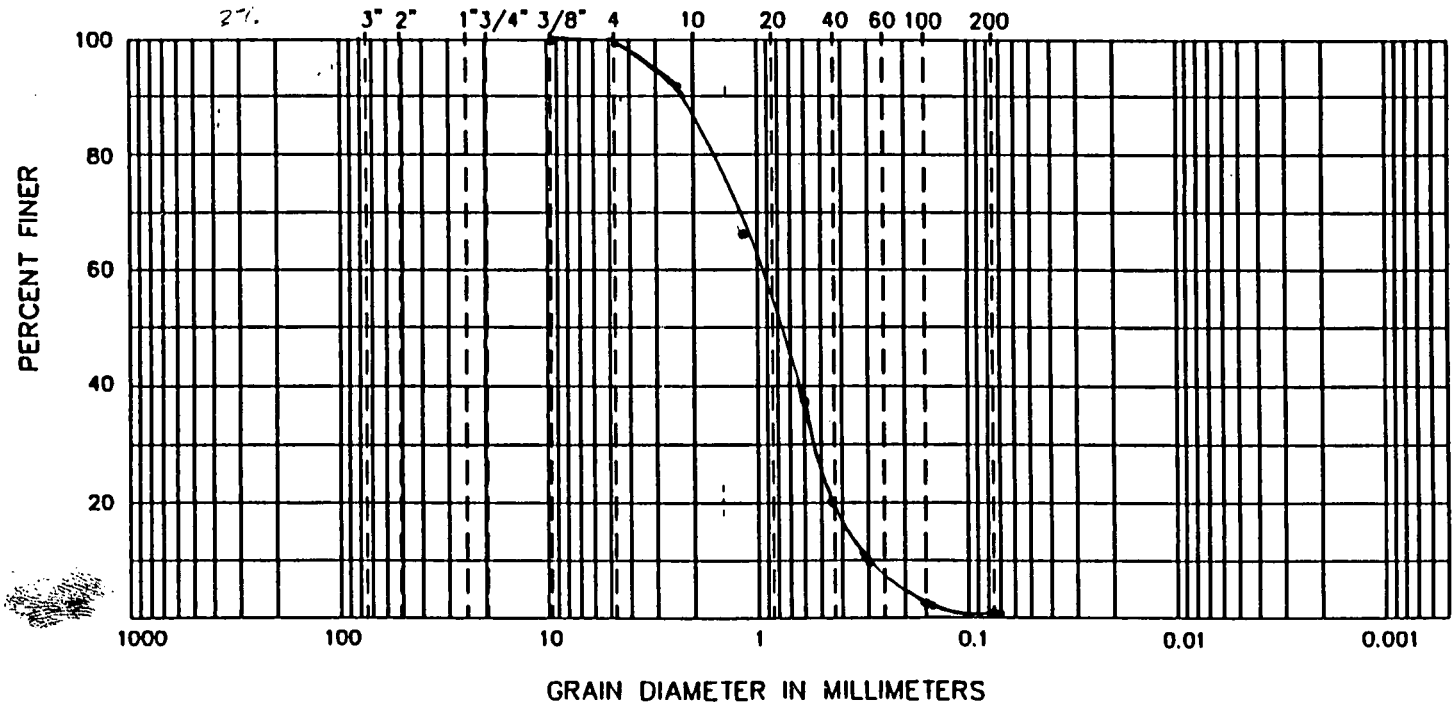
LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 01 day AUG month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-08 QA ID: PKO

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{0.95}{0.29} = 3.3$ $(C_C) = \frac{D_{30}^2}{D_{60} \times D_{10}} = \frac{0.30}{0.95 \times 0.29} = 1.1$

BOULDERS	COBBLES	GRAVEL		SAND			FINE	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES
U.S. STANDRARD SIEVE SIZES								



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100
NO. 4	100
NO. 8	91.3
NO. 16	67.0
NO. 30	38.0
NO. 50	9.5
NO. 100	1.6
NO. 200	0.7

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP - POORLY GRADED SAND

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 8 day 8 month 97 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-09

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH (OVEN 7/8)	AFTER WASH (WASHED 8/8)
TARE NO.		K	
WT. OF DRY SAMPLE PLUS TARE	(grams)	546.3	541.9
WT. OF TARE	(grams)	101.1	101.9
WT. OF DRY SAMPLE	(grams)	445.2	440.0

SIEVE ANALYSIS

QA ID: JW

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	% PROJECT SPECIFICATIONS
4	4.75	0.35	0.07	99.93	90-100
8	2.36	28.84	6.5	93.5	
16	1.18	133.36	30.0	70.0	
30	0.60	270.38	60.7	39.3	
50	0.30	399.7	89.8	10.2	7-40
100	0.15	435.5	97.8	2.2	
200	0.075	440.5	98.9	1.1	0-10

*ODOT 703.06

%FINER = 100 - Σ% RETAINED

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CHECKED BY: JW 000024 SHEET NO. 1 OF 2

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

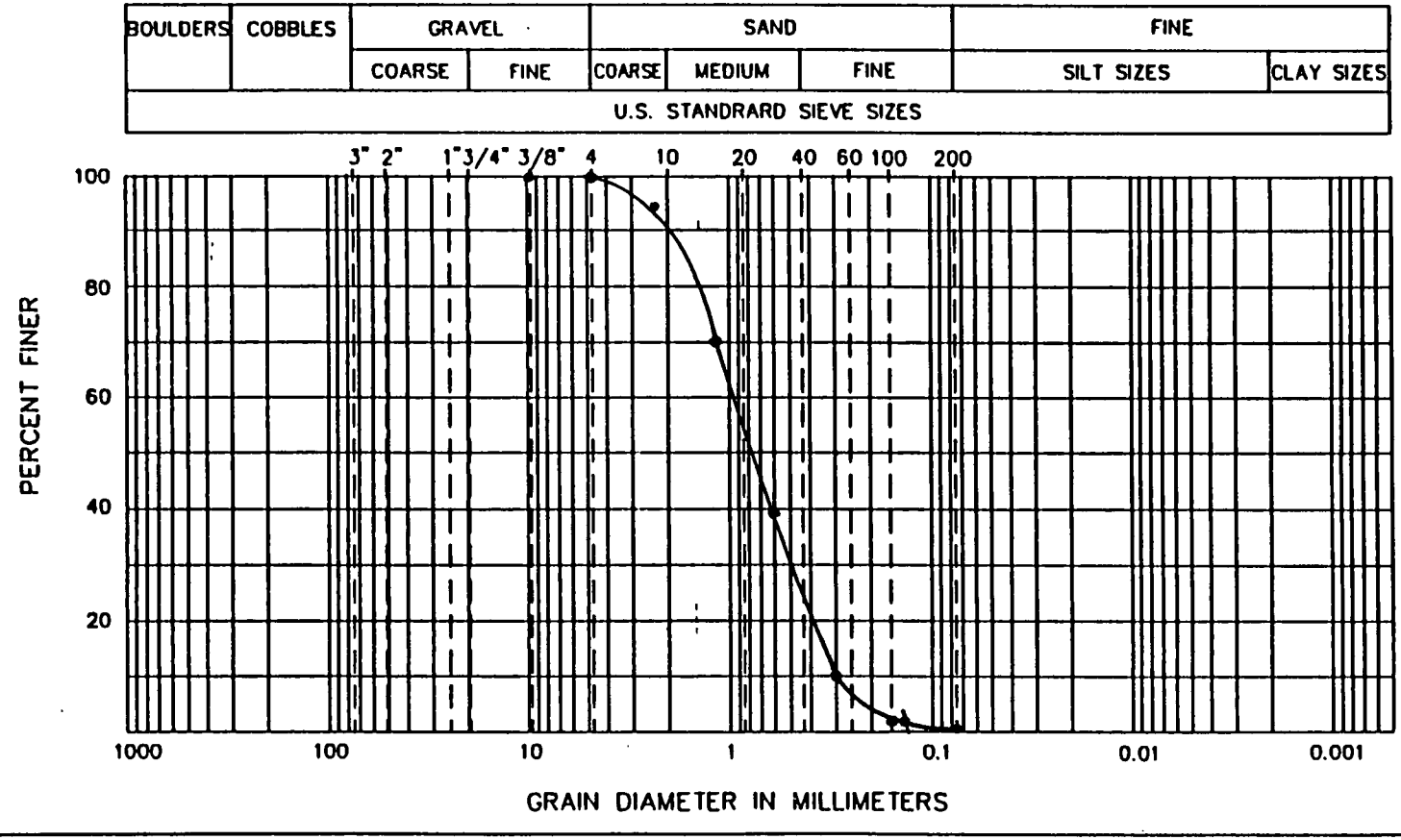
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 9 day 8 month 97 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-09 QA ID: JU

CURVE COEFFICIENTS: (C_U) $\frac{D_{60}}{D_{10}} = \frac{.95}{.3} = 3.17$ (C_C) $\frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{0.25}{.3 \times .95} = 0.88$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100.0
NO. 4	99.9
NO. 10 ~~8~~	93.5
NO. 20 ~~16~~	70.0
NO. 40 ~~30~~	39.3
NO. 60 ~~50~~	10.2
NO. 100	2.2
NO. 200	1.1

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): TAN POORLY GRADED SAND (SP)

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GeoSyntec Consultants FILE NO. 2-18-PSD CHECKED BY: RN

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~ C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 05 day SEPT month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-10

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		22	
WT. OF DRY SAMPLE PLUS TARE	(grams)	276.0	
WT. OF TARE	(grams)	8.31	
WT. OF DRY SAMPLE	(grams)	267.7	

SIEVE ANALYSIS

QA ID: BN

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1/2"	12.5				
3/8"	9.5	0	0	100	
4	4.75	.24	.1	99.9	90-100
8	2.36	16.30	6.1	93.9	
16	1.18	70.98	26.5	73.5	
30	0.600	144.46	54.0	46.0	
50	0.300	231.28	86.4	13.6	7-40
100	0.150	262.18	97.9	2.1	
200	0.075	266.25	99.5	0.5	0-10
					* ODOT 703.06

%FINER = 100 - Σ% RETAINED

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/D 422) (ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

DESCRIPTION: LCS CONSTRUCTION

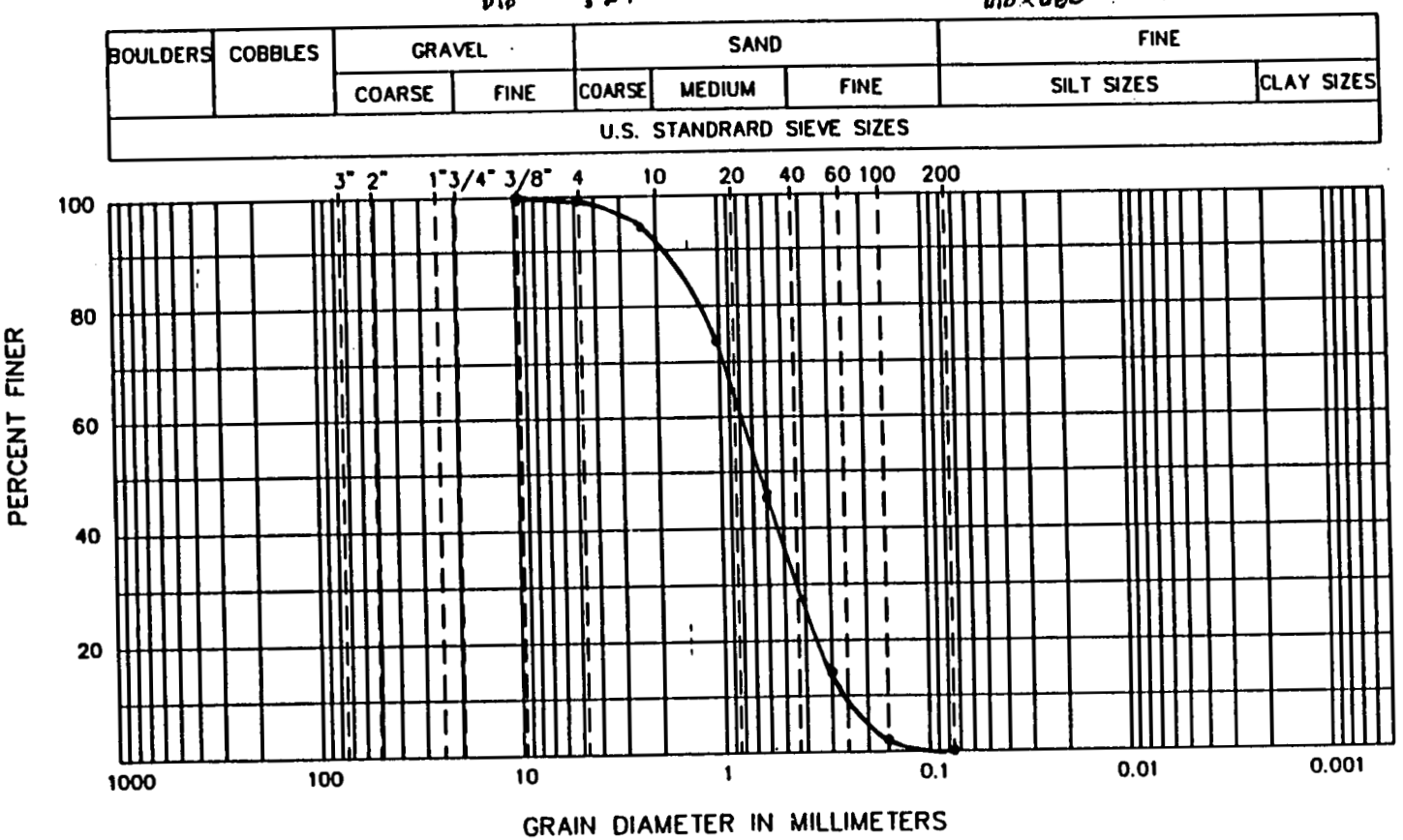
MATERIAL TYPE: PIPE EMBEDMENT FILL

PROJECT NO.: GQ0166 TASK NO.: 04.1

DATE: 05 day SEPT month 1997 year

SAMPLE NO.: PEF-10 QA ID: BN

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{.7}{.27} = 2.6$ $(C_C) \frac{(D_{30})^2}{D_{10} \times D_{60}} = \frac{.425^2}{.27 \times .7} = .96$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100
NO. 4	99.9
NO. 10 B	93.9
NO. 2016	73.5
NO. 4030	46.0
NO. 6050	13.6
NO. 100	2.1
NO. 200	0.5

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP - Poorly Graded Sand

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 25 day SEPT month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL SAMPLE NO.: PEF-11

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		103	
WT. OF DRY SAMPLE PLUS TARE	(grams)	161.1	
WT. OF TARE	(grams)	8.4	
WT. OF DRY SAMPLE	(grams)	152.7	

SIEVE ANALYSIS

QA ID: JL

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
4	4.75	0	0	100	90-100
8	2.36	13.5	8.8	91.2	
16	1.18	51.0	33.4	66.6	
30	0.60	99.6	65.2	34.8	
50	0.30	141.0	92.3	7.7	7-40
100	0.150	151.1	98.9	1.1	
200	0.075	152.2	99.7	0.3	0-10

*ODOT 703.06

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM C 136 ~~D 422~~) (ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

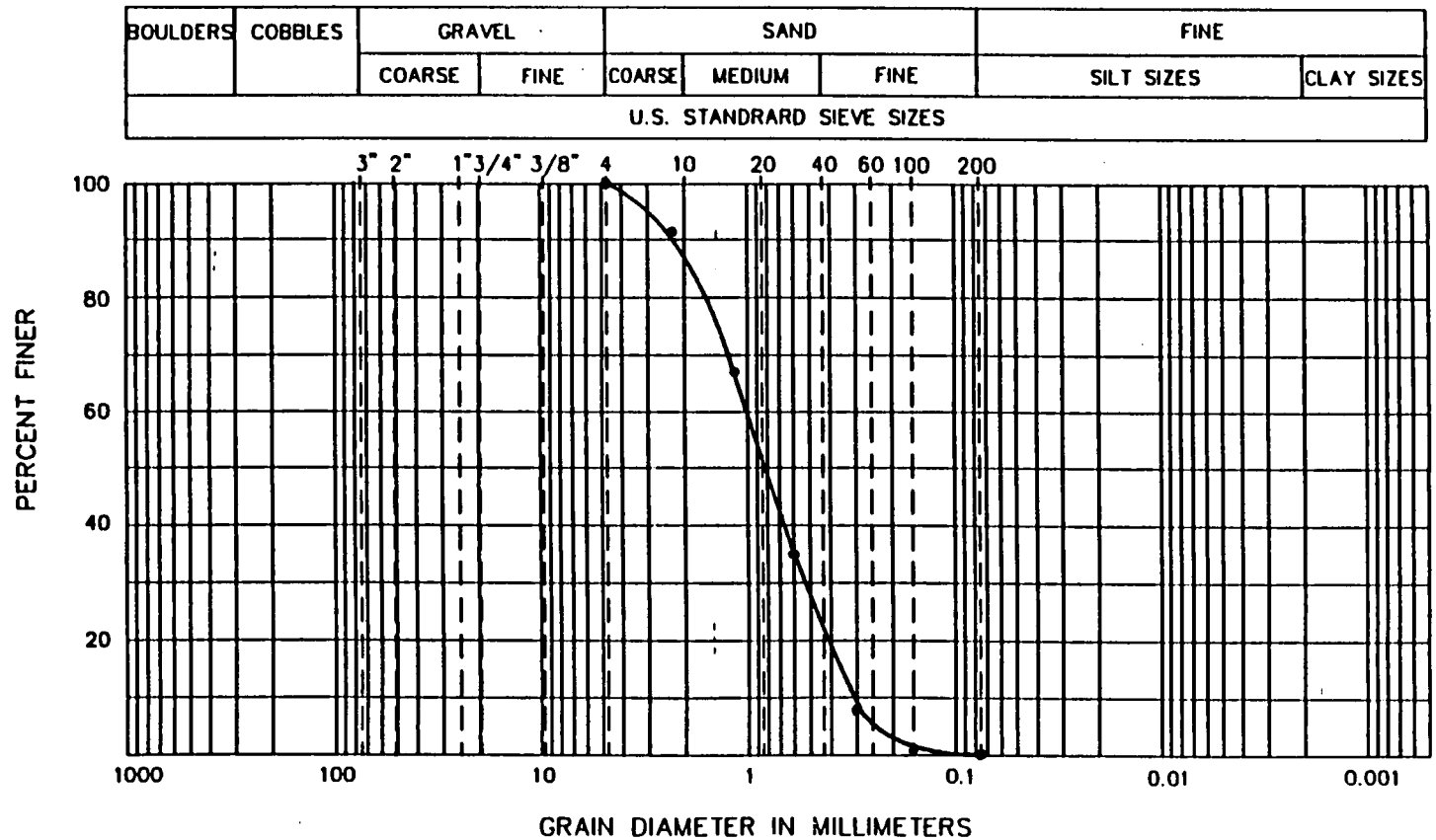
DESCRIPTION: LCS CONSTRUCTION

DATE: 25 day SEPT month 1997 year

MATERIAL TYPE: PIPE EMBEDMENT FILL

SAMPLE NO.: PEF-11 QA ID: NM

CURVE COEFFICIENTS: $(C_u)\ \frac{D_{60}}{D_{10}} = \frac{1}{.31} = 3.2$ $(C_c)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{0.28}{.31 \times 1} = 0.9$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	
NO. 4	100.0
NO. 8	91.2
NO. 16	66.6
NO. 30	34.8
NO. 50	7.7
NO. 100	1.1
NO. 200	0.3

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED SAND (SP)

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FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. 1

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: FDF - LCS CONSTRUCTION DATE: 16 day APR month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL QA ID: JM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE			ATTERBERG LIMITS ASTM D 4318			SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI	CARBO CONT.	COMPACTION ASTM D 698 (or) ASTM D 1557		PERMEABILITY ASTM D 2434[1] (or) ASTM D 5084[2]			PASS/ FAIL		ACUMUL. QUANT. PLACED (APPROX)
			PASSING NO. 200 SIEVE ASTM D 1140 (%)	ASTM C136 ~~D 422~~ SIEVE	HYDR.	LL (%)	PL (%)	PI			ASTM C311 (%)	ASTM D3042 (%)	MAX. DRY UNIT WT. (pcf)	OPT. MOIST. CONT. (%)	DRY UNIT WT. (pcf)	MOIST. CONT. ASTM D 2216 (%)	HYDRAULIC COND'VITY (cm/sec)			(yd^3)
MEF-01	97D68	—	0.1	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—		F	Sugm 78 R-0
MEF-02	97D69	—	0.5	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—		F	SUPPLIES STOCKPILE
MEF-03	—	—	ø	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—		F	Sugm 78 R-1
MEF-04	—	—	0.1	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—		F	Sugm. 78 R-2
MEF-05	—	—	0.2	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—	*	F	Sugm. 78 R-3
MEF-05.1	—	—	0.3	✓	—	—	—	—	—	SPW/GVL	—	—	—	—	—	—	—	*	F	—
KGM 10/10 ** MEF-06				✓																12
MEF-06.1	—	—	0.1	✓	—	—	—	—	—	GP	—	—	—	—	—	—	—		P	100
MEF-07	—	—	0.1	✓	—	—	—	—	—	GP	—	—	—	—	—	—	—		P	800
MEF-08	—	—	0.3	✓	—	—	—	—	—	GP	—	—	—	—	—	—	—		P	1700

0300000

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COMMENTS: *PASS - 8 JULY 1997 JM - REFER DCN 1700-039 ** MEF 06 WAS DISCARDED. REFER TO NOTE ON SOIL SAMPLE LOG.

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF N/A.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF N/A.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

SOIL SAMPLE LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: FDF - LCS CONSTRUCTION DATE: 16 APRIL YEAR: 1997

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	VISUAL DESCRIPTION	SOURCE (LOCATION/DEPTH)	MATERIAL TYPE	DATE SAMPLED (day/mo)	TEST METHODS	QA ID
MEF-01	97D68	WASHED GRAVEL	78 VBS-MSO-000 VBS SUBMITTAL	MANHOLE EMBEDMENT FILL #89	Rec'd 16 APR 97	ASTM C136, D2487	NM
MEF-02	97D69	WASHED GRAVEL	STOCKPILE POWELL GRAVEL & TOPSOIL	MANHOLE EMBEDMENT FILL	16 APR	ASTM C136, D2487	NM
MEF-03	—	WASHED GRAVEL	VBS Submittal 078 Rev 1	MANHOLE EMBEDMENT FILL	19 MAY	ASTM C136, D2487	NM
MEF-04	—	WASHED GRAVEL	VBS SUBMITTAL 078 Rev 2	MANHOLE EMBEDMENT FILL	27 MAY	ASTM C136, D2487	NM
MEF-05	—	11	VBS SUBMITTAL 078 Rev 3	11	23 JUNE	ASTM C136, D2487	NM
~~MEF-06~~	~~—~~	~~11~~	~~VBS STOCKPILE~~	~~11~~	~~27 JUNE~~	~~ASTM C136, D2487~~	~~NM~~
MEF-06.1		WASHED GRAVEL	ON SITE STOCKPILE	MANHOLE EMBEDMENT FILL #89 STONE	14 AUG.	ASTM C136, D2487	NM
MEF-07		WASHED GRAVEL	ON SITE STOCKPILE	MANHOLE EMBEDMENT FILL #89 STONE	28 AUG.	ASTM C136, D2487	NM
MEF-08		WASHED GRAVEL	ON SITE STOCKPILE	MANHOLE EMBEDMENT FILL #89 STONE	19 SEPT	ASTM C136, D2487	NM

EM 1010

NOTES: SAMPLE MEF06 WAS DISCARDED BECAUSE MATERIAL WAS USED BY VBS AS SOIL STABILIZATION IN ERROR.

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD

(ASTM ~~D 422~~) C 136 Rev 5/20/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 19 day MAY month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL SAMPLE NO.: MEF-03

SOURCE: VBS SUBMITTAL 078 R-1

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		K	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	601.5	
WT. OF TARE	(grams)	101.5	
WT. OF DRY SAMPLE	(grams)	500.0	

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
3/8"	9.5	0	0	100.0	90-100
4	4.75	170.4	34.1	65.9**	20-55**
8	2.36	440.7	88.1	11.9	5-30
16	1.18	483.8	96.8	3.2	0-10
30	0.600	496.9	99.4	0.6	
50	0.300	500.0	100.0	∅	0-5
100	0.150	500.0	100.0	∅	
200	0.075	500.0	100.0	∅	
PAN	—	500.0	—	—	

* OHIO DOT Sec. 703.01 AASHTO NO. 89

** DOES NOT COMPLY WITH SPECIFICATION SECTION 02215 PART 2.01-B

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ C136 & ASTM D 2487) Hem 5/29/97

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

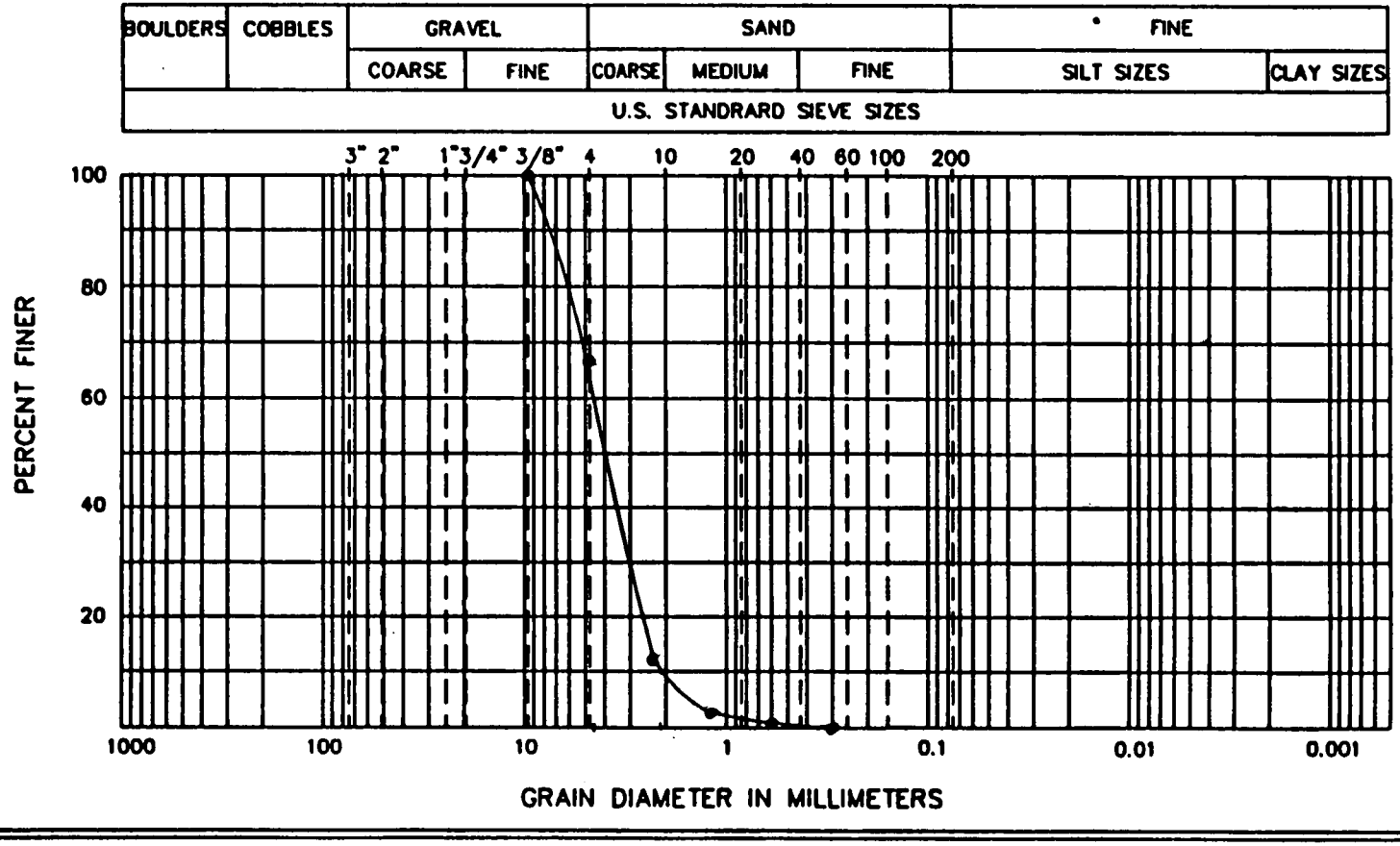
DESCRIPTION: LCS CONSTRUCTION

DATE: 19 day MAY month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL

SAMPLE NO.: MEF-03 QA ID: NM

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{4.6}{2.1} = 2.19$ $(C_C) = \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{3^2}{2.1 \times 4.6} = 0.93$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	
3/8-in.	100.0
NO. 4	69.5
NO. ~~10~~ 8	11.9
NO. ~~20~~ 16	3.2
NO. ~~40~~ 30	0.6
NO. ~~60~~ 50	0.0
NO. 100	0.0
NO. 200	0.0

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): (SP) POORLY GRADED SAND W/GRAVEL

GEOSYNTEC CONSULTANTS FILE NO. 2-18-PSD CHECKED BY: [illegible]

SHEET NO. 2 OF 2

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136 REM

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION DATE: 27 day MAY month '97 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL SAMPLE NO.: MEF-04

SOURCE: VBS SUBMITTAL 078 R.2

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		C	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	547.1	
WT. OF TARE	(grams)	13.8	
WT. OF DRY SAMPLE	(grams)	533.3	

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED		% FINER	* PROJECT SPECIFICATIONS
1/2"	12.5	0	0		100.0	
3/8	9.5	6.3 HEM 5/23/97	1.2		98.8	90-100
4	4.75	209.2	39.2	**	60.8	20-55
8	2.36	368.1	69.0	**	31.0	5-30
16	1.18	447.3	83.9	**	16.1	0-10
30	0.600	501.8	94.1		5.9	
50	0.300	527.3	98.9		1.1	0-5
100	0.150	531.2	99.6		0.4	
200	0.075	532.8	99.9		0.1	
Pan	—	533.5	—		—	

* OHIO DOT SEC. 703.01 AASHTO NO. 89

** DOES NOT COMPLY WITH SPECIFICATION SECTION 02215 PART 2.01-B

%FINER = 100 − Σ% RETAINED

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CHECKED BY: Ody

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM D 422 & ASTM D 2487)

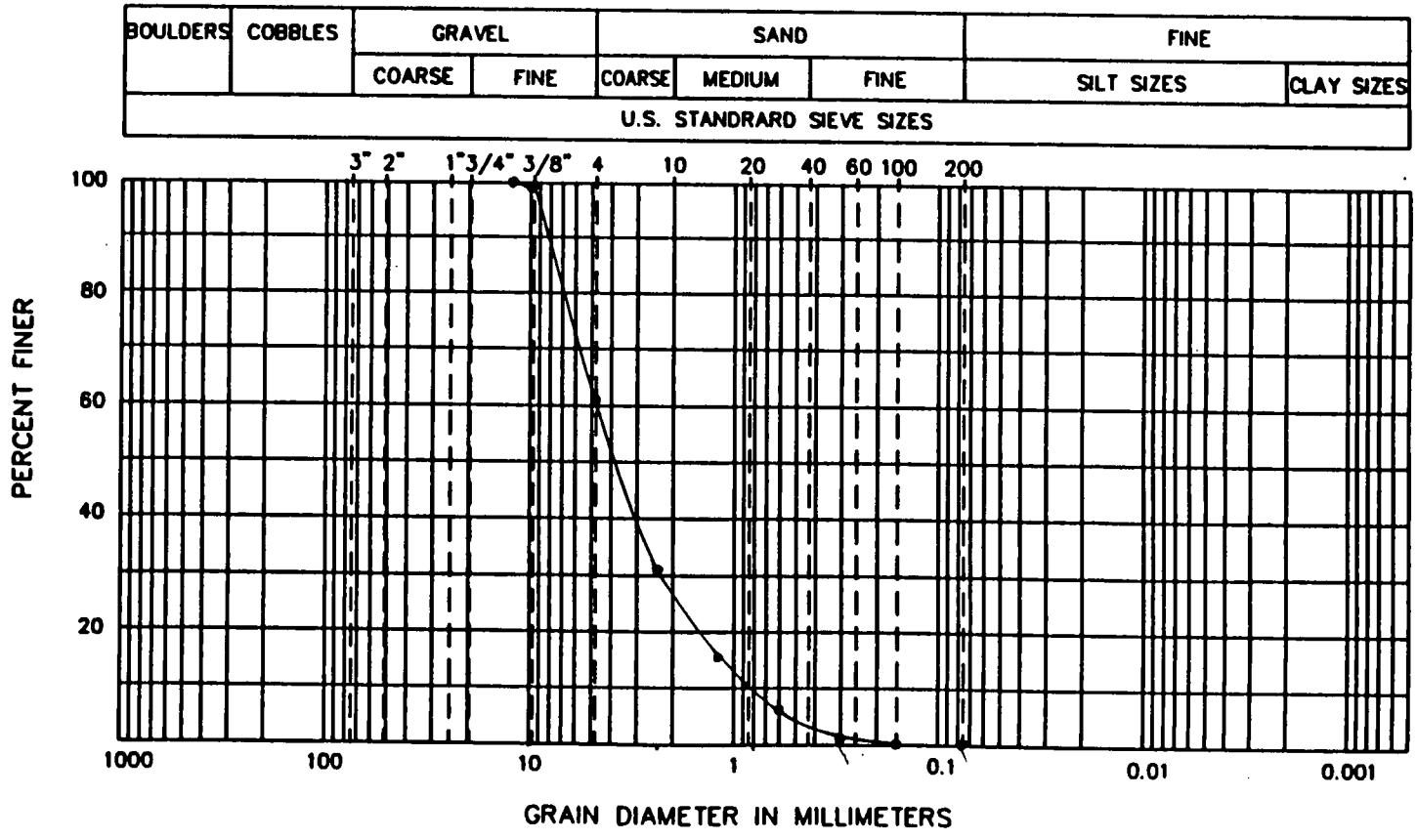
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 27 day MAY month '97 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL — SAMPLE NO.: MEF-04 QA ID: NM

CURVE COEFFICIENTS: $(C_u) = \frac{D_{60}}{D_{10}} = \frac{4.8}{.81} = 5.9$ $(C_c) \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{5.8}{.81 \times 4.8} = 1.5$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100.0
3/8-in.	98.8
NO. 4	60.8
NO. 10	31.0
NO. 20	16.1
NO. 40	5.9
NO. 80	1.1
NO. 100	0.4
NO. 200	0.1

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED SAND (SP) W/GRAVEL

GeoSyntec Consultants FILE NO. 2-18-PSD CHECKED BY: [signature]

SHEET NO. 2 OF 2

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 24 day JUNE month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL SAMPLE NO.: MEF-05

SOIL SAMPLE SIZE

Source: VBS submittal No 078 Rev 3

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		B	
WT. OF DRY SAMPLE PLUS TARE	(grams)	~~534.9~~ 521.1	
WT. OF TARE	(grams)	~~524.~~ 13.9	
WT. OF DRY SAMPLE	(grams)	507.2	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1/2"	12.5	0	0	100	100
3/8"	9.5	4.9	1.0	99.0	90 - 100
4	4.75	220.1	43.4	56.6 **	20 - 55
8	2.36	441.5	87.0	13.0	5 - 30
16	1.18	485.1	95.6	4.4	0 - 10
30	0.600	498.0	98.2	1.8	
50	0.300	503.5	99.3	0.7	0 - 5
100	0.150	504.8	99.5	0.5	
200	0.075	506.3	99.8	0.2	
PAN	—	507.1	—	—	

* OHIO DOT SEC. 703.01 AASHTO No. 89

** DOES NOT COMPLY WITH SPECIFICATION SECTION 02215 PART 2.01-B

*** SAMPLE MEETS SPECIFICATION REQUIREMENTS AS PER DCN 1700-039 DATED 7 JULY 1997. DCN INITIATED 25 JUNE 1997. THIS REVIEW 8 JULY 1997 JFM

%FINER = 100 - Σ% RETAINED

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CHECKED BY: HEM

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ C136 & ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

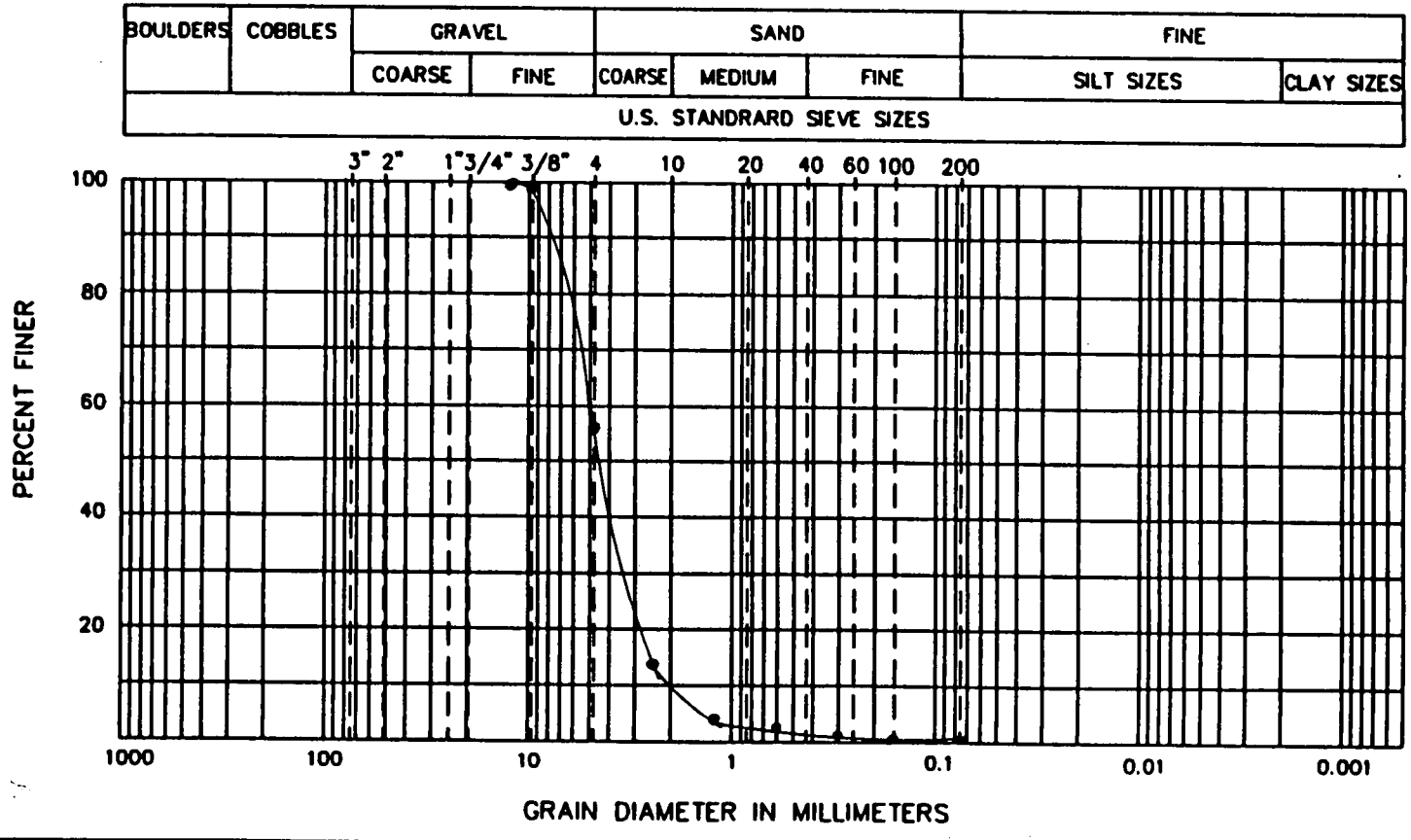
DESCRIPTION: LCS CONSTRUCTION

DATE: 24 day JUNE month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL

SAMPLE NO.: MEF-05 QA ID: PKO

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{5.0}{2.0} = 2.5$ $(C_C) = \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{12.25}{2.0 \times 5.0} = 1.2$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100
3/8-in.	99.0
NO. 4	56.6
NO. 10	13.0
NO. 20	4.4
NO. 40	1.8
NO. 60	0.7
NO. 100	0.5
NO. 200	0.2

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED SAND WITH GRAVEL (SP)

GEOSYNTEC CONSULTANTS FILE NO. 2-16-PSD

CHECKED BY: PKM

SHEET NO. 2 OF 2

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 24 day JUNE month 1997 year

MATERIAL TYPE: MANHOLE ON BEDDING FILL SAMPLE NO.: MEF-05.1

SOIL SAMPLE SIZE

SOURCE: CONTRACTOR'S (VBS) SUBMITTAL NO 078 REV 3

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		B	
WT. OF DRY SAMPLE PLUS TARE	(grams)	591.7	
WT. OF TARE	(grams)	13.9	
WT. OF DRY SAMPLE	(grams)	577.8	

SIEVE ANALYSIS

QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1/2"	12.5	0	0	100	100
3/8"	9.5	6.0	1.0	99.0	90 - 100
4	4.75	227.0	39.3	60.7 **	20 - 55
8	2.36	498.7	86.3	13.7	5 - 30
16	1.18	550.4	95.3	4.7	0 - 10
30	0.600	566.4	98.0	2.0	
50	0.300	573.2	99.2	0.8	0 - 5
100	0.150	574.8	99.5	0.5	
200	0.075	576.0	99.7	0.3	
PAN		577.4	—	—	

** ~~DOES~~ NOT COMPLY WITH SPECIFICATION SECTION 02215 PART 2.01-B

RETEST SAMPLE

06/24/97

* OHIO DOT SEC. 703.01 AASHTO NO. 89

%FINER = 100 − Σ% RETAINED

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GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ C136 & ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

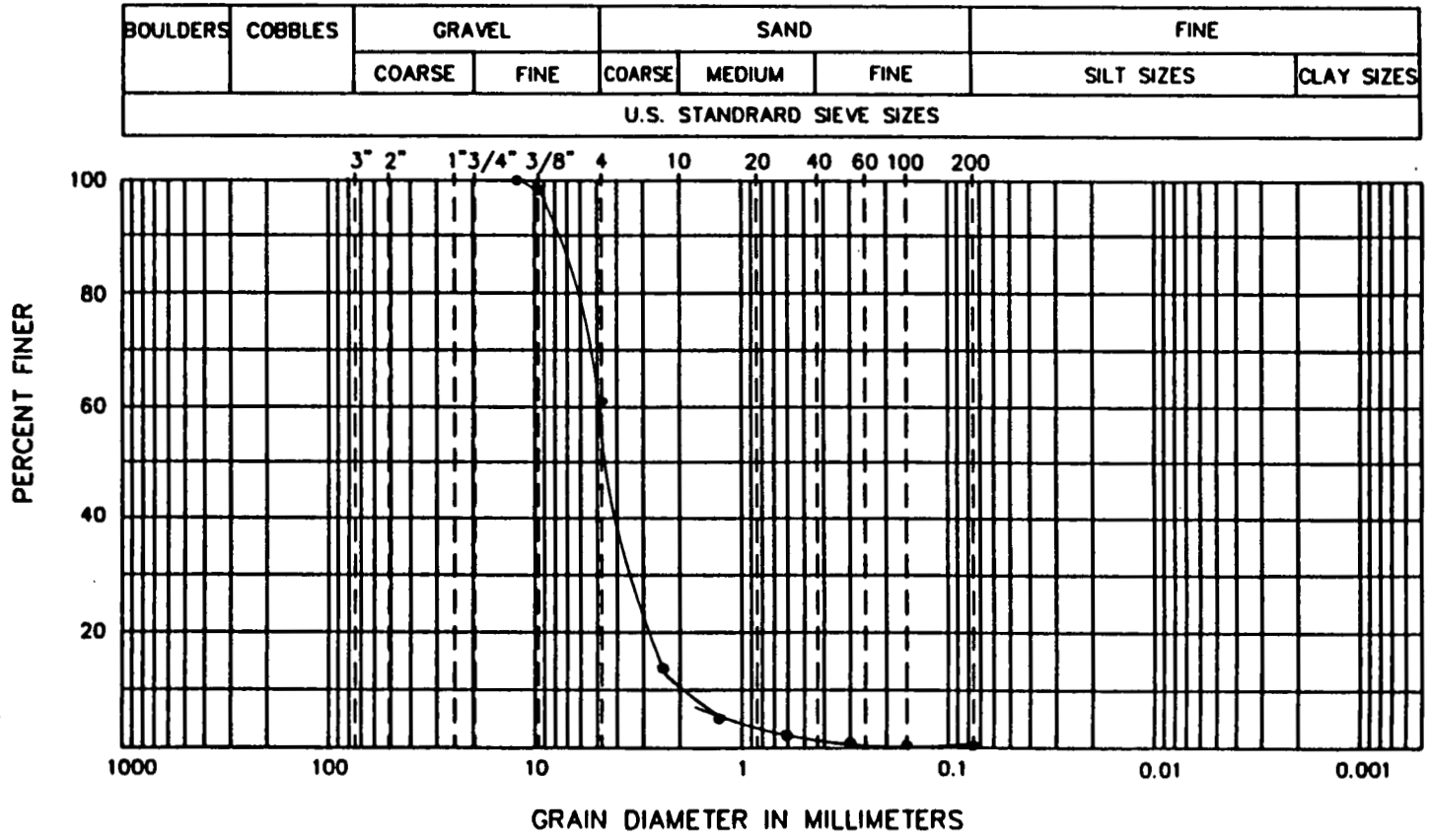
DESCRIPTION: LCS CONSTRUCTION

DATE: 24 day JUNE month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL

SAMPLE NO.: MEF-05.1 QA ID: PKO

CURVE COEFFICIENTS: $(C_U) = \frac{D_{60}}{D_{10}} = \frac{4.8}{1.9} = 2.5$ $(C_C) = \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{12.25}{4.8 \times 1.9} = 1.3$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100
3/8-in.	99.0
NO. 4	60.7
NO. 10 8	13.7
NO. 20 16	4.7
NO. 40 30	2.0
NO. 60 50	0.8
NO. 100	0.5
NO. 200	0.3

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): SP - POORLY GRADED SAND WITH GRAVEL

©GEOSYNTEC CONSULTANTS FILE NO. 2-18-PSD CHECKED BY: HZM

SHEET NO. 2 OF 2

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: ~~PHASE~~ Item 8/14/47 LCS CONSTRUCTION DATE: 15 day AUG month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL #89 SAMPLE NO.: MEF-06.1

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

	BEFORE WASH	AFTER WASH
TARE NO.	—	N/a
WT. OF DRY SAMPLE PLUS TARE (grams)	—	↓
WT. OF TARE (grams)	—	
WT. OF DRY SAMPLE (grams)	1271.5	

SIEVE ANALYSIS

QA ID: JW

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1/2"	12.5	0	0	100	100
3/8"	9.5	2.8	0.2	99.8	90-100
4	4.75	719.0	56.5	43.5	20-65 **
8	2.36	1190.7	93.6	6.4	5-30
16	1.18	1236.4	97.2	2.8	0-10
30	0.60	1258.0	98.9	1.1	
50	0.30	1267.8	99.7	0.3	0-5
100	0.15	1269.4	99.8	0.2	
200	0.075	1270.8	99.9	0.1	

* OHIO DOT SEC. 703.01
AASHTO No. 89

** PER DCN 1700-039

%FINER = 100 − Σ% RETAINED

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

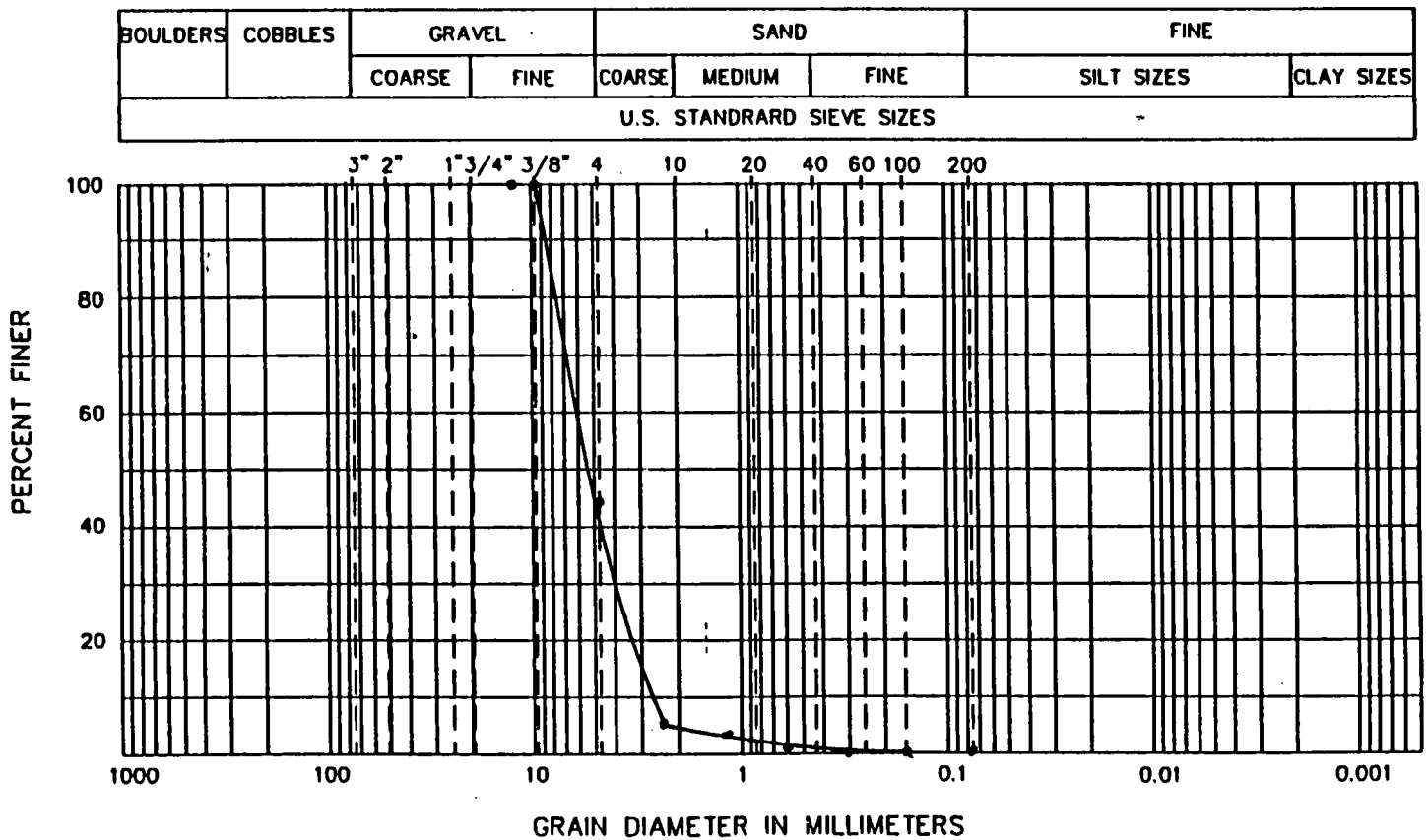
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 15 day AUG. month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL — SAMPLE NO.: MEF-06.1 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{6}{2.7} = 2.2$ $(C_C)\ \frac{D_{30}^2}{D_{60} \times D_{10}} = \frac{16}{16.2} = 0.99$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100.0
3/8-in.	99.8
NO. 4	43.5
NO. ~~10~~ 8	6.4
NO. ~~20~~ 16	2.8
NO. ~~40~~ 30	1.1
NO. ~~60~~ 50	0.3
NO. 100	0.2
NO. 200	0.1

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED GRAVEL (GP)

©GEO SYNTEC CONSULTANTS FILE NO. 2-16-PSD CHECKED BY: BN SHEET NO. 2 OF 2

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 29 day AUG month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL #89 SAMPLE NO.: MEF-07

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

	~~BEFORE WASH~~	~~AFTER WASH~~
TARE NO.		K
WT. OF DRY SAMPLE PLUS TARE (grams)		1606.6
WT. OF TARE (grams)		101.1
WT. OF DRY SAMPLE (grams)		1505.5

SIEVE ANALYSIS

QA ID: NM

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
½"	12.5	Ø	Ø	100.0	100
3/8"	9.5	8.0	0.5	99.5	90-100
4	4.75	869.9	57.8	42.2	20-65 **
8	2.36	1386.6	92.1	7.9	5-30
16	1.18	1459.2	96.9	3.1	0-10
30	0.60	1488.6	98.9	1.1	
50	0.30	1499.8	99.6	0.4	0-5
100	0.15	1502.1	99.8	0.2	
200	0.075	1504.1	99.9	0.1	

* OHIO DOT SEC. 703.01 AASHTO No. 89

** PER DCN 1700-039

%FINER = 100 − Σ % RETAINED

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/D 422) (ASTM D 2487)

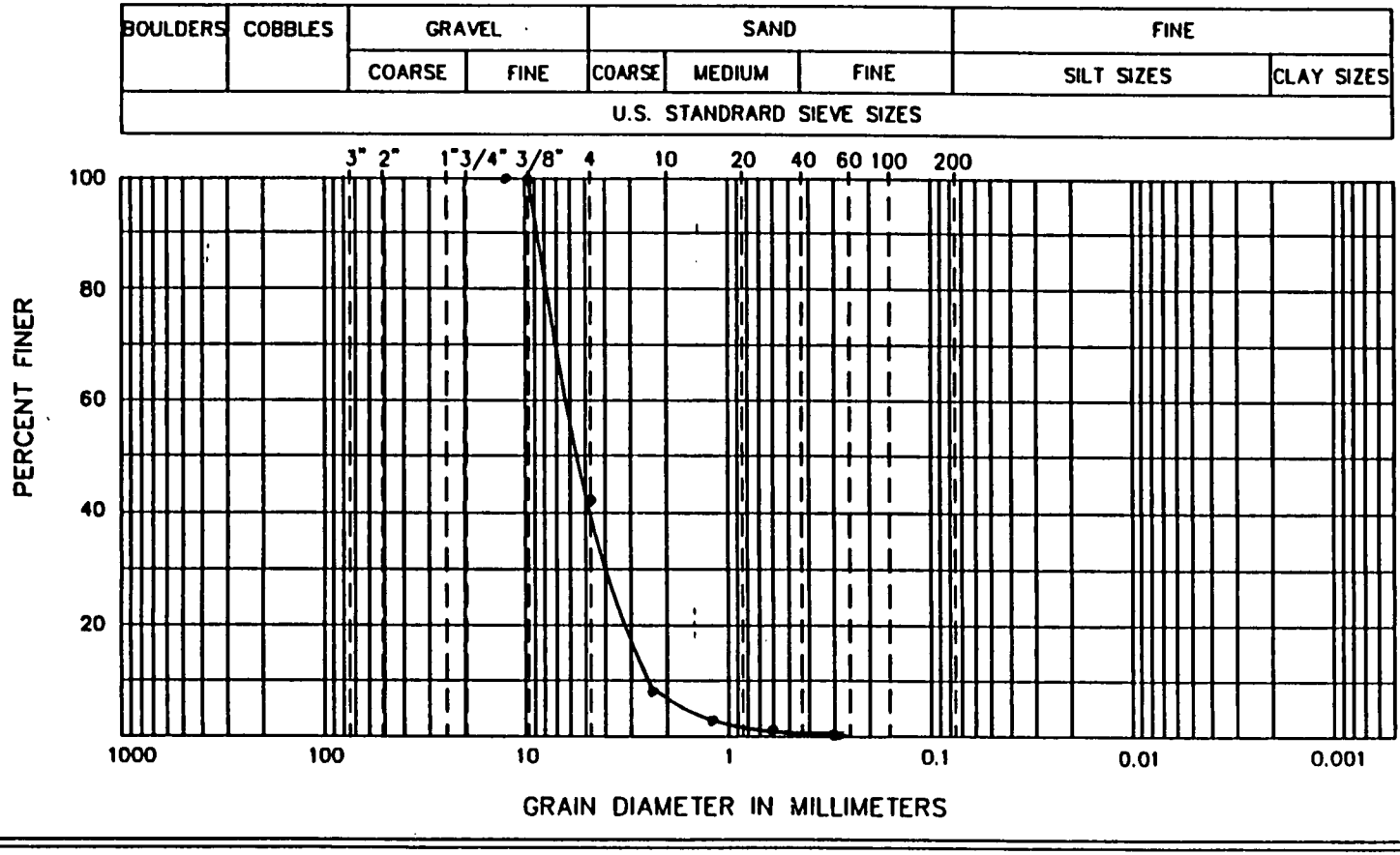
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 29 day AUG month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL (No. 89 STONE) — SAMPLE NO.: MEF-07 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{6.4}{2.5} = 2.56$ $(C_C)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{1.6^2}{2.5 \times 6.4} = 1.00$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	
3/4-in.	
1/2-in.	100.0
3/8-in.	99.5
NO. 4	42.2
NO. ~~10~~ 8	7.9
NO. ~~20~~ 16	3.1
NO. ~~40~~ 30	1.1
NO. ~~60~~ 50	0.4
NO. 100	0.2
NO. 200	0.1

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED GRAVEL (GP)

230000

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 25 day Sept month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL (#89) SAMPLE NO.: MEF-08

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

	BEFORE WASH	AFTER WASH
TARE NO.	K	
WT. OF DRY SAMPLE PLUS TARE (grams)	1008.8 1017.1	
WT. OF TARE (grams)	101.6	
WT. OF DRY SAMPLE (grams)	915.5	

SIEVE ANALYSIS

QA ID: JL

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
3/8"	9.5	1.4	.2	99.8	90-100
4	4.75	457.6	50.0	50.0	20-65**
8	2.36	776.5	84.8	15.2	5-30
16	1.18	849.0	92.7	7.3	0-10
30	0.60	884.4	96.6	3.4	
50	0.30	903.9	98.7	1.3	0-5
100	0.15	909.2	99.3	.7	
200	0.075	913.0	99.7	.3	

*ODOT 703.01

**PER DCN 1700-039

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~C 136/D 422~~) (ASTM D 2487)

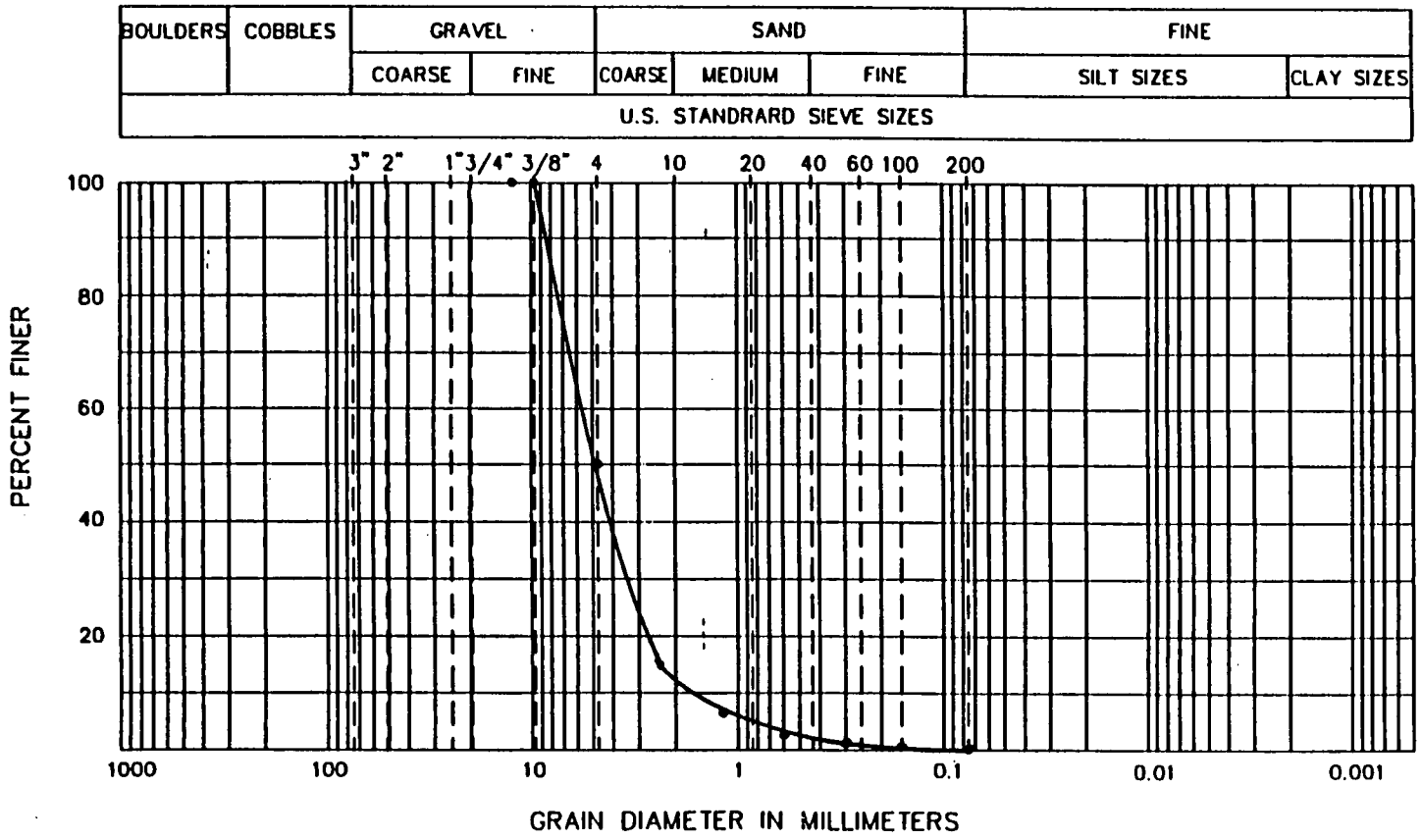
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 25 day SEPT month 1997 year

MATERIAL TYPE: MANHOLE EMBEDMENT FILL — SAMPLE NO.: MEF-08 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{5.8}{1.8} = 3.2$ $(C_C)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{12.25}{1.8 \times 5.8} = 1.17$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-In.	
2-in.	
1 1/2-in.	
1-in.	
3/4-In.	
1/2-In.	100.0
3/8-In.	99.8
NO. 4	50.0
NO. ~~10~~ 8	15.2
NO. ~~20~~ 16	7.3
NO. ~~40~~ 30	3.4
NO. ~~60~~ 50	1.3
NO. 100	0.7
NO. 200	0.3

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED GRAVEL (GP)

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Aggregate Base

- **Soil Sample Log**

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FLUOR DANIEL FERNALD

SOIL SAMPLE LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

DESCRIPTION: LCS CONSTRUCTION

PROJECT NO.: GQ0166 TASK NO.: 04.1

DATE: 27 JUNE ~~1997~~ YEAR: 1997

SITE SAMPLE NO.	OFF-SITE LAB SAMPLE NO.	VISUAL DESCRIPTION	SOURCE (LOCATION/DEPTH)	MATERIAL TYPE	DATE SAMPLED (day/mo)	TEST METHODS	QA ID
VRB-01	—	CRUSHED GRAVEL	ON-SITE STOCKPILE	#304 AGG. BASE	27 JUNE	ASTM C136, D698 D2487	NM
VRB-01.1	—	" "	"	"	"	ASTM C136, ~~D698~~ D2487	NM
VRB-02	—	" "	"	"	19 SEPT	ASTM C136, D2487	NM
VRB-02.1	—	" "	"	"	26 SEPT	ASTM C136, D2487	NM

NOTES:

GeoSyntec Consultants FILE NO. 2-01-SSL

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- **Aggregate Base Lab Test Summary**

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FLUOR DANIEL FERNALD

LABORATORY TEST SUMMARY REQUEST FORM NO. _____

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 30 day JUNE month '97 year

MATERIAL TYPE: #304 AGGREGATE BASE — QA ID: NM

NOTE: Separate forms are required for each material type and source. Strike out nonapplicable tests.

SITE SAMPLE NO.	LAB SAMPLE NO.	MOISTURE CONTENT ASTM D 2216/ D 4643 (%)	GRAIN SIZE: PASSING NO. 200 SIEVE ASTM D 1140 (%)	GRAIN SIZE: ASTM D 422 SIEVE	GRAIN SIZE: ASTM D 422 HYDR.	ATTERBERG LIMITS ASTM D 4318: LL (%)	ATTERBERG LIMITS ASTM D 4318: PL (%)	ATTERBERG LIMITS ASTM D 4318: PI	SP. GR. ASTM D 854	SOIL CLASS. ASTM D 2487	LOI ASTM C311 (%)	CARBO CONT. ASTM D3042 (%)	COMPACTION ASTM D 698 (or) ASTM D 1557: MAX. DRY UNIT WT. (pcf)	COMPACTION ASTM D 698 (or) ASTM D 1557: OPT. MOIST. CONT. (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): DRY UNIT WT. (pcf)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): MOIST. CONT. ASTM D 2216 (%)	PERMEABILITY ASTM D 2434(1) (or) ASTM D 5084(2): HYDRAULIC COND'VITY (cm/sec)	PASS/ FAIL	ACUMUL. QUANT. PLACED (APPROX) (yd³)
VRB-01	—		2.2	C136 ✓	—	—	—	—	—	GW	—	—	136.2	7.9	—	—	—	HEM X / P	F
VRB-01.1	—		3.8	C136 ✓	—	—	—	—	—	GW	—	—	—	—	—	—	—	P	F
VRB-02	—		10.5	C136 ✓	—	—	—	—	—	GP	—	—	—	—	—	—	—		F
VRB-02.1	—		3.4	C136 ✓	—	—	—	—	—	GW	—	—	—	—	—	—	—		F

COMMENTS: _____

NOTES: (1) HYDRAULIC CONDUCTIVITY DETERMINED AT A HYDRAULIC GRADIENT OF N/A.

(2) HYDRAULIC CONDUCTIVITY DETERMINED AT AN EFFECTIVE CONFINING STRESS OF N/A.

- **Aggregate Base Laboratory Testing**

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 01 day JULY month 1997 year

MATERIAL TYPE: # 304 AGGREGATE-BASE MATERIAL SAMPLE NO.: VRB-01

SOIL SAMPLE SIZE > 3/4" TOTAL SAMPLE WT = 46,675.4 gms SAMPLE WT = 9571.0

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		D	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	895.9	
WT. OF TARE	(grams)	13.9	
WT. OF DRY SAMPLE	(grams)	882.0	D

SIEVE ANALYSIS QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER		* PROJECT SPECIFICATIONS
1½"	37.5	∅	∅	100		
1"	25.0	2936.0	6.3	93.7		70-100
3/4"	19.0	9419.6	20.2	79.8		50-90
½"	12.5	209.1	23.7	76.3	60.9	
3/8"	9.5	367.3	41.6	58.4	46.6	
4	4.75	624.7	70.8	29.2	23.3**	30-60
10	2.00	746.1	84.6	15.4	12.3	
20	0.850	790.0	89.6	10.4	8.3	#30 9-33
40	0.425	811.9	92.1	7.9	6.3	
60	0.250	827.2	93.8	6.2	5.0	
100	0.150	843.5	95.6	4.4	3.5	
200	0.075	857.5	97.2	2.8	2.2	0-13

*ODOT 304.02

** DOES NOT COMPLY WITH PROJECT SPEC. SEC. 02230 PART 2.01 B

RERUN AS SAMP VRB-01.1

%FINER = 100 − Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

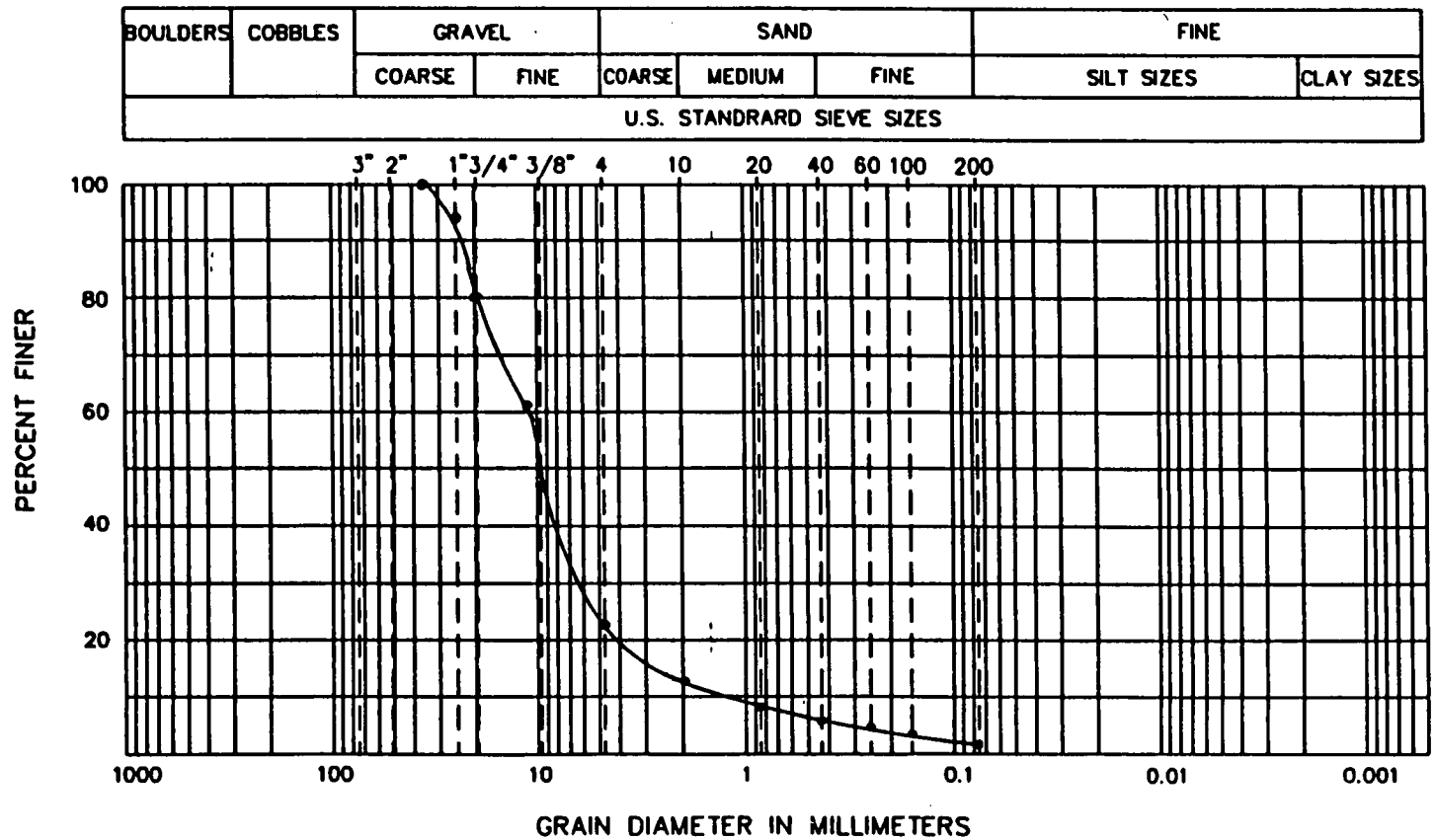
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 07 day 07 month 97 year

MATERIAL TYPE: #304 AGGREGATE BASE — SAMPLE NO.: YRB-01 QA ID: PKO

CURVE COEFFICIENTS: $(C_u)\ \frac{D_{60}}{D_{10}} = \frac{11}{1.3} = 8.46$ $(C_c)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{40.96}{14.3} = 2.86$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	100.0
1 1/2-in.	100.0
1-in.	93.7
3/4-in.	79.8
1/2-in.	60.9
3/8-in.	46.6
NO. 4	23.3
NO. 10	12.3
NO. 20	8.3
NO. 40	6.3
NO. 60	5.0
NO. 100	3.5
NO. 200	2.2

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): WELL GRADED GRAVEL (GW)

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FLUOR DANIEL FERNALD

FIELD LABORATORY COMPACTION TEST (ASTM D 698 METHOD C)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 03 day July month 1997 year

MATERIAL TYPE: ROAD BASE (No. 304 BASE AGGREGATE) — SAMPLE NO.: VRB-01

THIS METHOD WILL BE USED IF THE MATERIAL RETAINED ON THE NO. 3/4-in. (19-mm) SIEVE IS LESS THAN 30%,
AND IF THE MATERIAL RETAINED ON THE NO. 3/8-in. (9.5-mm) SIEVE IS GREATER THAN 20%,
ALL MATERIAL RETAINED ON THE NO. 3/4-in. (19.0-mm) SIEVE IS DISCARDED.
USE OVERSIZE CORRECTION IF MORE THAN 5% IS DISCARDED ACCORDING TO ASTM D 4718.
USE A 6-in. DIAMETER MOLD / 5.5-lb RAMMER / 12-in. DROP / 3 LAYERS / 56 BLOWS PER LAYER.

COMPACTION OF SOIL

QA ID: PKO/SQ

	WATER ADDED	(ml)	500	100	200	300	400
A	WT. OF SOIL & MOLD	(grams)	11,612.16	11,067.8	11,249.3	11,657.5	11,702.9
B	WT. OF MOLD	(grams)	6627.4	6627.4	6627.4	6627.4	6627.4
C	WT. OF SOIL = A - B	(grams)	Item 4984.8 ~~8731.3~~ 1/5/97	4440.4	4621.9	5030.1	5075.5
D	WET UNIT WT.(1) = C X 0.029	(pcf)	144.6	128.8	134.0	145.9	147.2
E	DRY UNIT WT. = D / [1 + (K/100)]	(pcf)	130.4	126.2	128.2	R.C. 136.5 ~~135.6~~ 1/5/97	135.0

NOTE: IF CALIBRATED MOLD OF 1/3.333 FT^3 IS USED, THE WET DENSITY IS CALCULATED FROM THE WEIGHT OF SOIL, THE VOLUME OF THE MOLD AND THE CONVERSION FROM GRAMS TO POUNDS (I.E., CONVERSION FACTOR = (13.333/453.6) = 0.029). THE MOLD MUST BE CALIBRATED TO VERIFY A CAPACITY OF 1/13.333 ± 0.0009 FT^3 ON INTERVALS NOT TO EXCEED 1000 TIMES THAT THE MOLD IS FILLED.

000054

MOISTURE CONTENT - ASTM D 2216

QA ID: PKO/SQ

	TARE NO.		C	12	10	14	D
F	WT. OF TARE	(grams)	13.9	7.1	7.2	7.6	13.8
G	WT. OF WET SOIL & TARE	(grams)	271.4	213.5	268.5	249.4	235.2
H	WT. OF DRY SOIL & TARE	(grams)	246.0	209.2	257.2	233.8	217.0
I	WT. OF WATER = G - H	(grams)	25.4	4.3	11.3	15.6	18.2
J	WT. DRY SOIL = H - F	(grams)	Item 232.1 ~~107.0~~ 1/5/97	202.1	250.0	226.2	203.2
K	MOISTURE CONTENT = (I/J) X 100	(%)	10.9	2.1	4.5	6.9	9.0

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FLUOR DANIEL FERNALD

MOISTURE-DENSITY RELATIONSHIP

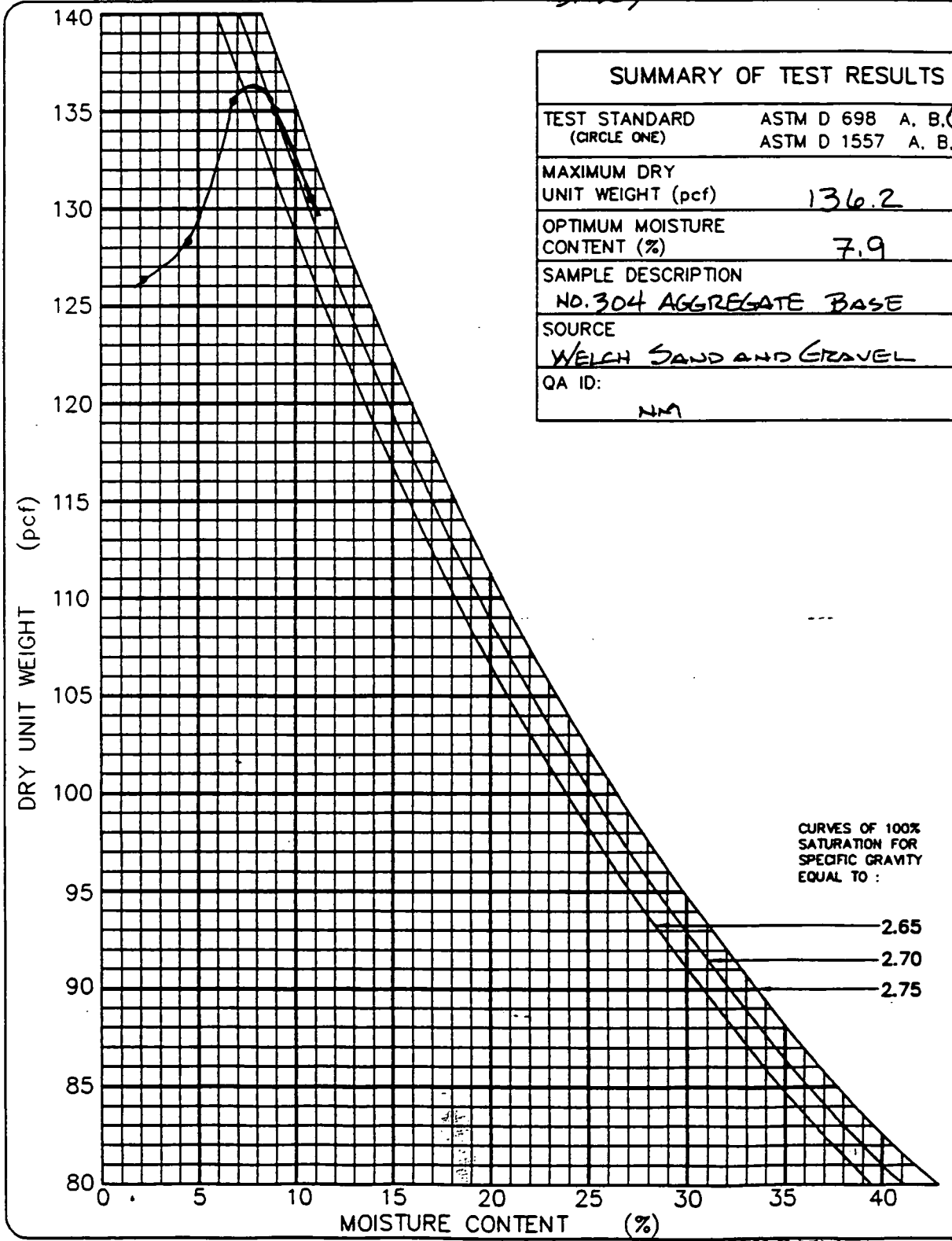
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 03 day JULY month 1997 year

MATERIAL TYPE: ROAD BASE (NO. 304 AGGREGATE BASE) SAMPLE NO.: VRB-01

SUMMARY OF TEST RESULTS	
TEST STANDARD (CIRCLE ONE)	ASTM D 698 A, B, (C) ASTM D 1557 A, B, C
MAXIMUM DRY UNIT WEIGHT (pcf)	136.2
OPTIMUM MOISTURE CONTENT (%)	7.9
SAMPLE DESCRIPTION	NO. 304 AGGREGATE BASE
SOURCE	WELCH SAND AND GRAVEL
QA ID:	NM



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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 07 day JULY month 1997 year

MATERIAL TYPE: #304 AGGREGATE - BASE MATERIAL SAMPLE NO.: VKB-01.1

SOIL SAMPLE SIZE TOTAL SAMPLE WT = 46,675.4 gms
> 3/4" SAMPLE WT = 9571.0 gms

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		C	N/A
WT. OF DRY SAMPLE PLUS TARE	(grams)	1330.4	
WT. OF TARE	(grams)	13.9	
WT. OF DRY SAMPLE	(grams)	1316.5	

SIEVE ANALYSIS QA ID: PKO

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER		PROJECT SPECIFICATIONS
2"	50.0	Ø	Ø	100		100
1 1/2"	37.5	Ø	Ø	100		
~~1~~ 1"	25.0	2936.0	6.3	93.7		70 - 100
3/4"	19.0	9419.6	20.2	79.8		50 - 90
1/2"	12.5	245.2	18.6	81.4	65.0	
3/8"	9.5	362.9	27.6	72.4	57.8	
4	4.75	612.2	46.5	53.5	42.7	30 - 60
8	2.36	819.0	62.2	37.8	30.2	
16	1.18	963.3	73.2	26.8	21.4	
30	0.600	1052.1	79.9	20.1	16.0	9 - 33
50	0.300	1122.0	85.2	14.8	11.8	
100	0.150	1179.2	89.6	10.4	8.3	
200	0.075	1252.8	95.2	4.8	3.8	0 - 13
PAN	—	1313.8	~~99.8~~ 7/28/97	~~0.2~~	—	
						*ODOT 304.02

RE-TEST SAMPLE

MATERIAL SATISFIES PROJECT SPEC. SEC. 02230 PART 2.01B

%FINER = 100 - Σ% RETAINED

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM ~~D 422~~ C136 & ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

DESCRIPTION: LCS CONSTRUCTION

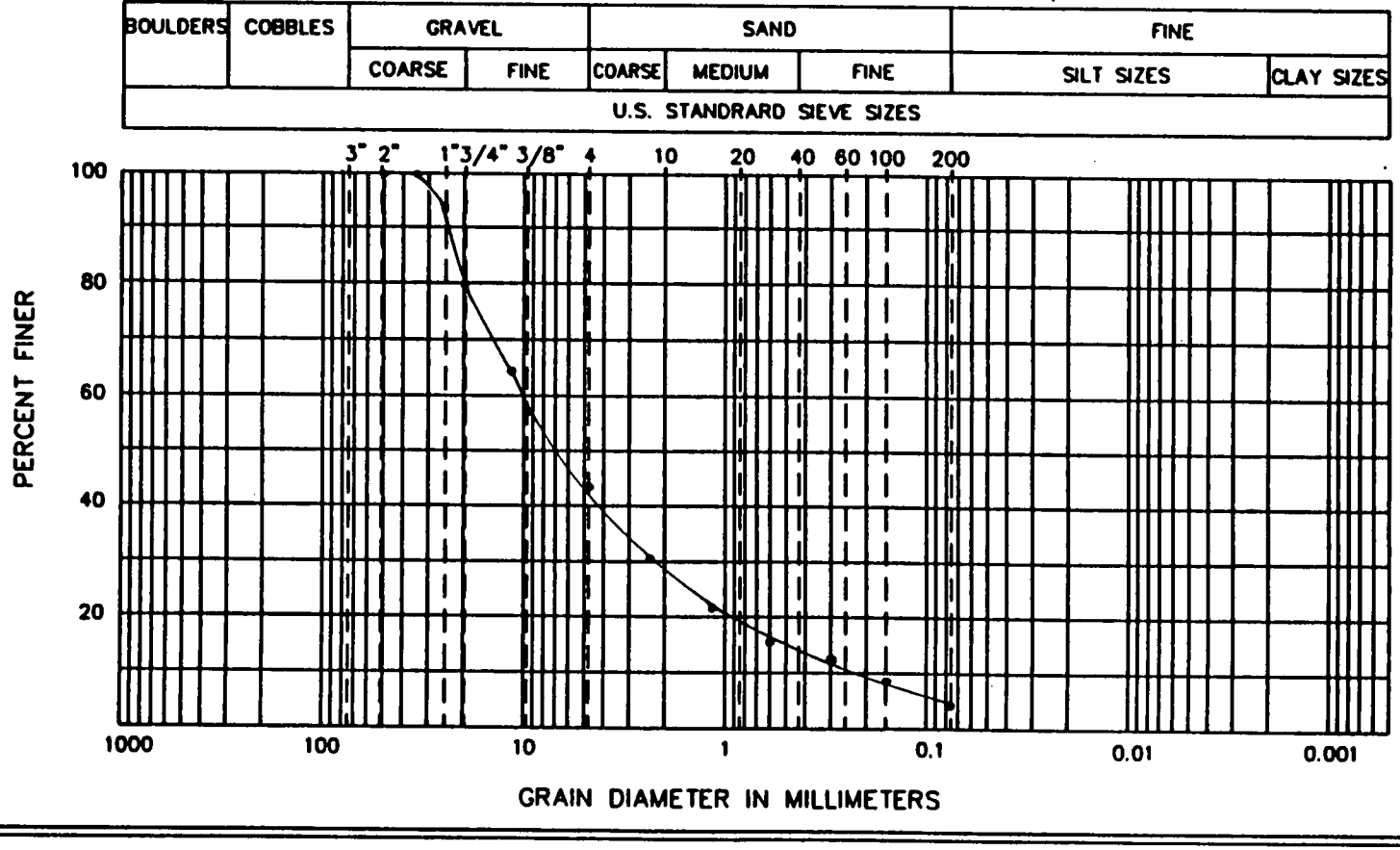
MATERIAL TYPE: #304 AGGREGATE BASE

PROJECT NO.: GQ0166 TASK NO.: 04.1

DATE: 07 day JULY month 1997 year

SAMPLE NO.: VRB-01.1 QA ID: PKO

CURVE COEFFICIENTS: $(C_u) = D_{60}/D_{10} = 10/0.24 = 41.7$ $(C_c) = D_{30}^2/(D_{10} \times D_{60}) = 4.84/(10 \times 0.24) = 2.0$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	100
1 1/2-in.	100
1-in.	93.7
3/4-in.	79.8
1/2-in.	65.0
3/8-in.	57.8
NO. 4	42.7
NO. ~~10~~ 8	30.2
NO. ~~20~~ 16	21.4
NO. ~~40~~ 30	16.0
NO. ~~60~~ 50	11.8
NO. 100	8.3
NO. 200	3.8

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): GW - WELL GRADED GRAVEL

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FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 26 day ~~SEPT~~ month 1997 year

MATERIAL TYPE: #304 AGG. BASE SAMPLE NO.: VRB-02

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

		BEFORE WASH	AFTER WASH
TARE NO.		N	
WT. OF DRY SAMPLE PLUS TARE	(grams)	1716.6	
WT. OF TARE	(grams)	101.8	
WT. OF DRY SAMPLE	(grams)	1614.8	

SIEVE ANALYSIS

QA ID: JL

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1"	25.0	0	~~100~~ 0 adjusted	100	70-100
3/4"	19.0	17.5	1.0	94.0	50-90
1/2"	12.5	574.2	35.6	64.4	
3/8"	9.5	755.5	48.6	51.4	
4	4.75	1216.0	75.3	24.7 **	30-60
8	2.36	1338.8	82.9	17.1	
16	1.18	1395.2	86.4	13.6	
30	0.60	1427.2	88.4	11.6	9-33
50	0.30	1441.5	89.2	10.8	
100	0.150	1443.4	89.4	10.6	
200	0.075	1445.1	89.5	10.5	0-13
					* ODOT 304.02

** DOES NOT COMPLY WITH ODOT 304.02 REQUIREMENTS.
SAMPLE TO BE RERUN AS VRB-02.1

%FINER = 100 - Σ% RETAINED

©GEO SYNTEC CONSULTANTS FILE NO. 2-14-PMS

CHECKED BY: JW

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FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS

(ASTM C 136 ~~/D 422~~) (ASTM D 2487)

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO

PROJECT NO.: GQ0166 TASK NO.: 04.1

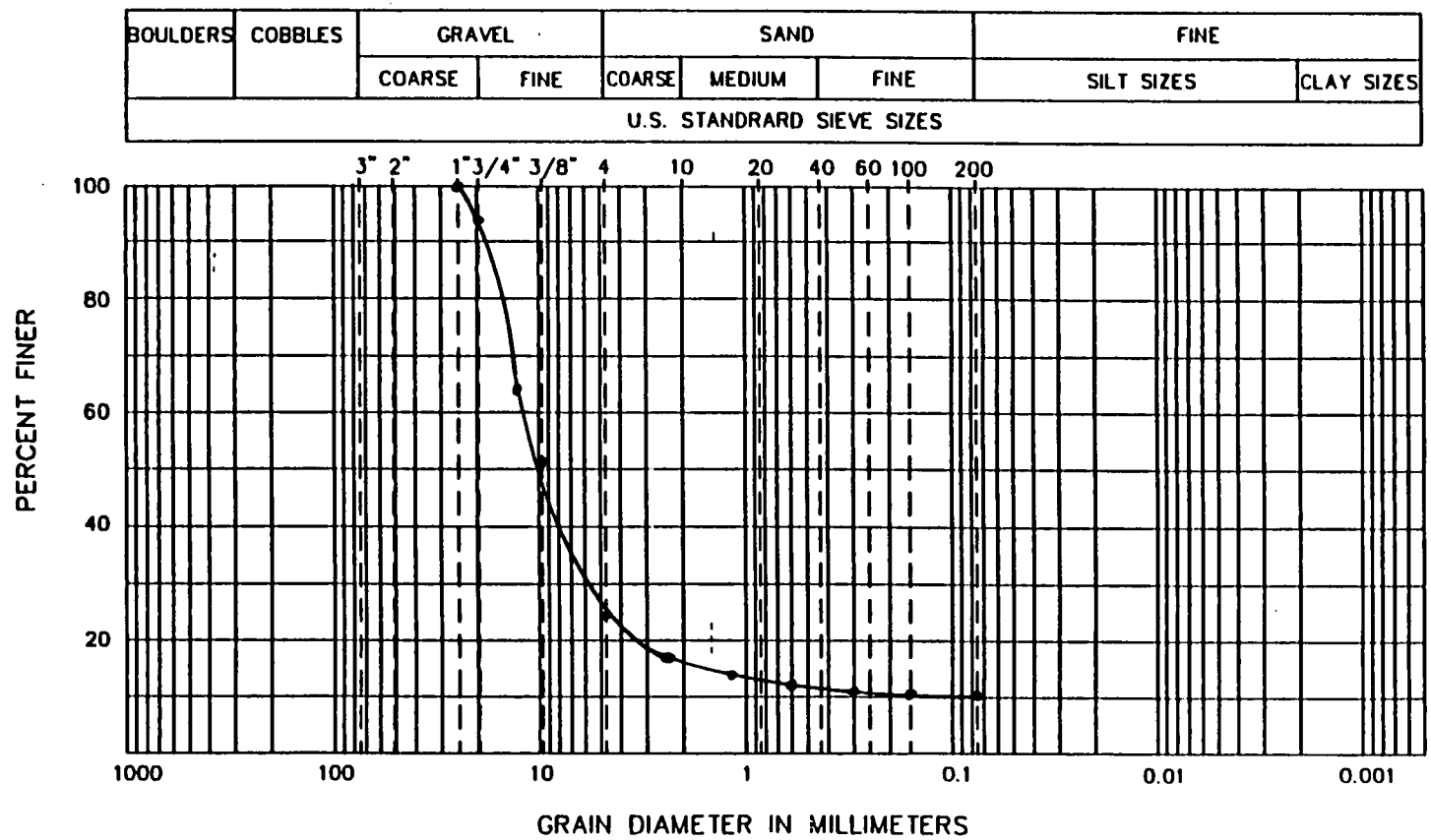
DESCRIPTION: LCS CONSTRUCTION

DATE: 26 day SEPT month 1997 year

MATERIAL TYPE: #304 AGGREGATE BASE

SAMPLE NO.: VRB-02 QA ID: NM

CURVE COEFFICIENTS: $(C_u)\ \frac{D_{60}}{D_{10}} = \frac{13}{.045} = 200.0$ $(C_c)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{32.45}{.845} = 38.4$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-in.	
2-in.	
1 1/2-in.	
1-in.	100.0
3/4-in.	94.0
1/2-in.	64.4
3/8-in.	51.4
NO. 4	24.7
NO. 10	17.1
NO. 20	13.6
NO. 30	11.6
NO. 50	10.8
NO. 100	10.6
NO. 200	10.5

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): POORLY GRADED GRAVEL (GP)

©GeoSyntec Consultants FILE NO. 2-16-PSD CHECKED BY: JK

SHEET NO. 2 OF 2

650059

1271

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE ANALYSIS MECHANICAL SIEVE METHOD (ASTM ~~D 422~~) C 136

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 27 day SEPT month 1997 year

MATERIAL TYPE: #304 AGG. BASE SAMPLE NO.: YRB-02.1

SOIL SAMPLE SIZE

APPROXIMATE MINIMUM WT. OF SAMPLE (PASSING NO. 10 SIEVE) (grams)	SAND	FINE GRAIN
	115	65

	BEFORE WASH	AFTER WASH
TARE NO.	K	
WT. OF DRY SAMPLE PLUS TARE (grams)	1368.9	
WT. OF TARE (grams)	~~1267.4~~ 1015	
WT. OF DRY SAMPLE (grams)	267.4	

SIEVE ANALYSIS

QA ID: JL

SIEVE NO.	DIAMETER (mm)	WT. RETAINED (grams)	% RETAINED	% FINER	* PROJECT SPECIFICATIONS
1"	25.0	0	~~100.0~~ 9/27/97	100	70-100
3/4"	19.0	105.5	8.3	91.7 **	50-90
1/2"	12.5	409.1	32.3	67.7	
3/8"	9.5	601.6	~~47.5~~ ~~JC~~ 7.4 9/27/97	52.5	
4	4.75	956.8	75.5	24.5 **	30-60
8	2.36	1085.3	85.6	14.4	
16	1.18	1155.8	91.2	5.3	
30	0.60	1183.8	93.4	6.6 **	9-33
50	0.30	1198.3	94.5	5.5	
100	0.150	1209.4	95.4	4.6	
200	0.075	1224.3	96.6	3.4	0-13
					* ODOT 304.02

** DOES NOT COMPLY WITH ODOT 304.02 REQUIREMENTS

%FINER = 100 - Σ % RETAINED

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CHECKED BY: [signature] 000060 SHEET NO. 1 OF 2

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PARTICLE SIZE DISTRIBUTION AND SOIL CLASSIFICATION TEST RESULTS (ASTM C 136/~~D 422~~) (ASTM D 2487)

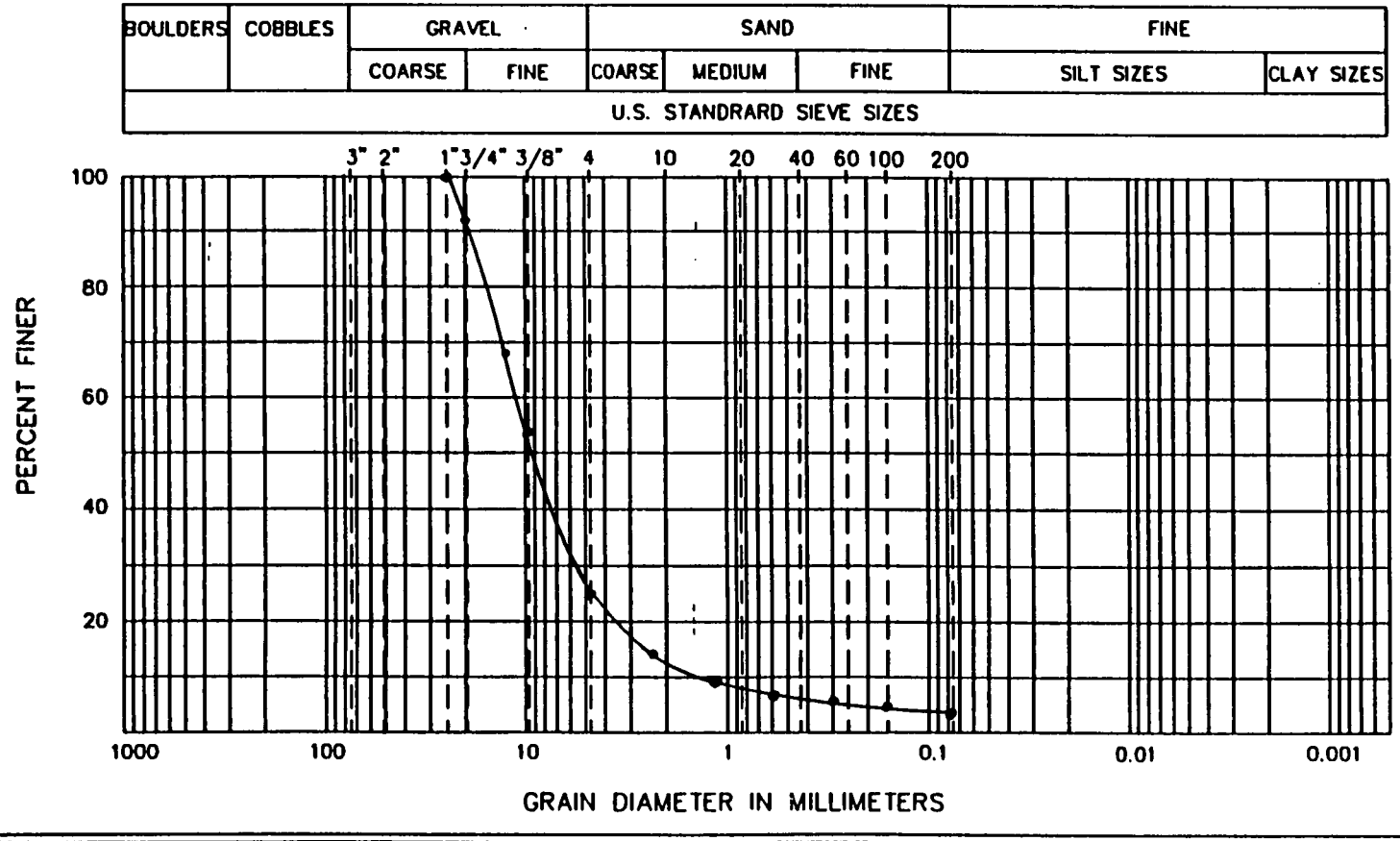
PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO — PROJECT NO.: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION — DATE: 27 day SEPT month 1997 year

MATERIAL TYPE: #304 AGGREGATE BASE — SAMPLE NO.: VRB-02.1 QA ID: NM

CURVE COEFFICIENTS: $(C_U)\ \frac{D_{60}}{D_{10}} = \frac{12}{1.5} = 8$ $(C_C)\ \frac{D_{30}^2}{D_{10} \times D_{60}} = \frac{33.64}{18} = 1.9$



ATTERBERG LIMITS

(LL) N/A

(PL) N/A

(PI) N/A

SIEVE RESULTS

SIEVE SIZE	% FINER
3-In.	
2-in.	
1 1/2-in.	
1-in.	100.0
3/4-In.	91.7
1/2-In.	67.7
3/8-In.	52.5
NO. 4	24.5
NO. ~~10~~ 8	14.4
NO. ~~20~~ 16	8.8
NO. ~~40~~ 30	6.6
NO. ~~60~~ 50	5.5
NO. 100	4.4
NO. 200	3.4

HYDROMETER RESULTS

PARTICLE DIA.	% FINER
N/A	N/A

SOIL CLASSIFICATION (ASTM D 2487): WELL GRADED GRAVEL (GW)

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SHEET NO. 2 OF 2

000061

1221

Concrete Test Results

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF) PHASE ONE

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: Sed. basin primary riser DATE: 08 day 07 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: Miami Valley Ready Mix CONTRACTOR: P.E.T.

LOCATION OF PLACEMENT: Sed basin primary outflow riser base

CONCRETE TRUCK NO.: 24

SIZE OF LOAD (yd^3): 4 1/2

DATE SAMPLED: 8 July '97

TIME BATCHED: 1506

TIME SAMPLED: 15 ~~05~~ 45

TIME COMPLETED: 15:55

TESTING LABORATORY: F.M.S.M

TICKET NUMBER: 46993

AMBIENT TEMPERATURE (F/C): 85° F

CONCRETE TEMPERATURE (F/C): 83° F

SLUMP (in.): 3.0"

AIR CONTENT (% by Vol.): 5.2%

WET WEIGHT (lb/ft^3): NA

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load LBS.	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
P.E.T.-01	1-A	2	75,500	28.27	2670	P	NM
" "	1-B	7	123,500	28.27	4370	P	↓
" "	1-C	28	158,000	28.27	5590	P	
" "	1-D	28	158,500	28.27	5610	P	↓
" "	1-E	Hold					

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FROM : FMSM ENGINEERS CINTI PHONE NO. : 5138601073 Oct. 15 1997 12:34PM P2

FMSM ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

REPORT OF TEST ON CONCRETE CYLINDERS

Cylinder/Set No. 1

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility
Contractor: P.E.T.
Designer: Geo Synte Consultants
Concrete Supplier: Miami Valley Ready Mix
Specified Strength & Type: 4,000 C
Supplied Strength & Type: 4,000 C
Location of Concrete: Sed. Basin primary out flow riser base

FIELD DATA

Date Sampled: 7/8/97
Slump: 3"
Air Content: 5.2%
Truck No.: 24
Ticket No.: 46993
Ambient Temp.: 85°F
Concrete Temp.: 83°F
Technician: GeoSyntec
Time of Test: 3:45 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	7/09/97	7/09/97	7/09/97	7/09/97		
Date Tested	7/10/97	7/15/97	8/05/97	8/05/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	75,500	123,500	158,000	158,500		
Compressive Strength, psi	2,670	4,370	5,590	5,610		
Cylinder Weight in Lbs.	28.9	29.6	29.3	29.2		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS construction DATE: 10 day 09 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: DIAZ

LOCATION OF PLACEMENT: LCS-LDS #1 & 2 Anchor slab

CONCRETE TRUCK NO.: * TICKET NUMBER: *

SIZE OF LOAD (yd³): 9 YARDS AMBIENT TEMPERATURE (F/C): ~~76°~~ 78°

DATE SAMPLED: 10 SEPT 97 CONCRETE TEMPERATURE (F/C): 76°

TIME BATCHED: * SLUMP (in.): 5"

TIME SAMPLED: 10:00 AIR CONTENT (% by Vol.): 5.7%

TIME COMPLETED: 10:10 WET WEIGHT (lb/ft³): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in²)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-01	2-A ~~BCE~~ BG	2 9/12	67,500	28.27	2390	P	NM
LCS-01	2-B	7 9/17	111,000		3930	P	NM
LCS-01	2-C	28 10/8	150,000		5310	P	NM
LCS-01	2-D	28 10/8	148,000		5230	P	NM
LCS-01	2-E	Hold					

* NOT AVAILABLE AT TIME OF SAMPLING.

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REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossberger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 2

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility

Contractor Diaz

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 4,000 C

Supplied Strength & Type 4,000 C

Location of Concrete LCS-LDS #1&2 anchor slab base

FIELD DATA

Date Sampled 9/10/97

Slump 5"

Air Content 5.7%

Truck No. NA

Ticket No. NA

Ambient Temp. 78°F

Concrete Temp. 76°F

Technician

Time of Test 10:00 a.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	9/12/97	9/12/97	9/12/97	9/12/97		
Date Tested	9/12/97	9/17/97	10/8/97	10/8/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	67,500	111,000	150,000	148,000		
Compressive Strength, psi	2,390	3,930	5,310	5,230		
Cylinder Weight in Lbs.	28.5	28.5	28.5	28.5		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS DATE: 16 day 09 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: WISE CONST

LOCATION OF PLACEMENT: COMM 1-A, 2, 5

CONCRETE TRUCK NO.: 79 TICKET NUMBER: 347541

SIZE OF LOAD (yd^3): 6.0 AMBIENT TEMPERATURE (F/C): 77°

DATE SAMPLED: 16 SEPT '97 CONCRETE TEMPERATURE (F/C): 80°

TIME BATCHED: ~~14:47~~ DC 12:20 SLUMP (in.): 3"

TIME SAMPLED: 13:20 AIR CONTENT (% by Vol.): 5.3°

TIME COMPLETED: 13:30 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-02	LCS-02 A	2 9/18	75000	28.27	2650	P	WM
LCS-02	" B	7 9/23	110,000	↓	3890	P	↓
LCS-02	" C	28 10/14	143000		5020	P	
LCS-02	" D	28 10/14	128,500		4540	P	
LCS-02	" E	Hold		↓			

COPY TO: LMC

REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 3

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility
Contractor: Wise Construction
Designer: Geosyntec
Concrete Supplier: Moraine
Specified Strength & Type: 4,000 AE Type II
Supplied Strength & Type: 4,000 AE Type II
Location of Concrete:

FIELD DATA

Date Sampled: 9/16/97
Slump: 3"
Air Content: 5.3%
Truck No.: 79
Ticket No.: 347541
Ambient Temp.: 77°F
Concrete Temp.: 80°F
Technician: GeoSyntec
Time of Test: 1:20 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	9/17/97	9/17/97	9/17/97	9/17/97		
Date Tested	9/18/97	9/23/97	10/14/97	10/14/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	75,000	110,000	142,000	128,500		
Compressive Strength, psi	2,650	3,890	5,020	4,540		
Cylinder Weight in Lbs.	28.6	28.7	28.8	28.8		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF PHASE ONE LCS DATE: 17 day 09 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: DIAZ

LOCATION OF PLACEMENT: LCS-LDS-03

CONCRETE TRUCK NO.: 212 TICKET NUMBER: 348317

SIZE OF LOAD (yd^3): 9.0 AMBIENT TEMPERATURE (F/C): 70°

DATE SAMPLED: 9-17-97 CONCRETE TEMPERATURE (F/C): 82°

TIME BATCHED: 12:57 SLUMP (in.): 3 3/4

TIME SAMPLED: 13:40 AIR CONTENT (% by Vol.): 5.1%

TIME COMPLETED: 13:50 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: F.M.S.M.

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-03	LCS-03 A	2 (9/19)	66,500	28.27	2350	P	NM
LCS-03	" B	7 (9/24)	97,500	↓	3450	P	↓
LCS-03	" C	28 (10/15)	133,000	↓	4700	P	↓
LCS-03	" D	28 (10/15)	132,500	↓	4690	P	↓
LCS-03	" E	Hold		↓			

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Fuller Mossbarger Scott & May ENGINEERS

REPORT OF TEST ON CONCRETE CYLINDERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 4

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: Diaz

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: Mix C Air:5% ± 1.5% 4,000 psi slump: 3" to 5"

Supplied Strength & Type: Mix C Air:5% ± 1.5% 4,000 psi slump: 3" to 5"

Location of Concrete: LCS-LDS-03

FIELD DATA

Date Sampled: 9/17/97

Slump: 3-3/4"

Air Content: 5.1%

Truck No.: 212

Ticket No.: 348317

Ambient Temp.: 70°F

Concrete Temp.: 82°F

Technician: GeoSyntec

Time of Test: 1:40 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	9/19/97	9/19/97	9/19/97	9/19/97		
Date Tested	9/20/97	9/24/97	10/15/97	10/15/97		
Age When Tested, Days	3	7	28	28		
Maximum Load, Pounds	66,500	97,500	133,000	132,500		
Compressive Strength, psi	2,350	3,450	4,700	4,690		
Cylinder Weight in Lbs.	28.3	28.3	28.4	28.3		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

000070

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION DATE: 25 day SEPT month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: 3000025 3000 GROUT * AIR CONTENT(%): N/A

COMPRESSIVE STRENGTH: 3000 (psi) AT 28 (days) SLUMP RANGE(in.): N/A to

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: DIAZ

LOCATION OF PLACEMENT: EROSION ~~GOBITAL~~ REVETMENT WEST OF CO-12

CONCRETE TRUCK NO.: 281 TICKET NUMBER: 350235

SIZE OF LOAD (yd^3): 8 AMBIENT TEMPERATURE (F)/C): 70

DATE SAMPLED: 25 SEPT '97 CONCRETE TEMPERATURE (F)/C): 84

TIME BATCHED: 0748 SLUMP (in.): N/A

TIME SAMPLED: 0820 AIR CONTENT (% by Vol.): N/A

TIME COMPLETED: NA WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-04	A	7 10/2	30,000	28.27	1060	P	NM
↓	B	28 10/23	69,000	↓	2440	P	JM
	C	28 10/23	67,500		2390	P	JM
↓	D	HOLD		↓			

NOTE: 7 Day Test result is 35% of Design Strength

* ~~SPECIFICATION~~ DRAWING INDICATES 2000 PSI REQUIRED. J.Jm 22/0/97

COPY TO: FILE, Fmsm

REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 5

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility Phase 1 Task 4.1

Contractor Diaz

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 3,000 psi grout

Supplied Strength & Type 3,000 psi grout

Location of Concrete Erosion control revetment, west of CO-12 (LCS-04)

FIELD DATA

Date Sampled 9/25/97

Slump -

Air Content -

Truck No. 281

Ticket No. 350235

Ambient Temp. 70°F

Concrete Temp. 84°F

Technician GeoSyntec

Time of Test -

LABORATORY DATA

Cylinder No.	A	B	C			
Date Received	09/26/97	09/26/97	09/26/97			
Date Tested	10/02/97	10/23/97	10/23/97			
Age When Tested, Days	7	28	28			
Maximum Load, Pounds	30,000	69,000	67,500			
Compressive Strength, psi	1,061	2,440	2,390			
Cylinder Weight in Lbs.	26.8	27.0	26.9			
Type of Break	Shear	Shear	Shear			

REMARKS:

Stan A. Harris

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: OSDF-PHASE ONE-/LCS DATE: 02 day 10 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: WISE CO.

LOCATION OF PLACEMENT: LCS - CLEANOUT MANHOLES #1, 3, & 4

CONCRETE TRUCK NO.: 225 TICKET NUMBER: 352670

SIZE OF LOAD (yd^3): 7.0 AMBIENT TEMPERATURE (F/C): 47°

DATE SAMPLED: 10-2-97 CONCRETE TEMPERATURE (F/C): 72°

TIME BATCHED: 13:25 SLUMP (in.): 5"

TIME SAMPLED: 14:20 AIR CONTENT (% by Vol.): 5.3%

TIME COMPLETED: 14:50 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-05	LCS-05-A	2 10/4	* 108,500	28.27	3840	P	NM
LCS-05	" B	7 10/9	125000	↓	4420	P	↓
LCS-05	" C	28 10/30	151,500		5360	P	
LCS-05	" D	28 10/30	148,500		5250	P	
LCS-05	" E	No/d		↓			

*4 day age

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Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

REPORT OF TEST ON CONCRETE CYLINDERS

Cylinder/Set No. 6

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility Phase 1 Task 4.1

Contractor Wise

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 4,000

Supplied Strength & Type 4,000

Location of Concrete LCS - cleanout manholes #1, 3 & 4

FIELD DATA

Date Sampled 10/2/97

Slump 5"

Air Content 5.3%

Truck No. 225

Ticket No. 352670

Ambient Temp. 67°F

Concrete Temp. 72°F

Technician GeoSyntec

Time of Test 2:20 p.m.

LABORATORY DATA

Cylinder No.	A	B				
Date Received	10/03/97	10/03/97				
Date Tested	10/06/97	10/09/97				
Age When Tested, Days	4	7				
Maximum Load, Pounds	108,500	125,000				
Compressive Strength, psi	3,840	4,420				
Cylinder Weight in Lbs.	28.3	28.3				
Type of Break	Shear	Shear				

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

1271

REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 6

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: Wise

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000

Supplied Strength & Type: 4,000

Location of Concrete: LCS - cleanout manholes #1, 3 & 4

FIELD DATA

Date Sampled: 10/2/97

Slump: 5"

Air Content: 5.3%

Truck No.: 225

Ticket No.: 352670

Ambient Temp.: 67°F

Concrete Temp.: 72°F

Technician: GeoSyntec

Time of Test: 2:20 p.m.

LABORATORY DATA

Cylinder No.	A					
Date Received	10/03/97					
Date Tested	10/06/97					
Age When Tested, Days	4					
Maximum Load, Pounds	108,500					
Compressive Strength, psi	3,840					
Cylinder Weight in Lbs.	28.3					
Type of Break	Shear					

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

1271

REPORT OF TEST ON CONCRETE CYLINDERS

FMSM ENGINEERS
0018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 6

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility

Contractor Wise Co.

Designer

Concrete Supplier Morsine

Specified Strength & Type 4000

Supplied Strength & Type 4000

Location of Concrete LCS - cleanout manholes #1, 3, 4 4

FIELD DATA

Date Sampled 10-2-97

Slump 5"

Air Content 5.3%

Truck No. 225

Ticket No. 352670

Ambient Temp. 67°

Concrete Temp. 72°

Technician GeoSyntec

Time of Test 2:20

LABORATORY DATA

Cylinder No.	A	B	C	D	E
Date Received					
Date Tested	10-6	10-9	10-30	10-30	HOLD
Age When Tested, Days	4	7	28	28	HOLD
Maximum Load, Pounds	108500	125000	151500	148500	
Compressive Strength, psi	3840	4420	5360	5250	
Cylinder Weight in Lbs.	28.3	28.3	28.5	28.4	
Type of Break	Shear	Shear	Shear	Shear	

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

FROM : FMSM ENGINEERS CINTI PHONE NO. : 5138601073 Oct. 30 1997 03:05PM P1

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS DATE: 07 day 10 month 97 year

DESIGN MIX DATA: DESIGN MIX NO.: C / AIR CONTENT(%): 5.0 ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: WISE

LOCATION OF PLACEMENT: CLEAN out M.H's 5, 6, 7, 9, 11, 12, 10 Tops - M.H 11 bottom

CONCRETE TRUCK NO.: 255 TICKET NUMBER: 353918

SIZE OF LOAD (yd³): 6.0 AMBIENT TEMPERATURE (F/C): 80°

DATE SAMPLED: 10-7-97 CONCRETE TEMPERATURE (F/C): 78°

TIME BATCHED: 14:59 SLUMP (in.): 5.0"

TIME SAMPLED: 1540 AIR CONTENT (% by Vol.): 5.2 %

TIME COMPLETED: 1750 WET WEIGHT (lb/ft³): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in²)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-06	LCS-06-A	2 10/9	103,000	28.27	3640	P	NM
LCS-06	" B	7 10/14	116,000		4100	P	NM
LCS-06	" C	28 11/4	150500		5320	P	NM
LCS-06	" D	28 11/4	148000		5230	P	NM
LCS-06	" E	Hold	~~150000~~ HEM 11/11/97		~~5310~~ HEM 11/11/97	~~P~~	~~NM~~
* LCS-06	" F	28 11/4	150000		5310	P	NM

*"Cylinded marked Eatins Hold"

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REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 7

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: Wise

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000 AE

Supplied Strength & Type: 4,000 AE

Location of Concrete: Clean out M.H.'s 5,6,7,9,11,12,10 tops-M.H. 11 bottom M.H. 5 bottom

FIELD DATA

Date Sampled: 10/7/97

Slump: 5"

Air Content: 5.2%

Truck No.: 255

Ticket No.: 353918

Ambient Temp.: 80°F

Concrete Temp.: 78°F

Technician: GeoSyntec

Time of Test: 3:40 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D	E	
Date Received	10/08/97	10/08/97	10/08/97	10/08/97	10/08/97	
Date Tested	10/09/97	10/14/97	11/04/97	11/04/97	11/04/97	
Age When Tested, Days	2	7	28	28	28	
Maximum Load, Pounds	103,000	116,000	150,500	148,000	150,000	
Compressive Strength, psi	3,640	4,100	5,320	5,230	5,310	
Cylinder Weight in Lbs.	28.3	28.3	28.4	28.5	28.4	
Type of Break	Shear	Shear	Shear	Shear	Shear	

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF - LCS DATE: 15 day 10 month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5.0 ± 1.5 %

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3.0 to 5.0

FIELD AND LABORATORY: CONCRETE SUPPLIER: Moraine CONTRACTOR: Diaz

LOCATION OF PLACEMENT: Lift Station slab

CONCRETE TRUCK NO.: 80

SIZE OF LOAD (yd^3): 8.0

DATE SAMPLED: 15 Oct 97

TIME BATCHED: 1348

TIME SAMPLED: 1445

TIME COMPLETED: 1510

TESTING LABORATORY: FMSM

TICKET NUMBER: 356135

AMBIENT TEMPERATURE (F/C): 64°

CONCRETE TEMPERATURE (F/C): 72°

SLUMP (in.): 5.0"

AIR CONTENT (% by Vol.): 4.75

WET WEIGHT (lb/ft^3): N/A

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-07	LCS-07-A	2 10/17	56,000	28.27	1980	P	NM
	B	7 10/22	101,500		3590	P	
	C	28 11/12	165000		5840	P	
	D	28 11/12	162000		5730	P	
	E	Hold					

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Cincinnati, Ohio 45246
(513) 860-1070

REPORT OF TEST ON CONCRETE CYLINDERS

Cylinder/Set No. 8

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility

Contractor Diaz

Designer Geo Synter

Concrete Supplier Morzine

Specified Strength & Type 4000 @ 28 Design Mix C, A.C. = 5 ± 1.5% Slump = 3-5"

Supplied Strength & Type " "

Location of Concrete Lift Station Slab (LCS-07)

FIELD DATA

Date Sampled Oct. 15, '97

Slump 5"

Air Content 4.75%

Truck No. 80

Ticket No. 356135

Ambient Temp. 64°F

Concrete Temp. 72°F

Technician Geo Synter

Time of Test 14:45

LABORATORY DATA

Cylinder No.	8A (Fxed)	8B (Fxed)	8C	8D	8E
Date Received	10-17-97				
Date Tested	10-17-97	10-22-97	11-12-97	11-12-97	—
Age When Tested, Days	2	7	28	28	Hold
Maximum Load, Pounds	52000	101500	165000	162000	
Compressive Strength, psi	1980	3590	5840	5730	
Cylinder Weight in Lbs.	28.4	28.5	28.4	28.4	
Type of Break	Shear	Shear	SHEAR	SHEAR	

REMARKS:

Size of Load: 8.0 c.f.
Time Batched: 13:48
Time Sampled: 14:45
Time Completed: 15:10

* FAX RESULTS TO GEOSYNTEC @ FERNALD (648-3415)

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF - LCS DATE: 20 day 10 month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MOZAINE CONTRACTOR: F WISE CO.

LOCATION OF PLACEMENT: LCS-M.H #4 (Bottom) M.H #1 (Top)

CONCRETE TRUCK NO.: 245 TICKET NUMBER: 357064

SIZE OF LOAD (yd^3): 5.0 AMBIENT TEMPERATURE (F/C): 63°

DATE SAMPLED: 20 Oct 97 CONCRETE TEMPERATURE (F/C): 68°

TIME BATCHED: 0821 SLUMP (in.): 4.25

TIME SAMPLED: 0930 AIR CONTENT (% by Vol.): 6.4 %

TIME COMPLETED: 0950 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-08	LCS-08-A	2 (10/22)	44,000	28.27	1560	P	NM
"	" B	7 (10/27)	97,500	↓	3450	P	↓
"	" C	28 (11/17)	133,000		4700	P	
"	" D	28 (11/17)	123,500		4370	P	
"	" E	Hold		↓			

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REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 9

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1
Contractor: Wise
Designer: Geosyntec
Concrete Supplier: Moraine
Specified Strength & Type: 4,000 AE
Supplied Strength & Type: 4,000 AE
Location of Concrete: L.C.S.-M.H. #4(bottom), M.H. #1 (top)

FIELD DATA

Date Sampled: 10/20/97
Slump: 4-1/4"
Air Content: 6.4%
Truck No.: 245
Ticket No.: 357064
Ambient Temp.: 63°F
Concrete Temp.: 68°F
Technician: GeoSyntec
Time of Test: 9:30 a.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	10/21/97	10/21/97	10/21/97	10/21/97		
Date Tested	10/22/97	10/27/97	11/17/97	11/17/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	44,000	97,500	133,000	123,500		
Compressive Strength, psi	1,560	3,450	4,700	4,370		
Cylinder Weight in Lbs.	27.8	27.9	27.7	27.6		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction DATE: 13 day Nov month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: Moraine Materials CONTRACTOR: VBS/DIAZ

LOCATION OF PLACEMENT: LCS/LDS-02 anti-flotation slab

CONCRETE TRUCK NO.: 216 TICKET NUMBER: 362967

SIZE OF LOAD (yd^3): 10.0 AMBIENT TEMPERATURE (F/C): 30°

DATE SAMPLED: 13 Nov W CONCRETE TEMPERATURE (F/C): 54°

TIME BATCHED: ~~11:29~~ 11:29 SLUMP (in.): 5 1/2

TIME SAMPLED: 12:15 AIR CONTENT (% by Vol.): 5.0%

TIME COMPLETED: 12:30 WET WEIGHT (lb/ft^3): NA

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-10	10 A	Hem 11/17/97 ~~2~~ 4	81,500	28.27	2880		NM
↓	B	7	115,000	↓	4070		↓
	C	28	149,500		5290	P	
	D	28	152,000		5380	P	
	E	H					

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Cincinnati, Ohio 45246
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REPORT OF TEST ON CONCRETE CYLINDERS

Cylinder/Set No. 10

Project No. C97070

PROJECT DATA10

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: VDS/Diaz

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000 psi @ 28 da. A.C. 5± 1.5% slump 3-5"

Supplied Strength & Type: 4,000 psi

Location of Concrete: LCS/LDS-02 antifloatation slab

FIELD DATA

Date Sampled: 11/13/97

Slump: 5-1/2"

Air Content: 5.0%

Truck No.: 216

Ticket No.: 362967

Ambient Temp.: 30°F

Concrete Temp.: 54°F

Technician: GeoSyntec

Time of Test: 12:15 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/14/97	11/14/97	11/14/97	11/14/97		
Date Tested	11/17/97	11/20/97	12/11/97	12/11/97		
Age When Tested, Days	4	7	28	28		
Maximum Load, Pounds	81,500	115,000	149,500	152,000		
Compressive Strength, psi	2,880	4,070	5,290	5,380		
Cylinder Weight in Lbs.	28.2	28.2	28.1	28.1		
Type of Break	Shear	Shear	Shear	Shear		

Post-it® Fax Note 7671 | Date 12/12 | # of pages ▶ 3
To GeoSyntec | From FMSM
Co./Dept. | Co.
Phone # | Phone #
Fax # 648-3415 | Fax #

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction DATE: 13 day Nov month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: C AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: Moraine Materials CONTRACTOR: VBS / DIAZ

LOCATION OF PLACEMENT: LCS/LDS-01 antifloatation slab

CONCRETE TRUCK NO.: 201 TICKET NUMBER: 362770

SIZE OF LOAD (yd^3): 8.5 AMBIENT TEMPERATURE (F/C): 30°

DATE SAMPLED: 13 NOV CONCRETE TEMPERATURE (F/C): 72°

TIME BATCHED: 5:23 SLUMP (in.): 3"

TIME SAMPLED: 6:20 & 6:50 AIR CONTENT (% by Vol.): Gauge Malfunction

TIME COMPLETED: 7:05 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FHSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-09	09A	2 days	40,500	28.27	1430	P	NM
	09B	7 days	147,500		5220	P	NM
	09C	28 days	162,000		5730	P	NM
	09D	28 days	160,000		5660	P	NM
	09E	HOLD					

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REPORT OF TEST ON CONCRETE CYLINDERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 10

Project No. C97070

PROJECT DATA10

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: VDS/Diaz

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000 psi @ 28 da. A.C. 5± 1.5% slump 3-5"

Supplied Strength & Type: 4,000 psi

Location of Concrete: LCS/LDS-02 antifloatation slab

FIELD DATA

Date Sampled: 11/13/97

Slump: 5-1/2"

Air Content: 5.0%

Truck No.: 216

Ticket No.: 362967

Ambient Temp.: 30°F

Concrete Temp.: 54°F

Technician: GeoSyntec

Time of Test: 12:15 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/14/97	11/14/97	11/14/97	11/14/97		
Date Tested	11/17/97	11/20/97	12/11/97	12/11/97		
Age When Tested, Days	4	7	28	28		
Maximum Load, Pounds	81,500	115,000	149,500	152,000		
Compressive Strength, psi	2,880	4,070	5,290	5,380		
Cylinder Weight in Lbs.	28.2	28.2	28.1	28.1		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

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REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

9018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 12

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1
Contractor: VDS/Diaz
Designer: Geosyntec
Concrete Supplier: Moraine
Specified Strength & Type: 4,000 psi
Supplied Strength & Type: 4,000 psi
Location of Concrete: LCS/LDS-03, antifloatation cover slab

FIELD DATA

Date Sampled: 11/19/97
Slump: 3-3/4"
Air Content: 5.0%
Truck No.: 262
Ticket No.: 364337
Ambient Temp.: 50°F
Concrete Temp.: 62°F
Technician: GeoSyntec
Time of Test: 11:05 a.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/21/97	11/21/97	11/21/97	11/21/97		
Date Tested	11/21/97	11/26/97	12/17/97	12/17/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	95,500	112,000	147,000	144,500		
Compressive Strength, psi	3,380	3,960	5,200	5,110		
Cylinder Weight in Lbs.	28.1	28.3	28.3	28.3		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

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REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 13

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility Phase 1 Task 4.1

Contractor VDS/Diaz

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 4,000 AE

Supplied Strength & Type 4,000 AE

Location of Concrete LCS/LDS manhole 01 cover slab

slab

FIELD DATA

Date Sampled 12/19/97

Slump 4-1/4"

Air Content 5.2%

Truck No. 247

Ticket No. 396637

Ambient Temp. 49°F

Concrete Temp. 71°F

Technician GeoSyntec

Time of Test 3:25 p.m.

LABORATORY DATA

Cylinder No.	A					
Date Received	12/22/97					
Date Tested	12/23/97					
Age When Tested, Days	4					
Maximum Load, Pounds	101,000					
Compressive Strength, psi	3,570					
Cylinder Weight in Lbs.	28.4					
Type of Break	Shear					

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

1271

REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 11

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: VDS/Diaz

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000 psi @ 28 da. A.C. 5± 1.5% slump 3-5"

Supplied Strength & Type: 4,000 psi

Location of Concrete: LCS/LDS-01 antifloatation slab

FIELD DATA

Date Sampled: 11/13/97

Slump: 3"

Air Content: Unknown

Truck No.: 201

Ticket No.: 362770

Ambient Temp.: 30°F

Concrete Temp.: 72°F

Technician: GeoSyntec

Time of Test: 6:20, 6:50

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/14/97	11/14/97	11/14/97	11/14/97		
Date Tested	11/15/97	11/20/97	12/11/97	12/11/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	40,500	147,500	162,000	160,000		
Compressive Strength, psi	1,430	5,220	5,730	5,660		
Cylinder Weight in Lbs.	28.6	28.6	28.7	28.5		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

COMPRESSIVE STRENGTH TEST OF CONCRETE SPECIMANS

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS DATE: 19 day 12 month 1997 year

DESIGN MIX DATA: DESIGN MIX NO.: TYPE I AIR CONTENT(%): 5% ± 1.5%

COMPRESSIVE STRENGTH: 4000 (psi) AT 28 (days) SLUMP RANGE(in.): 3" to 5"

FIELD AND LABORATORY: CONCRETE SUPPLIER: MORAINE CONTRACTOR: VBS

LOCATION OF PLACEMENT: LCS-LDS MANHOLE 01 COVER SLAB

CONCRETE TRUCK NO.: 247 TICKET NUMBER: 369637

SIZE OF LOAD (yd^3): 7.5 yds AMBIENT TEMPERATURE (F/C): 49°

DATE SAMPLED: 19 DEC '97 CONCRETE TEMPERATURE (F/C): 71°

TIME BATCHED: 14:39 SLUMP (in.): 4.25"

TIME SAMPLED: 15:25 AIR CONTENT (% by Vol.): 5.20%

TIME COMPLETED: 1610 WET WEIGHT (lb/ft^3): N/A

TESTING LABORATORY: FMSM

Field Sample No.	Laboratory Sample No.	Age (days)	Total Load	Area (in^2)	Compressive Strength (psi)	Pass/Fail	QA ID
LCS-A	LCS-11-A	7					
LCS-11	LCS-11-B	14					
LCS-11	LCS-11-C	28					
LCS-11	LCS-11-D	28					
LCS-11	LCS-11-E	Hold					

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FMSM ENGINEERS

REPORT OF TEST ON CONCRETE CYLINDERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 11

Project No. C97070

PROJECT DATA

Project Name: On-Site Disposal Facility Phase 1 Task 4.1

Contractor: VDS/Diaz

Designer: Geosyntec

Concrete Supplier: Moraine

Specified Strength & Type: 4,000 psi @ 28 da. A.C. 5± 1.5% slump 3-5"

Supplied Strength & Type: 4,000 psi

Location of Concrete: LCS/LDS-01 antifloatation slab

FIELD DATA

Date Sampled: 11/13/97

Slump: 3"

Air Content: Unknown

Truck No.: 201

Ticket No.: 362770

Ambient Temp.: 30°F

Concrete Temp.: 72°F

Technician: GeoSyntec

Time of Test: 6:20, 6:50

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/14/97	11/14/97	11/14/97	11/14/97		
Date Tested	11/15/97	11/20/97	12/11/97	12/11/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	40,500	147,500	162,000	160,000		
Compressive Strength, psi	1,430	5,220	5,730	5,660		
Cylinder Weight in Lbs.	28.6	28.6	28.7	28.5		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

FMSM ENGINEERS

10018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

REPORT OF TEST ON CONCRETE CYLINDERS

Cylinder/Set No. 12

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility Phase 1 Task 4.1

Contractor VDS/Diaz

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 4,000 psi

Supplied Strength & Type 4,000 psi

Location of Concrete LCS/LDS-03, antifloatation cover slab

FIELD DATA

Date Sampled 11/19/97

Slump 3-3/4"

Air Content 5.0%

Truck No. 262

Ticket No. 364337

Ambient Temp. 50°F

Concrete Temp. 62°F

Technician GeoSyntec

Time of Test 11:05 a.m.

LABORATORY DATA

Cylinder No.	A	B	C	D		
Date Received	11/21/97	11/21/97	11/21/97	11/21/97		
Date Tested	11/21/97	11/26/97	12/17/97	12/17/97		
Age When Tested, Days	2	7	28	28		
Maximum Load, Pounds	95,500	112,000	147,000	144,500		
Compressive Strength, psi	3,380	3,960	5,200	5,110		
Cylinder Weight in Lbs.	28.1	28.3	28.3	28.3		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

FULLER, MOSSBARGER, SCOTT AND MAY
ENGINEERS, INC.

FROM : FMSM ENGINEERS CINTI PHONE NO. : 5138601073 Jan. 12 1998 04:27PM P4

1271

Received 16 JAN 98 DKP

REPORT OF TEST ON CONCRETE CYLINDERS

Fuller Mossbarger Scott & May ENGINEERS

9018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Cylinder/Set No. 13

Project No. C97070

PROJECT DATA

Project Name On-Site Disposal Facility Phase 1 Task 4.1

Contractor VDS/Diaz

Designer Geosyntec

Concrete Supplier Moraine

Specified Strength & Type 4,000 AE

Supplied Strength & Type 4,000 AE

Location of Concrete LCS/LDS manhole 01 cover slab

slab

FIELD DATA

Date Sampled 12/19/97

Slump 4-1/4"

Air Content 5.2%

Truck No. 247

Ticket No. 396637

Ambient Temp. 49°F

Concrete Temp. 71°F

Technician GeoSyntec

Time of Test 3:25 p.m.

LABORATORY DATA

Cylinder No.	A	B	C	D	E	
Date Received	12/22/97	12/22/97				
Date Tested	12/23/97	01/02/98	01/16/98	01/16/98	HOLD	
Age When Tested, Days	4	14	28	28	HOLD	
Maximum Load, Pounds	101,000	139,500	157500	155000		
Compressive Strength, psi	3,570	4,930	5570	5480		
Cylinder Weight in Lbs.	28.4	28.4	28.6	28.5		
Type of Break	Shear	Shear	Shear	Shear		

REMARKS:

DKP 16 JAN From FAY

Ha A. Hann

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

Hydrostatic Pressure Test Results

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 41

DESCRIPTION: Leachate Conveyance System YEAR: 1997

CONTRACTOR: Village Building Systems

TEST DESCRIPTION: Hydrostatic Test 4 inch SDR 17
Station 8+05 to 11+20 Drawing G-00261 R1

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: See above — Pipe was stabilized overnight at 105 psi pressure

READING NO.	DATE (day/mo)	TIME	READING	Pipe* Temp.	CHANGE IN READING	QA ID
1	24/06	0737	98 psi		—	DB
2	24/06	0745	100 psi	75.3°	+2	
3	24/06	0800	100 psi	80.7	0	
4	24/06	0815	100 psi	81.2	0	
5	24/06	0830	99.5 psi	84.8	-.5	
6	24/06	0845	99 psi	86.1	-.5	

Dan Boulin
24 June 97

* Pipe temperature recorded on pipe surface approx. 8-inches from Gauge. End open to sun. Pressure Gauge No. 202

VISUAL MONITORING: Howard Mullen 24/6/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

N/A
SITE CQA MANAGER day/mo/yr

FINAL APPROVAL: Howard Mullen 24/6/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

David J. Bonelli 24 June '97
SITE CQA MANAGER day/mo/yr

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VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 01 DATE 6-24-97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF LEACHATE
MAX. OPERATING PRESSURE: 50 psi	TEST PRESSURE: 95 PSIG
SPEC./CODE: 02605, PART 3.07C AND DCN NO. 1700-033	TEST MEDIUM: H_2O

REFERENCE DRAWINGS/TEST BOUNDARIES:
92X-5900-G-00261 REV 1
STATION 8:00+05 THROUGH 11:00+20
PIPE SIZE: 4" TYPE: HDPE DRISCO 1000 DR 11
PIPE IN TRENCH ☑ YES ☐ NO

BACKFILL CONDITIONS: TEST SYSTEM NOT BACKFILLED DURING TEST

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: HDM DATE: 6/24/97

CQC NOTIFIED Ronald Mullen DATE/TIME 6/24/97 7:30A

TEST GAUGE IDENT. # 202 ; 0-200PSIG	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 7:37 A.M.	TEST GAUGE READING: 98 PSIG
TEST FINISH TIME: 8:45 A.M.	TEST GAUGE READING: 99 PSIG

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: VILLAGE BUILDING SERVS.	✓		6/24/98
CLIENT/QC: Ron Barker (GeoSyntec)	X		6/24/97
CODE INSPECTOR: Mark Miller FDF	X		6/24/97

REMARKS/COMMENTS:

* @ cap - ~approx 8" from gauge.

7:45A. 100 psi @ 75.3°(pipe temp*)
8:00A. 100 psi @ 80.7°
8:15A. 100 psi @ 81.2°
8:30A 99.5psi @ 84.8°
8:45A 99 psi @ 86.1°

TESTED BY: Howard Mullen / Paul E. Adsit DATE: 6/24/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: VILLAGE BUILDING SERVICES (VBS)

TEST DESCRIPTION: HYDROSTATIC TEST 8 INCH SDR 26
STATION 8+05 TO 11+20 DRAWING G-002661 R1

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: SEE ABOVE - PIPE WAS STABILIZED 1 HOUR + AT 16 PSI

READING NO.	DATE (day/mo)	TIME	READING	PIPE TEMP °F *	CHANGE IN READING	QA ID
1	26 JUNE	1540	15.6 psi	118°	INITIAL	NM
2		1555	15.6 psi	122°	Ø	NM
3		1610	15.6 psi	115°	Ø	NM
4		1625	15.8 psi	115°	+0.2 psi	NM
5		1640	16.0 psi	102°	+0.4 psi	NM

* Pipe temperature recorded on pipe surface approximately 8 inches from GAUGE END open to sun.
Pressure gauge No. 100 calibrated 6/10/97
ambient temp at start of test 88°F
ambient temp at end of test 88°F

VISUAL MONITORING: Ronald Gillum 6/27/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) — [signature] 6/27/97 (SITE QA MANAGER, day/mo/yr)

FINAL APPROVAL: Ronald Gillum 6/27/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) — [signature] 6/27/97 (SITE QA MANAGER, day/mo/yr)

COPY TO: File

AGE BUILDING SERVICES, INC.
PROJECT NO. 20110/1700
AF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 02 DATE 6-26-97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF LEACHATE
MAX. OPERATING PRESSURE:	TEST PRESSURE: 16 PSIG
SPEC./CODE: 02605, PART 3.07C AND DCN NO 1700-033	TEST MEDIUM: H2O

REFERENCE DRAWINGS/TEST BOUNDARIES:
92X-5900-G-00261 REV. 1.
STATION 8+05 THROUGH 11+20
PIPE SIZE: 8" TYPE: HDPE DRISCO 1000 DR 26 CONTAINMENT

PIPE IN TRENCH ☑ YES ☐ NO

BACKFILL CONDITIONS: TEST SYSTEM WAS PARTIALLY BACKFILLED BUT WITH WELDS EXPOSED

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: HDM DATE: 6-26-97

CQC NOTIFIED Ronald Mullen DATE/TIME 6/26/97 3:15P

TEST GAUGE IDENT. # 100 0-30 PSIG	CALIBRATION DUE DATE: 6-10-97
TEST START TIME: 3:40 P	TEST GAUGE READING: 15.6 PSIG
TEST FINISH TIME: 4:40 P	TEST GAUGE READING: 16.0 PSIG

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: VILLAGE BUILDING SERV	✓		
CLIENT/QC: GEOSYNTEC	✓		26 JUNE '97
CLIENT/QA:	✓		26 JUNE 97

REMARKS/COMMENTS:

START PUMPING 10:00 A.M.
STABILIZATION START 2:05P - 15.9 psig
2:30P 16 psig
3:00P 16 psig.

TEST 15.6psig 3:55P - 122°F - 13.14 IN FROM FLANGE BACKING RING
15.6 psig 4:10P - 115°F
15.8 PSIG 4:25 - 115°F
16.0 PSIG 4:40 - 102°F

TESTED BY: Ronald Mullen DATE: 6/26/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: HES Construction YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic Test 4 inch

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Station 11+20 to 14+00 Drawing G00261

READING NO.	DATE (day/mo)	TIME	READING	Temp.	CHANGE IN READING	QA ID
1	01 July	0800	101.0	78°	ø	RP
2	↓	0810	101.0	78°	ø	↓
3	↓	0820	101.0	79°	ø	↓
4	↓	0830	101.0	79°	ø	↓
5	↓	0840	100.5	81°	0.5°	↓
6	↓	0850	101.0	83°	0.5°	↓
7	↓	0900	101.0	85°	ø	↓

(4) Pipe temperature recorded on pipe surface approx. 8 inches from gauge. End open to sun. Pressure gauge No. 201

VISUAL MONITORING: Ronald Mellon 1/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — FOR JFM 1/7/97 SITE CQA MANAGER day/mo/yr

FINAL APPROVAL: Ronald Mellon 1/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — FOR JFM 1/7/97 SITE CQA MANAGER day/mo/yr

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VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 03 DATE JULY 1, 97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF LEACHATE
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 psi
SPEC./CODE: 02605, PART 3.07C AND DCN NO 1700-033	TEST MEDIUM: H_2O

REFERENCE DRAWINGS/TEST BOUNDARIES: LATER - PIPE SYSTEM OUT OF TRENCH TO BE LOCATED LATER.

PIPE SIZE: 4" TYPE: HDPE DRISCO 1000 DR 17

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A PIPE SYSTEM OUT OF TRENCH DURING TEST

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: HNM DATE:

CQC NOTIFIED Howard Mullen DATE/TIME 7/1/97 ; 7:55A

TEST GAUGE IDENT. # 201	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 8:00 A.M	TEST GAUGE READING: 101 PSIG
TEST FINISH TIME: 9:00 A.M	TEST GAUGE READING: 101 PSIG

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: Howard Mullen	Y		7-1-97
CLIENT/QC: Rob Robinson	Y		7/1/97
CLIENT/QA: Mark Woolley	X		7/1/97

REMARKS/COMMENTS:

101 psig @ 76°F @ ~ 1'0" FROM END CAP AMBIENT TEMP 74°F
101 psig @ 8:15A. 8:20 TEMP @ 79°F
101 psig @ 8:33A. 8:40 TEMP @ 81°F
100+ psig @ 8:45A 8:50 TEMP @ 83°F
101 psig @ 9:00A. 9:00 TEMP @ 85°F

TESTED BY: Howard Mullen DATE: 7/1/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic Test 8" HDPE

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Drawing G-00261 station 11+20 to 14+00

READING NO.	DATE (day/mo)	TIME	READING	Temp.	CHANGE IN READING	QA ID
1	09 July	0707	18.2 psi	75°	Ø	RP
2	↓	0717	↓	↓	↓	RP
3	↓	0727	↓	↓	↓	RP
4	↓	0737	↓	↓	↓	RP
5	↓	0747	↓	↓	↓	RP
6	↓	0757	↓	↓	↓	RP
7	↓	0807	↓	↓	↓	RP

* Pressure gauge 101. Temperature taken approx. 8" from end of pipe. Ambient temp. approx. 71°. Cloudy, little sunshine

VISUAL MONITORING:

Richard Mullen — CONTRACTOR'S REPRESENTATIVE — 9/7/97 day/mo/yr

Bob Peddicord for DFM — SITE CQA MANAGER — 1/7/97 day/mo/yr

FINAL APPROVAL:

Richard Mullen — CONTRACTOR'S REPRESENTATIVE — 9/7/97 day/mo/yr

[signature] — SITE CQA MANAGER — 1/14/97 day/mo/yr

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: UBS

TEST DESCRIPTION: 95 psig minimum NO PRESSURE DROP 1 Hour

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TESTED ABOVE GROUND JJm

*TEST LOCATION: 320 FT OF TO BE PLACED 4"/8" DUAL CONTAINMENT HDPE LCS PIPING - TESTING of 4" ONLY

READING NO.	DATE (day/mo)	TIME	READING PSIG	AMB. TEMP.	OUTSIDE PIPE TEMP.	CHANGE IN READING	QA ID
1	16/7	07:30	99	68°	69°	—	SQ,
2	16/7	07:45	99	68°	68°	—	SQ,
3	16/7	08:00	98	69°	69°	-1 PSIG	SQ,
4	16/7	08:15	98	71°	69°	—	SQ,
5	16/7	08:30	98	71°	69°	—	SQ,

* INTENDED FOR INSTALLATION BETWEEN APPROXIMATE STATIONS 14+10 (DRAWING G-00261) AND STATION 02+30 (DRAWING G-00266 JJm

VISUAL MONITORING: [signature] 16 7 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr

Scott Quinn 16 JULY 1997 — ~~SITE COA MANAGER~~ ENGINEERING TECH. 18/7/97 day/mo/yr JJm

FINAL APPROVAL: [signature] 16 7 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 18 07 97 — SITE COA MANAGER day/mo/yr

COPY TO: UBS, D. BODINE, FILE

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

RECEIVED
JUL 18 1997

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 05 DATE JULY 16, 97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF LEACHATE
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 PSI
SPEC./CODE: 02605, PART 3.07C AND DCN NO. 1700-033	TEST MEDIUM: H_2O

REFERENCE DRAWINGS/TEST BOUNDARIES: LATER - PIPE SYSTEM OUT OF TRENCH TO BE LOCATED LATER. SYSTEM IS COMPRISED OF 320 LF WITH 7 EA FUSION PRODUCTION WELDS

PIPE SIZE: 4" TYPE: HDPE DRISCO SDR 17

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A - PIPE SYSTEM OUT OF TRENCH DURING TEST

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: HDW DATE: 7/16/97

CQC NOTIFIED Richard Mullen DATE/TIME 7/16/97

TEST GAUGE IDENT. #201 0-200 PSI	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 7:30 A.M	TEST GAUGE READING: 99 psig
TEST FINISH TIME: 8:30 AM	TEST GAUGE READING: 98 PSIG

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: Richard Mullen	✓		JULY 16, 1997
CLIENT/QC: Scott Gray	✓		16 JULY 1997
CLIENT/QA: Michael McFadden	↘		16 JULY 1997

REMARKS/COMMENTS:

100 # @ 6:50 A. } Stabilization data
100 # @ 7:05 A }

69°F 1 FT FROM FLANGED FITTING

68°F AMBIENT

99 PSI @ 7:45 A 68°F
98 PSI @ 8:00 A 69°F
98 PSI @ 8:15 A 69°F
98 PSI @ 8:30 A 69°F

69° AMBIENT

71° AMBIENT
71° AMBIENT.

TESTED BY: Richard Mullen / Paul Orabella DATE: 7/16/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: 95 psig minimum NO PRESSURE DROP 1 Hour

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TESTED ABOVE GROUND JJ

* TEST LOCATION: 320 FT OF TO BE PLACED 4"/8" DUAL CONTAINMENT HDPE LCS PIPING - TESTING of 4" ONLY

READING NO.	DATE (day/mo)	TIME	READING PSIG	AMB. TEMP.	OUTSIDE PIPE TEMP.	CHANGE IN READING	QA ID
1	16/7	07:30	99	68°	69°	—	SQ,
2	16/7	07:45	99	68°	68°	—	SQ,
3	16/7	08:00	98	69°	69°	-1 PSIG	SQ,
4	16/7	08:15	98	71°	69°	—	SQ,
5	16/7	08:30	98	71°	69°	—	SQ,

* INTENDED FOR INSTALLATION BETWEEN APPROXIMATE STATIONS 14+10 (DRAWING G-00261) AND STATION 02+30 (DRAWING G-00266 JJ

** FINAL PLACEMENT IS FROM STATION 14+06 of DRAWING G-00261 TO STATION 01+70 of DRAWING G-00266

VISUAL MONITORING: 16 7 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; 16 JULY 1997 — ~~SITE CQA MANAGER~~ ENGINEERING TECH. day/mo/yr

FINAL APPROVAL: 16 7 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; 18 07 97 — SITE CQA MANAGER day/mo/yr

COPY TO: VBS, D. BODINE, FILE

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: ~~45 psig~~ 15 PSIG minimum NO PRESSURE DROP 1 HOUR SQL 7-17-97

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TESTED ABOVE GROUND JT

* TEST LOCATION: ~~30, 3-inch~~ 32 320 FT. OF TO BE PLACED 4"/8" DUAL CONTAINMENT HDPE LCS PIPING - TESTING OF 8" ONLY

READING NO.	DATE (day/mo)	TIME	READING PSIG	AMB. TEMP.	OUTSIDE PIPE TEMP.	CHANGE IN READING	QA ID
1	17/7	13:30	17.5	91°	104°	—	SQL
2	17/7	13:45	17.5	91°	104°	—	SQL
3	17/7	14:00	17.5	91°	103°	—	SQL
4	17/7	14:15	17.5	92°	105°	—	SQL
5	17/7	14:30	17.5	92°	105°	—	SQL

* INTENDED FOR INSTALLATION BETWEEN APPROXIMATE STATIONS 14+10 (DRAWING G-00261) AND STATION 02+80 (DRAWING G-00266) JT

** FINAL PLACEMENT IS FROM STATION 14+06 of DRAWING G-00261 TO STATION 01+70 of DRAWING G-00266

VISUAL MONITORING: _____ 17 7 97 CONTRACTOR'S REPRESENTATIVE day/mo/yr _____ 17 JUL 1997 ~~SITE CQA MANAGER~~ ENGINEERING TECH 18/07/97 JT day/mo/yr

FINAL APPROVAL: _____ 17 7 97 CONTRACTOR'S REPRESENTATIVE day/mo/yr _____ 18 07 97 SITE CQA MANAGER day/mo/yr

COPY TO: VBS, D. BODING, FILE

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

RECEIVED
JUL 18 1997

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 06 DATE JULY 17, 1997

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF LEACHATE
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: 15 PSIG
SPEC./CODE: 02605 PART 3.07C AND DCN No. 1700-033	TEST MEDIUM: H2O

REFERENCE DRAWINGS/TEST BOUNDARIES: LATER - PIPE SYSTEM OUT OF TRENCH TO BE LOCATED LATER. SYSTEM IS COMPRISED OF 320 F WITH TEA FUSION PRODUCTION WELDS.

PIPE SIZE: 8" TYPE: HDPE DRISCO SDR 26

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A - PIPE SYSTEM OUT OF TRENCH DURING TEST

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: [signature] DATE: 7/17/97

CQC NOTIFIED Ronald Mellum DATE/TIME 7/17/97

TEST GAUGE IDENT. # 101 0-30 psig	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 1:30PM	TEST GAUGE READING: 17.5 psig
TEST FINISH TIME: 2:30 PM	TEST GAUGE READING: 17.5 psig

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: Ronald Mellum	V		
CLIENT/QC: [signature]	✓		17 JULY 1997
CLIENT/QA:			

REMARKS/COMMENTS:

17.5 psig @ 1:30P	104° N 1 FT FROM FLANGED FITTING	91° AMBIENT
17.5 psig @ 1:45P	104° "	91°
17.5 psig @ 2:00P	103°	91°
17.5 psig @ 2:15P	105°	92°
17.5 psig @ 2:30P	105°	92°

TESTED BY: Ronald Mellum DATE: 7/17/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: ~~95 psig~~ 15 PSIG minimum NO PRESSURE DROP 1 HOUR
SQ 7-17-97

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐
TESTED ABOVE GROUND JZ

TEST LOCATION: ~~30, 2-114~~ 320 FT. OF TO BE PLACED 4"/8" DUAL CONTAINMENT HDPE LCS PIPING - TESTING OF 8" ONLY

READING NO.	DATE (day/mo)	TIME	READING PSIG	AMB. TEMP.	OUTSIDE PIPE TEMP.	CHANGE IN READING	QA ID
1	17/7	13:30	17.5	91°	104°	—	SQ
2	17/7	13:45	17.5	91°	104°	—	SQ
3	17/7	14:00	17.5	91°	103°	—	SQ
4	17/7	14:15	17.5	92°	105°	—	SQ
5	17/7	14:30	17.5	92°	105°	—	SQ

* INTENDED FOR INSTALLATION BETWEEN APPROXIMATE STATIONS 14+10 (DRAWING G-00261) AND STATION 02+80 (DRAWING G-00266) JZ

VISUAL MONITORING: _____ 17 7 97 _____ 17 JUL 1997
CONTRACTOR'S REPRESENTATIVE day/mo/yr ~~SITE QCA MANAGER~~ ENGINEERING TECH 17/07/97 JZ day/mo/yr

FINAL APPROVAL: _____ 17 7 97 _____ 18 07 97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE QCA MANAGER day/mo/yr

COPY TO: VBS, D. BODING, FILE

*GeoSyntec Consultants FILE NO. 1-18-PTL

000107

SHEET NO. 1 OF 1

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: MANHOLE #5 of LCS YEAR: 1997

CONTRACTOR: UBS

TEST DESCRIPTION: STATIC WATER LEVEL, 4 HR MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☑ OTHER: ☐

TEST LOCATION: ADJACENT TO LS TRENCH AT APPROX. STATION 08+00 OF DRAWING G-00261 (ADJACENT TO INTENDED INSTALL LOCATION)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	22/7	16:10	*	NA	SG
2	22/7	18:00	↓	0	SG
3	23/7	06:00	↓	0	SG
4	23/7	08:15	↓	0	SG
— TEST PASSED —					

*: MIKE GODBER MARKED THE WATER LEVEL AT THE BEGINNING OF TESTING, THAT MARK WAS USED FOR REFERENCE (MARK LOCATED TOWARD NORTH AT TOP LIP OF OPENING AT TOP OF MANHOLE, APPROX 5/8" BELOW TOP of RIM.)

VISUAL MONITORING:

CONTRACTOR'S REPRESENTATIVE 23/7/97 day/mo/yr

~~SITE CQA MANAGER~~ ENGINEERING TECHNICIAN 23/07/97 day/mo/yr

FINAL APPROVAL:

CONTRACTOR'S REPRESENTATIVE 23/7/97 day/mo/yr

SITE CQA MANAGER 28/7/97 29/07/97 day/mo/yr

COPY TO: F.F.

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000108 SHEET NO. 1 OF 1

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 007 DATE 7/23/97

LINE SERVICE/ NO.: LCS (Manhole)	LINE MEDIUM: OSDF Leachate
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: ~~N/A~~ Standing Water
SPEC./CODE:	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 92K-5900-G-00261 @ Station 8+05

PIPE SIZE: N/A TYPE: Manhole #5

PIPE IN TRENCH ☐ YES ☒ NO

BACKFILL CONDITIONS: N/A

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A DATE: N/A

CQC NOTIFIED Yalonda Williamson DATE/TIME 16:00 6/22

TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 16:10 6/22	TEST GAUGE READING: N/A
TEST FINISH TIME: 08:15 6/23	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		7/23/97
CLIENT/QC:	✓		7/23/97
CLIENT/QA:	X		7/23/97

REMARKS/COMMENTS:

Ea Change in Water Level

22/7	16:10	N/A
22/7	18:00	0
23/7	06:00	0
23/7	08:15	0

TESTED BY: Yalonda Williamson 000109 DATE: 7/23/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: HDPE Construction YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: Hydrostatic Pressure test

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 240 of 4" HDPE pipe of dual containment 8"/4" Leachate & FP pipes. Tested outside of trench

READING NO.	DATE (day/mo)	TIME	READING	Temp	CHANGE IN READING	QA ID
1	28 July	0715	100	75°F	0	RF
2	↓	0730	100	75°F	↓	↓
3	↓	0740	100	75°F	↓	↓
4	↓	0750	100	75°F	↓	↓
5	↓	0800	100	75°F	↓	↓
6	↓	0810	99.5	76°F	0.5	↓
7	↓	0825	99.5	76°F	0	↓

* Ambient temperature 73°-74°
Gauge #202 used

NOTE: PLACEMENT FROM STATION 01+70 of DRAWING G-00266 ON 30 JULY 1997 to APPROX. 04+00 of DRAWING G-00266 - TO BE CONNECTED TO WORK TO BE DONE BY WISE CONSTRUCTION (SQ, 30 JULY 1997)

VISUAL MONITORING: [signature] 28/7/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] Engineering Technician 28/07/97 — SITE CQA MANAGER day/mo/yr

FINAL APPROVAL: [signature] 28/7/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 30/07/97 — SITE CQA MANAGER day/mo/yr

COPY TO: File

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 08 DATE 7/28/97

LINE SERVICE/ NO.: LLS	LINE MEDIUM: OSDF Leachat
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 psi
SPEC./CODE: 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

PIPE SIZE: 4" TYPE: HDPE SDR17

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: T.W DATE: 7/28/97

CQC NOTIFIED _____ DATE/TIME _____

TEST GAUGE IDENT. 202A	CALIBRATION DUE DATE: 7-3-98
TEST START TIME: 7:15	TEST GAUGE READING: 100 psi
TEST FINISH TIME: 8:15	TEST GAUGE READING: 99.5 psi

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: [signature]	✓		7/28/97
CLIENT/QC: [signature]	✓		
CLIENT/QA: [signature]	✓		7/28/97

REMARKS/COMMENTS: 240 LF

	Pipe	PSI
7:15	75°	100
7:30	75°	100
7:40	75°	99.5
8:15	76°	99.5

TESTED BY: _____ 000111 DATE: _____

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: ONE HOUR - 15 PSIG MINIMUM WITH NO PRESSURE LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 240' of 8" SECTION of 4"/8" DUALCONTAINMENT HDPE LCS PIPING TEST ABOVE GROUND, OUT of TRENCH, PLACEMENT NOT KNOWN at TIME of TEST

READING NO.	DATE (day/mo)	TIME	GAUGE PRESSURE (psig)	PIPE TEMP *	AMBIENT TEMP.	CHANGE IN READING	QA ID
1	29/7	13:05	16.0	104°	86°	—	SQ,
2	29/7	~~13:35~~ 13:20	16.0	106°	87°	—	SQ,
3	29/7	13:35	16.0	108°	87°	—	SQ,
4	29/7	13:50	15.5	101°	86°	−0.5 **	SQ,
5	29/7	14:05	15.5	100°	86°	—	SQ,

* - OUTSIDE PIPE WALL TEMPERATURE MEASURED 1 FT. FROM FLANGE AT TEST READING END.

** - DUE TO TEMPERATURE DIFFERENCES AND ALSO BASED ON VISUAL INSPECTION OF JOINTS - NO EVIDENCE OF LEAKAGE FOUND.

NOTE: INTENDED PLACEMENT FROM APPROX. STATION 01+70 TO APPROX. 04+00 of DRAWING 6-00266 — PLACEMENT CONFIRMED 30 JULY 1997 SQ, 30/7/97

VISUAL MONITORING: 29/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — 29/7/97 SITE CQA ~~MANAGER~~ ENGINEERING TECH day/mo/yr

FINAL APPROVAL: 29/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — 30/07/97 SITE CQA MANAGER day/mo/yr

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VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

1271 OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 09 DATE 7/29/97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: 15 psi
SPEC./CODE: 0705 Part 3.07.05 of Vs 1705-033	TEST MEDIUM: water

REFERENCE DRAWINGS/TEST BOUNDARIES: Pipe system out of trench to be located later. System is comprised of 240 ft w/ 6 ea. fusion welds.

PIPE SIZE: 8" TYPE: HDPE Prisco SDR 26

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: YKW DATE: 7/29/97

CQC NOTIFIED Yidraya Willingham DATE/TIME 7/29/97

TEST GAUGE IDENT. 101	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 13:05	TEST GAUGE READING: 16 psi
TEST FINISH TIME: 14:05	TEST GAUGE READING: 15.5 psi

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		7/29/97
CLIENT/QC:	—		7/29/97
CLIENT/QA:	✓		7/29/97

REMARKS/COMMENTS:

		Pipe wall °	Ambient
13:05	16 psi	104°	86°
13:20	16 psi	106°	87°
13:35	16 psi	108°	87°
13:50	*15.5 psi	101°	86°
14:05	*15.5 psi	100°	86°

* slight change in pressure noted due to sun & temperature variation.

TESTED BY: [signature] 000113 DATE: 7-29-97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC TESTING / 4HRS -NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: TO BE INSTALLED MANHOLE LDS-01

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	1/8	16:00	* 5 5/16" FROM TOP	—	SG
2	1/8	17:10	"	—	SG
3	2/8	12:00	4 7/16" FROM TOP	+ 3/4"	SG
4	2/8	13:00	"	—	SG
5	2/8	14:00	"	—	SG
6	2/8	15:00	"	—	SG
7	2/8	16:00	"	—	SG

* MEASURED 8½" NORTH of SE CORNER OF MANWAY

VISUAL MONITORING: [signature] 2/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 2/8/97
SITE CQA ~~MANAGER~~ ENGINEERING TECHNICIAN SG 6/10/97 day/mo/yr

FINAL APPROVAL: [signature] 2/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 2/8/97
SITE CQA MANAGER day/mo/yr

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VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

1271

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 10 DATE 8/2/97

LINE SERVICE/ NO.: LCS-1	LINE MEDIUM: LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC../CODE:	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 90X-6000-G-00057 @ 0+00

PIPE SIZE: Manhole TYPE: HDPE LCS-1

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A Test above Grand

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A DATE: N/A

CQC NOTIFIED Yahaya Willingham DATE/TIME 8/2/97 12:00pm

TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 12:00pm	TEST GAUGE READING: N/A
TEST FINISH TIME: 4:00pm	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/2/97
CLIENT/QC:	✓		8/2/97
CLIENT/QA:	X		8/2/97

REMARKS/COMMENTS:
* Mark made north of the southeast corner of Manhole approximately 5 5/8" from top by Scott w/ Geosyntech.

Change in Water Level

12:00 p/z	N/A
1:00 p/z	0
2:00 p/z	0
3:00 p/z	0
4:00 p/z	0

TESTED BY: Yahaya Willingham 000115 DATE: 8/2/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic pressure test. Greater than 95 psi. Ø pressure loss. Minimum 3 hour test for buried line

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

4" carrier line

TEST LOCATION: Drawing 6-00866, station 7+05 to 4' south of MH #11 (6-00862). Pipe in-ground & went through CO#10

READING NO.	DATE (day/mo)	TIME	READING	Pipe Temperature	CHANGE IN READING	QA ID
1	04 August	1300	99 psi	100°F	—	RP
2	↓	1315	99 psi	101°F	Ø	↓
3		1330	99 psi	103°F	Ø	
4		1400	99 psi	99°F	Ø	
5		1430	99 psi	102°F	Ø	
6		1500	99 psi	99°F	Ø	
7		1530	99 psi	95°F	Ø	
8	↓	1600	99 psi	93°F	Ø	↓

Ambient temperature ranged from 87°F to 92°F.

VISUAL MONITORING: [signature] 4 8 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; Rob Priddy 4/8/97 — SITE CQA ~~MANAGER~~ RPM-OS-97RD Engineering Tech day/mo/yr

FINAL APPROVAL: [signature] 4 8 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 4/8/97 — SITE CQA MANAGER day/mo/yr

COPY TO: File

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 12 DATE 8/4/97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF Leachate
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 PSI
SPEC./CODE: 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing

PIPE SIZE: 4" TYPE: HDPE LCS SDR17

PIPE IN TRENCH ☒ YES ☐ NO

BACKFILL CONDITIONS: Backfilled from Anchor to Comm#11 – Test 4hrs per spec.

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 8/4/97

CQC NOTIFIED Yahaya Willingham DATE/TIME 8/4 12:30

TEST GAUGE IDENT. 201	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 1:00	TEST GAUGE READING: 99 PSI
TEST FINISH TIME: 4:00	TEST GAUGE READING: 99 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/4/97
CLIENT/QC:	✓		8/4/97
CLIENT/QA:	X		8/4/97

REMARKS/COMMENTS:

1:00 99 PSI
2:00 99 PSI
3:00 99 PSI
4:00 99 PSI

TESTED BY: Yahaya Willingham 000117 DATE: 8/4/97

1271

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC TEST / 4HRs - NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: TO BE INSTALLED MANHOLE LDS-02

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	4/8	15:00	* 3 11/16 FROM TOP	—	SQ.
2	4/8	16:00	"	—	SQ.
3	4/8	17:00	"	—	SQ.
4	4/8	18:00	"	—	SQ.
5	4/8	19:00	"	—	SQ.

* MEASURED AVERAGE of LEVEL AGAINST EAST FACING WALL of MAN-WAY.

VISUAL MONITORING: [signature] 4/8/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 4/8/97 — SITE CQA ~~MANAGER~~ ENGINEERING TECHNICIAN SQ day/mo/yr

FINAL APPROVAL: [signature] 4/8/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 4/8/97 — SITE CQA MANAGER day/mo/yr

COPY TO: [illegible]

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 14 DATE 8/4/97

LINE SERVICE/ NO.: LCS Leachate	LINE MEDIUM: LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC./CODE:	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 90X-6000-6-00057
@ [redacted] 4+00

PIPE SIZE: N/A TYPE: LCS Manhole -2

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS: N/A

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: [illegible] N/A DATE: N/A

CQC NOTIFIED Yahaya Williams DATE/TIME 8/4 2:45pm

TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 3:00	TEST GAUGE READING: N/A
TEST FINISH TIME: 7:00	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: [signature]	✓		8/4/97
CLIENT/QC: [signature]	✓		8/4/97
CLIENT/QA: [signature]	X		8/4/97

REMARKS/COMMENTS:

LCS-2

	Change in Water Level
	N/A
3:00	0
4:00	0
5:00	0
6:00	0
7:00	

TESTED BY: [signature] 000119 DATE: 8/4/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: UGS

TEST DESCRIPTION: HYDROSTATIC TEST, 4 HR, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: TO BE INSTALLED MANHOLE LDS-03

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	7/8	13:40	WATER LEVEL MARKED INSIDE MANWAY	NA	SQ
2	7/8	14:40	* WATER LEVEL AS PREVIOUSLY MARKED	** —	SQ
3	7/8	15:40	↓	—	SQ
4	7/8	16:40	↓	—	SQ
5	7/8	17:40	↓	—	SQ
6	8/8	07:15	↓	—	SQ

* WATER LEVEL MARKED PRIOR TO TEST BY MYSELF AND MIKE GODBER, SUBSEQUENT READINGS ALL OBSERVED WATER LEVEL COMPARED TO START, MARKS MADE INSIDE APPROX. 3'x3' MANWAY.

** OVER THE COURSE OF TEST LEVEL AS MEASURED DROPPED APPROX. 1/4" DROP IN WATER LEVEL, DIFFERENCE ATTRIBUTED TO CHANGE IN TEMPERATURE OVER THE LENGTH OF TESTING, CONFIRMATORY OBSERVATION MADE ON THE FOLLOWING MORNING WHEN LEVEL WAS OBSERVED AT ORIGINAL START MARK.

VISUAL MONITORING: [signature] 7/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 7/8/97
~~SITE CQA MANAGER~~ SITE CQA ENGINEERING TECH. SQ 7/8/97 day/mo/yr

FINAL APPROVAL: [signature] 7/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 7/09/97
SITE CQA MANAGER day/mo/yr

COPY TO: FILE

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

1271 OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. ~~1~~ 15 DATE 8/7/97

LINE SERVICE/ NO.: Leachate	LINE MEDIUM: CCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC./CODE:	TEST MEDIUM: Water
REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 80K+6000-G-00057 @ Station 8+00	
PIPE SIZE: TYPE: CDS-3	
PIPE IN TRENCH ☐ YES ☒ NO	
BACKFILL CONDITIONS: N/A Test Above Ground	
ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A	DATE: N/A
CQC NOTIFIED Yahaya Willingham	DATE/TIME 8/7/97 8:00
TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 9:00	TEST GAUGE READING: N/A
TEST FINISH TIME: 1:00	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/7/97
CLIENT/QC:	X		8/7/97
CLIENT/QA:	✓		8/7/97

REMARKS/COMMENTS: Change in water level

9:00 AM	0
10:00 AM	0
11:00 AM	0
12:00 PM	0
1:00 PM	0

TESTED BY: DATE: 8/7/97

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC TEST, 4 HOUR, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: LCS-01 MANHOLE, IN STAGING AREA SOUTH OF "RIMIA AREA"

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	14 AUG	11:00	INITIAL WATER LEVEL MARKED INSIDE MANWAY WATER LEVEL CHECKED	N/A	SG
2	14 AUG	12:00	AGAINST ABOVE MARK	0	SG
3	14 AUG	13:00	"	0	SG
4	14 AUG	14:00	"	0	SG
5	14 AUG	15:00	"	0	SG

VISUAL MONITORING:

CONTRACTOR'S REPRESENTATIVE 14/8/97 day/mo/yr

GEOSYNTEC ~~REPRESENTATIVE~~ ENGINEERING TECHNICIAN 14/08/97 day/mo/yr

FINAL APPROVAL:

CONTRACTOR'S REPRESENTATIVE 14/8/97 day/mo/yr

SITE QA MANAGER 16/08/97 day/mo/yr

COPY TO:

M E M O R A N D U M

TO: Jephory McMichen, GeoSyntec Consultants

FROM: Kenneth Cargill, GeoSyntec Consultants

DATE: 25 August 1997

SUBJECT: Hydrostatic Testing of Leachate Conveyance System

This memorandum is to provide a one time acceptance of quality control/quality assurance documentation of hydrostatic testing not physically observed by an employee of GeoSyntec Consultants (GeoSyntec). Specifically, the hydrostatic testing of the 8 in. diameter leachate conveyance system piping from AWWT bend (station 7+50) to road-crossing (station 4+50) observed by Mr. Michael Godber of Fluor Daniel Fernald on Sunday, 17 August 1997 will be accepted. This acceptance is based upon GeoSyntec's review of Mr. Godber's documentation (see attached). This acceptance is also based on the condition that the portion of the line accepted will be tested again as a part of the system hydrostatic testing program.

Engineering certification requires that personnel performing work necessary to the certification perform that work under the authority of the certifying engineer. Only work observed by GeoSyntec personnel working under the direction of the certifying engineer will be accepted in the future.

Please ensure that the contractor provide proper notification, through approved means, to the GeoSyntec Site Manager (SM) a minimum of 24 hours in advance of any testing (reference Technical Specifications 02605, Section 3.07 A). Direct notification to an engineering technician (i.e., by-passing the SM) does not constitute proper notification. In an emergency during non-working hours, the Construction Manager's representative should contact the SM at (513) 860-0864. Engineering Technicians should not be contacted directly. GeoSyntec personnel will cooperate in meeting the contractor's schedule; however, proper notification in a timely manner is essential to

allow the SM to ensure that appropriately trained personnel are scheduled to observe testing.

The SM is authorized to waive the 24-hour notice requirement under extreme or special conditions. Under no circumstance will the SM allow waiver of the 24-hour requirement on a routine basis or simply due to improper planning by the contractor. Risks to GeoSyntec become unacceptable when notification requirements are not properly observed. In the event the SM is not available, the Senior Soils Technician assumes duties of the SM with respect to assigning hydrostatic testing to an appropriately trained technician.

Copy to: Dave Phillips, GeoSyntec
Michael Godber, Fluor Daniel Fernald

* * * * *

QUALITY EVALUATION PLAN

QEP No. _____ Rev. ____

1. Source [ ] Receiving [ ] Const./Remediation [ ] Maint./Operations [ ] Waste [ ] Sampling [ ] Recycling [ ]

2. Item/Title/Description: HYDROSTATIC TEST OF THE LEACHATE CONVEYANCE PIPING AND UTILITY PIPING

3. Project/Task: LEACHATE CONVEYANCE SYSTEM	4.Spec./DWG. PO/REQ: SPEC 2605, 2667, DCN 033, RCI 023
5. Prepared By: MIKE GODBER Date: Michael W Godber 8/15/97	6. Reviewed By: RICK MCGUIRE Date: R McGuire Frank Thompson 8/18/97
7. NDE Level III:(When Required) Date:	8. Approved By: JIM JENKINS Date: for JCJ 8/15/97

9. Char. No.	10. Evaluation Characteristic (Code/Specification, Inspection/Test/Examination Techniques, Acceptance Criteria)	11. Status SAT	11. Status UNSAT	12. Printed Name/ Signature and Date:	13. General Remarks:
	GENERAL INFORMATION STATUS OF PIPE LINE TO BE TESTED [ ] BURIED [ ] OUT OF TRENCH [X] IN TRENCH LOCATION OF PIPE TO BE TESTED: MG 8/22/97 FROM THE ALWT BEND TO ROAD CROSSING STATION 7+50 TO STATION 9+50 DWG G-00266 REV. 1 TESTED LCS-8" WEATHER CONDITIONS: 82°F TO 87°F INTERMITTENT RAIN REQUIRED TEST PRESSURE AND DURATION TEST PRESSURE: 15PSI DURATION: 1 HOUR				TESTED LCS-8" ORIGINAL

14. QA Team Member Michael W Godber 8/17/97 Date: 8/17/97

15. QA Team Coach (completed QEP): Frank Thompson Date: 8-18-97

16. Distribution: ☐ Requesting Org. ☐ Participating Org. ☐ QA Project/Activity Representative ☐ Other

000125

12 21

FS-F-4400 (08/01/97)

QUALITY EV. ATION PLAN
(CONTINU N SHEET)

QEP No. _____ Rev. ____

9. Char. No.	10. Evaluation Characteristic (Code/Specification, Inspection/Test/Examination Techniques, Acceptance Criteria)	11. Status SAT	11. Status UNSAT	12. Printed Name/ Signature and Date	13. General Remarks:
	ACCEPTABLE GAUGES GAUGE NUMBER CAL. DATE TRACE TO NIST 100 6/10/97 YES 101 6/10/97 YES 201 6/10/97 YES 202 6/10/97 YES 202A 7/03/97 YES VERIFY GAUGE NUMBER: 101 VERIFY CALIBRATION DATE: 6/10/97				RECOMMENDED TEST PRESSURES PIPE TYPE TEST PRESSURE SN-3-INCH 80 PSI FG-6-INCH 66 PSI DW-6-INCH 120 PSI GW-12-INCH 160 PSI GW-10-INCH 160 PSI CE-6-INCH 100 PSI FQ-12-INCH 160 PSI LCS-4-INCH 95 PSI LCS-8-INCH 15 PSI LCS-4-INCH GRAVITY 50 PSI
	VERIFY THE PIPE HAS BEEN FILLED WITH WATER/AIR AND PUMPED TO THE RECOMMENDED PRESSURE.	X		MICHAEL W GODBER 8/17/97	TEST SUMMARY TIME TEMP. PRESSURE 1:00 93.6°F 24½ PSI 1:15 94°F 24½ PSI 1:30 92.6°F 24½ PSI 1:45 82.5°F 24½ PSI 2:00 86.9°F 24½ PSI
	FOR LCS PIPING, VERIFY THERE IS NO DROP IN PRESSURE OVER THE DURATION OF THE TEST. IF THERE IS A SLIGHT DROP IN PRESSURE, VERIFY THE TEMPERATURES ARE MONITORED AND ANALYZED TO DETERMINE ACCEPTANCE.	X		MICHAEL W. GODBER 8/17/97	
	FOR THE UTILITY PIPING VERIFY THE PRESSURE DROP IS WITHIN THE ALLOWABLE LIMITS AS REFERENCED IN SPEC SECTION 2667.	DNA			
	IF THE PIPE IS NOT BURIED VERIFY THERE ARE NO LEAKS.	X		MICHAEL W. GODBER 8/17/97	WHEN THE TEST BEGAN THE PIPE WAS DRY & JOINTS WERE INSPECTED. NO LEAKS WERE FOUND. THE PIPE WAS WETTED WITH RAIN APPROXIMATE 30 MINUTES INTO THE TEST WHICH HELPED STABILIZE PRESSURE THE PRESSURE DID NOT DROP DURING THE TEST DURATION.

000126

ORIGINAL

T 2 1

WISE CONSTRUCTION COMPANY, INC.
P.O. Box 159
Dayton, Ohio 45417-0159
(513) 854-0281
FAX (513) 837-4890

QUALITY ASSURANCE MANUAL	Q.A. 2 FMPC
PIPING FIELD TEST REPORT	QA159-FMPC

Issue Date: 08/02/89	Revised Date:	Page

WISE CONSTRUCTION COMPANY, INC.

QA160-FMPC (9/88)

PIPING FIELD TEST REPORT

COST CODE 2CUC3 BLDG/AREA LEACHATE PAGE 1 OF 1
PIPING TEST NO. 4 TEST MEDIA H2O DATE 8/17/97
SHEET 1 OF 1 TEST PRESSURE 24 FT FLOW SHEETS

LINES AS TABULATED BELOW HAVE BEEN TESTED AND FOUND TO BE SATISFACTORY WITH ALL SUPPORTS, VALVES AND COMPONENTS IN PLACE.

DESCRIPTION OF TEST

LINE NO.	SIZE	DRAWING NO.	FROM	TO	INSUL.	PAINT	REMARKS
LCS 8"	8"	92x-590-6 -00266	FT57	AWAY	NA	NA	

EQUIPMENT TESTED THROUGH:

WISE FIELD Foreman [signature]	DATE 8/17/97	WISE QUALITY ASSURANCE	DATE
WISE WELDING INSPECTION	DATE	YMCO PROJECT QUALITY ASSURANCE [signature]	DATE 8/17/97

[signature] 8/17/97

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

1271 OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 1271B DATE 8/16/97

LINE SERVICE/ NO.: Leachate	LINE MEDIUM: LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC./CODE:	TEST MEDIUM: Water
REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 90X-6000-G-0005 @ Station 0+00	
PIPE SIZE: TYPE: LCS-1	
PIPE IN TRENCH ☐ YES ☒ NO	
BACKFILL CONDITIONS: Above Ground	
ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A DATE: 8/16/97	
CQC NOTIFIED Yahaya Williams	DATE/TIME 8/11/97
TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 12:00	TEST GAUGE READING: N/A
TEST FINISH TIME: 4:00	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/16/97
CLIENT/QC:	—		8/16/97
CLIENT/QA:	X		8/16/97

REMARKS/COMMENTS:

Change in Water Level

12:00 PM	N/A
1:00 PM	0
2:00 PM	0
3:00 PM	0
4:00 PM	0

* Mark made at top of manhole opening at water level. Test difficult because of air in manhole + temperature

TESTED BY: DATE: 8/16/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS Construction: Hydrostatic test YEAR: 1997

CONTRACTOR: Wise Construction

TEST DESCRIPTION: Hydrostatic test on 4" HDPE pipe from station 4+00 - 7+00 (G-00266)

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Barrel/DIAZ area - Drawing G-00266 - Sta 4+00 to 7+00

READING NO.	DATE (day/mo)	TIME	READING	Pipe Temp	CHANGE IN READING	QA ID
1	16 Aug	0735	97 lbs	75° F	—	RP
2	↓	0750	97 lbs	78° F	Ø	RP
3		0805	97 lbs	78° F	Ø	RP
4		0820	97 lbs	75° F	Ø	RP
5		0835	97 lbs	80° F	Ø	RP

- Ambient Temperature 75° F
- Tested in the trench, but with no backfill placed
- Pipe temperature taken 2' from gauge
- Gauge # RE-6, calibrated on 11-6-96

VISUAL MONITORING: [signature] 8/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Rob Paddock 16/08/97
SITE CQA ~~MANAGER~~ RP Technician day/mo/yr

FINAL APPROVAL: [signature] 8/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] FOR SFM 18 Aug '97
SITE CQA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC TEST, 4 HR, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: LCS-02, LOCATED SOUTH OF 'RIMIA AREA', ABOVE GROUND AND NOT CONNECTED TO ANYTHING ELSE

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	18/8	09:00	PLACED MARK IN MANWAY AT WATER LEVEL	NA	SQ,
2	18/8	11:00	PLACED MARK 1" BELOW PREVIOUS MARK	-1"	SQ,
3	18/8	12:00	WATER MAINTAINING AT ABOVE MARKED LEVEL	—	SQ,
4	18/8	13:00	"	—	SQ,
5	18/8	14:00	"	—	SQ,
6	18/8	15:00	"	—	SQ,

VISUAL MONITORING: _____ 18/8/97 — _____ 18/8/97

CONTRACTOR'S REPRESENTATIVE day/mo/yr — SITE COA MANAGER day/mo/yr

ENGINEERING TECHNICIAN SQ. 18/8/97

FINAL APPROVAL: _____ 18/8/97 — _____ 02/09/97

CONTRACTOR'S REPRESENTATIVE day/mo/yr — SITE COA MANAGER day/mo/yr

COPY TO: EM2

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

1271

PRESSURE TEST RECORD

8/18/97 ym

TEST RECORD NO. 20

DATE ~~8/16/97~~

LINE SERVICE/ NO.: Leachate	LINE MEDIUM: LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC./CODE:	TEST MEDIUM: N/A

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing 90X-6000-6-00057 @ station 4+00

PIPE SIZE: TYPE: LCS-2

PIPE IN TRENCH ☐ YES ☑ NO

BACKFILL CONDITIONS:

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A DATE: N/A

CQC NOTIFIED Yahaya Gilligan DATE/TIME 8/21/97 /9:00

TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 10:00 am	TEST GAUGE READING: N/A
TEST FINISH TIME: 2:00 pm	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		~~8/16~~/97
CLIENT/QC:	✓		8/18/97
CLIENT/QA:	X		~~8/17/97~~ VERIFIED 8/17/97 MM 9/3/97

REMARKS/COMMENTS: Change To water Level

10:00 AM	N/A
11:00 AM	~~0~~
12:00 PM	~~0~~
1:00 PM	~~0~~
2:00 PM	~~0~~

* Mark made at top of opening at water level

TESTED BY: DATE: 8/21/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: UBS CONSTRUCTION YEAR: 1997

CONTRACTOR: UBS

TEST DESCRIPTION: >15 PSI, 3 HR

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: FROM APPROX. STATION 07+40 OF DRAWING G-00266 TO CLEANOUT MANHOLE 11 (EXCLUSIVE), MOSTLY COVERED WITH BACKFILL

READING NO.	DATE (day/mo)	TIME	READING: PRESSURE PSIG	READING: PIPE TEMP.	READING: AMBIENT TEMP.	CHANGE IN READING	QA ID
1	20/8	13:00	15.5	80°	77°	NA	SQ.
2	20/8	13:30	15.5	80°	77°	—	SQ
3	20/8	14:00	15.5	77°	77°	—	SQ
4	20/8	14:30	15.5	77°	78°	—	SQ
5	20/8	15:00	15.5	82°	78°	—	SQ
6	20/8	15:30	15.5	82°	79°	—	SQ
7	20/8	16:00	15.5	80°	80°	—	SQ

VISUAL MONITORING:

CONTRACTOR'S REPRESENTATIVE — 20/8/97 day/mo/yr

SITE CQA ~~MANAGER~~ ENGINEERING TECHNICIAN SQ. GROUP — 20/8/97 day/mo/yr

FINAL APPROVAL:

CONTRACTOR'S REPRESENTATIVE — 20/8/97 day/mo/yr

SITE CQA MANAGER — 02/06/97 day/mo/yr

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SHEET NO. 1 OF 1

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 19 DATE 8/20/97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: Leachate
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: 15 PSI
SPEC./CODE:	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: AWWT to COMH#11 Drawing 924-5900-6-00266 @ Station 7+40

PIPE SIZE: 8" TYPE: CCS

PIPE IN TRENCH ☑ YES ☐ NO

BACKFILL CONDITIONS: Backfill complete from AWWT to COMH #11

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: YHV DATE: 8/20/97

CQC NOTIFIED Yahaya Willingham DATE/TIME 8/20/97 12:00

TEST GAUGE IDENT. 101	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 1.00	TEST GAUGE READING: 15½
TEST FINISH TIME: 4:00	TEST GAUGE READING: 15½

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/20/97
CLIENT/QC:	—		8/20/97
CLIENT/QA:	X		8/20/97

REMARKS/COMMENTS:

	PSI
1:00 PM	15½
2:00 PM	15½
3:00 PM	15½
4:00 PM	15½

TESTED BY: Yahaya Willingham DATE: 8/20/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UBS

TEST DESCRIPTION: HYDROSTATIC TEST, 4 HOUR, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

HDPE SDR-26 MANHOLE/CLEANOUT

TEST LOCATION: CLEANOUT MANHOLE # 11, SETTING ON CONCRETE PAD, TO BE PLACED INTO LCS TRENCH

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	25/8	09:00	WATER LEVEL MARKED INSIDE MANWAY	NA	SG.
2	25/8	10:00	WATER LEVEL IS AS MARKED	—	SG.
3	25/8	11:00	"	—	SG.
4	25/8	11:30	"	—	SG.
5	25/8	12:30	"	—	SG.
6	25/8	13:00	"	—	SG.

VISUAL MONITORING: [signature] 25/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 25 August 1997
SITE COA ~~MANAGER~~ ENGINEERING TECHNICIAN day/mo/yr
SG, 8/25/97

FINAL APPROVAL: [signature] 25/8/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 02/05/97
SITE COA MANAGER day/mo/yr

COPY TO: File

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

Verified 8/25/97

TEST RECORD NO. 26

DATE ~~8/21/97~~ YW 9/3/97

LINE SERVICE/ NO.: COMH #11	LINE MEDIUM: ~~[illegible]~~ LCS
MAX. OPERATING PRESSURE: N/A	TEST PRESSURE: N/A
SPEC./CODE:	TEST MEDIUM: Water
REFERENCE DRAWINGS/TEST BOUNDARIES: To be installed @ Drawing 927-5900-G-00262 #11	
PIPE SIZE: TYPE: COMH	
PIPE IN TRENCH ☐ YES ☒ ~~NO~~	
BACKFILL CONDITIONS: N/A	
ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N/A	DATE:
CQC NOTIFIED Yahaya Williams	DATE/TIME 8/21/97 7:00
TEST GAUGE IDENT. N/A	CALIBRATION DUE DATE: N/A
TEST START TIME: 9:00	TEST GAUGE READING: N/A
TEST FINISH TIME: 1:00	TEST GAUGE READING: N/A

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: [signature]	—	Verified on 8/25/97	~~8/21/97~~ YW 9/3/97
CLIENT/QC: [signature]	✓		8/25/97
CLIENT/QA: [signature]	X	VERIFIED ON 8/25/97	~~8/21/97~~ MO 9/3/97

REMARKS/COMMENTS: Change in Water Level

9:00AM	0
10:00AM	~~0~~
11:00AM	~~0~~
12:00PM	~~0~~
1:00PM	~~0~~

TESTED BY: [signature] DATE: 8/21/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UGS

TEST DESCRIPTION: > 95 PSI, 3 HRS

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: FROM (NOT INCLUDING) CLEANOUT MANHOLE 11 TO TOP OF BERM AROUND BIO SURGE LAGOON WEST OF CLEANOUT PL, IN PLACE AND MOSTLY BACK FILLED

READING NO.	DATE (day/mo)	TIME	READING: PRESSURE PSIG	AMBIENT TEMP	PIPE TEMP.	CHANGE IN READING	QA ID
1	27/8	13:30	96	83	84	N/A	SQ,
2	27/8	14:30	96	83	84	—	SQ,
3	27/8	15:30	96	85	85	—	SQ,
4	27/8	16:30	96	85	85	—	SQ,

VISUAL MONITORING: [signature] 27/8/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) [signature] 27/8/97 (SITE CQA ~~MANAGER~~ ENGINEERING TECHNICIAN, day/mo/yr) SQ, 27/8/97

FINAL APPROVAL: [signature] 27/8/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) [signature] 02/05/97 (SITE CQA MANAGER, day/mo/yr)

COPY TO: File

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. ~~22~~ 22

DATE 8/27/97 9/3 YW ~~8/28/97~~

LINE SERVICE/ NO.: LCS	LINE MEDIUM: Leachate
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 PSI
SPEC./CODE:	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: @ COMH #11 - BSL on Drawing 92X-5900-6-00262

PIPE SIZE: 4" TYPE: LCS

PIPE IN TRENCH ☒ YES ☐ NO

BACKFILL CONDITIONS: Backfilled Loam COMH #11 to BSL

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: YW DATE: ~~8/27/97~~ ~~8/28/97~~ YW 9/3

CQC NOTIFIED Yahaya Willingham DATE/TIME 9/3 YW ~~8/28/97~~ ~~8/27/97~~

TEST GAUGE IDENT. 201	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 8:00	TEST GAUGE READING: ~~96~~ 97
TEST FINISH TIME: 11:00	TEST GAUGE READING: ~~96~~ 97

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		~~8/27/97~~ ~~8/28/97~~
CLIENT/QC:	X		8/27/97
CLIENT/QA:	X		~~8/28/97~~ MS 9/3/97

REMARKS/COMMENTS:

ACTIVITY VERIFIED ON 8/27/97

PSI

9/3 YW ~~8:00 AM~~ 1:30 ~~96~~ ~~97~~ YW 9/3 96 P

9/3 YW ~~8:00 AM~~ 2:30 ~~96~~ ~~97~~ YW 9/3 96

9/3 YW ~~10:00 AM~~ 3:30 ~~96~~ ~~97~~ YW 9/3 96

~~11:00 AM~~ 4:00 ~~96~~ ~~97~~ YW 9/3 96

TESTED BY: DATE: YW 9/3 ~~8/28/97~~

8/27/97

1271

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UBS

TEST DESCRIPTION: >15 PSI, 3 HOURS, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: INPLACE SECTION FROM CLEANOUT MANHOLE #11 EXCAVATION TO TOP OF BERM TO BIOSURGE LAGOON WEST of CLEAN OUT #12

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	2/9	13:10	18 PSIG	N/A	SQ,
2	2/9	13:40	18 PSIG	—	SQ,
3	2/9	14:10	18 PSIG	—	SQ,
4	2/9	14:40	18 PSIG	—	SQ,
5	2/9	15:10	18 PSIG	—	SQ,
6	2/9	15:40	18 PSIG	—	SQ,
7	2/9	16:15	18 PSIG	—	SQ,

VISUAL MONITORING: [signature] 2/9/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 2/9/97 — SITE COA ~~MANAGER~~ ENGINEERING TECHNICIAN day/mo/yr

FINAL APPROVAL: [signature] 2/9/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 3/9/97 — SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants FILE NO. 1-18-PTL

000138

SHEET NO. 1 OF 1

RELEVED 08 SEPT. 1997
1271

FLUOR DANIEL FERNALD

INTEROFFICE MEMORANDUM

To:	Jim Jenkins, MS64	**Date:**	September 5, 1997
Location:	Fernald	**Reference:**	N/A
From:	Frank L. Flack, MS44	**FD Fernald #:**	M:SWP(OSDF):97-0042
Location:	Fernald	**Client:**	DOE DE-AC24-92OR21972
Extension:	648-5211	**Subject:**	**LEACHATE CONVEYANCE SYSTEM - AUTHORIZATION TO BACKFILL LCS PIPING BEFORE TESTING**

c: File Record Storage Copy 106.4.34.3
Mike Godber, MS64
Bill Zebick, MS64
Rick McGuire, MS64
Dan Bodine (GeoSyntec), MS38
Wise Services (Phil Thompson), MS16-2
EDC 20110-1700
OSDF File Station

DCN No. 1700-033 allows the subcontractor to pressure test pipe after placing fill over the pipe, at locations documented and approved, in writing, by the Construction Manager. This memorandum approves the placement of fill over the 4"/8" leachate conveyance system piping between Clean Out Manhole No. 5 and the Permanent Lift Station.

This authorization is to mitigate the effects of sun exposure and temperature rise during the day on leak testing of the leachate piping and is contingent upon conformance to the following requirements of DCN No. 1700-033:

- The test procedure shall be as specified in Specification Section 02605, Part 3.07, except that the test duration shall be minimum 3 hours.
- Locations of all joints, fittings, etc., shall be documented (on the contractor's as-built drawings) before backfilling.

FLF:flf

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC TEST, 4 HOUR, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: MANHOLE LCS-03, ABOVE GROUND TEST IMMEDIATELY SOUTH OF "RIMIA AREA" AS DEPICTED ON DRAWING G-00059

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	6/9	11:00	WATER LEVEL MARKED IN MANWAY	N.A	SQ
2	6/9	12:00	OBSERVED ALREADY MARKED LEVEL - STABLE	0	SQ
3	6/9	13:00	"	0	SQ
4	6/9	14:00	"	0	SQ
5	6/9	15:00	"	0	SQ

VISUAL MONITORING: _____ 6/6/97 _____ 6/9/97

CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA ~~MANAGER~~ ENGINEERING TECHNICIAN day/mo/yr

SQ, 6/9/97

FINAL APPROVAL: _____ 9/6/97 _____ 23/09/97

CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic pressure test

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

4 INCH HDPE PIPE

TEST LOCATION: North side of MH #5 (6-0026) to south side of MH #11 (6-0026?)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	08/Sept	11:00	98 lbs	—	RP
2	↓	1150	98 lbs	Ø	↓
3	↓	1400	98 lbs	Ø	↓

Gauge #202

⊗ 4" HDPE inside 8" HDPE as well as underground, therefore, pipe inaccessible for temperature reading

VISUAL MONITORING: [signature] 8/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) Rob Reddicord 08/09/97 (SITE ~~CQA MANAGER~~ RP Technician, day/mo/yr)

FINAL APPROVAL: [signature] 8/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) [signature] 08/08/97 (SITE CQA MANAGER, day/mo/yr)

COPY TO: FILE

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: Phase I Construction YEAR: 1997

CONTRACTOR: Petro Environmental

TEST DESCRIPTION: Hydro Test of 6" Gravity Line intended To be used between LDS and Liner Box. (LDS 01 CTR in with VBS)

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

SG-01-06 (Segment #1 6" Diameter)

TEST LOCATION: West of Cell #1, outside of Trench

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	12 SEPT	0715	121	—	BN
2		0730	121	0	BN
3		0745	121	0	BN
4		0800	120.5 *	0.5	BN
		0815	120.2 *	0.3	BN

* SMALL LEAK WAS DETECTED AT PIPE THREAD ON NIPPLE INTERFACE WITH BLANK FLANGE AT GAUGE END OF PIPE, RESULTING IN PRESSURE DROP. (INITIATED / OBSERVED ~0800 HOURS) PASS RGB

Gauge # (CERT#) 97-0812 DATED 8/12/97

(SERIAL NO. 09736) JAY INSTRUMENT & SPECIALTY CO.

TELE: 1-800-543-8200

SEE SUBMITTAL NO. 59

VISUAL MONITORING: J. Richard Schaubhorn 9/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 12 SEPT 97
SITE COA MANAGER TECHNICIAN day/mo/yr

FINAL APPROVAL: J. Richard Schaubhorn 9/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 12 SEPT 97
SITE COA MANAGER TECHNICIAN day/mo/yr
MANAGER 12/05/97

COPY TO: EDF, D. BODINE (GEOSYNTEC), FILE

©GeoSyntec Consultants FILE NO. 1-18-PTL

000142

PRESSURE TEST RECORD

T RECORD NO. SG-01-6 DATE September 12, 1997

LINE SERVICE/NO.: LDS 6-in. Carrier Pipe	LINE MEDIUM: HDPE 6-in. Dual Containment
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 120 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested segment 1, 139.6-ft. long, from Village Building Services' tie-in point #1 to Petro Environmental's perforated pipe LDS tie-in point.

PIPE IN TRENCH: [ ] YES [X] NO

BACKFILL CONDITIONS: Tested prior to installation. will be backfilled with embedment fill material.

L REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/12/97

CQC NOTIFIED: Yes - GeoSyntec DATE/TIME: 09/10/97 --- 3:00 PM

TEST GAUGE IDENT.: Cert. No.: 97-0812	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 7:15 AM	TEST GAUGE READING: 121 PSI
TEST FINISH TIME: 8:15 AM	TEST GAUGE READING: 120.2 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/12/97
CLIENT/QC:	X		09/12/97
CODE INSPECTOR: Michael W Godley	X		09/12/97

REMARKS/COMMENTS:

Weather: Morning fog, partly cloudy, AM temperature of about 54°F.
There was a slight pressure drop due to an observed water leak around the nipple threads on the gauge assembly entering the blind flange. This occurred at approximately 8:00 am and there was no noted pressure drop prior to this leak occurring. Based upon these observations, FDF, GeoSyntec and Petro Environmental were all confident that this was the source of the pressure drop and in agreement that this pipe section passed the hydrostatic test.

TESTED BY: J. Richard Schairbaum DATE: 09/12/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE ONE YEAR: 1997

CONTRACTOR: PETRO ENVIRONMENTAL

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF HORIZONTAL MONITORING WELL 6"IN DIAMETER SOLID WALL HDPE PIPE

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: WEST OF CELL 1

READING NO.	DATE (day/mo)	TIME*	READING	TEMP. (°F)	CHANGE IN READING	QA ID
1	12 SEPT	1428	128.2	NA	—	BN
2	12 SEPT	1447	121.0	95	7.2	BN
3	12 SEPT	1458	120.0	98	8.2	BN
4	12 SEPT	1513	126.5	88	1.7	BN
5	12 SEPT	1528	119.5	98	8.7	BN

RESULTS DID NOT ~~BE~~ MEET SPECIFICATION REQUIREMENT 13/09/97 JZ
SECTION 02605 PART 3.07 B. TEST TO BE CONDUCTED.
J.Z. 13/09/97

* 6"IN ~~ANNULAR~~ ON 12/09/97 PIPE (OF NON-DUAL CONTAINMENT PIPE) BUTT SEAM (4) AND BLANK FLANGE FITTINGS (2) CHECKED FOR LEAKS AT TEST READINGS.

GAUGE: CERT NO. 97-0812

VISUAL MONITORING: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

W. E. Hogle 12 SEPT 1997 SITE COA MANAGER TECH. day/mo/yr

FINAL APPROVAL: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

_____ SITE COA MANAGER day/mo/yr

COPY TO: FILE

PRESSURE TEST RECORD

T RECORD NO. SG-01-6 DATE September 12, 1997

LINE SERVICE/NO.: LDS 6-in. Carrier Pipe	LINE MEDIUM: HDPE 6-in. Dual Containment
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 120 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested segment 1, 139.6-ft. long, from Village Building Services' tie-in point #1 to Petro Environmental's perforated pipe LDS tie-in point.

PIPE IN TRENCH: [ ] YES [X] NO

CKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

L REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/12/97

CQC NOTIFIED: Yes - GeoSyntec	DATE/TIME: 09/10/97 --- 3:00 PM
TEST GAUGE IDENT.: Cert. No.: 97-0812	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 7:15 AM	TEST GAUGE READING: 121 PSI
TEST FINISH TIME: 8:15 AM	TEST GAUGE READING: 120.2 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/12/97
CLIENT/QC:	X		09/12/97
CODE INSPECTOR: Michael W Godley	X		09/12/97

REMARKS/COMMENTS:

Weather: Morning fog, partly cloudy, AM temperature of about 54°F.
There was a slight pressure drop due to an observed water leak around the nipple threads on the gauge assembly entering the blind flange. This occurred at approximately 8:00 am and there was no noted pressure drop prior to this leak occurring. Based upon these observations, FDF, GeoSyntec and Petro Environmental were all confident that this was the source of the pressure drop and in agreement that this pipe section passed the hydrostatic test.

TESTED BY: J. Richard Schairbaum DATE: 09/12/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: ~~PHASE I~~ LCS BOOSTER CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 8" HDPE (LCS)

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

8" DIAMETER DR 26 DRISCOPIPE 1000 PE 3454 3C SDR 17

TEST LOCATION: AT AND WEST OF MANHOLE #5, INTENDED TO CONNECT TO MANHOLE #5.

READING NO.	DATE (day/mo)	TIME	READING	TEMP. °F	CHANGE IN READING	QA ID
1	15 SEPT	1520	17.5			RL
2	15 SEPT	1620	16.5	107	1.0	RL
3	15 SEPT	1720	16.8	102	0.7	RL
4	15 SEPT	1820	17.4	94	0.1	RL

APPROXIMATELY 50 FT. OF PIPE WAS EXPOSED IN THE TRENCH.
NO LEAKAGE WAS OBSERVED AT THE FLANGE, VALVES, GAUGE, BUTT FUSION WELDS OR ABOVE GROUND WHERE PIPE WAS COVERED.

GAUGE # 102 (WIKA), CALIBRATED BY TPF, DATE 9-5-97.

VISUAL MONITORING: Nayla Abdullah 09/15/97 (CONTRACTOR'S REPRESENTATIVE day/mo/yr) Randy Livingston 15/09/97 (SITE COA ~~MANAGER~~ ENGINEERING TECH. day/mo/yr)

FINAL APPROVAL: Nayla Abdullah 09/15/97 (CONTRACTOR'S REPRESENTATIVE day/mo/yr) J. Forsmark 18/09/97 (SITE COA MANAGER day/mo/yr)

COPY TO: FOF, D. BODINE (GEOSYNTEC) FILE

1271

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO._____ DATE 09/15/97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: Leachate
MAX. OPERATING PRESSURE:	TEST PRESSURE: 15 psi
SPEC./CODE: SDR 17	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: 600261 7+90 15' ℄ LCS @ PVI.

PIPE SIZE: 8" TYPE: HDPE

PIPE IN TRENCH ☒ YES ☐ NO

BACKFILL CONDITIONS: backfilled from Barrett to Tacos

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: N.A. DATE: 09/15/97

CQC NOTIFIED N. Abdullah DATE/TIME 09/15/97

TEST GAUGE IDENT. 102	CALIBRATION DUE DATE: 9/5/98
TEST START TIME: [redacted] 3:20 P	TEST GAUGE READING: 17.5 psi
TEST FINISH TIME: 6:20 P	TEST GAUGE READING: 17.4 psi

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: N. Abdullah			09/15/97
CLIENT/QC: Randy Livingston	✓		9/15/97
CLIENT/QA: Michael M. Jordan	X		9/15/97

REMARKS/COMMENTS:

Time	PSI	TEMP
[redacted] 3:20 P.M.	17.5 psi	
4:20 P.M.	16.5 p.s.i.	107 °F
5:20 P.M.	16.8 psi	102°F
6:20 P.M.	17.4 p.s.i	94 °F

TESTED BY: N. Abdullah 000147 DATE: 09/15/97

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PATRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 6" GRAVITY LINE 132.6 FT. LONG SEGMENT. TO BE INSTALLED FROM VBS TIE-IN POINT TO PATRO'S CONTROL POINT NO. 1009 (CCS PIPE).

MATERIAL DESCRIPTION: FORCEMAIN: ~~F~~ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒ CARRIER

6" DIAMETER DR11 SG-03-06

TEST LOCATION: WEST OF CELL 1 IN THE TREE AREA

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	16 SEPT	0600	120.5		RL
2	16 SEPT	0615	120.1	.4	RL
3	16 SEPT	0630	120.0	.5	RL
4	16 SEPT	0645	120.0	.5	RL
5	16 SEPT	0700	120.0	.5	RL
6	16 SEPT	0715	120.0	.5	RL

NO LEAKAGE WAS OBSERVED FROM THE FLANGES, VALVES, GAUGE OR WELDS. HOWEVER, OBSERVATION FOR MOST OF THE PIPE WAS LIMITED DUE TO IT BEING COVERED WITH 10" DIAMETER PIPE.

GAUGE - ROYAL # RE4, CALIBRATED BY RF/CC 11-8-96.

VISUAL MONITORING:

J. Richard Schumann 9/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Randy Livingston 16/09/97
SITE COA ~~MANAGER~~ GEOSYNTEC TECH. day/mo/yr

FINAL APPROVAL:

J. Richard Schumann 9/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

J.T. Mezmail 16/09/97
SITE COA MANAGER day/mo/yr

COPY TO: File

PRESSURE TEST RECORD

TEST RECORD NO. SG-03-06 DATE September 16. 1997

LINE SERVICE/NO.: 6-in. Carrier Pipe	LINE MEDIUM: HDPE 6-in. Dual Containment
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 120 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 6-in. dia. segment, 132.6-ft. long (10-in. section). To be installed from Village Building Services' tie-in point to Petro Environmental's Control Point No. 1009 (LCS Pipe).

PIPE IN TRENCH: [ ] YES [X] NO

BACKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/12/97

CQC NOTIFIED: Yes - GeoSyntec DATE/TIME: 09/15/97 --- 2:00 PM

TEST GAUGE IDENT.: Cert. No.: RE-4	CALIBRATION DUE DATE: 11/08/96
TEST START TIME: 6:15 AM	TEST GAUGE READING: 120.1 PSI
TEST FINISH TIME: 7:15 AM	TEST GAUGE READING: 120.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/16/97
CQC CONSULT.: Randy Livingston	X		09/16/97
FDF QA/QC: Michael W. Jodlbauer	X		09/16/97

REMARKS/COMMENTS:

Weather: Morning fog, AM temperature of about 64° F.

TESTED BY: J. Richard Schairbaum DATE: 09/16/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 6" GRAVITY LINE, 136.3FT. LONG SEGMENT. TO BE INSTALLED FROM VBS'S TIE-IN POINT TO PETRO'S CONTROL POINT NO. 1008 (CLCS REDUNDANT PIPE).

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☑

6" DIAMETER DRII SG-02-06

TEST LOCATION: WEST OF CELL I IN TREE AREA.

READING NO.	DATE (day/mo)	TIME	READING	TEMP. °F	CHANGE IN READING	QA ID
1	16 SEPT	0600	120.0	64		RL
2	16 SEPT	0615	120.0	62	0	RL
3	16 SEPT	0630	120.0	62	0	RL
4	16 SEPT	0645	120.0	64	0	RL
5	16 SEPT	0700	120.0	64	0	RL

NO LEAKAGE WAS OBSERVED FROM THE FLANGES, VALVES, GAUGE OR WELDS. HOWEVER, OBSERVATION FOR MOST OF THE PIPE WAS LIMITED DUE TO IT BEING COVERED WITH 10" DIAMETER PIPE.

GAUGE - ASHCROFT DURAGAUGE - CERTIFICATION 8-12-97, CERT # 97-0812

VISUAL MONITORING:

J. Richard Schairbaum 9/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Randy Livingston 16/09/97
SITE COA ~~MANAGER~~ ENGINEERING TECH. day/mo/yr

FINAL APPROVAL:

J. Richard Schairbaum 9/16/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

J. Smith 16/09/97
SITE COA MANAGER day/mo/yr

COPY TO: File

PRESSURE TEST RECORD

TEST RECORD NO. SG-02-06 DATE September 16. 1997

LINE SERVICE/NO.: 6-in. Carrier Pipe	LINE MEDIUM: HDPE 6-in. Dual Containment
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 120 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 6-in. dia. segment, 136.3-ft. long (10-in. section). To be installed from Village Building Services' tie-in point to Petro Environmental's Control Point No. 1008 (LCS Redundant Pipe).

PIPE IN TRENCH: [ ] YES [X] NO

BACKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/12/97

CQC NOTIFIED: Yes - GeoSyntec DATE/TIME: 09/15/97 --- 2:00 PM

TEST GAUGE IDENT.: Cert. No.: 97-0812	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 6:00 AM	TEST GAUGE READING: 120.0 PSI
TEST FINISH TIME: 7:00 AM	TEST GAUGE READING: 120.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/16/97
CQC CONSULT.: Randy Swingle	X		09/16/97
FDF QA/QC: Michael Wolter	X		09/16/97

REMARKS/COMMENTS:

Weather: Morning fog, AM temperature of about 64° F.

TESTED BY: J. Richard Schairbaum DATE: 09/16/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 10" GRAVITY LINE, 139.6 FT. LONG SEGMENT. TO BE INSTALLED FROM VDS'S TIE-IN POINT TO PETRO CONTROL POINT NO. 1007 (DS PIPE).

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

10" DIAMETER DRII SG-01-10

TEST LOCATION: WEST OF CELL I IN TREE AREA.

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	16 SEPT	0600	15.05		RL
2	16 SEPT	0615	15.05	0	RL
3	16 SEPT	0630	15.05	0	RL
4	16 SEPT	0645	15.05	0	RL
5	16 SEPT	0700	15.05	0	RL

NO LEAKAGE WAS OBSERVED AT THE FLANGES, VALVES, GAUGE, BUTT FUSION WELDS OR FROM THE PIPE.

GAUGE - ASHCROFT DURAGAUGE - CERTIFICATION 8-12-97, CERT. # 97-P818.
JAY INSTRUMENT & SPECIALTY CO.

VISUAL MONITORING: J. Richard DeLaurbon 9/16/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — Randy Livingston 16/09/97 SITE COA ~~MANAGER~~ ENGINEERING TECH day/mo/yr

FINAL APPROVAL: J. Richard DeLaurbon 9/16/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 16/09/97 SITE COA MANAGER day/mo/yr

COPY TO: FILE

PRESSURE TEST RECORD

TEST RECORD NO. SG-01-10 DATE September 16, 1997

LINE SERVICE/NO.: 10-in. Secondary Contain.	LINE MEDIUM: HDPE 6/10 -in. Dual Contain.
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 15 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 10-in. dia., 139.6-ft. long segment. To be installed from Village Building Services' tie-in point to Petro Environmental's Control Point No. 1007 (LDS Pipe).

PIPE IN TRENCH: [ ] YES [X] NO

BACKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/12/97

CQC NOTIFIED: Yes - GeoSyntec DATE/TIME: 09/15/97 --- 2:00 PM

TEST GAUGE IDENT.: Cert. No.: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 6:00 AM	TEST GAUGE READING: 15.05 PSI
TEST FINISH TIME: 7:00 AM	TEST GAUGE READING: 15.05 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/16/97
CQC CONSULT.: Randy Hinnefeld	X		09/16/97
FDF QA/QC: Michael W. Fowler	X		09/16/97

REMARKS/COMMENTS:

Weather: Morning fog, AM temperature of about 64° F.

TESTED BY: J. Richard Schairbaum DATE: 09/16/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 6" HORIZONTAL MONITORING WELL GRAVITY LINE, 110-FT. LONG SEGMENT, TO BE INSTALLED FROM VBS'S TIE-IN POINT AT CONTROL POINT NO. 7008 (HORIZONTAL MONITORING WELL-CELL II) TO THE PERFORATED HORIZONTAL MONITORING WELL ASSEMBLY.

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☑

6" DIAMETER HMW-02-06 CARLISLE

TEST LOCATION: WEST OF CELL I IN THE TREE AREA.

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	17 SEPT	0600	122.0		RL
2	17 SEPT	0615	122.0	0	RL
3	17 SEPT	0630	122.0	0	RL
4	17 SEPT	0645	122.0	0	RL
5	17 SEPT	0700	122.0	0	RL

NO LEAKAGE WAS OBSERVED FROM THE FLANGES, VALVES, GAUGE OR WELLS.

GAUGE: ASHCROFT DURAGAUGE - CERTIFICATION 8-12-97, CERT # 97-0812

VISUAL MONITORING:

J. Richard Ackenbaum 9/17/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Randy Livingston 17/09/97
SITE COA ~~MANAGER~~ ENGINEERING TECH. day/mo/yr

FINAL APPROVAL:

J. Richard Ackenbaum 9/17/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

J. T. Mc... 18/09/97
SITE COA MANAGER day/mo/yr

COPY TO: FDF, D. BODINA (GEOSYNTEC) FILE

PRESSURE TEST RECORD

T RECORD NO. HMW-02-06 DATE September 17, 1997

LINE SERVICE/NO.: Horizontal Monitoring Well	LINE MEDIUM: HDPE 6-in. Carrier Pipe
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 120 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 6-in. dia., 110.0-ft. long segment. To be installed from Village Building Services' tie-in point at Control Point No. 7008 (Horizontal Monitoring Well - Cell II) to the perforated Horizontal Monitoring Well assembly.

PIPE IN TRENCH: [ ] YES [X] NO

CKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

LL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/17/97

CQC NOTIFIED: Yes - GeoSyntec	DATE/TIME: 09/16/97 --- 4:00 PM
TEST GAUGE IDENT.: Cert. No.: 97-0812	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 6:00 AM	TEST GAUGE READING: 122.0 PSI
TEST FINISH TIME: 7:00 AM	TEST GAUGE READING: 122.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/17/97
CQC CONSULT.:	X		09/17/97
FDF QA/QC:	X		09/17/97

REMARKS/COMMENTS:

Weather: Cool, AM temperature of about 67° F.

TESTED BY: J. Richard Schairbaum DATE: 09/17/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 10" SECONDARY CONTAIN. GRAVITY LINE, 132.6 FT. LONG SEGMENT. TO BE INSTALLED FROM YBS TIE-IN POINT TO PETRO'S CONTROL POINT NO. 1009 (LCS PIPE).

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

10" DIAMETER SG-03-10

TEST LOCATION: WEST OF CELL I IN THE TREE AREA.

READING NO.	DATE (day/mo)	TIME	READING	TEMP. °F	CHANGE IN READING	QA ID
1	17 SEPT	0600	16.3			RL
2	17 SEPT	0615	16.3	75	0	RL
3	17 SEPT	0630	16.3	75	0	RL
4	17 SEPT	0645	16.3	75	0	RL
5	17 SEPT	0700	16.3	75	0	RL

NO LEAKAGE WAS OBSERVED AT THE FLANGES, VALVES, GAUGE, BUTT FUSION WELDS OR FROM THE PIPE.

GAUGE - ASHCROFT DURAGAUGE - CERTIFICATION 8-12-97, CERT. # 97-0813

VISUAL MONITORING:

J. Richard Jackson 9/17/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Randy Livingston 17/09/97
SITE COA ~~MANAGER~~ ENGINEERING TECH. day/mo/yr

FINAL APPROVAL:

J. Richard Jackson 9/17/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

J. Smith 18/09/97
SITE COA MANAGER day/mo/yr

COPY TO: FDF, O. BOURNE (GEOSYNTEC) FILE

000156

PRESSURE TEST RECORD

ST RECORD NO. SG-03-10 DATE September 17, 1997

LINE SERVICE/NO.: 10-in. Secondary Contain.	LINE MEDIUM: HDPE 6/10 -in. Dual Contain.
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 15 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 10-in. dia., 132.6-ft. long segment. To be installed from Village Building Services' tie-in point to Petro Environmental's Control Point No. 1009 (LCS Pipe).

PIPE IN TRENCH: [ ] YES [X] NO

CKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

LL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/17/97

CQC NOTIFIED: Yes - GeoSyntec	DATE/TIME: 09/16/97 --- 4:00 PM
TEST GAUGE IDENT.: Cert. No.: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 6:00 AM	TEST GAUGE READING: 16.3 PSI
TEST FINISH TIME: 7:00 AM	TEST GAUGE READING: 16.3 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/17/97
CQC CONSULT.: Ronald Livingston	X		09/17/97
FDF QA/QC: Michael A. Fuller	X		09/17/97

REMARKS/COMMENTS:

Weather: Cool, AM temperature of about 67° F.

TESTED BY: J. Richard Schairbaum DATE: 09/17/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 10" SECONDARY CONTAIN. GRAVITY LINE 136.3 FT. LONG SEGMENT. TO BE INSTALLED FROM VBSS TIE-IN POINT TO PETRO'S CONTROL POINT NO. 1008 (LCS REDUNDANT PIPE).

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

10" DIAMETER SG-02-10

TEST LOCATION: WEST OF CELL 2 IN THE FEED AREA.

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	17 SEPT	1410	15.9		RL
2	17 SEPT	1425	15.9	0	RL
3	17 SEPT	1440	15.9	0	RL
4	17 SEPT	1455	15.9	0	RL
5	17 SEPT	1510	15.9	0	RL

NO LEAKAGE WAS OBSERVED AT THE FLANGES, VALVES, GAUGE, BUTT FUSION WELDS OR FROM THE PIPE.

GAUGE - ASHCROFT DIAPHRAGAUGE - CERTIFICATION 8-12-97, CERT # 97-0813.

VISUAL MONITORING: J. Richard Schaubauer 9/17/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

Randy Livingston 17/09/97 SITE COA ~~MANAGER~~ ENGINEERING TECH day/mo/yr

FINAL APPROVAL: J. Richard Schaubauer 9/17/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

J. McMillan 18/09/97 SITE COA MANAGER day/mo/yr

COPY TO: FDF, DAN BOLINE (GEOSYNTEC) FILE

PRESSURE TEST RECORD

ST RECORD NO. SG-02-10 DATE September 17, 1997

LINE SERVICE/NO.: 10-in. Secondary Contain.	LINE MEDIUM: HDPE 6/10-in. Dual Contain.
MAX. OPERATING PRESSURE: Gravity Line	TEST PRESSURE: 15 PSI
SPEC./CODE: Tech. Spec. Section 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES:

Tested 10-in. dia., 136.3-ft. long segment. To be installed from Village Building Services' tie-in point to Petro Environmental's Control Point No. 1008 (LCS Redundant Pipe).

PIPE IN TRENCH: [ ] YES [X] NO

ACKFILL CONDITIONS: Tested prior to installation, will be backfilled with embedment fill material.

LL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 09/17/97

CQC NOTIFIED: Yes - GeoSyntec	DATE/TIME: 09/17/97 --- 2:00 PM
TEST GAUGE IDENT.: Cert. No.: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 2:10 PM	TEST GAUGE READING: 15.9 PSI
TEST FINISH TIME: 3:10 PM	TEST GAUGE READING: 15.9 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		09/17/97
CQC CONSULT.: Randy Livingston	X		09/17/97
FDF QA/QC: Michael J. Joller	X		09/17/97

REMARKS/COMMENTS:

Weather: Cool, rainy, cloudy.

TESTED BY: J. Richard Schairbaum DATE: 09/17/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO, PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: ~~PHASE I~~ CONSTRUCTION YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 4" DIA., 115 FT. LONG PIPE, TO BE INSTALLED AND TIE-IN BETWEEN LIFT STATION AND MANHOLE #1

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☑

4" DIAMETER

TEST LOCATION: SOUTH END OF THE NORTH ROAD, NEAR THE LIFT STATION AND MANHOLE #1

READING NO.	DATE (day/mo)	TIME	READING	Temp. °F	CHANGE IN READING	QA ID
1	18 SEPT	0720	104.0	51		RL
2	18 SEPT	0735	104.0	50	0	RL
3	18 SEPT	0750	104.0	50	0	RL
4	18 SEPT	0805	104.0	57	0	RL
5	18 SEPT	0820	102.0	58	1.8	RL

NO LEAKAGE WAS OBSERVED IN THE VALVES, GAUGE, BUTT FUSION WELD JOINTS OR IN THE 4" DIA. PIPE. HOWEVER, THE OBSERVATION WAS LIMITED DUE TO 100 FT OF THE PIPE BEING COVERED WITH A 8" DIA CONTAINMENT PIPE. ONLY ABOUT FIVE FT. AT THE ENDS WERE OBSERVED. THE PIPE WAS SLOPED DURING THE HPT.

GAUGE # RE4

VISUAL MONITORING:

Michael M. Fuller — CONTRACTOR'S REPRESENTATIVE — 18/9/97 day/mo/yr

Randy Livingston — SITE COA ~~MANAGER~~ ENGINEERING TECH — 18/09/97 day/mo/yr

FINAL APPROVAL:

Michael M. Fuller — CONTRACTOR'S REPRESENTATIVE — 18/9/97 day/mo/yr

SITE COA MANAGER — 9/23/97 day/mo/yr

COPY TO: FDF, D. BODINE (GEOSYNTEC) FILE

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction YEAR: 1997

CONTRACTOR: Wise Construction

TEST DESCRIPTION: Hydrostatic Test, 4 hour minimum w/no loss

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☒ OTHER: ☐

TEST LOCATION: Manhole #1 (OMH), above ground test. In the grass, along side the north access road, S.E of RIMA

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	18/09	1000	water level marked in manway	—	RP
2	↓	1730	observed water level compared w/ mark	− 0.5"	RP
3	19/09	0745	"	+ 0.5"	RP
4		0910	"	−0.5"	RP
5	↓	1045	"	Ø	RP

(+) Tank temperature was 82° F @ 1045 on 19-09-1997

VISUAL MONITORING: A. Brice 9 1997 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

Rob Pedelicord 9/19/97 — SITE QOA ~~MANAGER~~ 9-19-97 RP TECHNICIAN — day/mo/yr

FINAL APPROVAL: A. Brice 9 1997 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

[signature] 23/09/97 — SITE QOA MANAGER — day/mo/yr

COPY TO: File

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: ~~PHASE I~~ CONSTRUCTION YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST OF 10" DIA. PIPE, 115 FT LONG, TO BE INSTALLED AND TIE-IN BETWEEN LIFT STATION AND MANHOLE NO. 1

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☑ MANHOLE: ☐ OTHER: ☐

10" DIAMETER CONTAINMENT

TEST LOCATION: SOUTH END OF NORTH ROAD, NEAR THE LIFT STATION AND MANHOLE NO. 1.

READING NO.	DATE (day/mo)	TIME	READING	TEMP. °F	CHANGE IN READING	QA ID
1	19 SEPT	0600	132	56		RL
2	19 SEPT	0615	132	58	0	RL
3	19 SEPT	0630	133	57	-1	RL
4	19 SEPT	0645	133	57	-1	RL
5	19 SEPT	0700	133	57	-1	RL

NO LEAKAGE WAS OBSERVED IN THE VALVES, GAUGE, BUTT FUSION WELD JOINTS OR IN THE PIPE. THE PIPE WAS SLOPED DURING THE HPT.

VISUAL MONITORING: Michael W. Sollo 18/9/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

Randy Livingston 19/09/97 — SITE COA ~~MANAGER~~ — day/mo/yr

FINAL APPROVAL: Michael W. Sollo 18/9/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

ENGINEERING TECH

23 Sept 97 — SITE COA MANAGER — day/mo/yr

COPY TO: FDF, D. BODINE, GEOSYNTEC FILE

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: 4 HR. HYDROSTATIC TEST - NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☑ OTHER: ☐

TEST LOCATION: CLEAN OUT MANHOLE #4, TESTED ABOVE GROUND PRIOR TO INSTALLATION

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	19/9	16:00	WATER LEVEL MARKED ON INSIDE OF MANHOLE	N/A	SG
2	19/9	16:30	WATER LEVEL AS MARKED	0	SG
3	19/9	17:00	"	0	SG
4	19/9	17:30	"	0	SG
5	19/9	18:00	"	0	SG
6	19/9	18:30	"	0	SG
7	19/9	19:00	"	0	SG
8	19/9	19:30	"	0	SG
9	19/9	20:00	"	0	SG

VISUAL MONITORING: R. Brice 19/9/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

SITE CQA ~~MANAGER~~ ENGINEERING TECHNICIAN SG, 19/9/97 — day/mo/yr

FINAL APPROVAL: R. Brice 26/9/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

SITE CQA MANAGER 26/9/97 — day/mo/yr

COPY TO: F.

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LES Construction YEAR: 1997

CONTRACTOR: Wise Constr

TEST DESCRIPTION: Hydrostatic pressure test, in ground, 3-hour minimum, no loss

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

4" carrier line

TEST LOCATION: From north side of COMH#1 (G-00254) to approximate Station 3+00 (G-00261)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	22 Sept.	0840	101 lbs	ø	RP
2	↓	0930	101 lbs	ø	↓
3		1040	101 lbs	ø	
4		1155	101 lbs	ø	

* Gauge # REI1, calibrated on 7 Nov 96

VISUAL MONITORING: A. Bruce 22/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) Rob Reddick 22/09/97 (SITE COA ~~MANAGER~~ RP TECHNICIAN, day/mo/yr)

FINAL APPROVAL: A. Bruce 22/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) [signature] 23/09/97 (SITE COA MANAGER, day/mo/yr)

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS Construction YEAR: 1997

CONTRACTOR: Wise Construction

TEST DESCRIPTION: Hydrostatic pressure test, in ground, 3-hour min, no pressure loss.

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐
8" containment

TEST LOCATION: From COMH #1 (6-00254) to approximate station 3+00 (6-00261)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	24 Sept	0800	15.5 lbs	—	RP
2	↓	1020	15.5 lbs	0	↓
3		1105	15.5 lbs	0	

Gauge # RE-12
Calibrate Nov 1996

VISUAL MONITORING: Y G. Beise 24 09 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
Rob Peddicord 24/09/97 — SITE CQA ~~MANAGER~~ Technician day/mo/yr

FINAL APPROVAL: G. Beise 24 09 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
J. McKinney 25/09/97 — SITE CQA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST, >95 psi, NO LOSS

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: IN PLACE, UNCOVERED 4"/8" DUAL CONTAINMENT HDPE PIPING, 4" SECTION FROM CLEANOUT MANHOLE 4 EXCAVATION TO CLEANOUT MANHOLE 5 EXCAVATION

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	26/9	16:30	98 PSIG	N/A	SQ.
2	26/9	16:45	"	0	SQ.
3	26/9	17:00	"	0	SQ.
4	26/9	17:15	"	0	SQ.
5	26/9	17:30	"	0	SQ.

VISUAL MONITORING: X A. Bruce 13 10 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr

Signature 26/9/97 — SITE ~~COA MANAGER~~ ENGINEERING TECHNICIAN SQA 26/9/97 day/mo/yr

FINAL APPROVAL: X A. Bruce 13 10 97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr

Signature 14/10/97 — SITE COA MANAGER day/mo/yr

COPY TO: T1

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: WISE

TEST DESCRIPTION: HYDROSTATIC PRESSURE TEST, NO LOSS, 1 HR, >30 PSI *

* CONTRACTOR DECISION - SPECIFICATION IS FOR 15PSI MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: IN PLACE, UNCOVERED, FROM CLEANOUT-MANHOLE 4 TO CLEANOUT MANHOLE 5, (on 29/SEP/97) MAN HOLES NOT CONNECTED, 8" SECTION

READING NO.	DATE (day/mo)	TIME	READING (PSIG)	CHANGE IN READING	QA ID
1	~~07~~ 29/9 (29SEP97)	07:35	31.25	N/A	SG
2	29/9	07:50	31.25	0	SG
3	29/9	08:05	31.25	0	SG
4	29/9	08:20	31.25	0	SG
5	29/9	08:35	31.25	0	SG

VISUAL MONITORING: A. Brice 29/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) — 29SEPT, 97 (SITE COA ~~MANAGER~~ ENGINEERING TECHNICIAN, day/mo/yr)

FINAL APPROVAL: A. Brice 29/9/97 (CONTRACTOR'S REPRESENTATIVE, day/mo/yr) — 29 Sept '97 (SITE COA MANAGER, day/mo/yr)

COPY TO:

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Services

TEST DESCRIPTION: One hour hydro test at 50 psi min.

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring Well # 01

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	11/10	0800	56 psi	0 psi	BE
2	↓	0810	↓	↓	↓
3		0820			
4		0830			
5		0840			
6		0850			
7	↓	0900	↓	↓	↓

VISUAL MONITORING: [signature] 11 Oct 97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 11 Oct '97
~~SITE COA MANAGER~~ ENGINEERING TECHNICIAN day/mo/yr

FINAL APPROVAL: [signature] 11 Oct 97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 15/10/97
SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Services (V.B.S)

TEST DESCRIPTION: One hour hydro at 50 psi min - 0 psi allowable drop
Re test due to additional couplings added

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring well # 01

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	14/10	1245	56 psi	0 psi	BL
2	↓	1255	↓	↓	↓
3		1305			
4		1315			
5		1325			
6		1335			
7		1345			

VISUAL MONITORING: _____ 14/10/97 _____ 14/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

FINAL APPROVAL: _____ 14/10/97 _____ 15/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Services

TEST DESCRIPTION: One hour hydro test at 50 psi

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring well # 02

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	11/10	1000	57 psi	0 psi	DE
2	↓	1010	↓	↓	↓
3		1020			
4		1030			
5		1040	55 psi	2 psi	
6		1050	↓	↓	
7	↓	1100	↓	↓	

FAILED

VISUAL MONITORING: [signature] 11/Oct/97 [signature] 11 Oct '97

CONTRACTOR'S REPRESENTATIVE day/mo/yr ~~SITE COA MANAGER~~ ENGINEERING TECHNICIAN day/mo/yr

FINAL APPROVAL: [signature] 11/Oct/97 [signature] 5/10/98

CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Services

TEST DESCRIPTION: One Leave ~~monitoring well~~ Be hydro test at 50 psi

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring Well # 02

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	13/10	0800	58 psi	0 psi	BE
2	↓	0810	↓	↓	↓
3		0820			
4		0830			
5		0840			
6		0850			
7		0900			

VISUAL MONITORING: [signature] 13/Oct/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

[signature] 13 Oct '97 — ~~SITE QA MANAGER~~ Eng. Tech — day/mo/yr

FINAL APPROVAL: [signature] 13/Oct/97 — CONTRACTOR'S REPRESENTATIVE — day/mo/yr

[signature] 15/Oct/97 — SITE QA MANAGER — day/mo/yr

COPY TO: File

1271

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Seirvices

TEST DESCRIPTION: One hour hydro at 50 psi min. - 0psi allowable loss
Retest due to additional couplings added

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring well #02

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	16/10	1330	56 psi	0 psi	BL
2	↓	1340	↓	↓	↓
3		1350			
4		1400			
5		1410			
6		1420			
7		1430			

VISUAL MONITORING: _____ 16/10/97 _____ 16/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr ~~SITE COA MANAGER~~ GeoSyntec Rep. day/mo/yr

FINAL APPROVAL: _____ 16/10/97 _____ 21/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

COPY TO: File

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: Village Building Services

TEST DESCRIPTION: One hour hydro at 50 psi min. - 0 psi allowable loss

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒

TEST LOCATION: Monitoring Well #03

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	16/10	1600	50 psi	0 psi	BL
2	↓	1610	↓	↓	↓
3		1620			
4		1630			
5		1640			
6		1650			
7		1700			

VISUAL MONITORING: _____ 16/10/97 — T.E. Eason 16/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: _____ 16/10/97 — _____ 21/10/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr — SITE CQA MANAGER day/mo/yr

COPY TO: File

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SHEET NO. ___ OF ___

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: OSDF - LCS YEAR: 1997

CONTRACTOR: V.B.S.

TEST DESCRIPTION: 4" - 95 psi MIN. FOR 3 hours (BURIED LINE)

MATERIAL DESCRIPTION: FORCEMAIN: ■ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 4" CARRIER PIPE FROM THE CLEAN OUT MANHOLE #11 to THE LEACHATE PUMP STATION

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	15/11	1010	103 psi	0 psi	GL
2	↓	1020	↓	↓	↓
3		1030			
4		1040			
5		1050			
6		1100	102	1.0 psi	
7	↓	1110	↓	0 psi	↓

TEST FAILED

VISUAL MONITORING: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

Dan Gross 15/11/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

_____ SITE CQA MANAGER day/mo/yr

COPY TO: File

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: OSDF-LCS YEAR: 1997

CONTRACTOR: V.B.S.

TEST DESCRIPTION: 95 psi MIN. FOR 3 HOURS (BURIED LINE)

MATERIAL DESCRIPTION: FORCEMAIN: ■ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 4" CARRIER PIPE FROM CLEANOUT MANHOLE #11 TO THE LEACHATE PUMP STATION

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	17/11	1400	98 psi	0	BL
2		1410			
3		1420			
4		1430			
5		1440	97 psi	1.0	
6		1450			
7		1500			
8		1510			
9		1520			
10		1530	96 psi	1.0	
		TEST FAILED			

VISUAL MONITORING: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

Brian Lewis 17/11/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

_____ SITE COA MANAGER day/mo/yr

COPY TO: FIL

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: 10.8 PSI – 30 MINUTES WITH Ø PRESSURE DROP
GAUGE: ASHCROFT CERTIFICATION NO. 970813 DATED 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ■
LINER PENETRATION BOX

TEST LOCATION: LDS-1

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
INITIAL	20 NOVEMBER	0840 HSM ~~0840~~ 11/24/97	15.0	N/A	RP
FINAL	20 NOVEMBER	0915 HSM ~~0840~~ 11/21/97	15.0	Ø	RP

VISUAL MONITORING: J. Richard Schaubaum 11/24/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

Rob Reddick 20 NOV 97
GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: J. Richard Schaubaum 11/24/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[illegible] 24 Nov 1997
SITE COA MANAGER day/mo/yr

COPY TO: File

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: 10.8 psi - 30 minutes with ∅ Pressure Drop.
GAUGE: ASHCROFT CERTIFICATION NO. 970813 DATED 9/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ■
LINER PENETRATION BOX

TEST LOCATION: LCS-1

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
INITIAL	20 NOVEMBER	1015	11.0	N/A	NM
FINAL	20 NOVEMBER	1045	11.0	∅	NM

VISUAL MONITORING: J. Richard DeLaurentis 11/24/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
K.E. Meehan 20 Nov. '97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: J. Richard DeLaurentis 11/24/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
J. McNabb 24 Nov. 1997 — SITE CQA MANAGER day/mo/yr

COPY TO: F.

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GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: PHASE I CONSTRUCTION YEAR: 1997

CONTRACTOR: PETRO

TEST DESCRIPTION: 10.8 psi - 30 minutes WITH Ø PRESSURE DROP.
GAUGE: ASHCROFT CERTIFICATION NO. 970813 DATED 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ■
LINER PENETRATION BOX

TEST LOCATION: LCS-1 REDUNDANT

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
INITIAL	20 NOVEMBER	0930	11.0	N/A	NM
FINAL	20 NOVEMBER	1000	11.0	Ø	NM

VISUAL MONITORING: J. Richard Schlaubitz 11/24/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
H.E. McLean 20 Nov '97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: J. Richard Schlaubitz 11/24/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
24 NOV 1997 — SITE CQA MANAGER day/mo/yr

COPY TO: File

LINER PENETRATION BOX AIR PRESSURE TEST RECORD

TEST RECORD NO.: LPB-1 DATE: November 20, 1997

LINE SERVICE NO.: Liner Penetration Box - LDS Pipe	LINE MEDIUM: HDPE Liner Penetration Box No. 1
MAX. OPERATING PRESSURE: Gravity	TEST PRESSURE: 10.8 PSI
SPECIFICATION CODE: Tech. Spec. Section 02772	TEST MEDIUM: Air

REFERENCE DRAWINGS/TEST BOUNDARIES:

Air pressure tested Liner Penetration Box No. 1 welded to the LDS Pipe at the West Berm at Cell 1.

LINER PENETRATION BOX INSTALLED: Yes

BACKFILL CONDITIONS: Compacted clay and bentonite granules

ALL REQUIRED GAUGES INSTALLED/ISOLATED: Yes CONFIRMATION: Yes DATE: 11/20/97

CQC NOTIFIED: Yes --- GeoSyntec	DATE/TIME: 11/20/97 --- 7:00 AM
TEST GAUGE IDENT.: Certification Number: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 8:40 AM	TEST GAUGE READING: 15.0 PSI
TEST FINISH TIME: 9:15 AM	TEST GAUGE READING: 15.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		11/20/97
CQC CONSULT.: J. Trimble	X		11/20/97
FDF QA/QC: Michael W. Sadler	X		11/20/97

REMARKS/COMMENTS:

None.

REVIEWED/TESTED BY: J. Richard Schairbaum DATE: 11/20/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

LINER PENETRATION BOX AIR PRESSURE TEST RECORD

TEST RECORD NO.: LPB-2 DATE: November 20, 1997

LINE SERVICE NO.: Liner Penetration Box - LCS Pipe	LINE MEDIUM: HDPE Liner Penetration Box No. 2
MAX. OPERATING PRESSURE: Gravity	TEST PRESSURE: 10.8 PSI
SPECIFICATION CODE: Tech. Spec. Section 02772	TEST MEDIUM: Air

REFERENCE DRAWINGS/TEST BOUNDARIES:

Air pressure tested Liner Penetration Box No. 2 welded to the LCS Pipe at the West Berm at Cell I.

LINER PENETRATION BOX INSTALLED: Yes

BACKFILL CONDITIONS: Compacted clay and bentonite granules

ALL REQUIRED GAUGES INSTALLED/ISOLATED: Yes CONFIRMATION: Yes DATE: 11/20/97

CQC NOTIFIED: Yes --- GeoSyntec	DATE/TIME: 11/20/97 --- 7:00 AM
TEST GAUGE IDENT.: Certification Number: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 10:15 AM	TEST GAUGE READING: 11.0 PSI
TEST FINISH TIME: 10:45 AM	TEST GAUGE READING: 11.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		11/20/97
CQC CONSULT.: J. Fries Mel	X		11/20/97
FDF QA/QC: Michael W Jolles	X		11/20/97

REMARKS/COMMENTS:

None.

REVIEWED/TESTED BY: J. Richard Schairbaum DATE: 11/20/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

LINER PENETRATION BOX AIR PRESSURE TEST RECORD

TEST RECORD NO.: LPB-3 DATE: November 20. 1997

LINE SERVICE NO.: Liner Penetration Box - RLCS Pipe	LINE MEDIUM: HDPE Liner Penetration Box No. 3
MAX. OPERATING PRESSURE: Gravity	TEST PRESSURE: 10.8 PSI
SPECIFICATION CODE: Tech. Spec. Section 02772	TEST MEDIUM: Air

REFERENCE DRAWINGS/TEST BOUNDARIES:

Air pressure tested Liner Penetration Box No. 3 welded to the Redundant LCS Pipe at the West Berm at Cell I.

LINER PENETRATION BOX INSTALLED: Yes

BACKFILL CONDITIONS: Compacted clay and bentonite granules

ALL REQUIRED GAUGES INSTALLED/ISOLATED: Yes CONFIRMATION: Yes DATE: 11/20/97

CQC NOTIFIED: Yes --- GeoSyntec	DATE/TIME: 11/20/97 --- 7:00 AM
TEST GAUGE IDENT.: Certification Number: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 9:30 AM	TEST GAUGE READING: 11.0 PSI
TEST FINISH TIME: 10:00 AM	TEST GAUGE READING: 11.0 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		11/20/97
CQC CONSULT.: J. Smith	X		11/20/97
FDF QA/QC: Michael W. Jolley	X		11/20/97

REMARKS/COMMENTS:

None.

REVIEWED/TESTED BY: J. Richard Schairbaum DATE: 11/20/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: Phase I Construction YEAR: 1997

CONTRACTOR: PoFo / VBS-Wise

TEST DESCRIPTION: LDS 10" Containment Calibration
AIR TEST Gauge # #970813 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: East LDS Manhole to Cell I Liner Penetration Box
From Excavation Pit to Cell #1

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	28/11	0755	15.2	0	[illegible]
2	28/11	0810	15.2	0	[illegible]
3	28/11	0825	15.2	0	[illegible]
4	28/11	0840	15.2	0	[illegible]
5	28/11	0855	15.2	0	[illegible]

VISUAL MONITORING: [signature] 28-11-97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 28/11/97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 28/11/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 28 NOV. '97 — SITE CQA MANAGER day/mo/yr

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GeoSyntec Consultants SHEET NO. 1 OF 1

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: Phase 1 Construction YEAR: 1997

CONTRACTOR: Petro

TEST DESCRIPTION: LDS Reduritant 10" Containment
Gauge # 97083 Calibration 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Test Pit east of manhole To Cell 2 Liner Box

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	28/11	13 45	15.1	0	RJB
2	28/11	14 00	15.1	0	RJB
3	28/11	1415	15.1	0	RJB
4	28/11	1430	15.1	0	RJB
5	28/11	1445	15.1	0	RJB

VISUAL MONITORING: John Stacy 28-11-97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; Ronald Bodine 28/11/97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 28/11/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 28 Nov. '97 — SITE QOA MANAGER day/mo/yr

COPY TO:

1271

FROM : FMSM ENGINEERS CINTI PHONE NO. : 5138601073 Nov. 26 1997 03:24PM P1

REPORT OF TEST ON CONCRETE CYLINDERS

FMSM ENGINEERS

0018 International Boulevard
Cincinnati, Ohio 45246
(513) 860-1070

Post-it® Fax Note 7671	Date 11-26-97	# of pages ▶ 1
To Fernald	From FMSM	
Co./Dept.	Co.	
Phone #	Phone # 860-1070	
Fax # 648-3417	Fax # 860-1073	

Cylinder/Set No. 12 <97070

PROJECT DATA

Project Name: On Site Disposal Facility
Contractor: VBS
Designer:
Concrete Supplier: Moraine
Specified Strength & Type: 4000
Supplied Strength & Type: 4000
Location of Concrete: LCS/LDS-03 antiflotation cover slab

FIELD DATA

Date Sampled: 11-19-97
Slump: 3 3/4"
Air Content: 5.0%
Truck No.: 262
Ticket No.: 364337
Ambient Temp.: 50°
Concrete Temp.: 62°
Technician: Geosyntec
Time of Test: 11:05

LABORATORY DATA

Cylinder No.	A	B	C	D	E
Date Received	~~11-~~ 11-21	→	→	→	→
Date Tested	11-21	11-26	12-17	12-17	HOLD
Age When Tested, Days	2	7	28	28	HOLD
Maximum Load, Pounds	45500	112000			
Compressive Strength, psi	3380	3960			
Cylinder Weight in Lbs.	28.1	28.3			
Type of Break	shear	shear			

REMARKS:

RECEIVED
NOV 26 1997
1530 hrs

FULLER, MOSSBARGER, SCOTT AND MAY ENGINEERS, INC.

000184

GEOSYNTEC CONSULTANTS

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS-WISE

TEST DESCRIPTION: 10" Containment Gauge 97-0813
Air Test Calibration 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Excavation east of Manhole to LDS Manhole

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	28/11	1712	15.2	0	VBS
2	28/11	1727	15.2	0	VBS
3	28/11	1742	15.2	0	VBS
4	28/11	1757	15.2	0	VBS
5	28/11	1812	15.2	0	VBS

VISUAL MONITORING: Jay Ruby 75697 29/11/97 Daniel Balint 28/11/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 29/11/97 [signature] 01 DEC 97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE COA MANAGER day/mo/yr

COPY TO: 000185

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS-Wise

TEST DESCRIPTION: 6" LCS line calibration Air Test Gauge RE12-11/6/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒ carrier pipe

TEST LOCATION: LCS Cell #1 To LDS Manhole

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	29/11	1420	15.1		
2	Test Plug Blew				
	Restart				
1	29/11	1547	15.0 *		DSB
2	29/11	1602	14.8	.2 *	DSB
3	29/11	1617	14.8	0	DSB
4	29/11	1632	14.8	0	DSB
5	29/11	1647	14.8	0	DSB

* Vibration due to compactor at top of berm Not a loss in test pressure due to leak D. Bodine

VISUAL MONITORING: [signature] for Dan Nath. 29/11/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — Daniel Bodine 29/11/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 29/11/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 3 Dec '97 SITE CQA MANAGER day/mo/yr

COPY TO: [illegible]

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SHEET NO. 1 OF 1

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic test of 6" Gravity Line
50 PSI Test Gauge #103 Calibration 9/16/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒
6" HDPE Carrier Pipe

TEST LOCATION: LCS #3 Manhole to PLS
Gauge in Manhole #3

READING NO.	DATE (day/mo)	TIME	Cumm Minutes	READING	CHANGE IN READING	QA ID
1	1/12	11:37	0	53.5+		DLB
2	1/12	12 05	28	53.5-	0 to .1	
3	1/12	1316	99	53.1	.4	
4	1/12	1526	229	52.9	.2	
5	1/12	1705	328	52.7	.2	
6	2/12	0712	1175	51.2	1.5	
7	2/12	1439	1612	50.1	1.1	
8	2/12	1618	1711	50.0	0.1	

See Attached Plot. Drop in Pressure is Approximately 1 psi per 8.6 hours for approximately 2800 ft of pipe including 6 cleanouts. Every cleanout was bled and valve/fitting checked. Cleanouts are exposed at top. The very small drop in pressure (0.1 psi/hour) is considered acceptable for this length of pipe. Attached is test plot and copy of Gauge Calibration. D. Boling.

VISUAL MONITORING: [signature] 12-3-97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 2/12/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 12/3/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 2 DEC '97 SITE COA MANAGER day/mo/yr

COPY TO: 000187

GeoSyntec Consultants FILE NO. 1-18-PTL

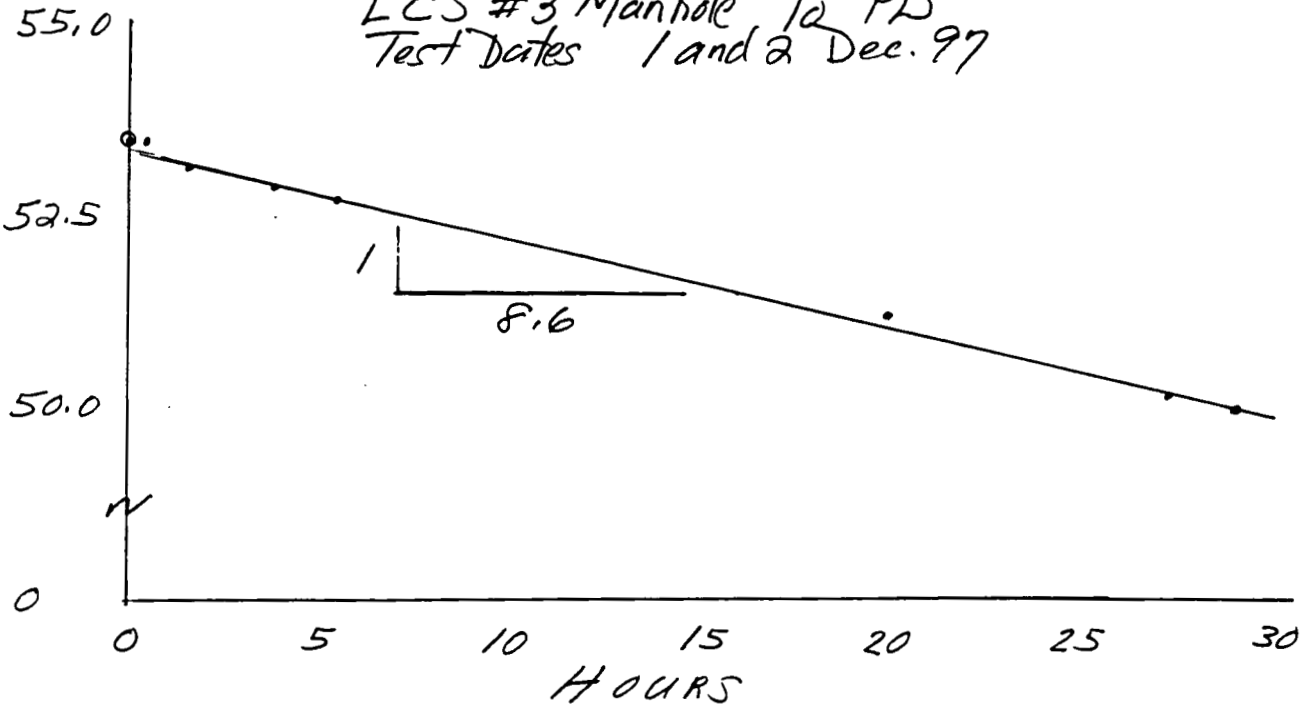
SHEET NO. 1 OF 1

GEOSYNTEC CONSULTANTS

Written by: Daniel Bodine Date: 1 1 1 (YY MM DD) Reviewed by: _____ Date: 97 12 03 (YY MM DD)

Client: FDF Project: Fernald - OSDF Project/~~Proposal~~ No.: 6G0166. Task No.: 3.1

HYDROSTATIC TEST
6" Gravity Line
LCS #3 Manhole to PLS
Test Dates 1 and 2 Dec. 97



Pressure Drop 1 psi per 8.6 Hours

Gauge No. 103 Calibration 9/16/97

PRESSURE GAUGE CERTIFICATION

RECEIVED
DEC 05 1997
0845

TPF, INC.
TEMPERATURE-PRESSURE & FLOW-PRODUCTS
CINCINNATI, OHIO
SINCE 1969

313 South Wayne Avenue
Cincinnati, Ohio 45215
Phone:(513) 761-9968
FAX:(513) 761-2880

Gauge Mfg. Wika

Serial # 103

Range 0/60 psi

Tolerance: ____ ±1/4% FS ____ ±1/2% FS 1.5 % FS

Actual Tolerance ± .9 psi Divisions 1 psi

Tested for: Village Building Services P.O. Number 4385

AS RECEIVED TEST

Standard Readings	Gauge Reading	Correction
1)		
2) New		
3)		

✓ In tolerance ____ Out of tolerance/needs adjustment

____ Internal damage/needs repair before certification

CERTIFICATION TEST RESULTS

STANDARD USED CM5664

Standard Readings	Gauge Reading	Correction
1) 0 psi	0 psi	
2) 10 psi	10.3 psi	-.3 psi
3) 20 psi	20.3 psi	-.3 psi
4) 30 psi	30.3 psi	-.3 psi
5) 40 psi	40.3 psi	-.3 psi
6) 50 psi	50.2 psi	-.2 psi
7) 60 psi	60.3 psi	-.3 psi
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		

COMPLIANCE WITH MIL. STD. 45662A TPF NIST # 38130A # 39496B # 394960 # 39496F # 39436C

LAB CONDITIONS - TEMP. 71 °F RH 59 % T.P.F. Standards Due 1-14-98

DATE TESTED Sept. 16, 1997 TEST ENGINEER Shawn Ring

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Air Test at 15 psi; Gauge #102 Cal 9/5/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒ 6" Carrier LCS

TEST LOCATION: Excavation Pit to LCS Manhole

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	1/12	1535	15.5	0	DJB
2	1/12	1550	15.5	0	DJB
3	1/12	1605	15.5	0	DJB
4	1/12	1620	15.5	0	DJB
5	1/12	1635	15.5	0	DJB

VISUAL MONITORING: George Hoof 12-8-97 CONTRACTOR'S REPRESENTATIVE day/mo/yr; Daniel Bodine 1/12/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 12/3/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr; [signature] 3DEC'97 SITE QOA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: Phase I Construction YEAR: 1997

CONTRACTOR: Petro

TEST DESCRIPTION: Air Test at 15 psi Gauge 97-0813
LCS 10" pipe Calibd 8/12/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Cell 1 (liner box to excavation pit)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	11/12	1640	15.2		DJB
2	11/12	1655	15.2	0	DJB
3	11/12	1710	15.2	0	DJB
4	11/12	1725	15.2	0	DJB
5	11/12	1740	15.2	0	DJB

VISUAL MONITORING: [signature] for J. L. Stacy 11/12/97 Daniel Bolen 11/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 11/12/97 [signature] 2 DEC '97
CONTRACTOR'S REPRESENTATIVE day/mo/yr SITE CQA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Air Pressure Test at 15 psi for LCS Redundant 6" Pipe Gauge #102 Calibration 9/5/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒ 6" Carrier HDPE Pipe

TEST LOCATION: Excavation Pit to LCS Manhole

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	2/12	1349	15.6		RJB
2	2/12	1421	15.6	0	RJB
3	2/12	1445	15.5 *	-0.1	RJB
4	2/12	1500	15.3	-0.2	RJB
5	2/12	1520	15.4	+0.1	RJB
6	2/12	1543	15.4	0	RJB
7	2/12	1600	15.4	0	RJB

* Sun came out in mid afternoon and is believed to have heated up gauge, piping exposed and gauge pipe. As temps. cool off again and sun decreased pressure increased. Also gauge divisions only to 0.5 psi. No leaks. This test is OK. R. Bolling 2/12/97

VISUAL MONITORING:

[signature] Kopt 12-3-97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 2/12/97
GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL:

[signature] 12/3/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 3 Dec 97
SITE QA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: Phase I Construction YEAR: 1997

CONTRACTOR: Petro

TEST DESCRIPTION: 10.8 psi – 30 min with Ø pressure drop
Gauge # G-4812 Certification # 97-08-13, DATE 12 Aug 97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ■
air pressure TEST – 10.8 psi minimum

TEST LOCATION: Liner Penetration Box, LCS of ~~redundant line~~ OSF (Box #4)

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	05/DEC	13:48	11.2 psi	Ø	RP
2	05/DEC	14:20	11.2 psi	Ø	RP

(*) Soap solution used to check box seams

VISUAL MONITORING: J. R. Schuerman — CONTRACTOR'S REPRESENTATIVE day/mo/yr
Robert C Peddicord 5/12/97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: J. R. Schuerman — CONTRACTOR'S REPRESENTATIVE day/mo/yr
H E Auer 8 DEC '97 — SITE CQA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: LCS Gravity Line Hydrostatic Test
Gauge No. ~~97-013~~ 103 Calibration 9/16/97 (Sept)

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒
6" LCS line Manhole #1 to Manhole #3

TEST LOCATION: Manhole #1 to Manhole #3 Gauge in #1
Note: Air temp above Manhole (outside) @ 21°F

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	5/12	1705	53.2	0 over night stabilization	RJB
2	6/12	0807	47.6	5.6	RJB
3	6/12	0837	47.5	0.1	RJB
4	6/12	0907	47.5	0	RJB
5	6/12	0937	47.4	0.1 *	RJB
6	6/12	1007	47.4	0	RJB
7	6/12	1037	47.4	0	RJB
8	6/12	1107	47.4	0	RJB
9	6/12	1137	47.3	.1 *	RJB
10	6/12	1343	47.1	.2	RJB

* Vibration Taken place at top of concrete slab where hammer breaking up concrete. Pressure loss estimated at approx. 0.1 psi/hour. Test approved by ~~Resident~~ Engineer RJB
Due to Cold Temps RE did not request increasing pressure after start of Test & ~~RM~~ RJB to over 50 psi

VISUAL MONITORING: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr — David Bodine 6/12/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 8 DEC '97 SITE CQA MANAGER day/mo/yr

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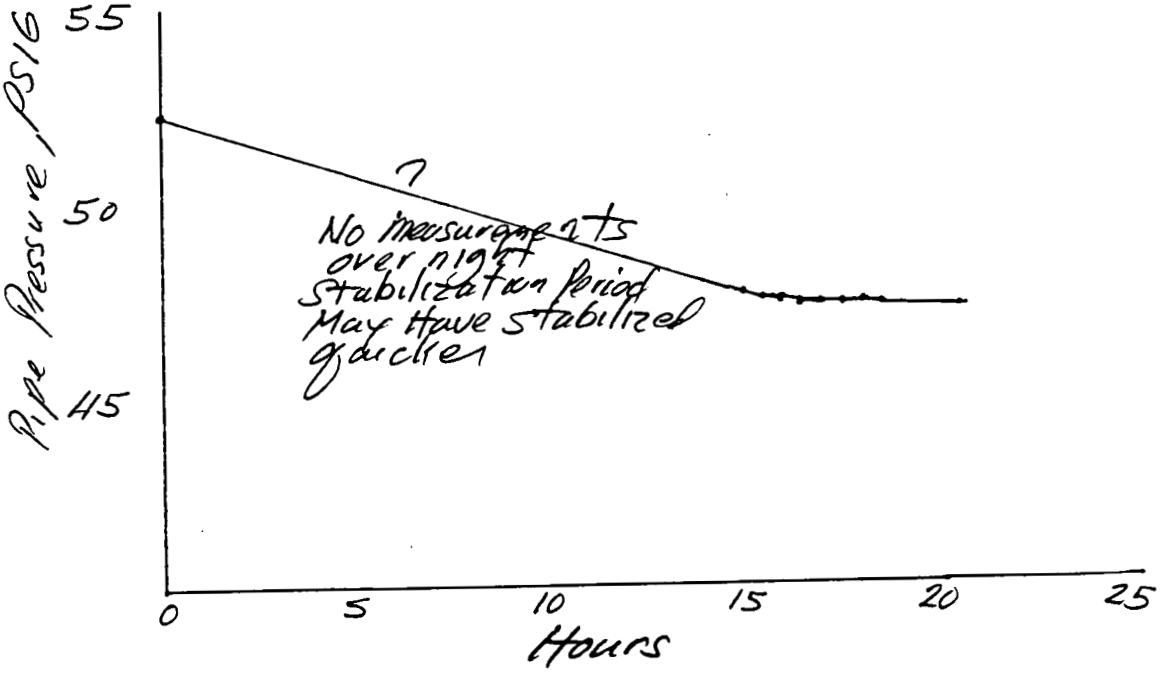
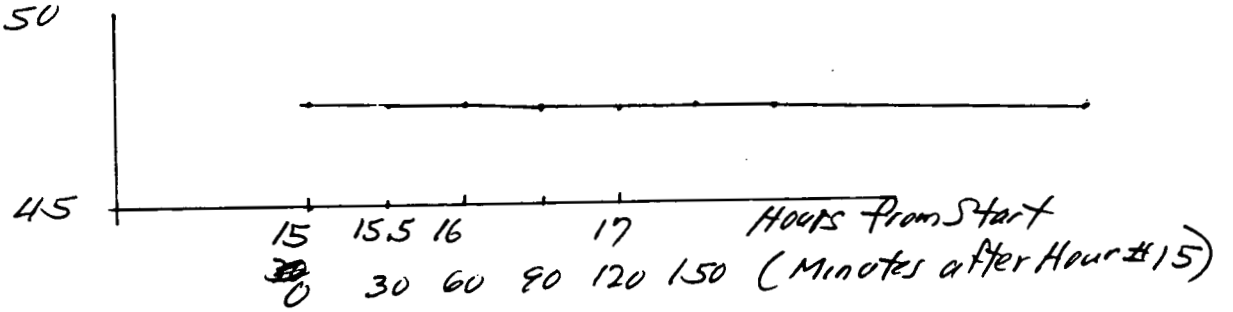
Written by: Daniel Bodine Date: 97/12/06 (YY/MM/DD) Reviewed by: _____ Date: __/__/__ (YY/MM/DD)

Client: FDF Project: Fernald OSDF Project/Proposal No.: GQ0166 Task No.: 3.1

HYDROSTATIC TEST
6" Gravity Line
LCS/LDS Manhole No 1 to No.3





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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: Phase I YEAR: 1997

CONTRACTOR: Petro

TEST DESCRIPTION: AIR Test
Gauge No 97-0813 Calibration 8/12/97 (Aug)

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒
6" LCS Line From Cell #1 to Excav. Pit

TEST LOCATION: Liner Box is LDS Stone to Excavation Pit

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	6/12	0940	15.0		[illegible]
2	6/12	0955	15.0	0	[illegible]
3	6/12	1010	15.0	0	[illegible]

Test Performed to check coupling directly behind liner box. Pipe had been previously tested twice once above ground and once after backfilled. 30 Minute test approved by Resident Engineer, consultant with liner contractor. No Leaks and coupling was exposed.

VISUAL MONITORING: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr

Daniel Bodnar 6/12/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 6/12/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 6/12/97 SITE CQA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: Phase I YEAR: 1997

CONTRACTOR: Petro

TEST DESCRIPTION: Air Test @ 15 psi (10.8 min required)
Gauge No. 97-0813 Calibration 8/12/97 (Aug)

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒
LCS Reductant Liner Penetration Box - Primary

TEST LOCATION: Cell #1 LCS Reducn Box for Primary
30 min Test Required

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	6/12	1020	12.5	N/A	SG.
2	6/12	1035	12.5	0	SG.
3	6/12	1050	12.5	0	SG.
4	6/12	1105	12.5	0	SG.

VISUAL MONITORING:
N. Lee Kraus — CONTRACTOR'S REPRESENTATIVE day/mo/yr
Scott Cameron 6/12/1997 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL:
David D. Wilson 6/12/97 — CONTRACTOR'S REPRESENTATIVE day/mo/yr
H.E. Mahan 6 DEC 97 — SITE CQA MANAGER day/mo/yr

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RECEIVED
DEC 12 1997
0800 hrs

LINER PENETRATION BOX AIR PRESSURE TEST RECORD

TEST RECORD NO.: LPB-5 DATE: December 6, 1997

LINE SERVICE NO.: Liner Penetration Box - RLCS Pipe	LINE MEDIUM: HDPE Liner Penetration Box No. 5
MAX. OPERATING PRESSURE: Gravity	TEST PRESSURE: 10.8 PSI
SPECIFICATION CODE: Tech. Spec. Section 02772	TEST MEDIUM: Air

REFERENCE DRAWINGS/TEST BOUNDARIES:

Air pressure tested Liner Penetration Box No. 5 welded to the Redundant LCS Pipe at the West Berm at Cell I.

LINER PENETRATION BOX INSTALLED: Yes

BACKFILL CONDITIONS: Graded #78 stone

ALL REQUIRED GAUGES INSTALLED/ISOLATED: Yes CONFIRMATION: Yes DATE: 12/06/97

CQC NOTIFIED: Yes --- GeoSyntec	DATE/TIME: 12/06/97 --- 9:00 AM
TEST GAUGE IDENT.: Certification Number: 97-0813	CALIBRATION DUE DATE: 08/12/97
TEST START TIME: 10:35 AM (RS 12/12/97)	TEST GAUGE READING: 12.5 PSI
TEST FINISH TIME: 11:05 AM	TEST GAUGE READING: 12.5 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR: J. Richard Schairbaum	X		12/06/97
CQC CONSULT.: Daniel Bodyn	X		12/06/97
FDF QA/QC: Michael W. Jolley	X		12/06/97

REMARKS/COMMENTS:

A soap solution was used to check the seams of the liner penetration box to verify there were no leaks.

REVIEWED/TESTED BY: J. Richard Schairbaum DATE: 12/06/97

J. Richard Schairbaum, Quality Control Manager

PETRO environmental technologies

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS / Phase I YEAR: 1997

CONTRACTOR: VBS / ReTro

TEST DESCRIPTION: Air Test @ 15psi Test to check Couplings (2 VBS & 1 ReTro) Pipe already Tested.

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒

6" LCS Recirculation

TEST LOCATION: Cell #1 to LCS Manhole #1

Gauge No 97-0513 Calib. 8/12/97

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	6/12	1512	15.3	Stabilization	KCG
2	6/12	1520	15.2	0 (Test Start)	KCG
3	6/12	1535	15.2	0	KCG
4	6/12	1550	15.2	0	KCG

Soap solution used to check couplings

VISUAL MONITORING: J. R. Schairbaum — CONTRACTOR'S REPRESENTATIVE day/mo/yr; Ronald Bodine 12/8/97 — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: J. R. Schairbaum — CONTRACTOR'S REPRESENTATIVE day/mo/yr; 8 DEC 97 — SITE CQA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UGS/WISE

TEST DESCRIPTION: AIR PRESSURE TEST, 30 MINUTES AT 15 PSI MINIMUM
Purpose OF TEST TO CHECK 6" COUPLINGS IN EXCAVATION PIT

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒
6" HOPE SDR 11 AND 26 CARRIER LINE (GRAVITY) LCS Gauge #97-0813 Calib 8/12/97

TEST LOCATION: INSTALLED SECTION FROM INSIDE LCS 01 MANHOLE THROUGH AND INCLUDING THE PRIMARY LINER PENETRATION BOX

READING NO.	DATE (day/mo)	TIME	READING PSIG	CHANGE IN READING	QA ID
1	7 DEC	09:00	15.4	N/A	SQ
2	↓	09:15	15.4	0	SG
3		09:30	15.4	0	SG

VISUAL MONITORING: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

_____ 7/DEC/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr

_____ 8 DEC '97 SITE CQA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UGS / WISE

TEST DESCRIPTION: AIR PRESSURE TEST, 15PSI FOR 1HR MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

Gauge No RE12 Calib - 11/6/97 BY.

TEST LOCATION: 10" LCS CONTAINMENT PIPE FROM LCS 03 MANHOLE EAST APPROX. 15 FT. TO STUB END TO BE CONNECTED DURING CELL 3 CONSTRUCTION;

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	7 DEC	09:20	18.0	N/A	SG
2	↓	09:35	18.0	0	SG
3		09:50	18.0	0	SG
4		10:05	18.0	0	SG
5		10:20	18.0	0	SG

VISUAL MONITORING:

George F. Schmeider 7/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

7 DEC/97
GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL:

George F. Schmeider 7/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

8 DEC 97
SITE CQA MANAGER day/mo/yr

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SHEET NO. 1 OF 1

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UBS/WISE

TEST DESCRIPTION: AIR PRESSURE TEST, 15 PSI FOR 1 HR MINIMUM
Gauge No RE 12 Calibration 11/6/97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 10" REDUNDANT LCS CONTAINMENT LINE FROM LCS-03 MANHOLE EAST APPROX. 15' TO STUB END TO BE CONNECTED DURING CELL 3 CONSTRUCTION

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	7 DEC	11:10	16.1	N/A	SG
2	↓	11:25	16.1	0	SG
3		11:40	16.1	0	SG
4		11:55	16.1	0	SG
5		12:10	16.1	0	SG

VISUAL MONITORING: George F. Schneider 12/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 7/DEC/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: George F. Schneider 12/7/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 8 DEC 97 SITE QA MANAGER day/mo/yr

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SHEET NO. 1 OF 1

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: 10" LCS Manhole 2 to Manhole 3
Hydrostatic test @ 15psi min

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

Gauge No. 201 Calibration

TEST LOCATION: Manhole 2 to Manhole 3

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	11/12	1330	22.0psi		[illegible]
2	11/12	1400	22.0	0	[illegible]
3	11/12	1430	22.0	0	[illegible]
4	11/12	1500	22.0	0	[illegible]
5	11/12	1530	22.0	0	[illegible]
6	11/12	1600	22.0	0	[illegible]
7	11/12	1630	22.0	0	[illegible]

VISUAL MONITORING: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 11/16/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 11/12/97 SITE COA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS/WISE

TEST DESCRIPTION: AIR PRESSURE TEST, 15 PSI FOR 1HR MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 10" CONTAINMENT SECTION OF LCS LINE FROM LCS 01 MANHOLE TO LINER PENETRATION BOX IN CELL I

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	8 DEC	16:20	16.8	N/A	SG
2	↓	16:35	16.8	0	SG
3		16:50	16.8	0	SG
4		17:05	16.8	0	SG
5		17:20	16.8	0	SG

VISUAL MONITORING:

CONTRACTOR'S REPRESENTATIVE day/mo/yr — GEOSYNTEC REPRESENTATIVE 8/DEC/1997 day/mo/yr

FINAL APPROVAL:

CONTRACTOR'S REPRESENTATIVE 8/12/97 day/mo/yr — SITE CQA MANAGER 11/12/97 day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: 10" Containment - Air Test @ 15 PSI. min.

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: LCS Redundant from LCS Manhole to Cell
Repair of 3 couplings by backwelding
add sleeve in excavation pit.

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	8/12	14 15	17.3 psi	N/A	SG
2	9/12	14 30	17.3	0	SG
3	9/12	14 45	17.3	0	SG
4	9/12	15 00	17.3	0	SG
5	9/12	15 15	17.3	0	SG

VISUAL MONITORING: _____ CONTRACTOR'S REPRESENTATIVE day/mo/yr; _____ 9 Dec 1997 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: _____ 9/12/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr; _____ 11/12/97 SITE COA MANAGER day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS' YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: Hydrostatic @ 15psi min

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ 12" MANHOLE: ☐ OTHER: ☐

Calibration 9/16/97 Gauge 20-40 FP NO. 103

TEST LOCATION: Manhole No 3 To PLS

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	11/12	1420	20.0		DYB
2	11/12	1450	20.0	0	DYB
3	11/12	1520	20.0	0	DYB
4	11/12	1550	19.0 *	1.0	DYB
5	11/12	1620	18.9 **	.1 (.6)	DYB
6	11/12	1655	18.2	.7	DYB
7	11/12	1720	18.0 ***	.2	DYB
				2psi total	

* Slight leak observed in fixed end seal at 12 o'clock and 6 o'clock

** Slight leak around fixed end seal still present. Tapped gauge and dropped to 18.5

*** Slight leak still present. Reading 17.8 after tapping gauge. Mike Goodbey observed

12/11/97

VISUAL MONITORING: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] GEOSYNTEC REPRESENTATIVE 11/12/97 day/mo/yr

FINAL APPROVAL: [signature] CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] SITE QOA MANAGER 11/12/97 day/mo/yr

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FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04.1

DESCRIPTION: LOS CONSTRUCTION YEAR: 1997

CONTRACTOR: VBS / WISE

TEST DESCRIPTION: AIR PRESSURE TEST (of REMARK AREA), 15 PSI, 30 MINUTE MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☒

GUAGE 97-0813 Calibration 8/12/97

TEST LOCATION: 6" HOPE GRAVITY CARRIER PIPING FROM LOS 01 MANHOLE EAST APPROX 20 FT. INCLUDING MITERED LATERAL, (ENDED WITH EXPANSION PLUG IN LINE)

READING NO.	DATE (day/mo)	TIME	READING PSIG	CHANGE IN READING	QA ID
1	13/DEC	13:30	16.0	N/A	SQ
2	13 DEC	13:40	16.0	0	SQ
3	13 DEC	13:50	15.8	-0.2 *	SQ
4	13 DEC	13:55	15.8	0	SQ
5	13 DEC	14:00	15.8	0	SQ
6	13 DEC	14:10	15.8	0	SQ
7	13 DEC	14:15	15.8	0	SQ

* → PRESSURE, AFTER STABILIZATION HELD STEADY, AT APPROX 13:48 THE PIPE BEING TESTED WAS KICKED DURING OTHER ONGOING WORK IN THE AREA VIBRATING THE GUAGE TO THE NEW READING WHERE IT HELD STEADY.

VISUAL MONITORING: [signature] 12-14-97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 13/DEC/1997 ~~SITE CQA MANAGER~~ GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 12-14-97 CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 15/Dec/97 SITE CQA MANAGER day/mo/yr

COPY TO: FILE

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: G00166 TASK NO.: 04

DESCRIPTION: LCS CONSTRUCTION YEAR: 1997

CONTRACTOR: UBS/WISE

TEST DESCRIPTION: AIR PRESSURE TEST, 15 PSI, 30 MINUTE MINIMUM

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

GUAGE # RE12 Calibration 11/6/97

TEST LOCATION: 10" CONTAINMENT, LDS PIPING FROM LDS01 MANHOLE TO CELL 1

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	14 DEC	1400	16.0	N/A	SG
2	14 DEC	14:10	16.0	0	SG
3	14 DEC	14:20	16.0	0	SG
4	14 DEC	14:30	16.0	0	SG

VISUAL MONITORING: [signature] 12-14-97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 14 DEC 1997
GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 12-14-97
CONTRACTOR'S REPRESENTATIVE day/mo/yr

[signature] 15 Dec 97
SITE QA MANAGER day/mo/yr

COPY TO: FILE

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GO0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS

TEST DESCRIPTION: 4" LCS 95 psi min For 3 hours

MATERIAL DESCRIPTION: FORCEMAIN: ☒ CONTAINMENT: ☐ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: 4" Carrier line from PLS to Comm # 11
FINAL FORCE MAIN TEST

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	17/11	1400	98		[illegible]
2	17/11	1440	97	1 psi	[illegible]
3	17/11	1530	96	1	[illegible]
4	17/11	1700	95	1	[illegible]
				3 psi total loss	

DCN No 1700-077, approved by the designer, Parsons, allowed up to 5 psi loss in pressure for a hydrostatic test of duration of atleast 2 hours.

VISUAL MONITORING: [signature] 15/12/97 — [signature] 15/12/97
CONTRACTOR'S REPRESENTATIVE day/mo/yr — GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 15/12/97 — [signature] 16 DEC '97
CONTRACTOR'S REPRESENTATIVE day/mo/yr — SITE QOA MANAGER day/mo/yr

COPY TO: FILE

000209

GeoSyntec Consultants

FLUOR DANIEL FERNALD

PRESSURE TEST LOG

PROJECT: ON-SITE DISPOSAL FACILITY (OSDF)

LOCATION: FERNALD, OHIO PROJECT NO: GQ0166 TASK NO.: 04

DESCRIPTION: LCS YEAR: 1997

CONTRACTOR: VBS/Wise

TEST DESCRIPTION: 10" Pressure Test - Air Test

Gauge No. 103 Calibration 9-16 97

MATERIAL DESCRIPTION: FORCEMAIN: ☐ CONTAINMENT: ☒ MANHOLE: ☐ OTHER: ☐

TEST LOCATION: Manhole # 1 To Manhole # 2

Gauge in Manhole # 1

READING NO.	DATE (day/mo)	TIME	READING	CHANGE IN READING	QA ID
1	15/12	0815	17.5		RGB
2	15/12	0830	17.5	0	RGB
3	15/12	0945	17.5	0	RGB
4	15/12	1100	17.5	0	RGB
5	15/12	1120	17.5	0	RGB

@ 1130 hrs the air pressure was removed and the gauge dropped slowly as the air escaped through the open valve located in Manhole No. 2.

VISUAL MONITORING: [signature] - 15/12/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 15/12/97 GEOSYNTEC REPRESENTATIVE day/mo/yr

FINAL APPROVAL: [signature] 15/12/97 CONTRACTOR'S REPRESENTATIVE day/mo/yr — [signature] 16 DEC '97 SITE CQA MANAGER day/mo/yr

COPY TO: ELLE

APPENDIX S:

REQUEST FOR CLARIFICATION OF INFORMATION (RCI)

Leachate Conveyance System
OSDF Phase I

Leachate Conveyance System

SUPPLIER DOCUMENT SUBMITTAL

FDF PROJECT:	1702	CONTRACT NO.: FSC 597	SUBMITTAL NO.: 022	REV.: 7	DATE: November 6,1997
FROM:	Petro Environmental Technologies, Inc. 7851 Palace Drive Cincinnati, Ohio 45249		TO: FDF ENGINEERING/CONSTRUCTION DOCUMENT CONTROL, MS 44		PAGE 1 OF 1

SIGNATURE: J. Richard Scharbrough

RECEIVED BY: Melissa Crews DATE: 11/6/97

QTY	DOCUMENT NUMBER	REV	DOCUMENT FAMILY 1 PRO	2 H&S	3 MED	4 TRG	5 CON	6 ENG	7 QAC	RESUBMITTAL YES	NO	TITLE/DESCRIPTION	SUBMITTAL TYPE CFC	INF	ASSOCIATED SPECIFICATION	SUBMITTAL ACTION A	B	C
6'	PET-023B	0					X		'	X		Final Safe Work Plan - Appendix F.	X	'	Pt. 6-2.15.1.b	X		

DISTRIBUTION

REVIEW DISTRIBUTION

Distribution	MS	Distribution	MS
Lou Wehlitz	64		
Don Goetz	64		
Bill Zebick	64		
Rick Heath	64		
Dan Bodine	64		
Dean Rhea	44		

CFC DISTRIBUTION

Distribution	MS	Distribution	MS
Lou Wehlitz	64	Dan Bodine	64
Don Goetz	64	Tracy Russell	64
Bill Zebick	64		
Rick Heath	64		
Mike Godber	64		
Gregg Johnson	64		

RECEIVED BY: [signature] (SIGN/DATE AND RETURN A COPY TO ECDC, MS 44) DATE: Nov. 6, 1997 NO COMMENTS X COMMENTS ATTACHED ___

COMMENTS

ORIGINAL

SUBMITTAL ACTION CODE: (BY SUPPLIER)
CFC - CERTIFIED FOR CONSTRUCTION
INF - INFORMATION/RECORD
"X" APPROPRIATE SUBMITTAL ACTION ABOVE

SUPPLIER ACTION CODE: (ECDC) SUPPLIER ACTION ABOVE
A - ACCEPTED DOCUMENT: CONFORMS WITH REQUIREMENTS
B - MINOR COMMENTS: REVISE AND RESUBMIT AS CFC OR INF
C - REVISE AND RESUBMIT

0022

122

1271

PETRO
environmental
technologies

SUPPLIER SUBMITTAL No.: 022 (Rev. 7)

FINAL SAFE WORK PLAN
Pt. 6-2.15.1.b

ECDC CONTROLLED
COPY NO.

FLUOR DANIEL FERNALD SUBCONTRACT No. FSC 597
ON-SITE DISPOSAL FACILITY (PHASE I) PROJECT

011

Document No. PET-023B (Rev. 0)

November 6, 1997

Fernald Site Office: P.O. Box 538704 • Mail Stop 44 • Cincinnati, Ohio 45253-8704 • 513.648.3402 • Fax 648.3407
7851 Palace Drive • Cincinnati, Ohio 45249 • 513.489.6789 • Fax 489.7208
8200 Seville Road • Seville, Ohio 44273 • 330.948.1494 • Fax 948.1933

000221

5.5 PERSONNEL INJURY 74

5.6 GENERAL RESPONSIBILITIES 74

LIST OF APPENDICES

APPENDIX A. EQUIPMENT CHECKLIST ..... REV. 5

APPENDIX B. GEOSYNTHETIC LINER HEAT STRESS MANAGEMENT ..... REV. 5

APPENDIX C. USE OF ALL-TERRAIN VEHICLES ..... REV. 5

APPENDIX D. HELICOPTER SUBGRADE DRYING PROCEDURES ..... REV. 5

APPENDIX E. USE OF ELECTRIC POWER BLOWERS ..... REV. 0

APPENDIX F. NIGHT WORK ..... REV. 0

APPENDIX F.

NIGHT WORK

NIGHT WORK

Petro Environmental plans to work extended hours and on shifts that include hours after sunset. The following equipment usage and procedures will be implemented in preparation for and throughout periods of night work to provide adequate lighting for personnel to safely work and move around the site.

- ***Field Safety Procedures***

1. ***The SSHO and FDF Construction Safety will inspect all lighting systems (other than flashlights) before they may be used for night work..***

2. ***FDF will conduct a lighting survey between the hours of sunset and sunrise prior to the initial shift of night work. The initial survey will assess the functional extent of illumination produced by a representative light plant.***

3. ***Petro Environmental will evaluate lighting equipment needs to safely complete intended work tasks (i.e., liner installation) based on the findings of the initial survey. The equipment inventory and placement in the work areas will be selected to assure the following minimum lighting requirements are met:***

   - ***Work areas actively involved in liner seaming and within enclosed areas will be provided with 5 foot-candles.***

   - ***Other construction areas will be provided with 3 foot-candles. These areas include GCL and GML deployment areas, accessways, active staging areas, and refueling and field maintenance areas.***

4. ***FDF will be on site at Cell 1 at about sunset to assess the effectiveness of the lighting configuration in place, and assist Petro Environmental in adjusting the light plants to achieve the lighting goals stated in number 3, above.***

5. ***Auxiliary lighting shall be turned on an adequate time prior to sunset and remain on an adequate time after sunrise at active worksites.***

6. ***Hearing protection will be required for all personnel working within 50 feet of the light plants. Warning signs will be posted at each plant to alert personnel of noise hazards and hearing protection requirements.***

7. ***Petro Environmental will assess additional hazards posed by the light plants, such as potential burns from engine exhaust, and manage them accordingly.***

8. *All personnel involved in night work will carry a functional flashlight for lighted access to areas not otherwise illuminated to the above minimum requirements.*

9. *Personnel engaged in night work must wear traffic reflective safety vests.*

- *Orientation/Authorization*

  The SSHO must orient all Petro Environmental, GSI, and affected FDF Construction and Safety personnel to these procedures prior to the initiation of night work. Personnel participating in the orientation must sign an acknowledgment form stating that they understand and are willing to comply with the procedural requirements.

- *As much as possible, all materials and supplies will be pre-staged within the lighted work area before nightfall.*

- *A walk down of the work area will also be conducted before darkness to identify any slip, trip and fall hazards so that they may be removed and/or flagged to ensure that workers will not be exposed. Additionally, efforts will be made to ensure that all roadway hazards are defined.*

Needs to be a DCN 1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/18/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: 1700-038R

(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHERO

(4A)RCI/DCN TITLE: Hydrostatic Testing of LCS Force Main

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
High Density Polyethylene (HDPE) Manhole, Pipes and Fittings	Section 02605	0	Para. 3.07 C
Civil Details - Sheet 3 of 3	92X-5900-G-00258	0	Note 4
Design Change Notice - Pipe Hydrostatic Testing	DCN #1700-033	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Specification Section 02605, *High Density Polyethylene (HDPE) Manhole, Pipes and Fittings*, paragraph 3.07.C.2.i states that acceptance criteria for hydrostatic testing is zero leakage for the stabilized pressure for the minimum duration for the test. Paragraph 3.07.C.2.e requires test pressure to be maintained for a minimum of one hour after the pressure in the pipe has stabilized. DCN No. 1700-033 modified paragraph 3.07.C.2.c of Section 02605 and changed the test pressure for the 4" carrier pipe for the force main from 130 psi to 95 psi and required that the test pressure be held for a minimum of 3 hours if the pipe was backfilled prior to testing.

Note 4 on Drawing No, 92X-5900-G-00258 states that the carrier pipe for the force main shall be hydrostatically tested to 130 WAWA C600, 130 psig (changed to 95 psig on DCN #1700-033) and test pressure to be maintained a minimum of 15 minutes prior to visual inspection.

(See Continuation Page)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/18/97	James C. Jenkins	11/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

SEE ATTACHED Clarification (Page 1 of 1)

RECEIVED
NOV 26 1997
OSTI

INFORMATION ONLY

ORIGINAL

(PARSONS)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: For Carlton Schneider DATE: 11-20-97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 11/25/97

PERFORMANCE GRADE: (17) 5

CONSTRUCTION CONCURRENCE: DATE: 11/21/97

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

received 11-20-97

000226

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/18/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: 1700-038R

(4) RESPONSIBLE DISCIPLINE: EC MC CC OTHER

(4A)RCI/DCN TITLE: Hydrostatic Testing of LCS Force Main

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
High Density Polyethylene (HDPE) Manhole, Pipes and Fittings	Section 02605	0	Para. 3.07 C
Civil Details - Sheet 3 of 3	92X-5900-G-00258	0	Note 4
Design Change Notice - Pipe Hydrostatic Testing	DCN #1700-033	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Specification Section 02605, *High Density Polyethylene (HDPE) Manhole, Pipes and Fittings*, paragraph 3.07.C.2.l states that acceptance criteria for hydrostatic testing is zero leakage for the stabilized pressure for the minimum duration for the test. Paragraph 3.07.C.2.e requires test pressure to be maintained for a minimum of one hour after the pressure in the pipe has stabilized. DCN No. 1700-033 modified paragraph 3.07.C.2.e of Section 02605 and changed the test pressure for the 4" carrier pipe for the force main from 130 psi to 95 psi and required that the test pressure be held for a minimum of 3 hours if the pipe was backfilled prior to testing.

Note 4 on Drawing No, 92X-5900-G-00258 states that the carrier pipe for the force main shall be hydrostatically tested to 130 WAWA C600, 130 psig (changed to 95 psig on DCN #1700-033) and test pressure to be maintained a minimum of 15 minutes prior to visual inspection.

(See Continuation Page)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/18/97	James C. Jenkins	11/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

See Attached Clarification (Page 1 of 1)

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	11/20/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4358 (10/01/96)

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE:
DOCUMENT NO. AND TITLE: RCI No: 1700-038R, Hydrostatic testing of LCS Force Main		DATE COMMENTS DUE:
REQUEST NO. 1		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	Y. AFSHAR		Parsons confirms that section 4i1 of the AWWA C-600 does apply to the Hydrostatic testing of the 4" Carrier pipe for LCS force main.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

900228

1271

PARSONS
ERA PROJECT

ROUTING CARD 1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR-038	1	1700·038	11-19-97

TITLE:	OU NO.	P.O. No.:
HYDROSTATIC TESTING OF LCS MAIN	2	164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 11 / 20 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick–up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
•	CIVIL YUNUS ARSHAD	11-18-97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
•	PROJECT ENGINEER C. Schroeder	11/20/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
• ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER / Y. AFSHAR

SPECIAL INSTRUCTIONS:

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.: 1700-038R	(11) DCN NO.:	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):

AWWA C600, Sec. 4.1, *Pressure and Leakage Test*, allows pressure to vary up to plus or minus 5 psi (34.5 kPa) during the duration of the test and test duration to be of at least 2 hours. Further, 4.1.5 of AWWA C600 defines leakage as "the quantity of water that must be supplied into the newly laid pipe or any valved section thereof to maintain pressure within 5 psi (34.5kPa) of the specified test pressure after that pipe has been filled with water and the air has been expelled. Leakage *shall not* be measured by a drop in pressure in a test section over a period of time. Please confirm that Sec. 4.1 of AWWA C600 governs hydrostatic testing of the 4" carrier pipe for the leachate conveyance system force main.

RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 11-10-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-037
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER ☐	(4A)RCI/DCN TITLE: BSL SUPPORT BASE PLATE		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
LCS DWG #	92X5900-G-00440		
DCN 1700-067			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

AT BSL: IF 8" CONTAINMENT PIPE IS CENTERED ON SUPPORT PAD, 12"X12" BASE PLATE FOR SUPPORT WILL EXTEND BEYOND 16" WIDTH OF PAD. BASE PLATE CAN BE MODIFIED TO FIT BY TRIMMING ± 3" OFF ONE SIDE.

(10)REQUESTOR: MJ Cleveland	COMPANY: VILLAGE BLDG.	DATE 11-10-97	(12)FCE / PE	DATE

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1997 NOV 13 AM 8:23

± 3" TRIMMING OF BASEPLATE is acceptable or see attached sketch for alternate pipe support.

INFORMATION ONLY

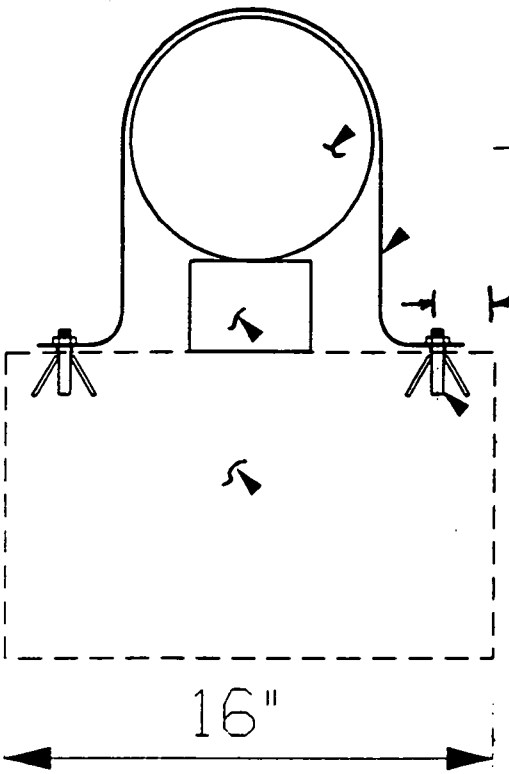
RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton S. Schroeder	DATE 11/12/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUPS	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE 11/14/97
PERFORMANCE GRADE: (17) James C. Jenkins			
(18)CONSTRUCTION CONCURRENCE: Richard L. McKenney	DATE 11/14/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE
PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

received
11-14-97


4"/8" CARBON STEEL
3" WIDE,1/8" PLATE
GALVANIZED STRAP
(2 ROD AT 4' SPACING)
2½" MIN
½" EXP ANCHOR
4"X4"X12" LONG
TREATED TIMBER
16"
EXIST CONC FOUNDATION

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(3)PG 1 OF 2	(4)DATE 10-29-97
(5)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-036
(6) RESPONSIBLE DISCIPLINE: ☒ E ☐ M ☐ C ☐ OTHER	(6A)RCI/DCN TITLE: TEST METHOD - 10" LCS		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC SECTION			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

SINCE NO METHOD OF SEALING PIPE (6"/10") FOR TEST HAS BEEN DEVISED BY GEO-SYNTEC, FDF, OR VBS WE WILL USE A STATIC TEST (HEAD PRESSURE) TO TEST 10" CONTAINMENT.

(10)REQUESTOR: M. CLEVELAND	COMPANY: VBS	DATE 10-29-97	(12)FCE / PE James C. Jenkins	DATE 10/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

See Page 2 for Response

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Ronald Bolton	DATE 4 Nov 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DAT:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L McAfee	DATE 11/6/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DAT

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

The request to use a static head pressure test is disapproved. VBS was reminded to test each segment of piping prior to backfilling and making final connections to manholes and the Permanent Lift Station (PLS). However, they elected to complete the backfilling and make the connections. That procedure will make it more difficult to find leaks if they are detected during the pressure test. A method of sealing the containment piping and conducting pressure testing is described below.

If not already installed, install a fixed end seal for the LTS pipes in each LCS manhole. The fixed end seal shall be constructed by extrusion welding an approximate 2-inch length of 8-inch SDR 11 pipe cut in two halves against the 10-inch containment pipe and against the 6-inch carrier pipe. The two halves will also require welding. Pressure test at 15 psi for 3 hours the LTS containment pipe between LCS Manholes No. 1 and No. 2 and No. 2 and No. 3 and No. 3 and the PLS. The installation of the fixed end seal and pressure test are required by specifications and drawings. The space inside the manhole is tight, but greater than the space available for the extrusion welding repair of the coupling on the south side of the PLS. To assist the pressure testing, test ports shall be installed in the top of the 10-inch pipe at the south end of each manhole and in the fixed end seal at minimum one of the cleanouts within each test segment. If the test fails and there are no leaks found in the test connections or manholes, the pipe shall be isolated in segments and tested until the leak is found, repaired and again tested. After completion of successful testing, provide a plug for the test holes at the cleanouts. The test hole inside the manhole may be left open. At the manholes, the fixed end seals shall be perforated with six 5\8 inch holes after completion of all testing. This does not include the PLS which has a monitoring port.

The containment for the LCS, LCS Redundant and LDS pipes to the cell will be final tested by Petro when the final tests at the liner penetration boxes are performed. The containment between COMH 1 and the PLS should be tested in a similar manner as the LTS line except that the pipe sizes need to change.

Daniel Bodine

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

/WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE: 10-27-97

S/C TITLE: LEACHATE CONVEYANCE SYSTEM — RCI NO.: 1700-035R

RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

RCI/DCN TITLE: PIPE SUPPORT AT BIO. SURGE LAGOON

DCN NO.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
DCN NO.1700-067			
DWG. 92X-5900-G-00255		0	

☐RCI - INQUIRY ☐USQD SCREENING BY PROJECT ENGINEER ☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

DCN. NO. 1700-067 PROVIDES A DIFFERENT PIPE SUPPORT THAN THE ORIGINAL DESIGN. REQUEST PERMISSION TO USE THE ORIGINAL PIPE SUPPORT AS IT HAS ALREADY BEEN FABRICATED AS SHOWN ON DETAIL 4 ON DWG. G00255.

REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
YUNUS AFSHAR	PARSONS	10/27/97	J. C. Jonhson	10/27/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

(PARSONS) RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Phillip E Payne 10-28-97	
FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:	
PERFORMANCE GRADE: NA.	
CONSTRUCTION CONCURRENCE: R.W. McBurney by gcs DATE: 10/27/97	WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO	

FS-F-4259 (10/01/96)

ORIGINAL

INFORMATION ONLY

RECEIVED NOV 01 1997 000235

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)P / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		10/01/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: 1700-034R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Granular Filter Material @ LCS/LDS Manholes

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Trenching and Backfilling	Section 02215	0	Para. 3.03.B.f, g & h

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Specification Section 02215, Trenching and Backfilling, Para. 3.03.B.f, g and h requires the placement of 6 inches of granular filter material above the manhole embedment fill at the LCS/LDS manholes. Does the material submitted by Village Building Services, Inc. for the pipe embedment fill (Submittal #046) meet the requirements for the granular filter material? Both are specified to meet the requirements of Section 703.06 of the Ohio DOT Specifications. Please advise.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	10/1/97	James C. Jenkins	10/1/97

Richard L. McGuire

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Yes, the pipe embedment fill submitted meets the granular filter requirements. CQC has been informed of this earlier this week. (and FOF Construction)

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	10 Oct. 97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
R McGuire N.A.	10/3/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE 9/25/97
S/C TITLE: Leachate Conveyance System			RCI NO.: 1700-033R
RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	RCI/DCN TITLE: Evaluation of Scratches, Scrapes, and Gouges in HDPE Containment Pipe		DCN NO.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Civil Plan and Profile, Sheet 1 of 4	92X-5900-G-00254	1	

☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/ PROPOSED CHANGE

The 8" containment pipe of the Leachate Conveyance System contains scratches, scrapes, and/or gouges resulting from handling associated with delivery and installation operations. HDPE pipe manufacturers recommend that no HDPE pipe with more than 10% reduction in wall thickness be used for full pressure rated systems. Since the containment pipe is not being used in a pressurized application and the required test pressure for this pipe is only 15 psi, please evaluate the acceptability of using HDPE containment pipe with scratches, scrapes, and gouges deeper than 10% of the pipe wall thickness.

REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
Frank L. Flack	FDF	9/25/97	James C Jenkins	9/25/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

See Parsons attached clarifying response (Page 1 of 1)

See GeoSyntec's attached comments

INFORMATION ONLY

PARSONS / GEOSYNTEC RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder (Parsons) 9/25/97	2CNP 5

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/1/97

PERFORMANCE GRADE: 5 James C Jenkins

CONSTRUCTION CONCURRENCE: DATE:	WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
Richard L. McClure 10/1/97	
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO	

FS-F-4259 (10/01/96)

received

ORIGINAL

CR-033 Issue 1 1700:033 R 25 September 97
Leachate Conveyance System

Evaluation of Scratches, Scrapes and gouges in HDPE Containment pipe

Comments are as follows:

1. Carefully pressure test the 8" containment pipe in accordance with the specifications. Visually observe for any leak from the scratches/gouges. Failing the test, the source of failures shall be identified, and corrected. pipe shall be retested before trench is backfilled.

2. Provided that the pipe passes the pressure test, based on the two letters from Scott Hoff and Mike Whitehouse of ISCO (see attachment), the pipe seems to be effective as is and no further reinforcement is required.

Dear Mr. Yunus Afshar,

It has been brought to our attention that you may have some concerns over a number of pipe scratches or gouges which are now present in the secondary containment piping which will be used on a project which you are involved with. The primary concern, as I understand it, is that some of the scratches may approach or exceed 10% of the wall thickness. It is also my understanding, that the secondary containment piping will not exceed a pressure of 15 psi. under the present design guidelines.

Phillips Driscopipe recommends that no pipe with more than a 10% should be used for full pressure rated systems. For an 8" SDR 26 pipe this would be 64 psi. If the scratches or gouges exceed the 10% wall thickness the pipe must be de-rated, ie it will no longer be recommended for full pressure applications. For this reason your secondary containment piping will need to be de-rated just as one would need to de-rate the pipe for high temperature applications. The amount that the pipe would be de-rated is a function of the amount of material which has been removed.

If you have lost less than 20% of the pipe wall due to the scratches and gouges present your pipe can still be used for pressure applications that have a constant operating pressure of 51 psi. or less. This figure can be confirmed by considering the wall thickness of an 8" SDR 32.5 pipe which is 0.265" and is pressure rated to 51psi. A 20% gouge in a pipe with a wall thickness of o.332" would yield a resulting wall thickness of 0.2656.

With these design criteria in mind I would foresee no problem with installing the 8" SDR 26 pipe as a secondary containment piping as long as the operating pressure does not exceed the 51 psi. pressure rating.

If you have any other concerns or questions feel free to contact me at your convenience.

Thank you for your time in this matter.

Sincerely,

Mike Whitehouse

Mike Whitehouse

ISCO INDUSTRIES, Inc.
926 Baxter Avenue
Box 4545
Louisville, KY 40204
P 502.583.6591
F 502.584.9713
HTTP //www.isco-pipe.com

POLYETHYLENE PIPE AND FITTING
PIPE FABRICATION
CULVERT LINERS
ECLIPSE IRRIGATION SUPPLIES

Dear Mr. Yunus Afshar,

This letter is to address the gouges and scratches found on the 8" SDR 26 containment pipe which we discussed this morning. Mike Godber and I measured the gouges in question and found them to be no deeper than 1/16 of an inch (.063") which is greater than the 10% allowable. Therefore, we decided to look at derating the pipe to a lower SDR based on the wall thickness in the affected area. Using the O.D. of 8" pipe (8.625) and the new wall thickness of .332" - .063" = .269" and plugging these numbers into the following equation, the derated SDR of the pipe will be SDR 32.

Steady State Internal Pressure: Phillips Driscopipe subscribes to the SDR method of rating pressure pipe. SDR is the abbreviation for the "Standard Dimension Ratio". What does this SDR mean? SDR is the ratio of the pipe O.D. to the minimum thickness of the wall of the pipe. It can be expressed mathematically as:

$$SDR = \frac{D}{t}$$

Where: SDR = Standard Dimension Ratio
D = Pipe outside diameter in inches
t = Pipe minimum wall thickness in inches

Based on this calculation, the wall is thicker than SDR 32.5 (51 psi) which is typically used for gravity sewers and containment piping. It is our opinion that the pipe will be effective as is and needs no additional reinforcement.

Please feel free to contact me anytime if you should have any questions or concerns at 871-9512. Thank you,

Scott Hoff

Regional Sales Manager

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR-033	1	1700-033R	9-25-97

TITLE: EVAL. OF SCRATCHES, SCRAPES, & GOUGES IN HDPE CONTAINMENT PIPE

PROJ. No.: 2

P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 26 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL YUNUS AFSHAR	9/25/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
	PROJECT ENGINEER C. Schroeder	9/25/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		Y. AFSHAR

SPECIAL INSTRUCTIONS:

GeoSyntec comments on RCI 1700-033R 30 September 97

The RCI inquiry appears to have been written as a general inquiry applying to all 8" containment pipe in the LCS. However, the issue was initiated for a section of 8" containment pipe between COMH No. 4 and COMH No. 5, Drawing No. G-00261 and DCN No. 1700-052. The procedure for re-evaluating a pipe rating having scrapes, cuts and gouges appears sound and is recognized by pipe manufactures.

With respect to the specific scrapes, cuts and gouges measurements have been made by the pipe distributor, ISCO, GeoSyntec and FDF QA. Some differences in measurements have been noted with GeoSyntec believing, and QA agreeing, that the significant gouges were approximately 3/32" deep. Without cutting and examining the pipe the exact reduction in thickness can not be accurately verified. Due to this, QA recommended that the pipe be hydrostatically tested at approximately 30 psi, twice the specified test pressure. Based on the 3/32" measurement, the pipe would be derated to below 51 psi, probably to 40 psi, if a SDR 41.0 existed for this pipe size which it doesn't. The pipe has been tested and after stabilizing passed the 30 psi test. GeoSyntec CQC has written a Non Conformance Report (NCR), because gouges and cuts exceeded the 10 % maximum allowed by the project specification. GeoSyntec would recommend derating this section of containment pipe to the pressure tested and despositioning the NCR to "Use-As-Is" , if this is agreeable to Parsons.

Daniel Bodine D. Bodine
GeoSyntec Resident Engineer

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE 9/25/97

S/C TITLE: Leachate Conveyance System	RCI NO.: 1700-033R

RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	RCI/DCN TITLE: Evaluation of Scratches, Scrapes, and Gouges in HDPE Containment Pipe	DCN NO.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Civil Plan and Profile, Sheet 1 of 4	92X-5900-G-00254	1	

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REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
Frank L. Flack	FDF	9/25/97	James C. Jotten	9/25/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

See Parsons attached clarifying response (Page 1 of 1)

See GeoSyntec's attached comments

PARSONS / GEOSYNTEC RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: DATE: Carlton Schroeder (Parsons) 9/25/97	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE:

CONSTRUCTION CONCURRENCE: DATE:	WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☐NO	

FS-F-4259 (10/01/96)

received

ORIGINAL

000243

CR-033 Issue 1 1700:033 R 25 September 97
Leachate Conveyance System

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Comments are as follows:

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Mike Whitehouse

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Scott Hoff

Regional Sales Manager

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR-033	1	1700-033R	9-25-97

TITLE: EVAL. OF SCRATCHES, SCRAPES, & GOUGES IN HDPE CONTAINMENT PIPE

PROJ. No.: 2 P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 26 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL YUNUS AFSHAR	9/25/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
	PROJECT ENGINEER C. Schroeder	9/25/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:

* ORIGINATING PROJECT DESIGN ENGINEER Y. AFSHAR

SPECIAL INSTRUCTIONS:

GeoSyntec comments on RCI 1700-033R 30 September 97

The RCI inquiry appears to have been written as a general inquiry applying to all 8" containment pipe in the LCS. However, the issue was initiated for a section of 8" containment pipe between COMH No. 4 and COMH No. 5, Drawing No. G-00261 and DCN No. 1700-052. The procedure for re-evaluating a pipe rating having scrapes, cuts and gouges appears sound and is recognized by pipe manufactures.

With respect to the specific scrapes, cuts and gouges measurements have been made by the pipe distributor, ISCO, GeoSyntec and FDF QA. Some differences in measurements have been noted with GeoSyntec believing, and QA agreeing, that the significant gouges were approximately 3/32" deep. Without cutting and examining the pipe the exact reduction in thickness can not be accurately verified. Due to this, QA recommended that the pipe be hydrostatically tested at approximately 30 psi, twice the specified test pressure. Based on the 3/32" measurement, the pipe would be derated to below 51 psi, probably to 40 psi, if a SDR 41.0 existed for this pipe size which it doesn't. The pipe has been tested and after stabilizing passed the 30 psi test. GeoSyntec CQC has written a Non Conformance Report (NCR), because gouges and cuts exceeded the 10 % maximum allowed by the project specification. GeoSyntec would recommend derating this section of containment pipe to the pressure tested and despositioning the NCR to "Use-As-Is" , if this is agreeable to Parsons.

Daniel Bodine D. Bodine
GeoSyntec Resident Engineer

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)PG 1 OF 1	(6)DATE 8-21-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-032R
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER ☐	(4A)RCI/DCN TITLE: SPARE PUMP TURNOVER		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION SECTION	15160 - 1.1A.		

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

PLEASE IDENTIFY PROCEDURE FOR TURNOVER OF SPARE PUMP AND PARTS

INFORMATION ONLY

(10)REQUESTOR: [signature] COMPANY: VILLAGE BLOCK 8 DATE (12)FCE / PE: [signature] 9/24/97 DATE

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

Attached Response/Procedure may be followed

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder 9/30/97 DATE (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: N.A. DATE 10/3/97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

received PG 9-26 97

SUGGESTED RESPONSE

1. Notify FDF Project Engineer and/or Construction Manager when item has been delivered and where it is presently located.

2. FDF P.E. notifies Quality Assurance to perform receipt inspection.

3. Quality Assurance will inspect item, document findings, and recommend to accept or reject item.

4. P.E. accepts or rejects item.

5. Rejected item is returned to the contractor. Accepted item continues to #6.

6. P.E. notifies AWWT management at extension 5962 or 5774 a OSDF maintenance item has been received and arranges pick-up or delivery.

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR.032	1	1700-032R	9/26/97
TITLE: Spare Pump Turnover		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 30 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
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Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
o	MECHANICAL PROCESS S. GHANTOUS	9/29/97	SG		
	PIPING				
	STRUCTURAL				
•	CIVIL Y. AFSHAR	9/29/97	YA		
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
o	PROJECT ENGINEER C. SCHROEDER	9/30/97	CS		
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		Schroeder

SPECIAL INSTRUCTIONS:

4/97

ENG 029

000251

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-597	(5)Pg 1 OF 1	(6)DATE 25 July 97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-030R
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: THRUST BLOCK LOCATIONS		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00254, G-00026/G-00266/G-00262/G-00254		all 1	
DCN-1700-013/014			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Please clarify, if any, thrust block locations along the LCS pressure line. Of special intrest is the locations where manholes were replaced with cleanouts. Immediate concern, because of ongoing construction, is COMH 12, 10, and the bend near AWWT area.

(10)REQUESTOR: COMPANY: DATE:	(12)FCE / PE DATE:
Kamil Bedal GeoSyntec 25 July 97	J. C. Jenkins 7/25/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1) See Parsons attached clarification comments (Page 1 of 1) and Sketch 1 of 1

10/15/97 THE ATTACHED TEST REPORTS INDICATE PRESSURE TESTING OF THE LEACHATE LINE ~~THROUGH~~ THRU THE CLEANOUTS WAS PERFORMED PRIOR TO THE RCI. THE TEST (95psi) PASSED. THEREFORE THRUST BLOCKS AT THE CLEANOUTS ARE NOT REQUIRED J. C. Jenkins

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder 7/30/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 5 NOT REQUIRED

(18)CONSTRUCTION CONCURRENCE: DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
R McAmis ~~NOT REQUIRED~~ RLM 10/17/97	

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

RCI 30R

ORIGINAL

received 7-25-97

INFORMATION ONLY

RECEIVED OCT 20 1997

000252 RGB

CR-030 Issue 1 1700:030 R 30 July 97
Leachate Conveyance System

Comments are as follows:

1. Thrust blocks are to be placed at COMHs 10 and 12. See attached detail.

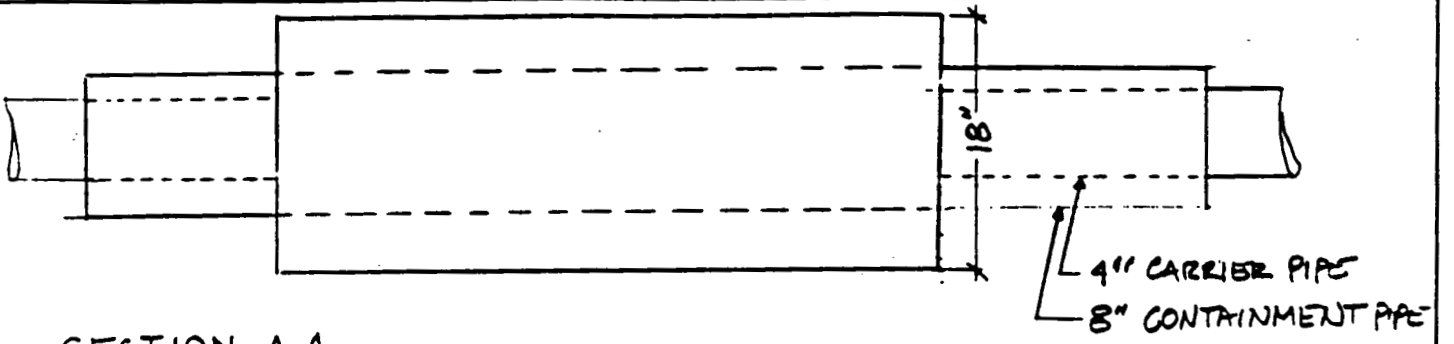
2. Thrust block is not required at the bend on the LCS line near the AWWT, provided the trench is properly backfilled and compacted.

1271 Parsons
Sheet 1 of 1
RC1 1700-030.2

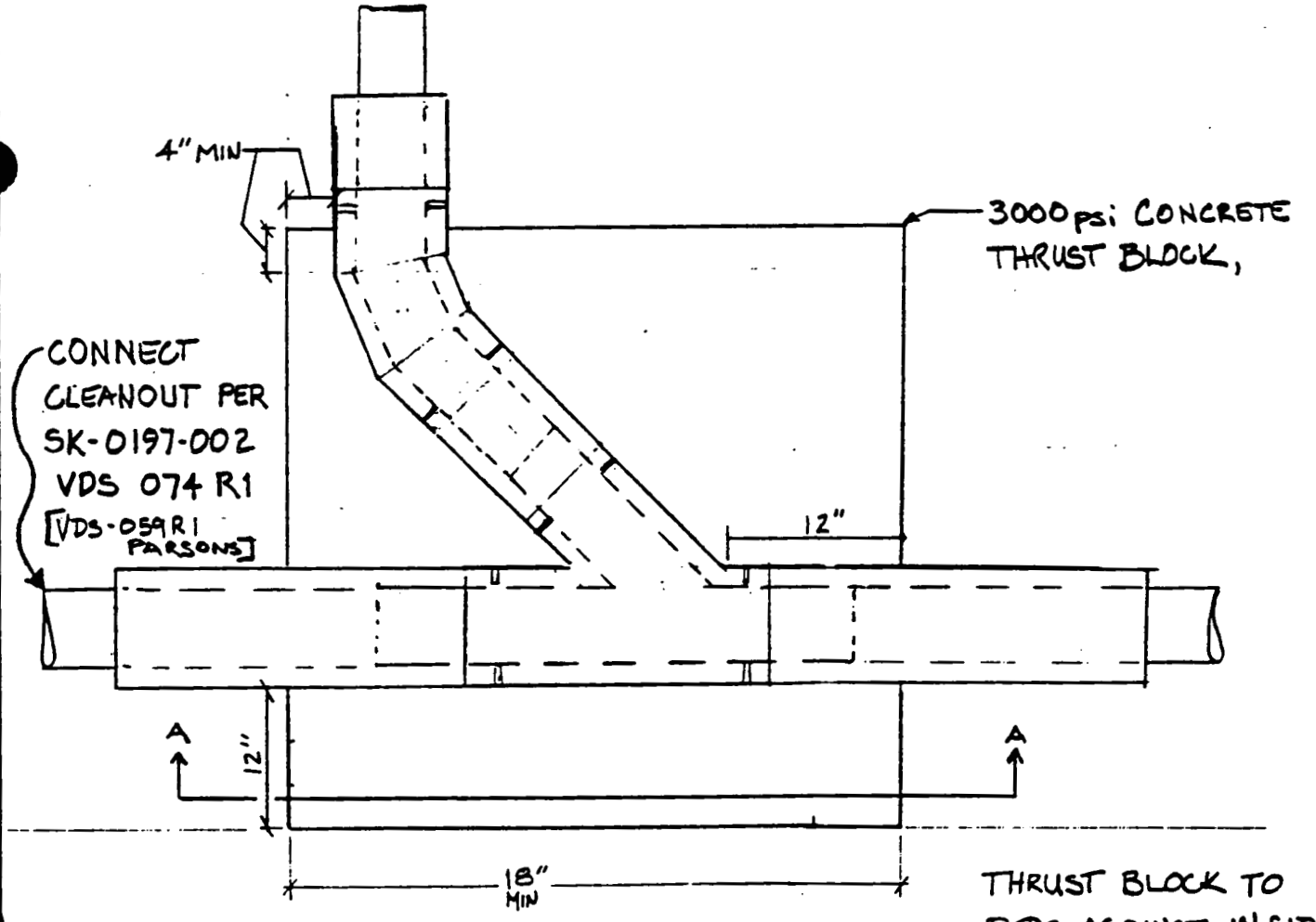
PARSONS
ERA PROJECT

CALCULATION SHEET

REV	BY	DATE	CK	DATE	TITLE	Project
					LCS 4"/8" LINE	SRP
					THRUST BLOCK @ COMH 10 & 12	PO No. 164
					AUTHOR K.G 7/29/97 SHEET OF	



SECTION A-A
nts



PLAN VIEW
nts

THRUST BLOCK TO BEAR AGAINST IN-SITU SOIL. IF DISTURBED, RECOMPACT TO 95% STD. PROCTOR (MIN.)

000254

PARSONS
ERA PROJECT

[redacted] ROUTING CARD - 1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:		
CR-030	1	1700-030R	7-30-97		
TITLE: THRUST BLOCK LOCATION			CRU No.: 2	SRP	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 7 , 31 , 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'	STATUS 'D'
	PROCESS					
	MECHANICAL PROCESS					
	PIPING					
	STRUCTURAL					
• 1	CIVIL Yunes AFSHAR	7/30/97		YA		
	ELECTRICAL					
	INSTRUMENTATION					
	MATERIAL HANDLING					
	ARCHITECTURAL					
	ENVIRONMENTAL, SAFETY, & HEALTH					
	HVAC					
	GEOTECHNICAL					
	QUALITY ASSURANCE					
• 2	PROJECT ENGINEER Carlton Schroeder	7/30/97		CS		
	TITLE III MANAGER					
	CRU MANAGER					

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED
STATUS 'D' = DOCUMENTS ARE ACCEPTABLE

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

ENG LIA

000255

Q.E.P. No. [redacted]

Source [ ] Receiving [ ] Const./Remediation [X] Maint./Operations [ ] Waste [ ] Sampling [ ]

2. Item/Title/Description: SUBCONTRACT FSC 589, LEACHATE CONVEYANCE SYSTEM

HYDROSTATIC TEST FOR HDPE PIPING

3. Project/Task: LEACHATE CONVEYANCE SYSTEM	4.Spec./DWG: SECTION 2667, 2605, DCN [redacted] RCI: 1700-023R
5. Prepared By: MIKE GODBER Date: 6/23/97	6. Reviewed By: RICK MCGUIRE Date: 6/23/97
7. NDE Level III: n/a Date:	8. Approved By: JIM JENKINS Date: 6/23/97

9.Char. No.	10. Evaluation Characteristic (Code/Specification, Inspection/Test/Examination Techniques, Acceptance Criteria)	11.Status Stamp & Date	12. General Remarks
	GENERAL INFORMATION STATUS OF PIPE LINE TO BE TESTED: [X] BURIED [ ] OUT OF TRENCH [ ] IN TRENCH LOCATION OF PIPE TO BE TESTED: FROM ALBERTIN ROAD TO COMH11 PIPE SIZE AND FLUID SERVICE: 4" LCS WEATHER CONDITIONS: 89-93°F PARTLY CLOUDY REQUIRED TEST PRESSURE: 95 PSI REQUIRED TEST DURATION: 3 HOURS.		ORIGINAL 1:00 TO 4:00

13. Quality Evaluator: 8/4/97

14. Open Q.P.: Yes [ ] No [X] 15. P/QA Manager Review: 8-8-97

16. P/QA Manager (completed Q.P.): 8-8-97

17. Distribution: [ ] Requesting Org [ ] Participating Org [ ] P/QA Project/Activity Representative [ ] Other

Quality Evaluation Plan
(Sheet 1 of 3)

FS-F-4400 (05/06/96)

Char. No.	10. Evaluation Characteristic	11. Stamp & Date:	12. General Remarks
	TEST GAUGES ~~ACCEPTABLE TEST GAUGES:~~		

GAUGE NUMBER	CAL DATE	TRACE TO NIST
100	6/10/97	YES
101	6/10/97	YES
201	6/10/97	YES
202	6/10/97	YES

1. VERIFY GAUGE NUMBER: 201
2. VERIFY CALIBRATION DATE: 6/10/97

TEST PROCEDURE

3. VERIFY THE PIPE HAS BEEN FILLED WITH WATER/AIR AND PUMPED TO THE RECOMMENDED PRESSURE.

   RECORD THE TEST PRESSURE: 99 PSI

*****ACCEPTANCE CRITERIA*****

4. FOR THE LCS PIPING VERIFY THERE IS NO DROP IN PRESSURE OVER THE DURATION OF THE TEST.
5. FOR THE UTILITIES VERIFY THE PRESSURE DROP IS WITHIN THE ALLOWABLE LIMITS AS REFERENCED IN SPEC SECTION 2667. — DNA
6. IF THE PIPE IS NOT BURIED VERIFY THERE ARE NO LEAKS. — DNA

[X] ACCEPT
[ ] FAIL

ATTACH THE SUBCONTRACTORS TEST REPORT TO THIS QUALITY EVALUATION PLAN.

DURATION 1:00 TO 4:00 FINAL PRESSURE WAS 99 PSI.

ORIGINAL

VILLAGE BUILDING SERVICES, INC.
FDF PROJECT NO. 20110/1700
FDF SUBCONTRACT NO. 589

OPERABLE UNIT 2
ON-SITE DISPOSAL FACILITY
LEACHATE CONVEYANCE SYSTEM

PRESSURE TEST RECORD

TEST RECORD NO. 12 DATE 8/4/97

LINE SERVICE/ NO.: LCS	LINE MEDIUM: OSDF Leachate
MAX. OPERATING PRESSURE:	TEST PRESSURE: 95 PSI
SPEC./CODE: 02605	TEST MEDIUM: Water

REFERENCE DRAWINGS/TEST BOUNDARIES: Drawing

PIPE SIZE: 4" TYPE: HDPE LCS SDR17

PIPE IN TRENCH ☒ YES ☐ NO

BACKFILL CONDITIONS: Backfilled from Anchor to Comm#11 – Test 4hrs per spec.

ALL REQUIRED GAUGES/INST. ISOLATED: CONFIRMATION: Yes DATE: 8/4/97

CQC NOTIFIED Yahaya Willingham DATE/TIME 8/4 12:30

TEST GAUGE IDENT. 201	CALIBRATION DUE DATE: 6-10-98
TEST START TIME: 1:00	TEST GAUGE READING: 99 PSI
TEST FINISH TIME: 4:00	TEST GAUGE READING: 99 PSI

TEST VERIFICATION	ACCEPT	REJECT	DATE
CONTRACTOR:	✓		8/4/97
CLIENT/QC:	✓		8/4/97
CLIENT/QA:	X		8/4/97

REMARKS/COMMENTS:

1:00 99 PSI
2:00 99 PSI
3:00 99 PSI
4:00 99 PSI

QUALITY EV. ATION PLAN

QEP No. _____ Rev. ____

1. Source [ ] Receiving [ ] Const./Remediation [X] Maint./Operations [ ] Waste [ ] Sampling [ ] Recycling [ ]

2. Item/Title/Description: HYDROSTATIC TEST OF THE LEACHATE CONVEYANCE PIPING AND UTILITY PIPING

3. Project/Task: LEACHATE CONVEYANCE SYSTEM

4. Spec./DWG. PO/REQ: SPEC 2605, 2667, DCN 033, RCI 023

5. Prepared By: MIKE GODBER Date: 8/15/97

6. Reviewed By: RICK MCGUIRE Date: 8/15/97

7. NDE Level III: (When Required) Date:

8. Approved By: JIM JENKINS Date: 8/15/97

9. Char. No.	10. Evaluation Characteristic (Code/Specification, Inspection/Test/Examination Techniques, Acceptance Criteria)	11. Status SAT	11. Status UNSAT	12. Printed Name/ Signature and Date:	13. General Remarks:
	GENERAL INFORMATION STATUS OF PIPE LINE TO BE TESTED [X] BURIED [ ] OUT OF TRENCH [X] IN TRENCH LOCATION OF PIPE TO BE TESTED: LCS 8" FROM COMH 11 TO CONSTRUCTION ROAD CROSSING WEATHER CONDITIONS: CLOUDY 72-78°F REQUIRED TEST PRESSURE AND DURATION TEST PRESSURE: 15PSI DURATION: 8HOURS			MICHAEL W. GODBER MG 3 8/20/97 ORIGINAL	TESTED: LCS 8" CONTAINMENT SINCE THE PIPE WAS TESTED UNDER-GROUND THE TEST DURATION 3 HOURS. WAS MG 8/20/97

14. QA Team Member Michael W. Godber 8/20/97 Date:

15. QA Team Coach (completed QEP): Date:

16. Distribution: [ ] Requesting Org. [ ] Participating Org. [ ] QA Project/Activity Representative [ ] Other

000259

Quality Evaluation Plan
(Sheet 1 of ___)

FS-F-4400 (08/01/97)

QUALITY EV ATION PLAN
(CONTINU N SHEET)

QEP No. _____ Rev. ____

9. Char. No.	10. Evaluation Characteristic (Code/Specification, Inspection/Test/Examination Techniques, Acceptance Criteria)	11. Status SAT	11. Status UNSAT	12. Printed Name/ Signature and Date	13. General Remarks:
	ACCEPTABLE GAUGES GAUGE NUMBER CAL. DATE TRACE TO NIST 100 6/10/97 YES 101 6/10/97 YES 201 6/10/97 YES 202 6/10/97 YES 202A 7/03/97 YES VERIFY GAUGE NUMBER: 101 VERIFY CALIBRATION DATE: 6/10/97				RECOMMENDED TEST PRESSURES PIPE TYPE TEST PRESSURE SN-3-INCH 80 PSI FG-6-INCH 66 PSI DW-6-INCH 120 PSI GW-12-INCH 160 PSI GW-10-INCH 160 PSI CE-6-INCH 100 PSI FG-12-INCH 160 PSI LCS-4-INCH ~~95 PSI~~ LCS-8-INCH 15 PSI ~~LCS-4-INCH GRAVITY 50 PSI~~
	VERIFY THE PIPE HAS BEEN FILLED WITH WATER/AIR AND PUMPED TO THE RECOMMENDED PRESSURE.	X		Michael K Fuller 8/20/97	TESTED AT 15PSI PRESSURE 15 PSI MG 8/20/97
	FOR LCS PIPING, VERIFY THERE IS NO DROP IN PRESSURE OVER THE DURATION OF THE TEST. IF THERE IS A SLIGHT DROP IN PRESSURE, VERIFY THE TEMPERATURES ARE MONITORED AND ANALYZED TO DETERMINE ACCEPTANCE.	X		Michael K Fuller 8/20/97	
	FOR THE UTILITY PIPING VERIFY THE PRESSURE DROP IS WITHIN THE ALLOWABLE LIMITS AS REFERENCED IN SPEC SECTION 2667.	DNA			
	IF THE PIPE IS NOT BURIED VERIFY THERE ARE NO LEAKS.	DNA			PIPE WAS BURIED

ORIGINAL

000260

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(3)PG / OF 1	(6)DATE 7-7-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700:029R
(4) RESPONSIBLE DISCIPLINE: S☐ M☐ C☐ OTHER ☐	(4A)RCI/DCN TITLE: PRESSURE TESTING CONTAINMENT PIPING		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
TECH. SPEC. 2605-12, C.A.D.			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(7)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

MANUFACTURER RECOMMENDS AGAINST USING A PRESSURE TEST ON CLEANOUTS DUE TO EXTRUSION WELDS ON CONTAINMENT PER ATTACHED.

INFORMATION ONLY

(10)REQUESTOR: COMPANY: MJC VILLAGE BLDR DATE 7-7-97 | (12)PCE / PE: K. C. Jenkins DATE 7/9/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES | (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☒DISAPPROVED

This is unacceptable. Project specifications and design require the containment piping to be tested at 15 psi. This has not changed. Shop design/fabrication was performed by ISCO for VBS. Submittal No 74 did not specify or make any indication that the cleanout design would not be suitable under specified test conditions. The containment piping shall be tested at 15psi. If it fails it shall be repaired or removed and replaced with acceptable piping. (GEOSYNTEC)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Boling 9 July 97 DATE | (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)PDP PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 4 N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L McGuire DATE 7/16/97 | (21)WORK COMPLETED: (SIGNOFF BY PCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4139 (10/01/96)

ORIGINAL

RECEIVED JUL 21 1997

July 8, 1997

Mayur P. Kadakia
Village Building Services Inc.
7311 Vine Street
Cincinnati, Ohio 45216

Dear Mayur:

This letter is to inform you that the containment lines of the 4"X8" cleanouts were made with extrusion welds. It is our understanding that the containment line will be tested at 15 psi. Although the extrusion welds can hold some pressure for short periods of time, it is our recommendation that these welds not be tested at this pressure simply because they are not designed to hold pressure and are used for gravity applications only (ie. the containment line). The cleanouts have been leak tested in the shop prior to shipment to Fernald. All extrusion welds were extruded with a wire under the weld and the weld was then spark tested. The spark test will detect any void which water may pass through. Filling the cleanouts with water sometimes fails to show small voids and potential leakage areas; therefore, ISCO has established this spark testing procedure for all extrusion welded fabrications. If these cleanouts could have been made without extrusion welds, it would have been done, but with the way they were designed, extrusion welding was necessary. Please contact me at (513)871-9512 with any additional questions, thank you.

Sincerely,

Scott Hoff
Regional Sales Manager

File with RCT for reference DCS

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(3)PG / OF 1	(4)DATE 7-7-97
(5)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700:0298
(6) RESPONSIBLE DISCIPLINE: ☐ SO ☐ MO ☐ CO ☐ OTHER	(4A)RCI/DCN TITLE: PRESSURE TESTING CONTAINMENT PIPING		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
TECH. SPEC. 2605-12, C.2.d.			

(9)☒RCI - INQUIRY ☐ UIQD SCREENING BY PROJECT ENGINEER (9)DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

MANUFACTURER RECOMMENDS AGAINST USING A PRESSURE TEST ON CLEANOUTS DUE TO EXTRUSION WELDS ON CONTAINMENT PER ATTACHED.

(10)REQUESTOR: MJC COMPANY: VILLAGE BLVD DATE 7-7-97 (12)PCE / PE: J.C. Jenkins DATE 7/9/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☒DISAPPROVED

This is unacceptable. Project specifications and design require the containment piping to be tested at 15 psi. This has not changed. Shop design fabrication was performed by ISCO for VBS. Submittal No 74 did not specify or make any indication that the cleanout design would not be suitable under specified test conditions. The containment piping shall be tested at 15psi. If it fails it shall be repaired or removed and replaced with acceptable piping. (GEOSYNTEC)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolin 9 July 97 DATE (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)PDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DA

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE: DATE (21)WORK COMPLETED: (22)ON/OFF BY PCE OR PE) DA

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

SEE PARSONS ATTACHED COMMENTS Pages 1 and 2 of 2

ORIGINAL

1997 JUL 14 AM 9:29

1

July 8, 1997

Mayur P. Kadakia
Village Building Services Inc.
7311 Vine Street
Cincinnati, Ohio 45216

Dear Mayur:

This letter is to inform you that the containment lines of the 4"X8" cleanouts were made with extrusion welds. It is our understanding that the containment line will be tested at 15 psi. Although the extrusion welds can hold some pressure for short periods of time, it is our recommendation that these welds not be tested at this pressure simply because they are not designed to hold pressure and are used for gravity applications only (ie. the containment line). The cleanouts have been leak tested in the shop prior to shipment to Fernald. All extrusion welds were extruded with a wire under the weld and the weld was then spark tested. The spark test will detect any void which water may pass through. Filling the cleanouts with water sometimes fails to show small voids and potential leakage areas; therefore, ISCO has established this spark testing procedure for all extrusion welded fabrications. If these cleanouts could have been made without extrusion welds, it would have been done, but with the way they were designed, extrusion welding was necessary. Please contact me at (513)871-9512 with any additional questions, thank you.

Sincerely,

Scott Hoff
Regional Sales Manager

PARSONS
ERA PROJECT

ROUTING CARD

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
CR-029	1	1700:029R	7-17-97	
TITLE: TESTING CONTAINMENT PRESSURE PIPING			OU NO. 2	P.O. No.: ~~158~~ 164 KG

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 7 / 18 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
• 1	CIVIL YUNUS ANSARI / R. GHARIB	7-21-97			YA/KG
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
• 2	PROJECT ENGINEER CARLTON S.	7/22/97			CS
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

PARSONS
~~Sheet 1 of 1~~
Page 2 of 2

22 July 1997

PO-164 Leachate Conveyance System

DOC No.: CR-029 ISSUE: 1 TRANSMITTAL No.: 1700:029R
TITLE: Pressure Testing Containment Piping

Civil Comments are as follows:

1. The RCI involves the specification section prepared by GeoSyntec. No exception taken to the disapproved response from GeoSyntec (Daniel Bodine) 7/9/97.

2. If the pressure test is relaxed for the containment pipe, it should be no less than 11psi. under gravity conditions. (Based on 1.5 times an assumed maximum static head at the BSL of 17'. This is for the portion between the lift station and the BSL. and is considered to be a worse case scenario that is highly unlikely.)

LEACHATE CONVEYANCE SYSTEM DOCUMENT REVIEW COMMENT SHEET

P0164

SHE/OWNER:

REVIEWING DIVISION: PARSONS

DATE: 7/21/97

DOCUMENT NO. AND TITLE: CR-029 TESTING CONTAINMENT PRESSURE PIPE

DATE COMMENTS DUE:

REQUEST NO.: 1 / TRANSMITTAL No.: 1700-029R

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SNC 1	COMMENT RESOLUTION
1	Y. AFSHAR		THE HDPE CONTAINMENT PIPE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS AT 15 PSI.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

492000

JUL. -23'97(MON) 11:30 TEL:3648 P.003

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg OF 1 2	(6)DATE 6/11/97 6/13/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-037R
(4) RESPONSIBLE DISCIPLINE: ED MD CX OTHER	(4A)RCI/DCN TITLE: Clean-out Detail Fittings		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DCN-1700-014	20110-SK-005		

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The leachate pipe is a 1"/8" double wall pipe. Is the 6" O.I. Flange shown a typo that should be 4" iron or steel blind flange?

Should the transition fitting have referred to Detail #4 on Dwg. 92X-5900-G-410 Sh 0010?

(10)REQUESTOR: Jeff Ellis	COMPANY: FDF	DATE:	(12)FCE / PE: J.C. Jenkins	DATE: 6/11/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) Flange should be 4"; detail would be similar to detail #4 on sheet 0010

INFORMATION ONLY

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 6/17/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N/A

(18)CONSTRUCTION CONCURRENCE: Richard L McAfee	DATE: 6/19/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

S-F-4259 (10/01/96)

ORIGINAL

received 6-13-97

RECEIVED JUL 24 1997 OGB

DCN 027 PO 164

000268

1271 Parsons

16 June 97

SCEP PO-164 Leachate Conveyance System

DOC. No.: RCI-027 ISSUE: 1 TRANSMITTAL No.: RCI 1700-027

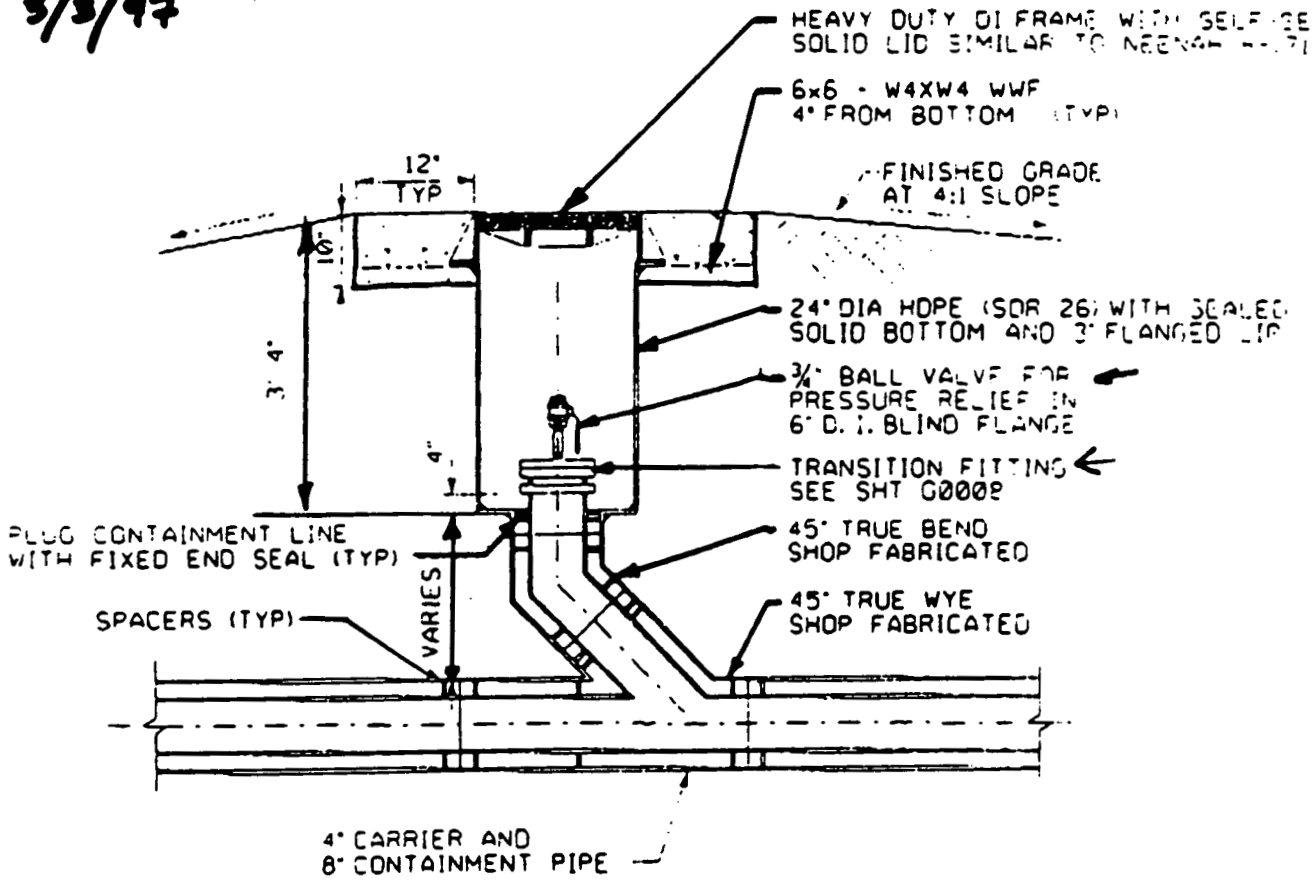
RE: Cleanout fitting

Civil Comments are as follows:

1. Flange should be 4".

DCN 1700-~~011~~ SHT. 2 OF 2
LEACHATE CONVEYANCE SYSTEM

SK-20110-005
3/3/97



CLEANOUT DETAIL

NTS

REF
G00254
G00261
G00266
G00262
G00259

- CLEANOUT ASSEMBLIES SHALL BE SHOP FABRICATED. ALLOW FOR FIELD CONNECTION TO PIPELINE.
- THE DIMENSION FROM TOP OF FRAME TO TOP OF CONTAINMENT PIPE VARIES FOR EACH CLEANOUT.
- INSTALL CLEANOUT ON LATERAL FOR COMH 10 AND COMH 12 LOCATIONS. USE ALL 4"/8" HDPE PIPE, BEND, AND WYE SIMILAR TO THE TYPE 3 PLAN ON DWG G00258.

R92g00258.m po164@ws404. Mon Mar 3 10:17:26 EST 1997

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 2	(6)DATE 05/30/97
(3)S/C TITLE:		(11)RCI NO.: 1700-026R	
(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐	(4A)RCI/DCN TITLE: HDPE STUB-OUT TIE-IN CLARIFICATION	(11)DCN NO.:	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Technical Specification pg 02605-5 para 2.03D			
RCI 1700-015R			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

All MH's and Lift Station stub-out pipe will be machined to the same SDR as the tie-in piping. Please be advise.

(10)REQUESTOR: Mayur P. Kadakia COMPANY: VILLAGE BLDG. SERVICES, of FPL DATE:

(12)FCE / PE: Richard L McLaren DATE: 6/6/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

REFER TO RCI 1700-022R

FOR INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 6/6/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: N.A. DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED JUN 09 1997

RECEIVED JUN 09 1997

RECEIVED JUN 09 1997

000271

Chevron
Plexco
A Division of Chevron Chemical Company
1601 W. 287 By-Pass • Waxahachie, TX 75165

FAX TRANSMISSION COVER SHEET

DATE 5-29-97

TOTAL NUMBER OF PAGES INCLUDING COVER SHEET 1

TRANSMITTING TO Mayor Kadaki

COMPANY Village Building

FAX NUMBER _____

All stub-out tie-in pipe will be the SDR that is noted on the Plexco drawings. The ends of the pipe will be machined (de-rated) to the same SDR as the tie-in piping

If any problems arise during transmission, please contact me as soon as possible.

Thank you,

Tim Tipton
Project Coordinator, Fabricated Products
Tele. 972-923-6408
Fax 972-937-8231

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 20110 / 1700	(2)S/C NO.: 589	(3)PG 1 OF 1	(6)DATE 6/3/97
(5)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-025R
(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER ☐	(4A)RCI/DCN TITLE: LOW TORQUE TYPE FLANGE GASKETS		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC SC 589, SECTION 15000, PT2.11A			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THE LOW TORQUE TYPE FLANGE GASKETS SUPPLIED BY ASAHI/AMERICA AND RECEIVED AT SITE CANNOT BE VERIFIED TO BE IN ACCORDANCE WITH ASTM F 477. THE MANUFACTURER'S RESPONSE IS THE MATERIAL DOES NOT OFFICIALLY MEET THE ASTM SPEC. BUT DOES MEET THE BASIC INTENT. (REF. ATTACHED.) SUBMITTAL #41 WAS APPROVED WITH AN 'A' STATUS.

(10)REQUESTOR: H. MILLIRON	COMPANY: VBS QA	DATE 6-4-97	(12)FCE / PE: Richard L McInnes	DATE 6/6/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CONCURR WITH THE MANUFACTURER'S RESPONCE.

FOR INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins	DATE 6/6/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)		DATE
PERFORMANCE GRADE: (17) N.A.		
(18)CONSTRUCTION CONCURRENCE: N.A.	DATE	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE
PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)		

FS-F-4259 (10/01/96)

RECEIVED JUN 09 1997 063

RECEIVED JUN 05 1997 DSB

ORIGINAL

ASAHI/AMERICA, INC.
THERMOPLASTIC VALVES AND PIPING SYSTEMS

CERTIFICATE OF COMPLIANCE

Asahi/America's Order Number	97037-00
Agent's Order Number	03-71195
Customer's Name	Corro-Flo / Harrington
Address	1227 Hillsmith Drive Cincinnati, OH 45215
Project Name	Leachate Conveyance System

Item	Qty	Description	Part #.
1	2	8" EPDM AV Gaskets	3113080
2	36	4" EPDM AV Gaskets	3113040

The product(s) as listed above meets all the requirements of Asahi/America's specifications and drawings. Tests and inspections specified in the work order have been completed. Any deviation to specification is noted below.

Signature J. McL Title Product Engineer

Date May 19, 1997

ASAHI/AMERICA, INC. 19 GREEN STREET, MALDEN, MA. 02148
P.O. BOX 653 TEL: (617) 321-5409 FAX: (617) 321-4421

ORIGINAL

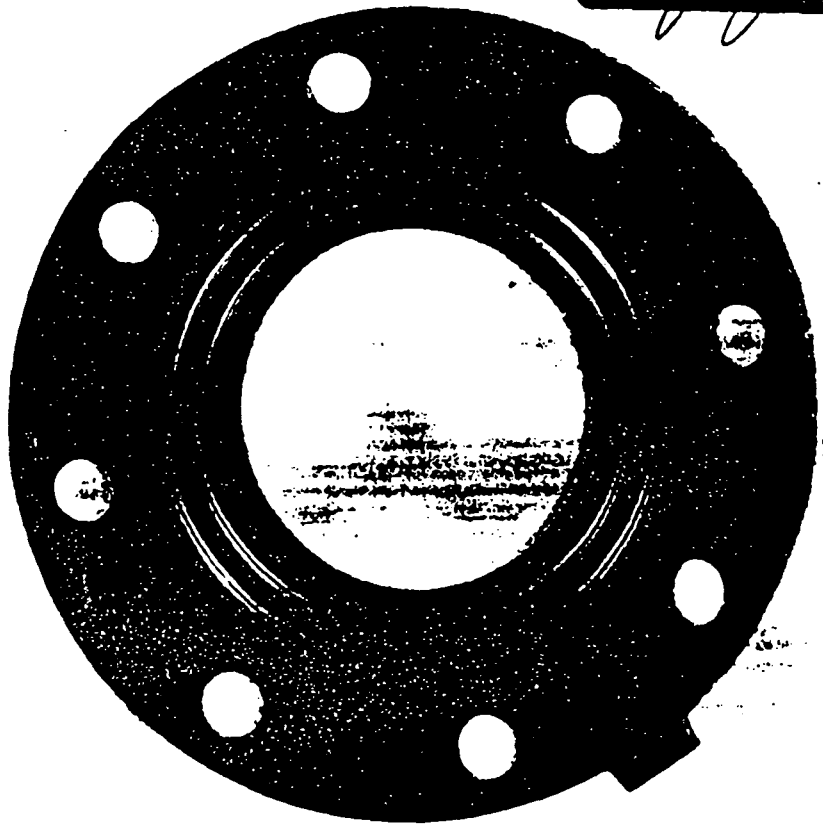
VDD-BNF-000
1271

ASAHI/AMERICA®

LOW TORQUE AV GASKETS

Specifications GK-2
Features
Discussion

INFORMATION ONLY



ORIGINAL

SIZES
½" - 12"

MATERIALS
EPDM, Teflon®-bonded EPDM and PVDF-bonded EPDM

TEMPERATURE RANGE
-4° F to 250°F

FEATURES
- EPDM (hardness 65-66, Durameter A)
- PVDF or Teflon®-bonded EPDM for maximum corrosion resistance.
- Concentric convex sealing rings
- Perfect sealing at low bold tightening torques gives longer gasket life.
- Ideal for 150 lb thermoplastic piping systems, as well as metal or plastic-lined metal systems.

DISCUSSION
Asahi/America's AV GASKETS offer a unique double convex ring design that gives optimum sealing with only 1/8th the torque commonly required with flat-faced gaskets. The PVDF and Teflon-bonded AV gaskets employ a proprietary laminating process for bonding to EPDM which produces the greater elasticity required for lower sealing torques.

SEQ 15000 - 211,

19 Green Street, Malden, MA 02148 • P.O. Box 653 • Tel: (617) 321-5409 • Fax: (617) 321-4421

000275

LCS / LDS

PHOTOCOMM, INC.
THE WIRELESS POWER COMPANY

SOLAR SYSTEM CUSTOMER WORKSHEET

Clearly print or type all information: Date: _____

Company Name: _____ Your Name: _____

Phone: _____ Ext. _____ Fax: _____

Address: _____ City: _____ State: _____ Zip: _____

Application/Use (be specific): _____

Area of Use (nearest major city): Cincinnati Winter Peak Sun Hours: (If Known) 39° N

Primary Load:
Voltage: 24 VDC Amps: 2 x 0.75 X 24 Hours Per Day = 36 Ah/Day
Describe: 2 - Programmable level Controller
NOTE: POWER INRUSH CURRENT 10A for 4ms at startup

Secondary Load:
Voltage: 24 VDC Amps: 0.6 X 24 Hours Per Day = 14.4 Ah/Day
Describe: Alarm Light
NOTE: LOAD ONLY PRESENT DURING ALARM CONDITION

Additional Load:
Voltage: _____ Amps: _____ X _____ Hours Per Day = _____ Ah/Day
Describe: _____

Total Daily Load = 50.4 Ah/Day
at 24 VDC

Do you prefer a unitized system or detached solar array? DETACHED

How is the system or components be mounted? (pole, handrail, ground, etc.) Pole

Size of pipe or pole, other mounting information? Solar Module mounted at 16 ft

Is theft or vandalism a problem? YES

Industrial Division P.O. Box 460 • Stafford, Texas 77497-0460 • (713) 933-1578 • FAX (713) 933-1599

ORIGINAL

000276

GeoSyntec Consultants

100 Lake Hearn Drive, N.E. • Suite
Atlanta, Georgia 30342-1522 •
Tel. (404) 705-9500 • Fax (404) 705-

FAX COVER SHEET

TO: DAN BODINE

FIRM: GEOSYNTEC

FAX NO: (513) 648-5767

FROM: BRIAN JACOBSON

PROJECT NO:

Cover Page Plus 2 pages following.

Sent by: BJ Date: 20 May 97 Time: 11:15

Message:

Information required for RCI Form.

Corporate Office:
621 N.W. 53rd Street • Suite 650
Boca Raton, Florida 33487 • USA
Tel. (407) 995-0900 • Fax (407) 995-0925

Regional Offices:
Atlanta, GA • Boca Raton, FL
Columbia, MD • Huntington Beach, CA
Walnut Creek, CA • Brussels, Belgium

Labora
Atlan
Boca Ra
Huntington Bea

RECYCLED AND RECYCLABLE

CORRO-FLO HARRINGTON
Industrial Plastics Inc.

1227 HILLSMITH DRIVE
CINCINNATI, OHIO 45215
(513) 771-0880 • (800) 743-0880
FAX (513) 771-5915

V.B.S.
ATTN: MAYUR
PO #4191

MAYUR,

MAYUR, THIS LETTER IS IN REGARDS TO THE LOW TORQUE GASKETS WE FURNISHED ON THE ABOVE REFERENCED PURCHASE ORDER FOR THE LEACHATE CONVEYANCE SYSTEM AT FERNALD. I SPOKE W/ JIM JENKINS & HE FAXED ME A COPY OF THE ASTM F477. (ENCLOSED FOR REFERENCE) ASAHI AMERICA (THE MFG), LOCATED IN MALDEN, MA, REVIEWED THE ASTM & SENT TO THEIR ENGINEERING PLANT IN JAPAN. THEY SENT IT TO JAPAN BECAUSE NO ONE IN THE STATES IS FAMILIAR WITH THIS ASTM. HOWEVER, JAPAN REVIEWED & THEIR RESPONSE IS : " WE DO NOT OFFICIALLY MEET THIS ASTM, BUT WE MEET THE BASIC INTENT OF THE ASTM." ASAHI IS MY ONLY SOURCE FOR LOW TORQUE GASKETS. PLEASE LET ME KNOW WHAT FERNALD DECIDES, AND/OR THEY WOULD LIKE TO SPEAK WITH A PROJECT ENGINEER AT ASAHI.

SINCERELY,

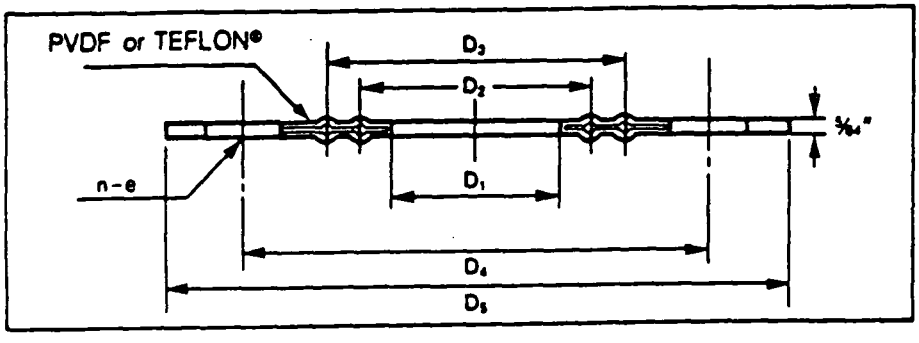
AMY M. AGRICOLA 6/3/97

ORIGINAL

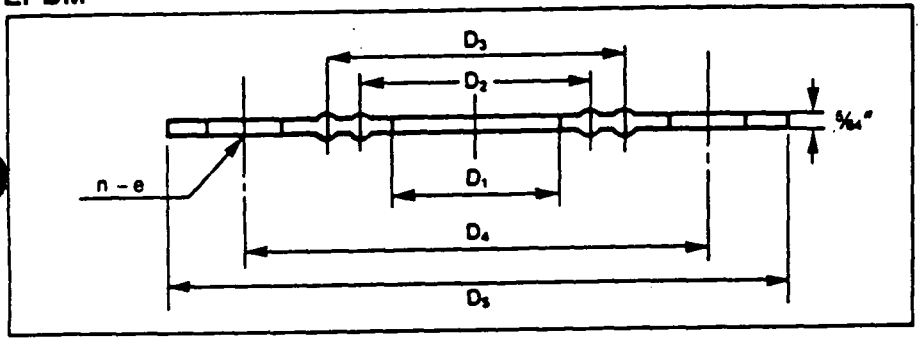
LOW TORQUE AV GASKETS continued

Sample Specification
Dimensions
Warranty
Bolt Torque

PVDF OR TEFLON-BONDED EPDM



EPDM



SAMPLE SPECIFICATION

Gaskets shall be low torque, full face to ANSI B16.5 dimensions and shall have two concentric, convex, molded rings between center hole and bolt hole circle in EPDM, Teflon-bonded EPDM, or PVDF-bonded EPDM as manufactured by Asahi/America.

DIMENSIONS (IN INCHES)

Size	D_1	D_2	D_3	D_4	D_5	e	n
½	0.7	1.0	1.6	2.4	3.4	0.6	4
¾	0.9	1.3	1.9	2.8	3.8	0.6	4
1	1.2	1.5	2.1	3.1	4.2	0.6	4
1¼	1.5	2.0	2.6	3.5	4.5	0.6	4
1½	1.7	2.1	2.7	3.9	4.9	0.6	4
2	2.1	2.7	3.3	4.7	5.9	0.8	4
2½	2.7	3.4	4.0	5.5	6.9	0.8	4
3	3.2	3.9	4.4	6.0	7.4	0.8	4
4	4.0	4.7	5.4	7.5	8.9	0.8	8
5	5.0	5.7	6.5	8.5	9.9	0.9	8
6	5.9	6.6	7.5	9.5	10.9	0.9	8
8	7.8	8.5	9.7	11.8	13.4	0.9	8
10	9.8	10.6	12.1	14.3	15.9	1.0	12
12	11.8	12.8	13.9	17.0	18.9	1.0	12

LIMITED WARRANTY

This gasket is warranted by Asahi/America, Inc., ("Seller"), to the original purchaser/consumer ("Buyer") only, to be free from defects in design and manufacture for a period of one year from the date of purchase, provided such gasket is properly installed, used, operated and serviced.

THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN BY SELLER. ANY IMPLIED WARRANTY ARISING UNDER APPLICABLE LAW, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE ONE YEAR PERIOD PROVIDED ABOVE.

Liability of Seller in connection with the sale of this gasket and/or the foregoing warranty is limited, at Seller's sole option, to one of repair, replacement, or refund of the purchase price of the gasket if returned to the Seller (at Buyer's expense) and determined by the Seller to have proved defective under the terms of and within the period of the foregoing warranty.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING IN ANY WAY IN CONNECTION WITH THIS GASKET OR THE SALE THEREOF.

Some states do not allow limitations on how long an implied warranty lasts, or the limitation or exclusion of incidental or consequential damages, so the above limitations and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RECOMMENDED BOLT TORQUE

(INCH-POUNDS)

Size	AV Teflon-PVDF	AV EPDM
½	174	157
¾	174	157
1	174	157
1¼	191	165
1½	217	174
2	217	174
2½	304	217
3	304	217
4	304	217
5	348	260
6	348	260
8	435	304
10	435	348
12	522	435

Teflon® is a registered trademark of DuPont.

ORIGINAL

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19 Green Street, Malden, MA 02148 • P.O. Box 653 • Tel: (617) 321-5409 • Fax: (617) 321-4421

ASAHI/AMERICA®

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

P / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1700	589	1 1	06/03/97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.: 1700-024R

(4) RESPONSIBLE DISCIPLINE: EO MX CO OTHER O

(4A)RCI/DCN TITLE: LTS VENT 3-LEG SUPPORT

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-M-00063	M-4A	0	
Tech. Spec. Section 15000-10 para	2.09B		

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Need detail on 3-leg pipe support

(10)REQUESTOR: Mayur P. Kadakia COMPANY: VILLAGE BLDG SERVICES/LK DATE: 06/03

(12)FCE/PE: Richard McMurry DATE: 6/10/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

A detail was not provided in order to give fabricator flexibility. The 3-leg support must not interfer with access cover removal. Based on Drawing M-00063 the legs should be at a 45° angle, at approximate 2-ft horizontal and vertical dimensions and at a plan angle of approximately 45° apart starting at the east/west LCS centerline. Selection and fabrication of the leg support is contractors responsibility. However 1/2 or 2 inch angle or other shapes may be used.

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolen 17 June 97 DATE:

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17)___

(18)CONSTRUCTION CONCURRENCE: DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

CHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

SF-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(3)Pg 1 OF	(4)DATE 6/4/97
(5)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-023R
(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHER	(4A)RCI/DCN TITLE: UTILITY SPEC CLARIFICATION		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION	2667	0	

(9) ☒ RCI - INQUIRY ☐ USOD SCREENING BY PROJECT ENGINEER (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

(1) IN SPEC SECTION 2667, PLEASE CLARIFY THE SUBMITTAL REQUIREMENTS THAT WILL BE IMPOSED ON THE SUBCONTRACTOR

(2) SPEC SECTION 2667, PART 1.8E INDICATES THE PIPE SYSTEM IS TO BE FLUSHED PRIOR TO TESTING. CAN TESTING BE COMPLETED PRIOR THE FLUSHING

(3) SPEC SECTION 2667, PART 2.1-3C REQUIRES FILL TO BE TYPE A3 MATERIAL. SPEC SECTION 2215 WHICH IS REFERENCED IN 2667 REQUIRES EMBEDMENT FILL TO MEET THE REQUIREMENTS OF ODOT SECTION 703.06. SINCE THE ODOT FILL HAS BEEN PURCHASED BY THE SUBCONTRACTOR & GRADATIONS HAVE BEEN VERIFIED, REQUEST THIS FILL IS USED FOR UTILITY PIPE FILL. (PART 9 CONT. ON PAGE (2))

(10)REQUESTOR: COMPANY:	DATE:	(12)FCE / PE	DATE:
Michael Gooden FDF	6/4/97	Richard K McGuire	6/5/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

SEE RESPONSE ON ATTACHED SHEET, PAGE 3

Frank P Hart 6/5/97

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
James C Jerkins	6/6/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) NA

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard K McGuire NA RKM	6/6/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

FF-4268 (10/01/96)

RECEIVED
JUN 10 1997
RGB

PART 9 CONTINUED

4. REQUEST CLARIFICATION ON THE ACCEPTANCE CRITERIA FOR UTILITY HDPE PIPING.

Response to RCI No. 023R:

1. The pipe materials, fittings, valves, and accessories procured by Fluor Daniel Fernald (FDF) for OU1 and OU5 piping systems have been receipt inspected by FDF Quality personnel against the specified purchase order requirements prior to turnover to the Leachate subcontractor for installation; therefore, no further material submittal requirements will be imposed on the subcontractor relative to these materials (i.e., specification section 02667, parts 1.5.A, 1.5.B, and 1.5.D have already been satisfied).

2. Piping systems may be pressure tested prior to flushing.

3. ODOT 703.06 sand complies with specification section 02667 requirements for fine aggregate type A3 and is, therefore, acceptable.

4. The following criteria shall be utilized for acceptance of the HDPE piping systems:

   a. Exercise care when transporting, handling, and installing pipe and fittings to prevent damage to the materials. Use rigging equipment (rope, fabric or nylon slings and straps, etc.) that will not damage the materials. Position lifting points for slings and straps away from butt fusion joints.

   b. The interior of the pipe and fittings shall be free of cuts, scratches, and gouges.

   c. Cuts, scratches, and gouges to the exterior surface of the pipe or fittings shall not exceed 10 percent of the wall thickness.

   d. Twisted or crimped pipe and fittings shall not be used.

   e. Plug or cap open ends of pipe at the end of the day or whenever pipe laying operations are no longer actively in progress.

   f. Ensure that fusion welding operations are performed by qualified personnel only.

   g. Fusion welding of pipe and fittings shall be performed only at ambient temperatures of 40 - 104 degrees F, unless otherwise authorized in writing by the FDF Construction Manager. Fusion welding shall not be permitted in weather conditions detrimental to the process, which includes precipitation, heavy fog, or dew.

   h. Test pressures for the OU1 piping systems shall be as follows:

Domestic Water (DW)	120 psi
Fire Water (FQ)	160 psi
Sanitary Sewer (SN)	80 psi

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 06-04-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-022R
(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐	(4A)RCI/DCN TITLE: Additional HDPE PIPE THICKNESS-Response		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
RCI 1700-015R			
Submittal No. 25 R1			
Submittal No. 58 R4			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

An additional response to RCI 1700-015R is being provided.

INFORMATIONAL

(10)REQUESTOR: Daniel Bodine COMPANY: GeoSynta DATE: 06/04/97	(12)FCE / PE: James C. Jenkins DATE: 6/4/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

Response to RCI 1700-015R is still valid. In addition, the SDR 11 stub-outs may be counterbored at the end to match the appropiate inside diameter of the connecting pipe. This fabrication must be completed and inspected at the manufacturers shop as part of the manufacturers' shop fabrication.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine DATE: 06/04/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:	
PERFORMANCE GRADE: (17) N.A.	
(18)CONSTRUCTION CONCURRENCE: Richard Watkins A. 2DM DATE: 6/6/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☑NO (19)	

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED
JUN 10 1997
QGB

000284

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE - 2CM

(1)WP / WO NO.:	(2)S/C NO.:	(3)Pg	(6)DATE
1700	589	OF 3 / 1 2	5-28-97

(3)S/C TITLE: LCS Leachate Conveyance System — (11)RCI NO.: 1900-021R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐ — (4A)RCI/DCN TITLE: DWG "FQ12" > RADIUS, LOCATION — (11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
~~SK #2010 SK 010 FROM 92X-5900-G-00261~~ 2CM	DCN #1700-026	0	
Civil - Plan & Profile - Sheet 2 of 4	92X-5900-G-00261	1	

(9)☑RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

PLEASE CLARIFY MEANS OF MAKING TURNS ON DWG "& FQ12" PER ATTACHED AS WELL AS DEPTH OF LINES (CROSS OVER OR UNDER)

CRITICAL TIMING

(10)REQUESTOR: MJC — COMPANY: VILLAGE BLDG. SVC. — DATE 5/28/97 — (12)FCE / PE: Richard L. McPhee — DATE 5/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

See attached sketch on Page 3 of 3. The DW-6" line and FQ-12" line are shown running at the same B.O.P. elevation as the leachate and GW-10" lines on the profile on Dwg. # 92X-5900-G-00261. The leachate and GW-10" line begin sloping up (See Supplement Page, 3 of 3)

Carlton Schroeder (Parsons) 6/29/97 RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C Jenkins — DATE 5/30/97 — (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) — DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: K McPhee — DATE N.A. 6/13/97 — (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) — DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☑NO (19)

FS-F-4259 (10/01/96)

1) See Parsons attached as Page 1 of 1

INFORMATION ONLY

ORIGINAL

RECEIVED JUN 26 1997

000288603

DOCUMENT REVIEW COMMENT SHEET

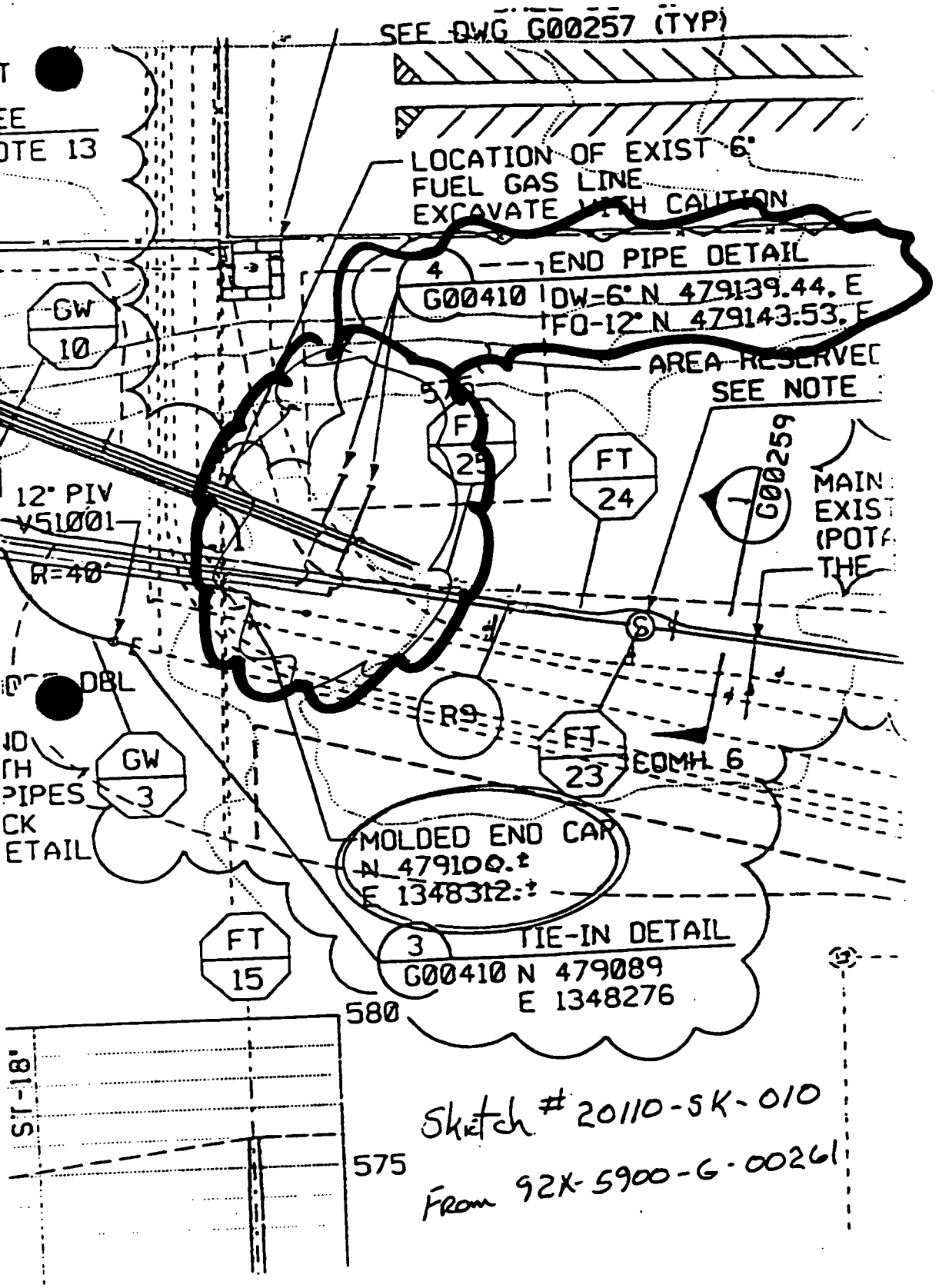
SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 6/20/97
DOCUMENT NO. AND TITLE: Leachate Conveyance System		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
1	Y. AFSHAR		PROVIDE CONC. THRUST BLOCK AT THE 90° BENDS FOR BOTH FQ & DW LINES.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

982000

1271


SEE DWG G00257 (TYP)
LOCATION OF EXIST 6"
FUEL GAS LINE
EXCAVATE WITH CAUTION
4
END PIPE DETAIL
G00410 DW-6" N 479139.44, E
FO-12" N 479143.53, E
AREA RESERVED
SEE NOTE
GW
10
F
FT
24
G00259
12" PIV
V51001
R=40'
DBL
R9
FT
23
EOMH 6
GW
3
MOLDED END CAP
N 479100.±
E 1348312.±
FT
15
3
TIE-IN DETAIL
G00410 N 479089
E 1348276
580
575
Sketch # 20110-SK-010
From 92X-5900-G-00261

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

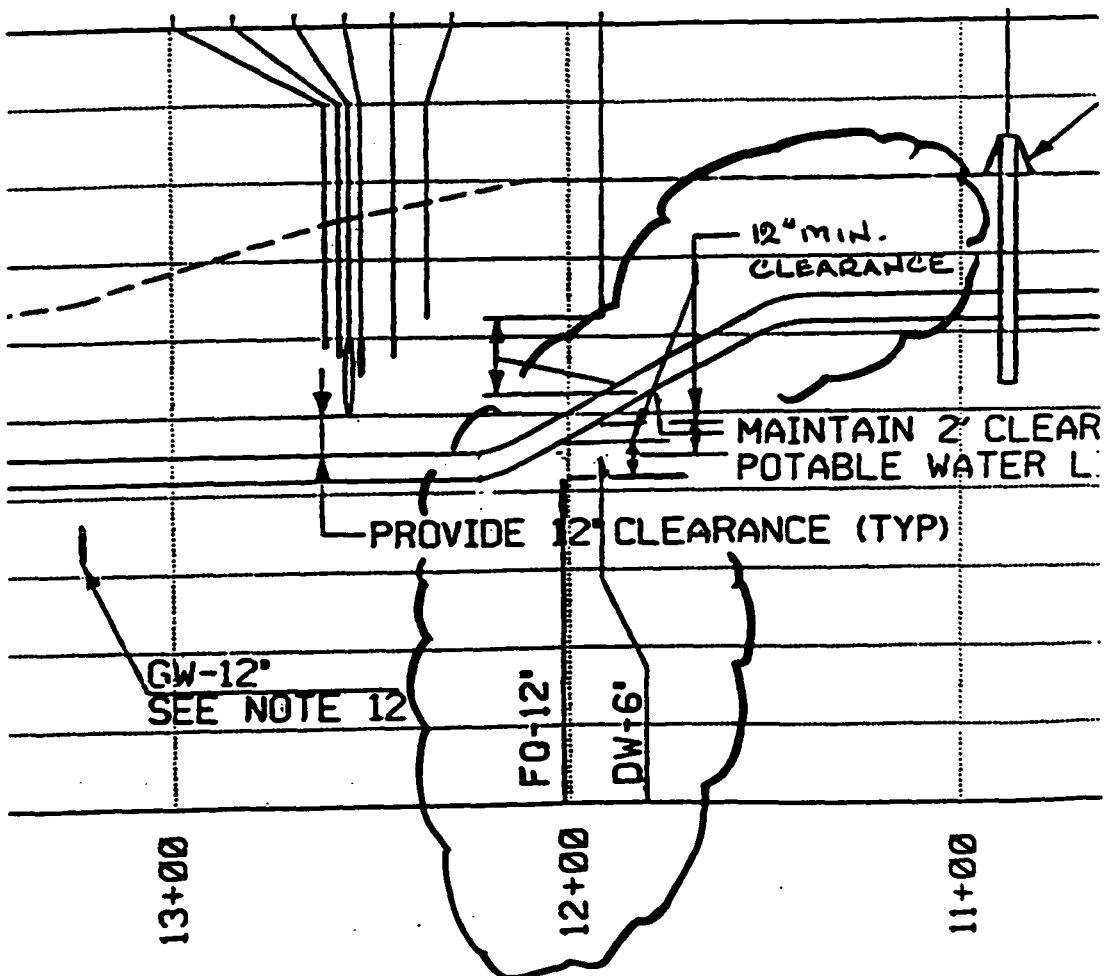
(11) RCI NO.:	(11) DCN NO.:	(1) PROJECT/WO NO.: 1700	(5) PAGE 1 OF 3

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):

See Page 1 of 3

RESPONSE (continued):

at Sta. 12 + 25 to approximate elevation 572.30' and goes over the DW-6" and FQ-12" lines as they turn to the north. At least 12" clearance should be maintained between the bottom of leachate and GW-10" lines and the top of the top of the DW-6" and FQ-12" lines. The DW-6" and FQ-12" lines shall terminate at the coordinates as shown on DCN No. 1700-026. The invert elevations for the DW-6" and FQ-12" lines at their terminal point shall be documented and recorded on the "as-built" drawings. See sketch below, taken from the profile on Dwg. No. 92X-5900-G-00261.



(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 05/23/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-020R
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER O	(4A)RCI/DCN TITLE: LIGHTNING ARRESTER		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
TECH. SPECS. SECTION 13400-2.1F			
20110-TS-0002	13400	C	

(9) X RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) ☐ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

JAY INSTRUMENT & SPECIALTY CO., SUPPLIER FOR LIGHTNING ARRESTER (please refer Village's Submittal No.: 53 Rev.0) CANNOT MEET THE SPECS. PLEASE GIVE US THE LIST OF MANUFACTURER REP. FOR MCG ELECTRONIC AND PANAMAX.

(10)REQUESTOR: Mayur P. Kadakia COMPANY: VILLAGE BLDG SERVICES, Inc DATE: 05/23/97

(12)FCE / PE: James C. Jenkins DATE: 5/27/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

MCG ELECTRONICS
JIM MADDEX
SPRINGFIELD, OHIO
AT (937) 324-3221
FAX (937) 324-3660

PANAMAX
TECH DATA DISTRIBITOR
CINCINNATI COMPUTER STORE
BOB STILLE (LIKE SILLY)
(513) 772-6000

(PARSONS) N.G. Johnston 5/30/97 RCI-DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder DATE: 5/30/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: N.A. DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

S-F-4259 (10/01/96)

ORIGINAL

received 5-28-97

FOR INFORMATION ONLY

RCR 020R

2111271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 2	(6)DATE 05/07/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-019R
(4) RESPONSIBLE DISCIPLINE: EX ME CO OTHER	(4A)RCI/DCN TITLE: SOLAR PANEL		(11)DCN NO.: ~~019R~~ 1700-~~027~~ 5/21/97

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-E-00060	E-4A	0	
DCN 1700-019			
SECTION 15000 2.01C			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Please refer to Village's submittal No. 49 Rev. 0. Before resubmitting Solar Panel submittal as per DCN 1700-019, Supplier requested to fill out Solar Sizing Worksheet. Please advise.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur Kadakia	VILLAGE BLDG. SERVICES	05/07/97	James E. Jenkins	5/21/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Attached is the solar sizing worksheet filled out. VBS may want to provide vendor with copy of Drawing 90X-6000-E-00060 with the DCN 1700-019 design change. (markup)

INFORMATION ONLY

GEOSYNTEC — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	21 May 97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McLaren	5/22/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

S-F-4259 (10/01/96)

ORIGINAL

RECEIVED
MAY 27 1997
QGB

000290

PHOTOCOMM, INC.
THE WIRELESS POWER COMPANY

LCS/LDS
Purpose of Solar Panel is to maintain full charge in 24 VDC Lead-Acid Battery which is the primary power source.

SOLAR SYSTEM CUSTOMER WORKSHEET

Clearly print or type all information: Date: _____

Company Name: _____ Your Name: _____

Phone: _____ Ext. _____ Fax : _____

Address: _____ City: _____ State: _____ Zip: _____

Application/Use (be specific): _____

Area of Use (nearest major city): Cincinnati Winter Peak Sun Hours: (If Known) 39°N

Primary Load:
Voltage: 24 VDC Amps: 2X0.75 X 24 Hours Per Day = 36 Ah/Day
Describe: 2-Programmable Level Controller
Note: Power inrush current 10A for 4ms at startup.

Secondary Load:
Voltage: 24 VDC Amps: 0.6 X 24 Hours Per Day = 14.4 Ah/Day
Describe: Alarm Light
Note: Load only present during alarm condition

Additional Load:
Voltage: _____ Amps: _____ X _____ Hours Per Day = _____ Ah/Day
Describe: _____

Total Daily Load = 50.4 Ah/Day
at 24 VDC

Do you prefer a unitized system or detached solar array? Detached

How is the system or components be mounted? (pole, handrail, ground, etc.) Pole (See Drawing E-00660)

Size of pipe or pole, other mounting information? Solar Module mounted at 16ft

Is theft or vandalism a problem? Yes

Industrial Division P.O. Box 460 • Stafford, Texas 77497-0460 • (713) 933-1578 • FAX (713) 933-1599

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 2	(6)DATE 05/07/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-019R
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: SOLAR PANEL		(11)DCN NO.: ~~019R~~ ~~1700-027~~ JRE 5/21

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-E-00060	E-4A	0	
DCN 1700-019			
SECTION 15000 2.01C			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Please refer to Village's submittal No. 49 Rev. 0. Before resubmitting Solar Panel submittal as per DCN 1700-019, supplier requested to fill out Solar Sizing Worksheet. Please advise.

(10)REQUESTOR: Mayur Kadakia COMPANY: VILLAGE BLDG. SERVICES DATE: 05/07/97

(12)FCE / PE James E. Jenkins DATE: 5/21/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Attached is the solar sizing worksheet filled out. VBS may want to provide vendor with copy of Drawing 90X-6000-E-00060 (markup) with the DCN 1700-019 design change.

INFORMATION ONLY

GEOSYNTEC — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine DATE: 21 May 97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L. McLaren DATE: 5/22/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

PHOTOCOMM, INC.
THE WIRELESS POWER COMPANY

LCS/LDS
Purpose of Solar Panel is to maintain full charge in 24 VDC Lead-Acid Battery which is the primary power source.

SOLAR SYSTEM CUSTOMER WORKSHEET

Clearly print or type all information: Date: _____

Company Name: _____ Your Name: _____

Phone: _____ Ext. _____ Fax : _____

Address: _____ City: _____ State: _____ Zip: _____

Application/Use (be specific): _____

Area of Use (nearest major city): Cincinnati Winter Peak Sun Hours: (If Known) 39°N

Primary Load:
Voltage: 24 VDC Amps: 2X0.75 X 24 Hours Per Day = 36 Ah/Day
Describe: 2 - Programmable Level Controller
Note: Power inrush current 10A for 4ms at startup.

Secondary Load:
Voltage: 24 VDC Amps: 0.6 X 24 Hours Per Day = 14.4 Ah/Day
Describe: Alarm Light
Note: Load only present during alarm condition

Additional Load:
Voltage: _____ Amps: _____ X _____ Hours Per Day = _____ Ah/Day
Describe: _____

Total Daily Load = 50.4 Ah/Day
at 24 VDC

Do you prefer a unitized system or detached solar array? Detached

How is the system or components be mounted? (pole, handrail, ground, etc.) Pole (See Drawing E-00660)

Size of pipe or pole, other mounting information? Solar Module mounted at 16ft

Is theft or vandalism a problem? Yes

Industrial Division P.O. Box 460 • Stafford, Texas 77497-0460 • (713) 933-1578 • FAX (713) 933-1599

ORIGINAL

(2 of 2)

NA R Bullard

PERMANENT LIFT STATION PROVIDES EMERGENCY POWER DURING SERVICE INTERUPTIONS

PHOTOCOMM, INC.
THE WIRELESS POWER COMPANY

SOLAR SYSTEM CUSTOMER WORKSHEET

Clearly print or type all information: Date: _____

Company Name: _____ Your Name: _____

Phone: _____ Ext. _____ Fax: _____

Address: _____ City: _____ State: _____ Zip: _____

Application/Use (be specific): _____

Area of Use (nearest major city): Cincinnati Winter Peak Sun Hours: (If Known) ~39°N

Primary Load:
Voltage: 24 VDC Amps: 2x0.75 X 24 Hours Per Day = 36 Ah/Day
Describe: 2 - Programmable Level Controllers

Secondary Load:
Voltage: 24 VDC Amps: 0.6 X 24 Hours Per Day = 14.4 Ah/Day
Describe: Alarm Light

Additional Load:
Voltage: 24VDC Amps: 0.8 X 24 Hours Per Day = 19.2 Ah/Day
Describe: Alarm Siren

Total Daily Load = 69.6 Ah/Day
at 24 VDC

Do you prefer a unitized system or detached solar array? DETACHED

How is the system or components be mounted? (pole, handrail, ground, etc.) Pole

Size of pipe or pole, other mounting information? Solar Module mounted at 16 ft

Is theft or vandalism a problem? YES

Industrial Division P.O. Box 460 • Stafford, Texas 77497-0460 • (713) 933-1578 • FAX (713) 933-1599

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC 589	(5)Pg 1 OF 1	(6)DATE 5-19-97
(3)S/C TITLE: LEACHATE CONVEYANCE			(11)RCI NO.: 1700-018R
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: PLEXCO FUSION PRESSURE		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

WE NEED FUSION PRESSURE FOR PLEXCO PIPE SUPPLIED BY F.D.F.

4"
6"
10"
12"
} SDR 11

(10)REQUESTOR: MJC COMPANY: VBS DATE 5-19-97

(12)FCE / PE: Richard L McAfee DATE 5/20/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1) See Parsons attached Comments (page 1 of 1)

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder (PARSONS) DATE 6/4/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L. McAfee DATE 6/5/97

PURCHASE REQUISITION REQUIRED: ☐YES ☑NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

FS-F-4259 (10/01/96)

ORIGINAL

received VH 5-27-97

1271 Parsons
Page 1 of 1
6/2/97

2 June, 1997

Leachate Conveyance System
PO164
TRANSMITTAL No.: 1700-018R
Doc. No.: CR-018 ISSUE: 1

Subject: Plexco Fusion Pressure

Comments are as follows:

A. Plexco Bulletin No. 101, Fusion Procedures, states that fusion interface pressures depends on the following parameters:

   1. Heater surface temperature,

   2. Type of butt fusion machine used (manual or hydraulic)

   3. Manufacturer of butt fusion machine (McElroy, Ridgid P&S, Christie)

B. Due to the above variables, it is recommended that Plexco be contacted directly for machine and temperature specific guidelines for torque requirements (if a manual machine is used), and/or pressure gauge settings (if a hydraulic machine is used).

C. It is recommended that this Clarification Request receive Status "B", Approved as Noted.

D. QUALITY CERTIFICATION DOES NOT INCLUDE AWWA C906 WHICH WAS REFERENCED IN SPECIFICATION 02667.

1271

FLUOR DANIEL FERNALD

Fluor Daniel Fernald, Inc.
P. O. Box 538704
Cincinnati, OH 45253-8704

FACSIMILE LEAD SHEET

No. of Pages:
(Including Lead Sheet)

FAX NO:

DATE: 5/27/97

TO: CARLTON SCHROEDER

COMPANY NAME: PARSONS

LOCATION: SPRINGDALE

FAX NO. TO BE CALLED: 6892 TELEPHONE NO.:

FROM: TIM CHERRY TELEPHONE NO.: (513) 648-4931

PROJECT NAME: Fernald Environmental Mgmt. CONTRACT NO.: DE-AC24-92OR21972

MESSAGE

SUBJECT: PER OUR CONVERSATION THIS AM, I'M SENDING RCI-1700-018R AND QUALITY CERT, FROM PLEXCO ON THE PIPE RECV'D FOR AWWT EXPANSION, SEWAGE TREATMENT, & BDN BY-PASS FOR REVIEW. THE "ORIGINAL" OF THIS DOC. WILL BE GIVEN TO PHIL PAYNE TO FORWARD TO SPRINGDALE.

JZ

Chevron

Plexco
Performance Pipe Division - Chevron Chemical Company
State Highway 32 • P.O. Box 608 • Abbeville, SC 29620
803-446-2136 • FAX 803-446-2139

QUALITY CERTIFICATION

CUSTOMER:
WORKMAN DEVELOPMENTS INC.
FORKS OF COAL IND. PARK
50 ROCKY BRANCH ROAD
ALUM CREEK, VA 25003-9622
CUSTOMER ORDER NO: 0032805

SHIP TO:
FLOUR DANIEL CORP.
7400 WILLEY RD.
HAMILTON COUNTY
HARRISON, OH 45030

SHIP DATE: 022797

PRODUCT:
10"IPS DR11 PE3408 EHMW 40' JOINTS
12"IPS DR11 PE3408 EHMW 40' JOINTS
6"IPS DR11 PE3408 EHMW 40' JOINTS
4"IPS DR11 PE3408 EHMW 40' JOINTS

LOT NUMBERS:

10"/11	12"/11	6"/11	4"/11
U0038A001011597	V0123A003021997	V0125A002022197	V2510A444111296
V0081A001020297	V0123A001022097	V0125A004022197	
V0081A004020297	V0131A001022497		
V0124A003021897			
V0124A004021997			
V0124A002021997			
V0124A003021997			
V0134A001022097			

QUANTITY:

2,080'	720'	1,040'	80'

This is to certify that the product(s) described above and shipped on the above order has been produced in accordance with the applicable requirements of the specification(s) indicated below:

☑ ASTM D1248- *Polyethylene Plastics Molding and Extrusion Materials* Type III, Class B or C, Catagory , Grade P34

☑ ASTM D3350- *Polyethylene Plastics Pipe and Fitting Material* (meets or exceeds cell classification of 345434C or E)

☑ ASTM F714 - *Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter*

☐ AWWA C906 - *Polyethylene (PE) Pressure Pipe and Fittings, 4" through 63" for Water Distribution*

☐ NSF 61. - *Drinking Water System Components - Health Effects*

☐ ASTM D3035- *Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter*

JOHN KAY
QA/QC SUPERVISOR

0002971

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 05/05/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.: 1700-C17R	
(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐	(4A)RCI/DCN TITLE: 3" CHECK VALVE	(11)DCN NO.:	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-M-00063	M-4A	0	
90X-6000-M-00064	M-5A	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Villoge's submittal no.31 requested back pressure and Line pressure for 3" check valve. Please refer to Red valve shop dwg RVS-16307 note no.1.

Production of valve will not begin until the information is provided to the vendor.

(10)REQUESTOR: COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur Kadakia VILLAGE BLDG.	05/05/97	Richard L McAfee	5/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Maximum operating Line Pressure is only approximately 2.5 psi. Maximum Back Pressure is approximately 10 psi. Minimum Back Pressure at which check valve is fully operational (closed) is 0.2 psi. The system operates under gravity flows only.
Minimum operating Line Pressure (ie open allowing some flow) is 0.1 psi or lower.

GEOSYNTEC — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	19 May 97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

N.A.

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McAfee	5/20/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

FS-F-4259 (10/01/96)

INFORMATION ONLY

ORIGINAL

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1700	FSC 589	1 / 1	5-19-97

(3)S/C TITLE: LEACHATE CONVEYANCE — (11)RCI NO.: 1700-15R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: LEGEND FOR U.G. WARNING TAPE

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
TECH. SPEC.	2215-7		

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

BURIED PIPELINE WARNING TAPE FOR ADDED UTILITY LINES.

PLEASE IDENTIFY SPECIFIC WORDING REQUIRED

(10)REQUESTOR: MJC — COMPANY: VILLAGE BLDG. S/C — DATE: 5-19-97

(12)FCE / PE: Richard L McAfee — DATE: 5/20/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

- FT-4" (SEWER)
- GW-10" (WATER)
- GW-12" (WATER)
- FQ-12" (WATER)
- DW-6" (WATER)
- FG-6" (GAS)
- SN-3" (SEWER)
- CE-6" (SEWER)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins — DATE: 5/20/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) — DATE:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L. McAfee — DATE: 5/20/97

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) — DATE:

FS-F-4259 (10/01/96)

ORIGINAL

000299

INFORMATION ONLY

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC 589	(5)Pg 1 OF 1	(6)DATE 05-16-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-015 R
(4) RESPONSIBLE DISCIPLINE: EO M☒ CO OTHERO	(4A)RCI/DCN TITLE: HDPE PIPE THICKNESS		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Technical Specification pg 02605-5	para 2.03D		
Submittal Nos: 25 & 58 R1			
DCN 1700-007			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Lift Stn. pipe stub-out as per Sub.No.58R1 & LCS/LDS MH's pipe stub-out as per Sub.No.25R1, pipe is SDR 11. Tech. Specs. pg 02605-5 para 2.03D specifies to have same pipe SDR as the trench pipe. DCN 1700-007 changed the trench pipe fom BSL to Lift station to 4"SDR 17/8"SDR 26 & fom Lift Stn. to LCS/LDS M.H No.1 to 6"/10" SDR 26. Please clarify it's O.K to join dissimilar SDR pipe. Sub.No.57 is not affected.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur P. Kadakia	Village Bldg. Serv.	05/16/97	G. C. Jenkins	5/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☑ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Shop fabricated fittings, including stub-outs are typically produced from heavier wall pipe. In these cases, design pressure ratings will remain at least equal to the piping system. The OD of SDR 11 pipe will be compatable with both SDR 17 and SDR 26 pipe and therefore are acceptable. This was evaluated at the time of the submittal. Plexco/Spirolite Bulletins #320 and #321 provide additional discussion on the fabrication of fittings.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	19 May 97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)__ N.A.

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	5/19/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

INFORMATION ONLY

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC 589	(5)PG 1 OF 1	(6)DATE 5-16-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-14-R
(4) RESPONSIBLE DISCIPLINE: S☐ M☐ C☒ OTHER ☐	(4A)RCI/DCN TITLE: PIPE MARKER LOCATION		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
TECH. SPEC.	2215-7 (D)		
DRAWING - PIPE BEDDING DETAIL	G-0257		

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

DRAWING G-00257 CALLS FOR BURIED PIPELINE MARKER 6" ABOVE PIPE.

T.SPEC. CALLS FOR MARKER 12" BELOW GRADE

(10)REQUESTOR: COMPANY: MJC VILLAGE BS. DATE 5-15 (12)PCE / PE R. McGuire DATE 5/15/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

INSTALL MARKERS 12" BELOW GRADE

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE 5/16/97 (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)DP PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE: Richard L. McGuire DATE 5/16/97 (21)WORK COMPLETED: (SIGNOFF BY PCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FB-F-4259 (10/01/96)

ORIGINAL

1271 TEL:3648
Apr 23.97 13:50 No.010 P.01

DUPLICATE ORIGINAL - ORIGINAL LOST

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 04-21-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-013R
(4) RESPONSIBLE DISCIPLINE: ED MX CD OTHER☐	(4A)RCI/DCN TITLE: MANHOLE INV. ELEV.		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00258		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Table 1 shows Invert Elevation. Please clarify if it is pipe invert or MH invert. (refer to Detail A-Typical Cleanout MH Section)

(10)REQUESTOR: Mayur P. Kadatia COMPANY: Village Utility Service DATE: 04/21/97 (12)FCE / PE Richard L McGuire DATE: 5/5/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

INVERT ELEVATIONS IN TABLE 1 ARE MANHOLE INVERTS.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 5/5/97 (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: DATE

(16)FOF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L. McGuire DATE: 5/5/97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

FE-1-4258 (10/01/98)

RECEIVED
MAY 07 1997
108

FOR INFORMATION

ORIGINAL

000302

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 2	(6)DATE 4-2-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-011R
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☒ ~~SURVEYING~~	(4A)RCI/DCN TITLE: PIPING SECTION DETAIL ~~SPECIFICATION~~		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWING 92X-5900-G-00266		1	
DRAWING 92X-5900-G-00259		0	
DRAWING 92X-5900-G-00262		1	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

REQUEST CLARIFICATION ON DRAWING 92X-5900-G-00259 SECTION B. SN-3" shown in Section. CONFLICTS WITH ~~SHEET~~ DRAWINGS 92X-5900-G-00266 and DRAWING 92X-5900-G-00262

REQUEST COORDINATE FOR FT/46 DRAWING 92X-5900-G 00262

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur P. Kadakia	Village Bldg Services	04/21/97	Richard L. McGuire	4/18/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Clarification Comment Page 1 of 1

INFORMATION ONLY

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	4/18/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N/A

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	4/18/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED APR 22 1997

RCI 011R

received 4/17/97

000303

1271 Parsons
Page 1 of

18 Apr 97

Leachate Conveyance System
TRANSMITTAL No.: 1700:011 R
DOC. No.: CR-011 ISSUE: 1
PO164
TITLE: Piping Section Detail
(and coord. FT-46)

RE: Dwg. 92X-5900-G-00266, G00259, & G00262

Civil Comments: Approved as noted

1. Section 8 should be revised to delete SN-3" and show 19"c/c between FG-6" and DW-6". Note that Section 8 cut does not include the 4"/8" Leachate line.

2. There should be 18" c/c between the 4"/8" Leachate line and the SN-3" line.

3. Point FT-46 was to set an end to a steel casing pipe which was deleted by DCN 1700:010.

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 4-2-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-010R
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☒ RCM 4/8/97	(4A)RCI DCN TITLE: SURVEYING SPECIFICATION		(11)DCN NO.

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWING 18A-1920-P-00301		2	
Drawing 92X-5900-G-00266		1	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION:EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

REQUEST CLARIFICATION OF FEMP COORDINATES BE CONVERTED TO NAD 83 COORDINATES

PLEASE CONVERT E2600, S2200 and E3600, S2200 TO NAD 83

INFORMATION ONLY

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur P. Kadaki	Village Eng. Services	04/03/97	Richard K. McGuire	4/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

FS	FE	ON83	OE83
2,200	2,600	480,543.76	1,347,648.46
2,200	3,600	480,516.41	1,348,648.08

(ALSO REF. Attached Parsons calc. Sheet 1 of 1

(PARSONS)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	4/17/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N/A

(18)CONSTRUCTION CONCURRENCE: Richard L McGuire	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)	4/18/97		

FS-F-4259 (10/01/96)

ORIGINAL

received 4-10-97

RECEIVED APR 22 1997

RCF 010

000505

1271 Parsons Sheet 1 of 1

CONVERSION OF FMPC COORDINATES TO OHIO NAD 83 COORDINATES

17-Apr-97

PROJECT: Leachate Conveyance System
RCI No.: 1700- 010 R

OU-2
PO 164

DEFINITIONS: NAD 83

ON83 = OHIO NORTH (NAD 83) COORDINATE OF POINT
OE83 = OHIO EAST (NAD 83) COORDINATE OF POINT
ON83F = OHIO NORTH (NAD 83) COORDINATE OF FMPC ORIGIN 482,814.047
OE83F = OHIO EAST (NAD 83) COORDINATE OF FMPC ORIGIN 1,345,109.597
FS = FERNALD SOUTH COORDINATE
FE = FERNALD EAST COORDINATE
THEATA = ANGULAR DISTANCE BETWEEM OHIO NORTH (NAD 83) AND FMPC NORTH

THEATA= 1.567167 DEGREES
COS(THEATA)= 0.999626
SIN(THEATA)= 0.027349

FORMULAS:

ON83 = ONF - FS[COS(THATA)] - FE[SIN(THATA)]
OE83 = OEF - FS[SIN(THATA)] + FE[COS(THATA)]

POINT	ON83F	OE83F	ON83	OE83	FS	FE
BM#9	482,814.047	1,345,109.597	481,972.749	1,347,525.902	774.900	2,438.410
B5-1			482,190.376	1,347,489.541	558.349	2,396.110
TEST			482,814.047	1,345,109.597	0.000	0.000
			480,543.763	1,347,648.457	2,200.00	2,600.00
			480,516.414	1,348,648.083	2,200.00	3,600.00

NOTE: ORIGIONAL FORMULAS BY K. BRNEST
BM#9 IS THE EQUALITY LOCATION.
B:\RAPS1\SYS:USER\FRD150\SSDATA\COORMSTR.WK3 C:
From \COFOH83.WK3
03/05/93

To convert from FMPC to Ohio NAD 83 coordinates, enter FMPC coordinate in FS / FE column.

The values shown in the ON83 / OE83 column are for FS & FE = 0, unless there are other coordinate values in the FS & FE column.

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 4-03-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-009R
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: PAVEMENT RESTORATION DETAIL		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRW6. 92X-5900-G-00257.		0	

(9) ☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) ☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Pavement Restoration Detail Indicates Trench Fill Material placed & Compacted to Bottom of 6" Bituminous Aggregate Base Course. Trench Fill is Defined as A Cohesive Material, Generally a Clay. Request Designers to Consider a Granular subbase material to offset the Effects of Potential Frost Heave, that could Cause Possible Pavement Heaving, Cracking and Breakup during and After a Severe Winter.

(10)REQUESTOR: D. Bodine	COMPANY: GeoSyntec	DATE: A. Bodine Resident Engineer	(12)FCE / PE: C. Jantzen	DATE: 4/03/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Clarification Response attached as Page 1 of 1

INFORMATION ONLY

PARSONS — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 4/16/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N/A

(18)CONSTRUCTION CONCURRENCE: Richard L McAnne	DATE: 4/18/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DA

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

RCI 009R

received 4-9-97

ORIGINAL 000307

APR 22 1997

1271 Parsons

16 Apr 97

CR-009 Issue 1
Transmittal No.: 1700 - 009R
Leachate Conveyance System
Pavement Restoration Detail

RE: Dwg. 92X-5900-G-00257
Specifications 02200 & 02215

Recommend Status B, Approved as noted

Comments are as follows:

1. The Pavement Restoration Detail on drawing 92X-5900-G-00257 refers to specifications for material and compaction requirements.

2. Section 02215 Trenching and Backfilling, Part 2.01E states "Furnish trench backfill material for HDPE pipes and manholes that meet the material requirements for compacted fill as specified in Section 02200."

3. Section 02200, Part 2 indicates that"... fill for compacted fill from Leachate Conveyance System excavations." Other conditions state that it "... shall be GC, SC, SM, ML, or CL as classified according to the Unified Soil Classification System (per ASTM D2487)."

4. The above materials were recommended as these are the materials currently on site and will limit water infiltration into the trench.

5. Recommend that the material identified in 3 above be used for trench backfill. If granular material is used in lieu of this material, recommend either No. 57 or ODOT Item 310.02 (subbase). If these are not available, ODOT Item 304.02 aggregate base could be used. Also, if granular material is used for trench backfill, a way of draining the trench should be provided as the granular material will allow infiltration of water into the trench.

6. Off site materials, especially slag, should be tested for undesirable elements prior to installation.

Further recommend that these comments be reviewed and agreed to by GeoSyntec prior to instructing the subcontractor (as GeoSyntec prepared the specifications.)

KG

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: 584	(5)Pg OF 1 2	(6)DATE 02/27/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-002K
(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐	(4A)RCI/DCN TITLE: HDPE LIFT STATION OVERFLOW VENT		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Lift Station Mechanical Details III 90X-6000-M-00067	M-9A	C	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

PLEASE REVIEW THE ATTACHED MEMO FROM PLEXCO DATED 02/27/97 AND ADVISE.

INFORMATION ONLY

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Mayur P Kadakia	Village Bldg Services Inc	02/27/97	Richard L McRae	3/3/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

POSITION OF 2"Ø VENTS: LOWER VENT - 1'6" TO hole ℄ from INSIDE TOP DIAMETER OF 84"ID PIPE. TOP VENT 3'0" ℄ HOLE TO ℄ TOP HOLE. RECORD DIMENSIONS WITH ASBUILT DRAWINGS.

PURPOSE CLARIFED: BACKUP ALARM TRIGGERING PUMP SHUT OFF AND CLOSING OF MOTORIZED VALVE, SIGNAL FROM MONITORING SECONDARY CONTAINMENT LEVEL TRANSMITTER PIPE.

Response also INDICATED ON SHOP DRAWING. VBS Submittal #058

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bolduc	3/19/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N/A

(18)CONSTRUCTION CONCURRENCE: N/A	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

1271

(2 of 2)

Chevron Plexco®

Fax Transmission Cover Sheet

Date: Feb 27, '97

Total # of pages (including cover): 1

Transmitting to: Mayur Kadakia

Company: Village Building Services

Fax No.: (513) 761-1896

Sender: *Muriel Cease*

Sender Phone: *(630) 350-3753*

Please contact sender as soon as possible should problems arise during transmission. Thank you!

Transmitting from:
- ☐ (630) 350-2704 *(Marketing)*
- ☐ (630) 350-2894 *(Sales)*
- ☒ (630) 350-2148 *(Tech Services/Purchasing)*
- ☐ (630) 350-2916 *(Manufacturing)*

Note that both our area code and our street name have changed.

Additional Message: Mr. Kadakia,

Please have Engineer clarify the positioning and purpose of the 2" overflow vents (Quantity 2) that are shown on vertical section of 84"/96" Dual Containment vessel (Permanent Lift Station) for Workman Developments. Plexco can make 2" Diameter holes; is this acceptable.

Thank you
Muriel

ORIGINAL

PLEXCO® Performance Pipe Division - Chevron Chemical Company
[illegible] Suite 200 • Bensenville, IL 60106-1048 • (630) 350-3700

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF	(6)DATE 2/27/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-006R
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☑ OTHER☐	(4A)RCI/DCN TITLE: PERMISSION TO SCALE PROFILE		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Civil-Plan & Profile, Sht. 1 of 4	92X-5900-G-00254	1	
Civil-Plan & Profile, Sht. 2 of 4	92X-5900-G-00264	1	
Civil-Plan & Profile, Sht. 3 of 4	92X-5900-G-00266	1	
Civil-Plan & Profile, Sht. 4 of 4	92X-5900-G-00262	1	
Civil-Details, Sht. 1 of 3	92X-5900-G-00255	0	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Request permission to scale profile to determine depths of Leachate line where inverts an not indicated on plan & Profile Document Nos'

92X-5900-G-00255,
92X-5900-G-00254, 92X-5900-G-00261,
92X-5900-G-00266, 92X-5900-G-00262

(10)REQUESTOR: MJC	COMPANY: Village Bldg. Svcs.	DATE:	(12)FCE / PE Richard L McRae	DATE: 2/27/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

- AS INDICATED ON DRAWINGS, MIN. OF 36" TO BE MAINTAINED OVER TOP OF CONTAINMENT PIPE
- TABLE 1 ON DWG. 92X-5900-G-00258 GIVES TOP AND INVERT ELEVATIONS OF CLEAN OUT MANHOLES.

CDC CONTROLLED COPY NO. 011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins	DATE: 3/3/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L. McRae	DATE: 3/4/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

000311

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF	(6)DATE 2/27/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-006R
4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☑ OTHER☐	(4A)RCI/DCN TITLE: PERMISSION TO SCALE PROFILE		(11)DCN NO.: 3/4/97

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Civil-Plan & Profile, Sht. 1 of 4	92X-5900-G-00254	1	
Civil-Plan & Profile, Sht. 2 of 4	92X-5900-G-00261	1	
Civil-Plan & Profile, Sht. 3 of 4	92X-5900-G-00266	1	
Civil-Plan & Profile, Sht. 4 of 4	92X-5900-G-00262	1	
Civil-Details, Sht. 1 of 3	92X-5900-G-00255	0	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION.EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Request permission to scale profile to determine depths of Leachate line where inverts are not indicated on plan & Profile Document Nos:

92X-5900-G-00255,
92X-5900-G-00254, 92X-5900-G-00261,
92X-5900-G-00266, 92X-5900-G-00262

(10)REQUESTOR: MJC COMPANY: Village Bldg. Svcs. 2777 DATE:

(12)FCE / PE Richard L McAnne DATE: 2/27/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

- AS INDICATED ON DRAWINGS, MIN. OF 36" TO BE MAINTAINED OVER TOP OF CONTAINMENT PIPE
- TABLE 1 ON DWG. 92X-5900-G-00258 GIVES TOP AND INVERT ELEVATIONS OF CLEAN OUT MANHOLES

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 3/3/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) J.A.

(18)CONSTRUCTION CONCURRENCE: Richard L McAnne DATE: 3/4/97

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

EXHIBIT 1

ORIGINAL

Drawings 1271 Rev 2 C-3

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE

WP / WO NO	S/C NO.	Pg / OF	DATE
1700	589	1	2-18-97

S/C TITLE: LEACHATE CONVEYANCE SYSTEM

RCI NO: 1700-005R

RESPONSIBLE DISCIPLINE: E ☒ M ☐ C ☐ OTHER ☐

RCI/DCN TITLE: HEAT TRACE GFI C.B.

DCN NO.: 1700-012

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
92x-5900-E-00323		0	
92x-5900-E-00325		0	

☐ RCI - INQUIRY ☐ PRE-SCREEN FOR USQD BY PROJECT ENGINEER ☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The above drawings call for installing a 20A/1P 30ma GFI C.B. in the existing 120V panel. The panel is an ITE/Siemens panel that accepts a BQ type C.B. which is a bolt-in breaker. ITE/Siemens does not make a 30ma GFI C.B. in that style of frame & their 30ma GFI C.B. does not fit in that type of panel.

Proposed Change: Install a 20A/1P 5ma GFI C.B. BQ; bolt-in type, in lieu of 30ma.

REQUESTOR: P. ERAIST — COMPANY: B & J ELEC.

FCE / PE: J. C. Jenkins — 2/24/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES

FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☒ DISAPPROVED SEE C5.

1) See PARSONS [redacted] CHANGE PAGE 1 of 1

2) Record changes with AS-BUILT Documentation

PARSONS

RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: Carlton Schroder 3/7/97

CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: 4 James C. Jenkins 3/10/97

CONSTRUCTION CONCURRENCE: Richard L. McClure 3/10/97

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO

WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (03/15/96)

DOC CONTROLLED COPY

ORIGINAL

received Fluor 2-25-97

DCN-012

DCN-009

C

000313

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 3/6/97
DOCUMENT NO. AND TITLE: LEACHATE CONVEYANCE SYSTEM FDF DCN 1700-012		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
1	T. Ferrell		5 mA GFCI breakers are not acceptable*. Mount a 30 mA GFCI breaker in a NEMA 3R or 9 enclosure ~~and~~ adjacent to the panel.		
			TF and manufacturer's recommendations for installation		
			*Code HANDBOOK/Recommends larger 30mA GFCI (See Attachment)		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

000314

1221

427-19. Electrical Connections.

(a) **Nonheating Interconnections.** Nonheating interconnections, where required under thermal insulation, shall be made with insulated connectors identified as suitable for this use.

(b) **Circuit Connections.** Splices and terminations outside the thermal insulation shall be installed in a box or fitting in accordance with Sections 110-14 and 300-15.

427-20. Marking. Each factory-assembled heating unit shall be legibly marked within 3 in. (76 mm) of each end of the nonheating leads with the permanent identification symbol, catalog number, and ratings in volts and watts, or in volts and amperes.

427-21. Grounding. Exposed noncurrent-carrying metal parts of electric heating equipment that are likely to become energized shall be grounded as required in Article 250.

427-22. Equipment Protection. Ground-fault protection of equipment shall be provided for each branch circuit supplying electric heating equipment.

Exception: In industrial establishments where conditions of maintenance and supervision ensure that only qualified persons will service the installed systems and continued circuit operation is necessary for safe operation of equipment or processes. Alarm indication of ground-fault shall be required.

The words "not having a metal covering" have been removed from Section 427-22 for the 1996 *Code*. This section now requires ground-fault protection of equipment for all branch circuits supplying equipment of this type. A new exception was also added to the 1996 *Code*. This exception applies to industrial establishments where continued circuit operation is required for safe operation of equipment or processes and an alarm system indicating ground faults is installed.

The level of ground-fault protection provided by Class A GFCIs, which are normally used for personnel safety, is 5 milliamperes (± 1 milliampere). This level may not be practical for an application where capacitive-type leakage, such as on long runs of heat-tracing cable, may be encountered. The intent of this section is to minimize the possibility of fire by providing equipment ground-fault protection as defined in Article 100, and to provide a degree of personnel safety by rapidly de-energizing a circuit that has developed a ground fault. This may be provided by a Class B GFCI, which trips at a higher level.

427-23. Metal Covering. Electric heating equipment shall have a grounded metal covering in accordance with (a) or (b) below. The requirements of this section shall become effective July 1, 1996.

This requirement has been changed for the 1996 *Code* and now requires a grounded metal covering on all heaters. It is intended to provide a path to ground for fault current, in order to trip phase or ground-fault protective d... thus reducing the potential for fire and electric shock. ... metal covering will also provide added mechanical pro... tion of the heating cable or panel. This requirement bec... effective July 1, 1996.

(a) **Heating Wires or Cables.** Heating wires or cables ... have a grounded metal covering that surrounds the heati... ment and bus wires, if any, and their electrical insulation.

(b) **Heating Panels.** Heating panels shall have a gro... metal covering over the heating element and its electrical ... lation on the side opposite the side attached to the surf... be heated.

The metal covering shall provide an effective ground...

D. Impedance Heating

427-25. Personnel Protection. All accessible external su... of the pipeline and/or vessel being heated shall be ph... guarded, isolated, or thermally insulated (with weatherproof ... for outside installations) to protect against contact by per... in the area.

427-26. Voltage Limitations. The secondary windin... isolation transformer (Section 427-27) connected to the p... or vessel being heated shall not have an output voltage ... than 30 volts ac.

Exception: The voltage shall be permitted to be greater ... volts but not more than 80 volts if a ground-fault circuit-i... for personnel protection is provided.

See commentary following Section 427-22.

427-27. Isolation Transformer. A dual-winding trans... with a grounded shield between the primary and secondary ... ings shall be used to isolate the distribution system from the ... ing system.

427-28. Induced Currents. All current-carrying compo... shall be installed in accordance with Section 300-20.

427-29. Grounding. The pipeline or vessel, or both, ... heated that is operating at a voltage greater than 30 but not ... than 80 shall be grounded at designated points.

427-30. Secondary Conductor Sizing. The ampacity of ... conductors connected to the secondary of the transformer ... be at least 100 percent of the total load of the heater.

E. Induction Heating

427-35. Scope. This part covers the installation of ... quency induction heating equipment and accessories for ... lines and vessels.

Note from "Nat'l. Elec. Code Handbook" published by NFPA

000315

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

P / WO NO.: 1700	S/C NO.: 589	Pg 1 OF 1	DATE 2-13-97

TITLE: FSC 589 LEACHATE CONVEYANCE SYSTEM

RCI NO 1700-004R

RESPONSIBLE DISCIPLINE: EX MO CO OTHER	RCI/DCN TITLE: PVC CONDUIT SIZE	DCN NO.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Spec. 16050 Part 2.1.B.3		0	
Drwg. 92x-5900-E-00323		0	
Drwg. 92x-5900-E-00325		0	

☒ RCI - INQUIRY ☐ PRE-SCREEN FOR USQD BY PROJECT ENGINEER ☐ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Above spec. section calls for PVC to be 1" diameter minimum.
Above drawings call for 3/4" PVC conduit below grade.
Is 3/4" PVC acceptable for below grade and/or in slabs.

REQUESTOR: P. ERNST	COMPANY: B&J ELEC.	FCE / PE: J. C. Jenkins	2/24/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

- SPECIFICATION GOVERNS; PVC BELOW GRADE AND IN SLABS SHALL BE 1" DIAMETER MINIMUM.

INFORMATION ONLY

RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: James C. Jenkins 2/19/97	CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)	
PERFORMANCE GRADE: N.A.	
CONSTRUCTION CONCURRENCE: Richard K McAmis 2/19/97	WORK COMPLETED: (SIGNOFF BY FCE OR PE)
PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO	DATE:

FS-F-4259 (03/15/96)

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	OF	(6)DATE
1700	584	1	1	02-13-97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.: 1700-003R

(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐

(4A)RCI/DCN TITLE: PULSE RATE

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-N-00345	N0003	0	

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(8)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

(1) Need Pulse rate for Frequency Pulse Receiver

(2) Need pulse rate Input & Output for Pulse to Pulse Transmitter & Receiver

(10)REQUESTOR: Mayur P Kodakic COMPANY: Village Building Sek DATE: 02/13/97

(12)FCE / PE Richard McGuire Richard L McGuire DATE: 2/24/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

- SUBMIT PULSE RATE SUITABLE FOR PHONE LINES
- RATE(S) WILL BE REVIEWED DURING SHOP DWG. PHASE

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 2/19/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) N.A.

(18)CONSTRUCTION CONCURRENCE: Richard L McGuire DATE: 2/19/97

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

ENTERED mc

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE - 3

(1)WP / WO NO.: 1700	(2)S/C NO.: 587	(5)Pg 1 OF 2	(6)DATE 02-13-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-102R
(4) RESPONSIBLE DISCIPLINE: EO MX CO OTHER O	(4A)RCI/DCN TITLE: HDPE MANHOLES		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER

(9)X RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Please review the attached letter from Workman Developments dt. 2/11/97 and clarify the requested item

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / RE	DATE:
Mayur P. Kotadia	Village Bldg Services	2/13/97	Richard D. McLaren	2/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

- DCN 1700-011 Responds to Workman letter for Delwert and SDR of cleanout manholes
- "Exceptions" to thickness of top & bottom of manholes and other items will be reviewed during shop drawing phase.

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
James C. Jenkins	2/19/97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)___ N.A.

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

G. CLIVE

ORIGINAL

Workman Developments

Linking Product and Customer

Forks-of-Coal Industrial Park/ U.S. 119 South
50 Rocky Branch Road
Alum Creek, West Virginia 25003-9622
Phone: (304) 756-9901 Fax: 756-9307

February 11, 1997

PROJECT: **FERNALD ON SITE DISPOSAL PROJECT**

Mr. Mayur P. Kadakia
VILLAGE BUILDING SERVICES, INC.
7311 Vine Street
Cincinnati, OH 45216

Dear Mr. Kadakia:

As per conversations with PLEXCO, the LCS & LDS Manholes & Monitoring Well drawings will be completed and submittals sent out no later than Monday 02-17-97 via UPS Red. If approval is faxed immediately, production would begin the date of the fax and delivery with-in 4 to 6 weeks.

Plexco also had some recommendations and suggestions for the Clean Out Manholes which they asked me to fax for your approval, please note the following:

54" O.D. SDR 32.5 Clean Out Manholes:

1) Includes 1-1/2" Flat top with 30" I.D. Manway with Flange lip for D.I. Manhole cover.**(*This is an exception from the drawings)**

When vehicular loads are present, a concrete cap is required that rests on the soil over the manhole and disperses the live load into the soil, not directly into the manhole. Poured-in-place concrete caps should utilize a form to prevent deflection of HDPE flat tops.

2) 1" bottom is extended to act as an anchor connection ring, for encasement in concrete, with gussetting on the inside of the manhole. **(*This thickness is an exception to the drawing. If no ground water is present then gussets can be eliminated.)**

3) All manholes include 8" IPS, SDR plain end stub outs with external gussets. **(*Plexco does not recommend gussets on stub outs.)** A 4"IPS SDR 17 Spool 42" long flange with LJF by plain end with 2 DCS Spiders will be supplied with each 8" stub out. Flanges are standard carbon steel LJF. Nuts, bolts and gaskets are not included. Spools shipped loose.

No other internal piping supplied as the drawings call for steel pipe.

continued. . .

ORIGINAL

February 11, 1997

Continuation

Mr. Mayur Kadakia

4) Ladder not included.

5) Manholes are to be installed in stable insitu soil or consolidated earth fills. Manholes are to be installed in a dry trench with a stable foundation. The foundation should consist of at least 8" of Class I or II (per ASTM D 2321) material compacted to at least 95% proctor density. Manholes are to be installed in select embedment (Class I or II embedment compacted to 90% proctor) extending for at least three and a half (3.5) feet around the manhole riser.

No positive or negative internal pressure or test pressure. Maximum operating temperature is 73 degree F.

6) DCS System quoted as staggered fusion. Assumed full ground water.

7) Lead time for manholes fabricated from SDR 32.5 would be 10 to 12 weeks. If this is a problem, manholes can be fabricated from SDR 26 with a lead time of 6 to 8 weeks. The price difference for SDR 26 would be as follow:

MH 1	$ 160.00
MH 1A	$ 173.00
MH 2	$ 147.00
MH 3	$ 160.00
MH 4	$ 236.00
MH 5	$ 147.00
MH 6	$ 147.00
MH 7	$ 213.00
MH 8	$ 199.00
MH 10	$ 246.00
MH 11	$ 164.00
MH 12	$ 202.00

If you have any questions, please feel free to call.

Thank you, and have a great day. . .

Very truly yours,

WORKMAN DEVELOPMENTS, INC.

Claudia L. Workman
Sec./Treas.

CLW/gm

cc: #2 Tod Gresham

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: 589	Pg 1 OF 1	DATE 2-12-97
S/C TITLE: LEACHATE CONVEYANCE SYSTEM			RCI NO.: 1700-001R
RESPONSIBLE DISCIPLINE: EE ☒ MO ☐ CO ☐ OTHER ☐	RCI/DCN TITLE: POLE MOUNTED LIGHTING		DCN NO.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
92x-5900-E-00323		0	
90x-6000-E-00061		0	Detail 15 S-3A

☒ RCI - INQUIRY ☐ PRE-SCREEN FOR USOD BY PROJECT ENGINEER ☐ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Drwg. 90x-6000-E-00061 Detail 15 S-3A note 4 calls for a 70w HPS outdoor fixture for Pole OP82

Drwg. 92x-5900-E-00323 Permanent Lift Station plan calls for a 400W HPS outdoor fixture for Pole OP82. Which wattage is required, as the specifications do not contain a lighting section. This information is needed for submittal purposes.

REQUESTOR: P. ERNST	COMPANY: B & J Elec.	FCE / PE: Richard L. McGuire 2/19/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

- PROVIDE 70 WATT HPS OUTDOOR FIXTURE

INFORMATION ONLY

FDF

RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: James C. Jenkins 2/19/97	CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)	
PERFORMANCE GRADE: N.A.	
CONSTRUCTION CONCURRENCE:	WORK COMPLETED: (SIGNOFF BY FCE OR PE)
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO	DATE:

FS-F-4259 (03/15/96)

ECRC

ORIGINAL

OSDF Phase I

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 O 1	(6) DATE
1702	597		12/10/97

(3) S/C TITLE: n Site Disposal Facility Phase I

(11) RCI NO.: 1702-024R

RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN/TITLE: Use of Surplus 10-oz. Geotextile Cushion

(11) DCN NO.:

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
OSDF, Phase I Construction Documents	Section 02714-2.01.A	0	

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) ~~[X]~~ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

As construction of the OSDF (Phase I) Cell I is nearing an end, it appears that Petro Environmental will have several rolls of 10-oz. geotextile cushion left over from the delivered quantity. Petro Environmental is requesting permission to use the extra rolls in place of the 7-oz. geotextile filter between the LCS Drainage Layer and the Protective Layer. As we will likely need to order additional rolls of 7-oz. material, if we can utilize the remaining 10-oz. rolls, this will limit the number of additional rolls required.

Justification is that the 10 oz material is a better product Than The 7 oz. material

INFORMATION ONLY

J. Richard Schairbaum

(10) REQUESTER:	COMPANY:	DATE:	(12) FCE / PE	DATE:
J. Richard Schairbaum	Petro Environmental Technologies, Inc.	12/10/97		12/10/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [X] NO [ ] YES 12/11/97

(14) FOR DCN: [ ] APPROVED [ ] APPROVED AS NOTED [ ] DISAPPROVED

DCN not required because specification requires minimum 7 oz and 10 oz meets that requirement as well as all the other requirements listed in Table 02714-1.

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL:	DATE:	(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE
Donald Bolton	11 Dec 97	N/A

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEW ARE COMPLETE: (DCN ONLY) DATE:

RMANCE GRADE: (17) 5 12/16/97

(18) CONSTRUCTION CONCURRENCE:	(21) WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: [ ] YES [X] NO (19) 12/16/97	NA

FS-F-4259 (10/01/96)

ORIGINAL

000323

COPY 1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1702	597	1 1	11/20/97

(3)S/C TITLE: OSDF PHASE I

(11)RCI NO.: 1702-021R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐

(4A)RCI/DCN TITLE: GML INSTALLER

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
PART 1.05 OF SPECIFICATION 02770		0	
DCN 1702-041		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THIS REQUEST FOR CLARIFICATION IS FOR INTERPRETATION OF THE INSTALLER REQUIREMENT OF SPECIFICATION 2770, PART 1.05. THE SPECIFICATION IS UNCLEAR AS TO THE INTENT OF THE 10,000,000 SQ. FT. OF INSTALLER EXPERIENCE.

(10)REQUESTOR: DON GOETZ COMPANY: FDF DATE: 11/20/97

(12)FCE / PE DATE: 11/21/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

THE TERM "INSTALLER REFERS TO THE COMPANY THAT WILL PERFORM THE GEOMEMBRANE INSTALLATION. BASED ON INFORMATION PROVIDED IN PETRO SUBMITTAL PET-025D, THE INSTALLER MEETS THE 10,000,000 SQ. FT. REQUIREMENT. MR. HARRIS, INSTALLER SUPERINTENDENT, MEETS THE REQUIREMENTS OF SUPERINTENDENT AND HAS PERSONNEL THAT MEET EXPERIENCE AND QUALIFICATION REQUIREMENTS.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: 21 November 1997

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE: DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

-F-4259 (10/01/96)

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1702	597	1 1	11/12/97

(3)S/C TITLE: ON SITE DISPOSAL FACILITY PHASE I — (11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐ — (4A)RCI/DCN TITLE: GML INSTALLER; FOOTAGE INSTALLED — (11)DCN NO.: 1702-041

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
PARA. 1.05.D.5 SPECIFICATION SECTION 02770;	VOID	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER — (9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Geomembrane installers requirement for 10,000,000 square feet of liner installation experience may be waived in the case of an experienced installer with a good reputation. The square foot requirement is a general guideline to ensure a qualified installer. JTB.

VOID

CIVIL REVIEW

(10)REQUESTOR: — COMPANY: FDF — DATE: 11/12/97 — (12)FCE / PE — DATE: 11/12/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES — (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

M. Hulls, Supervisor states he needs the 10,000,000 ft² liner and the other installer personnel are experienced and qualified.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
	12Nov-97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) — DATE:

PERFORMANCE GRADE: (17) 4 — 11/12/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

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REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1702	597		11/20/97

(3)S/C TITLE: ON SITE DISPOSAL FACILITY PHASE I

(11)RCI NO.: 1702-020R

(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHERO

(4A)RCI/DCN TITLE: FIXED END SEAL CONFIGURATION

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWING 90X-6000-G-00082, SHEET G-24A		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THE RESPONSE TO RCI 1700-036R DESCRIBES THE CONSTRUCTION/INSTALLATION OF A FIXED END SEAL FOR A 10" CONTAINMENT AND A 6" CARRIER HDPE PIPE CONFIGURATION. IS THIS CONSTRUCT/INSTALL CONFIGURATION ACCEPTABLE FOR USE AT PENETRATION BOX INSTALLATIONS IN THE OSDF CELLS?

(10)REQUESTOR: DON GOETZ COMPANY: FDF DATE: 11/26/97

(12)FCE / PE [signature] DATE: 11/20/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

The above described installation method is approved provided that geomembrane is attached to liner penetration boxes at locations that would be inaccessible after fixed end seal installation. Liner penetration box for LDS will require extension of 10" containment pipe beyond 1" HDPE Base to allow proper welding.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: [signature] DATE: 20 Nov 1997

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) [signature] DATE: 11/20/97

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE: [signature] DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

ES-F-4259 (10/01/96)

INFORMATION ONLY

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REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 O 1	(6) DATE
1702	597		11/17/97

(3) S/C TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-019R

(4) RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN/TITLE: Preparation of Trial Seams of HDPE Liner

(11) DCN NO.:

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
OSDF, Phase I Construction Documents	Section 02770-3.02.H	0	

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Paragraph 3.02.H of Technical Specification Section 02770 states that prior to actual seaming of the HDPE liner, trial seams must be prepared that are at least 15-ft. long by 1-ft. wide (after seaming). Petro Environmental is requesting, on behalf of Environmental Design & Construction, Inc., that the 15-ft. length be reduced to 5-ft. in length.

J. Richard Schairbaum

(10) REQUESTER:	COMPANY:	DATE:	(12) FCE / PE	DATE:
J. Richard Schairbaum	Petro Environmental Technologies, Inc.	11/17/97	J. C. Jenkins	11/18/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [ ] NO [X] YES

(14) FOR DCN: [X] APPROVED [ ] APPROVED AS NOTED [ ] DISAPPROVED

A 15ft length is required to ensure the welder ~~heating element~~ goes through a full cycle of the heating element turning on, heating, shutting off, cooling of wedge, and turning on again. A shorter length can be used if the completion of the above cycle is demonstrated.

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL:	DATE:	(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE
J.F. Beck	18 Nov 97	

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEW ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) _____

(18) CONSTRUCTION CONCURRENCE:	(21) WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: [ ] YES [ ] NO (19)	

FS-F-4259 (10/01/96)

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	OF	(6)DATE
1702	597	1	1	10/31/97

(3)S/C TITLE: ON SITE DISPOSAL FACILITY PHASE I

(11)RCI NO.: 1702-016R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐

(4A)RCI/DCN TITLE: DRIVING RUBBER TREAD ASV POSITRAC ON GCL

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
OSDF PH. I SPECIFICATION 02772			
3.05 B			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THE REFERENCE TECHNICAL SPECIFICATION SECTION STATES THAT NO EQUIPMENT SHALL DRIVE ON THE GCL. RCI 1702-010R WAIVED THIS RESTRICTION FOR LOW GROUND PRESSURE ALL TERRAIN VEHICLES (ATVS). THE RUBBER TREAD ASV POSITRAC HAS LOWER GROUND PRESSURE THAN THE ATVS.

(10)REQUESTOR: COMPANY: DATE: 10/31/97

(12)FCE / PE DATE: 10/31/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

The ASV POSITRACK MD-70 may be used on the GCL Subject to the same conditions noted and attached to RCI 1702-010R, IN Addition sharp turns by the ASV shall be prohibited and any damaged GCL shall be replaced by the Contractor. The ASV is not to be used on top of the Geomembrane.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolton DATE: 10/31/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)___

(18)CONSTRUCTION CONCURRENCE: DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

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REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1702	597	1 1	11/20/97

(3)S/C TITLE: OSDF PHASE I

(11)RCI NO.: 1702-021R

(4) RESPONSIBLE DISCIPLINE: EO ☐ MO ☐ CE ☒ OTHER ☐

(4A)RCI/DCN TITLE: GML INSTALLER

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
PART 1.05 OF SPECIFICATION 02770		0	
DCN 1702-041	INFORMATION ONLY		

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THIS REQUEST FOR CLARIFICATION IS FOR INTERPRETATION OF THE INSTALLER REQUIREMENT OF SPECIFICATION 2770, PART 1.05. THE SPECIFICATION IS UNCLEAR AS TO THE INTENT OF THE 10,000,000 SQ. FT. OF INSTALLER EXPERIENCE.

(10)REQUESTOR: DON GOETZ COMPANY: FDF DATE: 11/20/97

(12)FCE / PE DATE: 11/21/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

THE TERM "INSTALLER REFERS TO THE COMPANY THAT WILL PERFORM THE GEOMEMBRANE INSTALLATION. BASED ON INFORMATION PROVIDED IN PETRO SUBMITTAL PET-025D, THE INSTALLER MEETS THE 10,000,000 SQ. FT. REQUIREMENT. MR. HARRIS, INSTALLER SUPERINTENDENT, MEETS THE REQUIREMENTS OF SUPERINTENDENT AND HAS PERSONNEL THAT MEET EXPERIENCE AND QUALIFICATION REQUIREMENTS.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: 21 November 1997

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 4 11/24/97

(18)CONSTRUCTION CONCURRENCE: DATE: 11/24/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

ES-F-4259 (10/01/96)

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NOV 21 1997

TRANSMITTAL FORM

DATE November 20, 1997

TO: Don Goetz
Fluor Daniel Fernald

RE FDF On Site Disposal Facility (OSDF)
Contract No. FSC 597

☐ **EXPRESS MAIL**

GENTLEMEN:

WE ARE SENDING YOU the following items: (✓) *Attached* ( ) *Under separate cover*

COPIES	*DATE*	*DESCRIPTION*
4	11/20/97	Use of Low Ground Pressure Equip. on GCL Letter

THESE ARE TRANSMITTED AS CHECKED BELOW:

( )	*For Approval*	( )	*Approved as Submitted*	( )	*Resubmit ___ Copies for Approval*
(✓)	*For Your Use*	( )	*Approved as Noted*	( )	*Submit ___ Copies for Distribution*
( )	*For Review & Comment*	( )	*Returned for Corrections*	( )	*Return ___ Corrected Prints*
( )	*For Bids Due* _____ *19* ___			( )	_____

REMARKS Per DCN No. 1702-016R and 1702-010R, GeoSyntec has requested an additional letter from National Seal stating that low ground pressure equipment may be used on the GCL, more specifically, the ASV Positracks. Attached is a letter stating that low ground pressure vehicles may be used on the GCL, and is not type-specific.

CC:FILE Project No. WC7-024
Section 02772 - GCL
GeoSyntec - Dan Bodine

By: J. Richard Schairbaum

Attach to ~~RCT~~ DCN # 016R

NSC

National Seal Company
Corporate Office • Farnsworth Center
1245 Corporate Blvd. • Suite 300 • Aurora, IL 60504
(630) 898-1161 • (800) 323-3820 • FAX: (630) 898-6556

FACSIMILE TRANSMITTAL

DATE: November 20, 1997 **Page 1 of** 1

TO: Mr. Rick Schairbaum
Fluor Daniel Fernald
PHONE: 513/648-3402
FAX: 513/648-3407

FROM: Bill Hardison
Director - Installer Sales
PHONE: 630/898-1161
FAX: 630/898-6556

RE: GCL Installation Issues

Dear Rick:

I understand that their is some concern regarding whether or not an in-place GCL can be driven on with a low ground pressure vehicle in the course of liner installation. It is relatively common practice to use such vehicles in the course of liner installation. Providing reasonable care is exercised, this should not damage the GCL or affect the materials warranty in any way.

Please feel free to call if you have any additional information.

Sincerely,

NATIONAL SEAL COMPANY

Bill Hardison
Director - Installer Sales

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REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1702	(2)S/C NO.: 597	(5)Pg OF	(6)DATE 10/30/97
(3)S/C TITLE: ON SITE DISPOSAL FACILITY PHASE I			(11)RCI NO.: 1702-015R
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: Night Time Deployment of Geosynthetics		(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
USDF Phase I Specification			
Section 02770 Geomembrane Liner			
Part 3.01. C.1 & 3.01. D			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This RCI allows night-time deployment of GCL. Seaming of GCL must be conducted during daylight hours. This RCI permits temporary anchoring of GML with sand bags until daylight seaming is possible. Work shall be performed with appropriate projects safety requirements. ie. proper lighting & ppe.

INFORMATION ONLY

Civil Review

(10)REQUESTOR:	COMPANY: FDF	DATE: 10/31/97	(12)FCE / PE	DATE: 10/31/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

Deployment of GCL, day or night, must be in accordance with project specification 02772. Part 3.03.I requires that all GCL placed during the work day be covered and edges protected from hydration. Under special conditions when approved by field QC one panel of GCL may be deployed and covered overnight with plastic and sandbagged. Plastic may also be used to protect the subgrade during wet weather.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 10/31/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/31/97

PERFORMANCE GRADE: (17) 4

(18)CONSTRUCTION CONCURRENCE:	DATE: 10/31/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

FS-F-4259 (10/04/88)

ORIGINAL

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REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 O 2	(6) DATE
1702	597		10/29/97

(3) S/C TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-013R

(4) RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN/TITLE: Surface Ruts for Placement of GCL

(11) DCN NO.:

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
OSDF, Phase I Construction Documents	Section 02772-3.01.A.1	0	

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Paragraph 3.01.A.1 of Technical Specification Section 02772 states that surface upon which the GCL is to be placed shall be relatively smooth, firm, and not contain ruts greater than ½-inch. Petro Environmental is requesting that this requirement be altered to allow ruts up to a maximum depth of 1+/- ½-inches.

J. Richard Schairbaum

(10) REQUESTER:	COMPANY:	DATE:	(12) FCE / PE	DATE:
J. Richard Schairbaum	Petro Environmental Technologies, Inc.	10/29/97		10/29/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [ ] NO [X] YES

(14) FOR DCN: [ ] APPROVED [ ] APPROVED AS NOTED [X] DISAPPROVED

See Page 2 for Response

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL:	DATE:	(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE
Daniel Bolin	10/29/97	

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEW ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) _____

(18) CONSTRUCTION CONCURRENCE:	(21) WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: [ ] YES [ ] NO (19)	

FS-F-4259 (10/01/96)

It is an industry standard to prepare a firm unyielding subgrade to permit installation of the geosynthetics over the subgrade without causing rutting or deformation under the weight of the installation equipment. The subgrade shall also be free of standing water and maintained in a clean smooth condition.

The project specification was written to comply with manufacturers recommendations. Ignoring or increasing the allowable rutting size to 1 1/2 inch is not good engineering practice and not a solution to excessive rutting. Additional drying time and use of equipment to deploy that will reduce the excessive rutting should be used. Reasonable interpretation of the specifications is being applied in the field.

Daniel Bodine

Daniel Bodine

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE - 1271

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 of 2	(6) DATE
1702	597		10/26/97

(3) S/C TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-012 R

(4) RESPONSIBLE DISCIPLINE: - [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN/TITLE: Decon Pad Road Bed. Railroad Ties

(11) DCN NO.:

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
OSDF, Phase I Construction Documents	G-37A	0	

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Detail B, G-37A shows railroad ties to be 8.5' L. Note 6 on the same drawing specifies the tie joints to be staggered in the roadbed. Please clarify what is meant by stagger and provide the stagger pattern, so that if required, the ties can be cut. Cutting the ties as required for stagger will introduce a third joint, which may or may not be a stability issue. It appears that if the joints are staggered, the 2 x 6 planks will not tie all the joints together making for a less stable roadbed.

S Brandstetter

(10) REQUESTER:	COMPANY:	DATE:	(12) FCE / PE	DATE:
Steven C. Brandstetter	Petro Environmental Technologies, Inc.	10/26/97		10/31/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [X] NO [ ] YES (14) FOR DCN: [ ] APPROVED [ ] APPROVED AS NOTED [ ] DISAPPROVED

See Attached Page 2 for Response

INFORMATION ONLY

ORIGINAL

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL: Daniel Bodine DATE: 10/29/97

(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEW ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 5

10/31/97

(18) CONSTRUCTION CONCURRENCE: 11/4/97

PURCHASE REQUISITION REQUIRED: [ ] YES [X] NO (19)

(21) WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

The stagger pattern that may be used is stagger each row approximately 4 ft 3-inches. This is 1/2 the tie length and should allow for easy construction and minimal waste. I would recommend using spiral galvanized nails to attach the 2x6's, subject to FDF approval.

Daniel Bodine

Daniel Bodine

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 9	(6)DATE
1702	FSC 597		10/17/97

(3)S/C TITLE: On-Site Disposal Facility - (Phase I)

(11)RCI NO.: 1702-010R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐

(4A)RCI/DCN TITLE: Use of ATVs on GCL

(11)DCN NO.: —

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV	(8)OTHER
Technical Specification Section 02702 Paragraph 3.05.B	Geosyntec Doc. No. F963025 3.SPE	0	None

INFORMATION ONLY

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION REQUESTED/PROPOSED CHANGE

The referenced technical specification section states that no equipment may be driven directly on the GCL. Attached is documentation from GroundSafe, Inc. which documents the ground pressure placed upon the GCL from ATVs. Additionally, attached is a list of procedures which have been prepared by Petro Environmental to control the use of ATVs on this project and to ensure that the GCL is not damaged. Also attached is a letter from National Seal Company which states the ATV use on GCL will not damage the material. Therefore, this RCI is requesting that a DCN be issued to permit the use of ATVs upon the GCL during deployment of the HDPE liner.

(10)REQUESTOR: Jr Richard Schaubaum, Petro Environmental

(12)FCE / PE: [signature] DATE: 10/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

Use of ATVs for the purpose of HDPE liner deployment in accordance with the attached Petro Plan is approved as noted below

1.- Contractor provide FDF written statement that use of the ATVs will not damage the GCL or affect the materials warranty in any way.

2.- Prohibit refueling the ATV within 100 ft of cell limits and as required by FDF Safety

3.- Prohibit driving of ATV over wrinkled geosynthetics.

4.- Actual Ground Pressure during operation shall be less than 5 psi.

5.- Additional FDF Safety Concerns

RCI, DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: [signature] DATE: 20 Oct 97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) + [signature] 10/22/97

(18)CONSTRUCTION CONCURRENCE: [signature] DATE: 10/22/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED
OCT 24 1997
RCB

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GSI

2091 Clary Connector
Eastanollee, Georgia 30538
(706) 779-5575
Fax (706) 779-3882

October 8, 1997

Richard Schairbaum
Petro Environmental Technologies
PO Box 538704 Mail Stop 44
Cincinnati, OH 45253-8704

RE: Fernald Daniels - Deployment of HDPE

Dear Mr. Schairbaum:

We will use 2 ATVs to pull the liner across the cell. What ever material is required to go up and over the cell berm on the opposite side will be lapped back over itself on the deployment side. We will then hook two straps through the cores around the end and to the rear of the ATVs. Once to the opposite side toe of berm, we will then remove the ATVs and hand pull the liner up over the berm and anchor trench.

As for the concern that friction material of HDPE liner being removed due to rubbing of GCL, I must say that in the 7 years of installing this textured material, I have never seen any indication of the phenomena happening.

The use of rub sheets will only be utilized at the top of the berm on deployment side of the cell, down the slope as required to keep any excessive wear of the GCL at this point of contact. At no other location will be rub sheet be utilized.

GSI has been pulling liner on top of GCL with the use of ATVs for 4 years. We have pulled in excess of 450 L.F. without disturbing the GCL under the ATV's wheels. If we discover that the entire length cannot be pulled, we will fold our liner back over itself at greater distance, this will cut the amount drag of liner against GCL.

At some point, we would hope that someone at this site would start looking at how this project can be completed instead of how can we delay the project further. We are now past the time of year that will guarantee it's completion in this construction season. We are now at the mercy of the weather as to if this project will be completed.

Sincerely,

Dan Merrow

Dan Merrow
President

To:

From: George Elkins - National Seal Company

Date:

Subject: Rough Estimates For Ground Pressure of 4 X 4 Quad

Using information supplied by Honda and Yamaha I have attempted to compare the ground pressure of a Quad machine with that of a person walking. Bear in mind that these are only estimates.

1. FOR A 200 LB PERSON WALKING ...

Estimated contact area when heel strikes ground:	2" X 2" = 4 in^2
GROUND PRESSURE FOR WALKER =	$\frac{200\ LBS}{4\ IN^2}$ = 50 lb/in^2 (Estimated)

2. FOR A QUAD PLUS RIDER ...

Estimated contact area of four tires	7 in X 7 in X 4 = 196 in^2
Estimated weight	520 lbs + 25 lbs + 200 lbs = 745 lbs (Dry wt) + (Gas/Oil) + (Rider)
GROUND PRESSURE FOR QUAD =	$\frac{745\ LBS}{196\ in^2}$ = 3.8 lbs/in^2 (Estimated)

The above numbers are rough estimates, however we can see that the quad and rider exert 13 times less ground pressure than a person walking. Even if we don't believe these estimates let's assume the walker exerts half as much pressure and the quad twice as much pressure. The quad still exerts 1/3 as much pressure as the walker.

The above estimates can be effected by the weight of the passenger(s), tire pressure, etc.

NSC utilizes the 4 X 4 Quads on all of its projects to help install geosynthetic materials. General use is pulling Bentofix over subgrage and or geocomposites, pulling liner over subgrade and or geotextiles & geocomposite material. NSC has used Quads for deployment for over 9 years and to date, has had no problems with damaged materials because of their use.

National Seal Company
Corporate Office • Farnsworth Center
1245 Corporate Blvd. • Suite 300 • Aurora, IL 60504
(630) 898-1161 • (800) 323-3820 • FAX: (630) 898-6556

FACSIMILE TRANSMITTAL

DATE: October 16, 1997 **Page 1 of** 1

TO: Mr. Dan Morrow
Ground Safe, Inc.
PHONE: 706/779-5575
FAX: 706/779-3882

FROM: Bill Hardison
Director - Installer Sales
PHONE: 630/898-1161
FAX: 630/898-6556

RE: GCL Installation Issues

Dear Dan:

I understand that their is some concern regarding whether or not an in-place GCL can be driven on with a low ground pressure vehicle, such as an ATV, in the course of liner installation. It is relatively common practice to use such vehicles in the course of liner installation. Providing reasonable care is exercised, this should not damage the GCL or affect the materials warranty in any way.

Please feel free to call if you have any additional information.

Sincerely,

NATIONAL SEAL COMPANY

Bill Hardison
Director - Installer Sales

cc: Rick Schairbaum, Petro Environmental 513-648-3407

GSI

2091 Clary Connector
Eastanollee, Georgia 30538
(706) 779-5575
Fax (706) 779-3882

October 22, 1997

Pete Bolig
Petro Environmental
7851 Palace Dr.
Cincinnati, OH 45249

RE: ATV Use, Liner System Installation

Dear Mr. Bolig:

May this letter serve to certify that the GSI installation crew has been trained in the safe operation of All Terrain Vehicles which includes the viewing of the safety video and reviewing the safety manual. The hands on training has taken place on job sites around the country. As you can see by the individual employee resumes, the crew has experience from 2 years to over 8 years and ATV's have been utilized on many of these projects.

Here at the Fernald site, we feel the 2 ATVs can be safely and effectively used to pull the long panels of liner across the cell. They can also be used in other phases of the installation, such as deploying the GCL on the primary layer, moving sandbags and inserting and removing the deployment bars in the GCL cores. The ATVs will not be used horizontally on any slope or be operated at excessive speeds.

GSI will only allow our permanent full time employees to operate these essential pieces of equipment. The designated personnel to operate the ATVs are: Kevin Allen, John Allen, Kelly Hartman, Eric Steen and Ken Wheeler.

If you have any further questions, please feel free to contact me at any time.

Sincerely,

Tom Harrell

Tom Harrell
Vice President

USE OF ALL-TERRAIN VEHICLES

Ground Safe, Inc., (GSI) plans to use all-terrain vehicles (ATVs) to aid in the deployment of HDPE liner material and other occasional activities on the OSDF project. GSI estimates that liner deployment comprises 90% of the activities for which the ATVs will be used. The remaining tasks are limited to shuttling sand bags from the perimeter stockpiles to the liner surface, and an occasional errand to obtain a tool or supply from the GSI storage trailer kept at the Liner Storage Area (LSA) immediately north of Cell 1. The primary means of transporting personnel, tools, and supplies to the work area involve contractor pickup trucks; regular use of ATVs for moving personnel will be strictly prohibited.

Management of safety and quality issues when using ATVs on the project requires an understanding and implementation of the following:

- Quality

  Attached is a letter from National Seal stating that the use of ATVs upon the geosynthetic clay liner (GCL) surface for the purpose of HDPE liner deployment is a common practice. When reasonable care is exercised, damage to the GCL does not occur and the material's warranty is not affected. The procedures included in this document were developed to ensure the safety of those operating the ATVs, as well as to provide for the protection of the GCL such that it is not damaged or displaced during HDPE liner deployment activities.

- Rollover Protection Systems (ROPS)

  The operator's safety manuals do not identify ROPS as an option, and contact with numerous dealer representatives indicated that ROPS are not available on ATVs. No dealer representative had ever heard of such an application. Direct contact with the manufacturers (Honda and Kawasaki) was difficult; dealerships were unwilling to convey telephone numbers or contact names. Engineers at Honda said ROPS have never been an option and they do not foresee a change in this position. They explained that they would not authorize any retrofit of ROPS to their ATVs in that it would compromise the integrity and stability of the vehicle. Petro Environmental and GSI are confident that through proper awareness training, implementation and enforcement, the safe work practices described in this document provide equivalent protection to that afforded by ROPS.

- Head Protection

  The operator's safety manuals recommend the use of helmets. GSI will provide approved motorcycle helmets and enforce their use at all times while driving the ATVs. Safety glasses are required in combination with the helmets to maintain eye protection while the ATVs are in use.

- Seat Belts

The ATVs are not equipped from the manufacturers with seat belts. GSI and Petro Environmental do not endorse seat belt installation and use in that a seatbelt would unduly increase risks to the operator in the event that an ATV is flipped or otherwise involved in an accident. If such an incident occurred, a belted operator could be more severely injured if trapped beneath the moving vehicle.

- Rigging Considerations

GSI and FDF discussed planned rigging methods for using the ATVs to deploy the HDPE liner. The primary rigging involves attaching an ATV at each of the two leading corners of the roll using a shackle mounted to the tow bar. A nylon sling connects the shackle to a tow pipe attached to the liner which is wrapped back over itself. The ATVs have a towing capacity of 850 lbs each. FDF Rigging Engineer Greg Cantwell calculated towing coefficients in consideration of the intended deployment methods, and found that the loading on the liner tow bar will be no more than 500 lbs, therefore, ATV towing loads will not exceed 250 lbs each. Based on his calculations and understanding of their intended use, Mr. Cantwell approved the rigging method and application of the ATVs.

- Operator Training

GSI's ATV operators have had sufficient training and experience to assure that their knowledge of safe operating requirements and handling realities will protect them from hazards while driving the ATVs. The training includes a manufacturer's operating orientation and safe driving techniques videotape, verbal instruction, and supervised field orientation for each operator. Each designated operator has 5 or more years experience in driving the company-owned ATVs during other liner installations, within similar scopes of work, and under operating conditions like those that will be encountered on this project. GSI has documented that their operators have satisfied these training requirements, and has identified the individuals who have been designated to operate the ATVs (letter attached). Upon their arrival at the OSDF, the SSHO will conduct a safety briefing to present and discuss the procedures and requirements described in this document with the GSI crew. Affected Petro Environmental personnel will also attend the briefing, and FDF Safety will be invited to participate.

- Safe Use/Quality Control Procedures

ATV operators have been oriented to the following set of safe use and quality control practices and are accustomed to their regular enforcement by GSI management.

1. The ATVs will be operated and maintained in accordance with the Operator Safety Manuals.

2. ATV speeds shall not exceed 10 mph. The SSHO retains the authority to require a reduction in vehicle speeds if deemed necessary to ensure operator safety.
3. Only trained and experience GSI employees, as designated by GSI management, may operate the ATVs. No contract laborers, other contractors or visitors may operate the ATVs.
4. No passengers are allowed at any time.
5. The ATVs will be equipped with a high visibility flag.
6. A preliminary walkdown of the pathways for use of the ATV will be conducted by the SSHO and the ATV operators to assure the roadways are free of obstacles.
7. If deemed necessary by the SSHO, the ATV routes between the supply trailer and Cell 1 will be marked with cones, flagging or other acceptable means to assure clear pathways.
8. Horseplay is strictly prohibited, as well as any other activities which could potentially damage the GCL.
9. Daily maintenance checks must be completed and documented by the designated operators (see attached checklist).
10. All ATV maneuvers made on the GCL must be performed in such a fashion so as to not cause damage to/displacement of the material.
11. The ATVs will not be permitted to be driven horizontally on sideslopes.
12. No quick starts which would permit spanning of the tires are allowed.
13. All stops and turns must be completed in a gradual fashion to ensure that the GCL material is not damaged/displaced.
14. The ATVs are to be kept on the GCL the minimal amount of time necessary to complete required HDPE liner deployment activities.
15. When any ATV is not in operation, the GSI-designated operator will remove the ignition key and retain it's possession.

HEAVY EQUIPMENT OPERATOR CHECKLIST

Equipment Type _____ Mfg: _____ Date: _____

SN/PIN: _____ End of Week Hours Meter: _____

	S	M	T	W	T	F	S
Walk Around							
Safety Guards and Plates							
Walk Access/Handrails							
Chocks							
Tires Wheels/Tracks							
Leaks Fuel/Lube/Oil/Water							
Machinery							
Housekeeping							
Lubrication							
Battery							
Lights							
Glass							
Clutch/Brake Linings							
Fire Extinguisher(s)							
Operational							
Gauges							
Warning/Indicator Lights							
Controls/Brakes							
Load Rating Charts							
Safety Devices							
Unusual Noises							
Control Action							
Brakes							
Engine/Compressor							
Back-up Alarm							

Operator Signature _____ Date: _____

Supervisor Signature _____
(If found Unsatisfactory)

This forms should be completed and initialed daily by the equipment operator or assigned person competent to perform the inspections and tests listed. It should be retained in an accessible job site location readily available for review upon

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 1	(6)DATE
1702	FSC 597		10/17/97

(3)S/C TITLE: On-Site Disposal Facility - (Phase I)

(11)RCI NO.: 1702-010R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐

(4A)RCI/DCN TITLE: Use of ATVs on GCL

(11)DCN NO.: —

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Paragraph 3.05.B Technical Specification Section 02772, 1	Geo Syntec Doc. No. F963025 3.SPE	0	For INFORMATION ONLY

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION REQUESTED/PROPOSED CHANGE

The referenced technical specification section states that no equipment may be driven directly on the GCL. Attached is documentation from Ground Safe, Inc. which documents the ground pressure placed upon the GCL from ATVs. Additionally, attached is a list of procedures which have been prepared by Petro Environmental to control the use of ATVs on this project and to ensure that the GCL is not damaged. Also attached is a letter from National Seal Company which states the ATV use on GCL will not damage the material. Therefore, this RCI is requesting that a DCN be issued to permit the use of ATVs upon the GCL during deployment of the HDPE liner.

(10)REQUESTOR: Jo Richard Schaubaum, Petro Environmental

(12)FCE / PE: [signature] DATE: 10/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

Use of ATVs for the purpose of HDPE liner deployment in accordance with the attached Petro Plan is approved as noted below:

1. - Contractor provide FDF written statement that use of the ATVs will not damage the GCL or affect the materials warranty in any way.
2. - Prohibit refueling the ATV within 100 Ft of cell limits and as required by FDF Safety.
3. - Prohibit driving of ATV over wrinkled geosynthetics.
4. - Actual Ground Pressure during operation shall be less than 5 psi.
5. - Additional FDF Safety Concerns

RCI / DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine DATE: 20 Oct 97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)__

(18)CONSTRUCTION CONCURRENCE: DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

GSI

2091 Clary Connector
Eastanollee, Georgia 30538
(706) 779-5575
Fax (706) 779-3882

October 8, 1997

Richard Schairbaum
Petro Environmental Technologies
PO Box 538704 Mail Stop 44
Cincinnati, OH 45253-8704

RE: Fernald Daniels - Deployment of HDPE

Dear Mr. Schairbaum:

We will use 2 ATVs to pull the liner across the cell. What ever material is required to go up and over the cell berm on the opposite side will be lapped back over itself on the deployment side. We will then hook two straps through the cores around the end and to the rear of the ATVs. Once to the opposite side toe of berm, we will then remove the ATVs and hand pull the liner up over the berm and anchor trench.

As for the concern that friction material of HDPE liner being removed due to rubbing of GCL, I must say that in the 7 years of installing this textured material, I have never seen any indication of the phenomena happening.

The use of rub sheets will only be utilized at the top of the berm on deployment side of the cell, down the slope as required to keep any excessive wear of the GCL at this point of contact. At no other location will be rub sheet be utilized.

GSI has been pulling liner on top of GCL with the use of ATVs for 4 years. We have pulled in excess of 450 L.F. without disturbing the GCL under the ATV's wheels. If we discover that the entire length cannot be pulled, we will fold our liner back over itself at greater distance, this will cut the amount drag of liner against GCL.

At some point, we would hope that someone at this site would start looking at how this project can be completed instead of how can we delay the project further. We are now past the time of year that will guarantee it's completion in this construction season. We are now at the mercy of the weather as to if this project will be completed.

Sincerely,

Dan Morrow

Dan Morrow
President

To:

From: George Elkins - National Seal Company

Date:

Subject: Rough Estimates For Ground Pressure of 4 X 4 Quad

Using information supplied by Honda and Yamaha I have attempted to compare the ground pressure of a Quad machine with that of a person walking. Bear in mind that these are only estimates.

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- Head Protection

  The operator's safety manuals recommend the use of helmets while driving ATVs. If motorcycle-type helmets are required, this may introduce greater error potential in that operators will need to switch between helmets and hard hats, as well as to portage the headgear not in use at the time. Rather than requiring essentially dual protection for the operator's head, a more practical equivalent would be the addition of a chin strap to the operators' hard hats. The approach offers wearer acceptance and work practice enforcement

benefits, and appears to be more accommodating to user needs while providing a reasonable degree of safety.

- Seat Belts

The ATVs are not equipped from the manufacturers with seat belts. GSI and Petro Environmental do not endorse seat belt installation and use in that a seatbelt would unduly increase risks to the operator in the event that an ATV is flipped or otherwise involved in an accident. If such an incident occurred, a belted operator could be more severely injured if trapped beneath the moving vehicle.

- Operator Training

GSI will represent that their ATV operators have sufficient training and experience to assure that their knowledge of safe operating requirements and handling realities will protect them from hazards while driving the ATVs. The training includes a manufacturer's operating orientation and safe driving techniques videotape, verbal instruction, and supervised field orientation for each operator. Each designated operator has 5 or more years experience in driving the company-owned ATVs during other liner installations, within similar scopes of work, and under operating conditions like those that will be encountered on this project. Upon their arrival at the OSDF, the SSHO will conduct a discussion with the GSI-designated operators to verify their awareness of project-specific safety issues relevant to the use of the ATVs. FDF Safety will be invited to attend and participate in this discussion.

- Safe Use/Quality Control Procedures

ATV operators have been oriented to the following set of safe use and quality control practices and are accustomed to their regular enforcement by GSI Site Management.

1. The ATVs will be operated and maintained in accordance with the Operator Safety Manuals.
2. ATV speeds shall not exceed 5 mph.
3. Only trained and experience GSI employees, as designated by GSI management, may operate the ATVs. No contract laborers, other contractors or visitors may operate the ATVs.
4. No passengers are allowed at any time.
5. The ATVs will be equipped with a high visibility flag.
6. A preliminary walkdown of the pathways for use of the ATV will be conducted by the SSHO and the ATV operators to assure the roadways are free of obstacles.
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8. Horseplay is strictly prohibited, as well as any other activities which could potentially damage the GCL.

9. Daily maintenance checks must be completed and documented by the designated operators.
10. All ATV maneuvers made on the GCL must be performed in such a fashion so as to not cause damage to/displacement of the material.
11. No quick starts which would permit spinning of the tires are allowed.
12. All stops and turns must be completed in a gradual fashion to ensure that the GCL material is not damaged/displaced.
13. The ATVs are to be kept on the GCL the minimal amount of time necessary to complete required HDPE liner deployment activities.
14. When any ATV is not in operation, the GSI-designated operator will remove the ignition key and retain it's possession.

PETRO environmental technologies

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(630) 898-1161 • (800) 323-3820 • FAX: (630) 898-6556

FACSIMILE TRANSMITTAL

DATE: October 16, 1997 **Page 1 of** 1

TO: Mr. Dan Morrow
Ground Safe, Inc.
PHONE: 706/779-5575
FAX: 706/779-3882

FROM: Bill Hardison
Director - Installer Sales
PHONE: 630/898-1161
FAX: 630/898-6556

RE: GCL Installation Issues

Dear Dan:

I understand that their is some concern regarding whether or not an in-place GCL can be driven on with a low ground pressure vehicle, such as an ATV, in the course of liner installation. It is relatively common practice to use such vehicles in the course of liner installation. Providing reasonable care is exercised, this ~~should not~~ will damage the GCL or affect the materials warranty in any way.

Please feel free to call if you have any additional information.

Sincerely,

NATIONAL SEAL COMPANY

Bill Hardison
Director - Installer Sales

cc: Rick Schairbaum, Petro Environmental 513-648-3407

GeoSyntec Consultants

5950 Symphony Woods Road • Suite 510
Columbia, Maryland 21044 • USA
Tel. (410) 715-1400 • Fax (410) 715-1414

15 October 1996

Pavex, Inc.
440 Gettysburg Road
Camp Hill, Pennsylvania 17011

Attention: Mr. Brent P. Gallagher, P.E.
Project Manager

Subject: Use of All-Terrain Vehicles to Deploy Geosynthetics
Municipal Site Landfill Overfill, Cells 1 and 2 Construction
Lanchester Sanitary Landfill
Contract No. 94-205D-MSOF and 96-240C-MSOF12

Dear Mr. Gallagher:

GeoSyntec Consultants (GeoSyntec) has reviewed a 22 September 1996 letter from Solmax Geosynthetics (Solmax) to Pavex, Inc. (Pavex) regarding a request to use an all-terrain vehicle (ATV) to deploy geosynthetic materials at the above-referenced project. GeoSyntec received this letter and corresponding request from Pavex as part of Submittal No. 34-7-1, which was submitted by Pavex on 30 September 1996. Submittal No. 34-7-1 was partially approved by GeoSyntec on 1 October 1996 pending GeoSyntec's review of Solmax's proposed method for geosynthetic material deployment. Based on the discussions held at the 18 September 1996 pre-construction meeting, GeoSyntec understood that Solmax would submit for review a proposal that would provide a detailed description regarding the specific uses of an ATV and a trailer to deploy geosynthetic materials.

While GeoSyntec acknowledges the benefits of using an ATV/trailer to deploy geosynthetic materials, the proposal submitted by Solmax does not fully address the concerns raised by GeoSyntec, the Chester County Solid Waste Authority (CCSWA), or the construction quality assurance (CQA) consultant (i.e., Golder Construction Services (GCS)). Because of this, the undersigned contacted Mr. Todd Jones, Project Manager for Solmax, on 8 October 1996 to discuss Solmax's proposal. Based on this

Corporate Office:
621 N.W. 53rd Street • Suite 650
Boca Raton, Florida 33487 • USA
Tel. (407) 995-0900 • Fax (407) 995-0925

Regional Offices:
Atlanta, GA • Boca Raton, FL
Columbia, MD • Huntington Beach, CA
Walnut Creek, CA • Brussels, Belgium

Laboratories:
Atlanta, GA
Boca Raton, FL
Huntington Beach, CA

conversation, Solmax has agreed to meet the following conditions regarding the use of an ATV/trailer for geosynthetic materials deployment:

- verify that the maximum ground pressure exerted by the ATV or trailer tires is less than 2 psi at all times;
- allow a representative(s) of the CQA Consultant, CCSWA, or GeoSyntec to measure the tire pressure of the ATV and/or trailer as deemed necessary;
- limit the speed of the ATV and ATV/trailer to 5 mph while driving on the geosynthetics;
- limit the use of the ATV/trailer to the deployment of geosynthetic materials (i.e., geomembrane, geocomposite, and 16 oz/yd^2 geotextile);
- prohibit driving of the ATV/trailer over wrinkled geosynthetics;
- prohibit turning of the ATV/trailer while traversing over any deployed geosynthetic material;
- prohibit fast braking, except in emergencies related to worker or construction safety, on any deployed geosynthetic material;
- prohibit bouncing or other potential impacts of the ATV/trailer on any deployed geosynthetic material;
- prohibit driving of the ATV/trailer over any deployed geosynthetic material unless in the process of deploying an overlying geosynthetic material layer;
- prohibit refueling of the ATV within 100 ft of the cell limits; and

RECYCLED AND RECYCLABLE

- limit the operation of the ATV to one Solmax employee with one Solmax employee as an alternate operator.

GeoSyntec will allow the use of the ATV/trailer to deploy geosynthetics for this project provided that any variance of the above conditions or other misuse of the ATV/trailer observed by Solmax, Pavex, CCSWA, GCS, GeoSyntec, or any of the State, County, or community inspectors will result in the immediate termination of the ATV/trailer use.

GeoSyntec anticipates that the use of the ATV/trailer during geosynthetics deployment will result in accelerated geosynthetics installation. Please advise Mr. Theodore F. O'Neill of CCSWA of the scheduling advantage that Pavex has obtained with regard to this issue. Please contact me should you wish to discuss this issue further.

Sincerely,

Eric S. Steinhauser, P.E.
Senior Project Engineer

Copies to: J. Oren, PADEP
T.F. O'Neill, CCSWA
D.E. Buncie, Jr., CCSWA
O.R. Esterly, P.E., CCSWA
T. Jones, Solmax
J.E. Whitty, P.E., GCS
J. Single, GCS
J.F. Beech, Ph.D., P.E., GeoSyntec

ME0016-01/MD96675.DOC

RECYCLED AND RECYCLABLE

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 OF 2	(6) DATE
1702	597		10/8/97

(3) S/C TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-007R

(4) RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN TITLE: Use of ATVs on GCL

(11) DCN NO.: —

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
Technical Specifications Section 02772, Paragraph 3.05.B	GeoSyntec Document No. F9630253.SPE	0	None

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The referenced technical specification section states that no equipment may be driven directly on the GCL. Attached is documentation from Ground Safe, Inc. which documents that there is less ground pressure placed upon the GCL from the ATVs than from physically walking upon the material with normal work boots. Additional documentation from Ground Safe expresses how and where rub sheets will be used and how the ATVs will be utilized upon the GCL. Therefore, this RCI is requesting that a DCN be issued to permit the use of ATVs upon the GCL during deployment of the HDPE liner.

INFORMATION ONLY

(10) REQUESTOR:	COMPANY:	DATE:	(12) FCE / PE	DATE:
J. Richard Schairbaum	Petro Environmental Technologies, Inc.	10/8/97	J. Richard Schairbaum	10/8/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [ ] NO [ ] YES (14) FOR DCN: [ ] APPROVED [ ] APPROVED AS NOTED [X] DISAPPROVED

See Page 2 for Response

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL:	DATE:	(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE
Daniel Bidine for K. Cargill	3 Dec 97	

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 4 12/4/97

CONSTRUCTION CONCURRENCE:	DATE:	(21) WORK COMPLETED: (SIGNOFF BY FCE ORPE)	DATE:
	12/05/97		

PURCHASE REQUISITION REQUIRED: [ ] YES [X] NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

The ground pressure of the ATV is not the only concern for driving directly on the GCL. There is concern that starting, stopping, and turning will cause displacement or damage to the GCL. There is also concern that the horizontal forces transmitted during pulling of long section of geomembrane will cause displacement or damage.

Regarding the installers plans for using minimal rubsheets; Specification Section 02770, paragraph 3.01. C.2 requires the use of rubsheets to prevent displacement or damage to the GCL. Damage to the top geotextile of the GCL is considered to be damage to the GCL and will require removal and replacement.

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) Pg 1 OF 1	(6) DATE
1702	597		10/8/97

(3) TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-007R

(4) RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN TITLE: Use of ATVs on GCL

(11) DCN NO.: ---

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
Technical Specifications Section 02772, Paragraph 3.05.B	GeoSyntec Document No. F9630253.SPE	0	None

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The referenced technical specification section states that no equipment may be driven directly on the GCL. Attached is documentation from Ground Safe, Inc. which documents that there is less ground pressure placed upon the GCL from the ATVs than from physically walking upon the material with normal work boots. Additional documentation from Ground Safe expresses how and where rub sheets will be used and how the ATVs will be utilized upon the GCL. Therefore, this RCI is requesting that a DCN be issued to permit the use of ATVs upon the GCL during deployment of the HDPE liner.

FOR INFORMATION

(10) REQUESTOR:	COMPANY:	DATE:	(12) FCE / PE	DATE:
I. Richard Schwirbaum	Petro Environmental Technologies, Inc.	10/8/97	J. Richard Schwirbaum	10/8/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [ ] NO [ ] YES (14) FOR DCN: [ ] APPROVED [ ] APPROVED AS NOTED [X] DISAPPROVED

The ground pressure of the ATV is not the only concern for driving directly on the GCL. There is concern that starting, stopping, and turning will cause displacement or damage to the GCL. There is also concern that the horizontal forces transmitted during pulling of long sections of geomembrane will cause displacement or damage.

Regarding the installers plans for using minimal rubsheets; Specification Section 02770, paragraph 3.01 C.2 requires the use of rubsheets to prevent displacement or damage to the GCL. Damage to the top geotextile of the GCL is considered to be damage to the GCL and will require removal and replacement.

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL:	DATE:	(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE
10 Oct 97		

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) _____

(18) CONSTRUCTION CONCURRENCE:	DATE:	(21) WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
(19) REQUISITION REQUIRED: [ ] YES [ ] NO (19)			

*259 (10/01/96)

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	(6)DATE
1702	FSC-597	1 OF 1	10/7/97

(3)S/C TITLE: OSDF Phase I Construction

(11)RCI NO.: 1702-006R

(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER O

(4A)RCI/DCN TITLE: GCL Shear Strength Clarification

(11)DCN NO.: N/A

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Technical Specification 02772	Part 2.01, E.3	0	

(9)X RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

See attached 7 October 1997 Geosyntec letter and attached RCI language.

INFORMATION ONLY

Civil Review Only

(10)REQUESTOR: R.E. Heath COMPANY: FDF DATE:

(12)FCE / PE DATE: 11/7/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Rudolph Bonaparte, P.E., Geosyntec DATE:

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 4 11/7/97

(18)CONSTRUCTION CONCURRENCE: Bill Zebish DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19) 10/7/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

RCI ON GCL SHEAR STRENGTH
ATTACHMENT A

Introduction

The purpose of this RCI is to clarify the shear strength requirements given in the GCL specification (section 02772, paragraph 2.01.E.3) and to present a procedure for evaluating whether a GCL sample complies with the shear strength requirements.

The specification states that both the internal shear strength of the GCL material and the interface shear strength between GCL and geomembrane must meet the same minimum requirements. Separate strength requirements are given for peak and large-displacement conditions. The required shear strengths are specified by secant friction angles at three normal stress levels, as follows:

Normal Stress (psi)	Peak Secant friction angle (deg)	Large-displacement secant friction angle (deg)
5	17	12
20	17	7
45	17	6.5

These values define peak and large-displacement shear strengths for the range of normal stresses that will act on the GCL in the OSDF liner system. Such relationships between shear strength and normal stress, termed shear strength envelopes, are used because it is the collective shear strength the GCL over the entire stress range that affects OSDF stability. The use of shear strength envelops implies that if a GCL material has a shear strength below the envelope at one particular normal stress, it may comply with the strength requirements if the shear strength at other normal stresses are above the envelope.

Step-by-Step Evaluation Procedure

The following procedure will be used to evaluate whether a GCL provides a shear strength envelope that is equal to or greater than the shear strength envelope defined in the specification.

1. Shear Strength Envelopes. Conduct GCL internal shear tests and GCL/geomembrane interface shear tests at three normal stress levels (5, 20, and 45 psi) in accordance with subsection 2.01.E of the specification. For each normal stress, obtain the peak shear strengths from the internal and the interface shear tests. Use the results from each test series to establish the envelopes of measured peak internal and interface shear strength. The envelopes should be assumed to be flat above 45 psi. Establish the envelopes of measured large-displacement shear strengths in the same manner.

2. Slope Stability Analysis. Two slope stability cases that were included in the OSDF design calculations will be reanalyzed using the measured peak and large-displacement strength envelopes established in Step 1. The two slope stability cases are from section 3.3 of the design calculations and are the most critical cases with respected to peak and large-displacement GCL shear strength. The first case involves interim slopes of impacted material[1]. This case will be reanalyzed using the measured peak shear strength envelopes to compute a slope stability factor of safety (FS), FS_{peak}. The second case involves final slopes of impacted material[2]. This case will be reanalyzed using the measured large-displacement shear strength envelopes to compute a slope stability factor of safety, FS_{LD}. The reanalyses will use the same geometry and material properties as the design calculations, with the exception that GCL shear strengths will be defined by the measured envelopes.

3. Evaluation. Compare the slope stability factors of safety computed in Step 2, FS_{peak} and FS_{LD}, to baseline factors of safety. The baseline factors of safety have been obtained by using the shear strength envelopes defined in the specification and reanalyzing the same two slope stability cases described in Step 2. The baseline factors of safety are 1.9 for the peak strength case and 1.6 for the large-displacement strength case. The GCL is in compliance with the shear strength requirements of the specification if the computed internal and interface factors of safety are greater than or equal to the baseline values. The comparison of factors of safety will be made to the nearest 0.1, the same level of significance used in section 3.3 of the OSDF design calculations. Specifically, the GCL is in compliance if the following two conditions are satisfied:

$$FS_{peak} \geq 1.9$$
$$FS_{LD} \geq 1.6$$

---

1. The first case consists of the most critical interim slope (3H:1V) of impacted material that can potentially exist in the OSDF. The detailed analysis for this case is presented on pages 23 to 26 of section 3.3 of the design calculations, and is there identified by the title "OSDF Interim Conditions - Peak Short Term" and the file name "CASE5B".

2. The second case consists of the most critical final slope of impacted material that will exist in the OSDF. The detailed analysis for this case is presented on pages 31 to 34 of section 3.3 of the design calculations, and is there identified by the title "OSDF Final Long Term - Large Disp." and the file name "CASE7B".

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 1	(6)DATE
1702	FSC-597		18 Aug1997

(3)S/C TITLE: On-Site Disposal Facility

(11)RCI NO.: 1702-004R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐

(4A)RCI/D CN TITLE: Equipment Decontamination Facility

(11)DCN NO.: ———

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Technical Specifications Section 13000, Part 2.05.A	GeoSyntec Document No. F9630253.SPE	0	
FERMCO Dwg No. 90X-6000-G-00086 Sheet G-37A (Rev 0)	GeoSyntec Document No. F96-3520	0	

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION REQUESTED/PROPOSED CHANGE

Referenced specifications fourth to last word "LEVEL" should be replaced by "LEVER".

(10)REQUESTOR: Jephory McMichen, GeoSyntec Consultant

(12)FCE / PE: [signature] DATE: 8/20/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: David J. Bonnett DATE: 19 August 1997

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) [signature] DATE: 8/20/97

PERFORMANCE GRADE: (17) 5 N/A

(18)CONSTRUCTION CONCURRENCE: N/A [signature] 08/20/97 DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19) N/A

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

GeoSyntec Consultants

1100 Lake Hearn Drive NE, Suite 200
Atlanta, Georgia 30342-1523 USA
Telephone: (404) 705-9500
Telefax: (404) 705-9400
brianj@GeoSyntec.com

FAX COVER SHEET

To: Jeff McMichen

Firm: GeoSyntec

Fax No.: (513)648-3415

From: Brian Jacobson

Project No.: Fernald

Cover Page plus 2 page(s) following

Sent by: Brian Jacobson BJ Date: 18 August 1997 Time: 9:58AM

MESSAGE:

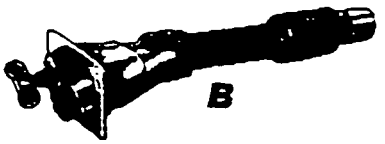
A copy of the catalog page for the frost proof hydrant is attached. As noted in our conversation the specification has a typo. A corrected version of specification 13000.2.05.A is also attached.

The drain valves shown on Drawing 37A should be PVC ball valves. The valves should be rated to 150 psi. The valves should be placed in a valve box. The valve box can be constructed of a section of 6 in. diameter pipe with an appropriate cover and should extend from the valve to the ground surface.

Corporate Office: (407) 995-0900
Boca Raton, FL Office: (407) 995-0900
Huntington Beach, CA Office: (714) 843-6866
Columbia, MD Office: (410) 715-1400
Austin: (512) 451-4003

Walnut Creek, CA Office: (510) 943-3034
Geomechanics and Environmental Laboratory: (404) 705-9500
Materials Testing Laboratory: (407) 995-0900
Chicago, IL Office: (312) 658-0500

ost-Proof Water Hydrants



aintain outside water supply without worrying about seasonal shut-off and draining. Hydrants matically drain when shut off to help prevent freezing. Choose from wall and ground styles.

) Wall Style — *Rated to 125 psi.* The valve of the wall-style hyits is designed to mount inside your building. Body is brass with pper tube and removable plastic handle. Install hydrant through /8" dia. hole in wall. For anti-siphon backflow protection, choose drant with vacuum breaker. **Connections:** Combination inlet: ½" female x ¾" NPT male. Outlet: ¾" garden hose (GHT) male.

ckness	With Vacuum Breaker	Each	Without Vacuum Breaker	Each
	4728K41	$19.53	4728K11	$15.20
	4728K42	19.93	4728K12	14.58
	4728K43	20.40	4728K13	15.42
	4728K44	20.89	4728K14	15.45
	4728K45	21.29	4728K15	17.35

) Tamper-Resistant Wall Style — Rated to 125 psi. "Tee-key" oped to reduce the risk of accidental activation. Hydrants also fea a vacuum breaker for anti-siphon backflow protection. Body is ome-plated brass. Pipe is brass. Install through a 4" x 2" cutout in (6¼" x 5¼" cutout for optional mounting box). Hydrants comply ASSE 1019. CSA certified and IAPMO listed. **Connections:** Inlet: NPT female. Outlet: ¾" garden hose (GHT) male.

To Order Please specify wall thickness.

ilable ll Thicknesses		Each
6", or 8"	47335K43	$123.53
12", or 14"	47335K46	130.39
"	47335K49	143.14
Brass Mounting Box with Door	47335K55	98.04

(C) Medium Duty Ground Style — Rated to 50 psi. Shut-off valve and pipe-column drain are below frost line. Flow is regulated with lever. Head is cast iron and nozzle is brass. Pipe is 1" diameter corrosion-resistant galvanized steel. **Connections:** Inlet: ¾" NPT female. Outlet: ¾" garden hose (GHT) male.

Burying Depth	Overall Length		Each
2 ft.	4'4¾"	4728K21	$38.75
3 ft.	5'4¾"	4728K22	40.83
4 ft.	6'4¾"	4728K23	43.30
5 ft.	7'4¾"	4728K24	45.42
6 ft.	8'4¾"	4728K25	47.08
8 ft.	10'4¾"	4728K26	50.42

(D) Heavy Duty Ground Style — Rated to 100 psi. Large, 1¼" dia. inlet can handle a large volume of water. Shut-off valve is below the frost line. Hydrant is lever-operated; a spring holds it in the open position when in use (either fully opened or fully closed). Body is brass. Pipe is galvanized steel. Outlet is galvanized steel. **Connections:** Inlet: 1¼" NPT male. Outlet: 1¼" NPT female.

To Order Please specify manual or self-closing lever handle.

Burying Depth	Overall Length		Each
2 ft.	4 ft.	4787K41	$144.42
3 ft.	5 ft.	4787K43	155.20
4 ft.	6 ft.	4787K42	165.91
5 ft.	7 ft.	4787K45	176.67
6 ft.	8 ft.	4787K48	187.41
7 ft.	9 ft.	4787K47	198.19

onze Plumbing Valves

laximum Pressure: 125 psi

hese small multipurpose valves are bronze and come in a variety of designs. Compression p and waste models feature a drain with threaded plug. **Connections:** Inlet: see table. Outlet: garden hose (GHT) male (except compression stop and waste style, which are NPT female).

Compression Stop and Waste

Hose Bibb

Boiler Drain

Angle Hose Bibb

Threaded Sill Cock

nnection	Each	Inlet Connection		Each
npression Stop and Waste		***Hose Bibb — Angle***		
NPT Female	4792K51 $6.31	½" NPT Female	4792K73	$4.05
NPT Female	4792K52 7.18	¾" NPT Female	4792K74	4.26
ler Drain		***Sill Cock — Threaded***		
NPT Male	4792K31 4.78	½" NPT Female	4792K41	5.90
NPT Male	4792K32 5.03	¾" NPT Female	4792K42	6.17
NPT Female	4792K33 5.33	***Sill Cock — Solder***		
se Bibb		½" Tube	4792K45	5.73
NPT Male	4792K21 4.29	¾" Tube	4792K46	6.03
NPT Male	4792K22 4.64			

ermoplastic Plumbing Valves

laximum Pressure: 150 psi

laximum Temperature: Acetal: 180° F; PVC: 140° F; CPVC: 180° F

lse these lightweight, corrosion-resistant valves for hot and cold ter and compatible chemicals. Seals are EPDM. NSF listed.
icetal — Bronze color with red handle. ***PVC and CPVC*** — Beige or with red handle.
Connections: Inlet: see table. Outlet: ¾" garden hose (GHT) male cept compression stop and stop and waste styles, which are the ne as inlet).

Compression Stop

Compression Stop and Waste

Boiler Drain

Hose Bibb

Angle Hose Bibb

etal t Connection		Each
ssion Stop		
Female	4950K44	$3.37
PT Female	4950K45	3.56
ler Drain		
NPT Male	4950K55	3.19
NPT Male	4950K56	3.28
NPT Female	4950K58	3.28

PVC and CPVC

Inlet Connection	PVC	Each	CPVC	Each
Compression Stop				
½" Socket	45305K12	$3.43	45305K52	$3.59
¾" Socket	45305K14	3.52	45305K54	3.75
Compression Stop and Waste				

C. Furnish 8-d ring-shank common nails with sealing washers to attached wind/overspray shield.

2.05 EQUIPMENT DECONTAMINATION FACILITY FROST-PROOF YARD HYDRANTS

A. Provide frost-proof yard hydrants with 3/4 inch brass hose threaded outlet. Provide hydrant with 5 foot total length, 1-inch diameter pipe and shutoff valve with pipe column drain, and lever controlled flow regulator.

2.06 EQUIPMENT DECONTAMINATION FACILITY WOOD SUPPORTS

A. Provide pressure treated wood in accordance with Section 710.14 of the Ohio DOT specifications. Provide ground contact rated material for wood supports.

2.07 EQUIPMENT DECONTAMINATION FACILITY GEOSYNTHETICS

A. Geotextile shall meet the material requirements for geotextile cushion in Specification Section 02714.

B. Geomembrane shall meet the material requirements of Section 02770.

2.08 EQUIPMENT DECONTAMINATION FACILITY LINER PENETRATION

A. Provide 1/2-inch wide Type 316 stainless steel clamps with heavy duty worm drive gear which can withstand 150 pounds of tightening torque.

B. Provide silicone sealant which adheres to HDPE.

C. Provide 1-inch wide by 1/8-inch thick by 6-inch diameter Viton seals.

2.09 EQUIPMENT DECONTAMINATION FACILITY ROAD BED

A. Construct equipment decontamination facility roadbed from railroad ties.

B. Use pressure-treated boards over the road bed as shown on the Construction Drawings.

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1) WP / WO NO.:	(2) S/C NO.:	(5) P 1 OF 1	(6) DATE
1702	597		7/29/97

S/C TITLE: On Site Disposal Facility Phase I

(11) RCI NO.: 1702-002R

(4) RESPONSIBLE DISCIPLINE: E [ ] M [ ] C [X] OTHER [ ]

(4A) RCI/DCN TITLE: Temporary HDPE Culvert

(11) DCN NO.: —

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	(7) REV.	(8) OTHER
Amendment of Solicitation/Modification of Subcontract No. Three (3), Question No. Four (4), Amendment of Solicitation No. F97P272290	GeoSyntec Doc. No. F96-5504	2	None

(9) [X] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER

(9) [ ] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Referenced Amendment specifies corrugated HDPE pipe as a possible choice of material for the Temporary HDPE Culvert. Petro Environmental Technologies will utilize 18" HDPE, N-12, Type D pipe with gasketed bell and spigot type fittings. We believe that this material meets the specification. Please review and respond as appropriate.

Civil Review Only RCA.

RECEIVED
AUG 13 1997
GeoSyntec CBB

(10) REQUESTER: Steve Brandstetter COMPANY: Petro Environmental Technologies, Inc. DATE: 7/29/97

(12) ECE PE: [signature] DATE: 8/12/97

[signature] 7/29/97

(13) RESPONSE FOR RCI, IS A DCN REQ'D [ ] NO [ ] YES

(14) FOR DCN: [X] APPROVED [ ] APPROVED AS NOTED [ ] DISAPPROVED

INFORMATION ONLY

RCI - DCN ACCEPTANCE

(15) DESIGN ORGANIZATION APPROVAL: [signature] DATE: 16 Aug 97

(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE

(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 5 [signature] 8/19/97

CONSTRUCTION CONCURRENCE: DATE: N/A 08/19/97

PURCHASE REQUISITION REQUIRED: [ ] YES [ ] NO(16)

(21) WORK COMPLETED: (SIGNOFF BY FLE OR PE) DATE:

FS-F-4259 (10/01/96)

AMENDMENT OF SOLICITATION/MODIFICATION OF SUBCONTRACT

1. AMENDMENT/MODIFICATION NO. [redacted]	2. EFFECTIVE DATE NOVEMBER 27, 1996	3. PAGE 1 OF 6

4. ISSUED BY: Fluor Daniel Fernald
P.O. Box 538704
Cincinnati, OH 45253-8704

5. NAME AND ADDRESS OF SUBCONTRACTOR (*Name,street,county,state,and zip code*)	6. AMENDMENT OF SOLICITATION NO.	DATE
PROSPECTIVE OFFERORS	F97P272290	11/27/96
	7. MODIFICATION OF SUBCONTRACT NO.	DATE

8. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 10. The hour and date specified for receipt of Offers ☐ is extended ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:

(a) By completing Items 5 and 11, and returning ONE (1) copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate [ ] letter [ ] telegram [ ] facsimile which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by [ ] telegram or [ ] letter or [ ] facsimile, provided each makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

9. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF SUBCONTRACTS/ORDERS. IT MODIFIES THE SUBCONTRACT/ORDER NO. AS DESCRIBED IN ITEM 10.

A. THIS UNILATERAL MODIFICATION IS ISSUED PURSUANT TO: (*Specify authority*). THE CHANGES SET FORTH IN ITEM 10 ARE MADE IN THE SUBCONTRACT IDENTIFIED IN ITEM 7.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES SET FORTH IN ITEM 10.

C. THIS BILATERAL MODIFICATION IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (*Specify type of modification and authority*)

E. IMPORTANT: CONTRACTOR ☐ is not. ☐ is required to sign this document and return _____ copies to the issuing office.

10. DESCRIPTION OF AMENDMENT/MODIFICATION

REFER TO THE ATTACHED PAGES FOR COMPLETE DETAILS OF THE ADMENDMENT NO. 3

Except as provided herein, all terms and conditions of the document 6 or 7, remain unchanged and in full force and effect.

11A. NAME AND TITLE OF SIGNER (*Type or print*)		12A. FLUOR DANIEL FERNALD A. D. Sablosky Contract Administrator	
11B. SUBCONTRACTOR/OFFEROR _____ (*Signature of person authorized to sign*)	11C. DATE SIGNED	12B. _____ (*Signature*)	12C. DATE SIGNED 11/27/96

FS-F-4002 (09/15/94)

SOLICITATION NO. F97P272290
SUBCONTRACT NO. FSC 597
ON SITE DISPOSAL FACILITY (OSDF) PHASE I
AMENDMENT NO. 3

4. Question: Please clarify the Type, SDR and perforations (if any) for the HDPE temporary culverts.

Response: HDPE pipe for temporary culvert shall be corrugated HDPE pipe, SPIROLITE 1000, Class 40 or approve equal.

5. Question: How far does the 6" perforated pipe go once it passes through the liner penetration box on the LCS and LDS line? Is it capped?

Response: As shown on the construction Drawing 90X-6000-G-00082, sheet G-24A, the 6" perforated pipe begins at the first joint (shown as 6" electrofusion coupler - typical) inside the cell after passing through the pipe penetration box goes up to the beginning of the drainage corridor. All perforated pipes are capped at their end inside the cell.

6. Question: Is there a rain flap between Cell 1 and Cell 2?

Response: Yes

7. Question: Do all subcontractor employees who work on site need to be U.S. citizens?

Response: Yes.

8. Question: Will low ground pressure vehicles (i.e. no more than 4.5 psi) be allowed on the GCL?

Response: No.

9. Question: What is the length and width of the impacted runoff catchment area?

Response: As shown on the construction drawings G-15A and G-22A, minimum dimensions are 110 ft plus cell slope in the north-south direction and 250 ft in the east-west direction.

10. Question: Are Subcontractor personnel required to have the 30 hour OSHA Outreach Training? If yes, Plans State Training will be provided by Fluor Daniel Fernald. Is the expense covered by Fluor Daniel Fernald or the Subcontractor?

Response: Refer to Part 8 - Safety & Health and Training Requirements, Section C, 1.11. The field supervision (positions as listed) for the prime

Product Notes

ADS

Product Note 3.107

Re: Specification for Smooth Interior Corrugated Polyethylene Pipe

Date: March 1, 1996

This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth waterway. Nominal sizes for which this specification is applicable are 4 - 48 inch diameter. Sizes 4 - 36 inch (N-12) shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for these sizes may be either annular or spiral. Sizes 42 and 48 inch (N-12 HC) shall consist of an essentially smooth waterway braced circumferentially with circular ribs which are formed simultaneously with an essentially smooth outer wall. All sizes shall conform to the AASHTO classification "Type D" (which describes pipe with a smooth waterway).

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from virgin PE compounds which conform with the requirements of cell class 324420C as defined and described in ASTM D3350.

The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

Diameter	Pipe Stiffness	Diameter	Pipe Stiffness
4" (100 mm)	50 psi (340 kN/m²)	18" (450 mm)	40 psi (280 kN/m²)
6" (150 mm)	50 psi (340 kN/m²)	24" (600 mm)	34 psi (240 kN/m²)
8" (200 mm)	50 psi (340 kN/m²)	30" (750 mm)	28 psi (200 kN/m²)
10" (250 mm)	50 psi (340 kN/m²)	36" (900 mm)	22 psi (150 kN/m²)
12" (300 mm)	50 psi (340 kN/m²)	42" (1050 mm)	19 psi (140 kN/m²)
15" (375 mm)	42 psi (290 kN/m²)	48" (1200 mm)	17 psi (120 kN/m²)

The fittings shall not reduce or impair the overall integrity or function of the pipe line. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes, and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans, a neoprene or rubber gasket shall be supplied.

Installation of the pipe specified above shall be in accordance with ASTM Recommended Practice D2321 as covered elsewhere in these specifications.

ADS N-12® PRODUCT INFORMATION SHEET

Nominal Diameter	Inside Diameter, Average	Outside Diameter, Average	Wall Thickness, Minimum	Pipe Stiffness @ 5% Deflection	Weight lbs./20 ft. (kg./6 m.)	Area in.²/in.	"I" in.⁴/in.	"C" in.
4" (100 mm)	4.10" (104 mm)	4.78" (120 mm)	0.020" (0.50 mm)	50 psi (340 kN/m²)	8.10 lbs. (3.60 kg.)	0.070	0.0014	0.29
6" (150 mm)	6.09" (155 mm)	6.92" (176 mm)	0.020" (0.51 mm)	50 psi (340 kN/m²)	17.60 lbs. (7.83 kg.)	0.102	0.0040	0.39
8" (200 mm)	7.90" (200 mm)	9.11" (233 mm)	0.025" (0.64 mm)	50 psi (340 kN/m²)	30.80 lbs. (13.97 kg.)	0.135	0.0070	0.27
10" (250 mm)	9.90" (251 mm)	11.36" (287 mm)	0.025" (0.64 mm)	50 psi (340 kN/m²)	47.30 lbs. (21.50 kg.)	0.168	0.0110	0.33
12" (300 mm)	12.15" (308 mm)	14.45" (367 mm)	0.035" (0.89 mm)	50 psi (340 kN/m²)	63.80 lbs. (28.96 kg.)	0.188	0.0410	0.53
15" (375 mm)	14.90" (380 mm)	17.50" (445 mm)	0.045" (1.14 mm)	40 psi (280 kN/m²)	97.40 lbs. (44.27 kg.)	0.220	0.0760	0.66
18" (450 mm)	18.07" (459 mm)	21.20" (536 mm)	0.050" (1.27 mm)	40 psi (280 kN/m²)	128.60 lbs. (58.38 kg.)	0.250	0.0890	0.75
24" (600 mm)	23.80" (605 mm)	28.19" (716 mm)	0.050" (1.27 mm)	28 psi (190 kN/m²)	170.50 lbs. (77.43 kg.)	0.300	0.1600	0.89
30" (750 mm)	30.20" (767 mm)	36.07" (917 mm)	0.050" (1.27 mm)	28 psi (190 kN/m²)	308.30 lbs. (139.97 kg.)	0.353	0.4870	0.69
36" (900 mm)	36.20" (919 mm)	42.46" (1079 mm)	0.050" (1.27 mm)	19 psi (140 kN/m²)	440.00 lbs. (199.76 kg.)	0.420	0.7400	1.25
42" (1050 mm)	41.50" (1054 mm)	46.75" (1187 mm)	0.050" (1.27 mm)	19 psi (140 kN/m²)	530.00 lbs. (240.62 kg.)	0.420	0.7400	1.25
48" (1200 mm)	47.55" (1208 mm)	52.96" (1345 mm)	0.050" (1.27 mm)	19 psi (140 kN/m²)	640.00 lbs. (290.56 kg.)	0.420	0.7400	1.25

Date: March 1, 1996

07/29/97 MON 11:44 FAX 412 463 0877 LEE SUPPLY CO. 1221 005
025320

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.	(2)S/C NO.	(5)Pg OF	(6)DATE
1702	FSC 597		3 July '97

(3)S/C TITLE: O.S.D.F. - Phase One Construction

(11)RCI NO.: 1702-001R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☐ OTHER ☒ DGB

(4A)RCI/D CN TITLE: Compaction Equipment

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
20100-TS-0002 Technical Specifications section 02200, Part 2.02 (Equipment)	INFORMATION ONLY		

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION REQUESTED/PROPOSED CHANGE

The question has arisen if the RT 820 dual drum vibratory sheepsfoot walk behind roller will be considered hand compaction equipment.

Not currently approved for clay liner compaction of lifts greater than 4 inches. per conversation with Dan Bodine. RCH

7/9/97

(10)REQUESTOR: Brian Erickman/GeoSyntec/3 July '97

(12)FCE / PE DATE: ~~Brian Ericksman/3 July '97~~

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

The dual drum Wacker vibratory sheepsfoot roller (Model RT820) is not considered "hand" compaction equipment even though it may be used in trench or small areas where hand plate compactors are sometimes used. The model RT 820 compactor has a total dynamic force (14000 lbs) greater than 4 times that of normal "hand" vibratory plate compactors. The RT820 is capable of compacting loose lifts of clay soil to greater than 95% Dc as verified by field density testing. Lifts 8 in thick are acceptable.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine 8 July 97 DATE:

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/9/97

PERFORMANCE GRADE: (17) 5 7/17/97

(18)CONSTRUCTION CONCURRENCE DATE: 07/17/97

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

JUL 2 1 1997

DGB

ENTERED

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1702	FSC 597		3 July '97

(3)S/C TITLE: O.S.D.F. - PHASE ONE CONSTRUCTION

(11)RCI NO.: 1702-001R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☒ DCS

(4A)RCI/D CN TITLE: Compaction Equipment

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
20100-TS-0002 TECHNICAL SPECIFICATIONS SECTION 02200, PART 2.02 (EQUIPMENT)			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION REQUESTED/PROPOSED CHANGE

THE QUESTION HAS ARISEN IF THE RT 820 dual drum vibratory sheepsfoot walk behind roller will be considered hand compaction equipment.

(10)REQUESTOR: BRIAN ERICSMAN / GEOSYNTEC / 3 July '97

(12)FCE / PE DATE: ~~Patrick Laseman 3 July '97~~ 7/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

The dual drum Wacker vibratory sheepsfoot roller (Model RT820) is not considered "hand" compaction equipment even though it may be used in trench or small areas where hand plate compactors are sometimes used. The model RT820 compactor has a total dynamic force (14000 lbs) greater than 4 times that of normal "hand" vibratory plate compactors. The RT820 is capable of compacting loose lifts of clay soil to greater than 95% Cr as verified by field density testing. Lifts 8 in thick are acceptable.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: Daniel Bakke 8 July 97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)__

(18)CONSTRUCTION CONCURRENCE: DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

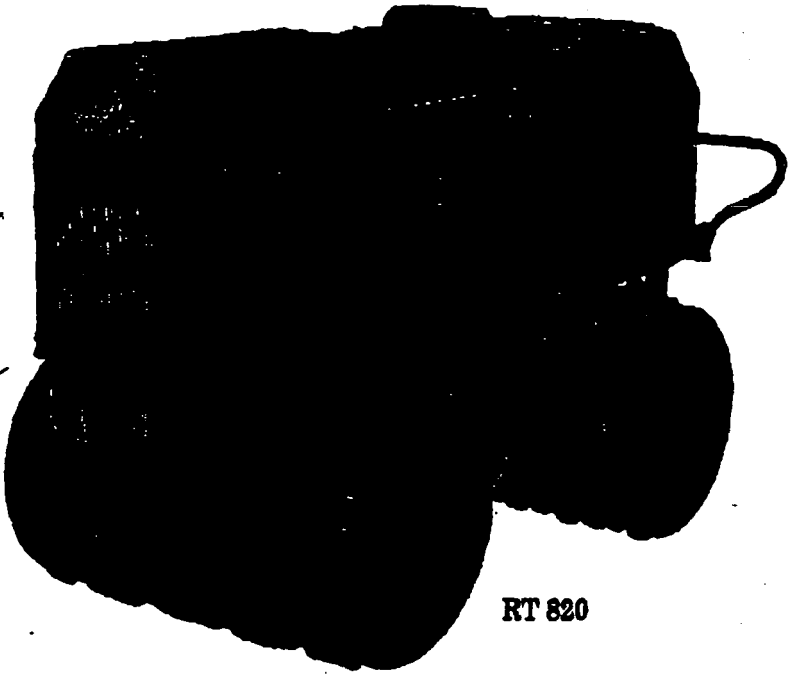
VIBRATORY TRENCH ROLLERS

APPLICATION

For compaction of sub-bases for foundations, roads, parking lots, and the compaction of backfill. Sheepsfoot drums and vibration speed have been selected for optimum compaction of cohesive soils. Drums protrude past the frame, making this machine ideally suited for working in trenches and excavations, pipeline and backfill applications.

FEATURES AND BENEFITS

- 22 inch or 32 inch wide machine fits into tight spaces with ease.
- Patented below the axle exciter in each drum allows for more efficient transfer of compaction energy to the soil.
- Choice of high (14000 lb) or low (7000 lb) compaction force for a variety of soil conditions and applications.
- Special safety bar provides extra protection to operator when machine is in reverse.
- Compact design with fully enclosed, protected components and low center of gravity offers stable operation, even with narrow drums.
- Fully hydraulic drive for forward and reverse operation, articulated steering provides excellent maneuverability and productivity compared to skid steer units
- Convenient electric start diesel engine powers an economical and highly productive machine.
- Standard remote cable control allows comfortable operation for any height operator.
- Remote cable box has simple lever control with automatic stop for operator's safety.



RT 820

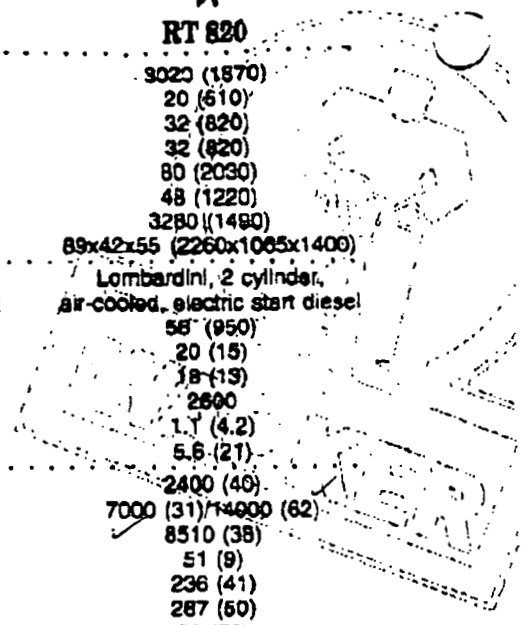
STANDARD PACKAGE	MODEL
Vibratory Roller—narrow drums	RT 560
Vibratory Roller—wide drums	RT 820

Above packages include roller and engine operator's manual.

REMOTE CONTROL ACCESSORY KIT

- Infrared remote control allows operator to control machine from above excavation with line-of-sight control. Much safer than radio controls, quick installation.
- Multi-channel transmitter controls travel, steering, starting, and vibration by operator.
- Operating range of up to 65 ft.

VIBRATORY TRENCH ROLLERS

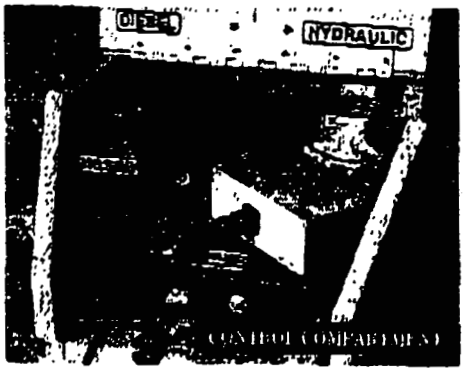


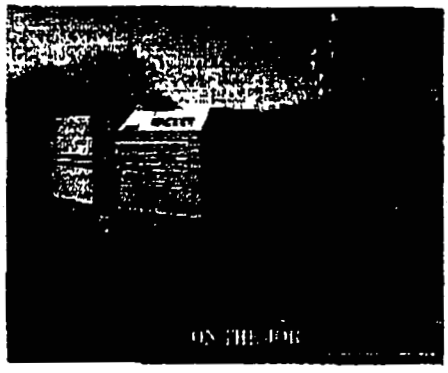
TECHNICAL DATA		RT 560	RT 820
Operating weight	lb (kg):	2830 (1283)	3020 (1370)
Drum diameter	in (mm):	20 (510)	20 (510)
Drum width	in (mm):	22 (560)	32 (820)
Overall width	in (mm):	22 (560)	32 (820)
Overall length	in (mm):	80 (2030)	80 (2030)
Overall height	in (mm):	48 (1220)	48 (1220)
Shipping weight	lb (kg):	3090 (1400)	3280 (1490)
Shipping size (l x w x h)	in (mm):	89x42x55 (2260x1065x1400)	89x42x55 (2260x1065x1400)
Engine type		Lombardini, 2 cylinder, air-cooled, electric start diesel	Lombardini, 2 cylinder, air-cooled, electric start diesel
Displacement	in³ (cm³):	58 (950)	58 (950)
Maximum power	hp (kW):	20 (15)	20 (15)
Operating power	hp (kW):	18 (13)	18 (13)
Operating speed	rpm:	2600	2600
Fuel consumption	gal (l)/h:	1.1 (4.2)	1.1 (4.2)
Fuel tank capacity	gal (l):	5.6 (21)	5.6 (21)
Vibration frequency	vpm (Hz):	2400 (40)	2400 (40)
Dynamic (centrifugal) force total	lb (kN):	7000 (31)/14000 (62)	7000 (31)/14000 (62)
Total applied force per drum (max.)	lb (kN):	8415 (37)	8510 (38)
Static linear force per drum	lb/in (N/mm):	72 (13)	51 (9)
Dynamic linear force per drum (max.)	lb/in (N/mm):	360 (63)	236 (41)
Total linear force per drum (max.)	lb/in (N/mm):	432 (76)	287 (50)
Lift	in (cm):	28 (70)	28 (70)
Low speed	ft (m)/min:	68 (21)	68 (21)
High speed - forward only	ft (m)/min:	136 (41)	136 (41)
Area Capacity	ft² (m²)/h:	7500 (690)	10900 (1015)
Gradeability			
without vibration	%:	55	55
with vibration	%:	50	50
Turning radius - inside	in (m):	63 (1.6)	63 (1.6)

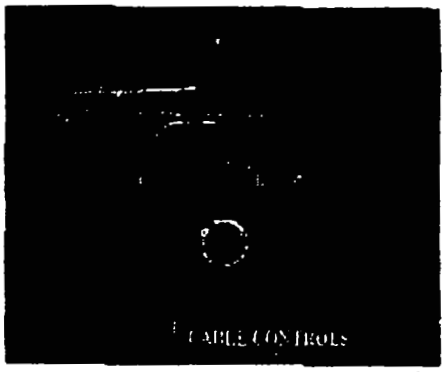
OPTIONAL ACCESSORIES	PART NO.
Narrow (22") drum kit with scrapers (4 drums)	87346
Wide (32") drum kit with scrapers (4 drums)	87347
Infrared Remote Control Kit	86722
Smooth (40") drum kit with scrapers (4 drums)	84675

Note: For machines with serial number series earlier than 7166, contact your Regional Sales Office for kit numbers.

Specifications may change due to continuous product development.







WACKER Corporation

Atlanta	Charlotte	Chicago	Houston	Los Angeles	Milwaukee	New York	San Francisco
770-416-5010	704-460-1333	708-842-1990	713-875-0264	909-549-0597	414-252-7298	201-442-1551	510-222-9790

WACKER CONSTRUCTION EQUIPMENT

WCW 995/BW- 2/96

APPENDIX T:

DESIGN CHANGE NOTIFICATION (DCN)

Leachate Conveyance System
OSDF Phase I

Leachate Conveyance System

Signature indicates approved, approved as noted, or disapproved

KWC - KEN CARGILL
DKP - DAVE PHILLIPS
RB - RUDY BONAPARTE
DV - DENNIS VANDERLINDE
GM - GINA MARTIN
JB - JAY BEECH
DGB - DAN BODINE
BDJ - BRIAN JACOBSON

Title: Design Change Notices
Fernald On-Site Disposal Facility, Leachate Conveyance System

DCN No.	DCN Title	Date	Requestor	Approval	Design Office Discussion
1700-001	Extend 4-inch water lines from plant area to OSDF construction area	11/4/96	Jenkins	Kumthekar	
1700-002	Additional underground piping	12/2/96	Escue	Schroeder	
1700-003	Biodenitrification Bypass piping	2/25/97	Copeland	Schroeder	
1700-004	Change Piping Configuration	12/9/96	Salyers	Jenkins	
1700-005	10 Injection Demonstration pipe line	1/3/97	Butterfield	Schroeder	
1700-006	Revised Pole Locations	1/21/97	Jenkins	Warsley	
1700-007	Piping Specification Changes	1/21/97	Jenkins	Bonaparte	
1700-008	LDS/LCS Access Covers	1/21/97	Jenkins		
1700-009	Survey Documentation	1/28/97	Jenkins	Schroeder	
1700-010	Add/Adjust Utilities	2/12/97	Schroeder	Schroeder	
1700-011	VOID	VOID	VOID	VOID	
1700-012	Heat Trace GFL C.B	2/18/97	Jenkins	Schroeder	
1700-013	Alignment Change FT-38 to BSL	4/16/97	Jenkins	Schroeder	
1700-014	Force Main Cleanouts	3/3/97	McGuire	Kerl	
1700-015	Delete Electrical Feeder to Trailers	3/18/97	Jenkins	Jenkins	
1700-016	Pole Modifications	4/17/97	Jenkins	Schroeder	
1700-017	Flow Meters	4/9/97	Schroeder	Schroeder	
1700-018	Interface Adjustments for Tie-In of Groundwater Out/In System	4/22/97	Bodine	Bodine	
1700-019	LDS and LCS Manholes and PLS Control System Modifications	4/24/97	Bodine	Bodine	
1700-020	Aluminum Access Covers for Permanent Lift Station	4/29/97	Bodine	Bodine	
1700-021	HDPE Dual Containment Pipe	5/7/97	Bodine	Bodine	

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Title: Design Change Notices
Fernald On-Site Disposal Facility, Leachate Conveyance System

DCN No.	DCN Title	Date	Requestor	Approval	Design Office Discussion
1700-022	Pavement Restoration Detail	5/7/97	Bodine	Bodine	
1700-023	K-65 Casing Pipe	5/8/97	Jenkins	Jenkins	
1700-024	Concrete Testing	5/14/97	Jenkins	Bonnett	
1700-025	Alignment Change	5/19/97	Ellis	Schroeder	
1700-026	Comboned Trench Relocation	5/21/97	Ellis	Schroeder	
1700-027	Elevation of GW10	5/21/97	Cleveland	Jenkins	
1700-028	Hilti Kwic Bolt Anchor Material Spec.	5/20/97	Milliron	Jenkins	
1700-029	ISCO Supplied HDPE pipe fittings	5/20/97	Milliron	Bodine	
1700-030	End Seal on Casing	5/21/97	Cleveland	Jenkins	
1700-031	CE-6 BDN Stub-Out	5/27/97	Ellis	Schroeder	
1700-032	VOID	VOID	VOID	VOID	
1700-033	Pipe- Hydrostatic Testing	5/28/97	Jenkins	Bodine	
1700-034	Sediment Control	5/6/97	Ellis	Schroeder	
1700-035	Pipe Embedment Fill	6/12/97	Ellis	Bodine	
1700-036	Steel Pipe Casings Under D-65 Trench	6/13/97	Jenkins	Bodine	
1700-037	480-Volt Feed From Building 77	6/17/97	Jenkins	Kerl	
1700-038	Warning Tape Installation	7/7/97	Ellis	Schroeder	
1700-039	Manhole Embedment Fill	6/25/97	Bodine	Bodine	
1700-040	LCS Alignment Adjustment	6/27/97	Ellis	Schroeder	
1700-041	Cleanout Backfill Requirements	6/27/97	Bodine	Bodine	
1700-042	Test/Acceptance Criteria for 6-Inch Fuel Gas Line	7/15/97	Flack	Schroeder	
1700-043	Hydrostatic Test-Manholes	7/14/97	Jenkins	Bodine	
1700-044	Cleanout Manhole Backfill Requirements	7/22/97	Bodine	Bodine	

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Title: Design Change Notices
Fernald On-Site Disposal Facility, Leachate Conveyance System

DCN No.	DCN Title	Date	Requestor	Approval	Design Office Discussion
1700-045	Gravity Segment Alignment Change	7/23/97	Ellis	Bodine	DGB WITH J. BEECH
1700-046	Add Fence and Gates at Perm. Lift Station	10/20/97	McGuire	Bodine	DGB WITH BRIAN JACOBSON
1700-047	LTS Trench Alignment Change	7/29/97	Ellis	Bodine	DGB WITH K.C.
1700-048	Pneumatic Testing of 6-Inch Fuel Gas Line	7/31/97	Jenkins	Parsons	
1700-049	Staver Ditch Installation	8/1/97	Jenkins	Schroeder	
1700-050	Revised Piping - AWWT Area	8/4/97	Jenkins	Schroeder	
1700-051	S.S. Pipe and Supports	7/29/97	Kadakia	Bodine	DGB WITH B. JACOBSON
1700-052	LCS Alignment Change	8/8/97	Ellis	Schroeder	DGB WITH R. BONAPARTE
1700-053	Future Tap - AWWT	8/15/97	Jenkins	Schroeder	
[illegible]-054	Lift Station Manhole Backfill Requirements	8/16/97	Bodine	Bodine	DGB WITH B.J. AND R.B.
1700-055	DISAPPROVED				
1700-056	VOID	VOID	VOID	VOID	VOID
1700-057	Trial Butt Fusion Joints	9/2/97	Jenkins	Bodine	DGB WITH KWC
1700-058	ODOT Conveyance Specification	9/4/97	Ellis	Bodine	DGB WITH J. BEECH
1700-059	Change Alignment of GW-10 inch Line	9/5/97	Flack	Schroeder	
1700-060	Programable Level Controllers ***(On Hold)***	10/29/97	Bodine	Bodine	DGB WITH B. JACOBSON
1700-061	Temporary Gravity Line Cleanout	9/8/97	Bodine	Bodine	DGB WITH B. JACOBSON
1700-062	Parking Lane Pavement Restoration	9/8/97	Ellis	Schroeder	
1700-063	Concrete Test Cylinders	9/10/97	Bodine	Bodine	DGB WITH B. JACOBSON
1700-064	Modifications to CleanOut No. 3	9/16/97	Flack	Schroeder	
1700-065	Modification to Typical Ext. Guard Post	10/6/97	Flack	Schroeder	
[illegible]-066	Permanent Vegetation (Seeding) Alternate	10/8/97	McGuire	Schroeder	
1700-067	Pipe Support at BSL	10/9/97	Afshar	Schroeder	
1700-068	Flow Meter COMH Internal Piping	10/23/97	Jenkins	Schroeder	

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BDJ - BRIAN JACOBSON

Title: Design Change Notices
Fernald On-Site Disposal Facility, Leachate Conveyance System

DCN No.	DCN Title	Date	Requestor	Approval	Design Office Discussion
1700-069	Signal Line Location	10/14/97	Ellis	Scroeder	DGB WITH J. BEECH
1700-070	Add Fence and Gates at Perm. Lift Station	10/20/97	McGuire	Bodine	
1700-071	Add Fence and Gates at Permanent Lift St.	10/20/97	McGuire	Bodine	DGB WITH K.C.
1700-072	Add alarm @ AWWT for Perm. Lift Station	11/3/97	McGuire	Schroeder	

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		12/02/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Increase Lift Station Pumps Differential Flow Band for Alarms and Shutdown

(11)DCN NO.: 1700-081

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Piping and Instrumentation Diagram Leachate Conveyance System	92X-5900-N-00322	0	Notes 5, 6 & 7
Electrical Single Line and Schematics	92X-5900-E-00324	0	
Instrumentation - Analog I/O Diagram	92X-5900-N-00345	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

FSH-012A is a software function alarming when the flow rate differential between FI-012A and FI-012B is greater than 5%. FSH-012B is a software function stopping pumps PMP-001 and PMP-002, via XS-110, when the flow rate differential between FI-012A and FI-012B is greater than 10%

Proposed Change:

Operations has requested that the flow rate differential for FSH-012A be changed to alarm at 30% flow differential between FI-012A and FI-012B. Flow rate differential for shut-down of pumps PMP-001 and PMP-002 would be changed to 50% differential between FI-012A and FI-012B.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	12/2/97	James C. Jenkins	12/2/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

SEE PAGE 1 of 1 for PARSONS RESPONSE.
PAP 12/4/97

ECDC CONTROLLED COPY NO.

ORIGINAL

RECEIVED DEC 05 1997

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Philip E Page	12-4-97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 12/4/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McGuire	12-4-97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

FS-F-4259 (10/01/96)

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF	(6)DATE
1700	589		12/02/97

(3)S/C TITLE: Leachate Conveyance System — (11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Increase Lift Station Pumps Differential Flow Band for Alarms and Shutdown

(11)DCN NO.: 1700-081

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Piping and Instrumentation Diagram Leachate Conveyance System	92X-5900-N-00322	0	Notes 5, 6 & 7
Electrical Single Line and Schematics	92X-5900-E-00324	0	
Instrumentation - Analog I/O Diagram	92X-5900-N-00345	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

FSH-012A is a software function alarming when the flow rate differential between FI-012A and FI-012B is greater than 5%. FSH-012B is a software function stopping pumps PMP-001 and PMP-002, via XS-110, when the flow rate differential between FI-012A and FI-012B is greater than 10%

Proposed Change:

Operations has requested that the flow rate differential for FSH-012A be changed to alarm at 30% flow differential between FI-012A and FI-012B. Flow rate differential for shut-down of pumps PMP-001 and PMP-002 would be changed to 50% differential between FI-012A and FI-012B.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	12/2/97	James C. Jenkins	12/2/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) Note 7 of Drawing 92X 5900 N-00322 & Drawing 92X-5900-N-00345 ARE NOT AFFECTED BY This DCN.
2) All else is approved

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
C. Schroeder	12/3/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)___

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-081	1	1700-081	12-2-97
TITLE: INCREASE LIFT STATION PUMPS DIFF'TL FLOW BAND FOR ALARMS & SHUTDOWN		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 12 / 3 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL				
	ELECTRICAL				
0	INSTRUMENTATION K. SCOTT STEVENS	12-3-97		KSS/	
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
●	QUALITY ASSURANCE B. [illegible]	Phil will Sign Original			
●	PROJECT ENGINEER C. SCHROEDER	12/3/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

4/97 EHO 029

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1OF1	(6)DATE
1700	589		12/1/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: ~~1700-029R~~

(4) RESPONSIBLE DISCIPLINE: Ex MD CD OTHERD

(4A)RCI/DCN TITLE: LDS Level Transmitter Location

(11)DCN NO.: 1700-80

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate TransmissionSystem Gravity Line and Manhole Mechanical Details II	90-X-6000-M-00064	0	Sectional Plan, LDS and LCS Manholes at Cells 2 and 3
Leachate Transmission System Gravity Line and Manhole Mechanical Details III	90-X-6000-M-00065	0	Section, Primary Containment Vessel

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The current configuration of the 2" Level Transmitter Pipe and the 2" Intake Pipe does not facilitate the sampling of the leachate in the LDS using a 1.75 inch bailer since the opening of the Level Transmitter Pipe is not readily accessible from the man way opening. A bailer is needed for sampling since the primary list of sampling constituents contains volatile organic compounds and sampling protocol does not allow a pump of any type to be used when volatile samples are being collected. The correction is to install the level transmitter into the 2" currently labeled Intake Pipe, and change the name of the currently labeled Intake Pipe to Level Transmitter Pipe and currently labeled Level Transmitter Pipe to Intake Pipe.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
John J. Berretz	Fluor Daniel Fernald		James C. Jenkins	12/1/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

ECDC CONTROLLED COPY NO.

C001

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bolton	3 Dec 97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5 James C. Jenkins 12/3/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McKay	12/4/97		

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	(6)DATE
1700	589	1OF1	12/1/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: ~~1700-039R~~

(4) RESPONSIBLE DISCIPLINE: Ex MO CO OTHERO

(4A)RCI/DCN TITLE: LDS Level Transmitter Location

(11)DCN NO.: 1700-80

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate TransmissionSystem Gravity Line and Manhole Mechanical Details II	90-X-6000-M-00064	0	Sectional Plan, LDS and LCS Manholes at Cells 2 and 3
Leachate Transmission System Gravity Line and Manhole Mechanical Details III	90-X-6000-M-00065	0	Section, Primary Containment Vessel

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The current configuration of the 2" Level Transmitter Pipe and the 2" Intake Pipe does not facilitate the sampling of the leachate in the LDS using a 1.75 inch bailer since the opening of the Level Transmitter Pipe is not readily accessible from the man way opening. A bailer is needed for sampling since the primary list of sampling constituents contains volatile organic compounds and sampling protocol does not allow a pump of any type to be used when volatile samples are being collected. The correction is to install the level transmitter into the 2" currently labeled Intake Pipe, and change the name of the currently labeled Intake Pipe to Level Transmitter Pipe and currently labeled Level Transmitter Pipe to Intake Pipe.

(10)REQUESTOR: John J. Berretz COMPANY: Fluor Daniel Fernald DATE:

(12)FCE / PE James C. Jenkins DATE: 12/1/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES

(14)FOR DCN: ☒APPROVED ☑APPROVED AS NOTED ☐DISAPPROVED

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: 3 Dec 97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE: DATE:

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES☐NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg / OF	(6)DATE
1700	589	1	6-14-97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.: 1700-027R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: WARNING TAPE WIDTH

(11)DCN NO.: 1700-079

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SUBMITTAL	45 R1	R1	
SPECIFICATION SECTION	02215		

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

UNDERGROUND DETECTABLE (VA) WARNING TAPE TO BE 2-2" TAPES PLACED SIDE BY SIDE RATHER THAN 1-4" DUE TO LACK OF AVAILABILITY FROM MANUFACTURER.

ECDC CONTROLLED COPY NO. 011

(10)REQUESTOR: MJ CLEVELAND COMPANY: VBS DATE: 6-14-97

(12)FCE / PE: James C. Jenkins DATE: 6/16/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1) No exception taken for using 2-2" tapes
See Parsons attached comment - page 1 of 1

(PARSONS)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder DATE: 6/20/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5 NA James C. Jenkins 12/1/97

(18)CONSTRUCTION CONCURRENCE: Richard L McLane DATE: 6/23/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

000386

Rec 0287

Rec - 6-18-97

Village building SERVICES INC.
MECHANICAL CONTRACTORS
7311 Vine Street, Cincinnati, Ohio 45216 (513) 761-1653

Leachate Conveyance System
Subcontract No.: FSC 589
VBS Job No.: 0197
Submittal No.: 45 Rev. 1

Underground Warning Tape
(Spec. Section 02215)

Service	Width	Utility
Leachate Pipe	2-2" tape to be used in lieu of 4"	Sewer

INFORMATION ONLY

[X] A - For CPC submittals only - Conforms w/Reqmts.
[ ] B - Minor Comment - Resubmit as CPC/DEP/REC
[ ] C - Revise and Resubmit
[ ] D - Accepted for DEP/REC - Conforms w/Reqmts.

SIGN-DATE J. C. Jenkins 5/14/97

April 24, 1997

Fax (513) 761-1896

IDENTOLINE® UNDERGROUND WARNING TAPE

Identoline® tape is buried 12" to 18" below ground level. Digging crews receive warning of buried lines and cables, allowing a margin of safety between the tape and the buried line.

- Easily Seen.
- Easily Identified – APWA color coding.
- Convenient – Handy dispensing reel.
- Strong – Heavy duty B-720 polyethylene material resists acid, alkalis and other soil substances. Tape is 3.5 mil. thick, with a tough tensile strength of 1750 psi.
- Long Lasting – Overcoated graphics provide long lasting legibility and hold color values.
- Economical – Compared to the potential cost of line damage, Identoline® tape is cost-effective for use over the entire length of the line.

Utility Class	APWA Color	Size W X L	Catalog Number
Cable T.V.	Orange	6" x 1,000 ft.	63009
Reclaimed Water	Purple	6" x 1,000 ft.	63050
Gas	Yellow	6" x 1,000 ft.	91294
Electric	Red	3" x 1,000 ft	91295
Electric	Red	6" x 1,000 ft.	91296
Telephone	Orange	6" x 1,000 ft.	91297
Water	Blue	6" x 1,000 ft	91298
Sewer	Green	6" x 1,000 ft.	91299

DETECTABLE IDENTOLINE® WARNING TAPE

- Easily Identified – Sharply printed legend on APWA color coded background.
- OSHA Approved – Meets OSHA regulation 1926.956(c)(1) covering location of underground utility lines.
- Cost-Effective – Detectability feature minimizes line locating time and needless digging expenses. Utility/contractor liability is reduced, and expensive line damage is averted.
- Long Lasting – Tough B-721 material features subsurface graphics to seal the legend from acids, alkalis and other soil substances.
- Easily Installed – May be manually or automatically installed.

Utility Class	APWA Color	Size W X L	Catalog Number
Gas	Yellow	2" x 1,000 ft.	91600
Electric	Red	2" x 1,000 ft.	91601
Telephone	Orange	2" x 1,000 ft	91602
Water	Blue	2" x 1,000 ft.	91603
Sewer	Green	2" x 1,000 ft.	91604
Fiber Optic	Orange	2" x 1,000 ft.	91606

Detectable Identoline® tape minimizes time spent locating buried lines thus reducing field costs.

The tape is buried 4" to 6" below the surface for maximum detectability.

- Surface Printed Polyester ▸ CAUTION CAUTION CAUTION BURIED GAS LINE
- Aluminum Foil Core ▸
- Polyester Underlaminate ▸

000388

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)PG	OF	(6)DATE
20110 / 1700	589	1	1	6/3/97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.: 1700.025R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☒ C ☐ OTHER ☐

(4A)RCI/DCN TITLE: LOW TORQUE TYPE FLANGE GASKETS

(11)DCN NO.: 1700.078

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC SC 589, SECTION 15000 PT2.11A			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THE LOW TORQUE TYPE FLANGE GASKETS SUPPLIED BY ASAHI/AMERICA AND RECEIVED AT SITE CANNOT BE VERIFIED TO BE IN ACCORDANCE WITH ASTM F 477. THE MANUFACTURER'S RESPONSE IS THE MATERIAL DOES NOT OFFICIALLY MEET THE ASTM SPEC. BUT DOES MEET THE BASIC INTENT. (REF. ATTACHED.) SUBMITTAL #41 WAS APPROVED WITH AN 'A' STATUS.

(10)REQUESTOR: H. MILLIRON COMPANY: VBS QA DATE: 5-4-97

(12)FCE / PE: Richard K McRae DATE: 6/6/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CONCURR WITH THE MANUFACTURER'S RESPONCE.

Carol Bolling QA RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 6/6/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5 N.A James C. Jenkins 12/1/97

(18)CONSTRUCTION CONCURRENCE: N.A DATE: 6/13/97

K. McRae

(19)PURCHASE REQUISITION REQUIRED: ☐YES ☑NO

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) James C. Jenkins DATE: 12/4/97

F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)PG	(6)DATE
20110 / 1700	589	1 OF 1	6/3/97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.: 1700.025R

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☒ C ☐ OTHER ☐

(4A)RCI/DCN TITLE: LOW TORQUE TYPE FLANGE GASKETS

(11)DCN NO.: 1700.078

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC SC 589, SECTION 15000, PT 2.11A			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

THE LOW TORQUE TYPE FLANGE GASKETS SUPPLIED BY ASAHI/AMERICA AND RECEIVED AT SITE CANNOT BE VERIFIED TO BE IN ACCORDANCE WITH ASTM F 477. THE MANUFACTURER'S RESPONSE IS THE MATERIAL DOES NOT OFFICIALLY MEET THE ASTM SPEC. BUT DOES MEET THE BASIC INTENT. (REF. ATTACHED.) SUBMITTAL #41 WAS APPROVED WITH AN 'A' STATUS.

(10)REQUESTOR: H. MILLIRON COMPANY: VBS QA DATE: 6-4-97

(12)FCE / PE: Richard L McClure DATE: 6/6/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CONCUR WITH THE MANUFACTURER'S RESPONCE.

FCE CONTROLLED COPY NO.

011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 6/6/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 12/1/97

PERFORMANCE GRADE: (17) 5 N.A James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: N.A DATE: 6/13/97

K. McClure

(19)PURCHASE REQUISITION REQUIRED: ☐YES ☒NO

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

S-F-4259 (10/01/96)

ORIGINAL

ASAHI/AMERICA, INC.
THERMOPLASTIC VALVES AND PIPING SYSTEMS

CERTIFICATE OF COMPLIANCE

Asahi/America's Order Number	97037-00
Agent's Order Number	03-71195
Customer's Name	Corro-Flo / Harrington
Address	1227 Hillsmith Drive Cincinnati, OH 45215
Project Name	Leachate Conveyance System

Item	Qty	Description	Part #.
1	2	8" EPDM AV Gaskets	3113080
2	36	4" EPDM AV Gaskets	3113040

The product(s) as listed above meets all the requirements of Asahi/America's specifications and drawings. Tests and inspections specified in the work order have been completed. Any deviation to specification is noted below.

Signature J. McLaughlin Title Product Engineer

Date May 19, 1997

ASAHI/AMERICA, INC. 19 GREEN STREET, MALDEN, MA. 02148
P.O. BOX 653 TEL: (617) 321-5409 FAX: (617) 321-4421

ORIGINAL

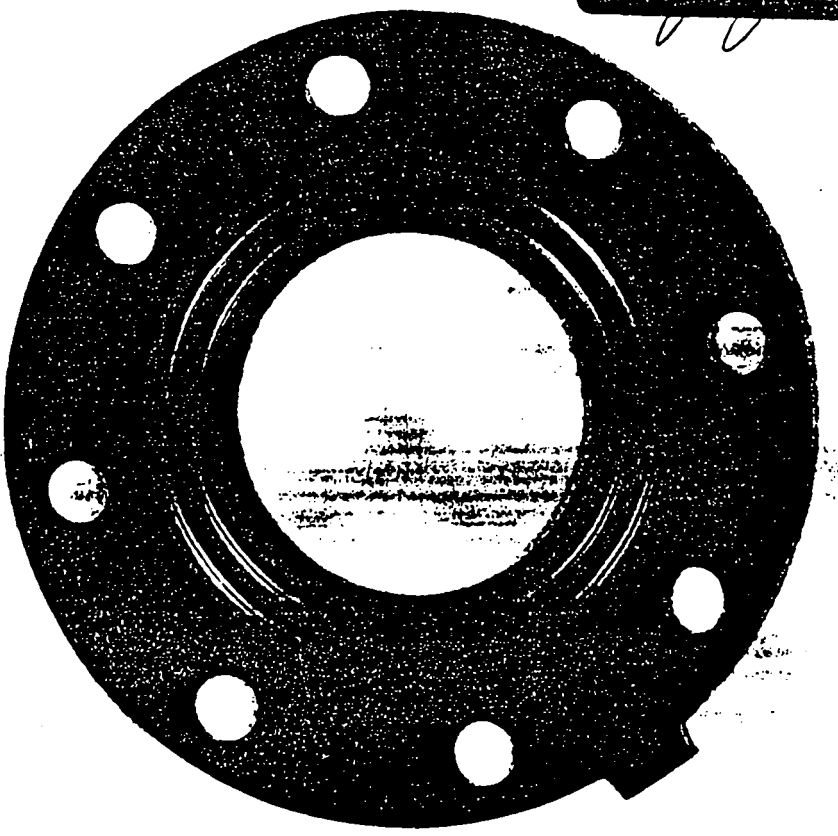
1271
VDS-BNF-000

ASAHI/AMERICA®

LOW TORQUE AV GASKETS

Specifications GK-2
Features
Discussion

INFORMATION ONLY



ORIGINAL

SIZES
½" - 12"

MATERIALS
EPDM, Teflon®-bonded EPDM and PVDF-bonded EPDM

TEMPERATURE RANGE
-4° F to 250°F

FEATURES
- EPDM (hardness 65-66, Durameter A)
- PVDF or Teflon®-bonded EPDM for maximum corrosion resistance.
- Concentric convex sealing rings.
- Perfect sealing at low bold tightening torques gives longer gasket life.
- Ideal for 150 lb thermoplastic piping systems, as well as metal or plastic-lined metal systems.

DISCUSSION
Asahi/America's AV GASKETS offer a unique double convex ring design that gives optimum sealing with only 1/8th the torque commonly required with flat-faced gaskets. The PVDF and Teflon-bonded AV gaskets employ a proprietary laminating process for bonding to EPDM which produces the greater elasticity required for lower sealing torques.

SEQ 15000 - 211 A

19 Green Street, Malden, MA 02148 • P.O. Box 653 • Tel: (617) 321-5409 • Fax: (617) 321-4431

CORRO-FLO HARRINGTON
Industrial Plastics Inc.

1227 HILLSMITH DRIVE
CINCINNATI, OHIO 45215
(513) 771-0880 • (800) 743-0880
FAX (513) 771-5915

V.B.S.
ATTN: MAYUR
PO #4191

MAYUR,

MAYUR, THIS LETTER IS IN REGARDS TO THE LOW TORQUE GASKETS WE FURNISHED ON THE ABOVE REFERENCED PURCHASE ORDER FOR THE LEACHATE CONVEYANCE SYSTEM AT FERNALD. I SPOKE W/ JIM JENKINS & HE FAXED ME A COPY OF THE ASTM F477. (ENCLOSED FOR REFERENCE) ASAHI AMERICA (THE MFG), LOCATED IN MALDEN, MA, REVIEWED THE ASTM & SENT TO THEIR ENGINEERING PLANT IN JAPAN. THEY SENT IT TO JAPAN BECAUSE NO ONE IN THE STATES IS FAMILIAR WITH THIS ASTM. HOWEVER, JAPAN REVIEWED & THEIR RESPONSE IS : "WE DO NOT OFFICIALLY MEET THIS ASTM, BUT WE MEET THE BASIC INTENT OF THE ASTM." ASAHI IS MY ONLY SOURCE FOR LOW TORQUE GASKETS. PLEASE LET ME KNOW WHAT FERNALD DECIDES, AND/OR THEY WOULD LIKE TO SPEAK WITH A PROJECT ENGINEER AT ASAHI.

SINCERELY,

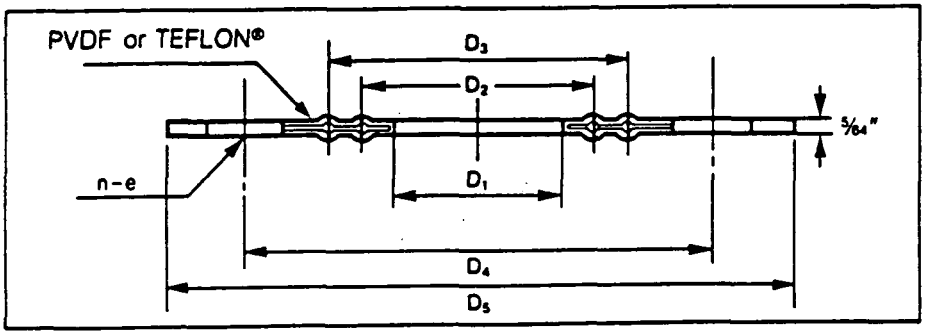
AMY M. AGRICOLA 8/397

ORIGINAL

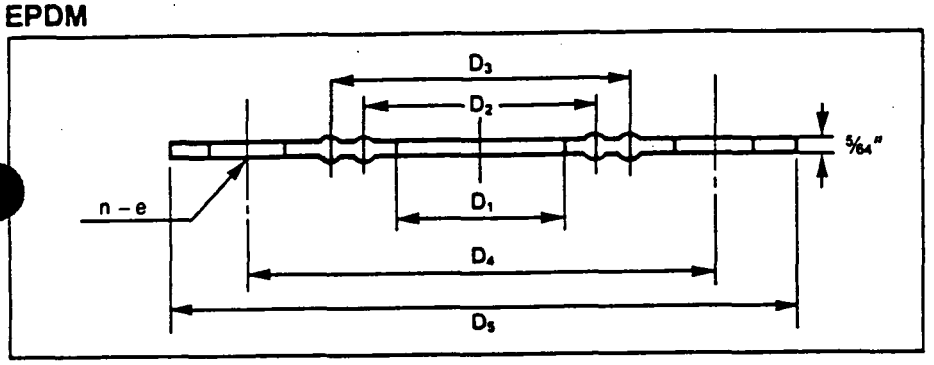
LOW TORQUE AV GASKETS continued

Sample Specification
Dimensions
Warranty
Bolt Torque

PVDF OR TEFLON-BONDED EPDM



EPDM



SAMPLE SPECIFICATION

Gaskets shall be low torque, full face to ANSI B16.5 dimensions and shall have two concentric, convex, molded rings between center hole and bolt hole circle in EPDM, Teflon-bonded EPDM, or PVDF-bonded EPDM as manufactured by Asahi/America.

DIMENSIONS (IN INCHES)

Size	D_1	D_2	D_3	D_4	D_5	e	n
½	0.7	1.0	1.6	2.4	3.4	0.6	4
¾	0.9	1.3	1.9	2.8	3.8	0.6	4
1	1.2	1.5	2.1	3.1	4.2	0.6	4
1¼	1.5	2.0	2.6	3.5	4.5	0.6	4
1½	1.7	2.1	2.7	3.9	4.9	0.6	4
2	2.1	2.7	3.3	4.7	5.9	0.8	4
2½	2.7	3.4	4.0	5.5	6.9	0.8	4
3	3.2	3.9	4.4	6.0	7.4	0.8	4
4	4.0	4.7	5.4	7.5	8.9	0.8	8
5	5.0	5.7	6.5	8.5	9.9	0.9	8
6	5.9	6.6	7.5	9.5	10.9	0.9	8
8	7.8	8.5	9.7	11.8	13.4	0.9	8
10	9.8	10.6	12.1	14.3	15.9	1.0	12
12	11.8	12.8	13.9	17.0	18.9	1.0	12

Teflon® is a registered trademark of DuPont.

LIMITED WARRANTY

This gasket is warranted by Asahi/America, Inc., ("Seller"), to the original purchaser/consumer ("Buyer") only, to be free from defects in design and manufacture for a period of one year from the date of purchase, provided such gasket is properly installed, used, operated and serviced.

THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN BY SELLER. ANY IMPLIED WARRANTY ARISING UNDER APPLICABLE LAW, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE ONE YEAR PERIOD PROVIDED ABOVE.

Liability of Seller in connection with the sale of this gasket and/or the foregoing warranty is limited, at Seller's sole option, to one of repair, replacement, or refund of the purchase price of the gasket if returned to the Seller (at Buyer's expense) and determined by the Seller to have proved defective under the terms of and within the period of the foregoing warranty.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING IN ANY WAY IN CONNECTION WITH THIS GASKET OR THE SALE THEREOF.

Some states do not allow limitations on how long an implied warranty lasts, or the limitation or exclusion of incidental or consequential damages, so the above limitations and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RECOMMENDED BOLT TORQUE

(INCH-POUNDS)

Size	AV Teflon-PVDF	AV EPDM
½	174	157
¾	174	157
1	174	157
1¼	191	165
1½	217	174
2	217	174
2½	304	217
3	304	217
4	304	217
5	348	260
6	348	260
8	435	304
10	435	348
12	522	435

ORIGINAL

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19 Green Street, Malden, MA 02148 • P.O. Box 653 • Tel: (617) 321-5409 • Fax: (617) 321-4421

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/18/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: 1700-038R

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Hydrostatic Testing of LCS Force Main

(11)DCN NO.: 1700-077

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
High Density Polyethylene (HDPE) Manhole, Pipes and Fittings	Section 02605	0	Para. 3.07 C
Civil Details - Sheet 3 of 3	92X-5900-G-00258	0	Note 4
Design Change Notice - Pipe Hydrostatic Testing	DCN #1700-033	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Specification Section 02605, *High Density Polyethylene (HDPE) Manhole, Pipes and Fittings*, paragraph 3.07.C.2.i states that acceptance criteria for hydrostatic testing is zero leakage for the stabilized pressure for the minimum duration for the test. Paragraph 3.07.C.2.e requires test pressure to be maintained for a minimum of one hour after the pressure in the pipe has stabilized. DCN No. 1700-033 modified paragraph 3.07.C.2.c of Section 02605 and changed the test pressure for the 4" carrier pipe for the force main from 130 psi to 95 psi and required that the test pressure be held for a minimum of 3 hours if the pipe was backfilled prior to testing.

Note 4 on Drawing No, 92X-5900-G-00258 states that the carrier pipe for the force main shall be hydrostatically tested to 130 WAWA C600, 130 psig (changed to 95 psig on DCN #1700-033) and test pressure to be maintained a minimum of 15 minutes prior to visual inspection.

(See Continuation Page)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/18/97	James C. Jenkins	11/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

SEE ATTACHED CLARIFICATION (PAGE 1 of 1)

ECDC CONTROLLED COPY NO. 011

ORIGINAL

(PARSONS)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: For Carlton Schwalbe DATE: 11-20-97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 11/25/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: DATE: 11/21/97

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

received 11-20-97

000395

DCN-ELS

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/18/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.: 1700-038R

(4) RESPONSIBLE DISCIPLINE: EC MC CC OTHER C

(4A)RCI/DCN TITLE: Hydrostatic Testing of LCS Force Main

(11)DCN NO.:

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
High Density Polyethylene (HDPE) Manhole, Pipes and Fittings	Section 02605	0	Para. 3.07 C
Civil Details - Sheet 3 of 3	92X-5900-G-00258	0	Note 4
Design Change Notice - Pipe Hydrostatic Testing	DCN #1700-033	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Specification Section 02605, *High Density Polyethylene (HDPE) Manhole, Pipes and Fittings*, paragraph 3.07.C.2.l states that acceptance criteria for hydrostatic testing is zero leakage for the stabilized pressure for the minimum duration for the test. Paragraph 3.07.C.2.e requires test pressure to be maintained for a minimum of one hour after the pressure in the pipe has stabilized. DCN No. 1700-033 modified paragraph 3.07.C.2.e of Section 02605 and changed the test pressure for the 4" carrier pipe for the force main from 130 psi to 95 psi and required that the test pressure be held for a minimum of 3 hours if the pipe was backfilled prior to testing.

Note 4 on Drawing No, 92X-5900-G-00258 states that the carrier pipe for the force main shall be hydrostatically tested to 130 WAWA C600, 130 psig (changed to 95 psig on DCN #1700-033) and test pressure to be maintained a minimum of 15 minutes prior to visual inspection.

(See Continuation Page)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald		James C. Jenkins	
Richard L McGuire		11/18/97	James C. Jenkins	11/19/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

See Attached Clarification (Page 1 of 1)

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	11/20/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17)___

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:

REVIEWING DIVISION: PARSONS

DOCUMENT NO. AND TITLE: RCI NO: 1700-038R, Hydrostatic testing of LCS Force Main

DATE:

REQUEST NO.:

DATE COMMENTS DUE:

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	BRD 1	COMMENT RESOLUTION
1	Y. AFSHAR		Parsons confirms that section 4.1 of the AWWA C-600 does apply to the Hydrostatic testing of the 4" Carrier pipe for LCS force main.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0037

1271

PARSONS
ERA PROJECT

ROUTING CARD 1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR-038	1	1700.038	11-19-97

TITLE:	OU NO.	P.O. No.:
HYDROSTATIC TESTING OF LCS MAIN	2	164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 11 / 20 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick–up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
6	CIVIL YUNUS AFSHAR	11-18-97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
*	PROJECT ENGINEER C. Schroeder	11/20/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER / Y. AFSHAR

SPECIAL INSTRUCTIONS:

6/97

ENG 123

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.: 1700-038R	(11) DCN NO.:	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):

AWWA C600, Sec. 4.1, *Pressure and Leakage Test*, allows pressure to vary up to plus or minus 5 psi (34.5 kPa) during the duration of the test and test duration to be of at least 2 hours. Further, 4.1.5 of AWWA C600 defines leakage as "the quantity of water that must be supplied into the newly laid pipe or any valved section thereof to maintain pressure within 5 psi (34.5kPa) of the specified test pressure after that pipe has been filled with water and the air has been expelled. Leakage *shall not* be measured by a drop in pressure in a test section over a period of time. Please confirm that Sec. 4.1 of AWWA C600 governs hydrostatic testing of the 4" carrier pipe for the leachate conveyance system force main.

RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Ps 1 OF 1	(6)DATE 11-10-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-037R
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER ☐	(4A)RCI/DCN TITLE: BSL SUPPORT BASE PLATE		(11)DCN NO.: 1700-076

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
LCS DWG #	92X5900-G-00410		
DCN 1700-067			

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

AT BSL: IF 8" CONTAINMENT PIPE IS CENTERED ON SUPPORT PAD, 12"X12" BASE PLATE FOR SUPPORT WILL EXTEND BEYOND 16" WIDTH OF PAD. BASE PLATE CAN BE MODIFIED TO FIT BY TRIMMING ± 3" OFF ONE SIDE.

(10)REQUESTOR: MT Cleveland COMPANY: VILLAGE BLDG. DATE 11-10-97 (12)FCE / PE James C. Jenkins DATE 11/10/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☒NO ☐YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1997 NOV 13 AM 8:23

± 3" TRIMMING OF BASEPLATE is acceptable or see attached sketch for alternate pipe support.

ECDC CONTROLLED COPY NO: 011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton S. Schroeder DATE 11/12/97 (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUPS

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE 11/14/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: Richard L McAuley DATE 11/14/97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

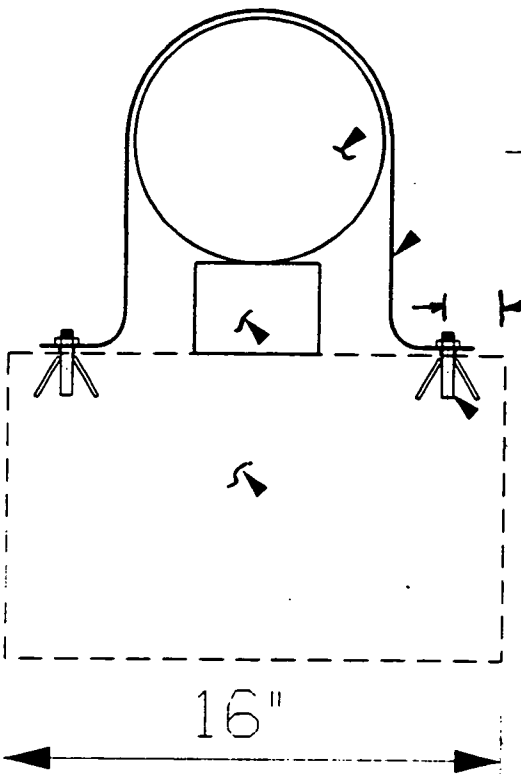
PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/86)

received 11-14-97

ORIGINAL

000400


4"/8" CARBON STEEL
3" WIDE, 1/8" PLATE
GALVANIZED STRAP
(2 RQD AT 4' SPACING)
2½" MIN
½" EXP ANCHOR
4"X4"X12" LONG
TREATED TIMBER
16"
EXIST CONC FOUNDATION

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
CR-037	1	1700-037	11-13-97
TITLE: BSL SUPPORT BASE PLATE		OU NO.: 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 11 / 12 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
•	CIVIL Y. AFSHAR	11/12/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE				
•	PROJECT ENGINEER C. Schroeder	11/12/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:

* ORIGINATING PROJECT DESIGN ENGINEER C. SCHROEDER

SPECIAL INSTRUCTIONS:

6/97

ENG 13

000402

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF	(6)DATE
1700	589		11/21/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Motor Operated Valve Status Lights

(11)DCN NO.: 1700-075

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate Transmission System Piping and Instrumentation Diagram	90X-6000-M-00062	0	Sheet M-2A
Piping and Instrumentation Diagram Leachate Conveyance System	92X-5900-N-00322 E mc 12.4.97	0	
Leachate Transmission System Electrical Details IV	90X-6000-N-00061	0	Sheet E-7A

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

The motor operated valve (V-001) at the Permanent Lift Station closes automatically on high-high level signal from LIC-110 (high-high level in the wet well) and high level from LIC-111 (annular space). The valve also fails closed (spring-return) on loss of 120 volt power. There is no remote indication of the valve status (open or closed) and Operations personnel must enter the permanent lift station to verify valve status.

Proposed Change:

Operations has requested that remote status lights be installed to indicate "open" and "closed" position for the motor operated valve. The valve currently has internal SPDT limit switches which can simultaneously be used for remote light indication.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/21/97	James C. Jenkins	11/25/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons attached comments (Page 1 of 1) with their attachment (Telecon & Sketches)

RECEIVED DEC 05 1997 OSTI

ECDC CONTROLLED COPY NO. 011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
C. Schroeder	12/3/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE: 12/4/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	12-4-97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

FS-F-4259 (10/01/96)

DCN-077

received DEC 12-1-97

ORIGINAL

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 12/3/97
DOCUMENT NO. AND TITLE: 1700 - 075		DATE COMMENTS DUE:
REQUEST NO.: Leachate Conv. System - Valve Status Lights		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	BRO /	COMMENT RESOLUTION
1	S. Stevens		See attached Telecon (pages 1 & 2 of 2); See attached Sketchs (1 & 2 of 2) Showing revised Wiring and panel layout. Contractor should Submit Valve actuator fail-safe pak information (VDS).		
2	S. Stevens		Parsons Drawing 92x-5900-N-00322 is not affected by this DCN; Geosyntech should review this DCN to determine which of ~~their~~ drawings are affected.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0004

121

PARSONS

RECORD OF TELEPHONE CONVERSATION

PARSONS ID#: 05:164:gst4:0052-97

Date Call Made: 12/02/97

Time Call Made: 8:30 am

Page: 1 of ~~2~~

Call Made From: Scott Stevens

Call Made To: Dave Hurley

Outside Phone No.: 717.321.5409

Outside Company: ASAHI/AMERICA

Teleconference Roster: Scott Stevens

PO Number: 164

SUBJECT: DCN 1700-075 Motor Operated Valve Status Lights

Items Discussed	Action To Be Taken
Reference ASAHI/AMERICA drawings: 029FS Rev. 3 "WIRE DIAGRAM FS1 FAIL - SAFE" 050FS Rev. 3 "INSTRUCTION FS1 FAIL - SAFE" P.C. BOARD FS1-01 1. SW1 is a closed limit switch (not shown on wiring diagram) used internally in the open/closed valve control circuit. 2. SW2 is an open limit switch (not shown on wiring diagram) used internally in the open/closed valve control circuit. 3. SW4 is a "LOCAL-REMOTE" switch found inside the cover of the actuator unit. In the "REMOTE" position, the valve is controlled via terminals 5 & 6 discussed below. In the "LOCAL" position, the valve is opened via the battery pack. 4. Terminals 5 & 6 are used by the customer to open and close the valve remotely. The customer is to supply a dry contact to operate the valve remotely. In the the "REMOTE" position (contact input closed) the valve is opened. In the "LOCAL" posion (contact input open) the valve is closed.	No action required.

5. Terminals 1 & 4 are used by the customer to supply 115 VAC for primary power to the actuator for operation of the valve. The fail-safe option that was purchased uses a high energy, rechargeable nickel cadium battery to provide power to the actuator upon loss of primary power. The actuator is powered by a 12 volt DC motor. Upon loss of primary power, the battery is used to close the valve, i.e. "Fail Closed". Primary power is also used to supply power to an internal heater controlled by a thermostat.

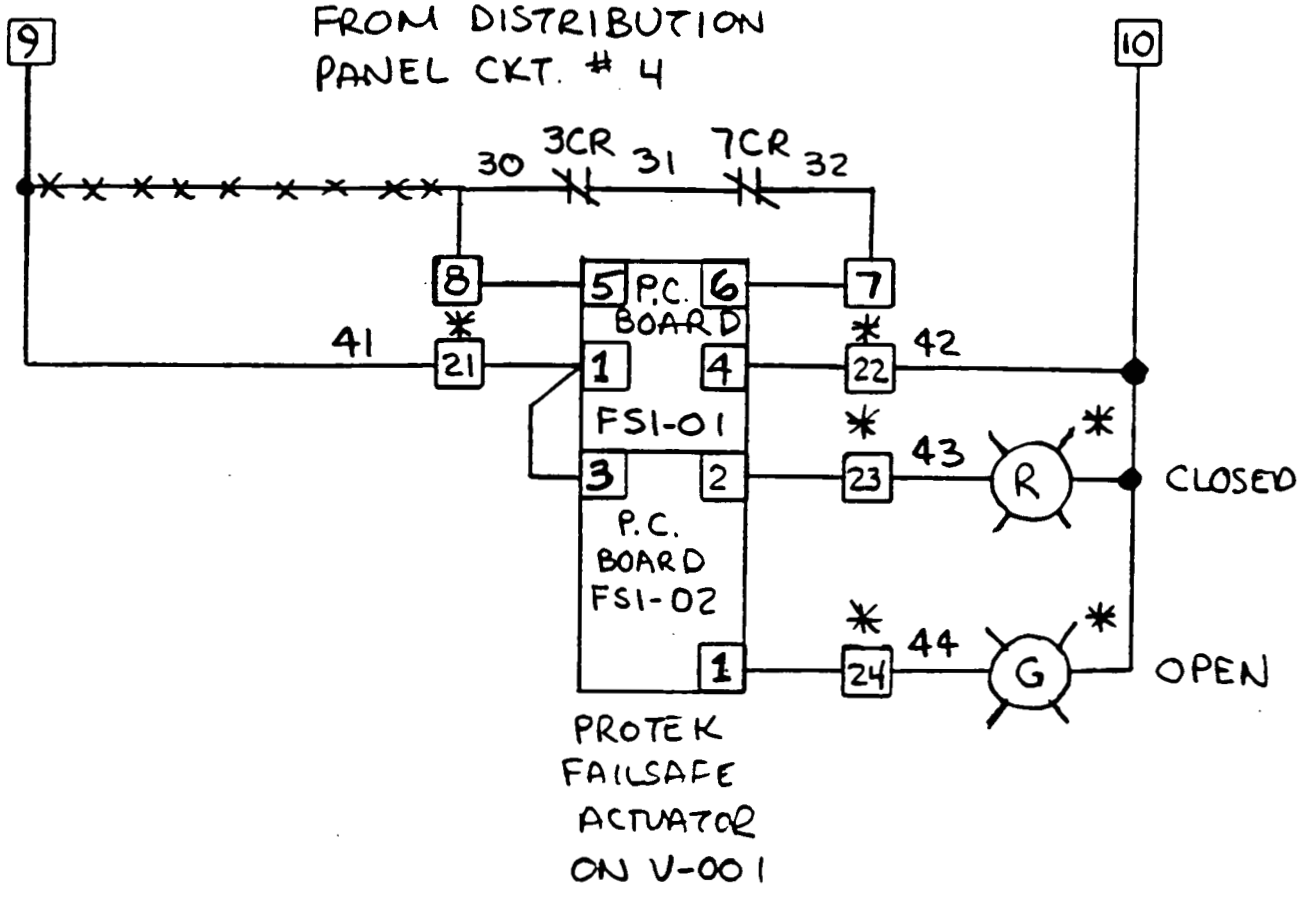
P.C. BOARD FS1-02

1. SW3 is a "full closed" limit switch provided standard with the unit. We are using this switch to actuate our remote indicating lights.
2. SW5 is an optional "full open" limit switch which was not purchased. (PARSONS typically uses this contact to actuate the green "open" indicating light, and the closed limit switch for the red "closed" indicating light, with both lights on in the intermediate position. Though we can install this option in the field, the manufacturer does not recommend it as the unit must be completely disassembled and soldering be done in a very limited space. The manufacturer will provide us with instructions on how to do this if asked.)

c: Document Control
C. Schroeder
J. Cooper
T. Ferrell
PO164 Project File

PARSONS ERA PROJECT CALCULATION SHEET

REV	BY	DATE	CK	DATE	TITLE	Project /WO
0	KSS	12-2-97	TF	12/3/97	DCN NO.: 1700-075	1700
						PO No. 164
					AUTHOR K.S. STEVENS SHEET 1 OF 2	



MOTOR OPERATED VALVE V-001 CONTROL CIRCUIT

(REF. CONTROL INTERFACE DWG. NO. D-963-2)

LEGEND:

* NEW DEVICE

~~***~~ REMOVE WIRING

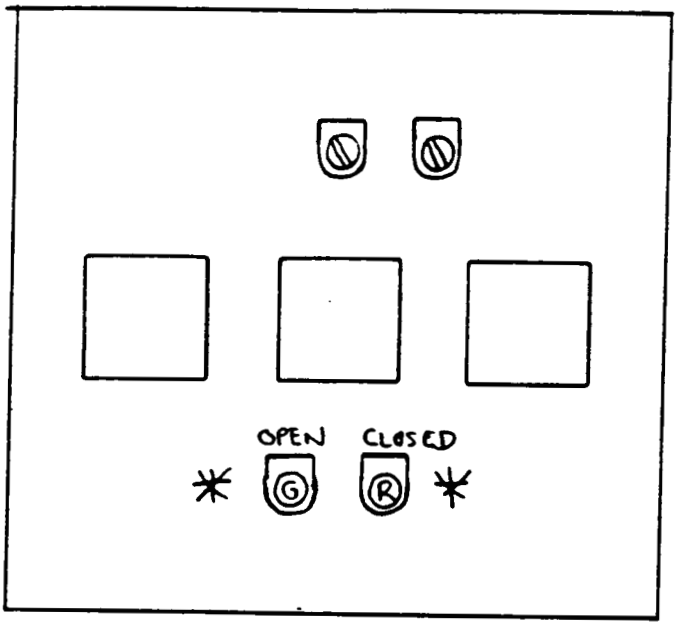
NOTES:

1. UNLESS OTHERWISE NOTED, ALL DEVICES ARE EXISTING.

PARSONS
ERA PROJECT

CALCULATION SHEET

REV	BY	DATE	CK	DATE	TITLE	Project/WO
1	KSS	12-2-97	TF	12/3/97	DCN NO.: 1700-075	1700
					AUTHOR K.S. STEVENS SHEET 2 OF 2	PO No. 164



INNER DOOR LAYOUT

(REF. CONTROL INTERFACE DWG. NO. D-963-2)

LEGEND:

* NEW DEVICE

NOTES:

1. UNLESS OTHERWISE NOTED, ALL DEVICES ARE EXISTING.

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-076	1	1700-075	12-1-97	
TITLE: MOTOR OPERATED VALVE STATUS LIGHTS			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 12 / 2 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
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Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL				
	ELECTRICAL S. STOKES	12-3-97		SS	
	INSTRUMENTATION ~~JIM SCHULTZ~~				
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
	QUALITY ASSURANCE BILL UBBES	12/7/97	A		
	PROJECT ENGINEER CARLTON SCHROEDER	12/3/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/21/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Remote Pump Seal Failure Alarm

(11)DCN NO.: 1700-074

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate Transmission System Piping and Instrumentation Diagram	90X-6000-M-00062	0	Sheet M-2A
Piping and Instrumentation Diagram Leachate Conveyance System	92X-5900-N-00322 E MK 12-4-97	0	
Leachate Transmission System Electrical Details IV	90X-6000-N-00061	0	Sheet E-7A

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

DCN No. 1700-072 added a common trouble alarm light and buzzer at the AWWT Facility LCP/PLC panel to alarm upon high-high level alarm from LIC-110, high level alarm from LIC-111, loss of 120 VAC power, or when the 24 VDC power fuse blows. Currently there is a pump seal failure alarm light only at the Permanent Lift Station pump control panel.

Proposed Change:

Operations has requested that the common trouble alarm at the AWWT also alarm upon pump seal failure. It is proposed that wiring changes be made at the Permanent Lift Station pump control panel and level control panel per the attached sketch, to activate the remote common trouble alarm on pump seal failure.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/21/97	James C. Jenkins	11/25/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons "Approved as Noted" comments attached as Page 1 of 1.

CDC CONTROLLED COPY NO. 13

RECEIVED DEC 05 1997 OSTI

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	12/2/97	2CJP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 12/4/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	12-4-97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

FS-F-4259 (10/01/96)

DCN-076

received DEC 12-1-97

ORIGINAL 000410

DOCUMENT REVIEW COMMENT SHEET

SITE/OWNER:

REVIEWING DIVISION: PARSONS

DOCUMENT NO. AND TITLE: DCN 1700-074

REQUEST NO.: LEACHATE CONV. SYSTEM

DATE: 12/2/97

ITEM NO.	REVIEWER NAME	PAGE NO./ SHEET	COMMENT	SIG	COMMENT RESOLUTION
1	S. Stevens		MODIFY SKETCH TO SHOW ITEMS THAT ARE NEW.		

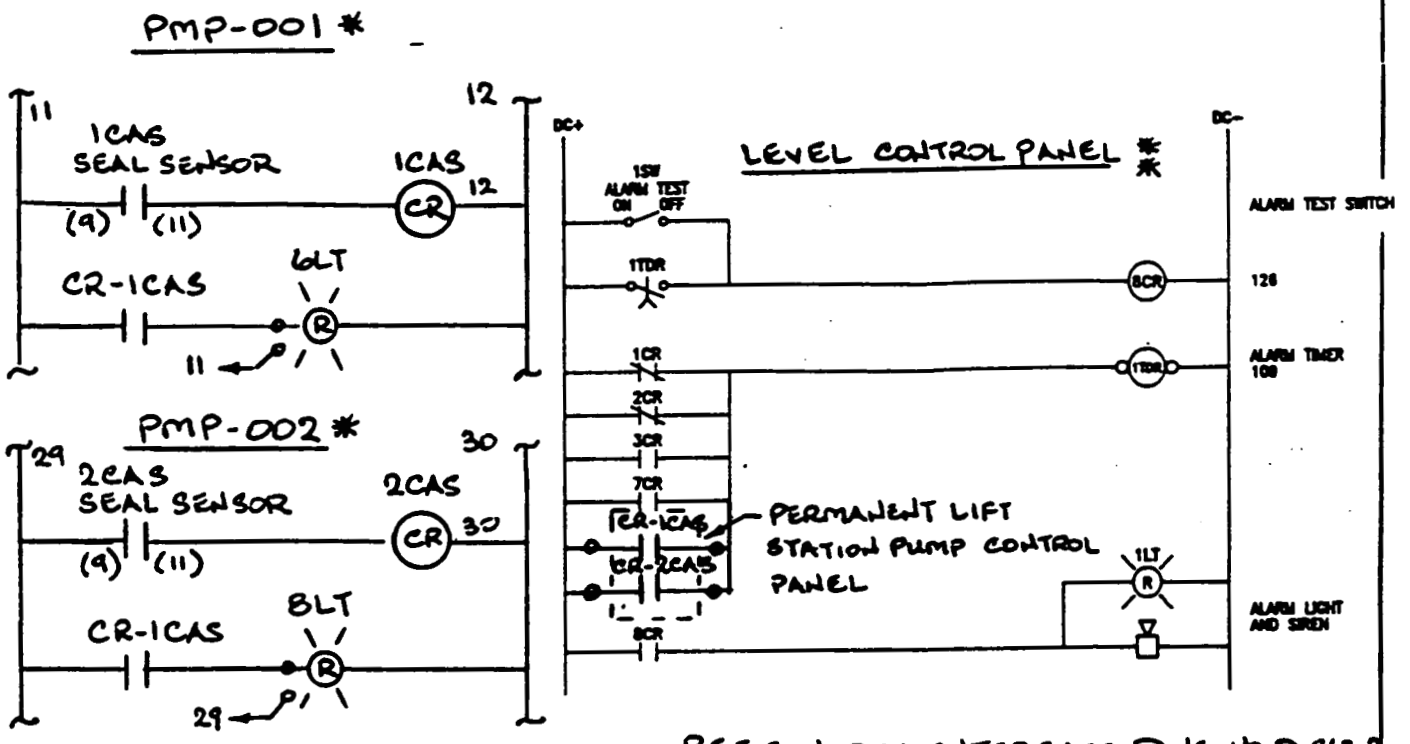
SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0000411

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.: 1700-074	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):



RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER
Permanent Lift Station Pump Control Panel	D-774	2	
Permanent Lift Station Pump Control Panel	D-963-2	0	

FS-F-4260 (3/15/96)

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
SCN-076	1	1700-074	12-1-97	
TITLE: REMOTE PUMP SEAL FAILURE ALARM			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 12 / 2 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL				
	ELECTRICAL K.S. STEVENS				
o	INSTRUMENTATION ~~[illegible]~~	12/2/97		KSS	
	MATERIAL HANDLING				
	ARCHITECTURAL				
	ENVIRONMENTAL, SAFETY, & HEALTH				
	HVAC				
	GEOTECHNICAL				
o	QUALITY ASSURANCE BILL URBES	12/3/97	AA		
o	PROJECT ENGINEER CARLTON SCHROEDER	12/2/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		11/16/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐

(4A)RCI/DCN TITLE: Piping Configuration at COMH-4

(11)DCN NO.: 1700-073

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Piping and Instrumentation Diagram , Leachate Conveyance System	92X-5900-N-00322	0	
Civil Details, Sheet 3 of 3	92X-5900-G-00258	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

The piping configuration for Type 2 cleanout manhole (COMH-4), shown on Drawing No. 92X-5900-G-00258, calls for the cleanout wye and valve V-105 to be located downstream of the emergency by-pass to CB-130 (Storm Water Rentention Basin). The manhole I.D. is not sufficiently large to install the piping in the configuration shown.

Proposed Change:

Install the cleanout wye and valve V-105 upstream of the emergency by-pass to CB-130 (Storm Water Rentention Basin) as shown on the sketch on Page 2 of this DCN.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/16/97	James C. Jenkins	11/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☑ APPROVED AS NOTED ☐ DISAPPROVED

RECEIVED DEC 05 1997 OSTI

CONTROLLED COPY NO. C011

1997 NOV 20 PM 12:24

(Parsons)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	11/21/97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McGuire	12/2/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

FS-F-4259 (10/01/96)

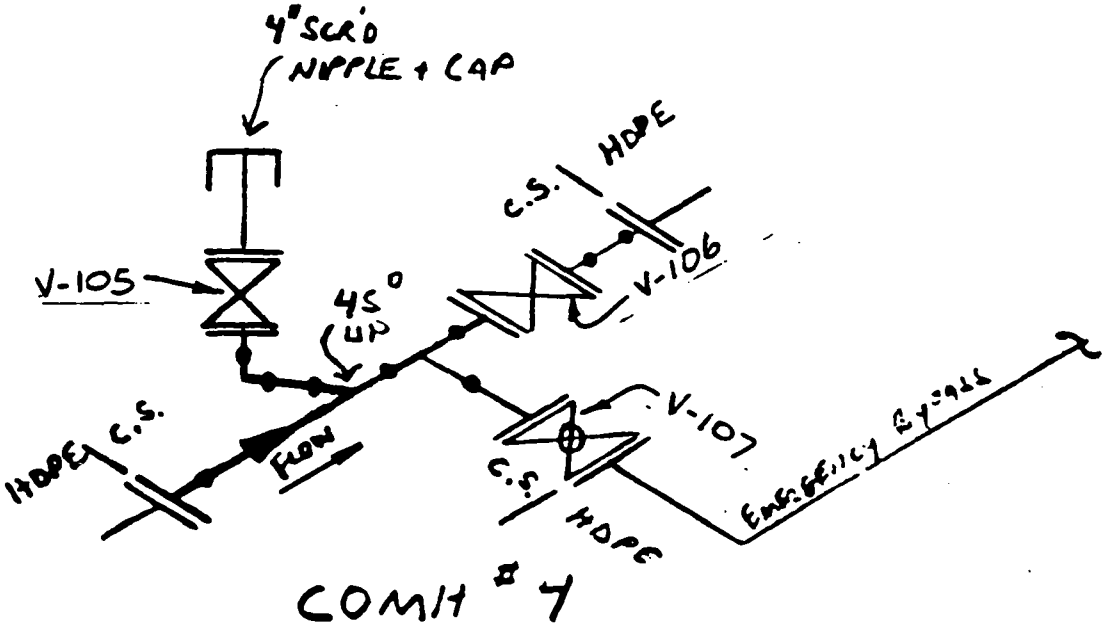
received 11-19-97

ORIGINAL 000414

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.: 1700-073	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):



COMM # 4

RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

FS-F-4260 (3/15/96)

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCL OMS	1	1700-073	11-20-97	
TITLE: Piping Configuration At Comm #14			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 11 / 21 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
6	MECHANICAL PROCESS O. CARLSON	11/20/97	BNC		
	PIPING				
	STRUCTURAL				
0	CIVIL Y. AFSHAR	11/20/97	YA		
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
0	ENVIRONMENTAL, SAFETY, & HEALTH M. CHROSTOWSKI	11/21/97	MJ		
	HVAC				
	GEOTECHNICAL				
0	QUALITY ASSURANCE B. DUBBES	11/21/97	BD		
0	PROJECT ENGINEER C. SCHROEDER	11/21/97	CS		
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		SCHROEDER

SPECIAL INSTRUCTIONS:

ENG 123

000416

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF	(6)DATE
1700	589		11/03/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Add Alarm @ AWWT for Permanent Lift Station

(11)DCN NO.: 1700-072

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate Transmission System Piping and Instrumentation Diagram	90X-6000-M-00062 E RCN	0	Sheet M-2A
Leachate Transmission System Electrical Details IV	90X-6000-M-00061 E RCN	0	Sheet E-7A
Plans - Permanent Lift Station and Bio Surge Lagoon	92X-5900-E-00323	0	Partial Plan at AWWT Building

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition:

Alarm light LA-110 and alarm siren LA-111B energize when high-high level alarm from LIC-110, high level alarm from LIC-111, loss of 120 VAC power, or normal 24 VDC power fuse blows. This alarm light and siren currently alarm at the Permanent Lift Station only.

Proposed Change:

Install and wire an alarm light and horn at the AWWT Facility, on or near the LCP/PLC cabinet (see Drawing No. 92X-5900-E-00323), to alarm upon on the same conditions as LA-110 and LA-111B. It is proposed that spare outputs from the Permanent Lift Station level control panel be utilized and signals run over existing phone lines to the AWWT.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	11/03/97	James C. Jenkins	11/3/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Attached "Approved as noted" comment and sketches (pages 1, 2 & 3 of 3)

ECDC CONTROLLED COPY NO. C011

RECEIVED NOV 24 1997 OGB

AM 8:47

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	11/13/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE: 11/14/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: Richard L. McGuire DATE: 11/14/97

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL received 11-4-97

000417

DCN No: \ CONS 1700:072

This DCN provides a common alarm from the Permanent Lift Station alarms and is to be installed in the LCP at the AWWT Facility. This new alarm input is transmitted from the Permanent Lift Station to the LCP at the AWWT Facility via spare telephone wires. The alarm will energize a new light and sound an existing horn; a silence pushbutton will be added to the horn.

Revise existing AWWT PLC logic for the existing horn alarm FAHH-012B by adding the common alarm for the Permanent Lift Station and adding Silence Alarm pushbutton logic.

Revise existing PLC logic for the existing pilot light for FAH-012A to flash on alarm.

See attached sketches for design information. The following deliverables are affected:

DRAWING NO.	REV	ATTACHMENT SKETCH NO.	DESCRIPTION OF CHANGE
90X-6000-M-00062	0	see attached write-up	Add NOTE 7; revise Permanent Lift Station detail to show new trouble alarm as input to PLC shown on dwg. 92X-5900-N-00345.
92X-5900-N-00345	0	SKN072-KSS-1	Revised NOTES 8 and 9; added note 12; added new remote alarm from Permanent Lift Station to PLC at AWWT Facility.
Control Interface, Inc. Dwg. D-963-2		see attached write-up	Show new Lift Station trouble alarm contact as input to PLC shown on dwg. 92X-5900-N-00345.

Revisions to Geo Syntec Consultants dwg. M-2A, FERMCO dwg. 90X-6000-E-00062: Revision 0:

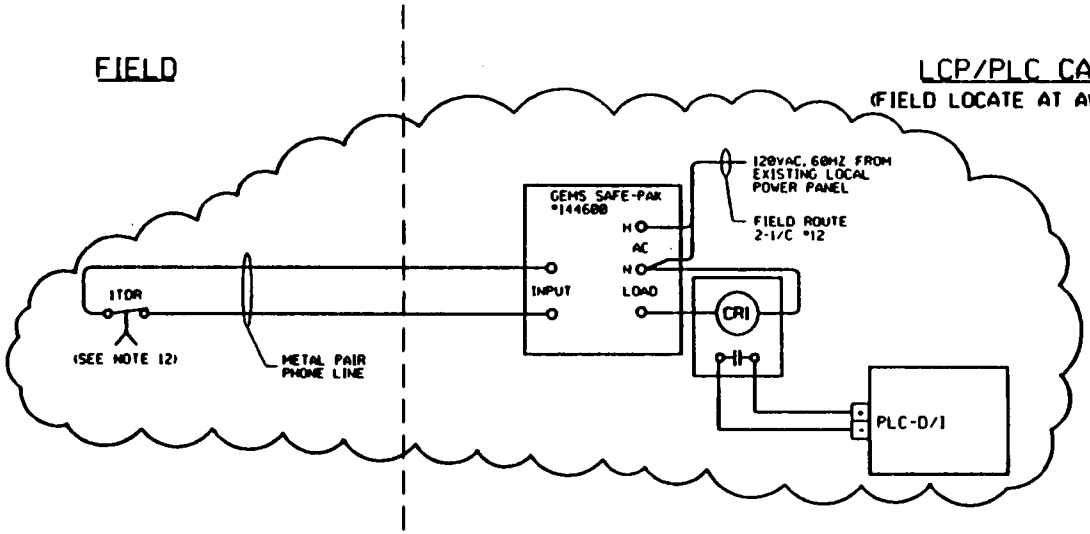
Add to Permanent Lift Station detail to show four inputs to a new Lift Station Trouble alarm on the LCP at the AWWT Facility.

1. 24 VDC loss.
2. 120 VAC loss.
3. Permanent Lift Station Wet Well level (Controller 1B) high-high.
4. Permanent Lift Station Wet Well level (Controller 2) high.

Revisions to Control Interface, Inc. Dwg. D-963-2: Dated 7/21/97.

Contractor to provide normally closed, time to open contact from the 1TDR relay for input to the AWWT PLC. Any of the following conditions will energize relay 1TDR.

1. 24 VDC loss.
2. 120 VAC loss.
3. Permanent Lift Station Wet Well level (Controller 1B) high-high.
4. Permanent Lift Station Wet Well level (Controller 2) high.



1. FOR RTU2 PANEL WIRING DIAGRAM, SEE DRAWING DTSI-9361-320.
2. RTU INPUT RESISTOR VALUES ARE IN OHMS.
3. TRANSMITTER OUTPUT SHALL BE PULSE-DURATION SIGNAL
4. EACH SIGNAL SHALL HAVE DEDICATED METAL PAIR PHONE LINE.
5. "RUN PERMISSIVE" CONTROLER RELAY (RPCR) SEE DRAWING 92X-5900-E-00324
6. PROVIDE GROUND CABLE FOR LIGHTNING ARRESTER.
7. INSTALL FLOW METER INDICATORS ON THE LCP AT THE AWWT FACILITY (REFER TO SPECIFICATION 13401 SECTION 2.5 A).
8. INSTALL PILOT LIGHT ON THE LCP AT THE AWWT FACILITY (REFER TO SPECIFICATION 13401 SECTION 2.5 A). LIGHT SHALL BE PROGRAMMED TO FLASH ON ALARM.
9. INSTALL BUZZER ALARM ON THE LCP AT THE AWWT FACILITY (REFER TO SPECIFICATION 13401 SECTION 2.5 A). BUZZER SHALL BE SILENCED FROM A NEW PUSHBUTTON LOCATED ON THE LCP AT THE AWWT FACILITY. THE BUZZER WILL SOUND FROM EITHER FAH-812A OR CR1. THE BUZZER SHALL BE SILENCED WHEN THE PUSHBUTTON IS DEPRESSED. SHOULD A SUBSEQUENT ALARM OCCUR FROM THE ALTERNATIVE INPUT, THE ALARM WILL SOUND AGAIN.
10. INSTALL RECEIVER INSTRUMENT ADJACENT TO THE LCP AT THE AWWT FACILITY (REFER TO SPECIFICATION 13400 SECTION 2.1 H).
11. PROVIDE ONE SOURCE OF 120 VAC, 60HZ POWER TO ALL COMPONENTS WHICH MAKE UP THE PROGRAMMABLE LOOP CONTROLLER. INDIVIDUAL COMPONENT POWER SUPPLIES WILL BE WIRED IN PARALLEL.
12. REFERENCE CONTROL INTERFACE, INC. DWG. D-963-2.

0700702

DCN* CONS\1700:0702
PAGE 3 OF 3

DATE / /96 BY KSS

PERMANENT LIFT STATION ALARM
FDF, INC DCN* CONS\1700:072
PARSONS DCN-
ANALOG I/O DIAGRAM
92X-5900-N-00345
SKN072-KSS-1

R92n00345.m po164@ws421. Thu Nov 13 12:54:44 CST 1997

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		10/20/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Add Fence and Gates at Permanent Lift Station

(11)DCN NO.: 1700-071

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate Transmission System - Structural Details III	90X-6000-S-00069	0	Sheet S-3A
Fence Details	90X-~~5500~~-S-00092 (6000 as 10/24/97	0	Sheet S-5B

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

A portion of the existing fence, fence posts, gate post and one leaf of the gate at the RIMIA access road, immediately east of the Permanent Lift Station, was removed to facilitate certification of the Permanent Lift Station area soil. A new radioactive gravel material storage pad will be built, located on the east side of the RIMIA access road and between this fence and the south RIMIA fence. It is proposed to re-install the fence, gate post and gate to provide a locked security fence for the radioactive material storage area. The existing gate leaf will be re-used.

It is also proposed that a personnel gate will be installed at the existing gravel "goat path" to provide access for RIMIA personnel to Rally Point #1. (See attached Sketch on Pg. 2 of 2)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	10/22/97	James C. Jenkins	10/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☑ APPROVED AS NOTED ☐ DISAPPROVED

CDC CONTROLLED
COPY NO
011

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodano	23 Oct 97	2CWP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 5 James C. Jenkins 10/24/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	10/23/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

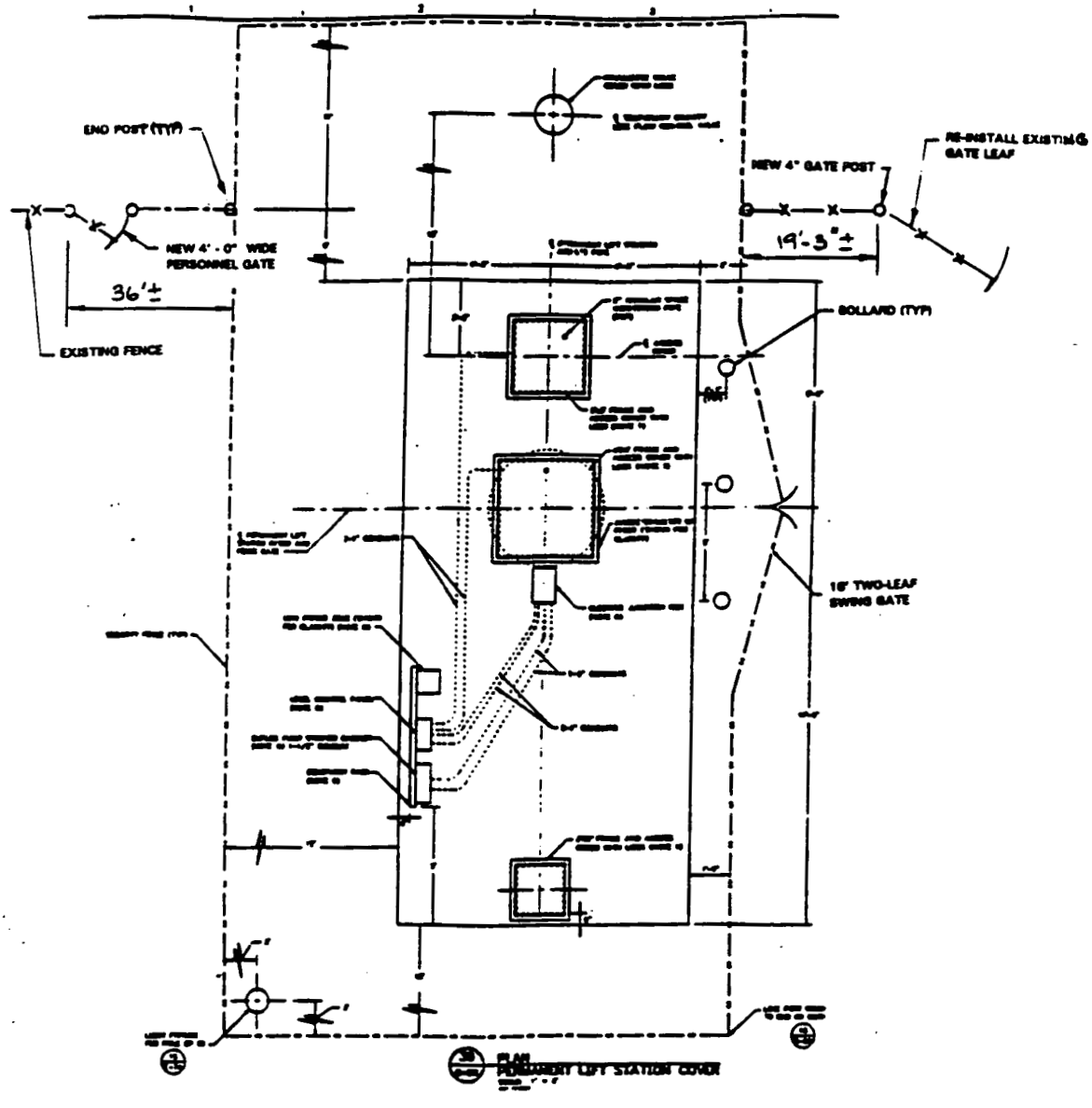
DOCUMENT

1271
2110-SK-020

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.: 1700-071	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):



RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 2	(6)DATE
1700	589		10/20/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Delete Power Pole at Power Distribution Center #2

(11)DCN NO.: 1700-070

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
480 Volt Feed to OSDF Trailers & Permanent Lift Station	90X-5500-E-00504	1	
480 Volt Feed to OSDF Trailers & Permanent Lift Station	90X-5500-E-00505	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Drawing No. 90X-5900-E-00504 and View "A-A" on Drawing No. 90X-5900-E-00505 show a new 45 foot power pole installed adjacent Power Distribution Center #2. It is proposed that the new power pole at Power Distribution Center #2 be eliminated, a 4" conduit mast and weatherhead be installed from the 400 amp, 3-pole, 480 volt fused switch at the north face of the substation building, and the #4/0 aluminum quadraplex be run from the weatherhead to the top of the existing power pole located at the northeast corner of Power Distribution Center #2.

Also, the new power pole at the Permanent Lift Station, shown on Drawing No. 90X-5900-E-00504 and View "D-D" on Drawing No. 90X-5900-E-00505, will be changed from a 45 foot pole to a 60 foot Class 2 pole to allow the pole to be used for future 13.2 KV power. An existing surplus pole from the FRVP project will be utilized.

(See attached Sketch on Pg. 2 of 2)

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald		James C. Jenkins	
Richard L. McGuire		10/22/97	James C. Jenkins	10/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☑ APPROVED AS NOTED ☐ DISAPPROVED

(FDF - J. KERL, MS80-4) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
James E. Kerl	10-28-97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/28/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McGuire	10/29/97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

FS-F-4268 (10/01/96)

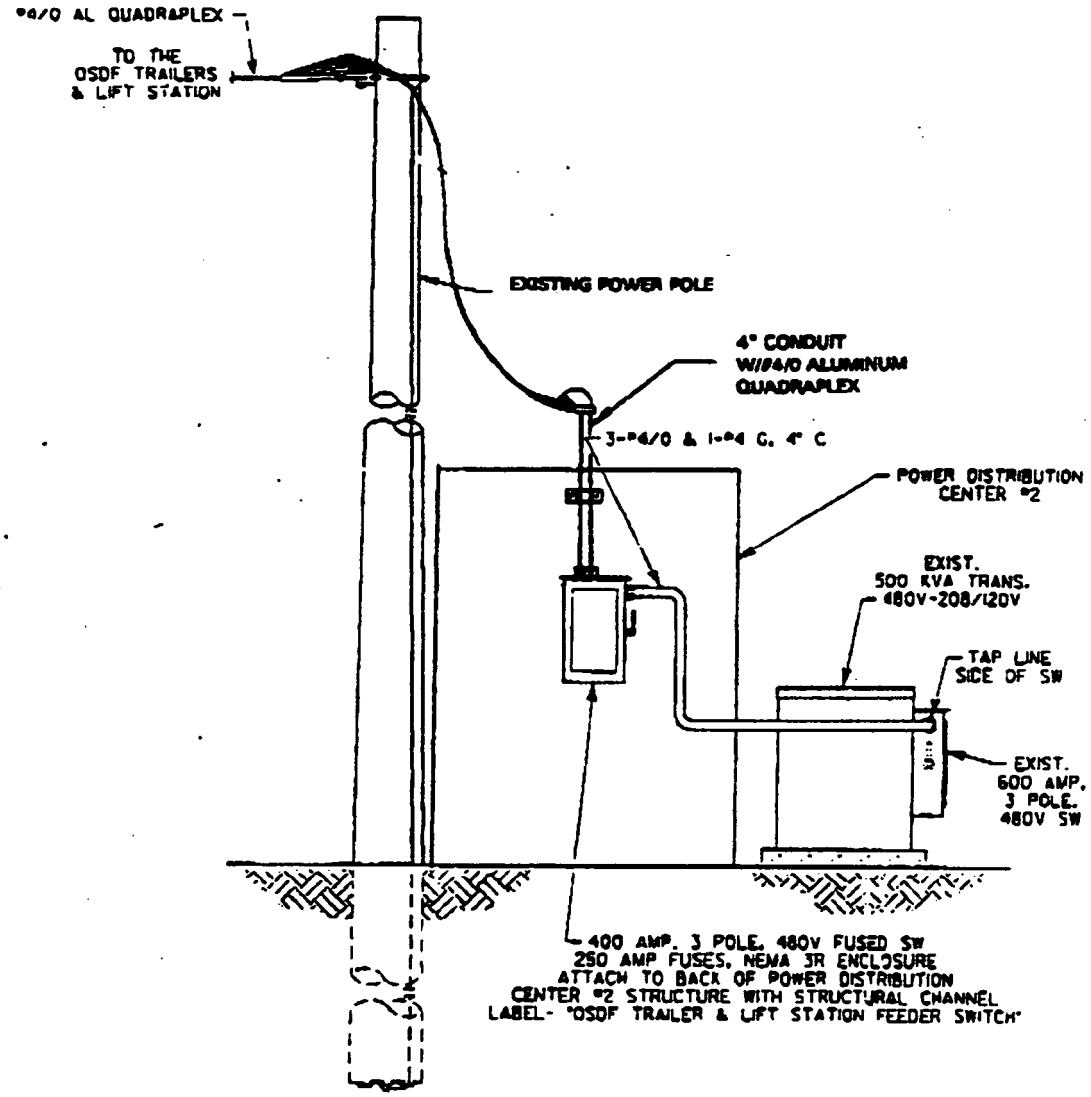
ORIGINAL

20110-SK-019

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.: 1700-070	(1) PROJECT/WO NO.: 1700	(5) PAGE 2 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):



VIEW "A"-"A"

RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

FS-F-4280 (3/15/96)

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 10/14/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XX
(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER	(4 A)RCI/DCN TITLE: Signal Line Location		(11)DCN NO.: 1700-069

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-G-00059	G-8C	0	
92X-5900-G-00254	G0002	1	
92X-5900-G-00262	G0005	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER X DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Sensor signal lines from the Permanent Lift Station are to be routed to OP82, then to the pole between T-82 and T-83, then to the pole south of T-38, then to the pole south of T-18. Sufficient slack to be coiled at the pole to allow connection to the concrete telephone hut near that pole.

Provide and install a pole near Sta. 4+00 in the Bio-Surge Lagoon (BSL) area. Sensor signal lines from the BSL are to be routed to new pole, then to the 13.2 kV poles south, then west to the telephone hut in the Vit Plant area. Sufficient slack to be coiled at the pole to allow connection to the concrete telephone hut near that pole.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
[signature]	FDF	10/14/97	James C. Jenkins	10/14/97

1997 OCT 16 PM 12:32

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Parsons "Approved as Noted" Comments attached as Page 1 of 1

C011

(Parsons) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	10/20/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/21/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGN-OFF BY FCE OR PE)	DATE:
Richard L McKenna	10/21/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

RECEIVED OCT 24 1997

FS-F-4259 (10/01/96)

ORIGINAL

received 10-14-97

000425 DCB

DCN NO: \ CONS 1700-069
Parsons: NONE

The proposed routing of sensor signal lines to/from FDF approved telephone interface points appears acceptable. Parsons electrical drawings show field routing to be coordinated with FDF. Telephone interface was not part of Parson's scope for this work.

The signal line routing needs to be documented as "as-built red lines".

Jim Sayatovic

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-071	1	1700-069	10-16-97
TITLE: Signal Line Location		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 10 / 21 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
	CIVIL				
	ELECTRICAL				
•	INSTRUMENTATION Jim Sawarski	10/20/97	JWS		
	MATERIAL HANDLING				
	ARCHITECTURAL				
•	ENVIRONMENTAL, SAFETY, & HEALTH MIKE CHRostowski	10/21/97	DC		
	HVAC				
	GEOTECHNICAL				
o	QUALITY ASSURANCE Bill Upbes	10/21/97	BU		
o	PROJECT ENGINEER Carlton Schroeder	10/20/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		SCHRoeder

SPECIAL INSTRUCTIONS:

000427

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 10/23/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER	(4A)RCI/DCN TITLE: FLOW METER COMH INTERNAL PIPING		(11)DCN NO.: 1700-068

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5980-N-00322		0	
92X-5900-G-00258		0	

(9) ☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) ☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- PIPING AT COMH #1 AND #11 (METER MANHOLES) DOES NOT ALLOW INSTALLATION AS SHOWN ON PLANS, i.e. FLG. TO FLG. DIMEN. TOO SHORT.
- PROPOSE TO INSTALL PIPING AS SHOWN ON PG. 2 OF 2

(10)REQUESTOR: J.C. JENKINS COMPANY: FDF DATE: 10/23/97	(12)FCE / PE James C. Jenkins DATE: 10/23/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Parsons Attached "Approved as Noted" Comments (Page 1 of 1)

CDC CONTROLLED COPY NO.

C011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton C. Schroeder DATE: 10/27/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 James C. Jenkins	DATE: 10/28/97
(18)CONSTRUCTION CONCURRENCE: Richard L McFarland DATE: 10/29/97 PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

received 10-21-97

000428

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 10/27/97
DOCUMENT NO. AND TITLE: LEACHATE CONVEYANCE SYSTEM		DATE COMMENTS DUE:
REQUEST NO.: DCN 1700-068 - FLOW METER COMH INTERNAL PIPING		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1.	S. Ghantous		The valves are used to isolate the flow meter during maintenance. If valves are not installed, and maintenance is required, a larger volume of water drained from the system will require pumping out of the manholes. Also Ball valve (V117) was selected for adjusting the system flow, if V117 is not installed, recommend that gate valve (V106), located in MH #4, be replaced with a ball valve		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

FOUNDATION AND EARTHWORKS DIVISION

000429

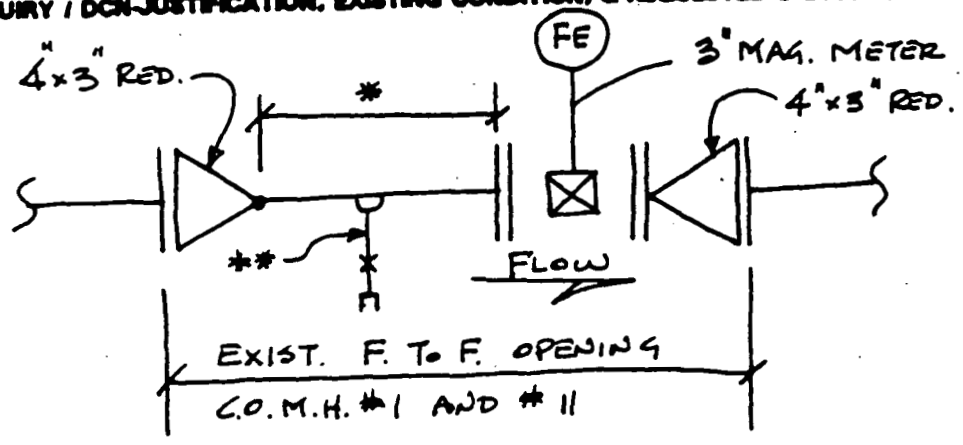
1221

ATTACHMENT [illegible] SUPPLEMENT

REQUEST FOR CHANGE INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.:	(1) PROJECT/WO NO.:	(5) PAGE OF
	1700-068	1700	2 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):



* LENGTH TO BE FIELD DETERMINED. 9" MIN.

** 3"x½" WELDOLET w/ ½" NIPPLE, ½" GATE VALVE, AND ½" HOSE CONN.

RESPONSE (continued):

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

[illegible] (5/02/96)

PARSONS
EHA PROJECT

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-070	1	1700-068	10-27-97	
TITLE: Flow Meter Conn H Internal Piping			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 10 / 28 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
0	MECHANICAL PROCESS SALIM GHANTOUS	10/27/97		SG	
	PIPING				
	STRUCTURAL				
•	CIVIL YUNUS ARSHAD/D. REED	10/27/97	YA/		
	ELECTRICAL				
•	INSTRUMENTATION JIM SAYATOVIC	10/27/97	JS		
	MATERIAL HANDLING				
	ARCHITECTURAL				
•	ENVIRONMENTAL, SAFETY, & HEALTH MIKE CHROSTOWSKI	10/3/97	MC		
	HVAC				
	GEOTECHNICAL				
0	QUALITY ASSURANCE Bill URBES	10/28/97	BU		
0	PROJECT ENGINEER CARLTON SCHROEDER	10/27/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		SCHROEDER

SPECIAL INSTRUCTIONS:

000431

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: 589	Pg 1 OF 1	DATE: 10/09/97
S/C TITLE: Leachate Conveyance System			RCI NO.
RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	RCI/DCN TITLE: Pipe Support at BSL		DCN NO 1700-067

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
92X-5900-G-00255	G0006	0	

☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The splash apron at the Bio Surge Lagoon is in place. The concrete for the westerly pier did not get poured with the splash apron. Field verify the situation and make proper recommendation.

REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
Y. AFSHAR	PARSONS	10/9/97	James C. Jenkins	10/9/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

See attached Review Comment Sheet with its attached sketches.

CONTROLLED COPY NO. 011

(PARSONS) — RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder 10/17/97	2 CUP 5

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: 5 James C. Jenkins 10/22/97

CONSTRUCTION CONFERENCE DATE

Richard L. Mayer 10/22/97

ORIGINAL

received 10-10-97

DECEIVED OCT 24 1997 099432

ENTERED

DOCUMENT REVIEW COMMENT SHEET

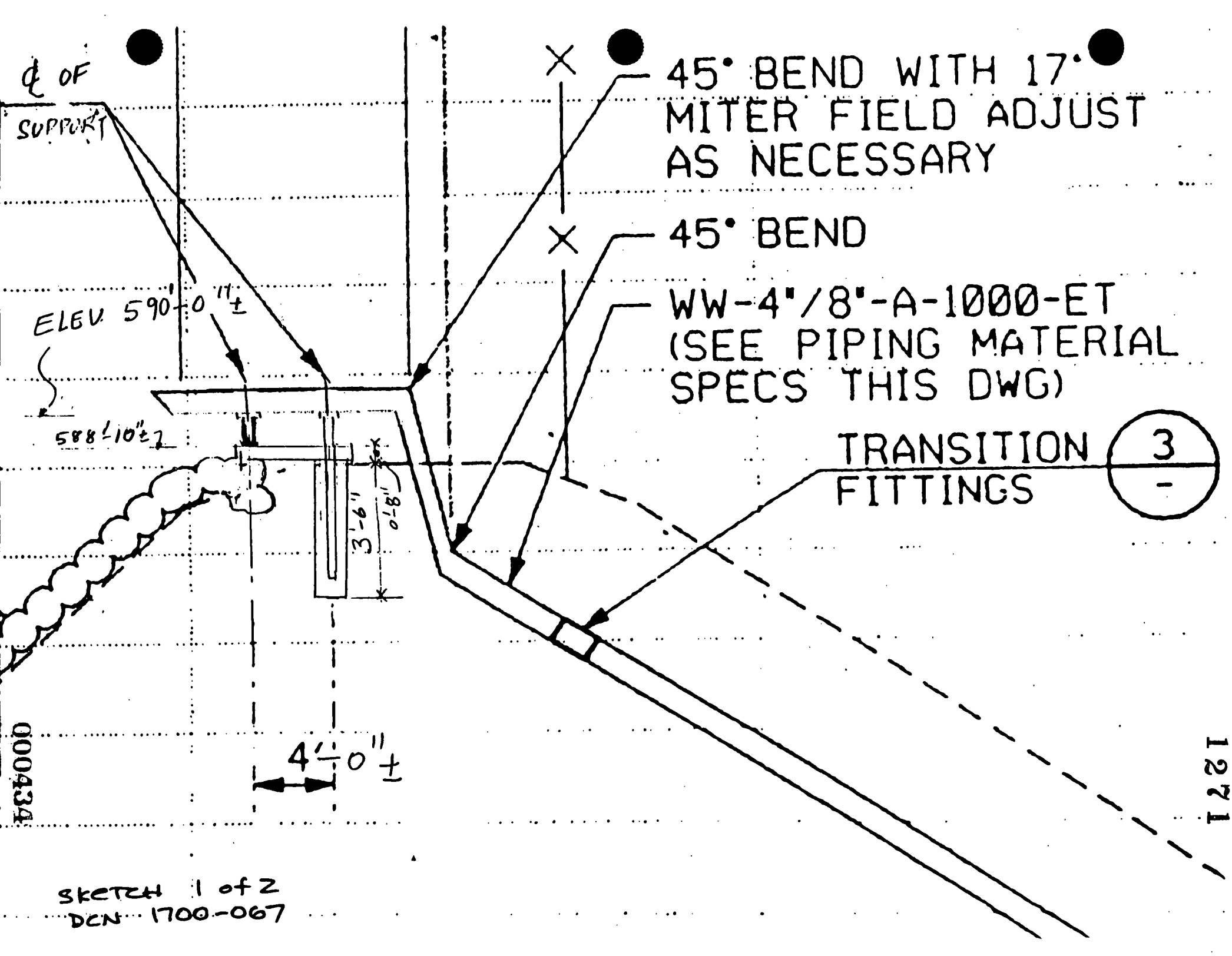
SITE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 10/17/97
DOCUMENT NO. AND TITLE: DCN No. 1700-067, Pipe Support @ BSL		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ SHEET	COMMENT	SIG /	COMMENT RESOLUTION
1.	Y. AFSHAR		SEE ATTACHED SKETCHES.		

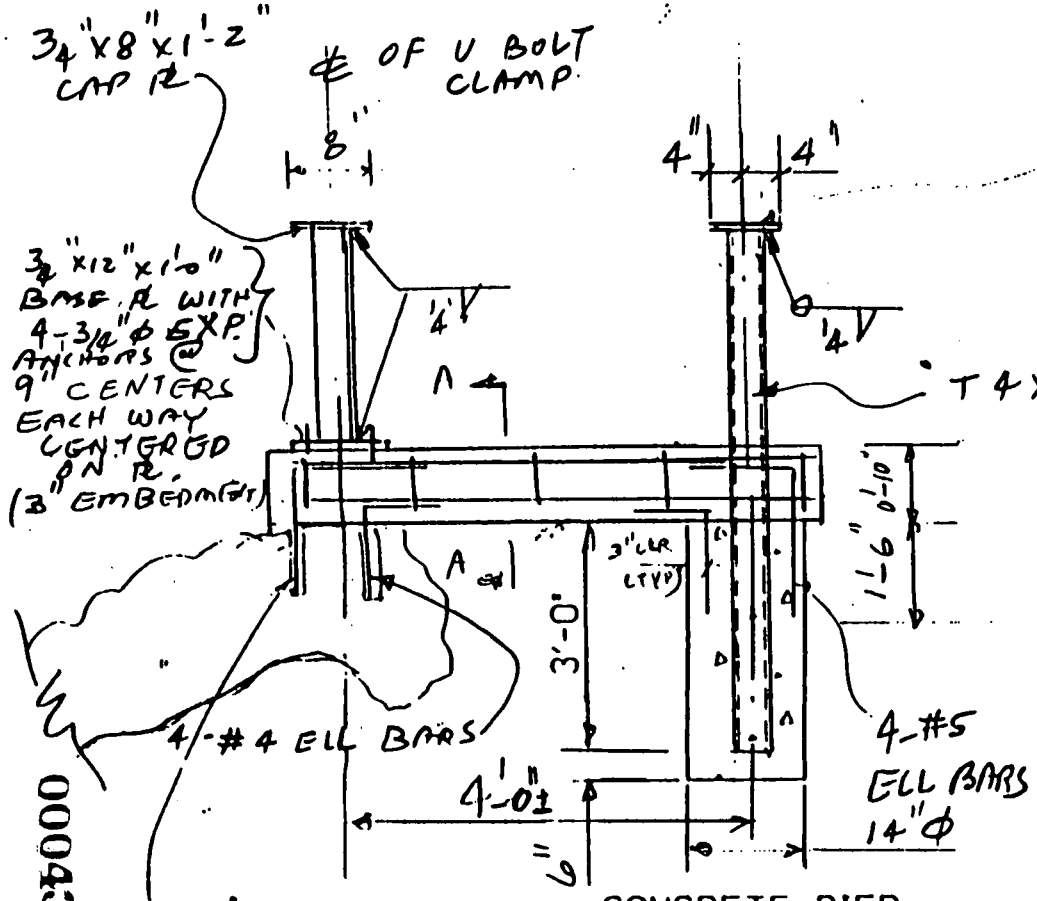
SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0000433

1221

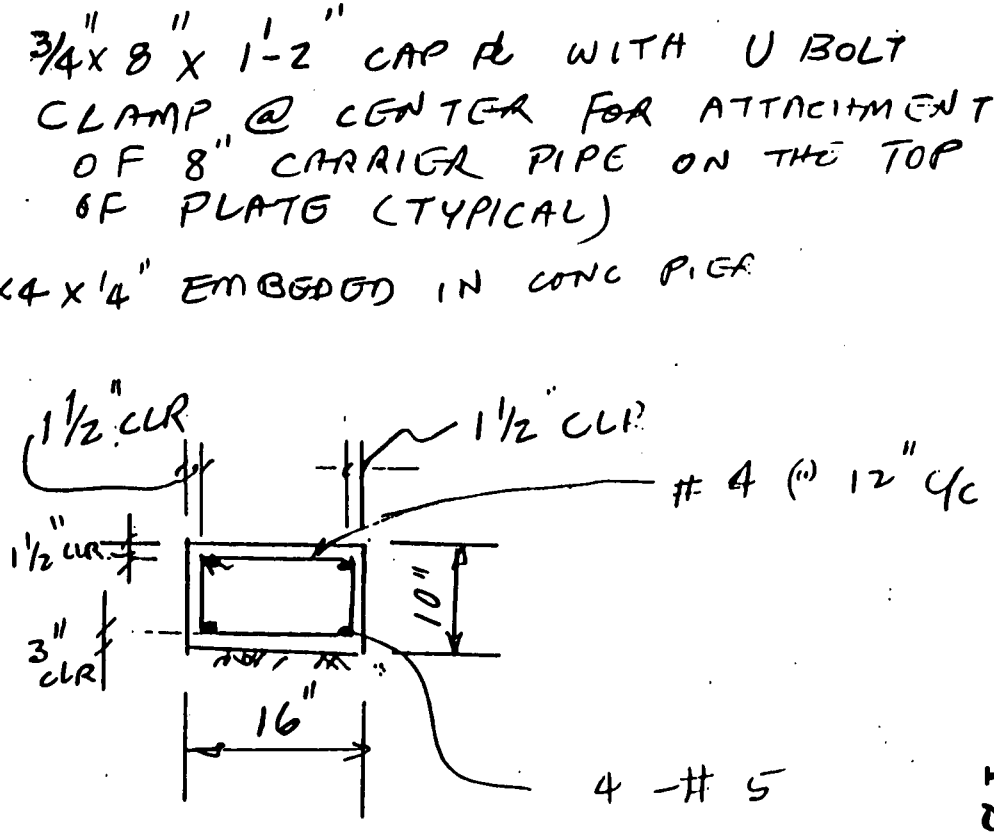


SKETCH 1 of 2
DCN 1700-067



PIPE SUPPORT SECTION

NTS



SECTION A-A

USE 3000 PSI @ 28 DAY STRENGTH CONCRETE FOR 12"ϕ PIER & BEAM

SKETCH 2 of 2
DCN 1700-067

0004350

1221

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-069	1	1700-067	10-14-97	
TITLE: Pipe Support at BSL			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 10 / 16 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
0	CIVIL M. APSHAR	10-14-97		YA / DB	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
8	ENVIRONMENTAL, SAFETY, & HEALTH M. CHROSTOWSK	10/21/97	DB		
	HVAC				
	GEOTECHNICAL				
7	QUALITY ASSURANCE B. UBBES	10/21/97	AP		
6	PROJECT ENGINEER C. SCHROEDER	10/17/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:

* ORIGINATING PROJECT DESIGN ENGINEER

SPECIAL INSTRUCTIONS:

6/97 ENG123

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE: 10/6/97

S/C TITLE: Leachate Conveyance System — RCI NO.:

RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☐ OTHER ☐

RCI/DCN TITLE: Modification to Typical Exterior Guard Post Detail

DCN NO.: 1700-065

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Civil Sections and Details	92X-5900-G-00259	0	

☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/ PROPOSED CHANGE

EXISTING CONDITION:

The Typical Exterior Guard Post Detail on Drawing 92X-5900-G-00259 shows a 6" schedule 40 steel pipe filled with concrete. Excess 4" schedule 40 steel pipe is currently available on site.

PROPOSED CHANGE:

Approve the use of 4" schedule 40 steel pipe filled with concrete as an alternative to the 6" pipe specified.

REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
[signature]	FDF	10/6/97	J. C. Jenkins	10/6/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

011

(PARSONS) RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL:	DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	10/17/97	2CUP5

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/22/97

PERFORMANCE GRADE: 5 James C. Jenkins

CONSTRUCTION CONCURRENCE:	DATE:	WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. Mathews	10/22/97		

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO

FS-F-4259 (10/01/96)

ORIGINAL

received 10-Y-97

RECEIVED OCT 24 1997 0000437

PARSONS
EPA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DC11 067	1	1700-065	10-9-97	
TITLE: Mod. Section To Typical Exterior Guard Post Detail			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 10 / 15 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
•	CIVIL Y. AFSHAR	10-14-97	YA/DB		
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
•	ENVIRONMENTAL, SAFETY, & HEALTH M. CHROSTOWSKI	10/21/97	DB		
	HVAC				
	GEOTECHNICAL				
•	QUALITY ASSURANCE B. UBBES	10/16/97	BU		
•	PROJECT ENGINEER C. SCHROEDER	10/17/97	CS		
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:

* ORIGINATING PROJECT DESIGN ENGINEER

SPECIAL INSTRUCTIONS:

ENG 123

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE 9/16/97
S/C TITLE: Leachate Conveyance System			RCI NO.:
RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	RCI/DCN TITLE: Modifications to Clean Out No. 3		DCN NO.: 1700-064

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Force Main Cleanouts	DCN 1700-014		
Civil Plan and Profile, Sheet 1 of 4	92X-5900-G-00254	1	

☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/ PROPOSED CHANGE

EXISTING CONDITION:

DCN 1700-014 provides installation details for the Leachate Force Main Cleanouts. The 4"/8" Leachate piping, which was rerouted through the main parking lot, was installed at the elevation established by the subcontractor's survey crew, resulting in the top of the cleanout being approximately 1'-9" below the surface of the asphalt pavement.

PROPOSED CHANGE:

Provide details for extending Clean Out No. 3 to the top of the existing asphalt pavement.

REQUESTOR:	COMPANY:	DATE:	FCE / PE	DATE:
Frank L. Flack	FDF	9/16/97	R.D. Kunstheber	9/16/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

1) See Attached Sketch

CDC CONTROLLED COPY NO. C011

Parsons — RCI - DCN ACCEPTANCE

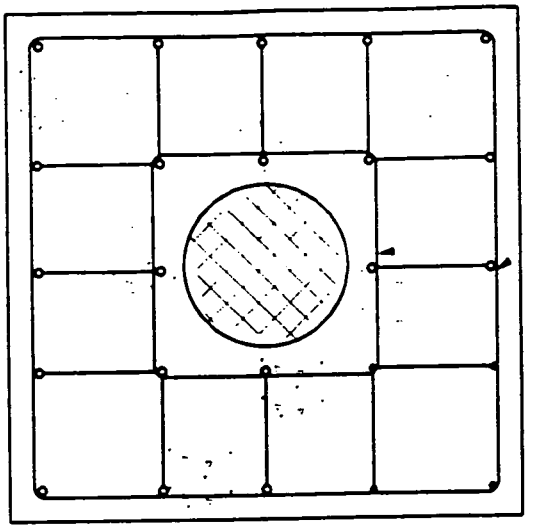
DESIGN ORGANIZATION APPROVAL: DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder 9/18/97	
FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 9/23/97	
PERFORMANCE GRADE: 5	
CONSTRUCTION CONCURRENCE: Richard L. Mathews DATE: 9/23/97	WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☒YES ☐NO RLM 9/23/97	

FS-F-4259 (10/01/96)

received 9/16/97 YH

ORIGINAL

DCN 1700-064



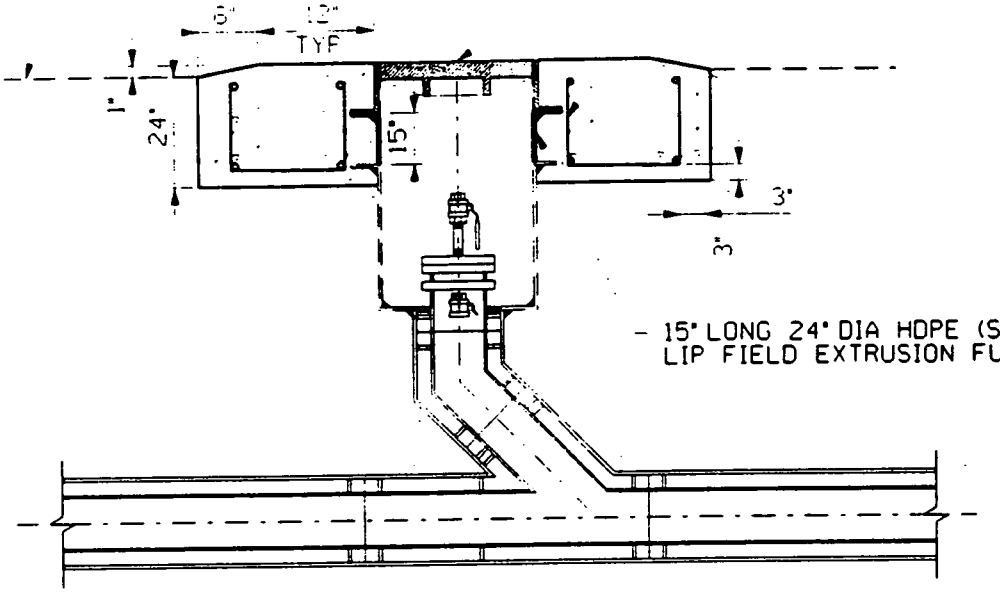
#4 REBAR TOP AND BOTTOM

PLAN

FINISHED GRADE

HEAVY DUTY DI FRAME WITH SELF-SEALING SOLID LID SIMILAR TO NEENAH R-1711-A

#4 @ 12 OC (TYP)



15" LONG 24" DIA HDPE (SDR 26) WITH 3" FLANGED LIP FIELD EXTRUSION FUSED TO EXIST CLEANOUT

SECTION

CLEANOUT #3

NTS

DCN NO.: 1700-064

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-064	1	1700-064	9-17-97	
TITLE: MODIFICATIONS TO CLEAN OUT NO. 3			OU NO. SRP	P.O. No.: 16 Y

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 19 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
•	CIVIL YUNUS AFSHAR	9/17/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
•	ENVIRONMENTAL, SAFETY, & HEALTH M. CHROSTOWICZ	9/18/97	DR		
	HVAC				
	GEOTECHNICAL				
•	QUALITY ASSURANCE B. UBBES	9/19/97	PCD		
•	PROJECT ENGINEER C. SCHROEDER	9/18/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		Y. AFSHAR

SPECIAL INSTRUCTIONS:

6/97

ENG 123

000441

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC- 597	(5)Pg 1 OF 1	(6)DATE 10 Sept. 97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Concrete Test Cylinders		(11)DCN NO.: 1700-063

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification 20110-TS-0002 Section 03100	Part 1.04.A.2.c	0	
Construction Quality Assurance Plan (CQAP)	Part 12.3	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

Civil Review Only

The requirements for test cylinder submittal and for field quality control testing needed clarification and flexibility.

Change Specification Section 03100 Part 1.04.A.2.c to read as follows:

"Test results for the mix design showing compressive strength at 2, 7, and 28 calendar days, or other time intervals as approved, per ASTM C 39. "

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Part 12.3 of the CQAP discusses field Quality Control Testing. Change the first two sentences of the first bullet item as follows:

" Concrete samples will be obtained by the CQC Consultant at a frequency of one set of standard cylindrical test specimens for every 25 cubic yards of concrete or portion thereof for each shift and for each concrete design mix. "

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Daniel Bodine	GeoSyntec	11 Sept 97	James C. Jenkins	9/15/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CDC CONTROLLED COPY NO. 011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	11 Sept 97	

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 9/15/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McGuire	9/15/97		

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

RECEIVED SEP 22 1997

ORIGINAL

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 09/08/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XX
(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER	(4 A)RCI/DCN TITLE: Parking Lane Pavement Restoration		(11)DCN NO.: 1700-062

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00257	G0007	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER X DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN modifies the Pavement Restoration Detail for parking and walking lanes. The existing Pavement Restoration Detail, as modified by DCN 1700-022, shall remain in force for driving lanes. Determination of the applicable detail by the Project or Construction Engineer shall be based upon existing traffic patterns.

The parking and walking lane detail will be identical to the existing detail except that the aggregate base (ODOT 304) may be installed in a single lift, 8" to 10 " deep, compacted to 98% Std. Proctor.

(10)REQUESTOR	COMPANY:	DATE:	(12)FCE / PE	DATE:
	FDF	09/08/97	J. C. Jenkins	9/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons additional "Approved as Noted" comments on attached Page 1 of 1

CDC CONTROLLER COPY NO. 011

(Parsons) (Geosyntec) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	9/10/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 9/16/97

PERFORMANCE GRADE: (17) J. C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGN-OFF BY FCE OR PE)	DATE:
Richard L. Mc Pherson	9/16/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

received 9-8-97

RECEIVED SEP 22 1997 000443

LCS

DOCUMENT REVIEW COMMENT SHEET

P0164

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 9/10/97
DOCUMENT NO. AND TITLE: DCN No. 1700-062, Parking Lane Pavement Restoration		DATE COMMENTS DUE:
REQUEST NO.: DCN-062 / ISSUE: 1		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
1.	Y. AFSHAR YA		change in Horizontal alignment has lead to this DCN. It is acceptable to use existing Pavement Restoration Detail with 10" of aggregate base instead of 18".		
2.	Y. AFSHAR YA		Please forward this DCN to GeoSyntec for and record as built.		

SIGNIFICANT REVISION/DISPOSITION APPROVAL SIGNATURE: _____ DATE: _____

ORIGINAL

000444

1271

FOUNDATION AND EARTH RETAINING Block

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC- 597	(5)Pg 1 OF 1	(6)DATE 08 Sept. 97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐

(4A)RCI/DCN TITLE: Tempory Gravity Line Cleanout

(11)DCN NO.: 1700-061

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Drawing 90X-6000-G-00058		0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The Temporary Gravity Line Cleanout located at Station 24+00, Drawing G-00058 shall be re-located to Station 23+50. The reason is that the original location happened to fall in the middle of a temporary re-routed north access construction road. Top of pipe elevation should not be affected by this change.

(10)REQUESTOR: Daniel Bolen COMPANY: GeoSyntec DATE:

(12)FCE / PE: James C. Jenkins DATE: 9/9/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CDC CONTROLLED COPY NO

C-11

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolen 9 Sept 97 DAT

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2 CWPS

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 9/9/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L McPherson 9-9-97 DAT

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC- 597	(5)Pg 1 OF 1	(6)DATE 29 OCT. 97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☒ M ☐ C ☐ OTHER ☐	(4A)RCI/DCN TITLE: Programable Level Controllers		(11)DCN NO.: 1700-060

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification 20110-TS-0002 Section 15000	Part 2.01.D	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

The LCS Contractor's vendor has indicated that he has selected the Newport Model INFCP-410 controller for use at the LCS/LDS Manholes. This model is acceptable and meets the project design criteria . The project specification, however, needs a slight modification.

CDC CONTROLLED COPY NO.

C011

hange Part 2.01.D.2.e to read as follows:

e. Input signal smoothing or filtering.

(10)REQUESTOR: Daniel Bodine	COMPANY: GeoSyntec	DATE: 29Oct97	(12)FCE / PE: James C. Jenkins	DATE: 10/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 29Oct97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUPS	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE:
PERFORMANCE GRADE: (17) 5 James C. Jenkins			10/29/97
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire	DATE: 10/30/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

GeoSyntec Consultants
1100 Lake Hearn Drive, N.E. • Suite 200
Atlanta, Georgia 30342-1523 • USA
Tel. (404) 705-9500 • Fax (404) 705-9400

FAX COVER SHEET

TO: DAN BODINE

FIRM: GS

FAX NO: (513) 648-5767 They don't have your fax # right

FROM: BRIAN JACOBSON

PROJECT NO: Fernald

Cover Page Plus 0 pages following.

Sent by: BJ Date: 29 Oct 97 Time: 9:30

Message:

Dan,

I talked with technical service at Newport Electronics regarding the process meter/controller model iNFCP. The unit is in compliance with the specifications with the following exception. The Newport controller uses an internal digital adaptive filtering system. This system will smooth out spikes to prevent false alarms. However, the spec as now written requires 120 second signal smoothing. The Newport should be adequate for our application and the spec should be modified to: (2.01 D2e): Input signal smoothing or filtering.

Corporate Office:
221 N.W. 33rd Street • Suite 650
Boca Raton, Florida 33487 • USA
Tel. (407) 995-0900 • Fax (407) 995-0925

Regional Offices:
Atlanta, GA • Boca Raton, FL
Columbia, MD • Huntington Beach, CA
Walnut Creek, CA • Brussels, Belgium

Laboratories:
Atlanta, GA
Boca Raton, FL
Huntington Beach, CA

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	S/C NO.: FSC-589	Pg 1 OF 1	DATE 9/5/97
S/C TITLE: Leachate Conveyance System			RCI NO.:
RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	RCI/DCN TITLE: Change Alignment of GW-10" Line		DCN NO.: 1700:059

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Civil - Plan and Profile, Sh. 1 of 4	92X-5900-G-00254	1	
LCS Alignment Change	DCN 1700:052		

CDC CONTROLLED COPY NO. 0-1-1

☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

EXISTING CONDITION:

The GW-10" line east of Air Release Manhole No. 4 is currently designed to cross under the leachate line on a 25 foot radius and head south under the existing access road to the point where the end of the pipe is to be capped.

PROPOSED CHANGE:

Due to the depth of the trench required to accommodate Clean Out No. 3 in the leachate line, install a shop fabricated 90 degree elbow in the GW-10" line and cross over the top of the leachate line. Maintain the coordinates for termination of the GW-10" line as originally indicated on the drawing. Install a concrete thrust block at the elbow in accordance with the details shown on drawing 92X-5900-G-00257.

REQUESTOR:	COMPANY:	DATE:	FIELD CONSTRUCTION ENGINEER / PE	DATE:
Frank L. Flack	Fluor Daniel Fernald	9/5/97	Richard L. McGuire	9-5-97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

1) See Parsons "Approved as Noted" comments attached as Page 1 of 2.

2) See alternate "Additional FDF Comments Concerning Parsons Response" page 2 of 2 for alternate acceptable approach. CS 10/14/97

(PARSONS) RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL:	DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	9/18/97	ZCUP5

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 10/15/97

PERFORMANCE GRADE: 5 James C. Jenkins

CONSTRUCTION CONCURRENCE:	DATE:	WORK COMPLETED: (SIGNOFF BY FIELD CONSTRUCTION ENGINEER OR PE) DATE:
Richard L McGuire	10/15/97	

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO

RECEIVED OCT 21 1997 0448

FS-F-4259 (10/01/96)

DCN-059

received 9-9-97

ORIGINAL

10 September 97

PO 164 - Leachate Conveyance System
DOC. No.: DCN-059 TRANSMITTAL No.: 1700 - 059
Change Alignment of GW-10" Line

RE: Drawings: 92X-5900-G-00254
DCN NO. 1700-052

Recommend Status B, Approved as noted. Civil comments are as follows:

1. Due to a reduction in the pressure rating, a fabricated 90° elbow is NOT acceptable. Provide a molded 90° elbow or a 25 foot radius bend.

2. Downstream from the bend (in the southerly direction) the GW-10" shall be lowered gradually to cross under the existing 24" effluent line which is about 4-foot below grade. There are other utility lines to be crossed as shown on the design drawings.

3. The GW-10" line shall be terminated at the coordinate point given in the design drawings and at bottom of pipe elevation of about 568.0±.

Installation should ensure that a minimum 36" coverage be maintained. Installation of air release should be positioned such that localized pockets of air not be produced due to crossing over leachate line instedd of crossing under

9/17/97

DCN 1700-059
10/14/97

ADDITIONAL FDF COMMENTS CONCERNING PARSONS RESPONSE

- Driscopipe recommends that the pressure rating of fabricated ells be re-rated to approximately 75% of the pressure rating of the pipe used to fabricate the fitting; therefore, SDR 11 pipe would be re-rated from 160 psi to 120 psi. Driscopipe also recommends as an alternate measure that the pressure rating can be increased to the working pressure of the pipe from which it is fabricated when properly designed concrete encasement or other external reinforcement is used on fabricated fittings. The fabricated ell was encased in concrete instead of merely placing a concrete thrust block behind the ell.

- Since the leachate and GW-10" pipe were rerouted through the main parking lot, it is not practical to install Air Release Manhole #4 for the GW-10" line inside the parking lot. By running the GW-10" over the leachate line as well as the existing 24" effluent line, a high point could be created in the line just south of the roadway to accommodate placement of the Air Release Manhole #4.

- Although the GW-10" line would only have approximately 24" of cover based on the existing ground elevation, additional fill can be placed to create an earthen berm to maintain 36" of cover over the pipe as well as provide grade to the top of the air release manhole. The higher elevation at the end of the GW-10" line (blind flange) would still permit the line to be routed below the drainage ditch to the south by using a 45 degree vertical ell when continuing this line southward.

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE - 3 RGB

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 4	(6)DATE 09/04/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XXR
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: ODOT Backfill Specification		(11)DCN NO.: 1700-058

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification Section 02215, 3.03, C		O	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9) ☒ DCN JUSTIFICATION: EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Include in the project specifications reference to ODOT Pipe Backfilling 603.08 allowing the trench to trenches to be backfilled within constraints of ODOT Specifications.

Specifically include:
"Granular material may be compacted with water if satisfactory drainage is provided for the free water. When compacting with water, the granular material may be placed in layers not to exceed 200 mm (8 inches) loose depth and each layer thoroughly saturated with water by flooding or jetting. Prior to the placement of soil over the granular material, the free water shall be drained."
(Ref.- Ohio Dept. Of Transportation Construction and Material Specifications)

RGB

(10)REQUESTOR: Jess Kells	COMPANY: FDF	DATE: 9/4/97	(12)FCE / PE: James C Jenkins	DATE: 9/4/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Attached Response

CDL CONTROLLED COPY NO
C011

(GeoSynTec)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: David Bidard	DATE: 9/9/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 James C Jenkins			DATE: 9/9/97
(18)CONSTRUCTION CONCURRENCE: Richard L. McGuire PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)	DATE: 9-11-97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED
SEP 19 1997

000451 003

(13) Response

Recent air monitoring indicates carbon monoxide levels may be exceeded when gasoline powered vibratory plate compactors are used for the compaction of pipe embedment material as specified in Specification Section 02215 Part 3.03.C. Carbon monoxide action levels are set forth in the newly implemented "Application of Carbon Monoxide Limits for Trenching Operations " developed by FDF IH and distributed on September 4, 1997.

In the event construction cannot proceed in accordance with the specified methods because allowable carbon monoxide levels are exceeded, or there are other documented safety concerns, the alternate method of placing the embedment sand described below may be used. The alternative method may also be used as a general substitute for vibratory plate compaction based on the approval of the Construction Manager. This method shall be added to Specification Section 02215 Part 3.03.C.8 (New Item 8).

8. a The following procedure may be used when authorized in writing by the Construction Manager in the event compaction using a gasoline powered plate compactor cannot be performed due to unacceptable levels of carbon monoxide in the trench, or as a general substitute to the vibratory plate compaction method.

b. Excavate trench in accordance with Part 3.02 of this Section.

c. Place pipe embedment fill in 7-inch $\pm$ 1-inch thick loose lift to the required pipe grade.

d. Compact the pipe embedment fill by flooding, or a combination of flooding and vibratory plate compaction. To compact by flooding, the trench shall be filled with clean water to a minimum of 2-inches above the surface of the loose lift and then drained satisfactorily using sumps, ditches, pumps or other equipment as field conditions warrant. The water level after drainage shall be lower than the elevation of the bottom of the lift. Water levels in the trench will be visually verified by CQC personnel. The fill will be inspected and the dry density measured by CQC personnel. The minimum density requirements are defined in 8.h . The contractor's surveyor shall verify the grade of the fill surface prior to and after placing the pipe. If safety concerns at isolated locations are such that CQC personnel cannot enter the trench to measure density, the embedment fill shall be approved or disapproved based on CQC's field observations and correlation to dry density results obtained from similar work areas. Additional flooding or vibratory plate compaction shall be performed, if the specified density is not achieved after the first flooding interval. Note, water level greater than 2-inches above the surface of the loose lift may be required to achieve the specified density.

e. Place pipe on a previously compacted fill, and backfill around pipe to a maximum 8-inches above the previously placed lift. When backfilling to the pipe springline confirm that the pipe haunches have been filled and the pipe has been satisfactorily bedded.

f. Compact fill by flooding or a combination of flooding and vibratory plate compaction. The pipe shall be filled with water and capped prior to flooding, to prevent intrusion of fill and pipe flotation. Flood the fill to achieve a satisfactory density using the procedure described in 8.d.

g. Place final lift of pipe embedment fill to 6-inches above the top of the pipe. Compact as described in 8.f.

h. The fill shall be compacted to a density established as follows:

1. The Contractor shall prepare a trial area (which may be part of the production operation) compacted in accordance with Section 02215 Part 3.03.C. The trial area shall be at least 50-feet long and be comprised of a least 2 lifts of fill.

2. CQC will perform twenty (20) density tests on fill compacted using a vibratory plate compactor, in accordance with Section 02215 Part 3.03.C.

3. The above density tests will be performed on at least two different lifts of soil.

4. CQC will calculate the required density by excluding the highest and lowest measured values, and averaging the remaining 18 measured values.

5. CQC will measure the dry density of each lift of fill compacted by flooding in at least three locations. The average dry density of fill compacted by flooding shall be equal to or greater than the density calculated in 8.h.~~3~~.4. In the event the required density is not met, CQC will perform two additional density tests, exclude the highest and lowest measured values, and recalculate the average dry density. In the event the recalculated dry density does not meet or exceed the required density, the lift shall be recompacted in accordance with the requirements of 8.d.

i. After CQC approval of the pipe embedment fill compaction place compacted fill above the pipe embedment fill in accordance with Section 02200.

Daniel Bodine
Daniel Bodine

GEOSYNTEC CONSULTANTS

Written by: Dan Bodine Date: 97/09/27 (YY/MM/DD) Reviewed by: _____ Date: ___/___/___

Client: FDF Project: Fernald Project/~~Proposal~~ No.: GQ0166 Task No.: 3-1

Results of 20 Field Density Tests Taken in Two Lifts of Pipe Embedment Fill Compacted by Four Passes of Vibratory Plate Compactor

	Test No.	Wet Density lb/ft³	Dry Density lb/ft³	Percent Moisture %
Lift No 1 (First Lift Below Pipe) 16 Sept 97 Troxler Gauge	DB01	109.3	106.4	2.8
	DB02	111.8	107.0	4.5
	DB03	113.1	107.8	4.9
	DB04	113.6	108.0	5.2
	DB05	109.9	106.4	3.4
	DB06	110.2	107.0	3.0
	DB07	111.4	107.6	3.6
	DB08	110.6	107.4	2.9
	DB09	111.5	108.2	3.0
	DB10	111.8	108.7	2.9
Lift No 2 (Top Lift Over Pipe) 18 Sept 97 Troxler Gauge	DB11	113.4	109.6	3.4
	DB12	109.5	105.3	3.9
	DB13	112.3	108.0	3.9
	DB14	113.1	109.1	3.7
	DB15	112.3	108.4	3.6
	DB16	113.1	109.4	3.4
	DB17	114.9	110.5	3.9
	DB18	112.1	108.1	3.6
	DB19	113.7	109.8	3.6
	DB20	114.3	109.3	4.6
n = 20	Σ		2162.0	
	x̄		108.10	
	s		1.31	
n = 18 (lowest & highest removed)	Σ		1946.2	
	x̄		108.12	
	s		1.05	

Summary
Required Minimum Dry Density ≥ 108.1 lb/ft³
Reference DCN 1700-058

D. Bodine

GeoSyntec Consultants

Page ____ of ____

Written by: Dan Bodine Date: 97/09/16 (YY/MM/DD) Reviewed by: ____ Date: ____/____/____

Client: FDF Project: ASDF Project/Proposal No. GO 0166 Task No. 3.1

16 Sept 97

Test No	Wet Density lb/ft3	Dry Density lb/ft3	Moisture Weight lb/ft3	Percent Moisture %	
DB 01	109.3	106.4	3.0	2.8	n=10
DB 02	111.8	107.0	4.8	4.5	$\bar{x}$ = 107.5 pcf
DB 03	113.1	107.8	5.3	4.9	n=8
DB 04	113.6	108.0	5.6	5.2	$\bar{x}$ = 107.4 pcf
DB 05	109.9	106.4	3.6	3.4	
DB 06	110.2	107.0	3.3	3.0	WC = 3.6% n=10
DB 07	111.4	107.6	3.9	3.6	WC = 3.8% n=8
DB 08	110.6	107.4	3.3	2.9	
DB 09	111.5	108.2	3.3	3.0	
DB 10	111.8	108.7	3.2	2.9	
$\bar{x}$		107.5		3.6	
S		0.8		0.9	

- First Lift of Pipe Embedment Sand
- Test Area Sta ~~20~~ 0+20 to 0+75 inside Trench with slopes cut back to approx. 1 to 1
Tested with Troxler Nuclear Gauge - Probe at 6 ins

GeoSyntec Consultants

Written by: Dan Bodine Date: 97/09/27 (YY/MM/DD) Reviewed by: _____ Date: ___/___/___

Client: FDF Project: Fernald Project/~~Proposal~~ No.: 600166 Task No.: 3.1

Results of 20 Field Density Tests Taken in Two Lifts of Pipe Embedment Fill Compacted by Four Passes of Vibratory Plate Compactor

	Test No.	Wet Density lbs/ft³	Dry Density lbs/ft³	Percent Moisture %
Lift No 1 (First Lift Below Pipe) 16 Sept 97 Troxler Gauge	DB01	109.3	106.4	2.8
	DB02	111.8	107.0	4.5
	DB03	113.1	107.8	4.9
	DB04	113.6	108.0	5.2
	DB05	109.9	106.4	3.4
	DB06	110.2	107.0	3.0
	DB07	111.4	107.6	3.6
	DB08	110.6	107.4	2.9
	DB09	111.5	108.2	3.0
	DB10	111.8	108.7	2.9
Lift No 2 (Top Lift Over Pipe) 18 Sept 97 Troxler Gauge	DB11	113.4	109.6	3.4
	DB12	109.5	105.3	3.9
	DB13	112.3	108.0	3.9
	DB14	113.1	109.1	3.7
	DB15	112.3	108.4	3.6
	DB16	113.1	109.4	3.4
	DB17	114.9	110.5	3.9
	DB18	112.1	108.1	3.6
	DB19	113.7	109.8	3.6
	DB20	114.3	109.3	4.6
n = 20	Σ		2162.0	
	X		108.10	
	S		1.31	
n = 18 (lowest & highest removed)	Σ		1946.2	
	X		108.12	
	S		1.05	

Summary
Required Minimum Dry Density ≥ 108.1 lb/ft³
Reference DCN 1700-058

D. Bodine

1271

N = 10	N = 8
$\bar{X}$ = 108.75	108.96
S = 1.44	0.70

connection on the south side of the cleanout - sta 23+50. Monitored by Randy Livingston. Photos taken.

1515 - Began sliding the 10" coupling over the pipe to be covered. Had to tap it into place w/flat end of ball peen hammer. Kobelco SK907LC-II was holding pipe up w/ strap during process. Pipe was laying in welding machine # 1211. R.L. was tacking as well. Both pipe ends had been shaved in the weld areas.

Had trouble placing coupling in machine clamp to move it. Finally it worked - but the pipes shifted too far apart - Finally got coupling centered to satisfaction.

@ 1540

1557 - Weld complete & successful

N. Petro, Grey 600057

1600, VBS - Hyundai T-hoe cont to place PEF in trench blwn 4CS/4DS 02&03. Cat 963B w/truck supplying T-hoe w/ PEF.

The day's 1st lift of soil blwn 01&02 was complete. Took 2nd test

1610	WD 129.6	%M 13.7	(P)
(25)	DD 113.9	% Comp 98.3	
6"/1	M 15.6		

1620 PEF blwn 02 & 03 being comp. w/ vib. pl.

1650 - Soil began being placed below 02&03

963B bringing to Hyundai T-hoe put in trench & spread.

1655 - Whacker began comp.

1800 Took tests on PEF for D. Bodine

DB 11	WD 113.4	DD 109.6	M 3.7	% M 3.4	
DB 12	" 109.5	" 105.3	" 4.1	" 3.9	
DB 13	" 112.3	" 108	" 4.2	" 3.9	
DB 14	" 113.1	" 109.1	" 4.0	" 3.7	
DB 15	" 112.3	" 108.4	" 3.9	" 3.6	
DB 16	" 113.1	" 109.4	" 3.7	" 3.4	
DB 17	" 114.9	" 110.5	" 4.4	" 3.9	
" 18	" 112.1	" 108.1	" 3.9	" 3.6	
" 19	" 113.7	" 109.8	" 3.9	" 3.6	
" 20	" 114.3	" 109.3	" 5.1	" 4.1	

4 passes 8" 10" 11ft — 6" tests / sta 4+10 to 5+30 — 6" & above pipe — (17-20 Done)

1710 Wise Construction equipment parked & personel gone.

1830 Caution tape laid 2800

0630 - Arrived. Att mtg - 6 Pope Co & C. Brown.

0730 Toured job site. Observed VBS pipe-layers heading toward MH #11, notified Randy. Observed VBS Wise preparing to cont. exc. west to MH #1. VBS noted H_2O level in COMH #1 @ top

0800 VBS equipment heading to work areas in N. Petro

N. Petro, 600057

0805 - Kobelco SK200LC T-hoe placing soil in trench blwn 02 & 03

Cat 963B carrying soil to T-hoe

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF X2	(6)DATE 9/2/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER	(4A)RCI/DCN TITLE: TRIAL BUTT-FUSION JOINTS		(11)DCN NO.: 1700-057

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC. SECT. 02605, 3.06, E		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- PIPE CREWS HAVE HAD SEVERAL TRIAL BUTT-FUSION JOINTS TO DATE.
- TO INCREASE DAILY PRODUCTIVITY AND HELP MEET SCHEDULE RECOMMEND USING PRODUCTION JOINTS AS VERIFICATION OF CONDITIONS AND JOINER EACH DAY.

(10)REQUESTOR: J.C. JENKINS COMPANY:	DATE: 9/2/97	(12)FCE / PE James C. Jenkins	DATE: 9/2/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☑ APPROVED AS NOTED ☐ DISAPPROVED

See Response on Page 2

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolen	DATE: 3 Sept 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 James C. Jenkins			DATE: 9/4/97
(18)CONSTRUCTION CONCURRENCE: Richard L McMahon PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)	DATE: 9/12/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

FS-F-4259 (10/01/96)

RECEIVED
SEP 22 1997
1063

ORIGINAL

CONTROLLED COPY NO. 011

000458

(13) Response

It is true that pipe crews have had several trial butt-fusion joints to date, especially for VBS crews. Currently two trial welds for duel containment pipe are being performed for each welding location at the begining of each day. Trial welds have failed in the past for both VBS and Wise during the month of August. Trial welds at the begining of the day can not be eliminated. However, GeoSyntec will approve a minimum of one good trial weld (lager diameter pipe, unless otherwise requested by CQC) at each location at the begining of each day, subject to an additional trial weld, if requested by CQC personnel.

Daniel Bodine

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF X2	(6)DATE 9/02/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: Pipe Bedding		(11)DCN NO.: 1700-056

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Spec. Section 02215, 3.03, C			
~~CDC~~ CONTROLLED COPY NO C11	VOID		

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- Continued Carbon Monoxide Readings Above Allowable Administrative Control in Pipe Trenches Justifies Using the Water Spray Method to Install Pipe Bedding in Lieu of 4 passes w/ Vibratory Plate Compactor by a Laborer.
- The Remainder of the Trench Backfill Shall be As Specified.

(10)REQUESTOR: J. C. Jenkins	COMPANY:	DATE: 9/2/97	(12)FCE / PE James C. Jenkins	DATE: 9/2/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☑ APPROVED AS NOTED ☒ DISAPPROVED

See Page 2 for Response.

VOID J. C. Jenkins 9/23/97

Dan Bodine 9/23/97

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine 3 Sept 97	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)		DATE
PERFORMANCE GRADE: (17) 5 James C. Jenkins		
(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)		

FS-F-4259 (10/01/96)

ORIGINAL

(13) Response

According to Greg Johnson there have been three (3) Carbon Monoxide readings above administrative control, two (2) in VBS's trench. Blowers are now being used and according to VBS, when used properly, they have not had a problem. The water spray method or slurry method to install bedding is not approved because it is not in accordance with project specifications and because of concerns GeoSyntec has with the trench subgrade, achieving proper sand density and proper pipe grade, and the potential impact of additional water or settlement. The first lift of bedding sand may be compacted, on a trial basis, with the remote control double drum, vibratory compactor. If that compactor proves satisfactory it may be used for the first lift below the pipe. Along side and above the pipe the sand shall be compacted with a plate compactor as required by the specifications. Please also note that GeoSyntec did not approve placing bedding sand by the "slurry" method in response to DCN 1700-052. The trench across the parking lot for the most part is only a 4 1/2 ft depth trench and after the first loose lift of sand is placed no trench safety problem should exist. This was discussed in a LCS weekly meeting several weeks ago.

Daniel Bodine

FLUOR DANIEL FERNALD

FAX COVER SHEET
FOR THE
ON-SITE DISPOSAL FACILITY

Date: 09-04-97 Time: 10:10 am

To: V. TAYLOR/W. HOOPER Dept.: S & W DN/CONSTRUCTION

Phone #: X 3009 Fax #: 648 4764

Number of Pages including Cover Sheet: 2

From: Uday Kumthekar

Phone #: X-4640 Fax #: 5767

Subject: OSDF/LCS SUBCONTRACT

Message:

COPY OF PAGES 302 & 309 FROM O-DOT

ITEM 603 - ODOT SPEC ON TRENCH

BACKFILL BY FLOODING METHOD

Copy: w Bill Zebeck
Jim Jenkins
Mike Hickey

Uday

ITEM 603 PIPE CULVERTS, SEWERS AND DRAINS

603.01 Description
603.02 Materials
603.03 Excavation
603.04 Bedding
603.05 Laying Conduit
603.06 Joining Conduit
603.07 Shop Strutting
603.08 Backfilling
603.09 Clearing Site and Restoring Damaged Surfaces
603.10 Reconstructing Conduits
603.11 Method of Measurement
603.12 Basis of Payment

603.01 Description. This work shall consist of the construction or reconstruction of pipe culverts, sewers and drains hereinafter referred to as Type A, Type B, Type C, Type D, Type E and Type F Conduit. The work shall be in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Engineer. This work shall include: excavating for pipe and foundations for same, including clearing and grubbing and the removal of all materials necessary for placing the pipe except removals listed separately; furnishing and placing granular or concrete bedding and granular backfill as required; constructing and subsequently removing all necessary cofferdams, cribs and sheeting; pumping and dewatering; sealing or banding all pipe joints where required; furnishing and installing all necessary pipe bends and branches of a type at least equal to the conduit of which they become a part; joining to existing and proposed appurtenances as required; performing leakage tests as specified; restoration of disturbed facilities and surfaces; and providing erosion control pads and animal guards on underdrain and farm drain outlets.

603.02 Materials. Pipe shall be the size and kind specified in the proposal and meet requirements of pertinent sections of 706 and 707. When the kind of pipe is not specifically itemized, any of the kinds listed herein under the specified conduit type may be used. When 707.05 or 707.07 conduit is specifically itemized or permitted in the plans, conduit conforming to 707.04 and having a bituminous paved invert may be used provided the same corrugation profile and thickness listed in the plans are provided. When 707.13 and/or 707.14 conduit is specifically itemized or permitted in the plans, conduit conforming to 707.11 shall be permitted. Higher strength concrete or plastic pipe of the same type may be furnished where lower strength pipe is specified. A thicker metal pipe of the

same corrugation profile a
thickness is permitted or

Granular material for
sand, granulated slag, air
or recycled concrete. The
requirements of No. 57 siz
with water, 310.02 granu
drum sulfate soundness
stone shall not exceed 1
permitted for use as a gr
minum pipe or aluminum
not contain more than tw

Other materials shall
Concrete for bedding,
(Class C) .....
Reinforcing steel (bedd
Cement for mortar .....
Sand for mortar .....
Pipe joint filler .....
Resilient and flexible
Concrete, sewer and
Vitrified clay, B & S
Soil and granular emb
Reinforced Concrete P

Size	
mm	(in)
150	(6)
200	(8)
250	(10)
300	(12)
375	(15)
450	(18)
525	(21)
600	(24)
675	(27

The kinds of pipe per
conduit shall be as foll

Type A Conduits
Non-reinforced concr
Reinforced concrete

1271

REF. OHIO DEPT. OF TRANSPORTATION
ITEM 603 - PIPE CULVERTS, SEWERS AND DRAINS

603.08 Backfilling. When the top of the trench is above the top of a Type A or B conduit the bedding and backfill material shall be granular and it shall be compacted under and around the conduit and to the top of the trench in layers not to exceed 100 mm (4 inches) in thickness with mechanical tampers. Granular material may be compacted with water if satisfactory drainage is provided for the free water. When compacting with water, the granular material may be placed in layers not to exceed 200 mm (8 inches) loose depth and each layer thoroughly saturated with water by flooding or jetting. Prior to the placement of soil over the granular material, the free water shall be drained. In lieu of the above requirement for backfilling the full depth of the trench with granular material, portions of deep trenches more than 1.2 m (4 feet) above the top of the conduit may be backfilled with suitable soil or granular embankment material provided that such portions of the trench are sufficiently wide to accommodate the use of heavy compaction equipment, and further provided that such equipment is used and all requirements of 203 pertaining to embankment construction are met.

When the top of a Type A or Type B conduit is above the top of the trench, proper embankment material shall be placed and compacted for a width on each side of the conduit equal to at least twice the diameter of the conduit, or 3.7 m (12 feet) whichever is less and for a minimum depth of 0.6 m (2 feet) over the top of the conduit. One diameter or 1.2 m (4 feet) on each side of the conduit, whichever is less, shall be granular material and shall be compacted in layers not to exceed 100 mm (4 inches) in thickness with mechanical tampers. The remainder of the embankment material shall meet the requirements of 203.

When the top of a precast reinforced concrete box section is above the top of the trench, granular material shall be placed and compacted to a minimum depth of 0.6 m (2 feet) over the top of the box sections (where applicable) and for a width of 1.2 m (4 feet) on each side of the box section, or as directed by the Engineer. The remainder of the adjacent embankment material shall be furnished, placed, and paid for in accordance with 203. Backfill and fill material shall be placed uniformly on both sides of the box section. Fill material at the sides of the box sections may be compacted by heavy compaction equipment. An approved sealer shall be applied on the top surface of the precast culvert sections, and shall extend 0.3 m (1 foot) vertically down all sides including the joint. The sealer shall be provided for the full length of the structure. Surface preparation and application procedures shall be as recommended by the manufacturer.

The backfill above the bedding for Type C, Type D and Type F conduits shall consist of suitable soil or granular material placed in layers not to exceed 100 mm (4 inches) in thickness and compacted with mechanical tampers. The compaction required for soil

COMPACTION BY FLOODING OR JETTING

000464

GeoSyntec Consultants

Fernald Field Office
7400 Willey Road
Fernald, Ohio 45030
Telephone: (513) 648-3418
Telefax: (513) 648-3415

FAX COVER SHEET

To: Ken Cargill

Firm: GeoSyntec

Fax No.: x2000

From: Dan Bodine

Project No.: GQ 0166-3.1

Cover Page plus 10 page(s) following

Sent by: Dan Date: _____ Time: _____

MESSAGE:

Attached DCN & Response (DRAFT)
Compaction verification will be added
However that mean density (nuclear) in trench.
State Spec

Corporate Office: (404) 705-9500
Atlanta, GA Office (404) 705-9500
Boca Raton, FL Office: (561) 995-0900
Huntington Beach, CA Office: (714) 843-6866
Columbia, MD Office: (410) 715-1400
Walnut Creek, CA Office: (510) 943-3034
Chicago, IL Office (312) 658-0500
Austin (512) 451-4003
Materials Testing Laboratory: (407) 995-0900
Geomechanics and Environmental Laboratory: (404) 705-9500

ITEM 603 PIPE CULVERTS, SEWERS AND DRAINS

603.01 Description
603.02 Materials
603.03 Excavation
603.04 Bedding
603.05 Laying Conduit
603.06 Joining Conduit
603.07 Shop Strutting
603.08 Backfilling
603.081 Compaction Requirements
603.082 Installation of Precast Concrete Arch Sections
603.09 Clearing Site and Restoring Damaged Surfaces
603.10 Reconstructing Conduits
603.11 Field Paving of Pipe
603.12 Field Paving of Existing Pipe
603.13 Method of Measurement
603.14 Basis of Payment

603.01 Description. This work shall consist of the construction or reconstruction of pipe culverts, sewers and drains hereinafter referred to as Type A, Type B, Type C, Type D, Type E and Type F Conduit. The work shall be in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or established by the Engineer. This work shall include: excavating for pipe and foundations for same, including clearing and grubbing and the removal of all materials necessary for placing the pipe except removals listed separately; furnishing and placing granular or concrete bedding and granular backfill as required; constructing and subsequently removing all necessary cofferdams, cribs and sheeting; pumping and dewatering; sealing or banding all pipe joints where required; furnishing and installing all necessary pipe bends and branches of a type at least equal to the conduit of which they become a part; joining to existing and proposed appurtenances as required; performing leakage tests as specified; restoration of disturbed facilities and surfaces; and providing erosion control pads and animal guards on underdrain and farm drain outlets.

603.02 Materials. Pipe shall be the size and kind specified in the proposal and meet requirements of pertinent sections of 706 and 707.

When the kind of pipe is not specifically itemized, any of the kinds listed herein under the specified conduit type may be used. When 707.05 or 707.07 conduit is specifically itemized or permitted in the plans, conduit conforming to 707.04 and having a bituminous paved invert may be used provided the same corrugation profile and thickness listed in the plans are provided. Higher strength concrete or plastic pipe of the same type may be furnished where lower strength pipe is specified. A thicker metal pipe of the same corrugation profile and type may be furnished where a lesser thickness is permitted or specified.

As an alternate to 706.05, a precast reinforced concrete flat topped three-sided culvert (706.051) placed on precast slab bottom, or a precast reinforced concrete arch section (706.052), may be provided. These structures and slab bottoms shall comply with the pre-approved design from approved manufacturers on file with the Department. Manufacturers not approved may submit their structural design criteria and analysis method and structure details for approval. The manufacturer shall submit shop drawings for review and approval prior to manufacture.

Granular material Types 1, 2, or 3 (703.11) may be used when granular materials are required or permitted as an option. However, Type 3 granular material shall only be allowed when pumping operations do not control severe ground water problems. When allowed, the Type 3 granular material shall be used below the bottom of the pipe. The Type 3 material shall be provided at no additional cost to the Department.

Soil and granular embankment	203.02
Granular material Types 1, 2, and 3	703.11
Other materials shall be as follows:	
Concrete for bedding, collars, and encasement (Class C).	499 and 511
Reinforcing steel (bedding, collars, encasement)	509.02
Cement for mortar	701
Sand for mortar	703.03
Pipe joint filler	706.10 or 706.14
Resilient and flexible gasket joints	
Concrete, sewer and culvert.	706.11
Vitrified clay, B & S	706.12
Reinforced Concrete Pipe	706.02

000466

Size		Minimum D-load	
mm	(in)	kg	(lb)
300	(12)	100	(2000)
375	(15)	100	(2000)
450	(18)	62.5	(1250)
525	(21)	62.5	(1250)
600	(24)	62.5	(1250)
675	(27) or larger	50	(1000)

The metric equivalent size may vary with material type for the same English size pipe. The difference in sizes shall not be construed as an exclusion of a material type. The pipe supplied shall be the required size or one size greater. The kinds of pipe permitted for each of the designated types of conduit shall be as follows:

Type A Conduits -Culverts
- Non-reinforced concrete pipe (Class 3) 706.01
- Reinforced concrete pipe 706.02
- Reinforced concrete pipe, epoxy coated 706.03
- Reinforced concrete elliptical pipe 706.04
- Precast reinforced concrete box sections 706.05
- Precast reinforced concrete 3-sided flat topped culverts 706.051
- Precast reinforced concrete arch sections 706.052
- Vitrified clay pipe (extra strength only) 706.08
- Corrugated steel conduits ..... 707.01 or 707.02
- Structural plate corrugated steel structures 707.03
- Precoated, galvanized steel culverts 707.04
- Bituminous coated corrugated steel pipe and pipe arches with paved invert ..... 707.05 or 707.07
- Fiber bonded bituminous coated corrugated steel pipe and pipe arches without paved invert 707.08
- Fiber bonded bituminous coated corrugated steel pipe and pipe arches with paved invert 707.09
- Corrugated aluminum alloy pipe ..... 707.21 or 707.22
- Aluminum alloy structural plate conduits 707.23
- Corrugated steel box culverts 707.15
- Corrugated aluminum box culverts 707.25

Type B Conduits-Storm sewers or sanitary under pavement.
- Non-reinforced concrete pipe (Class 3) 706.01
- Reinforced concrete pipe 706.02
- Reinforced concrete elliptical pipe 706.04
- Precast reinforced concrete box sections 706.05
- Vitrified clay pipe (extra strength only) 706.08
- Mortar lined corrugated steel pipe 707.11
- Corrugated steel spiral rib pipe 707.12
- Bituminous lined corrugated steel pipe ... 707.13 or 707.14
- Corrugated aluminum spiral rib pipe 707.24
- Corrugated polyethylene smooth lined pipe 707.33
- Polyvinyl chloride plastic pipe (non-perforated) 707.41
- Polyvinyl chloride corrugated smooth interior pipe 707.42
- Polyvinyl chloride profile wall pipe 707.43
- Polyvinyl chloride sanitary pipe 707.44
- Polyvinyl chloride solid wall pipe 707.45
- Polyvinyl chloride drain waste and vent pipe 707.46
- Polyvinyl chloride ABS composite pipe 707.47
- ABS drain waste and vent pipe 707.51
- ABS sewer pipe 707.52
- Ductile iron pipe (sanitary) 748.01
- Polyvinyl chloride pipe (sanitary) 748.02

Type C Conduits - Storm sewers or sanitary not under pavement
- Non-reinforced concrete pipe 706.01
- Reinforced concrete pipe 706.02
- Reinforced concrete elliptical pipe 706.04
- Precast reinforced concrete box sections 706.05
- Vitrified clay pipe 706.08
- Mortar lined corrugated steel pipe 707.11
- Corrugated steel spiral rib pipe 707.12
- Bituminous lined corrugated steel pipe ... 707.13 or 707.14
- Corrugated aluminum spiral rib pipe 707.24
- Corrugated polyethylene smooth lined pipe 707.33
- Polyvinyl chloride plastic pipe (non-perforated) 707.41
- Polyvinyl chloride corrugated smooth interior pipe 707.42
- Polyvinyl chloride profile wall pipe 707.43

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Polyvinyl chloride sanitary pipe 707.44
Polyvinyl chloride solid wall pipe 707.45
Polyvinyl chloride drain waste and vent pipe 707.46
Polyvinyl chloride ABS composite pipe 707.47
ABS drain waste and vent pipe 707.51
ABS sewer pipe 707.52
Ductile iron pipe (sanitary) 748.01
Polyvinyl chloride pipe (sanitary) 748.02

Type D Conduits -Drive pipes and bikeways
Non-reinforced concrete pipe (Class 3) 706.01
Reinforced concrete pipe 706.02
Reinforced concrete elliptical pipe 706.04
Vitrified clay pipe (extra strength only) 706.08
Corrugated steel conduits ..... 707.01 or 707.02
Structural plate corrugated steel structures 707.03
Corrugated aluminum alloy pipe. ..... 707.21 or 707.22
Aluminum alloy structural plate conduits 707.23
Corrugated polyethylene drainage pipe 707.32
Corrugated polyethylene smooth lined pipe 707.33
Polyvinyl chloride corrugated smooth interior pipe 707.42
Polyvinyl chloride profile wall pipe 707.43
Polyvinyl chloride sanitary pipe 707.44
Polyvinyl chloride solid wall pipe 707.45

Type E Conduits - Miscellaneous small drain connections and headers
Non-reinforced concrete pipe 706.01
Reinforced concrete pipe. 706.02
Reinforced concrete elliptical pipe 706.04
Concrete drain tile, extra quality 706.07
Vitrified clay pipe 706.08
Clay drain title, extra quality 706.09
Corrugated steel conduit ..... 707.01 or 707.02
Corrugated aluminum alloy pipe ..... 707.21 or 707.22
Corrugated polyethylene drainage tubing 707.31
Corrugated polyethylene drainage pipe 707.32
Corrugated polyethylene smooth lined pipe 707.33
Polyvinyl chloride plastic pipe (non-perforated) 707.41
Polyvinyl chloride corrugated smooth interior pipe 707.42
Polyvinyl chloride profile wall pipe 707.43

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Polyvinyl chloride sanitary pipe 707.44
Polyvinyl chloride solid wall pipe 707.45
Polyvinyl chloride drain waste and vent pipe 707.46
Polyvinyl chloride ABS composite pipe 707.47
ABS drain waste and vent pipe 707.51
ABS sewer pipe 707.52

Type F Conduits - Conduits on steep slopes; underdrain outlets
Corrugated steel conduits (steep slope conduit) ..... 707.05 Type C or 707.07 Type C
Corrugated aluminum alloy pipe (steep slope conduit) ..... 707.21 or 707.22
Corrugated polyethylene smooth lined pipe (underdrain outlets) 707.33
Polyvinyl chloride plastic pipe (non-perforated underdrain outlets) 707.41
Polyvinyl chloride corrugated smooth interior pipe (underdrain outlets) 707.42
Polyvinyl chloride solid wall pipe (underdrain outlets) 707.45

603.03 Excavation. The trench shall be excavated to a width to allow for the proper jointing of the conduit, and the placement and compaction of the backfill material. The minimum and maximum trench widths, when measured at the top of the conduit from the outside diameter of the conduit to the side of the trench wall, shall be between 150 mm (6 inches) and 380 mm (15 inches) respectively. The walls of the trench shall be vertical where feasible..

For pipe 1500 mm (60 inches) or over in diameter or rise, a trench width of 0.6 m (24 inches) on each side of the conduit will be permitted. For thermoplastic pipe a minimum trench width of the greater of either the pipe outside diameter plus 400 mm (16 inches), or the pipe outside diameter times 1.25 plus 300 mm (12 inches) , shall br provided in lieu of the maximum trench widths required for Type B or C conduit

For precast reinforced concrete box sections (706.05), precast reinforced concrete flat topped three-sided culvert (706.051), precast reinforced concrete arch (706.052), and corrugated aluminum and steel box culverts, a minimum trench width of 0.6 m (2 feet) on each side of the box section is required.

The foundation for the conduit bed shall be firm for its full length.

1 2 1

Where unstable material is encountered below the plan foundation it shall be removed to the depth directed by the Engineer under the conduit and to the width of the trench and replaced with granular material. Rock boulders encountered at the conduit bed shall be removed at least 150 mm (6 inches) below the bottom of the conduit and replaced with granular material.

In case the flow line is changed not to exceed 0.3 m (1 foot), or it becomes necessary to remove unsuitable material at the direction of the Engineer in an amount not to exceed 0.3 m (1 foot), the same shall be done at the contract bid price. When the flow line is lowered more than 0.3 m (1 foot) or if it becomes necessary to remove more than 0.3 m (1 foot) of unsuitable material below the bottom of the trench, compensation will be provided therefore in a supplemental agreement for the excavation and backfill beyond 0.3 m (1 foot).

Where a conduit is to be placed within an embankment or the top of the conduit is above the existing ground, the embankment shall be constructed at least to the spring line of the conduit before trenching for the conduit. The trench shall then be excavated to the minimum width necessary for the proper placing and backfilling of the conduit as described in 603.08. This requirement is not applicable to precast reinforced concrete box sections (706.05), precast reinforced concrete flat topped three-sided culvert (706.051), or precast reinforced concrete arch (706.052).

Where the induced trench method of installation is specified for a conduit, the excavation shall be as previously described for embankment installation, and backfilling shall be as described in 603.08.

Jacking or tunneling may be permitted provided written permission of the Director is obtained.

603.04 Bedding. Class A bedding shall consist of a continuous concrete cradle conforming to the plan details.

Class B bedding shall consist of a bed of granular material having a thickness of at least 150 mm (6 inches) below the bottom of the conduit. For conduits other than precast reinforced concrete box sections and corrugated aluminum and steel box culverts, the bedding shall extend up around the pipe for a depth of not less than 30 percent of its outside diameter or rise; shall be shaped to fit the conduit for at least 10 percent of the outside diameter or rise of the conduit; and shall have recesses shaped to receive the bell of bell-and-spigot pipe. The granular bedding material shall have an uncompacted middle third with the outside third being compacted in accordance with 603.081; however, box culverts will have the entire bedding compacted in accordance with 603.081.

Class C bedding shall consist of bedding the conduit in its natural foundation to a depth of not less than 10 percent of its total height. The bed shall be shaped to fit the conduit and shall have recesses shaped to receive the bell.

Class B bedding shall be provided for all Type A, B, and C conduit.

Class B bedding shall be provided for thermoplastic Type B, C and D conduits.

Class C bedding shall be provided for all Type D, E, and F conduits.

603.05 Laying Conduit. Except where otherwise directed by the Engineer for special conditions, the conduit shall be laid starting at the outlet end with the bell or groove end laid upgrade. The lower segment of the conduit shall be in contact with the shaped bedding throughout its full length. Metal conduits shall be placed with longitudinal laps or seams at the side and by lapping the circumferential seams on the inside in the direction of flow.

All Type A conduits shall begin and end with pipe ends as normally fabricated by the manufacturer. If field cutting is found to be necessary, the cut end shall be located at an interior joint and cradle, collar, or band shall be provided to assure a stable joint.

707.03, 707.15, 707.23 and 707.25 conduits shall be erected in accordance with the requirements of 522.03. Where two thicknesses are specified, the thicker plates shall be the bottom and corner plates in pipe-arch structures, and the bottom row if centered or bottom two rows if not centered in round structures.

The exterior of the 707.03, 707.15, 707.23 and 707.25 conduit above the limits of the bedding shall be coated in the field within the limits of backfill. The coating material and application shall conform to AASHTO M 243. Special care shall be taken to thoroughly seal around all plate seams and bolts. Asphalt mastic material shall dry 48 hours and tar base material shall dry 28 hours before placement of the conduit backfill.

706.02 reinforced concrete pipe with elliptical reinforcement and 706.04 reinforced concrete horizontal elliptical pipe with single cage reinforcement shall be handled and placed with the reinforcement markings along a vertical plane. 706.02 reinforced concrete pipe with

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auxiliary supports shall be handled and placed with the centerline of the centerline of the auxiliary support system in a vertical plane.

Where called for on the plans, conduits shall be encased with a specified thickness of Class C concrete meeting the requirements of 511. Payment for furnishing and placing the concrete encasement, and for any additional excavation required shall be included in the unit price bid for the conduit to which it applies.

The Contractor shall conduct his operations so as to maintain at all times sewer flows through existing facilities to be replaced or approved temporary bypass conduit until new facilities are completed and placed in use.

Immediately after placement of any conduit, the Contractor shall construct the end treatments at both the outlet and inlet ends. These end treatments shall include headwalls, concrete riprap, rock channel protection, and sodding.

Handling and transportation of 706.051 and 706.052 shall be as follows. Lifting devices which do not require a hole through the structure shall be used in each culvert section for the purpose of handling. Lifting devices shall be filled with grout and covered on the exterior with joint-wrap material if outside the limits of the membrane waterproofing. This wrap shall have a minimum length and width of 300 mm (12 inches).

603.06 Joining Conduit. The method of joining conduit sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even. Sealed, banded or bolted joints shall be provided for Types A, B, C, D, and F conduits. Type E conduits shall have open joints.

When concrete pipe and box sections or vitrified clay pipe is used and requires sealed joints, bituminous pipe joint filler 706.10 may be applied to the pipe in sufficient quantity to completely fill the joint when the pipe is placed in its final position. When 706.03 conduit is used, fibrated coal tar joint compound applied in accordance with the manufacturer's recommendations shall be used. After the pipe has been placed in its final position, the joint shall be pointed and troweled to form a smooth transition on the inside and a complete seal on the outside. Preformed butyl rubber material 706.14 may also be used. When butyl material is used, both sides of the joint shall be primed immediately prior to installation. The primer supplied shall be as per the

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manufacturer's recommendations. The butyl material shall be of sufficient quantity to seal the joint but not necessarily fill the joint when the pipe is placed in its final position. When butyl material is used, both sides of the joint shall be primed with an asphalt base primer as recommended by the manufacturer. Resilient and flexible gasket joints 706.11 or 706.12 may be used in lieu of bituminous joint filler or butyl material. Other tested and approved joint materials may be used provided it has been demonstrated that they make durable sealed joints.

The exterior joint gap on the top of precast reinforced concrete boxes shall be filled with portland cement mortar prior to installation of membrane waterproofing or joint wrap. The membrane waterproofing shall be applied to the top surface and shall extend vertically down all sides for the portions of the structure which shall be in contact with the backfill. The exterior joint shall then be covered with a minimum of a 230 mm (9 inch) wide joint wrap outside the limits of the membrane waterproofing. The surface shall be free from dirt and foreign substances before applying the joint wrap. The external wrap shall be in accordance with ASTM C 877. The membrane waterproofing shall be in accordance with the plans. One continuous roll of joint wrap shall cover the joint on the top of the box and extend completely down the sides to the bottom of the box outside the limits of membrane waterproofing. Care shall be exercised during backfilling to keep the joint wrap in the proper location over the joint. The joint wrap or membrane waterproofing shall be applied to all joint sections as outlined above.

When corrugated steel pipe is used the coupling bands shall be as specified in 707.01 or 707.02. The same coating material shall be used on the bands and the pipe. Pipe diameters 1350 mm (54 inches) or greater with wall thickness less than 2.77 mm (0.109 inches) shall maintain the maximum permissible difference between adjacent pipe sections of 15 mm (1/2 inch) by means of securely strutting the end of each pipe section. Strutting shall be by wire ties or other approved methods. The strutting will be removed after the coupling bands have been secured.

Conduit shall be inspected before any backfill is placed. Any pipe found to be out of alignment, unduly settled, or damaged shall be taken up and relaid or replaced.

When resilient and flexible gasket joints are specified on sanitary sewer conduits, they shall conform to the infiltration or exfiltration requirements of ASTM C 969. The testing of joints shall be preformed

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by the contractor in accordance with approved methods. Should any section of conduit fail to meet the test requirements, corrections shall be made until the test requirements for the section are met. The costs of all materials, equipment, labor and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be included in the price bid for the pertinent conduit.

603.07 Shop Elongation. When required by the plans, a round flexible pipe shall be shop elongated by increasing its vertical diameter 5 percent. When plans in addition require strutting, the vertical elongation shall be maintained by horizontal wire struts that shall be left in place until the embankment is completed. These struts shall then be removed as directed by the Engineer.

603.08 Backfilling. When the top of the trench is above the top of a Type A or B conduit the bedding and backfill material shall be granular material. Prior to the placement of soil over the granular material, the free water shall be drained. In lieu of the above requirement for backfilling the full depth of the trench with granular material, portions of deep trenches more than 1.2 m (4 feet) above the top of the conduit may be backfilled with suitable soil or granular embankment provided that such portions of the trench are sufficiently wide to accommodate the use of heavy compaction equipment, and further provided that such equipment is used and all requirements of 203 pertaining to embankment construction are met.

When the top of a Type A or Type B conduit is above the top of the trench, proper embankment material shall be placed and compacted for a width on each side of the conduit equal to at least twice the outside diameter of the conduit, or 3.7 m (12 feet) whichever is less and for a minimum depth of 0.6 m (2 feet) over the top of the conduit. One diameter or 1.2 m (4 feet) on each side of the conduit, whichever is less, shall be granular material. The remainder of the embankment material shall meet the requirements of 203.

When the top of a precast reinforced concrete box section (706.05), precast reinforced concrete flat topped three-sided culvert (706.051), or precast reinforced concrete arch (706.052) is above the top of the trench, granular material shall be placed and compacted to a minimum depth of 0.6 m (2 feet) over the top of the section (where applicable) and for a width of 1.2 m (4 feet) on each side of the section, or as

directed by the Engineer. The remainder of the adjacent embankment material shall be furnished, placed, and paid for in accordance with 203. Backfill and fill material shall be placed uniformly on both sides of the section. Fill material beyond 1200 mm (4 feet) of the sides of the structure sections may be compacted by heavy compaction equipment. An approved epoxy sealer shall be applied outside the limits of the membrane waterproofing on the top surface of the precast culvert sections, and extend 0.3 m (1 foot) vertically down all sides including the joint. The headwalls and wingwalls shall have an approved epoxy sealer applied as shown on the plans. Surface preparation for the membrane waterproofing on the precast reinforced concrete box (706.05), precast reinforced concrete flat topped three-sided culvert (706.051) or precast reinforced concrete arch (706.052) shall include any cement mortar needed to provide a smooth transition at the exterior joint of the top and sides of the structure. All application procedures for the membrane waterproofing or the epoxy sealer shall be as recommended by the manufacturer.

The backfill above the bedding for Type C, Type D and Type F conduits shall consist of suitable soil or granular embankment.

The backfill for thermoplastic Type B, C, and D pipe shall be granular material to a minimum depth of 300 mm (12 inches) above the top of the conduit. For Type C conduit a 150 mm (6 inch) minimum depth of suitable soil shall be placed above the granular backfill.

The backfill above the bedding for Type E conduits shall consist of suitable soil or granular embankment compacted in accordance with 603.081, or tamped solidly under and around the pipe to a height above the flow line equal to two-thirds of the diameter of the pipe, by the use of proper tools. The backfill to a depth of 0.3 m (12 inches) above the top of the pipe shall be carefully placed and not dumped or shoved directly into the trench. This part of the backfill shall not contain stones larger than 100 mm (4 inches) in diameter. If the soil, in the judgment of the Engineer, is of a composition such that will enter the joints of the pipe, the joints shall be wrapped with strips of tarred paper, or tarred burlap 100 mm (4 inches) in width and earth packed around the paper or burlap to prevent its displacement. No additional compensation will be paid for the above operation.

Where the induced trench method of installation is specified for a Type A or Type B conduit, proper embankment shall be placed and compacted for a width on each side of the conduit equal to at least twice

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the diameter of the conduit or 3.7 m (12 feet) whichever is less, and for a minimum depth above the top of the conduit equal to the outside diameter of the conduit plus 0.3 m (1 foot). One diameter or 1.2 m (4 feet) on each side of the conduit, whichever is less, and 0.3 m (1 foot) over the top of the conduit shall be granular material and shall be compacted in layers not to exceed 100 mm (4 inches) in thickness with mechanical tampers. The remainder of the embankment material shall consist of suitable soil meeting the requirements of 203. A trench equal in width and depth to the outside diameter of the conduit shall be excavated through the embankment directly over the conduit with trench walls as nearly vertical as possible. The lower 1/4 to 1/3 of the trench shall be filled with straw or hay. The bale strapping shall be cut. The remainder of the trench shall be filled with lightly compacted soil.

Light weight dozers and graders may be operated over culverts having 0.6 m (2 feet) of compacted cover, but heavy earth moving and heavy compaction equipment shall not be operated closer than one pipe outside diameter on each side of the conduit, or 1.8 m (6 feet), whichever is less until a cover of 1.2 m (4 feet) has been placed and properly compacted over the top of the conduit.

603.081 Compaction Requirements. All bedding and backfill materials shall be placed and compacted as follows except where indicated. The gradation and physical characteristics of all materials shall be such that they can be compacted to meet the requirements of this specification and to the satisfaction of the Engineer. All backfill operations shall place the material evenly on each side of the pipe. When directed, shovel slicing and/or spud bars shall be used in conjunction with all of the compaction operations.

A). The soil and granular embankment shall be placed in layers not to exceed 200 mm (8 inch) loose depth. Soil shall be compacted in accordance with 203.09 (b). When Proctor testing is used, 96 percent of AASHTO T 99 is used for acceptance.

B). Granular material Type 1 shall be compacted using mechanical devices, hand devices, vibrating plates or other equipment approved by the Engineer. The compaction equipment shall be capable of compacting the material under the haunch of the pipe. The material shall be placed in layers not to exceed 200 mm(8 inch) loose depth.

At the beginning of the work, a test section shall be constructed in accordance with 304. The Engineer may require the addition of water

to aid the compaction. The average density of the material placed for bedding and backfill shall not be less than 96 percent of the test section. Any material placed for bedding and backfill found less than 92 percent of the test section shall be immediately re-compacted. If density cannot be obtained by re-compaction, then a new test section shall be constructed. The location of the testing shall be randomly chosen by the Engineer. A new test section may be required if the pipe type, bedding material, backfill material, or trench conditions change.

C). Granular material Type 2 shall be compacted by flooding or a combination of flooding and compaction. The material shall be placed in layers not to exceed 200 mm(8 inches) loose depth. The material shall be flooded with water to the satisfaction of the Engineer. Satisfactory drainage shall be provided by the use of drainage ditches, pumps or other equipment if the field conditions warrant.

The Engineer may require additional compaction by using mechanical devices, hand devices, vibrating plates or other compaction equipment to achieve additional density. If additional density cannot be achieved by compaction, then flooding alone may be used.

When ordered by the Engineer at the beginning of the work, a test section shall be constructed in accordance with 304. A combination of flooding and compaction equipment shall be used until a maximum density is achieved. The average density of this material placed for bedding and backfill shall not be less the 96 percent of this test section. Any material placed for bedding and backfill found to be less than 92 percent of this test section shall be immediately recompacted. If density cannot be obtained by re-compaction, then a new test section shall be constructed. The location of the testing shall be randomly chosen by the Engineer.

The Engineer may permit this material to be compacted without flooding and by compaction equipment only if the material or field conditions warrant.

D). When permitted, granular material Type 3 shall be placed in layers not to exceed 305 mm (12 inch) loose depth and vibrated, tamped or compacted to approximately 85 percent of the original thickness.

In all of the above compaction requirements, the lift thicknesses may be adjusted by the Engineer to obtain the required compaction, fill all the voids , achieve the proper seating of the backfill material, and

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achieve the stability of the backfill material and the pipe.

603.082 Installation of Precast Reinforced Concrete Arch Sections. The precast reinforced concrete arch sections (706.052) shall be installed in accordance with 603 Type A conduit except as follows.

The sections shall be installed on concrete footings. A 50 mm to 75 mm (2 to 3 inch) deep by 350 mm (14 inch) wide key-way shall be formed in the center of the footing.

Special care shall be taken in setting the sections to the true line and grade. The section shall be set on 125 mm x 125 mm (5 inch by 5 inch) masonite or steel shims. A minimum of 13 mm (½ inch) gap shall be provided between the footing and the bottom of the section's vertical legs. The keyway joint and 13 mm (½ inch) gap shall be filled with cement grout (cement and water) or cement mortar composed of one part portland cement and three parts of sand by volume, and water.

The notch in the joint keyway of the top surface of the arch shall be filled with a non-shrinking mortar.

The mortar shall be non-shrinking, non-metallic mortar meeting 705.22, and having a minimum compressive strength at 28 days of 35 MPa (5000 pounds per square inch) according to 705.22 when prepared to a moderate fluidity (124-145 percent flow table flow).

A list of approved mortars will be maintained by the Laboratory. The mortar shall be prepared, placed and cured in accordance with the manufacturer's recommendation.

The joint exterior outside the limits of the membrane waterproofing shall then be covered with a minimum of a 225 mm (9 inch) wide joint wrap. The surface shall be free from dirt and deleterious substances before applying the joint wrap or membrane waterproofing . The external wrap shall be as per ASTM C 877. One continuous roll of joint wrap shall cover the entire arch sections to the bottom of the legs.

During backfilling care shall be taken to maintain the membrane waterproofing.

603.09 Clearing Site and Restoring Damaged Surfaces. After the backfilling has been completed, the Contractor shall immediately remove and dispose of all surplus material including dirt and rubbish,

as prescribed in 203.

The Contractor shall replace all pavement, sidewalks, sod or other surfaces disturbed, to a condition equal to that existing before the work was started, furnishing all materials, labor, equipment, etc., at no additional cost to the Department.

After the above work is completed, the Contractor shall remove all tools and other property belonging to him, leaving the entire site in good condition.

603.10 Reconstructing Conduits. Where so required by the plans, existing pipe salvaged under 202 shall be used in constructing conduits of the types and at the locations specified. All of the provisions of these specifications shall govern the reconstruction of conduits with the same materials and by the same methods as the construction of new conduits, except for the furnishing of new pipe.

603.11 Field Paving of Pipe. Where specified, field paving of pipe shall meet the following requirements. The bottom one-fourth of the circumference of the conduit shall be field paved with Class C portland cement concrete. The paving shall be reinforced with 4x4-W1.4xW1.4 galvanized welded wire fabric (or comparable). The mesh shall have a width 100mm (4 inch) less than the finished paving and shall be securely fastened to the conduit near each edge and at the center of the mesh at points not more than 1.1 m (4 feet) apart along the flow line of the culvert. For aluminum structural plate the mesh shall be securely fastened to the circumferential seam bolts with galvanized tie wire. Any galvanizing or other coating material damaged due to placement or tack welding shall be repaired. Repair shall consist of wire brushing and painting with zinc rich paint.

The concrete paving shall be 75 mm (3 inches) thick measured from the top of the corrugations of the conduit. Special care shall be given to the mesh during concrete placement. Galvanized reinforcing steel support chairs shall be provided beneath the mesh where necessary. After placing, the concrete shall be struck off with a template to produce the proper radius, and finished with a float to produce a smooth finish. The curing of the concrete shall be in accordance with 451.10. The paving shall be placed after completion of the fill over the conduit. Where the depth of fill exceeds 1.1 m (4 feet) over the crown of the conduit, the paving may be placed after placement of 1.1 m (4 feet) of

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Our sand

Type 2 Gradation

	703.02	703.05	703.11 Type 2	Project Spec 703.00
3/8	100	100	80-100	–
#4	95-100	90-100	60-100	90-100
#8	70-100	65-100	45-95	–
#16	38-80	40-85	–	–
#30	18-60	20-60	–	–
#50	5-30	7-40	7-45	7-40
#100	1-10	0-20	–	–
#200	0-5	0-10	0-13	0-10

See Jeph's weekly report for actual sand gradation 1-2% fines

for the effect or organic impurities on strength of
he compressive strength of mortar made with untreated sand
ot less than 95 percent of the compressive strength of mortar
h treated sand.
gations of soil, silt, etc., maximum percent, by weight, 0.5.

Aggregate for:
minous aggregate base, 301, 302
egate base 304
and channel protection, 601
coarse aggregate for bituminous aggregate base used in
on with rigid pavement shall be of crushed carbonate stone,
ravel or crusned air-cooled blast furnace slag. The coarse
for bituminous aggregate base used in flexible pavements
crusned carbonate stone, crushed gavel or crushed air-cooled
fine aggregate for bituminous aggregate base shall be natural
d manufactured from stone, gravel or air-cooled slag.

al properties	301	304	601
of wear, Los Angeles	—	—	—
mum (stone or gravel)	50	50	50
t, compacted, kg/m³ (pounds			
) minimum (slag)	29 (65)	—	29 (65)
m sulfate soundness			
nt maximum	15	15	15
of fractured			
nim[illegible]	40	90	90

shall not exceed the following:

	Percent by Weight	
	301	304
	3.0	----
nite	1.0	----
	0.25	----
g a length greater than 5 erage thickness material, and chert which s in 5 cycles of the sound-	15	----
	2.5	5

under 304 shall be crushed from material retained on the

2.5 mm (1/2 inch) sieve.

Under 304, the portion of aggregate passing the 425 µm (No. 40) sieve shall have a maximum liquid limit of 25 percent and a maximum plasticity index of 6.

703.05 Aggregate for:

(1) Asphalt concrete, 402, 403, 404 and 412
(2) Bituminous cold mix, 405
(3) Prime coat, 408
(4) Seal coat, 409

Fine Aggregate. 1. The fine aggregate shall be natural sand or sand manufactured from stone, gravel or air-cooled slag.

2. Sieve analysis Sieve size	Total Percent Passing
9.5 mm (3/8 inch)	100
4.75 mm (No. 4)	90-100
2.36 mm (No. 8)	65-100
1.18 mm (No. 16)	40-85
600 µm (No. 30)	20-60
300 µm (No. 50)	7-40
150 µm (No. 100)	0-20
75 µm (No. 200)	0-10

3. Soundness, etc.

Loss, sodium, sulfate soundness test, percent maximum	15
Aggregate of soil, silt, etc., maximum percent by weight	0.5

Coarse Aggregate. 1. The coarse aggregate shall be crushed carbonate stone, crushed air-cooled slag or washed crushed gravel.

2. Physical Properties.

Percentage of wear, Los Angeles test maximum (stone or gravel)	40
Unit weight, compacted, minimum kg/m³ (lbs. per cu. ft.)(slag)402,403,404,405,407,408,409 and 412.	32 (70)
Loss, sodium sulfate soundness test, percent, maximum:	
402, 403, 404 and 412	12
405 and 409	15
Percent by weight of fractured pieces, minimum	40

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our sand

Type 2 Graduation

	703.02	703.05	703.11 Type 2	Project Spec 703.00
3/8	100	100	80-100	—
#4	95-100	90-100	60-100	90-100
#8	70-100	65-100	45-95	—
#16	38-80	40-85	—	—
#30	18-60	20-60	—	—
#50	5-30	7-40	7-45	7-40
#100	1-10	0-20	—	—
#200	0-5	0-10	0-13	0-10

See Jeph's weekly report for actual sand gradings 1-2% fines

1997 ODOT Spec Governs Section 603

HDPE & PVC pipe: most closely represents Type B or C Conduits

Trench (603.03): 15" each side of pipe 603.03

Foundation (603.03): - firm for full length. 603.03
- Unsuitable removed to depth directed by engr. and replaced with granular material

Bedding (603.04): 6" below conduit minimum (Class B bedding) Outside thirds (width) compacted in accordance with 603.081.
- 8" lifts compacted in accordance with 203.09. ~~when~~ when proctor used 96% - T99
(203.09) Satisfaction of Engineer

Conduit: 603.06 Inspected before any backfill placed. Any pipe found out of alignment unduly settled or damaged shall be taken up & relaid or replaced

Compaction: 603.081 Compaction to meeting requirements of specification and satisfaction of Engineer.
- 8" lifts 96% T 99 when used

GeoSyntec Consultants

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FAX COVER SHEET

To: Ken Cargill

Firm: GeoSyntec

Fax No.: 404-705-2000

From: Dan

Project No.: GQ0166-3.1

Cover Page plus ~~0~~ 1 page(s) following

Sent by: Dan Date: ~~4 Sept~~ Time: 1625

MESSAGE:

Copy of new CO monitoring Procedure used as of today. The ceiling limit (instantaneous) was increased to 200ppm. They have "typically" been getting 2-7ppm (8hr TWA) when their FDF limit is 12ppm. One occurrance of 9ppm was a very poor operating compactor that has been removed. Work is progressing. However, at this afternoons meeting I was handed the attached DCN #058 plus the faxed ODOT Spec pages. These pages are not from the current spec. I attached the section from the 1997 ODOT Spec.

Corporate Office: (404) 705-9500
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Geomechanics and Environmental Laboratory: (404) 705-9500

FROM

the diameter of the conduit or 3.7 m (12 feet) whichever is less, and for a minimum depth above the top of the conduit equal to the outside diameter of the conduit plus 0.3 m (1 foot). One diameter or 1.2 m (4 feet) on each side of the conduit, whichever is less, and 0.3 m (1 foot) over the top of the conduit shall be granular material and shall be compacted in layers not to exceed 100 mm (4 inches) in thickness with mechanical tampers. The remainder of the embankment material shall consist of suitable soil meeting the requirements of 203. A trench equal in width and depth to the outside diameter of the conduit shall be excavated through the embankment directly over the conduit with trench walls as nearly vertical as possible. The lower 1/4 to 1/3 of the trench shall be filled with straw or hay. The bale strapping shall be cut. The remainder of the trench shall be filled with lightly compacted soil.

Light weight dozers and graders may be operated over culverts having 0.6 m (2 feet) of compacted cover, but heavy earth moving and heavy compaction equipment shall not be operated closer than one pipe outside diameter on each side of the conduit, or 1.8 m (6 feet), whichever is less until a cover of 1.2 m (4 feet) has been placed and properly compacted over the top of the conduit.

603.081 Compaction Requirements. All bedding and backfill materials shall be placed and compacted as follows except where indicated. The gradation and physical characteristics of all materials shall be such that they can be compacted to meet the requirements of this specification and to the satisfaction of the Engineer. All backfill operations shall place the material evenly on each side of the pipe. When directed, shovel slicing and/or spud bars shall be used in conjunction with all of the compaction operations.

A). The soil and granular embankment shall be placed in layers not to exceed 200 mm (8 inch) loose depth. Soil shall be compacted in accordance with 203.09 (b). When Proctor testing is used, 96 percent of AASHTO T 99 is used for acceptance.

B). Granular material Type 1 shall be compacted using mechanical devices, hand devices, vibrating plates or other equipment approved by the Engineer. The compaction equipment shall be capable of compacting the material under the haunch of the pipe. The material shall be placed in layers not to exceed 200 mm(8 inch) loose depth.

At the beginning of the work, a test section shall be constructed in accordance with 304. The Engineer may require the addition of water

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to aid the compaction. The average density of the material placed for bedding and backfill shall not be less than 96 percent of the test section. Any material placed for bedding and backfill found less than 92 percent of the test section shall be immediately re-compacted. If density cannot be obtained by re-compaction, then a new test section shall be constructed. The location of the testing shall be randomly chosen by the Engineer. A new test section may be required if the pipe type, bedding material, backfill material, or trench conditions change.

C). Granular material Type 2 shall be compacted by flooding or a combination of flooding and compaction. The material shall be placed in layers not to exceed 200 mm(8 inches) loose depth. The material shall be flooded with water to the satisfaction of the Engineer. Satisfactory drainage shall be provided by the use of drainage ditches, pumps or other equipment if the field conditions warrant.

The Engineer may require additional compaction by using mechanical devices, hand devices, vibrating plates or other compaction equipment to achieve additional density. If additional density cannot be achieved by compaction, then flooding alone may be used.

When ordered by the Engineer at the beginning of the work, a test section shall be constructed in accordance with 304. A combination of flooding and compaction equipment shall be used until a maximum density is achieved. The average density of this material placed for bedding and backfill shall not be less the 96 percent of this test section. Any material placed for bedding and backfill found to be less than 92 percent of this test section shall be immediately recompacted. If density cannot be obtained by re-compaction, then a new test section shall be constructed. The location of the testing shall be randomly chosen by the Engineer.

The Engineer may permit this material to be compacted without flooding and by compaction equipment only if the material or field conditions warrant.

D). When permitted, granular material Type 3 shall be placed in layers not to exceed 305 mm (12 inch) loose depth and vibrated, tamped or compacted to approximately 85 percent of the original thickness.

In all of the above compaction requirements, the lift thicknesses may be adjusted by the Engineer to obtain the required compaction, fill all the voids , achieve the proper seating of the backfill material, and

1271

Author: Don Fleming at FNST-05
Date: 9/4/97 12:02 PM
TO: Gregg Johnson at FNST-02
TO: Andrew Cleeter
TO: Philip Thomas
TO: John R Patton
TO: Michael Davis at FNST-02
TO: Rick Mcguire at FNST-03
TO: Steve Wentzel
CC: Warren Hooper at FNST-02
CC: Barry Ko at FNST-02
CC: Tony Renk at FNST-06
CC: Doran Christensen at FNST-01
CC: Jack Patrick at FNST-02
CC: Roger Grant
CC: Debra Grant at FNST-02
CC: Sherman Russell
CC: Todd Valli
CC: Walter Mengel
CC: Don Fleming
Subject: Carbon monoxide in trenching operations
---------- Message Contents ----------

Carbon monoxide monitoring is being performed by the IH Technicians in support of construction operations involving the use of gasoline powered equipment by personnel in trenches. Based on recent monitoring results and observation of equipment and controls which have been implemented, the attached "application of carbon monoxide limits for trenching operations" has been developed and is to be used.

The attachment provides the air monitoring limits, the action levels, and the actions which are to be taken when these limits are reached.

Please contact me with any questions.

Don Fleming (x4237)

Application of Carbon Monoxide limits for trenching operations

Use fans (or other means, e.g. exhaust hose)to provide reduced carbon monoxide levels during use of manually operated plate compactor. Limit radio use within 5 feet of personal CO monitor.

ACGIH limit: 25 ppm (8 hour TWA)

FDF Action level: 12 ppm (8 hour TWA basis)

Action:Halt activity
Exit trench
Notify IH Technician
IHTechnician actions:
Verify fan(s) are in use
review monitoring data
re-check CO levels as necessary
Determine additional work time allowable to ensure resulting 8 hour TWA is less than 25 ppm.
Contact FDF project personnel including HSO.

Ceiling Limit: 200 ppm (ceiling, measured over 5 minutes)

FDF Action level: 200 ppm (ceiling, instantaneous)

Action: Halt activity (continue exhaust fan operation)
Exit trench
Wait 5 minutes
Check equipment for proper operation
Re-start activity

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 08/26/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XXR
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: LCS Elevation Change		(11)DCN NO.: 1700-055

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00261	G003	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9) ☒ DCN JUSTIFICATION: EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

1. Change the elevation of the LCS line between Sta. 1+10± and Sta. 4+90± on drawing 92X-5900-G-00261 to route the LCS over the existing utilities.
2. Incorporate pipe insulation and/or concrete embedment into design as needed.
3. Record "As-Built" conditions.

CDC CONTROLLED
COPY NO. COPY

(10)REQUESTOR: J.C. JENKINS	COMPANY:	DATE: 8/27/97	(12)FCE / PE James C. Jenkins	DATE: 8/27/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☒ DISAPPROVED

1) See Parsons attached Comments Pages 1 & 2 of 2 with their attachments (SK-G-1700-55) and 8 pages from Pittsburg Corning.

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 9/9/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 James C. Jenkins		DATE: 9/9/97
(18)CONSTRUCTION CONCURRENCE: Richard L McClure PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)	DATE: 9/9/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

received 8-28-97

ORIGINAL

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RECEIVED SEP 16 1997 106

5 September 97

PO 164 - Leachate Conveyance System
DOC. No.: DCN-055 ISSUE: 1 TRANSMITTAL No.: 1700 - 055
LCS ELEVATION CHANGE

RE: Drawings: 92X-5900-G-00261

Recommend Status C, Disapproved as noted. Civil comments are as follows:

1. Information shown on the design drawings is based on the best information available from FDF. Highly recommend that the location and elevation of the existing utilities be established along with the existing surface elevation (which will be the finish elevation in the existing paved areas) prior to finalizing this DCN. Based on this field information, a decision can be made on the available options. Note conditions identified below.

2. The proposed lines go under the existing utility lines (about 7' at the deepest point). To run the proposed lines over the existing utility lines, a high point will be created between the two Air Release Valves. This could create an air pocket in the system which could cause major flow restriction. Current design criteria from FDF in this situation (ie at all high points in the line) is to install an Air Release Valve.

3. The current detail for an Air Release Manhole (92X-5900-G-00410) is not suitable for traffic locations. It appears that the high point over the utilities would be in a traffic area. This MH has a raised concrete collar, sealed frame and lid, and an air vent tube to allow air to escape and prevent stormwater inflow. Placing the collar and frame flush with the pavement and with a vented lid would allow water inflow into the man hole, which is not acceptable.

4. COMH #4 which is already built and delivered to the site would have to go under some major rework.

Note: If field condition is different than what is shown on the design drawings, such that creation of a high point could be avoided, or current FDF design criteria for ARV's at high points is not followed, the following applies:

   A. Run a gradual slope between sta. 1+10 and sta. 2+90 to avoid creating any high point in the system.

   B. Refabricate the COMH #4 per field verified measurements and new profile grade.

C. Insulate pipes when depth of cover is shallower than 36-inches (min frost depth) with material equal to or better than 2-inch thick Super_k™ FOAMGLAS® per attached vendor information and specifications.

(NOTE: THE INSULATION WILL NOT PREVENT FREEZING OF THE LINES, ONLY DELAY IT. ADMINISTRATIVE CONTROLS/PROCEDURES NEED TO BE INCORPORATED INTO THE SYSTEM O&M MANUAL TO KEEP THE LINE FULL AND FLOWING DURING EXTREAM COLD WEATHER CONDITIONS. THIS WORK IS CONSIDERED TO BE BEYOND THE SCOPE OF THIS DCN.)

D. Concrete encase pipes shallower than 36-inches per attached sketch, SK-G-1700-055. Note the minimum cover of the lines is 18-inches. In this situation, there must be at least 45-inches from finish grade to top of existing utilities.

PARSONS
ERA PROJECT

CALCULATION SHEET

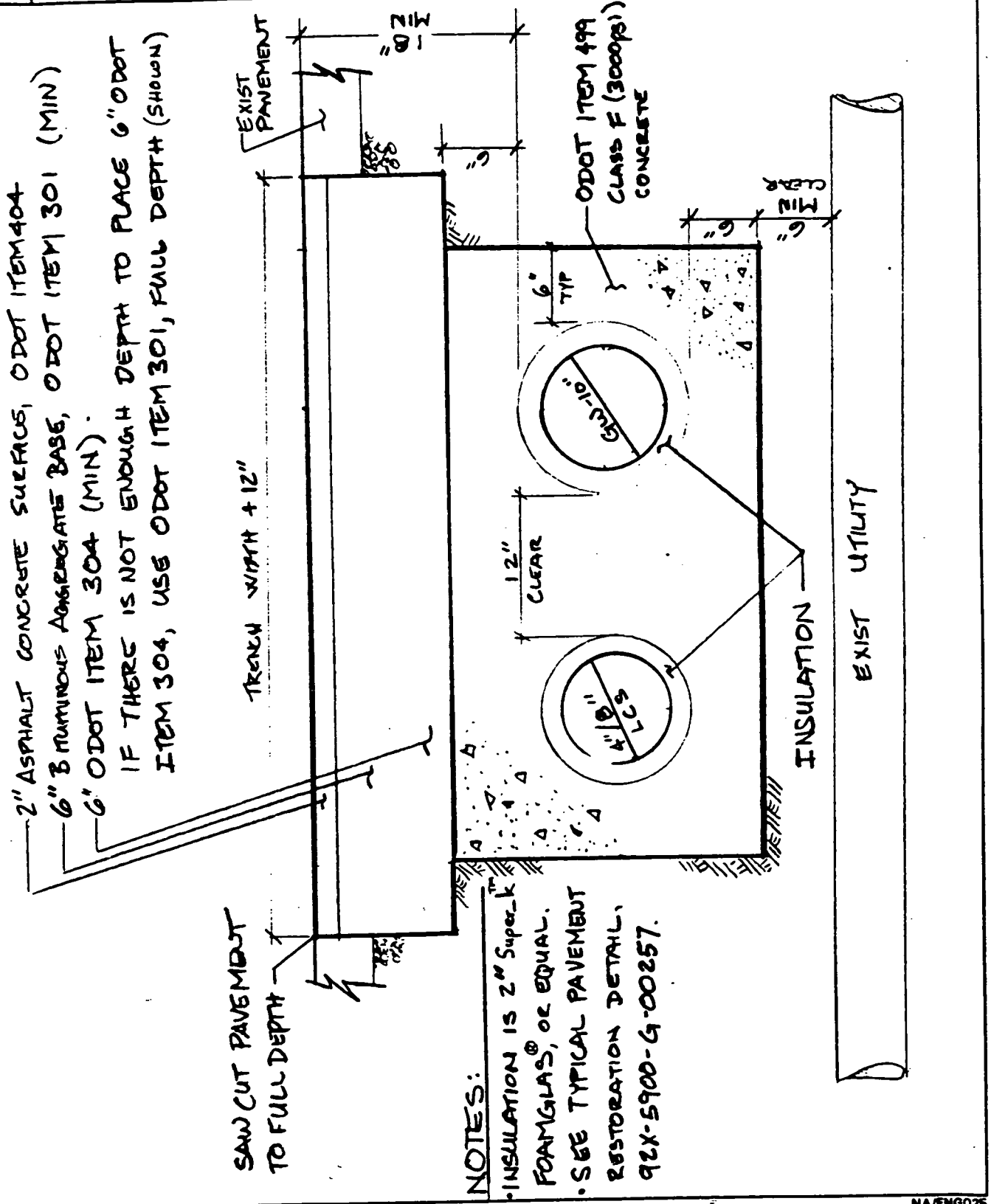
SK-G-1700-055

REV	BY	DATE	CK	DATE

TITLE
LEACHATE CONVEYANCE SYSTEM
DCN: 1700-055
AUTHOR K. GERARD SHEET OF

Project
SRP

PO No.
164



NOTES:
- INSULATION IS 2" Super_k™ FOAMGLAS®, OR EQUAL.
- SEE TYPICAL PAVEMENT RESTORATION DETAIL, 92X-5900-G-00257.

NA/ENG025

04/96

FAX MESSAGE FROM
PITTSBURGH CORNING CORPORATION

800 Presque Isle Drive
Pittsburgh, PA 15239-2799
TEL: 412-327-6100
FAX: 412-327-5890

Date: September 4, 1997

To: Parsons Infrastructure & Tech. / Yunus Afshar

Phone: 513/648-6799

From: PCC / Ken Collier

Subject: Freeze protection

Pages: 1 of: 4

Dear Mr. Afshar:

Here is Energy Analysis Report number 10527 that you had requested.

This report was prepared to estimate the time to freeze for buried pipes that are insulated with Super_k™ FOAMGLAS® insulation. Please note, that I assumed that the 8" containment pipe would be insulated with the FOAMGLAS® insulation and not the 4" carrier pipe. If this is incorrect, please contact me and I will recalculate the numbers.

If you have any questions or if we can be of further assistance, please call me or your territory representative Mr. Allen Dickey at 412/327-6100.

Sincerely,

Kenneth R. Collier
Energy and Economics Analyst/Systems Engineer

cc: A. Dickey
P. Fannan

002/004
1271
PGE. CORNING
09/04/97 13:31 FAX 412 327 6890
000486

PITTSBURGH CORNING CORPORATION
ENERGY ANALYSIS REPORT NUMBER 10527
4-SEP-97

PREPARED FOR PARSONS INFRASTRUCTURE & TECH.
REQUESTED BY MR. YUNUS AFSHAR
TERRITORY REPRESENTATIVE MR. A. T. DICKEY
PHONE NUMBER 412/327-6100

PROBLEM SPECIFICATIONS

THIS REPORT WAS PREPARED TO ESTIMATE THE TIME TO REACH 32 DEG F AND THE ADDITIONAL TIME TO FREEZE SOLID FOR A 10 INCH DIAMETER PIPE AND A 4 INCH DIAMETER PIPE INSIDE AN 8 INCH DIAMETER CONTAINMENT PIPE INITIALLY OPERATING AT 40 DEG F WHEN INSULATED WITH FOAMGLAS(R) Super K(tm) INSULATION WITH 6 INCHES OF CONCRETE AROUND THEM.

THE PROPERTIES OF WATER USED WERE A SPECIFIC HEAT OF 1 BTU/LB DEG F AND A DENSITY OF 62.4 LB/CU FT.

A WINTER GROUND TEMPERATURE OF 5 DEG F WAS USED WITH A SOIL THERMAL CONDUCTIVITY OF 16 BTU-IN/HR SQFT DEG F REPRESENTING FROZEN SOIL.

THE PIPES ARE BURIED 18 INCHES OVERBURDENED.

THE PIPE IS ASSUMED TO BE FULL WITH NO FLOW AND NO ADDITIONAL POWER SOURCE. IF THE PIPE WAS TO BE HALF FULL THE AMOUNT OF TIME TO FREEZE WOULD BE HALF OF THE TIME CALCULATED.

DESCRIPTION OF PIPE PROGRAM 35

FOR FLUIDS OR GASES IN PIPES OR TANKS, PP35 CALCULATES THE OUTLET TEMPERATURES FOR A GIVEN FLOW RATE AND LENGTH OR THE NUMBER OF HOURS TO REACH A SPECIFIED TEMPERATURE FOR NO FLOW SITUATIONS.

THE SPECIFIC HEAT AND DENSITY OF THE FLUID OR GAS THAT ARE USED IN THE CALCULATIONS ARE DISPLAYED.

FOR WATER, THE TIME TO REACH 32 DEG F AND THE TIME TO FREEZE COMPLETELY ARE SHOWN SEPARATELY.

THE PIPES OR TANKS MAY BE UNINSULATED OR MAY HAVE INSULATION SYSTEMS CONSISTING OF UP TO 3 LAYERS.

WHEN COMMERCIAL STANDARD PIPE SIZES ARE USED, THE NOMINAL THICKNESS OF INSULATION IS DISPLAYED. FOR DUCTILE IRON PIPE, THE THICKNESSES OF INSULATION THAT ARE GIVEN ARE ACTUAL DIMENSIONS.

THE HEAT FLOW RATES ARE GIVEN PER UNIT LENGTH FOR PIPES AND PER UNIT AREA FOR TANKS.

PREPARED BY Susan P. O'Neill DATE 9-4-97

APPROVED BY Kenneth R. Collier DATE 9-4-97

FOR ADDITIONAL INFORMATION CONTACT:
TERRITORY REPRESENTATIVE LISTED ABOVE OR
MR. KENNETH R. COLLIER EXT. 297,
MS. SUSAN A. O'NEILL EXT. 298,
MR. RANDOLPH W. GERRISH EXT. 292
PITTSBURGH CORNING CORPORATION
800 PRESQUE ISLE DRIVE
PITTSBURGH, PA 15239 U S A
(412) 327 6100

THESE CALCULATIONS PROVIDED TO YOU AT NO CHARGE CONFORM TO THE DESIGN CRITERIA WHICH YOU PROVIDED. PCC DOES NOT GUARANTEE THE FINAL DESIGN VALUES INDICATED BY SUCH CALCULATIONS NOR REPRESENT THAT THEY ARE FREE OF ALL ERRORS AND SHALL BEAR NO LIABILITY FOR DIRECT OR INDIRECT DAMAGES ARISING OUT OF OR IN CONNECTION WITH YOUR USE OF THESE CALCULATIONS.

GROUND TEMPERATURE = 5.0 DEG F
SOIL THERMAL CONDUCTIVITY = 16.0 BTU IN/HR SQFT DEG F
DEPTH OF BURIAL = 18.00 INCHES

PIPE/TANK CONTENTS = WATER
FLUID/GAS DENSITY = 62.40 LBS/CU FT
PIPE/TANK SPECIFIC HEAT = 1.000 BTU /LB DEG F
FLUID/GAS MASS = 34.17 LBS

NOMINAL PIPE SIZE INCHES	OPERATING TEMPERATURE DEG F	Super_kFGI THICKNESS INCHES	CONCRETE THICKNESS INCHES	HEAT FLOW BTU HR FT	LENGTH FEET	FLOW RATE LBS/HR	TIME TO 32.0 F HOURS	TIME TO FREEZE ADDITIONAL HRS
10.00	40.00	1.50	6.00	-15.86	1.00	0.0	19.6	405.8
		2.00		-12.94			24.0	497.4
		2.50		-11.04			28.1	583.1
		3.00		-9.70			32.0	663.7
		3.50		-8.70			35.7	739.6
		4.00		-7.93			39.1	811.5
		4.50		-7.32			42.4	879.7

09/04/97 13:32 FAX 412 327 6690 PGH. CORNING 1271

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GROUND TEMPERATURE = 5.0 DEG F
SOIL THERMAL CONDUCTIVITY = 16.0 BTU IN/HR SQFT DEG F
DEPTH OF BURIAL = 18.00 INCHES

PIPE/TANK CONTENTS = WATER
FLUID/GAS DENSITY = 62.40 LBS/CU FT
PIPE/TANK SPECIFIC HEAT = 1.000 BTU /LB DEG F
FLUID/GAS MASS = 5.52 LBS

NOMINAL PIPE SIZE INCHES	OPERATING TEMPERATURE DEG F	Super kFGI THICKNESS INCHES	CONCRETE THICKNESS INCHES	HEAT FLOW BTU HR FT	LENGTH FEET	FLOW RATE LBS/HR	TIME TO 32.0 F HOURS	TIME TO FREEZE ADDITIONAL HRS
8.00	40.00	1.50	6.00	-13.69	1.00	0.0	3.7	76.0
		2.00		-11.12			4.5	93.5
		2.50		-9.16			5.5	113.5
		3.00		-8.10			6.2	128.3
		3.50		-7.31			6.9	142.2
		4.00		-6.70			7.5	155.2
		4.50		-6.21			8.1	167.5

09/04/97 13:32 FAX 412 337 8000 PGH. CORNING 1271 004/004

000488

SPECIFICATIONS

FOAMGLAS® Insulation on Indoor or Outdoor Chilled Water Piping Systems

This specification has been prepared by Pittsburgh Corning Corporation using generally accepted and appropriate technical information, but it is not intended to be solely relied upon for specific design or technical applications. Having no control over the elements of design, installation, workmanship or site conditions, Pittsburgh Corning assumes that the actual design choices and installation will be made by persons trained and qualified in the appropriate disciplines. Therefore, Pittsburgh Corning disclaims all liability potentially arising from the use or misuse of this specification.

PART 1 — General

Work Included — This specification covers the application of FOAMGLAS® insulation and jacketing on both indoor and outdoor aboveground chilled water piping systems. Contact Pittsburgh Corning Corporation for current revision data before using.

Delivery, Storage and Handling — All materials (insulation, jacketing, sealant) shall be stored in an area protected from the weather. Keep all materials dry before and during installation. Handle all materials carefully to prevent damage to insulation or jacketing.

PART 2 — Products

Acceptable Manufacturers — These specifications are based on products and data of Pittsburgh Corning Corporation and designate the type and quality of work intended under this section. Products of other manufacturers proposed as equivalent quality must be submitted for written approval by the specifying engineer ten days prior to the bid date. Supporting technical data, samples, published specifications and the like must be submitted for comparison. The contractor should warrant that proposed substitutions, if accepted, will provide performance equal to the materials specified herein.

Materials-Insulation — FOAMGLAS® insulation manufactured by Pittsburgh Corning Corporation and fabricated by a Pittsburgh Corning Corporation-approved fabricator. The insulation shall comply with ASTM C 552, Type II, furnished in half sections 24" (610mm) long or segments 18" (457mm) long.

Materials-Jacketing —

A. Indoor Applications: All purpose jacketing of kraft paper/aluminum foil/vinyl coating construction by Lamtec Corp., Compac, Alpha Assoc., or equal.

B. Outdoor Applications: Aluminum jacketing, 0.016" (0.4mm) thickness, with bands and seals of the same material, by Childers Products, Premetco International, or equal.

C. Underground Applications: PITTWRAP® CW PLUS jacketing as supplied by Pittsburgh Corning Corporation.

Materials-Mastic Finish —

A. Aboveground applications: PITTCOTE® 404 coating reinforced with PC® Fabric 79 available from Pittsburgh Corning Corporation.

B. Underground applications: PITTCOTE® 300 finish reinforced with PC® Fabric 79 available from Pittsburgh Corning Corporation.

Materials-Sealant — PITTSEAL® 444N Sealant by Pittsburgh Corning Corporation.

Materials-Banding —

A. Aluminum bands, ½" (12mm) wide x 0.010" (0.25mm) thick with matching seals.

B. Reinforced tape, ¾" (19mm) wide Scotch Brand #860, by 3M, or equal.

Materials-Bore Coating — Anti-Abrasive 2A by Pittsburgh Corning Corporation.

PART 3 — Execution

Preparation — Tests of the piping system shall be completed prior to insulation application.

All piping shall be cleaned of foreign substances and free of surface moisture prior to insulation application.

Installation-Indoor Piping

A. This portion of the installation procedure is applicable for piping in all indoor areas, including concealed spaces, mechanical rooms and inhabited areas.

B. Insulation shall be applied to piping with all joints tightly fitted to eliminate voids. For systems operating at or below 35°F (1.7°C), all joints must be sealed full depth with sealant. Sealant shall not be used to fill voids or cracks. *The use of a joint sealant for systems operating above 35°F (1.7°C) is at the discretion of the designer.*

C. Insulation sections shall be secured with aluminum bands. Two strips of reinforced tape may be used in place of bands if exterior bands are used with jacketing. The tape shall overlap itself by 50%.

D. Apply all-purpose jacketing in accordance with manufacturer's instructions, insuring a minimum 2" (50mm) lap at all longitudinal joints. All circumferential joints should butt as close as possible (¼" [6mm] maximum gap in jacketing). A 4" (100mm)-wide butt strip shall be applied over the circumferential joints. All laps and butt strips shall be either adhesive-faced (self-seal) or sealed by field application of appropriate adhesive.

E. Application of insulation with shop-applied jacket shall proceed as above, except banding of insulation is not required. Additional securement of the insulation in the form of banding is at the discretion of the

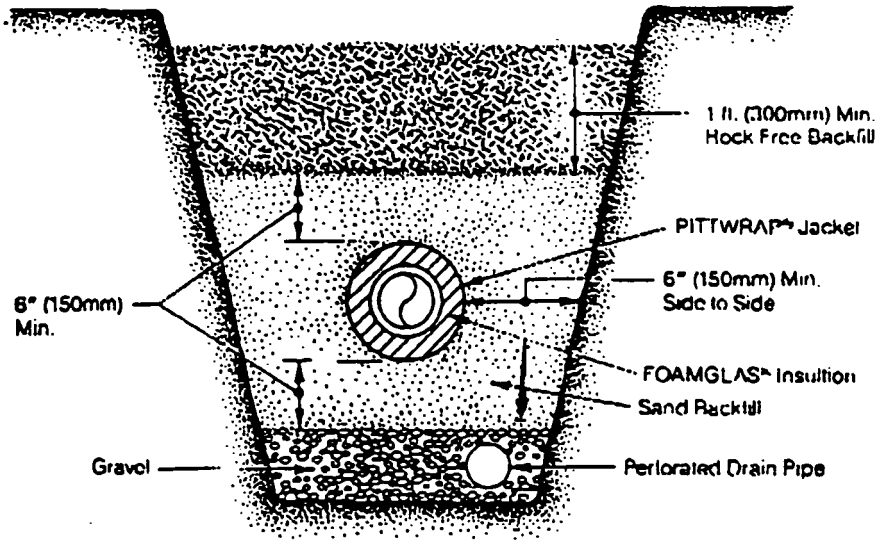
SPECIFICATIONS *Continued*

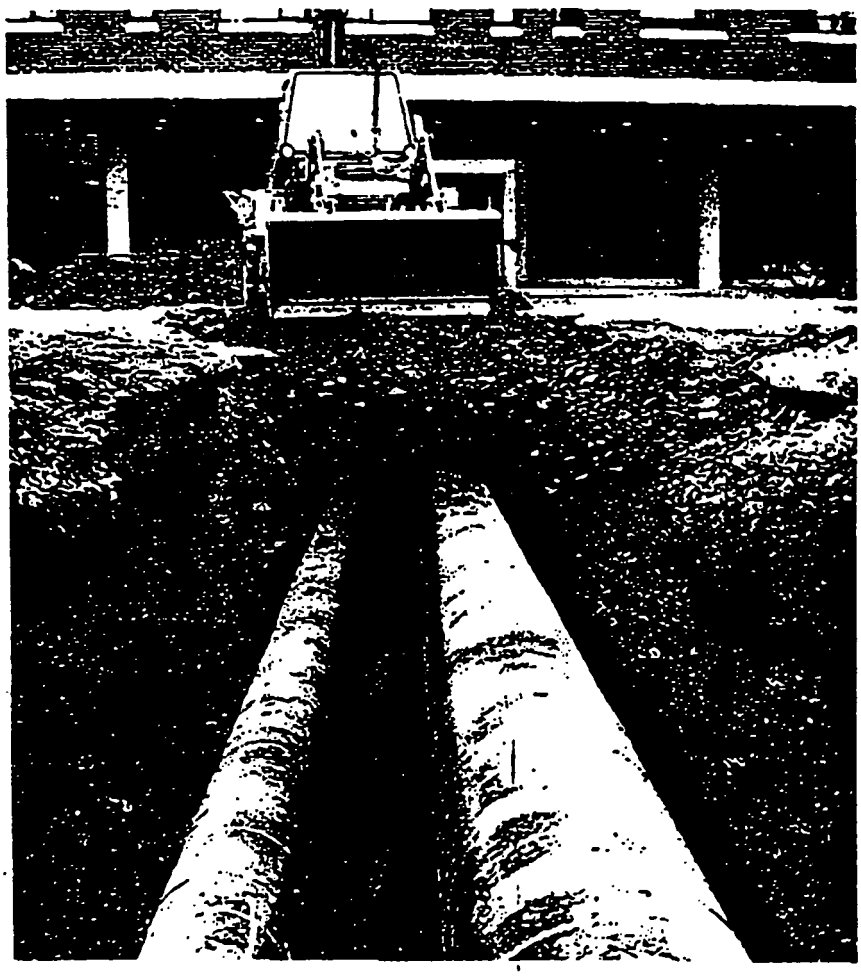
4. **Special Considerations**
For the special considerations listed below, please see the appropriate section of FI-213, "FOAMGLAS® Insulation Systems for Underground, Direct Burial Applications," or call your Pittsburgh Corning Corporation representative.
   - **A. Anchors/Guides**
   - **B. Wall Penetrations**
   - **C. Expansion Provisions**

5. **Field Quality Control**
After application of the jacketing system to all straight and irregular sections of insulation, visually inspect all laps, seams, butt strips, and glove-coated areas to ensure that these areas are sealed from water entry in accordance with the specifications and appropriate product data sheets.

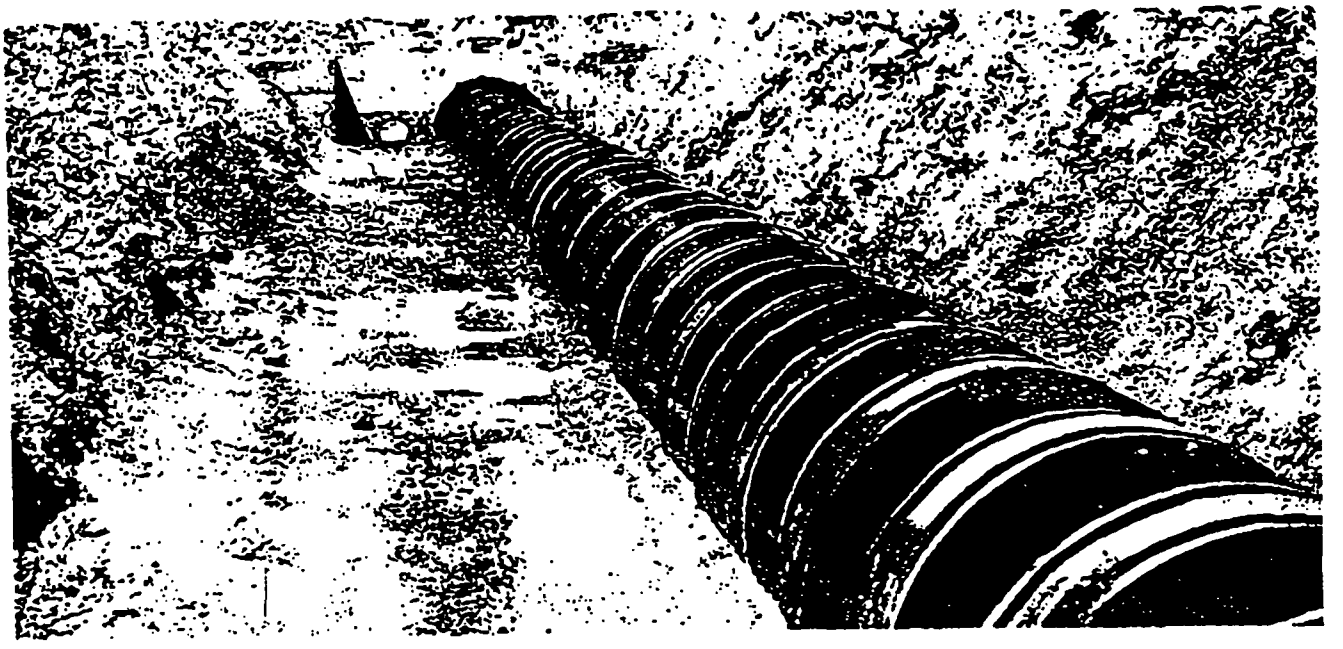
6. **Backfilling**
The trench shall be carefully backfilled using the excavated earth approved for backfilling, consisting of sand, clay, earth, loam or other approved materials. Sand backfill shall be placed within 6" (150mm) of the insulated pipe and shall be free of rocks, debris or stones greater than ¼" (6mm) diameter. Care shall be taken not to damage the PITTWRAP® jacketing during backfilling. Backfill shall be applied in 6" (150mm) lifts, tamping each lift, until a depth of one foot (300mm) over the insulated pipe is reached. The remainder of the trench shall be backfilled in one-foot (300mm) lifts, with each lift tamped to the desired compaction.

BACKFILL DETAIL





Insulated pipes ready for sand backfill. Properly jacketed FOAMGLAS® insulation performs exceptionally well in underground, direct-burial applications.



FOAMGLAS insulation meets the mechanical and corrosion resistance requirements of direct burial while providing long-term insulating efficiency.

C. **Pre-Insulation of Pipe**
Where conditions permit, FOAMGLAS® insulation and jacketing may be applied outside of the trench to sections of piping. Sections of pipe greater than 10 feet (3M) in length should be insulated in maximum 10-foot (3M) segments with 1-foot (300mm) wide gaps between insulated segments.

The un-insulated gaps will allow the placement of slings by which the pipe can be lifted into the trench.

After the sections of pipe are in place in the trench and the ends of the pipe welded, insulation and jacketing shall be applied to the joint areas and gaps that were not insulated above ground. Adequate working space shall be maintained by the best available means.

NOTE: Where excessive or cyclical pipe movement is anticipated, the bore of FOAMGLAS® insulation shall be coated with a thin application of bore coating and allowed to dry before insulation is applied to the pipe.

3. **Jacketing Application**
Apply the specified jacketing in strict accordance with the appropriate product data sheet. Seal all overlaps and butt strips as noted in the product data sheet to ensure that ground water cannot penetrate the jacket system.

Uncoated, exposed insulation left at day's end shall be sealed with PITTSEAL™ 444N sealant to prevent bulk water entry.

All completed work shall be backfilled as soon as possible to prevent damage to the insulation system.

A. **Irregular Surfaces**
Irregular surfaces may be covered with jacketing cut in shapes to fit, or with a five-layer application of PITTCOTE® 300 finish and reinforcing fabric. When finish is used, the finish must be lapped over the bituminous surface and not the polyethylene surface. To do this, stop the last full section of jacket 4" (10cm) short of the change in thicknesses or beginning of curvature. Apply a 4" (10cm) butt strip with bituminous surface exposed; keeping the longitudinal lap even with the last full section. Apply a butt strip in the normal fashion over the joint between the last full section and the reversed butt strip. This leaves 2" (5cm) of exposed bituminous surface. Apply PITTCOTE® 300 finish and reinforcing fabric over the surface, lapping onto the final butt strip. In cases of severe conditions, it may be desirable to reverse a larger width than 4" (10cm).

Continue the coating application in accordance with the procedures found in Product Data Sheet FI-120, (in alternating layers of finish, reinforcing fabric, finish fabric, and finish. Total wet film thickness shall be ¼" (6mm) minimum.

If backfilling takes place less than 24 hours after PITTCOTE® 300 finish is applied, roofing felt shall be placed over the coating before backfilling.

SPECIFICATIONS *Continued*

engineer and the jacket manufacturer. All joints in the insulation shall be treated as above.

Installation-Outdoor Piping

A. This portion of the installation procedure is applicable only for piping located above ground. Application of the insulation shall be as specified in B above.

B. Aluminum jacketing shall be applied with all laps positioned to shed water. All laps shall be a minimum of 2" (50mm). Aluminum jacketing shall be secured using bands and seals as specified. Band spacing shall be two bands equally spaced per section of insulation. This will usually mean 9" (230mm) or 12" (305mm) on center.

C. Fittings shall be insulated in a manner similar to that for piping.

D. If mastic finish is specified, consult Pittsburgh Corning mastic product data sheet for recommended application procedures.

FOAMGLAS® Insulation Underground, Direct-Buried Chilled Water Piping Systems

This specification has been prepared by Pittsburgh Corning Corporation using generally accepted and appropriate technical information, but it is not intended to be solely relied upon for specific design or technical applications. Having no control over the elements of design, installation, workmanship or site conditions, Pittsburgh Corning assumes that the actual design choices and installation will be made by persons trained and qualified in the appropriate disciplines. Therefore, Pittsburgh Corning disclaims all liability potentially arising from the use or misuse of this specification.

All piping shall be cleaned of foreign substances and free of surface moisture prior to and during the application of insulation.

All insulation materials shall be stored in an area protected from the weather and kept dry before and during application.

Testing of the piping system shall be completed prior to application of the insulation.

At the option of the engineer, the pipe may be primed or painted with a rust inhibiting paint or other protective coating. The following recommendations are for direct buried chilled water lines only. Consult Pittsburgh Corning Corporation for appropriate application recommendations for lines in shallow trenches, vaults, or tunnels.

1. General Preparation

A. Conditions

Applications subject to continuous submersion in water may require a different specification. Provision for thermal expansion must be made in the form of loops, ells, zees, or mechanical couplings. Both conditions shall be determined and provided for by the engineering or design professional.

B. Preparation

After the nominal system diameter is determined (pipe diameter plus insulation thickness), the trench shall be excavated to allow 6" (150mm) minimum clearance in all directions around the final O.D. of the system.

The bottom of the trench shall be graded to the design slope of the piping and to provide uniform bearing along its entire length. Where wet or unstable soils are encountered, such soil shall be removed to a sufficient depth and the trench backfilled with coarse sand or loose granular earth.

This backfill shall be compacted to a density equal to that of the acceptable portions of the trench. Where excavation of rock is required, the rock shall be excavated to an over-depth of six inches (6") (150mm) minimum below the specified trench depth. Over-depths in rock shall be backfilled with loose granular earth or coarse sand and thoroughly tamped.

In areas of high water table, adequate drainage shall be provided by a gravel bed and a perforated drain pipe covered with synthetic drainage fabric to prevent clogging. The pipe shall lead to a sump provided with means to remove water from the trench area.

Such conditions shall be determined and provided for by the engineering or design professional.

All insulated piping shall rest in a six inch (6") (150mm) layer of compacted sand. Excavation shall be kept free of standing water during insulation and jacketing application.

2. Insulation Application

A. Field Jacketed

FOAMGLAS® insulation shall be applied to the piping with butt joints staggered and tightly butted. Longitudinal and butt joints may be left dry. All joints shall be tightly fitted to eliminate voids by refitting or replacing sections of insulation. Each section of insulation shall be held in place by two wraps of strapping tape with a 50% overlap per wrap. For double-layer applications, the second layer of FOAMGLAS® insulation shall be applied in a manner similar to the first, with all joints staggered between layers.

B. Factory Jacketed

FOAMGLAS® insulation which has been pre-jacketed with PITTWRAP® CW PLUS jacketing shall be applied joint-on-joint, with all joints tightly butted. Strapping tape may be used over the jacketing to temporarily secure the insulation until longitudinal laps are sealed and butt strips applied. See Section 3 and appropriate data sheet for details of sealing PITTWRAP® CW PLUS jacketing laps and butt strip application.

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-055	1	1700-055	8/28/97
TITLE: LCS ELEVATION CHANGE		OU NO.	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 3 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
01	CIVIL YUNUS AFSHAR / KEN GERALD	9/8/97			YA
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
02	ENVIRONMENTAL, SAFETY, & HEALTH M. CHROSTOWSKI	9/9/97	DC		
	HVAC				
	GEOTECHNICAL				
03	QUALITY ASSURANCE D. UBBES	9/9/97	PQ		
04	PROJECT ENGINEER C. SCHROEDER	9/9/97			CS
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		Schroeder

SPECIAL INSTRUCTIONS:

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC- 597	(5)Pg 1 OF 1	(6)DATE 16 Aug. 97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Lift Station Manhole Backfill Requirements		(11)DCN NO.: 1700- 054

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification 20110-TS-0002 Section 02215	Part 3.03.B	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

Civil Review Only

The backfill material requirements for the permanent lift station have been simplified. Manhole embedment fill (No. 89 material) shall be placed and compacted as backill adjacent to the lift station manhole and beneath all areas of the concrete cover slab. Trench backfill (clay) shall be placed and compacted in areas out side of the limits of the cover slab. Exception to this is where HDPE piping penetrates the backfill zone. Pipe embedment sand shall be used to bed, backfill and cover the pipe in accordance with existing specifications.

Change Specification Section 02215 Part B by adding a new subpart 3 as follows:

2. For Permanent Lift Station (PLS) HDPE Manhole the backfilling procedure shall be as follows:

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

a. Place manhole embedment fill material in 7-inch ± 1 inch thick loose lifts and compact with a minimum of 4 passes with an approved vibratory plate compactor.
b. Place manhole embedment fill from 8-inches beneath the base of the PLS to the bottom of the concrete cover slab. The manhole embedment fill shall extend a minimum 3 feet horizontally from the sides of the PLS manhole, but not extend beyond the limits of the concrete cover slab.
c. Place compacted fill (trench backfill) outside the limits of the manhole embedment fill and to finish grade in accordance with Section 02200.

The changes made in this DCN comply with the PLS manufacturer's design criteria for manhole backfill.

(10)REQUESTOR: Daniel Bodine	COMPANY: GeoSyntec	(12)FCE / PE: James C. Jenkins	DATE: 8/18/97
(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES		(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED	

DC CONTROLLED COPY NO. C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 16 Aug 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 James C. Jenkins			DATE: 8/18/97
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire	DATE: 8/18/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒YES ☐NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED AUG 25 1997 000494

ENGINEERING

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF	(6)DATE 8/15/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CE OTHER	(4A)RCI/DCN TITLE: FUTURE TAP - AWWT		(11)DCN NO.: 1700-053

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00261		1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- FUTURE TAP @ FI/48 WAS NOT INSTALLED DURING CONSTRUCTION
- SINCE THIS TAP IS FOR A FUTURE TIE-IN DIRECTLY TO THE AWWT, (ACTUAL BEST TAP LOCATION UNKNOWN). PROPOSE TO ELIMINATE FROM VBS CONTRACT AND MAKE TAP-IN AT LATER DATE WHEN NEEDED.
- IN EITHER CASE, A SYSTEM SHUT DOWN IS NECESSARY FOR THE TAP-IN. (NO ISOLATION VALVE)

(10)REQUESTOR: J. C. JENKINS COMPANY: FDF DATE: 8/15/97

(12)FCE / PE James C. Jenkins DATE: 8/15/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Please see attached Document Review Comment Sheet
1700-053, Future Tap - AWWT

CDC CONTROLLED COPY NO: C011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James M Nott for Carlton Schroder DATE: 8/27/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CWP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C Jenkins DATE: 8/25/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: Richard Y. Mathine DATE: 08/25/97

PURCHASE REQUISITION REQUIRED: ☒ YES ☒ NO (19) RLM 8/25/97

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

RECEIVED AUG 28 1997

P0164 DCN 053

ORIGINAL

received 8-18-97

000495

DOCUMENT REVI[illegible] COMMENT SHEET

SME/OWNER:	REVIEWING DIVISION: PARSONS	DATE:
DOCUMENT NO. AND TITLE: 1700-053, FUTURE TAP - AWWT		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC. /	COMMENT RESOLUTION
1	Y. AFSHAR		YES, ACTUAL BEST TAP LOCATION IS UNKNOWN AT THIS TIME, BUT LET IT BE KNOWN THAT FUTURE CONNECTION TO A LATERAL PIPE WOULD BE MUCH EASIER THAN TAPPING TO A DUAL CONTAINMENT PIPE. SPECIALLY IF AN ISOLATION VALVE IS ADDED ~~AT~~ ~~FAST~~ NON. KG		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

000496

1 2 1

ERA PROJECT

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-053	1	1700-053	8-19-97	
TITLE: FUTURE TAP- AWWT			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 8 / 21 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
0	CIVIL U. AFSHAR / K. GERARD	8/21/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
6	ENVIRONMENTAL, SAFETY, & HEALTH M. CHRISTOPHERSEN	8/21/97	MPC		
	HVAC				
	GEOTECHNICAL				
0	QUALITY ASSURANCE B. UBBES	8/22/97	BU		
6	PROJECT ENGINEER C. SCHROEDER	8/22/97	JHM		
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

6/97

000497

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 08/08/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XXR
(4) RESPONSIBLE DISCIPLINE: ED MD CX OTHER D	(4A)RCI/DCN TITLE: LCS Alignment Change		(11)DCN NO.: 1700-052

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00254	G002	1	
92X-5900-G-00261	G003	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9) X DCN JUSTIFICATION: EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

1. Relocate the LCS line beginning at Sta.5+75±, Dwg. 92X-5900-G-00254 through the parking lot to Sta. 6+80± Dwg. 92X-5900-G-00261.
2. Delete jacking and boring from Project Scope perform work by open cutting the parking lot.
3. Slurry pipe bedding and embedment into place as indicated by construction conditions.
4. Maintain invert elevations at cleanout manholes, vary pipe slopes to meet elevations.
5. Provide typical pavement restoration. REF. DCN 1700-022
6. Field locate COMH 4 to avoid utility conflicts.
7. Record "As-Built" conditions.

CDC CONTROLLED COPY NO C011

(10)REQUESTOR: Jack Kellas	COMPANY: FDF	DATE: 8/8/97	(12)FCE / PE: James C. Jenkins	DATE: 8/11/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Parsons "approved as noted" comment attached as Page 1 of 1

Item 3 Comment: Except for Approx. Station 1+00 to 5+00 (DWG-00261) and at cleanouts Nos. 2 and 3 trench across parking lot can be approx. 4 1/2 ft in depth. Place bedding sand (6 inches in depth) and follow backfill specifications per design in a safe manner. Cleanout concrete cap should extend minimum 18 inches from manhole cleanout side and manhole cover checked for traffic loading. Ron Barline 8/13/97

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schoonby	DATE: 8/12/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE:
PERFORMANCE GRADE: (17) 5 James C. Jenkins			8/13/97
(18)CONSTRUCTION CONCURRENCE: Richard L McKinney	DATE: 8/13/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

received RP 8-11-97

12 August 97

PO 164 - Leachate Conveyance System
DCN No.: 1700 - 052
LCS ALIGNMENT CHANGE

RE: Drawings: 92X-5900-G-00266
92X-5900-G-00254

FDF Sketch: 20110-SK-017
20110-SK-018

Recommend Status B, Approved as noted. Civil comments are as follows:

1. Maintain invert elevation at the Manholes and maintain a minimum 36" cover over the containment and the GW-10" pipes.

2. Erect pipeline signs at places not to become an obstacle to the flow of traffic in the parking lot.

3. Field verify condition and invert of the two catch basins closer to the new alignment for rerouting the emergency by pass line from COMH-4. Or, run the emergency bypass line from COMH-4 in common trench with the LCS pipes westerly. Punch a hole on top of the 60" concrete storm pipe and drop the bypass pipe into the hole. Seal the area around the bypass pipe.

4. Restore the pavement per typical detail on drawing 92X-5900-G-00257.

5. The GW-10" line shall be terminated exactly at the coordinate point and invert elevation provided in the design drawings. The Air Release Manhole (MH #4) on the GW-10" line cannot be built in the middle of the parking lot because of the 3" HDPE vent pipe extending 9" above ground. Field locate the MH #4 in the vicinity of where shown on the design drawings.

6. Traffic flow patterns are not evaluated as this is beyond original scope of work.

7. Record "As-Built" conditions.

PARSONS
ERA PROJECT

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-052	1	1700-052	8-11-97
TITLE: LCS ALIGNMENT CHANGE		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 8 / 13 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
• 1	CIVIL YUNUS AFSHAR	8/12/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
• 2	ENVIRONMENTAL, SAFETY, & HEALTH M. CHADSTOWSKI	9/12/97	DD		
	HVAC				
	GEOTECHNICAL				
• 4	QUALITY ASSURANCE B. UBBES	9/12/97	WW		
• 3	PROJECT ENGINEER C. SCHROEDER	9/12/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

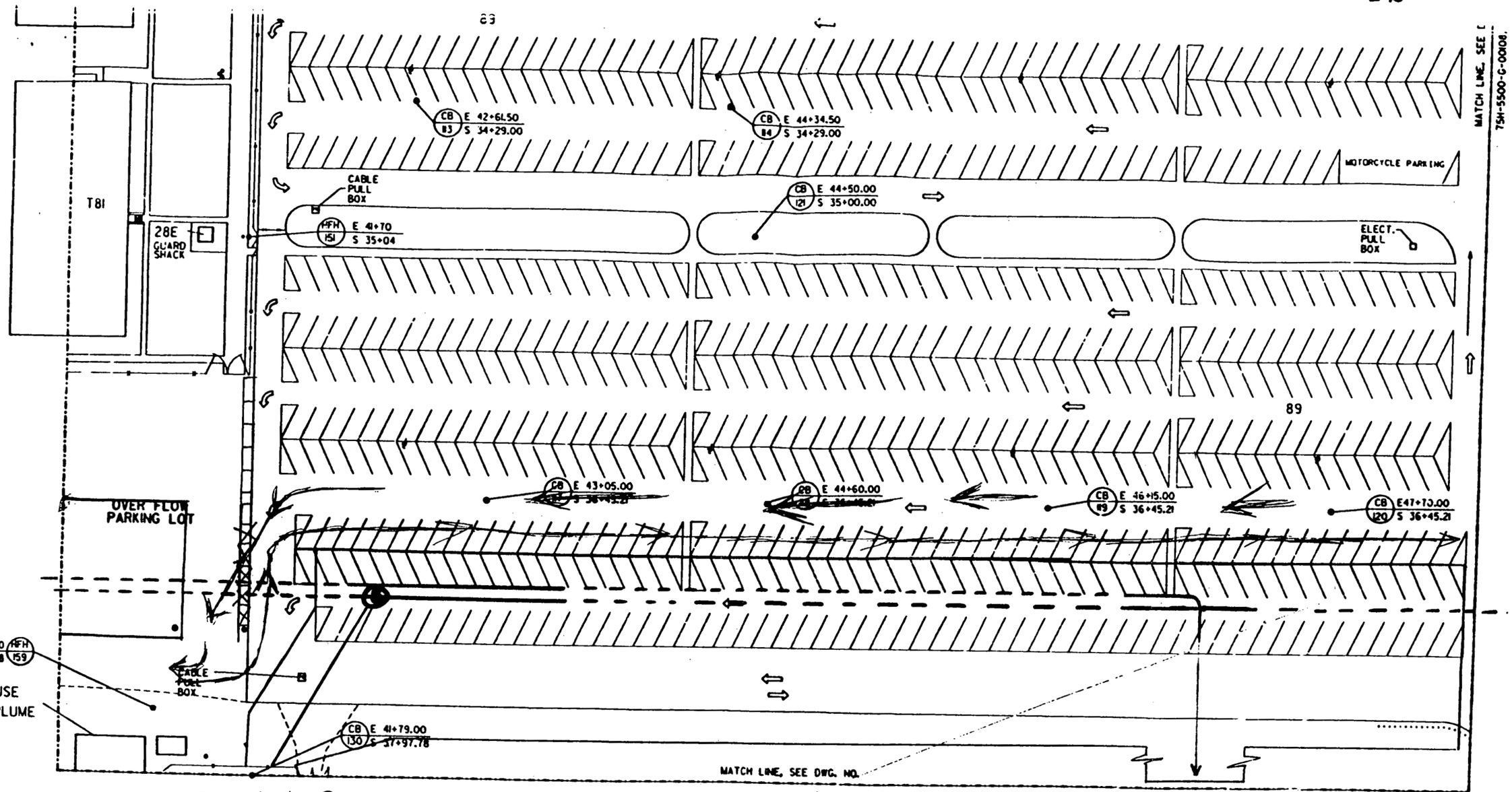
Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

4/97

ENG 123

000500



Weekend shut-down of East-West Access Rd.

Sketch 20110-SK-017

DCN # 1700-052
"Traffic Pattern 1"

NO.	REVISIONS	DATE	DWN. BY	APPD.
4	UPDATED	1/26/92	[illegible]	
3	UPDATED	6/7/92	MJR	
2	UPDATED	8/3/9	RJW	
1	UPDATED	9/9/91	GES	GEP

NO.	REVISIONS	DATE	DWN. BY	APPD.

75XL00027.DGN
REF. DWG. NO.

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		O.A.	
INSTRUMENT			
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED	Date	D.O.E.	
APPROVED	Date	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

000501

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF 1	(6)DATE 07/29/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHER	(4A)RCI/DCN TITLE: S.S PIPE AND SUPPORTS		(11)DCN NO.: 1700-051

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-M-00063	M-4A	0	
Tech. Spec. Section 15000-10 para	2.09B		
RCI 1700-024R & SUBMITTAL	No.: 042 R/1		(VBS-SSP.000 Rh)

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Please advise if it is acceptable to use A312 "AS WELDED" 316L S.S Sch.40S pipe, in lieu of 316 S.S seamless pipe. Due to long lead delivery.

(10)REQUESTOR: Mayur P. Kadakia	COMPANY: VILLAGE BUG. SERVICES, LLC	DATE: 07/29	(12)FCE / PE: James C. Jenkins	DATE: 8/04/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine 8 Aug 97	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUPS

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE 8/11/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

ECDC CONTROLLED COPY NO. 011

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: F5C-589	(5)Pg 1 OF 2	(6)DATE 8/04/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: ED MD CE OTHER	(4A)RCI/DCN TITLE: REVISED PIPING - AWWT AREA		(11)DCN NO.: 1700-050

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00266		1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- PROPOSE TO USE HDPE PIPE WITH LONG RADIUS(S) TO REVISED LOCATION OF TRANSITION FITTINGS. (SEE ATTACHED SKETCH)
- TRENCH EXCAVATION AND NUMBER OF PIPES PRECLUDES USE OF DUCTILE IRON FITTINGS IN TRENCH
- ENSURE ALL PIPES HAVE 42" MIN. COVER

(10)REQUESTOR: J. C. JENKINS COMPANY: FDF	DATE:	(12)FCE / PE James C. Jenkins	DATE: 8/04/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Parsons Attached Comments - Page 1 of 1

CDC
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NO. CCLL

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder 8/11/97	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 8/12/97
PERFORMANCE GRADE: (17) 5			
(18)CONSTRUCTION CONCURRENCE: Richard L. McKinney	DATE: 8/12/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)			

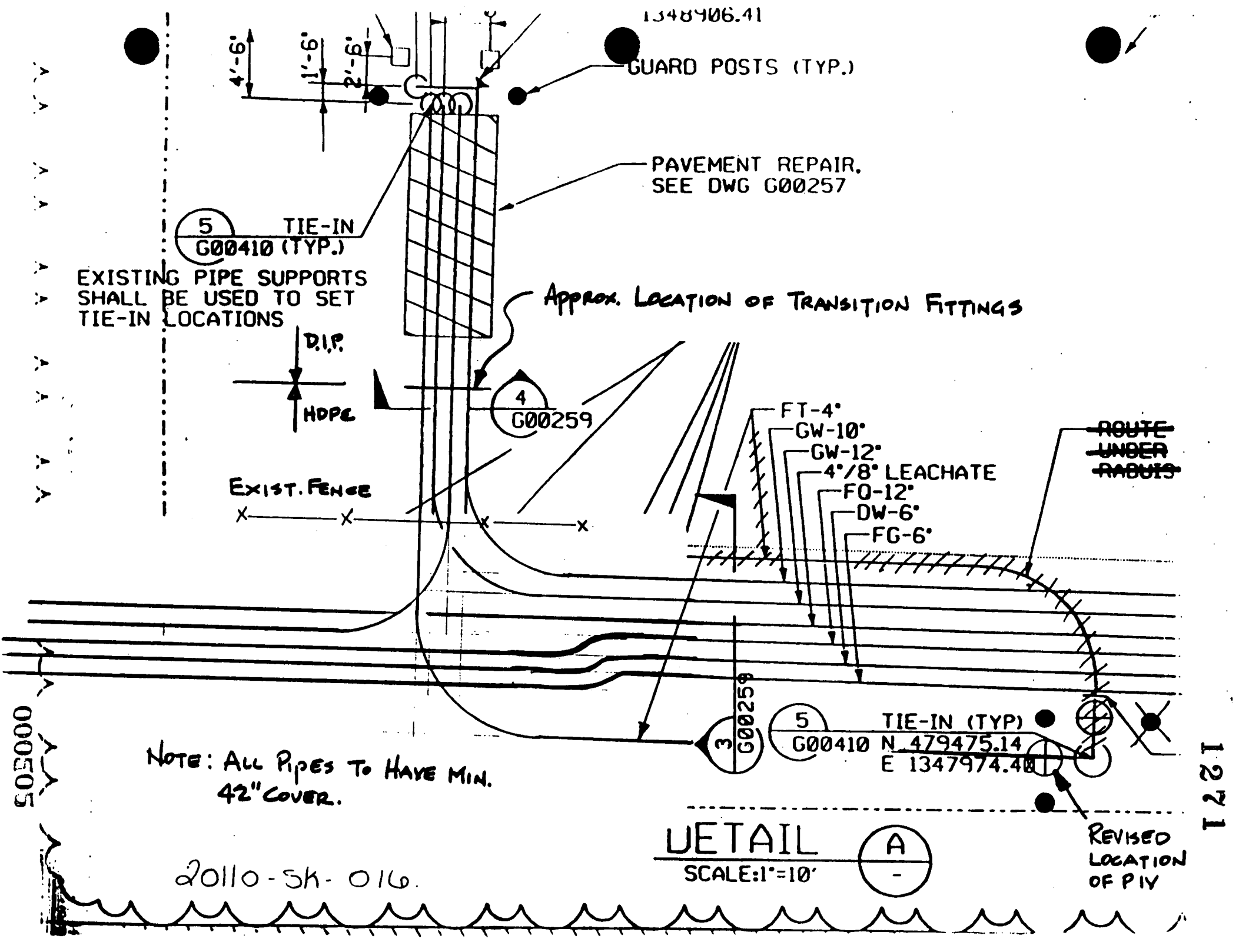
FS-F-4259 (10/01/96)

received
8557

ORIGINAL

DCN-050
20 164

000504


1348906.41
4'-6"
1'-6"
2'-6"
GUARD POSTS (TYP.)
PAVEMENT REPAIR.
SEE DWG G00257
5
G00410 (TYP.)
TIE-IN
EXISTING PIPE SUPPORTS
SHALL BE USED TO SET
TIE-IN LOCATIONS
APPROX. LOCATION OF TRANSITION FITTINGS
D.I.P.
HDPE
4
G00259
EXIST. FENCE
FT-4"
GW-10"
GW-12"
4"/8" LEACHATE
FO-12"
DW-6"
FG-6"
ROUTE UNDER RADUS
3
G00259
5
G00410
TIE-IN (TYP)
N 479475.14
E 1347974.40
REVISED LOCATION OF PIV
NOTE: ALL PIPES TO HAVE MIN. 42" COVER.
DETAIL A
SCALE: 1"=10'
20110-SK-016.
505000
1271

6 August 97

PO 164 - Leachate Conveyance System
DCN No.: 1700 - 050
REVISED PIPING - AWWT AREA

RE: Drawings 92X-5900-G-00266

Recommend Status B, Approved as noted. Civil comments are as follows:

1. There is not enough room to use long radius on the GW-10" and GW-12" lines (minimum radius would be 40 times pipe diameter)* and the excavation would be very wide. Suggest using 90° molded bends with thrust blocks. Using long radis on the FT-4" pipe is acceptable.

* Unless a smaller minimum radius is acceptable per pipe manufacturer. Transition of material should be on straight section and not under pavement. KG.

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN050	1	1700.050	8-8-97
TITLE: REVISED PIPING - AWWT AREA		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 8 / 11 / 97
DUE DATE

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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
• 1	CIVIL YUNUS AFSHAR / R GERRARD 8/8	8/6/97		YA / RG	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
• 2	ENVIRONMENTAL, SAFETY, & HEALTH M. CHRISTOWSKI	8/11/97	NA		
	HVAC				
	GEOTECHNICAL				
• 3	QUALITY ASSURANCE P. VOBES	8/11/97	WVL		
• 4	PROJECT ENGINEER C. SCHROEDER	8/11/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

6/97

ENG 123

000507

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 8/01/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHER O	(4A)RCI/DCN TITLE: STAVER DITCH PIPE INSTALLATION	(11)DCN NO.: 1700-049	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DWG. 92X-5900-G-00266	SHT. 4	1	
DCN's 1700-032, 1700-035			
1698/99-018			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- DUE TO FIELD CONDITIONS (30FT BASE) THE TRENCH CROSS SECTION (SEC. 6 ON G00266) FROM STA 9+25 + STA 13+00± SHALL BE CHANGED PER ATTACHED SKETCH 20110-SK-014.
- THE 4"/8" LEACHATE DESIGN AND LOCATION SHALL NOT BE CHANGED. BACKFILL WILL BE CONSTRUCTED PER TYPICAL DESIGN DWGS. AND DCN 1700-035
- THIS DCN WILL SUPERCEED DCN 1698/99-018 AND DCN 1700-032

(10)REQUESTOR: J. C. JENKINS	COMPANY: FDF	DATE: 8/01/97	(12)FCE / PE: James C. Jenkins	DATE: 8/01/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See attached Comments - Page 1 of 1

CDC CONTROLLED COPY NO. C011

(PARSONS - Y. AFSHAR) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 8/11/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 8/12/97
PERFORMANCE GRADE: (17) 5			
(18)CONSTRUCTION CONCURRENCE: Richard L McClure	DATE: 8/12/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

DCN-049 P0164

ORIGINAL

received 8-4-97

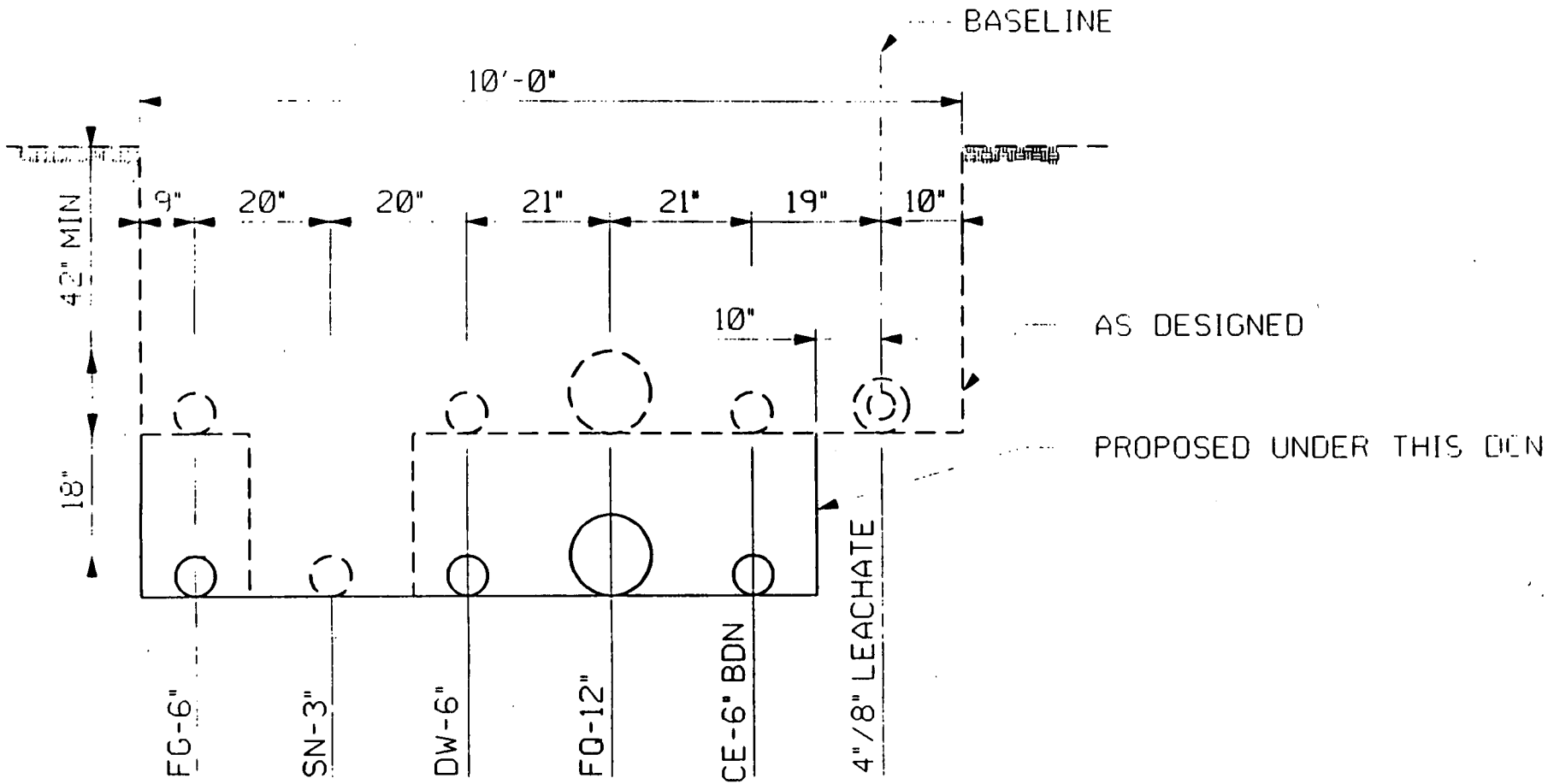
000508

ENTERED

DCN NO: 1700-049
SKETCH: 20110-SK-014
pg. 2 OF 2

1271

000509



SECTION 6 REF
NTS G00259 G00266

6 August 97

PO 164 - Leachate Conveyance System
DCN No.: 1700 - 049
STAVER DITCH PIPE INSULATION

RE: Drawings 92X-5900-G-00266
(FDF) 20110-SK-014

Recommend Status B, Approved as noted. Civil comments are as follows:

1. FDF sketch shows no vertical separation between the sanitary (SN-3") and potable water (DW-6") lines. This conflicts with the separation guidance provided in the "Ten State Standards" for sewer and water lines. When proper vertical and horizontal separation is impossible to obtain , Ten State Standards does state that both the water and sewer mains must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards and be pressure tested to 150 psi to assure water tightness before backfilling.

   The above exception seems to be written for ductile iron pipe. An argument could be made that polyethylene pipe is at least equivalent to the exception above since it is a "jointless" system.

2. This DCN supersedes DCN No.: 1700-032 and DCN No.: 1698/99-018.

PARSONS
ERA PROJECT

ROUTING CARD

- 1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-049	1	1700-049	8-8-97
TITLE: STAVER DITCH PIPE INSTALLATION		PROJ. No.: 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 8 / 11 / 97
DUE DATE

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ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
• 1	CIVIL YUNUS ASHAR	8/6/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
• 2	ENVIRONMENTAL, SAFETY, & HEALTH M. CHRISTOPHER	8/11/97	M2		
	HVAC				
	GEOTECHNICAL				
• 3	QUALITY ASSURANCE B. UBBES	8/11/97	WEA		
• 4	PROJECT ENGINEER C. SCHROEDER	8/11/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

5/96 ENG 123

000511

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 7/31/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: ED MD CX OTHER D	(4A)RCI/DCN TITLE: PNEUMATIC TESTING OF 6" FUEL GAS	(11)DCN NO.: 1700-048	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DCN 1700:042			
PARSONS SPEC. SECTION 02667,			
UTILITY LINES	SEC. 02667, 3.4	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- DCN 042 DOES NOT ADDRESS PNEUMATIC LEAK TEST TO THE SATISFACTION OF FDF. ie. B31.8 SECTION 842.5 DOES NOT ADEQUATELY ADDRESS SAFETY.
- PROPOSE TO USE ASME B31.3, SECTION 345.5, PNEUMATIC LEAK TEST AS THE REQUIRED CRITERIA. (SEE SHT. 2 OF 2)

(10)REQUESTOR: J.C. JENKINS COMPANY: FDF DATE: 7/31/97

(12)FCE / PE: James C. Jenkins DATE: 7/31/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See comments of 8/06/97, attached pages 1 & 2 of 2

CONTROLLED COPY NO. 011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: 8/07/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE: 8/12/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: Richard L. McClure DATE: 8/12/97

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

received 8-4-97

000512

1261
CHEMICAL PLANT AND PETROLEUM REFINERY PIPING
from Rich McGuire

required test pressure or 150% of design pressure. For this test, expansion joints which depend on external main anchors to restrain pressure end load shall be system tested in place. Self-restrained expansion joints may be tested in place or remotely. For test continuation above 150% of design pressure, the expansion joints may be provided with temporary restraint and tested in place or remotely. A metallic bellows expansion joint shall not be subjected to any pressure in excess of its shop test pressure. See para. 345.4.2 and Appendix X, para. X3.2.3(a).

345.3.4 Limits of Tested Piping. Equipment which is not to be tested shall be either disconnected from the piping or isolated by blinds or other means during the test. A valve may be used provided the valve (including its closure mechanism) is suitable for the test pressure. (f). For metallic bellows expansion joints, see Appendix X, para. X3.2.3(a).]

345.4.3 Hydrostatic Test of Piping With Vessels[2] as a System

(a) Where the test pressure of piping attached to a vessel is the same as or less than the test pressure for the vessel, the piping may be tested with the vessel at the piping test pressure.

(b) Where the test pressure of the piping exceeds the vessel test pressure, and it is not considered practicable to isolate the piping from the vessel, the piping and the vessel may be tested together at the vessel test pressure, provided the owner approves and the vessel test pressure is not less than 77% of the piping test pressure calculated in accordance with para. 345.4.2(b).

345.4 Hydrostatic Leak Test

345.4.1 Test Fluid. The fluid shall be water unless there is the possibility of damage due to freezing or to adverse effects of water on the piping or the process. In that case another suitable nontoxic liquid may be used. If the liquid is flammable, its flash point shall be at least 120°F (49°C), and consideration shall be given to the test environment.

345.4.2 Test Pressure. Except as provided in para. 345.4.3, the hydrostatic test pressure at any point in a metallic piping system shall be as follows:

(a) not less than 1½ times the design pressure;

(b) for design temperature above the test temperature, the minimum test pressure shall be calculated by Eq. (24), except that the value of S_T/S shall not exceed 6.5:

$$P_T = \frac{1.5\,PS_T}{S} \qquad (24)$$

where

P_T = minimum test gage pressure
P = internal design gage pressure
S_T = stress value at test temperature
S = stress value at design temperature (see Table A-1)

(c) if the test pressure as defined above would produce a stress in excess of the yield strength at test temperature, the test pressure may be reduced to the maximum pressure that will not exceed the yield strength at test temperature. [See paras. 302.3.2(e) and

345.5 Pneumatic Leak Test

345.5.1 Precautions. Pneumatic testing involves the hazard of released energy stored in compressed gas. Particular care must therefore be taken to minimize the chance of brittle failure during a pneumatic leak test. Test temperature is important in this regard and must be considered when the designer chooses the material of construction. See paras. 345.2.2(c) and F323.4.

345.5.2 Pressure Relief Device. A pressure relief device shall be provided, having a set pressure not higher than the test pressure plus the lesser of 50 psi (340 kPa) or 10% of the test pressure.

345.5.3 Test Fluid. The gas used as test fluid, if not air, shall be nonflammable and nontoxic.

345.5.4 Test Pressure. The test pressure shall be 110% of design pressure.

345.5.5 Procedure. The pressure shall be gradually increased until a gage pressure which is the lesser of one-half the test pressure or 25 psi (170 kPa) is attained, at which time a preliminary check shall be made, including examination of joints in accordance with para. 341.4.1(a). Thereafter, the pressure shall be gradually increased in steps until the test pressure is reached, holding the pressure at each step long enough to equalize piping strains. The pressure shall then be reduced to the design pressure before examining for leakage in accordance with para. 345.2.2(a).

[2]The provisions of para. 345.4.3 do not affect the pressure test requirements of any applicable vessel code.

DCN 1700-048
SHT 2 OF 2
000513

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 8/06/97
DOCUMENT NO. AND TITLE: 1700-048, PNEUMATIC TESTING OF 6" FUEL GAS		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	YUNUS AFSHAR		NO EXCEPTION TAKEN.* THIS DCN SUPERSEDES DCN NO. 1700-042.		
			* EXCEPT FOR 345.5.4. FOLLOW THE TEST PRESSURE REQUIREMENTS IN 842.5 KG 8/8/97		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0005514

1271

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
DCN-048	1	1700-048	8/6/97
TITLE: PNEUMATIC TESTING OF 6" FUEL GAS		OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 9 / 8 / 97
DUE DATE

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	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
*	CIVIL YUNUS AFSHAR	8/6/97		YA/ as for KG.	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
*	ENVIRONMENTAL, SAFETY, & HEALTH	8/8/97	MFC		
	HVAC				
	GEOTECHNICAL				
*	QUALITY ASSURANCE	8/7/97	[illegible]		
*	PROJECT ENGINEER	8/8/97		MHS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

See comments dated 8/06/97

6/97

ENG 123

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 07/29/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XXR
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: LTS Trench Alignment Change		(11)DCN NO.: 1700-047

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-G-00057	G-8A	0	
90X-6000-G-00058	G-8B	0	
90X-6000-G-00086 (W.O. 1702 Phase 1 Const.)	G-57A DGB	0	
90X-6000-G-00074	G-58	2	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) ☒ DCN JUSTIFICATION: EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

1. Relocate the LTS curve PC 11+06.56 to PC 10+56.56 and PC 13+88.88 to PC 13+38.88. Maintain proposed deltas, radii, and courses.
2. Relocate Decon Stub-out to Sta. 12+75± to maintain alignment for ~~future construction~~ DGB piping connection to Phase 2 Decon Facility
3. Maintain proposed grades for all relocated stations.
4. Record "As-Built" conditions.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Jeffrey Ellis	FDF	7/29/97	James C. Jenkins	7/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

The purpose of the alignment change is to avoid existing fenced enclosure containing fencing debris. Phase 1 construction drawings (W.O. 1702) are also affected. Stub-out shall have a bottom of pipe elevation of 589.00 at the "tie-in" point (12 ft North of LTS alignment). The slope of the discharge pipe outside of the Decon Facility shall increase to approximately 29% to meet the LTS Stubout at the tie-in point.

(Geo Synthetics)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine		2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/31/97

PERFORMANCE GRADE: (17) 5 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L Martin	DATE: 7/31/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)		CONTROLLED COPY NO.	

FS-F-4259 (10/01/96)

ORIGINAL

C01

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg OF 1 / 1	(6)DATE 7-24-97
(3)S/C TITLE: S/C 589 LEACHATE CONTAINMENT			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER ☐	(4A)RCI/DCN TITLE: HDPE Pipe Protection		(11)DCN NO.: 1700-046

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
N.A.			
20110-TS-0002 Section 02605	Part 3.06		

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

REQUEST COMPENSATION FOR ARMAFLEX BLANKET TO KEEP PIPE FROM EXCESSIVE HEATING IN THE SUN. ARMAFLEX ROLL 4' WIDE x 1" THICK.

CONTROLLED COPY NO. 011

(10)REQUESTOR: M.J. Cleveland	COMPANY: VILLAGE BUILDING	DATE	(12)PCE / PE: James C. Jenkins	DATE 7/25/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES (14)FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

Design approval not required. QC will monitor pipe temperature when blanket use instead of ambient temperature.

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bobrie	DATE 25 July 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDP PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5 James C. Jenkins 7/25/97

(18)CONSTRUCTION CONCURRENCE: Richard L. Mahuna	DATE 07/25/97	(21)WORK COMPLETED: (SIGNOFF BY PCE OR PE)	DATE

PURCHASE REQUISITION REQUIRED: ☒YES ☐NO (19)

FB-F-4159 (10/01/96)

RECEIVED JUL 29 1997

ORIGINAL

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE - 3060

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 7/23/97
(3)S/C TITLE: **Leachate Conveyance System**			(11)RCI NO.: 1700-0XX
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: **Gravity Flow Segment Alignment Change**		(11)DCN NO.: 1700-045

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-6000-G-00058	G-8B	0	
90X-6000-G-00059	G-8C	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) X DCN JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

1. Provide HOPE sleeve sta. ~~18+87±~~ to ~~18+87±~~ at grade to maintain flow line of 10/6 Leachate Transmission System (LTS) line.
2. Transition LTS line 10' left (east) of the ~~proposed~~ designed centerline from sta. ~~18+87±~~ to sta. ~~19+10±~~.
3. Maintain 10' offset location from sta. ~~19+10±~~ through sta. 27+75±.
4. Transition LTS line from 10' left to 22' right of the centerline from sta. 27+75± to sta. 28+65±.
5. Maintain 22' offset location from sta. 28+65± through sta. 33+00±.
6. Provide curves at transitions and to meet original alignment near sta. 33+80±.
7. Maintain ~~proposed~~ surveyed elevations of stations entering and exiting transitions, alter line grades to fit.
8. Record "As-Built" conditions.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE
Jack Kellis	FDF	7/23/97	James C. Jenkins	7/23/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Discussion and Comments on Attached Pages 2 and 3.

CDC CONTROLLED COPY NO. C011

JUL 29 1997

GDB

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bolins	25 July 97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5 James C. Jenkins 7/28/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:
Richard L. McBurney	7/28/97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

ORIGINAL

EXCELLENT

The purpose of this DCN is to improve and make easier the construction installation of the Temporary LTS line under existing site conditions. All stations mention in this response are based on the stationing given on the referenced drawings. The following reasons or justification are provided for the changes.

1. Avoid possible removal of existing fence along the closed north entrance road located approximately parallel to LCS Stations 28+65 to 33+00 (Drawing G-00059).

2.. Allow for additional construction safety along the east side of the constructed Sedimentation Basin by relocating the alignment 10 ft east from approximate LCS Station 20+00 to 27+75 (Drawing G-00058 and G-00059).

3. Route LTS line passed the inlet side of the Sedimentation Basin where the two 48-inch diameter CMPs have already been installed by the Phase 1 contractor. (Phase 1 Sedimentation Basin Drawing G-00075)

Comments on the requested changes by Item No. are as follows:

Item No. 8 This is standard procedure. Since different contractors may be involved for portions of the alignment changes FDF shall insure coordination of all as-builts.

Item No. 7 Proposed elevations should be designed elevations and these should be listed along with the approximate revised grades.

Item No. 6 License surveyor shall provide curve data and documentation as specified.

Item No. 5 Twenty two (22) ft offset is to the west or right as indicated and is acceptable.

Item No. 4 Ten (10) ft offset is to the east or left and is acceptable. Phase 1 contractor has already removed fence. Note, however, that the location of the revised trench alignment is approximately 15-ft from the toe of the existing stockpile. Excavation trench safety should be monitored closely.

Item No. 3 The 10-ft offset shall be maintained from approximate Station 20+00 through Station 27+75. The 19+10 station reference is a result of a field survey error.

Item No. 2 The 10 ft transition left or east of the designed centerline shall be from approximate Station 19+65 to Station 20+00.

Item No. 1 The HDPE sleeve to be provided has been selected by FDF Engineering to be a 20-inch OD pipe with approximate 2-inch wall thickness. The 50-ft long sleeve needs to be located approximately from Station 19+15 to Station 19+65. The station changes from those listed on page 1 are required because of field survey error. The HDPE sleeve must be installed such that when the 10-inch LTS is installed the invert and grade elevations are maintained. The annulus space above the 10-inch shall be filled with an insulating material and ends of the sleeve sealed. Insulating material is required because adequate depth of cover (approximately 1 ft of riprap) without insulation, is not being provided. Additional cover beyond the south end of the 20-inch pipe may be needed depending on construction completion of the Sedimentation Basin slopes.

The selection of the alignment to route the LTS line passed the inlet side (5 ft west of the basin end of the CMPs) is acceptable, because of the temporary nature of this portion of the LTS and the Sedimentation Basin.

Daniel Bolton
25 July 97

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC- 597	(5)Pg 1 OF 1	(6)DATE 22 July 97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Cleanout Manhole Backfill Requirements		(11)DCN NO.: 1700-044

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification 20110-TS-0002 Section 02215	Part 3.03.B	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

Civil Review Only

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The backfill material requirements for Cleanout Manholes Nos. 1, 4, 5, and 11 have been simplified. Change Specification Section 02215 Part B by adding a new subpart 2 as follows:

2. For HDPE Cleanout Manholes Nos. 1, 4, 5, and 11 the backfilling procedure shall be as follows:
   a. Place pipe embedment fill material in 7-inch ± 1 inch thick loose lifts and compact with a minimum of 4 passes with an approved vibratory plate compactor.
   b. Place pipe embedment fill from 8-inches beneath the base of the manhole to the bottom of the concrete cover slab. The pipe bedding sand shall extend a minimum 3.5 feet horizontally from the sides of the manhole.
   c. Place compacted fill above the pipe embedment fill to finish grade in accordance with Section 02200. An exception to this may be Manhole No. 4, which if located in a paved area, shall be completed to grade in accordance with pavement restoration details and as directed by the Construction Manager.

Specification Section 02215 Part 3.03.B.1 shall be changed by adding the words " LCS/LDS " in front of HDPE Manholes... in the first sentence.

The changes made in this DCN comply with manhole manufacturer design criteria for manhole backfill.

(10)REQUESTOR: Daniel Bodine	COMPANY: GeoSyntec	(12)FCE / PE: James C. Jenkins	DATE: 7/23/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 23 July 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 7/23/97
PERFORMANCE GRADE: (17) 5			
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire	DATE: 7/23/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒YES ☐NO (19)			

FS-F-4259 (10/01/96)

JUL 2 9 1997

DOC CONTROLLED COPY NO. 2011

ENTERED RK 7/24/97

000521

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 7/17/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: ED MD CX OTHER ☐	(4A)RCI/DCN TITLE: HYDROSTATIC TEST - MANHOLES		(11)DCN NO.: 1700-043

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION 20110-TS-0002	SECTION 02605, 3.07, B	0	
CDC CONTROLLED COPY NO. 0024			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- REQUEST VARIANCE FROM SPEC. THAT REQUIRES BACKFILLING AROUND HDPE MANHOLE BEFORE HYDROSTATIC TEST
- PROPOSE TO PERFORM HYDROSTATIC TEST PRIOR TO BACKFILL OR PRIOR TO MANHOLE INSTALLATION.
- ALL SAFETY REQUIREMENTS SHALL BE MET DURING TESTING.

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 7/17/97	(12)FCE / PE: James C. Jenkins	DATE: 7/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

ADD THE FOLLOWING SENTENCE AFTER THE FIRST SENTENCE OF SPEC. SECTION 02605 PART 3.07.B.2.

"MANHOLES MAY BE HYDROSTATICALLY TESTED PRIOR TO BACKFILLING AND INSTALLATION WHEN AUTHORIZED BY THE CONSTRUCTION MANAGER."

(GEOSYNTEC)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: David Bolen	DATE: 17 July 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: Richard L McManus	DATE: 7-18-97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

S-F-4259 (10/01/96)

ORIGINAL

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

W/P / WO NO.: 1700	S/C NO.: FSC 589	Pg 1 OF 1	DATE 7/15/97
S/C TITLE: Leachate Conveyance System			RCI NO.:
RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	RCI/DCN TITLE: Test/Acceptance Criteria for 6" Fuel Gas Piping		DCN NO.: 1700: 042

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Parsons Specification Section 02667, Utility Lines	Section 02667, Part 3.4	0	

☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER ☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

EXISTING CONDITION:

The referenced specification provides requirements for installation of the gasline (FG) piping, but it does not address testing & acceptance criteria for this pipe following installation. Information obtained from the FDF Utility Engineer indicates that the existing gasline operating pressuse is 40 psi.

PROPOSED CHANGE:

Provide testing/acceptance criteria for the new gasline.

REQUESTOR:	COMPANY:	DATE:	FIELD CONSTRUCTION ENGINEER / PE	DATE:
Frank L. Flack	Fluor Daniel Fernald	7/15/97	James C. Jenkins	7/15/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

1) See Parsons attached Comments (Page 1 of 1) and their attachment (Pages 1 & 2 of 2)

CDC CONTROLLED COPY NO. C011

(PARSONS) RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL:	DATE:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton C. Schroeder	7/17/97	N.A.

FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/21/97

PERFORMANCE GRADE: 5 James C. Jenkins

CONSTRUCTION CONCURRENCE:	DATE:	WORK COMPLETED: (SIGNOFF BY FIELD CONSTRUCTION ENGINEER OR PE) DATE:
Richard L. McLaurin	7-21-97	

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO

FS-F-4259 (10/01/96)

ORIGINAL

received JUL 24 1997

200523

LCS P0164

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 7/17/97
DOCUMENT NO. AND TITLE: DCN NO: 1700/042 TEST/ACCEPTANCE CRITERIA FOR 6"FG PIPE		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	Y. AFSHAR		• SEE ATTACHED ASME B31.8-1992 EDITION SECTION 842.5 "TESTING PLASTIC PIPING AFTER CONSTRUCTION".		
			• RECOMMEND A MINIMUM DURATION OF 2 HOURS AFTER PRESSURE IN THE PIPE SYSTEM HAS STABILIZED.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

U005224

1271

stalled with the piping to facilitate locating it with an electronic pipe locator. Other suitable material may be employed.

842.432 Insertion of Casing

(a) The casing pipe shall be prepared to the extent necessary to remove any sharp edges, projections, or abrasive material which could damage the plastic during and after insertion.

(b) Plastic pipe or tubing shall be inserted into the casing pipe in such a manner so as to protect the plastic during the installation. The leading end of the plastic shall be closed before insertion. Care shall be taken to prevent the plastic piping from bearing on the end of the casing.

(c) That portion of the plastic piping exposed due to the removal of a section of the casing pipe shall be of sufficient strength to withstand the anticipated external loading, or it shall be protected with a suitable bridging piece capable of withstanding the anticipated external loading.

(d) That portion of the plastic piping which spans disturbed earth shall be adequately protected by a bridging piece or other means from crushing or shearing from external loading or settling of backfill.

(e) The piping shall be installed to provide for possible contraction. Cooling may be necessary before the last connection is made when the pipe has been installed in hot or warm weather. (See para. 842.396.)

(f) If water accumulates between the casing and the carrier pipe where it may be subjected to freezing temperatures, the carrier pipe can be constricted to the point where the capacity is affected or the pipe wall could be crushed and leak. To avoid this, one or more of the following steps shall be taken:

(1) the annulus between the carrier pipe and casing shall be kept to a minimum so that the increased volume of water changing to ice will be insufficient to crush the carrier pipe;

(2) provide adequate draining for the casing; or

(3) insert filler such as foam into the annulus between the casing and the carrier pipe.

842.44 Bends and Branches. Changes in direction of plastic piping may be made with bends, tees, or elbows under the following limitations.

(a) Plastic pipe and tubing may be deflected to a radius not less than the minimum recommended by the manufacturer for the kind, type, grade, wall thickness, and diameter of the particular plastic used.

(b) The bends shall be free of buckles, cracks, or other evidence of damage.

(c) Changes in direction that cannot be made in accordance with (a) above shall be made with elbow-type fittings.

(d) Miter bends are not permitted.

(e) Branch connections shall be made only with socket-type tees or other suitable fittings specifically designed for the purpose.

842.45 Field Repairs of Gouges and Grooves. Injurious gouges or grooves shall be removed by cutting out and replacing the damaged portion as a cylinder or repaired in accordance with para. 852.7.

842.46 Hot Taps. All hot taps shall be installed by trained and experienced crews.

842.47 Purging. Purging of plastic mains and service lines shall be done in accordance with the applicable provisions of paras. 841.275 and 841.276.

842.5 Testing Plastic Piping After Construction

842.51 General Provisions. All plastic piping shall be pressure tested after construction and before being placed in operation to prove its strength and to demonstrate that it does not leak.

Tie-Ins. Because it is sometimes necessary to divide a pipeline or main into sections for testing, and to install test heads, connecting piping, and other necessary appurtenances, it is not required that the tie-in sections of piping be tested. The tie-in joints, however, shall be tested for leaks.

842.52 Test Requirements

(a) The test procedure used, including the duration of the test, shall be capable of disclosing all leaks in the section being tested and shall be selected after giving due consideration to the volumetric content of the section and its location.

(b) Thermoplastic piping shall not be tested at material temperatures above 140°F, and reinforced thermosetting plastic piping shall not be tested at material temperatures above 150°F. The duration of the test of thermoplastic piping above 100°F, however, shall not exceed 96 hr.

(c) Sufficient time for joints to "set" properly must be allowed before the test is initiated.

(d) Plastic pipelines and mains shall be tested at a pressure not less than 1.5 times the maximum operating pressure or 50 psig, whichever is greater, except that:

(1) the test pressure for reinforced thermosetting plastic piping shall not exceed 3.0 times the design pressure of the pipe;

(2) the test pressure for thermoplastic piping shall

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1271 page 2 of 2
DCN 1700:042

not exceed 3.0 times the design pressure of the pipe at temperatures up to and including 100°F or 2.0 times the design pressure at temperatures exceeding 100°F.

(e) Gas, air, or water may be used as the test medium.

842.53 Safety During Tests. All testing after construction shall be done with due regard for the safety of employees and the public during the test.

842.6 Copper Mains

842.61 Design of Copper Mains

842.611 When used for gas mains, copper pipe or tubing shall conform to the following requirements.

(a) Copper pipe or tubing shall not be used for mains where the pressure exceeds 100 psig.

(b) Copper pipe or tubing shall not be used for mains where the gas carried contains more than an average of 0.3 grains of hydrogen sulfide per 100 standard cubic feet of gas. This is equivalent to a trace as determined by the lead acetate test. (See para. 863.4.)

(c) Copper tubing or pipe for mains shall have a minimum wall thickness of 0.065 in. and shall be hard drawn.

(d) Copper pipe or tubing shall not be used for mains where strain or external loading may damage the piping.

842.612 Valves in Copper Piping. Valves installed in copper lines may be made of any suitable material permitted by this Code.

842.613 Fittings in Copper Piping. It is recommended that fittings in copper piping and exposed to the soil, such as service tees, pressure control fittings, etc., be made of bronze, copper, or brass.

842.614 Joints in Copper Pipe and Tubing. Copper pipe shall be joined by using either a compression type coupling or a brazed or soldered lap joint. The filler material used for brazing shall be a copper–phosphorous alloy or silver base alloy. Butt welds are not permissible for joining copper pipe or tubing. Copper tubing shall not be threaded, but copper pipe with wall thickness equivalent to the comparable size of Schedule 40 steel pipe may be threaded and used for connecting screw fittings or valves.

842.615 Protection Against Galvanic Corrosion. Provision shall be made to prevent harmful galvanic action where copper is connected underground to steel [see para. 862.114(a)].

842.62 Testing of Copper Mains After Construction

842.621 All copper mains shall be tested after construction in accordance with the provisions of para. 841.35.

843 COMPRESSOR STATIONS

843.1 Compressor Station Design

843.11 Location of Compressor Building. Except for offshore pipelines, the main compressor building for gas compressor stations should be located at such clear distances from adjacent property not under control of the company as to minimize the hazard of communication of fire to the compressor building from structures on adjacent property. Sufficient open space should be provided around the building to permit the free movement of firefighting equipment.

843.12 Building Construction. All compressor station buildings which house gas piping in sizes larger than NPS 2, or equipment handling gas (except equipment for domestic purposes) shall be constructed of noncombustible or limited combustible materials as defined in ANSI/NFPA 220.

843.13 Exits. A minimum of two exits shall be provided for each operating floor of a main compressor building, basements, and any elevated walkway or platform 10 ft or more above ground or floor level. Individual engine catwalks shall not require two exits. Exits of each such building may be fixed ladders, stairways, etc. The maximum distance from any point on an operating floor to an exit shall not exceed 75 ft, measured along the center line of aisles or walkways. Exits shall be unobstructed doorways located so as to provide a convenient possibility of escape and shall provide unobstructed passage to a place of safety. Door latches shall be of a type which can be readily opened from the inside without a key. All swinging doors located in an exterior wall shall swing outward.

843.14 Fenced Areas. Any fence which may hamper or prevent escape of persons from the vicinity of a compressor station in an emergency shall be provided with a minimum of two gates. These gates shall be located so as to provide a convenient opportunity for escape to a place of safety. Any such gates located within 200 ft of any compressor plant building shall open outward and shall be unlocked (or capable of being opened from the inside without a key) when the area within the enclosure is occupied. Alternatively, other facilities affording a similarly convenient exit from the area may be provided.

000526

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:
		1700:042	7/16/97

TITLE:	PROJ. No.:	P.O. No.:
TEST/ACCEPTANCE CRITERIA FOR 6" FUEL GAS PIPING	002	164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 7 / 17 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
• 1	CIVIL YUNUS AFSHAR	7/16/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
• 2	ENVIRONMENTAL, SAFETY, & HEALTH MIKE C.	7/17/97	DZ		
	HVAC				
	GEOTECHNICAL				
• 4	QUALITY ASSURANCE B. VARES	7/18/97	WZ		
• 3	PROJECT ENGINEER C. Schroeder	7/17/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:

* ORIGINATING PROJECT DESIGN ENGINEER

SPECIAL INSTRUCTIONS:

000527

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC 589	(5)Pg 1 OF 1	(6)DATE 27 June 97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Cleanout Backfill Requirements		(11)DCN NO.: 1700-041

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Specification 20110-TS-0002 Section 02215		0	
Submittal No 74 R1			
Submittal No 24 R2			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Cleanout Nos. 1A, 2, 3, 6, 7, 8, 9, 10, 12 and Temporary Cleanouts for the Gravity Line shall be backfilled with pipe bedding sand from the LCS pipe to the base of the cleanout. The pipe bedding sand shall be placed in 7 ± inch lifts and compacted with 4 coverages of approved vibratory plate compactor. Some hand tamping adjacent to the cleanout pipe and directly beneath the cleanout base will be necessary. Above the cleanout base trench backfill

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Daniel Boling	GeoSyntec 21 June 97		K.A. Kunstreber for K. Ellis 7/9/97	6/30/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

→ shall be placed and compacted per specification Section 02215 Part 3.03.C.6 and Part 3.03.C.7.

Add the above paragraph to Specification Section 02215 Part 3.03.E (New subsection)

BC CONTROLLED COPY NO 011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:	
Daniel Boling	27 June 97	K.A. Kunstreber for K. Ellis 7/9/97	7/8/97
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE: 7/9/97
PERFORMANCE GRADE: (17) A3 James C. Jenkins			
(18)CONSTRUCTION CONCURRENCE:	DATE: 7/9/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)			

FS-F-4259 (10/01/96)

JUL 11 1997

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ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	(6)DATE
1700	FSC-589	1 OF 4	6/27/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: EO MO CE OTHER

(4A)RCI/DCN TITLE: LCS Alignment Adjustment

(11)DCN NO.: 1700-040

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00266	G0004	1	

(9) RCI - INQUIRY ☐ USOD SCREENING BY PROJECT ENGINEER

(9) DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Shift the underground utilities westerly 10'± at Sta. 8+00± and taper alignment to meet proposed near Sta 6+50. Shift avoids fire hydrant and utility pole near Sta. 8+00±.

(10)REQUESTOR: Jeff Ellis COMPANY: FDF DATE: 6/27/97

(12)FCE / PE: [signature] DATE: 7/3/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Attached Comments - Page 1 of 1

DOC CONTROL
COPY NO.
COII

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: C. Schroeder DATE: 7/10/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: (17) 5 James C. Jenkins DATE: 7/16/97

(18)CONSTRUCTION CONCURRENCE: Richard L McKune DATE: 7/14/97

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

DCN 040

ORIGINAL

received 7-7-97

ENTERED JUL

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000529

DOCUMENT REVIEW COMMENT SHEET

SME/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 7/9/97
DOCUMENT NO. AND TITLE: 1700-040, LCS Alignment Adjustment		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
1	Y. AFSHAR		PROVIDE COORDINATES FOR THE FIRE HYD. & POWER POLE FOR AS-BUILT DWGS.		
			SHIFT UNDERGROUND UTILITY LINES 10-FT WESTERLY AT THE CROSSING POINT OF THE EXISTING PAVED ACCESS ROAD. RECORD DATA FOR AS-BUILT CONDITION.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

FOUNDATION 3000 321000 3V03blank

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Page 1 of 1 1221

BY OTHERS

SEE DWG G00257

1271

1
G00259

FT 57 R19 FT 56 FT 55 R18 FT 54

Sketch #20110-SK-016
JRE 6/27-7/3
FR DGN 1700-040

FH Pole

6' MIN.

FO 15

OLD MANHOLE SUN

FO 8

FT 32

COMB

FO 6

FO 7

ACCESS ROAD

FUTURE LIFT
STATION BY OTHERS

4 END-CAP SN-3"
G00410 N 479950.22
E 1347964.54

REMOVE AND REPLACE
EXIST. CHAIN LINK FENCE

12" STEEL
PIPE CASING
SEE NOTE 13

000531

ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-034	1	1700-040	7-8-97	
TITLE: LCS Alignment Adjustment			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 7 / 9 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS "A"	STATUS "B"	STATUS "C"
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
01	CIVIL Y. AFSHAR	7/9/97		YA	
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
• 2	ENVIRONMENTAL, SAFETY, & HEALTH M. CHRODEWK	7/9/97	NA		
	HVAC				
	GEOTECHNICAL				
• 3	QUALITY ASSURANCE B. UBBES	7/10/97	WW		
• 4	PROJECT ENGINEER C. SCHROEDER	7/10/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

4/97

ENG 023

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO: FSC - 589	(5)Pg 1 OF 1	(6)DATE: 25June97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: Manhole Embedment Fill		(11)DCN NO.: 1700-039

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
20110-TS-0002 Section 02215 Part 2.01.B.		0	
FP90D-692 R4 (Submittal No. 57 R4)	Shop Drawing No. FP90D-692-R4	4	Note No. 3 on referenced drawing
FP90D-693 R1 2 of 2 (Submittal No. 58R1)	Shop Drawing No. FP90D-693 R1 sheet 2	1	Note No. 3 on referenced drawing

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

(9) The Manhole Embedment Fill gradation is being modified. Add the following to the last sentence of Spec. Section 02215 Part 2.01.B. "except that the range of percent passing for the No. 4 sieve shall be 20 to 65. " Note 3 on the referenced shop drawings of VBS Submittal Nos. 25 R1, 57 R4 and 58 R1 will be affected, however, no change to shop drawings is necessary since the change does not affect fabrication and minor change to backfill does not violate the manufacturers design criteria.

(10) REQUESTOR: Daniel Bolin COMPANY: GeoSyntec 26June97 (12)FCE / PE: L.D.Kuenstler DATE: 7/3/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CDC CONTROL COPY NO 1 OF 1

RCI - DCN ACCEPTANCE

GeoSyntec

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolin 26 June 97 DATE: (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/7/97

PERFORMANCE GRADE: (17) 5

(18)CONSTRUCTION CONCURRENCE: DATE: 7-7-97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

JUL 10 1997

000533063

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 7/7/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.: 1700-0XX
(4) RESPONSIBLE DISCIPLINE: ED MD CX OTHER D	(4A)RCI/DCN TITLE: Warning Tape Installation		(11)DCN NO.: 1700-038

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00257	G0007	0	
Specification 02667; 3.3.B.8.		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9) X DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

In Spec 02667, change 3.3.B.8 to read: "Install trace wire continuous over top of pipe, **12" below finish surface** (+/- 1"); coordinate with Section 02200.".

Revise **BOTH** pipe trench details on dwg 92X-5900-G-00257 to reflect the relocated warning tape.

Construction Note: This places the warning tape ~27" below the final pavement elevations when the LCS trench is covered by the Haul Road.

(10)REQUESTOR: Jess Kellis	COMPANY: FDF	DATE: 7/8/97	(12)FCE / PE: J. C. Jenkins	DATE: 7/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

CDC CONTROLLED COPY NO.

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 7/11/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/14/97

PERFORMANCE GRADE: (17) A James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)			

DCN 038

ORIGINAL

received 7-9-97

JUL 10 1997

000534

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN-036	1	1900-038	7-10-97	
TITLE: WARNING TAPE INSTALLATION			OU NO. 2	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 7 / 11 / 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
01	CIVIL YUNUS AFSHAR	7/11/97	YA/ss		
	ELECTRICAL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
02	ENVIRONMENTAL, SAFETY, & HEALTH MIKE C.	7/11/97	MC		
	HVAC				
	GEOTECHNICAL				
03	QUALITY ASSURANCE Bill U	7/11/97	WJU		
04	PROJECT ENGINEER Carlton S.	7/11/97	CS		
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C-SCHROEDER

SPECIAL INSTRUCTIONS:

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF	(6)DATE 6/17/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: 480 VOLT FEED FROM BLDG. 77		(11)DCN NO.: 1700-037

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-5500-E-00500		01	
90X-5500-E-00502		01	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- PROPOSE TO DELETE 480 VOLT SERVICE FROM BLDG. 77 TO OSDF TRAILOR AREA
- NEW SERVICE WILL COME FROM BLDG. 78 UNDER A SEPARATE DCN FOR THE OSDF PHASE I CONTRACTOR (PETRO)

(10)REQUESTOR: J. C. JENKINS	COMPANY: FDF	DATE: 6/17/97	(12)FCE / PE: James C Jenkins	DATE: 6/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

CDC CONTROLLED COPY NO.

COPY

(FDF - J. KERL) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James E. Kerl 6-19-97	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C Jenkins			DATE: 7/1/97
(17) PERFORMANCE GRADE:			
(18)CONSTRUCTION CONCURRENCE:	DATE: 7/14/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

JUL 1 0 1997

1062

000536

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 3	(6)DATE
1700	589		06/13/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐

(4A)RCI/DCN TITLE: Steel Pipe Casings Under K-65 Trench

(11)DCN NO.: 1700-036

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Civil Sections and Details	92X-5900-G-00259	0	Section 7
Civil Details - Sheet 2 of 3	92X-5900-G-00257	0	Steel Pipe Casing Detail

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Existing Condition: 1) Section 7 on Drawing No. 92X-5900-G-00258 shows the steel pipe casing for the FG-6" line to be 10" nominal pipe size and a 6" nominal pipe size for the SN-3" line. The pipe casing for the 4"/8" leachate line was changed to 12" nominal pipe size per DCN No. 1700-023.
2) Section 7 shows the steel casings installed at various elevations.
3) The "Steel Pipe Casing" section shown on Drawing No. 92X-5900-G-00257 calls for the steel pipe casings to be 25 feet in length.

Proposed Change and Justification: 1) Change steel pipe casings for the FG-6" and SN-3" lines from 10" and 6" NPS respectively to 12" NPS. The minimum diameter steel casing recommended by the jacking and boring contractor (Midwest Mole, Inc.) is 12" NPS.
2) Change the elevations of the steel pipe casings for the FG-6", SN-3", DW-6" and FQ-12" lines to the same centerline elevation as the 4"/8" leachate line. This would eliminate the need for multiple bottom elevations for the jacking and boring pit and multiple elevation changes in the setup for the jacking and boring equipment.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	6/13/97	James C. Jenkins	6/13/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons approved as noted comments attached as Page 1 of 1.

2) RECORD AS-BUILT CONDITIONS

CDC CONTROLLED COPY NO. C011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	6/18/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/14/97

PERFORMANCE GRADE: (17) James C. Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McGuire	6/23/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

DCN-031

DCN 036

received BBL-6-97

JUL 16 1997

0160537

REQUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE SUPPLEMENT

(11) RCI NO.:	(11) DCN NO.: 1700-	(1) PROJECT/WO NO.: 1700	(5) PAGE 1 OF 2

RCI-INQUIRY / DCN-JUSTIFICATION, EXISTING CONDITION, & REQUESTED CHANGE (continued):

3) Change the length of the steel pipe casings from 25 feet to 20 ~~feet~~. Since the casings come in 20 foot lengths, this will eliminate a weld on each casing. The weld would have to be performed in an enclosed space as defined by OSHA and could create a hazardous atmosphere in the jacking and boring pit.

RESPONSE (continued):

Attach LCS Drawing

(7) DOCUMENTS AFFECTED	(7) DOCUMENT NOS.	REV.	(8) OTHER

FS-F-4260 (3/15/96)

18 June 97

SCEP PO164 Leachate Conveyance System

DOC. No.: DCN-031 ISSUE: 1 TRANSMITTAL No.: 1700-036
RE: K-65 Casing Pipe

Civil Comments are as follows:

1. Research into casing size does not indicate a minimum pipe diameter. There was a reference to casing pipe "...for sizes 6 5/8" (OD) and above....". This would indicate that the sizes indicated on the drawings were not uncommon. No exception will be taken to the larger (12") size provided the 1' clearance to the K-65 Trench is maintained and the casing pipe has a watertight seal with the carrier pipe.

2. It is preferred to keep the 18" vertical separation between the SN-3" and DW-6". However, no exception taken to having a common centerline elevation for the casing pipes provided;
   a. The 1' clearance to the K-65 Trench is maintained.
   b. The 4"/8" leachate line will have positive drainage to CO 10.
   c. The SN- 3" line starts to bend down at the maximum allowable bending radius at 10' beyond each end of the casing pipe in order to return to its 18" minimum vertical separation. Maximize the distance between the joints of the SN-3" line and the DW-6" line with no joints in the SN-3" line in the vertical bends.

3. No exception taken to changing the casing length to 20'.

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1700	FSC-589	1 / 1	6/12/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: EO MO CX OTHER O

(4A)RCI/DCN TITLE: Pipe Embedment Detail

(11)DCN NO.: 1700-035

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00257	G-0007	0	Also Drawing 90X-6000-M00065 Rev 0 DGB
DCN No. 1700-022 DGB			Also DCN No. 1700-32
20110-TS-0002 Section 02215 DGB	Part 3.03 DGB	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Modify Typical Pipe Bedding Detail and Typical Pavement Restoration Detail to Require 6" to 8" of pipe embedment material to cover pipe. (on Drawing G-00257) DGB Also details C AND 25 ON DRAWING M-00065 will require modification to show Top of EMBEDMENT FILL. DGB

(10)REQUESTOR: Jeff Ellis COMPANY: FDF DATE: 6/12/97

(12)FCE / PE: J.C. Jenkins DATE: 6/12/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☑ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Spec. 02215 Part 3.03 shall also be revised as follows:
Part 3.03.A.4 - Change 5 pounds per square inch ground pressure to 10 pounds per square inch ground pressure.
Part 3.03.C.4 - ~~Change~~ Add "place the additional 7 inch ~~of~~ loose lift of embedment fill over the pipe and compact with 4 passes of an approved vibratory plate compactor." after the 3rd sentence. Change the next and last sentence to read "Do not compact on top of the pipe with heavy compaction equipment unless a minimum of ~~6~~ inches of backfill separates the compactor from the top of the pipe."

(REGISTERED) 20 RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel G. Bubnis 12 June 97 DATE:

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CWP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 4 James C. Jenkins for Uday Kumthekar 6/12/97

(18)CONSTRUCTION CONCURRENCE: Richard L McClure DATE: 6/12/97

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

S-F-4259 (10/01/96)

— Carlton Schroeder (Parsons) 6/24/97 (see attached Page 1 of 1)

ORIGINAL

CDC CONTROLLED COPY NO COII

000540

RECEIVED JUN 26 1997 DGB

LEACHATE CONVEYANCE SYSTEM

DOCUMENT REVIEW COMMENT SHEET

P0164

SITE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 6/19/97
DOCUMENT NO. AND TITLE: DCN-035 PIPE EMBEDMENT DETAIL		DATE COMMENTS DUE:
REQUEST NO.: 1 / TRANSMITAL No.: 1700-035		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	Y. AFSHAR		NO EXCEPTION TAKEN.* GEOSYNTEC WHO HAS WRITTEN THE SPECS, SHALL REVIEW THE SUBMITTAL,		
			* SEE GEOSYNTEC RESPONSE (D. Bodine)		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

1221

FOUNDATION AND STRUCTURES DIVISION

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 5	(6)DATE 5/6/97
(3)S/C TITLE: Leachate Conveyance System			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CO OTHER	(4A)RCI/DCN TITLE: Sediment Control		(11)DCN NO.: 1700-034

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Dwg 92X-5900-G-00251	G0002	1	
Dwg 92X-5900-G-00261	G0003	1	
Dwg 92X-5900-G-00266	G0004	1	
Dwg 92X-5900-G-00262	G0005	1	
Dwg 92X-5900-G-00257	G0007	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

* All references to "Straw Bale Detail" shall be referred to the "Sediment Fence Detail."
* Delete "Straw Barrier Detail" from Drw. 92X-5900-G-00257-G0007-0.
* Replace "Typical Check Dam Detail" from Drw 92X-5900-G-00257 with attached sketch 20110-SK-013.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Jeffrey Ellis	FDF	6/5/97	James C. Jenkins	6/9/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Approved as Noted Comments - Page 1 of 1

CDC CONTROLLED
COPY NO
C011

- Parsons - RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	6/24/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 7/2/97

PERFORMANCE GRADE: (17)

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McAfee	6/27/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

received
6/30/97

JUL 10 1997

000542

DOC 034 DCN 050

DCN-030

DOCUMENT REVIEW COMMENT SHEET

P0164

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 6/23/97
DOCUMENT NO. AND TITLE: LEACHATE CONVEYANCE SYSTEM		DATE COMMENTS DUE:
REQUEST NO.: DCN 1700-034 SEDIMENT CONTROL		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	Y. AFSHAR		SKETCH # ZD110-SK-013 (ATTACHED) FROM ~~LAND~~ RAINWATER AND LAND DEVELOPMENT IS ACCEPTABLE.		
			PARSONS RECOMMEND TO USE A FILTER FABRIC (ODOT ITEM 712-09, TYPE D)		
			UNDER THE STONE.		
2.	K. GERARD		SILT FENCE SHALL BE USED IN LIEU		
			OF STRAW BALES. SILT FENCE		
			SHALL CONFORM TO DETAIL ON		
			DWG. 92X-5900-G-00257 AND		
			AS APPROVED VDS FOR SILT FENCE.		

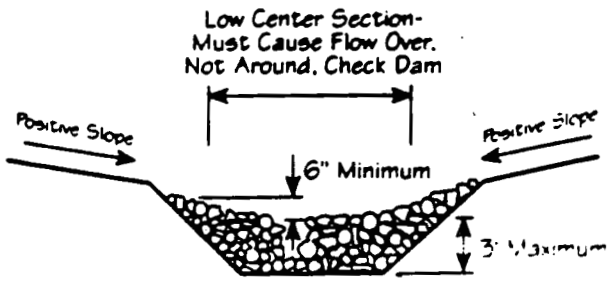
SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

0005543

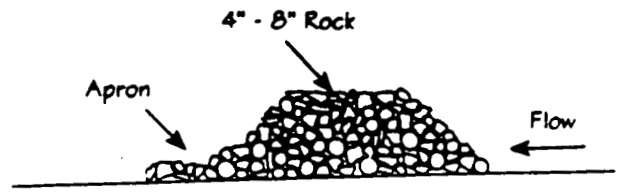
121

Specifications
for
Check Dam

20110-SK-013



CROSS SECTION



PROFILE

1. The check dam shall be constructed of 4-8-in.-diameter stone, placed so that it completely covers the width of the channel.
2. The top of the check dam shall be constructed so that the center is approximately 6 in. lower than the outer edges, so water will flow across the center and not around the ends.
3. The maximum height of the check dam at the center of the weir shall not exceed 3 ft.
4. Spacing between dams shall be as shown in the plans.

Author: Frank Johnston at FNST-04
Date: 6/5/97 12:08 PM
Priority: Normal
Receipt Requested
TO: James Jenkins at FNST-02
TO: Uday Kumthekar at FNST-02
TO: Rick Mcguire at FNST-03
CC: Christine Messerly at FNST-02
CC: Michael Hickey at FNST-02
Subject:

---------- Message Contents ----------

I have the following concerns with the erosion and sediment controls for the leachate conveyance system project:

* I have yet to see the Surface Water Management and Erosion Control Plan (SWMEC) required by Section 1.04 B. of Spec. 02270-1.

• The E&S controls specified in the CFC package of 11/5/96 are inconsistent with the ODNR Manual. Spec. Section 02270 Section 1.03 Clearly refers to the ODNR Manual as the standard (see also Sections 2.01, 2.04 and 3.01)

• The plans show the use of straw bale barriers for use as inlet control and sheet flow control. The ODNR manual does not recognize straw bale barriers as acceptable for these applications. Silt fencing is required. Additionally, check dams detailed on pln. sht. G-00257 detail an ODOT design which is also inconsistant with the ODNR manual.

I have no record which would indicate that OEPA has revied and approved these deviations from the ODNR Manual. In fact, OEPA has been quite adamant about adhering to the ODNR Manual.

I need the path forward to address these situations ASAP.

Frank - 5294

OhioEPA
State of Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, Ohio 45402-2911
(513) 285-6357
FAX (513) 285-6249

DEC 0 1996

1271 M Hickey
J Jenkins
Mike/Jim FRTN ST
Haul Rt would be good candidate for hybrid check dam demonstration
Please consider
DTG

George V. Voinovich
Governor

November 18, 1996

RE: DOE FEMP
MSL 531-0297
HAMILTON COUNTY
ROCK CHECK DAMS

Mr. Johnny Reising
U.S. Department of Energy
Fernald Area Office
P.O. Box 538705
Cincinnati, Ohio 45253-8705

Dear Mr. Reising:

On November 7, 1996, I met with Frank Johnston, Greg Jones, and Steve Garland (FDF) to discuss the requirements for rock check dams. Out of that discussion came the query whether rock used in a check dam in a contaminated area could be reused in a check dam in another contaminated area. It was pointed out that this could provide a large savings in both money for additional rock that would not have to be purchased and in space in the OSDF. There was a concern that Ohio EPA would prohibit the transport and reuse of rock in this situation. **The purpose of this letter is to inform you that reuse of the rock from a rock check dam in a contaminated area in another contaminated area will be allowed.**

Also in this meeting, Mr. Garland explained the advantages of hybrid check dams (i.e., hay bales on the outside edges) in certain situations. Mr. Garland felt that those check dams used for only one season in some areas would work adequately. In addition, the site would realize a large savings in money and space in the OSDF through the use of these hybrid check dams. We have offered to review a demonstration project, should Mr. Garland propose one, for evaluating the hybrid check dams for single season use in some areas. All other check dams must conform to the standards in *Rainwater and Land Development.*

Sincerely,

Joe Bartoszek
Environmental Specialist
Division of Surface Water, Water Quality Unit

JB/br

cc: Tom Schneider, OFFO
Frank Johnston, FDF
Terry Hagen, FDF

Printed on recycled paper

REISING 3B

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

06B

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 12	(6)DATE 5/28/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: PIPE - HYDROSTATIC TESTING		(11)DCN NO.: 1700-033

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATIONS	Sec. 02605	0	
20110-TS-00001			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- SEC. 02605, 3.07, C.2 REQUIRES TESTING BEFORE BACKFILLING PIPE TRENCH.
- REQUEST LATITUDE TO PERFORM TESTING AFTER BACKFILLING IN AREAS DEEMED NECESSARY TO MEET SCHEDULED INSTALLATION DATES AND COORDINATION WITH OTHER PROJECTS IN COMMON CONSTRUCTION AREAS.
- ~~ALL OTHER ARTICLES OF 02605, 3.07 REMAIN UNCHANGED~~ 06B 30 May 97

(10)REQUESTOR: J.C. Jenkins	COMPANY:	DATE: 5/28/97	(12)FCE / PE: J.C. Jenkins	DATE: 5/28/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

See Page 2 of 2 for Response

CDC CONTROLLED COPY NO. C011

(GEOSYNTEC) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Ranil Bodinl 30 May 97	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)		DATE
PERFORMANCE GRADE: (17) 4 James C. Jenkins		5/30/97
(18)CONSTRUCTION CONCURRENCE: Richard L [illegible]	DATE: 5/30/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)		

S-F-4259 (10/01/96)

RECEIVED JUL 04 1997 OLEB

ORIGINAL

ENTERED

LEACHATE CONVEYANCE SYSTEM
Pipe Hydrostatic Testing

(13) RESPONSE

Technical Specification Section 2605 Part 3.07 shall be changed as follows:

Article C.2.a. Add sentences "At pipe locations documented and approved in writing by the Construction Manager the Subcontractor may, at his own risk, pressure test pipe after placing fill over the pipes. Locations of all joints, fittings, etc., shall be documented before backfilling. The test procedure shall be as specified, except the test duration shall be minimum 3 hours. "

Article C.2.c. Replace "120 psi " with " 50 psi " and " 130 psi internal pressure for " with " 95 psi internal pressure for the LCS ".
Add sentence " Test pressures for other pipe systems shall be in accordance with ASME B31.9 937.3.4 and as otherwise specified. "

All other Articles of Section 02605 Part 3.07 remain unchanged.

The approval of pipe locations to be tested after backfilling should be evaluated on a case by case basis and where a definite need to delay testing has been established. When properly prepared, the subcontractor can complete testing rather quickly and efficiently and even during weather conditions when backfilling may not be suitable.

Daniel Bolton
30 May 97

1271

BUILDING SERVICES PIPING

ASME/ANSI B31.9-1988

PROPERTY OF
U.S. GOVERNMENT
FMPC LIBRARY
000549

937.2 Preparation for Testing

937.2.1 Exposure of Joints. All joints including welds shall be left uninsulated and exposed for examination during the test.

937.2.2 Temporary Supports. Piping designed for vapor or gas may be provided with temporary supports if necessary to support the weight of test liquid.

937.2.3 Expansion Joints. Expansion joints which cannot sustain the reactions due to test pressure shall be provided with temporary restraint, or they may be isolated from testing.

937.2.4 Equipment Not Subject to Testing. Equipment that is not to be subjected to the test pressure shall be isolated from the piping. If a valve is used to isolate the equipment, its closure shall be capable of sealing against the test pressure without damage to the valve. Flanged joints at which blinds are inserted to isolate equipment need not be tested.

937.2.5 Precautions Against Overpressure. If the test pressure is to be maintained for a period of time during which the test fluid is subject to thermal expansion or any other source of overpressurizing during the test, precautions such as the installation of a relief device shall be taken to avoid excessive pressure.

937.3 Hydrostatic Testing

937.3.1 Test Medium. Water at ambient temperature shall be used as the test medium except where there is risk of damage due to freezing. Another liquid may be used if it is safe for workmen and compatible with the piping.

937.3.2 Vents and Drains. Vents shall be provided at high points in the system to release trapped air while filling the system. Drains shall be provided at low points for complete removal of the test liquid.

937.3.3 Preliminary Check. The system shall be examined to see that all equipment and parts that cannot withstand the test pressure are properly isolated. Test equipment shall be examined to ensure that it is tight and that low pressure filling lines are disconnected.

937.3.4 Hydrostatic Test Pressure

(a) Minimum Pressure. Except as limited in (b) below, a piping system shall be subjected to a hydrostatic test pressure which at every point in the system is not less than 1.5 times the design pressure.

(b) Maximum Pressure. The test pressure shall not exceed the maximum test pressure for any vessel, pump, valve, or other component in the system under test. A check shall be made to verify that the stress due to pressure at the bottom of vertical runs does not exceed either of the following:

(1) 90% of specified minimum yield strength;

(2) 1.7 times the *SE* value in Appendix A (for brittle materials).

937.3.5 Examination for Leakage. Following the application of hydrostatic test pressure for at least 10 min, examination shall be made for leakage of the piping, and at all joints and connections. If leaks are found, they shall be eliminated by tightening, repair, or replacement, as appropriate, and the hydrostatic test repeated until no leakage is found.

937.4 Pneumatic Testing

937.4.1 General. Compressed gas poses the risk of sudden release of stored energy. For that reason, pneumatic testing shall be used only within the following limitations.

(a) The piping system does not contain cast iron pipe.

(b) It does not contain soldered joints over 2 in..

(c) The test pressure does not exceed 150 psig.

(d) If nonmetallic, it is not larger than NPS 2

(e) The system will be used in gas service, or for other reasons cannot be filled with water.

(f) Traces of a test liquid would be detrimental to the intended use of the piping.

937.4.2 Test Medium. The gas shall be nonflammable and nontoxic.

937.4.4 Preliminary Test. Prior to application of full pneumatic test pressure, a preliminary test of not more than 10 psig shall be applied to reveal possible major leaks. (This preliminary test is not subject to the limitations in para. 937.4.1, and may be used in conjunction with hydrostatic testing or initial service testing.)

937.4.5 Pneumatic Test Pressure

(a) Except as limited in (b) below, the test pressure shall not exceed 1.25 times the design pressure. Pressure shall be applied in several stages, allowing time for the system to reach equilibrium at each stage.

(b) The test pressure shall not exceed the maximum allowable pneumatic test pressure for any vessel, pump, valve, or other component in the system under test.

937.4.8 Examination for Leakage. After the preliminary test, pressure shall be raised in stages of not more than 25% up to full pneumatic test pressure, allowing time for equalization of strains and detection of major leaks at each stage. Following the application of test

pressure for at least 10 min, the pressure may be reduced to design pressure and examination shall be made for leakage of the piping. Leaks may be detected by soap bubble, halogen gas, scented gas, test gage monitoring, ultrasonic, or other suitable means. If leaks are found, pressure shall be vented, appropriate repair or replacement shall be made, and the pneumatic test repeated until no leakage is found.

937.5 Initial Service Leak Test

937.5.1 General. For nontoxic, nonflammable fluids at pressures not over 100 psig and temperatures not over 200°F, it is permissible to conduct the system testing with the service fluid as outlined below.

937.5.2 Service Testing. A preliminary test with air at low pressure (para. 937.4.4) may be used. In any event, the piping system shall be brought up to operating pressure gradually with visual examination at a pressure between one-half and two-thirds of design pressure. A final examination shall be made at operating pressure. If the piping system is free of leaks, it will have met the requirements of para. 937.1.

1271

QUEST FOR CLARIFICATION OF INFORMATION/ DESIGN CHANGE NOTICE

(1)WP / ON NO.: 1700	(2)S/C NO.: FSC-589	(5)PG 1 OF 2	(6)DATE 5/27/97
(3)S/C TITLE: Leachate Conveyance System		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: CE-6" BDN stub-out	(11)DCN NO.: 1700-031	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Dwg 92X-5900-G-00266	Sheet 1	1	
Dwg 18A-1920-P-00301		2	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Stub-out CE-6" BDN conduit per detail on Dwg 18A-1920-P-00301 At 25' right of LCS Baseline.

"As Built" line routing from Sta 13+00± to end cap.

"As Built" co-ordinates of end cap.

(10)REQUESTOR: Jeffrey Ellis COMPANY: FDF DATE: 5/27/97

(12)ECE / PE James C. Jenkins DATE: 5/27/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See PARSONS Attached Comments Page 1 of 1
2) See Parsons Attached Sketch 1 of 1
3) Record "AS-BUILT" CONDITIONS

ECDC CONTROLLED COPY NO. 011

RCI - DCN ACCEPTANCE

(PARSONS)

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder DATE: 6/12/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE: 6/16/97

PERFORMANCE GRADE: (17) 4

(18)CONSTRUCTION CONCURRENCE: Richard L. Mahnke DATE:

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

ORIGINAL

received 5-28-97

RECEIVED JUL 08 1997

000552

ENCLS

30 May 97

PO-164 Leachate Conveyance System

DCN No.: 028 ISSUE: 1 TRANSMITTAL No.: 1700-031
CE-6" BDN STUB OUT

Civil approves as noted below.

1. An earlier DCN (1700-025) had a sketch, 20110-SK-008, which showed the proposed centerline to centerline, c/c, distance from Rail to 4"/8" LCS line to be 30'±. The c/c distance proposed for CE-6" stub out to 4"/8" LCS to be 25'±. This will place the stub out very close to the rail ballast/ties and the concrete support for the rail crossing of the K-65 trench. Recommend that the 25' be modified to 12'-15'. Also that the bending of the CE-6" line start 10' from the flange versus at the flange and the deflection angles of the line approximate 45°. See enlargement from 92X-5900-G-00266 (modified).

2. The original design of the common trench indicated a common trench bottom in this area except for the FG-6" line (Section 6, 92X-5900-G-00259). Sketch 20110-SK-011 shows the 4"/8" LCS line to be higher than the other lines. Recommend that the original profile be maintained except for the CE-6" line which can be routed lower (like the FG-6") and under the 4"/8" LCS line. This will require a lot less cut. Maintain minimum cover and clearance as indicated on the construction drawings.

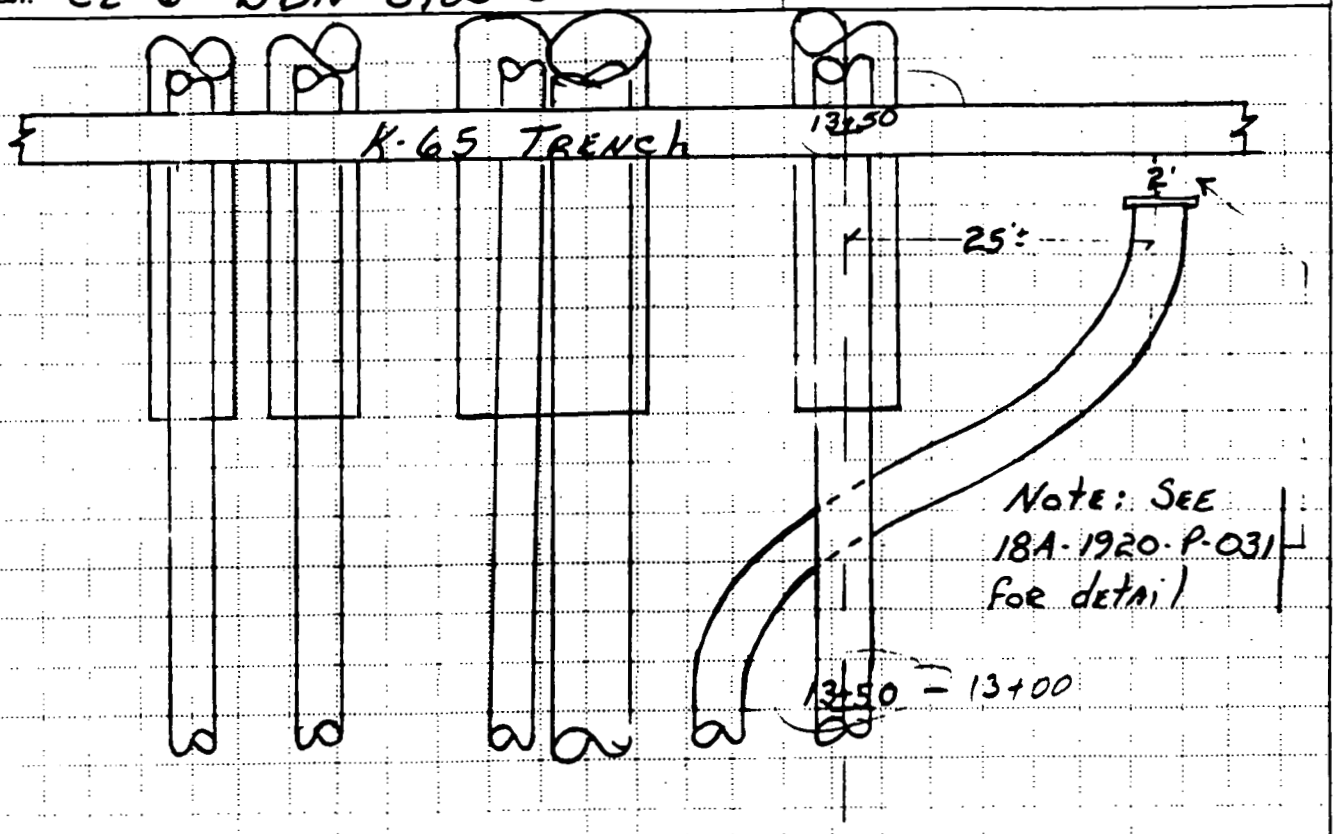
3. The tie in to the K-65 trench detailed on drawing 18A-1920-00301, Rev 2 was not evaluated as it was beyond the original scope of work.

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

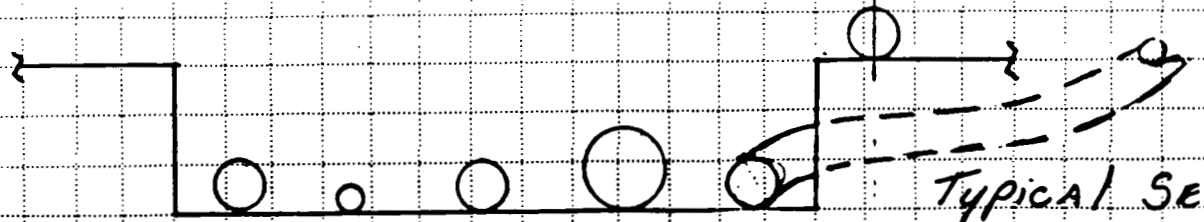
ENGINEERING CALCULATION

Sketch NUMBER: 20110-SK-011	
BY: Jeff Ellis	DATE: 5/27/97
CHECKED BY:	DATE:
PAGE 2 OF 2	
REVISED:	

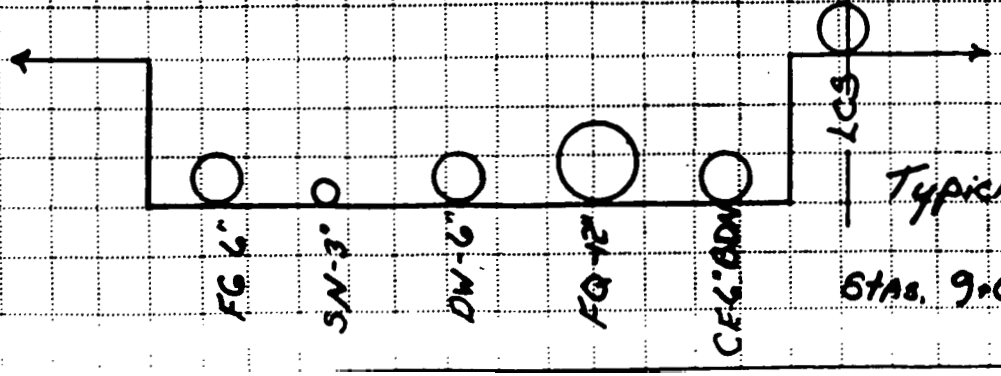
SUBJECT: CE-6" BDN Stub-out



PLAN N.T.S.



Typical Section
13+00± to 13+50±
NTS



Typical Section
N.T.S.
Sta. 9+05± to 13+00±

R92g00266.m po164@ws404. Fri May 30 11:09:10 CDT 1997

N
(MODIFIED)
SCALE: 1" = 5'

CONCRETE SUPPORT

STUB OUT @ 25' C/C TO 4"/8" LCS

(ALIGNMENT PROPOSED PER DCN No. 1700-031 SKETCH No. 20110-SK-011)

25'

2'

10'

FLANGE

K-65 TRENCH

12' (MIN)

R=10' min TYP

45° TYP

ALIGNMENT PROPOSED BY PARSONS FOR DCN No. 1700-031

APPROX. LOCATION PER DCN. 1700-025

TO BSL

4"/8" LCS

CE-6"

PARSONS
SKETCH 1 of 1
DCN: 028
TRNS. 1700-031

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC 589	(3)Pg 1 OF 2	(6)DATE 5-21-97
(5)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: END SEAL ON CASING		(11)DCN NO.: 1700-030

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-6-00257		0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

SPEC. CALLS FOR LINK SEALS - NOT AVAILABLE IN SIZES REQUIRED. PROPOSE USE OF BRICK AND MORTAR TO SEAL ENDS.

(10)REQUESTOR: MK COMPANY: VBS DATE 5-21-97 (12)FCE / PE Richard L McAfee DATE 5/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

- FIBER GLASS INSULATION W/ WATERPROOF CEMENT GROUT IS ACCEPTABLE WHERE LINK SEAL SIZES ARE UNAVAILABLE.

CDC
CONTROLLED COPY NO 011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE 5/22/97 (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE 5/22/97

PERFORMANCE GRADE: (17) A

(18)CONSTRUCTION CONCURRENCE: Richard L McAfee DATE 5/22/97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

PARSONS Concurs, Carlton Schroeder 6/4/97

ORIGINAL

received 5-27-97

DCN 030 DCN 02

RECEIVED JUN 05 1997 10CAB

1997 MAY 27 AM 9:32

RECEIVED JUN 05 1997

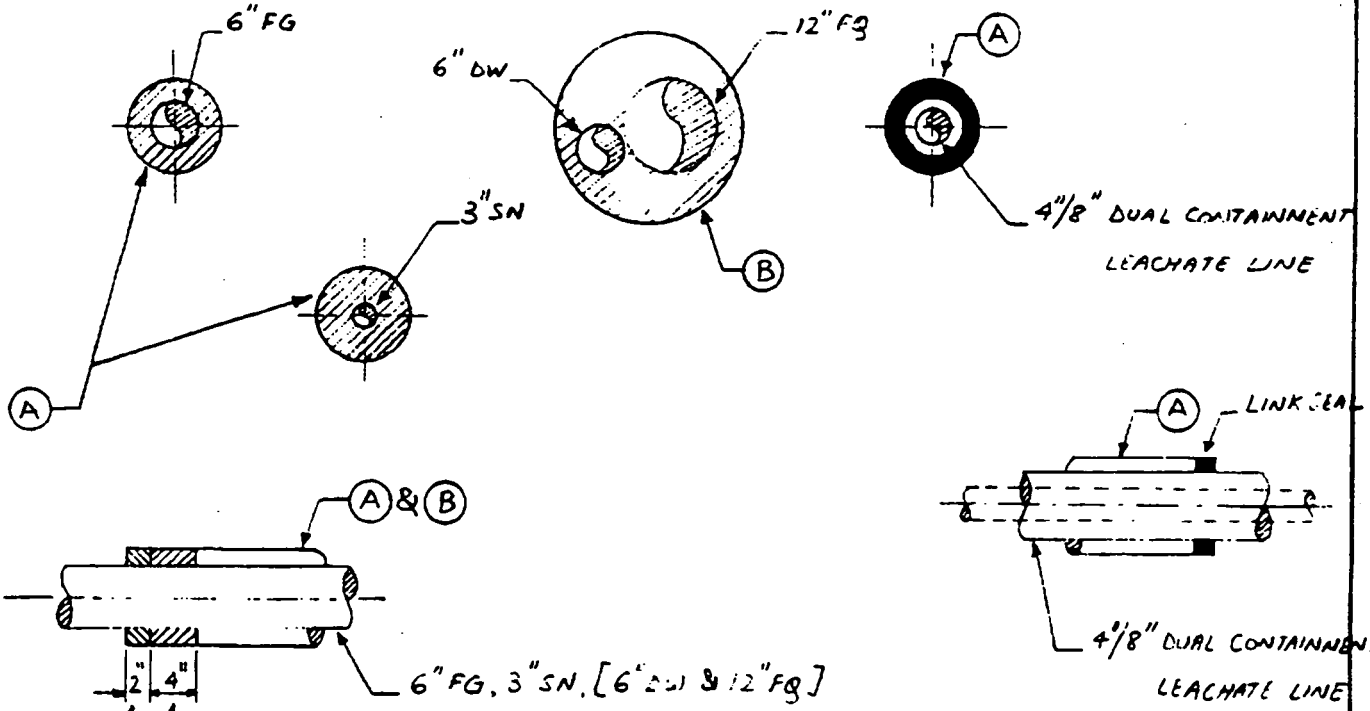
000557

Village building SERVICES INC.
MECHANICAL CONTRACTORS

PROJECT Leachate Conveyance System FSC-52
PAGE 1 OF 1 FILE
BY Mayur P. Kodakia DATE 05/21/97
Dwg No. SK-0197-005 Rev. 0

(A) - 12.750" O.D X 50 FT. LONG CASING PIPE

(B) - 24.000" O.D X 50 FT. LONG CASING PIPE



Detail @ both ends of casing pipe

Detail @ both ends of casing pipe

Boring Under K-65 Trench
(refer dwg. 92X-5700-G-00259 Rev. 0-Section 7)

DCN 1700-030
SHEET 2 OF 2

LEACHATE CONVEYANCE SYSTEM

DOCUMENT REVIEW COMMENT SHEET

SRP

P0164

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 6/3/97
DOCUMENT NO. AND TITLE: DCN-025 END SEAL ON CASING		DATE COMMENTS DUE:
REQUEST NO.: 1 / TRANSMITTAL No: 1700-030		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	K. Gerard		No exception taken to using 4" fiberglass insulation w/ 2" (min) waterproof cement grout where link seal sizes are not available.		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

000559

1 2 1

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 20110	(2)S/C NO.: 1700	(5)Pg 1 OF 2	(6)DATE 5-20-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: S ☐ M ☒ C ☐ OTHER ☐	(4A)RCI/DCN TITLE: ISCO SUPPLIED HDPE PIPE FITTINGS		(11)DCN NO.: 1700-029

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPEC. SC 589, SECTION 02605, PART 1.04	20110-TS-0002	1	
ITEMS B&C			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

1.) ISCO SUPPLIED LCS 45°/90° AND T FITTINGS RECEIVED ARE NOT RECONCILIABLE TO MANUFACTURER PRODUCTION RUN DATES TO ESTABLISH WRITTEN MATERIAL CERTIFICATIONS AND VERIFICATION OF RESIN QUALITY LOT NOS. THE FITTINGS WERE SHOP FUSED OF VARIOUS CROSS CUTS TO MAKE UP A FINISHED ASSEMBLY. CONSEQUENTLY, MATERIAL CERTIFICATIONS ARE NOT AVAILABLE.

2.) A TEE WITH STUB WAS INSPECTED AND VERIFIED TO BE COMPRISED OF SDR 17 AND SDR 21 ASSEMBLED COMPONENTS. THE MATERIAL SPEC IS SDR 26. THE OUT OF SPEC MATERIAL IS A HIGHER RATED MATERIAL THAN SPECIFIED. (REF. ATTACH) ITEMS ARE IN QA HOLD STATUS.

(10)REQUESTOR: H. MILLIRON COMPANY: VBS QC DATE 5/21/97 (12)FCE / PE: C. Jenkins DATE 5/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

1.- The fittings under question, a limited number, shall be inspected by QC, including every joint and document condition, any pipe notations (Lot #'s etc), manufacturers inspection documentation and any other visual observations or measurements made. Manufacture must provide written certification that these fittings conform to spec. section 02605 2.02.B and turns certifiable property values for lot #'s identified in the QC inspection. After the above is completed and approved (QC included) then the fittings may be used.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bolduc DATE 23 May 1997 (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE 5/23/97

PERFORMANCE GRADE: (17) C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L. McKinney DATE 5/23/97 (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

FS-F-4259 (10/01/96)

2 - The Tee shall be inspected and certified as stated in 1 above. In addition the SDR 21 portion must have been used only for the containment pipe.

ORIGINAL

MAY 27 1997 QCB

CDC CONTROLLED COPY NO. 000560

011

1271

ISCO

Friday, May 09, 1997

Mayur P. Kadakia
Village Building Services Inc.
7311 Vine Street
Cincinnati, OH 45216

Dear Mayur:

This letter is in response to a particular situations regarding the HDPE Dual Containment fittings that we have supplied for the Leachate Conveyance System at Fernald, OH.

You have brought to my attention that the Quality Inspector has inquired about the SDR ratings on the fittings that we have supplied. Why does the SDR rating on the fittings not match the SDR on the shipping ticket? The rating on the shipping ticket is in alliance with the pipe SDR that you have purchased from us. You will note that all of the fittings are an equal or lower SDR rating (higher PSI rating) than the pipe.

Therefore, the products that are in question will meet or exceeds all specifications of this project. Sorry about this confusion, but this is considered common practice since all manufactures of HDPE molded fittings do not have all SDR's available. However, all the substitutions will handle the necessary testing that is required.

This is something we have done in the years past at Fernald, but please call if you have any further questions or concerns about this issue at (502) 583-6591.

Sincerely,

Chris Gilmore
Sales Manager

CC: Scott Hoff

Post-it® Fax Note 7671	Date 05/09/97	# of pages ▶
To HOWARD	From Mayur	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

ISCO INDUSTRIES, Inc.
924 Sutter Avenue
Box 4545
Louisville, KY 40204

DCN 1700-029
SHEET 2 OF 2
000561

File / Attach to DCN # 2271
Q. Boding

23 may '97 — H&N/Geotec Consultants

VISUAL EXAMINATION OF ISCO SUPPLIED HDPE PIPE FITTINGS

FIG. NO.	FACT INSP.	PIPE	SDR	RUN DATE	WALL THICK.*	WELDS
45°-1	D.R.	8"	26	26 JAN 97	.375"	OK
45°-1	—	4"	17	—	.297"	OK
45°-2	D.R.	8"	26	19 Oct '96	.375"	OK
45°-2	—	4"	17	—	.297"	OK
90°-1	D.R.	8"	26	19 Oct '96	.375"	OK
90°-1	—	4"	—	—	.297"	OK
90°-2	D.R.	8"	—	19 Oct '96	.375"	OK
90°-2	—	4"	—	—	.297"	OK
90°-3	D.R	8"	26	13 APR '96	.375"	OK **
90°-3	—	4"	17	—	.297"	OK
90°-4	D.R	8"	26	<13 APR '96 / 19 Oct '96>	.375"	OK
90°-4	—	4"	—	28 JAN '97	.297"	OK

THREADED TRANSITION PIPE, Welded by MDM, wall thickness .266"

TRANSITION TEE*, welded by MDM

CONTAINMENT — STEM - Run Date 2 mar '97, SDR 17, wall thick.* .500"
INSP. D.R. CROSS - SDR 21, wall thick.* .422"
CARRIER — Run date 14 SEPT '96, wall thick.* .297"

* WALL THICKNESS MEASURED WITH 6" STEEL RULE 1/64" GRADUATIONS

** EDGE OF PIPE HAS BEVELED ABRAISON WHICH CAN BE FACED OFF.

* CARRIER TEE APPEARS TO BE FACTORY FORMED (DIFFICULT TO BE CERTAIN)

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 20110	(2)S/C NO.: 1700	(5)Pg 1 OF 1	(6)DATE 5-20-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☑ OTHER☐	(4A)RCI/DCN TITLE: HILTI KWIK BOLT ANCHOR MAT. SPEC.		(11)DCN NO.: 1700-028

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
LCS DRAWG 92X-5900-G-00258 REV.0	92X-5900-G-00258	0	
NOTE 6 CIVIL DETAILS SHT 3 OF 3			

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

REFERENCE DRAWING NOTE 6 SPECIFIES ANCHOR STUDS, WEDGE, NUT & WASHER TO BE AISI 316 MATERIAL. THE ANCHOR STUDS RECEIVED WERE AISI 304. VILLAGE BUILDING SERVICES SUBMITTAL # 76 PIPE SUPPORT DETAIL WAS APPROVED WITH AISI 304 MATERIAL. THE ITEMS ARE IN QA HOLD STATUS.

(10)REQUESTOR: H. MILLIRON COMPANY: VBS QC DATE 5/21/97 | (12)FCE / PE Richard L McKenna DATE 5/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☐APPROVED ☒APPROVED AS NOTED ☐DISAPPROVED

- 304 SS IS ACCEPTABLE

CDC CONTROLLED COPY NO. C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE 5/22/97 | (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE 5/22/97

PERFORMANCE GRADE: (17) A

(18)CONSTRUCTION CONCURRENCE: Richard L McKenna DATE 5/22/97 | (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

PURCHASE REQUISITION REQUIRED: ☐YES ☐NO (19)

FS-F-4259 (10/01/96)

Parsons (Design Org.) Concurs Carlton Schroeder 6/4/97 RECEIVED MAY 27 1997

ORIGINAL

received 5-23-97

RECEIVED JUN 05 1997

DCN 028 DCN 023

CCG000563

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: SC 589	(5)PG 1 OF 1	(6)DATE 5-21-97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER ☐	(4A)RCI/DCN TITLE: ELEVATION OF G.W 10		(11)DCN NO.: 1700-027

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DWG. 92X5900 G00261		1	

(9)☒RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

AT WHAT ELEVATION SHOULD GW 10" BE AT STA. 7+ TO 9+. THERE WAS DISCUSSION OF A D.C.N. TO RAISE IT TO THE LEVEL OF LCS LINE.

(10)REQUESTOR: MJC COMPANY: VBS DATE 5-21-97 (12)FCE / PE Richard L McGuire DATE 5/22/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

- RUN GW-10" AT SAME INVERT ELEVATION AS LEACHATE FROM COORDINATE $\frac{GW}{4}$ WESTERLY. AIR RELIEF VALVE AT $\frac{GW}{9}$ SHALL BE ELIMINATED.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE 5/21/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) A James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L McGuire DATE 5/22/97

PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE

CDC

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED MAY 23 1997 CDC

CONTROLLED COPY NO. C011

000564

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: F5C-589	(5)Pg 1 OF 2	(6)DATE 5/21/97

3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: ED MD CE OTHER

(4A)RCI/DCN TITLE: Combined Trench Relocation

(11)DCN NO.: 1700 - 026

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5900-G-00261	Sh. 3	R.1	
92X-5900-G-00266	Sh.4	R.1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

Relocate LCS and other underground utilities as shown in Sketch # 20110-SK-010 to avoid monitoring wells.
Radius corner to 50' to 55'.
Section Detail 2 on Dwg G 00259 to be relocated unchanged.

(10)REQUESTOR: Jeff Kellis COMPANY: FDF DATE: 5/21/97

(12)FCE / PE: James C. Johnson DATE: 5/21/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) See Attached Page 1 of 1
2) Record Changes as "As Built" Conditions

CDC CONTROLLED COPY NO. COII

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schwab DATE: 5/23/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CWP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: (17) 4 James C. Johnson DATE: 5/27/97

(18)CONSTRUCTION CONCURRENCE: Richard L. McInnis DATE: 5/23/97

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

F-4259 (10/01/96)

received 5-21-97

RECEIVED MAY 21 1997 PM 3:14

RLB

DCN 026

ORIGINAL

000565

22 May, 1997

Leachate Conveyance System
PO164
TRANSMITTAL No.: 1700-026
Doc. No.: DCN-020 ISSUE: 1

Subject: Combined Trench Relocation

Comments are as follows:

A. It is recommended that this DCN receive status "A" approval.

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 3	(6)DATE 5/19/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: ☒ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Alignment Change		(11)DCN NO.: 1700-025

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV:	(8)OTHER
Civil Plan + Profile	92X-5900-G-00266		
Civil Plan + Profile	92X-5900-G-00262		

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

* Change the alignment of the LCS and other underground utilities between the OU4 Access Rd and clean-out manhole #10. (Based upon soil conditions) UNPAVED
* Field locate clean-out manhole #9 to AREA between OU4 Access Rd. and the Haul Rd.
* See Attached Sketches #20110-SK-008 + 009.

(10)REQUESTOR: J. Ellis	COMPANY: FDF	DATE: 5/19/97	(12)FCE / PE James C. Jenkins	DATE: 5/20/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Attached Comments (Page 1 of 1)

2) Record changes as "AS BUILT CONDITIONS"

CDG
CONTROLLED COPY NO. COT

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 5/23/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: ZCDP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 5/23/97
PERFORMANCE GRADE: (17) 4			
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire	DATE: 5/23/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)			

S-F-4259 (10/01/96)

ORIGINAL

received 5-21-97

MAY 28 1997

DCN 025 DCN-021

DOE 000567

22 May, 1997

Leachate Conveyance System
PO164
TRANSMITTAL No.: 1700-025
Doc. No.: DCN-021 ISSUE: 1

Subject: Alignment Changes

Comments are as follows:

A. The PIV's and laterals shown on Dwg G00266 and on Detail 1, Dwg G00259 were not shown to be installed on Sketch #20110-SK-009. The PIV's and COMH 9 should be installed as far as possible away from the proposed edge of pavement while holding the designed tie-in locations.

B. Since the utility corridor is being relocated underneath the proposed OU2 haul road, it is especially important that the materials, installation, and compaction of the pipe embedment and trench fill are provided in accordance with the construction specifications.

D C. It is recommended that this DCN receive status "B" approval.

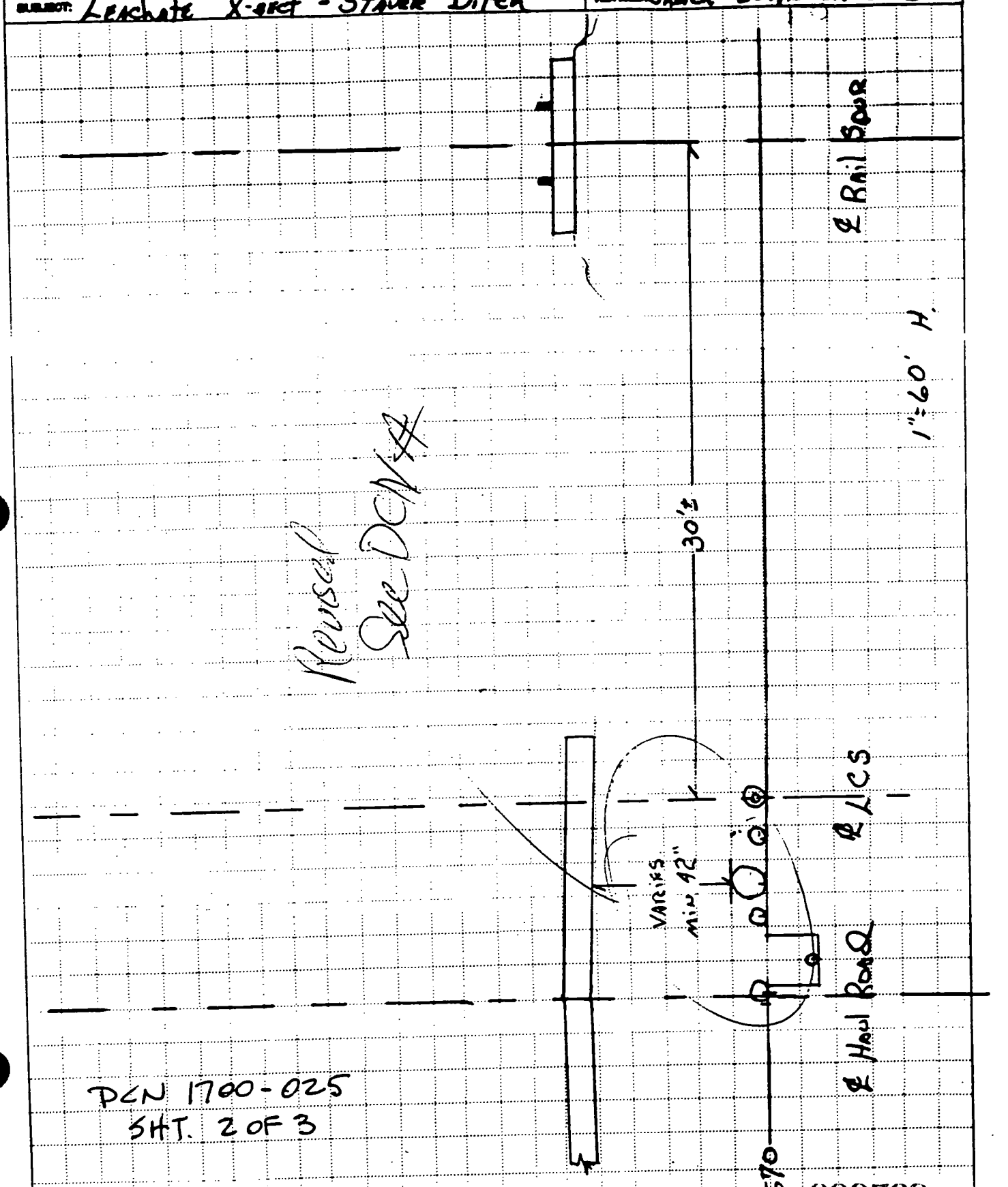
K69 C CE-6" TIE-IN TO K-65 TRENCH MAY REQUIRE ADJUSTMENT.

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER: Haul Rd / LCS	
BY: JRE	DATE: 5/19/97
CHECKED BY:	DATE:
PAGE 1 OF 1	
REVISED: Sketch # 2011D-SK-008	

SUBJECT: Leachate X-sect - Stover Ditch



DCN 1700-025
SHT. 2 OF 3

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO: 589	(5)Pg 1 OF 2	(6)DATE 07 May 1997
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: Pavement Restoration Detail		(11)DCN NO.: 1700-022

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Drawing 92X-5900-G-00257		0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN adds to the existing Pavement Restoration Detail on Drawing 92X-5900-G-00257 Rev.0 granular subbase requirements. These requirements are consistent with pavement restoration repairs used at this site. The modification to the restoration detail is attached and is summarized as follows:

Provide a 6-inch thick Aggregate Base, crushed stone or crushed gravel, ODOT 304.02, beneath the Bituminous Aggreate ase Course and compact to a minimum 98 % Standard Proctor. Beneath the 6-inch layer, provide 12-inch layer placed i two 6-inch lifts, of Aggregate Base gravel or stone material ODOT 304.02 or Size No. 89 ODOT 703.01, compacted to minimum 95 % Standard Proctor.

This design change will not significantly increase water infiltration around the pipe, because the surface will be paved and the pipe will have at least 12-inches of compacted cohesive trench fill material above it. This DCN addresses clarifications and comments raised in RCI No. 1700-009R.

(10)REQUESTOR: Dan Bodine	COMPANY: Dan Bodine GeoSyntec	DATE: 7 May 97	(12)FCE / PE James C. Jenkins	DATE: 5/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☐APPROVED ☑APPROVED AS NOTED ☐DISAPPROVED

CDC
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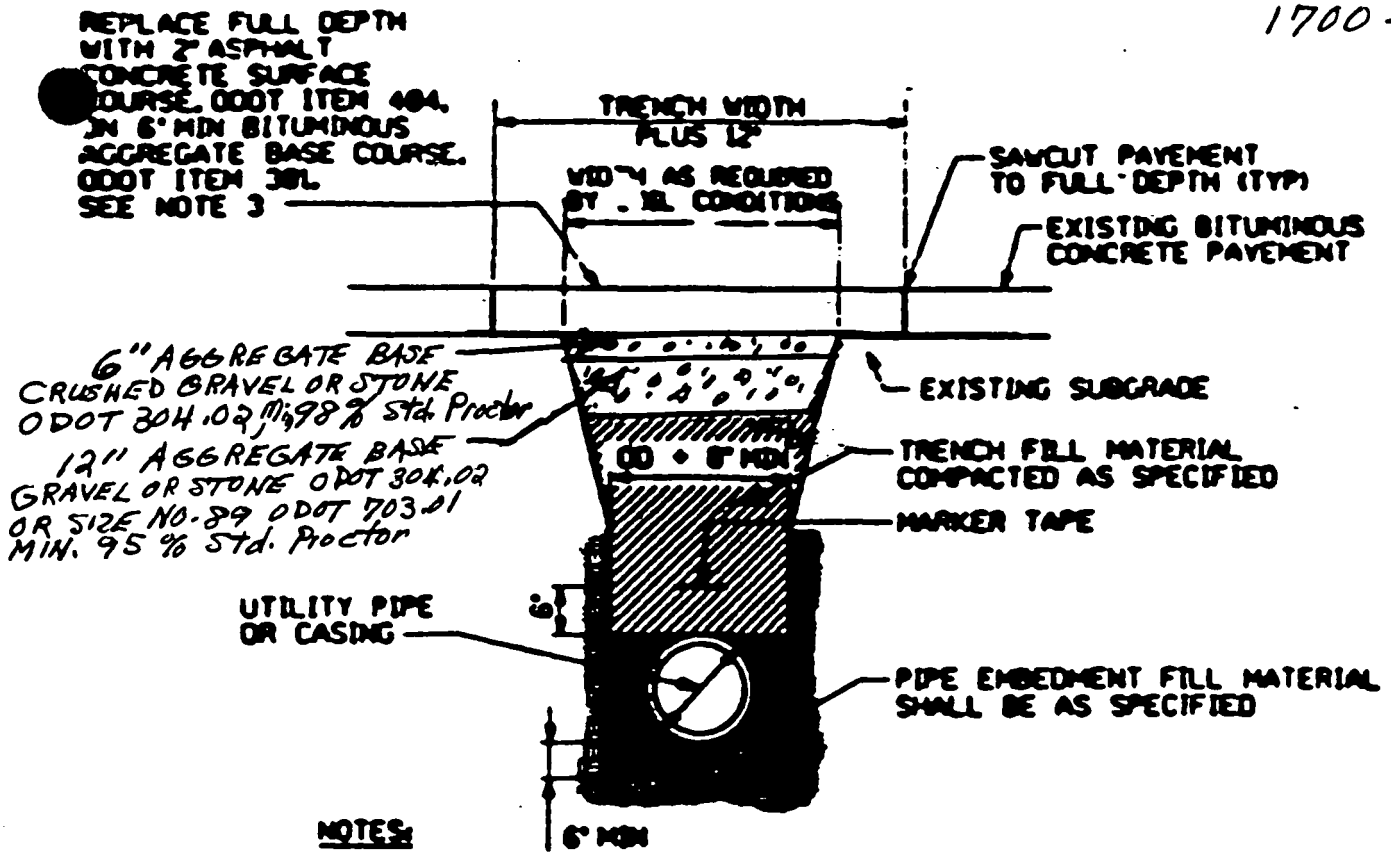
NO. C 01

ORIGINAL

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Dan Bodine	DATE: 7 May 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CWP5	
(16)FOF PE ACCEPE & VERIFICATITANCON THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE:
PERFORMANCE GRADE: (17) 4 James C. Jenkins			5/8/97
(18)CONSTRUCTION CONCURRENCE: Richard L McInnis	DATE: 5/8/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☑YES ☐NO (19)			



NOTES:

1. MATERIAL AND CONSTRUCTION OF THE ASPHALTIC CONCRETE PAVING SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 301, 401 AND 404 OF ODOT STANDARD SPECIFICATION.
2. COMPACT PAVEMENT BY STEEL WHEEL ROLLER TO ACHIEVE EVEN AND SMOOTH FINISH, WITHOUT ROLLER MARKS. HAND-COMPACT IN AREAS INACCESSIBLE TO ROLLING EQUIPMENT.
3. PLACE PAVEMENT IN LAYERS NOT TO EXCEED 3 INCHES COMPACTED DEPTH. THE THICKNESS OF THE REPLACEMENT BITUMINOUS CONCRETE SHALL BE AT LEAST AS THICK AS THE EXISTING. USE ODOT ITEM 301 MATERIAL AS NECESSARY.
4. ADD TACK COAT ITEM 407, ODOT STANDARD SPECIFICATIONS BETWEEN LAYERS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

TYPICAL PAVEMENT RESTORATION DETAIL

NTS

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO: 589	(5)Pg 1 OF 1	(6)DATE 07 May 1997
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: HDPE Dual Containment Pipe		(11)DCN NO.: 1700-021

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
CFC Technical Specification	Section 02605 Part 2.05	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN responds to a written request by VBS HDPE pipe supplier, ISCO INDUSTRIES, INC. in a letter dated April 28, 1997 attached to Submittal No. 77 Rev. 2, to re-evaluate the spacing allowed for support centralizers between the carrier and the containment pipe. The design change to Specification Section 2.05 is as follows:

Part 2.05.F Change "maximum allowable spacing of 4 feet" to "maximum nominal spacing of 4.5 feet" .

The referenced letter above also discusses the specification requirement (Part 2.05.C) of furnishing pipe/fittings with the carrier pipe/fittings ends extending 6 inches beyond the containment pipe/fitting ends. For the pipe, this requirement is intended to allow space for proper installation (fusion welding) of the carrier pipe. Since the carrier pipe is being furnished movable within the containment pipe this requirement can be met during actual pipe installation. Quality Control inspection shall verify proper fusion welding in the field. If pipe length adjustments need to be made on a case by case basis, then it shall be made as required by Quality Control. No change to the specification is necessary.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Dan Bodine	Dan Bodine GeoSyntec	7 May 97	James C. Jenkins	5/7/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES (14)FOR DCN: ☐APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CDC CONTROLLED COPY NO. 011

ORIGINAL

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Daniel Bodine	7 May 1997	
(16)FDF PE ACCEPE & VERIFICATITANCON THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)		DATE:
PERFORMANCE GRADE: (17) A James C. Jenkins		5/7/97
(18)CONSTRUCTION CONCURRENCE: Richard L McBride	DATE: 5/7/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☑NO (19)		

FS-F-4259 (10/01/96)

000572

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO: 589	(5)Pg 1 OF 1	(6)DATE 29 April 97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	(4A)RCI/DCN TITLE: ALUMINUM ACCESS COVERS FOR PERMANENT LIFT STATION		(11)DCN NO.: 1700-020

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWING 90X-6000-S-00069 SHEET NO. S-3A		0	
DRAWING 90X-6000-M-00067 SHEET NO. M-9A		0	
CFC TECHNICAL SPECIFICATION	SECTION 15000 PART 2.08	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☐DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN supplements DCN No. 008 by including the Permanent Lift Station (PLS) manhole cover design changes as follows: Change the material of construction from stainless steel to aluminum for the manhole opening, but keep the opening size at 4-ft x 4-ft.

Change the material of construction from stainless steel to aluminum and size from 3-ft x 3-ft to 2-ft x 2-ft for the clean out cover located at the north end of the concrete slab.

Change the material of construction from stainless steel to aluminum for the clean out located at the south end of the concrete slab.

Specification Section 2.08 changes as follow to incorporate DCN No. 008 and this DCN changes.

Part 2.08.A. Change "14, gauge, Type 316 stainless steel" to " 11 gauge, aluminum" two places.
Part 2.08.B. Change "cadmium plated" to "stainless steel".

This DCN will not affect the status of VBS submittal No. 27 R1, Shop Drawings for the Aluminum Access Doors. Also please note that the affected drawings by DCN No. 008 should have included Drawing No. 90X-6000-M-00066.

(10)REQUESTOR: Dan Bodine	COMPANY: D. Bodine GeoSyntec	DATE: 29 April 97	(12)FCE / PE James C. Jenkins	DATE: 4/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☒YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

RECEIVED MAY 01 1997 RWB

CONTROLLED COPY NO. C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 29 April 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:	
(16)FDF PE ACCEPE & VERIFICATITANCON THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)			DATE:
PERFORMANCE GRADE: (17) 4 James C. Jenkins			4/29/97
(18)CONSTRUCTION CONCURRENCE: Richard L. McKinney	DATE: 4/29/97	(21)WORK COMPLETED: (SIGN OFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)			

FS-F-4259 (10/01/96)

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 5/14/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☒ OTHER☐	(4A)RCI/DCN TITLE: CONCRETE TESTING		(11)DCN NO.: 1700-024

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
—			
FSC-589			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- CONCRETE TESTING IS PRESENTLY IN VILLAGE BUILDING SERVICES CONTRACT.
- PROPOSE TO DELETE FROM VBS CONTRACT AND INSTRUCT GEOSYNTEC TO PERFORM THIS TASK SINCE THEY ARE RESPONCIBLE FOR OTHER TESTING AND HAVE LABORATORY SERVICES ON SITE. EQUIPMENT FOR PREPARING CONCRETE CYLINDERS IS ALREADY PART OF GEOSTNTEC LAB SET UP.

(10)REQUESTOR: COMPANY: DATE:	(12)FCE / PE DATE:
J. C. JENKINS FDF 5/14/97	Richard L McLaren 5/14/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

David T. Bennett 19 May '97 RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
James C. Jenkins 5/14/97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 4 James C. Jenkins 5/14/97

(18)CONSTRUCTION CONCURRENCE: DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
Richard L McLaren 5/14/97	
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)	

S-F-4259 (10/01/96)

ORIGINAL

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE: 5/14/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EO MO CE OTHER	(4A)RCI/DCN TITLE: CONCRETE TESTING		(11)DCN NO.: 1700-024

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
—			

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- CONCRETE TESTING IS PRESENTLY IN VILLAGE BUILDING SERVICES CONTRACT.
- PROPOSE TO DELETE FROM VBS CONTRACT AND INSTRUCT GEOSYNTEC TO PERFORM THIS TASK SINCE THEY ARE RESPONCIBLE FOR OTHER TESTING AND HAVE LABORATORY SERVICES ON SITE. EQUIPMENT FOR PREPARING CONCRETE CYLINDERS IS ALREADY PART OF GEOSYNTEC LAB SET UP.

(10)REQUESTOR: J. C. JENKINS	COMPANY: FDF	DATE: 5/14/97	(12)FCE / PE: Richard L Malone	DATE: 5/14/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

CDC
CONTROLLED
COPY
NO.

C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins	DATE: 5/14/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 5/14/97
PERFORMANCE GRADE: (17) 4			
(18)CONSTRUCTION CONCURRENCE: Richard L Malone	DATE: 5/14/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

S-F-4259 (10/01/96)

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 5/8/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER	(4A)RCI/DCN TITLE: K-65 CASING PIPE		(11)DCN NO.: 1700-023

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92x-5900-G-00257		0	
92x-5900-G-00266		1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- CHANGE CASING PIPE FROM NOMINAL 14" TO NOMINAL 12" @ K-65 TRENCH FOR 8"/4" LEACHATE.
- REF. SUBMITTAL VBS SUBMITTAL # 75

(10)REQUESTOR: J.C. JENKINS COMPANY: FDF DATE: 5/8/97	(12)FCE / PE: Richard L McGuire DATE: 5/8/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

CDC CONTROLLED COPY NO. 011

ORIGINAL

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins DATE: 5/8/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins DATE: 5/8/97	
PERFORMANCE GRADE: (17) 4	
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire DATE: 5/8/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)	

S-F-4259 (10/01/96)

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO: 589	(5)Pg 1 OF 3	(6)DATE 24 April 97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: LDS and LCS MANHOLES and PLS CONTROL SYSTEM MODIFICATIONS		(11)DCN NO.: 1700-019

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWING 90X-6000-E-00060 SHEET NO. E-4A DRAWING 90X-6000-E-00061 SHEET NO. E-7A		0 0	
DRAWING 90X-6000-M-00062 SHEET NO. M-2A		0	
CFC TECHNICAL SPECIFICATION	SECTION 15000	0	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN covers design changes related to the power supplies and control systems for the Leak detection systems manholes, Leachate Collection Manholes and Permanent Lift Station and have been based on recommendations previously provided by the designer, GeoSyntec Consultants. The design modification changes the direct current supply from a 12 volt system to a 24 volt system. The changes are detailed on page 2 for the drawings and page 3 for the technical specification listed. The changes should present a cost savings to the OSDF project due to increased availability of 24 volt power supplies and control systems.

(10)REQUESTOR: Dan Bodine	COMPANY: GeoSyntec	DATE: 24 April 97	(12)FCE / PE: James C. Jenkins	DATE: 4/24/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES (14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

CDC
CONTROLLED
COPY
NO.
C011

(GEOSYNTEC, BODINE) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Daniel Bodine	DATE: 24 April 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPE & VERIFICATITANCON THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE: 4/24/97
PERFORMANCE GRADE: (17) 4			
(18)CONSTRUCTION CONCURRENCE: Richard L Matthews	DATE: 4-24-97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐YES ☒NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

Drawing No. 90X-6000-E-00060 Sheet No. E4A Rev. 0

Control Item	Change	Detail	No. of Places
1. Relay *Y1	Change coil voltage from 12 VDC to 24 VDC	No. 9	1
2. Relay *Y2	Change coil voltage from 12 VDC to 24 VDC	No. 9	1
3. Relay *Y3	Change coil voltage from 12 VDC to 24 VDC	No. 9	1
4. Relay *TY4	Change coil voltage from 12 VDC to 24 VDC	No. 9	1
5. LT-*01	Change 12 VDC excitation to 24 VDC	No. 11 and 7	2
6. LT-*02	Change 12 VDC excitation to 24 VDC	No. 11 and 7	2
7. Battery	Change total battery voltage from 12 VDC to 24 VDC	No. 8	1
		Total Drawing Place Changes	9

Drawing No. 90X-6000--E-00061 Sheet No. E7A Rev.0

Control Item	Change	Detail	No. of Places
1. Relay 10Y1	Change coil voltage from 12 VDC to 24 VDC.	No. 14	1
2. Relay 10Y2	Change coil and contact function voltage from 12 VDC to 24 VDC.	No. 14	2
3. Relay 10Y3	Change coil voltage from 12 VDC to 24 VDC.	No. 14	1
4. Relay 10TY4	Change coil voltage from 12 VDC to 24 VDC.	No. 14	1
5. Relay 10Y6	Change coil and contact function voltage from 12 VDC to 24 VDC.	No. 14	4
6. Relay 10Y5	Change contact function voltage from 12 VDC to 24 VDC	No. 14	4
7. LT-110	Change 12 VDC excitation to 24 VDC.	No. 16	1
8. LT-111	Change 12 VDC excitation to 24 VDC.	No. 16	1
9. BC-110	Change 12 VDC to 24 VDC.	No. 16	1
10. PS-110	Change 12 VDC to 24 VDC and 100 mA to 5A	No. 16	3
11. PS-111	Change 12 VDC to 24 VDC.	No. 16	1
12. LA-110 & LA-111B	Change 12 VDC to 24 VDC.	No. 16	1
13. Power Fuse Blown	Change 12 VDC to 24 VDC.	No. 16	1
14. Alarm Siren	Change 12 VDC to 24 VDC.	No. 13	1
15. Battery Charger	Change 12 VDC to 24 VDC.	No. 12	1
16. Lead Acid Battery	Change 12 VDC to 24 VDC	No. 12	1
17. LT-110	Change 12 VDC excitation to 24 VDC.	No. 12	1
18. LT-111	Change 12 VDC excitation to 24 VDC.	No. 12	1
19. LA-111B	Change 12 VDC to 24 VDC.	No. 12	1
20. PS-110	Change 12 VDC to 24 VDC and 100mA to 5A.	No. 12	2
		Total Drawing Place Changes	30

Drawing No. 90X-6000-M-0062 Sheet M-2ARev. 0

Control Item	Change	Detail	No. Of Places
1. LA-110	Change 12 VDC to 24 VDC.	No. 18	1
2. LA-111B	Change 12 VDC to 24 VDC.	No. 18	1
		Total Drawing Place Changes	2

ORIGINAL

Section 15000	Change
1.01.A.1.	Change 12 VDC to 24 VDC.
1.01.A.2	Change 12 VDC to 24 VDC.
1.01.B.2.	Change 12 VDC to 24 VDC.
2.01.C.	Change 12 VDC to 24 VDC and 53 watt to minimum 100 watt.
2.01.D.4.	Change 12 VDC to 24 VDC and Delete Class 8700.
2.01.D.5.	Delete Class 9050.
2.01.F.	Change 12 VDC to 24 VDC.
2.05.D.6	Delete Class 8501.
2.05.D.7.	Change 12 VDC to 24 VDC and Change 100mA to 5A.
2.05.D.8.	Change 12 VDC to 24 VDC and Delete Class 9050.
2.05.D.9	Change 12 VDC to 24 VDC and Delete Class 8700.
2.05.F.	Change 12 VDC to 24 VDC.
2.05.H.	Change 12 VDC to 24 VDC.
2.05.I.	Change 12 VDC to 24 VDC.
2.05.J.	Change 12 VDC to 24 VDC (Two Times).
2.06.A.	Change 12 VDC to 24 VDC (Three Times).
2.06.B.	Change 12 VCC to 24 VDC (Four Times).
2.06.C.	Change 12 VDC to 24 VDC (Two Times).
2,06.D.	Change 12 VDC to 24 VDC (Six Times).
2.06.E.	Change 12 VDC to 24 VDC (Three Times).
2.06.F.	Change 12 VDC to 24 VDC.
2.06.G.	Change 12 VDC to 24 VDC.

ORIGINAL

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: 589	(5)Pg 1 OF	(6)DATE 4/22/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: INTERFACE ADJUSTMENTS FOR TIE-IN OF GROUNDWATER OPT./INJ. SYS.	(11)DCN NO.: 1700-018	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
CIVIL - PLAN & PROFILE - SHT 1 OF 4	92X-5900-G-00254	1	
CIVIL - PLAN & PROFILE - SHT 2 OF 4	92X-5900-G-00261	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

EXISTING CONDITION

TIE-IN COORDINATES FOR THE GROUNDWATER OPTIMIZATION/INJECTION SYSTEM, WHICH WERE SHOWN ~~[illegible]~~ ON THE TWO ITEM (7) DOCUMENTS, REQUIRE ADJUSTMENT TO IMPROVE CONSTRUCTABILITY

PROPOSED CHANGE

PROVIDE A SKETCH SHOWING THE REVISED COORDINATES FOR THE POINTS THAT NEED RELOCATION

RECEIVED
MAY 01 1997
D.C.E. RCS

(10)REQUESTOR: COMPANY: DATE: (12)FCE / PE ~~Carlton Schroeder, 4/25/97~~ DATE:
CARLTON SCHROEDER PARSONS 4/22/97 James C. Jenkins 4/29/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) RELOCATE FOLLOWING POINTS TO NEW COORDINATES AS SHOWN ON THE ATTACHED SKETCH (SHEET 1 OF 1) SKETCH NO. 20110-SK-007
GW-4
GW-7
POINTS OF CURVE BETWEEN GW-7 & GW-8
GW-8

2) RECORD AS-BUILTX CONDITIONS

CDC CONTROLLED COPY NO. C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: DATE: (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
C. Schroeder 4/24/97 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE
PERFORMANCE GRADE: (17) 4 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: DATE: (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
Richard K. McAuley 4/29/97
PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

Rec: 4-22-97

000580

g045536.m po164@ws412. Wed Apr 23 09:55:14 EDT 1997

STATE OF OHIO NORTH (NAD 83)

FEMP NORTH

TANK AND PAVING BY OTHERS

N 479,028.47
E 1,348,802.23

GW 4

WITH BLIND FLANGE

PAVED ROAD

VALVE HOUSE

SUBSTATION

STORMWATER BASIN

MH #4
N 478911.05
E 1349647.03

GW 7

GW-10"-B4-295'

POINT OF CURVE
N 478905.60
E 1349855.18
R=20'

FIBER OPTIC LINE

POINT OF CURVE
N 478885.07
E 1349674.63

CAP-END PIPE
GW-10"

1½" ELECTRICAL

GW 8
N 478880.55
E 1349674.43

SKETCH No. 20110-SK-007

Relocated points for Groundwater Optimization Line

Parsons
Sheet 1 of 1

SK004536.DGN

DGN NO: 1700-018

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WF / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 4/9/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: 1700-012R
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER	(4A)RCI/DCN TITLE: FLOW METERS		(11)DCN NO.: 1700-017

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION 13400	13400 - ATTACH. A SHEET 2	0	
VBS SHOP DRAWING	1700-589-040		

(9)☒ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☐ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- CLARIFY ACCEPTANCE OF ZIRCONIUM AS MATERIAL OF CONSTRUCTION FOR ELECTRODES FOR MAG METERS FE-012A, FE-012B
- VERIFY MINIMUM FLOW OF 72 GPM IS ACCEPTABLE

(10)REQUESTOR: J.C. JENKINS COMPANY: FDF DATE: 4/9/97

(12)FCE / PE James C. Jenkins DATE: 4/9/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☑ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons Comments (page 1-3 of 3)

CDC CONTROLLED COPY NO.

011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder DATE: 4/18/97

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: (17) 4 James C. Jenkins DATE: 4/21/97

(18)CONSTRUCTION CONCURRENCE: Richard K. McAfee DATE: 4/18/97

PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/98)

ORIGINAL

RCE 012R

received 4-21-97

ENTERED

APR 22 1997

000582

DOCUMENT REVIEW COMMENT SHEET

SME/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 4/18/97
DOCUMENT NO. AND TITLE: Leachate Conveyance System RCI-1700-012R		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
	J. SAYATOVIC		SEE ATTACHMENT		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

000583

	REQUISITION NO.			VENDOR					
1	Loop Tag No.			FE-012A/FIT-012A		FE-012B/FIT-012B			
2	Item No.								
3	Model No.			NOTE (1)		NOTE (1)			
4	Service			STORM / LEACHATE WATER		STORM / LEACHATE WATER			
5	Line No.			WW-4"-A-1000		WW-4"-A-1000			
6	P&ID No./Section			95X-5900-N-00322		95X-5900-N-00322			
	SERVICE CONDITIONS								
7	Fluid			LEACHATE WATER		LEACHATE WATER			
8	Normal Flow (units)			200 GPM		200 GPM			
9	Flow (units)	Max.	Min.	300 GPM	72 GPM	300 GPM	72 GPM		
10	Temperature (units)	Max.	Min.	70 DEG F	40 DEG F	70 DEG F	40 DEG F		
11	Pressure (units)	Max.	Min.	100 Psig	40 Psig	100 Psig	40 Psig		
12	Velocity (units)	Max.	Min.	10 FPS	1.3 FPS	10 FPS	1.3 FPS		
13	Conductivity (µMHOS/ c)	Norm.	Min.	> 30	> 20	> 30	> 20		
14	Specific Gravity	Max.	Norm.	1	1	1	1		
15	% Solids	Max.	Norm.	< 3%	< 3%	< 3%	< 3%		
16	Extra Conditions or Requirements			NO		NO			
	MEASURING ELEMENT			FE-012A		FE-012B			
17	Tube Size (units) Matl. Sched.			3"	SCH 40	3"	SCH 40		
18	Liner Material			NOTE (6)		NOTE (6)			
19	End Connections & Rating / Type Material			ANSI 150# RF (WAFER) CARBON STEEL		ANSI 150# RF (WAFER) CARBON STEEL			
20	Electrode Material			NOTE (7)		NOTE (7)			
21	Meter Casing			NOTE (1)		NOTE (1)			
22	Power Requirements / Electrical Code			120V, 60HZ	GENERAL	120V, 60HZ	GENERAL		
23	Enclosure Class			NEMA 4		NEMA 4			
24	Grounding Type / Material			INTERNAL	NOTE (7)	INTERNAL	NOTE (7)		
25	Ultrasonic Cleaning			NO		NO			
26	Extra Features or Requirements			NO		NO			
	TRANSMITTER			FIT-012A		FIT-012B			
27	Output Signal (units)			NOTE (5)		NOTE (5)			
28	Calibrated Flow Range (units)			0-300 GPM		0-300 GPM			
29	Conduit Conn. Size (units)			1/2" NPT		1/2" NPT			
30	Mounting			INTEGRAL		INTEGRAL			
31	Enclosure Class			NEMA 4		NEMA 4			
32	Signal Cable Length (units)			NOTE (1)		NOTE (1)			
33	Power Requirement / Elect. Code			120V, 60HZ	GENERAL	120V, 60HZ	GENERAL		
34	Integrator			YES		YES			
35	Zero Return			YES		YES			
36	Alarms			NO		NO			
37	Special Modification			NO		NO			
38	Extra Features or Requirements			NOTE (2)		NOTE (2)			

Notes:

1. INFORMATION AND OR DATA TO BE FURNISHED BY VENDOR.
2. ACCURACY SHALL BE AS A MINIMUM 1.0% AND REPEATABILITY SHALL BE 0.5% OR BETTER.
3. TRANSMITTER OPTION - MAGNETIC METER CAN BE CHOSEN TO PROVIDE A PULSE-DURATION OUTPUT SIGNAL COMPATIBLE WITH TELEPHONE LINE.
4. TRANSMITTER SHALL BE EXTERNALLY POWERD BY 120VAC TO PRODUCE 4-20 mADC AND PULSE-DURATION SIGNAL.
5. 4-20mADC AND PULSE-DURATION.
6. POLYURETHANE OR TEFZEL
7. 316 STAINLESS STEEL OR ZIRCROMIUM

PARSONS ERA PROJECT	MAGNETIC FLOWMETERS	Sheet 2	Job Number SRP/PO164
Instrument Data Sheet WBS 1.1.1.1.2.3.6		Document Number 13400-ATTACHMENT A	Rev 0A

S:\ENGDATA\INST\SSDATA\PO164PET.*

ENG034

18-Apr-97

000584

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF	(6)DATE 4/17/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☒ MO CO OTHER☐	(4A)RCI/DCN TITLE: POLE MODIFICATIONS		(11)DCN NO.: 1700-016

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
90X-5500-E-00503		1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- UNDERGROUND UTILITIES REQUIRE THE RELOCATION OF PROPOSED POLES #101 & 100.
- NEED ADD'L POLE (99) FOR CONNECTION TO TELEPHONE BOXES
- SET NEW POLE (99) AND GUY ANCHOR AS LOCATED IN FIELD
- SET POLES 100 & 101 IN LINE AS LOCATED IN FIELD
- INSTALL 2-4" PVC CONDUITS W/ PULL WIRE, 36" DEEP. TERMINATE CONDUITS ABOVE GRADE AT POLE 99 AND EXISTING TELEPHONE BOXES
- PROVIDE AS BUILT LOCATIONS

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 4/17/97	(12)FCE / PE: Richard L McGuire	DATE: 4/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) FDF Prepared orginal Design and should have signature for DCN Acceptance.
2) Parsons circulated DCN to Civil For INFO only. (See parsons Attached Comments)

CDC CONTROLLED COPY NO. C011

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: James C. Jenkins	DATE: 8-19-97 4/17/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CWP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 4 James C. Jenkins			DATE 4/17/97
(18)CONSTRUCTION CONCURRENCE: Richard L McGuire PURCHASE REQUISITION REQUIRED: ☐ YES ☑ NO (19)	DATE: 4/17/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:

FS-F-4259 (10/01/96)

1997 MAY 27 AM 9:32

received RP 5-23-97

ORIGINAL

DCN DCN-0216

UUUUU

11 June 97

SRP PO164 Leachate Conveyance System

DOC. No.: DCN-024 ISSUE: 1 TRANSMITTAL No.: 1700-016

Pole Modification

Civil comments are as follows:

1. Review of the referenced drawing, 90X-5500-E-00503, Rev 1, does not indicate a conflict between the poles and underground utilities. Was this based on field determination of the UG utilities?

2. Pole OP101 on referenced drawing, 90X-5500-E-00503, Rev 1, may be located in or near the side ditch. Relocation of the pole should take into account the proposed roadway improvements, including drainage. This is applicable to all poles as they should be located out of the work area for the road contractor.

3. Poles and their appurtenances should be located a minimum of 8 feet from the edge of the road, if practical. (See comment 2 above also). Boxes should be flush with the ground if within the 8' area.

General comment

In general, the ODOT Location and Design Manual indicates that for roads with a design speed of 40 mph or less and an ADT less than 750, the clear zone from edge of pavement should be 8 feet. The location of the poles on the referenced drawing (copy received from FDF CAD Support file) are less than this. (Conversation with J. Jenkins 6/10 indicated the pole locations shown on the plans received from FDF CAD Support files may have been or are in the process of being revised to indicate the poles to be out of the road contractor's work zone.) Note that ODOT does indicate that this distance is not an absolute if accident history would indicate no problems. The civil group recommends that where possible, especially in curves, the 8 feet be met. Consideration should also be given to drainage improvements for the Rerouted North Entrance Rd. This also applies to guys for the poles and any above grade appurtenances.

PARSONS
ERA PROJECT

ROUTING CARD

1271

DOC. No.:	ISSUE:	TRANSMITTAL No.:	DATE:	
DCN 024	1	1700:016	5-27-97	
TITLE: POLE MODIFICATIONS			PROJ. No.: SRP	P.O. No.: 164

REVIEW REQUEST, COMPLETE, AND RETURN TO PROJECT ENGINEER

BY 5 , 30 , 97
DUE DATE

TO REVIEWERS:

1. Check the attached document against issued specifications to ensure that this document meets the intent of our specs.
2. Date and Initial this card, in red ink, as to the status.
3. Hand carry the attached document and this card to the Project Engineer.
4. If comments are needed, mark the original document in red ink.
5. The Project Engineer will return the completed document and card to Document Control.

Note: If you are in a remote location, call the Project Engineer for pick-up.

ROUTING SEQUENCE	REVIEWING DISCIPLINE	DATE	STATUS 'A'	STATUS 'B'	STATUS 'C'
	PROCESS				
	MECHANICAL PROCESS				
	PIPING				
	STRUCTURAL				
02	CIVIL KEN G.	6/4/97		KG	
CCS 01	~~ELECTRICAL~~ JIM C./T. FERRELL				
	INSTRUMENTATION				
	MATERIAL HANDLING				
	ARCHITECTURAL				
CCS 03	~~ENVIRONMENTAL, SAFETY, & HEALTH~~ MIKE B.				
	HVAC				
	GEOTECHNICAL				
CCS 04	~~QUALITY ASSURANCE~~ BILL U				
05	PROJECT ENGINEER CARLTON S.	7/10/97		CS	
	TITLE III MANAGER				
	PROJECT MANAGER				

STATUS 'A' = APPROVED
STATUS 'B' = APPROVED AS NOTED
STATUS 'C' = DISAPPROVED AS NOTED

Transmitted to Client	Date:	Initials:
Document Control	Date:	Initials:
* ORIGINATING PROJECT DESIGN ENGINEER		C. SCHROEDER

SPECIAL INSTRUCTIONS:

(This Design & DCN Wrk by FDF – Parsons
Routed thru Civil for INFO ONLY)
~~FOR INFO. ONLY~~ CR Stet

3/96

ENG 023

000587

1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg 1 OF 12	(6)DATE
1700	589		03/18/97

(3)S/C TITLE: Leachate Conveyance System

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☐ C☐ OTHER☐

(4A)RCI/DCN TITLE: Delete Electrical Feeder to Trailers

(11)DCN NO.: 1700-015

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Leachate Conveyance System, 480 V. Feed to OSDF Trailers & Permanent Lift Station	90X-5500-E-00504	0	
Leachate Conveyance System, 480 V. Feed to OSDF Trailers & Permanent Lift Station	90X-5500-E-00505	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☑ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

The current scope for the Leachate Conveyance System project called for the LCS contractor to install 480 V. overhead electrical service to five (5) future OSDF trailers, located directly south of existing trailers T-82 and T-83.

Per direction by the FC&DP Land Use Group (see attached cc:Mail from Pat Patel, dated 2/18/97, re: Revised Layout; Contractor Trailers for "OSDF" Activities), any new trailers for OSDF are to use space vacated by trailers removed from the "east trailer area", located west of T-82 and T-83. This negates the need for new 480 V. service since these spaces already have electrical service. The attached sheets (11 pages) identify electrical equipment and material deletions resulting from this change. The 480 V. feeder for the permanent lift station will remain unchanged.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
Richard L. McGuire	Fluor Daniel Fernald	3/24/97	James C. Jenkins	3/25/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

CDC
CONTROLLED
COPY
NO. C011

FDF (SPRINGDALE) J. KERL RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
James E. Kerl	3-26-97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 3/27/97

PERFORMANCE GRADE: (17) 4 James C Jenkins

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L McGuire	4/2/97		

PURCHASE REQUISITION REQUIRED: ☑ YES ☐ NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

RECEIVED
APR 07 1997
000389

ENGINEER

Author: Pat Patel at FNST-02
Date: 2/18/97 3:18 PM
Priority: Normal
TO: Don Goetz at FNST-03
TO: Rick Mcguire at FNST-03
TO: Michael Hickey
CC: Joe Neyer at FEST-01-A
CC: Wayne Pasko at FEST-01-A
CC: Todd Clark
CC: Steven Houser
CC: Lyle Hampshire
CC: Linda K Rogers at FNST-05
CC: Paul Disney at FEST-01-A
CC: Raymond Reinhart at FNST-05
CC: Todd Trammel at FNST-05
CC: Pat Patel
CC: Steve Wentzel at FNST-05
CC: Woodrow Jameson
CC: Vaughn Furlong at FNST-04
CC: Alvin Westerman at FNST-04
Subject: REVISED LAYOUT; CONTRCTOR TRAILERS FOR "OSDF" ACTIVITES.

---------- Message Contents ----------

Don / Rick and Mike:

In process to coordinate the revised layout for the Contractor Trailers for the "OSDF" activities as proposed by you recently, which has been turned down by our client DOE for the following reasons.

i) Use the space vacated by the trailers removed from the "EAST TRAILER AREA" for the OSDF support activity, in lieu of the proposed Gravel Construction Area / Trailers. (Use Existing Trailer spots and Utilities)

ii) Power, Communications, and bathroom facilities, etc. are available within East Trailer Area. No need to run separate poles and power for the proposed trailers.

iii) The proposed layout shall require additional fencing and gate as it looses the site between existing / established check points. (Security Issue)

iv) The fence, which is removed to pull out the existing trailers from the East Trailer Area shall remain down.

Please coordinate above input in your planning and resubmit final trailer location for the "Master Plot Plan" and Land Use Authority processing.

Thanks,

Pat.

ORIGINAL

EXHIBIT F

* 480 Volt Feed ~~To On Site Disposal Facility Trailers And~~ Permanent Lift Station. Page 1 of 8. 10/21/96 (1)

* Power Distribution Center #2. Page 2 of 8. 10/21/96

(1) * ~~On Site Disposal Facility Trailer Transformer. Page 3 of 8. 10/21/96~~

* 480 Volt Feed To Permanent Lift Station Page 4 of 8. 10/21/96

(1) * ~~Typical Trailer Feed. Page 5 of 8. 10/21/96~~

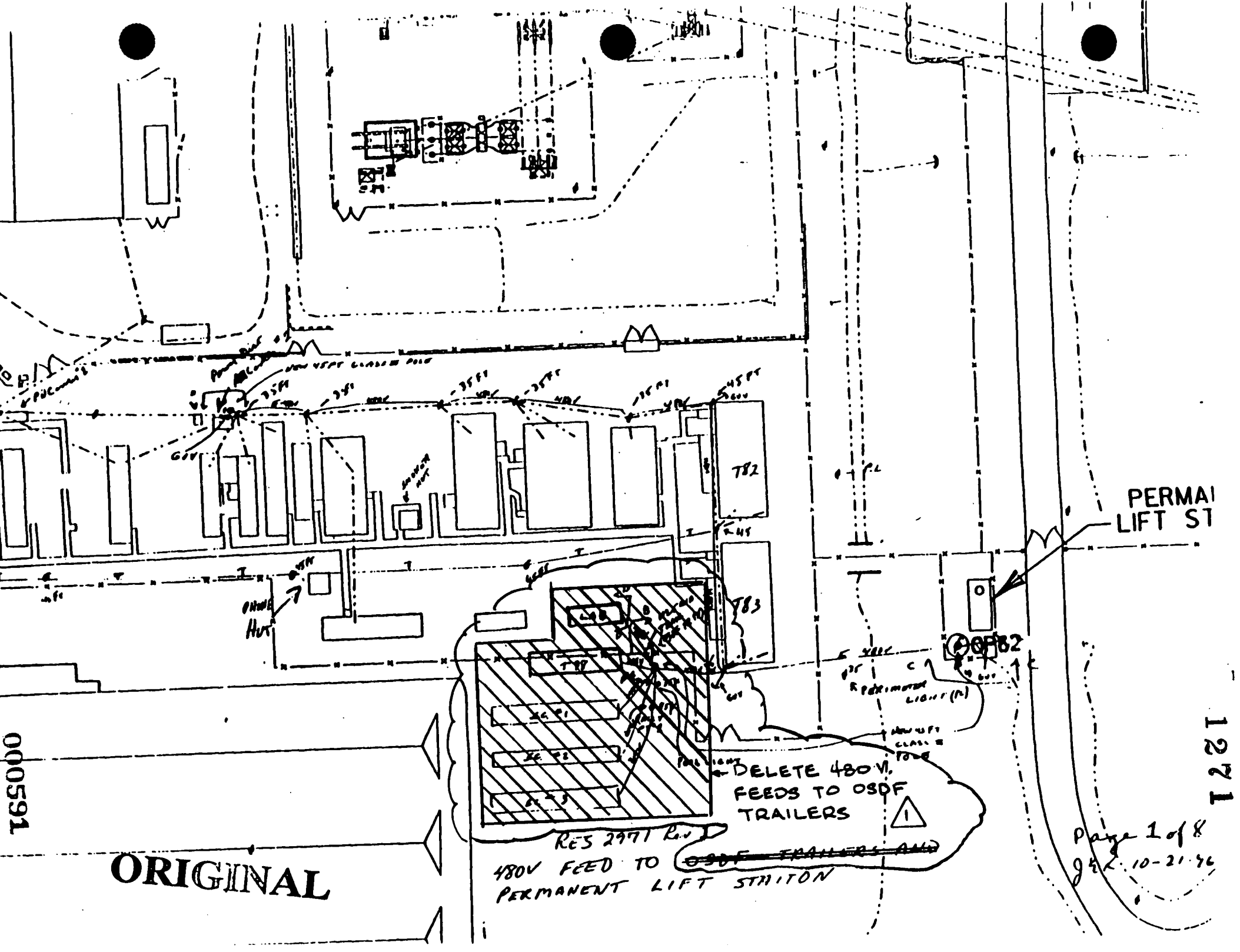
* Messenger Attachment (Typical). Page 6 of 8. 10/4/96

* Guy Wire Detail. Page 7 of 8. 10/21/96

(1) * ~~Electrical Power And Telephone Service Trailer Standard Elevation And Details. Page 8 of 8. 10/21/96~~

(1) Revised 3/17/97

ORIGINAL

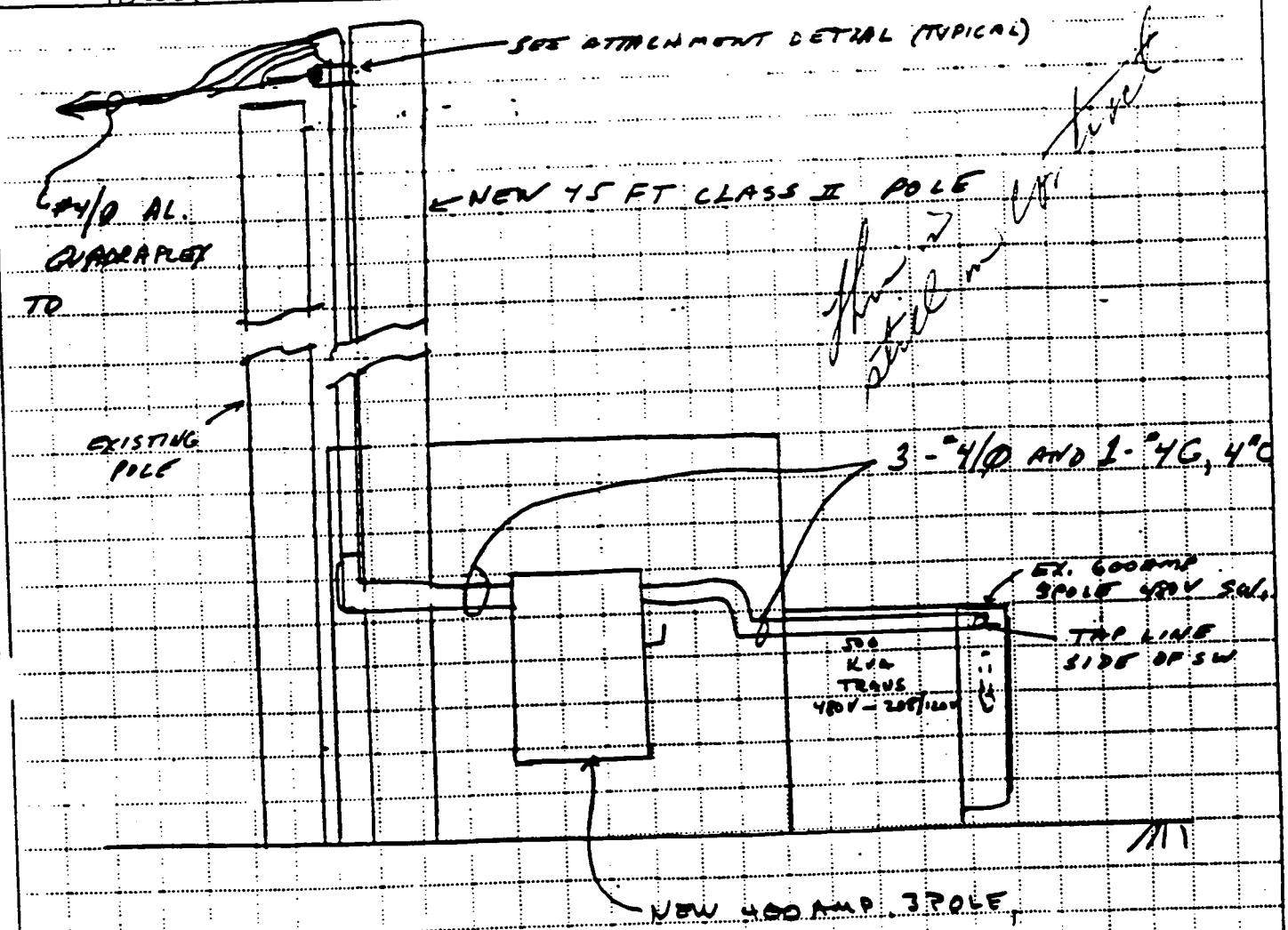

T82
T83
PERMA
LIFT ST
DELETE 480 V.
FEEDS TO OSDF
TRAILERS
RES 2971 Rev
480V FEED TO
PERMANENT LIFT STATION
ORIGINAL
000591
1221
Page 1 of 8
JEK 10-21-96

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER: RES 2971 Rev 1	
BY: J. E Kerl	DATE: 10-21-96
CHECKED BY:	DATE:
PAGE: 2 OF 8	
REVISED:	

SUBJECT: Power Dist Center #2



Section AA

ORIGINAL

NOTES: 1) ALL WIRING TO BE COPPER WITH THWN INSULATION (ALL PHASES) UNLESS OTHERWISE STATED.

2) USE STRUCTURAL CHANNEL TO ATTACH ELECTRICAL EQUIPMENT TO STRUCTURES.

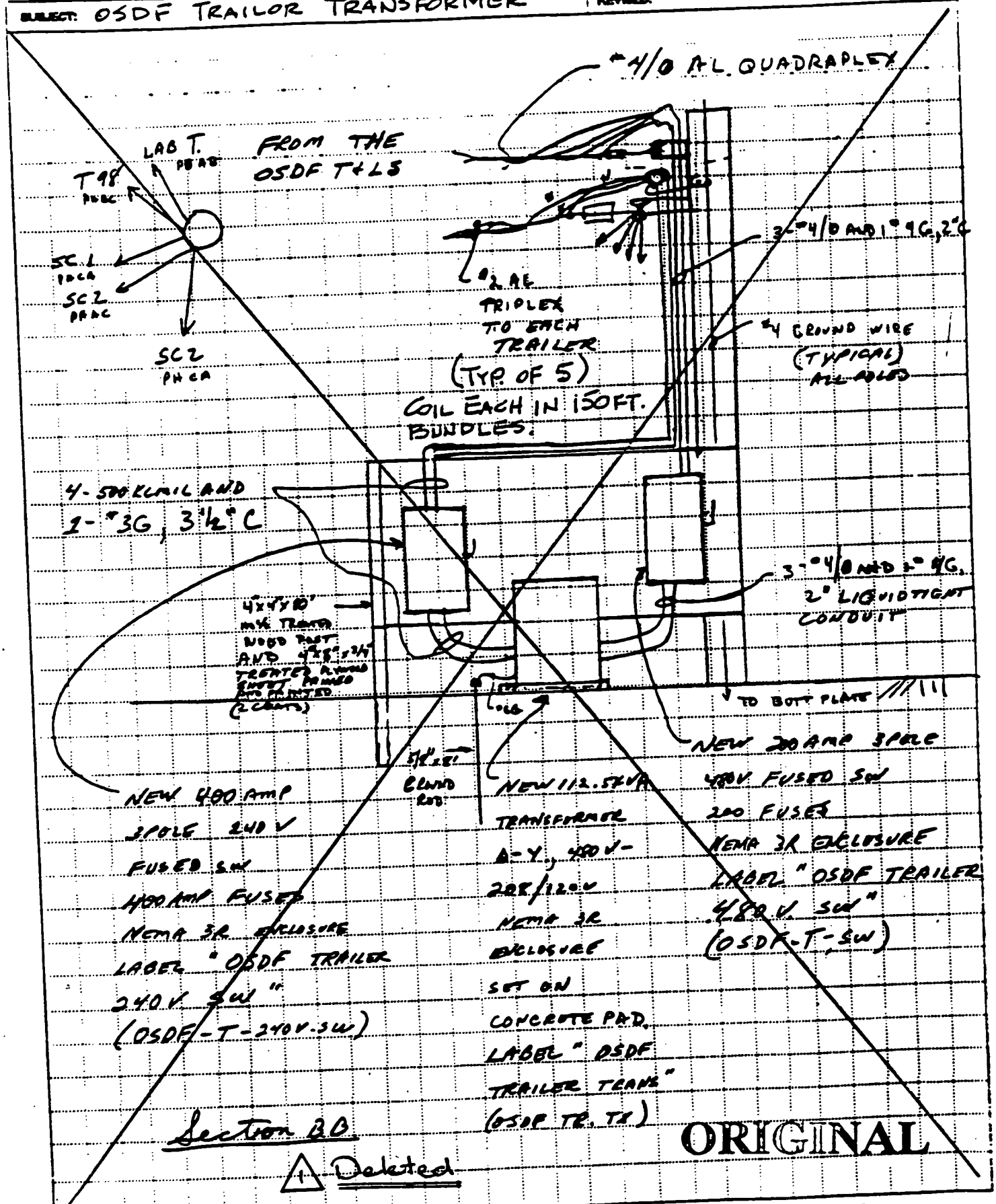
3) SET 45 FT POLE 6'-6"

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER: 2971 Rev 1	
BY: J. G. Kail	DATE: 10-21-96
CHECKED BY:	DATE:
PAGE: 3 OF 8	
REVISED:	

SUBJECT: OSDF TRAILOR TRANSFORMER



Section 20

1 Deleted

ORIGINAL

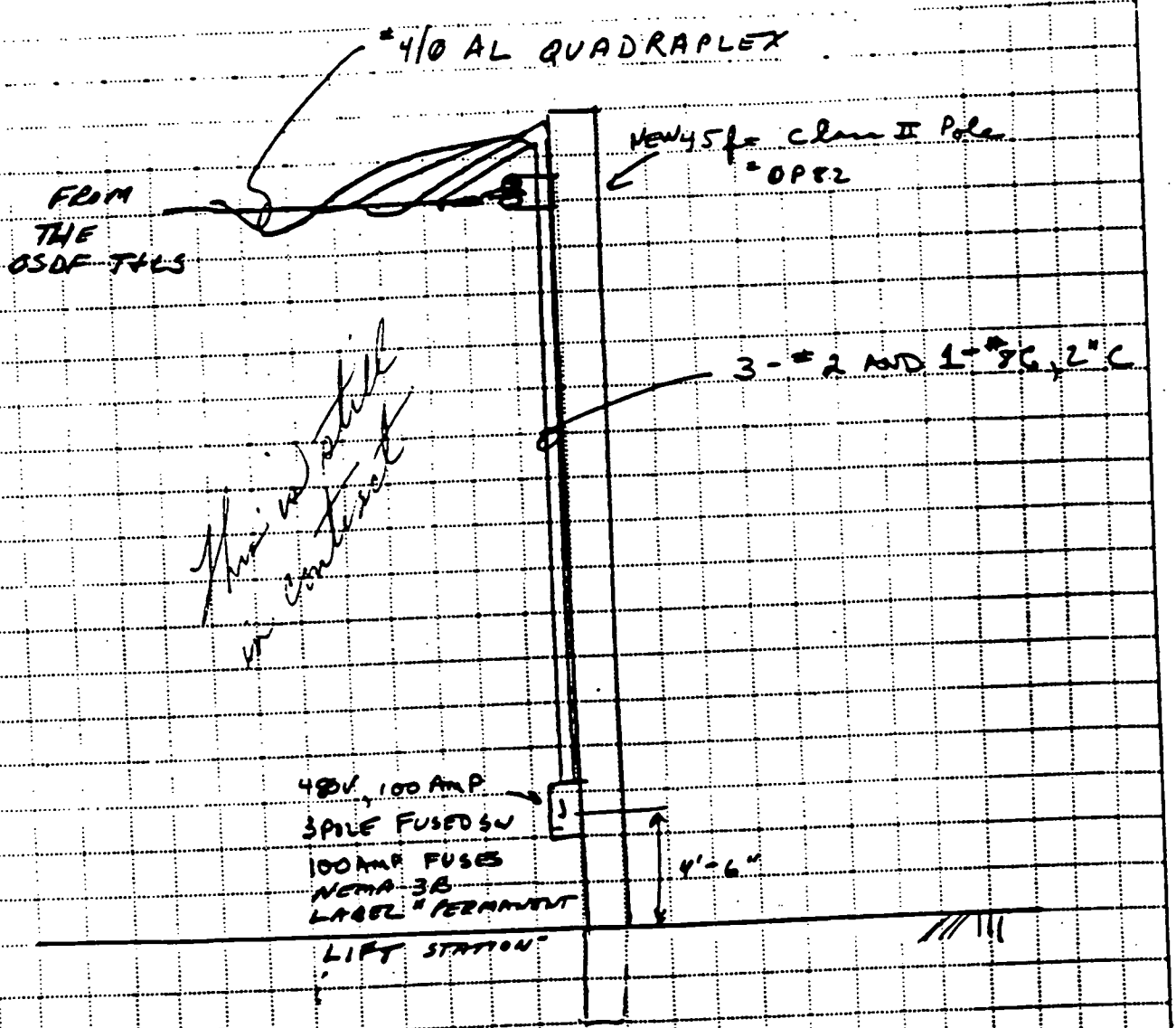
1271

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER: 2971 Rev 1	
BY: J. E. Keel	DATE: 10-21-96
CHECKED BY:	DATE:
PAGE 4 OF 8	
REVISED:	

SUBJECT: 480V. FEED TO PERMANENT L.S.



Section CC

NOTES 4) TAP WIRING USING SPLIT BOLT APPROVED FOR AL/CU AND TAP SPLICE.

ORIGINAL

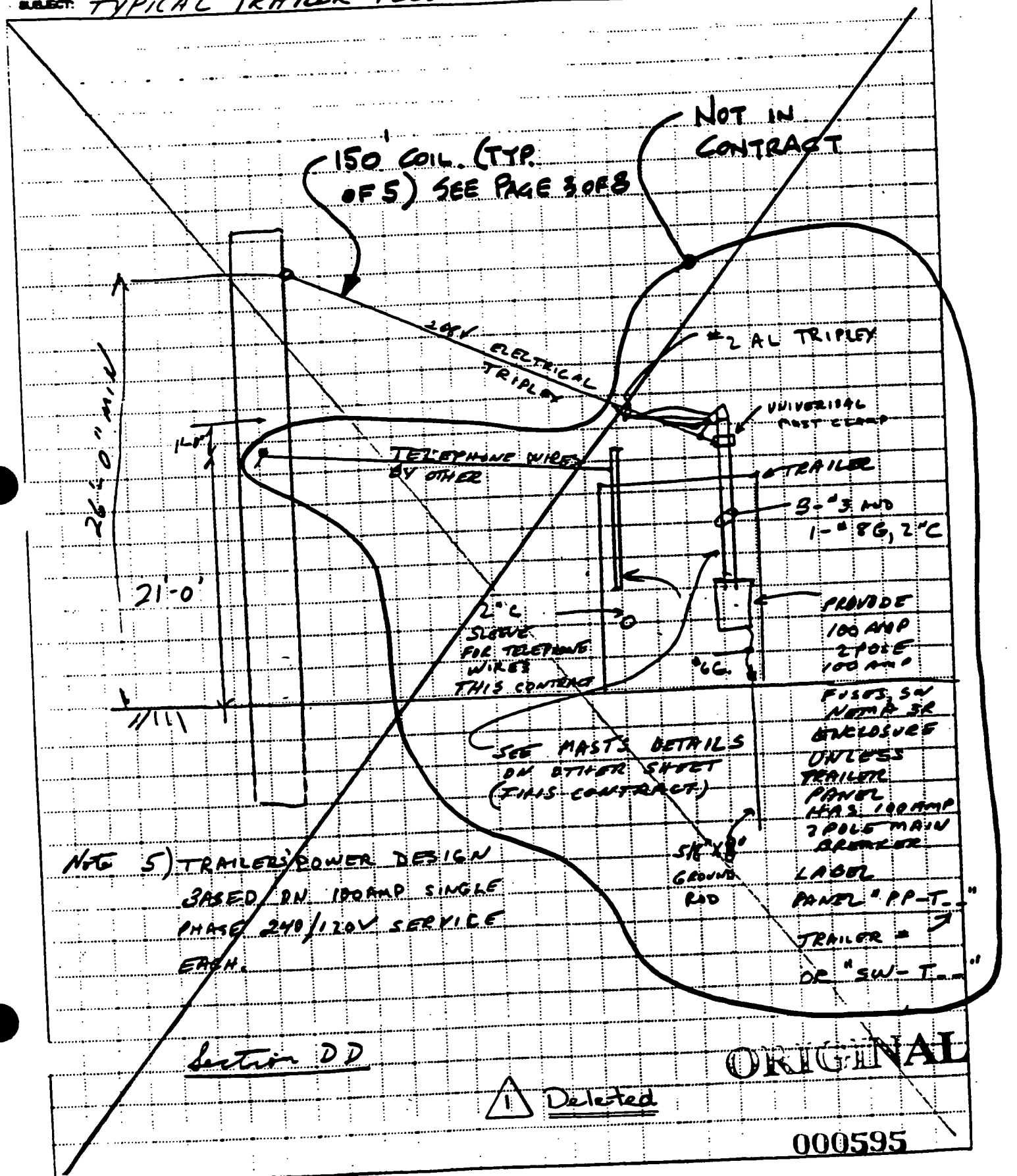
000594

FERNALD
ENVIRONMENTAL RESTORATION
MANAGEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER: Res 2971 Rev 2	
BY: J. E. Kerl	DATE: 10-21-96
CHECKED BY:	DATE:
PAGE 5 OF 8	
REVISED:	

SUBJECT: TYPICAL TRAILER FEED



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000595

RNALD
RONMENTAL RESTORATION
TEMENT CORPORATION

ENGINEERING CALCULATION

PROJECT NUMBER	
BY:	DATE: 17-4-96
CHECKED BY:	DATE
PAGE	6 OF 8
REVISED	

SUBJECT: Messenger Attachment (Typical)

5/8" - Inch Dia Bolt - 14" Long
AB = 8814
Wid. Round Washer
AB = 76808
Clevis Attachment
Insulator AB = 20-2

Curved Washer
AB = 68231/2
Square Nut
AB = 55084P
Palnut Lock Nut
AB = 5532

Wedge
Clamp
W-1

American Electric-Blackburn
Wedge Clamps

Rigid Stainless Steel Bail (Bail Length—6¾")
"FC" Flexible Bail (Bail Length—11½")

- For dead-ending self-supporting drop wire.
- Saves conductor—[illegible] be cut to exact length.
- Can be attached to bare neutral at any point in the span.
- Adjustments in drop [illegible] easily made.
- Grips ACSR, AAAC, or Aluminum Conductor.

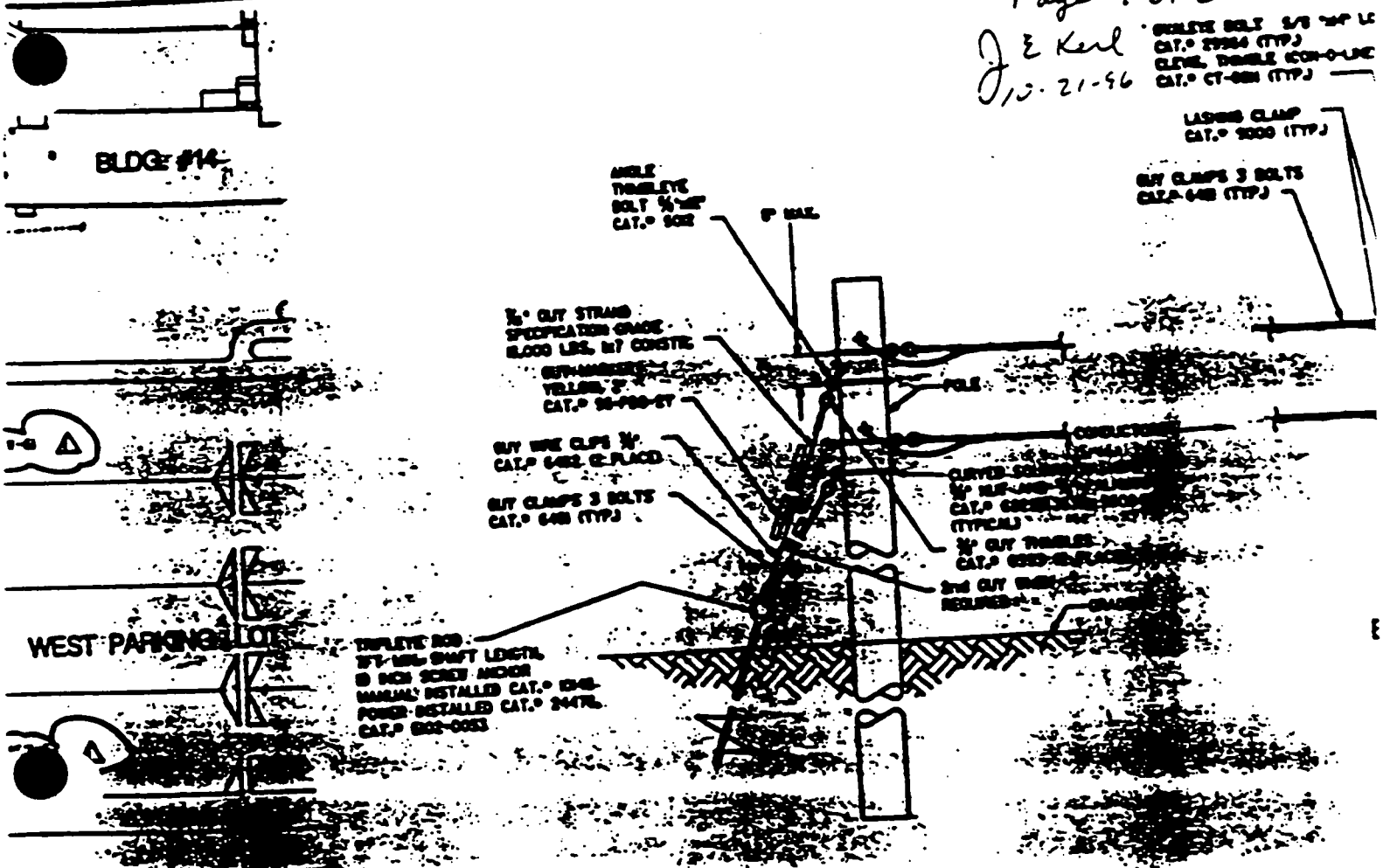
Aluminum Service Wedge Clamps—ACSR; Aluminum; AAAC Conductors

	Catalog Number	Wire Range ACSR	Wire Range Alumin.	Wire Range AAAC	Dimensions B	Dimensions L
W-1 Series Aluminum Wedge and Sliders	W684-	2—6	1 str.—6 str.	2—6	2¾	12
	W68-6FC				Bail	17½
	W284-	1/0—4	20 str.—2 str.	1/0—4	2¾	13
	W28-6FC				Bail	18½
	W484-	4/0—2/0	4/0 str.—20 str.	4/0—2/0	2¾	13
	W48-6FC				Bail	18½

ORIGINAL

Page 7 OF 8

J. E. Kerl
10-21-96



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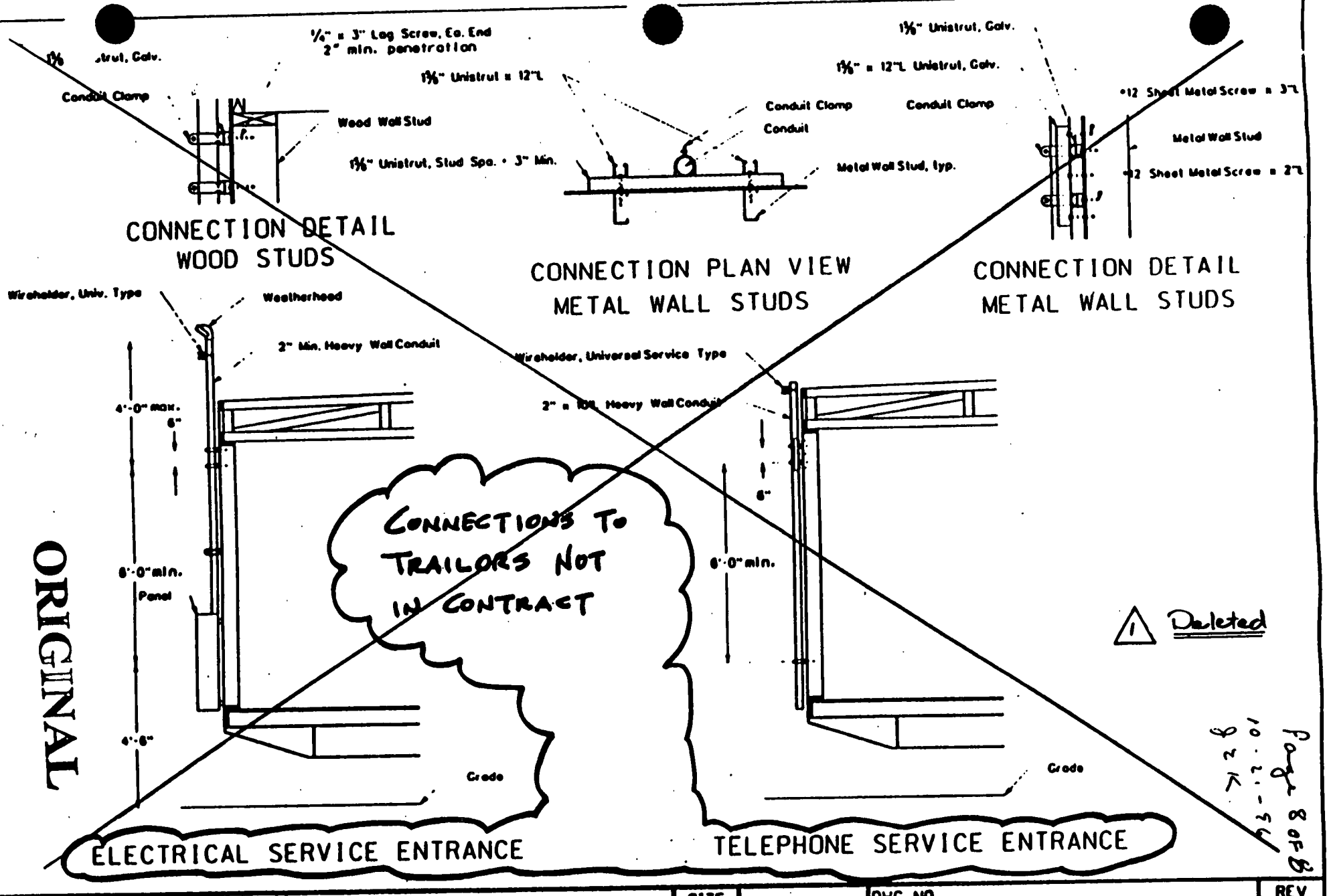

FERMCO Fernald Environmental Restoration Management Corporation	SIZE A		DWG NO SK-3025-1	REV 0
ELECTRICAL POWER & TELEPHONE SERVICE TRAILER STANDARD - ELEVATION & DETAILS	SCALE Varies	M.J. BORGMAN	DATE 7/22/96	SHEET

PRINTS TO e mast.dgn

Page 8 of 8

1221

865000

PAY ITEM DESCRIPTIONS

For Pay Items 3 through 13, payment will be made upon submittal of invoice for materials received by the Subcontractor, and inspected/accepted at the FEMP by FDF Inc.

Pay Item	Pay Item Heading	Detailed Pay Item Description
7.0	INSTALLATION OF HDPE PIPING FROM COMH NO. 8 UP TO AND INCLUDING COMH NO. 10	The Subcontractor shall install the HDPE piping/manholes from COMH No. 8 up to and including COMH No. 10 in accordance with design drawings and specifications shown in Part 7 of this subcontract. All required testing shall be performed and accepted. This Pay Item includes jacking and boring, grading, grubbing, excavation, trenching, road paving, concrete work, backfill, labor, material or equipment incidental to the completion of this Pay Item.
8.0	INSTALLATION OF HDPE PIPING FROM COMH NO. 10 TO THE BIO-DENITRIFICATION SURGE LAGOON (BSL)	The subcontractor shall install the HDPE piping/manholes from COMH No. 10 to the BSL in accordance with design drawings shown in Part 7 of this subcontract. This Pay Item includes all associated mechanical and civil items/attributes, insulation, grading, grubbing, excavation, trenching, backfill, labor, material or equipment incidental to the completion of this Pay Item. All required testing shall be performed and accepted.
9.0	INSTALLATION OF 480V POWER TRANSMISSION LINE FROM BLDG. NO. 77 TO NORTH ENTRANCE ROAD	The Subcontractor shall install the 480V power line from building 77 to the North Entrance Road in accordance with design drawings and specification shown on Part 7 of this subcontract. All required testing shall be performed and accepted. This Pay Item includes any labor, material or equipment incidental to the completion of this Pay Item.
10.0	INSTALLATION OF 480V POWER LINE TO PERMANENT LIFT STATION ~~INCLUDING 480V FEEDER TO CONST. ADMIN. AREA~~ (1)	The Subcontractor shall install the 480V electrical power line from Power Dist. Center # 2 to the Permanent Lift Station ~~including the 480V feeder to the Const. Admin. Area~~ in accordance with design drawings and specifications shown in Part 7 of this subcontract. All required testing shall be performed and accepted. This Pay Item includes any labor, material or equipment incidental to the completion of this Pay item. (1)
11.0	INSTALLATION OF ELECTRICAL POWER, HEAT TRACING AND INSTRUMENTATION AT THE (BSL)	The Subcontractor shall install electrical power including instrumentation and heat trace at the BSL in accordance with design drawings and specification shown in Part 7 of this subcontract. This Pay Item includes any labor, material or equipment incidental to the completion of this Pay Item. All required testing shall be performed and accepted.
12.0	INSTALLATION OF INSTRUMENTATION, SOLAR PANELS/POLES, CONTROL PANEL, RECORDER AT LCS/LDS MANHOLES, PERMANENT LIFT STATION, AWWT FACILITY	The Subcontractor shall install instrumentation, solar panels with poles, control panel, flow recorder and required electrical power at the LCS/LDS Manholes. Permanent Lift Station, and AWWT Facility in accordance with design drawings and specifications shown in Part 7 of this subcontract. This Pay Item includes any labor, material or equipment incidental to the completion of this Pay Item. All required testing shall be performed and accepted.

000599

ORIGINAL

1271

Drawings Rec'd DGR 3/13/97

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	(6)DATE
1700	FSC-589	1 OF 2	3/3/97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER

(4A)RCI/DCN TITLE: FORCE MAIN CLEANOUTS

(11)DCN NO.: 1700-014

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWINGS 92X-5900-G-00254, 00262, 00266		1	
DRAWINGS 92X-5900-G-00261, 00255, 00258 R/O	G261	1Φ	
DRAWING 92X-5900-N-00322		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- ALL C.O.'s ARE HOUSED IN MANHOLES WITH ACCESS FRAMES & COVERS
- PROPOSE TO ELIMINATE ALL C.O. MANHOLES EXCEPT NOS. 1, 4, 5, & 11 AND REPLACE WITH CLEANOUT AS SHOWN ON ATTACHED SKETCH SK-20110-005. CARBON STEEL PIPING AND APPURTENANCES ARE ALSO DELETED FROM THE REPECTIVE MANHOLES.
- CHANGE SDR OF M.H.'s 1, 4, 5, AND 11 FROM 32.5 TO 26 TO EXPEDITE DELIVERY.

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / RE	DATE:
J.C. JENKINS	FDF	3/3/97	Richard L. McKenna	3/4/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See Additional Parsons comments

2) Record changes with AS-BUILT Documentation.

CDC
CONTROLLED
COPY
NO. C

97 MAR 11 AM 10:44

PARSONS — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	3/10/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE:

PERFORMANCE GRADE: (17) 4 James C. Jenkins 3/10/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard L. McKenna	3/10/97		

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)

FS-F-4259 (10/01/96)

DCN 014

received 3-5-97 DCN-010

ORIGINAL

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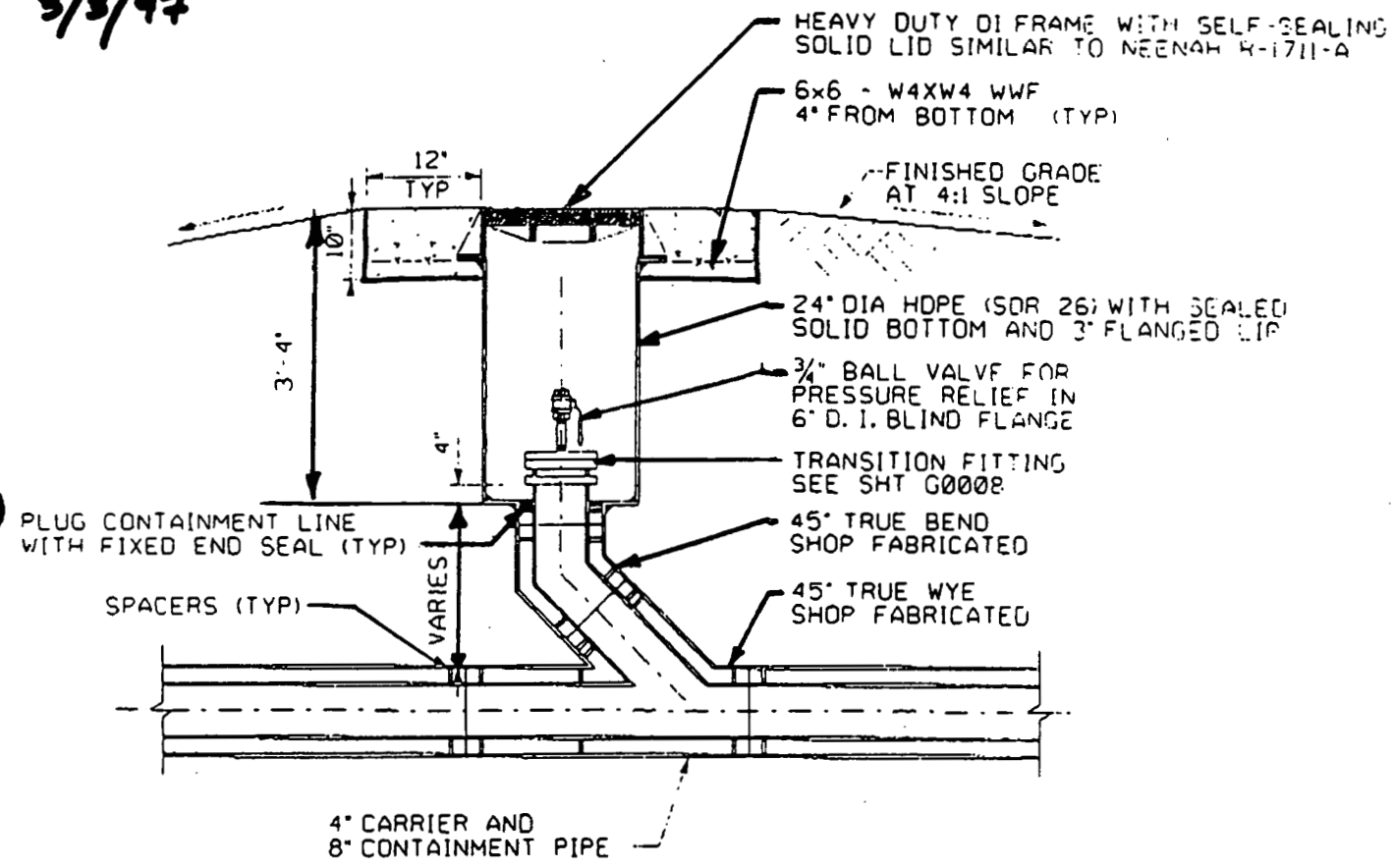
DCN 1700-~~01~~ SHT. 2 OF 2
LEACHATE CONVEYANCE SYSTEM

SK-20110-005
3/3/97



CLEANOUT DETAIL

NTS

REF
G00254
G00261
G00266
G00262
G00258

- CLEANOUT ASSEMBLIES SHALL BE SHOP FABRICATED. ALLOW FOR FIELD CONNECTION TO PIPELINE.
- THE DIMENSION FROM TOP OF FRAME TO TOP OF CONTAINMENT PIPE VARIES FOR EACH CLEANOUT.
- INSTALL CLEANOUT ON LATERAL FOR COMH 10 AND COMH 12 LOCATIONS. USE ALL 4"/8" HDPE PIPE, BEND, AND WYE SIMILAR TO THE TYPE 3 PLAN ON DWG G00258.

F 00258.m po164@ws404. Mon Mar 3 10:17:26 EST 1997

ORIGINAL

1271 Parsons Sheet 1 of

10 Mar 97

PO 164 - Leachate Conveyance System
DCN No.: 1700 - 010
Force Main Cleanouts

RE: Drawings (Rev. 1) 92X-5900-G-00254, 00261, 00266, 00262
(Rev. 0) 92X-5900-G-00255, 00258
SK-20110-005 dtd 3/3/97

Recommend Status B, Approved as noted. Civil comments are as follows:

1. The clean out man holes (COMH) were to provide a means of detecting leaks in the carrier pipe. The reduction in COMH's will mean that much more leakage will occur before it is detected and it will be harder to locate the area of the leak.

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 03/10/97
DOCUMENT NO. AND TITLE: FORCE MAIN CLEANOUTS		DATE COMMENTS DUE: 03/10/97
REQUEST NO.: DCN-010 TRANSMITTAL 1700-014		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT ~~ENVIRONMENTAL~~	SRC 1	COMMENT RESOLUTION
1	M. BARRINGER	1	CONFIRM W/ FDF SAFETY ANALYSIS THAT CHANGE IS ACCEPTABLE IN POTENTIAL INCREASE ~~FOR~~ IN LEAK DURATION ~~BEFORE~~ AND RESULTANT RELEASE	TEAM FOR SOILS/WATER	

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

009003

1271

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 4/16/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: E☒ M☐ C☐ OTHER☐	(4A)RCI/DCN TITLE: ALIGNMENT CHANGE FT-38 TO BSL	(11)DCN NO.: 1700-013	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
92X-5980-G-00262		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- OU-1 ADDED A GRAVEL ROAD ALONG ALIGNMENT NEAR FT-38. NEW ROAD CHANGED EXISTING TOPO.
- BEST TO GENERALLY MOVE ALIGNMENT WEST FROM ORIGINAL LOCATION.
- NEW ALIGNMENT IS OFF ROAD AND ON NEW LEVEL GRADED AREA
- SEE SKETCH 20110-SK-006

(10)REQUESTOR: J C. JENKINS COMPANY: FDF DATE: 4/17/97 (12)FCE / PE: James C. Jenkins DATE: 4/17/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) See Parsons attached Comment Page 1 of 1

2) Record AS-BUILT CONDITIONS

CDC
CONTROLLED COPY
NO.

011

(PARSONS) RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder	4/18/97	2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 4/21/97

PERFORMANCE GRADE: (17) 4 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L Mallow	DATE: 4/21/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

DCN 013

received 4-18-97

RECEIVED APR 22 1997

ENTERED

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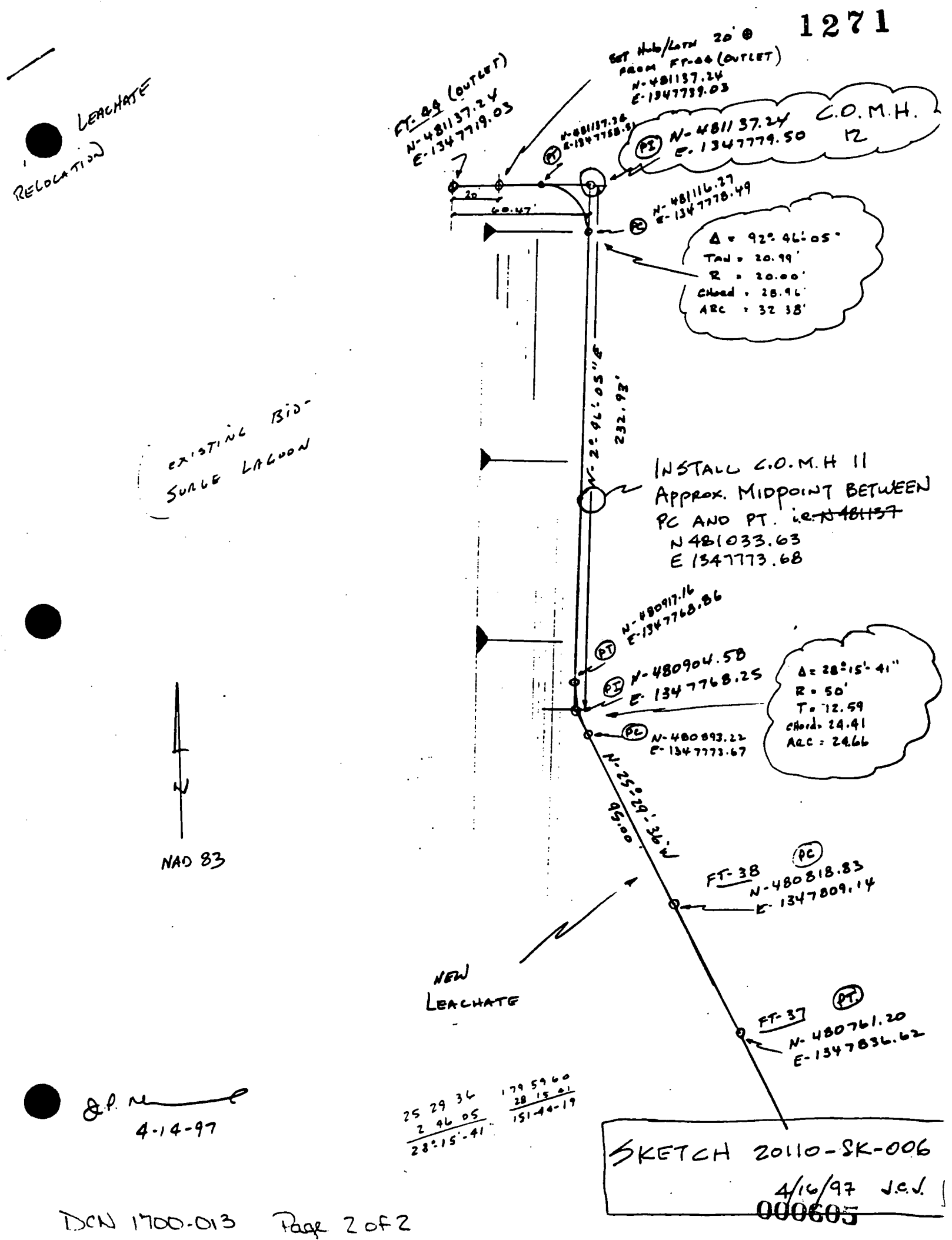


4-14-97

DCN 1700-013 Page 2 of 2

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 4/18/97
DOCUMENT NO. AND TITLE: ALIGNMENT CHANGE FT-3D TO BSL DCN-013		DATE COMMENTS DUE:
REQUEST NO.: Leachate Conveyance System		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC 1	COMMENT RESOLUTION
1	Y. APSHAR		PROVIDE A MOLDED WYE AT THE PT OF THE 20.FT RADIOS CURVE BY THE C.O.MH. #12.		
			4/21/97 We are not using the 20ft. Radius. C.O. MH #12 remains. No need for wye as indicated JCJ		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

909006

1221

Drawings Noted DGB

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE

WP / WO NO	S/C NO.	Pg 1 OF 1	DATE
1700	589		2-18-97

S/C TITLE: LEACHATE CONVEYANCE SYSTEM — RCI NO: 1700-005R

RESPONSIBLE DISCIPLINE: E ☒ M ☐ C ☐ OTHER ☐ — RCI/DCN TITLE: HEAT TRACE GFI C.B. — DCN NO.: 1700-012

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
92x-5900-E-00323		0	
92x-5900-E-00325		0	

☐ RCI - INQUIRY ☐ PRE-SCREEN FOR USQD BY PROJECT ENGINEER ☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED PROPOSED CHANGE

The above drawings call for installing a 20A/1P 30ma GFI C.B. in the existing 120V panel. The panel is an ITE/Siemens panel that accepts a BQ type C.B. which is a bolt-in breaker. ITE/Siemens does not make a 30ma GFI C.B. in that style of frame & their 30ma GFI C.B. does not fit in that type of panel.

Proposed Change: Install a 20A/1P 5ma GFI C.B. BQ (bolt-in type) in lieu of 30ma.

REQUESTOR: P. ERAIST — COMPANY: B&J ELEC. — FCE / PE: J. C. Jenkins 2/24/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES — FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☒ DISAPPROVED SEE C5.

1) See PARSONS [redacted] CHANGE PAGE 1 of 1

2) Record changes with AS-BUILT Documentation

PARSONS

RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: Carlton Schroeder 3/7/97 — CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: 4 James C. Jenkins 3/10/97

CONSTRUCTION CONCURRENCE: Richard L. McClure 3/10/97 — WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO

FS-F-4259 (03/15/96)

ORIGINAL

received Feb 2-25-97

CDC CONTROLLED COPY NO. C011

DCN-012

DCN-009

DOCUMENT REVIEW COMMENT SHEET

SHE/OWNER:	REVIEWING DIVISION: PARSONS	DATE: 3/6/97
DOCUMENT NO. AND TITLE: LEACHATE CONVEYANCE SYSTEM FDF DCN 1700-012		DATE COMMENTS DUE:
REQUEST NO.:		

ITEM NO.	REVIEWER NAME	PAGE NO./ STEP	COMMENT	SRC /	COMMENT RESOLUTION
1	T. Ferrell		5 mA GFCI breakers are not acceptable*. Mount a 30 mA GFCI breaker in a NEMA 3R or 4 enclosure ~~and~~ TF adjacent to the panel. and manufacturer's TF ~~recommendations~~ information		
			*Code HANDBOOK ARE recommends larger 30mA GFCI (See Attachment)		

SIGNIFICANT REVIEW COMMENT RESOLUTION APPROVAL SIGNATURE: _____ DATE: _____

800608

1271

427-19. Electrical Connections.

(a) Nonheating Interconnections. Nonheating interconnections, where required under thermal insulation, shall be made with insulated connectors identified as suitable for this use.

(b) Circuit Connections. Splices and terminations outside the thermal insulation shall be installed in a box or fitting in accordance with Sections 110-14 and 300-15.

427-20. Marking. Each factory-assembled heating unit shall be legibly marked within 3 in. (76 mm) of each end of the nonheating leads with the permanent identification symbol, catalog number, and ratings in volts and watts, or in volts and amperes.

427-21. Grounding. Exposed noncurrent-carrying metal parts of electric heating equipment that are likely to become energized shall be grounded as required in Article 250.

427-22. Equipment Protection. Ground-fault protection of equipment shall be provided for each branch circuit supplying electric heating equipment.

Exception: In industrial establishments where conditions of maintenance and supervision ensure that only qualified persons will service the installed systems and continued circuit operation is necessary for safe operation of equipment or processes. Alarm indication of ground-fault shall be required.

The words "not having a metal covering" have been removed from Section 427-22 for the 1996 *Code*. This section now requires ground-fault protection of equipment for all branch circuits supplying equipment of this type. A new exception was also added to the 1996 *Code*. This exception applies to industrial establishments where continued circuit operation is required for safe operation of equipment or processes and an alarm system indicating ground faults is installed.

The level of ground-fault protection provided by Class A GFCIs, which are normally used for personnel safety, is 5 milliamperes (± 1 milliampere). This level may not be practical for an application where capacitive-type leakage, such as on long runs of heat-tracing cable, may be encountered. The intent of this section is to minimize the possibility of fire by providing equipment ground-fault protection as defined in Article 100, and to provide a degree of personnel safety by rapidly de-energizing a circuit that has developed a ground fault. This may be provided by a Class B GFCI, which trips at a higher level.

427-23. Metal Covering. Electric heating equipment shall have a grounded metal covering in accordance with (a) or (b) below. The requirements of this section shall become effective July 1, 1996.

This requirement has been changed for the 1996 *Code* and now requires a grounded metal covering on all heaters. It is intended to provide a path to ground for fault current, in order to trip phase or ground-fault protective d... thus reducing the potential for fire and electric shock. ... metal covering will also provide added mechanical pro... tion of the heating cable or panel. This requirement bec... effective July 1, 1996.

(a) Heating Wires or Cables. Heating wires or cables ... have a grounded metal covering that surrounds the heatin... ment and bus wires, if any, and their electrical insulation.

(b) Heating Panels. Heating panels shall have a gro... metal covering over the heating element and its electrical ... lation on the side opposite the side attached to the surf... be heated.

The metal covering shall provide an effective ground...

D. Impedance Heating

427-25. Personnel Protection. All accessible external s... of the pipeline and/or vessel being heated shall be ph... guarded, isolated, or thermally insulated (with weatherproo... for outside installations) to protect against contact by per... in the area.

427-26. Voltage Limitations. The secondary windin... isolation transformer (Section 427-27) connected to the ... or vessel being heated shall not have an output voltage ... than 30 volts ac.

Exception: The voltage shall be permitted to be greater ... volts but not more than 80 volts if a ground-fault circuit-in... for personnel protection is provided.

See commentary following Section 427-22.

427-27. Isolation Transformer. A dual-winding trans... with a grounded shield between the primary and secondary ... ings shall be used to isolate the distribution system from the ... ing system.

427-28. Induced Currents. All current-carrying compo... shall be installed in accordance with Section 300-20.

427-29. Grounding. The pipeline or vessel, or both ... heated that is operating at a voltage greater than 30 but not ... than 80 shall be grounded at designated points.

427-30. Secondary Conductor Sizing. The ampacity of ... conductors connected to the secondary of the transformer ... be at least 100 percent of the total load of the heater.

E. Induction Heating

427-35. Scope. This part covers the installation of ... quency induction heating equipment and accessories for ... lines and vessels.

Note from "Nat'l. Elect. Code 1996 Illustrated Lowpitch"

000609

1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 2/18/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER	(4A)RCI/DCN TITLE: FORCE MAIN CLEANOUTS		(11)DCN NO.: 1700-011

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
DRAWINGS: 92X-5900-G-00254, 00262, 00266		1	
DRAWINGS: 92X-5900-G-00261, 00255 00258		0	
DRAWING: 92X-5900-N-00327		0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN - JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- ALL C.O.'s ARE HOUSED IN MANHOLES WITH ACCESS FRAMES & COVERS
- PROPOSE TO ELIMINATE ALL C.O. MANHOLES EXCEPT NOS. 1, 4, 5, AND 11 AND REPLACE WITH CLEANOUT AS SHOWN ON ATTACHED SKETCH SK-20110-005.
- CHANGE SDR OF M.H's 1, 4, 5, AND 11 FROM 32.5 TO 26 TO EXPEDITE DELIVERY. ie. 32.5 = 10-12 WEEKS; 26 = 6-8 WEEKS

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 2/18/97	(12)FCE / PE: Richard L McLaren	DATE: 2/18/97

(13)RESPONSE: FOR RCI, IF A DCN REQ'D? ☐ NO ☒ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See attached Parsons "Approved as Noted" Comments - Page 1 of 1

2) Record "As-Built" conditions to document final changes/modifications to design

PARSONS

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 2/21/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2 CUP 5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 4

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

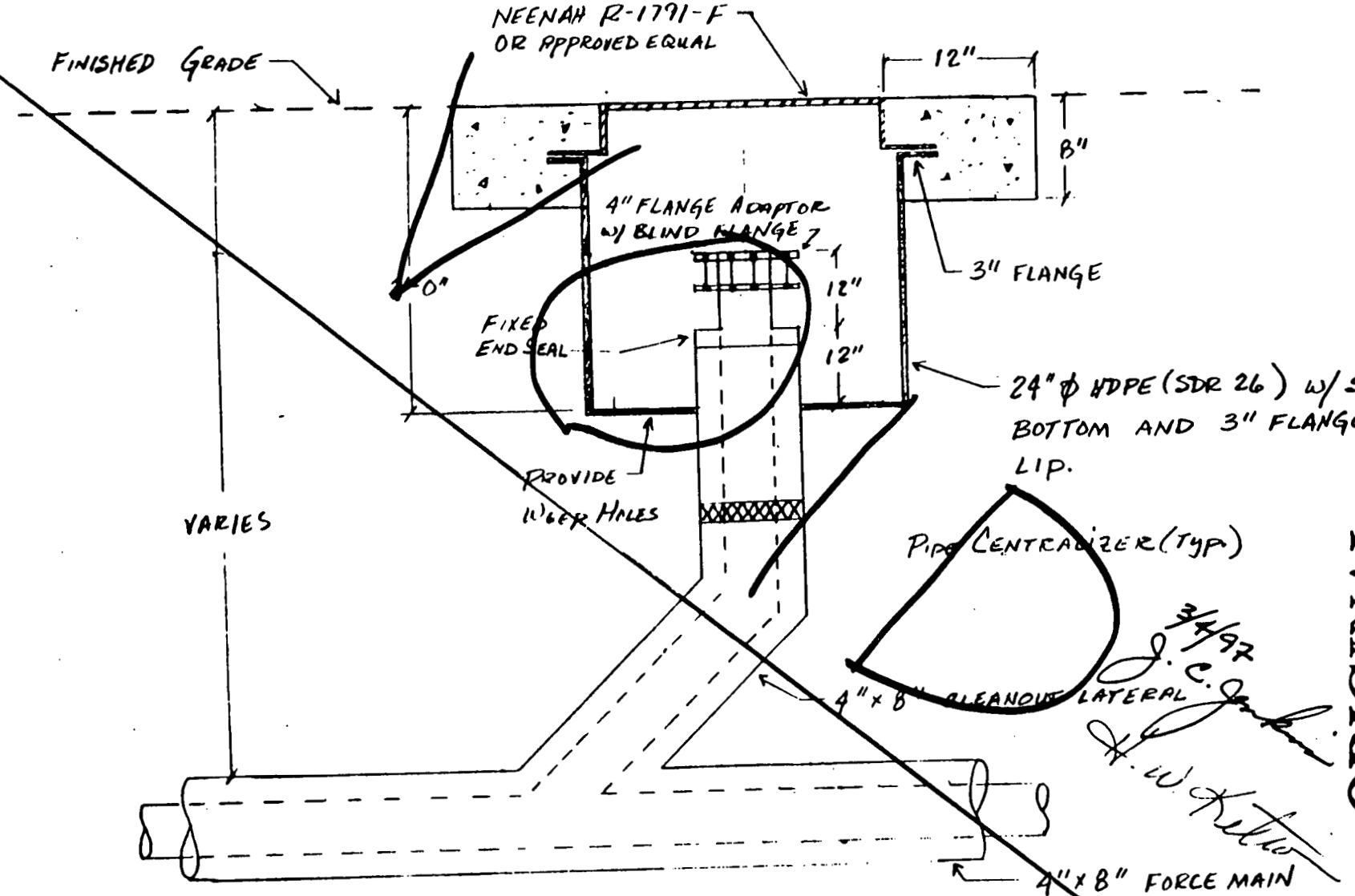
FS-F-4259 (10/01/96)

DCN-011

received 2.19.97

CDC CONTROLLED ORIGINAL COPY NO. 011

000610



FORCE MAIN CLEANOUT (TYP.)

SCALE 1" = 1'

3/4/92
J. C.
H. W.

ORIGINAL

SK-2010-005

DCN No. 1700-011

SHT 2 OF 2

1271
Parsons

20 Feb 97

PO 164 - Leachate Conveyance System
DCN No.: 1700 - 011
Force Main Cleanouts

RE: Drawings (Rev. 1) 92X-5900-G-00254, 00261, 00266, 00262
(Rev. 0) 92X-5900-G-00255, 00258
(FDF) SK-20110-005

Recommend Status B, Approved as noted. Civil comments are as follows:

1. FDF sketch shows a 2' dimension from finished grade to bottom of 24" dia. HDPE pipe and 2-12" dimensions from the bottom of 24" dia. HDPE pipe to top of 4" blind flange. While this will work if the 2' is changed to 3', it would still put the top above the freeze line. Note however, CO #'s 2, 3, 6, and 9 may be shallow enough that the bottom of the 24" dia. pipe at a 3' depth may be at or below the 45° wye.

2. Recommend that all the cleanout assemblies be shop fabricated and tested. Fabrication to allow for field connection to the pipe line.

3. Weep holes in the bottom of the 24" dia. HDPE riser shown in the FDF sketch layout will not provide containment. The bottom of the 24" dia pipe should be shown to be fused to the 8" containment pipe. Holes drilled into the 8" containment pipe would provide drainage but would also imply a leak in the 4" carrier pipe. If no holes are provided, any water could be vacuumed or pumped out.

4. COMH's 10 and 12 are for change in direction versus in line. Suggest that the FDF sketch be amended to show the way the change in direction will be done. Suggest a similar layout as the Type 3 COMH as shown on G00258 with the new cleanout on the lateral.

5. The FDF sketch layout does not provide for any pressure release. Suggest a 3/4" Ball Valve be added to the blind flange and the flange be set to 3' below finish grade.

6. Recommend that the Manhole frame, cover, and concrete collar remain as shown on detail A, drawing G00258. Finish grade should also be shown to slope away from cover as shown on the detail. Note that modification to the top of the 24" pipe would be required to accommodate the manhole frame or another heavy duty lid with self sealing gasket be specified. The purpose of the heavy self sealing lid and gasket was to keep water out as well as keep water in if there was a leak which filled the containment line.

Drawing Received [redacted] 1271 UGB

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg	OF	(6)DATE
1700	FSC - 589	1	2	2/12/97

(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM — (11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E [X] M [ ] C [ ] OTHER [ ] — (4A)RCI/DCN TITLE: ADD/ADJUST UTILITIES — (11)DCN NO.: 1700-010

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SEE ATTACHED PAGE	2 OF 2		

(9)[ ] RCI - INQUIRY [ ] USQD SCREENING BY PROJECT ENGINEER (9)[X] DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- VALUE ENGINEERING BY FDF determined that additional utilities required for other projects could be installed in an enlarged trench for the leachate conveyance pipeline.
- SEE ATTACHED PAGE 2 of 2 for Additional Requested/Proposed CHANGE

(10)REQUESTOR: Carlton Schroeder COMPANY: Parsons DATE: 2/12/97 — (12)FCE / PE: Richard L McBurney DATE: 2/12/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? [ ] NO [ ] YES (14)FOR DCN: [X] APPROVED [ ] APPROVED AS NOTED [ ] DISAPPROVED

SEE ASSOCIATED DCN'S :

OU-1 - 1695-041
OU-3 - 1710-003
OU-4 - 40310-002

CDC CONTROLLED COPY NO. 1011

PARSONS — RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Carlton Schroeder DATE: 2/12/97 — (20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 2/28/97

PERFORMANCE GRADE: (17) 4 — James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: Richard L McBurney DATE: 2/24/97 — (21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

PURCHASE REQUISITION REQUIRED: [X] YES [ ] NO (19)

FS-F-4259 (10/01/96)

ORIGINAL

ATTACHED

000619

(7) Documents AFFECTED:

Drawings

Drawing No.	Sheet No.	Rev. No.	Title	NOTE
92X-5900-X-00264	X0002	1	Drawing Index	WAS REV
92X-5900-G-00251	G0001	1	Civil - Master Plan	WAS REV
92X-5900-G-00254	G0002	1	Civil - Plan and Profile - Sheet 1 of 4	WAS REV
92X-5900-G-00261	G0003	1	Civil - Plan and Profile - Sheet 2 of 4	WAS REV
92X-5900-G-00266	G0004	1	Civil - Plan and Profile - Sheet 3 of 4	WAS REV
92X-5900-G-00262	G0005	1	Civil - Plan and Profile - Sheet 4 of 4	WAS REV
92X-5900-G-00259	G0009	0	Civil - Sections and Details	NEW DW
92X-5900-G-00410	G0010	0	Civil - Manhole and Miscellaneous Details	NEW DW

Specifications

Section	Title	
02667	Utility Lines	0 (Add to 20110-TS-0002) New Spec

(9) Additional Information for REQUESTED/Proposed change:

OU-1 needs to run a fire protection line (FQ-12"), potable water line (DW-6"), sanitary sewer force main (SN-3"), and a gas line (FG-6") from the Waste Pit Area south along a portion of the OSDF Leachate Conveyance Line (WW-4"/8"-B4-1000) corridor/enlarged trench.

OU-5 needs to run the GW-12" influent and GW-10" effluent lines, a CE-6" line for the BDN to AWWT, and modify a FT-4" line from the future STP, and locate them all in a portion of the Leachate Conveyance corridor/enlarged trench.

OU-4 requires tie-in to the potable water, fire protection line, and sanitary sewer force main in the future.

To minimize traffic interference the leachate conveyance line was also realigned north of the SPIT Building.

All of these design changes are reflected in the drawings and specification noted in item (7).

ORIGINAL

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 89	(6)DATE 1/28/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.: RCI #3/97
(4) RESPONSIBLE DISCIPLINE: EX MD CD OTHER D	(4A)RCI/DCN TITLE: SURVEYING SPECIFICATION		(11)DCN NO.: 1700-009

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION - 20110-TS-0002	20110-TS-0002 SECTION 02100	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- REVISE SPECIFICATION TO MORE CLEARLY REPRESENT THE SCOPE OF SURVEYING REQUIRED FOR LEACHATE CONVEYANCE (SEE REVISED SPEC. ATTACHED) REV. 1
-

CDC CONTROLLED COPY NO. C011

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 1/28/97	(12)FCE / PE: Richard L. McFarlane	DATE: 1/30/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Section 02100 of the technical specifications shall be modified and FDF shall obtain all necessary DOE and regulatory agency approvals as required for modification of the Final Design Package

SEE ADDITIONAL COMMENT and Suggestions on attached page 1 of 1.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: 460STNTEC: [signature] DATE: 5 Feb 97 PARSONS: Carlton Schroeder 10 Feb 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE PERFORMANCE GRADE: (17) 4 James C. Jenkins 2/12/97	
(18)CONSTRUCTION CONCURRENCE: DATE: Richard L. McFarlane 2/12/97 PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

DCN #009

received Aker 2-6-97

ORIGINAL

RECEIVED JUL 10 1997

SECTION 02100

SURVEYING

PART 1 GENERAL

1.01 SCOPE

01 This section describes the requirements for surveying, including:

~~1. Establishing temporary control benchmarks.~~

1.2. Establishing a horizontal and vertical project control system based on the existing monuments and surveying required for the layout and construction of the leachate conveyance system.

~~3. Surveys for quantity determinations.~~

~~4. Setting limits and boundaries of construction activities.~~

2.5. ~~Conducting topographic~~ Performing surveys as required to periodically determine amount of work performed for periodic progress payments and final payment prior to Subcontract completion.

3.6. Preparing and furnishing as-built drawings, as specified in Part 4, - Special Terms and Conditions for Construction.

1.02 RELATED SECTIONS AND PLANS

A. Section 02110 - Clearing, Grubbing, and Stripping

B. Section 02200 - Earthwork

C. Section 02215 - Trenching and Backfilling

D. Section 02270 - Erosion and Sediment Control

E. Section 02300 - Boring and Jacking

F. Section 02605 - High Density Polyethylene (HDPE) Manholes, Pipes, and Fittings

G. Section 02831 - Chain-Link Fence and Gates

03 Construction Quality Assurance (CQA) Plan.

1.04 REFERENCES

A. National Geodetic Survey Standards.

1.05 QUALIFICATIONS

A. A Land Surveyor licensed in the State of Ohio shall provide oversight. Staking shall be in accordance with accepted surveying practices, provisions herein, and subject to Construction Manager review.

B. Surveying work shall be under the direct supervision of a person who has a least 5 years of experience in construction surveying. Any work performed in referencing or re-establishment of land or United States survey monuments shall be stamped and certified by an Ohio-licensed land surveyor.

1.06 SUBMITTALS

A. Submit the following to the Construction Manager for review within 15 calendar days from Notice to Proceed:
   1. Ohio surveyor's license;
   2. periodic deliverable data (deliver to Construction Manager, as completed, during project):
      a. reduced and checked field notes,
      b. all drawings and sketches, and
      ~~c. electronic files in DXF format or Construction Manager approved electronic files.~~
   3. manner of notation; approved notation shall be consistently applied to all project survey work; the stake marking format and the fieldbook notation shall be compatible.

B. One complete set of as-built ~~(i.e., "record") survey~~ drawings and survey notes certified and stamped by a Surveyor licensed in the State of Ohio shall be submitted to the Construction Manager within 15 days of completion of the project. ~~The Subcontractor shall also provide the Construction Manager with an electronic file in DXF format or a Construction Manager approved electronic file upon final submittal of the record drawings. Three (3) copies of the certified survey record drawings will be required.~~ Drawings shall be the same scale as the construction drawings. Survey notes shall include a point listing with coordinates, elevation, and description.

1.07 PROJECT RECORD DOCUMENTS

A. Maintain on site, a complete, accurate survey log documenting survey work as it progresses.

B. Maintain on-site, a plan clearly showing all site reference points, survey control points, and benchmarks with coordinates.

C. Maintain on-sites an accurate and current set of marked-up drawings showing "as-built" conditions, as specified in Part 4, Special Terms and Conditions for Construction.

~~D. Upon completion of each work item as specified in Part 3, prepare and/or update "as-built" drawing.~~

PART 2 PRODUCTS

2.01 MATERIALS AND SURVEY INSTRUMENTS

A. Provide materials as required to properly perform the surveys, including, but not limited to, instruments, tapes, rods, measures, mounts, and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else as required.

B. Survey instruments shall be calibrated and maintained in accurate calibration throughout the execution of the subcontract. The survey instruments used for this work shall be precise and accurate to meet the needs of the project. All survey instruments should be capable of reading to a precision of 0.001 ft and with a setting accuracy of $\pm$ 0.8 seconds.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain accurate and complete notes of surveys:
   1. Handwritten survey notes and information shall be written with lead pencil(s) and entered in "write-in-rain" notebooks. A copy of the numbered, dated, and signed

field book pages shall be given to the Subcontractor daily for use in checking the work.

2. Electronically collected field survey information shall be collected and backup equipment shall be available in the event of equipment malfunction.
   a. Electronic format for printed output of data collector field survey notes shall be compatible with the approved fieldbook notation format.
   b. Electronic format for printed output of data collector field work shall be compatible with the Subcontractor's and Construction Manager's computer equipment and software for verifying and checking the work. A copy of the data disk shall be submitted to the Construction Manager weekly.

B. During construction of the Leachate Conveyance System, survey notes shall be retained by the Subcontractor and Surveyor. During construction of the Leachate Conveyance System, the Subcontractor and/or Surveyor shall submit surveys to the Construction Manager for review. ~~Prior to the placement of successive soil layers the Subcontractor shall submit a written statement certifying compliance of the preceding layer thickness and grades to the Construction Manager. Surveys will be required from the Subcontractor prior to approval for the placement for overlying materials by the Construction Manager~~.

C. The precision of horizontal and vertical controls shall meet or exceed ~~Third-Order~~ Class II and Third-Order accuracies respectively, as defined by National Geodetic Survey Standards.

D. Conformance check surveys for elevation and for horizontal coordinates shall be recorded to the nearest 0.01 ft and for angles shall be to the nearest 20 seconds.

E. Measurement and payment surveys for elevation and for horizontal distances shall be recorded to the nearest 0.1 ft $\pm$ 0.05 ft.

F. ~~Final~~ "As-built" survey notes ~~and sketches shall be drawings shall be~~ certified for procedure and accuracy of work ~~and sealed~~ by the Land Surveyor.

G. Perform construction layout surveys in advance of scheduled construction activities. At completion of a survey, provide a copy of the field notes, drawings, or sketches to the Construction Manager for review. The Subcontractor shall allow the ~~CQC Consultant and/or~~ Construction Manager one calendar day between Monday through Friday for review and verification of the construction layout. The Subcontractor is responsible for rework and/or construction delays caused by survey or staking errors.

H. Set slope and off-set stakes in accordance with accepted surveying practices.

I. Set grade stakes required for construction activities as the work progresses. Set fine grade stakes on all surfaces for which the plans show a definite grade line.

J. Upon completion of the work, the Subcontractor shall provide the Construction Manager with all original surveying field notes, layouts, and computations and electronic files in standard bound survey notebooks, binders containing electronic file information and two copies each of electronic files compatible with the Construction Manager's computer equipment and software.

K. Protect survey control points. Replace disturbed survey control points at no additional cost.

L. Use only the monuments, coordinates, and elevations recognized by FDF for control points. Temporary control points shall be set based on surveys that reference the accepted monuments.

3.02 SPECIFIC FIELD REQUIREMENTS

A. Establish temporary control points, as necessary, to support construction work activities.

B. Survey Monuments, Accuracy, and Documentation:
   1. Record the following information in survey notebooks for each control point established:
      a. designation of control point;
      b. state planar North American Datum (NAD), 1983 Ohio South;
      c. elevation; feet above Sea Level Datum [Note, Sea Level datum refers to National Geodetic Vertical Datum (NGVD)];
      d. date of establishment;
      e. description and sketch of the control point location; and
      f. control points shall be referenced to a minimum of three features that can be seen from the control point.
      g. field notes for work performed to establish the control point including the coordinates and elevation of the control points referenced.
   2. Document survey work in field notebooks using the format and procedures described below:
      a. title and consecutive number on the front cover;
      b. consecutively numbered pages;

c. table of contents, indicated by survey task, on the first numbered page;
d. legend indicating symbols used in survey notes;
e. names of survey team members for each task;
f. notes on weather, equipment, etc.;
g. date and time on each page to indicate when work was performed;
h. notes in a uniform character such that they can be interpreted and used by anyone with survey knowledge; and
i. description and/or sketches of the existing survey control used.

~~C. Preliminary Surveys:~~

~~1. Clearing Limit Staking: Stake clearing limits according to the minimum limits identified on the Construction Drawings. Clearing limits stakes shall be flagged and the lathe marked "clearing limits".~~

~~2. Alignment and Existing Ground Staking: Following clearing operations and before stripping operations begin, preliminary locations of alignments and/or baseline of project features shall be established. Perform topographic surveys to describe original ground features before stripping or excavation begins. The distance between grid points shall not exceed 50 feet, and all breaks shall be noted.~~

~~3. Earthwork Staking: Staking for cut and fill limits shall establish the exterior limits of excavations and embankments. The maximum staking interval shall be 50 feet. Stakes shall be prominently noted with description of point, vertical distance to design elevation, and offset distance as applicable. A brightly flagged 4 foot lathe shall be provided with each stake. Flagging color will be designated by the Subcontractor.~~

~~D. Final Surveys:~~

~~1. Final topography shall be staked at nominal 50 foot intervals. Additionally, the following points shall be staked and noted as applicable.~~

~~a. Grade breaks.~~

~~b. Points of horizontal curvature and tangency.~~

~~c. Points of stationing equation.~~

~~2. Structures: Stake structure centerlines or building lines so that the orientation, position, limits, and foundation elevation(s) are positively identified. Mark stakes to reflect the design elevation and offset distance as applicable.~~

~~3. Ditches and Channels: Stake ditches and channels such that the layout remains undisturbed during construction.~~

3.03 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys to determine quantities of work and percent of completed work.

B. Calculate and certify quantities and submit survey results, calculations, and certification to the Construction Manager for review, evaluation, and payment.

3.04 SURVEYS FOR ~~CONFORMANCE CHECKS AND~~ "AS-BUILT" DOCUMENTS

~~A. Survey the following surfaces to verify the lines and grades achieved during soil placement and compaction:~~

~~1. for berms, ditches, roads, and other earthwork:~~

~~a. original grade surface;~~

~~b. compacted surface of cut slopes; and~~

~~c. finished grade surface;~~

A. Perform ~~conformance check~~ "as-built" surveying immediately upon completion of a given installation to facilitate progress and avoid delaying commencement of the next installation. Provide the following ~~minimum spacings and~~ locations (coordinates and elevations) for survey points:

~~1. surfaces with gradients less than 10 percent, survey on a square grid spaced not wider than 50 ft;~~

~~2. on slopes greater than 10 percent, a square grid spaced not wider than 50 ft shall be used, but in any case, a line at the crest, midpoint, and toe of the slope shall be taken;~~

~~3. a line of survey points spaced not more than 50 ft apart shall be taken along any slope break (this will include the inside edge and outside edge of any bench on a slope);~~

~~1.~~ 4. a line of survey points spaced not more than 50 ft apart (or as directed) shall be taken at the top of any pipes (fittings and valves) or other appurtenances;

~~2.~~ 5. pipe terminations as shown on the Construction Drawings;

~~3.~~ 6. at the invert of temporary gravity line cleanouts; and

~~4.~~ 7. at the base (and top) of the LCS and LDS manholes, and the permanent lift station locations shown on the Construction Drawings. Locations of cleanouts and clean out manholes along the force main shall also be shown.

5. the location, elevation, size, type of material, of all pipes, structures, or other utilities encountered.

1271 DCN - 1700-0C

Parsons

Page 4 of 9

7 Feb 97

Leachate Conveyance System
DCN No.: 1700 - 009
Surveying Specification

Recommend Status B, Approved as noted. Recommended comments are as follows:

1.06.B Suggest the following rewording :

We want both

"One complete set of survey notes and as-built drawings certified and ~~sealed~~ Stamped by a Surveyor licensed in the State of Ohio shall...." (Only the drawings need to be sealed. As written, the notes are to be certified and sealed too.)

Suggest the following be added:

✓ Drawings shall be the same scale as the construction drawings. Survey notes shall include a point listing with coordinates, elevation, and description.

1.07.B ✓ Add "with coordinates." after the word "benchmark".

3.01 Add the following section:

✓ L. Use only the monuments, coordinates, and elevations recognized by FDF for control points. Temporary control points shall be set based on surveys that reference the accepted monuments.

3.02.B.1 Add the following section:

✓ g. Field notes for work performed to establish the control point including the coordinates and elevation of the control points referenced.

3.04.A ✓ 1.a. Locating all pipes every 50 ft. will make a very busy drawing especially with all the lines proposed by OU-1 and 5. Suggest that this be reworded to apply only to the leachate line and the outside line when more than two lines run parallel.

✓ 1.b. Add ",at all tee's, bends, and valves;" after the word "appurtenances".

✓ 4. Suggest adding "...and top...." after the word "base".

✓ 5. Suggest the following new item:

"The location, elevation, size, type of material, of all pipes, structures, or other utilities encountered."

Spec NOTE 1271 KKYB

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 8	(6)DATE 1/28/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER O	(4A)RCI/DCN TITLE: SURVEYING SPECIFICATION		(11)DCN NO.: 1700-009

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATION - 20110-TS-0002	20110-TS-0002 SECTION 02100	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- REVISE SPECIFICATION TO MORE CLEARLY REPRESENT THE SCOPE OF SURVEYING REQUIRED FOR LEACHATE CONVEYANCE (SEE REVISED SPEC. ATTACHED) REV. 1
-

CDC
CONTROLLED COPY
NO.
C-11

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 1/28/97	(12)FCE / PE: Richard L. McLaine	DATE: 1/30/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Section 02100 of the technical specifications shall be modified and FDF shall obtain all necessary DOE and regulatory agency approvals as required for modification of the Final Design Package

SEE ADDITIONAL COMMENT and Suggestions on attached page 1 of 1.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: GEOSYNTEC: [signature] DATE: 5 Feb 97 PARSONS: Carlton Smoden 10 Feb 97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 4 James C. Jenkins	DATE: 2/12/97
(18)CONSTRUCTION CONCURRENCE: Richard L. McLaine DATE: 2/12/97 PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:

FS-F-4259 (10/01/96)

DCN #009

received
2-6-97

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DEN 1100-004
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SECTION 02100

SURVEYING

FOR INFORMATION ONLY

PART 1 GENERAL

1.01 SCOPE

01 This section describes the requirements for surveying, including:

~~1. Establishing temporary control benchmarks.~~

1.2. Establishing a horizontal and vertical project control system based on the existing monuments and surveying required for the layout and construction of the leachate conveyance system.

~~3. Surveys for quantity determinations.~~

~~4. Setting limits and boundaries of construction activities.~~

2.5. ~~Conducting topographic~~ Performing surveys as required to periodically determine amount of work performed for periodic progress payments and final payment prior to Subcontract completion.

3.6. Preparing and furnishing as-built drawings, as specified in Part 5.0, Special Terms and Conditions for Construction.

1.02 RELATED SECTIONS AND PLANS

A. Section 02110 - Clearing, Grubbing, and Stripping

B. Section 02200 - Earthwork

C. Section 02215 - Trenching and Backfilling

D. Section 02270 - Erosion and Sediment Control

E. Section 02300 - Boring and Jacking

F. Section 02605 - High Density Polyethylene (HDPE) Manholes, Pipes, and Fittings

G. Section 02831 - Chain-Link Fence and Gates

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03 Construction Quality Assurance (CQA) Plan.

1.04 REFERENCES

FOR INFORMATION ONLY

A. National Geodetic Survey Standards.

1.05 QUALIFICATIONS

A. A Land Surveyor licensed in the State of Ohio shall provide oversight. Staking shall be in accordance with accepted surveying practices, provisions herein, and subject to Construction Manager review.

B. Surveying work shall be under the direct supervision of a person who has a least 5 years of experience in construction surveying. Any work performed in referencing or re-establishment of land or United States survey monuments shall be stamped and certified by an Ohio-licensed land surveyor.

1.06 SUBMITTALS

A. Submit the following to the Construction Manager for review within 15 calendar days from Notice to Proceed:
   1. Ohio surveyor's license;
   2. periodic deliverable data (deliver to Construction Manager, as completed, during project):
      a. reduced and checked field notes,
      b. all drawings and sketches, and
      ~~c. electronic files in DXF format or Construction Manager approved electronic files.~~
   3. manner of notation; approved notation shall be consistently applied to all project survey work; the stake marking format and the fieldbook notation shall be compatible.

B. One complete set of as-built ~~(i.e., "record") survey~~ drawings and survey notes certified and stamped by a Surveyor licensed in the State of Ohio shall be submitted to the Construction Manager within 15 days of completion of the project. ~~The Subcontractor shall also provide the Construction Manager with an electronic file in DXF format or a Construction Manager approved electronic file upon final submittal of the record drawings. Three (3) copies of the certified survey record drawings will be required.~~

1.07 PROJECT RECORD DOCUMENTS

A. Maintain on site, a complete, accurate survey log documenting survey work as it progresses.

B. Maintain on-site, a plan clearly showing all site reference points, survey control points, and benchmarks.

C. Maintain on-sites an accurate and current set of marked-up drawings showing "as-built" conditions, as specified in Part 4, "Special Terms and Conditions for Construction".

~~D. Upon completion of each work item as specified in Part 3, prepare and/or update "as-built" drawing.~~

FOR INFORMATION ONLY

PART 2 PRODUCTS

2.01 MATERIALS AND SURVEY INSTRUMENTS

A. Provide materials as required to properly perform the surveys, including, but not limited to, instruments, tapes, rods, measures, mounts, and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else as required.

B. Survey instruments shall be calibrated and maintained in accurate calibration throughout the execution of the subcontract. The survey instruments used for this work shall be precise and accurate to meet the needs of the project. All survey instruments should be capable of reading to a precision of 0.001 ft and with a setting accuracy of $\pm$ 0.8 seconds.

PART 3 EXECUTION

3.01 GENERAL

A. Maintain accurate and complete notes of surveys:
   1. Handwritten survey notes and information shall be written with lead pencil(s) and entered in "write-in-rain" notebooks. A copy of the numbered, dated, and signed field book pages shall be given to the Subcontractor daily for use in checking the work.

2. Electronically collected field survey information shall be collected and backup equipment shall be available in the event of equipment malfunction.
   a. Electronic format for printed output of data collector field survey notes shall be compatible with the approved fieldbook notation format.
   b. Electronic format for printed output of data collector field work shall be compatible with the Subcontractor's and Construction Manager's computer equipment and software for verifying and checking the work. A copy of the data disk shall be submitted to the Construction Manager weekly.

B. During construction of the Leachate Conveyance System, survey notes shall be retained by the Subcontractor and Surveyor. During construction of the Leachate Conveyance System, the Subcontractor and/or Surveyor shall submit surveys to the Construction Manager for review. ~~Prior to the placement of successive soil layers the Subcontractor shall submit a written statement certifying compliance of the preceding layer thickness and grades to the Construction Manager. Surveys will be required from the Subcontractor prior to approval for the placement for overlying materials by the Construction Manager~~.

C. The precision of horizontal and vertical controls shall meet or exceed ~~Third-Order~~ Class II and Third-Order accuracies respectively, as defined by National Geodetic Survey Standards.

D. Conformance check surveys for elevation and for horizontal coordinates shall be recorded to the nearest 0.01 ft and for angles shall be to the nearest 20 seconds.

E. Measurement and payment surveys for elevation and for horizontal distances shall be recorded to the nearest 0.1 ft $\pm$ 0.05 ft.

F. ~~Final~~ "as-built" survey notes and sketches shall be ~~drawings shall be certified by the Land Surveyor~~ for procedure and accuracy of work ~~and sealed by the Land Surveyor.~~ STET

G. Perform construction layout surveys in advance of scheduled construction activities. At completion of a survey, provide a copy of the field notes, drawings, or sketches to the Construction Manager for review. The Subcontractor shall allow the ~~CQC Consultant and/or~~ Construction Manager one calendar day between Monday through Friday for review and verification of the construction layout. The Subcontractor is responsible for rework and/or construction delays caused by survey or staking errors.

H. Set slope and off-set stakes in accordance with accepted surveying practices.

FOR INFORMATION ONLY

I. Set grade stakes required for construction activities as the work progresses. Set fine grade stakes on all surfaces for which the plans show a definite grade line.

J. Upon completion of the work, the Subcontractor shall provide the Construction Manager with all original surveying field notes, layouts, and computations ~~and electronic files~~ in standard bound survey notebooks, binders containing electronic file information and two copies each of electronic files compatible with the Construction Manager's computer equipment and software.

K. Protect survey control points. Replace disturbed survey control points at no additional cost.

3.02 SPECIFIC FIELD REQUIREMENTS

A. Establish temporary control points, as necessary, to support construction work activities.

B. Survey Monuments, Accuracy, and Documentation:
   1. Record the following information in survey notebooks for each control point established:
      a. designation of control point;
      b. state planar North American Datum (NAD), 1983 Ohio South;
      c. elevation; feet above Sea Level Datum [Note, "Sea Level datum refers to National Geodetic Vertical Datum (NGVD)].
      d. date of establishment;
      e. description and sketch of the control point location; and
      f. control points shall be referenced to a minimum of three features that can be seen from the control point.
   2. Document survey work in field notebooks using the format and procedures described below:
      a. title and consecutive number on the front cover;
      b. consecutively numbered pages;
      c. table of contents, indicated by survey task, on the first numbered page;
      d. legend indicating symbols used in survey notes;
      e. names of survey team members for each task;
      f. notes on weather, equipment, etc.;
      g. date and time on each page to indicate when work was performed;
      h. notes in a uniform character such that they can be interpreted and used by anyone with survey knowledge; and
      i. description and/or sketches of the existing survey control used.

FOR INFORMATION ONLY

~~C. Preliminary Surveys:~~

~~1. Clearing Limit Staking: Stake clearing limits according to the minimum limits identified on the Construction Drawings. Clearing limits stakes shall be flagged and the lathe marked "clearing limits".~~

~~2. Alignment and Existing Ground Staking: Following clearing operations and before stripping operations begin, preliminary locations of alignments and/or baseline of project features shall be established. Perform topographic surveys to describe original ground features before stripping or excavation begins. The distance between grid points shall not exceed 50 feet, and all breaks shall be noted.~~

~~3. Earthwork Staking: Staking for cut and fill limits shall establish the exterior limits of excavations and embankments. The maximum staking interval shall be 50 feet. Stakes shall be prominently noted with description of point, vertical distance to design elevation, and offset distance as applicable. A brightly flagged 4 foot lathe shall be provided with each stake. Flagging color will be designated by the Subcontractor.~~

~~D. Final Surveys:~~

~~1. Final topography shall be staked at nominal 50 foot intervals. Additionally, the following points shall be staked and noted as applicable.~~

~~a. Grade breaks.~~

~~b. Points of horizontal curvature and tangency.~~

~~c. Points of stationing equation.~~

~~2. Structures: Stake structure centerlines or building lines so that the orientation, position, limits, and foundation elevation(s) are positively identified. Mark stakes to reflect the design elevation and offset distance as applicable.~~

~~3. Ditches and Channels: Stake ditches and channels such that the layout remains undisturbed during construction.~~

3.03 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys to determine quantities of work and percent of completed work.

B. Calculate and certify quantities and submit survey results, calculations, and certification to the Construction Manager for review, evaluation, and payment.

3.04 SURVEYS FOR ~~CONFORMANCE CHECKS AND~~ "AS-BUILT" DOCUMENTS

~~A. Survey the following surfaces to verify the lines and grades achieved during soil placement and compaction:~~

FOR INFORMATION ONLY

~~1. for berms, ditches, roads, and other earthwork:~~
~~a. original grade surface;~~
~~b. compacted surface of cut slopes; and~~
~~c. finished grade surface;~~

A. Perform ~~conformance check~~ "as-built" surveying immediately upon completion of a given installation to facilitate progress and avoid delaying commencement of the next installation. Provide the following ~~minimum spacings and~~ locations for survey points:

~~1. surfaces with gradients less than 10 percent, survey on a square grid spaced not wider than 50 ft;~~
~~2. on slopes greater than 10 percent, a square grid spaced not wider than 50 ft shall be used, but in any case, a line at the crest, midpoint, and toe of the slope shall be taken;~~
~~3. a line of survey points spaced not more than 50 ft apart shall be taken along any slope break (this will include the inside edge and outside edge of any bench on a slope);~~

~~1.~~ 4. a line of survey points spaced not more than 50 ft apart shall be taken at the top of any pipes or other appurtenances;
~~2.~~ 5. pipe terminations as shown on the Construction Drawings;
~~3.~~ 6. at the invert of temporary gravity line cleanouts; and
~~4.~~ 7. at the base of the LCS and LDS manholes, and the permanent lift station locations shown on the Construction Drawings. Locations of cleanouts and cleanout manholes along the force main shall also be shown.

5.

[END OF SECTION]

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Parsons

Page 1 of 1

7 Feb 97

Leachate Conveyance System
DCN No.: 1700 - 009
Surveying Specification

Recommend Status B, Approved as noted. Recommended comments are as follows:

1.06.B Suggest the following rewording :

We want both

"One complete set of survey notes and as-built drawings certified and ~~sealed~~ Stamped by a Surveyor licensed in the State of Ohio shall...." (Only the drawings need to be sealed. As written, the notes are to be certified and sealed too.)

Suggest the following be added:

✓ Drawings shall be the same scale as the construction drawings. Survey notes shall include a point listing with coordinates, elevation, and description.

1.07.B ✓ Add "with coordinates." after the word "benchmark".

3.01 Add the following section:

✓ L. Use only the monuments, coordinates, and elevations recognized by FDF for control points. Temporary control points shall be set based on surveys that reference the accepted monuments.

3.02.B.1 Add the following section:

✓ g. Field notes for work performed to establish the control point including the coordinates and elevation of the control points referenced.

3.04.A ✓ 1.a. Locating all pipes every 50 ft. will make a very busy drawing especially with all the lines proposed by OU-1 and 5. Suggest that this be reworded to apply only to the leachate line and the outside line when more than two lines run parallel.

✓ 1.b. Add ",at all tee's, bends, and valves;" after the word "appurtenances".

✓ 4. Suggest adding "...and top...." after the word "base".

✓ 5. Suggest the following new item:

"The location, elevation, size, type of material, of all pipes, structures, or other utilities encountered."

20110-1271002

SECTION 02100

SURVEYING

PART 1 GENERAL

1.01 SCOPE

01 This section describes the requirements for surveying, including:

~~1. Establishing temporary control benchmarks.~~

1.2. Establishing a horizontal and vertical project control system based on the existing monuments and surveying required for the layout and construction of the leachate conveyance system.

~~3. Surveys for quantity determinations.~~

~~4. Setting limits and boundaries of construction activities.~~

2.5. ~~Conducting topographic~~ Performing surveys as required to periodically determine amount of work performed for periodic progress payments and final payment prior to Subcontract completion.

3.6. Preparing and furnishing as-built drawings, as specified in Part 4, - Special Terms and Conditions for Construction.

1.02 RELATED SECTIONS AND PLANS

A. Section 02110 - Clearing, Grubbing, and Stripping

B. Section 02200 - Earthwork

C. Section 02215 - Trenching and Backfilling

D. Section 02270 - Erosion and Sediment Control

E. Section 02300 - Boring and Jacking

F. Section 02605 - High Density Polyethylene (HDPE) Manholes, Pipes, and Fittings

G. Section 02831 - Chain-Link Fence and Gates

INFORMATION ONLY

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03 Construction Quality Assurance (CQA) Plan.

1.04 REFERENCES

A. National Geodetic Survey Standards.

1.05 QUALIFICATIONS

A. A Land Surveyor licensed in the State of Ohio shall provide oversight. Staking shall be in accordance with accepted surveying practices, provisions herein, and subject to Construction Manager review.

B. Surveying work shall be under the direct supervision of a person who has a least 5 years of experience in construction surveying. Any work performed in referencing or re-establishment of land or United States survey monuments shall be stamped and certified by an Ohio-licensed land surveyor.

1.06 SUBMITTALS

A. Submit the following to the Construction Manager for review within 15 calendar days from Notice to Proceed:
   1. Ohio surveyor's license;
   2. periodic deliverable data (deliver to Construction Manager, as completed, during project):
      a. reduced and checked field notes,
      b. all drawings and sketches, and
      ~~c. electronic files in DXF format or Construction Manager approved electronic files.~~
   3. manner of notation; approved notation shall be consistently applied to all project survey work; the stake marking format and the fieldbook notation shall be compatible.

B. One complete set of as-built ~~(i.e., "record") survey~~ drawings and survey notes certified and stamped by a Surveyor licensed in the State of Ohio shall be submitted to the Construction Manager within 15 days of completion of the project. ~~The Subcontractor shall also provide the Construction Manager with an electronic file in DXF format or a Construction Manager approved electronic file upon final submittal of the record drawings. Three (3) copies of the certified survey record drawings will be required.~~ Drawings shall be the same scale as the construction drawings. Survey notes shall include a point listing with coordinates, elevation, and description.

INFORMATION ONLY

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1.07 PROJECT RECORD DOCUMENTS

A. Maintain on site, a complete, accurate survey log documenting survey work as it progresses.

B. Maintain on-site, a plan clearly showing all site reference points, survey control points, and benchmarks with coordinates.

C. Maintain on-sites an accurate and current set of marked-up drawings showing "as-built" conditions, as specified in Part 4, Special Terms and Conditions for Construction.

~~D. Upon completion of each work item as specified in Part 3, prepare and/or update "as-built" drawing.~~

PART 2 PRODUCTS

2.01 MATERIALS AND SURVEY INSTRUMENTS

A. Provide materials as required to properly perform the surveys, including, but not limited to, instruments, tapes, rods, measures, mounts, and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else as required.

B. Survey instruments shall be calibrated and maintained in accurate calibration throughout the execution of the subcontract. The survey instruments used for this work shall be precise and accurate to meet the needs of the project. All survey instruments should be capable of reading to a precision of 0.001 ft and with a setting accuracy of ± 0.8 seconds.

PART 3 EXECUTION

INFORMATION ONLY

3.01 GENERAL

A. Maintain accurate and complete notes of surveys:
   1. Handwritten survey notes and information shall be written with lead pencil(s) and entered in "write-in-rain" notebooks. A copy of the numbered, dated, and signed

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field book pages shall be given to the Subcontractor daily for use in checking the work.

2. Electronically collected field survey information shall be collected and backup equipment shall be available in the event of equipment malfunction.
   a. Electronic format for printed output of data collector field survey notes shall be compatible with the approved fieldbook notation format.
   b. Electronic format for printed output of data collector field work shall be compatible with the Subcontractor's and Construction Manager's computer equipment and software for verifying and checking the work. A copy of the data disk shall be submitted to the Construction Manager weekly.

B. During construction of the Leachate Conveyance System, survey notes shall be retained by the Subcontractor and Surveyor. During construction of the Leachate Conveyance System, the Subcontractor and/or Surveyor shall submit surveys to the Construction Manager for review. ~~Prior to the placement of successive soil layers the Subcontractor shall submit a written statement certifying compliance of the preceding layer thickness and grades to the Construction Manager. Surveys will be required from the Subcontractor prior to approval for the placement for overlying materials by the Construction Manager~~.

C. The precision of horizontal and vertical controls shall meet or exceed ~~Third Order~~ Class II and Third-Order accuracies respectively, as defined by National Geodetic Survey Standards.

D. Conformance check surveys for elevation and for horizontal coordinates shall be recorded to the nearest 0.01 ft and for angles shall be to the nearest 20 seconds.

E. Measurement and payment surveys for elevation and for horizontal distances shall be recorded to the nearest 0.1 ft $\pm$ 0.05 ft.

F. ~~Final~~ "As-built" survey notes and sketches shall be ~~drawings shall be~~ certified for procedure and accuracy of work ~~and sealed~~ by the Land Surveyor.

G. Perform construction layout surveys in advance of scheduled construction activities. At completion of a survey, provide a copy of the field notes, drawings, or sketches to the Construction Manager for review. The Subcontractor shall allow the ~~CQC Consultant and/or~~ Construction Manager one calendar day between Monday through Friday for review and verification of the construction layout. The Subcontractor is responsible for rework and/or construction delays caused by survey or staking errors.

INFORMATION ONLY

H. Set slope and off-set stakes in accordance with accepted surveying practices.

I. Set grade stakes required for construction activities as the work progresses. Set fine grade stakes on all surfaces for which the plans show a definite grade line.

J. Upon completion of the work, the Subcontractor shall provide the Construction Manager with all original surveying field notes, layouts, and computations ~~and electronic files~~ in standard bound survey notebooks, binders containing electronic file information and two copies each of electronic files compatible with the Construction Manager's computer equipment and software.

K. Protect survey control points. Replace disturbed survey control points at no additional cost.

L. Use only the monuments, coordinates, and elevations recognized by FDF for control points. Temporary control points shall be set based on surveys that reference the accepted monuments.

3.02 SPECIFIC FIELD REQUIREMENTS

A. Establish temporary control points, as necessary, to support construction work activities.

B. Survey Monuments, Accuracy, and Documentation:
   1. Record the following information in survey notebooks for each control point established:
      a. designation of control point;
      b. state planar North American Datum (NAD), 1983 Ohio South;
      c. elevation; feet above Sea Level Datum [Note, Sea Level datum refers to National Geodetic Vertical Datum (NGVD)].
      d. date of establishment;
      e. description and sketch of the control point location; and
      f. control points shall be referenced to a minimum of three features that can be seen from the control point.
      g. field notes for work performed to establish the control point including the coordinates and elevation of the control points referenced.
   2. Document survey work in field notebooks using the format and procedures described below:
      a. title and consecutive number on the front cover;
      b. consecutively numbered pages;

INFORMATION ONLY

c. table of contents, indicated by survey task, on the first numbered page;
d. legend indicating symbols used in survey notes;
e. names of survey team members for each task;
f. notes on weather, equipment, etc.;
g. date and time on each page to indicate when work was performed;
h. notes in a uniform character such that they can be interpreted and used by anyone with survey knowledge; and
i. description and/or sketches of the existing survey control used.

~~C. Preliminary Surveys:~~

~~1. Clearing Limit Staking: Stake clearing limits according to the minimum limits identified on the Construction Drawings. Clearing limits stakes shall be flagged and the lathe marked "clearing limits".~~

~~2. Alignment and Existing Ground Staking: Following clearing operations and before stripping operations begin, preliminary locations of alignments and/or baseline of project features shall be established. Perform topographic surveys to describe original ground features before stripping or excavation begins. The distance between grid points shall not exceed 50 feet, and all breaks shall be noted.~~

~~3. Earthwork Staking: Staking for cut and fill limits shall establish the exterior limits of excavations and embankments. The maximum staking interval shall be 50 feet. Stakes shall be prominently noted with description of point, vertical distance to design elevation, and offset distance as applicable. A brightly flagged 4 foot lathe shall be provided with each stake. Flagging color will be designated by the Subcontractor.~~

~~D. Final Surveys:~~

~~1. Final topography shall be staked at nominal 50 foot intervals. Additionally, the following points shall be staked and noted as applicable.~~

~~a. Grade breaks.~~

~~b. Points of horizontal curvature and tangency.~~

~~c. Points of stationing equation.~~

~~2. Structures: Stake structure centerlines or building lines so that the orientation, position, limits, and foundation elevation(s) are positively identified. Mark stakes to reflect the design elevation and offset distance as applicable.~~

~~3. Ditches and Channels: Stake ditches and channels such that the layout remains undisturbed during construction.~~

INFORMATION ONLY

3.03 SURVEYS FOR MEASUREMENT AND PAYMENT

A. Perform surveys to determine quantities of work and percent of completed work.

B. Calculate and certify quantities and submit survey results, calculations, and certification to the Construction Manager for review, evaluation, and payment.

3.04 SURVEYS FOR ~~CONFORMANCE CHECKS AND~~ "AS-BUILT" DOCUMENTS

~~A. Survey the following surfaces to verify the lines and grades achieved during soil placement and compaction:~~

~~1. for berms, ditches, roads, and other earthwork:~~

~~a. original grade surface;~~

~~b. compacted surface of cut slopes; and~~

~~c. finished grade surface;~~

A. Perform ~~conformance check~~ "as-built" surveying immediately upon completion of a given installation to facilitate progress and avoid delaying commencement of the next installation. Provide the following ~~minimum spacings and~~ locations (coordinates and elevations) for survey points:

~~1. surfaces with gradients less than 10 percent, survey on a square grid spaced not wider than 50 ft;~~

~~2. on slopes greater than 10 percent, a square grid spaced not wider than 50 ft shall be used, but in any case, a line at the crest, midpoint, and toe of the slope shall be taken;~~

~~3. a line of survey points spaced not more than 50 ft apart shall be taken along any slope break (this will include the inside edge and outside edge of any bench on a slope);~~

1. ~~4.~~ a line of survey points spaced not more than 50 ft apart or as directed shall be taken at the top of any pipes fittings and valves or other appurtenances;
2. ~~5.~~ pipe terminations as shown on the Construction Drawings;
3. ~~6.~~ at the invert of temporary gravity line cleanouts; and
4. ~~7.~~ at the base and top of the LCS and LDS manholes, and the permanent lift station locations shown on the Construction Drawings. Locations of cleanouts and clean out manholes along the force main shall also be shown.
5. the location, elevation, size, type of material, of all pipes, structures, or other utilities encountered.

INFORMATION ONLY

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20116-TS-0002

[END OF SECTION]

INFORMATION ONLY

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 1	(6)DATE 1/21/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: EX MO CO OTHER	(4A)RCI/DCN TITLE: LDS/LCS ACCESS COVERS		(11)DCN NO.: 1700-008

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATIONS	20110-TS-0002	ϕ	
MECHANICAL	SECTION 15000 ART. 2.08	ϕ	
~~DRAWINGS 90X-6000-M-00065,00066~~ 00065, 90X-6000-S-00068		ALL REV.0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER 00066

(9)DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- VALUE ENGINEERING BY FDF AND GEOSYNTEC CONCLUDED THAT REVISING MANHOLE & CLEANOUT ACCESS COVERS FOR LDS/LCS M.H.'s 1 THRU 3 FROM 4'×4' & 3'×3' SS TO 3'×3' & 2'×2' ALUM. RESPECTIVELY CAN REDUCE MATERIAL COSTS WHILE STILL MEETING THE REQUIREMENTS FOR ACCESS AND LONGEVITY.

~~Include the Weld Mapping Well Cleanout at LDS Station~~ includes mapping well cleanout

CDC CONTROLLED COPY NO. T-1

(10)REQUESTOR:	COMPANY:	DATE:	(12)FCE / PE	DATE:
J. C. JENKINS	FDF	1/21/97	Richard K McRaine	1/28/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Article 2.08 of the technical specifications Section 15000 and drawing sheets M-4A, M-5A, M-6B, and S-1A shall be modified and FDF shall obtain all necessary DOE and regulatory agency approvals as required for modification of the Final Design Package. DGB

① Provided to Parsons for information only — No signoff's necessary by Parsons (Discussed on 2/10/97)

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
	3Feb97	N.A.

(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE

PERFORMANCE GRADE: (17) 4 J. C. Jenkins 2/5/97

(18)CONSTRUCTION CONCURRENCE:	DATE:	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
Richard K McRaine	2/5/97		

PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)

FS-F-4259 (10/01/96)

DCN # 008

received 2-3-97

ORIGINAL

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Drawings & Spec Noted 1271 UGB

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE-

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 3	(6)DATE 1/21/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☒ MD CD OTHER☐	(4A)RCI/DCN TITLE: PIPING SPEC CHANGES		(11)DCN NO.: 1700-007

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
SPECIFICATIONS	20110-TS-0002	0	
HIGH DENSITY POLYETHYLENE (HDPE) MANHOLES, PIPE, AND FITTINGS	SECTION 02605 ART. 2.04 & 2.05	0	
DESIGN CRITERIA PACKAGE, OSDF OCT. 1996	SECTION 2.5 LEACHATE MGMT.	4	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

- VALUE ENGINEERING BY OSDF TEAM (FDF, GEOSYNTEC, PARSONS) CONCLUDED THAT REDUCING SDR'S OF HDPE PIPING WOULD REDUCE MATERIAL COST WHILE STILL MEETING PIPING DESIGN REQUIREMENTS. (SEE ATTACHED LIST)
- REVISED PIPING IS STANDARD MANUFACTURER'S STOCK ITEMS AND SHOULD HAVE NO IMPACT ON DELIVERY.

(10)REQUESTOR: J.C. JENKINS	COMPANY: FDF	DATE: 1/21/97	(12)FCE / PE Richard L McKenna	DATE: 1/28/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☒ YES (14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

Article 2.04 of the technical specification Section 02605 shall be modified and FDF shall obtain all necessary DOE and regulatory agency approvals as required for modification of the Final Design Package and the Design Criteria Package.

① PARSONS - See Clarification Response - Page 1 of 1

② Pipe Wall thickness change may be documented aEDC an AS-BUILT CONDITION

CONTROLLED COPY NO.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Rudolph Bonaparte 3 Feb 1997	DATE:	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: N.A.	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) J.C. Jenkins			DATE: 2/5/97
PERFORMANCE GRADE: (17) 4			
(18)CONSTRUCTION CONCURRENCE: Richard L. McKenna	DATE: 2/5/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☐ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

Parsons (Carlton Schroeder) approves SDR change as shown on Page 2 of 2 for FOLCE Main Carlton Schroeder 1/29/97

DCN 007

received FAX 2-3-97

ORIGINAL

00064

W.O. No.: 1700 — 1271 2 of 3

DCN No.

J. C. J.

REVISED HDPE PIPING

LOCATION	SDR
1. FORCE MAIN FROM PERMANENT LIFT STATION TO BSL	
a. 4 IN. CARRIER	17
b. 8 IN. CONTAINMENT	26
2. TEMPORARY GRAVITY LINE FROM LCS MH3 TO PERMANENT L.S.	
a. 6 IN. CARRIER	26
b. 10 IN. CONTAINMENT	26
3. PERMANENT GRAVITY LINES FROM LDS/LCS MH1 TO LDS/LCS MH3	
a. 6 IN. CARRIER	26
b. 10 IN. CONTAINMENT	26

NOTE: HDPE PIPING, FITTINGS AND APPURTENANCES WITHIN ~~LDS~~ LDS/LCS MH's 1, 2, & 3 SHALL ALSO BE SDR 26

ORIGINAL

PARSONS

DCN No.: 1700 - 007
Leachate Conveyance System
Piping Spec Changes

29 Jan 97

Recommend Status B, Approved as noted

Comments are as follows for the PARSONS drawings only:

1. Confirm that operating parameters will not exceed the operating pressure for the carrier pipe. That is, confirm that there have been no changes to the Rev 0 ~~pump~~ lift station pumping system as designed by PARSON
2. The change shall be shown on the as-built construction drawings if not incorporated into other DCN changes to plan and profile sheets.

VCN No 1271
J. C. J.

REVISED HDPE PIPING

LOCATION	SDR
1. FORCE MAIN FROM PERMANENT LIFT STATION TO BSL	
a. 4 IN. CARRIER	17
b. 8 IN. CONTAINMENT	26
2. TEMPORARY GRAVITY LINE FROM LCS MH3 (Station 10+00) TO PERMANENT L.S. (Station 36+00)	
a. 6 IN. CARRIER	26 ✓
b. 10 IN. CONTAINMENT	26 ✓
3. PERMANENT GRAVITY LINES FROM LDS/LCS MH1 TO LDS/LCS MH3 (Station 0+00 To Station 10+00)	
a. 6 IN. CARRIER	26 ✓
b. 10 IN. CONTAINMENT	26 ✓

NOTE: HDPE PIPING, FITTINGS AND APPURTENANCES WITHIN ~~LDS~~ LDS/LCS MH's 1, 2, & 3 SHALL ALSO BE SDR 26 ✓

ORIGINAL

W.O. No.: 1700

1271
2 OF 3

DCN No.

J. C. J.

REVISED HDPE PIPING

LOCATION	SDR
1. FORCE MAIN FROM PERMANENT LIFT STATION TO BSL	
a. 4 IN. CARRIER	17
b. 8 IN. CONTAINMENT	26
2. TEMPORARY GRAVITY LINE FROM LCS MH3 TO PERMANENT L.S.	
a. 6 IN. CARRIER	26
b. 10 IN. CONTAINMENT	26
3. PERMANENT GRAVITY LINES FROM LDS/LCS MH1 TO LDS/LCS MH3	
a. 6 IN. CARRIER	26
b. 10 IN. CONTAINMENT	26

NOTE: HDPE PIPING, FITTINGS AND APPURTENANCES WITHIN ~~LCS~~ LDS/LCS MH's 1, 2, & 3 SHALL ALSO BE SDR 26

ORIGINAL

Natl SGR 1271

REQUEST FOR CLARIFICATIONOF INFORMATION/ DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: FSC-589	(5)Pg 1 OF 2	(6)DATE 1/21/97
(3)S/C TITLE: LEACHATE CONVEYANCE SYSTEM		(11)RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: EA X MO CO OTHER	(4A)RCI/DCN TITLE: REVISED POLE LOCATIONS	(11)DCN NO.: 1700-006	

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
OSDF UTILITY REROUTING - MAIN SITE TELEPHONE FEEDER LINES - LAYOUT	90X-5500-E-00503	1	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER (9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE SK-20110-004

- REVISE EASTING COORDINATES AS PER ATTACHED SKETCH 1 TO ENSURE POLES ARE CONSTRUCTED (SET) OUTSIDE OF REROUTED NORTH ENTRANCE ROAD DITCH.

(10)REQUESTOR: J. C. JENKINS COMPANY:	DATE: 1/21/97	(12)FCE / PE: Richard L McPherson	DATE: 1/23/97

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES (14)FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

CDC
CONTROLLED COPY
NO.
C-11

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: Ronald C Wanley	DATE: 2/3/97	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) J. C. Jenkins			DATE: 2/3/97
PERFORMANCE GRADE: (17) 4			
(18)CONSTRUCTION CONCURRENCE: Richard L McPherson	DATE: 2/3/97	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO (19)			

FS-F-4259 (10/01/96)

ORIGINAL

000647

SW. 1413

NEW POLE COORDINATES

		EASTING	NORTHING
No CHANGE	OP100	1350887.98	480170.67
No CHANGE	OP101	1350921.93	480315.04
E 1,351,026.50	OP102	1350976.15	480450.70
E 1,351,123.60	OP103	1351073.25	480562.90
E 1,351,228.76	OP104	1351178.41	480668.07
E 1,351,333.95	OP105	1351283.60	480773.24
E 1,351,439.09	OP106	1351388.74	480878.40
E 1,351,544.25	OP107	1351493.90	480983.57
E 1,351,647.65	OP108	1351597.30	481090.35
E 1,351,763.00	OP109	1351727.00	481223.51
E 1,351,763.61	OP110	1351727.61	481357.35
E 1,351,765.17	OP111	1351729.17	481505.70
E 1,351,766.80	OP112	1351730.80	481654.40
E 1,351,768.50	OP113	1351732.50	481803.10
E 1,351,770.15	OP114	1351734.15	481951.82
E 1,351,771.83	OP115	1351735.83	482100.53
E 1,351,773.50	OP116	1351737.50	482249.25
E 1,351,775.20	OP117	1351739.20	482397.96
E 1,351,776.86	OP118	1351740.86	482546.68
E 1,351,778.54	OP119	1351742.54	482695.40
E 1,351,780.21	OP120	1351744.21	482844.11
E 1,351,781.90	OP121	1351745.90	482992.82
E 1,351,783.60	OP122	1351747.60	483141.54
E 1,351,785.25	OP123	1351749.25	483290.25
E 1,351,786.92	OP124	1351750.92	483438.97
E 1,351,788.60	OP125	1351752.60	483587.70
E 1,351,790.28	OP126	1351754.28	483736.40
E 1,351,791.96	OP127	1351755.96	483885.11
E 1,351,790.00	OP128	~~1351760.62~~	484032.70
No CHANGE	OP129	1351840.50	484161.55
No CHANGE	OP130	1351924.20	484284.50
No CHANGE	OP131	1352007.93	484407.40
No CHANGE	OP132	1352091.77	484530.20

SK-20110-004

J.C.J.
1/21/97

DCN No.
1700-006

Page 2 of 2

LEGEND

- ⊙ OSDF TELEPHONE FEEDER POLE (33)
- ⊙ OSDF POWER DISTRIBUTION POLE

849000

1271

1271

REQUEST FOR CLARIFICATION OF INFORMATION/DESIGN CHANGE NOTICE

WP/WO NO.: 1700	S/C NO.: 589	PAGE 1 OF 1	DATE: 1/3/97
S/C TITLE: LEACHATE CONVEYANCE SYSTEM		RCI NO.:	
RESPONSIBLE DISCIPLINE: PARSONS		DCN NO.: 1700-005	REV.:

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
Certified for construction technical specification Subcontract No. FCS 589	Section 02605 Section 03100	0 0	
Parsons CFC Drawing - PO 164 Parsons CFC Drawing - PO-164	92X-5900-G-00261 92X-5900-G-00254	0 0	

☐ RCI - INQUIRY ☑ DCN - JUSTIFICATION, EXISTING CONDITION, & REQUESTED/PROPOSED CHANGE

Existing Conditions: Referenced drawings and specifications provide for the installation of a single, underground double walled HDPE pipe in a trench parallel to the Injection Demonstration pipe line.

Proposed Change: Install the 10" Injection Demonstration pipe line (HDPE and ductile iron) in the same trench as the Leachate Conveyance piping where they have common routing paths. (Maintain 1' separation between pipe lines) All per attached description of work, modified specifications as attached in DCN 1700-002, and attached referenced drawings 95X-5900-G-00393 and 95X-5900-G-00394, Rev. A.

Justification: The installation of the 10" Injection Demonstration line in the same trench will eliminate having to excavate the same area twice, avoid costly delays due to one contractor impacting on the other, and gain a cost savings on the projects.

REQUESTOR: J.R. Butterfield J R Butterfield 1/3/97

FCE/RE: J.C. Jenkins J C Jenkins 1/6/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

FOR DCN: ☒ APPROVED ☐ APPROVED AS NOTED ☐ DISAPPROVED

1) See attached Sheet Page 2 of 2 FROM DCN 1700-010 for additional inform.

2) See Associated DCN's all Related to CDC Sharing of trench for utilities

OU-2 - 1700-010
OU-1 - 1695-041
OU-4 - 40310-002
OU-5 - 1710-003

CONTROLLED COPY NO. C011 ENTERED

RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: Carlton Schroeder 2/21/97

FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: 4 James C. Jenkins 2/28/97

CONSTRUCTION CONCURRENCE: Bill Zebich 2/28/97

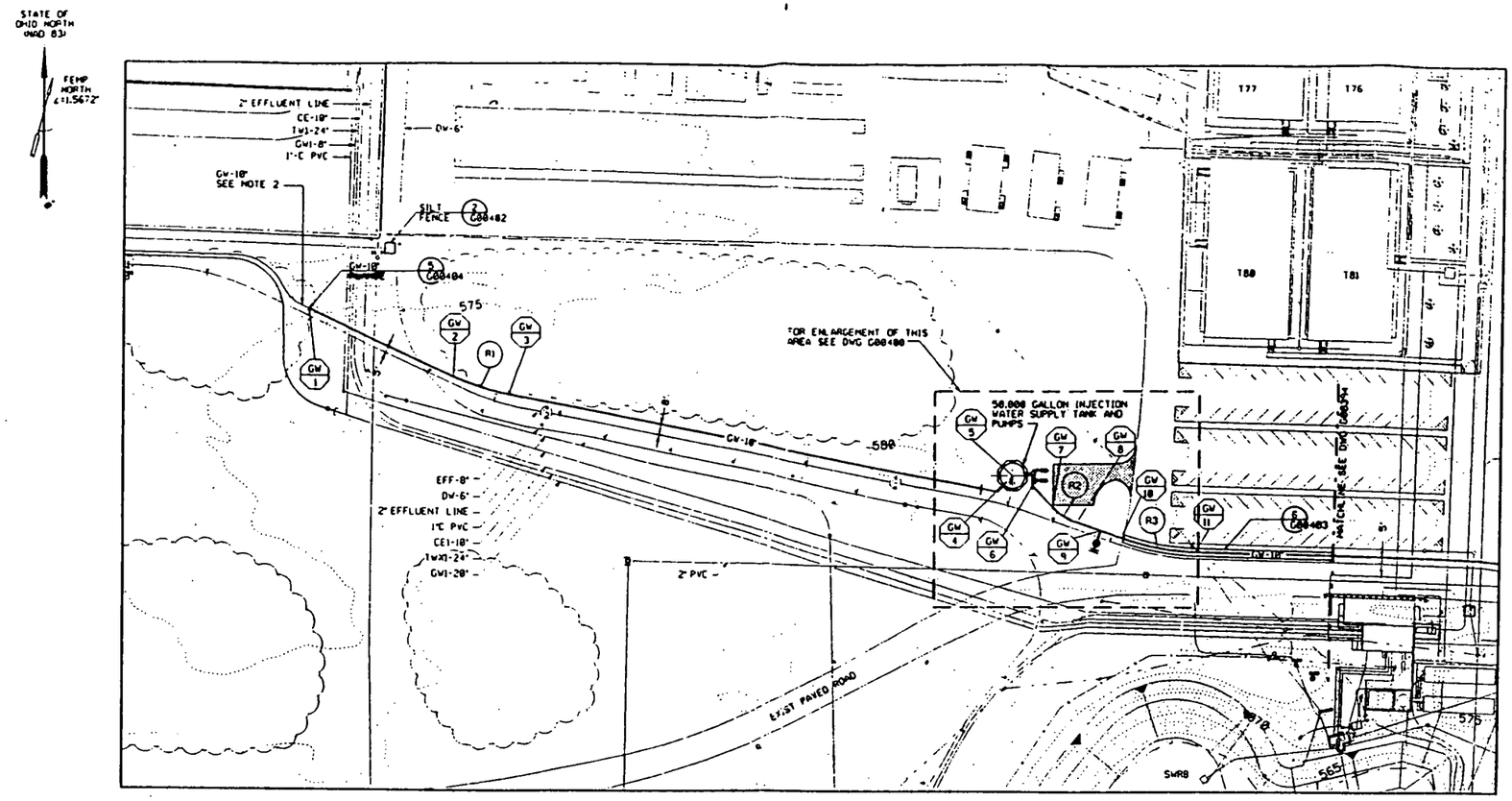
PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO

WORK COMPLETED:

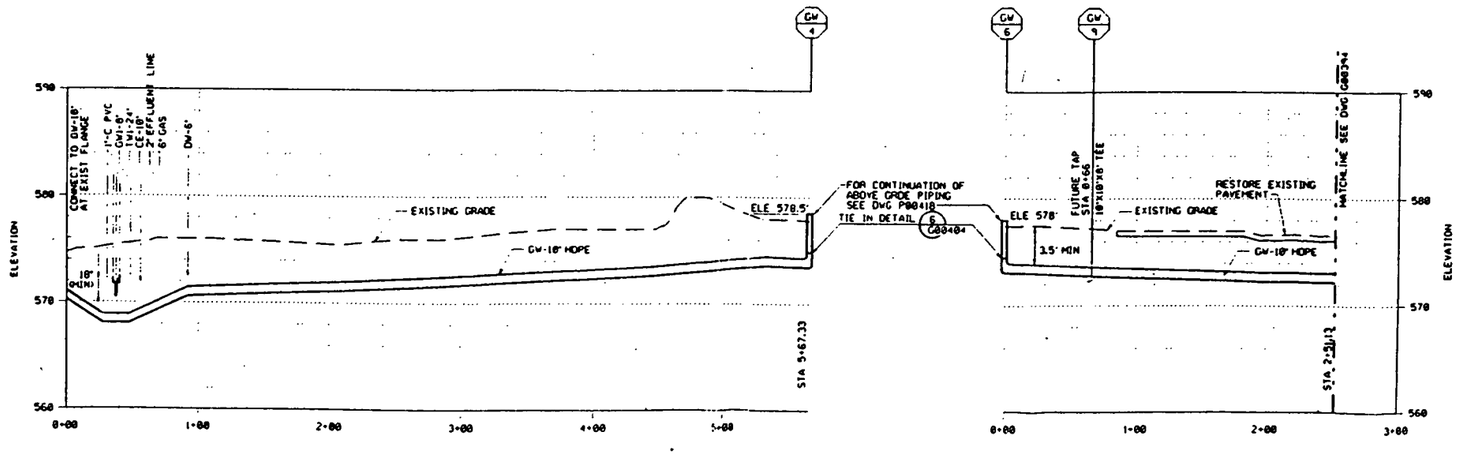
ORIGINAL

000649

R95g00393.m po169@ws413. Tue Oct 1 07:16:37 CDT 1996



PLAN
SCALE: 1"=40'



PROFILE (A) C00393 REF
SCALE: HOR 1"=40' VER 1"=5'

NOTES

1. EXISTING CONDITIONS SHOWN ON THIS DRAWING WERE PREPARED FROM FEMP SITE PROVIDED DATA LISTED BELOW:
   EXISTING SITE DATA SOURCE (IN PLANT FILES)
   FEMP 1000 GRID/UTILITY DRAWINGS
   FEMP CONTRACTOR PROJECT DESIGN DOCUMENTS
   FARSONS TOPOGRAPHY, 1992
2. THIS PORTION OF GW-18" WAS BUILT AS PART OF THE ADVANCED WASTE WATER TREATMENT (AWWT) EXPANSION PROJECT (FEMPCO PROJECT NO. 5450).

479164.48 KAB 11/3/97

CENTERLINE CURVE DATA				
CURVE	RADIUS	LENGTH	DELTA	TANGENT
R1	200.00'	46.42	13°18'14"	23.32'
R2	50.00'	22.49	25°47'24"	11.45'
R3	195.00'	68.35'	117°45'36"	38.46'

UNDERGROUND UTILITY COORDINATES			
POINT	NORTHING	EASTING	DESCRIPTION
1	[illegible]	1348255.20	[illegible] FUSION
2	479116.68	1348370.24	BC
3	479102.68	1348414.43	EC
4	479028.47	1348802.23	90° EL
5	479041.15	1348814.91	TANK CENTER LINE
6	479033.15	1348838.41	90° EL
7	479016.64	1348846.92	BC
8	479004.78	1348865.83	EC
9	478998.15	1348884.86	TEE
10	478992.67	1348908.58	BC
11	478981.89	1348959.73	EC

REF DWG NO.	DRAWING TITLE
95X-5900-X-00411	DRAWING INDEX
95X-5900-X-00412	LEGEND AND SYMBOLS
95X-5900-C-00394	PLAN AND PROFILE - SHEET 2 OF 7
95X-5900-C-00400	50,000 GAL TANK ENLARGEMENT
95X-5900-C-00402	DETAILS - SHEET 1 OF 4
95X-5900-C-00404	DETAILS - SHEET 3 OF 4
95X-5900-P-00418	PIPING - PLAN AND SECTION

PRELIMINARY
NOT FOR CONSTRUCTION

REV	ISSUE OR REVISION PURPOSE - DESCRIPTION	INITIALS AND DATE
A	ISSUED FOR 90% DESIGN REVIEW	NA

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS
THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
SOUTH PLUME OPTIMIZATION AND INJECTION DEMONSTRATION

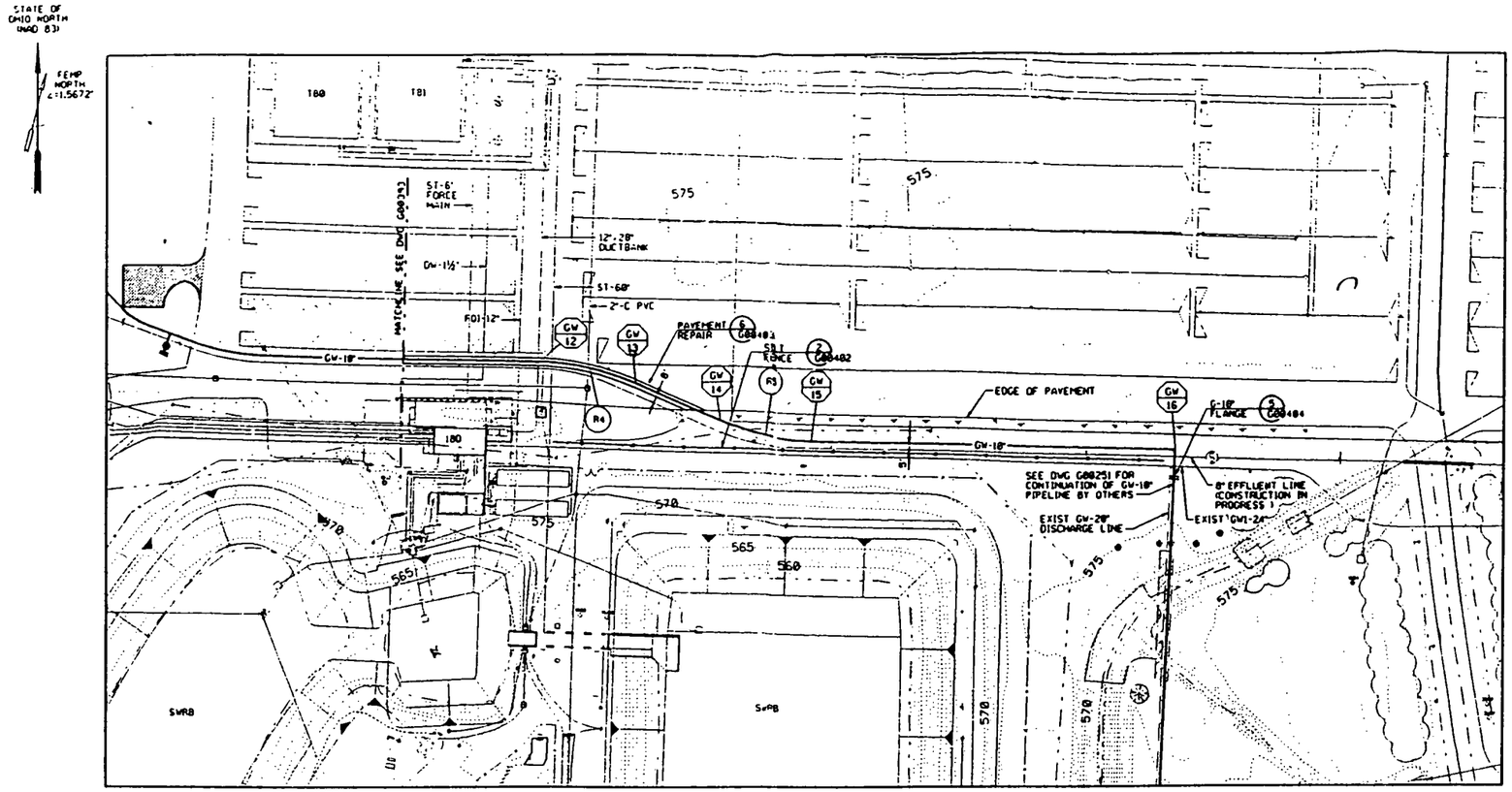
DRAWING TITLE
CIVIL
PLAN AND PROFILE
SHEET 1 OF 7

DRAWN BY	DATE	LEAD ENGINEER	DATE	DESIGNED BY	DATE
R. LINDGREN	06/27/96				
PLANT/BLDG NO.		FLOOR		SCALE	QUAD
				AS SHOWN	
SUBMITTED FOR APPROVAL		FERNCO ENV APPROVAL		FERNCO PROJECT NO	
		NA		ID-53100	

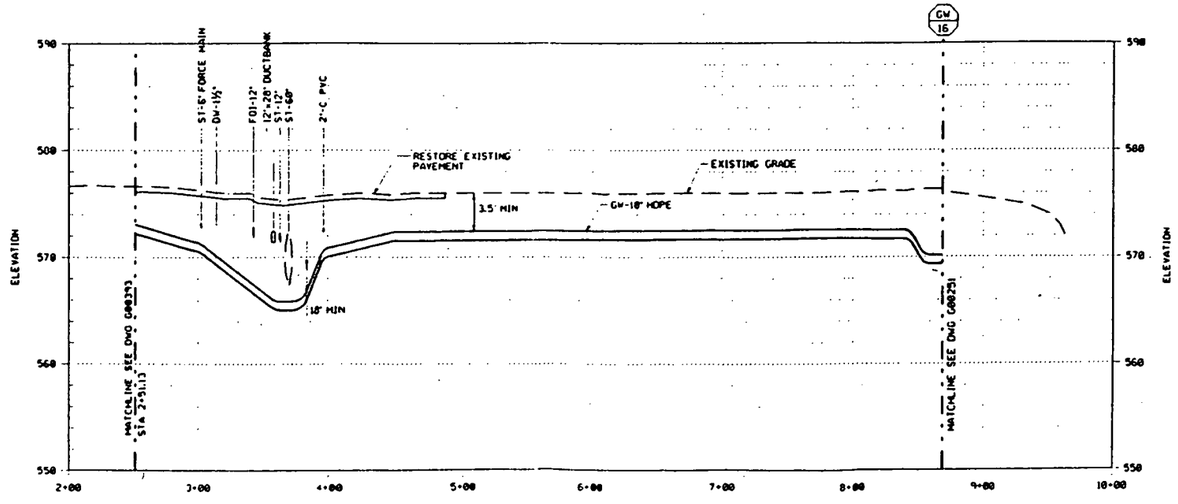
PROJECT UNIT PURPOSE / PROJECT AREA NUMBER					
ARP/P0169					
SSE PROJECT NO.	TOP PROJECT NO.	DRAWING TYPE CODE NO.		SHEET NO.	REV NO.
	WBS 1.1.1.1.2.1 00-9070	C	00393	G0002	A

000659

R95g00394.m po169@ws413. Tue Oct 1 08:02:38 CDT 1996



PLAN
SCALE: 1"=40'



PROFILE (A G00394)
SCALE: HOR 1"=40'
VER 1"=5'

NOTES

1. EXISTING CONDITIONS SHOWN ON THIS DRAWING WERE PREPARED FROM FEMP SITE PROVIDED DATA FROM THE DOCUMENTS LISTED BELOW.

EXISTING SITE DATA SOURCE (IN PLANT FILES):
FEMP CADD GRID/UTILITY DRAWINGS
FEMP CONTRACTOR PROJECT DESIGN DOCUMENTS
PARSONS TOPOGRAPHY, 1992

CENTERLINE CURVE DATA

CURVE	RADIUS	LENGTH	DELTA	TANGENT
R4	200'	75.26'	21°32'48"	38.05'
R5	200'	74.84'	21°26'21"	37.86'

UNDERGROUND UTILITY COORDINATES

POINT	NORTHING	EASTING	DESCRIPTION
12	478976.38	1349175.44	POINT OF CURVE
13	478968.51	1349248.57	POINT OF TANGENT
14	478931.72	1349316.36	POINT OF CURVE
15	478915.98	1349389.09	POINT OF TANGENT
16	478908.05	1349675.65	90° MOLDED ELBOW

REF DWG NO.	DRAWING TITLE
95X-5900-X-00411	DRAWING INDEX
95X-5900-X-00412	LEGEND AND SYMBOLS
95X-5900-G-00393	PLAN AND PROFILE - SHEET 1 OF 7
95X-5900-G-00251	GRADING/SITE/UTILITY PLAN - SHEET 1 OF 5
95X-5900-G-00848	DETAILS - SHEET 1 OF 4

PRELIMINARY
NOT FOR CONSTRUCTION

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	INITIALS AND DATE
A	ISSUED FOR 90% DESIGN REVIEW	NA

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
PARSONS
THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
SOUTH PLUME OPTIMIZATION AND INJECTION DEMONSTRATION

DRAWING TITLE
CIVIL
PLAN AND PROFILE
SHEET 2 OF 7

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
R.L.DOOREN	08/27/96				
PLANT/AREA NO.		PLOT		SCALE	
				AS SHOWN	
SUBMITTED FOR APPROVAL		FERNCO CM APPROVAL		FERNALD PROJECT NO.	
		NA		ID-53100	
DOE PROJECT NO.	CAT.	TOP PROJECT NO.	DRAWING/PRINT CODE NO.	SHEET NO.	REV NO.
		WBS 1.1.1.1.2.2.1 00-90701	95X-5900-G-00394	G0003	A

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
ARP/P0169

DESCRIPTION OF WORK - LEACHATE CONVEYANCE SYSTEM / INJECTION DEMONSTRATION COMMON TRENCHING

A review of the pipe routings for the Leachate Conveyance System and the South Plume Optimization and Injection Demonstration Project, showed similar routing paths. To eliminate double excavating the same areas and gain project cost savings by integrating the work, the 4" leachate line and 10" injection supply line will be installed in the same trench where they have similar routing paths.

Description of work:

At point GW1, N. 479164.48 - E. 1348255.20, (see drawing 95X-5900-G-00393 for reference) fuse to end of 10" HDPE pipe approximately 580 additional feet of 10" HDPE SDR11 pipe and install in same trench as the leachate pipe. At point GW4, N. 479028.47 - E. 1348002.23, the 10" HDPE will end in a turned - up 90 degree elbow with flange adapter. Extend from flange adapter a 1 foot long, 10" flanged ductile iron spool CL.55. From the spool piece, extend a 10" ductile iron CL.55 pipe to above grade and end in a blind flange.

At point GW6, N. 479033.15 - E. 1348830.41, the 10" injection supply line will begin again with a blind flange on a 10" ductile iron CL.55 pipe extending below grade to a 1 foot long , 10" ductile iron spool CL.55 flanged connected to a 10", 90 degree HDPE elbow at approximately 3.5 feet below grade. Extend from the elbow in an easterly direction and in the same trench as the leachate pipe, approximately, 880 feet of 10" HDPE SDR11 pipe. At point GW9, N. 478998.15 - E. 1348884.06, fuse into pipe line a 10"x10"x8" HDPE SDR11 tee with flange adapter pointing southwest, and flange connect an 8" PIV valve with blind flange.

At point GW16, N. 478908.05 - E. 1349675.65, (see drawing 95X-5900-G-00394 for reference) the 10" injection supply line will leave the leachate trench and turn south via a 90 degree HDPE SDR11 elbow with flange adapter and blind flange. The change order work will end at this point.

(7) Documents AFFECTED:

1271 Page 1 of 2
DCN NO:
1700-010

Drawings

Drawing No.	Sheet No.	Rev. No.	Title	NOTE
92X-5900-X-00264	X0002	1	Drawing Index	WAS REV
92X-5900-G-00251	G0001	1	Civil - Master Plan	WAS REV
92X-5900-G-00254	G0002	1	Civil - Plan and Profile - Sheet 1 of 4	WAS REV
92X-5900-G-00261	G0003	1	Civil - Plan and Profile - Sheet 2 of 4	WAS REV
92X-5900-G-00266	G0004	1	Civil - Plan and Profile - Sheet 3 of 4	WAS REV
92X-5900-G-00262	G0005	1	Civil - Plan and Profile - Sheet 4 of 4	WAS REV
92X-5900-G-00259	G0009	0	Civil - Sections and Details	NEW DW
92X-5900-G-00410	G0010	0	Civil - Manhole and Miscellaneous Details	NEW DW

Specifications

Section	Title		
02667	Utility Lines	0 (ADD TO 20110-TS-0002)	NEW SPEC

(9) Additional Information for REQUESTED/Proposed change:

OU-1 needs to run a fire protection line (FQ-12"), potable water line (DW-6"), sanitary sewer force main (SN-3"), and a gas line (FG-6") from the Waste Pit Area south along a portion of the OSDF Leachate Conveyance Line (WW-4"/8"-B4-1000) corridor/enlarged trench.

OU-5 needs to run the GW-12" influent and GW-10" effluent lines, a CE-6" line for the BDN to AWWT, and modify a FT-4" line from the future STP, and locate them all in a portion of the Leachate Conveyance corridor/enlarged trench.

OU-4 requires tie-in to the potable water, fire protection line, and sanitary sewer force main in the future.

To minimize traffic interference the leachate conveyance line was also realigned north of the SPIT Building.

All of these design changes are reflected in the drawings and specification noted in item (7).

Noted QGB 1271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE

WP / WO NO.: 1700	S/C NO.: .: FSC-589	Pg 1 OF 1	DATE 2/25/97
S/C TITLE: LEACHATE CONVEYANCE SYSTEM		RCI NO.:	
RESPONSIBLE DISCIPLINE: E M (C) OTHER	RCI/DCN TITLE: Biodenitrification Bypass Piping	DCN NO.: 1700-003	

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
PARSONS CFC DRAWING (PO-126) (REFERENCE DCN#1700-002)	#92X-5900-G-00251 ✓ #92X-5900-G-00266 ✓	0 0	
Biodenitrification System - Forced Main - Lagoon Reactors	#18A-1920-P-00301 ✓	1	

RCI - INQUIRY USQD SCREENING BY PROJECT ENGINEER ✓ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

This DCN is written to incorporate approximately 1,000 feet of of six (6) inch HDPE pipe in a common trench excavated for the Leachate Conveyance System. The 1,000 feet of piping is associated with the Biodenitrification Bypass Project. This is part of a collective effort proposed to reduce the overall costs of re-excavating the same trench area. Installation details are outlined in the above referenced DCN #1700-002 and drawings.

(Pipe # or identification not noted QGB CE-6-97)

CDC CONTROLLED COPY NO. C011

REQUESTOR: L. COPELAND	COMPANY: FDF	DATE: 2/25/97	FCE / PE J. C. JENKINS	DATE: 2/25/97

RESPONSE: FOR RCI, IS A DCN REQ'D? NO YES FOR DCN: APPROVED (APPROVED AS NOTED) DISAPPROVED

1) See PARSONS Approved as NOTED Comments Attached Page 1 of 2
2) See additional clarification for other changes occuring with leachate conveyance System (Page 2 of 2 from DCN NO. 1700-010)

PARSONS RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL: Carlton Schroeder	DATE: 3/9/97	CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 5BWD7	
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) James C. Jenkins			DATE 3/10/97
CONSTRUCTION CONCURRENCE: Richard L. McKenna	DATE: 3/10/97	WORK COMPLETED: (SIGNOFF BY FCE OR PE)	DATE:
PERFORMANCE GRADE: 1 PURCHASE REQUISITION REQUIRED: ✓ YES NO			

FS-F-4259 (10/01/96)

DCN 003

received FEB 2-27-97

ORIGINAL

1271 PARSONS
Page 1 of 2

4 Mar 97

PO 164 - Leachate Conveyance System
DOC. No.: DCN-007
TRANSMITTAL No.: 1700 - 003
Biodenitrification Bypass Piping

RE: Drawings (Rev. 0) 92X-5900-G-00251, 00266
(FDF) 18A-1920-P-00301

Recommend Status B, Approved as noted. Civil comments are as follows:

1. The Leachate Conveyance drawings have been revised to include the bypass piping. However, there were two other drawings created which also are included in this effort. The correct list of PARSONS drawings and revision number are as follows:

92X-5900-G-00251	REV 1
92X-5900-G-00266	REV 1
92X-5900-G-00259	REV 0
92X-5900-G-00410	REV 0

FROM DCN NO: 1700-010

(7) Documents AFFECTED:

Drawings

Drawing No.	Sheet No.	Rev. No.	Title	NOTE
92X-5900-X-00264	X0002	1	Drawing Index	WAS REV
92X-5900-G-00251	G0001	1	Civil - Master Plan	WAS REV
92X-5900-G-00254	G0002	1	Civil - Plan and Profile - Sheet 1 of 4	WAS REV
92X-5900-G-00261	G0003	1	Civil - Plan and Profile - Sheet 2 of 4	WAS REV
92X-5900-G-00266	G0004	1	Civil - Plan and Profile - Sheet 3 of 4	WAS REV
92X-5900-G-00262	G0005	1	Civil - Plan and Profile - Sheet 4 of 4	WAS REV
92X-5900-G-00259	G0009	0	Civil - Sections and Details	NEW DW
92X-5900-G-00410	G0010	0	Civil - Manhole and Miscellaneous Details	NEW DW

Specifications

Section	Title		
02667	Utility Lines	0 (ADD TO 20110-TS-0002)	New Spec

(9) Additional Information for REQUESTED/Proposed change:

OU-1 needs to run a fire protection line (FQ-12"), potable water line (DW-6"), sanitary sewer force main (SN-3"), and a gas line (FG-6") from the Waste Pit Area south along a portion of the OSDF Leachate Conveyance Line (WW-4"/8"-B4-1000) corridor/enlarged trench.

OU-5 needs to run the GW-12" influent and GW-10" effluent lines, a CE-6" line for the BDN to AWWT, and modify a FT-4" line from the future STP, and locate them all in a portion of the Leachate Conveyance corridor/enlarged trench.

OU-4 requires tie-in to the potable water, fire protection line, and sanitary sewer force main in the future.

To minimize traffic interference the leachate conveyance line was also realigned north of the SPIT Building.

All of these design changes are reflected in the drawings and specification noted in item (7).

Voted 12 7 96 B

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.:	(2)S/C NO.:	(5)Pg OF	(6)DATE
1700	WISE TASK NO. 269	1 1	12-09-96

(3)S/C TITLE: INSTALL WATERLINES TO OSDF

(11)RCI NO.:

(4) RESPONSIBLE DISCIPLINE: E☐ M☒ C☐ OTHER☐

(4A)RCI/DCN TITLE: CHANGE PIPING CONFIGURATION

(11)DCN NO.: 1700-004

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
GRID 7	SK-20110-002	0	DCN 1700-001
	SK-20110-003	0	

(9)☐ RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)☒ DCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

MODIFY PIPING/VALVE CONFIGURATIONS PER ATTACHED SKETCHES
SK-20110-002 REV 1
SK-20110-003 REV. 1

CDC CONTROLLED COPY NO. C-11

(10)REQUESTOR: [signature] COMPANY: [redacted] DATE: 12-9-96

(12)FCE / PE: J. C. Jenkins DATE: 12/17/96

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

(14)FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

THESE ARE 'AS BUILT' DRAWINGS
J.C.J.

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL: J. C. Jenkins DATE: 12/17/96

(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2CUP5

(16)FDF/PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) DATE: 12/17/96

PERFORMANCE GRADE: (17) 4 James C. Jenkins

(18)CONSTRUCTION CONCURRENCE: [signature] DATE: 12-17-96

PURCHASE REQUISITION REQUIRED: ☐ YES ☒ NO (19)

(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) Lou Weklitz (J.V.S.) DATE: 12-17-96

S-F-4259 (10/01/96)

ORIGINAL

COORDINATE ISOLATION WITH UTILITIES

E 54+25

MATCH LINE, SEE DWG. NO. 22C-5500-P-00661, GRID-2

S 14+35

DW-4"

4" PVC 18" BELOW GRADE
(1) WIRE BUNDLE

S 14+66

PIV

ST-12"-RCP @ 2.0%

CB 224 — E 53+81, S 14+89
INV. EL. 582.0
ELEV. 585.8

NEW DW-4"-PVC 4'-0" BELOW GRADE

(APPROX.)
E 54+87.3
S 15+04.4

THRUST BLOCK

300'±

POST HYDRANT

THRUST BLOCKS

LOCKING MECH

12-09-96

ORIGINAL

N 481,151.40±
E 1,350,870.21±

SK-20110-003
11/5/96
J.C.J.

SK-20110-003 REV1 12-09-96
J.S.

EXIST.
EXIST.
OR
EXIST.
EXIST.
NEW

REPLACE EXIST. 90° ELL. WITH TEE OR INSERT TEE IN EAST WEST RUN.

1-4"x4"x2" TEE
4" VALVE & BOX
4" B.F.
2" YARD HYD.
1 THRUST BLK.

22C-5500-P-00662
R/9

MATCH LINE, SEE DWG. NO. 22C-5500-P-00660 INFEMP37.DGN

EMH 226 — E 52+86, S 16+25

000658

"F" STREE

ELECT TRENCH

BORE UNDER ROAD

APPROX. 320' TO TIE POINT

E 58+02
E 1350822
S 30+43
N 479617

NEW DW-4" PVC
~~RUN 42" BELOW GRADE~~

POST HYDRANT

TEE TUNNED NORTH

THRUST BLOCKS

LOOKING NORTH

12-09-96

1-2" YARD HYD.
1-4"x4"x2" TEE
1-4" B.F.
1-THRUST BLOCK

IE 574.8

30" CONC. CULVERT PIPE

HEADWALL

IE 574.36

E 55+95

SK-20110-002 REV. 1 12-09-96
J.S.

SK-20110-002
11/5/96
J.C.J.

000659

ORIGINAL. Page 30 of 4
1700-0

NORTH ACCESS

MATCH LINE SEE DWG NO

1271

Drawings Reviewed DCB

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE

WP / WO NO.: 1700 Proj. 20110	S/C NO.: 589	Pg 1 OF 2	DATE: 12/02/96
S/C TITLE: LEACHATE CONVEYANCE SYSTEM			RCI NO.: N/A
RESPONSIBLE DISCIPLINE: E ☐ M ☐ C ☒ OTHER ☐	RCI/DCN TITLE: ADDITIONAL UNDERGROUND PIPING		DCN NO.: 1700-002

DOCUMENTS AFFECTED	DOCUMENT NOS.	REV.	OTHER
CERTIFIED FOR CONSTRUCTION TECHNICAL SPECIFICATIONS SUBCONTRACT NO. FCS 589 20110-02667	SECTION 02667	0	
PARSONS CFC DRAWINGS - PO 164	DWG. 92X-5900-G-00251 DWG. 92X-5900-G-00261 DWG. 92X-5900-G-00266	0 0 0	
PARSONS CFC DRAWINGS - PO 126	DWG. 95X-5900-G-00315 DWG. 95X-5900-G-00316	0 0	

☐ RCI - INQUIRY ☐ PRE-SCREEN FOR USQD BY PROJECT ENGINEER ☒ DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

EXISTING CONDITION: REFERENCED DRAWINGS AND SPECIFICATIONS PROVIDE FOR THE INSTALLLATION OF A SINGLE, UNDERGROUND DOUBLE WALLED HDPE PIPE FOR LEACHATE CONVEYANCE SYSTEM IN TRENCH IN AWWT AREA WITH AWWT EXPANSION INFLUENT AND EFFLUENT PIPING INSTALLED IN SEPARATE TRENCH.

PROPOSED CHANGE: INSTALL ADDITIONAL UNDERGROUND HDPE AND DUCTILE IRON PIPING IN SAME TRENCHING AS LEACHATE CONVEYANCE PIPING AS PER ATTACHED SCOPE OF WORK AND SPECIFICATION.
NOTE: RELOCATION OF AWWT PIPING HAS BEEN PREVIOUSLY APPROVED VIA DCN NO. 1710-003.

JUSTIFICATION: INSTALLATION OF THE ADDITIONAL PIPING IN SAME TRENCHING WILL SAVE TIME AND CONSTRUCTION COSTS AWWT EXPANSION, SEWAGE TREATMENT PLANT, AND BDN BY-PASS PROJECTS.

REQUESTOR: T.E. ESCUE COMPANY: FDF	PE: J.C. JENKINS
T.E. Escue 2/24/97	J. C. Jenkins 2/25/97

RESPONSE: FOR RCI, IS A DCN REQ'D? ☐ NO ☐ YES

FOR DCN: ☐ APPROVED ☒ APPROVED AS NOTED ☐ DISAPPROVED

1) See PARSONS Approved AS NOTED COMMENTS Attached as Page 1 of 1

CDC CONTROLLED COPY NO. C011

PARSONS — RCI - DCN ACCEPTANCE

DESIGN ORGANIZATION APPROVAL:	CHARGE NO. FOR CADD SERVICES TO INCORPORATE:
Carlton Schroeder 3/8/97	~~SCPT+~~ SCTP1 TCC 4/23/97

FERMCO PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)

PERFORMANCE GRADE: 4 James C. Jenkins 3/10/97

CONSTRUCTION CONCURRENCE:	WORK COMPLETED: (SIGNOFF BY FCE OR PE)
Richard L McGuire 3/10/97	DATE:
PURCHASE REQUISITION REQUIRED: ☒ YES ☐ NO	

ORIGINAL

FS-F-4259 (03/15/96)

DCN 002

received

000660

SCOPE OF WORK
DESIGN CHANGE NOTICE DCN # 1700-002
ADDITIONAL UNDERGROUND PIPING

1. PROVIDE ADDITIONAL TRENCH EXCAVATION TO ACCOMODATE ADDITIONAL PIPING SYSTEMS WITH LEACHATE CONVEYANCE PIPING AS HIGHLIGHTED IN THE FOLLOWING DRAWINGS:

92X-5900-G-00251 CIVIL MASTER PLAN
92X-5900-G-00259 CIVIL SECTIONS & DETAILS
92X-5900-G-00261 CIVIL PLAN & PROFILE (SHEET 2 OF 4)
92X-5900-G-00266 CIVIL PLAN & PROFILE (SHEET 3 OF 4)
92X-5900-G-00410 CIVIL MANHOLE & MISCELLANEOUS DETAILS

2. INSTALL THE FOLLOWING ADDITIONAL HDPE PIPING IN TRENCHING WITH 8/4" LEACHATE CONVEYANCE PIPING AS SHOW ON THE DRAWINGS:

- 12" DIAMETER AWWT GROUNDWATER (GW) INFLUENT PIPE
- 10" DIAMETER AWWT GROUNDWATER (GW) EFFLUENT PIPE
- 4" DIAMETER SEWAGE TREATMENT PLANT (STP) EFFLUENT PIPE
- 6" DIAMETER BDN BY-PASS PIPE

TERMINATE SOUTHERN END OF 10" GW EFFLUENT PIPE IN COMMON TRENCH AT GW-10 POINT SHOWN ON DWG. G-00261; CONTINUATION OF THIS PIPING TO INJECTION WELL SURGE TANK TO BE ADDRESSED OUTSIDE THE SCOPE OF THIS DCN.

TERMINATE NORTHERN END OF 6" BDN BY-PASS PIPE IN LEACHATE CONVEYANCE TRENCH APPROXIMATELY 10' NORTH OF AWWT TIE-IN POINTS AS SHOWN ON DWG. G-00266; CONTINUATION OF THE BDN PIPING NORTH TO BE ADDRESSED UNDER DCN 1700-03.

3. EXCAVATE ADDITIONAL TRENCH FOR INSTALLATION OF SOUTHERN END OF 12" GW INFLUENT PIPE FROM MAIN TRENCH TO TIE POINT 1, INSTALL POST INDICATOR VALVE WITH PROTECTIVE 6" PIPE BOLLARDS, AND COMPLETE TIE-IN AT EXISTING 12" UNDERGROUND HDPE GROUNDWATER INFLUENT PIPE.

4.. SAW CUT APPROXIMATELY 40 LINEAR FEET OF EXISTING ASPHALT PAVING FOR TRENCHING TO AWWT TIE POINTS SHOWN ON DETAIL A OF DWG. G-00266. INSTALL DUCTILE IRON PIPE WITH DUCTILE IRON STUB-UPS FROM ALL UNDERGROUND HDPE PIPING TO TIE POINTS AT PIPE RACK. REPAIR PAVEMENT USING 6" REINFORCED CONCRETE. INSTALL 6" DIAMETER PIPE BOLLARDS TO PROTECT STUB-UPS.

5. PERFORM HYDROTESTING ON ALL UNDERDROUND HDPE AND DUCTILE IRON PIPING, BACKFILL AND PERFORM COMPACTION ACTIVITIES.

6. PERFORM GRASS SEEDING ACTIVITIES AT ALL EXCAVATED AREAS.

SOWAUP.001
REV 2/24/97

4 Mar 97

PO 164 - Leachate Conveyance System
DOC. No.: DCN-008
TRANSMITTAL No.: 1700 - 002
Additional Underground Piping
(Groundwater and AWWT)

RE:	Drawings	(Rev. 0)	92X-5900-G-00251, 00261, 00266
		(PO126)	95X-5900-G-00315, 00316
	Specifications	02667	

Recommend Status B, Approved as noted. Civil comments are as follows:

1. The Leachate Conveyance drawings have been revised (Rev 1) to include the additional underground groundwater and AWWT piping per the scope of work dated 2/24/97. Note however that the GW-10" line extends east of point GW-10 to the Injection Well Surge Tank area and beyond to a point where it turns south away from the Leachate Conveyance Line. This additional line is currently shown on drawings (Rev 1) G00254 and G00261 and in section views on G00259.

2. The referenced PO-164 drawings above are currently Rev 1.

DCN-008 Transmittal: 1700-002 PO-164
Additional Underground Piping February 28, 1997

Comment(s)

1. Confirm that the proposed change has been screened by the PE and that the change is not subject to review under the USQD-like process, the AWWT is covered by a SAR. The Safety Analysis Team has a soils/water representative for this specific area.

Comments by:

M Barringer 03/10/97

SECTION 02667
UTILITY LINES

PART 1 GENERAL

These specifications provide supplemental information for additional utilities that are to be installed in the same trench as the Leachate Conveyance Line Forcemain, a part of the Leachate Conveyance System (Subcontract No. FSC 589). Specification sections from Leachate Conveyance System Specifications, Rev. 0 October, 1996 (LCSS) of that contract are incorporated by reference in this section.

1.1 SECTION INCLUDES

A. HDPE, DIP and Carbon Steel Pipe and fittings for water (DW & FQ), groundwater discharge (GW), reinjection (GW), natural gas (FG), sanitary forcemain (SN) and treatment (CE) underground lines.

Specifications for the leachate line (FT) can be found in the LCSS.

B. Valves and tap connections.

C. Guard posts.

D. Air-relief manholes, frames, and lids.

E. Cleanouts.

1.2 RELATED SECTIONS (These sections are found in the Leachate Conveyance System Specifications, Rev. 0 October, 1996.)

A. Section 01010 - General Requirements.

B. Section 01011 - Submittal Summary.

C. Section 02200 - Earthwork.

D. Section 02215 - Trenching and Backfilling

E. Section 02270 - Erosion and Sediment Control

F. Section 02300 - Boring and Jacking

G. Section 02675 - Disinfection of Water distribution Systems (Supplied with 02667, Not a Part of Leachate Conveyance System Specifications, Rev. 0 October, 1996.)

H. Section 02831 - Chain-Link Fences and Gates

I. Section 02930 - Vegetation.

J. Section 03100 - Concrete.

1.3 REFERENCE DRAWINGS

A. See Section 01012 for the Schedule of Drawings.

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM):

1.	ASTM A36/A36M-96	Carbon Structural Steel.
2.	ASTM A53-96	Standard Specification for Pipe, Steel, Black and Hot Dipped, Zinc Coated, Welded and Seamless.
3.	ASTM A325-96	Structural Bolts, Steel, Heat-Treated, 120/105 ksi Minimum Tensile Strength.
4.	ASTM D3035-95	Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
5.	ASTM D3261-95	Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
6.	ASTM D3350-96	Standard Specification for Polyethylene Plastic Pipe and Fittings Material.

B. American Water Works Association (AWWA):

1.	AWWA C104/ A21.4-95	Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.
2.	AWWA C105/ A21.5-93	Polyethylene Encasement for Ductile-Iron Pipe Systems.
3.	AWWA C110/ A21.10-93	Ductile-Iron and Gray-Iron Fittings, 3-Inch through 48-Inch, for Water and Other Liquids.
4.	AWWA C111/ A21.11-95	Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
5.	AWWA C115/ A21.15-94	Flanged Ductile Iron Pipe with Threaded Flanges.
6.	AWWA C150/ A21.50-91	Thickness Design of Ductile Iron Pipe.
7.	AWWA C151/ A21.51-91	Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
8.	AWWA C500-93	Metal-Seated Gate Valves for Water Supply Service.
9.	AWWA C550-90	Protective Epoxy Interior Coatings for Valves and Hydrants.
10.	AWWA C600-93	Installation of Ductile-Iron Water Mains and Their Appurtenances.
11.	AWWA C906-90	Polyethylene (PE) Pressure Pipe and Fittings, 4-Inch through 63-Inch, for Water Distribution.

C. American Welding Society, Inc. (AWS):

1.	AWS D1.1-96	Structural Welding Code - Steel.

D. State of Ohio, Department of Transportation (ODOT), Construction and Materials Specifications, January 1, 1995.

E. Steel Structures Painting Council (SSPC):
1. SSPC SP 6-94 Joint Surface Preparation Standard Commercial Blast Cleaning.

F. American Society of Mechanical Engineers (ASME), ASME Code for Pressure Piping, B31:
1. ASME B31.8-92 Gas Transmission and Distribution Piping Systems

1.5 SUBMITTALS

A. Product Data: Provide data on all pipe materials, pipe fittings, valves, accessories, the methods and equipment for HDPE fusion welding, HDPE manholes and manhole frame and cover.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Project Record Documents:
1. Accurately record actual locations by NAD83 coordinates of all underground utilities, piping mains, valves, connections, and invert elevations, and show on as-built drawings.
2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Shop drawings including spool piece drawings, etc.

E. Pressure testing procedures including cleaning and flushing prior to testing, test equipment, safety precautions, and cleaning after completion of testing.

F. Leak test and examination reports.

E. Project Record Documents:
1. Accurately record actual locations by NAD83 coordinates of all underground utilities, piping mains, valves, connections, and invert elevations, and show on as-built drawings.

2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

A. Piping and Valves: Manufacturer's name and pressure rating marked on valve body and side of pipe.

PART 2 PRODUCTS

2.1 MATERIALS

A. Pipe

1. Ductile Iron Pipe: AWWA C151, Class 55:
   a. Fittings: AWWA C110, Ductile iron cement lined, standard thickness per AWWA C150. All fittings and pipe at valves shall be flanged per AWWA C115.
   b. Jackets: AWWA C105, PE encasement.
   c. Cement Lined: AWWA C104, cement mortar lined.
   d. Joints: AWWA C111, push-on, rubber gasket.
2. HDPE Pipe: AWWA C906 (PE 3408), ASTM D3035, SDR and pressure rating as indicated on drawings.
   a. Fitting: AWWA C906, molded, butt fusion weld to pipe.
   b. Joints: Butt fusion, flanged gasket joints, and molded adapter pipe at interface connections with ductile iron or carbon steel pipe and valves.
   c. Trace Wire: Magnetic detectable conductor, brightly colored plastic covering, imprinted with "water service" in large letters.
3. Carbon Steel: Seamless Carbon Steel, ASTM A53 Grade B, Standard weight, beveled ends
   a. Fittings: Seamless Carbon Steel, Butt weld ends ASTM A234 Grade WPB
   b. Joints: Class 150 Blind, Carbon Steel, ASTM A105, RFSF

B. Gate Valves
1. AWWA C500, iron body, bronze trim, non-rising stem with square nut, single wedge, Class 125 flanged ends, control rod, extension box, and valve key.

C. Bedding Materials
1. Bedding: Fill Type A3 as specified in Section 02200.

D. Post Indicating Valves: Post Indicating Valves Assembly - U.L. listed and FM approved.
1. Sizes 4 inches - 14 inches, AWWA C500 gate valves, flanged ends Class 150, post assembly shall show open and shut, handcrank operator above ground, non-rising stem, and break-flange to separate the top works without removing the valve from the line. PIV operator shall be capable of being locked with a padlock.

E. Guard Posts: Steel pipe, ASTM A53, Schedule 40.

F. Protective Coatings for Valves:
1. Interior - Factory applied heat-cured epoxy coating conforming to AWWA C550.
2. Exterior - Two coats of factory applied zinc chromate primer and two coats finish coating in accordance with metal painting specifications in Article 3.3, Paragraph F.

G. Manhole: HDPE, ASTM D3350. Pipe resin is cell classification 3454-34C and a plastic pipe Institute Rating of PE 3408. The manhole shall have lifting lugs capable of supporting manhole during placement and shipping. The cylinder and outlet shall be fabricated from HDPE pipe with SDR, same as pipe, as indicated on drawings. All components shall be joined by butt fusion, saddle fusion, socket fusion, or extrusion welding. Hot air welding is not acceptable. Each manhole shall be identified by appropriate manhole number and visibly marked on interior and exterior. HDPE molded pipe stubs and ductile iron flanged backup

rings in manholes shall be installed in manhole by shop fabrication.

H. Manhole frame and lid shall be heavy-duty cast iron as noted on the drawings.

I. Air Release Valves:
1. Type: Float and lever operated device for venting air from pipeline.
2. Construction: Cast iron body; stainless steel trim; Buna-N Seat; threaded connections. Body shall be rated for minimum 150 psig.
3. Capacity: Not less than 5 cfm of air at 10 psi differential. Capacities for valves in manholes shall be as shown on the Civil drawings.
4. Manufacturer: APCO, or equal.

J. Air and Vacuum Valves
1. Type: Float operated device for venting or admitting air for pipeline system.
2. Construction: Cast iron body; stainless steel float; Buna-N seat; threaded connections. Body shall be rated for minimum 150 psig. Discharge orifice shall be equal in size to inlet.
3. Inlet connection size shall be as shown on the drawings.
4. Provide air release valve and associated shut-off valve as shown on the drawings.
5. Manufacturer: APCO or equal.

K. Manhole Pipe Supports:
Material used shall meet the following specifications:
1. Structural Steel - ASTM A36.
2. Bolts, Nuts, and Washers - ASTM A325.
3. Welding - AWS D1.1 Class E70XX electrodes.
4. Expansion Anchors: Drilled expansion bolts for securing steel to concrete.
   a. Kwik Bolt, by Hilti, Inc.
   b. Parabolt, by Molly Fastener Group.
   c. Wedge Anchors, by ITW Ramset/Red Head.

2.2 ACCESSORIES

A. Concrete: ODOT Item 499, Class F, 3,000 psi at 28 days. Poured against undisturbed soil or compacted fill.

B. Reinforcing Steel: All reinforcing steel shall meet the requirements of ODOT 709.01, 60 ksi yield grade, deformed billet steel bars, plain finish.

C. Welded Steel Wire Fabric: All welded steel wire fabric shall meet the requirements of ODOT 709.10.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions. Bring any discrepancies to FDF for resolution prior to start of work. Any discrepancies should be brought to FDF's attention in a written statement immediately upon discovery.

B. Verify that service connection and site utility water main size, location, and invert are as indicated.

3.2 PREPARATION

A. Ream pipe and tube ends and remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Excavate pipe trench in accordance with Section 02215 for work of this section. Locate all existing utilities in the area and determine if they will interfere with the proposed utility. Notify FDF if there is an interference.

D. Remove existing pipe to the extent necessary to make new tie ins. Tie-in locations shall be adjusted to conform to field conditions.

3.3 ERECTION/INSTALLATION/APPLICATION

A. Installation - Pipe: Ductile Iron Pipe

1. Maintain separations of piping as shown on drawings.
2. Install pipe to indicated elevation to within tolerance of 5/8 inches at structures.
3. Install ductile iron piping and fittings to AWWA C600. Place polyethylene jacket around all piping exposed to earth in accordance with manufacturer's recommendations.
4. Route pipe in straight line except as shown on drawing.
5. Install pipe to allow for expansion and contraction without stressing pipe or joints as per manufacturer's recommendations.
6. Form and place concrete for thrust blocks at each elbow or change of direction of pipe main.
7. Establish elevations of buried piping as indicated on the drawings.
8. Backfill trench in accordance with Section 02215.

B. Installation - Manhole and Pipe: HDPE

1. Maintain separations of piping as shown on drawings.
2. Install pipe to indicated elevation to within tolerance of 5/8 inches at structures.
3. Install HDPE piping, manholes, and fittings to AWWA C906 (by butt weld fusion method, in accordance with ASTM D3261).
4. Route pipe in line as shown on drawing. The minimum bending radius shall be as specified by the pipe manufacturer. Pipe shall be in a straight route at manhole connections.
5. Install pipe to allow for expansion and contraction without stressing pipe or joints as per manufacturer's recommendation.
6. Form and place concrete for thrust blocks at each molded elbow of pipe main.
7. Establish elevations of buried piping as indicated on the drawings.

8. Install trace wire continuous over top of pipe, 6 inches above pipe line; coordinate with Section 02200.
9. Backfill trench in accordance with Section 02215.
10. Place concrete in and around top of manhole in accordance with Section 03001.

C. Installation of Pipe : Carbon Steel

1. All piping shall be Category D Fluid Service under ASME B31.3.
2. All assembled piping shall be installed without springing, forcing, or cold bending. Cutting or otherwise weakening of structural members to facilitate piping installation shall not be permitted.
3. Piping connections to equipment must ensure that mating flanges are parallel prior to bolt-up and no springing of pipe is required. All equipment nozzle sizes, locations, and flange facings shall be verified prior to pipe fabrication and/or installation.
4. All butt-welded pipe shall be beveled in accordance with ASME B16.25.
5. Branch connection joints shall be prepared to permit full penetration welds of a quality comparable to the circumferential welds in the same piping system.
6. Welding will not be permitted on galvanized carbon steel piping.

D. Installation - Gasline (FG)

1. Gasline shall be installed in accordance with ASME B31.8 Section 842.4 Installation of Plastic Piping and Cincinnati Gas & Electric procedures and guidelines.

E. Installation - Guard Post

1. Excavate for post and concrete in accordance with Section 02200.
2. Hand trim and remove loose material in excavation.
3. Position pipe in hole, maintaining clearances as specified on drawings.
4. Place concrete around and in pipe in accordance with Section 03100.

5. Paint post after concrete cures in accordance with ODOT Item 514.

F. Installation - Post Indicator Valves:
1. Set post indicator valves on solid bearing of concrete.
2. Center and plumb valve box over valve. Set box cover flush with finished grade with a tolerance of +2 inches to -1 inch.
3. Center and plumb indicator post over valve. Indicator post to have plate window to show open and shut position. Indicator post to extend above grade as shown on the drawings.

G. Installation - Air Release and Air and Vacuum Valves:
1. Install valves in manhole per manufactures instructions.

H. Shop and Field Painting Specification:
For Steel Plate and Shapes, Pipe and Fittings
1. Prepare surfaces in accordance with Steel Structures Painting Council (SSPC) SP-6.
2. Prime all bare metal not in contact with concrete/grout with one coat Tnemec Series 6 Epoxo Line Primer. Apply two-coats of Tnemec Series 66 Hi-Build Epoxoline for the finish coat. Follow SSPC Paint 13 and Paint 20.

I. Excess Debris and Waste:
1. Excess debris and waste generated as a result of the work shall be handled by the Subcontractor as described in Part 6, Statement of Work, of the Invitation for Bid.

3.4 FIELD QUALITY ASSURANCE

A. Perform hydrostatic tests on utility lines other than gas (FG) in accordance with AWWA C600. Notify the Construction Manager at least 24 hours in advance of planned testing. Submit report to FDF within 1 week after completion of test.

B. The new pipes shall be hydrostatically tested prior to tie-in. This test shall be run at 50 psi above the operating pressure of the water main and held within specifications for 2 hours.

$$Allowable\ Leakage = \frac{LD\sqrt{p}}{498,168}$$

L = Length of Pipe in Test in Feet
D = Diameter of Pipe in Inches
p = Test Pressure (Operating Pressure + 50 psi = 110 psi + 50 psi)

Answer = Allowable Leakage in Cubic Feet over a 2-Hour Period.

Unless otherwise instructed by FDF, use 110 psi as the operating pressure for testing purposes.

C. Each HDPE manhole shall be hydrostatically tested before installation by the following method:
1. The manhole filled with potable water to within 6 inches of top.
2. Monitor the water level for a 4 hour period. If the level drops 0.5 inches or more over this period, identify leaks and repair. Retest manhole until acceptable and drain.

D. Manhole shall be tested twice; prior to backfill and at completion of backfill.

3.5 CLEANING

A. System Cleaning and Flushing
1. The interior and exterior of all pipe shall be kept clean at all times. Piping shall be free from loose mill scale, sand, dirt, slag, weld spatter, rust, fins, burrs and other foreign matter when erected. Burrs shall be removed by reaming. Other defects shall be removed by machining, chipping, filing, or grinding.

2. After erection and welding of piping, all lines except air shall be flushed with potable water prior to leak testing. Upon completion of flushing, lines shall be drained at all low points.

B. Sandblasted surfaces shall be free of residual quantities of cleaning media such as grit, aluminum oxide, or silicon prior to installation.

C. The use of cleaning fluids containing free chlorine shall be prohibited.

END OF SECTION

Noted 0031271

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE -

(1)WP / WO NO.: 1700	(2)S/C NO.: Wise Services	(5)Pg 1 OF # 4	(6)DATE Nov-04-96
(3)S/C TITLE: Installtwo each 4" water lines to the OSDF construction area.			(11)RCI NO.:
(4) RESPONSIBLE DISCIPLINE: E☐ MX C X OTHER ☐	(4A)RCI/DCN TITLE: Extend 4" Water lines from Plant Area to OSDF Construction Area		(11)DCN NO.: 1700-001

(7)DOCUMENTS AFFECTED	(7)DOCUMENT NOS.	(7)REV.	(8)OTHER
Site Utility Drawings Grid 7	22H-5500-P-00666	9	
Site Utility Drawings Grid 5	22H05500-P-00664	11	
Site Utility Drawings Grid 3	22C-5500-P-00662	10	

(9)☐RCI - INQUIRY ☐ USQD SCREENING BY PROJECT ENGINEER

(9)XDCN-JUSTIFICATION,EXISTING CONDITION & REQUESTED/PROPOSED CHANGE

DCN justification: This DCN is required for the purpose of installing two each 4" water supplies to the OSDF construction area. - See attached sketches SK-20110-001 thru SK-20110-003

CDC CONTROLLED COPY NO. C-11

(10)REQUESTOR: James C. Jenkins	COMPANY: Fluor Daniel Fernald	DATE:	(12)FCE / PE James C. Jenkins	DATE:Nov. 04-96

(13)RESPONSE: FOR RCI, IS A DCN REQ'D? ☐NO ☐YES

(14)FOR DCN: ☒APPROVED ☐APPROVED AS NOTED ☐DISAPPROVED

RCI - DCN ACCEPTANCE

(15)DESIGN ORGANIZATION APPROVAL:	DATE: 11-7-96	(20)CHARGE NO. FOR CADD SERVICES TO INCORPORATE: 2cuc1
(16)FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY)		DATE: 11/7/96
PERFORMANCE GRADE: (17) 4		
(18)CONSTRUCTION CONCURRENCE	DATE: 11-7-96	(21)WORK COMPLETED: (SIGNOFF BY FCE OR PE) DATE:
PURCHASE REQUISITION REQUIRED: ☒YES ☐NO (19)		

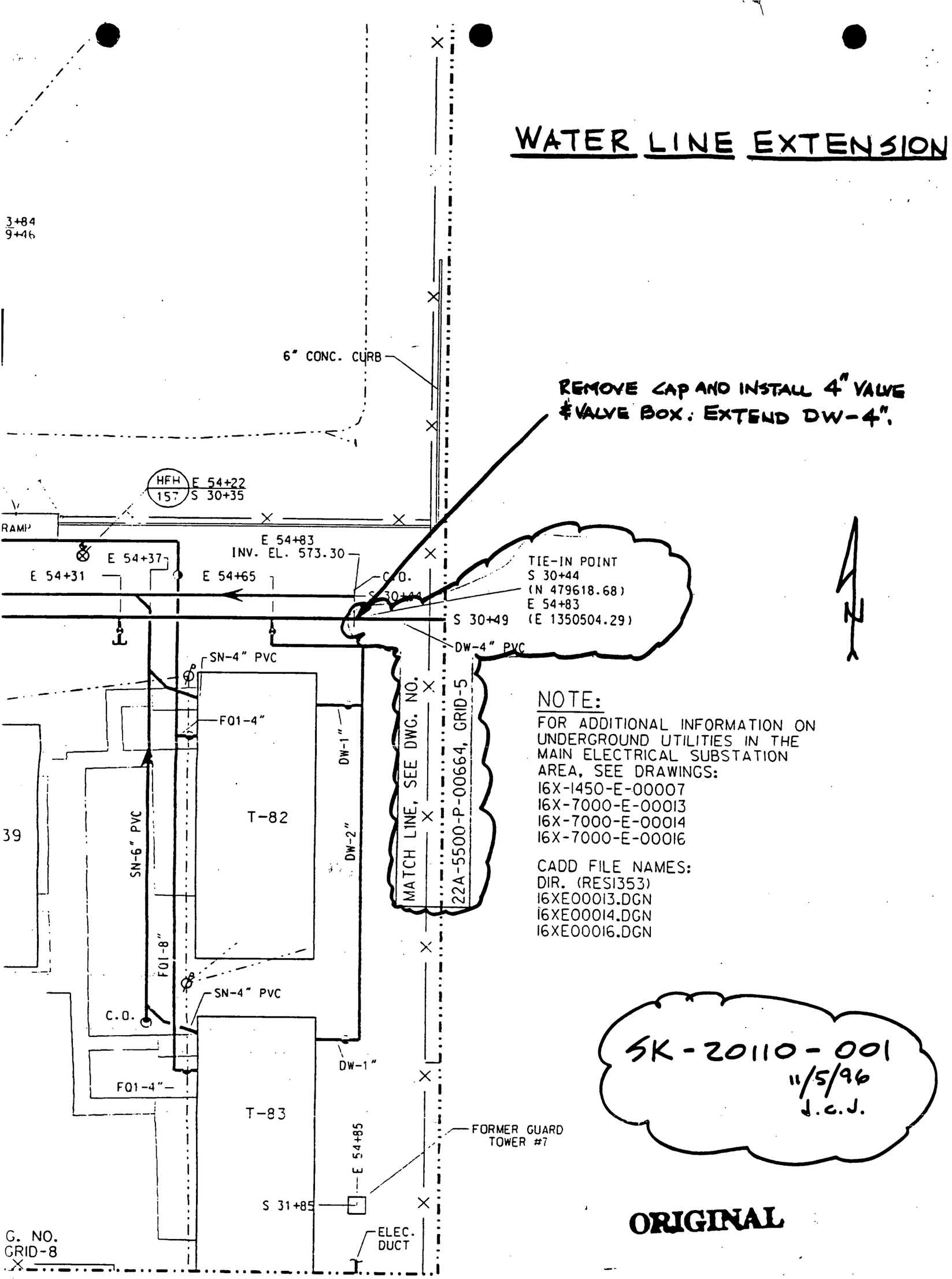
FS-F-4259 (10/01/96)

ORIGINAL

F

000677

WATER LINE EXTENSION



NOTE:

FOR ADDITIONAL INFORMATION ON UNDERGROUND UTILITIES IN THE MAIN ELECTRICAL SUBSTATION AREA, SEE DRAWINGS:
16X-1450-E-00007
16X-7000-E-00013
16X-7000-E-00014
16X-7000-E-00016

CADD FILE NAMES:
DIR. (RESI353)
16XE00013.DGN
16XE00014.DGN
16XE00016.DGN

SK-20110-001
11/5/96
J.C.J.

ORIGINAL

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 31 & 46, AREA 16 YARD AREA
GRID 7
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-20-90
DRAWN J. KING

22H-5500-P-00666 | 3

1700-001 - Page 2 of 4

1221

"F" STREET

BORE UNDER ROAD

APPROX. 320' TO TIE POINT

E 58+02
E 1350822
S 30+43
N 479617

NEW DW-4" PVC
~~RUN ' 42" BELOW GRADE~~

ELECT TRENCH

1-2" YARD HYD.
1-4"x4"x2" TEE
1-4" B.F.
1-THRUST BLOCK

IE 574.8

30" CONC. CULVERT PIPE

HEADWALL

IE 574.36

E 55+95

SK-20110-002
11/5/96
J.C.J.

MATCH LINE, SEE DWG. NO.

NORTH ACCESS

ORIGINAL

1271

Page 3 of 41

1700-001

000679

COORDINATE ISOLATION WITH UTILITIES

1271

ORIGINAL

Page 4 of 5

1700-001

E 54+25

S 14+35

MATCH LINE, SEE DWG. NO. 22C-5500-P-00661, GRID-2

DW-4"

4" PVC 18" BELOW GRADE (1) WIRE BUNDLE

NEW DW-4"-PVC 18" BELOW GRADE

300'±

S 14+66

PIV

ST-12"-RCP @ 2.0%

CB 224 — E 53+81, S 14+89

INV. EL. 582.0

ELEV. 585.8

(APPROX.) E 54+87.3 S 15+04.4

THRUST BLOCK

N 481,151.40 ±

E 1,350,870.21 ±

SK-20110-003

11/5/96

J.C.J.

EXIST.

EXIST. S

EXIST.

OR

EXIST. S

NEW

REPLACE EXIST. 90° ELL. WITH TEE OR INSERT TEE IN EAST WEST RUN.

MATCH LINE, SEE DWG. NO. 93X-5900-C-00310-WTEMP37.DGN

S

1-4"x4"x2" TEE

4" VALVE & BOX

4" B.F.

2" YARD HYD.

1 THRUST BLK.

22C-5500-P-00662

R/9

EMH 226 — E 52+86, S 16+25

000680