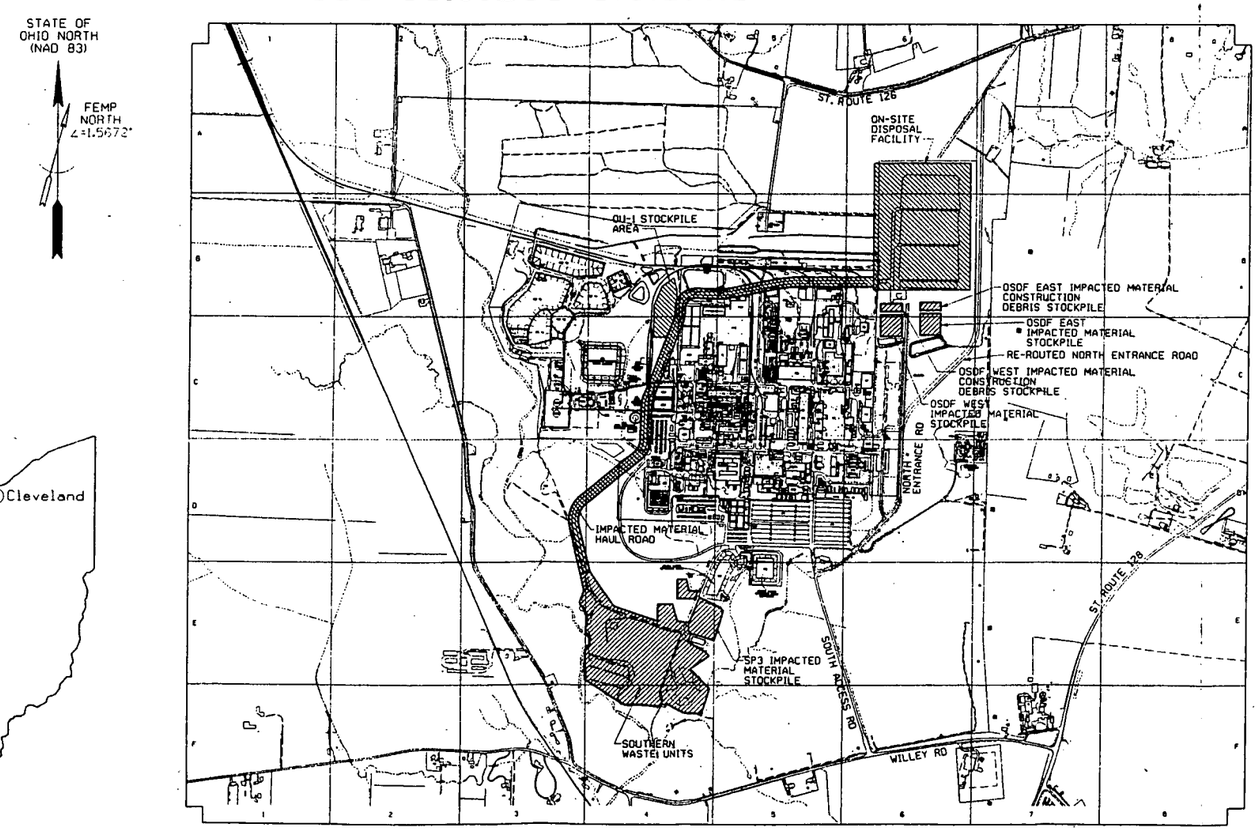
2-20334 1061

UNITED STATES DEPARTMENT OF ENERGY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

AREA 2 PHASE I
SOUTHERN WASTE UNITS - REMEDIAL ACTION PROJECT
EXCAVATION PACKAGE

CONTRACT NO. FSC614
FDF PROJECT NO. 20402



PARSONS

The Ralph M. Parsons Company • Parsons Main, Inc. • Engineering-Science, Inc.

ARCHITECTS - ENGINEERS
CINCINNATI, OHIO

600' 0' 600' 1200'
GRAPHIC SCALE: 1"=600'

NOTES

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE DESCRIPTION	A-E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
PROJECT TITLE SHEET

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERN	2/12/97

PLANT/BLDG. NO. | FLOOR | SCALE 1"=600' | CLASS

SUBMITTED FOR APPROVAL | FERNCO CRU APPROVAL N/A | FERNCO PROJECT NO. 20402

A-E DOE PROJECT NO. | DATE | FEMP PROJECT NO. WBS 1.1.1.1.2.3.6 00-90701 | DATE | DRAWING INDEX CODE NO. 92X-5900-X-00393 | SHEET NO. X0001 | REV. NO. C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER SCEP/P0165

INDEX OF DRAWINGS

INDEX CODE NO.	DRAWING NO.	SHEET NO.	REVISION NO.	DRAWING TITLE	REMARKS
	92X-5900-X-00393	X0001	C	PROJECT TITLE SHEET	
	92X-5900-X-00394	X0002	C	DRAWING INDEX	
	92X-5900-X-00395	X0003	C	LEGEND AND GENERAL NOTES	
	92X-5900-G-00396	G0001	C	CIVIL - STOCKPILE LOCATIONS & TRAFFIC ROUTES	
	92X-5900-G-00397	G0002	C	CIVIL - MASTER SITE PLAN	
	92X-5900-G-00349	G0003	D	CIVIL - BENCHMARKS AND BASELINE LOCATION PLAN	
	92X-5900-G-00398	G0004	C	CIVIL - EXISTING CONDITIONS AND MONITORING WELL IMPROVEMENTS PLAN	
	92X-5900-G-00286	G0005	F	CIVIL - EXCAVATION GRADING PLAN - 1	
	92X-5900-G-00369	G0006	D	CIVIL - EXCAVATION GRADING PLAN - ABOVE WAC MATERIAL	
	92X-5900-G-00413	G0007	C	CIVIL - EXCAVATION GRADING PLAN - 2	
	92X-5900-G-00285	G0008	F	CIVIL - EXCAVATION GRADING PLAN - LEAD CONTAMINATED SOIL	
	92X-5900-G-00333	G0009	E	CIVIL - INTERIM RESTORATION PLAN	
	92X-5900-G-00287	G0010	F	CIVIL - BASELINE A CROSS SECTIONS - SHEET 1 OF 5	
	92X-5900-G-00288	G0011	F	CIVIL - BASELINE A CROSS SECTIONS - SHEET 2 OF 5	
	92X-5900-G-00289	G0012	D	CIVIL - BASELINE A CROSS SECTIONS - SHEET 3 OF 5	
	92X-5900-G-00298	G0013	D	CIVIL - BASELINE A CROSS SECTIONS - SHEET 4 OF 5	
	92X-5900-G-00299	G0014	D	CIVIL - BASELINE A CROSS SECTIONS - SHEET 5 OF 5	
	92X-5900-G-00300	G0015	D	CIVIL - BASELINE B CROSS SECTIONS - SHEET 1 OF 1	
	92X-5900-G-00301	G0016	D	CIVIL - BASELINE C CROSS SECTIONS - SHEET 1 OF 2	
	92X-5900-G-00302	G0017	D	CIVIL - BASELINE C CROSS SECTIONS - SHEET 2 OF 2	
	92X-5900-G-00403	G0018	C	CIVIL - DETAILS - SHEET 1 OF 1	
	92X-5900-G-00412	G0019	C	CIVIL - MATERIAL DOCUMENTATION PLAN	
	92X-5900-N-00401	N0001	C	MECHANICAL PROCESS - PIPING AND INSTRUMENTATION DIAGRAM - SYMBOLS AND LEGEND	
	92X-5900-N-00402	N0002	C	MECHANICAL PROCESS - PIPING AND INSTRUMENTATION DIAGRAM - WATER COLLECTION AND TRANSFER	

NOTES

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00393	PROJECT TITLE SHEET	X0001
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
		INITIALS AND DATE		
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	4/28/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	3/13/97

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
DRAWING INDEX

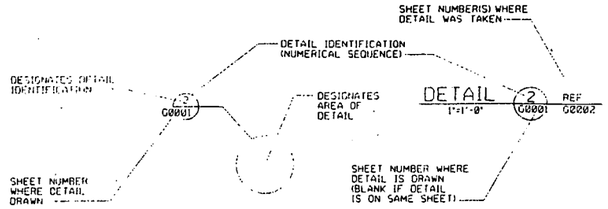
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		NONE	

SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
A-E DATE	N/A DATE	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	FEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-X-00394	X0002	C

GENERAL LEGEND



GENERAL NOTES

1. EXISTING TOPOGRAPHY PREPARED BY PARSONS FROM DIGITAL MAPPING BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY PROVIDED BY WOOLPERT CONSULTANTS FLOWN ON APRIL 9, 1992. OTHER SOURCES OF EXISTING INFORMATION SHOWN ON DRAWINGS PROVIDED BY FDF; THESE SOURCES INCLUDE:

   EXISTING SITE DATA SOURCE (IN PLANT FILES)
   FEMP CADD GRID/UTILITY DRAWINGS
   FEMP CONTRACTOR PROJECT DESIGN DOCUMENTS (INCLUDING A2P1 SITE PREPARATION DESIGN DOCUMENTS)
   FEMP OU-2 REMEDIAL INVESTIGATION REPORT, AND FEASIBILITY STUDY REPORT, 1995
   IT SURVEY, 1994

2. HORIZONTAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON: NORTH AMERICAN DATUM 1983 (NAD 83). SEE SHEET G0003 FOR BENCHMARK AND BASELINE LOCATIONS.

3. VERTICAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29). SEE SHEET G0003 FOR BENCHMARK AND BASELINE LOCATIONS.

4. SITE PREPARATION DETAILS AND CONTOURS SHOWN IN THIS PACKAGE WERE BASED ON THE PREVIOUSLY PREPARED SITE PREPARATION DESIGN DRAWINGS. ACTUAL CONSTRUCTION MAY DIFFER FROM WHAT IS SHOWN IN THIS PACKAGE. FACILITIES IN THE SWU CONSTRUCTED DURING SITE PREPARATION INCLUDE BUT ARE NOT LIMITED TO DITCHES, RETENTION BASINS, UTILITIES, EQUIPMENT WASH FACILITY, AND SUPPORT AREA.

5. EXCAVATION/REMEDIATION CONTOURS ARE BASED ON 3-D MODELING AND ARE DERIVED FROM A COMBINATION OF BOTTOM OF FILL AND FRL SURFACES PROVIDED BY FDF.

6. GEOLOGICAL AND CROSS SECTION INFORMATION TAKEN FROM (FEMP) OU-2 RI, 1995, OU-2 FS, 1995, GEOTECHNICAL REPORTS, AND FEMP 3-D CADD MODEL. THE OU-2 RI, FS, AND GEOTECHNICAL REPORTS ARE AVAILABLE FROM FDF FOR REVIEW UPON REQUEST. ACTUAL GEOLOGICAL CONDITIONS AND DEPTHS SHOWN ON CROSS SECTIONS MAY VARY AND SHALL BE DETERMINED IN THE FIELD DURING CONSTRUCTION.

7. LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY UTILITIES PRIOR TO EXCAVATION. IF SIZE, MATERIAL, LOCATION, OR DEPTH ARE DIFFERENT OR IF UNKNOWN UNCHARTED UTILITIES ARE DISCOVERED, INFORM THE CONSTRUCTION MANAGER BEFORE PROCEEDING.

8. DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS TAKE PRECEDENCE OVER SCALED DIMENSIONS.

9. FIGURED DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+/-) SHALL BE VERIFIED IN THE FIELD BEFORE START OF CONSTRUCTION.

10. RESTRICT ACTIVITIES TO THE IMMEDIATE PROJECT AREA DEFINED BY YELLOW AND ORANGE RADIOLOGICAL CONTROL AND CONSTRUCTION FENCE AND WITHIN THE LIMITS OF WORK. AREAS DISTURBED OUTSIDE THE LIMIT OF WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO FDF.

11. MAINTAIN AND PROTECT UTILITY MARKINGS.

12. CROSS SECTIONS ARE TAKEN FROM 3-D MODELING. ACTUAL FIELD CONDITIONS MAY VARY IN REGARDS TO IMPACTED MATERIAL LOCATIONS AND DEPTHS. FIELD ADJUST THE EXCAVATION DEPTHS AS REQUIRED TO REMOVE IMPACTED MATERIAL.

13. PROVIDE TEMPORARY SHORING, BRACING, OR OTHER METHODS AS NECESSARY TO SAFELY SUPPORT EXCAVATION. PROTECTION SHALL BE IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P-EXCAVATIONS, LATEST EDITION.

SYMBOLS LEGEND

EXISTING		PROPOSED
	POST INDICATOR VALVE (PIV)	
	MANHOLE (MH)	
CB CB	CATCH BASIN (CB)	
	ELECTRIC POLE	
	ELECTRICAL MANHOLE	
	GATE VALVE	
MW	MONITORING WELL	
E	EXTRACTION WELL	
	SURFACE DRAINAGE FLOW	
	ROADWAY/ DRIVEWAY/PAD	
	BUILDING/TRAILER	
	CHAIN LINK FENCE	
	TREE LINE	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	CENTERLINE DRAINAGE DITCH	
	RIVER/CREEK	
	TO BE REMOVED	
S S	SILT FENCE	S S
	ELECTRICAL TRANSFORMER	
	TRANSMISSION TOWER	
	HEADWALL	
	CONTINUOUS BERM	
	BENCHMARK	
	YELLOW RADIOLOGICAL CONTROL FENCE	
	ORANGE CONSTRUCTION FENCE	
	SIGN	
	BOLLARD/GUARD POST	
PB	ELECTRICAL PULL BOX	
	ROAD CENTERLINE OR BASELINE	
	FENCE GATE	
	APPROXIMATE ELEVATION OF GROUNDWATER	
	LIMIT OF WORK	
	RIPRAP/DUMPED ROCK FILL	
	WOODCHIP STOCKPILE AREA	
	GEOMEMBRANE LINER	
	GEOMEMBRANE LINER/ INFILTRATION BARRIER	
	APPROXIMATE LIMIT OF ABOVE WAC MATERIAL	
	APPROXIMATE LIMIT OF LEAD CONTAMINATED SOIL AREA	
	DUST CONTROL LIMITS	

UTILITY SYMBOLS

EXISTING		PROPOSED
ST	STORM SEWER	ST
FG	FUEL GAS	
DW	DRINKING WATER	
FT	FILTRATE OR EFFLUENT	
E	UNDERGROUND ELECTRICAL	
	OVERHEAD ELECTRICAL	
G	ELECTRIC GROUND	
GW	GROUND WATER	
WW	WASTE WATER	
TRANSFER LINE	TRANSFER LINE	

GRADING SYMBOLS

EXISTING		PROPOSED
X 584.4	SPOT ELEVATION	X 584.4
584	CONTOUR - MINOR	584
585	CONTOUR - MAJOR	585
(TOE)	SLOPE INDICATOR	(TOE)

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AFP	ACTIVE FLYASH PILE
BSL	BIODENITRIFICATION SURGE LAGOON
CMP	CORRUGATED METAL PIPE
ELEV	ELEVATION
FDF	FLUOR DANIEL FERNALD
FEMP	FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FRL	FINAL REMEDIATION LEVEL
FS	FEASIBILITY STUDY
GMA	GREAT MIAMI AQUIFER
IFP	INACTIVE FLYASH PILE
ODOT	OHIO DEPARTMENT OF TRANSPORTATION
OSDF	ON-SITE DISPOSAL FACILITY
OU	OPERABLE UNIT
RAD II	RADIOLOGICAL WORKER II
RI	REMEDIAL INVESTIGATION
SHT	SHEET
SF	SOUTH FIELD
SP	STOCKPILE
SWM	STORMWATER MANAGEMENT
SWU	SOUTHERN WASTE UNITS (CONSISTING OF AFP, IFP, AND SF)
TYP	TYPICAL
WAC	WASTE ACCEPTANCE CRITERIA

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00393	PROJECT TITLE SHEET	X0001
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-G-00396	TRAFFIC FLOW PLAN	G0001
92X-5900-G-00397	MASTER SITE PLAN	G0002
92X-5900-G-00349	BENCHMARKS AND BASELINE LOCATION PLAN	G0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNFD	DATE
		INITIALS AND DATE		
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10-16-97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	8/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
LEGEND AND GENERAL NOTES

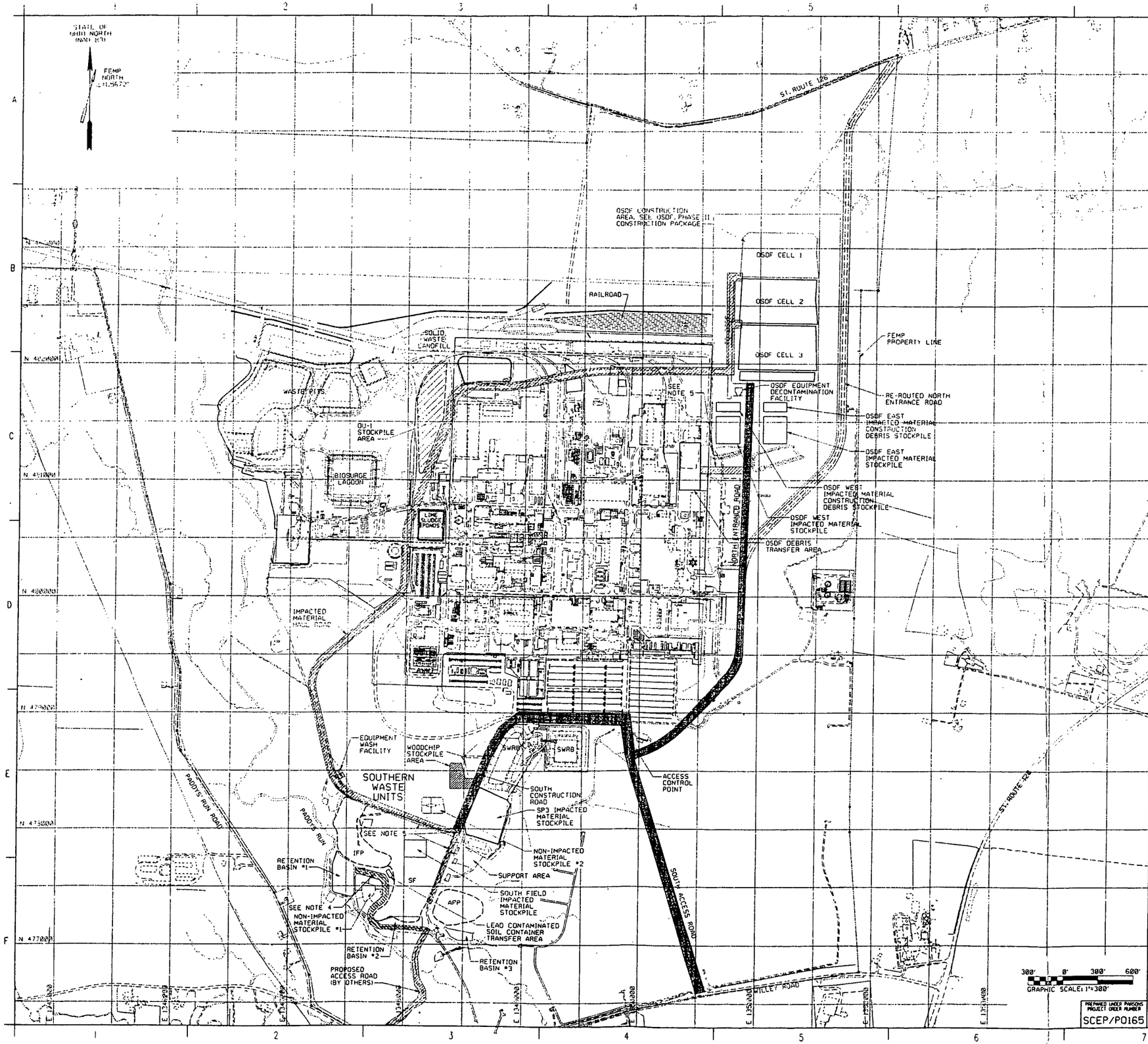
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		NONE	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	DATE	N/A
		20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	FEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-X-00395	X0003	C

3



NOTES.

1. USE THE SOUTH ACCESS ROAD FOR TRANSPORTING CONSTRUCTION EQUIPMENT, MATERIALS AND SUPPLIES. OTHER ACCESS ROADS SHALL BE LIMITED TO CARS/PICK-UP TRUCK TRAFFIC ONLY.
2. USE THE OSDF EQUIPMENT DECONTAMINATION FACILITY TO DECONTAMINATE EQUIPMENT BEFORE LEAVING THE RADIOLOGICAL CONTROLLED AREAS.
3. USE IMPACTED MATERIAL HAUL ROAD TO HAUL IMPACTED MATERIAL FROM THE SWU AND THE STOCKPILES TO THE OU-1 STOCKPILE AREA AND THE OSDF.
4. CONTRACTOR SHALL NOT USE/TRAVERSE EXISTING INDICATED ROAD ALONG NORTH AND EAST SIDE OF NON-IMPACTED MATERIAL STOCKPILE NO.1 WITH CONSTRUCTION EQUIPMENT OR VEHICLES USED AS A PART OF SOIL REMOVAL ACTIVITIES.
5. ACCESS FROM SP3 IMPACTED MATERIAL STOCKPILE TO IMPACTED MATERIAL HAUL ROAD AND RETENTION BASINS NO. 1, 2 AND 3 TO IMPACTED MATERIAL HAUL ROAD, SHALL BE CONSTRUCTED BY THE CONTRACTOR AS REQUIRED TO HAUL IMPACTED MATERIAL TO THE OSDF.

SITE ACCESS/SUPPORT AREA ACCESS
IMPACTED MATERIAL HAUL ROAD
CONSTRUCTION TRAFFIC
SEE NOTE 4

IMPACTED MATERIAL STOCKPILE NAME	CATEGORY OF MATERIAL (CAT) ①	ESTIMATED IN-PLACE VOLUME OF IMPACTED MATERIALS (CY)	COMMENTS
SP3	CAT-1	50,000	
OSDF EAST IMPACTED MATERIAL CONSTRUCTION DEBRIS STOCKPILE	CAT-2	1,200	
OSDF WEST IMPACTED MATERIAL CONSTRUCTION DEBRIS STOCKPILE	CAT-2	1,000	
OSDF EAST IMPACTED MATERIAL STOCKPILE	CAT-1	10,000	
OSDF WEST IMPACTED MATERIAL STOCKPILE	CAT-1	13,000	
SOUTH FIELD IMPACTED MATERIAL STOCKPILE	CAT-1	35,000	

① CATEGORY OF MATERIALS SHALL BE AS SPECIFIED IN OSDF IMPACTED MATERIAL PLACEMENT PLAN.

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
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INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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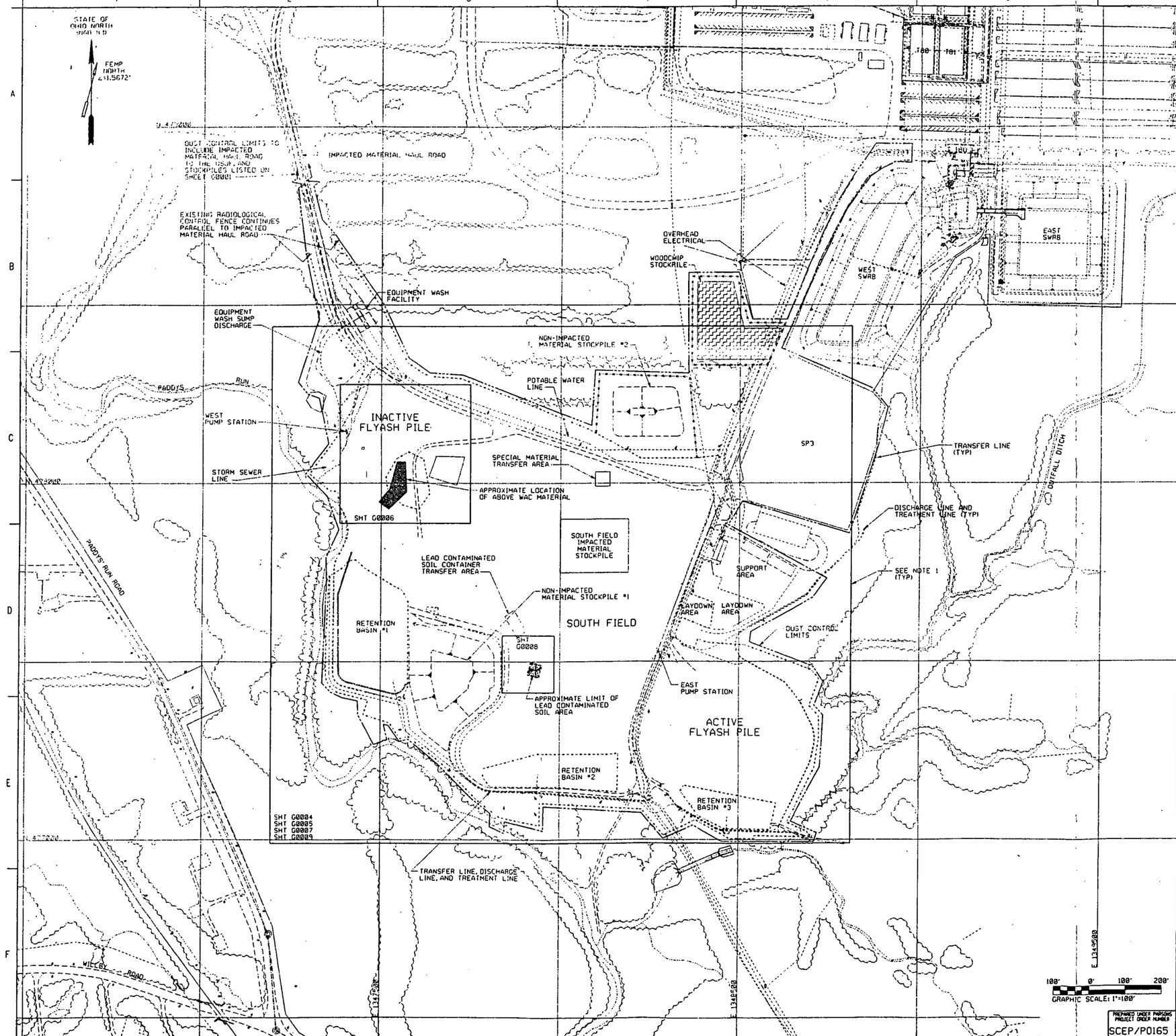
THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
STOCKPILE LOCATIONS & TRAFFIC ROUTES

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERN	02/12/97
PLANT/BLDG. NO.		FLOOR		SCALE 1"=300'	CLASS
SUBMITTED FOR APPROVAL		FERNCO CRU APPROVAL N/A		FERNCO PROJECT NO. 20402	
A-E DATE		DATE			
DOE PROJECT NO.	FEMP PROJECT NO WBS 1.1.1.1.2.3.6 00-90701	DRAWING INDEX CODE NO 92X-5900-G-00396		SHEET NO G0001	REV. NO C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER SCEP/P0165



NOTES

1. RECTANGULAR SHAPES INDICATE LIMITS OF THE CONSTRUCTION DRAWING SHEETS.
2. FOR LIMITS OF EXCAVATION, SEE SHEETS G0005, G0006, G0007 AND G0008.

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00393	DRAWING INDEX	X0002
92X-5900-X-00394	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00398	EXISTING CONDITIONS AND MONITORING WELL IMPROVEMENTS PLAN	G0004
92X-5900-G-00286	EXCAVATION GRADING PLAN - 1	G0005
92X-5900-G-00369	EXCAVATION GRADING PLAN ABOVE WAC MATERIAL	G0006
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007
92X-5900-G-00285	EXCAVATION GRADING PLAN LEAD CONTAMINATED SOIL	G0008
92X-5900-G-00333	INTERIM RESTORATION PLAN	G0009

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JHU	N/A	7/13/97

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
MASTER SITE PLAN

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERN	02/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=100'	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
	N/A	20402

A-E DATE	DOE PROJECT NO	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO	REV. NO.
		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00397	G0002	C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165

NOTES

BENCHMARK INFORMATION				
BENCHMARK	NORTHING	EASTING	ELEVATION	REMARKS
M-1	478238.04	1347705.25	573.848	A
M-2	478321.86	1348595.65	576.678	A
M-3	477948.93	1348451.10	577.413	A
M-8	477071.65	1348110.41	537.47	A
T-1	TBP	TBP	TBP	B
T-2	TBP	TBP	TBP	B
T-3	TBP	TBP	TBP	B
T-4	TBP	TBP	TBP	B
T-5	477453±	1347890±	TBD	TBS,C
T-6	477511±	1347906±	TBD	TBS,C

A EXISTING CONCRETE MONUMENT WITH ALUMINUM PLATE.

B EXISTING MONUMENT TO BE SET BY SWU SITE PREPARATION CONTRACT - IRON PIN AND PLASTIC SURVEYORS CAP.

C TO BE SET AT THE APPROXIMATE COORDINATE LOCATIONS SHOWN.

TBS TO BE SET WITH IRON PIN AND PLASTIC SURVEYORS CAP A MINIMUM OF 48" DEEP.

TBP TO BE PROVIDED BY FDF BEFORE START OF CONSTRUCTION (TO BE SET BY SWU SITE PREPARATION CONTRACT).

TBD TO BE DETERMINED IN FIELD UTILIZING EXISTING BENCHMARK ELEVATIONS.

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

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D	ISSUED FOR 95% EPA DESIGN REVIEW	ECS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	3/13/97
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INITIALS AND DATE

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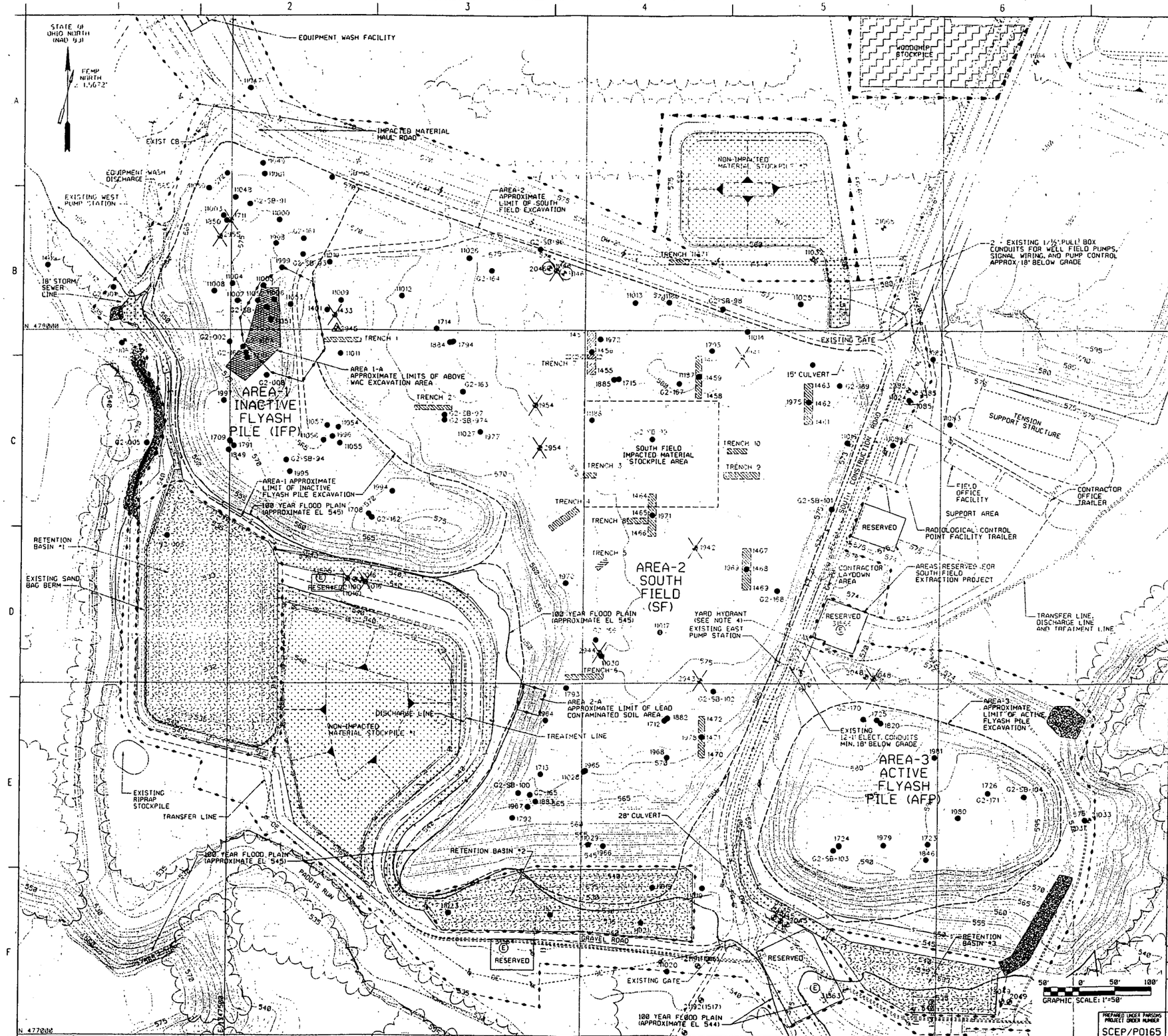
PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BENCHMARKS AND BASELINE LOCATION PLAN

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	10/10/96			J. FERN	2/12/97
PLANT/BLDG. NO		FLOOR		SCALE 1"=50'	CLASS
SUBMITTED FOR APPROVAL		FERNCO CRU APPROVAL N/A		FERNCO PROJECT NO. 20402	
A/E	DATE		DATE		

DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO
	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00349	G0003	D

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



NOTES:

1. SEE FLYASH PILES AND SOUTH FIELD WASTE UNITS GEOTECHNICAL REPORT DATED APRIL 1996, REVISION 0 FOR SOIL BORING LOCATIONS AND INFORMATION.
2. REMOVE MONITORING WELL NUMBER 2945 TO 5' BELOW FINAL EXCAVATION GRADE. MONITORING WELL NUMBER 2945 INCLUDES TELESCOPING STAINLESS STEEL CASING UP TO 10-INCHES IN DIAMETER WITH CONCRETE FILL. RESTORE GRADE TO MATCH SURROUNDING AREA.
3. CONTRACTOR SHALL REQUEST FDF A MINIMUM OF 2-WORKING DAYS IN ADVANCE FOR FDF TO BREAK-UP EXISTING CONCRETE AROUND MONITORING WELLS. AFTER CONCRETE HAS BEEN BROKEN-UP, CONTRACTOR TO HAND EXCAVATE CONCRETE AND SOIL WITHIN 5' OF MONITORING WELL. AFTER EXCAVATION HAS BEEN COMPLETED, REQUEST FDF TO LOWER THE WELL CASINGS AND REPLACE CONCRETE AROUND WELLS WITHIN 4 WORKING DAYS OF NOTIFICATION.
4. YARD HYDRANT BEING RELOCATED BY OTHERS. SEE DCN 20401-14.

LEGEND

G2-163 ●	SOIL BORING
2046	MONITORING WELL TO BE PROTECTED
1970	MONITORING WELL PREVIOUSLY PLUGGED WITH CONCRETE OR BENTONITE GROUT AND ABANDONED
1463 1462 1461	INVESTIGATION TRENCH (BACKFILLED)
Ⓔ	EXTRACTION WELL TO BE PROTECTED
2046	MONITORING WELL TO BE LOWERED TO CONFORM TO NEW GROUND SURFACE (SEE NOTE 3)
2945	MONITORING WELL TO BE REMOVED BY CONTRACTOR (SEE NOTE 2)

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	3/13/97

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
EXISTING CONDITIONS AND MONITORING WELL IMPROVEMENTS PLAN

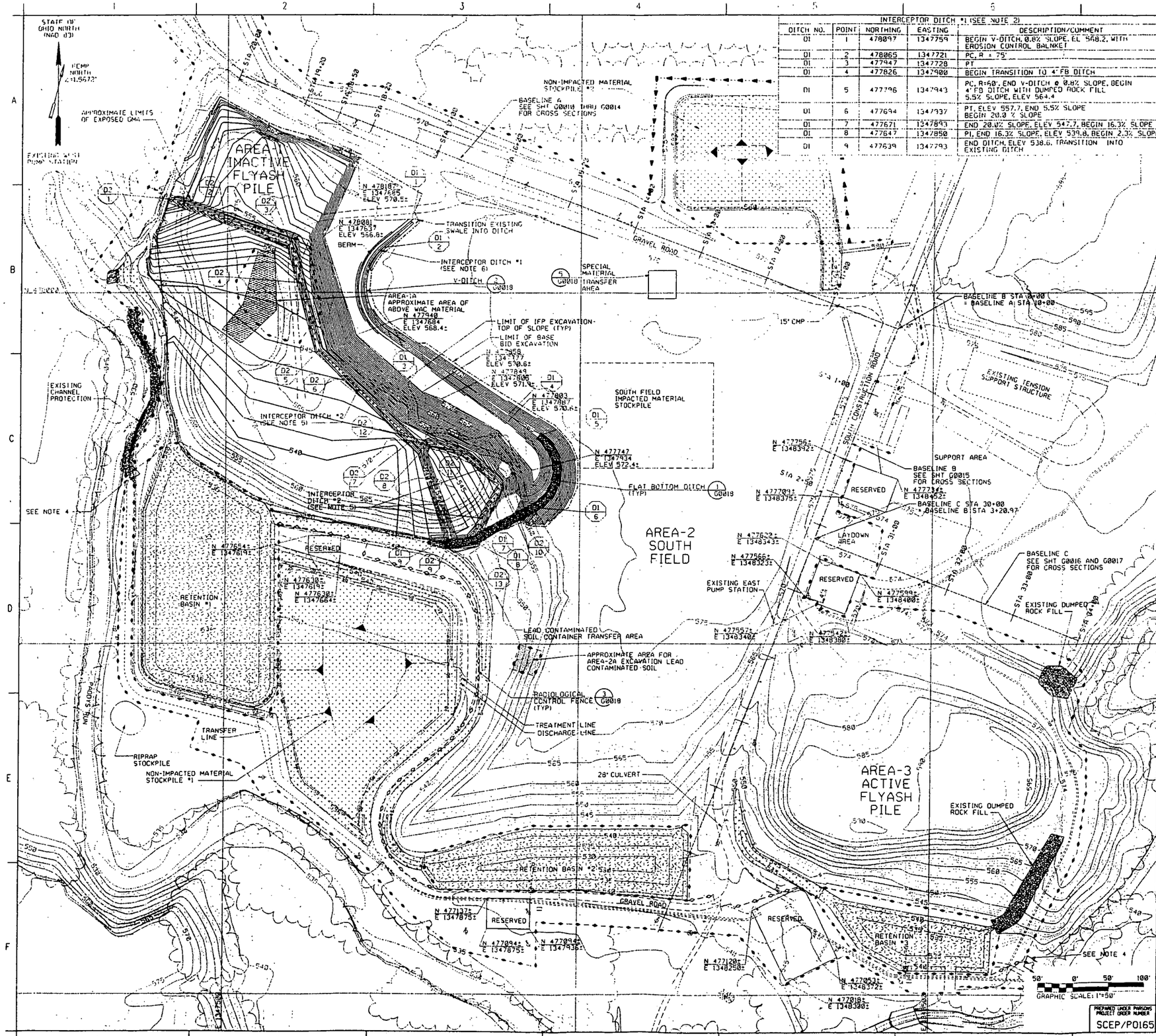
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	12/17/96			J. FERM	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=50'	

SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
	N/A	20402

A-E DOE PROJECT NO.	DATE	FEMP PROJECT NO.	DATE	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
		WBS 1.1.1.1.2.3.6 00-90701		92X-5900-G-00398	G0004	C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



INTERCEPTOR DITCH #1 (SEE NOTE 2)				
DITCH NO.	POINT	NORTHING	EASTING	DESCRIPTION/COMMENT
D1	1	478097	1347759	BEGIN V-DITCH, 0.8% SLOPE, EL 568.2, WITH EROSION CONTROL BALNKET
D1	2	478065	1347721	PC, R = 75'
D1	3	477947	1347728	PT
D1	4	477826	1347900	BEGIN TRANSITION TO 4'FB DITCH
D1	5	477796	1347943	PC, R=60', END V-DITCH @ 0.8% SLOPE, BEGIN 4'FB DITCH WITH DUMPED ROCK FILL 5.5% SLOPE, ELEV 564.4
D1	6	477694	1347937	PT, ELEV 557.7, END 5.5% SLOPE BEGIN 20.0 % SLOPE
D1	7	477671	1347893	END 20.0% SLOPE, ELEV 547.7, BEGIN 16.3% SLOPE
D1	8	477647	1347850	PI, END 16.3% SLOPE, ELEV 539.8, BEGIN 2.3% SLOPE
D1	9	477639	1347793	END DITCH, ELEV 538.6, TRANSITION INTO EXISTING DITCH

NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE AS SPECIFIED IN TECHNICAL SPECIFICATION SECTION 02276.
2. SEE SHT G0018 FOR DITCH DETAILS.
3. RAMPS TO IMPACTED MATERIAL EXCAVATION ARE NOT SHOWN AND ARE TO BE FIELD DETERMINED BY THE CONTRACTOR.
4. RELOCATE THE EXISTING RADIOLOGICAL CONTROL FENCE FROM THE LIMIT OF WORK FOR THOSE AREAS INDICATED BETWEEN MARKERS TO THE LOCATIONS SHOWN FOR INSTALLATION OF RADIOLOGICAL CONTROL FENCE.
5. INTERCEPTOR DITCH #2 TO BE LINED WITH 60 MIL TEXTURED HDPE GEOMEMBRANE. SEE DETAIL, SHEET G0018.
6. CONSTRUCT INTERCEPTOR DITCH #1 PRIOR TO AREA-1, IFP EXCAVATION.

INTERCEPTOR DITCH #2 (SEE NOTE 2)				
DITCH NO.	POINT	NORTHING	EASTING	DESCRIPTION/COMMENT
D2	1	478134	1347418	BEGIN 2'FB DITCH @ 13% SLOPE WITH GEOMEMBRANE LINER, ELEV 560.7
D2	2	478105	1347496	END 13% SLOPE, ELEV 549.8, BEGIN 0.5% SLOPE
D2	3	478070	1347590	PI, END 0.5% SLOPE, ELEV 549.5, BEGIN 7.7% SLOPE
D2	4	478014	1347605	END 7.7% SLOPE, ELEV 545.0, BEGIN 2% SLOPE
D2	5	477917	1347631	PI
D2	6	477882	1347667	END 2% SLOPE, ELEV 542.0, BEGIN 1.5% SLOPE
D2	7	477788	1347762	END 1.5% SLOPE, ELEV 540.0, BEGIN 0.5% SLOPE
D2	8	477773	1347776	PI
D2	9	477646	1347817	PI WITH INTERCEPTOR DITCH #1 (END DITCH)
D2	10	477728	1347889	PI, HIGH POINT 2'FB DITCH, VARIABLE SLOPE, ELEV 547.0
D2	11	477772	1347835	PI
D2	12	477787	1347785	PI
D2	13	477649	1347847	PI WITH INTERCEPTOR DITCH #1

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00398	EXISTING CONDITIONS AND MONITORING WELL IMPROVEMENTS PLAN	G0004
92X-5900-G-00287	BASELINE A CROSS SECTIONS - SHEET 1 OF 5	G0010
92X-5900-G-00288	BASELINE A CROSS SECTIONS - SHEET 2 OF 5	G0011
92X-5900-G-00289	BASELINE A CROSS SECTIONS - SHEET 3 OF 5	G0012
92X-5900-G-00298	BASELINE A CROSS SECTIONS - SHEET 4 OF 5	G0013
92X-5900-G-00299	BASELINE A CROSS SECTIONS - SHEET 5 OF 5	G0014
92X-5900-G-00300	BASELINE B CROSS SECTIONS - SHEET 1 OF 1	G0015
92X-5900-G-00301	BASELINE C CROSS SECTIONS - SHEET 1 OF 2	G0016
92X-5900-G-00302	BASELINE C CROSS SECTIONS - SHEET 2 OF 2	G0017
92X-5900-G-00403	DETAILS - SHEET 1 OF 1	G0018

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
F	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	W/A	10/16/97
E	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
D	ISSUED FOR 90% FDF DESIGN REVIEW	JMU	N/A	3/13/97
C	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96
B	ISSUED FOR 30% EPA DESIGN REVIEW		N/A	05/24/96
A	ISSUED FOR 30% DESIGN REVIEW		N/A	03/28/96

DETAILS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
EXCAVATION GRADING PLAN - 1

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	02/28/96			J. FERN	2/27/97

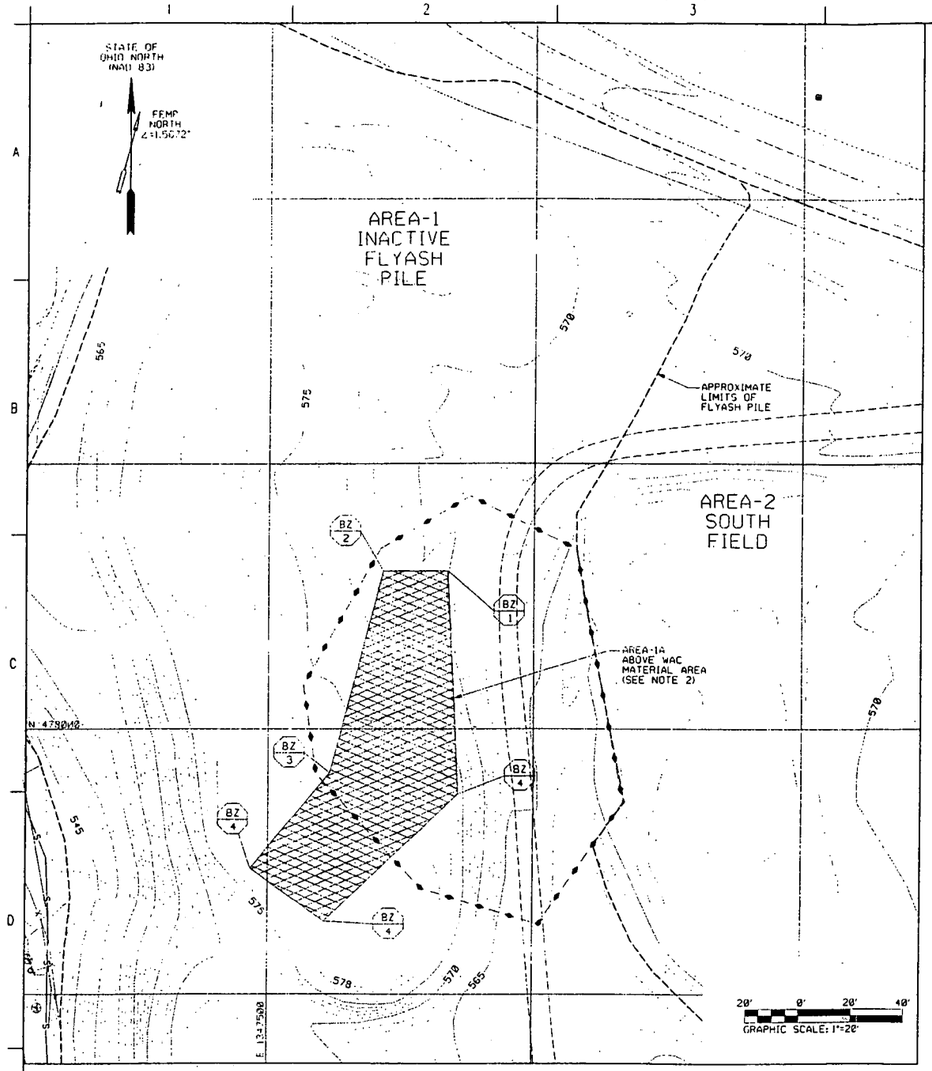
PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=50'	

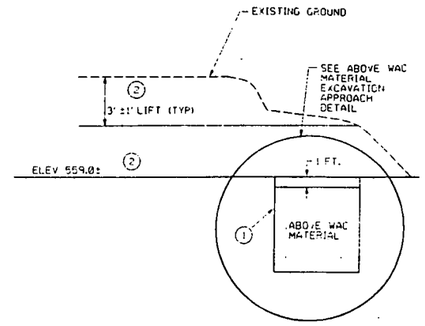
SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
	N/A	20402

A-E DOE PROJECT NO.	DATE	FEMP PROJECT NO.	DATE	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO
		WBS 1.1.1.1.2.3.6 00-90701		92X-5900-G-00286	G0005	F

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165

8



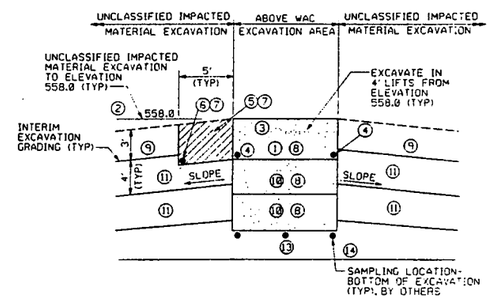


① LIMIT OF ABOVE WAC MATERIAL.

② EXCAVATE IMPACTED MATERIAL TO WITHIN ONE FOOT FROM TOP OF ABOVE WAC MATERIAL.

GENERAL EXCAVATION ON TOP OF ABOVE WAC MATERIAL

NTS



① EXCAVATE ABOVE WAC MATERIAL IN 4' LIFTS.

② LOAD TRUCKS OUTSIDE OF ABOVE WAC MATERIAL AREA AS SPECIFIED IN TECHNICAL SPECIFICATION SECTION 02205.

③ SURVEY LIMITS OF EACH EXCAVATED LIFT IN ABOVE WAC MATERIAL.

④ FDF WILL MONITOR EXCAVATION ALONG THE ABOVE WAC AREA EXCAVATION PERIMETER.

⑤ IF FDF MONITORING FINDS ABOVE WAC MATERIAL ALONG PERIMETER, EXTEND HORIZONTAL EXCAVATION LIMIT BY 5 FEET.

⑥ FDF WILL MONITOR ALONG THE EXTENDED LIMITS OF EXCAVATION.

⑦ REPEAT STEPS ⑤ AND ⑥ IF MONITORING FINDS ABOVE WAC MATERIAL AT THE EXTENDED LIMIT.

⑧ COLLECT AND PUMP WATER FROM THE ABOVE WAC AREA EXCAVATION AND UNCLASSIFIED IMPACTED MATERIAL EXCAVATION AREA TO THE NEAREST RETENTION BASIN. IF SUMP EXCAVATION PENETRATES THE GMA, LINE THE SUMP WITH A 60 MIL TEXTURED HDPE LINER TO PREVENT CONTAMINATION OF THE GMA.

⑨ EXCAVATE UNCLASSIFIED IMPACTED MATERIAL IN AN INITIAL 3 FOOT LIFT OUTSIDE ABOVE WAC MATERIAL EXCAVATION. SLOPE UNCLASSIFIED IMPACTED MATERIAL EXCAVATION AREA AWAY FROM THE ABOVE WAC AREA EXCAVATION.

⑩ CONTINUE AND REPEAT STEPS ① THROUGH ⑧ TO BOTTOM OF ABOVE WAC MATERIAL.

⑪ EXCAVATE SUBSEQUENT UNCLASSIFIED IMPACTED MATERIAL IN 4 FOOT LIFTS OUTSIDE LIMITS OF ABOVE WAC MATERIAL EXCAVATION AREA.

⑫ CONTINUE STEPS ① THROUGH ⑪ AS APPLICABLE.

⑬ SURVEY EXCAVATION LIMITS. FDF TO COLLECT CONFIRMATION SAMPLES AT BOTTOM OF WAC MATERIAL EXCAVATION.

⑭ ADDITIONAL SUPPLEMENTAL EXCAVATION LIFTS MAY BE NECESSARY DURING PRECERTIFICATION AND CERTIFICATION OF THE ABOVE WAC MATERIAL EXCAVATION LIMITS.

ABOVE WAC MATERIAL EXCAVATION APPROACH

NTS

10' 0' 10' 20'
VERTICAL GRAPHIC SCALE: 1"=10'

20' 0' 20' 40'
HORIZONTAL GRAPHIC SCALE: 1"=20'

NOTES

1. EXCAVATE ABOVE WAC MATERIAL IN ACCORDANCE WITH APPROVED EXCAVATION WORK PLAN PREPARED BY THE CONTRACTOR IN ACCORDANCE WITH THIS DRAWING AND TECHNICAL SPECIFICATIONS.
2. LOCATION, QUANTITY, AND SIZE OF THE ABOVE WAC MATERIAL AS SHOWN IS APPROXIMATE AND IS BASED ON 3-D MODELING. LIMITS WILL BE DETERMINED IN FIELD BASED ON MONITORING BY FDF.

NOTE:

THE ABOVE WAC EXCAVATION AREA CONFIGURATION SHOWN IS PRELIMINARY AND WILL BE MODIFIED AFTER ADDITIONAL FIELD DATA HAS BEEN OBTAINED AND COMPILED.

LEGEND

- EXISTING GROUND
- EXCAVATION GRADE
- APPROXIMATE LOCATION OF ABOVE WAC MATERIAL

ABOVE WAC EXCAVATION AREA (BZ)		
POINT	NORTHING	EASTING
1	478060	1347568
2	478060	1347544
3	477984	1347524
4	477948	1347494
5	477928	1347522
6	477976	1347572

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV NO.	ISSUE OR REVISION PURPOSE DESCRIPTION	A-E	FERNCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
EXCAVATION GRADING PLAN
ABOVE WAC MATERIAL

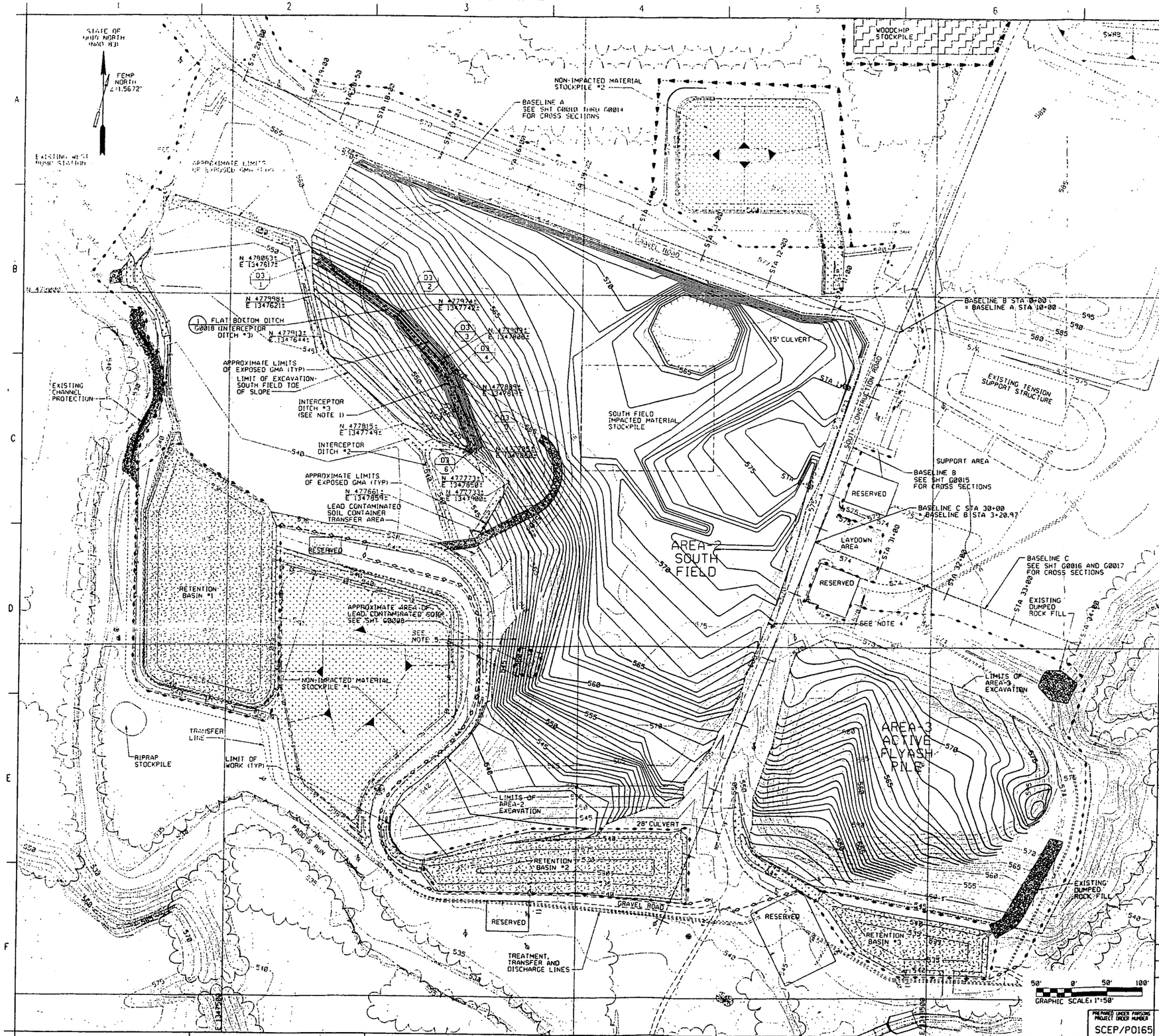
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	10/24/96			J. FERN	2/12/97

PLANT/BLDG. NO	FLOOR	SCALE	CLASS
		AS NOTED	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	DATE	N/A	20402

DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00369	G0006	D

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



NOTES

1. INTERCEPTOR DITCH #3 TO BE LINED WITH 60 MIL TEXTURED HDPE GEOMEMBRANE (SEE DETAIL, SHEET G0018). INTERCEPTOR DITCH #3 SUBJECT TO FIELD ADJUSTMENT BY FDF.
2. SEE SHEET G0018 FOR DITCH DETAILS.
3. RAMPS TO IMPACTED MATERIAL EXCAVATION ARE NOT SHOWN AND ARE TO BE FIELD DETERMINED BY THE CONTRACTOR.
4. REMOVE, LOAD AND HAUL THE EXISTING FRENCH DRAIN AS UNCLASSIFIED IMPACTED MATERIAL. UNLOAD IN OSDF AS SPECIFIED IN TECHNICAL SPECIFICATION SECTION 02205.
5. GRADE IMMEDIATE AREA AFTER NOTIFICATION FROM FDF THAT FRL HAS BEEN OBTAINED FOR LEAD CONTAMINATED SOIL AND SOUTH FIELD EXCAVATION TO PROVIDE MAXIMUM 3:1 SLOPES.

INTERCEPTOR DITCH #3 (SEE NOTE 1)

DITCH NO.	POINT	NORTHING	EASTING	DESCRIPTION
D3	1	478045	1347631	BEGIN 2' FB DITCH @ 0.9% SLOPE, ELEV 550.2, WITH GEOMEMBRANE LINER
D3	2	477967	1347738	PI
D3	3	477899	1347798	PI
D3	4	477882	1347809	PI
D3	5	477785	1347848	PI
D3	6	477771	1347836	PI WITH EXISTING INTERCEPTOR DITCH #2

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00398	EXISTING CONDITIONS AND MONITORING WELL IMPROVMENTS PLAN	G0004
92X-5900-G-00285	EXCAVATION GRADING PLAN LEAD CONTAMINATED SOIL	G0005
92X-5900-G-00287	BASELINE A CROSS SECTIONS - SHEET 1 OF 5	G0010
92X-5900-G-00288	BASELINE A CROSS SECTIONS - SHEET 2 OF 5	G0011
92X-5900-G-00289	BASELINE A CROSS SECTIONS - SHEET 3 OF 5	G0012
92X-5900-G-00298	BASELINE A CROSS SECTIONS - SHEET 4 OF 5	G0013
92X-5900-G-00299	BASELINE A CROSS SECTIONS - SHEET 5 OF 5	G0014
92X-5900-G-00300	BASELINE B CROSS SECTIONS - SHEET 1 OF 1	G0015
92X-5900-G-00301	BASELINE C CROSS SECTIONS - SHEET 1 OF 2	G0016
92X-5900-G-00302	BASELINE C CROSS SECTIONS - SHEET 2 OF 2	G0017
92X-5900-G-00403	DETAILS - SHEET 1 OF 1	G0018

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A/E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
EXCAVATION GRADING PLAN - 2

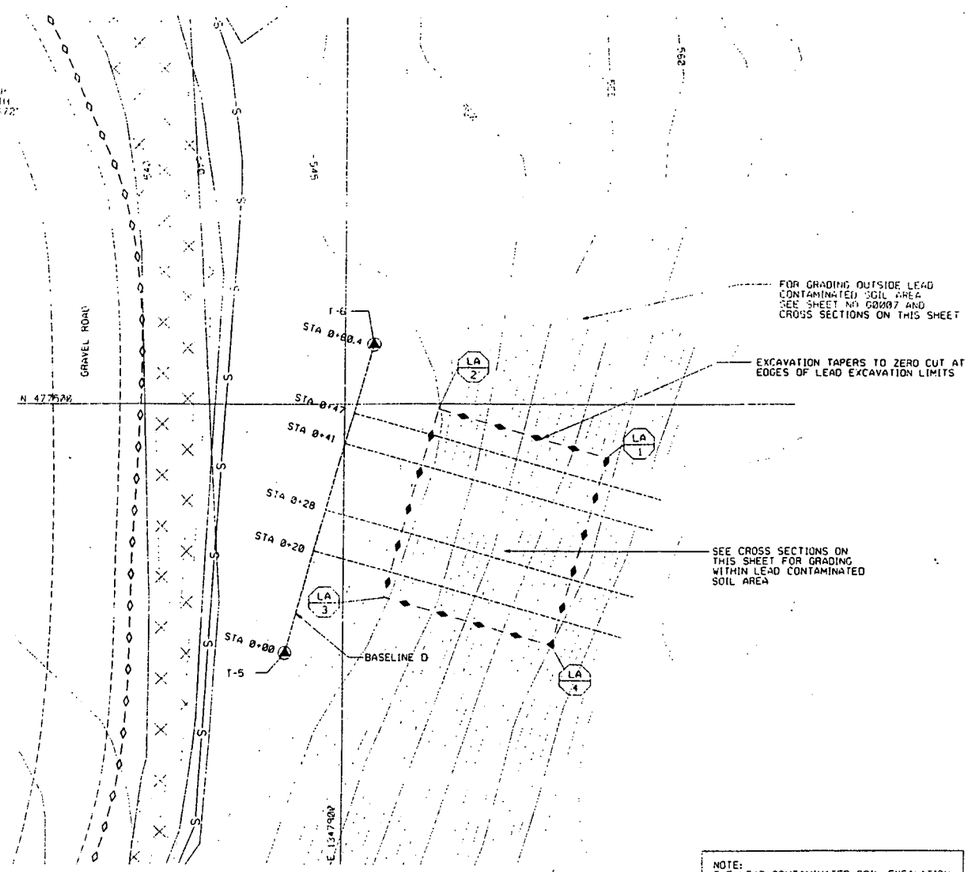
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
O. REED	02/28/98			J. FERN	2/26/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=50'	

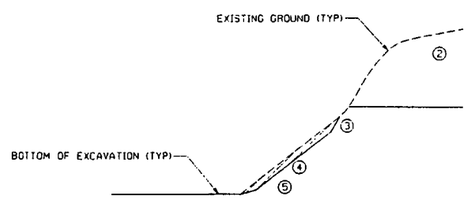
SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
	N/A	20402

A/E DOE PROJECT NO	DATE	FEMP PROJECT NO	DATE	DRAWING INDEX CODE NO.	SHEET NO	REV. NO
		WBS 1.1.1.1.2.3.6 00-90701		92X-5900-G-00413	G0007	C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



NOTE:
THE LEAD CONTAMINATED SOIL EXCAVATION AREA SHOWN IS PRELIMINARY, AND WILL BE MODIFIED AFTER ADDITIONAL FIELD DATA HAS BEEN OBTAINED AND COMPILED.



GENERALIZED SEQUENCE OF CONSTRUCTION

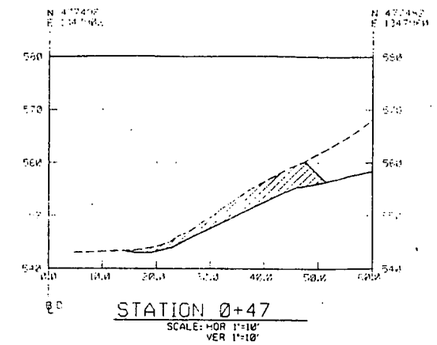
① SURVEY AND STAKE LIMIT OF LEAD CONTAMINATED SOIL.

② EXCAVATE UNCLASSIFIED IMPACTED MATERIAL ABOVE LEAD CONTAMINATED SOIL AS SPECIFIED IN TECHNICAL SPECIFICATION SECTION 02205.

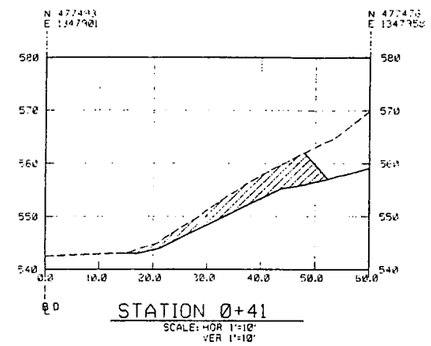
③ EXCAVATE LEAD CONTAMINATED SOIL TO LIMITS SHOWN ON THIS SHEET.

④ FDF TO PERFORM CONFIRMATORY SAMPLING.

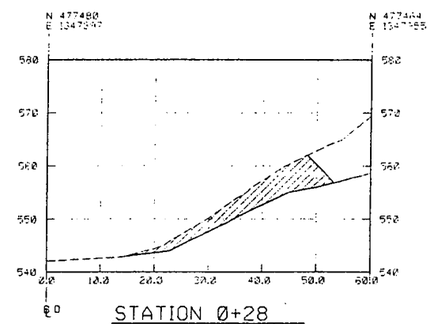
⑤ PERFORM SUPPLEMENTAL EXCAVATION AND CONFIRMATORY SAMPLING UNTIL LEAD CONCENTRATIONS ARE BELOW 400 ppm.



STATION 0+47
SCALE: HOR 1"=10'
VER 1"=10'



STATION 0+41
SCALE: HOR 1"=10'
VER 1"=10'



STATION 0+28
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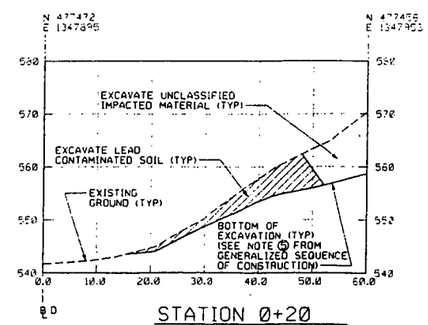
VER 1"=10'



STATION 0+20
SCALE: HOR 1"=10'
VER 1"=10'

10' 0' 10' 20'
GRAPHIC SCALE: 1"=10'

NOTES

1. EXCAVATE LEAD CONTAMINATED SOIL AND OVERBURDEN AS UNCLASSIFIED IMPACTED MATERIAL IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205 AND CONSTRUCTION DRAWINGS.
2. GRADING ON PLAN VIEW NOT SHOWN FOR CLARITY. SEE CROSS-SECTIONS FOR DETAILS.
3. LEAD CONTAMINATED SOIL SHALL BE LOADED, HAULED AND PLACED IN THE DESIGNATED LEAD CONTAMINATED SOIL CONTAINER TRANSFER AREA AS SPECIFIED IN TECHNICAL SPECIFICATION SECTION 02205.
4. FOR BENCHMARK INFORMATION SEE SHEET G0003.

LEGEND:

EXISTING GROUND LINE

EXCAVATION GRADE LINE

LEAD CONTAMINATED SOIL TO BE EXCAVATED

LEAD CONTAMINATED SOIL AREA (LA)		
POINT	NORTHING	EASTING
1	477490	1347950
2	477499	1347918
3	477464	1347908
4	477455	1347940

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00349	BENCHMARKS AND BASELINE LOCATION PLAN	G0003
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
F	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
E	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
D	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
C	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96
B	ISSUED FOR 30% EPA DESIGN REVIEW		N/A	05/24/96
A	ISSUED FOR 30% DESIGN REVIEW		N/A	03/28/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
EXCAVATION GRADING PLAN
LEAD CONTAMINATED SOIL

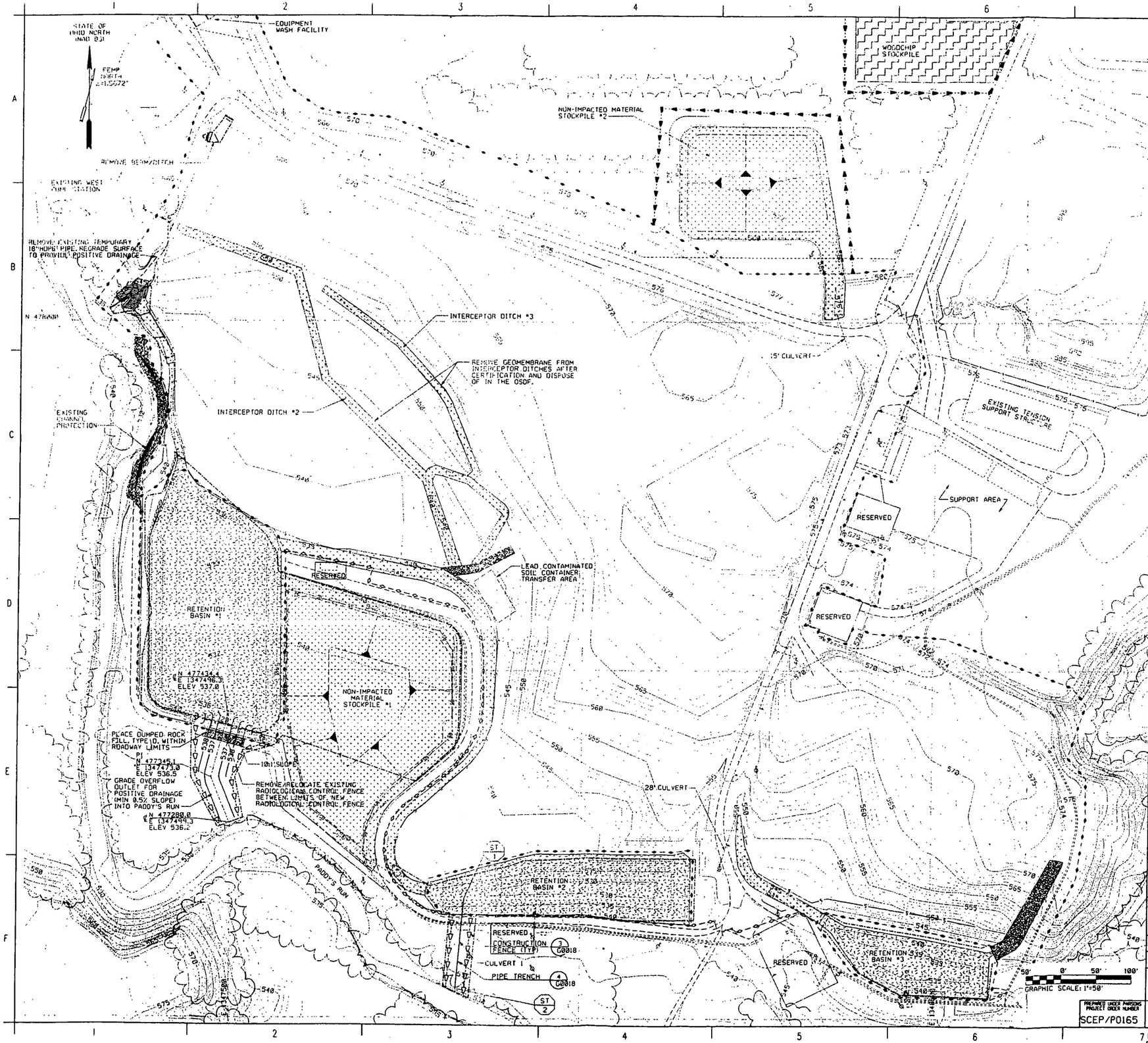
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.REED	11/15/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=10'	

SUBMITTED FOR APPROVAL — A-E DATE
FERNCO CRJ APPROVAL — N/A — DATE
20402

DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00285	G0008	F

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



NOTES

1. REMOVE GEOMEMBRANE AND/OR DUMPED ROCK FILL PRIOR TO REMOVAL OF DITCHES. DITCHES SHALL BE REMOVED AFTER CERTIFICATION OF UPGRADIENT AREAS.
2. INSTALL APPROXIMATELY 5500 LF OF ROPE FENCING AS DIRECTED BY THE CONSTRUCTION MANAGER IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02205.

CULVERT SCHEDULE (ST)

CULVERT NO.	POINT	NORTHING	EASTING	INVERT ELEV	DIA.	PIPE MATERIAL
1	1	477173	1347837	531.0	3-15'	CMP
	2	477042	1347825	530.4		

CULVERT NOTES:
1. FOR PIPE AND COUPLING REQUIREMENTS, SEE SHEET G0018.
2. FOR PIPE TRENCHING DETAIL, SEE SHEET G0018.

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00398	EXISTING CONDITIONS AND MONITORING WELL IMPROVEMENTS PLAN	G0004
92X-5900-G-00287	BASELINE A CROSS SECTIONS - SHEET 1 OF 5	G0010
92X-5900-G-00288	BASELINE A CROSS SECTIONS - SHEET 2 OF 5	G0011
92X-5900-G-00289	BASELINE A CROSS SECTIONS - SHEET 3 OF 5	G0012
92X-5900-G-00298	BASELINE A CROSS SECTIONS - SHEET 4 OF 5	G0013
92X-5900-G-00299	BASELINE A CROSS SECTIONS - SHEET 5 OF 5	G0014
92X-5900-G-00300	BASELINE B CROSS SECTIONS - SHEET 1 OF 1	G0015
92X-5900-G-00301	BASELINE C CROSS SECTIONS - SHEET 1 OF 2	G0016
92X-5900-G-00302	BASELINE C CROSS SECTIONS - SHEET 2 OF 2	G0017
92X-5900-G-00403	DETAILS - SHEET 1 OF 1	G0018

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNFAC	DATE
E	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
D	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
C	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	3/13/97
B	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96
A	ISSUED FOR 30% EPA DESIGN REVIEW		N/A	05/24/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
INTERIM RESTORATION PLAN

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D. REED	02/28/96			J. FERN	2/12/97

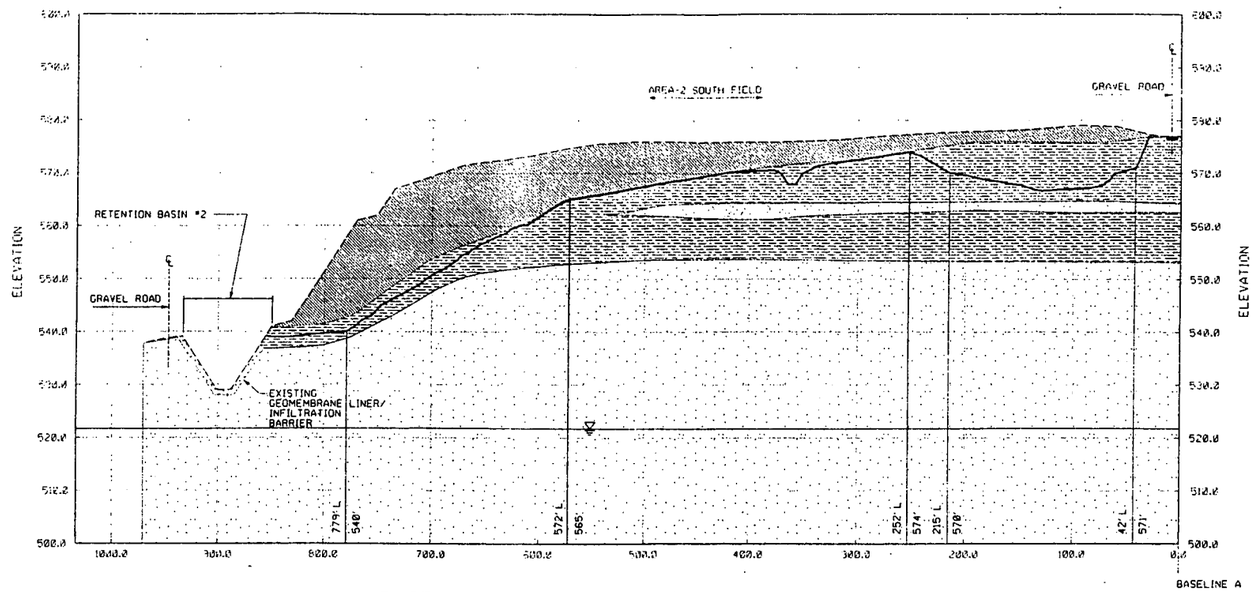
PLANT/BLDG NO.	FLOOR	SCALE	CLASS
		1"=50'	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	N/A DATE	20402

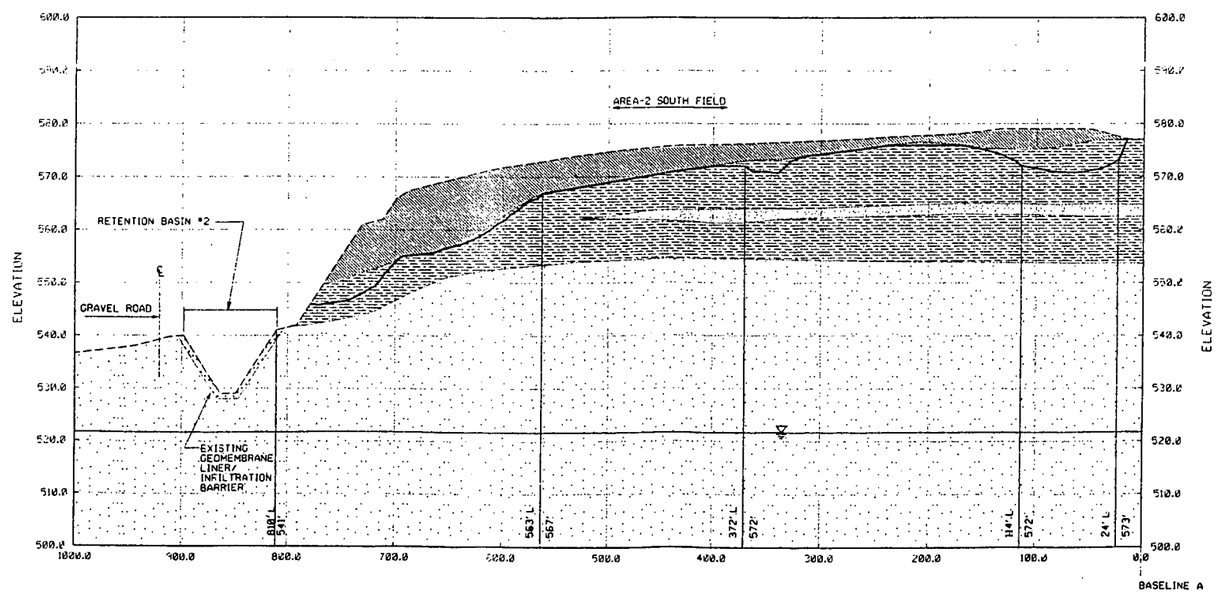
PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00333	G0009	E

106 1

12



BASELINE A, STATION 12+00 REF G0007
SCALE: HOR 1"=50' VER 1"=10'



BASELINE A, STATION 11+00 REF G0007
SCALE: HOR 1"=50' VER 1"=10'

GRAPHIC SCALE: 1"=10' VERTICAL

GRAPHIC SCALE: 1"=50' HORIZONTAL

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007
92X-5900-G-00371	ENLARGEMENT RETENTION BASIN #2 SITE PREPARATION PACKAGE	N/A

PRELIMINARY
NOT FOR CONSTRUCTION

F	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
E	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
D	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
C	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96
B	ISSUED FOR 30% EPA DESIGN REVIEW		N/A	05/24/96
A	ISSUED FOR 30% DESIGN REVIEW		N/A	03/28/96
REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
		INITIALS AND DATE		

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

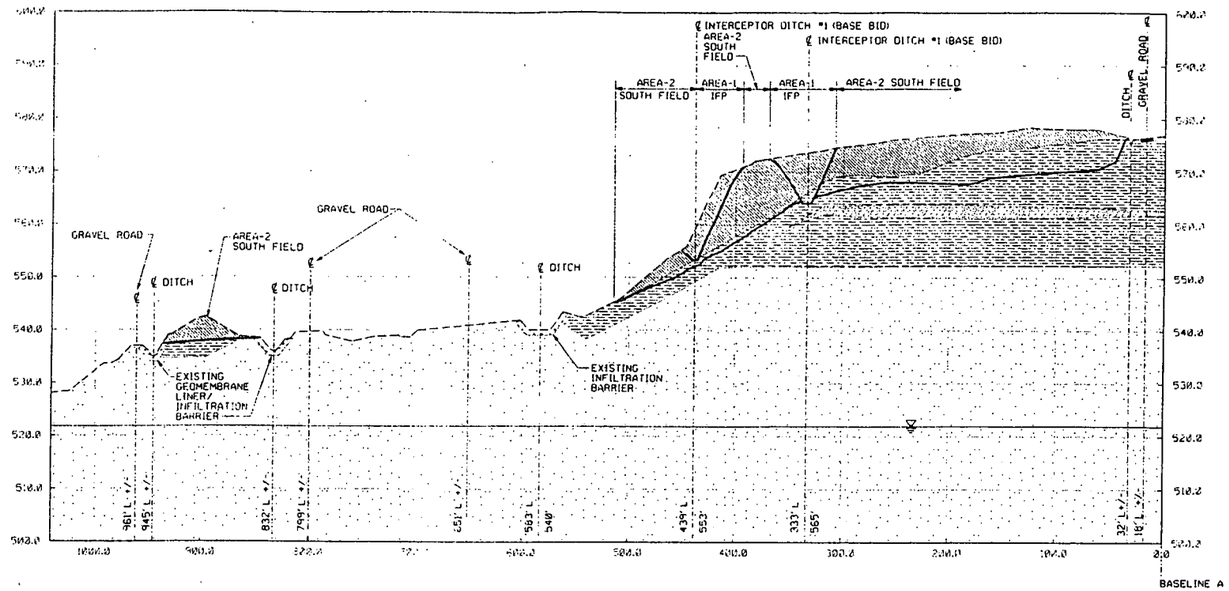
DRAWING TITLE
CIVIL
BASELINE A CROSS SECTIONS
SHEET 1 OF 5

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.A. FOX	03/08/96			J. FERN	2/12/97

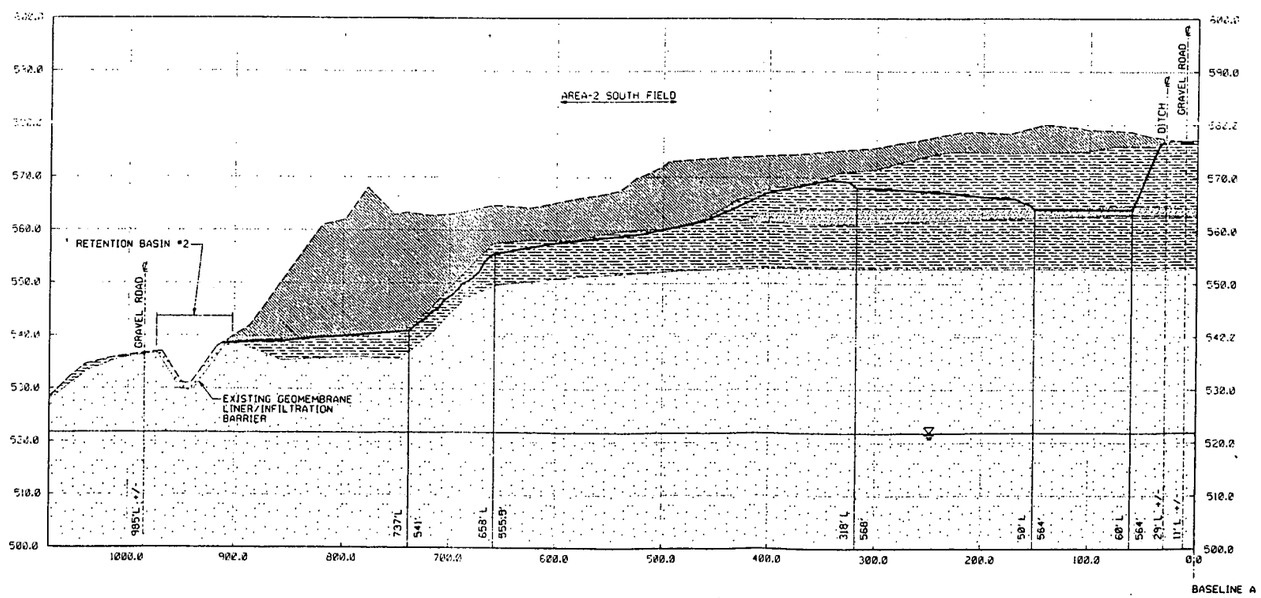
PLANT/BLDG NO.	FLOOR	SCALE	CLASS
		AS SHOWN	

SUBMITTED FOR APPROVAL	FERNCO CSU APPROVAL	FERNCO PROJECT NO.
A-E DATE	DATE	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00287	G0010	F



BASELINE A, STATION 14+00 REF
SCALE: HOR 1"=50' C0005
VER 1"=10' C0007



BASELINE A, STATION 13+00 REF
SCALE: HOR 1"=50' C0005
VER 1"=10' C0007

GRAPHIC SCALE: 1"=10' VERTICAL

GRAPHIC SCALE: 1"=50' HORIZONTAL

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00286	EXCAVATION GRADING PLAN - 1	G0005
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007
92X-5900-G-00371	ENLARGEMENT RETENTION BASIN #2 SITE PREPARATION PACKAGE	N/A

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
F	ISSUED FOR 95% EPA DESIGN REVIEW	DCG	N/A	10/16/97
E	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
D	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
C	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96
B	ISSUED FOR 30% DOE REVIEW		N/A	05/24/96
A	ISSUED FOR 30% DESIGN REVIEW		N/A	03/28/96

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

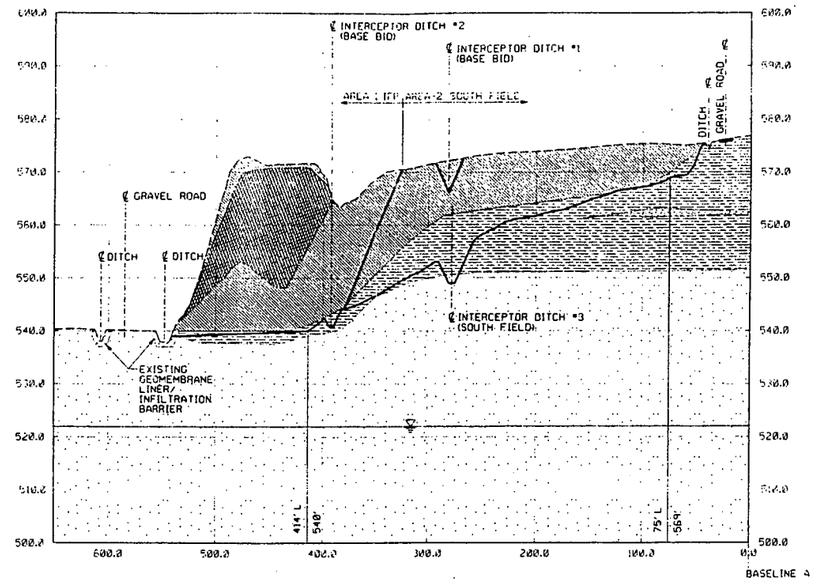
THIS DRAWING PREPARED BY
PARSONS
THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

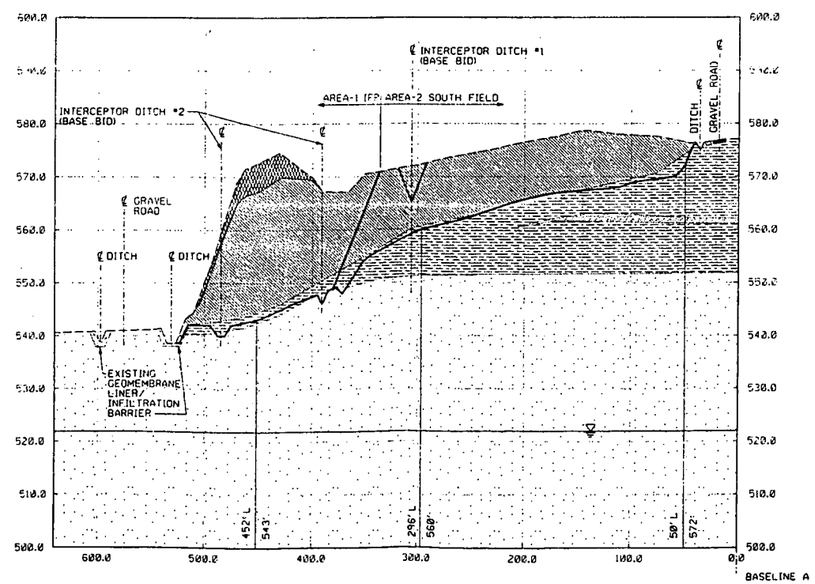
DRAWING TITLE
CIVIL
BASELINE A CROSS SECTIONS
SHEET 2 OF 5

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
O.R. FOX	03/18/96			J. FERN	2/12/97
PLANT/BLDG NO.		FLOOR		SCALE: AS NOTED	CLASS
SUBMITTED FOR APPROVAL		FERMCO CRU APPROVAL: N/A		FERMCO PROJECT NO. 20402	
A-E DATE		DATE			

DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
PREPARED UNDER PARSONS PROJECT ORDER NUMBER SCEP/PO165	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00288	G0011	F



BASELINE A, STATION 16+00 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007



BASELINE A, STATION 15+00 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00286	EXCAVATION GRADING PLAN -1	G0005
92X-5900-G-00413	EXCAVATION GRADING PLAN -2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	DGF	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE A CROSS SECTIONS
SHEET 3 OF 5

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.R. FOX	03/08/96			J. FERN	2/12/97

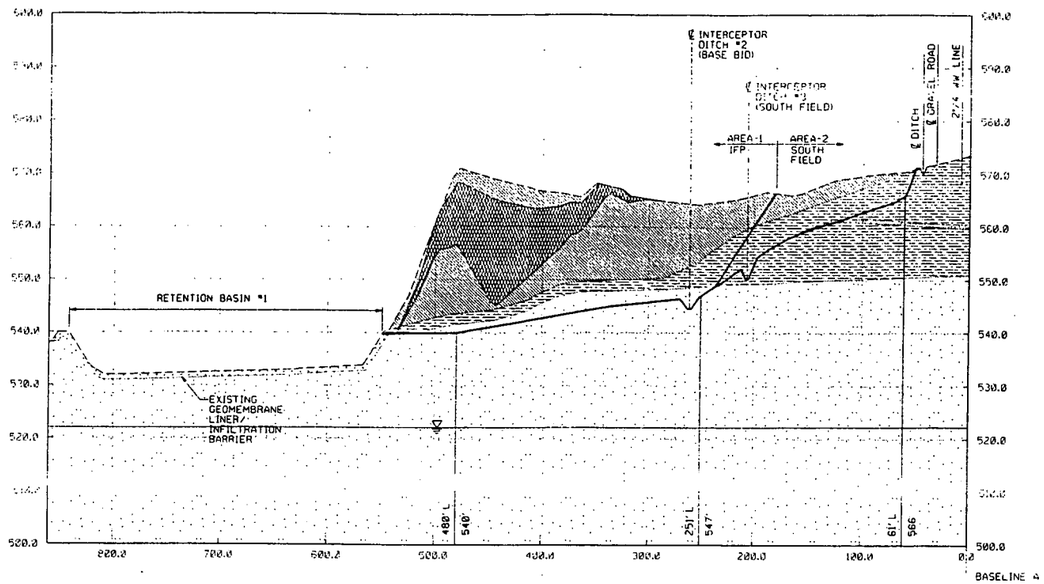
PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		AS SHOWN	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	N/A DATE	20402

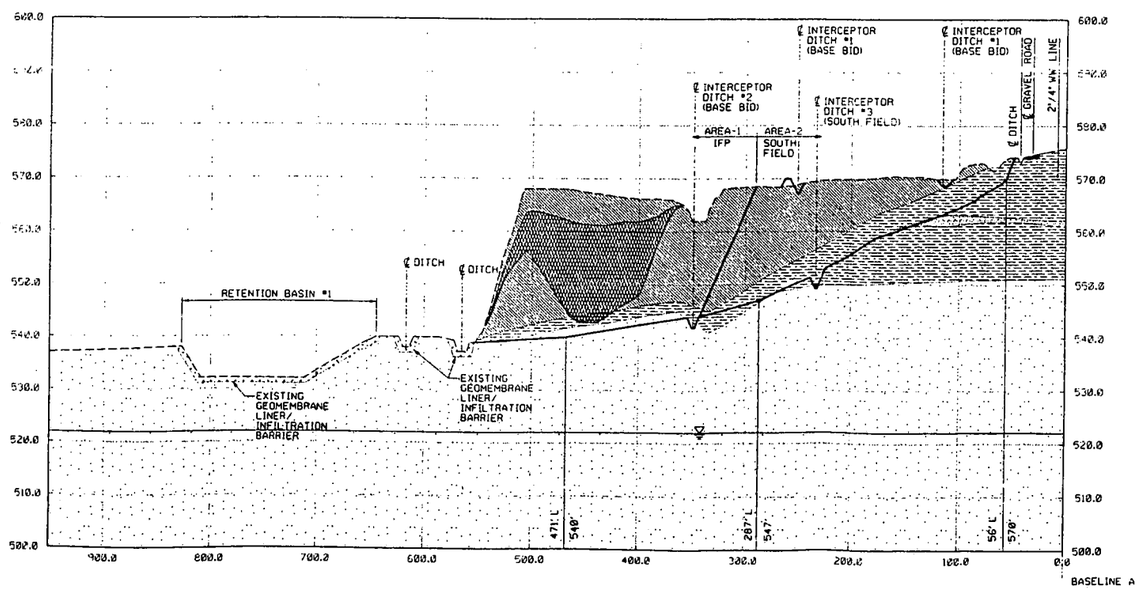
DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO	REV. NO.
	W8S 1.1.1.1.2.3.6 00-90701	92X-5900-G-00289	G0012	D

PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165

GRAPHIC SCALE: 1"=10' VERTICAL
GRAPHIC SCALE: 1"=50' HORIZONTAL



BASELINE A, STATION 18+00 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007



BASELINE A, STATION 17+00 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007

GRAPHIC SCALE: 1"=10' VERTICAL

GRAPHIC SCALE: 1"=50' HORIZONTAL

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00286	EXCAVATION GRADING PLAN - 1	G0005
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FOF INTERNAL REVIEW	JMJ	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

DETAILS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE A CROSS SECTIONS
SHEET 4 OF 5

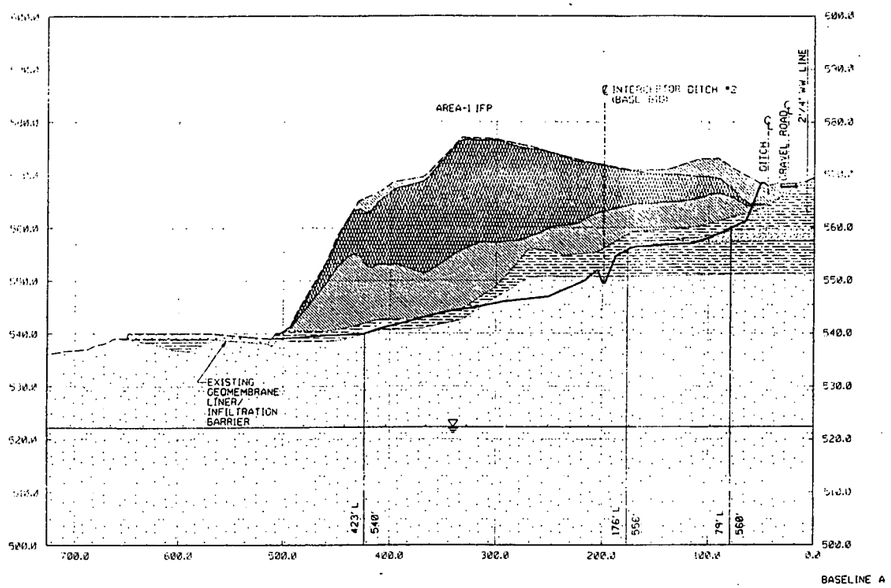
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.R. FOX	01/08/96			J. FERN	2/12/97

PLANT/BLDG. NO	FLOOR	SCALE	CLASS
		AS SHOWN	

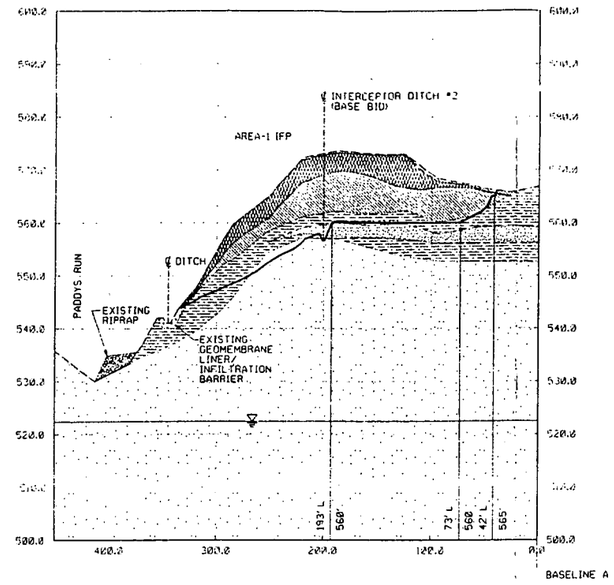
SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
A-E DATE	DATE	20402

DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00298	G0013	D

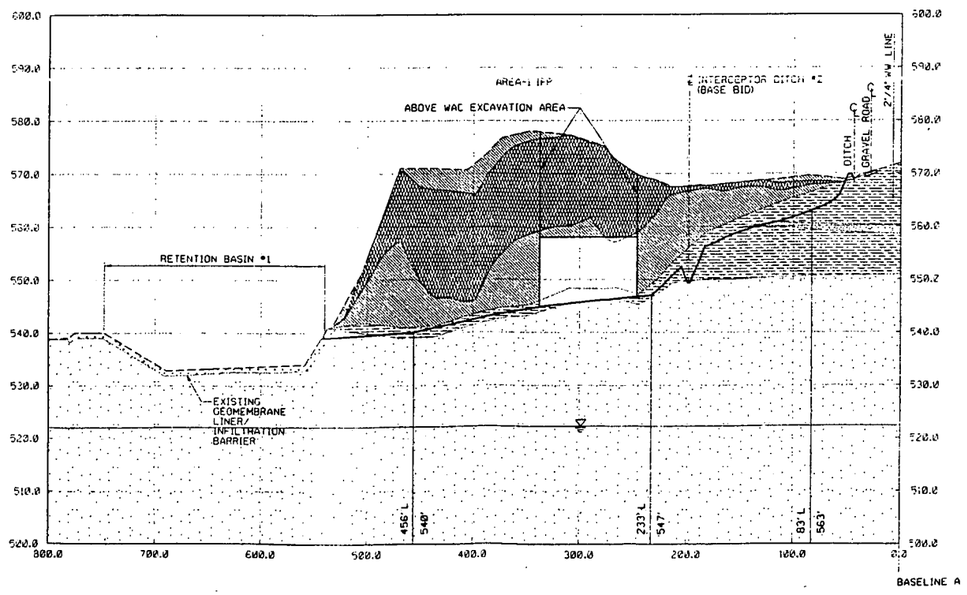
PREPARED UNDER PARSONS PROJECT ORDER NUMBER
SCEP/P0165



BASELINE A, STATION 19+00 REF G0005
SCALE: HOR 1"=50' VER 1"=10'



BASELINE A, STATION 20+00 REF G0005
SCALE: HOR 1"=50' VER 1"=10'



BASELINE A, STATION 18+50 REF G0005
SCALE: HOR 1"=50' VER 1"=10'

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-C-00286	EXCAVATION GRADING PLAN - 1	G0005

PRELIMINARY
NOT FOR CONSTRUCTION

A-E NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/26/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE A CROSS SECTIONS
SHEET 5 OF 5

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.R. FOX	03/08/96			J. FERN	2/12/97

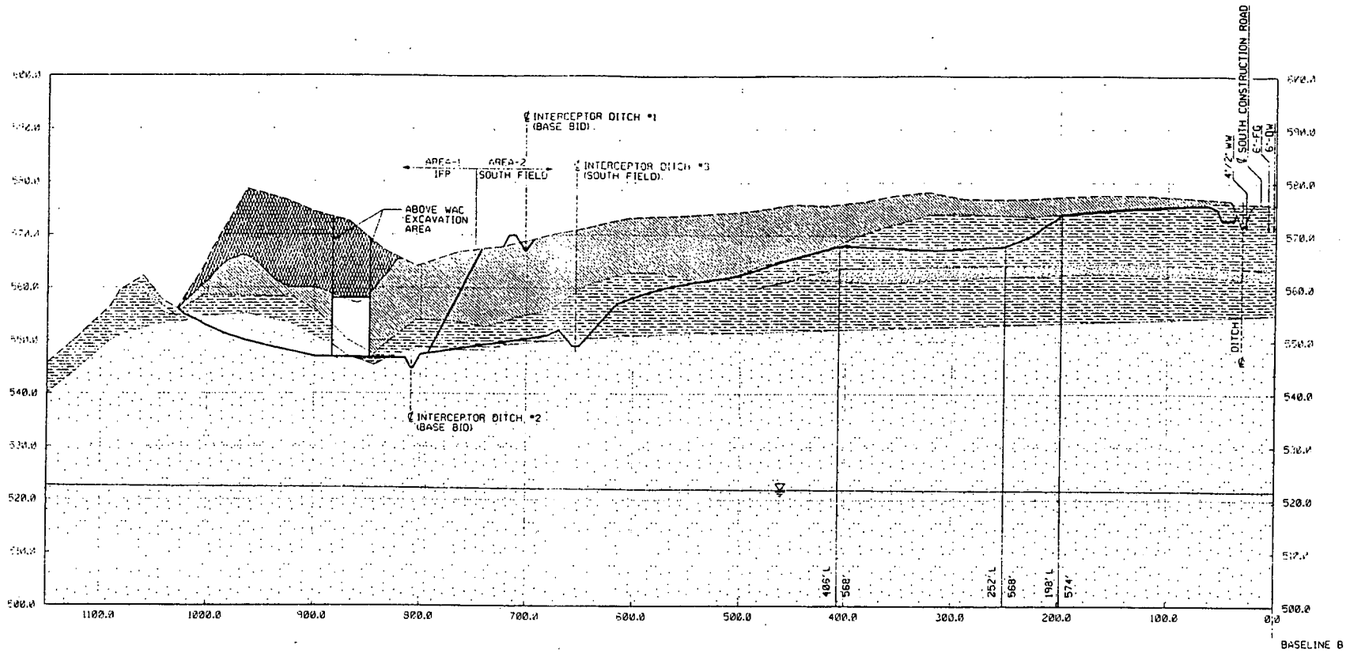
PLANT/BLDG. NO. | FLOOR | SCALE: AS SHOWN | CLASS

SUBMITTED FOR APPROVAL | FERNCO CRU APPROVAL: N/A | FERNCO PROJECT NO.: 20402

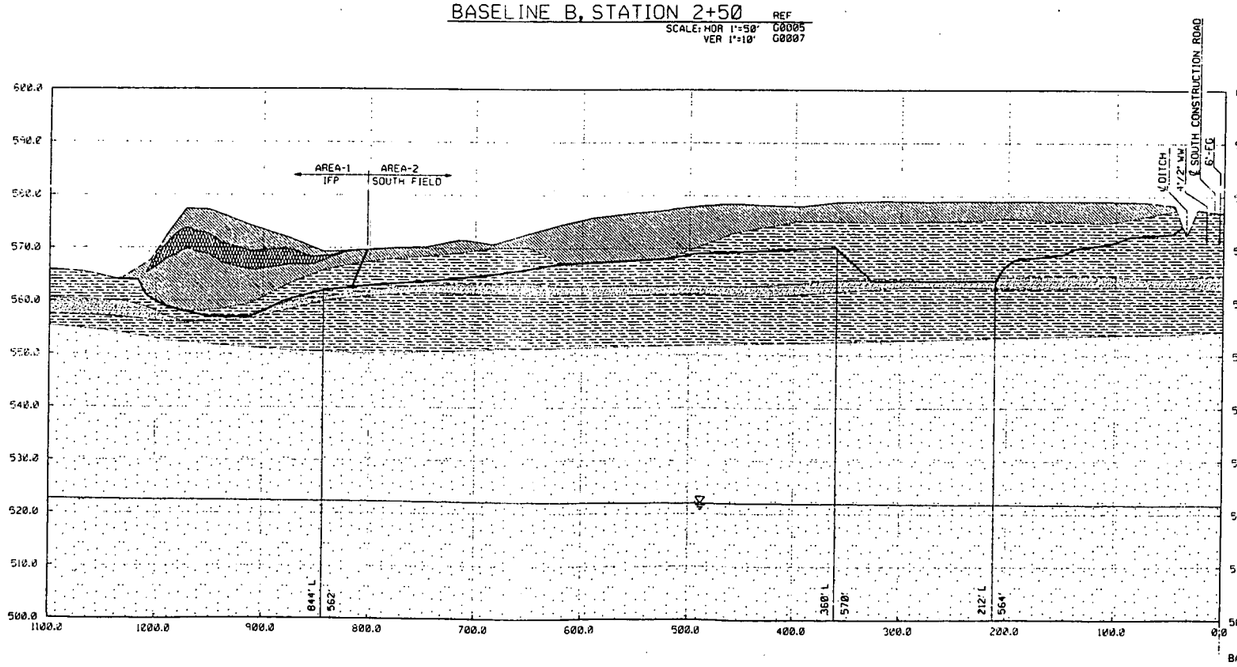
GRAPHIC SCALE: 1"=10' VERTICAL (10' 0' 10' 20')
GRAPHIC SCALE: 1"=50' HORIZONTAL (50' 0' 50' 100')

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	A-E DOE PROJECT NO.	DATE	FEMP PROJECT NO.	DRAWING INDEX CODE NO.	DATE	SHEET NO.	REV. NO.
SCEP/P0165			WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00299		G0014	D

17



BASELINE B, STATION 2+50 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007



BASELINE B, STATION 1+00 REF
SCALE: HOR 1"=50' G0005
VER 1"=10' G0007

GRAPHIC SCALE: 1"=10' VERTICAL

GRAPHIC SCALE: 1"=50' HORIZONTAL

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00286	EXCAVATION GRADING PLAN - 1	G0005
92X-5900-G-00369	EXCAVATION GRADING PLAN ABOVE WAC MATERIAL	G0006
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A/E	CHKD	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	8/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE B CROSS SECTIONS
SHEET 1 OF 1

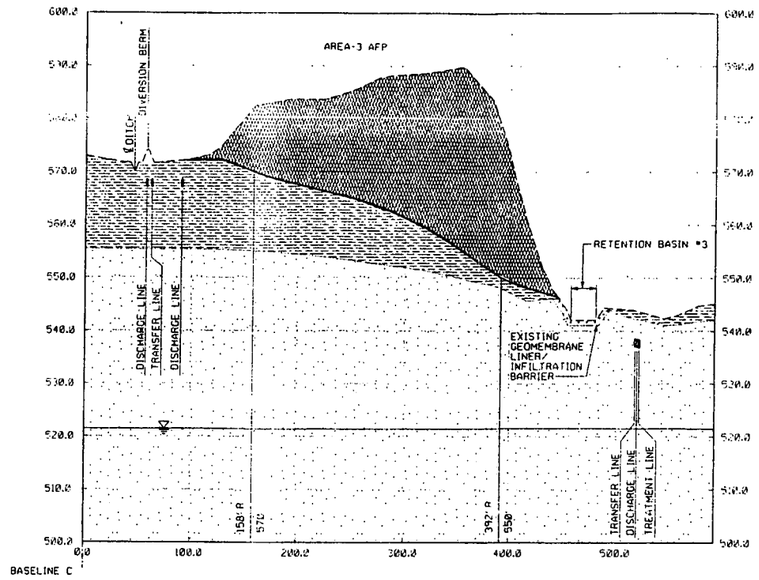
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.A. FOX	03/08/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		AS SHOWN	

SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
A/E DATE	DATE	20402

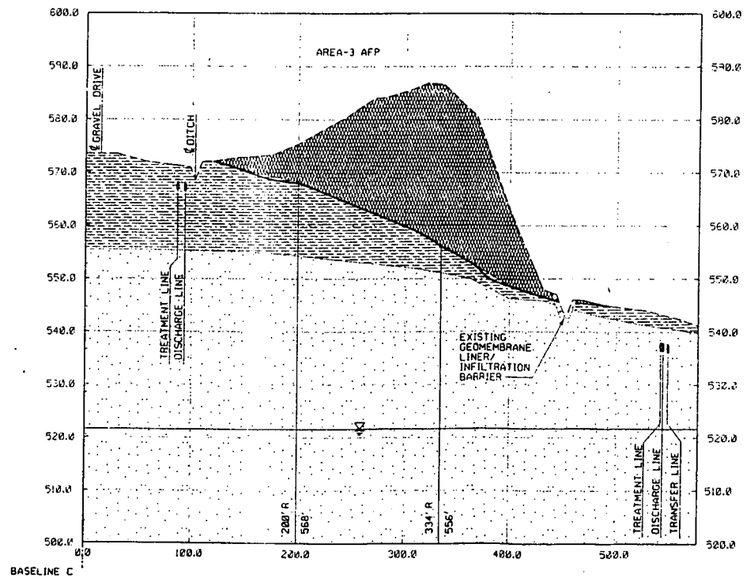
DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
	WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00300	G0015	D

PREPARED UNDER A PARSONS PROJECT ORDER NUMBER
SCEP/PO165



BASELINE C, STATION 32+00 REF G0007

SCALE: HOR 1"=50' VER 1"=10'



BASELINE C, STATION 31+00 REF G0007

SCALE: HOR 1"=50' VER 1"=10'

GRAPHIC SCALE: 1"=10' VERTICAL (10' 0' 10' 20')

GRAPHIC SCALE: 1"=50' HORIZONTAL (50' 0' 50' 100')

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-G-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	4/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
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THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE C CROSS SECTIONS
SHEET 1 OF 2

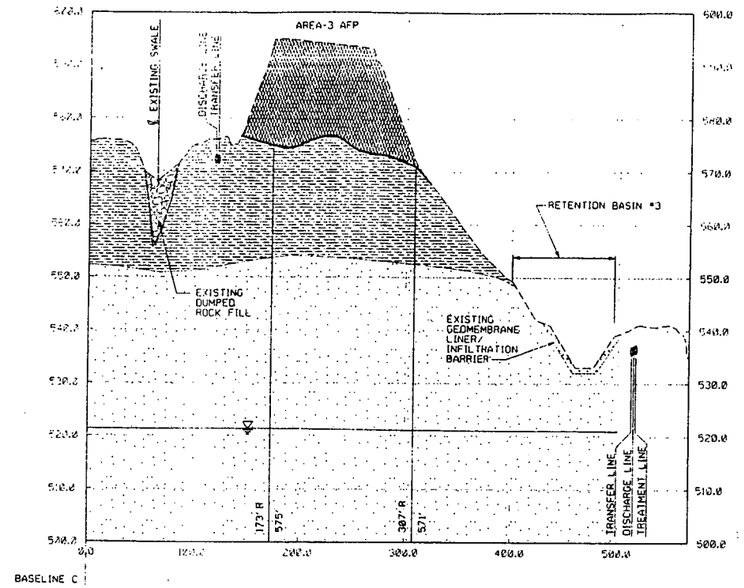
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
O.R. FOX	03/08/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		AS SHOWN	

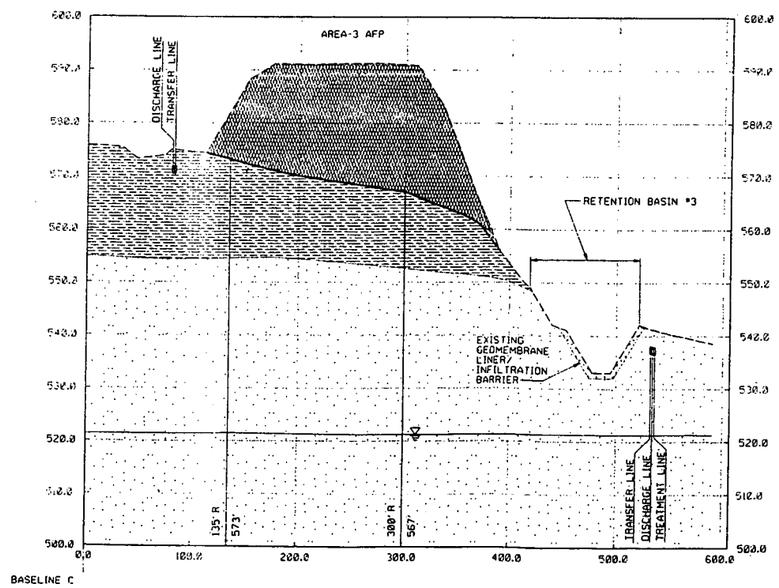
SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	N/A DATE	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00301	G0016	D

19



BASELINE C, STATION 34+00 REF G0007
SCALE: HOR 1"=50' VER 1"=10'



BASELINE C, STATION 33+00 REF G0007
SCALE: HOR 1"=50' VER 1"=10'

GRAPHIC SCALE: 1"=10' VERTICAL

GRAPHIC SCALE: 1"=50' HORIZONTAL

LEGEND:

- EXISTING GROUND
- EXCAVATION GRADE LINE
- WATER TABLE (AVERAGE)
- SAND/GRAVEL
- GLACIAL OVERBURDEN/TILL
- GREAT MIAMI AQUIFER
- FILL/DEBRIS
- ASH
- ABOVE WAC MATERIAL
- EXISTING GEOMEMBRANE LINER/ INFILTRATION BARRIER

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00413	EXCAVATION GRADING PLAN - 2	G0007

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
D	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/16/97
C	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
B	ISSUED FOR 90% FDF INTERNAL REVIEW	JMJ	N/A	3/13/97
A	ISSUED FOR 90% DESIGN REVIEW		N/A	12/04/96

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
BASELINE C CROSS SECTIONS
SHEET 2 OF 2

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
D.A. FOX	03/08/96			J. FERN	2/12/97

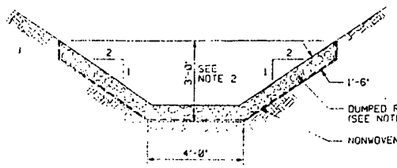
PLWT/BLDG. NO | FLOOR | SCALE: AS SHOWN | CLASS

SUBMITTED FOR APPROVAL | FERMCO CRU APPROVAL: N/A | FERMCO PROJECT NO.: 20402

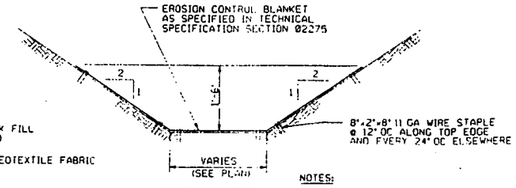
A-E DATE | DOE PROJECT NO. | PLANT PROJECT NO.: WBS 1.1.1.1.2.3.6 00-90701 | DATE | DRAWING INDEX CODE NO.: 92X-5900-G-00302 | SHEET NO.: G0017 | REV. NO.: D

PREPARED UNDER PARSONS PROJECT ORDER NUMBER: SCEP/P0165

20



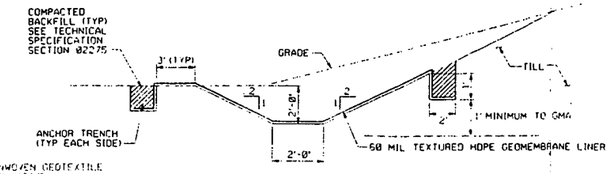
INTERCEPTOR DITCH #1
(DUMPED ROCK FILL TYPICAL DETAIL)



INTERCEPTOR DITCH #1

NOTES:

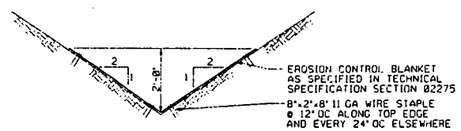
1. FOR DUMPED ROCK FILL (TYPE C) AND FOR NONWOVEN GEOTEXTILE FABRIC, SEE TECHNICAL SPECIFICATION SECTION 02275.
2. EXTEND DUMPED ROCK FILL TO TOP OF SLOPE WHEN DEPTH IS LESS THAN 5'.
3. FOR 60 MIL TEXTURED HDPE GEOMEMBRANE LINER, SEE TECHNICAL SPECIFICATION SECTION 02275.
4. FIELD SEAMING SHALL BE BY THE DUAL HOT WEDGE METHOD.



INTERCEPTOR DITCHES #2 AND #3

TYPICAL FLAT BOTTOM (FB) DITCH DETAIL

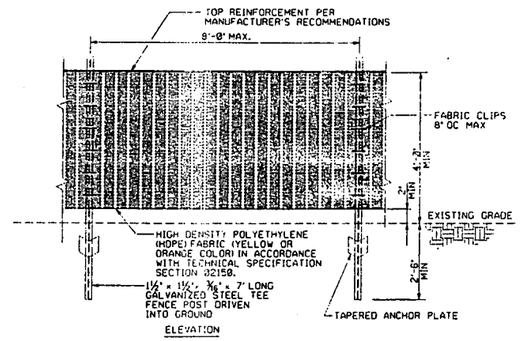
NTS — 1 / G0018 — REF G0005, G0007

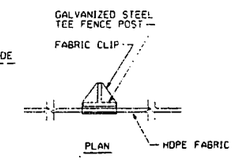


INTERCEPTOR DITCH #1

TYPICAL V-DITCH DETAIL

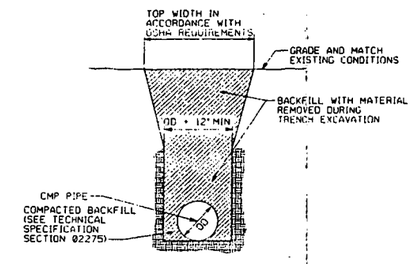
NTS — 2 / G0018 — REF G0005





CONSTRUCTION/RADIOLOGICAL CONTROL FENCE DETAIL

NTS — 3 / G0018 — REF G0005, G0009

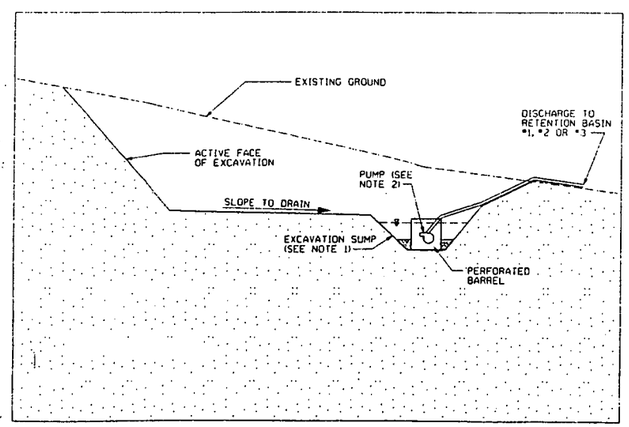


NOTES:

1. PIPE AND FITTINGS SHALL BE GALVANIZED CORRUGATED METAL, 14 GAGE (0.079 INCHES), IN ACCORDANCE WITH AASHTO M 36 AND ODOT ITEM 707.
2. COUPLING BANDS SHALL BE GALVANIZED CORRUGATED METAL, 14 GAGE PIPE SECTIONS WITH REROLLED ENDS AND SHALL BE JOINED WITH ANNULAR CORRUGATED CONNECTING BANDS. HELICALLY CORRUGATED PIPE ENDS SHALL BE JOINED USING HELICALLY CORRUGATED CONNECTING BANDS.

PIPE TRENCH DETAIL

NTS — 4 / G0018 — REF G0009

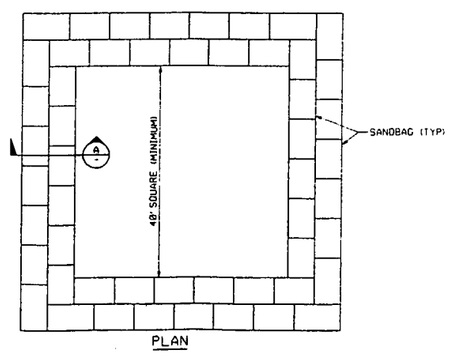


NOTES:

1. THE NUMBER AND SIZE OF EXCAVATION SUMPS REQUIRED, INCLUDING SIZE AND TYPE OF PUMPS, PERFORATED BARRELS, DISCHARGE HOSE, AND MATERIAL FOR PUMPS AND BARRELS SHALL BE DETERMINED BY THE CONTRACTOR.
2. SEE SHEET N0002, PIPING AND INSTRUMENTATION DIAGRAM, FOR ADDITIONAL PUMP AND DISCHARGE PIPING INFORMATION.

TYPICAL EXCAVATION SUMP

NTS — G0011 THRU G0018



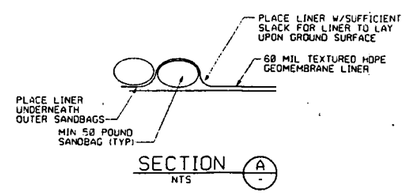
PLAN

NOTE:

WATER ACCUMULATED WITHIN TRANSFER AREA SHALL BE PUMPED TO NEAREST RETENTION BASIN.

SPECIAL MATERIAL TRANSFER AREA DETAIL

NTS — 5 / G0018 — REF G0005



SECTION A

NTS

NOTES

REF DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00314	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003
92X-5900-G-00333	INTERIM RESTORATION PLAN	G0009
92X-5900-G-00287	BASELINE A CROSS SECTIONS - SHEET 1 OF 5	G0010
92X-5900-G-00288	BASELINE A CROSS SECTIONS - SHEET 2 OF 5	G0011
92X-5900-G-00289	BASELINE A CROSS SECTIONS - SHEET 3 OF 5	G0012
92X-5900-G-00298	BASELINE A CROSS SECTIONS - SHEET 4 OF 5	G0013
92X-5900-G-00299	BASELINE A CROSS SECTIONS - SHEET 5 OF 5	G0014
92X-5900-G-00300	BASELINE B CROSS SECTIONS - SHEET 1 OF 1	G0015
92X-5900-G-00301	BASELINE C CROSS SECTIONS - SHEET 1 OF 2	G0016
92X-5900-G-00302	BASELINE C CROSS SECTIONS - SHEET 2 OF 2	G0017

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	INITIALS AND DATE: A-E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	DGS	N/A	10/15/97
B	ISSUED FOR 95% ODE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERAL REVIEW	JMJ	N/A	3/13/97

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

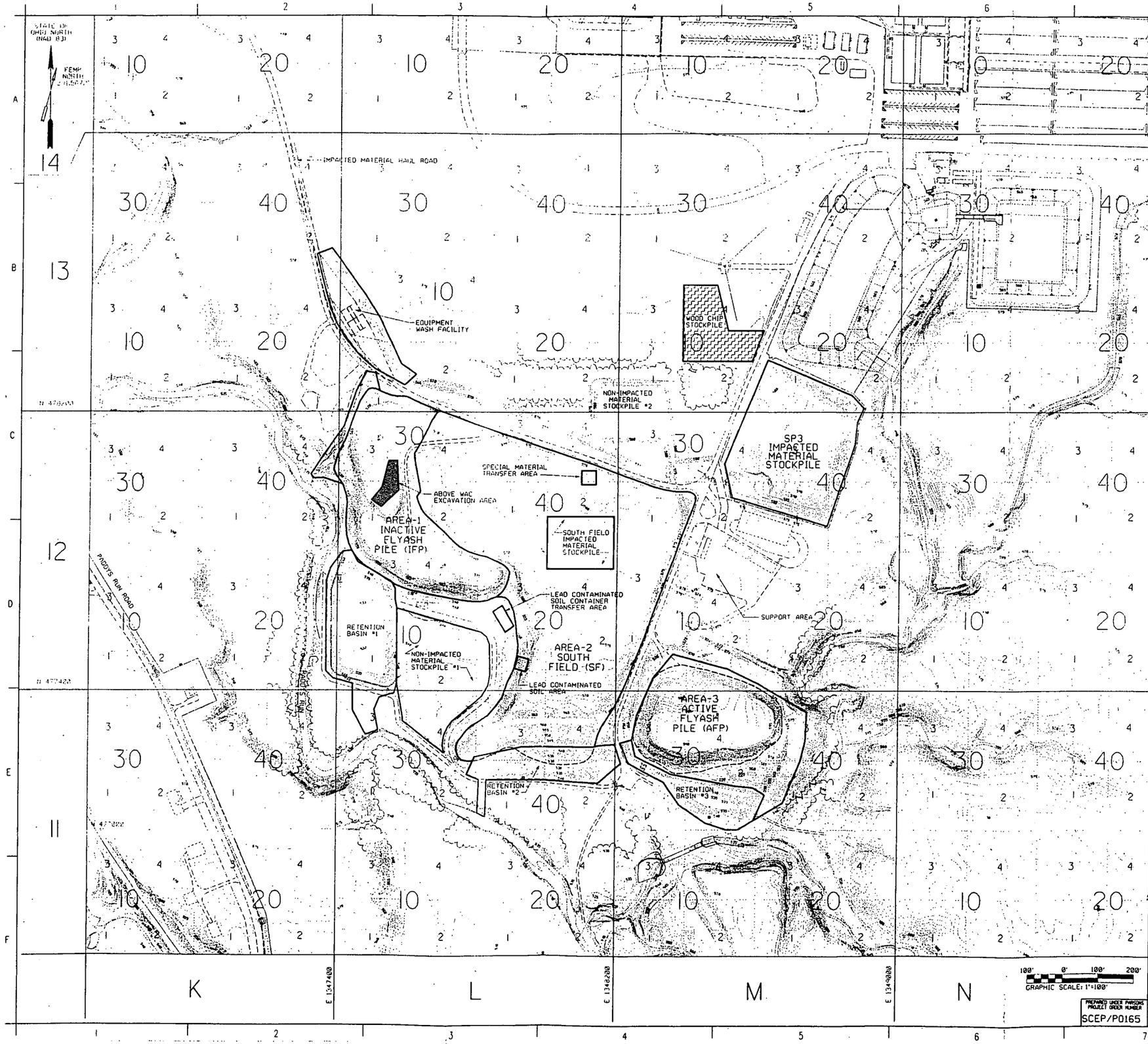
DRAWING TITLE
CIVIL DETAILS
SHEET 1 OF 1

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
O.REED	12/17/96			J. FERN	2/12/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		NONE	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
A-E DATE	N/A DATE	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO	FEMP PROJECT NO	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00403	G0018	C



NOTES

1. PERFORM MATERIAL DOCUMENTATION IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 02212.
2. TRACK USING MATERIAL TRACKING LOCATION (MTL) SHOWN ON THIS DRAWING.
3. THE FOLLOWING TABLE DESIGNATES THE SOURCE AND DESTINATION OF THE EXISTING STOCKPILES:

DESTINATION	SOURCE
↑ TO OSDF	SP3 IMPACTED MATERIAL STOCKPILE
	OSDF EAST IMPACTED MATERIAL CONSTRUCTION DEBRIS STOCKPILE
↑ TO OU-1 STOCKPILE AREA	OSDF WEST IMPACTED MATERIAL CONSTRUCTION DEBRIS STOCKPILE
	OSDF EAST IMPACTED MATERIAL STOCKPILE
	OSDF WEST IMPACTED MATERIAL STOCKPILE

LEGEND

GRID BOUNDARY

MATERIAL TRACKING LOCATION (MTL) BOUNDARY

REF DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-X-00395	LEGEND AND GENERAL NOTES	X0003

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	PERFORMED	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/15/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	3/13/97

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
CIVIL
MATERIAL DOCUMENTATION PLAN

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
T. BROWN	02/11/97			J. FERN	2/26/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		1"=100'	

SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
	N/A	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	A-E DOE PROJECT NO.	TEMP PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-G-00412	G0019	C

22

PIPING VALVES

CONFIGURATIONS FOR VALVE TYPE

ANGLE STRAIGHT 3-WAY 4-WAY

VALVE TYPES (STRAIGHT CONFIG.)

- AIR RELEASE VALVE
- AIR AND VACUUM VALVE
- BACKPRESSURE REGULATOR
- BACKFLOW PREVENTER
- BALL
- BLOWDOWN
- BUTTERFLY/DAMPER
- CHECK, SWING TYPE
- CHECK, WAFER TYPE
- DELUGE
- DIAPHRAGM
- DIFFERENTIAL PRESSURE REGULATOR
- FLOAT
- FOOT
- GATE
- GLOBE
- HOSE
- KNIFE
- NEEDLE
- PINCH
- PRESSURE REGULATOR
- PLUG
- SAFETY RELIEF
- SLIDING GATE
- STOP CHECK
- VACUUM

PIPING SEGMENT BREAKS

- CONSTRUCTION REQUIREMENTS
- INSULATION REQUIREMENTS
- PIPING MATERIAL REQUIREMENTS
- UNDERGROUND ROUTING (SHADED AREA INDICATES DIRECTION OF UNDERGROUND)

PIPING FITTINGS

- BASKET STRAINER - SINGLE
- BASKET STRAINER - DUPLEX
- CAP
- CONCENTRIC REDUCER
- CONE STRAINER
- ECCENTRIC REDUCER
- EXPANSION FLANGE
- EXPANSION JOINT
- FILTER
- FLANGE
- FLEXIBLE HOSE
- HOSE CONNECTION
- HOSE QUICK COUPLING
- MECHANICAL COUPLING
- ORIFICE
- ORIFICE UNION
- PLUG
- REDUCING FLANGE
- STEAM TRAP
- SUMP STRAINER
- TEMPORARY STRAINER
- Y-STRAINER

PIPING SYMBOLOGY

- PRIMARY PIPING
- SECONDARY PIPING
- EXISTING PIPING
- FLEXIBLE HOSE
- FUTURE PIPING
- TIE-IN POINT

EQUIPMENT SYMBOLS

- AGITATOR (MIXER)
- CENTRIFUGAL BLOWER
- (AREA NAME) DEFINED BOUNDRY
- HORIZONTAL CENTRIFUGAL PUMP
- (SYSTEM NAME) PACKAGED SYSTEM BOUNDRY
- SUBMERSIBLE TURBINE PUMP
- SUMP PUMP WITH MOTOR

PIPING LINE NUMBER FORMAT

MEDIUM CODE
NOMINAL PIPE SIZE
NOMINAL CONTAINMENT PIPE SIZE (WHERE SHOWN)
MATERIAL CODE
LINE NUMBER
INSULATION CODE

GW-6101*-B4-2930-ET

MEDIUM FLOW DIRECTION

ABBREVIATIONS

AC	AIR TO CLOSE
AG	AGITATOR
AO	AIR TO OPEN
ARV	AIR RELEASE VALVE
AVV	AIR AND VACUUM VALVE
AWWT	ADVANCED WASTEWATER TREATMENT
BLW	BLOWER
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET/MINUTE
CO	CLEAN OUT
CU FT	CUBIC FEET
ECC	ECCENTRIC
EF	EXHAUST FAN
FC	FAIL CLOSED
FO	FAIL OPEN
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GRAVITY VENTILATOR
HDPE	HIGH DENSITY POLYETHYLENE
IA	INSTRUMENT AIR
KW	KILOWATT
LB/HR	POUNDS PER HOUR
MATL	MATERIAL
MED	MEDIUM
MS	MIST ELIMINATOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PIV	POST INDICATOR VALVE
PMP	PUMP
RED	REDUCER
RH	RELATIVE HUMIDITY
SCFM	STANDARD CUBIC FEET/MINUTE
SFES	SOUTH FIELD EXTRACTION SYSTEM
SWRB	STORMWATER RETENTION BASIN
TBD	TO BE DETERMINED
TF	TOP FLAT
TNK	TANK
TYP	TYPICAL
UH	UNIT HEATER
1	SOLENOID VALVE COMMON PORT
2	SOLENOID VALVE NORM. OPEN PORT
3	SOLENOID VALVE NORM. CLOSED PORT
ID	INJECTION DEMONSTRATION
SPO	SOUTH PLUME OPTIMIZATION

PIPING SPECIFICATIONS

FLOWING MEDIUM	MED. CODE	MATL. CODE
BACK WASH	BW	T
BLOWER AIR	BA	A
CHILLED WATER	CHS, CHR	A
CHLORINE	CL	B1
CONDENSATE	LC	W, T
CONDENSER WATER	CWS, CWR	A
COOLING WATER	WS, WR	A
DRAIN	DR	A, T
DRINKING WATER	DW	W, B4, C1
FILTRATE EFFLUENT	FT	A
FLOCCULANT	FL	A
FLUSH WATER	FW	T
FORCE MAIN	FM	M
GROUND WATER	GW	A, B, B4, M
INSTRUMENT AIR	IA	T
MELTER OFF-GAS	OG	T
NITRIC ACID	AN	T1
PERCHED GND WATER	PGW	B
PHOSPHORIC ACID	PAPH	T1
PLANT AIR	PA	W
POLISHED WATER	PW	A
PROCESS WATER	TW, TWX1	A, B4
PROCESS WASTEWATER	CE	A
RAW WATER	RW	A
RECYCLE WATER	RC	T, B2
SCRUBBER RECYCLE	RSL	T
SLURRY	SL	T
SODIUM CARBONATE	SC	A
SODIUM HYDROXIDE	NA	T
SODIUM SILICATE	SS	A
STORM WATER	ST	A, A7, B4
SULFURIC ACID	SB	T1
SUMP DISCHARGE	SU	T
THICKENER OVERFLOW	TO	T
VACUUM	V	A
VENTILATION AIR	VE	T, A
WASTE WATER	WW	T, B4

MATL. CODE	DESCRIPTION
A	A53 SEAMLESS CARBON STEEL
A7	CORRUGATED METAL PIPE
B	PVC
B1	PVDF
B2	PVDF, 100PSI
B3	CPVC
B4	HDPE
B5	CORRUGATED HDPE
C1	CLASS 150, COPPER TUBING
L	FIBERGLASS REINFORCED PLASTIC
M	DUCTILE IRON
T	304L, STAINLESS STEEL
T1	316L, STAINLESS STEEL
W	A53, GR. A, GALVANIZED STEEL

INSUL. CODE	DESCRIPTION
ET	ELECTRIC TRACED AND INSULATED
IC	ANTI-CONDENSATION INSULATION
ST	STEAM TRACED AND INSULATED

NOTES

INSTRUMENT ACTUATOR LABELS

- BALL FLOAT
- CAPACITY SENSOR
- DIAPHRAGM
- DISPLACING FLOAT
- DUAL ACTION PISTON
- DUAL SOLENOID
- MANUAL
- MOTOR
- PILOT
- SINGLE ACTION PISTON
- SINGLE SOLENOID
- SINGLE SOLENOID WITH RESET

INSTRUMENT DEVICE TAG TYPES

- IN-LINE TAG WITH LEADER LINE
- LOCAL MOUNTED DEVICE
- FRONT OF PANEL MOUNTED DEVICE
- FRONT OF PANEL MOUNTED DEVICE AUXILLARY LOCATION
- REAR OF PANEL MOUNTED DEVICE
- REAR OF PANEL MOUNTED DEVICE AUXILLARY LOCATION
- SHARED DISPLAY COMPUTER CONTROL AND OPERATOR INTERFACE

EXAMPLE OF TAG CALLOUTS

- INSTRUMENT TAG TYPE
- FCV — LETTERS OF INSTRUMENT IDENT.
- 123A — LOOP NUMBER SUFFIX
- LOOP NUMBER
- SPECIAL DESIGNATION

MISC. INSTRUMENTATION SYMBOLS

- INTERLOCK
- DIAPHRAGM SEAL
- IA — INSTRUMENT AIR SUPPLY

INSTRUMENT IN-LINE DEVICES

- AVERAGING PITOT
- FLOW NOZZLE
- FLUME
- MAGNETIC FLOW METER
- ORIFICE PLATE
- POSITIVE DISPLACEMENT
- PROPELLER
- STRAIGHTING VANE
- SILENCER
- THERMOWELL
- TRAP
- ULTRASONIC FLOW METER
- VARIABLE AREA FLOW METER
- VENTURI
- VORTEX SHEDDING FLOW METER
- WEIR

INSTRUMENT SIGNAL LINES

- CONNECT TO PROCESS
- MECHANICAL LINK
- ELECTRIC BINARY
- PNEUMATIC BINARY
- GUIDED ELECTROMAG OR SONIC
- SOFTWARE/DATA LINK
- CAPILLARY
- ELECTRIC
- PNEUMATIC
- HYDRAULIC
- UNGUIDED ELECTROMAG OR SONIC
- UNDEFINED

INSTRUMENT SPECIAL DESIGNATIONS

DESIGNATION	FUNCTION / ABBREVATION
C	CLOSED
DIF	DIFFERENTIAL
EX	EXISTING INSTRUMENTATION
H	HIGH
HH	HIGH HIGH
HL	HIGH LOW
HOA	HAND-OFF-AUTO
IA	IN-AUTO
I/I	CURRENT TO CURRENT
I/O	INPUT/OUTPUT
I/P	CURRENT TO PNEUMATIC TREANSDUCER
L	LOW
LL	LOW LOW
LOR	LOCAL-OFF-REMOTE
O	OPEN
OC	ON-OFF
OCA	OPEN-CLOSED-AUTO
R	RUNNING
Y	UNDETERMINED COMPUTING RELAY

LETTERS OF INSTRUMENT IDENTIFICATION

LETTER	1ST LETTER	2ND LETTER	3RD OR 4TH LETTER
	MEASURED OR INITIATING VARIABLE	MODIFIER	READ OUT OR PASSIVE FUNCTION
A	ANALYSIS	ALARM	ALARM
B	BURNER FLAME	----	----
C	CAMERA	CONTROLLER	CLOSED
D	DENSITY	DIFFERENTIAL	----
E	VOLTAGE	ELEMENT	ELEMENT
F	FLOW RATE	RATIO (FRACTION)	----
G	GAGING (DIM)	VIEWING DEVICE	GLASS
H	HAND (MANUAL)	----	----
I	CURRENT (ELEC)	INDICATE	INDICATE
J	POWER	SCAN	----
K	TIME	----	----
L	LEVEL	LIGHT	LOW
M	MOIST. OR HUMIDITY	----	----
N	----	----	----
O	OBSERVATION	ORIFICE	OPEN
P	PRESSURE OR VACUUM	----	POINT (TEST)
Q	QUANTITY OR EVENT	TOTALIZER	----
R	RESTRICTIVE	RECORDER	RECORDER
S	SPEED OR FREQUENCY	SAFETY/SWITCH	SWITCH
T	TEMPERATURE	TRANSMITTER	TRANSMITTER
U	USER'S GUIDE	----	MULTIFUNCTION
V	VISCOSITY	----	VENT, VALVE
W	WEIGHT OR FORCE	WELL	----
X	UNCLASSIFIED	---	UNCLASSIFIED
Y	RELAY	RELAY	----
Z	POSITION	----	----

FUNCTION LABELS

SYMBOLS	DESCRIPTION
AVG	AVERAGING
−	BIAS MINUS
+	BIAS PLUS
±	BIAS PLUS/MINUS
d/dt	DERIVATIVE
÷	DIVIDING
∫	INTERGAL
×	MULTIPLYING
K	PROPORTIONAL
x^n	RAISE TO POWER
REV	REVERSE ACTION
$\sqrt{x}$	ROOT EXTRACT
Σ	SUMMING

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002

PRELIMINARY
NOT FOR CONSTRUCTION

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERNCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/8/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	9/26/97
A	ISSUED FOR 90% FDF INTERNAL REVIEW	JMU	N/A	03/13/97

INITIALS AND DATE

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
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
MECHANICAL PROCESS
PIPING AND INSTRUMENTATION DIAGRAM
SYMBOLS AND LEGEND

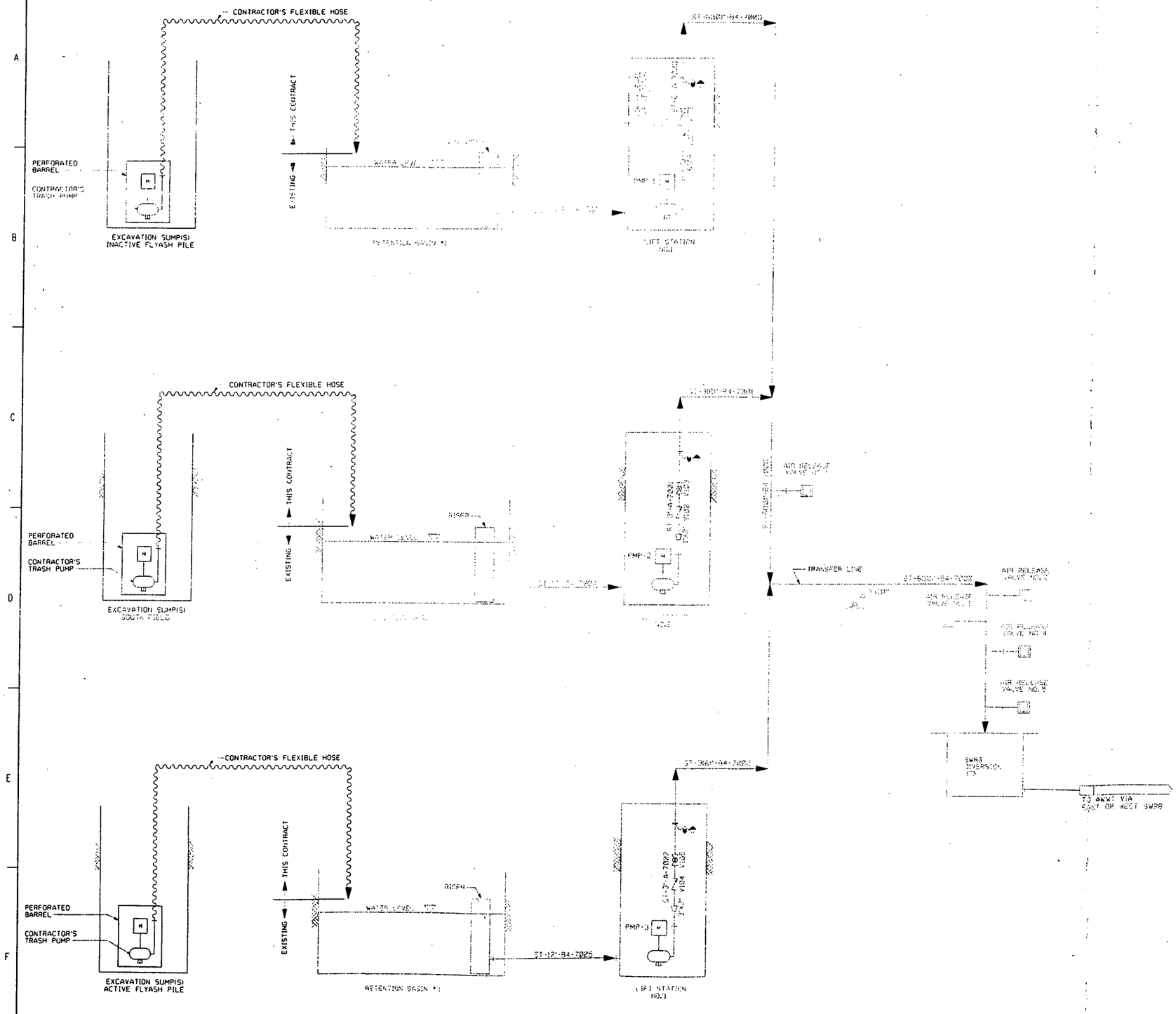
DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
L. N. HAGAMAN	12/17/96		/ /	S. CHANTOUS	02/18/97

PLANT/BLDG. NO.	FLOOR	SCALE	CLASS
		NONE	

SUBMITTED FOR APPROVAL	FERNCO CRU APPROVAL	FERNCO PROJECT NO.
	N/A	20402

A-E DOE PROJECT NO.	DATE	TEMP PROJECT NO.	DATE	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
		W8S 1.1.1.1.2.3.6 00-90701		92X-5900-N-00401	N0001	C

PREPARED UNDER PARSONS PROJECT ORDER NUMBER: SCEP/P0165



NOTES

1. MORE THAN THREE EXCAVATION SUMPS CAN BE OPERATING AT ONCE.

RELATED DWG NO.	DRAWING TITLE	SHEET NO.
92X-5900-X-00394	DRAWING INDEX	X0002
92X-5900-N-00401	SYMBOLS AND LEGEND	N0001

PRELIMINARY
NOT FOR CONSTRUCTION

REV NO	ISSUE OR REVISION PURPOSE - DESCRIPTION	A-E	FERMCO	DATE
C	ISSUED FOR 95% EPA DESIGN REVIEW	CCS	N/A	10/10/97
B	ISSUED FOR 95% DOE DESIGN REVIEW	CCS	N/A	3/26/97
A	ISSUED FOR 90% FOF INTERNAL REVIEW	JMU	N/A	03/13/97

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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THE RALPH M. PARSONS CO. - PARSONS MAIN, INC. - ENGINEERING-SCIENCE, INC.
CINCINNATI, OHIO

PROJECT NAME
AREA 2 PHASE I
SOUTHERN WASTE UNITS REMEDIAL ACTION PROJECT

DRAWING TITLE
MECHANICAL PROCESS
PIPING AND INSTRUMENTATION DIAGRAM
WATER COLLECTION AND TRANSFER

DRAWN BY	DATE	LEAD ENGINEER	DATE	CHECKED BY	DATE
L. N. HAGAMAN	12/17/96		/ /	S. GHANTOUS	02/18/97

PLANT/BLDG. NO	FLOOR	SCALE	CLASS
		NONE	

SUBMITTED FOR APPROVAL	FERMCO CRU APPROVAL	FERMCO PROJECT NO.
A-E DATE	DATE	N/A	20402

PREPARED UNDER PARSONS PROJECT ORDER NUMBER	DOE PROJECT NO.	TAMP PROJECT NO.	DRAWING INDEX CODE NO	SHEET NO.	REV. NO
SCEP/P0165		WBS 1.1.1.1.2.3.6 00-90701	92X-5900-N-00402	N0002	C

24