4986

EXCAVATION PLAN FOR AREA 1, PHASE IV

FERNALD CLOSURE PROJECT
FERNALD, OHIO

AUGUST 2003

U.S. DEPARTMENT OF ENERGY
FERNALD AREA OFFICE

20730-PL-0001
REVISION A
DRAFT

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LIST OF ACRONYMS AND ABBREVIATIONS

D&D	Decontamination and Decommission
DOE	U.S. Department of Energy
FCP	Fernald Closure Project
FRL	Final Remediation Level
NPDES	National Pollutant Discharge Elimination System
OSDF	On-Site Disposal Facility
WAC	Waste Acceptance Criteria

EXCAVATION PLAN FOR AREA 1, PHASE IV

1.0 INTRODUCTION

1.1 Background

The On-Site Disposal Facility (OSDF) is being constructed to contain impacted materials obtained from remediation of the operable units at the Fernald Closure Project (FCP) and is located on the eastern portion of the site. When completed, the OSDF will consist of eight cells being constructed and filled generally from north to south. The major components of each cell include a liner and final cover system, leachate management system, surface-water management system, and support facilities and the utilities. Prior to the placement of waste within an individual cell the subgrade must be prepared and the liner system and portions of the leachate management system must be completed. Prior to constructing the liner and portions of the leachate management system, the subgrade must be readied. This includes removal of topsoil, other unsuitable soils, and at- and below-grade structures. In addition, the area must be certified to meet the established final remediation level (FRL) goals based on the Operable Unit 5 Record of Decision (DOE 1996).

A portion of the footprint for OSDF Cell 8 that will be constructed in the future has not been certified. This excavation plan addresses the steps required to obtain certification for this area prior to subgrade preparation activities for OSDF Cell 8.

1.2 Purpose

This excavation plan describes the remediation of soil, and at- and below-grade structures within an uncertified portion of the OSDF Cell 8 footprint. This area is included in Area 1, Phase IV. The majority of the OSDF Cell 8 footprint as already been certified as part of Area 1, Phase II (see Figure 1). Note: As of the date of this publication, Cell 8 has not been designed and the footprint required to construct the cell liner and cap has been approximated for purposes of this document.

1.3 Exclusions

The removal of above-grade structures at the Fuel Loading/Unloading Facility (82B) located within the Area 1, Phase IV is excluded from this document. The removal of these structures will be performed as a Decontamination and Decommission (D&D) activity [see Miscellaneous Small Structures Phase II Implementation Plan for Above-Grade D&D (DOE 2003a)]. In addition, the purging for fuel from the associated underground diesel and gasoline fuel lines is excluded from this document and will be conducted as a facility isolation operation.

The predesign characterization of the Area 1, Phase IV is also excluded from this document (see Project Specific Plan for Predesign Investigation in Area 5 (DOE 2002). This area was reclassified from part of Area 5 to Area 1, Phase IV based on verbal requests from both the U.S. Environmental Protection Agency and Ohio Environmental Protection Agency.

The removal of structures within the OSDF Cell 8 footprint that are in already certified areas (Area 1, Phase II) will not be governed by this document and will be removed as part of the OSDF Cell 8 subgrade preparation effort.

2.0 REMEDIAL APPROACH

2.1 Description

The Area 1, Phase IV is located east of the Administration Area and east of the southeast corner of the Former Production Area (see Figure 1). The area functions as a radiologically clean area (not radiologically controlled) and has served primary as a support area for site operations.

The area has primarily been used to park inbound and outbound tractor trailers used to ship waste materials off-site for disposal at the Nevada Test Site. This includes several concrete pads and gravel parking lots to facilitate trailer parking. In addition, several auxiliary gravel parking lots to facilitate worker parking have been constructed within the area.

The area also includes the Fuel Loading/Unloading Facility (82B). This contains two above-ground fuel tanks (one for diesel and one for gasoline that service two sets of pumps). One set of pumps in located on the western side of Facility 82B. The other set of pumps is located within the Former Production Area near the Elevated Portable Water Tank (20D) and service site vehicles within the radiologically controlled areas. These tanks and the two adjacent pumps will be removed by D&D prior to the beginning of excavation.

A number of underground utilities are located within the Area 1, Phase IV. This includes portions of electrical duct banks, direct buried electrical cables, communication cables, potable water lines, a fuel gas (natural gas) line, an effluent line, a sanitary force main line and the original OSDF Leachate Conveyance System gravity pipe. In addition, there are underground diesel and gasoline lines running west from Facility 82B to the controlled area pumping station. This area also has a number of overhead electrical power lines including three lines from a Cinergy Gas and Electric transmission tower to the site's Main Electrical Station (16A).

2.2 Stormwater Management

Stormwater from Area 1, Phase IV drains indirectly to Paddys Run through surrounding ditches and the OSDF Sediment Basin #2 (see Figure 2). Likewise during excavation, storm water will drain indirectly to Paddys Run through surrounding ditches and the OSDF Sediment Basin #2; however, check dams will be installed at strategic locations to reduce the amount of sediment loading in the discharge. Specifically, check dams will be installed at the inlets of two culverts that are to remain in place after excavation, and at the outlet of a third culvert that will be removed during the remediation process.

Three culverts drain storm water from the work area. Two of these culverts are located on the west side of the work area and drain under "F" Street to the OSDF Sediment Basin #2 Main Drainage Channel. These two culverts are to remain in service after remediation of the area and will not be removed until "F" Street is remediated, which is not covered by this document. Check dams will be installed at the inlets to these two culverts. The other culvert that drains storm water from the work area is located near the Fuel Loading/Unloading Facility and drains northward into a stone lined ditch that discharges into the OSDF Sediment Basin #2 Main Drainage Channel. This culvert will be removed during remediation of the work area. A check dam will be installed at the outlet of this culvert.

Water collected in the OSDF Sediment Basin #2 Main Drainage Channel drains into the OSDF Sediment Basin #2 prior to being released to Paddys Run. Discharge from this basin spills into a riser pipe, flows through a large storm pipe located under the southeast parking lot, drains into the Storm Sewer Outfall Ditch, and is released into Paddys Run at Permitted National Pollutant Discharge Elimination System (NPDES) Stormwater Outfall (STRM 4003) under Ohio NPDES Permit 1IO00004*FD.

2.3 Remedial Excavation

Prior to excavation, the utilities within the work area will be isolated, and check dams and construction safety fences will be installed as per the drawings (see Appendix A).

Excavation equipment will be used to break at-grade concrete pads and asphalt pavement within the work area. Broken concrete, asphalt, and surface gravel will be removed from the work area for disposal in the OSDF. Real-time monitoring will be performed on soil immediately under removed pads, pavement, and surface gravel to ensure that no material above the waste acceptance criteria (WAC) material for the OSDF exists on the underlying surface of the soil prior to continued excavation. Disturbance to the soil under pads, pavement, and gravel will be minimized until the underlying surface can be monitored.

Underground utilities and below-grade structures within the work area will be removed. This includes the last remaining portion of the abandoned-in-place Leachate Conveyance System Gravity Flow Pipe which is located almost entirely within the area to be certified but includes almost 60 feet of pipe that runs just outside and southwest of the work area. In addition, an approximately 30-foot portion of the underground diesel and gasoline fuel lines will also be removed that are located within the Area 1, Phase II Certification Area. One potable water line and yard hydrant located within the excavation area will be protected during excavation and left in place. This line and hydrant are actually outside the Cell 8 liner footprint and will be used to support construction of Cell 8 as needed. This line will be removed when it becomes isolated due to soil remediation in other areas that would take the line out of service.

After the removal of surface concrete, asphalt, and gravel, a 6-inch surface scrap will be performed over the work area to ensure removal of contaminated material otherwise not discovered during predesign characterization. All excavated material, soil and debris meeting the OSDF WAC will be disposed in the OSDF. Any above-WAC material discovered during remediation will be disposed of accordingly.

2.4 Interim Restoration

A precertification Project Specific Plan will be submitted as a separate document to the regulatory agencies for review and approval. Precertification activities will commence after the design grade has been reached and all other remediation in the area is complete. The precertification area will be delineated and controlled to prevent cross-contamination of environmental media. Real-time monitoring of the excavated grade will be performed to precertify the area as attaining the uranium, thorium, and radium FRL goals. The remediated area will be seeded in accordance with Technical Specification Section 02930.

After certification of the area is obtained, the construction of the OSDF Cell 8 liner and Valve House #8 can begin as scheduled.

References

U.S. Department of Energy, 1996, "Record of Decision for Remedial Actions at Operable Unit 5," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2002, "Project Specific Plan for Predesign Investigation of Area 5," Revision 0, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

U.S. Department of Energy, 2003a, "Miscellaneous Small Structures Phase II Implementation Plan for Above-Grade Decontamination and Dismantlement," Revision 0 PCN 1, Fernald Closure Project, DOE, Fernald Area Office, Cincinnati, Ohio.

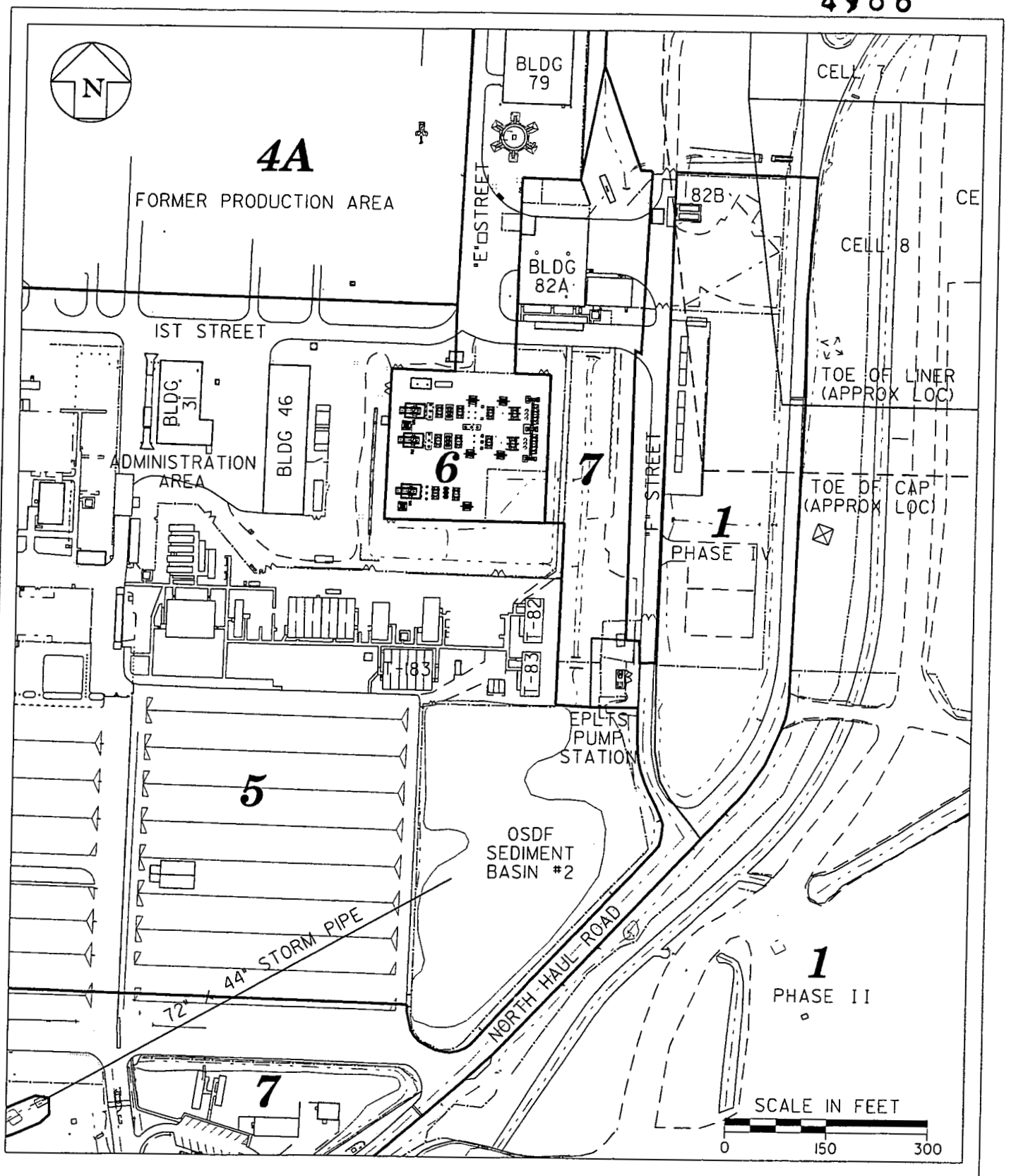

FIGURE 1
AREA 1 PHASE IV
FOOTPRINT

8

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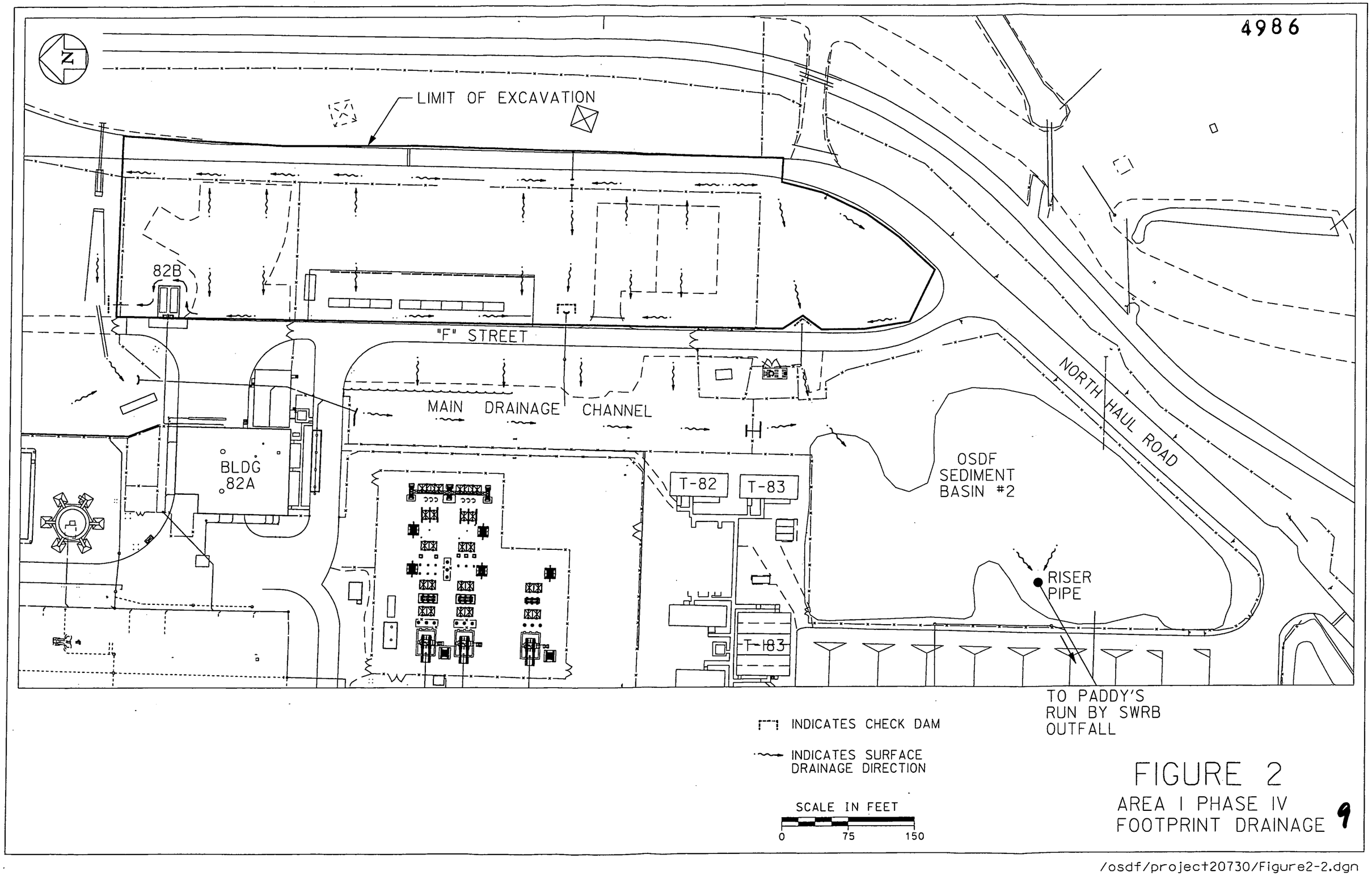

FIGURE 2
AREA I PHASE IV
FOOTPRINT DRAINAGE

/osdf/project20730/Figure2-2.dgn

APPENDIX A

LIST OF DRAWINGS

APPENDIX A
LIST OF DRAWINGS

Design Drawings

Drawing 99X-5500-G-00780	Area 1, Phase IV Cell 8 Partial Excavation Plan, Sheet 1 of 2
Drawing 99X-5500-G-00781	Area 1, Phase IV Partial Excavation Plan, Sheet 2 of 2

Reference Drawings

Drawing 99X-5500-X-00639	Legend and General Notes
Drawing 99X-5500-G-00769	Utility and Structure Removal Below Design Grade
Drawing 22F-5500-P-00663	Grid 4 Underground Utilities – Bldg. 79, 82 and E. Water Tower
Drawing 22A-5500-P-00664	Grid 5 Underground Utilities – East of Main Substation

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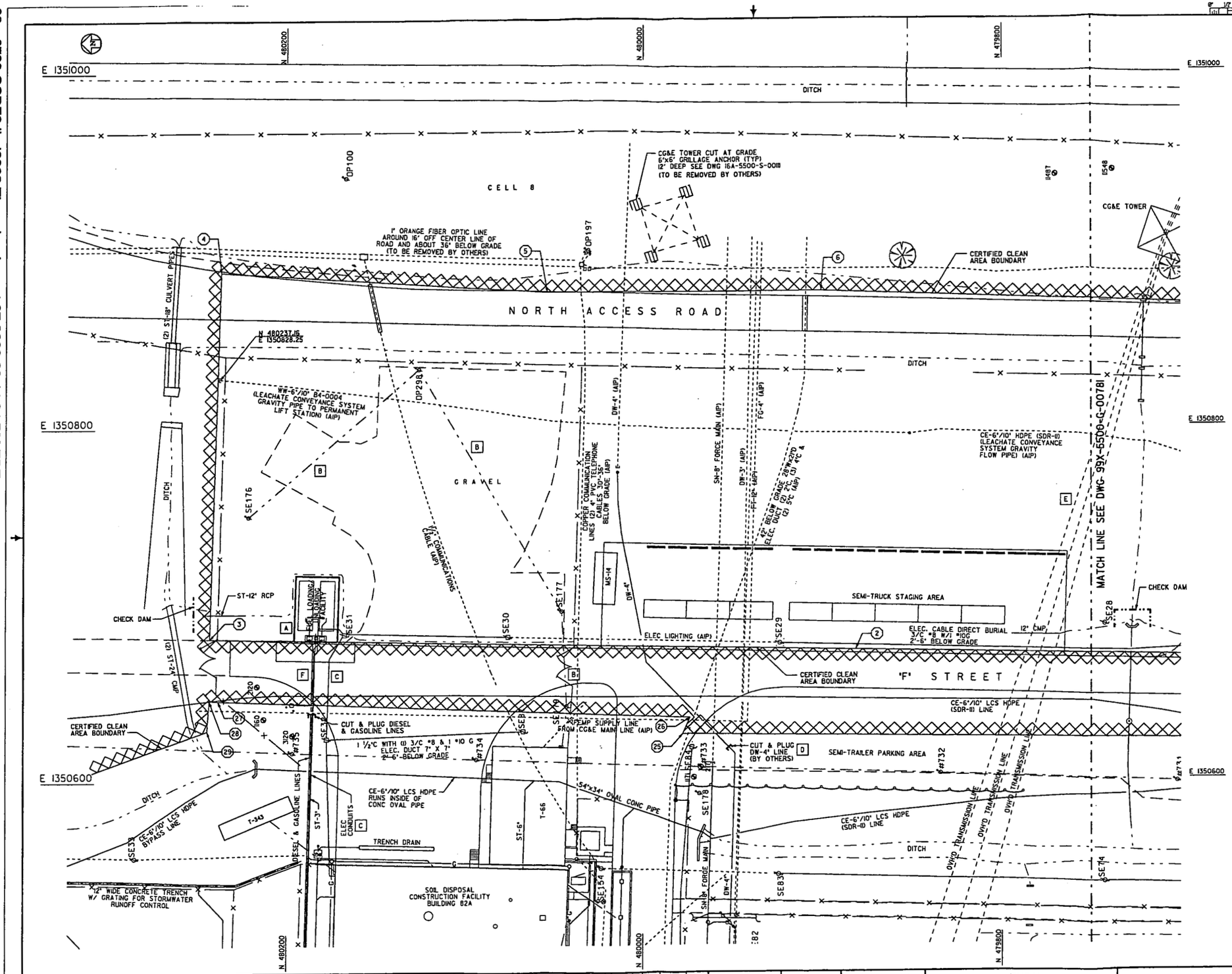

GENERAL NOTES

1. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND ADDITIONAL GENERAL NOTES.
2. AFTER CONCRETE, ASPHALT, AND GRAVEL REMOVAL, COORDINATE WITH REAL-TIME TO SCAN UNDERLYING SURFACE PRIOR TO SOIL EXCAVATION.
3. IF ABOVE-WAC MATERIAL IS DISCOVERED UNDER PADS/PAVEMENT, REMOVE IN ACCORDANCE WITH SPECIFICATION SECTION 02205.
4. SURVEY AND RECORD THE ENDS OF UTILITIES REMAINING AFTER EXCAVATION.
5. THE CONSTRUCTION MANAGER WILL ARRANGE FOR PRECERTIFICATION MONITORING AND SAMPLING OF THE EXCAVATED AREA.
6. PROTECT MONITORING WELLS THAT REMAIN AT TIME OF EXCAVATION.

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SCOPE OF REMEDIATION WORK

1. THE LIMIT OF WORK AREA IS THE AREA INCLUSIVE OF CERTIFIED CLEAN AREA CONTROL POINTS 1 THROUGH 7 AND EXCAVATION CONTROL POINTS 1 THROUGH 10.
2. REMOVE CONCRETE PADS AND ASPHALT PAVEMENT WITHIN THE LIMIT OF WORK AREA AND HAUL TO OSDF.
3. REMOVE GRAVEL WITHIN THE LIMIT OF WORK AREA AND HAUL TO OSDF.
4. EXCAVATE THE TOP 6 INCHES OF SOIL ACROSS THE LIMIT OF WORK AREA AND HAUL TO OSDF. THIS INCLUDES SOIL UNDERNEATH CONCRETE PADS, ASPHALT PAVEMENT, AND GRAVEL/STONE.
5. REMOVE UNDERGROUND UTILITIES WITHIN THE LIMIT OF WORK IN ACCORDANCE WITH DRAWING 99X-5500-G-00769. CAP REMAINING UTILITIES AT THE LIMIT OF WORK.

KEYED NOTES

- **A** PRIOR TO EXCAVATION VERIFY ABOVE-GRADE DIESEL AND GASOLINE TANKS, AND ABOVE-GRADE PUMPS HAVE BEEN REMOVED BY OTHERS; AND UNDERGROUND DIESEL AND GASOLINE LINES HAVE BEEN PURGED BY OTHERS.
- **B** PRIOR TO EXCAVATION VERIFY OVERHEAD POWER LINES BETWEEN POLES SE175, SE177, OP298, AND SE176 HAVE BEEN ELECTRICALLY ISOLATED BY OTHERS.
- **C** PRIOR TO EXCAVATION VERIFY UNDERGROUND POWER LINES BETWEEN POLES SE31, SE32, AND ELECTRICAL CONDUIT ADJACENT TO THE UNDERGROUND DIESEL AND GASOLINE LINES HAVE BEEN ELECTRICALLY ISOLATED BY OTHERS.
- **D** PRIOR TO EXCAVATION VERIFY 4 INCH POTABLE WATER LINE (DW-4") HAS BEEN CUT AND PLUGGED BY OTHERS.
- **E** PROTECT OVERHEAD ELECTRICAL LINES FROM CG&E TRANSMISSION TOWER TO MAIN ELECTRICAL SUBSTATION.
- **F** REMOVE A PORTION OF BOTH THE DIESEL AND GASOLINE LINES ACROSS THE CERTIFIED AREA FROM THE FUEL LOADING/UNLOADING FACILITY TO THE CUT POINT. PLUG THE EXPOSED ENDS OF THE REMAINING PORTIONS OF BOTH LINES. BACKFILL TRENCH WITH ODOT ITEM 304 AGGREGATE.

CERTIFIED CLEAN AREA CONTROL POINTS			
PT NO.	NORTHING	EASTING	
2	479881.35	1350673.19	
3	480242.82	1350680.84	
4	480236.56	1350888.21	
5	480053.74	1350876.26	
6	479900.70	1350876.26	
25	479977.41	1350626.03	FOR INFORMATION ONLY
26	479973.25	1350635.21	
27	480238.12	1350645.74	
28	480243.09	1350645.98	
29	480244.31	1350628.86	

PRELIMINARY
NOT FOR CONSTRUCTION

0 10 20 50 100
SCALE IN FEET

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.

NOTE: FLUOR FERNALD CADD DRAWING. DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING — YES / NO
EXISTING STRUCTURES OR COMPONENTS AFFECTED BY THIS DRAWING HAVE BEEN VERIFIED PER CONFIGURATION MANAGEMENT CONTROL DOC NOTES.
COGNIZANT ENGINEER — DATE

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Closure Project
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AREA I PHASE IV
CELL 8 PARTIAL EXCAVATION PLAN
SHEET 1 OF 2

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PROJECT 20730
DATE 5/20/03
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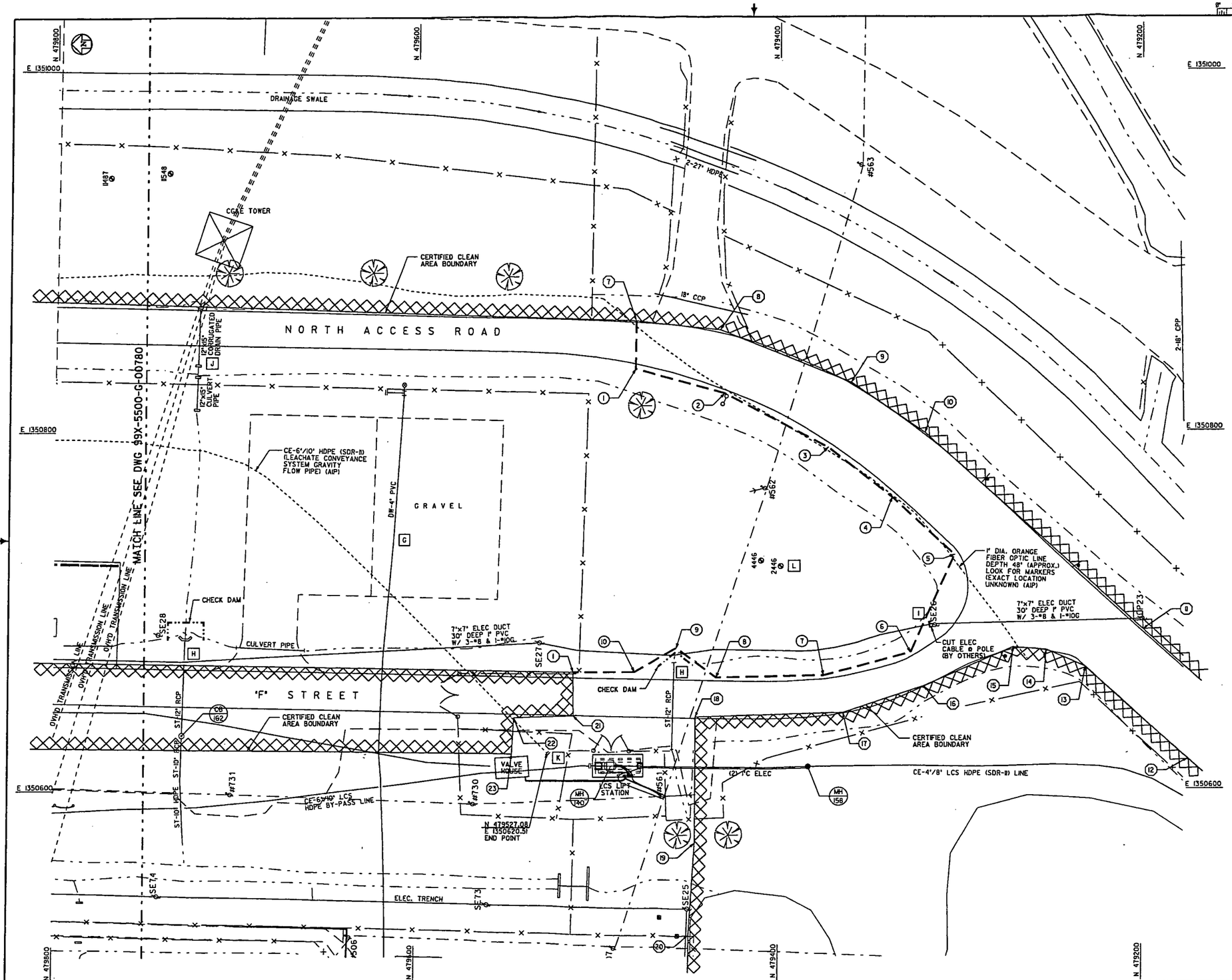

GENERAL NOTES

1. SEE DRAWING 99X-5500-G-00780 FOR GENERAL NOTES AND SCOPE OF REMEDIATION WORK .
2. SEE DRAWING 99X-5500-X-00639 FOR LEGEND AND ADDITIONAL GENERAL NOTES.

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KEYED NOTES

- G — PROTECT BELOW GRADE 4 INCH POTABLE WATER LINE (DW-4"). TO REMAIN IN SERVICE
- H — PROTECT 12 INCH STORM SEWER LINES (ST-12" RCP). TO REMAIN IN SERVICE
- I — PRIOR TO EXCAVATION, VERIFY UNDERGROUND ELECTRIC CABLE WEST OF POLE SE26 HAS BEEN ELECTRICALLY ISOLATED BY OTHERS.
- J — ESTABLISH DRAINAGE DITCH AFTER REMOVING CULVERT AND CORRUGATED DRAIN PIPES
- K — REMOVE THE ABANDONED IN PLACE LEACHATE CONVEYANCE SYSTEM GRAVITY FLOW PIPE ACROSS THE CERTIFIED AREA TO THE END POINT. BACKFILL ACROSS 'F' STREET WITH ODOT ITEM 304 AGGREGATE.
- L — PROTECT MONITORING WELLS AND SURROUNDING CONCRETE PADS (TO BE REMOVED BY OTHERS).

EXCAVATION CONTROL POINTS		
PT NO.	NORTHING	EASTING
1	479479.40	1350834.62
2	479430.13	1350821.06
3	479373.63	1350790.77
4	479338.14	1350762.74
5	479303.79	1350730.65
6	479327.75	1350675.95
7	479375.66	1350663.30
8	479434.20	1350662.17
9	479456.35	1350678.67
10	479479.25	1350665.45

CERTIFIED CLEAN AREA CONTROL POINTS		
PT NO.	NORTHING	EASTING
1	479512.95	1350665.45
7	479479.25	1350861.16
8	479432.68	1350856.30
9	479360.97	1350826.87
10	479320.16	1350798.81
11	479199.46	1350688.80
12	479174.80	1350616.59
13	479231.74	1350667.97
14	479253.50	1350677.58
15	479271.74	1350678.99
16	479320.34	1350657.31
17	479364.89	1350642.54
18	479445.60	1350640.30
19	479445.60	1350570.30
20	479448.61	1350519.55
21	479512.76	1350641.22
22	479545.61	1350640.30
23	479546.78	1350620.15

FOR INFORMATION ONLY

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SCALE IN FEET

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NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.

NOTE:
FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING
STATUS: STRUCTURED US COMPUTER SOFTWARE (SUCS) CONTROLLED DRAWING
SEE SUCS FOR CURRENT CONTROL REV NOTE.
CONSULTANT ENGINEER DATE

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Closure Project
FLUOR FERNALD, INC.
U.S. DEPARTMENT OF ENERGY

AREA I PHASE IV
CELL 8 PARTIAL EXCAVATION PLAN
SHEET 2 OF 2

PROJECT 20730
DATE 5/28/03
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SYMBOLS LEGEND

EXISTING		PROPOSED
●	MANHOLE	N/A
⊙	CATCH BASIN	○
— · — · —	ABOVE-GRADE WATERLINE	N/A
	ELECTRIC POLE	N/A
	LIGHT POLE	N/A
	ELECTRIC MANHOLE	N/A
	ELECTRIC MANHOLE WITH TELEPHONE MANHOLE	N/A
	GRAVEL ROADWAY	
	PAVED ROADWAY	N/A
	BUILDING SLAB/CONCRETE PAD/TRAILER	■
	CHAIN LINK FENCE	
	TRAFFIC GATE	
	CONSTRUCTION SAFETY FENCE	
	ROPE CONSTRUCTION FENCE	
N/A	SILT FENCE	
N/A	STRAW BALE	
N/A	LIMIT OF EXCAVATION OR WORK	
N/A	PROTECTED AREA	
(BM) OR (P)	BENCHMARK	N/A
	LIMIT OF ABOVE-WAC MATERIAL	N/A
	LIMIT OF HWMU MATERIAL	N/A
	PIPE PLUG	
	AIR GAP FOR STORM SEWER	
	UNDERGROUND UTILITIES	
N/A	HAUL ROAD	
N/A	WALKWAY	
-584	CONTOUR - MINOR	584
-585	CONTOUR - MAJOR	585
	CERTIFIED AREA BOUNDARY	
N/A	DEWATERING CHANNEL OR LINE	
	AREA ISOLATION TRENCH	SEE PLANS
	MODELED URANIUM CONTAMINATION EXTENDING OUTSIDE EXCAVATION AREAS	N/A

SYMBOLS LEGEND

EXISTING		PROPOSED
	POST INDICATOR VALVE	N/A
	OVERHEAD PIPE RACK PEDESTALS	N/A
	RAILROAD TIES	N/A
	RAILROAD	N/A
	HIGH LEACHABILITY AREA LIMIT	N/A
	MONITORING WELL	N/A
	HWMU BOUNDARY	N/A
●1721	SOIL BORING	N/A

CONSTRUCTION DRAWING ABBREVIATIONS

ACM	ASBESTOS CONTAINING MATERIAL
AIP	ABANDONED IN PLACE
AW	ACID WASTE WATER LINE
BR	BRINE LINES
BSL	BIODENITRIFICATION SURGE LAGOON
CB	CATCH BASIN
CE	CONTAMINATED EFFLUENT LINE
CFM	CUBIC FEET PER MINUTE
COC	CONSTITUENTS OF CONCERN
CN	STEAM CONDENSATE LINE
CO	CLEAN OUT
DF	DEIONIZED FEED LINE
DW	LOW PRESSURE FIRE / POTABLE WATER LINE
EC	EDGE OF CONCRETE
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPLTS	ENHANCED PERMANENT LEACHATE TRANSMISSION SYSTEM
EL	ELECTRICAL LINE
ELEV	ELEVATION
FCP	FERNALD CLOSURE PROJECT
FG	FUEL GAS LINE
FRL	FINAL REMEDIATION LEVEL
FT	FILTRATE OR EFFLUENT LINE
FTF	FIRE TRAINING FACILITY
FQI	HIGH PRESSURE FIRE LINE
GMA	UNSATURATED SANDS AND GRAVELS OF THE GREAT MIAMI AQUIFER
GW	GROUND WATER LINE
HWMU	HAZARDOUS WASTE MANAGEMENT UNIT
IE	INVERT ELEVATION
KV	KILOVOLT
LF	LINEAR FEET
LS	LIVE STEAM
LSP	LIME SLUDGE POND
MDC	MAIN DRAINAGE CORRIDORS
MH	MANHOLE
NAR	NITRIC ACID RECOVERY
OC	ON CENTER
OD	OUTSIDE DIAMETER
OMTA	OSDF MATERIAL TRANSFER AREA
OSDF	ON-SITE DISPOSAL FACILITY
PA	PLANT AIR LINE
PCE	TETRACHLOROETHENE
PIV	POST INDICATOR VALVE
RAD	RADIUS
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
RW	RAW WATER LINE
SA	INSTRUMENT AIR SUPPLY LINE
SD	SUB-SURFACE DRAINAGE LINE
SL	SUMP LIQUOR LINE
SMH	SANITARY MANHOLE
SMTA	SPECIAL MATERIAL TRANSFER AREA
SN	SANITARY SEWER LINE
SP	STOCKPILE / SOIL PILE
ST	STORM SEWER LINE
SWL	SOLID WASTE LANDFILL
SWRB	STORMWATER RETENTION BASIN
TC-99	TECHNETIUM-99
TOG	TOP OF GRATING
TOP	TOP OF PIPE
TYP	TYPICAL
TW	TREATED WATER LINE
UST	UNDERGROUND STORAGE TANK
VOC	VOLATILE ORGANIC COMPOUND(S)
WAC	WASTE ACCEPTANCE CRITERIA
WR	WATER RETURN-COOLING LINE
WS	WATER SUPPLY-COOLING LINE
WWF	WELDED WIRE FABRIC

FOUNDATION DRAWING ABBREVIATIONS

APPROX	APPROXIMATELY
B/	BOTTOM OF
C.I.	CAST IRON
℄	CENTERLINE
CONC.	CONCRETE
Δ	INTERSECTION ANGLE (DELTA)
DIA	DIAMETER
E	EASTING
E/W	EAST WEST
EL	ELEVATION
EXIST	EXISTING
FIN	FINISHED
FTG	FOOTING
H.P.	HIGH POINT
INV	INVERT
JT	JOINT
L	LENGTH
L.P.	LOW POINT
N	NORTHING
N/S	NORTH SOUTH
PED	PEDESTAL
PS	PIPE SUPPORT
R	RADIUS
R	RISER FOR STAIRS
S	SLOPE
S	CURVE DATA
SYM	SYMMETRICAL
T	TANGENT
T	TREAD FOR STAIRS
T/	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WWF	WELDED WIRE FABRIC

UNDERGROUND UTILITY MATERIAL ABBREVIATIONS

A	PIPE SPECIFICATION DESIGNATION FOR STEEL FUEL, OIL AND SOLVENT LINES
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
DI	DUCTILE IRON
HDPE	HIGH DENSITY POLYETHYLENE
LI	PIPE SPECIFICATION DESIGNATION FOR MISC. CAST IRON WATER LINES
NI	PIPE SPECIFICATION DESIGNATION FOR CLAY, CONCRETE OR METAL STORM SEWER PIPE
MI	PIPE SPECIFICATION DESIGNATION FOR VITRIFIED SANITARY SEWER PIPE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
S	PIPE SPECIFICATION DESIGNATION FOR STEEL STEAM/BOILER FEED LINES
VCP	VITRIFIED CLAY PIPE
V	PIPE SPECIFICATION DESIGNATION FOR STEEL FUEL GAS PIPE
W	PIPE SPECIFICATION DESIGNATION FOR STEEL AIR, WATER, AND STEAM LINES

GENERAL NOTES

1. EXISTING TOPOGRAPHY SHOWN ON DRAWINGS PROVIDED BY FLUOR FERNALD. THESE SOURCES INCLUDE EXISTING SITE DATA SOURCE (IN-PLANT FILES) FCP CADD GRID/UTILITY DRAWINGS.
2. HORIZONTAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NORTH AMERICAN DATUM 1983 (NAD 83).
3. VERTICAL CONTROL SHOWN ON THE DRAWINGS IS BASED UPON NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).
4. SILT FENCES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO UPGRADIENT LAND DISTURBANCES IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS.
5. DESIGN CONTOURS AND GRADES SHOWN REPRESENT THE MINIMUM LIMITS OF EXCAVATION REQUIRED TO CAPTURE CONTAMINATION AND FOUNDATIONS WHILE MAINTAINING SAFE SLOPE REQUIREMENTS. FIELD CHANGES SHALL BE REPORTED TO CONSTRUCTION MANAGER AND APPROVED BY ENGINEER.
6. GEOLOGICAL AND CROSS SECTION INFORMATION TAKEN FROM (FEMP) OU-2 RI, 1995, OU-2 FS, 1995, GEOTECHNICAL REPORTS, AND FEMP 3D CADD MODEL. ACTUAL GEOLOGICAL CONDITIONS AND DEPTHS SHOWN ON CROSS SECTIONS MAY VARY AND SHALL BE DETERMINED IN THE FIELD DURING EXCAVATION.
7. LOCATION AND DEPTH OF EXISTING UTILITIES AND FOUNDATION STRUCTURES ARE APPROXIMATE. IF UNIDENTIFIED UTILITIES ARE DISCOVERED, PROCEED AS DIRECTED BY THE CONSTRUCTION MANAGER.
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 REMEDIATION.
10. MAINTAIN AND PROTECT UTILITIES OUTSIDE THE LIMIT OF EXCAVATION AND/OR LIMIT OF WORK.
11. 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.
12. OUTSIDE THE BOUNDARIES OF A COMPLETED UTILITY ISOLATION TRENCHED AREA, A PENETRATION PERMIT MUST BE OBTAINED BY THE CONSTRUCTION MANAGER FOR EXCAVATION OR PENETRATION INTO THE SOIL DEEPER THAN 6 INCHES.
13. TECHNICAL SPECIFICATIONS GOVERNING THIS PROJECT ARE THE LATEST REVISIONS OF 38/48/5 TECHNICAL SPECIFICATIONS (DOCUMENT# NO. 20000-TS-0001 AND 20810-TS-0001) AND ON-SITE DISPOSAL FACILITY (OSDF) PHASE IV TECHNICAL SPECIFICATIONS (DOCUMENT NO. 20104-TS-0001).
14. UNDERGROUND UTILITY GRIDS AND UTILITY DESIGNATION ABBREVIATIONS ARE IN ACCORDANCE WITH THE FEMP MASTER GRID OF UNDERGROUND UTILITY PLANS DRAWING 22X-5500-P-00659.

4986

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED CERTIFIED FOR CONSTRUCTION	6/9/03	RML	GEP

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD CLOSURE PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

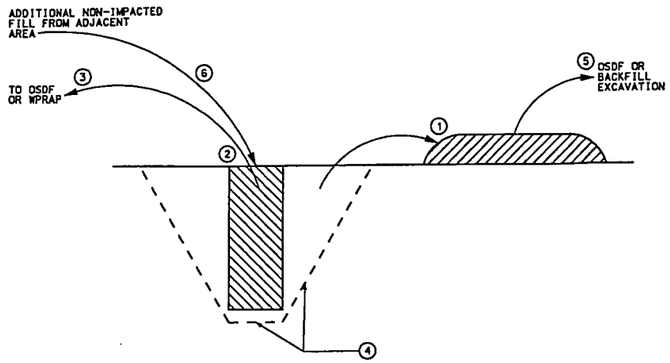
DRAWING TITLE
LEGEND AND GENERAL NOTES 14

APPROVALS

COGNIZANT ENG.	A. SHOCK	6/9/03	SAFETY ENG.	C. JOHNSON	6/9/03
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER	B. RUSSELL	6/9/03	WASTE MANAGE		
INSTRUMENT			SECURITY		
MECHANICAL			QA	R. FROST	6/9/03
			CONSTRUCTION	K. MURPHY	6/9/03
CHECKED	C. KEIMANN	6/9/03	UTILITIES	A. MILLER	6/9/03
APPROVED	C.E. PACK	6/9/03			

DRAWN BY	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
KLR	20810	99X-5500-X-00639	X-3	0
RES PROJECT NO.	FILENAME 99XX00639.DGN			

FCP5KE.DGN 5/30/03

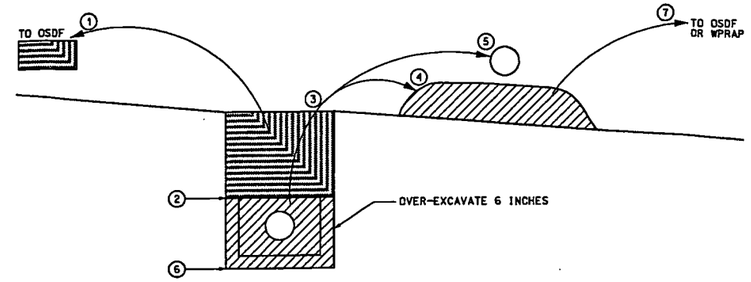


1. EXCAVATE PRECERTIFIED OVERBURDEN SOIL FROM AROUND THE STRUCTURE * AND TEMPORARILY STOCKPILE WITHIN THE EXCAVATION.
2. EXCAVATE THE STRUCTURE, PLUS OVER-EXCAVATE 6 INCHES ADJACENT TO AND BELOW THE STRUCTURE TO ENSURE REMOVAL OF POTENTIAL IMPACTED MATERIAL.
3. VISUALLY INSPECT THE STRUCTURE DURING EXCAVATION. STRUCTURES FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN THE OSDF IN ACCORDANCE WITH SECTION 02205. STRUCTURES THAT ARE DEFORMED, CLOSED OR OTHERWISE HINDER VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN WPRAP IN ACCORDANCE WITH SECTION 02205.
4. PERFORM REAL-TIME MONITORING AND/OR PHYSICAL SAMPLING AT THE EXCAVATION BOTTOM.
5. AS DIRECTED BY THE CONSTRUCTION MANAGER, DISPOSITION MATERIAL STOCKPILED IN STEP 1 IN EITHER THE OSDF AS IMPACTED MATERIAL OR USE AS NON-IMPACTED MATERIAL TO BACKFILL THE EXCAVATION. IF STOCKPILED MATERIAL IS DEEMED IMPACTED, OVER-EXCAVATE STOCKPILE FOOTPRINTS 6 INCHES TO ENSURE REMOVAL OF IMPACTED MATERIAL.
6. BACKFILL ADDITIONAL NON-IMPACTED SOIL FROM THE IMMEDIATE PRE-CERTIFIED AREA AND COMPACT IN ACCORDANCE WITH SECTION 02206 AS NEEDED TO MEET SURROUNDING GRADE.

* THE TERM "STRUCTURE" IS USED AS A GENERIC REFERENCE TO PILES, PIERS, OR FOOTERS.

EXCAVATION OF STRUCTURES BELOW THE DESIGN GRADE

NTS



1. EXCAVATE PRECERTIFIED OVERBURDEN SOIL FROM ABOVE THE PIPE* BEDDING AND DISPOSITION IN THE OSDF.
2. PERFORM REAL-TIME MONITORING, AND/OR AT 50 FEET INTERVALS, PERFORM PHYSICAL SAMPLING OF THE PIPE BEDDING MATERIAL IN THE TRENCH.
3. EXCAVATE PIPE AND PIPE BEDDING, PLUS OVER-EXCAVATE 6 INCHES ADJACENT TO AND BELOW THE PIPE BEDDING TO ENSURE REMOVAL OF IMPACTED MATERIAL.
4. TEMPORARILY STOCKPILE PIPE BEDDING ADJACENT TO AND DOWN-GRADIENT OF THE UTILITY TRENCH.
5. VISUALLY INSPECT THE PIPE DURING EXCAVATION. PIPE FREE OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN THE OSDF IN ACCORDANCE WITH SECTION 02205. PIPING THAT IS DEFORMED, CLOSED OR OTHERWISE HINDERS VISUAL INSPECTION, OR CANNOT BE CLEANED OF VISIBLE PROCESS RESIDUE SHALL BE DISPOSITIONED IN WPRAP IN ACCORDANCE WITH SECTION 02205.
6. AS IN STEP 2, PERFORM REAL-TIME MONITORING, AND/OR AT 50 FEET INTERVALS, PERFORM PHYSICAL SAMPLING BELOW THE PIPE BEDDING WITHIN THE TRENCH.
7. AS DIRECTED BY THE CONSTRUCTION MANAGER, DISPOSITION PIPE BEDDING IN EITHER THE OSDF AS IMPACTED MATERIAL OR WPRAP AS ABOVE-WAC MATERIAL. OVER-EXCAVATE STOCKPILE FOOTPRINTS 6 INCHES TO ENSURE REMOVAL OF IMPACTED MATERIAL.
8. BACKFILL ADDITIONAL NON-IMPACTED SOIL FROM THE IMMEDIATE PRE-CERTIFIED AREA AND COMPACT IN ACCORDANCE WITH SECTION 02206 AS NEEDED TO MEET SURROUNDING GRADE.

NOTE:

1. AS DIRECTED BY THE CONSTRUCTION MANAGER, PENDING MONITORING OF TRENCH BOTTOM, RE-EXCAVATE AT TRENCH LOCATIONS DESIGNATED BY THE CONSTRUCTION MANAGER TO REMOVE ADDITIONAL IMPACTED MATERIAL. THE CONSTRUCTION MANAGER CERTIFIES THE BACKFILLED TRENCH AND SURROUNDING AREA.

* THE TERM "PIPE" IS USED AS A GENERIC REFERENCE TO UNDERGROUND UTILITIES.

EXCAVATION OF UTILITIES BELOW THE DESIGN GRADE

NTS

GENERAL NOTES

4086

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED CERTIFIED FOR CONSTRUCTION	7/8/03	KLR	GEP

INITIALS AND DATE

UNITED STATES DEPARTMENT OF ENERGY
FERNALD CLOSURE PROJECT

THIS DRAWING PREPARED BY
FLUOR FERNALD, INC.

PROJECT NAME
SOIL REMEDIATION

DRAWING TITLE
UTILITY AND STRUCTURE REMOVAL BELOW DESIGN GRADE

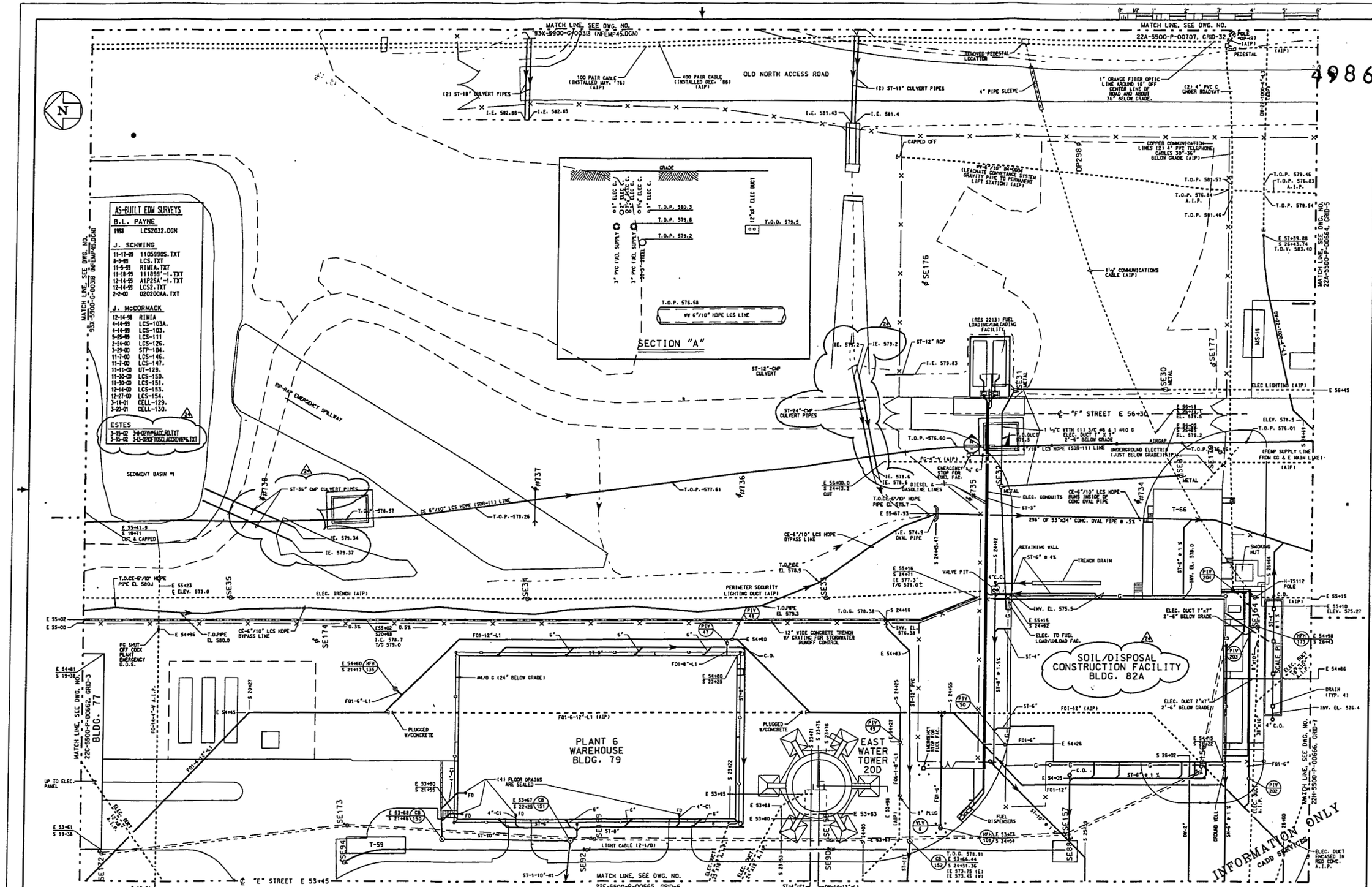
15

APPROVALS

COGNIZANT ENG.	A. SHOEB	7/8/03	SAFETY ENG.	E. JOHNSON	7/8/03
CIVIL & STR.			MAINTENANCE		
ELECTRICAL			FIRE PROTECT.		
ENGINEER	D. RUSSELL	7/8/03	WASTE MANAGE		
INSTRUMENT			SECURITY		
MECHANICAL			QA	E. FRISZ	7/8/03
			CONSTRUCTION	E. CORNEY	7/8/03
CHECKED	C. HEINCH	7/8/03			
APPROVED	G.E. FALL	7/8/03			

DRAWN BY KLR	PROJECT NO. 20610	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
RES PROJECT NO.	FILENAME 99XG00769.DGN	99X-5500-G-00769	D-3	0

FCPSAE.DGN 5/30/03



NOTE:
1. THIS DRAWING ISSUED PERIODICALLY, FOR THE MOST RECENT VERSION OF THIS DRAWING, ACCESS THE FILENAME BELOW THE TITLE BLOCK.
2. COORDINATES SHOWN ON THIS DRAWING ARE TAKEN FROM EXISTING FEMP DRAWINGS AND ARE NOT VERIFIED TO BE "AS-BUILT". IT IS HIGHLY RECOMMENDED THAT A FIELD SURVEY BE PERFORMED PRIOR TO SITE DESIGN WORK.
3. LEACHATE CONVEYANCE SYSTEM (PO 850 & ECS) LINE IS FROM B.L. PAYNE AS-BUILT SURVEY, SEE /PAYNE/LCS/LCS2.DGN.

NO.	REVISIONS	DATE	DWN. BY	APPD.	NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.
					22	POLE SE55 REMOVED PER W. DERROUGH WALKDOWN 6/12/01, REMOVED PORTION OF ORIGINAL WW-6"/10" LEACHATE LINE, REMOVED POLES SE185 & SE185 PER WISE TASK ORDER 051, MOVE 28H TO NFEMP 45, MOVE 28E SOUTH, COMM EAST OF FENCE A.I.P., GENERAL UPDATE	7/8/02	RML	GEP	
24	ADDED ESTES AS-BUILT SURVEYS	1/15/03	GEP	GEP	21	ADD ELEC & LCS LINE TO SECTION 'A', AS-BUILT LCS LINE & POLE #734 TO #738 PER J. McCORMACK SURVEYS, EXCAVATION BOUNDARIES	5/3/01	RML	GEP	22X-5500-P-00659
23	ELECTRIC DUCTS A.I.P. PER COMPLETED WORK ORDER AL056303	11/1/02	GES	GEP						

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/16
ANGLES ± 0°-30'
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
DWG. RELEASE DATE

APPROVALS				
CIVIL & STR.			SAFETY ENG.	
ELECTRICAL			MAINTENANCE	
ENGINEER			G.A.	
INSTRUMENT				
MECHANICAL			FIRE PROTECT.	
			WASTE MANAGE	
CHECKED	GEP		D.O.E.	
APPROVED	C.E.FAUL	7-20-92	SECURITY	

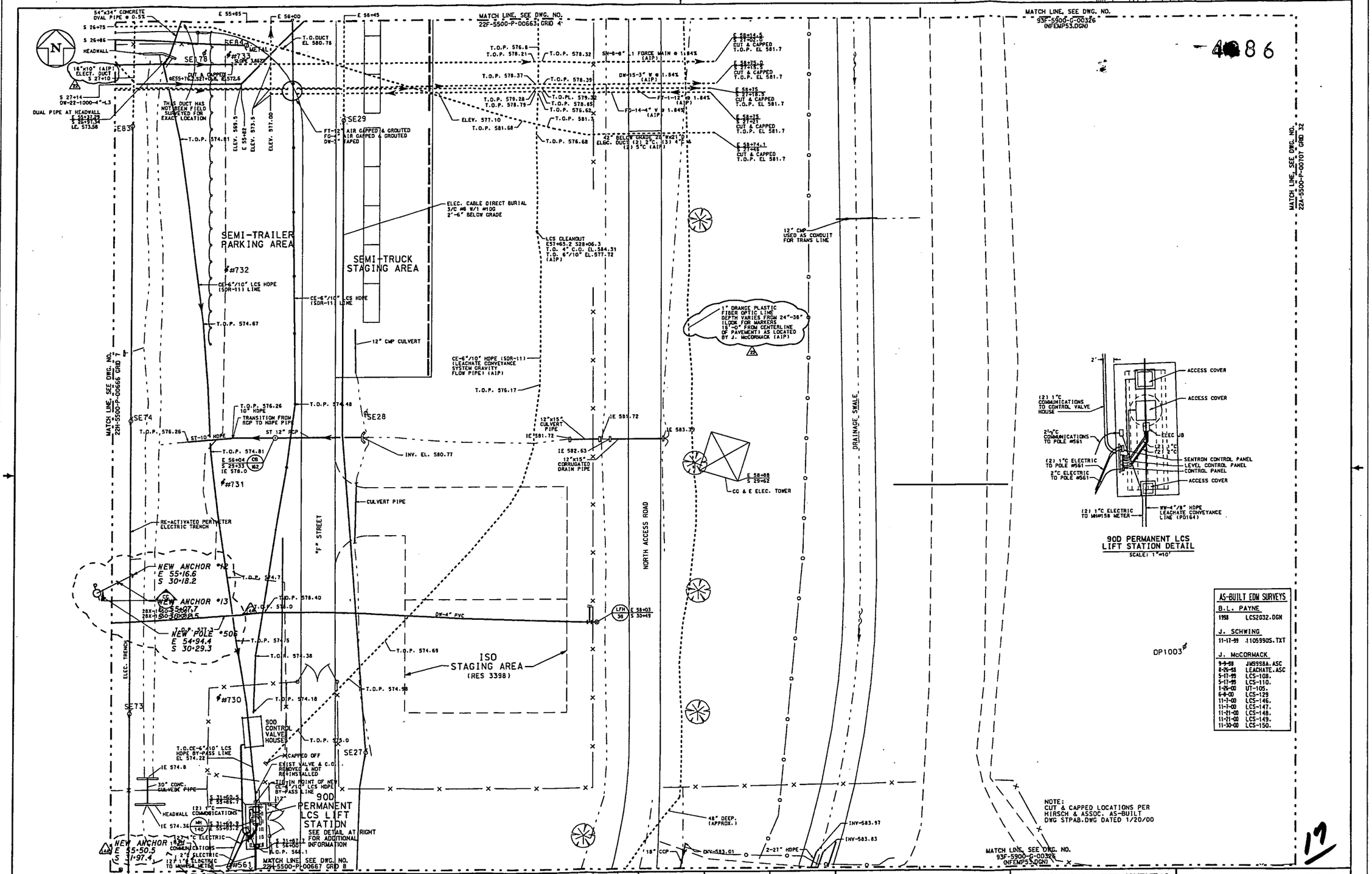
WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

BLDG. 79,82 & E. WATER TOWER YARD AREA
GRID 4
UNDERGROUND UTILITIES
SCALE 1"=20'
16

DATE 2-20-90
DRAWN J. KING
22F-5500-P-00663 24

FILE NAME: /UNDER/22FP0663.DGN

4986



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3. THE WEST UTILITIES CORRIDOR TRENCH IS THE RESULT OF AN AS-BUILT SURVEY BY B.L. PAYNE & ASSOC. THIS INCLUDES THE LCS LINE (PD164). FOR B.L. PAYNE SURVEY SEE FILE:/PAYNE/LCS2032.DGN.

NO.	REVISIONS	DATE	DWN. BY	APPD.

NO.	REVISIONS	DATE	DWN. BY	APPD.
23A	ADDED UNBWCD OF DEBS RAMP TO NO HARS CONNECRAD 78 PBORE	2/8/02	RML	GEP
22	RE-ENERGIZATION FREEWATER ELECTRIC IN TRENCH PER R. DUCKWORTH 3/18/01 MEMO, ADDED LIFT STATION DETAIL, INCORP. REDLINE AS-BUILT FROM J. McCORMACK 5/01/01	5/2/01	RML	GEP
	GENERAL UPDATE			

REF. DWG. NO.: 22X-5500-P-00659

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS ± 1/8
ANGLES ± 0° 0' 30"
DECIMALS
.X ± 0.1
.XX ± 0.03
.XXX ± 0.005
.XXXX ± 0.0005
ORIG. RELEASE DATE

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER			
INSTRUMENT		Q.A.	
MECHANICAL		FIRE PROTECT.	
		WASTE MANAGE.	
CHECKED	GEP	O.O.E.	
APPROVED	G.E. PAUL 2-26-90	SECURITY	

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO
FERNALD, OHIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
U.S. DEPARTMENT OF ENERGY

EAST OF MAIN SUB-STATION — YARD AREA

GRID 5
UNDERGROUND UTILITIES
SCALE 1"=20'

DATE 2-20-90
DRAWN DEL TURPIN

22A-5500-P-00664 | 23

FILE NAME: /UNDER/22AP0664.DGN

17