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**FLUOR**

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**Facsimile**

Urgent

Review

Comment

Reply

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**No. of Pages: 10**  
*(Including Lead Sheet)*

**DATE:** October 4, 2002

**TO:** James Saric, USEPA  
Tom Schneider, OEPA  
Michelle Cullerton, Tetra Tech

**FAX NO. TO BE CALLED:** (312) 353-8426  
(937) 285-6404  
(312) 938-0118

**TELEPHONE NO.:** (312) 886-0992  
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**FROM:** Jyh-Dong Chiou

**TELEPHONE NO.:** (513) 648-3726

**PROJECT NAME:** Fernald Environmental Mgmt. **CONTRACT NO.:** DE-AC24-01OH20115

**MESSAGE**

**SUBJECT:** For Your Approval:

Design Change Notice 20104-006, On-Site Disposal Facility Phase IV  
Construction - Addition of Sedimentation Basin #2 to Phase IV Scope of  
Work



Commenting Organization: Ohio EPA

Commentator: DSW

Drawing #: Drawing 90X-5000-G-00404 Pg. #: NA Line #: Note 10 Code: C

Original Comment #: 3

Comment: Specification 02930 was not included in the package. This should be similar to the specification 02900 included in the CFC for South Field Phase II Groundwater Infrastructure (drawing) package (dated August 29, 2002) which includes a dry area permanent seed mix (Table 02900-1A), a set area permanent seed mix (Table 02900-1B), and a mix for interim vegetation (Table 02900-2). Specification packages 02714 and 02271 referenced in the drawing were also missing from the package.

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Response: In response to Comment No. 3, DOE has transmitted Specification Section 02930 and 02714 via e-mail to Tom Schneider on September 18, 2002.

Action: Specification Section 02271 is provided as an attachment to these responses.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: ES Conclusions Pg. #: 2 of 282 Line #: New Channels Code: C

Original Comment #: 4

Comment: Note that channels with velocities exceeding 3 fps should have rock check dams properly installed.

Response: The text referred to considers the design of channel lining for conditions after the establishment of vegetation. Prior to the establishment of vegetation, appropriate erosion controls (e.g., check dams) will be installed in accordance with the requirements of the OSDF Surface Water Management and Erosion Control Plan.

Action: No action.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: ES Conclusions Pg. #: 3 of 282 Line #: OSDF Sedimentation Basin 2 Code: C

Original Comment #: 5

Comment: The first bullet describes the disturbed upstream drainage area as what was used for the calculation. The entire drainage area needs to be used, not just the disturbed area (see Section 2.8.3B, Page 2-81, Page 32/282, and Section 2.10.2.4B, Page 2-103, Page 47/282 in this document and as indicated in ODNR Rainwater and Land Development).

Response: The minimum required storage volume for the basin was calculated in accordance with the requirements of the OSDF Design Criteria Package (see Page 28/282 of the referenced calculation package). In accordance with these requirements this value was taken as "the larger of the calculated runoff from a 10-year, 24-hour storm event, or, 0.125 acre-foot per year (for each acre) of upgradient disturbed area multiplied by the scheduled frequency of basin cleanout (in years)". DOE notes that the minimum available storage area provided by the basin of 8.6 acre-foot also satisfies criteria presented in Rainwater and Land Development (i.e.,  $175 \text{ acres} \times 0.04 \text{ acre-ft/acre} = 7.0 \text{ acre-ft}$ ;  $8.6 > 7.0$ ).

Action: No action.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: West OSDF Design Scenarios Pg. #: 8 of 282 Line #: NA

Code: C

Original Comment #: 6

Comment: The design here and in Attachment A-2 shows only the cells as being part of the drainage area. The entire drainage area needs to be used, not just the disturbed area (see Section 2.8.3B, Page 2-81, Page 32/282, and Section 2.10.2.4B, Page 2-103, Page 47/282 in this document and as indicated in ODNR Rainwater and Land Development).

Response: The drainage area considered for the West OSDF Design Scenario, as shown on Attachment A-2, includes all areas expected to drain to the OSDF Sedimentation Basin No. 2 after construction of the final OSDF Cell. This drainage area includes all areas expected to be disturbed as well as areas not expected to be disturbed. Specifically, the drainage area includes: (i) the west half of Cells 3 through 7; (ii) an area including the drainage channels just west of these cells; (iii) an area between Cell 7 and the basin; (iv) an area east of the basin; and (v) the basin itself. Other OSDF and associated runoff areas drain either to the Former Production Area (FPA) or the Borrow Area Sedimentation Basin and thus are not appropriate for inclusion in the West OSDF Design Scenario.

Action: No action.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: Sedimentation Basins Pg. #: 19 of 282 Line #: OSDF Sed Basin 2 Code: C

Original Comment #: 7

Comment: The last sentence on this page states that the total drainage is used in place of disturbed upstream drainage, however the calculations and drawings for the west drainage do not reflect this. The entire drainage area needs to be used, not just the disturbed area (see Section 2.8.3B, Page 2-81, Page 32/282, and Section 2.10.2.4B, Page 2-103, Page 47/282 in this document and as indicated in ODNR Rainwater and Land Development).

Response: The drainage area considered for the West OSDF Design Scenario, as shown on Attachment A-2, includes all areas expected to drain to the OSDF Sedimentation Basin No. 2 after construction of the final OSDF Cell. This drainage area includes all areas expected to be disturbed as well as areas not expected to be disturbed. Specifically, the drainage area includes: (i) the west half of Cells 3 through 7; (ii) an area including the drainage channels just west of these cells; (iii) an area between Cell 7 and the basin; (iv) an area east of the basin; and (v) the basin itself. Other OSDF and associated runoff areas drain either to the FPA or the Borrow Area Sedimentation Basin and thus are not appropriate for inclusion in the West OSDF Design Scenario.

Action: No action.

Commenting Organization: Ohio EPA

Commentator: DSW

Section #: 2.8.1 Pg. #: 2-75, 26 of 282 Line #: NA

Code: C

Original Comment #: 8

Comment: The bullets do not include runoff from areas that are not disturbed, for which surface water treatment must be sized to include, should that runoff be in the drainage area of the treatment system (see Section 2.8.3B, Page 2-81, Page 32/282, and Section 2.10.2.4B, Page 2-103, Page 47/282 in this document and as indicated in ODNR Rainwater and Land Development).

**Response:** The bullets referred to in Comment No. 8 provides a list of three categories of surface water considered for design of the surface water management system for the OSDF. The first of these bullets addresses runoff from undisturbed areas. For clarification, please note that the design for all structures comprising the surface water management system for the OSDF considered all upstream drainage areas and that the design is in accordance with the OSDF Design Criteria Package. Furthermore, the text commented on is taken directly from the OSDF Design Criteria Package. This text is provided as an attachment to the calculation to serve as a convenient reference to design criteria for the project.

**Action:** No action.

**Commenting Organization:** Ohio EPA **Commentator:** DSW

**Section #:** 2.8.3A **Pg. #:** 2-77, 28 of 282 **Line #:** NA **Code:** C

**Original Comment #:** 9

**Comment:** Outlet structures should comply with the design guidelines from ODNR Rainwater and Land Development.

**Response:** For clarification, please note that the design of sedimentation basin outlet structures was performed in accordance with the OSDF Design Criteria Package. Furthermore, the text commented on is taken directly from the OSDF Design Criteria Package. This text is provided as an attachment to the calculation as a reference only.

**Action:** No action.

**Commenting Organization:** Ohio EPA **Commentator:** DSW

**Section #:** NA **Pg. #:** 2-102, 46 of 282 **Line #:** NA **Code:** E

**Original Comment #:** 10

**Comment:** This page didn't make it through the copier and only the right half of the page was in the package. It appears as though there may be criteria for the amount of time to discharge a pond's volume in this section. Note that, using dewatering option 1 in ODNR Rainwater and Land Development, the pond should dewater 60% of its volume in 48 to 72 hours.

**Response:** A corrected copy of Page 46 of 282 is provided as an attachment to these responses. As is evident from this attached page, no criteria is included regarding the amount of time to discharge the pond's volume. DOE also notes that the dewatering option 1 from ODNR Rainwater and Land Development appears to apply to "wet" ponds, none of which are present in the design

**Action:** A corrected copy of Page 46 of 282 is provided as an attachment to these responses.

- Temporary runoff control structures should be implemented to minimize runoff from entering work areas. Such runoff should be diverted around work areas using diversion dikes or channels as appropriate (design consideration).
- Temporary channels for surface-water runoff should be designed to meet the criteria presented in Section 2.8.3 of the DCP (design consideration).
- Permanent channels should be designed to meet the criteria presented in Section 2.8.4 of the DCP (design consideration).
- Culverts should be designed to meet the criteria presented in Section 2.8.4 of the DCP (design consideration).
- Riprap should be designed to meet the criteria presented in Section 2.8.4 of the DCP (design consideration).
- Sediment basins should meet the following criteria [ODNR, 1996] (design considerations).
  - The minimum capacity of the sediment basin to the elevation of the crest of the pipe spillway should be 1,800 cubic ft for each acre within the drainage area that will be disturbed by construction during the design life of the sediment basin.
  - The capacity of the pipe spillway should be sufficient to pass the runoff from the 2-year, 24-hour storm event. For the FEMP property, this event has a rainfall intensity of 2.5 in. [Parsons, 1995a].
  - The combination of the principal and emergency spillways should be capable of safely discharging the flow from the 10-year, 24-hour storm event if the drainage area to the sediment basin is less than or equal to 20 acres, or the 25-year, 24-hour storm event if the drainage area to the sediment basin is greater than 20 acres.
  - Consideration should be given to using the permanent Fernald facility main entrance road as a containment dike for the surface-water runoff in lieu of an emergency spillway.
  - If an emergency spillway is implemented, a minimum freeboard of 1 ft measured from the peak water elevation in the emergency spillway to the top of the embankment, should be provided.

SECTION 02271

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RIPRAP

PART 1 GENERAL

1.01 SCOPE

- A. This Section includes riprap materials and placement.

1.02 RELATED SECTIONS AND PLANS

- A. Section 02100 - Surveying
- B. Section 02200 - Earthwork
- C. Section 02270 - Surface-Water Management and Erosion Control
- D. Section 02714 - Geotextiles
- E. Construction Quality Assurance (CQA) Plan
- F. Part 8 - Environmental Health & Safety/Training Requirements
- G. Part 9 - Quality Assurance Requirements

1.03 REFERENCES

- A. Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications).
- B. Latest version of American Society for Testing and Materials (ASTM) Standard:
  - 1. ASTM C 127. Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
  - 2. ASTM C 535. Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machines.
  - 3. ASTM D 5240. Standard Test Method for Testing Rock Slabs to Evaluate Soundness of Riprap by Use of Sodium or Magnesium Sulfate.
- C. "Off-Site Borrow Materials Geotechnical Evaluation Report" [Parsons, 1996]. This report presents geotechnical data for potential off-site borrow sources for On-Site

Disposal Facility (OSDF) construction materials, including fine concrete aggregates (sand), coarse concrete aggregates (gravel), pea gravel, and riprap.

- D. "Evaluation of Materials for the On-Site Disposal Facility (OSDF) Biointrusion Barrier" [University of Cincinnati, 2000]. This report presents geologic and geotechnical data for off-site sources of riprap.

#### 1.04 SUBMITTALS

- A. Submit the following to the Construction Manager for review with the Contractor's Surface-Water Management and Erosion Control Work Plan specified in Section 02270, within 15 calendar days from Notice to Proceed:
1. the source of the riprap;
  2. for approved sources identified in Parsons [1996] and University of Cincinnati [2000] or by Fluor Fernald, Inc., certification from the supplier that the Riprap Type C, as shown on the Construction Drawings, meet the material requirements of this Section, and results of tests conducted in accordance with ASTM C 127 on Type C Dumped Rock Fill, as defined in Item 601.07 and 703.04(3) of Ohio DOT Specifications; and
  3. for approved sources identified in Parsons [1996], University of Cincinnati [2000] or by Fluor Fernald, Inc., certification from the supplier that the Riprap Type D, as shown on the Construction Drawings, meet the material requirements of this Section, and results of tests conducted in accordance with ASTM C 535 and ASTM D 5240 on Type D Dumped Rock Fill, as defined in Item 601.07 and 703.04(3) of Ohio DOT Specifications.
- B. Notify the Construction Manager at least 14 calendar days in advance of shipment of riprap to the site. Allow Construction Manager and CQC Consultant to conduct visual inspection and approval of riprap materials designated for the project at the quarry producing the riprap.
- C. Provide list of equipment, description of construction methods, and other required information related to riprap placement in the Contractor's Earthwork Work Plan specified in Section 02200.

#### 1.05 HEALTH AND SAFETY REQUIREMENTS

- A. Environmental health & safety/training requirements shall be in accordance with Part 8 of the Contract Documents.

1.06 CONTRACTOR'S QUALITY ASSURANCE

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- A. Contractor's quality assurance requirements shall be in accordance with Part 9 of the Contract Documents.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Stone used for riprap shall consist of field stone, rough unhewn quarry stone, or excavated rock with angular or fractured faces.
- B. Riprap Type C, as shown on the Construction Drawings, shall conform to requirements of Type C Dumped Rock Fill specified in Item 601.07 and 703.04(3) of the Ohio DOT Specifications.
- C. Furnish Riprap Type C having a minimum bulk specific gravity of 2.60 and a maximum absorption of 0.83 percent when measured in accordance with ASTM C 127.
- D. Riprap Type D, used for slope protection, channel and ditch lining, and other surface-water management and erosion control measures specified in Section 02270 and as shown on the Construction Drawings, shall conform to requirements of Type D Dumped Rock Fill specified in Item 601.07 and 703.04(3) of the Ohio DOT Specifications. In addition, the Riprap Type D shall be relatively free of laminations, seams, and fractures.
- E. The Riprap Type D shall have a maximum loss of 15 percent from a sodium sulfate soundness test conducted in accordance with ASTM D 5240, and a maximum loss of 50 percent in a Los Angeles Abrasion test conducted in accordance with ASTM C 535.
- F. Furnish geotextile filter as specified in Section 02714 and as shown on the Construction Drawings.

**2.02 EQUIPMENT**

- A. Furnish equipment to perform work specified in this Section.

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## PART 3 EXECUTION

### 3.01 PLACEMENT

- A. Place riprap to the thicknesses and limits shown on the Construction Drawings and for ditch check dams in accordance with Section 02270.
- B. Place riprap on geotextile filter or prepared subgrade as shown on the Construction Drawings. Geotextiles shall be shingled downgradient and shall be overlapped a minimum of 1 foot as specified in Section 02714.
- C. Carefully place riprap to avoid segregation or damage of the underlying material. Place the material in such a manner as to produce a uniform mass of riprap with the minimum practicable percentage of voids. Distribute the larger pieces throughout the entire mass such that the finished riprap is free from non-uniform areas of small or large pieces. Hand placing, to a limited extent, may be required, but only to the extent necessary to obtain the results specified above.
- D. Do not place riprap by dumping into chutes or by similar methods likely to cause segregation of various sizes.
- E. Do not place riprap in a manner that causes damage to an underlying geotextile filter. Repair damaged geotextile in accordance with Section 02714.

### 3.02 CONSTRUCTION QUALITY REQUIREMENTS

- A. CQC Consultant will perform conformance testing on Riprap Type C to confirm compliance with this Section. Conformance testing to be performed and minimum testing frequencies shall be in accordance with the Construction Quality Assurance (CQA) Plan.
- B. CQC Consultant will monitor riprap placement as specified in this Section and the CQA Plan.

### 3.03 SURVEY CONTROL

- A. Survey the limits and thickness of the riprap in accordance with Section 02100.

### 3.04 TOLERANCE

- A. Construct the riprap to within 0.0 to +0.3 feet of the thickness shown on the Construction Drawings.

[END OF SECTION]

REQUEST FOR CLARIFICATION OF INFORMATION / DESIGN CHANGE NOTICE			
(1) PROJECT/CWO/RES NO.: 20104		(2) S/C NO.: FSC-653	(6) DATE 10/3/02
(3) S/C TITLE: On-Site Disposal Facility (OSDF) Phase IV Construction		(11) RCI NO.:	
(4) RESPONSIBLE DISCIPLINE: E <input type="checkbox"/> M <input type="checkbox"/> C <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>		(4A) RCI/DCN TITLE: Addition of Sedimentation Basin #2 to Phase IV scope of work	(11) DCN NO.: 20104-006
(7) DOCUMENTS AFFECTED		(7) DOCUMENT NOS.	(7) REV.
Phase V Construction Drawing: Subgrade Grading Plan III - Cell 6 Liner System and OSDF Sedimentation Basin No. 2		90X-6000-G-00367	0
Phase V Construction Drawing: Surface-Water Management System Details VII		90X-6000-G-00404	0
(9) <input type="checkbox"/> RCI-INQUIRY <input type="checkbox"/> USQD SCREENING BY PROJECT ENGINEER		(9) <input checked="" type="checkbox"/> DCN-JUSTIFICATION, EXISTING CONDITION & REQUESTED/PROPOSED CHANGE	
<input type="checkbox"/> REQUIRED <input type="checkbox"/> NOT REQUIRED			
<p><b>Justification:</b> If OSDF Cell Liner 6 is to be constructed in calendar year 2003, Sedimentation Basin #2 needs to be constructed in calendar year 2002 to manage storm water at the OSDF in calendar year 2003.</p> <p><b>Existing Conditions:</b> Existing Sedimentation Basin #1 will be removed during construction of OSDF Cell Liner 6. Runoff from areas east of OSDF Cells 1 through 5 and areas west and south of OSDF Cell 5 currently drain to Sedimentation Basin #1.</p> <p><b>Proposed Change:</b> Add the construction of Sedimentation Basin #2, located just south of Trailer 83, to the Phase IV scope of work in calendar year 2002 in order to be prepared to collect storm water and manage sediment during and after the construction of OSDF Cell Liner 6. Ditches which divert storm water from the east side of the OSDF cells to the existing Borrow Area Sedimentation Basin will be constructed as part of Phase V construction. Revised Drawings which incorporate OEPA comments, and response to comments are attached.</p>			
(10) REQUESTOR: <i>Charles C. Van Arsdale</i> COMPANY: Fluor Fernald		DATE: 10/3/02	(12) CE / PE: <i>Charles C. Van Arsdale</i> DATE: 10/3/02
(13) RESPONSE: FOR RCI, IS A DCN REQ'D? <input type="checkbox"/> NO <input type="checkbox"/> YES		(14) FOR DCN: <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED AS NOTED <input type="checkbox"/> DISAPPROVED	
RCI - DCN ACCEPTANCE			
(15) DESIGN ORGANIZATION APPROVAL/DISAPPROVAL DATE: <i>10/4/02</i> <i>KLVASI BADO - TUGENBASA, CRESYNTER</i>		(20) CHARGE NO. FOR CADD SERVICES TO INCORPORATE:	
<input type="checkbox"/> FIT <input type="checkbox"/> FORM <input checked="" type="checkbox"/> FUNCTION			
(16) FDF PE ACCEPTANCE & VERIFICATION THAT ALL REQUIRED REVIEWS ARE COMPLETE: (DCN ONLY) PERFORMANCE GRADE: (17) 5 - SBDP 2000-0027 Applies		DATE: <i>10/4/02</i>	
(18) CONSTRUCTION CONCURRENCE DATE: <i>10/4/02</i> <i>Bill Zebala</i>		(21) FIELD WORK COMPLETED:	
PURCHASE REQUESTION REQUIRED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (19)		SIGNOFF BY CE OR PE DATE:	

**SUBGRADE CONSTRUCTION CONTROL POINTS**

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198	198	198.00	198	198	198.00
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200	200	200.00	200	200	200.00

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**LEGEND**

[Symbol]	EXISTING GROUND ELEVATION (FEET)
[Symbol]	SUBGRADE ELEVATION (FEET) (NOTE 1)
[Symbol]	FINISHED GRADE ELEVATION (FEET)
[Symbol]	BATTERY LIMIT
[Symbol]	BORROW AREA LIMIT
[Symbol]	EXISTING TRANSMISSION PERMANENT LEACHATE TRANSMISSION SYSTEM PIPE
[Symbol]	EXISTING INTERIOR LEACHATE TRANSMISSION SYSTEM PIPE
[Symbol]	EXISTING LEACHATE TRANSMISSION SYSTEM PIPE
[Symbol]	EXISTING UNDERGROUND ELECTRIC
[Symbol]	SLOPE TOE ON CREST
[Symbol]	DRAINAGE FLOW DIRECTION
[Symbol]	CONSTRUCTION CONTROL POINT
[Symbol]	BEFORE CREST
[Symbol]	ACCESS CORRIDOR ACCESS ROAD ACCESS
[Symbol]	REPAIR LIMIT

**SCALE IN FEET**

0 25 50

**FLUOR FERNALD, INC.**

UNITED STATES DEPARTMENT OF ENERGY  
FLUOR ENVIRONMENTAL MANAGEMENT PROJECT

ON-SITE DISPOSAL FACILITY - PHASE V  
SUBGRADE GRADING PLAN III - CELL 6 LINER

CONTRACT NO. 95-0000020  
PROJECT NO. 2019

DATE: 08/11/03  
BY: [Signature]

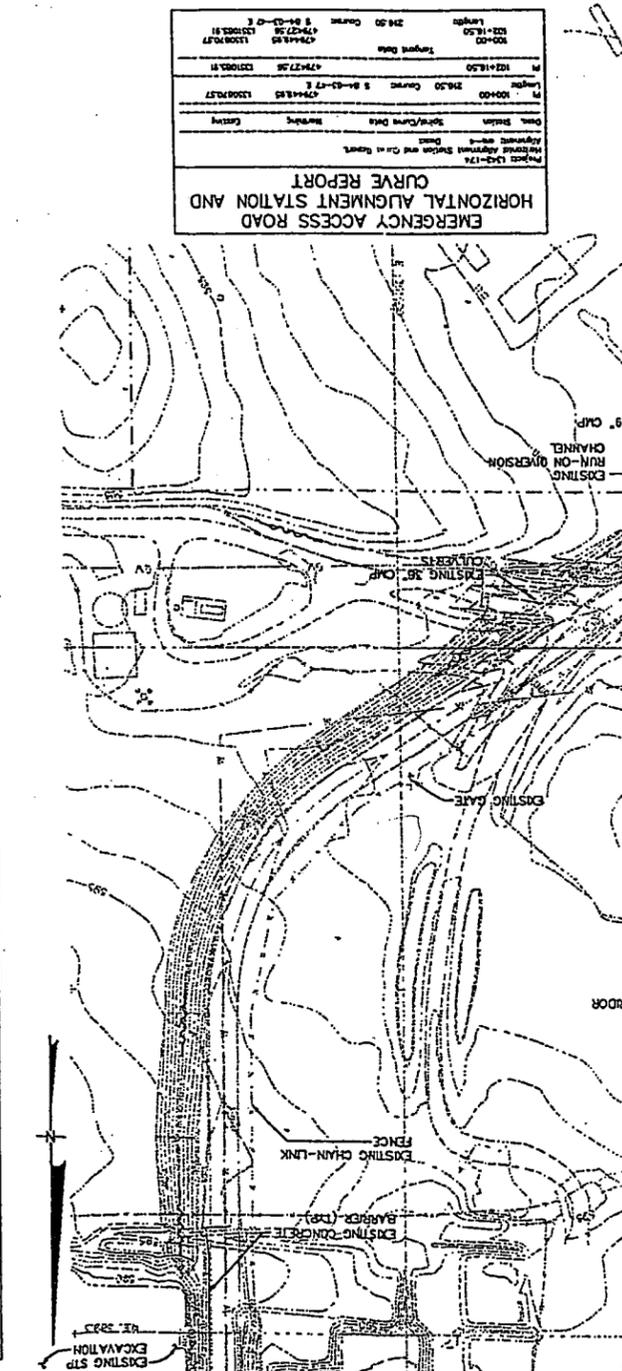
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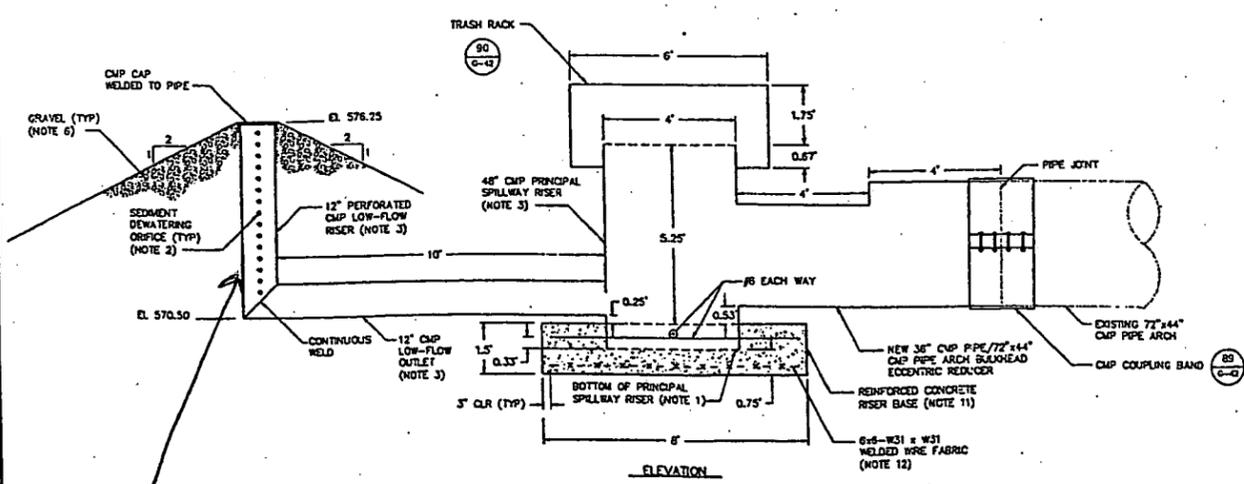
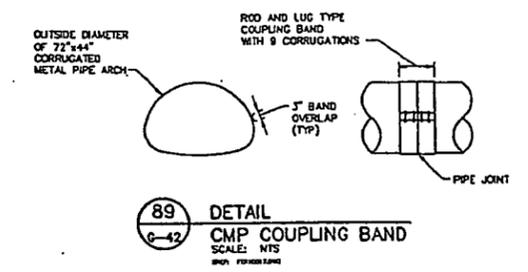
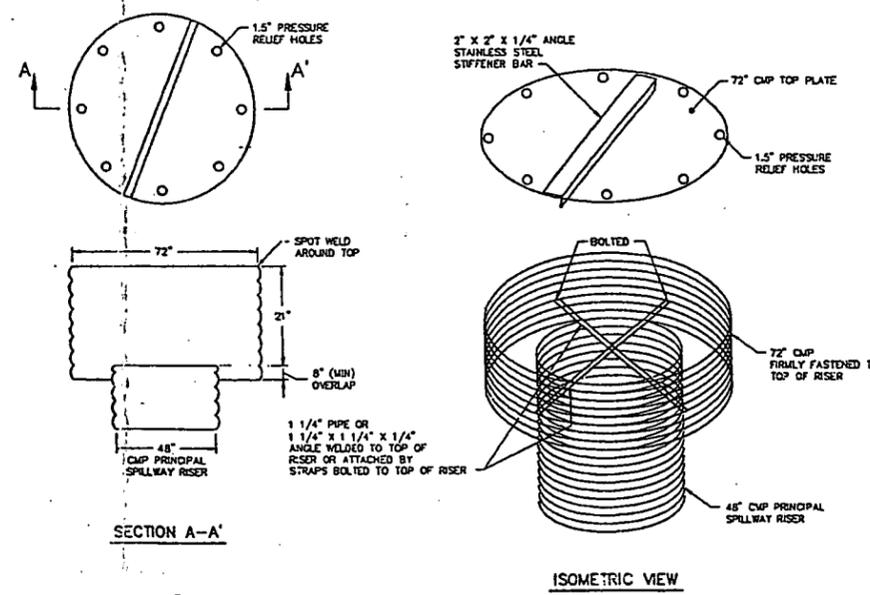
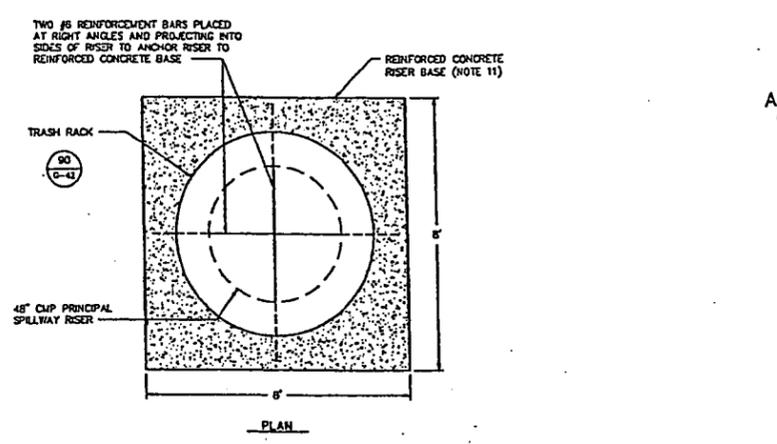
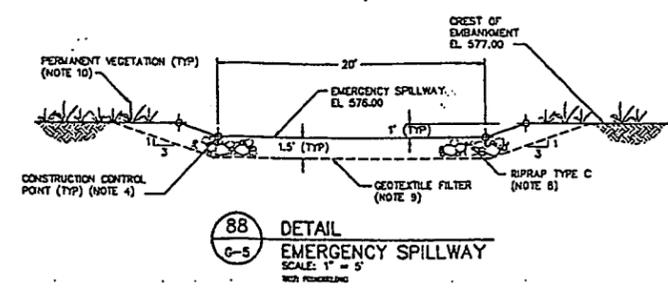
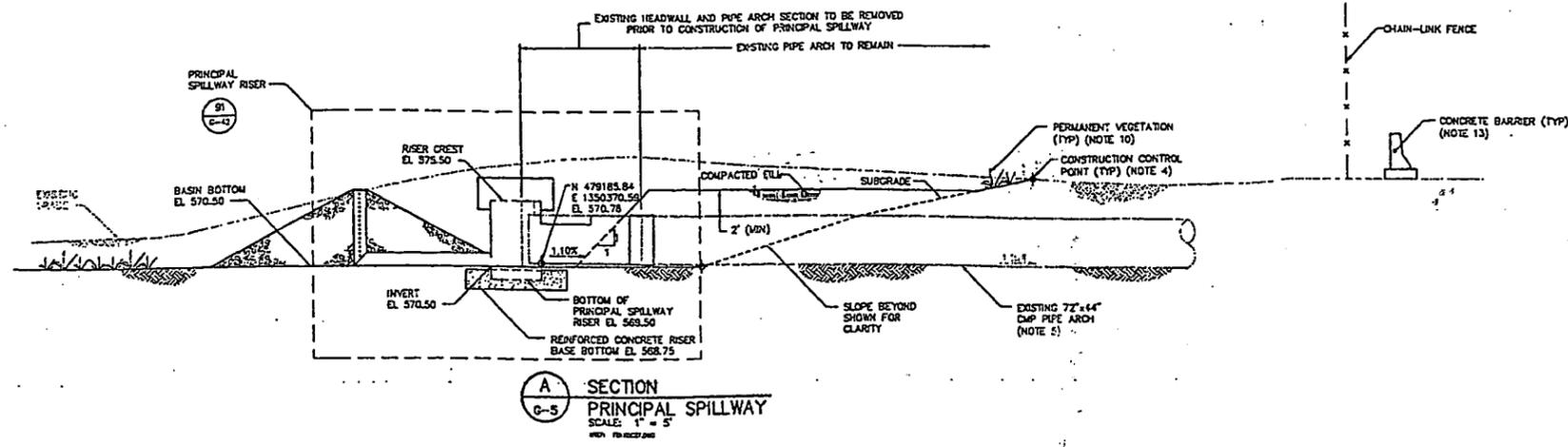
FLUOR FERNALD, INC. ENGINEERS

STATE OF OHIO  
REGISTERED PROFESSIONAL ENGINEER  
NO. 10888  
EXPIRES 12-31-04

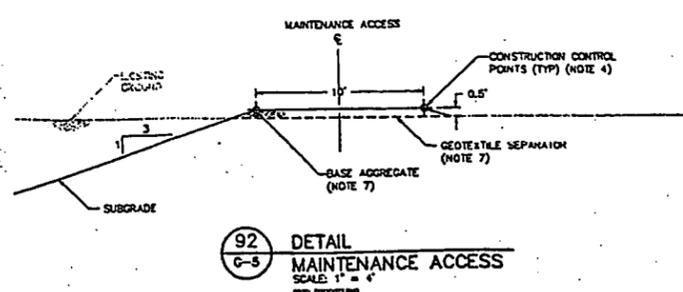
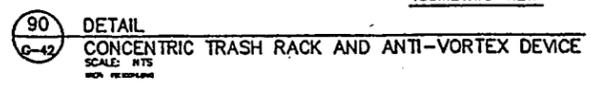
CONSTRAINTS  
CONTRACT NO. 95-0000020  
PROJECT NO. 2019  
DATE: 08/11/03  
BY: [Signature]

- NOTES:**
1. CLARK, GRUBB, AND STORING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 0210, SUBGRADE ELEVATION CORRECTION TO TOP OF FINISHED SUBGRADE, INCLUDING ANY COMPACTED FILL, SUBGRADE SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 0200.
  2. CONTRACTOR SHALL REMOVE EXISTING UNDERGROUND UTILITIES WITHIN CONSTRUCTION AREA AS SHOWN ON REFERENCED DRAWINGS (S&C-0201) THROUGH (S&C-0207). CONTRACTOR SHALL REMOVE UNDERGROUND UTILITIES IN CONSTRUCTION AREA IN ACCORDANCE WITH SPECIFICATION SECTION 0200 AND AS APPROVED BY CONSTRUCTION MANAGER.
  3. CONTRACTOR SHALL PLACE CAUTION SIGNS WITHIN CONSTRUCTION SAFETY FENCE SURROUNDING CONSTRUCTION AREA. SIGNS SHALL BE PLACED AT TOP OF DRAINAGE AND MAY BE SHAVED WITH END BUOY.
  4. CONTRACTOR SHALL PLACE RING BUOYS AROUND OSDF SEDIMENTATION BASIN NO. 2 AS REQUIRED BY OSDF REGULATIONS.
  5. CONTRACTOR SHALL PLACE CAUTION SIGNS WITHIN CONSTRUCTION SAFETY FENCE SURROUNDING OSDF SEDIMENTATION BASIN NO. 2. SIGNS SHALL BE PLACED AT TOP OF DRAINAGE AND MAY BE SHAVED WITH END BUOY.
  6. CHAIN-LINK FENCE AND GATE DETAILS ARE SHOWN ON DRAWING 0-47.
  7. CONTRACTOR SHALL CAP EXISTING 30-INCH X 31-INCH CAP CULVERT USING A PRE-FABRICATED STEEL PLATE. EXISTING 30-INCH X 31-INCH CAP CULVERT SHALL BE REMOVED AT LOCATION APPROVED BY CONSTRUCTION MANAGER.
  8. CONTRACTOR SHALL CUT AND REMOVE EXISTING 27-INCH HOPE CULVERT TO LIMIT H+V99.93 AND E+V99.93.33. SECTION SHALL BE CONDUCTED TO EXISTING PIPE USING A PLAT SHOT AND CASSET WITH BAR-BOLTS AND STRAP FASTENERS.
  9. EXISTING 27-INCH HOPE CULVERT SHALL BE REMOVED WITHIN AREA SHOWN ON DRAWING 0-47.
  10. CONTRACTOR SHALL PLACE BRIDGE WITHIN AREA SHOWN ON DRAWING 0-47.
  11. BORROW AREA DEVELOPMENT AND RESTORATION IS ILLUSTRATED ON DRAWING 0-1.
  12. CONTRACTOR SHALL PLACE BRIDGE WITHIN AREA SHOWN ON DRAWING 0-47. BRIDGE SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 0270. BRIDGE PROGRESS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 0271.





THE RISER SHALL BE WRAPPED WITH WIRE MESH AND DOUBLE WRAPPED WITH GEOTEXTILE



- NOTES:
1. PRINCIPAL SPILLWAY RISER SHALL BE EMBEDDED 0.75 FEET IN REINFORCED CONCRETE RISER BASE.
  2. SEDIMENT DEWATERING ORIFICES SHALL BE 1/2 INCH DIAMETER AND VERTICALLY SPACED AT 4 INCHES ON CENTER WITH 4 ORIFICES AT EACH LEVEL.
  3. CULVERTS AND RISERS SHALL BE ALUMINIZED AND IN ACCORDANCE WITH SPECIFICATION SECTION 02721.
  4. CONSTRUCTION CONTROL POINTS FOR SUBGRADE AND MAINTENANCE ACCESS ALIGNMENT ARE PROVIDED ON DRAWING G-5.
  5. CONTRACTOR SHALL FILL A MINIMUM OF 2 FEET ABOVE CROWN OF EXISTING CMP PIPE ARCH CULVERT. PLACEMENT AND COMPACTION OF FILL SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02200.
  6. AASHTO NO. 57 STONE SHALL BE USED AROUND 12-INCH PERFORATED CMP LOW-FLOW RISER.
  7. BASE AGGREGATE AND GEOTEXTILE SEPARATOR SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02230.
  8. RIPRAP SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02271.
  9. GEOTEXTILE FILTER SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02714.
  10. VEGETATION SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02330.
  11. CONTRACTOR SHALL FURNISH CONCRETE MIX WITH SUFFICIENT AIR ENTRAINING ADJUTIVE TO PROVIDE 56 ± 1% AIR AT POINT OF DELIVERY IN ACCORDANCE WITH ASTM C231 AND A COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C39.
  12. CONTRACTOR SHALL FURNISH REINFORCING WELDED STEEL WIRE FABRIC IN ACCORDANCE WITH ASTM A182.
  13. CONCRETE BARRIERS SHALL BE SUPPLIED BY FLUOR FERNALD, INC.

REV. NO.	DATE	DESCRIPTION	DES. BY	CHK. BY	APP. BY
0	02.01.20	CFE SUBMITTAL TO FFD/DOE/DOA	LMD	JAA	TEJ
1	02.11.17	PRELIMINARY SUBMITTAL TO FFD/DOE	LMD	TAM	TEJ
2	02.14.21	PRELIMINARY SUBMITTAL TO FFD/DOE	LMD	TAM	TEJ

SCALE AS SHOWN

UNITED STATES DEPARTMENT OF ENERGY  
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

**FLUOR FERNALD, INC.**

PROJECT: ON-SITE DISPOSAL FACILITY - PHASE V

TITLE: SURFACE-WATER MANAGEMENT SYSTEM DETAILS VII

THIS DRAWING MAY NOT BE USED FOR PROJECTS OTHER THAN THAT FOR WHICH IT WAS PREPARED UNLESS SO INDICATED.

STATE OF OREGON PROFESSIONAL ENGINEER

PROJECT NO.: 20105  
CONTRACT NO.: 95P5000028  
FPM DRAWING NO.: 95P5000028-00004  
CUSTOMER PROJECT NO.: 001342-17.4  
CUSTOMER DOCUMENT NO.: F01-0040  
SHEET NO.: G-42  
REVISION NO.: 0

29 Jan 2002

CERTIFIED-FOR-CONSTRUCTION