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JE JACOBS

CONSTRUCTION SPECIFICATIONS
SILO 3 PROJECT

CIVIL SITE PACKAGE

INFORMATION ONLY

SUBMITTED TO:
FLUOR FERNALD, INC.
CONTRACT NO. DE-AC24-01OH20115
DOCUMENT NO.: 40430-TS-0007

PREPARED BY: Jerry L. VanFossen DATE: 4/12/02
JERRY VAN FOSSEN, JACOBS PROJECT MANAGER

REVIEWED BY: M W Gilmore for J Hughes DATE: 5/14/02
JACK HUGHES, FLUOR FERNALD, INC., ENGINEERING MANAGER

APPROVED BY: D Edwards DATE: 5/14/02
DORIS EDWARDS, FLUOR FERNALD, INC., PROJECT MANAGER

U.S. DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PREPARED UNDER CONTRACT NO. DE-AC24-01OH20115
JACOBS ENGINEERING PROJECT NO. 35H19605

Project No.: 35H19605
Project: Silo 3

Civil Site Plan

PROJECT TABLE OF CONTENTS

[X] A - Conforms to the Subcontract Requirements
[ ] B - Minor Comment - Incorporate and Resubmit
[ ] C - Revise and Resubmit
Sig: _____ Date: 5/14/02

000002

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SILO 3 REINFORCEMENT
FLUOR FERNALD, INC.
FERNALD, OHIO
PROJECT NO.: 35H19605

SECTION NO.: 01330

SPECIFICATION
FOR
SUBMITTAL PROCEDURES

THIS TITLE SHEET IS THE FIRST PAGE OF THE SPECIFICATION AND IS RECORD OF EACH ISSUE OR REVISION. THE PAGES BEING REVISED AND THE DESCRIPTION OF THE REVISION ARE LISTED BELOW.

FOR CONVENIENCE, THE NATURE OF THE REVISION IS BRIEFLY NOTED UNDER REMARKS.

NOTE: THIS SPECIFICATION WAS CREATED IN SPECSINTACT 3.

REV.	DATE	BY	CK	APPROVALS		PAGES	REMARKS
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SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01330

SUBMITTAL PROCEDURES

-- End of Section Table of Contents --

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

All submittals shall be processed in accordance with Part 6 and Part 7 of the contract document.

1.1 DEFINITIONS

1.1.1 Submittal

Shop drawings, product data, samples, operation and maintenance data,and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.1.2 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.

b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.

c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.

d. Operation and Maintenance (O&M) Data:
Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.
The data is required when the item is delivered to the project site.

e. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

1.2 SUBMITTAL IDENTIFICATION (SD)

Submittals required are identified by SD numbers and titles as follows:

000005

SD-01 Reserved

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

000006

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.2.1 Approving Authority

Fluor Fernald, Inc. will approve all submittals.

1.2.2 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

000007

1.3 SUBMITTALS

1.3.1 Format for Shop Drawings

SEE ACR-001

1.3.2 Format of Product Data

SEE ACR-001

1.3.3 Format of Samples

SEE ACR-001

1.3.4 Format of Operation and Maintenance (O&M) Data

a. O&M Data format shall comply with the requirements specified in Section 01781, Operation and Maintenance Data"

1.3.5 Format of Administrative Submittals

SEE ACR-001

1.4 QUANTITY OF SUBMITTALS

1.4.1 Number of Copies of Shop Drawings

SEE ACR-001

1.4.2 Number of Copies of Product Data

SEE ACR-001

1.4.3 Number of Samples

SEE ACR-001

1.4.4 Number of Copies of Operation and Maintenance Data

SEE ACR-001

1.4.5 Number of Copies of Administrative Submittals

SEE ACR-001

-- End of Section --

000008

SUBMITTAL LIST

4279

TITLE AND LOCATION:
SILOS 3

CONTRACT NO.:
35H19605

SPECIFICATION SECTION	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #
02110	SD-07 Certificates	
	EQUIPMENT	2.2
02120	SD-07 Certificates	
	Demolition Plan	
	Notify Fluor Fernald in writing 10 days	
	Prior to the commencement of work.	
02200	SD-06 Test Reports	
	Material Tests	
	Tests for moisture-density relation	
	Density and moisture tests	
	SD-07 Certificates	
	Qualifications of the commercial	
	testing laboratory	
	Documentation of nuclear density guage	
	calibration	
	SD-11 Closeout Submittals	
	Bills of lading	
	As-built topographic drawings	
	Weight slips, manifests	
02215	SD-06 Test Reports	
	Trench Backfill material conformance	
	test results;	
	Embedment fill material test results	
	Tests for moisture-density relation Insitu	
	density and moisture test results	
	SD-11 Closeout Submittals	
	Bills of lading	
	As-built drawings	
	Weight slips, manifests	
02270	SD-03 Product Data	
	Manufacturer's data on silt fence	
	Manufacturer's data on erosion	
	control matting	
	SD-08 Manufacturer's Instructions	
	Manufacturer's installation and	
	maintenance instructions	
02510	SD-03 Product Data	
	Piping and Fitting Materials	
	Joints	
	Valves	
	Indicator Posts	
	SD-06 Test Reports	
	Disinfection Test	
	SD-07 Certificates	
	Piping and Fittings Materials	
	Valves	

SUBMITTAL LIST

TITLE AND LOCATION:
SILOS 3

CONTRACT NO.:
35H19605

02722	SD-06 Test Reports	
	Material Tests	
	Tests for moisture-density relation	
	Density and moisture tests	
	SD-07 Certificates	
	Source of Materials	
	Calibration Certification	
	SD-11 Closeout Submittals	
	Records	

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02110 SPECIFICATION FOR GRUBBING AND STRIPPING

THIS TITLE SHEET IS THE FIRST PAGE OF THE SPECIFICATION AND IS RECORD OF EACH ISSUE OR REVISION. THE PAGES BEING REVISED AND THE DESCRIPTION OF THE REVISION ARE LISTED BELOW.

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000011

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02110

GRUBBING AND STRIPPING

-- End of Section Table of Contents --

000012

SECTION 02110

GRUBBING AND STRIPPING

PART 1 GENERAL

1.1 SCOPE

This Section includes grubbing and stripping of all areas to be excavated or to receive fill material.

1.2 DEFINITIONS

1.2.1 Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots, and matted roots from the designated grubbing areas.

1.2.2 Stripping

Stripping consists of the removal of minimum 6 inches topsoil layer including roots and organic matter, grass, concrete, and other material unsuitable for use as subgrade or compacted fill.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

EQUIPMENT;

List of equipment and description of construction methods used in grubbing and stripping.

PART 2 PRODUCTS

2.1 MATERIALS

Not used.

2.2 EQUIPMENT

Furnish equipment to perform the grubbing and stripping specified in this Section.

PART 3 EXECUTION

3.1 GENERAL

Dust control measures for grubbing and stripping activities shall be in accordance with the Silo 3 Environmental Control Plan requirements.

3.2 SURFACE-WATER MANAGEMENT AND EROSION CONTROL

Prior to performing grubbing, and/or stripping, install surface-water

management and erosion controls specified in Section 02270 and per the Construction Drawings.

3.3 GRUBBING

Perform clearing and grubbing in excavation, compacted fill, trenching, road construction, and fencing areas as indicated on the Construction Drawings.

Perform clearing and grubbing as separate activities.

In those areas where only clearing is required, perform clearing in a manner that minimizes disturbance to the existing ground surface.

Stockpile cleared and grubbed materials separately in the stockpile areas as directed by the Construction Manager.

After completion of grubbing, fill and compact depressions outside the grading limits. Material type and degree of compaction shall meet the requirements specified for compacted fill in 02200. Match fill elevation to the surrounding grade and grade to drain.

3.4 STRIPPING

Perform stripping in excavation, compacted fill and trenching areas as indicated on the Construction Drawings.

If soil or weather conditions are unsuitable for stripping, due to precipitation or high wind as determined by the Construction Manager, cease stripping activities until permission to resume stripping activities is obtained from the Construction Manager.

3.5 SURVEY CONTROL

Survey the limits of clearing in accordance with State of Ohio surveying standard practices and the Construction Drawings.

-- End of Section --

000014

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02120 SPECIFICATION FOR SITE DEMOLITION

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000015

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02120

SITE DEMOLITION

-- End of Section Table of Contents --

000016

SECTION 02120

SITE DEMOLITION

PART 1 GENERAL

1.1 SCOPE

This Section includes demolition of existing fire water and domestic water lines and appurtenences, portions of the Interim Storage Area (ISA) Pad, portions of the Gantry Pads and other Silo 3 pads, pipe bridge foundations and asphalt paving.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

OHIO DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT	Item 703, Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications)

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Demolition Plan;

Notify Fluor Fernald in writing 10 days prior to the commencement of work.;

SD-11 Closeout Submittals

Receipts;

1.4 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from Fluor Fernald. Remove rubbish and debris from the work area to staging areas and/or stockpiles on a daily basis or as directed by the Construction Manager.

1.5 DUST CONTROL

Dust control for demolition activities shall be in accordance with the Silo 3 Environmental Control Plan requirements.

1.6 PROTECTION

1.6.1 Existing Work

Protect existing work which is to remain in place or be reused. Repair items which are to remain and which are damaged during performance of the work to their original condition.

1.6.2 Facilities

Protect electrical services, mechanical services and other utilities to remain in service. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.7 BURNING

Burning will not be permitted.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING STRUCTURES/UTILITIES TO BE REMOVED

3.1.1 General

Ensure existing utilities have been de-energized or otherwise isolated prior to begining demolition activities.

Ensure all temporary barricades and notifications are in place prior to begining demolition acitivities.

3.1.2 Utilities and Related Equipment

Remove existing utility lines, Post Indicator Valve(PIV) and other appurtenences as indicated on the Construction Drawings. If utility lines are encountered that are not shown on the Construction Drawings, stop work and contact the Construction Manager immediately.

3.1.3 ISA Pad

Saw concrete along straight lines to the limits indicated on the Construction Drawings or as necessary to install future work. Remove ISA Pad concrete sections in a manner that will not damage adjacent sections or other areas to remain.

3.1.4 Asphalt Roadway

Remove asphalt roadway paving where indicated on the Construction Drawings. Removal shall be full depth and width. Dispose of as directed by the Construction Manager.

3.1.5 Gantry Pads and other Silo 3 Pads

Remove pedestal rebar and concrete as necessary to install the Silo 3 Enclosure foundations.

3.1.6 Pipe Bridge Foundations

Remove pipe bridge foundations where indicated on the Construction Drawings. Backfill depressions or excavations with ODOT Item 703, #57 stone. Backfill and compaction shall be in accordance with Section 02215.

3.1.7 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage. Dispose of as directed by the Construction Manager.

-- End of Section --

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02200 SPECIFICATION FOR EARTHWORK

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000020

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02200

EARTHWORK

-- End of Section Table of Contents --

000021

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.1 SCOPE

This Section includes site preparation including construction safety fence, surface-water management and erosion control, excavation, dewatering, stockpiling, and compacted fill.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 698	(2001) Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3)
ASTM D 2487	(2000) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(2001) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(2000) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

FLUOR FERNALD, INC.

ATC, 2001	ATC Project No. 72.58679.0022 (Site 2) "Geotechnical Investigation Report, Silos 1 & 2, Warehouse Site" (ATC, 2001). This report contains geotechnical data for the subsurface soils in the Warehouse area.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Material Tests;

Tests for moisture-density relation;

Density and moisture tests;

Standard Proctor;

000022

Provide 2 copies of test results within 24 hours of conclusion of physical tests.

SD-07 Certificates

Qualifications of the commercial testing laboratory;

Documentation of nuclear density guage calibration;

SD-11 Closeout Submittals

Bills of lading;

As-built topographic drawings;

Weight slips, manifests;

PART 2 PRODUCTS

2.1 MATERIALS

Fill material for compacted fill and trench backfill shall be granular fill material from off site or shall be excavated on site soil free of debris, foreign objects, large rock fragments, organics, and other deleterious materials. Visible rock particles shall be maximum dimension of 5 inches for 8-inch ±1-inch thick loose lifts and 2 inches for 4-inch ±1-inch thick loose lifts. Material for compacted fill shall conform to GC, SC, SM, ML, CL, or CH according to the Unified Soil Classification System per ASTM D 2487.

Construction water for moisture conditioning compacted fill shall be obtained from the on-site water source designated by Fluor Fernald.

Construction safety fence for activities with duration less than 30 calendar days shall be orange, high-density polyethylene, 4 feet in height, opening size approximately 4 inches by 1 inch, minimum tensile strength of 2000 pounds per foot of width. Posts shall be T-shaped (T-post) or as approved by the Construction Manager.

Construction safety fence for activities with a duration greater than 30 calendar days made of galvanized steel welded wire fabric, 2 inch by 4 inch mesh, 4 feet in height, 12-1/2 gauge, or equivalent approved by the Construction Manager. Posts for the fence material shall be 6 feet long and made of steel. Install posts at spacing recommended by the Manufacturer's installation procedures and as required to prevent sagging.

Contractor shall furnish and install signs for construction safety fence in accordance with Part 8 of the Contract Documents.

2.2 EQUIPMENT

Furnish equipment to perform work specified in this Section.

Furnish equipment to achieve required compaction specified in this Section.

Furnish hand compaction equipment, such as walk-behind pad foot compactors, hand tampers, or vibratory plate compactors, for compaction in areas inaccessible to large compaction equipment.

000023

Furnish water tank trucks, pressure distributors, or other equipment designed to apply water uniformly and in controlled quantities at variable surface widths to provide the required in-place moisture content and to prevent drying of soil surfaces.

Furnish equipment such as scarifiers, disks, spring tooth or spike tooth harrows, earth hauling equipment, and other equipment as required for earthwork construction.

PART 3 EXECUTION

3.1 GENERAL

Verify existing conditions prior to earthwork activities. Geotechnical data for the subsurface soils in the Warehouse area can be found in the following: Fluor Fernald, Inc. "Geotechnical Investigation Report, Silos 1 & 2, Warehouse Site" (ATC, 2001).

Install, maintain, and inspect surface-water management and erosion controls in accordance with Section 02270.

3.2 SITE PREPARATION

Install construction safety fence at construction limits in accordance with Part 8 of the Contract Documents. Signs and barricades around trenches, stockpiles, and excavated areas shall be in accordance with Part 8 of the Contract Documents.

Maintain and repair construction safety fence for the duration of the Contract. Fencing shall be maintained so as to minimize vertical sagging.

Prior to earthwork activities, perform grubbing and stripping in accordance with Section 02110.

Locate existing manholes, drop inlet structures, monitoring wells, piezometers, lysimeters, utilities, and other subsurface structures in the work area. Protect structures and utilities during earthwork activities as indicated on the Construction Drawings.

3.3 EXCAVATION

Excavate designated areas to the subgrade elevations or excavation limits shown on the Construction Drawings. Stockpile excavated material in the designated stockpile area at locations approved by the Construction Manager.

Excavate material within the excavation limits, including rock encountered, regardless of type, character, composition, and condition.

Blasting, including use of explosives or explosive devices, shall not be permitted.

Minimize sloughing and caving of excavations. Over-excavate and fill areas of excavations that cave or slough with compacted fill in accordance with this Section.

Do not remove soil from the site or dispose of soil included in this Contract except as approved in writing by the Construction Manager.

3.4 EXCAVATION DEWATERING

000024

Anticipate seepage of groundwater into and accumulation of surface-water runoff in excavations. Manage groundwater and surface-water runoff in excavations in accordance with this Section and as directed by the Construction Manager.

Collect water that accumulates in the excavation in a toe drain, or other suitable sump, and pump to locations as directed by the Construction Manager.

Prevent surface-water run-on from adjacent areas from entering the excavation in accordance with Section 02270.

3.5 STOCKPILING

Stockpile excavated soils in the stockpile areas as directed by the Construction Manager

Construct stockpiles no steeper than 3H:1V (horizontal:vertical), grade to drain, seal by tracking perpendicular to the slope contours with a dozer, and dress daily during periods when material is taken from or added to the stockpile.

3.6 SUBGRADE PREPARATION

Subgrade material shall be free of debris, foreign objects, organics, and other deleterious materials.

In the event saturated subgrade is encountered, localized sumps shall be constructed to facilitate removal of water. Manage removed water in accordance with this Section.

Perform subgrade proof rolling by driving a loaded dump truck with minimum loaded weight of 20 tons and minimum weight of 10 tons per axle or other pneumatic-tired vehicle back and forth across the area to be prepared to confirm the firmness of subgrade and top of contouring layer surface. Overlap the passes such that one set of tires on each pass runs between the two sets of tire tracks from the previous pass. Soils shall not exhibit pumping or develop ruts more than 2 inches in depth.

In areas where unsuitable soils are encountered, remove and replace the soil to a minimum depth of 1 foot below the proposed subgrade elevation. Remove unsuitable subgrade to an additional depth if necessary to obtain a suitable soil surface for subsequent fill placement. Removal of unsuitable soils to additional depth shall be as approved by the Construction Manager. Fill areas from which subgrade has been removed with compacted fill in accordance with this Section. Compact the fill material to at least 95 percent standard Proctor maximum dry unit weight as determined by ASTM D 698. Compact the uppermost lift of compacted fill beneath road and access corridor alignments to a minimum 95 percent of the standard Proctor maximum dry unit weight as determined by ASTM D 698.

In excavations or other areas where water accumulates, implement measures to remove the water in accordance with this Section. Maintain the subgrade surface free of standing water and in a firm condition to meet the proof rolling requirements of this Section. Maintain dewatered areas in this condition until overlying construction is complete.

Manage surface-water run on or runoff in accordance with paragraph 3.4 of

this Section.

Where compacted fill is to be placed, prepare the subgrade by scarifying to a depth of 2 inches prior to placement of fill materials.

3.7 COMPACTED FILL

Use fill material that meets the material requirements of this Section. Place the fill material to the limits and grades shown on the Construction Drawings.

Place fill material on surfaces which are free of debris, branches, vegetation, mud, ice, or other deleterious materials.

Place fill material in loose lifts with a thickness of 8 inches ±1 inch. In areas where compaction is to be performed using hand-operated equipment, place the fill material in loose lifts with a thickness of 4 inches ±1 inch.

Remove visible rock particles with a maximum dimension larger than 5 inches for 8-inch ±1-inch thick loose lifts. For 4-inch ±1-inch thick loose lifts, the maximum rock particle size shall be 2 inches.

Compact fill material in each lift to at least 95 percent of its standard Proctor maximum dry unit weight as determined by ASTM D 698. Compact fill at a moisture content within ±3 percentage points of the standard Proctor optimum moisture content as determined by ASTM D 698.

Moisture condition the fill material to achieve the compaction requirements of this Section. Use a water spraying system for wetting. During wetting or drying, regularly disc, rake, or otherwise mix the material to thoroughly blend the moisture throughout the lift. Use discing, raking, or other appropriate methods to dry the material as required.

Do not place frozen fill nor place fill material on frozen subgrade or previously placed compacted fill. Do not compact fill material at temperatures below 32 degrees Fahrenheit, unless authorized in writing by the Construction Manager.

Do not place fill during periods of precipitation. Placement may occur during periods of misting or drizzle, but only if authorized by the Construction Manager.

Rework compacted fill that does not meet the required compaction.

3.8 CONSTRUCTION QUALITY REQUIREMENTS

In-place density testing will be performed in accordance with ASTM D 2922. Nuclear density gauge ASTM D 2922 will be calibrated in accordance with the manufacturer's requirements. Documentation of this calibration will be provided to the Construction Manager. Register any nuclear or radiological sources brought on site with Fluor Fernald, Inc. prior to bringing the source on-site.

Perform in-place moisture tests in accordance with ASTM D 3017.

Determine moisture-density curves in accordance with ASTM D 698 (Standard Proctor). Test results must be reviewed and approved by the Construction Manager.

000026

If in-place density and/or moisture tests indicate that work does not meet specified requirements, remove work and replace or re-compact to specified requirements. If visual inspection indicates that work has not been performed as specified, correct work to comply with the requirements.

Perform soil classification in accordance with ASTM D 2487.

Frequency of Tests: Frequency of in-place density and moisture testing shall be whichever of the following requires the greatest number of test:

1. Once each day when compacting fill material.

2. Once each compacted lift of fill material.

3. Once every 2,500 sq. ft. of compacted fill material.

Notify the Construction Manager of activities that will require testing/inspection a minimum of 24 hours prior to the start of such activities.

3.9 SURVEY CONTROL

Survey the locations, limits and grades of excavations, stockpiles, and prepared subgrade in accordance with State of Ohio surveying standard practices and the Construction Drawings.

3.10 TOLERANCES

Perform the earthwork construction to within ±0.1 feet of the grades indicated on the Construction Drawings.

-- End of Section --

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02215 SPECIFICATION FOR TRENCHING AND BACKFILLING

THIS TITLE SHEET IS THE FIRST PAGE OF THE SPECIFICATION AND IS RECORD OF EACH ISSUE OR REVISION. THE PAGES BEING REVISED AND THE DESCRIPTION OF THE REVISION ARE LISTED BELOW.

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000028

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02215

TRENCHING AND BACKFILLING

-- End of Section Table of Contents --

000029

SECTION 02215

TRENCHING AND BACKFILLING

PART 1 GENERAL

1.1 SCOPE

This Section includes trenching and backfilling, including pipe embedment fill materials and placement.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	(2001) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(2001) Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3)

OHIO DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT	Item 703, Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications)

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)

29 CFR 1926	Latest version of Occupational Safety and Health Administration (OSHA) Construction Standards, Subpart P - Excavations

1.3 GENERAL

1.3.1 Utilities

Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work until proper backfilling operations.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

000030

Trench backfill material conformance test results;

Embedment fill material test results;

Tests for moisture-density relation;

Insitu density and moisture test results;

SD-07 Certificates

Qualifications of the commercial testing laboratory;

SD-11 Closeout Submittals;

Bills of lading;

As-built drawings;

Weight slips, manifests;

PART 2 PRODUCTS

2.1 MATERIALS

Furnish natural sand pipe embedment fill material for high-density polyethylene (HDPE) pipe meeting the gradation requirements of Section 703.06 of the ODOT specifications unless otherwise indicated on the construction drawings or specified in this section. Gradation testing shall be in accordance with ASTM C 136.

Furnish trench backfill material for HDPE pipe and electrical conduit that meets the fill material requirements for compacted fill specified in Section 02200 EARTHWORK. Obtain material for trench backfill, if required, from off-site borrow areas.

Construction water for moisture conditioning of the trench backfill shall be obtained from on-site water source.

Furnish a minimum 4-in.-wide plastic underground marker tape with suitable warning legend to mark HDPE pipes and electrical conduits.

2.2 EQUIPMENT

Furnish equipment to perform the work specified in this section.

Furnish hand compaction equipment such as walk-behind pad-foot compactor, hand tamper, or vibratory plate compactors for compaction in areas inaccessible to large compaction equipment.

PART 3 EXECUTION

3.1 GENERAL

Verify existing conditions.

Review existing site utility drawings, and identify and stake existing above and below ground utilities in vicinity of trenching. Staking shall be as approved by the Construction Manager.

In areas of trenching and backfilling, maintain and protect existing above

and below ground utilities.

Do not damage or disturb survey benchmarks, finished construction, and existing utilities and structures.

Perform grubbing and stripping in accordance with Section 02110.

3.2 TRENCHING

Trench for placement of pipes shall be to the depths and dimensions shown on the construction drawings. Stockpile excess excavated material from trenching in the stockpile areas as directed by the Construction Manager.

Trench support shall satisfy applicable local, state, and federal requirements, including requirements of 29 CFR 1926,OSHA Construction Standards,
Subpart P - Excavations. Provide trench support materials on site before the start of trenching. Maintain the safety and stability of slopes and trenches and protect adjacent utilities and structures.

Protect and maintain the trench bottom. Remove rock fragments or raveled materials that collect on the trench bottom. Backfill any over excavation with compacted fill in accordance with Section 02200. Excavate any soft subgrade encountered at the trench bottom and backfill to trench bottom elevation with compacted fill in accordance with Section 02200.

Where trenches will be excavated in compacted fill areas, perform trenching only after compacted fill has reached at least 12 inches above top of the pipe.

Continuously dewater trenches. Perform dewatering in accordance with Section 02200.

3.3 BACKFILLING

3.3.1 General

Do not backfill with frozen or saturated material.

Do not backfill over frozen, wet, or soft trench bottom or side slopes. Remove materials that are frozen, wet, or soft as specified in this section.

Do not disturb or damage piping in trench during backfilling.

Do not use compaction equipment that exerts greater than 10 lb per square in. ground pressure over piping that is covered by less than 12 in. of backfill material.

3.3.2 Placement of Pipe Embedment Fill For Pipes and Culverts

Place pipe embedment fill in 7-in.- ± 1-in.-thick loose lifts to the elevation of the bottom of the pipe or culvert.

Compact pipe embedment fill with a minimum of four passes of a vibratory plate compactor before placing pipe.

Place pipe or culvert on top of the compacted pipe embedment fill.

For pipes 12 in. in diameter or less, place additional pipe embedment fill

on the sides and gently hand tamp the fill around the sides as needed, so that intimate contact between the pipe and the pipe embedment fill is maintained below the spring line of the pipe. Continue placing pipe embedment fill until it is even with the top of the pipe. Compact the pipe embedment fill with a minimum of four passes of a walk-behind pad-foot compactor, hand tamper, or vibratory plate compactor, as appropriate. Place pipe embedment fill above the top of pipe to a minimum depth of 12 in. in two 7-inch ±1-inch thick loose lifts. Compact each lift of pipe embedment fill with a minimum of four passes of a walk-behind pad-foot compactor, hand tamper, or vibratory plate compactor, as appropriate.

3.3.3 Placement of Trench Backfill Material For Pipes and Culverts

After placement and compaction of pipe embedment fill to the limits shown on the Construction Drawings, place the first lift of trench backfill material in a nominal 12-in.-thick loose lift. Place subsequent lifts of trench backfill material in nominal 8-in. ± 1-in.-thick loose lifts.

Compact trench backfill material in each lift to at least 95 percent of its standard Proctor maximum dry unit weight and at a moisture content within ±3 percent of the optimum moisture content as determined by ASTM D 698. Perform required testing(moisture/density) once every 200 linear ft of trench backfill per lift. Notify the Construction Manager at least 24 hours prior to field testing.

3.4 SURVEY CONTROL

Survey the locations, limits, and grades of pipes and culverts in accordance with State of Ohio surveying standard practices and the Construction Drawings.

3.5 TOLERANCES

Trench bottom shall be within 0 to +0.2 ft of the depth indicated on the Construction Drawings.

Embedment fill for pipes and culverts shall be placed within 0 to +0.2 ft of the depth indicated on the Construction Drawings.

-- End of Section --

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02270 SPECIFICATION FOR SURFACE-WATER MANAGEMENT AND EROSION CONTROL

THIS TITLE SHEET IS THE FIRST PAGE OF THE SPECIFICATION AND IS RECORD OF EACH ISSUE OR REVISION. THE PAGES BEING REVISED AND THE DESCRIPTION OF THE REVISION ARE LISTED BELOW.

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000034

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02270

SURFACE-WATER MANAGEMENT AND EROSION CONTROL

-- End of Section Table of Contents --

SECTION 02270

SURFACE-WATER MANAGEMENT AND EROSION CONTROL

PART 1 GENERAL

1.1 SCOPE

This section includes materials and placement of silt fence, check dams, construction entrances, diversions, ditches, channels, berms, and stabilization; and maintenance surface-water management and erosion control measures.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR)

ODNR	(1996) ODNR Rainwater and Land Development Standards

OHIO DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT	Item 601.07, Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications)

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Manufacturer's data on silt fence;

Manufacturer's data on erosion control matting;

SD-08 Manufacturer's Instructions

Manufacturer's installation and maintenance instructions;

PART 2 PRODUCTS

2.1 SILT FENCE

Furnish silt fence with either woven or nonwoven geotextile. Silt fence shall be:

a. Woven geotextile consisting of slit films of polypropylene treated with ultraviolet light stabilizers, or nonwoven geotextile consisting of long chain polymeric filaments or polyester yarns, inert to chemicals commonly found in soils and to hydrocarbons, and resistant to mildew,

000036

rot, insects, and rodent attack.

b. Reinforcement Backing: Shall be minimum 14-gauge steel wire and maximum mesh spacing of 6 inches or synthetic netting of equal strength. Use reinforcemtne backing can be eliminated if post spacing is a maximum of 6 feet and the geotextile tensile strength is at least 200 pounds.

c. Posts: Shall be either wood or steel with minimum length of 4 feet. Wood posts shall be at least 2 inches by 2 inches of oak or similar hardwood. Steel posts shall be round or shaped as a "U", "T", or "C". Steel posts shall have a minimum weight of 1.33 pounds per linear foot and shall have projections for fastening reinforcement to silt fence.

d. Wire Staples: Shall be at least 9-gauge thickness with a minimum length of 1 inch.

e. A preassembled silt fence meeting the material requirements may be used instead of a field constructed silt fence.

2.2 Check Dams

Furnish rip rap for check dams that meet the requirements of ODOT Item 601.07 Dumped Rock Fill Type D.

2.3 OTHER MATERIALS

a. Construction entrances shall be in accordance with ODNR.

b. Diversions and channels shall be in accordance with ODNR.

c. Materials for other surface-water management and erosion controls shall be in accordance with ODNR.

2.4 EQUIPMENT

Furnish equipment to perform work specified in this section.

PART 3 EXECUTION

3.1 INSTALLATION

a. Install silt fence in accordance with ODNR.

b. Install check dams in ditches and channels in accordance with ODNR.

c. Construct channels, ditches, and other earthwork as shown on the Construction Drawings. Earthwork for channels, ditches, and berms shall be in accordance with Section 02200 EARTHWORK.

d. Install construction entrances in accordance with ODNR.

3.2 ADDITIONAL REQUIREMENTS

Prevent the runoff of polluting substances such as silt, clay, fuels, oils, and contaminated soils from migrating into water supplies and surface waters.

000037

Remove accumulated silt and debris from behind the face of the silt fence when the silt deposits reach approximately one half the height of the fence. Replace silt fence geotextile damaged during maintenance operations. Removed silt and debris shall be placed in locations approved by the Construction Manager.

3.3 MAINTENANCE

Clean, maintain, repair, and replace surface-water management and erosion controls for the duration of the contract in accordance with the Contractor's Surface-Water Management and Erosion Control Work Plan.

Maintain erosion control measures and existing sedimentation basins in accordance with Part 6 of the contract documents.

3.4 INSPECTIONS

Inspect surface-water management and erosion control measures and sedimentation basins to evaluate their effectiveness and need for maintenance. Any required repairs to the surface-water management and erosion control measures and sedimentation basins shall be initiated upon discovery, but no later than 24 hours after discovery. Inspections shall occur, at a minimum, at the following frequencies:

a. Weekly

b. Daily after each rain event exceeding 0.5 in.

c. Daily during prolonged rainfall events.

Records of inspections shall be kept on file on site by Contractor and shall be submitted monthly to the Construction Manager. These records shall be available for inspection upon request. The records of inspection shall include the following:

a. Summary of the scope of the inspection.

b. Name of inspector.

c. Inspection date.

d. Inspection location.

e. Purpose of the inspection (e.g., regular weekly, following a storm, etc.).

f. Observations relative to performance of the surface-water management and erosion control measures.

g. Any necessary corrective actions.

h. Corrective actions completed and their performance since the previous inspection.

-- End of Section --

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02510 SPECIFICATION FOR WATER DISTRIBUTION SYSTEM

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000039

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02510

WATER DISTRIBUTION SYSTEM

-- End of Section Table of Contents --

000040

SECTION 02510

WATER DISTRIBUTION SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

American Society for Testing and Materials (ASTM) Standards

ASTM D 2657	(1990) Standard Practice for Joining Heat Polyolefin Pipe and Fittings
ASTM D 2837	Standard Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials
ASTM D 3350	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
ASTM F 714	Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter

American Water Works Association (AWWA) Standards

AWWA C111	(1995) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C651	(1992) Disinfecting Water Mains

1.2 PIPING

This section covers water lines and connections to the Process Building as indicated on the Construction Drawings.

1.3 TRENCHING AND BACKFILLING

Trenching and backfilling shall be in accordance with the applicable provisions of Section 02215.

1.4 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

The manufacturer's recommendations for each material or procedure to be utilized.

000041

Piping and Fitting Materials;

Joints;

Valves;

Indicator Posts;

SD-06 Test Reports

Disinfection Test;

Test results from commercial laboratory verifying disinfection.

SD-07 Certificates

Piping and Fittings Materials;

Valves;

1.5 DELIVERY AND STORAGE

Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective coverings. Do not store materials directly on the ground. Keep inside of pipes, fittings, and valves free of dirt and debris.

1.6 HANDLING

Pipe and accessories shall be handled to ensure delivery to the trench in sound, undamaged condition. Take special care to avoid injury to coatings and linings on pipe and fittings; make satisfactory repairs if coatings or linings are damaged. Carry-do not drag pipe to trench.

PART 2 PRODUCTS

2.1 PIPE

Pipe shall conform to the respective specifications and other requirements specified below.

2.1.1 HDPE Pipe

HDPE pipe shall conform to ASTM D 3350, ASTM D 2837 and ASTM F 714, working pressure not less than 150 psi, unless otherwise shown or specified.

2.2 FITTINGS AND SPECIALS

2.2.1 HDPE Pipe System

Fittings and specials shall be suitable for 150-psi pressure rating, unless otherwise specified.

2.3 JOINTS

2.3.1 Ductile-Iron Pipe Jointing

a. Mechanical joints shall be the stuffing box type and shall conform

to AWWA C111.

b. Rubber gaskets and lubricants shall conform to the applicable requirements of AWWA C111.

2.3.2 HDPE Pipe Jointing

Join HDPE pipe sections using butt-fusion joining procedures. Fabricate joints in strict compliance with ASTM D 2657 and the Manufacturer's recommendations, and the requirements of this Section.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pipe Laying and Jointing

Remove fins and burrs from pipe and fittings. Before placing in position, clean pipe, fittings, valves, and accessories and maintain in clean condition. Provide proper facilities for lowering sections of pipe into trenches. Do not under any circumstances drop or dump pipe, fittings, valves, or any other water line material into trenches. Cut pipe accurately to length established at the site and work into place without springing or forcing. Support pipe at proper elevation and grade. Lay pipe so that the full length of each section of pipe and each fitting will rest solidly on the pipe bedding. Excavate recesses to accommodate joints and couplings. Provide anchors and supports where necessary for fastening work into place. Keep trenches free of water until joints have been properly made. Do not lay pipe when conditions of trench or weather prevent installation. Depth of cover over top of pipe shall be as shown on drawings.

3.1.2 Connections to Existing Water Lines

Make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped.

3.2 HYDROSTATIC TESTS

Hydrostatic testing of the underground piping shall be in accordance with the testing requirements for water piping inside the building.

Where any section of a water line is provided with concrete thrust blocking for fittings or hydrants, the hydrostatic tests shall not be performed until at least 5 days after installation of the concrete thrust blocking, unless otherwise approved.

3.2.1 Pressure Test

After the pipe is laid, the joints completed and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping or any valved section of piping shall, unless otherwise specified, be subjected to a 1-hour hydrostatic pressure test of 100 psi. Each valve shall be opened and closed several times during the test. Exposed pipe, joints, fittings, and valves shall be carefully examined during the partially open trench test. Joints showing visible leakage shall be replaced or remade as necessary. Cracked or defective pipe, joints, fittings, hydrants, and valves discovered in consequence of this pressure

000043

test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory.

Backfill placed before the tests shall be placed in accordance with the requirements of Section 02215.

3.3 BACTERIAL DISINFECTION

Before acceptance of potable water operation, each unit of completed water line shall be disinfected as prescribed by AWWA C651. After pressure tests have been performed, the unit to be disinfected shall be thoroughly flushed with water until all entrained dirt and mud have been removed before introducing the chlorinating material. The chlorinating material shall be either liquid chlorine, calcium hypochlorite, or sodium hypochlorite. The chlorinating material shall provide a dosage of not less than 50 ppm and shall be introduced into the water lines in an approved manner. The treated water shall be retained in the pipe long enough to destroy all non-spore-forming bacteria. Except where a shorter period is approved, the retention time shall be at least 24 hours and shall produce not less than 25 ppm of free chlorine residual throughout the line at the end of the retention period. Valves on the lines being disinfected shall be opened and closed several times during the contact period. The line shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm.

3.4 CLEANUP

Upon completion of the installation of water lines and appurtenances, all debris and surplus materials resulting from the work shall be removed.

3.5 Surveying

Survey the locations, limits, and grades of pipes in accordance with State of Ohio surveying standard practices and the Construction Drawings.

-- End of Section --

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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02714 SPECIFICATION FOR GEOTEXTILES

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0	04/12/02					ALL	ISSUED FOR CONSTRUCTION

000045

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02714

GEOTEXTILES

-- End of Section Table of Contents --

SECTION 02714

GEOTEXTILES

PART 1 GENERAL

1.1 SCOPE

This section includes materials and installation for geotextiles.

The Contractor shall furnish and install a sufficient quantity of geotextile to underlie new aggregate pavement, gravel parking areas and/or rip rap check dams as indicated on the Construction Drawings.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are refered to within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4355	(1999) Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-ARC type apparatus)
ASTM D 4533	(1996) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1996) Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)
ASTM D 4833	(2000) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2001) Standard Guide for Identification, Storage, and Handling of Geotextiles
ASTM D 5261	(1996) Standard Test Method for Measuring Mass Per Unit Area of Geotextiles

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Manufacturer's quality control certificates;

The quality control certificates shall include:

a. Lot, roll numbers, and other identification.

000047

b. Sampling procedures.

c. Results of quality control tests, including descriptions of test methods used (the manufacturer's quality control tests to be performed are specified in this section).

PART 2 PRODUCTS

2.1 GEOTEXTILE

Geotextile materials will meet the following requirements:

a. Minimum average roll values with 95 percent lower confidence limits meeting or exceeding the required property values specified.

b. Geotextiles furnished by Contractor shall meet or exceed the required property values specified. Geotextiles shall be manufactured from first quality polymers with not more than 20 percent reclaimed polymer used in production.

c. Furnish polymeric threads for stitching that are ultraviolet(UV)light stabilized to at least the same requirements as the geotextile to be sewn. Threads shall be polyester or polypropylene threads that have a minimum size of 2,000 denier.

2.2 MANUFACTURING QUALITY CONTROL

The geotextile manufacturer shall have a quality control program consisting of quality control tests to demonstrate that properties of geotextile conform to the values specified. The manufacturer shall perform the following quality control tests at a maximum interval of one test for each 50,000 ft2 manufactured.

Test	Procedure
Mass per unit area	ASTM D 5261
Grab strength	ASTM D 4632
Tear strength	ASTM D 4533
Puncture strength	ASTM D 4833

The manufacturer's quality control certification shall be provided with the geotextile and submitted to Fluor Fernald. It shall document that the roll goods provided have been tested as part of the manufacturer's quality control program and that they meet the manufacturer's minimum average roll values.

2.3 PACKAGING

Geotextiles rolls will be wrapped in relatively impermeable and opaque protective covers.

Covers that become torn or damaged shall be repaired by the Contractor with similar materials.

Geotextile rolls shall be marked or tagged in accordance with ASTM D 4873 with the following information:

a. Manufacturer's name

000048

b. Product identification

c. Lot or batch number

d. Roll number

e. Roll dimensions

Geotextile rolls not labeled in accordance with this section or on which labels are illegible shall be rejected and replaced. The Contractor shall notify the Construction Manager of any rolls not labeled in accordance with the section.

2.4 ACCEPTANCE, HANDLING, AND STORAGE

. Contractor shall inspect and inventory the geotextile materials delivered to the project site and store the materials per the manufacturer's recommendation.

Protection and preservation of geotextile material shall include, but not be limited to:

a. Protection from sunlight, moisture, excessive heat or cold, puncture, mud, dirt, and dust or other damaging conditions; follow geotextile Manufacturer recommendations for handling and storage.

b. Storage of rolls on pallets, or other elevated structures; do not store rolls directly on the ground.

c. Contractor shall unload, handle, and store geotextile material so that damage to geotextile materials does not occur.

2.5 EQUIPMENT

Furnish equipment for acceptance, handling, storage, and installation of geotextile.

PART 3 EXECUTION

3.1 PLACEMENT

Handle geotextiles so as to ensure that they are not damaged.

After unwrapping the geotextiles from their opaque covers, do not leave them exposed for a period in excess of 10 calendar days or for the Manufacturer's written recommended exposure period.

Take care not to entrap stones, excessive dust, or moisture below or in the geotextiles.

Examine the geotextile surface after installation to ensure that no potentially harmful foreign objects are present. Remove any such objects and replace any damaged geotextiles.

3.2 SEAMS AND OVERLAPS

Continuously overlap a minimum of 6 in. and fasten geotextile materials per manufacturer's recommendation.

Do not install horizontal seams on slopes that are steeper than 10 horizontal to 1 vertical (10H:1V). Seams shall be along, not across, the slopes.

3.3 REPAIR

Repair holes or tears in the geotextiles using a patch made from the same geotextile material. Extend geotextile patches a minimum of 1 ft beyond the damaged area. Sew geotextile patches into place no closer than 1 in. from panel edge. Should tear exceed 50 percent of the width of the panel, cut across the entire width of the panel and seam as an end seam. For slope areas steeper than 10H:1V, tears exceeding 50 percent of the width of the panel shall be removed and replaced.

Remove any soil or other material that may have penetrated the torn geotextiles.

3.4 PLACEMENT OF AGGREGATE MATERIALS

Place aggregate on top of geotextile in such a manner as to ensure the following:

a. The geotextile materials are not damaged.

b. Slippage does not occur between the geotextile and the underlying soil during placement.

c. Spread aggregate on top of the geotextile to cause the aggregate to cascade onto the geotextile rather than be shoved across the geotextile.

d. Place aggregate over geotextile separator as shown on the construction drawings before trafficking.

3.5 REQUIRED PROPERTY VALUES FOR GEOTEXTILE SEPARATOR

Type: Woven Slit Film

Polymer composition: polypropylene

SPECIFIED PROPERTIES	QUALIFIER	UNITS(5)	PROPERTY VALUES(4)	TEST METHOD
Mass per unit area	minimum	oz/yd2	8	ASTM D 5261
Mechanical Requirements:				
Grab strength	minimum	lb	200	ASTM D 4632(1)
Tear strength	minimum	lb	120	ASTM D 4533(2)
Puncture strength	minimum	lb	120	ASTM D 4833(3)
Durability Requirements:				
Ultraviolet Resistance	minimum	percent	80	ASTM D 4355

(1) Minimum of values measured in machine and cross machine directions with 1 inch clamp on Constant Rate of Extension (CRE) machine.
(2) Minimum value measured in machine and cross machine direction.

000050

(3) Tension testing machine with a 1.75-in.-diameter ring clamp, the steel ball being replaced with 0.31-in.-diameter solid steel cylinder with flat tip centered within the ring clamp.
(4) All Property Values represent minimum average roll values.
(5) Units: oz/yd2 = ounce per square yard
% = percent
lb = pound

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Oak Ridge, Tennessee 37830
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SILO 3 REINFORCEMENT **FLUOR FERNALD, INC.** **FERNALD, OHIO** **PROJECT NO.: 35H19605**	SECTION NO.: 02722 SPECIFICATION FOR AGGREGATE AND/OR GRADED-CRUSHED AGGREGATE BASE COURSE

THIS TITLE SHEET IS THE FIRST PAGE OF THE SPECIFICATION AND IS RECORD OF EACH ISSUE OR REVISION. THE PAGES BEING REVISED AND THE DESCRIPTION OF THE REVISION ARE LISTED BELOW.

FOR CONVENIENCE, THE NATURE OF THE REVISION IS BRIEFLY NOTED UNDER REMARKS.

NOTE: THIS SPECIFICATION WAS CREATED IN SPECSINTACT 3.

REV.	DATE	BY	CK	APPROVALS		PAGES	REMARKS
				DEPT.	PROJ. MGR.		
0	04/12/02	[signature]	[signature]	[signature]	[signature]	ALL	ISSUED FOR CONSTRUCTION

SECTION TABLE OF CONTENTS

DIVISION 02 - SITE WORK

SECTION 02722

AGGREGATE AND/OR GRADED-CRUSHED AGGREGATE BASE COURSE

-- End of Section Table of Contents --

SECTION 02722

AGGREGATE AND/OR GRADED-CRUSHED AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SCOPE

This section includes aggregate materials used in parking and road areas and backfill under and around structures and other areas as shown on the construction drawings.

1.2 REFERENCE

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	(2001) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(2001) Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3)
ASTM D 2487	(2000) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(2001) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

OHIO DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT	Items 304.02, 304.05 and 703.04, Latest version of Ohio Department of Transportation Construction and Material Specifications (Ohio DOT Specifications)

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Material Tests;

Tests for moisture-density relation;

Density and moisture tests;

Provide 2 copies of test results within 24 hours of conclusion of physical tests.

000054

SD-07 Certificates

For each source of base aggregate material, submit the following to Fluor Fernald for review within 30 calendar days from Notice to Proceed:

Source of Materials;

Written certification from the supplier that the material meets the material requirements of this section. Certification shall include test results as required by Ohio DOT Specifications for base aggregate materials demonstrating that it meets the requirements of items from the Ohio DOT Specifications specified in this Section.

Calibration Certification;

Calibration curves and related test results shall be submitted before using the device or equipment being calibrated. Copies of field test results within 24 hours after the tests are performed. Certified copies of test results for approval not less than 30 days before material is required for the work.

SD-11 Closeout Submittals;

Records;

Copies of waybills and delivery tickets during the progress of the work. Certified copies of waybills and delivery tickets at end of project for actual aggregate used.

PART 2 PRODUCTS

2.1 MATERIALS

Furnish base aggregate material consisting of crushed carbonate stone or crushed gravel, free of organic matter and other deleterious materials, which meets the requirements of Items 304.02 and 703.04 (2) of the ODOT Specifications for aggregate base.

Furnish a geotextile separator meeting the requirements of Section 02714 GEOTEXTILES.

2.2 EQUIPMENT

Furnish equipment for construction shown on the Construction Drawings in accordance with the requirements of this section.

PART 3 EXECUTION

3.1 GENERAL

Install surface-water management and erosion controls in accordance with Section 02270.

Perform clearing, grubbing, and stripping to the limits indicated on the construction drawings and in accordance with Section 02110 before any earthwork activity.

000055

3.2 SUBGRADE PREPARATION

Prepare subgrade for the aggregate materials described in this section in accordance with Section 02200 EARTHWORK.

3.3 GEOTEXTILE PLACEMENT

Install the geotextile separator over the prepared subgrade in accordance with Section 02714.

3.4 BASE AGGREGATE

Construct the base aggregate layer to the thickness, grades, and limits indicated on the Construction Drawings.

Place the base aggregate material on top of the geotextile separator by end dumping and carefully spread using a track bulldozer. Do not operate equipment directly on the geotextile.

Place the base aggregate in accordance with the requirements of Item 304.04 of the ODOT Specifications.

Compact the base aggregate in accordance with the requirements of Item 304.05 of the ODOT Specifications.

3.5 CONSTRUCTION QUALITY REQUIREMENTS

Sampling and testing shall be the responsibility of the Contractor. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. The materials shall be tested to establish compliance with the specified requirements; testing shall be performed at the specified frequency.

3.5.1 Testing Frequency

In Place Tests
One each of the following tests shall be performed on samples taken from the placed and compacted aggregate materials. Samples shall be taken and tested at the rates specified:

a. Density tests shall be performed on every lift of material placed and at a frequency of one set of tests for every 250 yd2 or portion thereof, of completed area.
b. Compact fill material in each lift to at least 95 percent of its standard Proctor maximum dry unit weight as determined by ASTM D 698.

3.6 SURVEY CONTROL

Survey alignment and grades for parking areas, aggregate pads and ramps in accordance with State of Ohio surveying standard practices and the Construction Drawings.

3.7 TOLERANCES

Construct the base aggregate to within 0.0 to +0.1 feet of the thickness indicated on the construction drawings.

-- End of Section --

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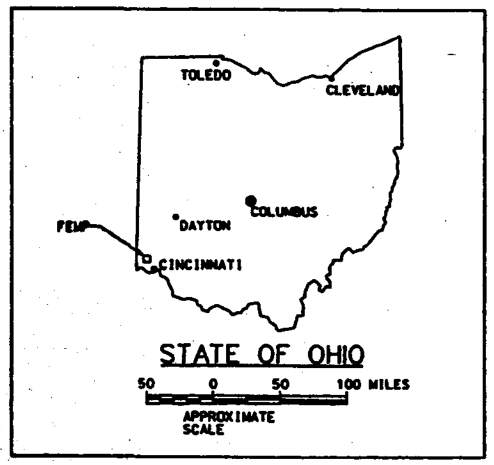
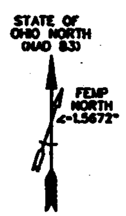
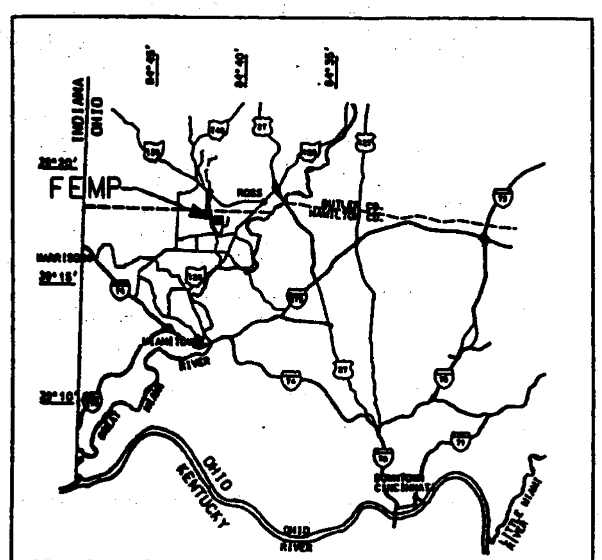
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

SILO 3 PROJECT

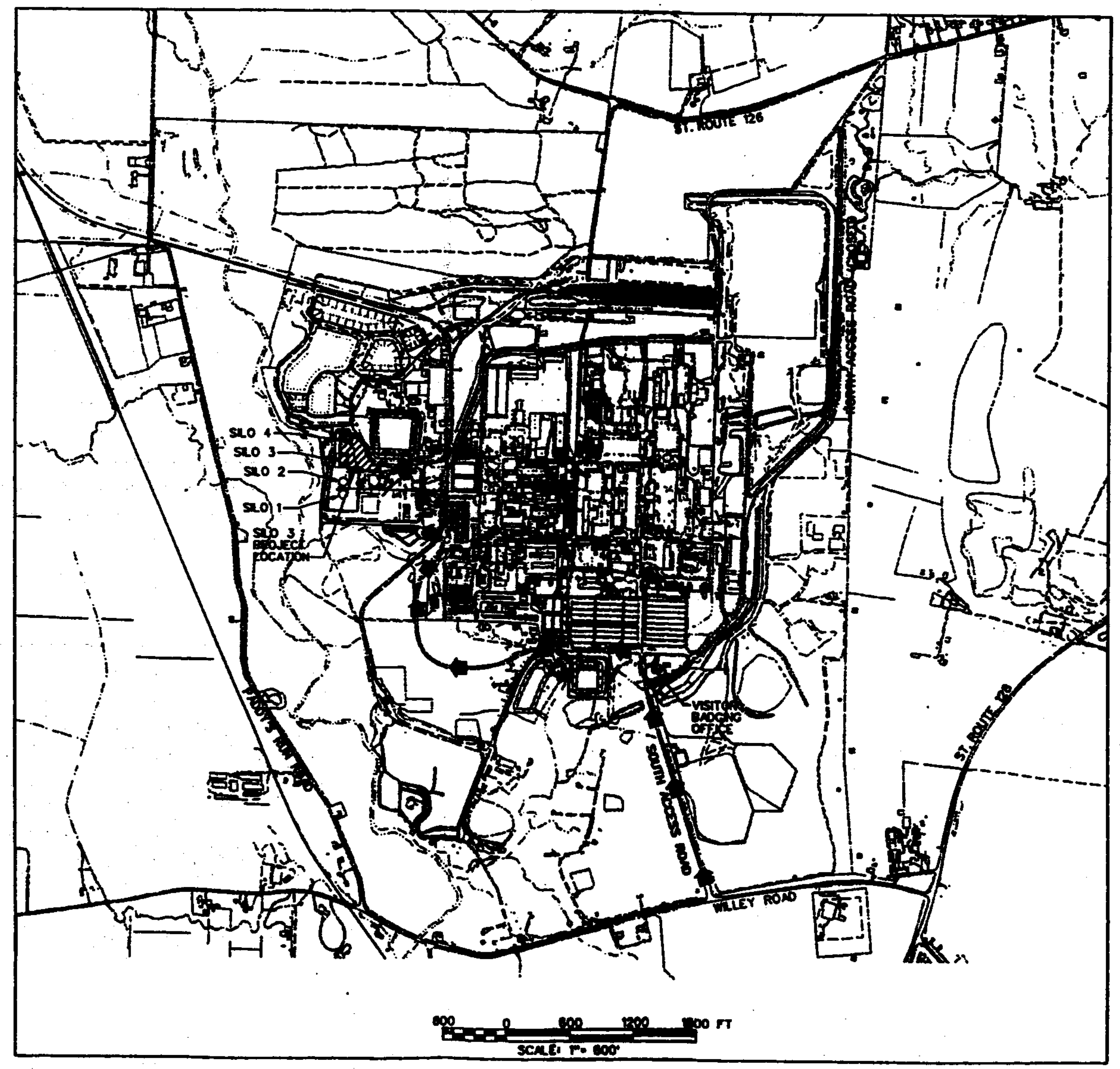


STATE OF OHIO





CINCINNATI AREA MAP



INFORMATION ONLY

[✓] A - Conforms to the Subcontract Requirements
[ ] B - Minor Comment - Incorporate and Resubmit
[ ] C - Revise and Resubmit
Sig: [signature] Date: 5/14/02

REF DWG NO.	DRAWING TITLE

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED FOR CONSTRUCTION	[illegible]	[signature]	[signature]

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
JE JACOBS

PROJECT NAME: SILO 3

DRAWING TITLE: CIVIL

TITLE SHEET/ACCESS PLAN

DRAWN BY	DATE	TECHNICAL LEAD	DATE	CHECKED BY	DATE
W. Mos[signature]	4/2/02	[signature]	[illegible]	[signature]	4/[illegible]

SCALE: SHOWN CLASS: U

I.E. NUMBER	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
N/A	40430	94X-3900-G-01294	G3101	0
35H19805	94X01294.DGN			

LEGEND

EXISTING		NEW
	BUILDING/TRAILER	
	EDGE OF GRAVEL	NA
NA	GRAVEL PAD	
	ASPHALT PAVING	
	CONCRETE PAVING	
	RAILROAD	NA
	BOUNDARY FENCE	NA
	CHAIN-LINK FENCE	NA
BM12	SURVEY CONTROL MONUMENT	NA
	BOLLARD/GUARD POST	
	SLOPE ARROW (DOWN)	NA
	DITCH/SWALE ℄	
NA	SILT FENCE	
	GUARDRAIL	NA
575	MAJOR CONTOURS	578
	MINOR CONTOURS	578.5
578.5	SPOT ELEVATION	578.5
	CLEARING LIMITS	NA
	ABANDONED UTILITY	NA
	RADON MONITOR	NA
NA	FLOW ARROW	

UTILITY DESIGNATIONS

AIP	ABANDON IN PLACE
[illegible]	CONTAMINATED SEWER
[illegible]	LOW PRESSURE POTABLE WATER (DOMESTIC)
FFE	FINISH FLOOR ELEVATION
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible] ELEVATION
[illegible]	HIGH PRESSURE FIRE WATER
[illegible]	FILTRATE OR EFFLUENT
LCS	LEACHATE CONVEYANCE SYSTEM
SS	SANITARY SEWER
ST	STORM SEWER
TW	TREATED WATER
WW	WASTE WATER

UTILITY SYMBOLS

EXISTING		NEW
OE	OVERHEAD ELECTRIC	NA
	POST INDICATOR VALVE (PIV)	
	FIRE HYDRANT	
	MANHOLE	
	CATCH BASIN	
1P1759	UTILITY POLE	
	HEADWALL	
	GATE VALVE	
NA	CLEANOUT	
	RISER	NA

GENERAL NOTES:

1. EXISTING TOPOGRAPHY PROVIDED BY FLUOR FERNALD AND SURVEY BY B.L. PAYNE & ASSOCIATES, INC., DATED 10/11/2001.
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. PROJECT SURVEY CONTROL SHALL BE ESTABLISHED USING THE COORDINATES AND ELEVATIONS OF THE FOLLOWING SURVEY CONTROL MONUMENTS:

   BM11 N 480149.12 E 1347018.47 ELEV 589.02 BRASS DISK #9911
   BM12 N 480368.83 E 1347842.41 ELEV 577.76 BRASS DISK #9912

   EXISTING SURVEY CONTROL MONUMENTS LOCATED WITHIN 1000' OF PROJECT SITE.
5. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHOULD BE AWARE THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION.
6. VERIFY AMPLE CLEARANCE UNDER ABOVEGROUND ELECTRIC UTILITIES FOR CONSTRUCTION EQUIPMENT
7. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF STORMWATER COLLECTED IN AREAS EXCAVATED BELOW GRADE, AND TRANSPORT TO AN ON-SITE LOCATION IDENTIFIED BY THE OWNER.

INFORMATION ONLY

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[ ] C - Revise and Resubmit
Sig: [signature] Date: 5/14/02

REF DWG NO.	DRAWING TITLE

NUMBER OF DETAIL OR LETTER OF SECTION
DRAWING ON WHICH SECTION OR DETAIL IS TAKEN
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED FOR CONSTRUCTION	04/15/02	[signature]	[signature]

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
JACOBS

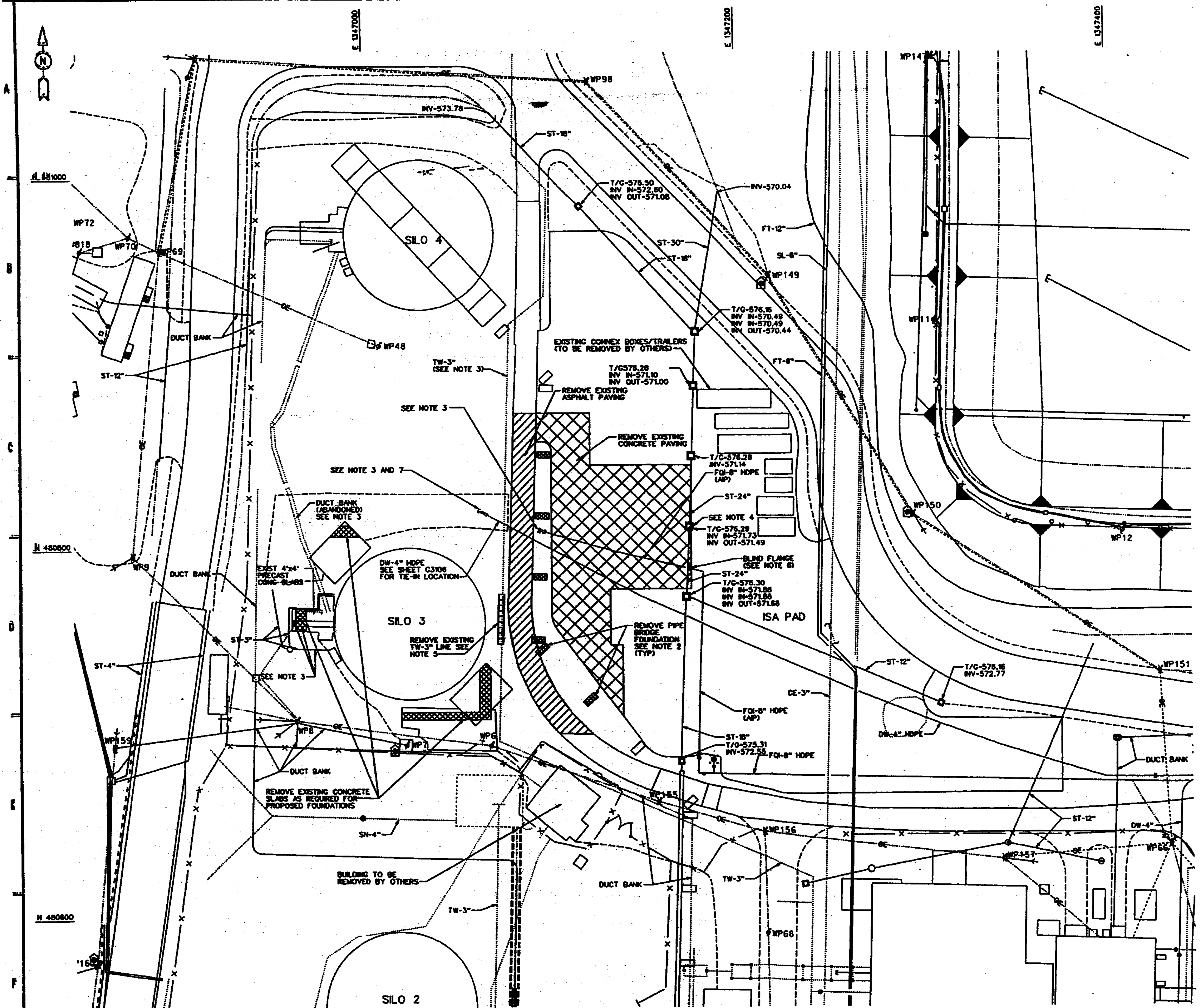
PROJECT NAME
SILO 3

DRAWING TITLE
CIVIL

GENERAL NOTES AND LEGEND

SCALE: NONE
CLASS: U
T.O. NUMBER: N/A
PROJECT NO. 40430
JE PROJECT NO. 35H19605
FILENAME: 94XG1295.DGN
DRAWING INDEX CODE NO.: 94X-3900-G-01295
SHEET NO.: G3102
REV. NO.: 0

4279



E 1347000
E 1347200
E 1347400
N 481000
N 480800
N 480600
SILO 4
SILO 3
SILO 2
ISA PAD
WP98
WP149
WP150
WP151
WP12
WP48
WP72
WP70
WP69
WP9
WP8
WP7
WP159
WP155
WP156
WP157
WP68
INV-573.78
ST-18"
T/G-576.50
INV IN-572.60
INV OUT-571.08
INV-570.04
FT-12"
SL-6"
ST-30"
T/G-576.16
INV IN-570.49
INV IN-570.49
INV OUT-570.44
FT-6"
EXISTING CONNEX BOXES/TRAILERS (TO BE REMOVED BY OTHERS)
T/G576.28
INV IN-571.10
INV OUT-571.00
TW-3" (SEE NOTE 3)
DUCT BANK
ST-12"
SEE NOTE 3
REMOVE EXISTING ASPHALT PAVING
REMOVE EXISTING CONCRETE PAVING
T/G-576.28
INV-571.14
FQI-8" HDPE (AIP)
ST-24"
SEE NOTE 4
T/G-576.29
INV IN-571.73
INV OUT-571.49
SEE NOTE 3 AND 7
DUCT BANK (ABANDONED) SEE NOTE 3
BLIND FLANGE (SEE NOTE 6)
ST-24"
T/G-576.30
INV IN-571.86
INV IN-571.86
INV OUT-571.88
EXIST 4'x4' PRECAST CONC. SLABS
DW-4" HDPE SEE SHEET G3106 FOR TIE-IN LOCATION
REMOVE EXISTING TW-3" LINE SEE NOTE 5
REMOVE PIPE BRIDGE FOUNDATION SEE NOTE 2 (TYP)
ST-3"
ST-4"
SEE NOTE 3
T/G-576.16
INV-572.77
CE-3"
FQI-8" HDPE (AIP)
ST-18"
T/G-575.31
INV-572.55
FQI-8" HDPE
DW-4" HDPE
REMOVE EXISTING CONCRETE SLABS AS REQUIRED FOR PROPOSED FOUNDATIONS
SN-4"
BUILDING TO BE REMOVED BY OTHERS
DUCT BANK
TW-3"
ST-12"
DW-4"

NOTES:

1. FOR GENERAL NOTES AND LEGEND SEE SHEET G3102.
2. BACKFILL HOLES MADE FROM CONCRETE FOUNDATION REMOVAL WITH # 57 STONE TO PROPOSED SUBGRADE. COMPACTION AND PLACEMENT PER SPECIFICATION SECTION 02215.
3. REMOVE ABANDONED UNDERGROUND UTILITIES AS REQUIRED TO INSTALL FOUNDATIONS. ENSURE UTILITIES ARE DE-ENERGIZED OR OTHERWISE ISOLATED PRIOR TO CUTTING.
4. EXISTING CATCH BASIN FRAME AND GRATE TO BE RESET AND REUSED. CONTRACTOR SHALL PROTECT EXISTING STORM DRAINS AND CATCH BASINS FROM DAMAGE DURING EXCAVATION FOR NEW FOUNDATIONS. ALL EXISTING STORM DRAINS AND CATCH BASINS TO REMAIN.
5. REMOVE EXISTING TW-3" AS REQUIRED TO INSTALL RETRIEVAL BIN. CAP ENDS OF EXISTING LINE WITH BLIND FLANGE.
6. THE HIGH PRESSURE FIRE WATER LINE (FQI-8") SHALL BE CAPPED WITH A BLIND FLANGE AS NEAR AS POSSIBLE TO EDGE OF ISA PAD REMOVAL. LINE HAS BEEN PREVIOUSLY ABANDONED. VERIFY PRIOR TO CUTTING AND ISOLATE IF NECESSARY.
7. REMOVE PIV AND INSTALL BLIND FLANGE.

DEMOLITION LEGEND:

- CONCRETE REMOVAL
- ASPHALT REMOVAL

INFORMATION ONLY

[✓] A - Conforms to the Subcontract Requirements
[ ] B - Minor Comment - Incorporate and Resubmit
[ ] C - Revise and Resubmit
Sig: [signature] Date: 5/14/02

REF DWG NO.	DRAWING TITLE

SCALE: 1" = 20'

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APP.
0	ISSUED FOR CONSTRUCTION	[illegible]	[signature]	

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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JACOBS

PROJECT NAME: SILO 3

DRAWING TITLE: CIVIL

EXISTING CONDITIONS/DEMOLITION PLAN

SCALE: 1"=20' CLASS: U

PROJECT NO. 40430
DRAWING INDEX CODE NO. 94X-3900-G-01296
SHEET NO. G3103
REV. NO. 0
JE PROJECT NO. 35H19605
FILENAME 94XG1296.DGN
N/A

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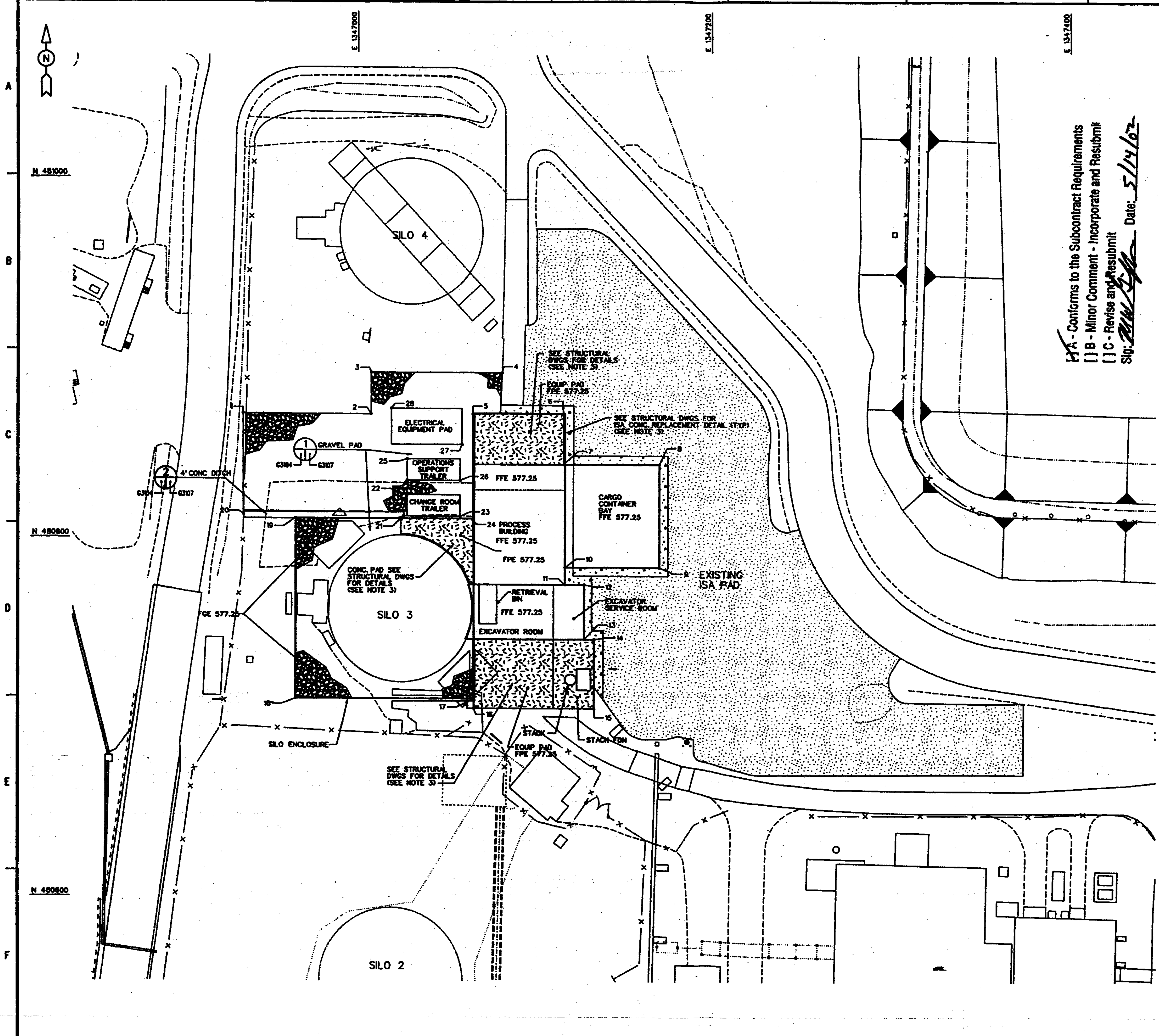

[X] A - Conforms to the Subcontract Requirements
[ ] B - Minor Comment - Incorporate and Resubmit
[ ] C - Revise and Resubmit
Sig: [signature] Date: 5/14/02

NOTES:

1. FOR GENERAL NOTES AND LEGEND SEE SHEET G3102.
2. FOR GENERAL ARRANGEMENT SEE DRAWING 94X-3900-M-01461.
3. STRUCTURAL FOUNDATIONS AND BUILDINGS TO BE PLACED PER FUTURE CONSTRUCTION PACKAGE.

COORDINATE CHART

POINT NO.	NORTHING	EASTING
1	480866.96	1346836.17
2	480866.96	1347006.90
3	480892.19	1347006.88
4	480891.96	1347081.21
5	480869.03	1347084.57
6	480868.97	1347118.03
7	480841.01	1347118.03
8	480840.96	1347189.63
9	480783.63	1347189.63
10	480783.64	1347116.80
11	480773.96	1347116.80
12	480773.96	1347127.83
13	480743.46	1347127.83
14	480743.46	1347133.23
15	480704.90	1347133.23
16	480704.86	1347088.36
17	480710.17	1347088.26
18	480710.17	1346864.72
19	480610.59	1346864.13
20	480612.60	1346838.51
21	480612.34	1347025.37
22	480624.15	1347026.65
23	480611.99	1347067.36
24	[illegible]	1347084.57
25	[illegible]	[illegible]
26	480631.99	[illegible]
27	[illegible]	[illegible]
28	[illegible]	[illegible]

INFORMATION ONLY

REF DWG NO.	DRAWING TITLE
94X-3900-M-01461	MECHANICAL/GENERAL ARRANGEMENT PLOT PLAN

SCALE: 1" = 20'

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED FOR CONSTRUCTION	04/15/02	[signature]	[signature]

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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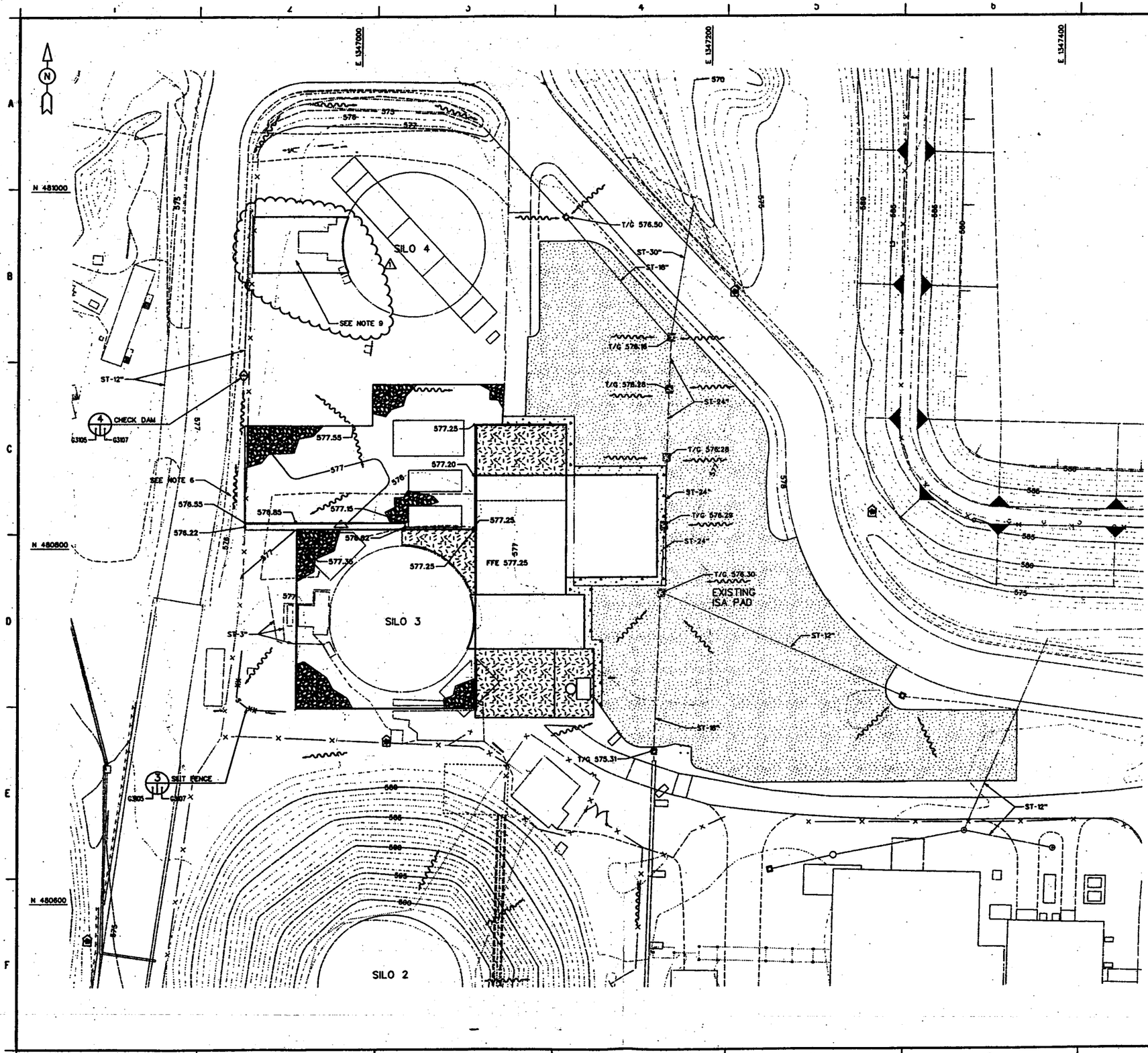
PROJECT NAME: SILO 3
DRAWING TITLE: CIVIL
SITE PLAN

SCALE: 1"=20'
CLASS: U
PROJECT NO. 40430
N/A
35H19605
FILENAME: 94XG1297.DGN
DRAWING INDEX CODE NO. 94X-3900-G-01297
SHEET NO. G3104
REV. NO. 0



NOTES:

1. ALL DRAINAGE SHALL BE DIRECTED TOWARD ONE OF THE EXISTING ISA PAD DRAINAGE STRUCTURES WHERE POSSIBLE.
2. ALL SEDIMENT AND EROSION CONTROL FEATURES SHALL BE INSTALLED AS REQUIRED AND OPERATIONAL PRIOR TO EARTH DISTURBANCE ACTIVITIES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF STORMWATER COLLECTED IN AREAS EXCAVATED BELOW GRADE. ANY DISCHARGE WATER RESULTING FROM PUMPING OF GROUND OR RUNOFF WATER FROM TRENCHES OR OTHER AREAS MUST BE ROUTED THROUGH SEDIMENTATION CONTROL STRUCTURES AND NOT DISCHARGED DIRECTLY INTO RECEIVING CHANNELS. RUNOFF SHALL BE MANAGED IN ACCORDANCE WITH FEMP STORMWATER POLLUTION PREVENTION PLAN AND TRANSPORTED TO AN ON-SITE LOCATION DETERMINED BY THE OWNER.
4. ROOF DRAINS FROM ALL BUILDINGS SHALL DRAIN TO THE EAST TOWARD THE ISA PAD WHERE POSSIBLE.
5. SILT FENCE LOCATIONS SHOWN ARE APPROXIMATE. ADD ADDITIONAL SILT FENCE AND/OR ADJUST LOCATION AS NECESSARY TO MEET FIELD CONDITIONS.
6. GRADE DITCH TO FLOW TO THE NORTH.
7. CONTRACTOR SHALL PROTECT EXISTING CATCH BASINS AND OTHER STORMWATER CONTROLS DURING CONSTRUCTION.
8. FOR GENERAL NOTES AND LEGEND AND UTILITY DESIGNATORS SEE SHEET G3102.
9. EXCAVATION, GRADING AND BACKFILLING WILL BE PERFORMED FOR THE SILO REINFORCEMENT DEMONSTATION IN THE SILO 4 AREA.

INFORMATION ONLY

(X) A - Conforms to the Subcontract Requirements
( ) B - Minor Comment - Incorporate and Resubmit
( ) C - Revise and Resubmit
Sig: _____ Date: 5/14/02

REF DWG NO.	DRAWING TITLE

20 0 20 40 60 FT
SCALE: 1" = 20'

NO.	DESCRIPTION	DATE	REV. BY	APVD.
1	REVISED PER DCN 40430-JEG-001	04/30/02	WDB III	RL
0	ISSUED FOR CONSTRUCTION	04/15/02	WDB III	RL

SIGNATURES AND DATES

UNITED STATES
DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
JACOBS

PROJECT NAME
SILO 3 000061

DRAWING TITLE
CIVIL

GRADING, DRAINAGE AND EROSION CONTROL PLAN

DRAWN BY	DATE	TECHNICAL LEAD	DATE	CHECKED BY	DATE
W.MARVIN	04/15/02	F.PARTON, JR.	04/15/02	W.D.BARTON III	04/15/02

PLANT/BLDG NO.	PLANS	SCALE	CLASS
		1"=20'	U

SUBMITTED FOR 30% ISSUE	SUBMITTED FOR 60% ISSUE	SUBMITTED FOR 90% ISSUE
TECH LEAD	TECH LEAD	TECH LEAD
DATE	DATE	DATE

T.O. NUMBER	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
N/A	40430	94X-3900-G-01298	G3105	1

JOB PROJECT NO.	PLANNING NO.
35H19605	94X0298.DGN

DATE 05/01/02 USER Parton

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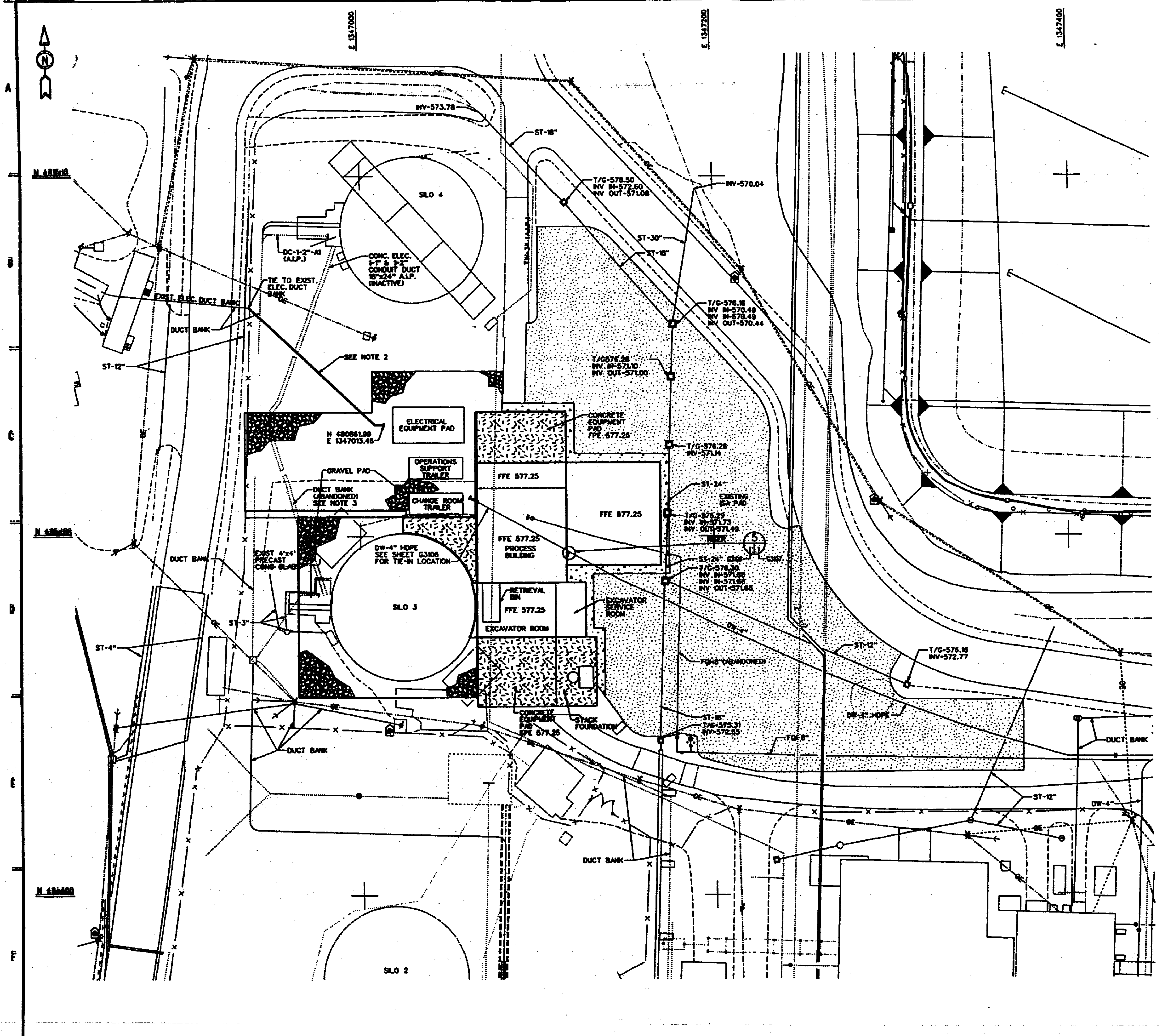

NOTES:

1. FOR GENERAL NOTES, LEGEND AND UTILITY DESIGNATIONS SEE SHEET G3102.
2. SEE ELECTRICAL AND STRUCTURAL DRAWINGS FOR DUCT BANK DETAILS. TO BE PROVIDED IN A LATER CONSTRUCTION PACKAGE.
3. PRIOR TO CONSTRUCTING ISA PAD REPAIR COORDINATE WITH ELECTRICAL GROUNDING INSTALLATION.
4. SEE PIPING DRAWINGS FOR DOMESTIC WATER DETAILS. TO BE PROVIDED IN A LATER CONSTRUCTION PACKAGE.

INFORMATION ONLY

[✓] A - Conforms to the Subcontract Requirements
[ ] B - Minor Comment - Incorporate and Resubmit
[ ] C - Revise and Resubmit
Sig: MW [signature] Date: 5/14/02

REF DWG NO.	DRAWING TITLE

SCALE: 1" = 20'

REV. NO.	ISSUE OR REVISION PURPOSE - DESCRIPTION	DATE	REV. BY	APPR.
0	ISSUED FOR CONSTRUCTION			

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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PROJECT NAME: SILO 3
DRAWING TITLE: CIVIL
UTILITY PLAN

SCALE: 1"=20' CLASS: U

T.O. NUMBER	PROJECT NO.	DRAWING INDEX CODE NO.	SHEET NO.	REV. NO.
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35H19605	94XG1299.DGN			

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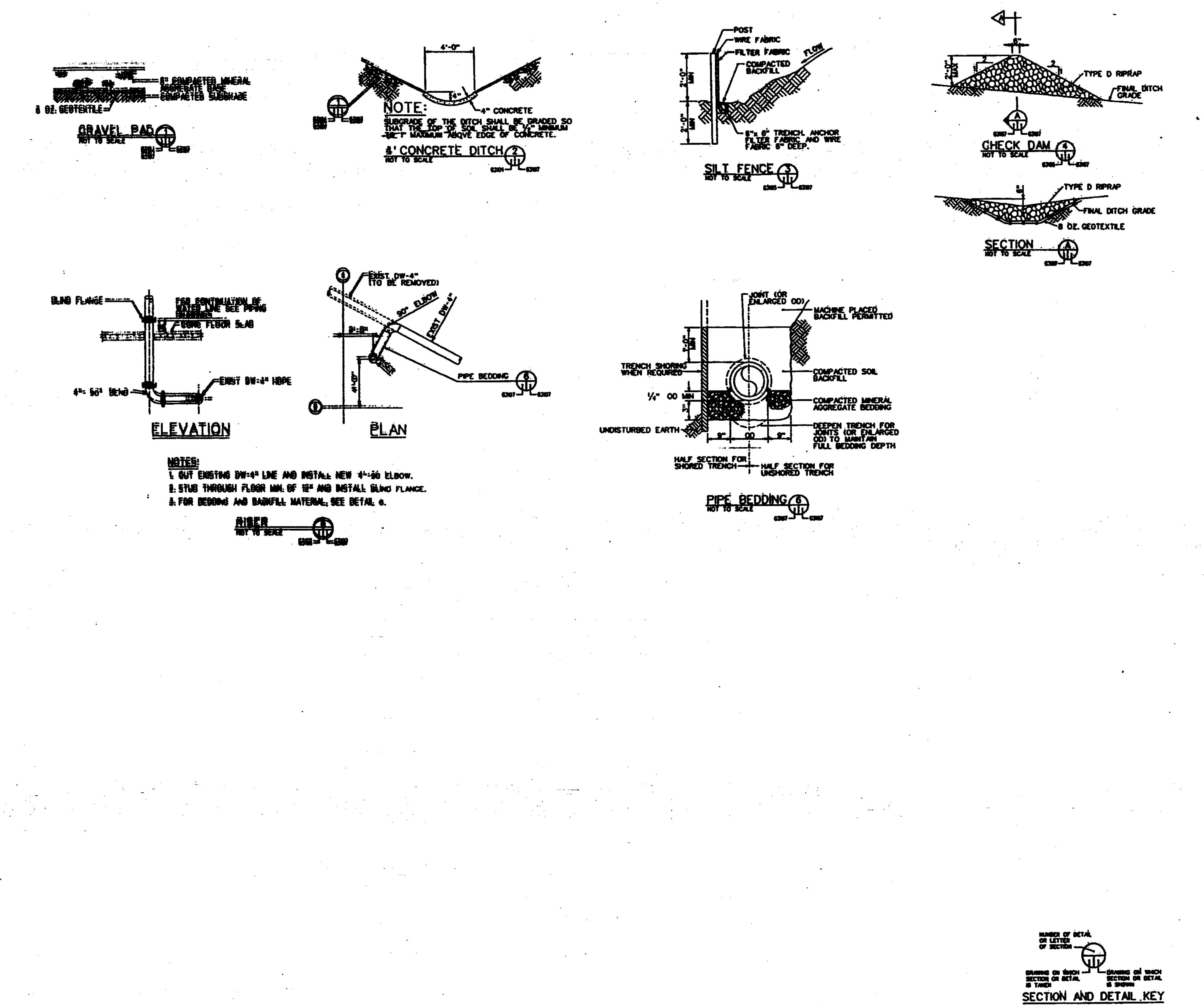

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[ ] C - Revise and Resubmit
Sig: [signature] Date: 5/14/02

REF DWG NO.	DRAWING TITLE

REV	DESCRIPTION
0	ISSUED FOR CONSTRUCTION

UNITED STATES DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

THIS DRAWING PREPARED BY
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PROJECT NAME: SILO 3
DRAWING TITLE: CIVIL DETAILS

SCALE: NONE

94X-3900-G-01300 | G3107 | 0

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