



Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87115

SEP 10 1990

Mr. Paul H. Lohaus
Branch Chief, Operations Branch
Division of Low-Level Waste
Management & Decommissioning
Office of Nuclear Materials Safety
and Safeguards
Mail Stop 5-E-4
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Lohaus:

The U.S. Department of Energy (DOE) hereby presents certification data as evidence of completion of all surface remedial action at the Shiprock, New Mexico, Uranium Mill Tailings Remedial Action (UMTRA) disposal site. The certification data are provided in accordance with the Memorandum of Understanding (MOU) between the DOE and the U.S. Nuclear Regulatory Commission (NRC) signed May 12, 1987 (DOE GM04-85A126057).

As per Section 3.4 of Appendix "A" to the MOU (page A-8), this certification data consists of:

1. Final Completion Report: Transmitted to the NRC by DOE letter dated August 28, 1987, were four complete sets of the Final Completion Report consisting of Volumes 1, 2A, 2B, 3A, and 3B. Enclosed are drawings and a page which are to be inserted into the Final Completion Report. A list of the insertions is provided later in this letter.
2. Final Audit Report: Enclosed with this letter are five copies of the Final Audit Report.
3. DOE Certification Summary: Enclosed with this letter are two original copies of the DOE Certification Summary. It is requested that each copy be signed and that one copy be returned to the DOE. The second copy may be kept for your records.

A discussion of the three items listed above follows:

Final Completion Report: This report consists of records collected during the remedial action. The Final Completion Report includes but is not limited to technical specifications, as-built drawings, summary of field-test reports, verification measurements, and descriptions of pre-remedial and post-remedial conditions. Documentation of DOE, NRC, and the Navajo Nation approved design changes and construction activities are also provided.

002
9009130139 900910
PDR WASTE PDC
WM-58

1/4
WM-5B
NL04

The NRC noted that the as-built drawings provided in 1987 with the Final Completion Report were not based on the final topographical conditions. Specifically the erosion protection contours shown required correction. The correction is made by destroying all the drawings under Tab "D" of your Final Completion Report, and substituting the complete five sets of drawings enclosed and listed below:

<u>Drawing Number</u>	<u>Drawing Title</u>
SHP-PS-10-0010	Title Sheet
SHP-PS-10-0011	Vicinity Map, Location Map and List of Drawings
SHP-PS-10-0012	Site Plan
SHP-PS-10-0016	Permanent Drainage Ditches
SHP-PS-10-0017	Contaminated Material Excavation Plan
SHP-PS-10-0018	Tailings Embankment Grading Plan and Sections
SHP-PS-10-0020	Sections and Details
SHP-PS-10-0021	Arroyo Stabilization Plan and Sections
SHP-PS-10-0022	Borrow Area Grading Plan
SHP-PS-10-0043	As-Built Site Grading Plan

Enclosed are five copies of a single page numbered "204." Please add this page to your copies of your Final Completion Report, Volume 2A, Appendix E, Tab titled "Select Rock." The page references the "Report and Analysis of Erosion Protection Investigation, November 20, 1987."

Final Audit Report: The Final Audit Report consists of a summary of all the Quality Assurance Audits, Radiological Surveillances, and In-Process Surveillance Reports prepared by the UMTRA Technical Assistance Contractor for the DOE. Additionally, it contains a summary of the reports of other audits and surveillance by the NRC. This report provides an independent assessment of the compliance of the remedial action with plans, specifications, and standards.

DOE Certification Summary: The DOE Certification Summary consists of a certification statement prepared and presented by the DOE, with the signature of the JMTRA Project Manager and Contracting Officer, for the review and concurrence by the governing regulatory official of the NRC.

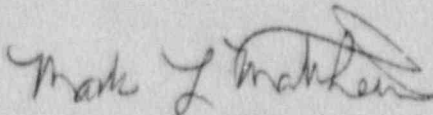
The DOE hereby certifies completion of surface remedial action at the Shiprock, New Mexico, UMTRA disposal cell site. The DOE further certifies that the remedial action meets all final design criteria and technical specifications. It is understood that the NRC's concurrence with the disposal cell surface remedial action does not diminish the DOE's responsibility to comply with the proposed Environmental Protection Agency groundwater standards for the flood plain alluvium. Per Appendix A of the MOU, the DOE requests you sign both copies of the enclosed Certification Summary within six weeks after receipt of this transmittal and return one of the originals to this office.

Mr. Paul Lohaus

-3-

Please direct any questions you may have to Milt Scoutaris of my staff at
FTS 845-5630.

Sincerely,



Mark L. Matthews
Project Manager
Uranium Mill Tailings Remedial Action
Project Office

14 Enclosures:

Drawing Sets (4)
Page 204 (4)
Final Audit Report (4)
DOE Certification Summary (2)
Original

cc w/enclosures:

S. Mann, EM-451, DCE-HQ (2 each)
F. Bosiljevac, UMTRA, AL (1 each)
M. Begaye, Navajo Nation (2 each)

cc w/o enclosures:

M. Abrams, UMTRA, DOE-AL
P. Cate, MK-F
B. Beardien, JEG
D. Gillen, NRC
R. Hall, URFO

APPENDIX D
PHASE II
AS-BUILT - CONSTRUCTION DRAWINGS
SHIPROCK, NEW MEXICO

STATES T OF ENERGY

TRAP

AILINGS REMEDIAL PROJECT

SE II ON DRAWINGS

NEW MEXICO

SI
APERTURE
CARD

Also Available On
Aperture Card

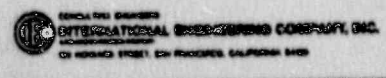
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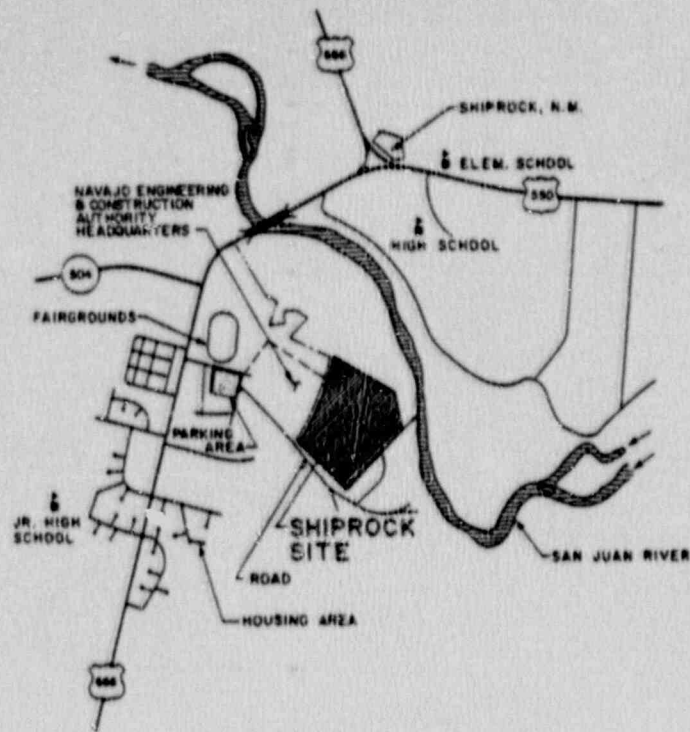


E.S. Smith

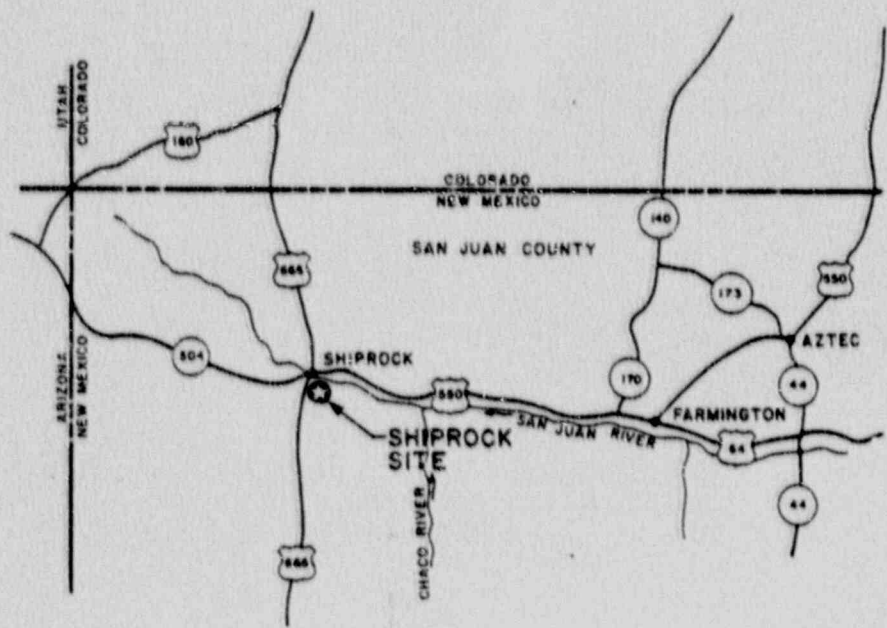
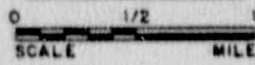
DATE	REVISIONS	BY	OR	U.S.D.	CHIEF	DOC
2/3/82	AS-BUILT					
2/2/82	ISSUED FOR CONSTRUCTION					

U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO			
DESIGNED <i>J. M. CASCATA</i>		SHIPROCK SITE SHIPROCK, NEW MEXICO PHASE II CONSTRUCTION TITLE SHEET	
CHECKED <i>A. B. ...</i>			
APPROVED <i>[Signature]</i>			
DATE 2-21-82			
DATE	DOC PROJECT ENGINEER	DATE	
2-21-82	<i>[Signature]</i>	2/2/82	
PROJECT NO. DE-ACQ4-83AL18796		REV. NO. SHP-PS-10-0010	

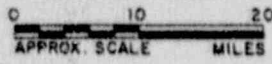




VICINITY MAP



LOCATION MAP



—	5.1
—	12.1
0	17.7
NO.	1

LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLES
SHP-PS-10-0010	TITLE SHEET
SHP-PS-10-0011	VICINITY MAP, LOCATION MAP & LIST OF DRAWINGS
SHP-PS-10-0012	SITE PLAN
SHP-PS-10-0013	CONSTRUCTION FACILITIES
SHP-PS-10-0014	TEMPORARY SITE DRAINAGE SECTIONS & DETAILS
SHP-PS-10-0015	RETENTION BASIN & SPILLWAY, SECTIONS & DETAILS
SHP-PS-10-0016	PERMANENT DRAINAGE DITCHES
SHP-PS-10-0017	CONTAMINATED MATERIAL EXCAVATION PLAN
SHP-PS-10-0018	TAILINGS EMBANKMENT GRADING PLAN & SECTIONS
SHP-PS-10-0019	SITE GRADING PLAN (SEE DWG. NO. SHP-PS-10-0043)
SHP-PS-10-0020	SECTIONS & DETAILS
SHP-PS-10-0021	ARROYO STABILIZATION PLAN & SECTIONS
SHP-PS-10-0022	BORROW AREA GRADING PLAN
SHP-PS-10-0023	BORING LOCATION MAP
SHP-PS-10-0043	AS-BUILT SITE GRADING PLAN
SHP-PS-10-0001 THRU SHP-PS-10-0009	NOT IN CONTRACT

* AS-BUILT VERSIONS OF DELETED DRAWINGS NOT INCLUDED

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9009130139-02



**U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO**

**SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
VICINITY MAP, LOCATION MAP
& LIST OF DRAWINGS**

DESIGNED DRAWN
[Signature] C. CASATA
CHECKED
[Signature] A. B. WILSON
INSPECTED
[Signature] C. H. WILSON
RECOMMENDED
[Signature] C. H. WILSON

APPROVED <i>[Signature]</i>	DATE 2-21-83	DATE 2/11/83	DOE PROJECT ENGINEER <i>[Signature]</i>	DATE 2/1/83
--------------------------------	-----------------	-----------------	--	----------------

<p style="font-size: 8pt;">INTERNATIONAL ENGINEERING COMPANY, INC. 201 HENRIETTA STREET SAN FRANCISCO CALIFORNIA 94104</p>	PROJECT NO. DE-AC04-83AL18796
	DRAWING NO. SHP-PS-10-0011

NO.	REVISIONS	BY	DATE	E&O MGR	CHEF ENG	DOE APP
01	AS-BUILT	RBC	2/1/83			
02	AS-BUILT	RBC	2/1/83			
03	ISSUED FOR CONSTRUCTION					

NOTES:

1. CONTROL POINT HAS BEEN ESTABLISHED BY THE CONTRACTOR IN THE FIELD.
 2. SITE BOUNDARY IS SHOWN BY DASHED LINE. PERMANENT FENCING IS SHOWN BY SOLID LINE WITH DOTTED CENTER LINE. PERMANENT DRAINAGE DITCHES ARE SHOWN BY SOLID LINE WITH DOTTED CENTER LINE AND CROSS-BARS. ROADWAY IS SHOWN BY SOLID LINE WITH DOTTED CENTER LINE AND CROSS-BARS. APRON IS SHOWN BY SOLID LINE WITH DOTTED CENTER LINE AND CROSS-BARS. STABILIZATION IS SHOWN BY SOLID LINE WITH DOTTED CENTER LINE AND CROSS-BARS. SURVEY MONUMENT IS SHOWN BY A SQUARE WITH A DOT IN THE CENTER. PROPERTY CORNER IS SHOWN BY A DOT. PROPERTY CORNER MONUMENT IS SHOWN BY A CIRCLE WITH A DOT IN THE CENTER. CONSTRUCTION GRID COORDINATE IS SHOWN BY A PLUS SIGN. REFERENCE GRID POINT IS SHOWN BY A PLUS SIGN WITH A DOT IN THE CENTER. PRE-CONSTRUCTION SITE CONTOURS ARE SHOWN BY DASHED LINES. PRE-CONSTRUCTION FENCING & GATES ARE SHOWN BY DASHED LINES WITH DOTTED CENTER LINES. FINAL SITE FEATURES ARE SHOWN BY SOLID LINES. 24 FT. WIDE, DOUBLE LEAF SWING GATE IS SHOWN BY A SOLID LINE WITH A DOTTED CENTER LINE AND CROSS-BARS. PERMANENT DRAINAGE DITCH IS SHOWN BY A SOLID LINE WITH A DOTTED CENTER LINE AND CROSS-BARS. APRON IS SHOWN BY A SOLID LINE WITH A DOTTED CENTER LINE AND CROSS-BARS. SITE BOUNDARY IS SHOWN BY A DASHED LINE. PERMANENT FENCING IS SHOWN BY A SOLID LINE WITH A DOTTED CENTER LINE AND CROSS-BARS. CONSTRUCTION GRID COORDINATE IS SHOWN BY A PLUS SIGN. REFERENCE GRID POINT IS SHOWN BY A PLUS SIGN WITH A DOT IN THE CENTER. PROPERTY CORNER IS SHOWN BY A DOT. PROPERTY CORNER MONUMENT IS SHOWN BY A CIRCLE WITH A DOT IN THE CENTER. SURVEY MONUMENT IS SHOWN BY A SQUARE WITH A DOT IN THE CENTER.

1. SEE NOTE 2, DWG. NO. SHP-PS-10-0018.

**SI
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CARD**

Also Available On
Aperture Card

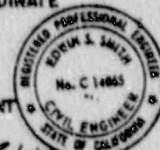
REFERENCE DRAWINGS:

- SHP-PS-10-0016 PERMANENT DRAINAGE DITCHES
- SHP-PS-10-0017 CONTAMINATED MATERIAL EXCAVATION PLAN.
- SHP-PS-10-0018 TAILINGS EMBANKMENT GRADING PLAN AND SECTIONS.
- SHP-PS-10-0019 SITE GRADING PLAN.
- SHP-PS-10-0020 SECTIONS & DETAILS.

LEGEND:

9009130139-03

- 4960 --- PRE-CONSTRUCTION SITE CONTOURS
- M --- PRE-CONSTRUCTION FENCING & GATES
- --- FINAL SITE FEATURES
- M --- 24 FT. WIDE, DOUBLE LEAF SWING GATE
- --- PERMANENT DRAINAGE DITCH
- --- APRON
- --- SITE BOUNDARY
- --- PERMANENT FENCING
- N10,000 CONSTRUCTION GRID COORDINATE
- + REFERENCE GRID POINT
- PROPERTY CORNER
- ⊙ PROPERTY CORNER MONUMENT
- ⊠ SURVEY MONUMENT

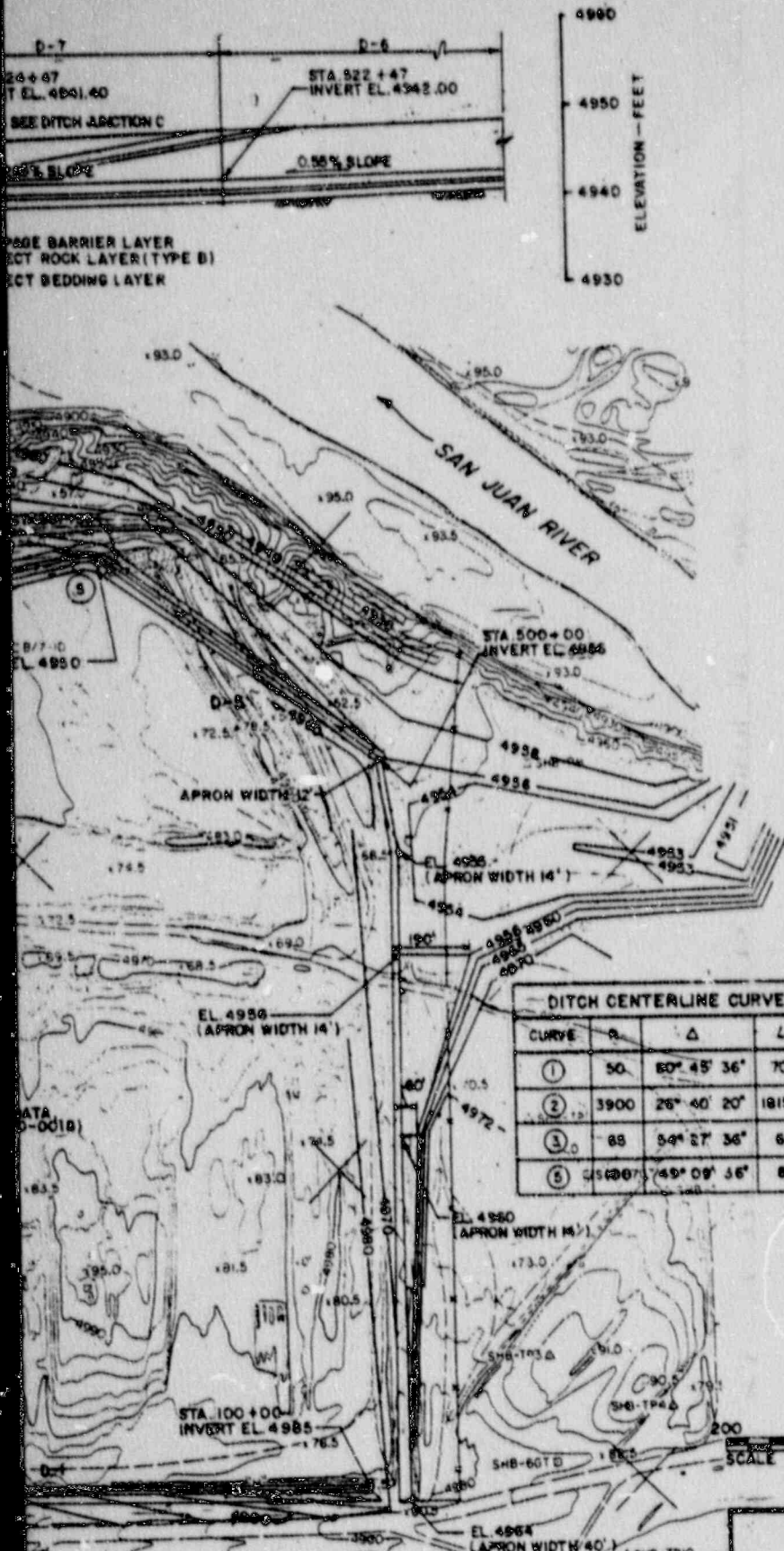


**U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO**

**SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
SITE PLAN**

DATE	REVISIONS	BY	CHK	APP	DATE
3-86	AS-BUILT	JAL	GRT	M	
10-86	REVISED SITE BOUNDARY, ADDED ARROYO STABILIZATION AND NOTE 2.	WYE	GRT	RW	
10-86	REVISED APRON AND FENCE ALONG SE EDGE OF EMBANKMENT.	ABH	GRT	RW	
10-86	REVISED APRON AND FENCE ALONG SE EDGE OF EMBANKMENT.	GAT	WYL	RW	
11-86	REVISED DITCHES, DELETED ROADWAY & ADDED APRON.	WTL	ABH	RW	
12-86	REVISED DITCH JUNCTIONS AND BENDS	WTL	ABH	RW	
1-87	ISSUED FOR CONSTRUCTION				

DESIGNED	DRAGON	DATE	10/1/86
CHECKED	ABH	DATE	10/1/86
APPROVED	WTL	DATE	10/1/86
DATE	2-21-86	DATE	2/11/87
PROJECT NO.	DE-AC04-83AL18796		
DWG. NO.	SHP-PS-10-0012		



NOTES:

1. ALL DITCH BARRIERS AND BENCHES MUST BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION.
2. ALL DITCH BARRIERS AND BENCHES MUST BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION.
3. ALL DITCH BARRIERS AND BENCHES MUST BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION.
4. ALL DITCH BARRIERS AND BENCHES MUST BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION.
5. ALL DITCH BARRIERS AND BENCHES MUST BE CONSTRUCTED TO THE DESIGN ELEVATION AND SHALL BE CONSTRUCTED TO THE DESIGN ELEVATION.

SI
APERTURE
CARD

Also Available On
Aperture Card

REFERENCE DRAWINGS:

- SHP-PS-10-0005 RETENTION BASIN & SPILLWAY SECTIONS & DETAILS
- SHP-PS-10-0018 TAILINGS EMBANKMENT GRADING PLAN & SECTIONS
- SHP-PS-10-0010 SITE GRADING PLAN
- SHP-PS-10-0020 SECTIONS & DETAILS
- SHP-PS-10-0043 AS-BUILT SITE GRADING PLAN

LEGEND:

9009130139-04

- 4954 — FINAL CONTOURS
- DITCH — DITCH
- PRE-CONSTRUCTION TEMPORARY FENCE — PRE-CONSTRUCTION TEMPORARY FENCE
- PRE-CONSTRUCTION FENCE — PRE-CONSTRUCTION FENCE
- EXCAVATION — EXCAVATION
- 12:1 — SLOPE RATIO, HORIZONTAL:VERTICAL
- D-6 — DITCH DESIGNATION
- N7055 — CONSTRUCTION GRID COORDINATE
- REFERENCE GRID POINT — REFERENCE GRID POINT
- ① — DITCH CENTERLINE CURVE NUMBER

DITCH CENTERLINE CURVE DATA

CURVE	R	Δ	L	T
①	50	80° 45' 36"	70.48	42.52
②	3900	26° 40' 20"	1815.52	924.52
③	88	94° 27' 36"	61.78	33.4
④	4500	74° 09' 36"	85.00	5.74

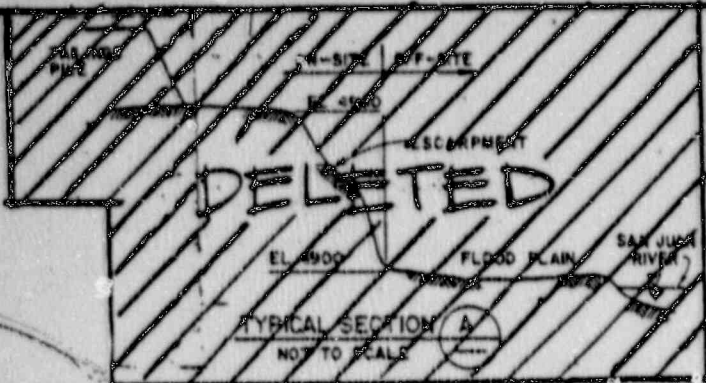


U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
PERMANENT DRAINAGE DITCHES

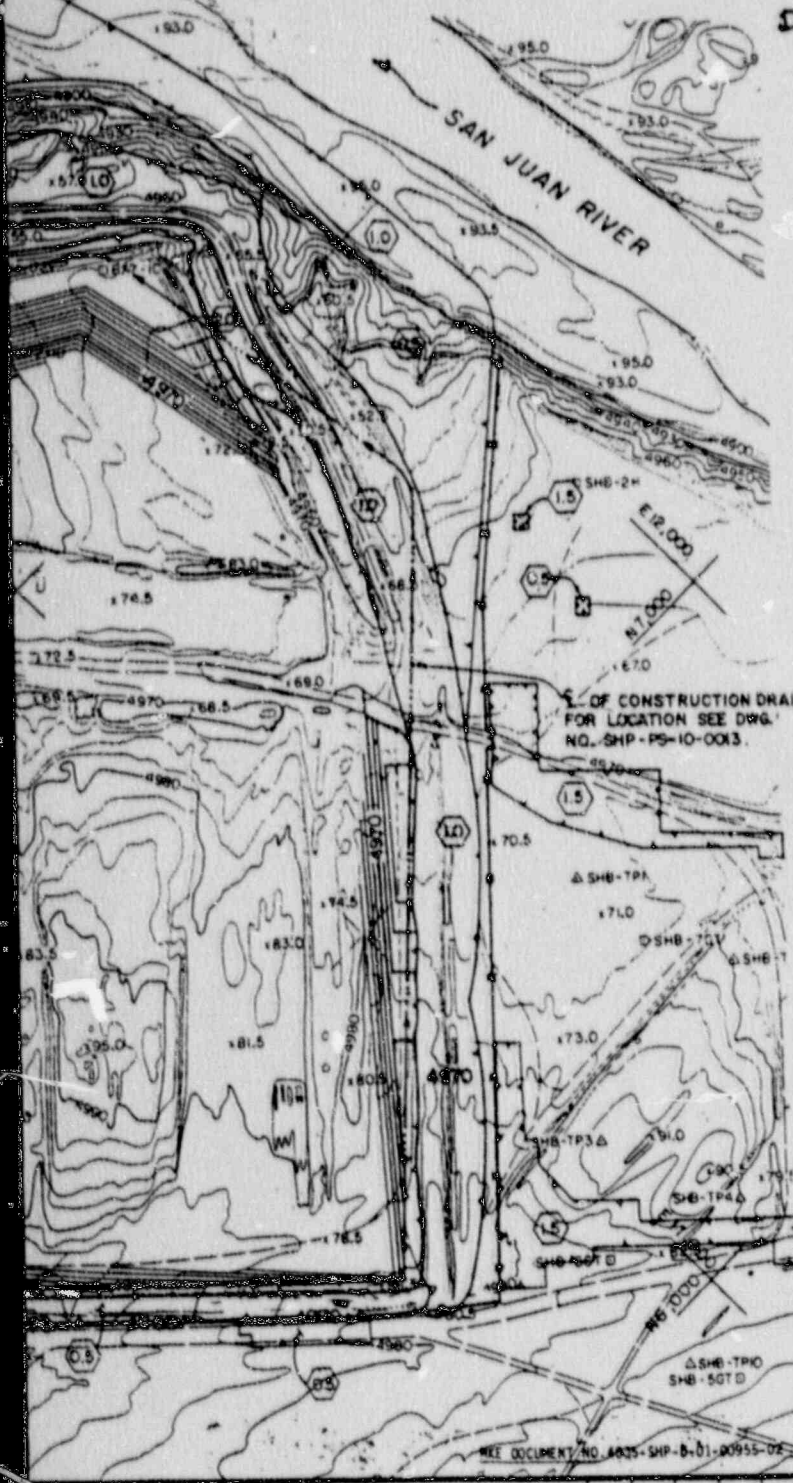
DATE	REVISIONS	BY	CHKD	APPD
10/00	AS-BUILT (REVISED)	W.L. GRT	W.L. GRT	W.L. GRT
10/30	AS-BUILT	W.L. GRT	W.L. GRT	W.L. GRT
11/10	ADDED NOTE 4	W.L. GRT	W.L. GRT	W.L. GRT
11/15	REVISED APRON AND GRADING ALONG SE EDGE OF EMBANKMENT	W.L. GRT	W.L. GRT	W.L. GRT
11/15	REVISED APRON AND GRADING ALONG SE EDGE OF EMBANKMENT	W.L. GRT	W.L. GRT	W.L. GRT
11/15	REVISED DITCHES, DELETED ROADWAY AND ADDED APRON	W.L. GRT	W.L. GRT	W.L. GRT
11/15	REVISED DITCH JUNCTIONS AND BENDS	W.L. GRT	W.L. GRT	W.L. GRT
11/15	ISSUED FOR CONSTRUCTION	W.L. GRT	W.L. GRT	W.L. GRT

DESIGNED DRAWN A.B. WYATT	CHECKED W.L. GRT	APPROVED W.L. GRT	DATE 11/15/80	DATE 11/15/80	PROJECT ENGINEER D.W. BULL	DATE 11/15/80
			PROJECT NO. DE-AC04-83AL10796			
DRAWN BY SHP-PS-10-0018						



NOTES:

- DELETED
1. LOCATION OF THE CONTROL POINT HAS BEEN ESTABLISHED BY THE CONTRACTOR IN THE FIELD.
 2. MAXIMUM EXCAVATION SLOPES WERE 3 (H) : 1 (V) IN TAILINGS AND 2 (H) : 1 (V) IN ALL OTHER SOILS FOR SLOPES GREATER THAN 4 FEET IN TOTAL HEIGHT.
 3. FINAL EXCAVATION LIMITS WERE DETERMINED BY THE CONTRACTOR ACCORDING TO THE SPECIFICATIONS.
 4. THE SLIMES FROM THE NORTHEAST PART OF THE TAILINGS PILE WERE EXCAVATED FIRST AND PLACED IN THE LOWER PORTION OF THE EXISTING SWALE LOCATED BETWEEN THE EXISTING TAILINGS PILES.
- DELETED



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REFERENCE DRAWINGS:

- SHP-PS-10-0013 CONSTRUCTION FACILITIES
- SHP-PS-10-0018 TAILINGS EMBANKMENT GRADING PLAN & SECTIONS

9009130139-05

LEGEND:

- 4970— PRE-CONSTRUCTION CONTOURS
- 4960— ELEVATION OF EXCAVATION BOTTOM
- (30) APPROXIMATE DEPTH IN FEET AND LIMIT OF CONTAMINATED MATERIAL EXCAVATED
- OF DRAINAGE DITCH
- R 10,000 CONSTRUCTION GRID COORDINATE
- + REFERENCE GRID POINT
- PRE-CONSTRUCTION FENCING
- SWING GATE
- EXISTING EXCAVATION
- EXISTING EMBANKMENT
- PRE-CONSTRUCTION ACCESS ROAD
- 2 (H) : 1 (V) EXCAVATION SIDESLOPES



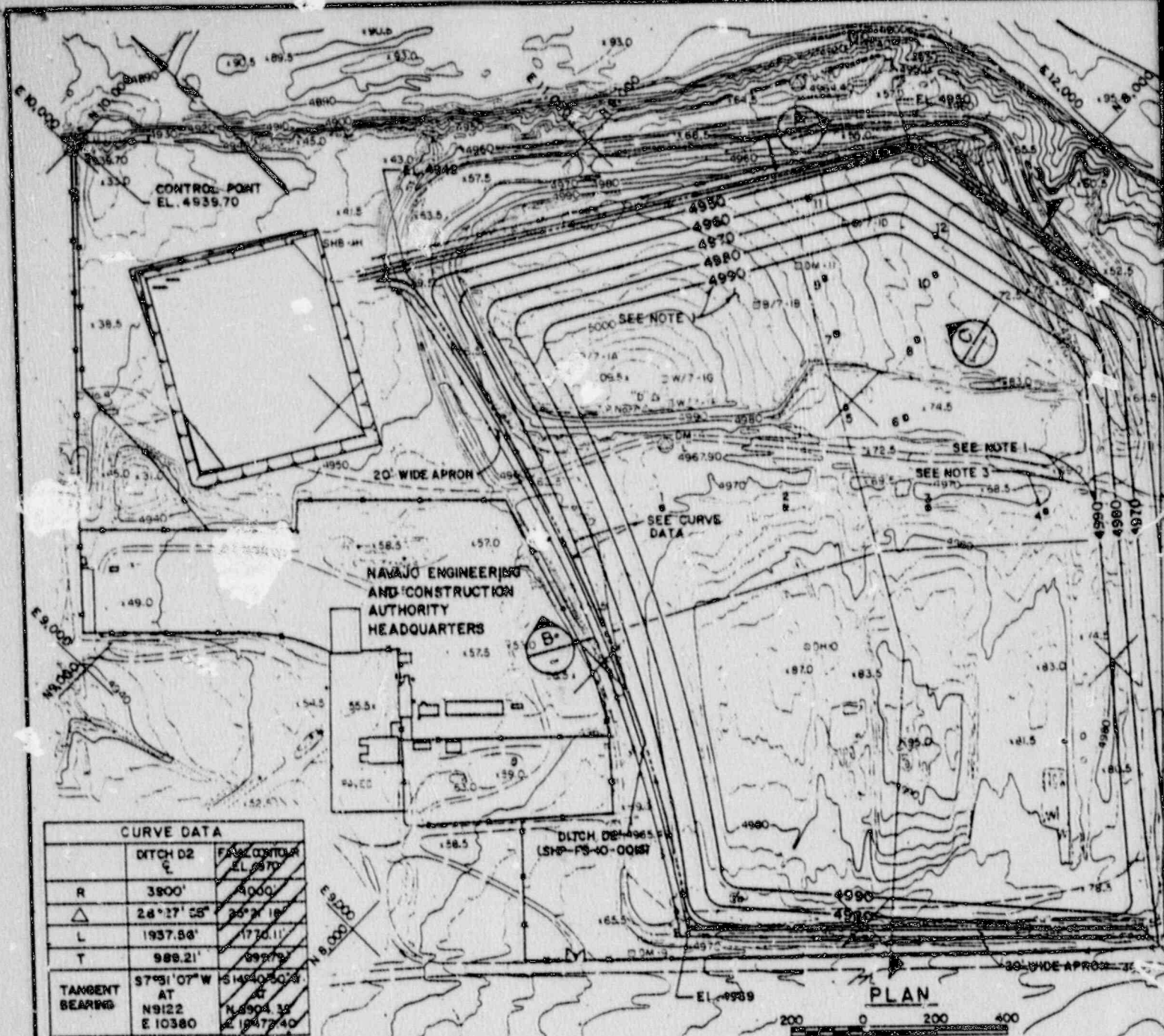
U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
CONTAMINATED MATERIAL
EXCAVATION PLAN

DESIGNED DRAWN E. S. Smith	DATE 2-21-85	DOE PROJECT ENGINEER D. J. M. B. L.	DATE 2/21/85
CHECKED Blaine			
INSPECTED Blaine			
RECOMMENDED Blaine			
APPROVED Blaine			
BY E. S. Smith	DATE 2-21-85	DOE PROJECT ENGINEER D. J. M. B. L.	DATE 2/21/85
PROJECT NO. DE-AC04-83AL18796	DRAWING NO. SHP-PS-10-0017		

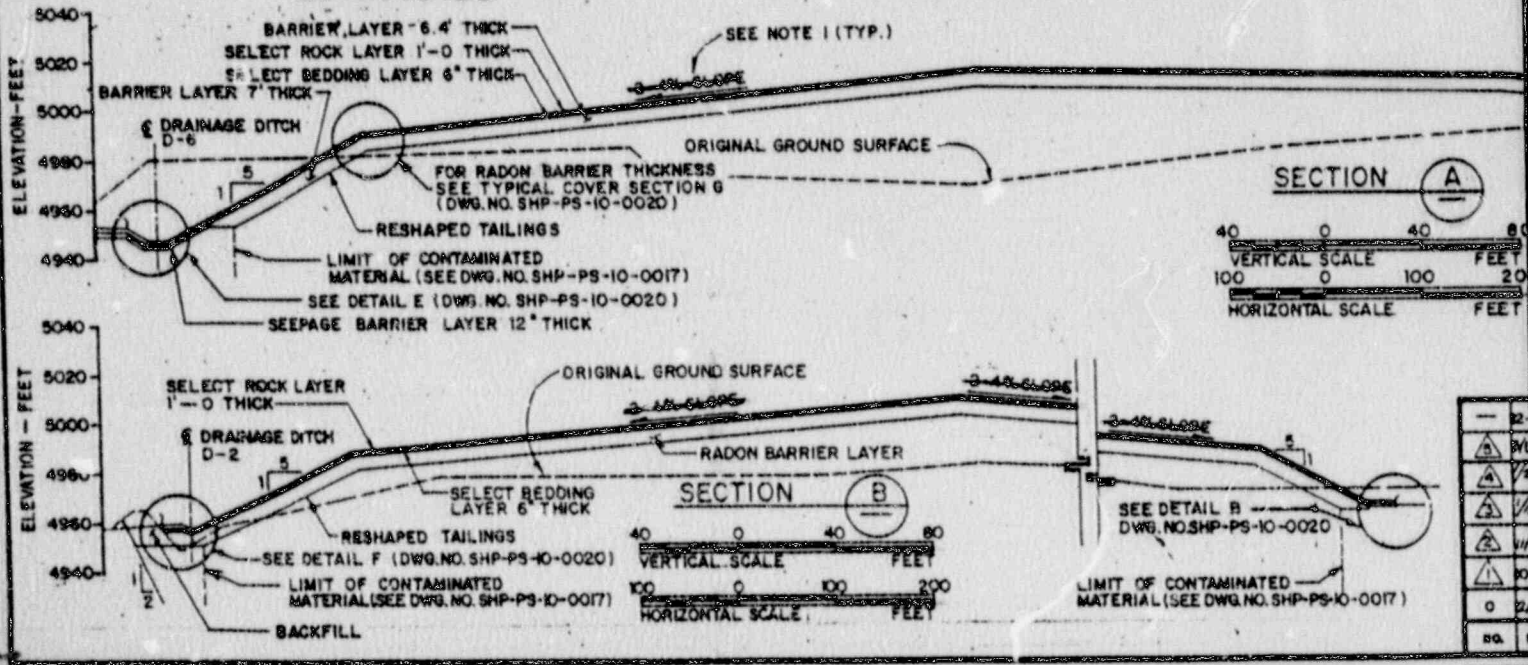
NO.	REVISION	BY	CHK	APP	DATE
3-86	AS-BUILT	WYL	GRT	WYL	
7-87	REVISED E FOR DITCHES	WYL	AB	WYL	
8-88	REVISED DITCH JUNCTIONS AND BENDS	WYL	AB	WYL	
11-88	ISSUED FOR CONSTRUCTION				

CONSULTING ENGINEER
INTERNATIONAL ENGINEERING COMPANY, INC.
21 HONOLULU STREET SAN FRANCISCO CALIFORNIA 94108

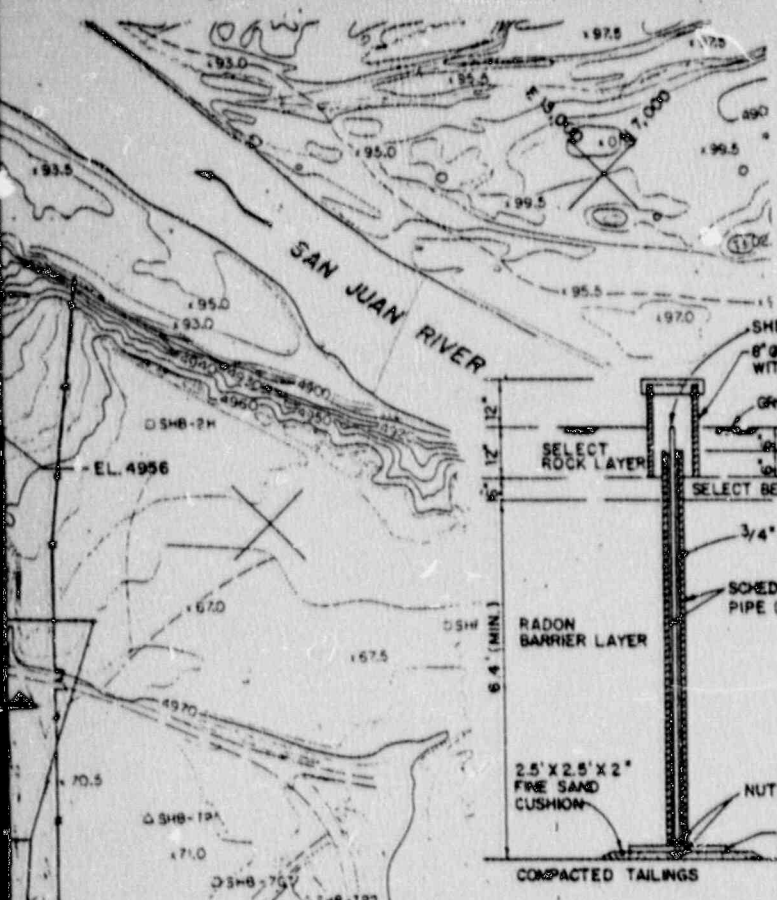


CURVE DATA		
	DITCH D-2	FACE CONTROL EL. 4970
R	3800'	4000'
Δ	28° 27' 58"	35° 2' 18"
L	1937.98'	1770.11'
T	989.21'	999.73'
TANGENT BEARINGS	S7° 51' 07" W AT N9122 E 10380	S14° 40' 50" S AT N8904 35 E 10473 40

DELETED



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△	50



NOTE:

1. THE LOCATION OF THE CONTROL POINT HAS BEEN ESTABLISHED BY THE CONTRACTOR IN THE FIELD.

2. THE FINAL ELEVATIONS OF THE TAILINGS EMBANKMENT WILL BE DETERMINED BY THE CONTRACTOR. THE FINAL MAXIMUM AND MINIMUM SLOPE OF THE EMBANKMENT SHALL BE IN THE ORDER OF 3:1 AND 3:1 (H:V) RESPECTIVELY.

- SEE NOTE 2, DWG. NO. SHP-PS-10-0019
- WHERE CORNER CONTOURS ON THE TAILINGS EMBANKMENT ARE TOO SHARP TO BE CONSTRUCTED, CONTOURS WERE ROUNDED WITH A 50-FOOT RADIUS IN THE PLAN VIEW.

4. POLICE ADVANCE THE EMBANKMENT FOR WASTE CONTAMINATED MATERIAL IS 0.4837 CUBIC YARDS ESTIMATED VOLUME OF THE EMBANKMENT TO BE FILLED BY RECYCLED CONTAMINATED MATERIAL IS 8.70 CUBIC YARDS.

DELETED

5. WALL THICKNESS OF THE RADON BARRIER LAYER WILL BE DETERMINED BY THE CONTRACTOR.

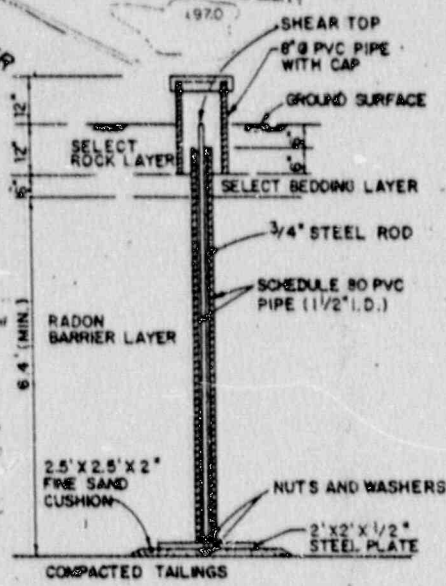
6. BASE PLATE PLACED PRIOR TO FILLING STEEL ROD EXTENDED VERTICALLY THROUGH R/L MATERIALS.

- SURFACE DISPLACEMENT MONUMENTS ARE AT THE FOLLOWING LOCATIONS:

MONUMENT	LOCATION	MONUMENT	LOCATION
①	N6171 E10.437	⑦	N8182 E11.108
②	N7934 E10.665	⑧	N7886 E11.295
③	N7651 E10.935	⑨	N8280 E11.189
④	N7404 E11.171	⑩	N8068 E11.415
⑤	N8000 E10.964	⑪	N8445 E11.307
⑥	N7871 E11.071	⑫	N8140 E11.685

THE STEEL ROD AND PLATE USED FOR DISPLACEMENT MONUMENT IS GRADE A36 AND COATED WITH COAL TAR EPOXY.

SURFACE DISPLACEMENT MONUMENT DETAIL
NOT TO SCALE



REFERENCE DRAWINGS:

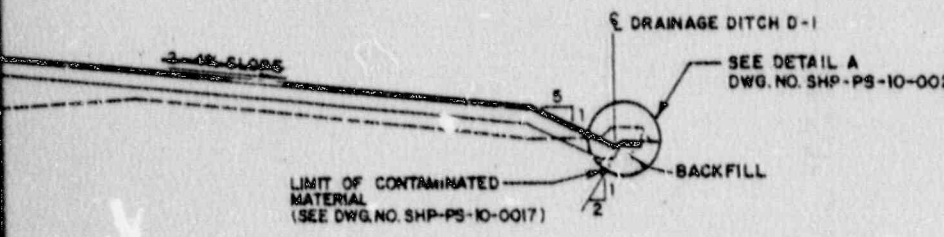
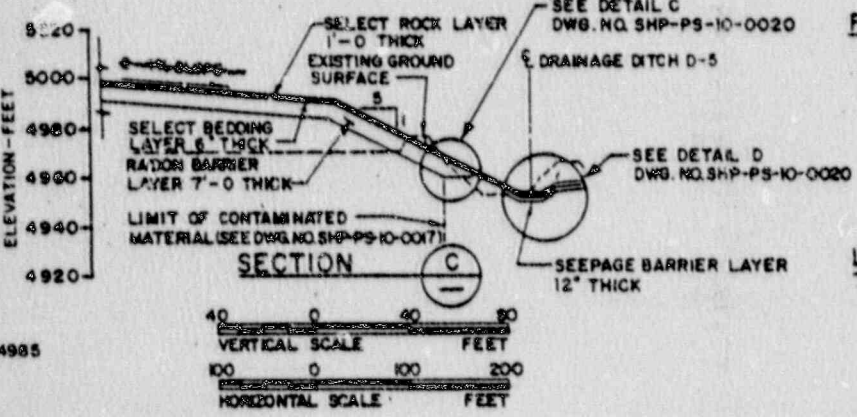
- SHP-PS-10-0016 PERMANENT DRAINAGE DITCHES
- SHP-PS-10-0017 CONTAMINATED MATERIAL EXCAVATION PLAN
- SHP-PS-10-0019 SITE GRADING PLAN
- SHP-PS-10-0020 SECTIONS & DETAILS

SI APERTURE CARD

LEGEND:

- 5000 — FINAL CONTOURS
- 6 OF DRAINAGE DITCH
- N 6,000 — CONSTRUCTION GRID COORDINATE
- + REFERENCE GRID POINT
- PERMANENT FENCING AND SWING GATE
- 4 B SURFACE DISPLACEMENT MONUMENT

9009130139-06

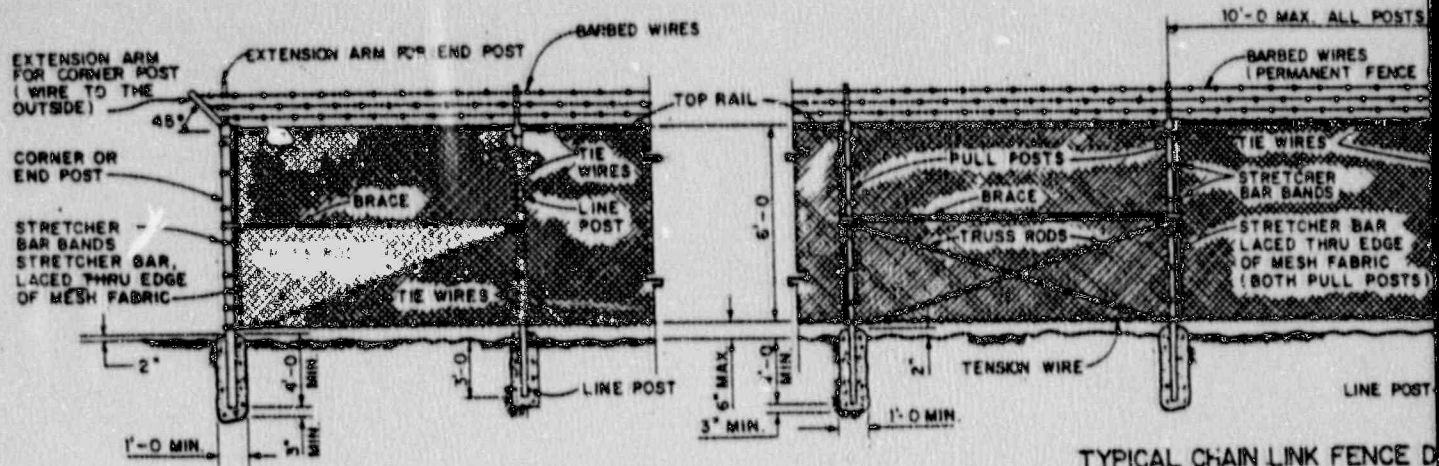


U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

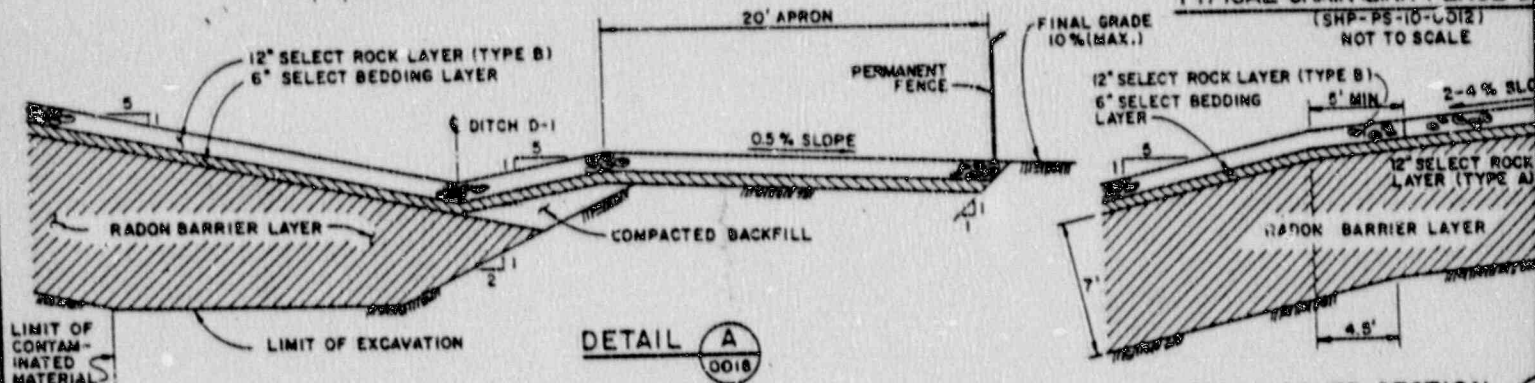
SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
TAILINGS EMBANKMENT GRADING PLAN & SECTIONS

NO.	REVISIONS	BY	CR	ESD	CHG	DATE	DOE APP	DOE APP
01	AS-BUILT	ADL	GRT	EM	YWL			
02	REVISED RADON BARRIER THICKNESS	GRT	YWL	EM	ADL			
03	REVISED APRON GRADING AND FENCE ALONG SE SIDE	ABH	GRT	EM	YWL			
04	REVISED APRON GRADING AND FENCE ALONG SE EDGE OF EMBANKMENT	YWL	ABH	EM	GRT			
05	REVISED DITCHES, DELETED ROADWAY & ADDED APRON	YWL	ABH	EM	GRT			
06	REVISED DITCH JUNCTIONS AND BENDS	YWL	ABH	EM	GRT			
07	ISSUED FOR CONSTRUCTION							

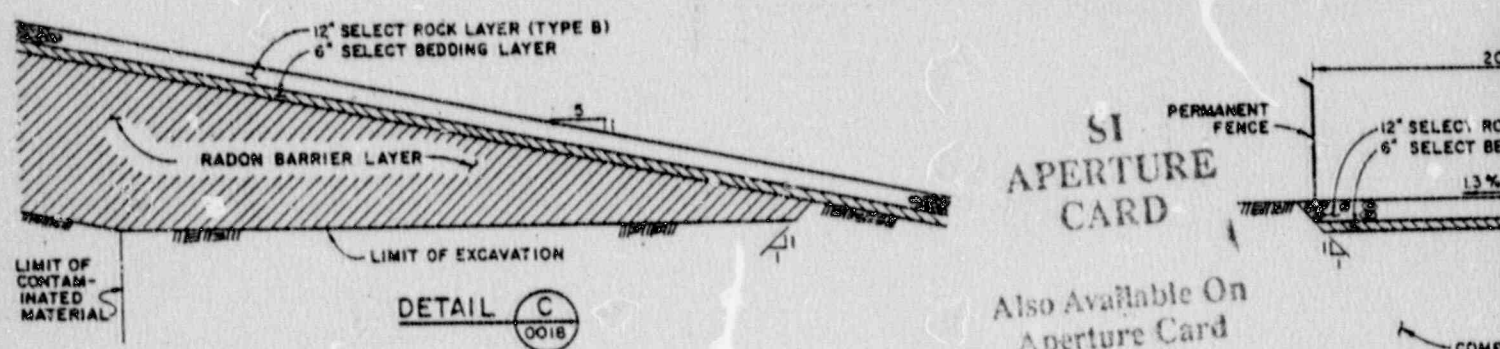
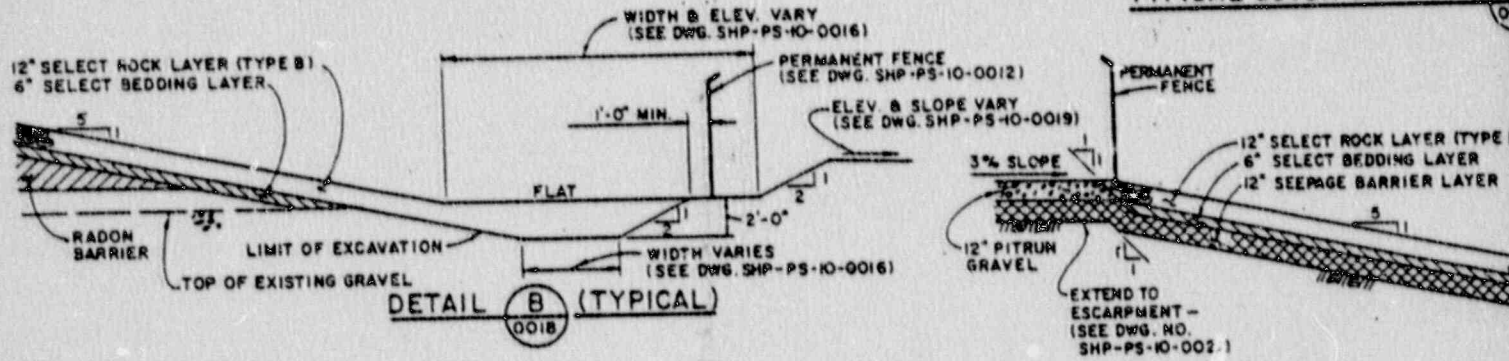
DESIGNED DRAWN CHECKED DATE	DATE	DATE	DATE
2/21/85	2/21/85	2/21/85	2/21/85
PROJECT NO. DE-AC04-83AL18796	PROJECT ENGINEER Dan M. Rull	DATE	DATE
DESIGNED BY INTERNATIONAL GEOGRAPHIC COMPANY, INC.	DATE	DATE	DATE



TYPICAL CHAIN LINK FENCE D
(SHP-PS-10-0012)
NOT TO SCALE

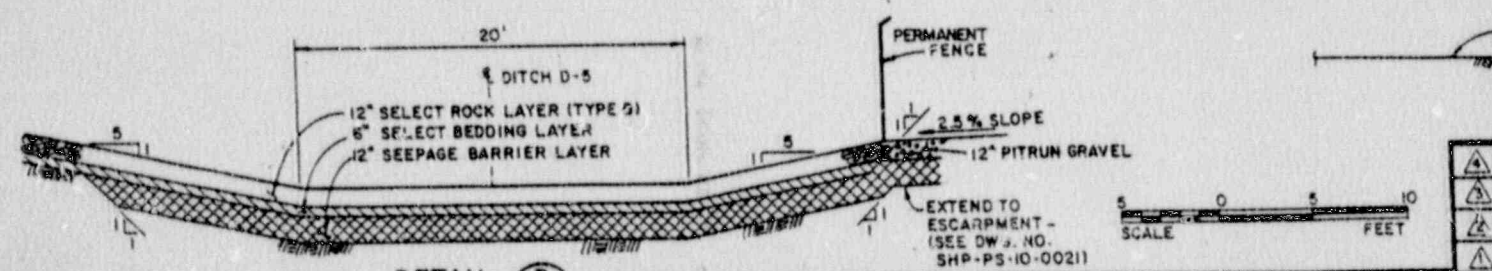


TYPICAL COVER SECTION (0018)



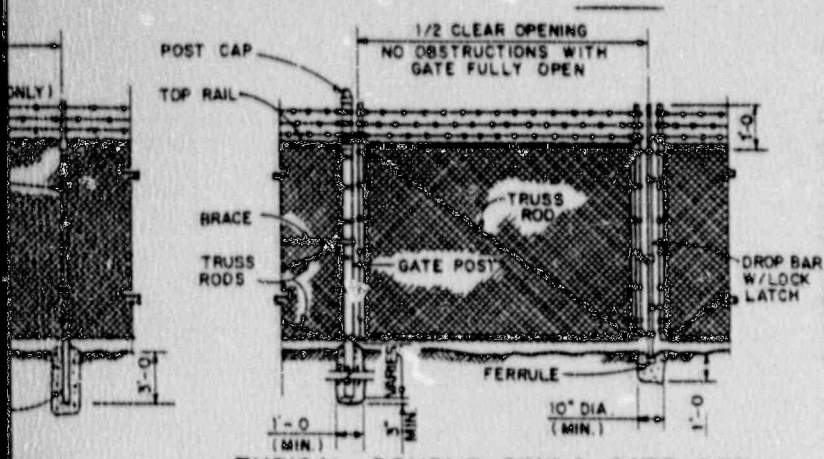
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Aperture Card



DETAIL D (0018) ADDED WIRE MESH GATE INSTALLATION DETAIL

NO.	DATE	REVISIONS	BY	CHKD	DATE	NO.
1						
2						
3						
4						

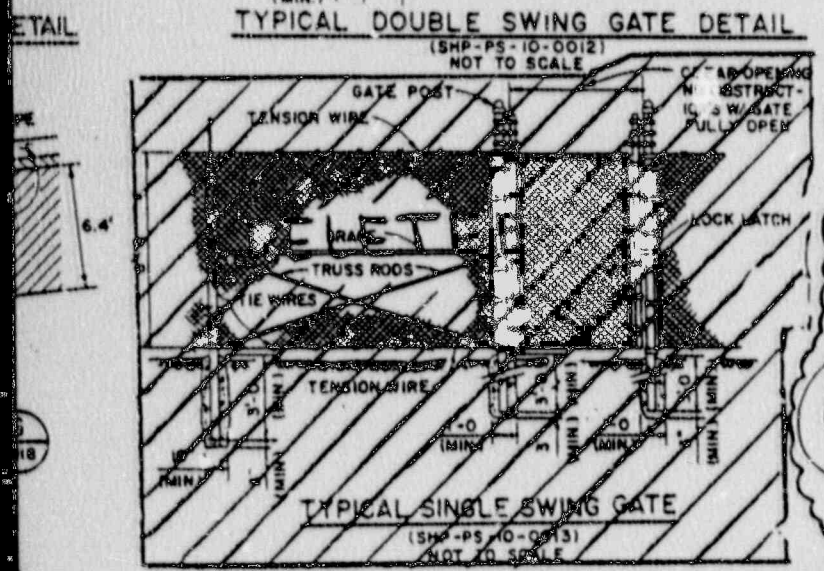


TYPICAL DOUBLE SWING GATE DETAIL
(SHP-PS-10-0012)
NOT TO SCALE

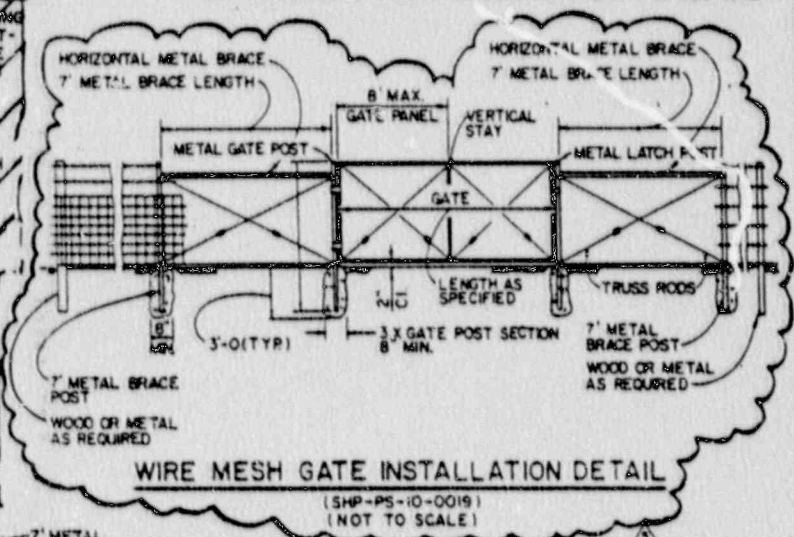
NOTE:
1. FINAL THICKNESS OF THE RADON BARRIER LAYER WILL BE DETERMINED BY THE CONTRACTOR.
2. THE THICKNESS OF THE RADON BARRIER LAYER OF DETAIL B SHALL NOT EXTEND BEYOND FENCE, WHERE NECESSARY TO MEET THIS REQUIREMENT, PART OF THE THICKENED SECTION SHALL EXTEND UP THE SHIV SLOPE.

REFERENCE DRAWINGS:

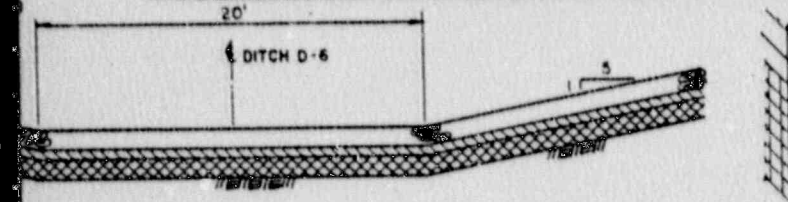
- SHP-PS-10-0012, SITE PLAN
- SHP-PS-10-0017, CONTAMINATED MATERIAL EXCAVATION PLAN
- SHP-PS-10-0018, TAILINGS EMBANKMENT GRADING PLAN AND SECTIONS
- SHP-PS-10-0019, SITE GRADING PLAN
- SHP-PS-10-0021, ARROYO STABILIZATION PLAN AND SECTIONS



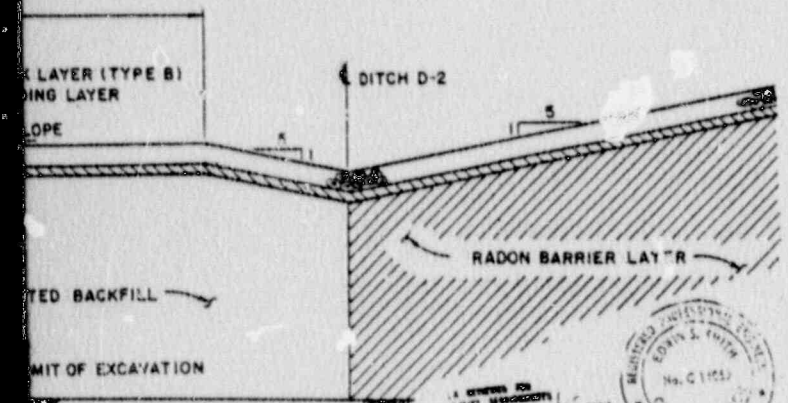
TYPICAL SINGLE SWING GATE
(SHP-PS-10-0013)
NOT TO SCALE



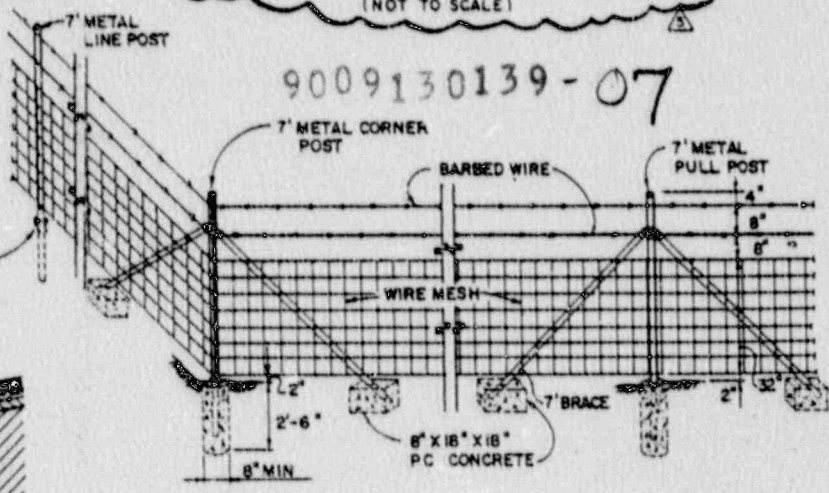
WIRE MESH GATE INSTALLATION DETAIL
(SHP-PS-10-0019)
NOT TO SCALE



DETAIL E
0018



DETAIL F
0018



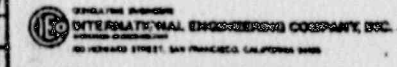
TYPICAL BARBED WIRE AND WIRE MESH FENCE DETAIL
(SHP-PS-10-0022)
NOT TO SCALE

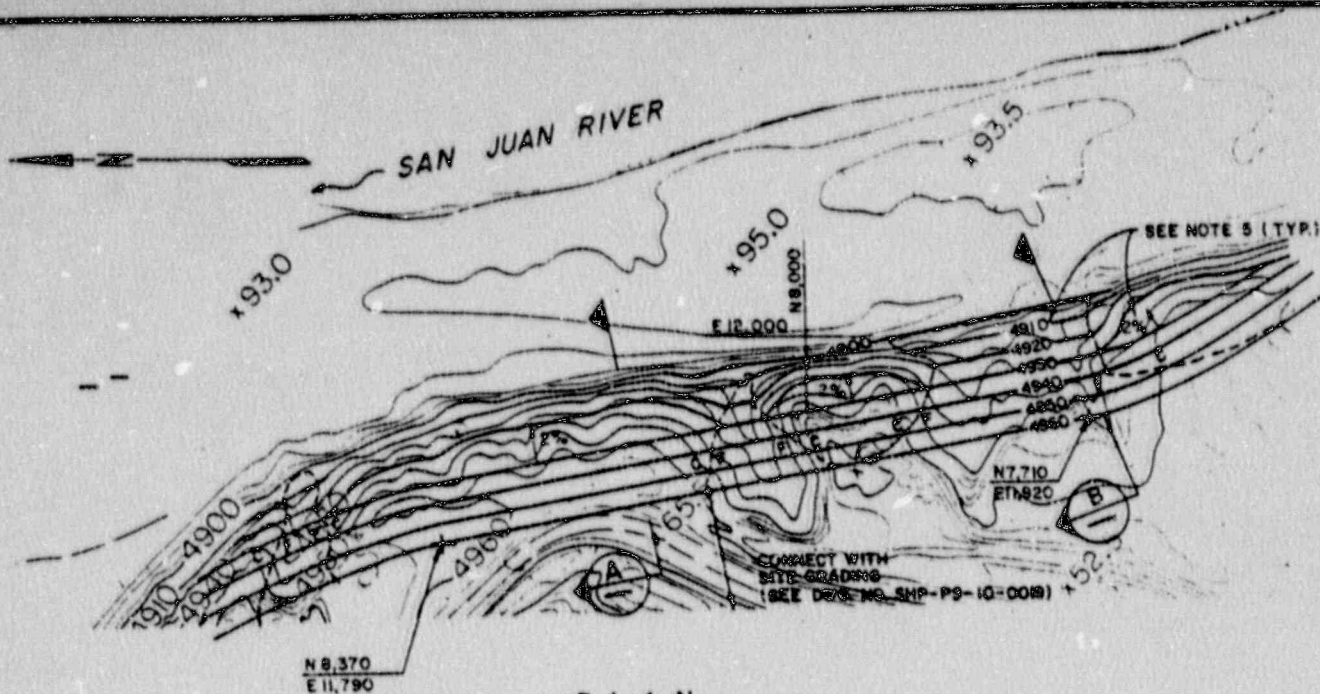
9009130139-07

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

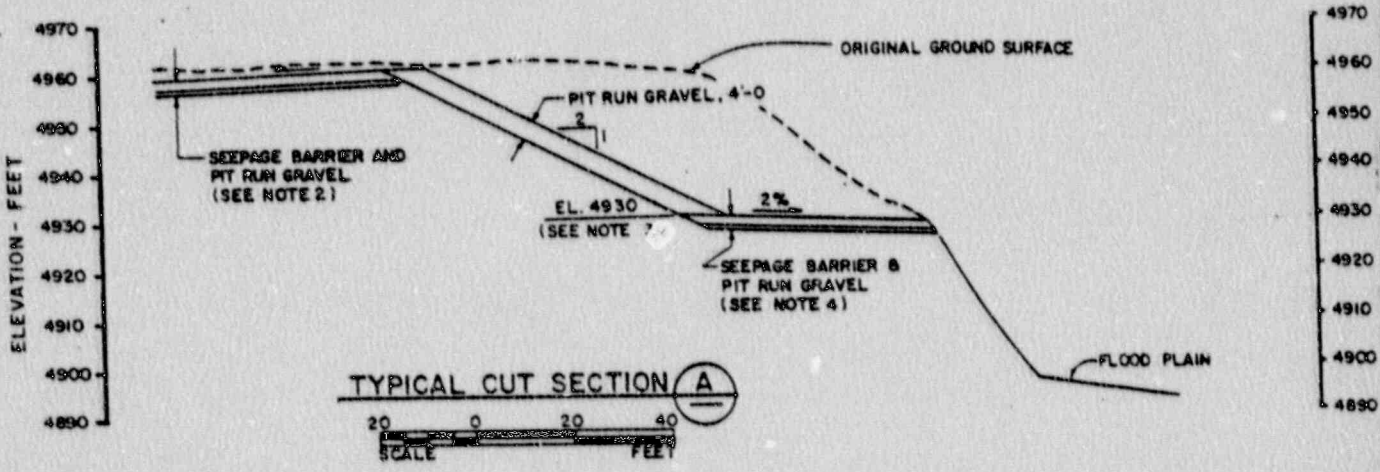
SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
SECTIONS & DETAILS

DESIGNED DRAWN JRM	CHECKED A. W.	INSPECTED C. W.	RECOMMENDED C. W.	APPROVED C. W.	DATE 2/11/87	DATE 2/11/87	DATE 2/11/87	DATE 2/11/87
PROJECT NO. DE-AC04-83AL18796				DRAWING NO. SHP-PS-10-0020				

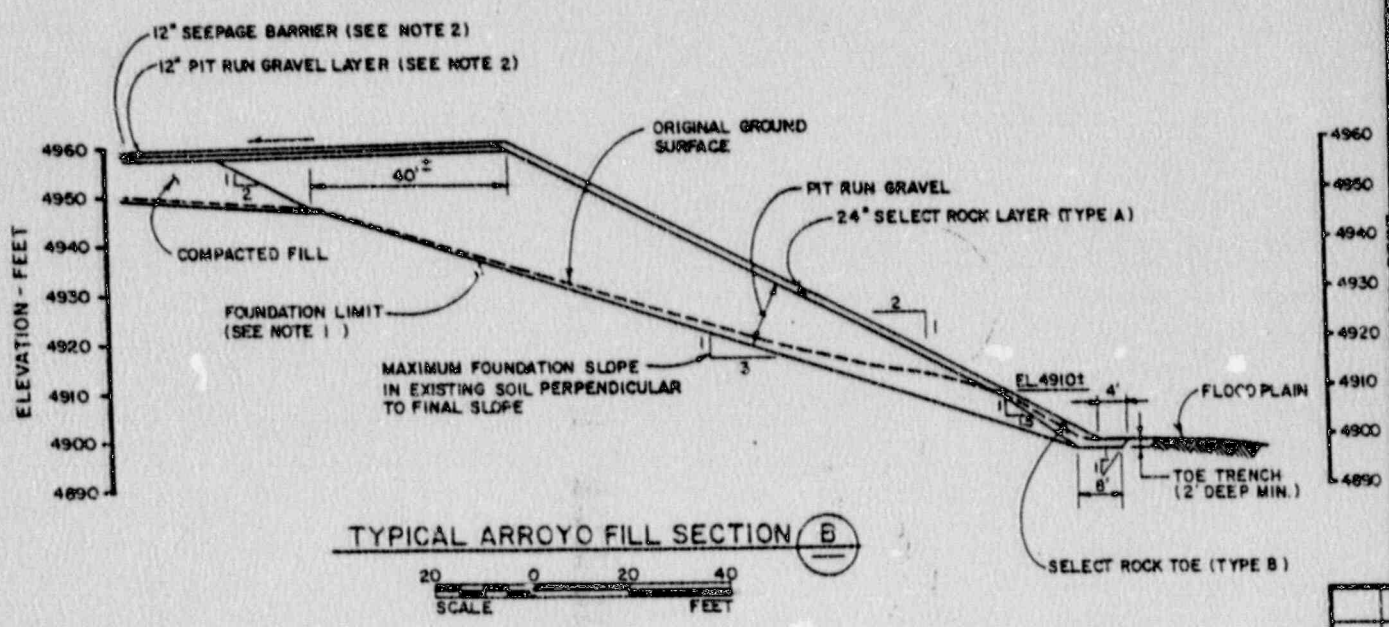




PLAN
SCALE 0 100 200 FEET



TYPICAL CUT SECTION A
SCALE 0 20 40 FEET



TYPICAL ARROYO FILL SECTION B
SCALE 0 20 40 FEET

—	2'
△	4'
○	8'
□	16'
■	32'

NOTES:

1. FOUNDATION LIMIT WAS DETERMINED BY 6-INCH MINIMUM STRIPPING, EXCAVATION OF CONTAMINATED MATERIAL (SEE DWG. SHP-PS-10-0017), REMOVAL OF CO. LUMVUM AND HIGHLY DECOMPOSED SHALE ON SLOPE AS DIRECTED BY THE CONTRACTOR AND MAXIMUM FOUNDATION SLOPE AS INDICATED.
2. SEEPAGE BARRIER IS 1 FOOT THICK RECOMPACTED MANCOS SHALE OR IMPORTED COMPACTED MANCOS SHALE, COVERED WITH 12 INCHES OF PIT RUN GRAVEL.
3. EXCAVATION WAS NOT LOWER THAN TOP OF SANDSTONE BED.
4. SEEPAGE BARRIER IS 1 FOOT THICK RECOMPACTED MANCOS SHALE OR IMPORTED COMPACTED MANCOS SHALE, COVERED WITH 24 INCHES OF PIT RUN GRAVEL.
5. SEE NOTE 2, DWG. NO. SHP-PS-10-0016.

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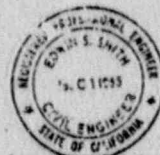
REFERENCE DRAWINGS:

SHP-PS-10-0019 SITE GRADING PLAN

LEGEND:

- FINAL CONTOURS
- 4950—— PRE-CONSTRUCTION CONTOURS
- N 10,000—— CONSTRUCTION GRID COORDINATE
- +
- REFERENCE GRID POINT
- C
F---
- BOUNDARY BETWEEN CUT (C) & FILL (F)

9009130139 - 08



E. S. Smith

**U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO**

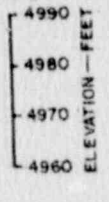
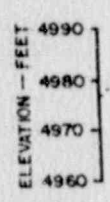
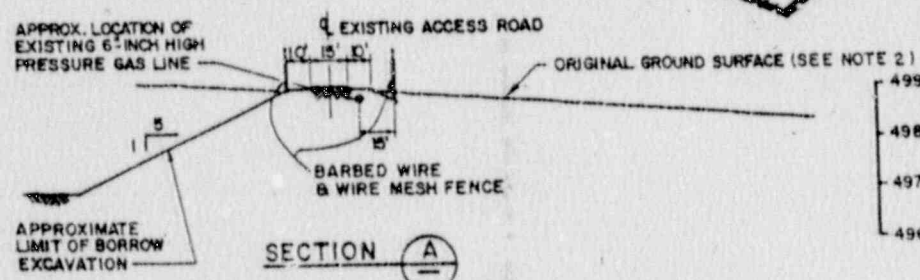
**SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
ARROYO STABILIZATION
PLAN AND SECTIONS**

DESIGNED DRAWN L.B. 4/24/72
CHECKED A.S. 11/1/72
INSPECTED
RECOMMENDED

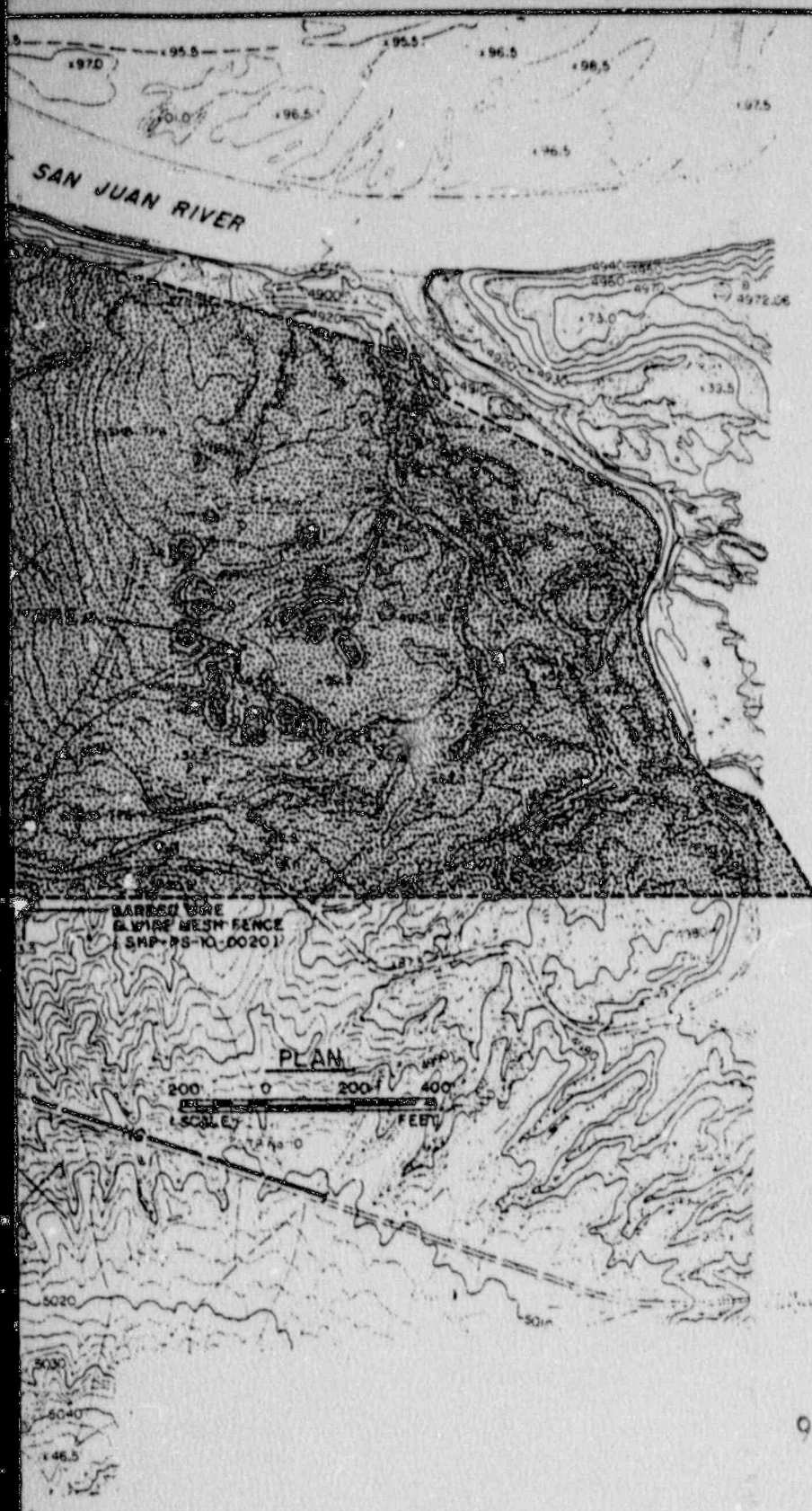
APPROVED <i>E. S. Smith</i>	DATE 2-21-73	DATE 2/1/73	DATE 2/7/73
--------------------------------	-----------------	----------------	----------------

<p>INTERNATIONAL ENGINEERING COMPANY, INC. 300 MARKET STREET SAN FRANCISCO, CALIFORNIA 94102</p>	PROJECT NO. DE-AC04-83AL18796
	DRAWING NO. SHP-PS-10-0021

REVISIONS	BY	CHK.	ESD DOR.	CHIEF ENG.	DATE APP.
AS-BUILT	<i>WTL</i>	<i>AKH</i>			
REVISED TYPICAL ARROYO FILL SECTION.					
ISSUED FOR CONSTRUCTION					



—
△
△
△
○
NO.



NOTES:

1. THE SUBCONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING HIGH PRESSURE GAS LINE AND SHALL MARK THE LOCATION BEFORE CONDUCTING WORK IN NEARBY AREAS.
 2. FINAL GRADE SLOPES IN THE MAX BORROW AREA SLOPING AWAY FROM THE HIGH PRESSURE GAS LINE SHALL NOT BE STEEPER THAN 5:1 (H:V).
1. SEE NOTE 1 DWG. NO. SHP-PS-10-0020
 2. SEE NOTE 2, DWG. NO. SHP-PS-10-0018.
4. FINAL GRADE SLOPES IN THE MAX BORROW AREA SLOPING AWAY FROM THE EXISTING GAS LINE SHALL NOT BE STEEPER THAN 5:1 (H:V).

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REFERENCE DRAWINGS:

~~SHS-PS-10-0018~~

LEGEND:

- HG— EXISTING 6-INCH HIGH PRESSURE GAS LINE
- LIMIT OF BORROW PERMIT AREA
- 5020— PRE-CONSTRUCTION CONTOURS
- PRE-CONSTRUCTION ACCESS ROAD
- N10,000 CONSTRUCTION GRID COORDINATE
- + REFERENCE GRID POINT
- BARBED WIRE AND WIRE MESH FENCE

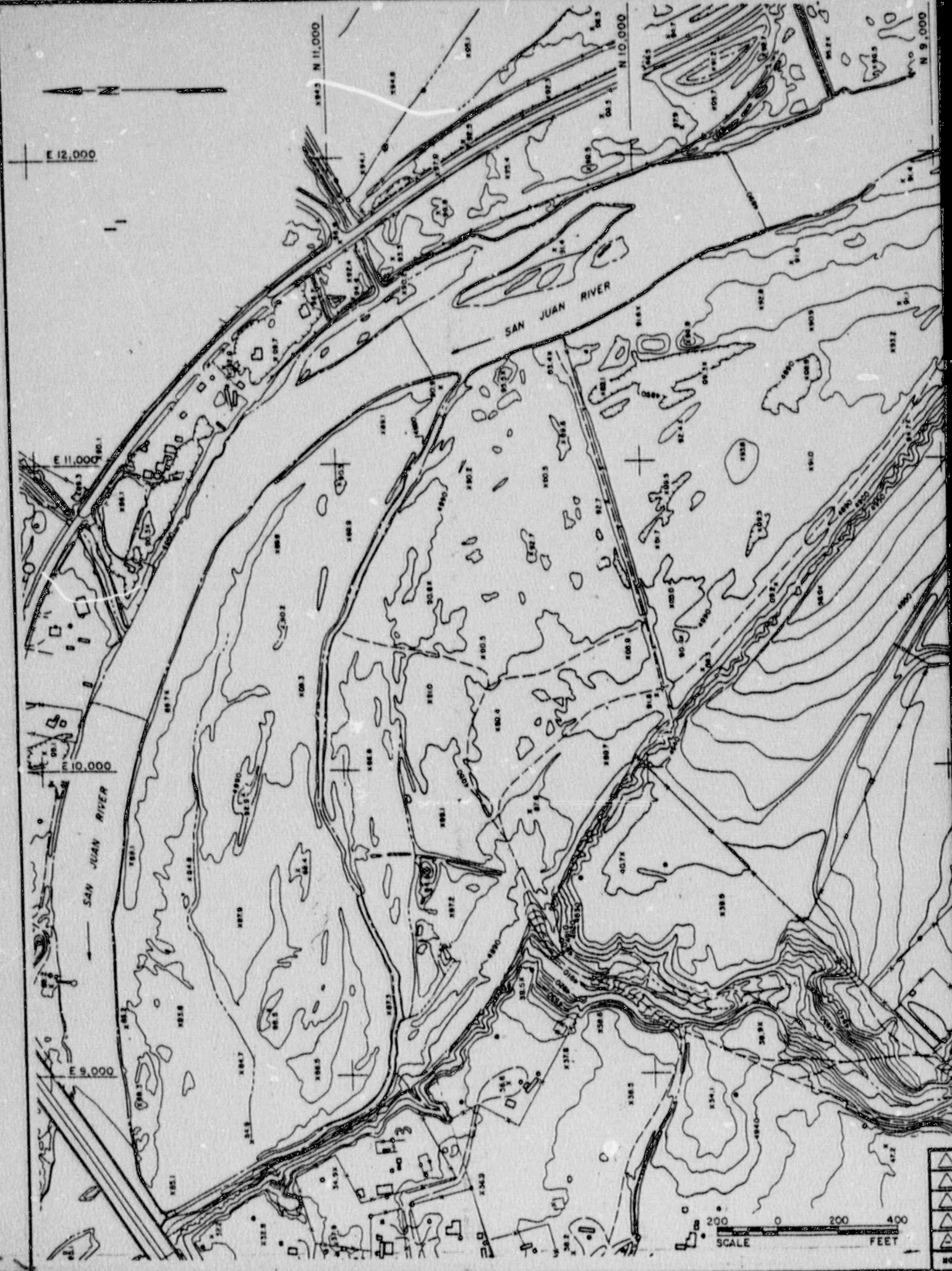
9009130139 - 09

DESIGNED FOR
THAT PURPOSE
J. J. ...



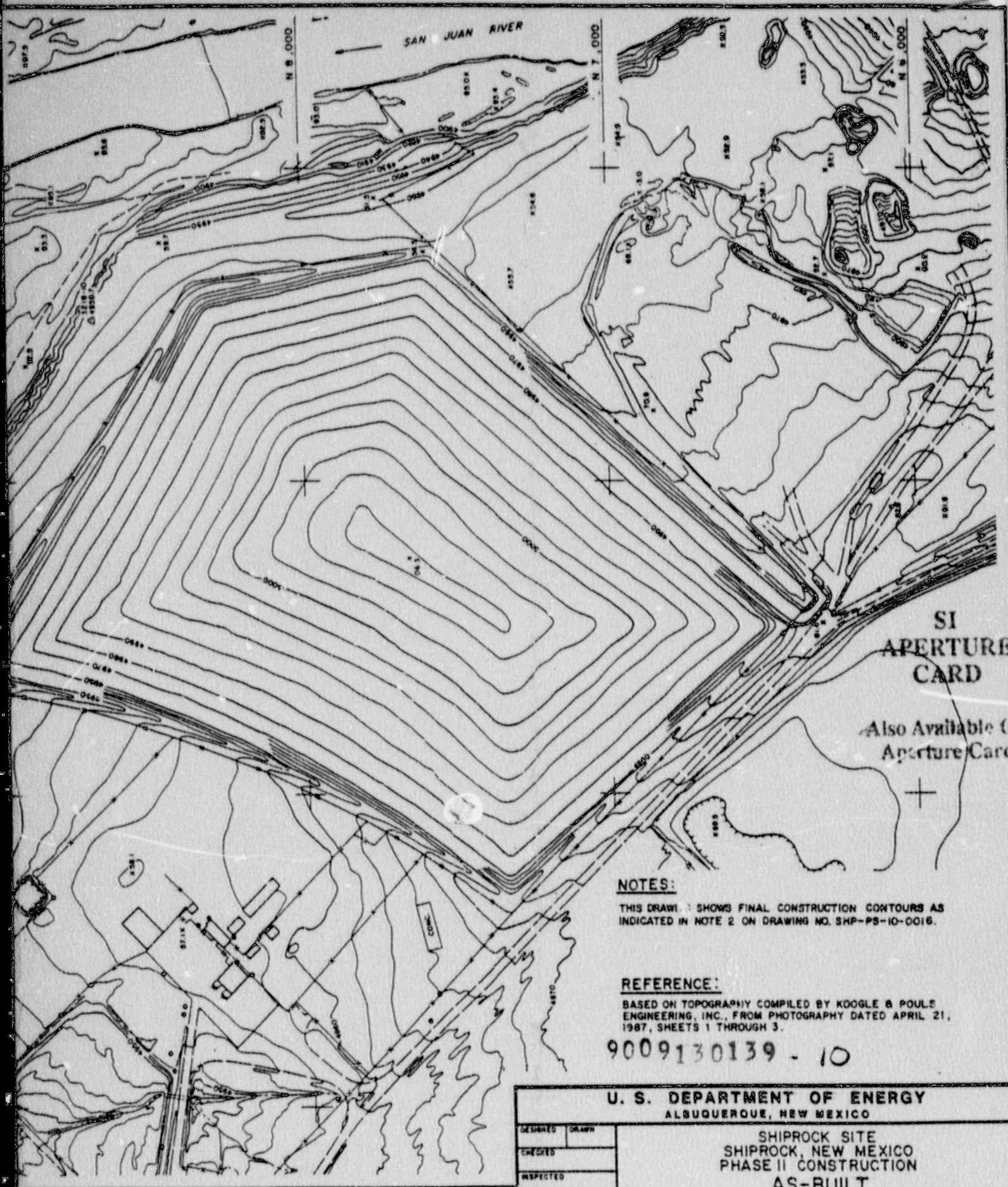
U. S. DEPARTMENT OF ENERGY ALBUQUERQUE, NEW MEXICO			
SHIPROCK SITE SHIPROCK, NEW MEXICO PHASE II CONSTRUCTION			
BORROW AREA GRADING PLAN			
DESIGNED JAL	CHECKED C. KAWANA	INSPECTED P. ...	RECOMMENDED C. ...
APPROVED J. ...	DATE 2-21-80	DATE 2-21-80	DATE 2/21/80
PROJECT NO. DE-ACO4-83AL18796		DRAWING NO. SHP-PS-10-0022	

DATE	REVISIONS	BY	CR	ESD	CHEP	DOE
				ISS.	ECN.	APP.
3-68	AS-BUILT	JAL	GRT			
7/84	REVISED NOTE 3	P.C.	GRT			
1/86	REVISED NOTES 3 AND 4. REMOVED INTERCEPT DITCH AND TYPICAL SECTION	ASH	GRT			
1/86	REVISED NOTE 3 AND ADDED NOTE 4.	GRT	GRT			
1/86	REVISED NOTE 2 AND ADDED NOTE 3.	WYL	ASH			
1/86	ISSUED FOR CONSTRUCTION					



200 0 200 400
SCALE FEET

NO.



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NOTES:

THIS DRAWING SHOWS FINAL CONSTRUCTION CONTOURS AS INDICATED IN NOTE 2 ON DRAWING NO. SHP-PS-10-0016.

REFERENCE:

BASED ON TOPOGRAPHY COMPILED BY KOOGLE & POULE ENGINEERING, INC., FROM PHOTOGRAPHY DATED APRIL 21, 1987, SHEETS 1 THROUGH 3.

9009130139 - 10

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

SHIPROCK SITE
SHIPROCK, NEW MEXICO
PHASE II CONSTRUCTION
AS-BUILT
SITE GRADING PLAN

DESIGNED	DRAWN	PROJECT NO. DE-AC04-83AL18796
CHECKED		
INSPECTED		
RECOMMENDED		
APPROVED	DATE	DOE PROJECT ENGINEER
MORRISON-KNUDSEN ENGINEERS, INC. ULTRA PROJECT 100 HEADLAND ST. SAN FRANCISCO, CA 94116		DRAWING NO. SHP-PS-10-0043

DATE	AS-BUILT	BY	CK	EGD	CHKP	TAC	QDR