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Trans. No. MK-3050-SLC-0207

Contract No. 3050

PROJECT: UMTRA
CLIENT: U.S. DEPARTMENT OF ENERGY

Date April 4, 1985

TO: U.S. Department of Energy
5301 Central, NE, Suite 1700
Albuquerque, NM 87108

ATT: Mr. Mark Matthews

APPROVED FOR CONSTRUCTION/FABRICATION	A
INFORMATION ONLY	B
APPROVAL ACTION REQUESTED	C
DISAPPROVAL-RESUBMIT	D
APPROVAL WITH COMMENTS	E

REMARKS The Final REA's with Final Design for SL-001 and SL-021 are attached herewith and are distributed as noted below.

TRANSMITTED ☒ HEREWITH ☐ UNDER SEPARATE COVER

DRAWING SPECIFICATION OR ITEM NUMBER	REV. NUMBER	NUMBER OF COPIES	TITLE OR DESCRIPTION	ACTION
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SL-001	--	1	" " " " "	A
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MORRISON-KNUDSEN

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John Pelgan

TITLE Vicinity Properties Manager

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DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE
CONTRACT NO. DE-AC04-83AL18796

Radiological and Engineering Assessment

Vicinity Property No. SLC 001

Remedial Actions
Contractor
for the
Uranium Mill Tailings
Remedial Actions
Project

MORRISON
KNUDSEN

Vicinity Property No. SLC 001

FINAL

THE RADIOLOGICAL AND ENGINEERING ASSESSMENT

AND FINAL DESIGN

FOR

SALT LAKE CITY PROPERTY

SL-001

April 3, 1985

PREPARED FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

UNITED STATES DEPARTMENT OF ENERGY

PREPARED BY

MORRISON-KNUDSEN COMPANY, INC.

TABLE OF CONTENTS

FIGURES

TABLES

APPENDIX

1.0 EXECUTIVE SUMMARY

1.1 Introduction

Property SL-001 is an open-land property located at 4856 South Glenn Street, Salt Lake City, UT.

1.2 Evaluation and Recommendation

1.2.1 Residual Radioactive Material Involvement

There is only one area of contamination on this property as well as a contaminated pipe roof support in the barn.

1.2.2 Recommended Remedial Action Option

The recommended option is to remove the contaminated material.

1.2.3 Estimated Costs

The estimated cost for removal of the contaminated material and restoration of the property is $2,000.00.

1.2.4 Schedule

The estimated duration of the remedial action effort is 5 to 7 days.

2.0 ENGINEERING FIELD SURVEY

2.1 Property Description

2.1.1 Property Use and Occupancy

Property SL-001 is an open property located at 4856 South Glenn Street and owned by Anona Fox. The map in Figure 2.1 illustrates the property's vicinity location.

2.1.2 Legal Description

The legal description as recorded with the Salt Lake County Recorder's Office in Deed Book No. 5411, Page 1756 follows:

Commencing 1.3 chains East and North 17°0'0" East 208.6 feet from the southwest corner of the Northwest quarter of the Northeast quarter of Section 7, Township 2 South, Range 1 East, Salt Lake Meridian, South 63°0'0" East 119.0 feet; North 17°30'00" East 280.0 feet; South 67° 30' West 153.4 feet; South 17°30'0" West 161.66 Feet to beginning.

2.1.3 Bordering Properties

The lot is zoned R-2-10H, which is a low density residential zone. It is located in a residential area less than five miles of the old Vitro mill tailings site. The property is bounded on the north by residential property; on the east by a golf course; on the south by Clark Street; and on the west by residential property.

2.2 Existing Facilities and Structures

2.2.1 Structures

The property is a vacant lot enclosed by pipe fencing, wood rail fencing and chain link fencing. The lot is used as a corral for the keeping of horses and contains a horse barn constructed of concrete block and corrugated metal roofing. The lot contains no other permanent improvements.

2.2.2 Utilities

Utilities are serviced to the property as follows:

Electric power - From Clark Street.

Telephone - None.

Water - At East property line.

Gas - None.

Sewer - None.

2.2.3 Site Plan and Survey Data

See Figure 2.2 for a site plan of the property. Property survey data and photos are presented in Table 2.1 and Figure 2.3.

Table 2.1

PROPERTY SURVEY DATA

GENERAL:

Site Location: Salt Lake City, Utah

Property Address: 4856 Glenn Street *

Owner's Name: Anona Fox Address: 4856 Glenn Street

Lot No.: _____ Property Type: _____

Occupancy Group: Adults: N/A Children: N/A

Survey Completed By: R.S. & J.H. Date: 9-10-84

*Property is located across the street from Owner's residence and has no established address number.

Property Description - Exterior:

Dwelling: Sq. Ft.: N/A

Levels: ---

Construction Type: ---

Foundation: N/A

Garage: _____

Storage Bldg: Site BLT: Concrete block walls/corrugated metal roof

Other: Barn

Improvement to Dwellings: Additions: N/A Porches: _____

Deck: _____ Patio: _____

Other: _____

Driveway: Concrete: _____ Paved: _____

Gravel: X Other: _____

Sidewalks: Concrete/Paved: N/A

Other: _____

Fences/Gates: Wood: X Other: Pipe

Chain Link: _____

Table 2.1 (cont'd)

PROPERTY SURVEY DATA

Site Location: Salt Lake City, Utah

Property Address: 4856 Glenn Street

Grounds:
- Lawn: None
- Trees: One large willow 3 ft. diameter, two smaller trees 9 in. diameter
- Shrubs: N/A
- Garden: N/A
- Grading: Sloping
- Other: Horse corral

Soil Type:

Existing Survey Plot: None

Property Description - Interior:

Room	Floor	Walls E	Walls W	Walls N	Walls S	Ceiling	Comments
N/A							

Utilities:

Heating: Gas: N/A Electric: X

Hot Water: N/A Other:

Air Cond: Gas: N/A Heat Pump: N/A

Table 2.1 (cont'd)

PROPERTY SURVEY DATA

Site Location: Salt Lake City, Utah

Property Address: 4856 Glenn Street

Electric Line Location: From Clark Street

Gas Line Location: None

Water Line Location: East property line

Sewage Line Location: None

Telephone Line Location: None

Building Codes and Zoning: N/A

Codes	Local	State	Federal
Building Work			
Plumbing			
HVAC			
Electrical			
Other			

Zoning District: Salt Lake County

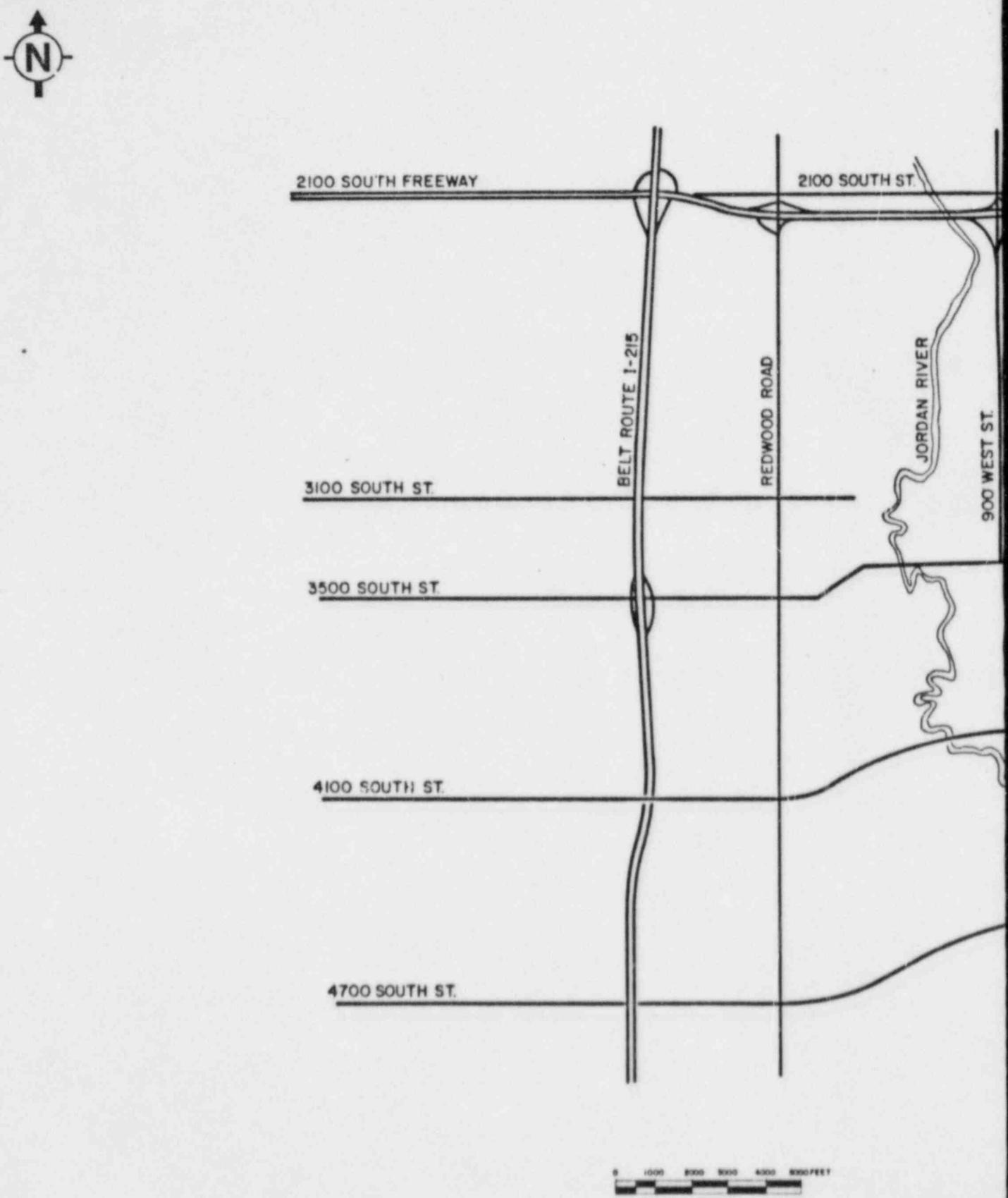
Present Dwelling Zoning: R-2-10H

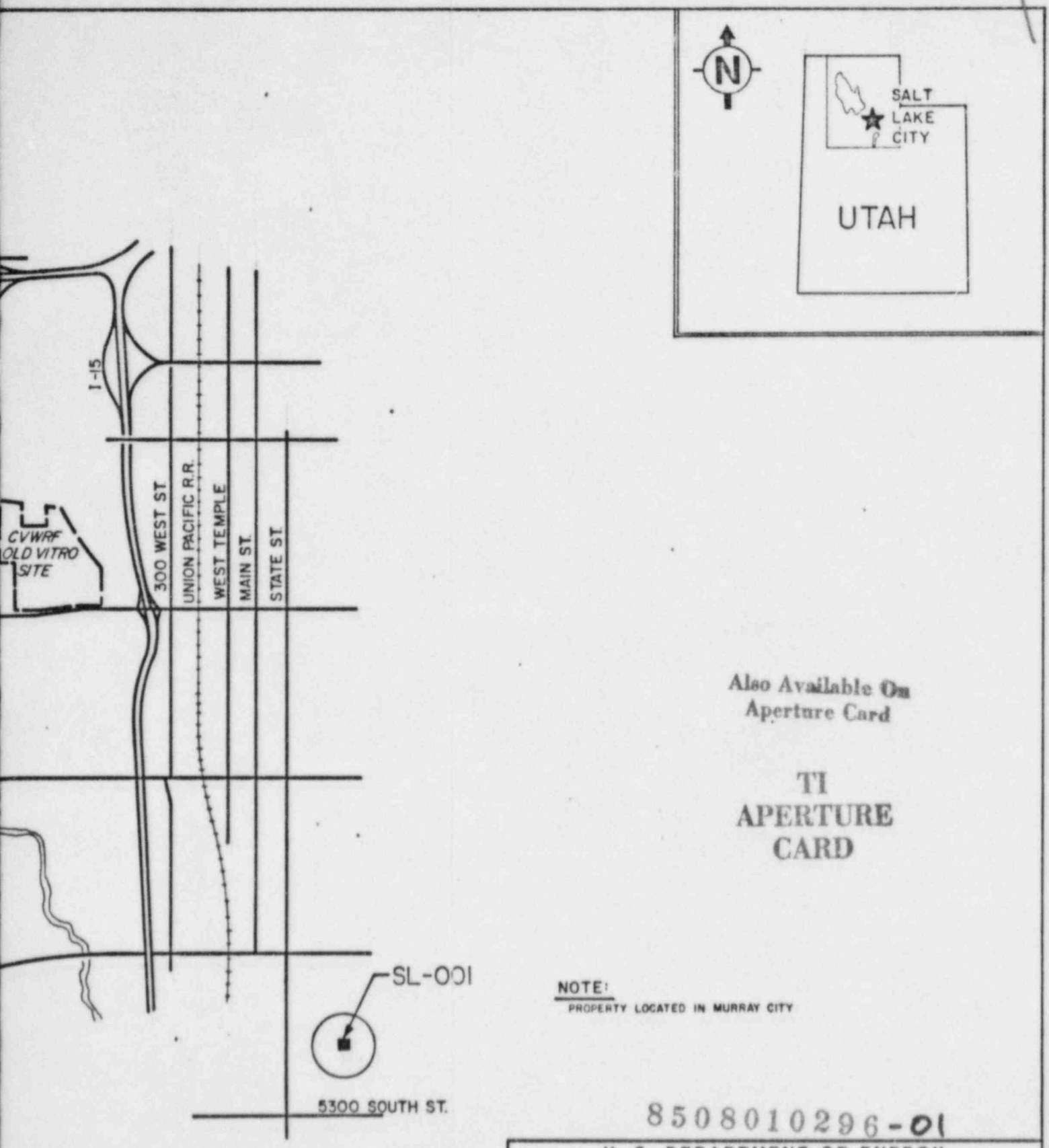
Setbacks: Front: N/A

Rear: N/A

Side: N/A

Other: N/A


N
2100 SOUTH FREEWAY
2100 SOUTH ST.
BELT ROUTE I-215
REDWOOD ROAD
JORDAN RIVER
900 WEST ST.
3100 SOUTH ST.
3500 SOUTH ST.
4100 SOUTH ST.
4700 SOUTH ST.
0 1000 2000 3000 4000 5000 FEET
SCALE
REGISTERED PROFESSIONAL ENGINEER
No. 5917
VINCENT C. DeVRIES
STATE OF UTAH



NOTE:
PROPERTY LOCATED IN MURRAY CITY

8508010296-01

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

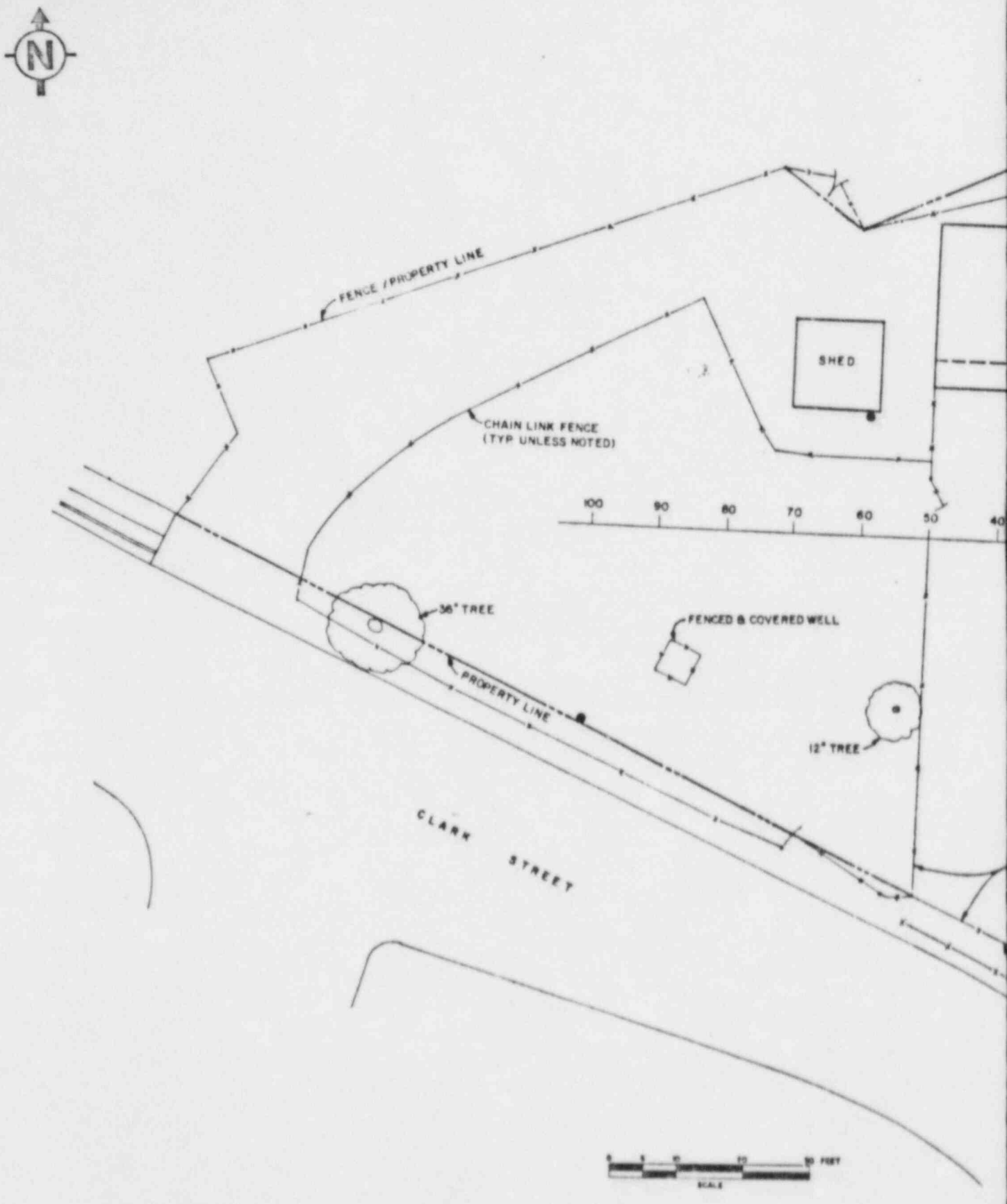
FIGURE 2.1
VICINITY MAP SL-001
SALT LAKE COUNTY, UTAH
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

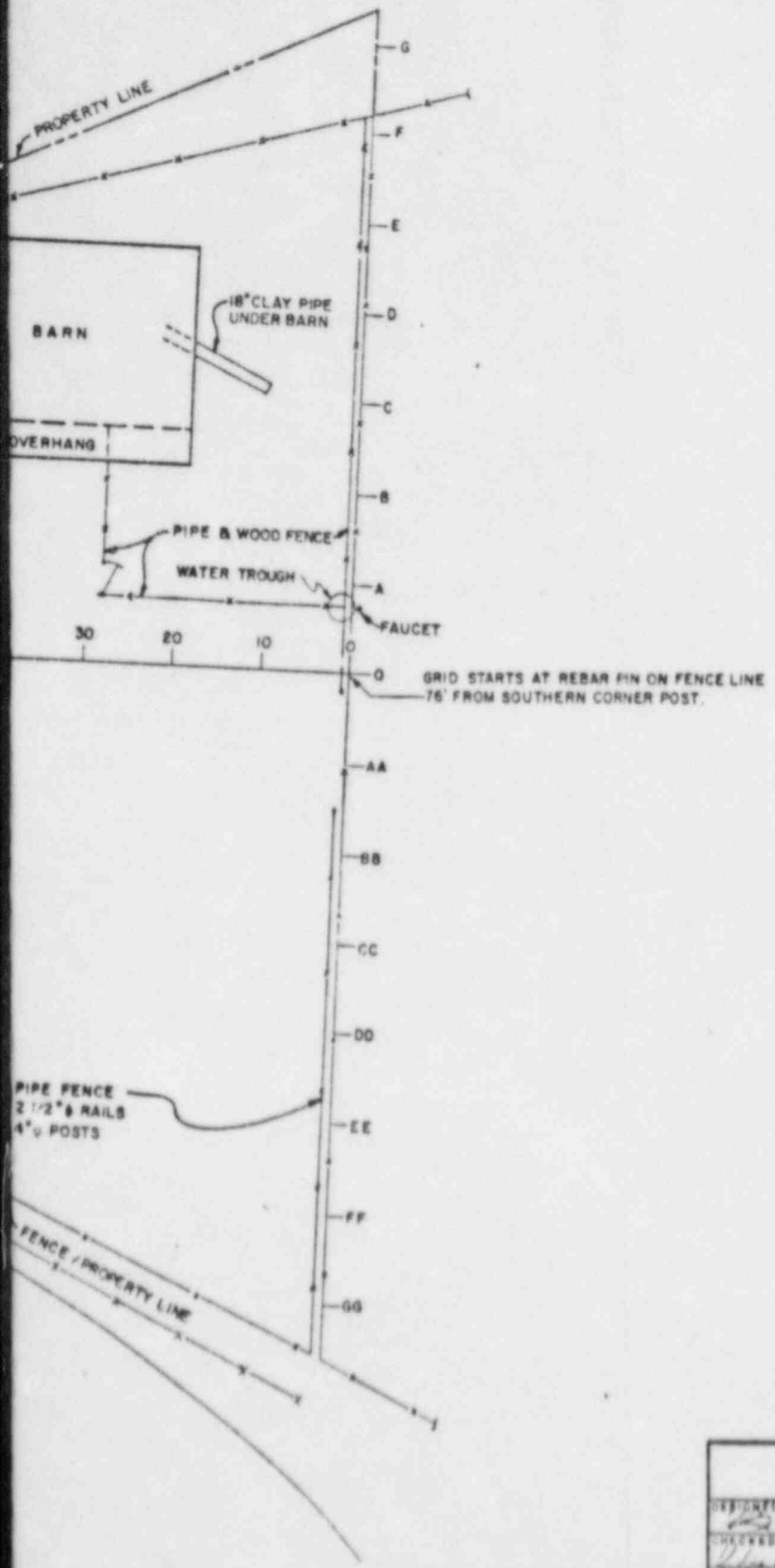
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED	DATE	DOE PROJECT MANAGER	DATE	DOE PROJECT ENGINEER	DATE
	TLE			NR		NR		NR	

MORRISON KNUDSEN

PROJECT NO. DE-AC04-83AL18796
DRAWING NO. SL-001-005
REV. 0

DATE	REVISIONS	DRAWN BY	CHECKED BY	APPROVAL QA	APPROVAL O+I	PROJ ENG	APPROVAL DOE
1/7/85	ISSUE FOR CONSTRUCTION	TLE					


N
FENCE / PROPERTY LINE
SHED
CHAIN LINK FENCE
(TYP UNLESS NOTED)
100
90
80
70
60
50
36" TREE
FENCED & COVERED WELL
PROPERTY LINE
12" TREE
CLARK STREET
SCALE



LEGEND

——W——	WATER LINE
——G——	GAS LINE
——GM——	GAS MAIN
——S——	SEWER LINE
——SM——	SEWER MAIN
——STM——	STORM SEWER
——E——	ELECTRICAL LINE
——T——	TELEPHONE LINE
——TV——	CABLE TV
—— — — ——	PROPERTY LINE
——x——x——x——	FENCE LINE
ⓓ G, W or E	METER
ⓥ G or W	VALVE
	PROPERTY PIN
	POWER POLE

NOTE: OVERHEAD SERVICE DENOTED BY SOLID LINE. UNDERGROUND DENOTED BY DASHED LINE.

Also Available On Aperture Card

TI APERTURE CARD

8508010296-02

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

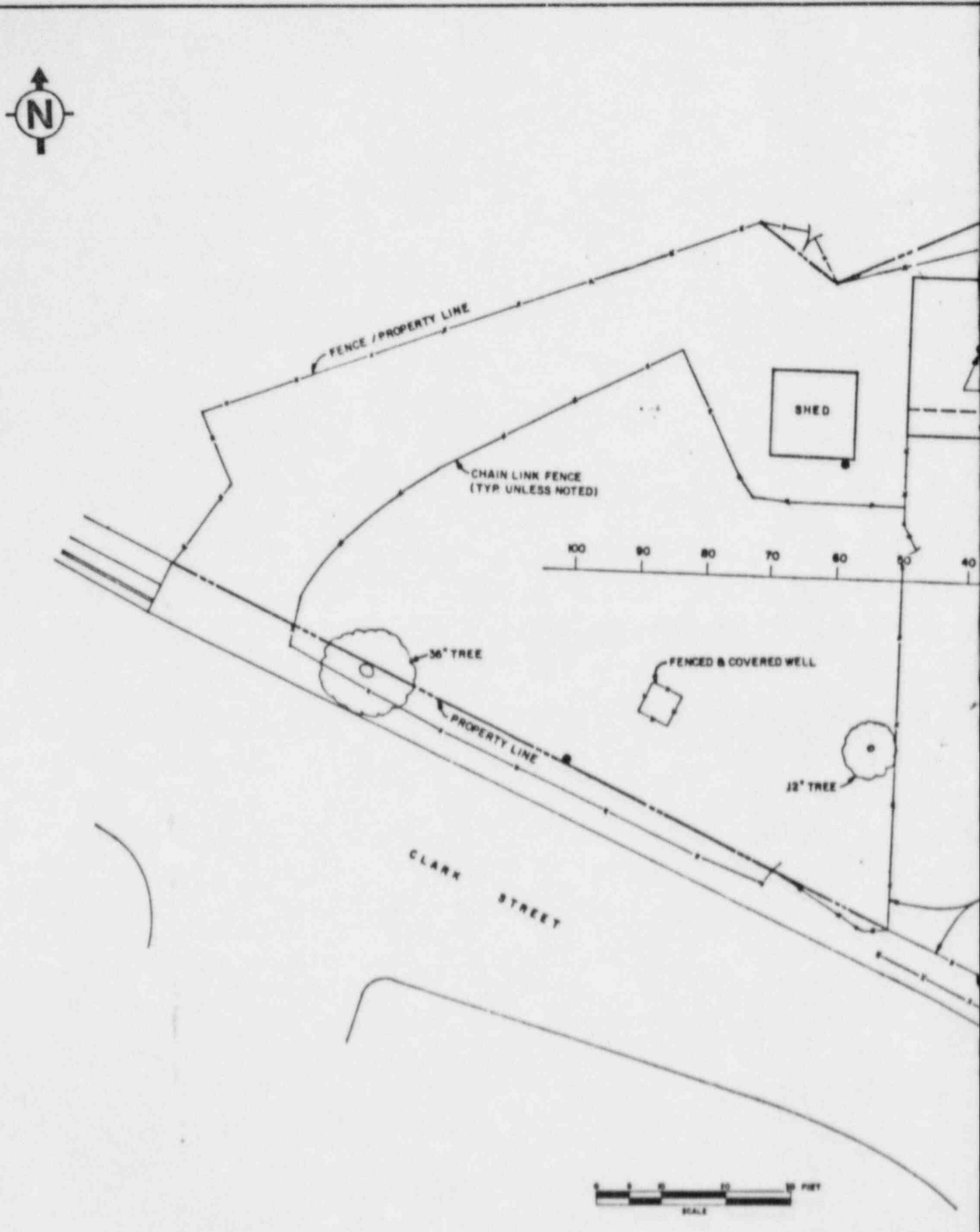
FIGURE 2.2
SITE PLAN SL-001
SALT LAKE COUNTY, UTAH
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

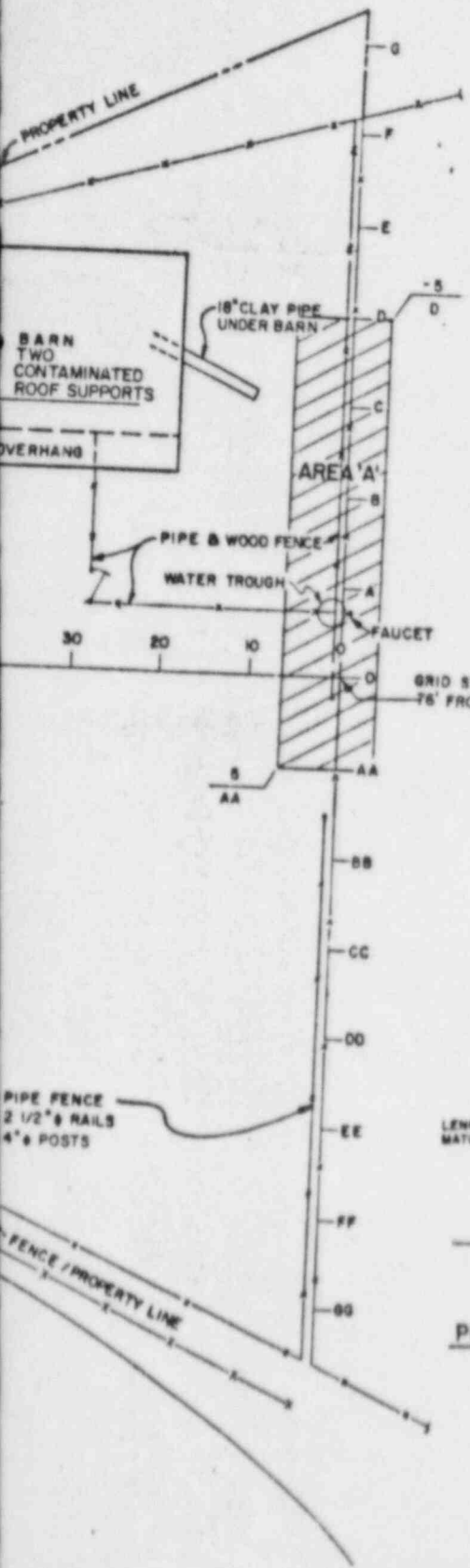
APPROVED	DATE	DOE PROJECT MANAGER	DATE	DOE PROJECT ENGINEER	DATE
NR		NR		NR	

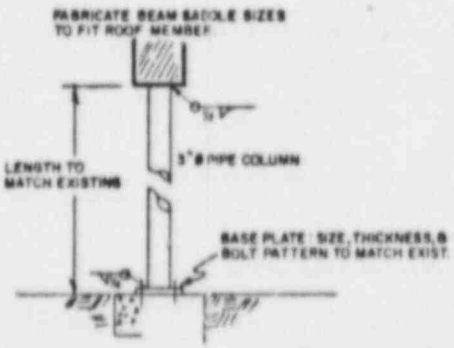
MORRISON KNUDSEN

PROJECT NO. DE-AC04-83AL18796
DRAWING NO. SL-001-010 REV. A

DATE	REVISIONS	DRAWN BY	CHECKED BY	APPROVED	APPROVED	APPROVED	APPROVED
11-3-84	FINAL REA SUBMITTAL	TLE					


N
FENCE / PROPERTY LINE
SHED
CHAIN LINK FENCE
(TYP UNLESS NOTED)
100
90
80
70
60
50
40
36" TREE
FENCED & COVERED WELL
PROPERTY LINE
12" TREE
CLARK
STREET
SCALE





PIPE SUPPORT DETAIL
NOT TO SCALE

LEGEND

——W——	WATER LINE
——G——	GAS LINE
——GM——	GAS MAIN
——S——	SEWER LINE
——SM——	SEWER MAIN
——STM——	STORM SEWER
——E——	ELECTRICAL LINE
——T——	TELEPHONE LINE
——TV——	CABLE TV
—— — — ——	PROPERTY LINE
——x——x——x——	FENCE LINE
G, W or E	METER
G or W	VALVE
	PROPERTY PIN
	POWER POLE

NOTE: OVERHEAD SERVICE DENOTED BY SOLID LINE. UNDERGROUND DENOTED BY DASHED LINE.

ESTIMATED DEPTH OF CONTAMINATION

* 12"

NOTES:

1. THE LATEST REVISION OF THE FOLLOWING TECHNICAL SPECIFICATIONS APPLY TO THE REMEDIAL ACTION WORK REQUIRED FOR PROPERTY NO. SL-001.

   SECTION 02130
   CONTAMINATED MATERIAL REMOVAL

   SECTION 02200
   EXCAVATION AND BACKFILL

2. UTILITY LOCATIONS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS SHALL BE DETERMINED BY THE SUBCONTRACTOR PRIOR TO START OF CONSTRUCTION.

3. THE EXCAVATION LIMITS AND DEPTHS ARE BASED ON A LIMITED NUMBER OF BORINGS TAKEN DURING THE RADIOLOGICAL SURVEYS OF THIS PROPERTY. ADDITIONAL RADIOLOGICAL SURVEYS PERFORMED DURING REMEDIAL ACTION MAY REQUIRE MORE OR LESS EXCAVATION TO BE TAKEN FROM THE DESIGNATED AREAS. ALL CHANGES TO THE LIMITS AND DEPTHS OF EXCAVATION AS SHOWN ON THE DESIGN DRAWINGS SHALL BE AS DIRECTED BY THE CONTRACTOR'S REPRESENTATIVE.

SCOPE OF WORK

- EXCAVATE AND REMOVE CONTAMINATED MATERIAL TO A DEPTH OF 12 INCHES AND BACKFILL WITH COMMON FILL.
- REMOVE FENCE AND REPLACE WITH CORRAL LIKE FENCE AS SELECTED BY THE CONTRACTOR'S REPRESENTATIVE AND APPROVED BY OWNER.
- REMOVE AND REPLACE PIPE COLUMNS.
- PRIOR TO EXCAVATION, SOIL SAMPLES SHALL BE TAKEN TO VERIFY CONTAMINATION.

8508010296 -03

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

FIGURE 4.1
EXCAVATION & RESTORATION PLAN SL-001

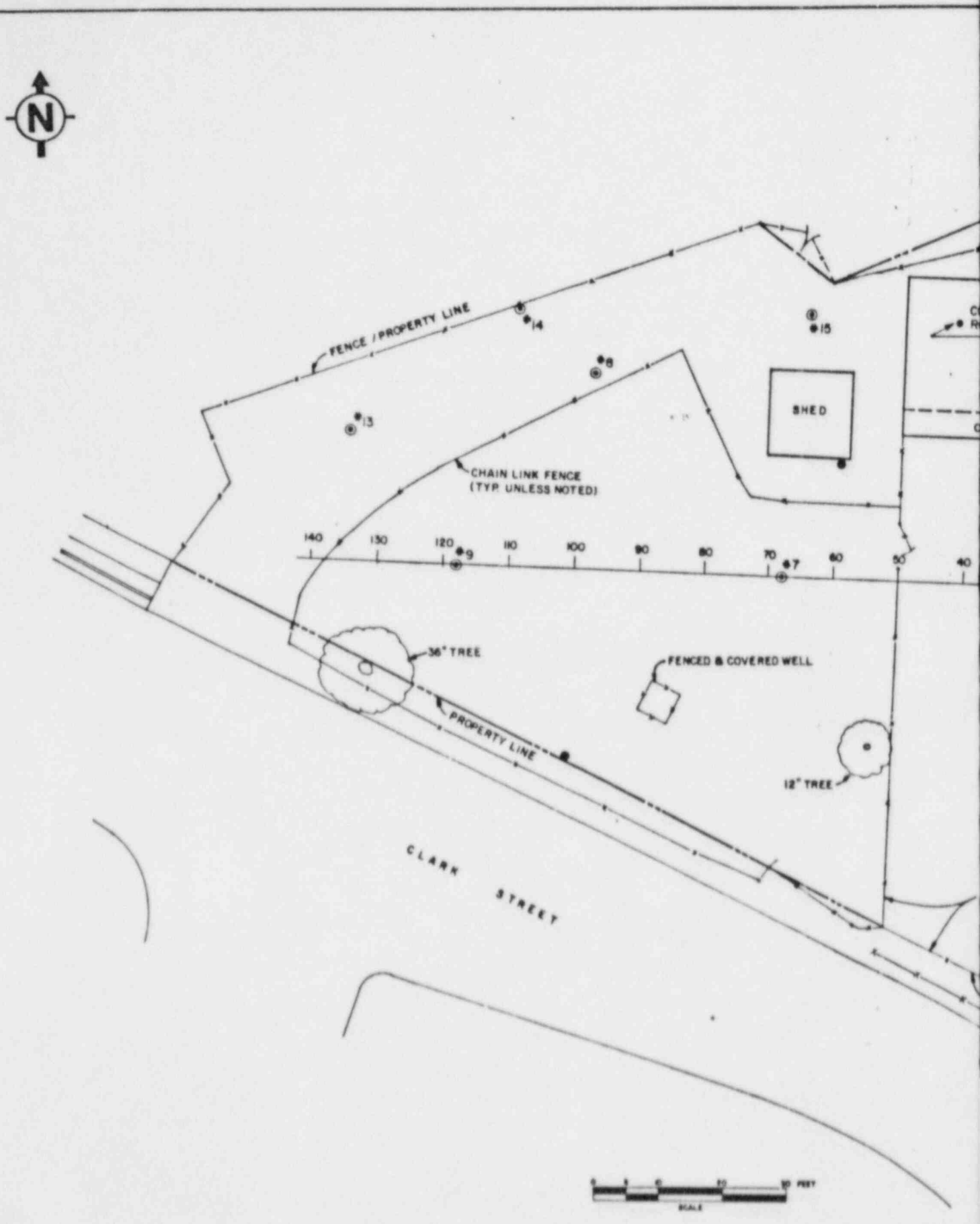
SALT LAKE COUNTY, UTAH
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

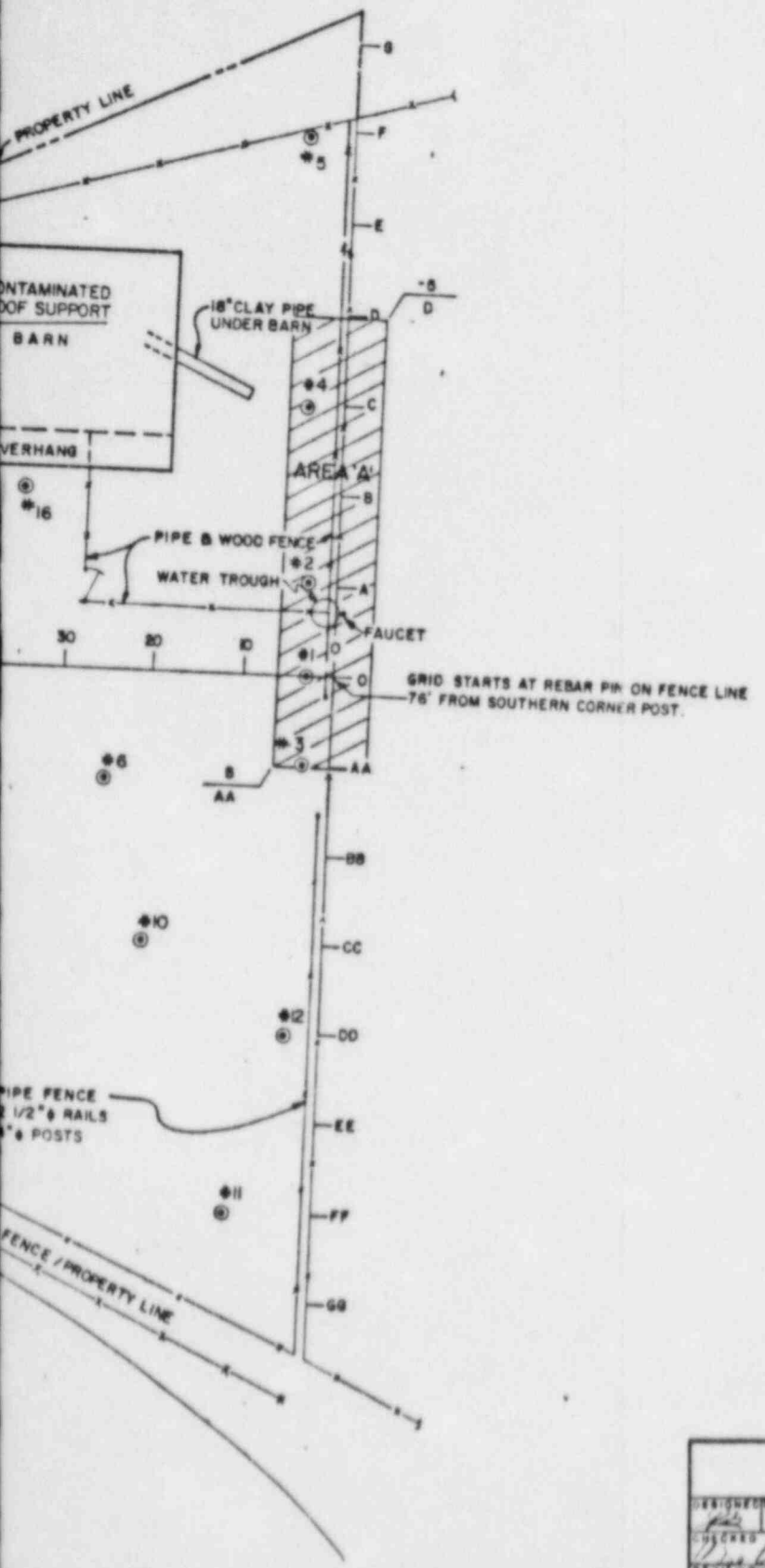
DESIGNED	DRAWN	CHECKED	APPROVED	DATE	DOE PROJECT MANAGER	DATE	DOE PROJECT ENGINEER	DATE
	RMS		NR		NR		NR	

MORRISON KNUDSEN

PROJECT NO. DE-AC04-83AL18796
DRAWING NO. SL-001-020 REV 0

DATE	REVISIONS	DRAWN BY	CHECKED BY	APPROVED DSE	APPROVED DOE	APPROVED DOE	APPROVED DOE
11-85	ISSUE FOR CONSTRUCTION	TLE					


N
FENCE / PROPERTY LINE
#14
#15
#8
#13
SHED
CHAIN LINK FENCE
(TYP UNLESS NOTED)
140
130
120
#9
110
100
90
80
70
#7
60
50
40
36" TREE
FENCED & COVERED WELL
PROPERTY LINE
12" TREE
CLARK
STREET
SCALE



LEGEND

——W——	WATER LINE
——G——	GAS LINE
——GM——	GAS MAIN
——S——	SEWER LINE
——SM——	SEWER MAIN
——STM——	STORM SEWER
——E——	ELECTRICAL LINE
——T——	TELEPHONE LINE
——TV——	CABLE TV
—— — — ——	PROPERTY LINE
—x—x—x—	FENCE LINE
G,W or E	METER
G or W	VALVE
	PROPERTY PIN
	POWER POLE
#4	AUGER HOLE DESIGNATION-BY M-K

ESTIMATED DEPTH OF CONTAMINATION

= 12"

8508010296-04

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE, NEW MEXICO

FIGURE 3.1

RADIOLOGICAL SURVEY DATA SL-001

SALT LAKE COUNTY, UTAH
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT

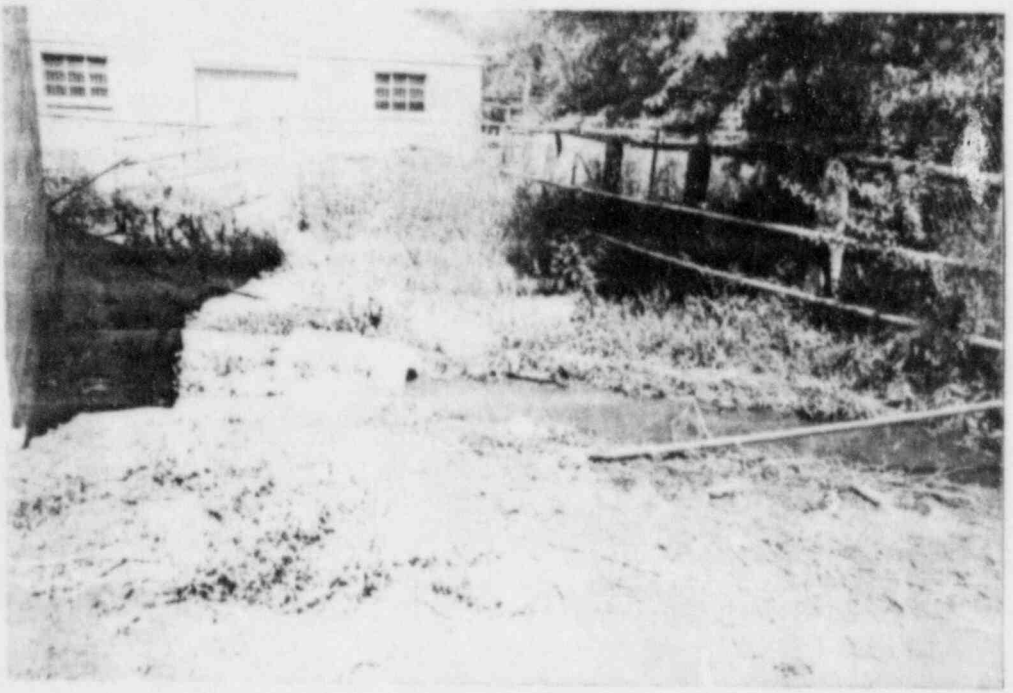
DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED	DOE PROJECT MANAGER	DOE PROJECT ENGINEER
	RMS			NR	NR	NR

MORRISON KNUDSEN

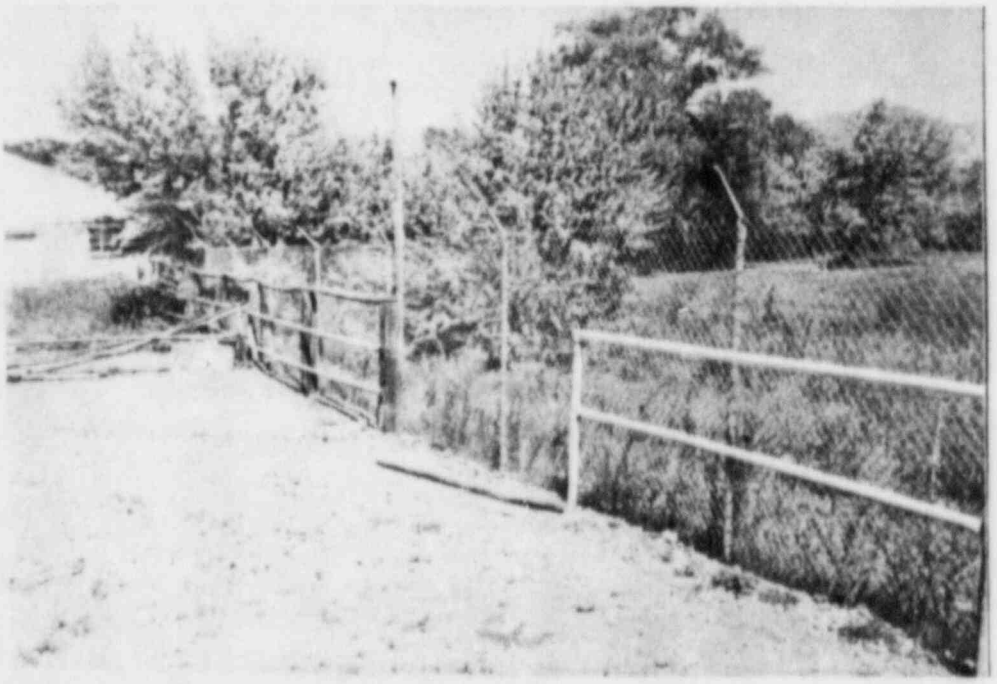
PROJECT NO. DE-AC04-83AL18796

DRAWING NO. SL-001-015 REV. A

DATE	REVISIONS	DRAWN BY	CHECKED BY	APPROVED LOE	APPROVED QA	PROJ ENG	APPROVED DOE
	FINAL REA SUBMITTAL	TLE					—



View of Contaminated Fence Looking North



View of Contaminated Fence Looking North

Figure 2.3 Property Photos

3.0 RADIOLOGICAL SURVEY AND ASSESSMENT

3.1 Gamma Exposure Rate Survey

3.1.1 Survey Method

An outdoor gamma survey was conducted in accordance with RAC UMTRA Procedure 109.

An indoor gamma survey was not conducted inside the building, as no areas were identified in the inclusion survey.

3.1.2 Survey Results

Surface gamma readings on the property, range from 11 to 217 micro R/hr (Table 3.1). This may be compared with the background for the Salt Lake City site of 8 micro R/hr.

3.2 Borehole Survey

3.2.1 Survey Method

A gasoline-powered hand auger was used to drill 4-inch diameter holes in and around the regions identified as contaminated during the gamma survey. The holes were surveyed in compliance with the RAC UMTRA Procedure 018.

3.2.2 Survey Results

Contamination was found in 2 of the 16 outdoor holes augered. The location and depth of the contamination is described in Table 3.2 and is shown in Figure 3.1.

3.3 Radon/Radon Daughter Survey

No radon/radon daughter surveys were performed inside buildings at the property, since the inclusion survey reported that no contamination is present in or under the structures.

3.4 Estimated Extent of Contamination

There is one area of contamination on SL-001. The area is identified as Area A on Figure 3.1 and corresponds to the area noted on the inclusion survey.

The fence in the center of Area A is constructed of pipes taken from the Vitro site. This piping is reading as high as 300 micro R/hr. It is not possible to determine if the high gamma reading and high borehole surveys taken in this area are due to contaminated soil or the pipe fence.

The pipe roof support in the barn is also contaminated.

Table 3.1
OUTDOOR GAMMA SURVEY
Property SL-001

POINT	MICRO R/hr
0+00	217
A+00	27
B+00	29
C+00	33
D+00	40
E+00	16
F+00	19
G+00	20
F+10	11
E+10	11
D+10	13
C+10	15
B+10	14
A+10	15
0+10	13
B+20	11

Note: Only points in the area of concern are shown in this table. Refer to Appendix A for complete survey.

Table 3.2
BOREHOLE SURVEY
Property SL-001

HOLE	LOCATION	CONTAMINATION DEPTH
1	0+3	0-12"
2	A+3	0-12"
3	AA+3	--
4	C+4	--
5	F+5	--
6	AA+25	--
7	0+68	--
8	C+98	--
9	0+118	--
10	CC+20	--
11	FF+10	--
12	DD+4	--
13	B+135	--
14	D+110	--
15	D+65	--
16	B+35	--

4.0 ENGINEERING ASSESSMENT

Engineering options were formulated and evaluated based on the radiological and engineering assessment for this property. Factors forming the basis of the evaluation were: the extent and location of the contamination, construction costs, and required demolition and constructibility for the various options. Results of the evaluation are detailed below.

4.1 Evaluation of Options

4.1.1 Options

Two options were evaluated for property SL-001:

Option 1 - No action should be taken.

Option 2 - Complete decontamination of the property including retrieval of the contaminated material and restoration of the property. See Figure 4.1 for excavation and restoration plan. Remove approximately 75 linear feet of contaminated fence and replace with a three rail wood corral fence. Replace contaminated pipe roof supports in barn. Excavate twelve inches of soil in the area of the fence removal and replace with common fill.

Prior to excavation, soil samples shall be taken to verify contamination.

4.1.2 Costs

Estimated costs for the activities associated with Option 2 are detailed in Table 4.1. Costs include labor, insurance, material, equipment, supplies, overhead, profit, and contingency. All costs are escalated to 1985 dollars. It is anticipated that the time required for the subcontractor to complete the work will be 5 to 7 days.

4.2 Recommendation

The limited cost and amount of remedial action work precluded evaluating any more than the above two options. The results of the radiological assessment concluded that contamination levels on the property exceeded EPA guidelines. Therefore, based on these guidelines, it is recommended that Option 2, decontamination of the property, be pursued. The total estimated cost for Option 2 is $2,000.00.

Table 4.1
OPTION 2 COSTS

Activity	Unit Price	Quantity	Estimated Cost
Remove Contaminated Fence	2.00	75 lf	150.00
Install New Fence	5.00	75 lf	375.00
Remove and Replace Pipe Roof Supports	LS	2 ea	400.00
Excavation (Machine)	8.30	20 cy	165.00
Machine Backfill	7.20	20 cy	145.00
Subtotal			1235.00
5% Subcontractor Contingency			65.00
20% Overhead & Profit			260.00
Subtotal			1560.00
20% Engineer's Contingency			310.00
1985 Escalation (5%)			95.00
Total			$1965.00
(Rounded)			$2000.00

5.0 TECHNICAL SPECIFICATIONS

Technical specifications applicable to this property are indexed in Table 5.1 . Specifications previously approved by the Department of Energy (DOE) are noted in the table. Also listed are specifications not previously submitted to the DOE which require approval. The text for these additional specifications follow the table.

Table 5.1
INDEX OF TECHNICAL SPECIFICATIONS

Description		Specifications Previously Approved	Specifications Requiring DOE Approval
Division 2 - Site Work			
SECTION 02130	CONTAMINATED MATERIAL REMOVAL	X	
SECTION 02200	EXCAVATION AND BACKFILL	X	

6.0 CONSTRUCTION DRAWINGS

Listed below is an index of the construction drawings required for remedial action on this property.

Drawing Number	Drawing Title
SL-001-020	Excavation & Restoration Plan SL-001

APPENDIX A

SURVEY DATA LOGS

HARRISON KNUDSEN

OUTDOOR GAMMA SCREENING
SURVEY DATA SHEET

LOGGING CREW: J. Manship, V. Black

SHEET 1 OF 2 PAGE 1

DATE: 9-19-84

PROPERTY ID: SL-001

INSTRUMENT ID NO.: 26498, Pr# 015809

BACKGROUND CALCULATION:

#1 977 + #2 1014 + #3 999 = 2990 ÷3 = 997 COUNTS/.1MIN*

AREA:			AREA:			AREA:			AREA:		
POINT ID	READING 1 m.	Surf.	POINT ID	READING 1 m.	Surf	POINT ID	READING 1 m.	Surf.	POINT ID	READING 1 m.	Surf.
0+00	36349	3625	F+30	1215	1150	C+70	1066	1110	A+130	1305	1355
A+00	33414	4811	F+40	1297	1384	B+70	1246	1260	0+130	1221	1253
B+00	67243	5211	C+30	1521	1493	A+70	1266	1232	0+140	1159	1210
C+00	33965	5840	B+30	1470	1450	0+70	1284	1345	0+150	1124	1191
D+00	52902	6981	A+30	1499	1611	0+80	1240	1337	AA+140	1067	1210
E+00	15736	2928	0+30	1590	1521	A+80	1282	1309	AA+130	1080	1143
F+00	29622	3392	0+40	1501	1528	B+80	1205	1216	AA+120	1296	1395
G+00	29086	3696	A+40	1507	1514	C+80	1258	1189	BB+120	1161	1247
G+10	1981	1922	B+40	1435	1441	D+80	1194	1279	BB+110	1277	1335
F+10	1893	2024	C+40	1381	1370	C+90	1184	1067	AA+110	1282	1371
E+10	2011	2096	E+50	1235	1243	B+90	1309	1323	AA+100	1315	1424
D+10	2581	2451	D+50	1289	1362	A+90	1268	1244	BB+100	1264	1350
C+10	2475	2691	C+50	1282	1244	0+90	1288	1576	CC+100	1190	1125
B+10	2513	2574	B+50	1141	1275	0+100	1278	1270	CC+90	1233	1281
A+10	2588	2689	A+50	1146	1276	A+100	1315	1273	BB+90	1277	1341
0+10	2170	2413	0+50	1179	1368	B+100	1189	1336	AA+90	1340	1343
0+20	1820	1880	0+60	1281	1313	C+100	1210	1284	AA+80	1271	1300
A+20	1897	1943	A+60	1316	1283	C+110	1215	1274	BB+80	1219	1283
B+20	1940	2025	B+60	1194	1349	B+110	1230	1267	CC+80	1242	1305
C+20	1830	1817	C+60	1095	1039	A+140	1294	1302	DD+80	1166	1231
D+20	1693	1882	D+60	1220	1243	0+110	1304	1266	DD+70	1272	1328
E+20	1727	1478	E+60	1214	1327	0+120	1221	1263	CC+70	1258	1377
F+20	1561	1635	E+70	1164	1184	A+120	1228	1316	BB+70	1231	1270
G+20	1206	1376	D+70	1246	1359	B+120	1350	1227	AA+70	1277	1347

REMARKS: * ALL READINGS ARE IN COUNTS/ 0.1 MIN.

All contamination at this site appears to be in pipe used in a fence.

VP-04A

MORRISON KNUDSEN

OUTDOOR GAMMA SCREENING
SURVEY DATA SHEET

LOGGING CREW: J. Manship
V. Black

SHEET 2 OF 2 PAGE 2

DATE: 9-19-84

PROPERTY ID: SL-001

INSTRUMENT ID NO.: 26498, Pr# 015809

BACKGROUND CALCULATION:

#1 977 + #2 1014 + #3 999 = 2990 ÷ 3 = 997 COUNTS/.1MIN*

AREA:			AREA:			AREA:			AREA:		
POINT ID	READING 1 m.	Surf.	POINT ID	READING 1 m.	Surf	POINT ID	READING 1 m.	Surf.	POINT ID	READING 1 m.	Surf.
AA+60	1302	1290	DD+20	1419	1495	C+130	1121	1386			
BB+60	1304	1369	EE+20	1347	1457	A+140	1179	1393			
CC+60	1357	1322	FF+20	1280	1406	A+150	1197	1090			
DD+60	1283	1294	GG+10	1144	1357	O+160	1171	1209			
EE+60	1238	1293	FF+10	1210	1295						
EE+50	1187	1243	EE+10	1398	1361						
DD+50	1286	1267	DD+10	1430	1481						
CC+50	1232	1373	CC+10	1540	1547						
BB+50	1214	1384	BB+10	1583	1607						
AA+50	1304	1514	AA+10	1904	1886						
AA+40	1280	1464	AA+00	1528	1447						
BB+40	1454	1427	BB+00	1375	1454						
CC+40	1468	1420	CC+00	1412	1371						
DD+40	1398	1432	DD+00	2645	3355						
EE+40	1318	1449	EE+00	1277	1353						
FF+30	1225	1385	FF+00	1235	1186						
EE+30	1409	1422	GG+00	1211	1250						
DD+30	1356	1388									
CC+30	1452	1474	E+80	1113	1300						
BB+30	1482	1521	D+90	1136	1307						
AA+30	1593	1650	D+100	1157	1210						
AA+20	1765	1956	D+110	1103	1140						
BB+20	1591	1606	D+120	1171	1333						
CC+20	1443	1550	B+130	1271	1310						

REMARKS: * ALL READINGS ARE IN COUNTS/ 0.1 MIN.

VP-04A

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: Jeff Mandlip
Mike Griffin

INSTRUMENT ID NO. #2651

SHEET 1 OF 4 PAGE 1

DATE: 9/20/84

PROPERTY ID: SL-001

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: SL-001-01		HOLE ID: SL-001-02		HOLE ID: SL-001-03		HOLE ID: SL-001-004	
TIME DRILLED: 1315		TIME DRILLED: 1320		TIME DRILLED:		TIME DRILLED:	
TIME LOGGED:		TIME LOGGED:		TIME LOGGED:		TIME LOGGED:	
SOIL TYPE:		SOIL TYPE:		SOIL TYPE:		SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE		SURFACE		SURFACE		SURFACE	
0"	5222	0"	5537	0"	1904	0"	4073
6"	4994	6"	5350	6"	2228	6"	2884
12"	3111	12"	3632	12"	2550	12"	2690
18"	2589	18"	2693	18"	2515	18"	2579
24"		24"		24"	2422	24"	2361
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: Jeff Manship
Mike Griffin

INSTRUMENT ID NO. #26511

SHEET 2 OF 4 PAGE 2

DATE: 9-20-84

PROPERTY ID: SL-001

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: SL-001-05 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-06 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-07 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-08 TIME DRILLED: TIME LOGGED: SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE		SURFACE		SURFACE		SURFACE	
0"	2673	0"	2626	0"	1205	0"	1082
6"	2381	6"	3007	6"	1454	6"	1236
12"	2440	12"	2929	12"	1554	12"	1448
18"	2431	18"	2864	18"	1693	18"	1467
24"	2452	24"	2687	24"	1725	24"	1460
30"	2557	30"	2370	30"		30"	
36"		36"	2201	36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: JEFF MANSHIP
Mike Griffin

SHEET 3 OF 4 PAGE 3
DATE: 9-20-84
PROPERTY ID: SL-001
AREA:

INSTRUMENT ID NO. #26511

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: SL-001-09 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-10 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-11 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-12 TIME DRILLED: TIME LOGGED: SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE		SURFACE		SURFACE		SURFACE	
0"	1120	0"	1057	0"	1100	0"	1681
6"	1419	6"	1335	6"	1274	6"	1805
12"	1471	12"	1506	12"	1435	12"	1877
18"	1472	18"	1542	18"	1750	18"	1952
24"		24"	1484	24"	1785	24"	
30"		30"		30"		30"	
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

VP-048

MORRISON KNUDSEN

BOREHOLE LOG

LOGGING CREW: J. Manship, M. Griffin, J. Worthen

SHEET 4 OF 4 PAGE

DATE: 9-26-84

PROPERTY ID: SL-001

INSTRUMENT ID NO. 26279

AREA:

NOTES: 1. ALL HOLES ARE 4"DIA. UNLESS OTHERWISE NOTED.
2. RECORD UNUSUAL CONDITIONS, SUCH AS THE PRESENCE OF WATER IN BOREHOLES AND DEPTH, CASING TYPE AND THICKNESS IF USED, CONCRETE CORES AND THICKNESS, OBSTRUCTIONS, UTILITIES, ETC., IN THE REMARKS SECTION.

HOLE ID: SL-001-13 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-14 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-15 TIME DRILLED: TIME LOGGED: SOIL TYPE:		HOLE ID: SL-001-16 TIME DRILLED: TIME LOGGED: SOIL TYPE:	
DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN	DEPTH	COUNTS/.1MIN
SURFACE		SURFACE		SURFACE		SURFACE	
0"	1086	0"	1127	0"	1500	0"	1510
6"	1193	6"	1269	6"	1952	6"	1822
12"	1407	12"	1303	12"	2197	12"	2163
18"	1523	18"	1388	18"	2160	18"	2500
24"	1490	24"	1472	24"	2113	24"	2465
30"	1637	30"		30"	2130	30"	2334
36"		36"		36"		36"	
42"		42"		42"		42"	
48"		48"		48"		48"	
54"		54"		54"		54"	
60"		60"		60"		60"	
66"		66"		66"		66"	
72"		72"		72"		72"	
78"		78"		78"		78"	
84"		84"		84"		84"	
90"		90"		90"		90"	
96"		96"		96"		96"	

REMARKS:

VP-04B

MORRISON-KNUDSEN COMPANY, INC.

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