

RADIOLOGIC AND ENGINEERING ASSESSMENT

FOR

DOE ID NO.: GJ-06775-RS
ADDRESS: 1840 NORTH 18TH STREET

AUGUST 1985

FOR

URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT OFFICE

ALBUQUERQUE OPERATIONS OFFICE

DEPARTMENT OF ENERGY

BY

BENDIX FIELD ENGINEERING CORPORATION
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DATE

August 27, 1985

REA06775-REA-710

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PDR WASTE PDR
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1.0 EXECUTIVE SUMMARY

1.1 Introduction

The location, DOE ID No. GJ-06775-RS, is a single-family residence located at 1840 North 18th Street, Grand Junction, Colorado.

The purpose of this assessment is to evaluate the extent of uranium millsite contamination at this property. This assessment includes recommended remedial action, estimated volume of material to be removed, and estimated cost of the proposed action.

1.2 Evaluation and Recommendation

The action recommended is the removal of contaminated material and restoration of the property to its original condition. The identified residual radioactive material found on this property is tailings; the estimated volume is: exterior, 38 cu. yd.; interior, 0 cu. yd.

Estimated cost to perform remedial action, including dislocation when applicable, is \$5,340. Remedial action on this property will take approximately 14 days to complete.

2.0 PROPERTY DESCRIPTION

2.1 General Description

Address: 1840 North 18th Street, Grand Junction, Colorado

Zoning: Residential (RSF-8)

Lot Size: Approximately 8,100 sf (0.18 acres)

Legal Description: Lot 39, Block 2, Elmwood Plaza Refile, City of Grand Junction, County of Mesa, State of Colorado.

Point of Reference: This property is located approximately 2 mile(s) north of the State of Colorado Tailings Repository. Appendix Figure 2.1 shows the property location relative to its surroundings.

Utilities: Utility locations are shown in Appendix Figure 2.2.

Electrical:	Overhead
Gas:	Underground
Telephone:	Overhead
Sewer:	Underground
Water:	Underground
Cable TV:	Overhead

Bordering Properties:

North:	Single-family residence
South:	North Plaza Court (a.k.a. North 18th Street)
East:	Alley right-of-way (gravel)
West:	Single-family residence

2.2 Existing Facilities and Structures

Primary Structure:

Type:	Single-story residence with partial basement
Size:	Approximately 1,600 sf
Construction Date:	1949
Construction:	Wood-frame
Foundation:	Concrete foundation and footing
Footing Depth:	Approximately 108" to bottom of footing from grade
Basement:	Yes - partial
Crawl Space:	Yes - partial
Condition:	Good

Other Structures:

Type:	Dog House
Size:	Approximately 12 sf
Construction:	Prefabricated aluminum
Foundation:	None
Condition:	Good

General Remarks:

Structures, utilities, landscaping, and other special features of this property are included in Appendix Figure 2.2.

Historical Data:

This structure is not over 50 years old. Therefore, it does not meet the eligibility criteria for consideration of inclusion on the National Register of Historic Places.

3.0 RADIOLOGIC SURVEY

3.1 Introduction

Radiologic data were collected by Bendix at DOE ID No. GJ-06775-RS on July 17, 1985. Data collection methods were performed in accordance with procedures fully described in the Radiologic Support Operations Procedures Manual GJ-07(84) (Bendix Field Engineering Corporation, 1984). These data were evaluated to determine the areal and vertical extent of uranium mill tailings contamination at this property as well as any other contaminated material that may have originated from the millsite.

A review of historical information from the files of the Colorado Department of Health (CDH) and the inclusion data from Oak Ridge National Laboratory (ORNL) was conducted. These records indicate contamination in the north yard and associated with the north patio and in the south stoop.

The Bendix radiologic survey was designed to investigate the entire property, with emphasis on previously identified areas of contamination. Conclusions based upon data analyses are discussed in Section 3.5, Extent of Contamination. Photocopies of the Official Survey Report, team leader notes, deconvolution graphs, and Exterior Gamma Scan map are included in the Appendix (Section 6.0).

3.2 Gamma Exposure-Rate Surveys

3.2.1 Exterior Findings

Background Readings: 15 to 17 uR/h
Highest Outside Gamma Reading (HOG): 76 uR/h

Exterior radium-concentration measurements are presented in Appendix Table 3.1. Grid-point survey results are shown in Appendix Figure 3.1.

3.2.2 Interior Findings

Background Readings: 13 to 18 uR/h
Highest Inside Gamma Reading (HIG): 18 uR/h

Interior gamma exposure-rate measurements are summarized in Appendix Table 3.2.

3.3 Boreholes, Soil Samples, and Other Measurements

Areas which displayed elevated gamma levels were further investigated; these areas are shown in Appendix Figure 3.2. Data from these investigations are included in Appendix Table 3.1.

3.4 Radon/Radon Daughter Concentration (RDC)

The working level was not assessed by CDH. No RDC measurements were taken by Bendix.

3.5 Extent of Contamination

Appendix Figure 3.3 shows identified areas and estimated depths of contamination on this property, based on assessments of all measurements taken. As noted in this figure, areas recommended for remedial action that contain identified residual radioactive materials are:

- (Area A) Surface Material: Lawn
Direction From Primary Structure: North
Other Directions: By the west property line
Total Depth of Contamination: 6 inches
Approximate Square Footage: 60
- (Area B) Surface Material: Lawn
Direction From Primary Structure: North
Total Depth of Contamination: 9 inches
Comments: There are two deposits in this area.
Approximate Square Footage: 46
- (Area C) Surface Material: Lawn
Direction From Primary Structure: North
Total Depth of Contamination: 6 inches
Comments: This area includes 4 small deposits.
Approximate Square Footage: 178
- (Area D) Surface Material: Unkept lawn
Direction From Primary Structure: Northeast
Total Depth of Contamination: 12 inches
Approximate Square Footage: 109
- (Area E) Surface Material: Unkept lawn
Direction From Primary Structure: Northeast
Total Depth of Contamination: 6 inches
Comments: A chain link fence runs through this area.
Approximate Square Footage: 64
- (Area F) Surface Material: Unkept lawn
Direction From Primary Structure: Northeast
Total Depth of Contamination: 9 inches
Comments: A chain link fence runs through this area.
Approximate Square Footage: 250
- (Area G) Surface Material: Weeds
Direction From Primary Structure: Northeast
Total Depth of Contamination: 6 inches
Approximate Square Footage: 35

- (Area H) Surface Material: Concrete
Direction From Primary Structure: North
Other Directions: By the north patio
Other (height or thickness): 24 inches high x 33 inches
wide
Approximate Square Footage: 16
- (Area I) Surface Material: Concrete
Direction From Primary Structure: Northeast
Total Depth of Contamination: 9 inches
Other (height or thickness): 3-inch-thick concrete
Comments: A portion of the concrete was removed when
a sewer line was put in.
Approximate Square Footage: 375
- (Area J) Surface Material: Lawn
Direction From Primary Structure: Northeast
Other Directions: Adjacent to Area I
Total Depth of Contamination: 12 inches
Comments: A gas line runs through this area.
Approximate Square Footage: 30
- (Area K) Surface Material: Lawn
Direction From Primary Structure: Northeast
Total Depth of Contamination: 6 inches
Approximate Square Footage: 70
- (Area L) Surface Material: Lawn
Direction From Primary Structure: Southwest
Total Depth of Contamination: 6 inches
Approximate Square Footage: 56
- (Area M) Surface Material: Concrete
Direction From Primary Structure: South
Other (height or thickness): 24 inches high x 72 inches
wide
Approximate Square Footage: 42

4.0 RECOMMENDED REMEDIAL ACTION

4.1 Decontamination and Restoration

The recommended remedial action for this property, DOE ID No. GJ-06775-RS, includes removal of all areas identified as containing radioactive material (as discussed in Section 3.5 and shown in Appendix Figure 3.3) and transport of removed material to the disposal site.

After remedial action is completed, the areas involved will be restored to original condition in accordance with the Bendix drawings, Vicinity Properties General Construction Specification (Bendix Field Engineering Corporation, 1984), and Statement of Work for Construction Subcontractor.

Dislocation of the occupants will not be required for this remedial action.

4.2 Evaluation of Recommended Remedial Action

Volume calculations of the areas included for remedial action are presented in Appendix Table 4.1. Cost estimates are presented in Appendix Table 4.2.

Estimated cost of remedial action is \$5,340.

This remedial action will result in removal of the identified residual radioactive materials.

Owner preference is to save the two trees in the rear yard because of the sentimental value associated with these trees. No legal or other complications are foreseen at this time.

5.0 REFERENCES

ARIX, A Professional Corporation, Procedures Manual for the Grand Junction Remedial Action Program, for Colorado Department of Health, Radiation Control Division, and the U.S. Department of Energy, 1983.

Bendix Field Engineering Corporation, Procedures Manual Radiologic Support Operations Grand Junction Vicinity Properties, (GJ-07), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Engineering, Construction, and Land Support Manual Grand Junction Vicinity Properties Project, (GJ-08), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

Bendix Field Engineering Corporation, Grand Junction Vicinity Properties Operating Manual, (GJ-16) for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Vicinity Properties General Construction Specification, for U.S. Department of Energy, Nuclear Energy Programs, Division of Remedial Action Projects, UMTRA, 1984.

Bendix Field Engineering Corporation, Environmental Assessment of Preliminary Cleanup Activities at Offsite Properties Contaminated by Tailings from the Grand Junction Inactive Uranium Millsite, (GJ-04), for U.S. Department of Energy, UMTRA Project Office, Albuquerque Operations, Albuquerque, New Mexico, 1983.

U.S. Department of Energy, Programmatic Memorandum of Agreement (DOE No. DE-GM04-84AL28460) between the U.S. Department of Energy, the Advisory Council on Historic Preservation, and the Colorado State Historic Preservation Officer, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Department of Energy, Vicinity Properties Management and Implementation Manual, for UMTRA Project Office, Albuquerque Operations Office, Albuquerque, New Mexico, 1984.

U.S. Environmental Protection Agency, Standards for Remedial Action at Inactive Uranium Processing Sites (40 CFR Part 192), Washington, D.C., 1983.

6.0 APPENDIX

This Appendix contains the following:

Appendix Tables:

Table 3.1	Radium Concentrations at Exterior Locations
Table 3.2	Summary of Interior Gamma Exposure Rates
Table 4.1	Area and Volume Calculations
Table 4.2	Estimated Cost of Decontamination and Restoration

Appendix Figures:

Figure 2.1	Vicinity Map
Figure 2.2	Site Plan
Figure 3.1	Exterior Grid-Point Exposure Rates
Figure 3.2	Exterior Sample Locations
Figure 3.3	Estimated Extent of Contamination

Official Survey Report

Team Leader Notes

Deconvolution Graphs (Apparent Radium-226 Concentration)

Exterior Gamma Scan Map

Radium Concentrations at Exterior Locations

DOE ID #GJ-06775-RS

1840 North 18th Street

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
1	142252	00	DS	1.7		*	North yard
		06	DS	1.4		*	
2	145255	00	DS	5.8		*	North yard DC = 9 inches Based on the deconvolution graph
		03	TC	5.2		*	
		06	TC	5.5		*	
		09	TC	4.8		*	
		12	TC	4.4		*	
		15	TC	4.1		*	
		18	TC	4.0		*	
		21	TC	4.0		*	
		24	TC	4.2		*	
		27	TC	4.1		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
		36	TC	4.1		*	
		39	TC	4.0		*	
3	145260	00	DS	3.2		*	North yard
		06	DS	2.2		*	
4	146240	00	DS	7.2		*	Along west fence
		06	DS	<1.0		*	
5	146248	00	DS	11.1		*	North yard DC = 9 inches Based on the deconvolution graph
		03	TC	8.8		*	
		06	TC	8.1		*	
		09	TC	6.3		*	
		12	TC	5.1		*	
		15	TC	4.6		*	
		18	TC	4.3		*	
		21	TC	4.1		*	
		24	TC	4.0		*	
		27	TC	4.1		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
6	152257	00	DS	5.2		*	North yard
		06	DS	1.2		*	
7	165259	00	DS	3.9		*	North yard
		06	DS	<1.0		*	

Radium Concentrations at Exterior Locations

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1840 North 18th Street

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
8	167267	00	DS	4.5		*	Lilac bush in north yard
		06	DS	1.5		*	
9	173183	00	DS	1.3		*	Along west fence
10	175278	00	DS	3.6		*	North yard DC = 12 inches Based on the deconvolution graph
		03	TC	4.5		*	
		06	TC	5.6		*	
		09	TC	5.9		*	
		12	TC	5.2		*	
		15	TC	4.7		*	
		18	TC	4.4		*	
		21	TC	4.2		*	
		24	TC	4.1		*	
		27	TC	4.1		*	
		30	TC	4.1		*	
		33	TC	4.1		*	
		36	TC	4.1		*	
		39	TC	4.0		*	
11	179215	00	DS	1.9		*	West foundation DC = 0 inches
		03	TC	3.0		*	
		06	TC	3.3		*	
		09	TC	3.5		*	
		12	TC	3.7		*	
		15	TC	3.7		*	
		18	TC	3.8		*	
		21	TC	3.9		*	
		24	TC	3.9		*	
		27	TC	3.8		*	
		30	TC	3.9		*	
		33	TC	3.9		*	
		36	TC	4.0		*	
		39	TC	4.0		*	
		42	TC	4.0		*	
		45	TC	4.1		*	
		48	TC	4.1		*	
		51	TC	4.0		*	
		54	TC	4.0		*	
		57	TC	4.1		*	
		60	TC	4.0		*	
		63	TC	3.9		*	

Radium Concentrations at Exterior Locations

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1840 North 18th Street

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
12	183283	00	DS	2.9		*	North yard
		06	DS	1.2		*	
13	189279	00	DS	26.2		*	East fence
		03	TC	14.0		*	
		06	TC	11.5		*	
		09	TC	8.1		*	DC = 9 inches Based on the deconvolution graph
		12	TC	6.2		*	
		15	TC	5.0		*	
		18	TC	4.6		*	
		21	TC	4.4		*	
		24	TC	4.2		*	
		27	TC	4.3		*	
		30	TC	4.2		*	
		33	TC	4.2		*	
14	192221	00	DS	<1.0		*	By north stoop Horizontal
		00	DS	5.9		*	
15	193197	00	DS	3.1		*	Water line Horizontal against south foundation DC = 6 inches Based on all available data
		00	DS	1.1		*	
		03	TC	4.4		*	
		06	TC	4.3		*	
		09	TC	4.1		*	
		12	TC	4.0		*	
		15	TC	4.0		*	
		18	TC	4.0		*	
		21	TC	4.0		*	
		24	TC	3.9		*	
		27	TC	4.0		*	
		30	TC	4.0		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	4.0		*	
		42	TC	4.0		*	
		45	TC	3.9		*	
		48	TC	3.9		*	
		51	TC	3.9		*	
		54	TC	4.0		*	
		57	TC	3.9		*	
		60	TC	4.0		*	
16	193224	00	DS	4.6		*	Horizontal
		06	DS	1.5		*	Horizontal

Radium Concentrations at Exterior Locations

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
17	193255	00	DS	1.6		*	North yard
		06	DS	1.0		*	
18	194222	[12]	DS	3.3		*	Horizontal On north stoop
		00	DS	1.2		*	
19	194229	00	DS	1.5		*	Sewer line DC = 0 inches
		03	TC	3.5		*	
		06	TC	3.5		*	
		09	TC	3.6		*	
		12	TC	3.7		*	
		15	TC	3.8		*	
		18	TC	3.8		*	
		21	TC	3.8		*	
		24	TC	3.8		*	
		27	TC	3.9		*	
		30	TC	3.9		*	
		33	TC	4.0		*	
		36	TC	4.0		*	
		39	TC	4.1		*	
		42	TC	4.0		*	
		45	TC	4.0		*	
		48	TC	4.0		*	
		51	TC	4.0		*	
		54	TC	4.1		*	
20	195225	00	DS	1.3		*	On north stoop
21	202275	00	DS	3.0		*	By alley
		06	DS	1.4		*	
22	203233	00	DS	1.9		*	North of primary structure

Radium Concentrations at Exterior Locations

DOE ID #GJ-06775-RS

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Loc #	Grid Location	Depth (in.)	Meas. Type	In Situ Ra-226 (pCi/g)		Chem Ra-226 (pCi/g)	Comments
				Tot. Ct	Spectr.		
23	212200	00	DS	7.4		*	On south stoop
24	215225	03	TC	17.7		*	Patio
		06	TC	13.4		*	
		09	TC	9.2		*	DC = 9 inches
		12	TC	7.2		*	Based on the
		15	TC	6.1		*	deconvolution graph
		18	TC	5.4		*	
		21	TC	5.1		*	
		24	TC	4.8		*	
		27	TC	4.6		*	
		30	TC	4.5		*	
		33	TC	4.5		*	
		36	TC	4.5		*	
25	216233	00		8.6		*	Gas line
		06	DS	3.5		*	
		12	DS	1.5		*	
		25	DS	1.3		*	On gas line
26	218197	00	DS	1.4		*	South foundation
27	225231	00	DS	4.1		*	By patio
		06	DS	<1.0		*	
28	231244	00	DS	1.4		*	East yard
		06	DS	1.3		*	
29	242226	00	DS	1.9		*	East yard
		06	DS	1.3		*	

Measurement Types: GB = GAD-6 Borehole
 GS = GAD-6 Surface
 DS = Delta Scintillometer
 TC = Total Count Borehole
 SS = Soil Sample
 BH = Combined GAD-6 and
 Total Count Borehole

Notes: DC = Depth of Contamination
 * = No Soil Sample Taken
 [n] = Reading Taken n-Inches
 Above Floor or Ground
 Date of Survey = 07-17-85
 Team Leader = JJ

Table 3.2

Summary of Interior Gamma Exposure Rates

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Location	Number of Readings Taken at Waist Level	Range at Waist Level (uR/h)	Mean at Waist Level (uR/h)	Number of Readings Taken at Surface	Range at Surface (uR/h)	Mean Surface (uR/h)
Basement	*	*	*	*	16-18	*
Ground floor	*	*	*	*	13-16	*

* A walking gamma scan was performed to confirm the absence of interior contamination.

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-06775-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
EXTERIOR					
Concrete					
H	9 x 6	= 54	x 0.5	= 27	(Surface of stoop & steps)
	12.8 x 2	= 26	x 0.7	= 18	(End walls of stoops)
I	9 x 10	= 90			
	20 x 12	= 240			
	5 x 9	= 45			
		375	x 0.3	= 113	
M	5 x 7	= 35	x 0.5	= 18	(Surface of stoop)
	17 x 2	= 34	x 0.7	= 24	(End walls of stoop)
Total Volume - Concrete				= 200	= 200/27 = 7
Contaminated Fill					
A	20 x 3	= 60	x 0.5	= 30	
B	6 x 3	= 18			
	7 x 4	= 28			
		46	x 0.8	= 37	
C	6 x 5	= 30			
	6 x 3	= 18			
	5 x 2	= 10			
	12 x 10	= 120			
		178	x 0.5	= 89	
D	16 x 5	= 80			
	5 x 4	= 20			
	6 x 3/2	= 9			
		109	x 1.0	= 109	

Table 4.1
Area and Volume Calculations
DOE ID No. GJ-06775-RS

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<u>AREA</u>	<u>CALCULATIONS(ft)</u>	<u>SF</u>	<u>DEPTH(ft)</u>	<u>CF</u>	<u>CUBIC YARDS</u>
E	8 x 8 =	64	x 0.5 =	32	
F	15 x 15 =	225			
	10 x 5/2 =	25			
		<hr/>			
		250	x 0.8 =	200	
G	5 x 7 =	35	x 0.5 =	18	
H	4 x 4 =	16	x 1.2 =	19	
I	9 x 10 =	90			
	20 x 12 =	240			
	5 x 9 =	45			
		<hr/>			
		375	x 0.5 =	188	
J	10 x 3 =	30	x 1.0 =	30	
K	10 x 3 =	30			
	10 x 4 =	40			
		<hr/>			
		70	x 0.5 =	35	
L	28 x 2 =	56	x 0.5 =	28	
M	6 x 7 =	42	x 1.2 =	50	
				<hr/>	
Volume of Fill				= 865 =	865/27 = 32
TOTAL VOLUME - EXTERIOR					<hr/> = 39

See Appendix Figure 3.3 For Areas

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EXTERIOR

Remove/store/replace personal property items	
Lump sum	\$ 200
Remove/replace concrete patio (4")	
375 sf @ \$3/sf	1,125
Remove/replace concrete stoops	
3 cy @ \$325/cy	975
Remove identified residual radioactive material	
3 cy @ \$44/cy (manual-open)	132
29 cy @ \$14.50/cy (machine-open)	421
Replace areas with roadbase	
6 cy @ \$11.50/cy	69
Replace areas with topsoil	
26 cy @ \$9.50/cy	247
Replace sod	
870 sf @ \$.35/sf	305
Replace 2 bushes	
2 each @ \$30/each	60
Cleanup	
Lump sum	100
<hr/>	
TOTAL EXTERIOR	\$ 3,634
TOTAL INTERIOR	0
ACCESS CONTROL	250
SUBTOTAL	<hr/> \$ 3,884
CONTINGENCY @ 10%	388
SUBTOTAL	<hr/> \$ 4,272
CONTRACTOR OVERHEAD & PROFIT @ 25%	1,068
GRAND TOTAL	<hr/> \$ 5,340



FIGURE 2.1
VICINITY MAP

LEGAL DESCRIPTION

LOT 39, BLOCK 2,
ELMWOOD PLAZA REFILE,
MESA COUNTY, COLORADO

(WITHIN CITY LIMITS OF GRAND JUNCTION)

NOTE: NO "BEARINGS" SHOWN ON THE
RECORDED SUBDIVISION PLAT

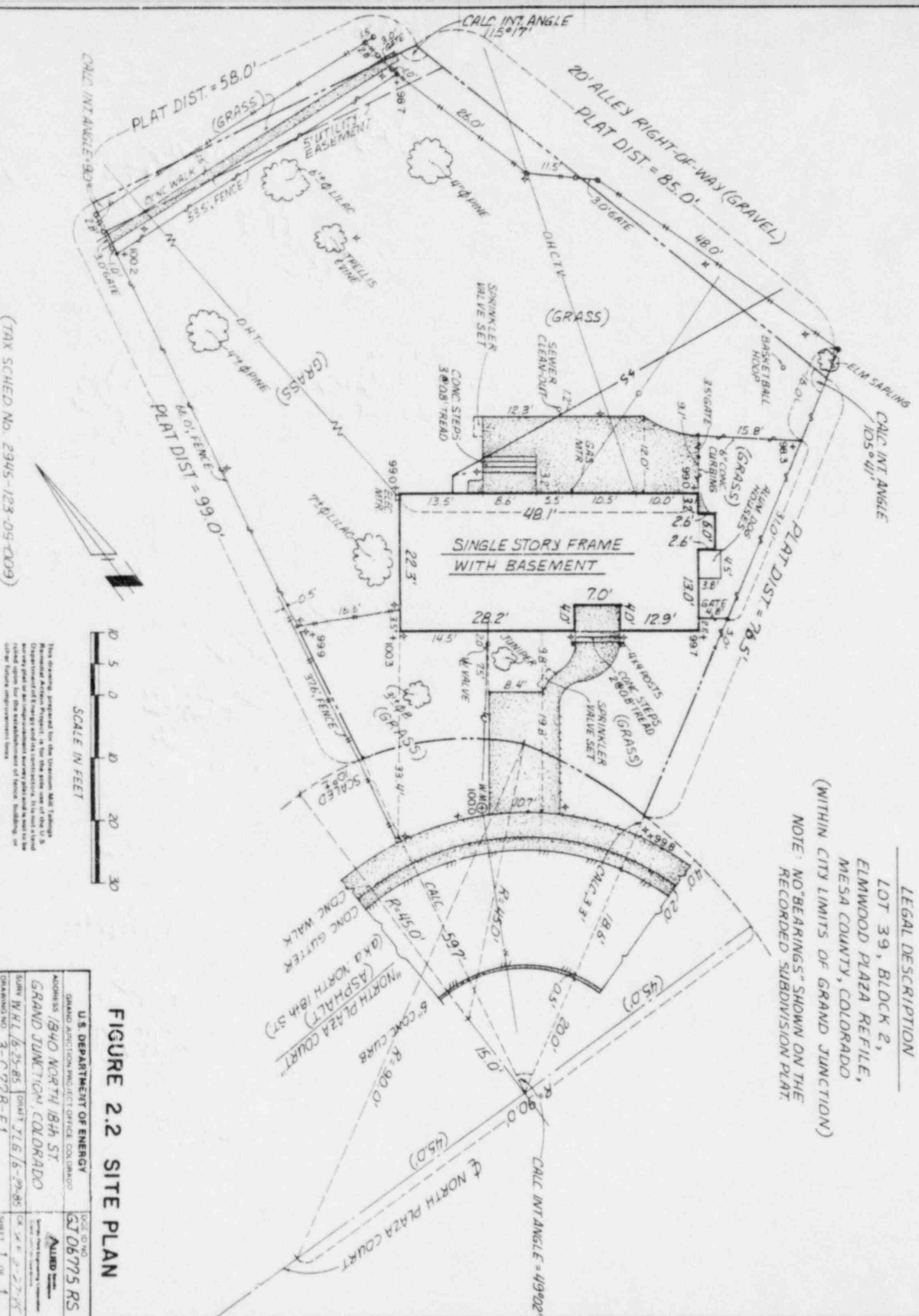
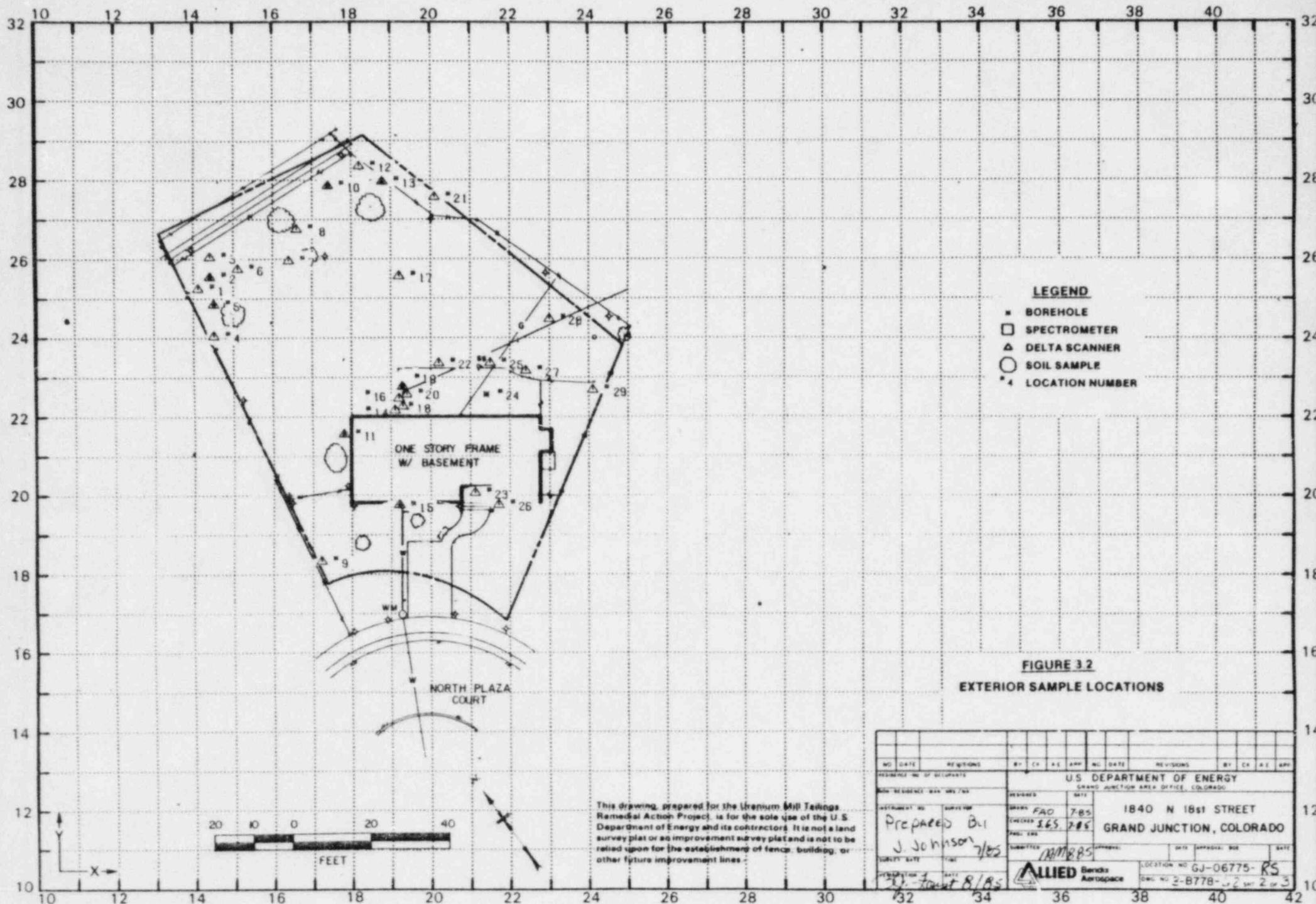


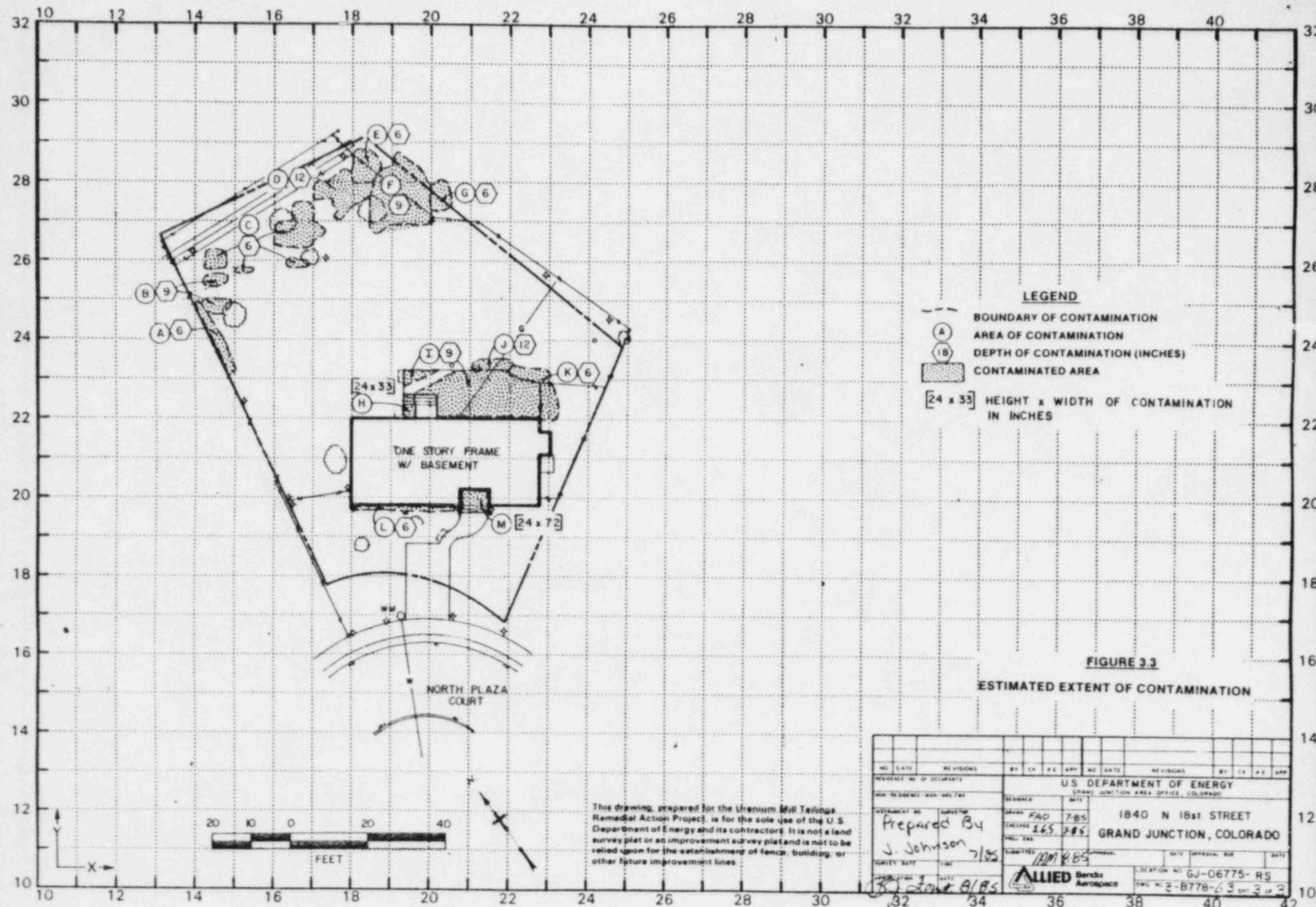
FIGURE 2.2 SITE PLAN

(TAX SCHED. NO. 2945-123-05-009)

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Energy.

U.S. DEPARTMENT OF ENERGY	DOE/DO-NO
GRAND JUNCTION PROJECT OFFICE, COLORADO	6206775 RS
ADDRESS: 1840 NORTH 18th ST.	ALBIO
GRAND JUNCTION, COLORADO	Energy Engineering Corporation
SUBMIT: N.H.L. 6-25-85 (DATE) 7/6/85-29-85	DATE: 6-27-85
DRAWING NO. 3-C778-F1	SHEET 1 OF 1





NO. DATE		REVISIONS		BY	CHK	DATE	NO. DATE		REVISIONS		BY	CHK	DATE
MEMORANDUM FOR THE DIRECTOR													
U.S. DEPARTMENT OF ENERGY													
GRAND JUNCTION AREA OFFICE, COLORADO													
SUBJECT: 1840 N 18th STREET				DATE: 7/85				1840 N 18th STREET					
PREPARED BY: J. Johnson				CHECKED: JES				GRAND JUNCTION, COLORADO					
SURVEY DATE: 7/85				DRAWN: JES				DATE: 7/85					
APPROVED BY: J. Johnson				ALLIED				Bendix Aerospace					
LOCATION NO: GJ-06775-RS				DATE: 7/85				DATE: 7/85					
FILE NO: 2-B778-43				PAGE: 3 OF 2									

3/85

DOE ID NO. GJ-06775-RS

Date 07-31-85

U.S. DEPARTMENT OF ENERGY
URANIUM MILL TAILINGS REMEDIAL ACTION PROJECT
GRAND JUNCTION VICINITY PROPERTIES

Official Survey Report

Property Address 1840 North 18th Street

Property Owner Elsie Narrel

Address of Owner (if different from above) Same

Report Prepared By Jay Johnson

I. PRESENCE/ABSENCE OF RESIDUAL RADIOACTIVE MATERIALS

1 1 No evidence of residual radioactive material on surveyed property.

1 XXX 1 Residual radioactive materials found at the following locations:

1 XX 1 In open areas.

1 XX 1 Under or around exterior improvements.

1 1 Under or around a typically nonoccupied structure.

1 XX 1 Under or around a typically occupied structure.

II. RESULTS OF RADIOLOGIC ASSESSMENT

1 1 Levels of radiation from residual radioactive materials, if any, do not exceed EPA Standards and no action is required under the Uranium Mill Tailings Remedial Action Project.

1 XX 1 Levels of radiation from residual radioactive materials exceed EPA Standards such that Remedial Action is recommended and will be accomplished, with your consent, as soon as budget and schedule permit.

cc:

G. A. Franz, III, GJ/CDE

J. Themelis, Mgr. UMTRA Proj. Off.

HIG = 18 uR/h
EOG = 76 uR/h

MEMORANDUM

ALLIED Bendix
Aerospace

Bendix Field Engineering Corporation
Grand Junction Operations
Grand Junction, Colorado

Date: July 17, 1985

To: Files

From: Jay Johnson

Subject: Team Leader Notes - GJ-06775-RS

Address: 1840 North 18th Street

Owner: Elsie Narrell

Occupancy: Two

Weather: Cloudy

Team Members

J. Johnson (Team Leader)
D. Dow
V. Young
P. Hardy

C. Holmes
V. Rothman
S. Garcia

Instruments

See Equipment Summary Operational sheet

The property was scanned with elevated readings noted in the north yard, in the north patio and stoop, along the west property line, and on the south stoop. Visible tailings were found beneath the concrete patio. Deltas were taken on top of the north stoop, on the stairs of the stoop, and underneath the stoop. All of these deltas were clean. Three horizontal deltas were taken up the west side of the stoop that were elevated.

Team Leader Notes
Jay Johnson
GJ-06775-JJ
July 17, 1985
Page 2

All utility lines were located and investigated. The sewer line runs through the northwest corner of the patio. This portion of the concrete has been cut away and showed clean on the scan.

The owner requested that the foundation not be checked on the east side of the house.

A spillover was conducted on the property to the west. Elevated readings were found along the property line and extending out onto the property. A consent form has been obtained.

A sprinkler line was broken and repaired by the RAD crew.

All team members were frisked before leaving the property.

APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

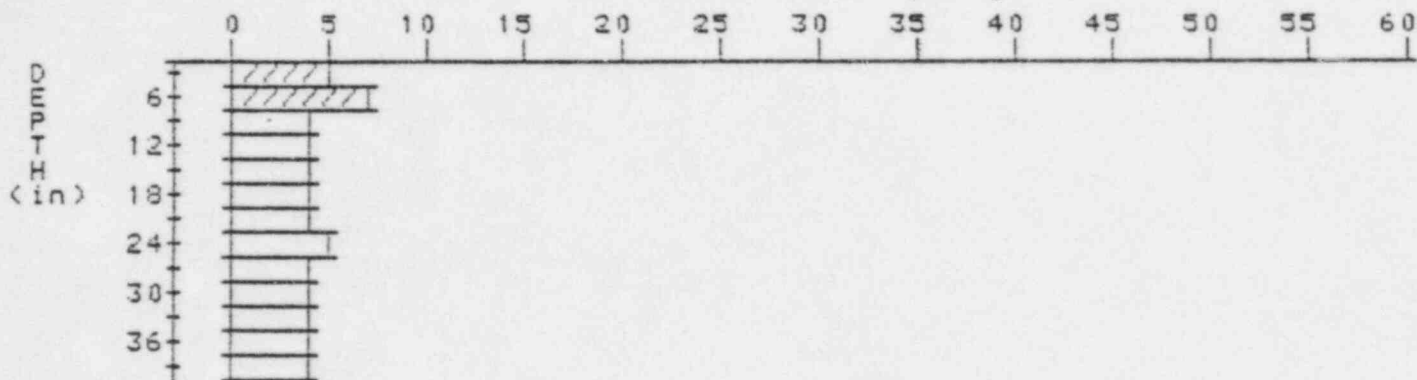
2

PROPERTY NUMBER: GJ-06775-R3

HOLE NUMBER: 2

LOCATION: 145255

APPARENT RA-226 (pCi/g)



<5

5-15

>15

Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	5.2	5.2
6	5.5	7.3
9	4.8	4.3
12	4.4	4.2
15	4.1	3.7
18	4.0	3.8
21	4.0	3.6
24	4.2	4.7
27	4.1	3.9
30	4.1	4.1
33	4.1	4.1
36	4.1	4.3
39	4.0	4.0

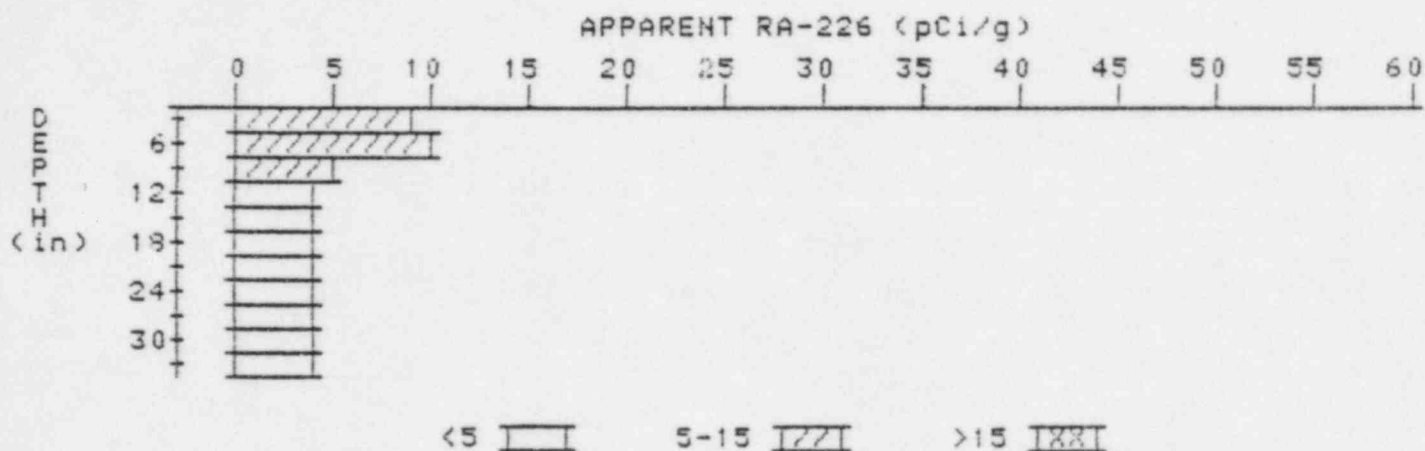
APPARENT RADIUM-226 CONCENTRATION DECONVOLUTION GRAPH

5

PROPERTY NUMBER: GJ-06775-RS

HOLE NUMBER: 5

LOCATION: 146248



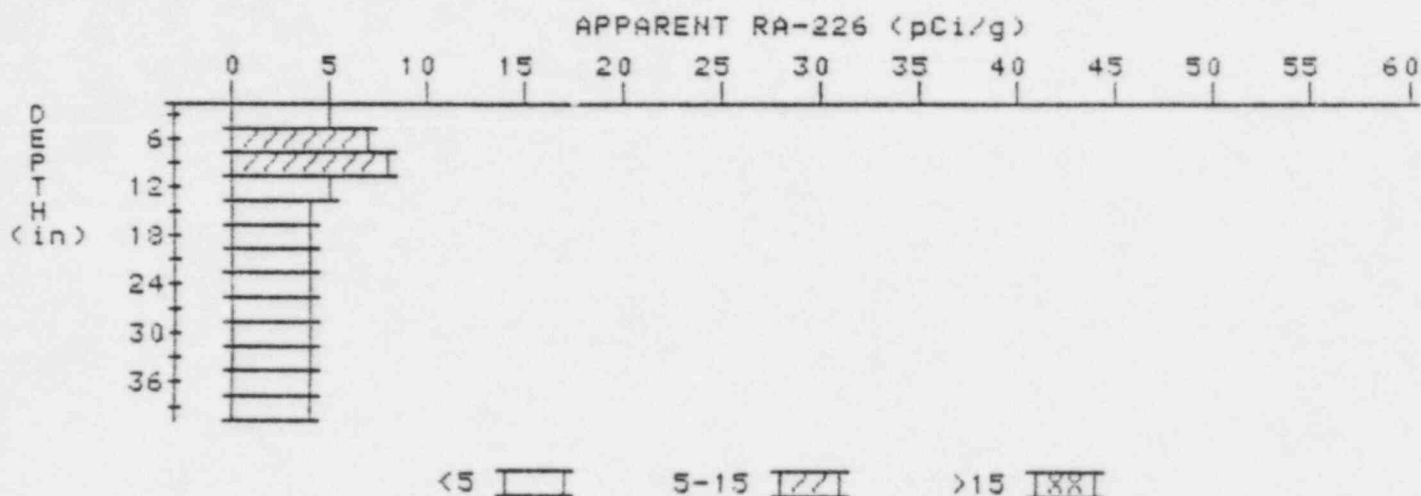
Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	8.8	8.8
6	8.1	10.1
9	6.3	5.2
12	5.1	3.9
15	4.6	4.2
18	4.3	4.1
21	4.1	3.9
24	4.0	3.6
27	4.1	4.3
30	4.1	4.1
33	4.1	4.1

APPARENT RADIUM-226 CONCENTRATION 10 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06775-RS

HOLE NUMBER: 10

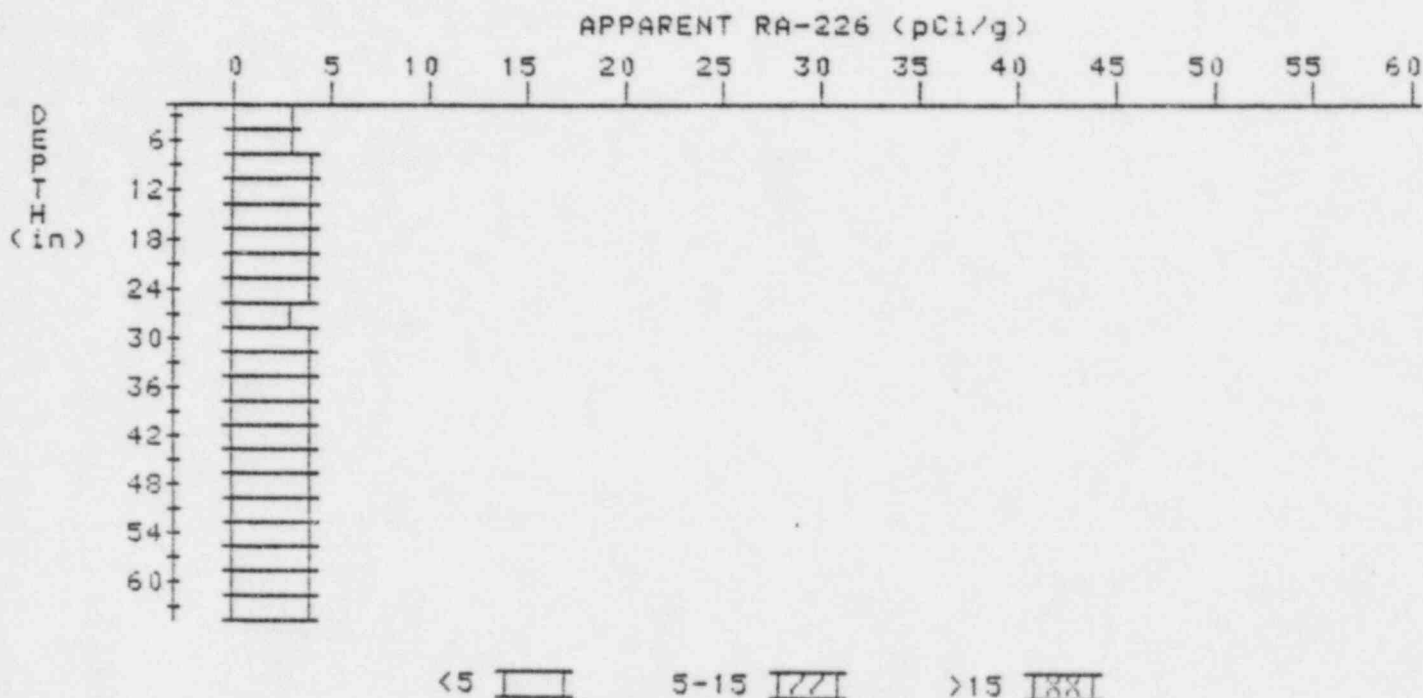
LOCATION: 175278



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.5	4.5
6	5.6	7.0
9	5.9	7.7
12	5.2	4.8
15	4.7	4.3
18	4.4	4.2
21	4.2	4.0
24	4.1	3.9
27	4.1	4.1
30	4.1	4.1
33	4.1	4.1
36	4.1	4.3
39	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 11 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06775-RS
HOLE NUMBER: 11
LOCATION: 179215



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.0	3.0
6	3.3	3.5
9	3.5	3.5
12	3.7	4.1
15	3.7	3.5
18	3.8	3.8
21	3.9	4.1
24	3.9	4.1
27	3.8	3.4
30	3.9	4.1
33	3.9	3.7
36	4.0	4.2
39	4.0	4.0
42	4.0	3.8
45	4.1	4.3
48	4.1	4.3
51	4.0	3.8

54
57
60
63

4.0
4.1
4.0
3.9

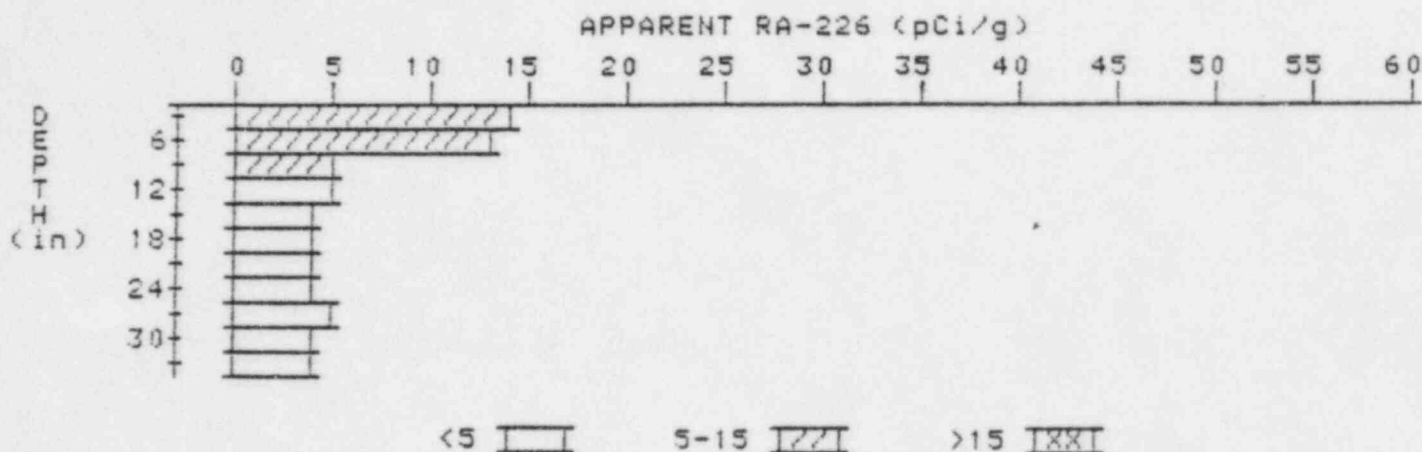
3.8
4.5
4.0
3.9

APPARENT RADIUM-226 CONCENTRATION 13 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06773-RS

HOLE NUMBER: 13

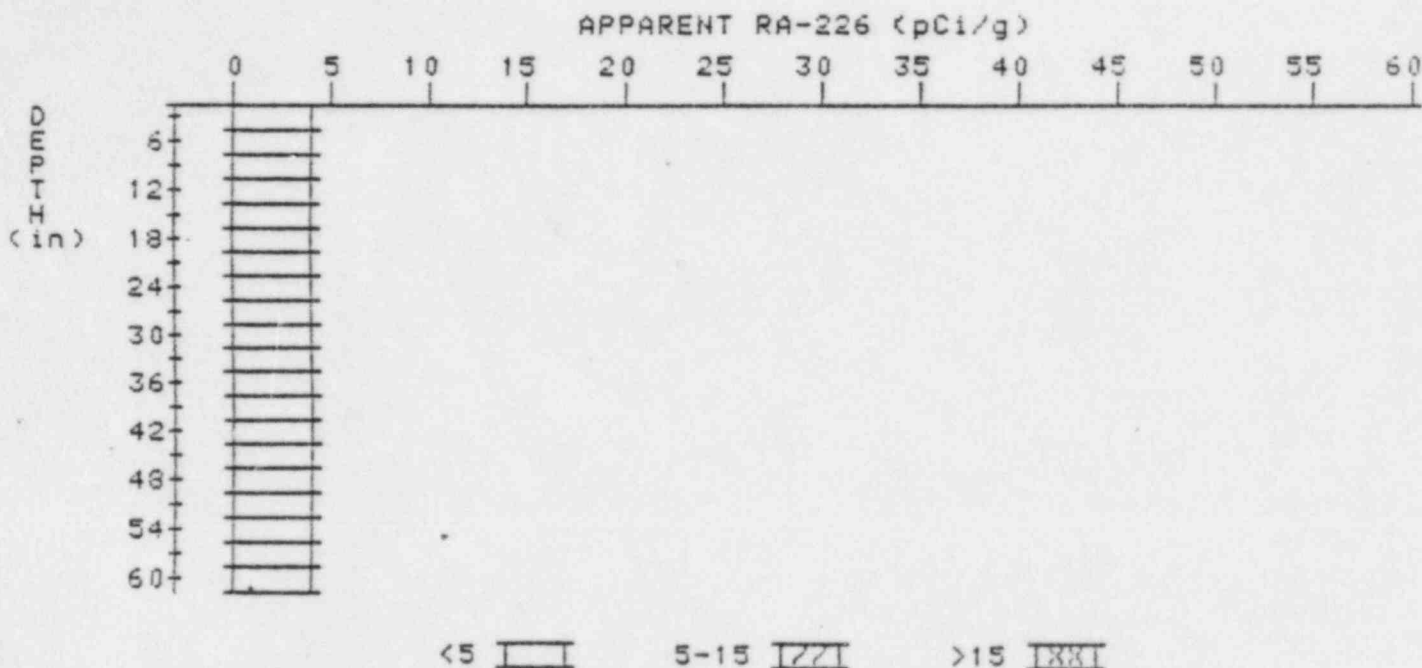
LOCATION: 189279



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	14.0	14.0
6	11.5	13.1
9	8.1	5.4
12	6.2	5.0
15	5.0	3.6
18	4.6	4.2
21	4.4	4.4
24	4.2	3.7
27	4.3	4.7
30	4.2	4.0
33	4.2	4.2

APPARENT RADIUM-226 CONCENTRATION 15 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06775-R3
HOLE NUMBER: 15
LOCATION: 193197



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	4.4	4.4
6	4.3	4.5
9	4.1	3.9
12	4.0	3.8
15	4.0	4.0
18	4.0	4.0
21	4.0	4.2
24	3.9	3.5
27	4.0	4.2
30	4.0	4.0
33	4.0	4.0
36	4.0	4.0
39	4.0	4.0
42	4.0	4.2
45	3.9	3.7
48	3.9	3.9
51	3.9	3.7
54	4.0	4.4

57
60

3.9
4.0

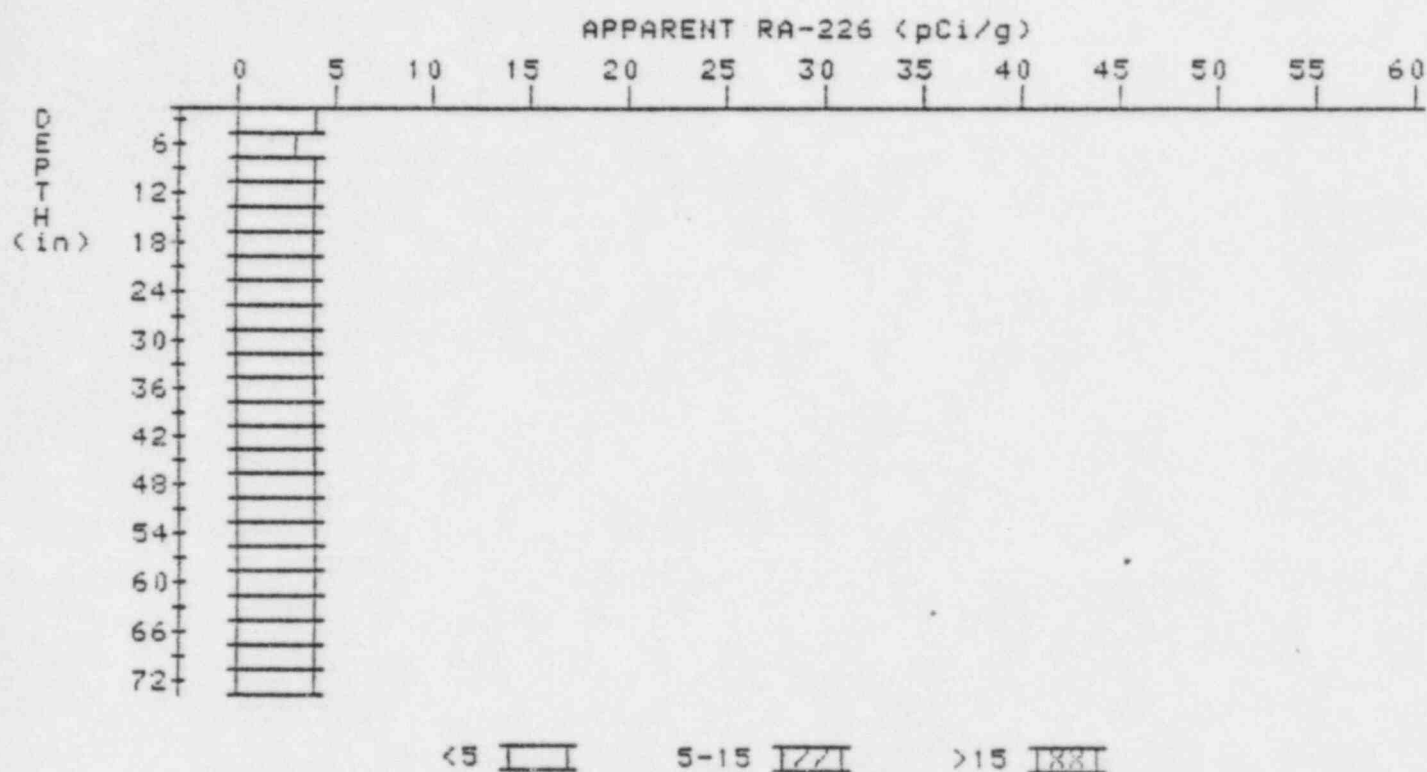
3.5
4.0

APPARENT RADIUM-226 CONCENTRATION 19 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06775-RS

HOLE NUMBER: 19

LOCATION: 194229

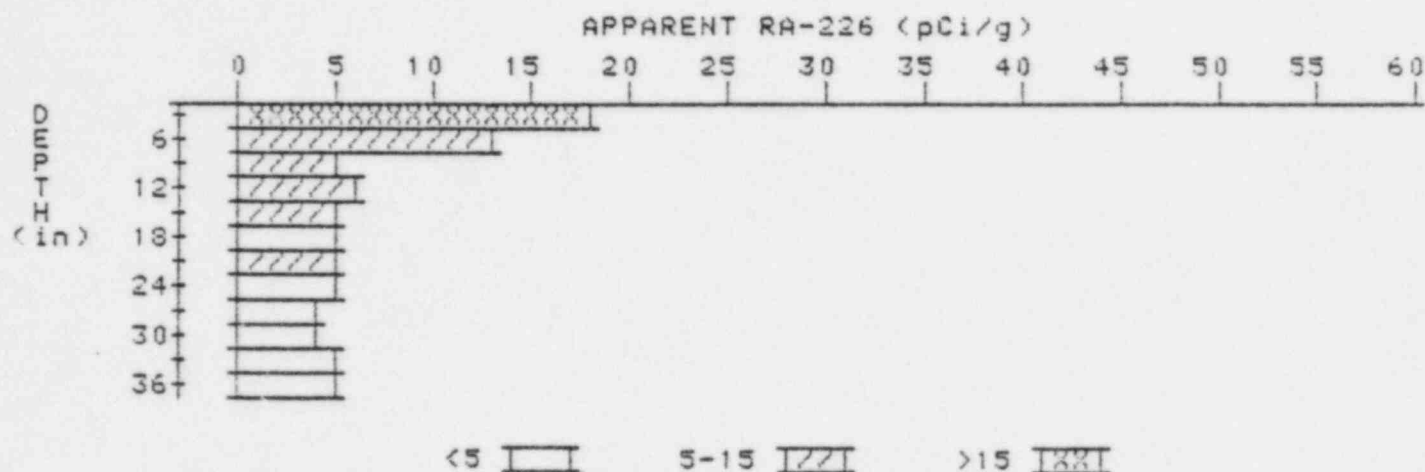


Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	3.5	3.5
6	3.5	3.3
9	3.6	3.6
12	3.7	3.7
15	3.3	4.0
18	3.3	3.3
21	3.3	3.3
24	3.3	3.6
27	3.9	4.1
30	3.9	3.7
33	4.0	4.2
36	4.0	3.3
39	4.1	4.5
42	4.0	3.3
45	4.0	4.0

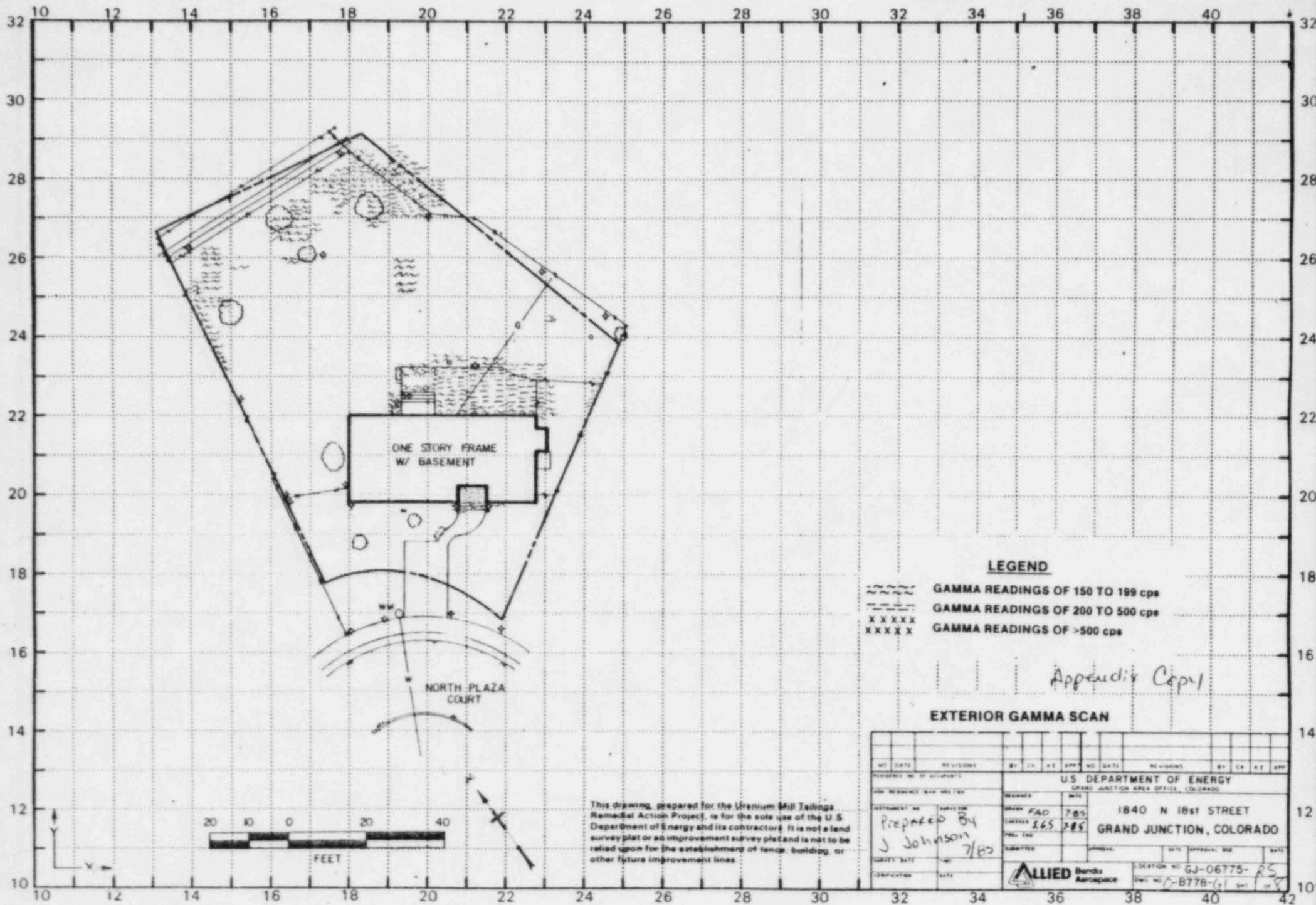
48	4.0	4.0
51	4.0	3.8
54	4.1	4.5
57	4.0	3.6
60	4.1	4.2
63	4.1	4.1
66	4.1	4.1
69	4.1	4.3
72	4.0	4.0

APPARENT RADIUM-226 CONCENTRATION 24 DECONVOLUTION GRAPH

PROPERTY NUMBER: GJ-06775-RS
HOLE NUMBER: 24
LOCATION: 215225



Depth (in)	Apparent Radium-226 (pCi/g) Undeconvolved	Apparent Radium-226 (pCi/g) Deconvolved
3	17.7	17.7
6	13.4	13.2
9	9.2	5.3
12	7.2	5.6
15	6.1	5.4
18	5.4	4.7
21	5.1	5.1
24	4.3	4.6
27	4.6	4.4
30	4.5	4.3
33	4.5	4.5
36	4.5	4.5



LEGEND

- ~~~~~ GAMMA READINGS OF 150 TO 199 cps
- GAMMA READINGS OF 200 TO 500 cps
- XXXXX GAMMA READINGS OF >500 cps

Appendix Copy

EXTERIOR GAMMA SCAN

NO.	DATE	REVISIONS	BY	CHK	DATE	REVISIONS	BY	CHK	DATE	APP
RESIDENT NO. OF OCCUPANTS										
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION AREA OFFICE, COLORADO										
HOW RESIDENTS SAW THIS / BY			DESIGNED		DATE		1840 N 18th STREET GRAND JUNCTION, COLORADO			
INSTRUMENT NO.			DRAWN		DATE					
PREPARED BY J. Johnson			CHECKED		DATE					
SURVEY DATE			APPROVED		DATE					
CERTIFICATION			DATE		DATE					
			ALLIED		Bendix Aerospace		LOCATION NO. GJ-06775-25 DWC NO. 8778-61 SHI 000			