

**Decontamination and Decommissioning
of the Basket Washing Facility,
Technical Area 16**

Cultural Resource Report No. 208

Los Alamos National Laboratory

**July 12, 2002
Survey No. 907**

Prepared for the Department of Energy
National Nuclear Security Administration
Office of Los Alamos Site Operations

prepared by

**Ellen D. McGehee
Kari L. M. Garcia**
Cultural Resource Managers

**Ken Towery, Architect, Site and Project Planning Group (PM-1)
John Ronquillo, Consulting Engineer, Sigma Science, Inc.**

RRES-ECO Cultural Resources Management Team
Risk Reduction and Environmental Stewardship Division
LOS ALAMOS NATIONAL LABORATORY



Introduction

The following information has been prepared as part of a notification of potential adverse effect to historic Los Alamos National Laboratory (LANL) properties located at Technical Area (TA) 16 (Maps 1 and 2). The proposed decontamination and decommissioning (D&D) action is part of LANL's routine phasing out of aging properties and will result in the demolition of TA-16's Basket Washing Facility (building TA-16-390 and associated structures TA-16-392, -401, -402, -406, -1129, -1134, and -1135). D&D activities will adversely affect the attributes that make these eight properties eligible for the National Register of Historic Places.

This report is intended to provide the initial background information necessary to initiate the Section 106 consultation process; additional documentation will follow after a treatment plan for the resolution of adverse effects is developed. This initial assessment report contains a description of the proposed action, historical background information, property descriptions, building integrity and contamination information, and recommendations for National Register of Historic Places eligibility.

The State Historic Preservation Officer (SHPO) is requested to concur with the eligibility determinations contained in this report and to concur that the proposed decontamination and decommissioning action will adversely affect the Basket Washing Facility.

Project Description

The TA-16 Basket Washing Facility is excess LANL property and is scheduled for clean up and eventual demolition. This action is in accordance with LANL's commitment to clean up inactive sites and facilities "so that no unacceptable risk to the public or environment remains" (U.S. Department of Energy 1994). The removal of building TA-16-390 and seven associated structures will be carried out by LANL's D&D program. Associated utilities will also be removed as part of the D&D process.

In June 2002, a historic building survey was conducted by John Ronquillo, Sigma Science Inc.; Ken Towery, Site and Project Planning Group (PM-1), LANL; and Kari Garcia, Ecology Group (RRES-ECO), LANL. The building survey was accomplished by conducting a field visit to TA-16 and documenting the architectural and engineering elements of the Basket Washing Facility. Records research at LANL was also carried out, photographs were taken, and current drawings were compiled for the properties (Appendix B). Furthermore, a former site worker was interviewed about the facility's historical operations; information from that interview is incorporated into this report.

Historical Background

TA-16 (General Site Information)

TA-16 (S-Site) contains major facilities that are directly associated with LANL's mission to support the nation's nuclear stockpile. S-Site operations include the synthesis, mixing,

pressing, casting, and machining of high explosives (HE). Other HE work includes explosive device assembly, plastic and composite fabrication, mechanical testing, and limited HE characterization. Tritium handling, packaging, research, and analysis activities are also carried out at TA-16 (MacRoberts n.d.).

Early activities at TA-16 supported the development of the first implosion-type atomic bombs: the “Trinity” device and the Nagasaki bomb (“Fat Man”). The HE components of the implosion design were developed, manufactured, and tested at TA-16 during World War II.

The Burning Ground and Basket Washing Facility

The TA-16 burning ground was constructed in 1951 for HE treatment and disposal (Map 3). Over the years, large amounts of HE and HE-contaminated material have been burned at this location. Several different types of treatment processes are located at the burning ground including the Basket Washing Facility (LANL 1993). This facility was used to clean filters baskets from TA-16’s HE sumps and also to clean HE-contaminated fixtures (Map 4). Residual wash water was diverted to troughs and then to filtration vessels and filter beds for eventual drying and burning. The Basket Washing Facility was in use from 1951 to 1966. The Basket Washing Facility and the troughs have been decommissioned and have not been used since the facility suspended operations. After 1966, sludge from site-wide HE sumps was trucked to the burning ground, filtered, dried at filtration structures TA-16-401 and TA-16-406, and burned. The filter bed sand was scraped up after burning and placed in drums for disposal (LANL 1993).

Property Descriptions

Property Identification and Numbering

The properties discussed in this report are identified using the current LANL system of placing the TA prefix before each building and structure number. Historically, however, the “S” prefix (for S-Site) was used before each property number and some of the drawings included in this report may use the old system of identification. For example, TA-16-390 is the same building as S-390.

The Basket Washing Building

The Basket Washing Building, TA-16-390, was built in the last half of 1951; a small addition was added later that same year. The wood-frame building was built by the Zia Company and is only 611 ft² in size. Due to its small size and nondescript construction, the building does not fall into a defined architectural style. Its appearance can best be typified as military-style construction. TA-16-390 is situated on the south sloping face of a slight rise. The concrete foundation is visible due to the slope of the site. The building’s structure is wood frame with asbestos board shingles; batting-type insulation is visible through broken shingles. A medium slope roof with granular-impregnated, asphalt sheet roofing provides the water proofing of the roof. Windows on the west and

south elevation are wood frame with an inward-operating hopper sash. The north elevation contains a personnel-sized door into the wash area and a double-opening, wood door into the mechanical room. The exterior components of the building are in fair condition reflecting some years of non-use and deferred maintenance. The interior frame walls and ceiling are sheathed in stainless steel panels, which provide a waterproof finish and are indicative of the water intensive operations conducted inside the building. The washroom has a steel track around the perimeter of the room. Metal baskets were attached to this track and were moved around the room as the washing of components occurred. The bare concrete floor tapered to drain outlets, which connected to metal troughs. The adjoining mechanical room contained electrical service inlets, an air compressor, and a heat source (probably an electric boiler since natural gas was not in use at HE facilities).

Typical activities inside the building included the steam and water washing of various components from HE operations at TA-16 facilities. Historically, the operations within the building extended beyond building TA-16-390 and included four sheet metal troughs (TA-16-1129, -1134, -1135, and -1136) that channeled wash water from TA-16-390 down to two filtration vessels (TA-16-401 and TA-16-393/406), a filtration bed (TA-16-392), and two solvent burning trays (TA-16-394) (McCormick 2002). The filtration bed, TA-16-392, was later converted to a burn pad (LANL 1993). HE residues from sump filter baskets were emptied into a floor drain located on the south end of the building. An operator in the building controlled a manifold that diverted the wash water to one of four troughs. Three troughs were originally connected to the building, and in 1961, an additional trough, TA-16-1136, was installed. In 1966, operations at the Basket Washing Facility ceased when the use of filter baskets was discontinued (LANL 1993).

Troughs

The troughs are approximately 8"x 8" galvanized and stainless steel fabrications that carry rinse water and contaminants down hill to the various vessel locations (McCormick). The steel troughs have a V-shaped cross section, are open at the top, are elevated approximately 3 ft from the ground, and are approximately 370 ft long (LANL 1993). Structures TA-16-1129, -1134, and -1135 were built in 1951. Structure TA-16-1136, now removed, was built in 1961 (LANL 1993).

Trough TA-16-1129 carried wash water to filtration vessel TA-16-401, trough TA-16-1134 carried water to the solvent burning trays TA-16-394 (now removed), trough TA-16-1135 led down to filtration vessel TA-16-393 (replaced by TA-16-406), and trough TA-16-1136 led to filtration bed TA-16-392 (LANL 1993). In 1965, filtration vessel TA-16-406 replaced TA-16-393, which was dismantled and sent to TA-54 for disposal. TA-16-1136 was dismantled in 1988 and was the only one of the four troughs in which wash water with potentially uranium-contaminated materials was transported (LANL 1993).

Filtration Vessels and Associated Air Heater

The filtration vessels (TA-16-401 and TA-16-406) consist of 8-ft diameter corrugated iron sections buried 4 ft into the ground. Layers of rock and sand provide the filtration bed for the water drain. Water filtered through the filtration bed and historically was piped to a carbon filtration system prior to release. Using a concrete-mounted jib crane, a heavy lid was placed on the vessel in order to speed up the drying process. A drying fan was employed for 24 hours and HE was eventually deposited on the surface of the sand. Structure TA-16-402 is an air heater that was used during the drying process (McCormick 2002).

After the water had evaporated, a fire catalyst was added to the filtration vessel and the fire would be remotely ignited by an electrical charge, similar to a blasting cap. The remaining sand and char were then removed for final disposal. TA-16-394, the solvent burning trays (now removed), was specifically used for the collection of solvents and oil prior to burning. The burning of the HE and solvents produced a very hot blue and orange flame which could last for up to an hour (McCormick 2002).

TA-16-392 is an inactive burning pad. Formerly a filtration bed, TA-16-392 received suspected uranium-contaminated wash water from filter baskets being cleaned at TA-16-390. In 1988, the bed was modified to a burn pad for the purpose of burning suspected uranium-contaminated objects (LANL 1993).

Integrity Issues and Potential for Contamination

Although the Basket Washing Facility was partially decommissioned in 1966, the main building (TA-16-390) and the remaining troughs and filtering units have retained the key elements of location, setting, and design. Overall, this facility exhibits good historical integrity. Unfortunately, due to the nature of the waste treatment operations at the Basket Washing Facility, the potential for HE contamination in and around the building and associated structures is high. The contaminants of concern are those associated with the storing, burning, and disposal of barium, other metals, depleted uranium, HE by-products, and HE. Semivolatiles may include HE burning and detonation products, as well as petroleum products probably used to initiate combustion (LANL 1993).

National Register Eligibility Recommendation

Based on the information gathered during this building survey, the Basket Washing Facility (TA-16-390, -392, -401, -402, -406, -1129, -1134, and -1135) is eligible for nomination to the National Register of Historic Places under Criterion A and Criterion C. The building and associated structures are associated with significant Cold War weapons research and development, and are all at least 50 years old. The facility retains the key elements of original location, setting, association, feeling, and interior and exterior design. The main period of significance for these properties covers the years between 1951 and 1966. The activities conducted at the Basket Washing Facility served an

important waste management function in support of Cold War-era weapons research and development at Los Alamos—the Basket Washing Facility was a one-of-a-kind HE recovery and disposal facility and represents the “end of process” for activities conducted at TA-16.

The SHPO is requested to concur with the eligibility determinations contained in this report and to concur that the proposed decontamination and decommissioning action has the potential to adversely affect the eight National Register-eligible properties that make up the Basket Washing Facility.

As a result of this historic building survey, this project complies with the National Historic Preservation Act of 1966 (as amended).

References Cited:

Los Alamos National Laboratory (LANL)

- 1993 *RFI Work Plan for Operable Unit 1082: Environmental Restoration Program*, LA-UR-93-1196, Los Alamos National Laboratory, Los Alamos, New Mexico.

MacRoberts, Martin

- n.d. "General S-Site Description." Manuscript on file at RRES-ECO, Ecology Group, Los Alamos National Laboratory, Los Alamos, New Mexico.

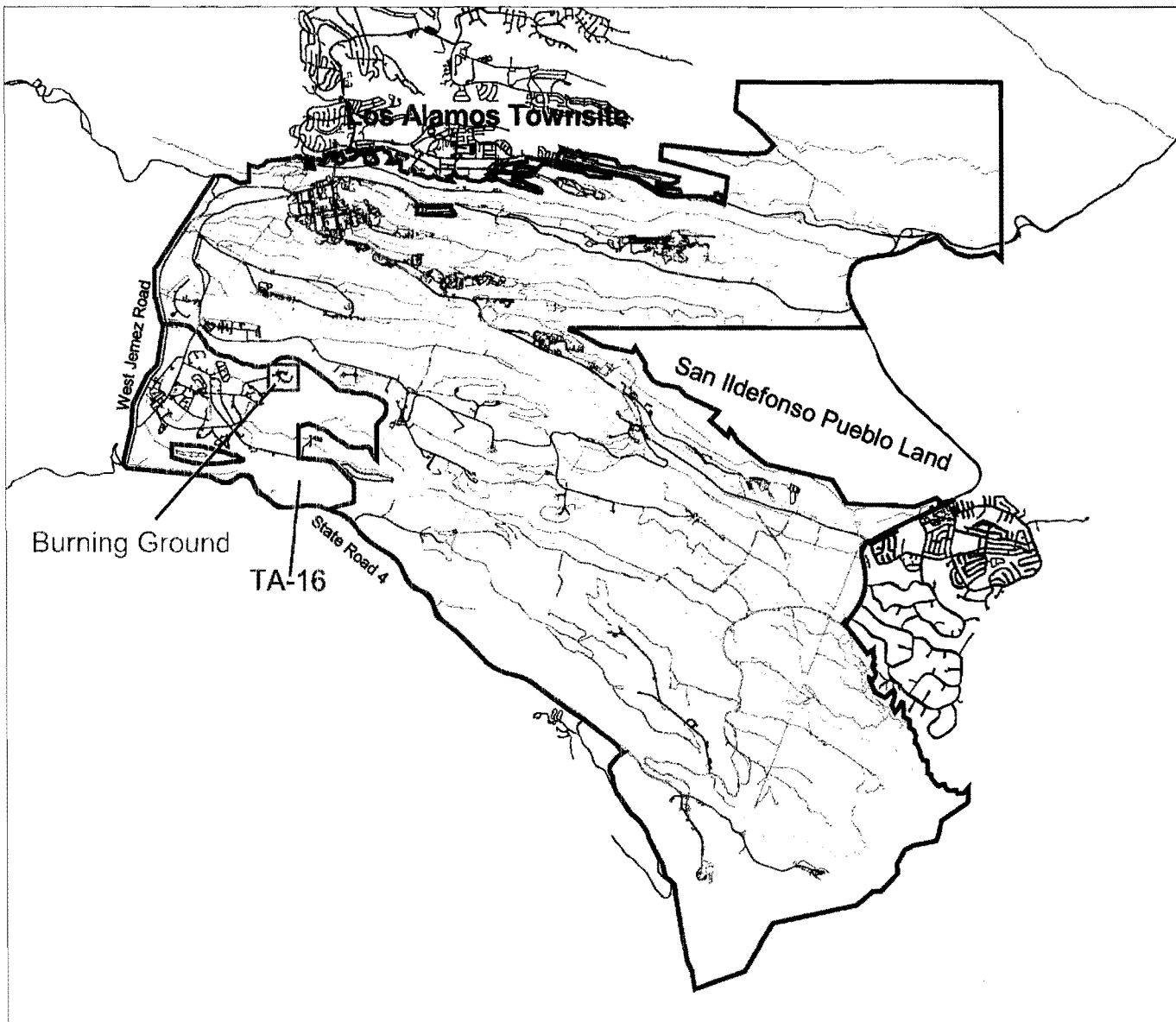
McCormick, Bill

- 2002 "Interview, 4/16/02." Interview conducted by Kari Garcia, Ken Towery, and John Ronquillo regarding the historical operations at the Basket Washing Facility, TA-16. Notes on file at RRES-ECO (Ecology Group), Los Alamos National Laboratory, Los Alamos, New Mexico.

U.S. Department of Energy

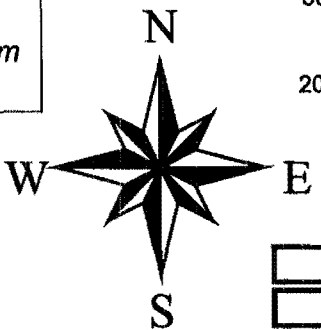
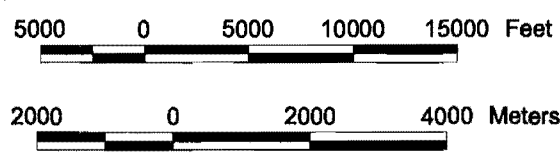
- 1994 *Environmental Restoration and Waste Management Five-Year Plan Fiscal Years 1994-1998*. DOE/S-00097P, U.S. Department of Energy, Washington, D.C.

Appendix A Maps







Los Alamos National Laboratory
 Cultural Resources Management Team
 RRES-ECO Ecology Group

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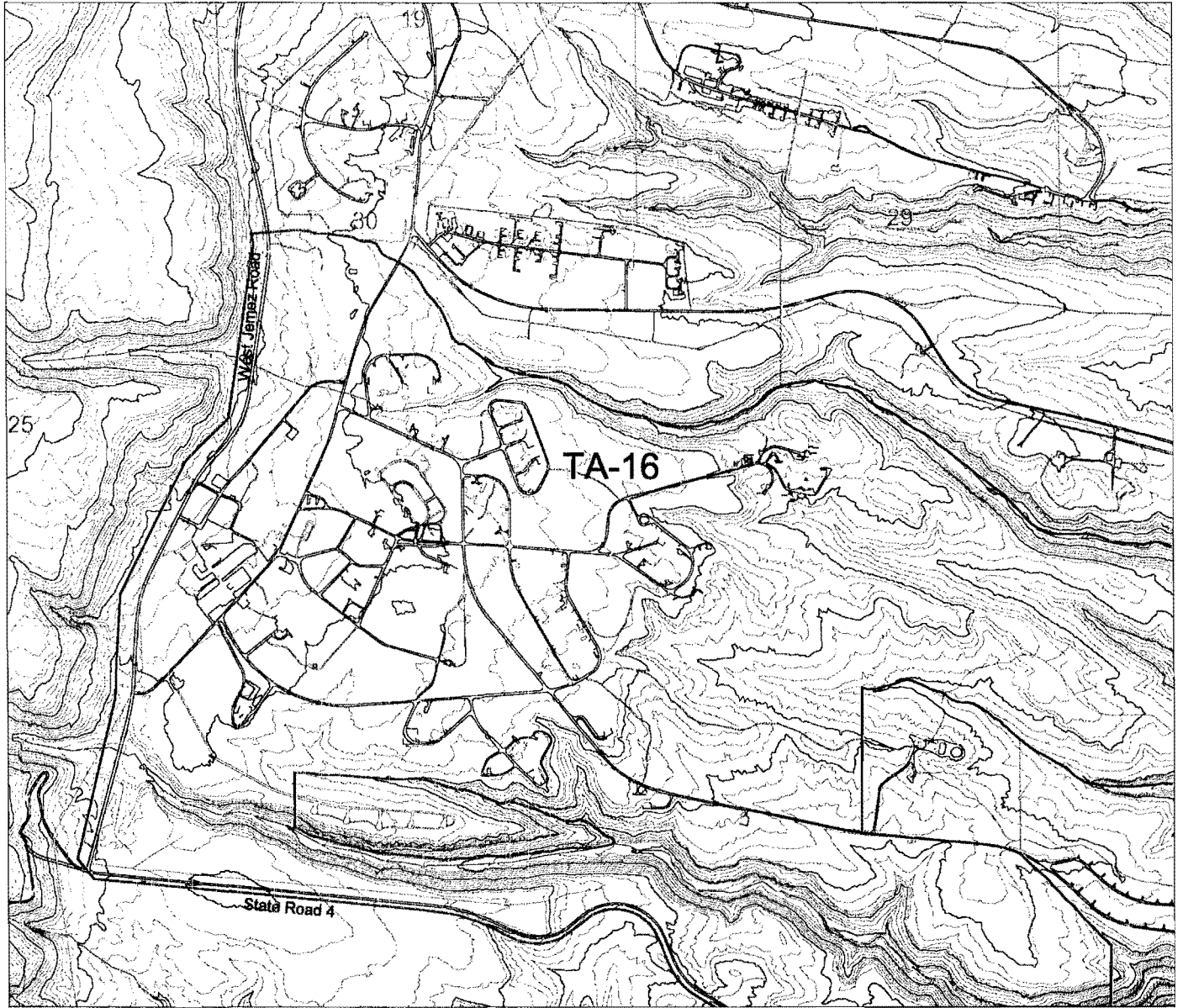


Los Alamos National Laboratory

TA-16

-  Technical Area 16
-  Los Alamos National Laboratory Techarea
-  Roads
-  Road dirt

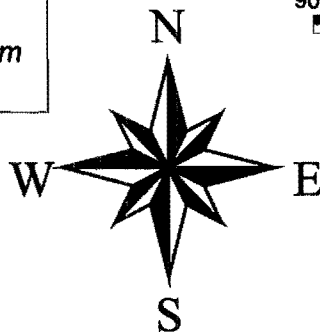
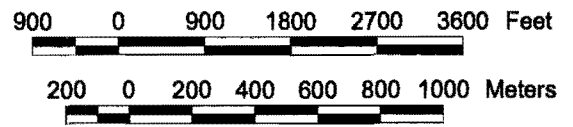
Map 1



Frijoles Quad

**Los Alamos
National Laboratory**
*Cultural Resources Management Team
RRES-ECO Ecology Group*

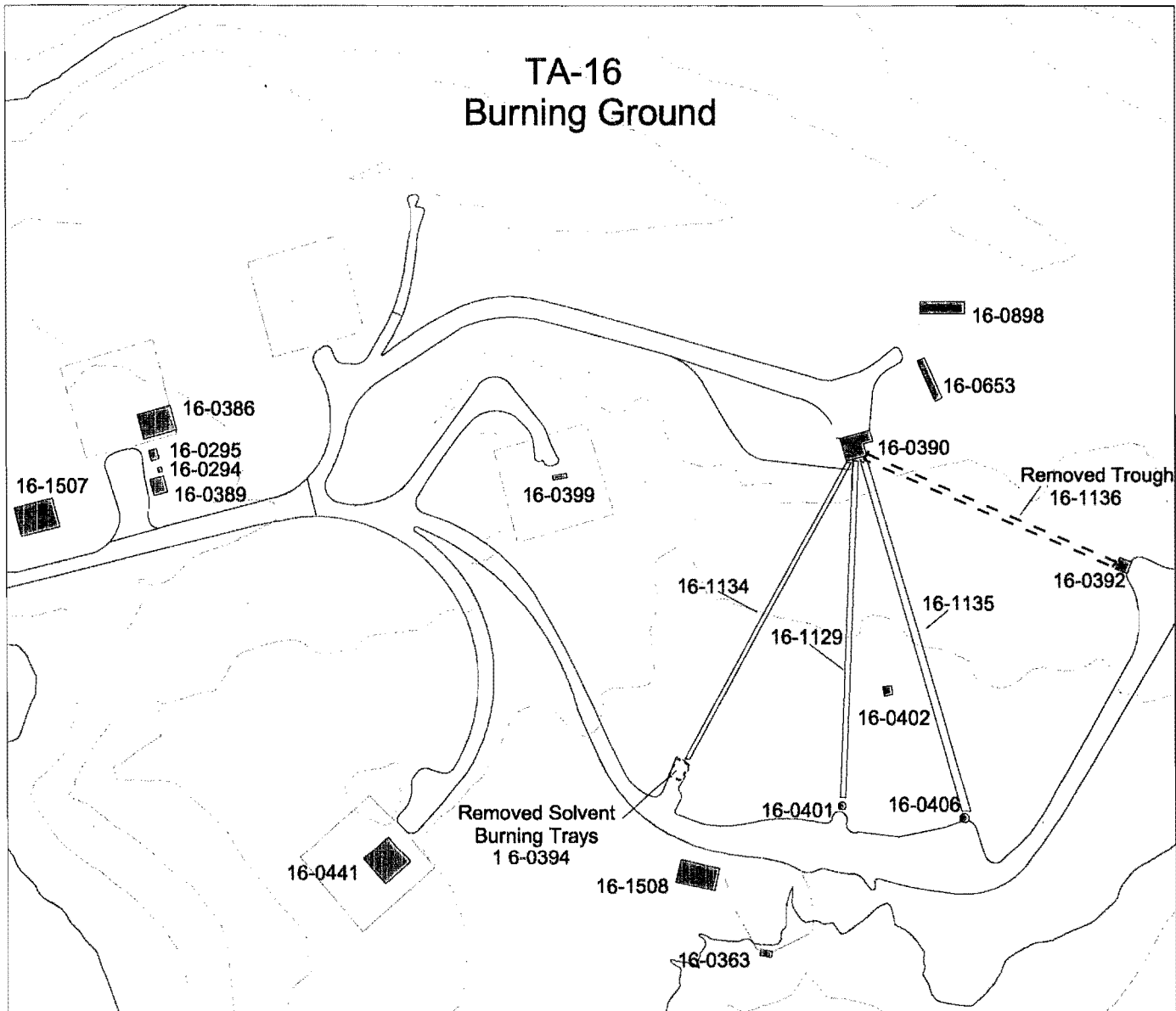
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TA-16

- Techarea 16
- Buildings/Structures
- 20 Foot Contours
- 100 Foot Contours
- Techarea
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Road/dirt

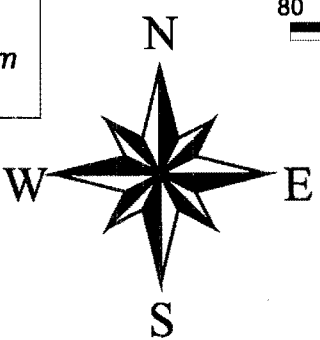
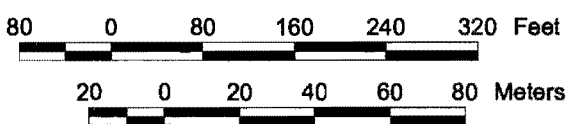
Map 2



Frijoles Quad

Los Alamos
National Laboratory
Cultural Resources Management Team
RRES-ECO Ecology Group

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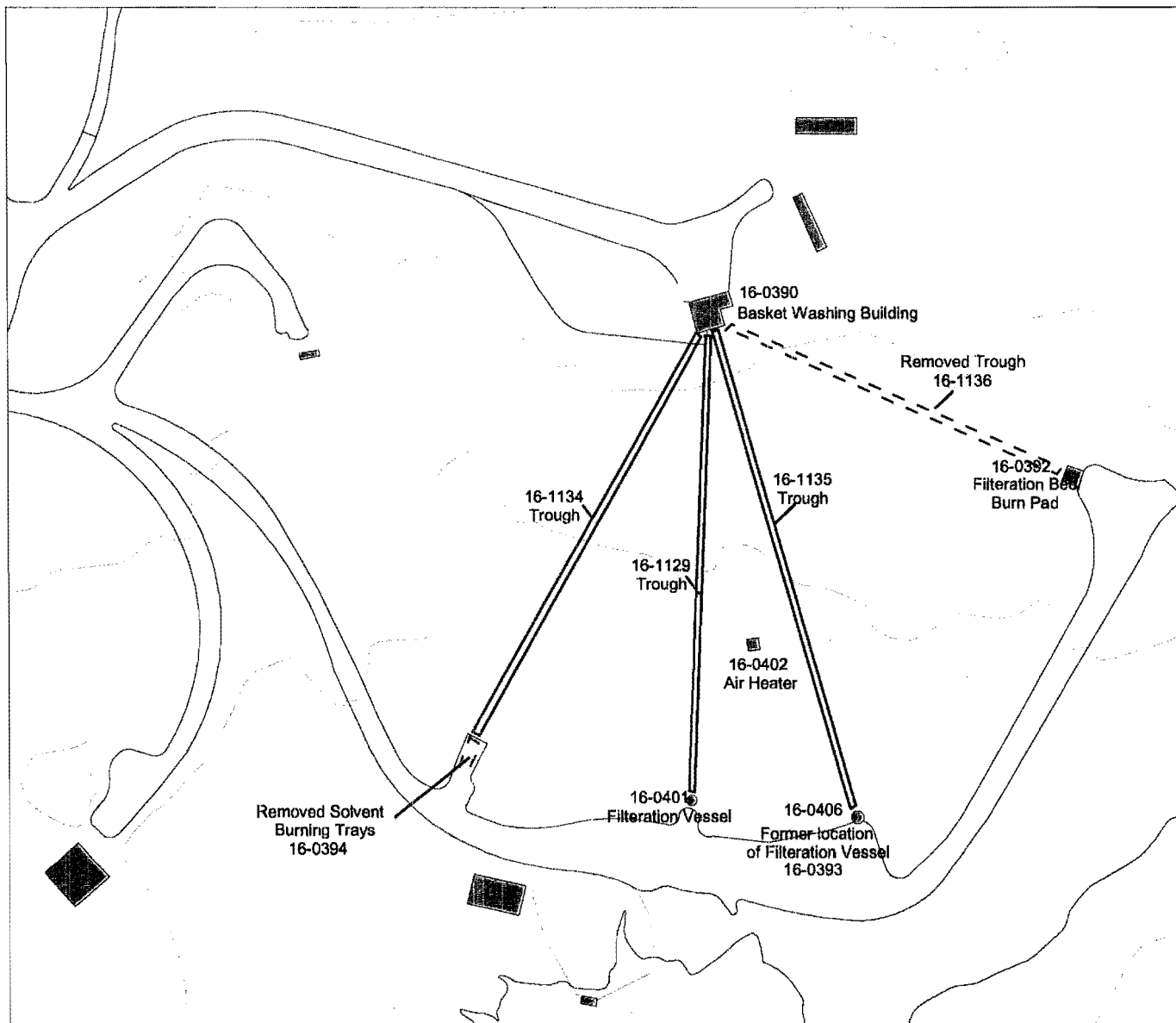


- Buildings/Structures
- 20 Foot Contours
- 100 Foot Contours
- Techarea
- Drainage
- Roads
- Road dirt
- Fences

Burning Ground
Technical Area 16

TA-16

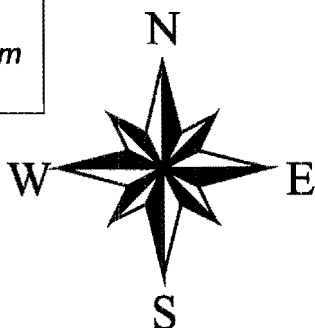
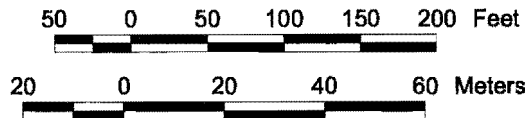
Map 3



Frijoles Quad

Los Alamos National Laboratory
 Cultural Resources Management Team
 RRES-ECO Ecology Group

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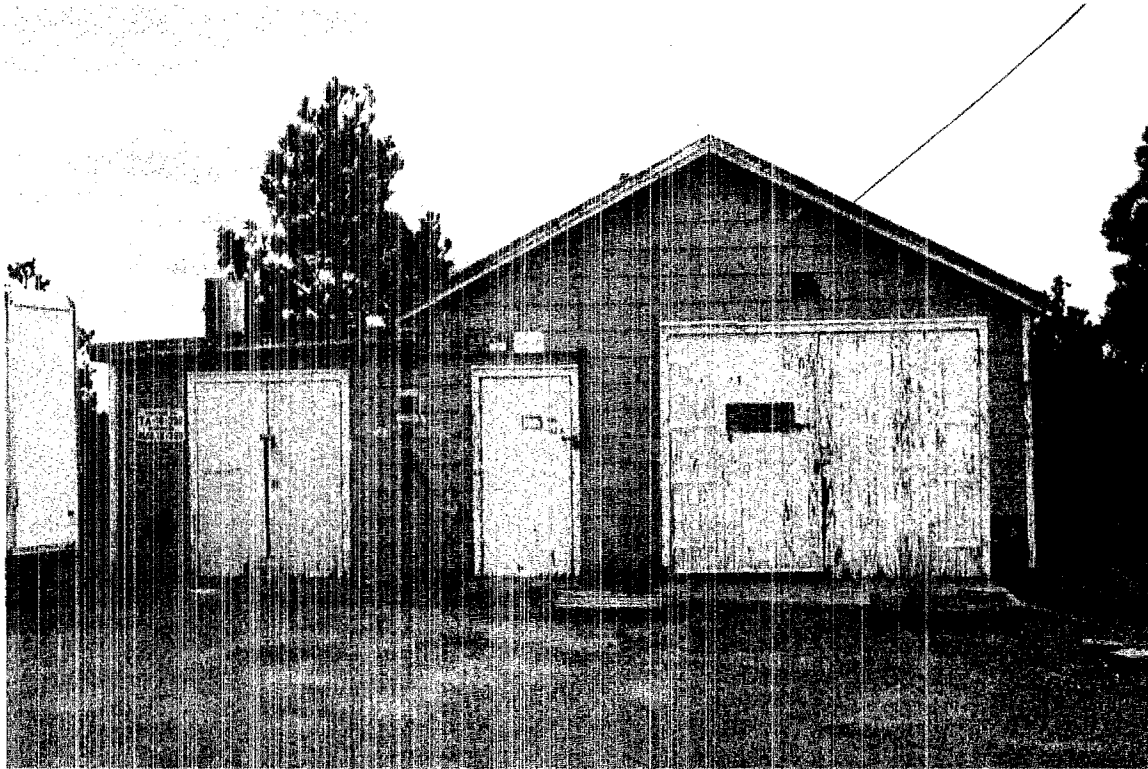
- Buildings/Structures
- 20 Foot Contours
- 100 Foot Contours
- Roads
- Roaddirt

Basket Washing Facility

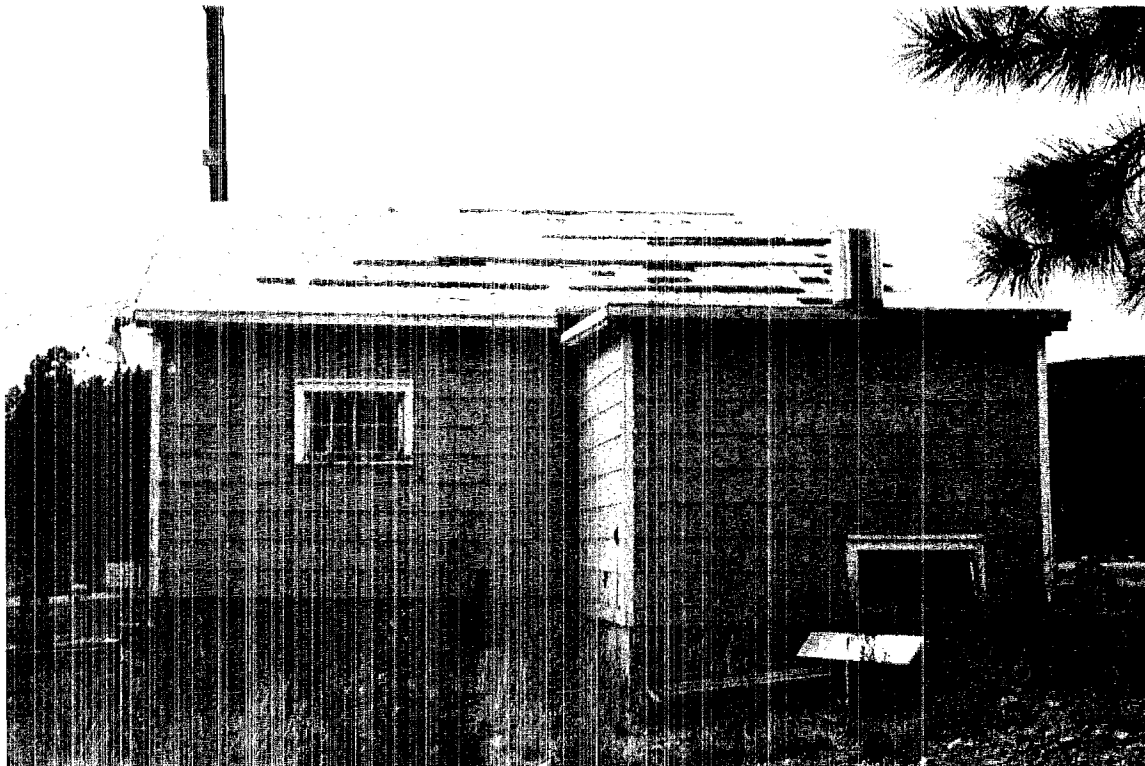
TA-16

Map 4

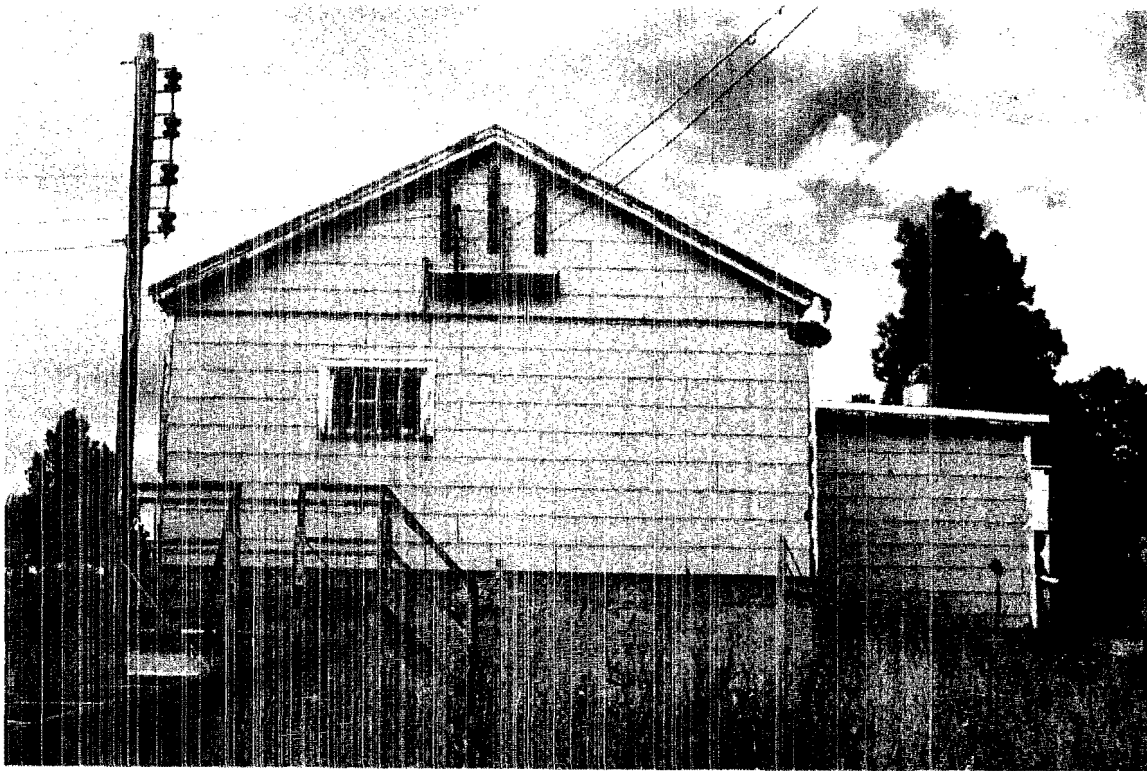
Appendix B
Photographs and Drawings



Basket Washing Building, TA-16-390, North Elevation



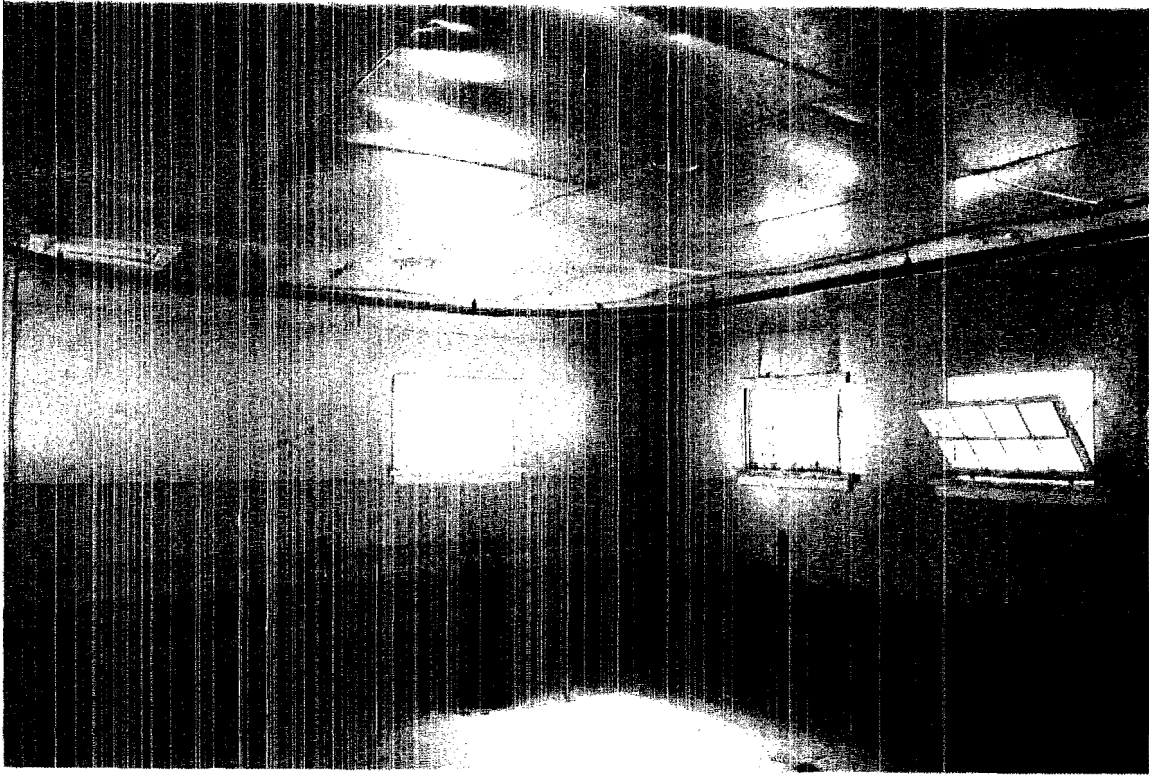
Basket Washing Building, TA-16-390, East Elevation



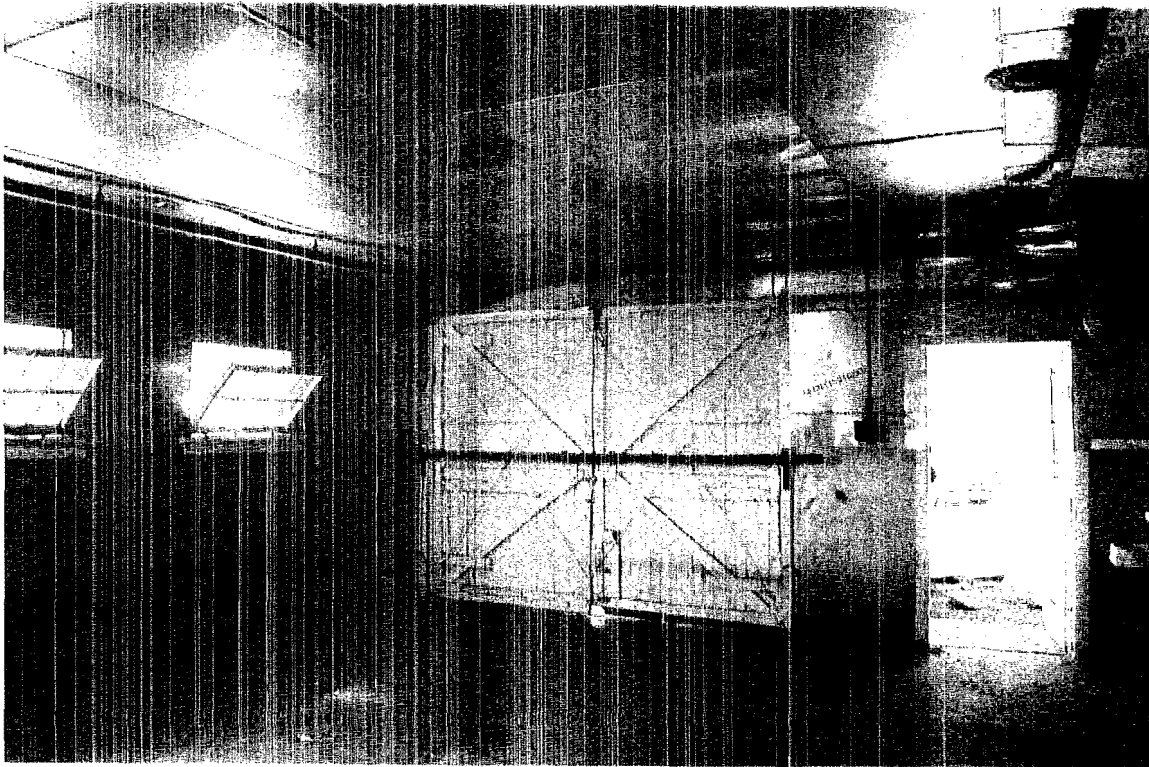
Basket Washing Building, TA-16-390, South Elevation



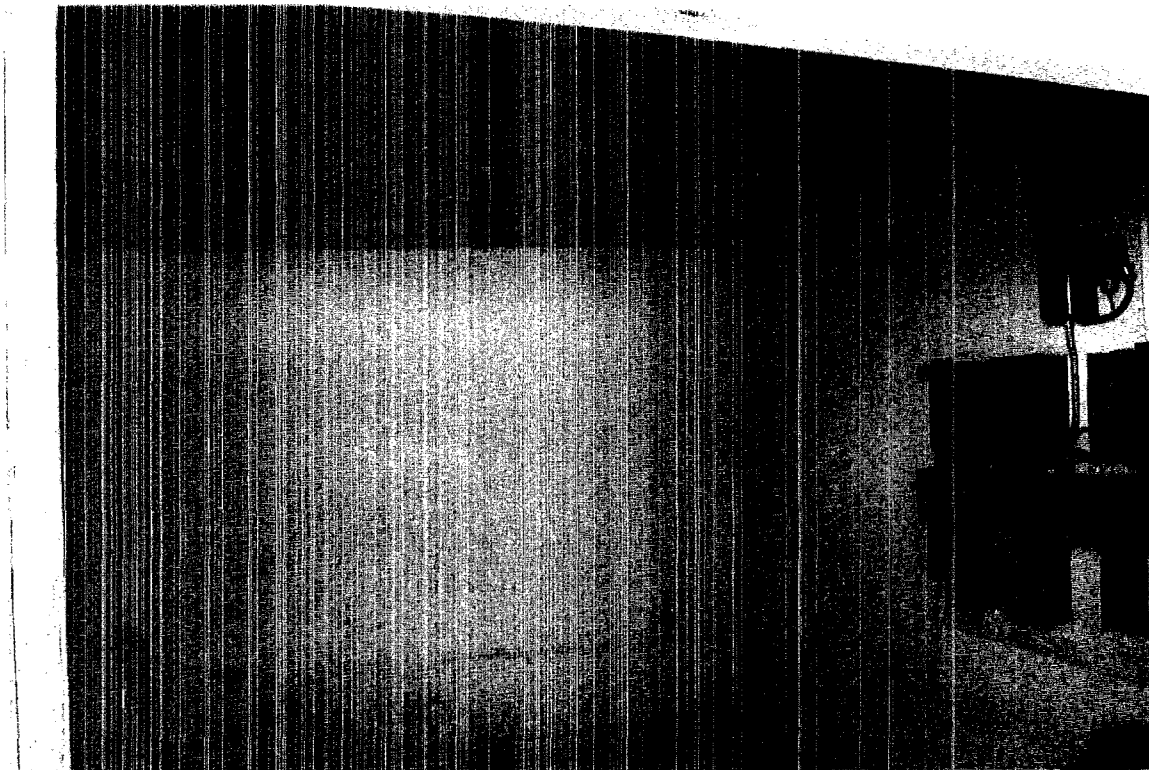
Basket Washing Building, TA-16-390, West Elevation



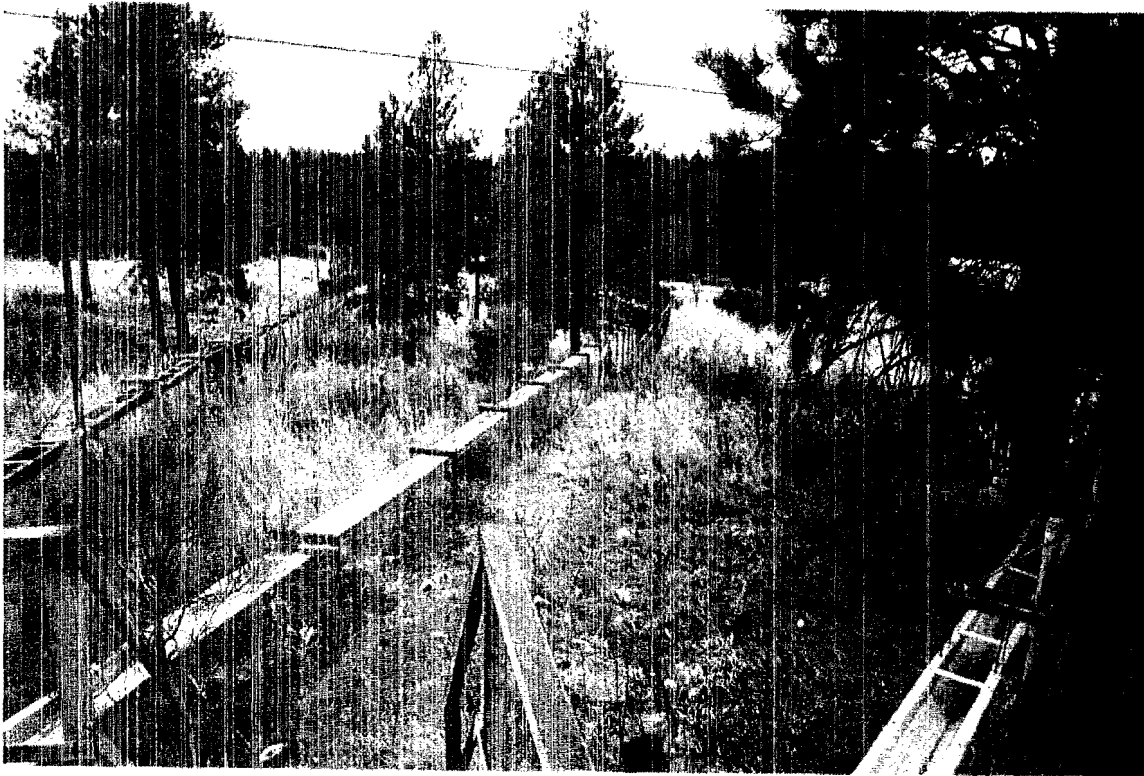
Basket Washing Building, TA-16-390, Interior, Direction Southwest



Basket Washing Building, TA-16-390, Interior, Direction Northwest



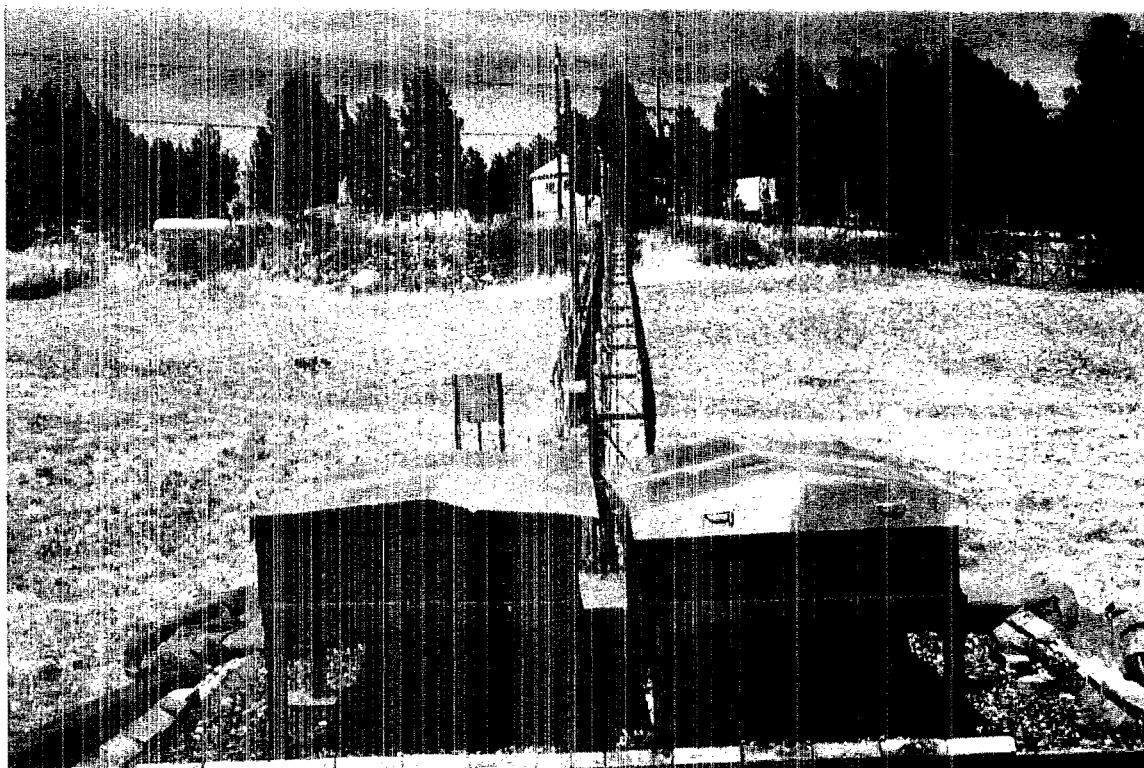
Basket Washing Building, TA-16-390, Mechanical Room Interior, Direction Southwest



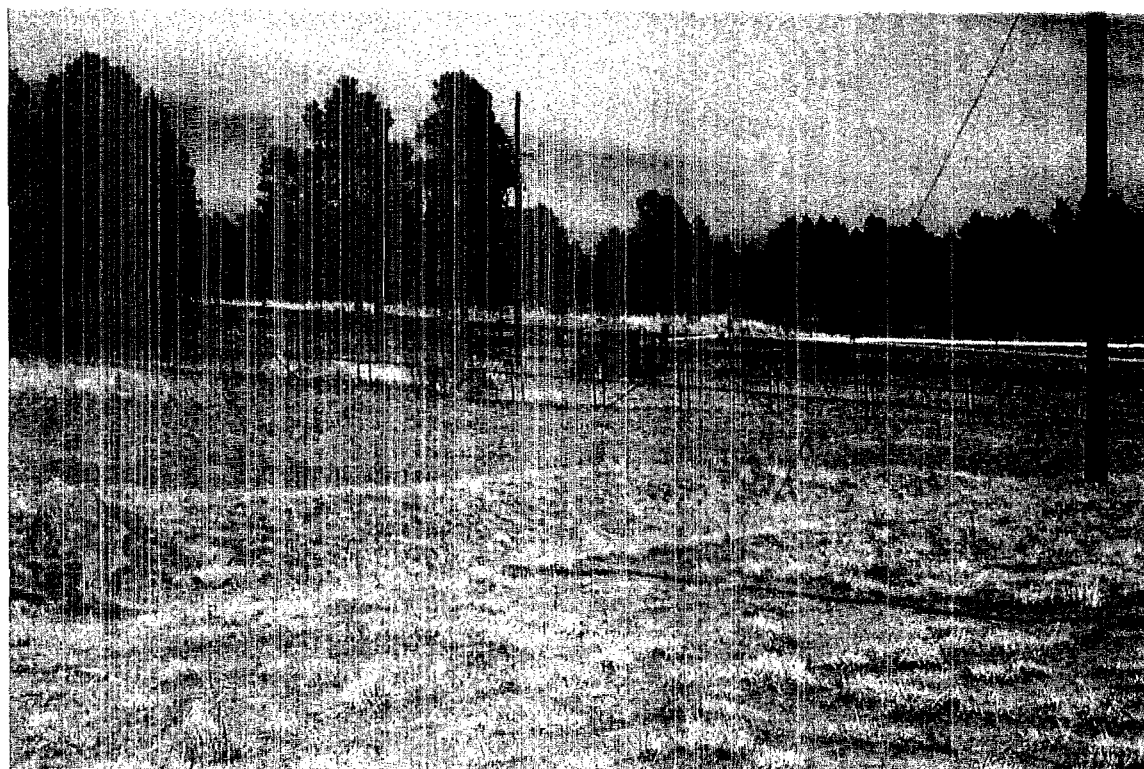
Troughs (left to right), TA-16-1135, TA-16-1129, TA-16-1134, Direction South



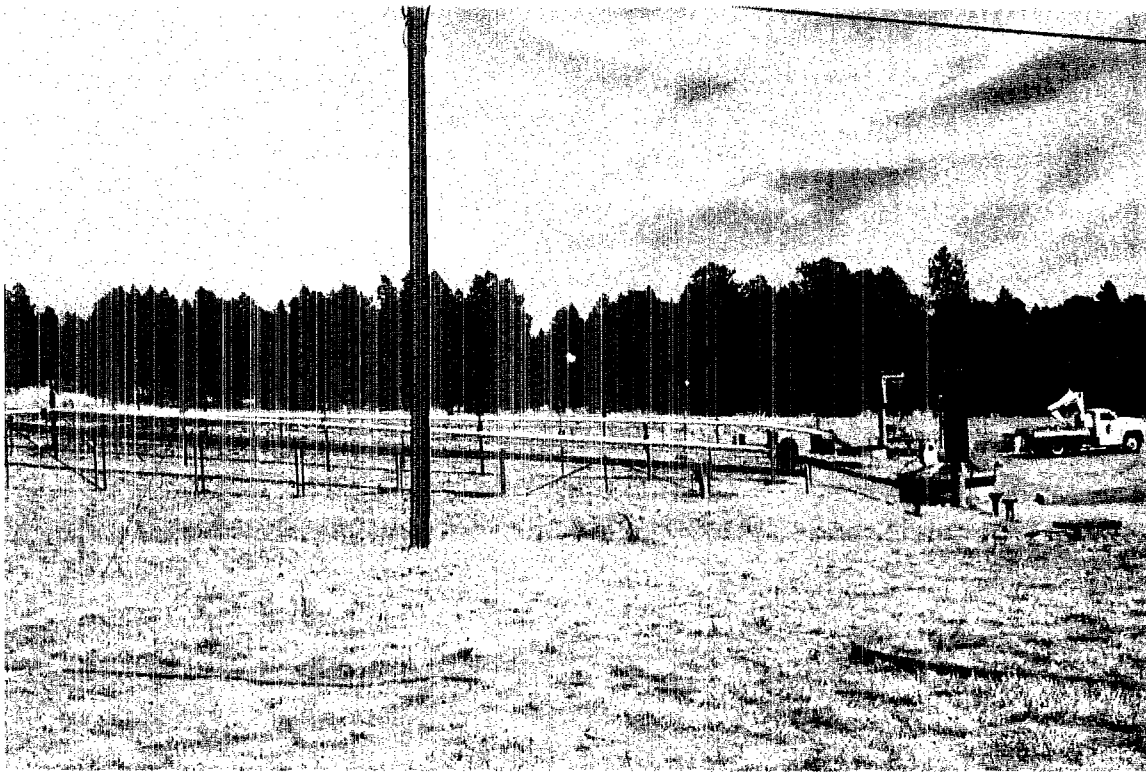
Troughs TA-16-1134 (left), TA-16-1129 (right), and Basket Washing Building TA-16-390 in left background, Direction Northeast



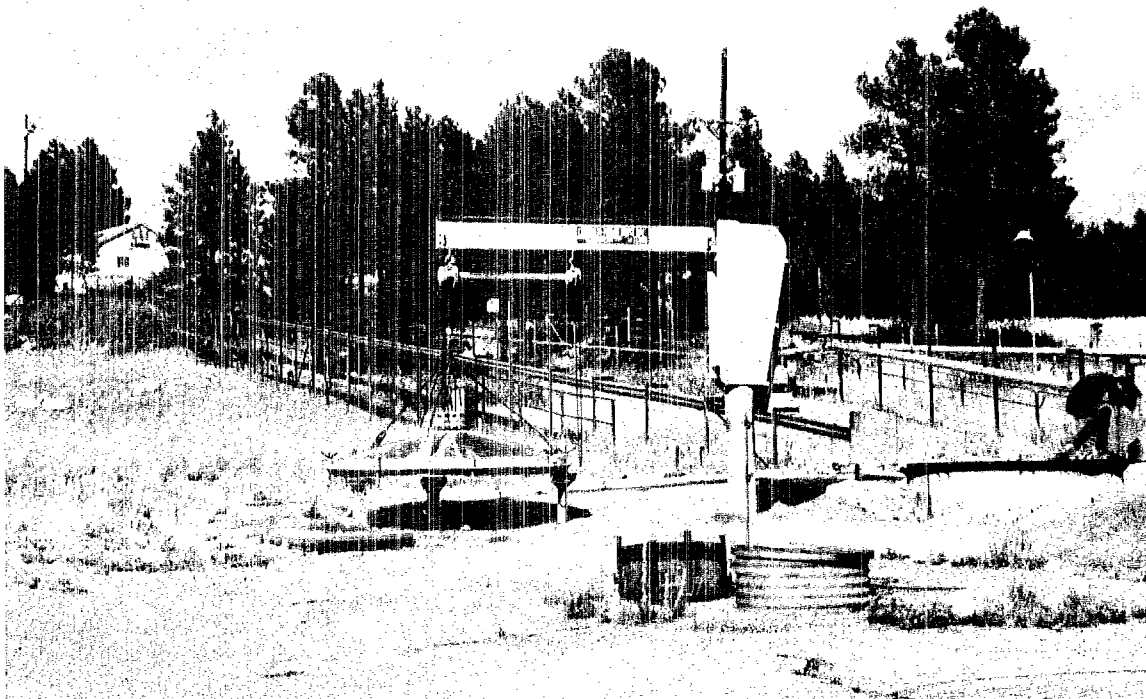
Solvent Burning Trays TA-16-394 (before removal) and
Trough TA-16-1134, Direction North



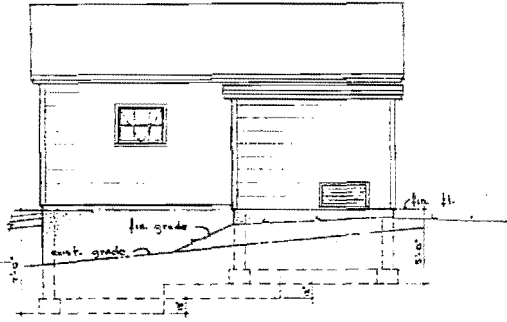
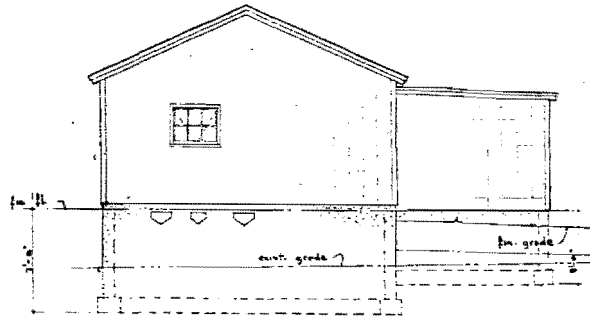
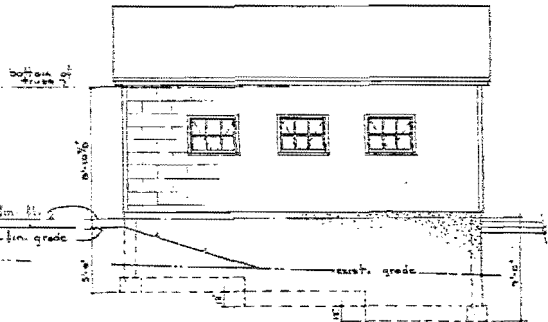
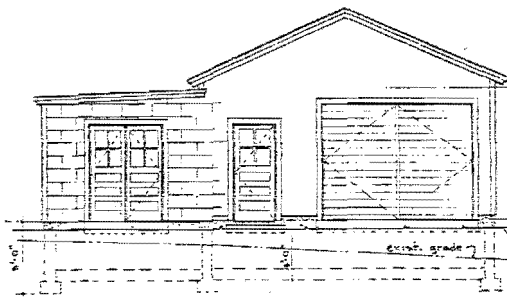
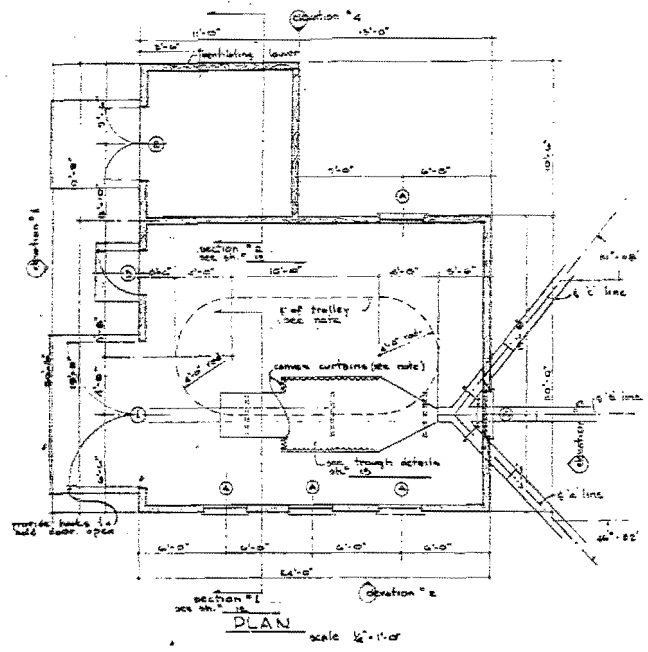
Trough TA-16-1129 and Air Heater TA-16-402



Troughs TA-16-1129 and TA-16-1136 and
Filtration Vessels TA-16-401 and TA-16-406, Direction Southeast



Trough TA-16-1129 and Filtration Vessel and Lid TA-16-401, Direction Northeast



ELEVATION #1 scale 1/4"=1'-0"

ELEVATION #2 scale 1/4"=1'-0"

ELEVATION #3 scale 1/4"=1'-0"

ELEVATION #4 scale 1/4"=1'-0"

DOOR SCHEDULE

SYMBOL	NO.	QTY.	SIZE	DESCRIPTION	REMARKS
D	1	1	6'-0" x 7'-0"	WOOD DOOR	ONE WITH HINGES
D	2	1	6'-0" x 7'-0"	WOOD DOOR	ONE WITH HINGES

WINDOW SCHEDULE

SYMBOL	NO.	QTY.	SIZE	DESCRIPTION	REMARKS
W	1	1	6'-0" x 7'-0"	WOOD WINDOW	ONE WITH HINGES
W	2	1	6'-0" x 7'-0"	WOOD WINDOW	ONE WITH HINGES

Hardware notes: see sh. no. 12

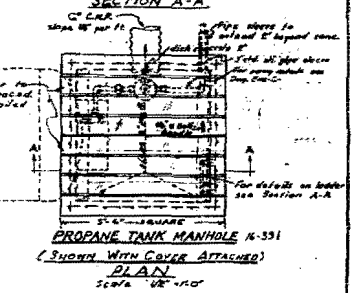
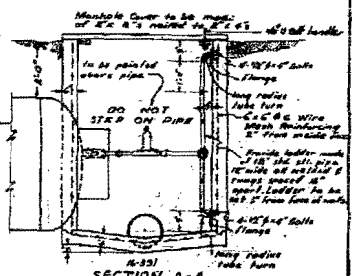
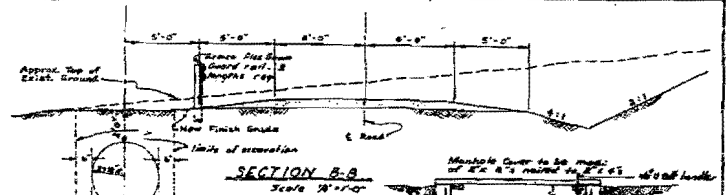
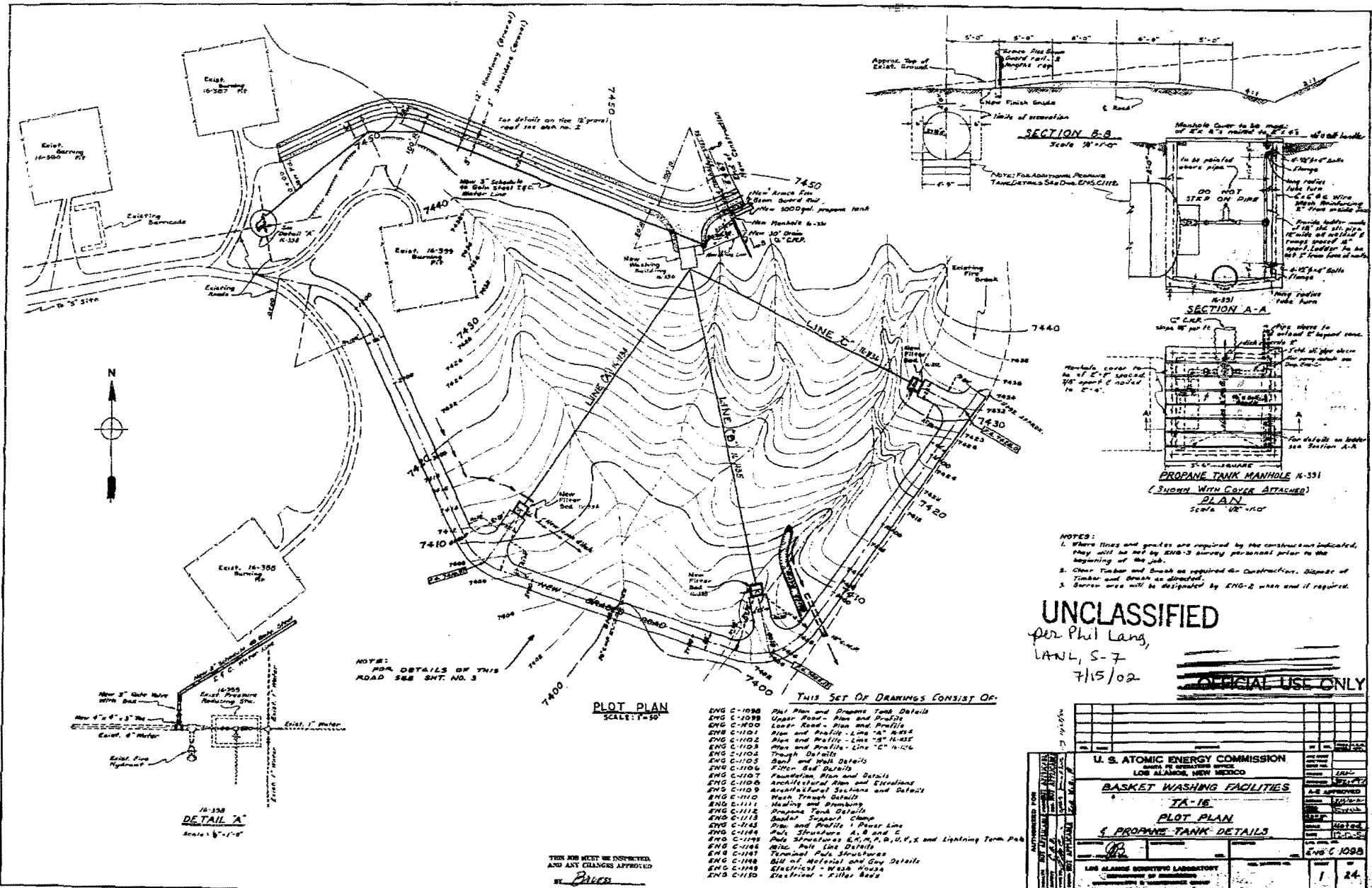
UNCLASSIFIED
per Phil Lang,
LANE, S-7, 7/15/02

OFFICIAL USE ONLY

- NOTES:
1. Iron trolley & hangers to be furnished by CONTRACTOR & installed by E.I.C. CONTRACTOR will require some reworking from E.I.C. in bending one 30" section to 45° radius.
 2. Canvas curtains to be of 6" mesh canvas & hung from water pipe with canvas curtain hangers.

THIS JOB MUST BE INSPECTED AND ANY CHANGES APPROVED BY *SPALLING*

APPROVED FOR	DATE	BY
DESIGNED BY	DATE	BY
CHECKED BY	DATE	BY
DRAWN BY	DATE	BY
SCALE	DATE	BY
<p>U. S. ATOMIC ENERGY COMMISSION WORK BY CONTRACTOR UNDER LOS ALAMOS, NEW MEXICO</p> <p>BASKET WASHING FACILITIES 16-390 TA-16</p> <p>ARCH. PLAN & ELEVATIONS</p> <p>ENG-C-110A</p> <p>LOS ALAMOS SCIENTIFIC LABORATORY DEPARTMENT OF ENERGY MANUFACTURING & MAINTENANCE GROUP</p>		
11	24	



- NOTES:
- Where lines and grades are required by the construction indicated, they will be set by ENG-3 survey personnel prior to the beginning of the job.
 - Clear Timber and Brush as required for construction. Dispose of Timber and Brush as directed.
 - Barren area will be designated by ENG-2 when and if required.

UNCLASSIFIED
 per Phil Lang,
 LANL, S-7
 7/15/02

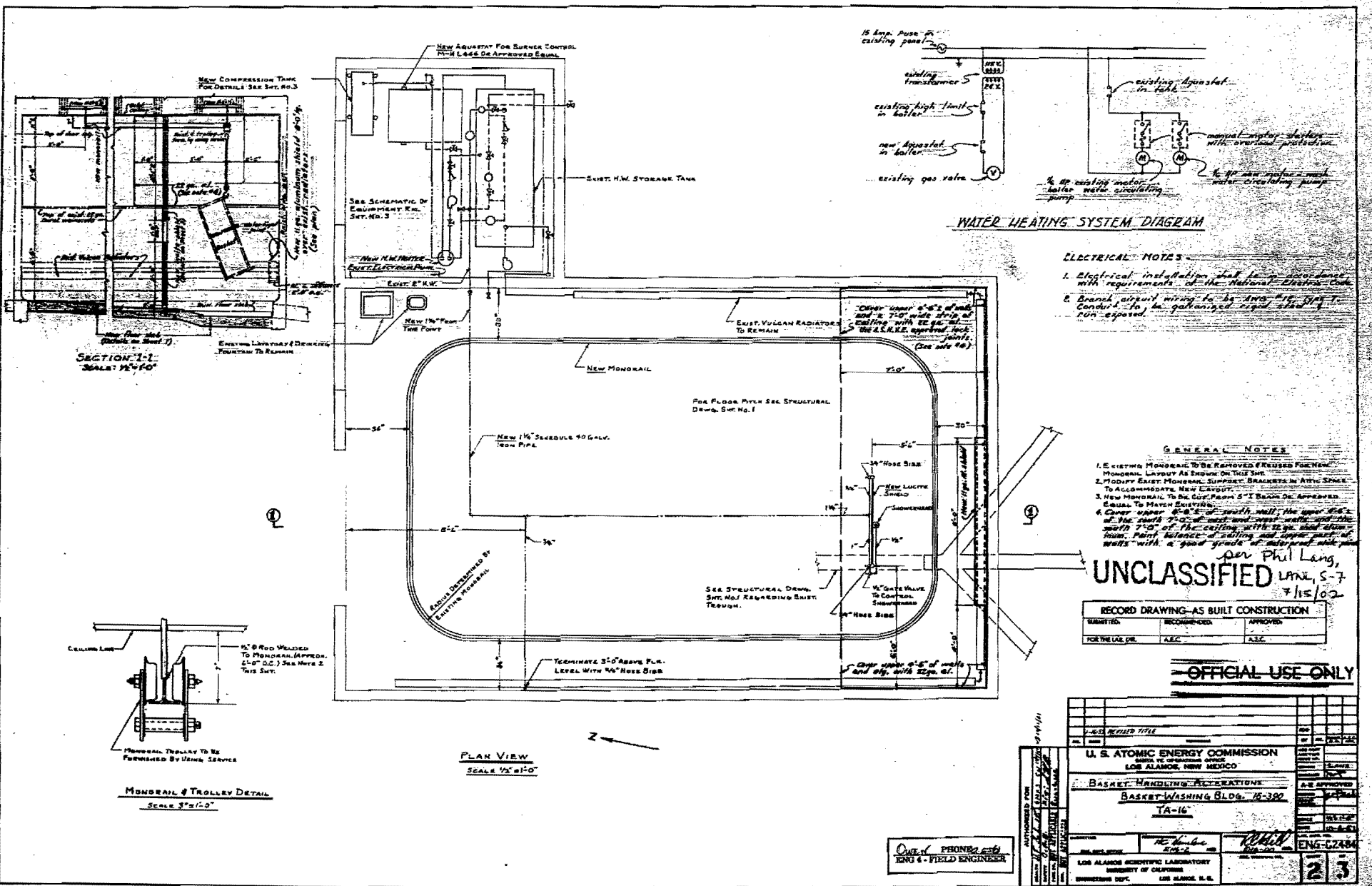
OFFICIAL USE ONLY

PLOT PLAN
 SCALE: 1"=50'

- THIS SET OF DRAWINGS CONSIST OF:
- ENG C-1098 Plot Plan and Drainage Tank Details
 - ENG C-1099 Upper Road - Plan and Profile
 - ENG C-1100 Lower Road - Plan and Profile
 - ENG C-1101 Plan and Profile - Line "A" - N-331
 - ENG C-1102 Plan and Profile - Line "B" - N-331
 - ENG C-1103 Plan and Profile - Line "C" - N-331
 - ENG C-1104 Trough Details
 - ENG C-1105 Sand and Wash Details
 - ENG C-1106 Filter Bed Details
 - ENG C-1107 Foundation Plan and Details
 - ENG C-1108 Architectural Plan and Elevations
 - ENG C-1109 Architectural Sections and Details
 - ENG C-1110 Wash Trough Details
 - ENG C-1111 Heating and Drying
 - ENG C-1112 Propane Tank Details
 - ENG C-1113 Sucker Support Clamp
 - ENG C-1114 Plan and Profile - Power Line
 - ENG C-1115 Pole Structures A, B and C
 - ENG C-1116 Pole Structures A, B, C, D, U, V, X and Lightning Term. Pole
 - ENG C-1117 Pole Line Details
 - ENG C-1118 Terminal Pole Structures
 - ENG C-1119 Bill of Material and Elev. Details
 - ENG C-1120 Electrical - W-220 Voids
 - ENG C-1121 Electrical - Filter Beds

THIS JOB MUST BE INSPECTED AND ANY CHANGES APPROVED BY: *PLAVER*

U. S. ATOMIC ENERGY COMMISSION DIVISION OF REGULATORY SERVICES LOS ALAMOS, NEW MEXICO		DATE: 7/15/02	SCALE: 1"=50'
BASKET WASHING FACILITIES		PROJECT: 7A-16	DATE: 7/15/02
PLOT PLAN & PROPANE TANK DETAILS		ENGINEER: ENG C 1098	DATE: 7/15/02
LOS ALAMOS SCIENTIFIC LABORATORY DEPARTMENT OF ENVIRONMENTAL SCIENCE & TECHNOLOGY		DATE: 7/15/02	SCALE: 1"=50'
1		24	



WATER HEATING SYSTEM DIAGRAM

- ELECTRICAL NOTES**
1. Electrical installation shall be in accordance with requirements of the National Electrical Code.
 2. Branch circuit wiring to be done in 1/2" dia. 1" conduit to be galvanized rigid steel if non-exposed.

- GENERAL NOTES**
1. Existing monorail to be removed & reused for new monorail layout as shown on this set.
 2. Modify exist monorail support brackets in attic space to accommodate new layout.
 3. New monorail to be 1/2" dia. 1" dia. galvanized iron equal to match existing.
 4. Cover upper 6'-8" of south wall, the upper 8'-2" of the north 7'-0" of west and east walls and the south 7'-0" of the ceiling with 1/2" dia. steel mesh. Paint interior of ceiling and upper part of walls with a good grade of waterproof white paint.

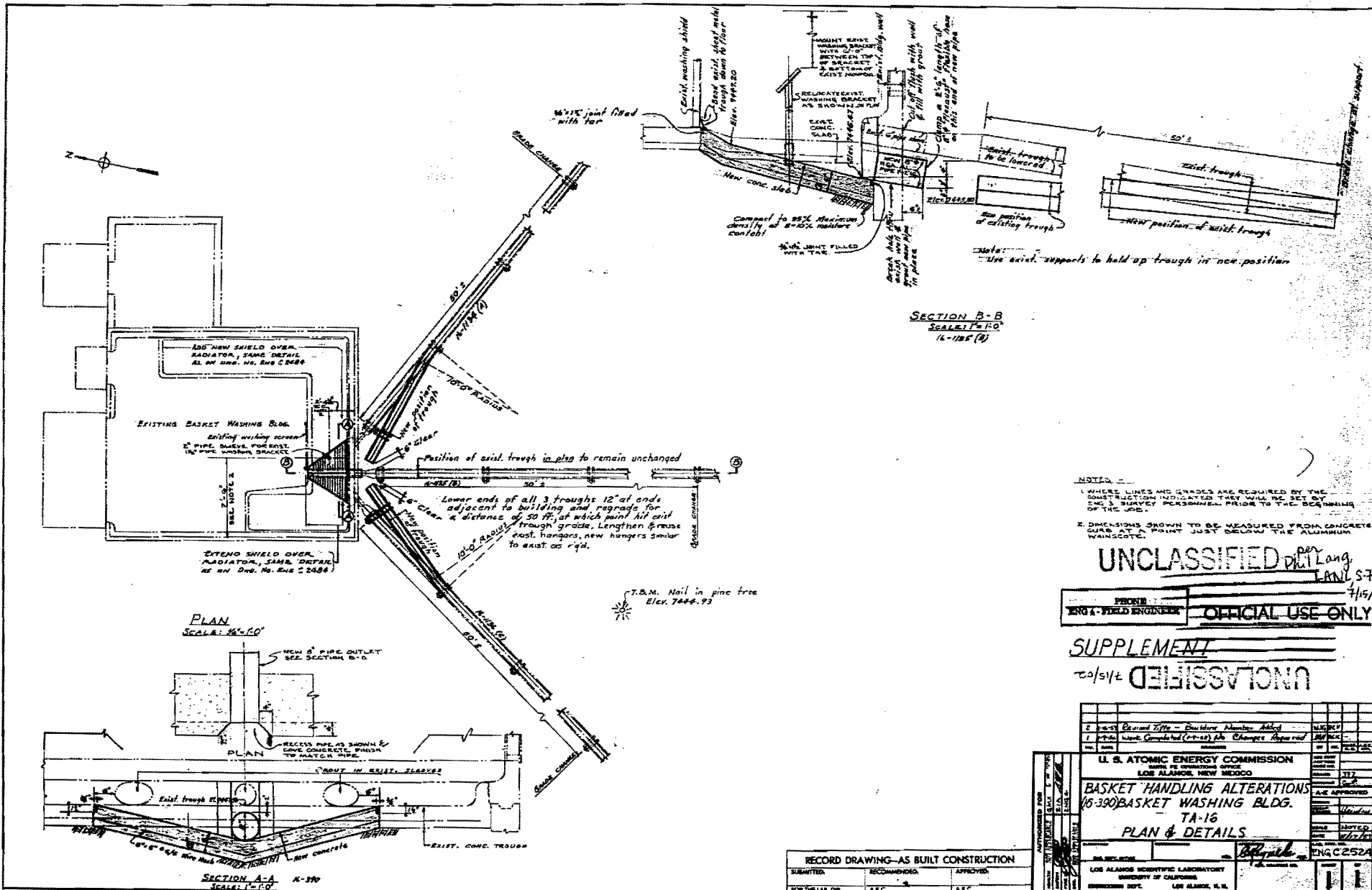
UNCLASSIFIED
 per Phil Lang,
 7/15/02

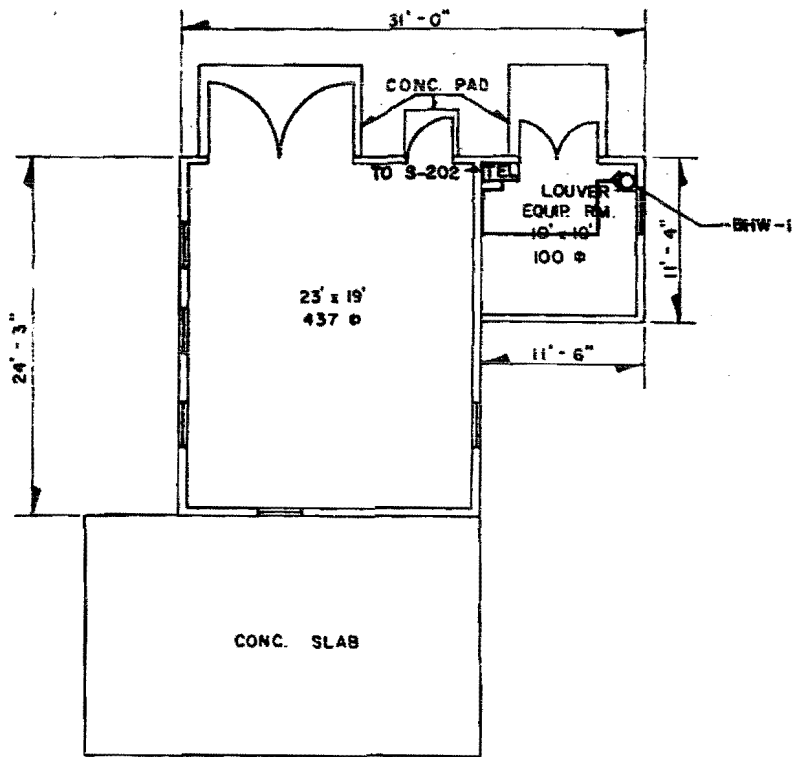
RECORD DRAWING-AS BUILT CONSTRUCTION		
DESIGNED	RECOMMENDED	APPROVED
FOR THE I.A.S. DE.	A.E.C.	A.S.E.

OFFICIAL USE ONLY

AUTHORIZED FOR RELEASE BY DATE BY	U. S. ATOMIC ENERGY COMMISSION LOS ALAMOS, NEW MEXICO BASKET HANDLING OPERATIONS BASKET WASHING BLDG. 16-300 TA-16	NO. 100 REV. 100 DATE BY DATE BY
PROJECT NO. DRAWING NO.	ENG. C-2484 LOS ALAMOS SCIENTIFIC LABORATORY UNIVERSITY OF CALIFORNIA ENGINEERING DEPT.	23

Checked
 PHONOS
 ENR 4 - FIELD ENGINEER





TOTAL SQ. FT. 537

LOS ALAMOS SCIENTIFIC LABORATORY ENGINEERING DEPARTMENT UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO		EQUIP SURVEILLANCE SYS.(ESS) FLOOR PLAN BLDG. 16 - 390 TA - 16			
AUTHORIZED FOR		APPROVALS:	DESIGN:	DATE:	SCALE:
HEALTH		ENG. GROUP: 3 <i>JER</i>	DESIGNER: DVORAK	9/15/66	1/8" = 1'-0"
SAFETY		DIVISION:	PROJ. ENG.: <i>K. J. ...</i>	SHEET:	SKETCH NO.:
FIRE PROT.		ENG. DEPT. OFFICE: <i>JER</i>		1 OF 1	8 3760
SEC.					

LA 0805

REC'D & LOGGED IN TO VAULT

INFO. SHOWN CURRENT AS OF

B. A. NO.

J. O. NO.

LAB. JOB NO. 3546