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Date: **APR 16 2012**
Refer To: ENV-RCRA-12-0076
LAUR: 12-20478, 12-20477

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John E. Kieling Program Manager
Permits Management Program
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Dear Mr. Kieling:

**SUBJECT: RESPONSE TO NOTICE OF DEFICIENCY ADMINISTRATIVE
COMPLETENESS AND FEE ASSESSMENT TA-63 TRANSURANIC WASTE
FACILITY PERMIT MODIFICATION REQUEST LOS ALAMOS NATIONAL
LABORATORY EPA ID# NM 0890010515**

The purpose of this letter is to transmit the United States Department of Energy and Los Alamos National Security, LLC (Permittees) response to the above referenced Notice of Deficiency (NOD) dated February 2, 2012. The NOD requires additional information or clarification regarding the information presented in the *Permit Modification Request for Technical Area 63, Transuranic Waste Facility, Hazardous Waste Container Storage Unit* originally submitted to the New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB) on August 18, 2011.

As requested by the NOD, this response submittal contains a number of documents. Enclosure 1 is the body of the response to the NOD. In that submittal, the NMED-HWB comments are included verbatim in italics to help with review. The Permittees' responses follow each NMED-HWB comment. There are several supporting attachments including a copy of a report regarding additional seismic findings for the proposed site that was concurrently requested by your office. As requested in the NOD, three other attachments are included with this submittal. They include revised versions of the original permit modification request incorporating the Permittees' responses and proposed changes in redline revisions with a clean copy of the text in Word 2007 format as electronic files on a compact disc. A clean hard copy of the revised permit modification request (Enclosure 2) is also included in this submittal.

A major factor regarding the design for the Transuranic Waste Facility is addressed in the responses to the NOD comments. This regards a concern included in the October 24, 2011 letter from David Martin, Cabinet Secretary for the NMED, transmitting his determination that the August 18, 2011 permit modification request should be processed as a Class 3 permit modification.

The issue was a potential for uncontrolled run-off management from the site associated with waste container loading on the southern portion of the concrete pad making up the base of the unit.

To address that concern, the hazardous waste management unit has been redesigned to include all the associated waste management functions within an area draining to a retention basin in the northern portion of the site. This design revision will allow the collection of any potential contamination from those activities carried by potential emergency activities such as fires or spills at the site. The southern portion is no longer included within the boundary of the hazardous waste management unit, which also makes the unit smaller than originally proposed. The redesign of the TWF requires some substantial revision of the permit modification request and this is explained in the responses.

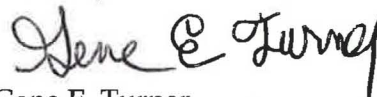
If you have comments or questions regarding this permit modification, please contact Gene Turner at (505) 667-5794 or Mark Haagenstad, at (505) 665-2014.

Sincerely,



Anthony R. Grieggs
Group Leader
Water Quality & RCRA Group
Los Alamos National Laboratory

Sincerely,



Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Department of Energy
Los Alamos Site Office

ARG:GET:GB/lm

Enclosures:

- (1) Response to the Notice of Deficiency, Administrative Completeness and Fee Assessment, TA-63 Transuranic Waste Facility Permit Modification Request.
- (2) Permit Modification Request, Technical Area 63 Transuranic Waste Facility Hazardous Waste Container Storage Unit, Revision 1.0

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2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303



Dear Mr. Kieling:

SUBJECT: RESPONSE TO NOTICE OF DEFICIENCY ADMINISTRATIVE COMPLETENESS AND FEE ASSESSMENT TA-63 TRANSURANIC WASTE FACILITY PERMIT MODIFICATION REQUEST LOS ALAMOS NATIONAL LABORATORY EPA ID# NM 0890010515

The purpose of this letter is to transmit the United States Department of Energy and Los Alamos National Security, LLC (Permittees) response to the above referenced Notice of Deficiency (NOD) dated February 2, 2012. The NOD requires additional information or clarification regarding the information presented in the *Permit Modification Request for Technical Area 63, Transuranic Waste Facility Hazardous Waste Container Storage Unit* originally submitted to the New Mexico

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Permit Modification Request
Technical Area 63 Transuranic Waste Facility
Hazardous Waste Container Storage Unit

Revision 1.0
LA-UR-12-20477

Prepared by:
Los Alamos National Laboratory
Water Quality & Resource Conservation and Recovery Act Group
Los Alamos, New Mexico 87545

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Attachment D	Seismic Report
Attachment E	Isco™ Water Sampler
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Attachment G	Proposed Revisions to LANL Hazardous Waste Facility Permit
Attachment H	Public Comments

List of Abbreviations and Acronyms

40 CFR	Title 40, U.S. Code of Federal Regulations
ACI	American Concrete Institute
AK	Acceptable Knowledge
ALARA	As Low As Reasonably Achievable
amsl	Above mean sea level
AOC	Area of Concern
ASCE	Association of Civil Engineers
ASTM	American Society for Testing and Materials, International
BV	Background Value
CCP	Central Characterization Project
CMR	Chemical and Metallurgy Research
CSMM	Container Storage and Matrix Management
D/DE	Drum/Drum Equivalent
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EDS	Employee Development System
EPA	U.S. Environmental Protection Agency
FGA	Flammable Gas Analysis
HC	Hazard Category
HENC	High Efficiency Neutron Counter
HEPA	High Efficiency Particulate Air
HSG	Head Space Gas
HWB	Hazardous Waste Bureau
INEEL	Idaho National Energy and Environment Laboratory
LACCDC	Los Alamos County Consolidated Dispatch Center
LAFD	Los Alamos Fire Department
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
MSDS	Material Safety Data Sheet
LEED	Leadership in Energy and Environment Design

NDA	Non-Destructive Assay
NDE	Non-Destructive Evaluation
NFPA	National Fire Protection Association
NRHP	National Register of Historic Places
NIOSH	National Institute of Occupational Safety and Health
NMED	New Mexico Environment Department
NMHTWA	New Mexico Hazardous Waste Act
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
OJT	On the Job Training
OWB	Over-sized Waste Box
PA	Public Address
PMR	Permit Modification Request
POC	Pipe Over-pack Container
PPE	Personal protective equipment
ppmw	parts per million by weight
POV	Privately Owned Vehicle
RANT	Radioassay Non-destructive Testing (Facility)
RCRA	Resource Conservation and Recovery Act
RTR	Real Time Radiography
SLB2	Standard Large Box 2
SuperHENC	Super High Efficiency Neutron Counter
SWB	Standard Waste Box
SWEIS	Site-Wide Environmental Impact Statement
SWMU	Solid Waste Management Unit
SWSC	Sanitary Wastewater Systems Consolidation
TA	Technical Area
T&E	Threatened and Endangered
TRU	Transuranic
TWF	Transuranic Waste Facility
USFWS	U.S. Fish and Wildlife Service

VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WCRRF	Waste Compaction, Reduction, and Repackaging Facility (TA-54)
WIPP	Waste Isolation Pilot Plant
WRCC	Western Regional Climate Center

1.0 INTRODUCTION

This Class 3 permit modification requests the addition of a hazardous waste management unit, the Transuranic Waste Facility (TWF), to the *Los Alamos National Laboratory Hazardous Waste Facility Permit* (November 2010), (hereinafter referred to as “the Permit”). The Permit was issued by the New Mexico Environment Department (NMED) in November, 1989 and renewed in 2010 (NMED 2010). The Los Alamos National Laboratory (LANL) Environmental Protection Agency (EPA) Identification Number is NM0890010515. The facility is owned by the National Nuclear Security Administration (NNSA) of the Department of Energy (DOE), and is operated jointly by NNSA-DOE and by Los Alamos National Security, LLC (LANS). This permit modification request has been prepared to address requirements in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), as revised October 2009, that are specific for the proposed new hazardous waste storage operations at the TWF.

The 20.4.1 NMAC adopts, with a few limited exceptions, all of the Code of Federal Regulations, Title 40, (40 CFR) Parts 260 to 266, Part 268, Part 270, and Part 273. The citations in this document reference the appropriate federal regulations because they set forth the detailed requirements for hazardous waste management units and procedures. Table 1-1 provides a list of these regulatory references and the corresponding location for the information addressed in this permit modification request.

The renewed Permit contains many of the conditions addressing the requirements of the New Mexico Hazardous Waste Act (NMHWA) and implementing regulations, specifically 40 CFR, that are common to all LANL hazardous waste management units. The relevant sections of the Permit are referenced throughout this document. Together, information provided in this document and in the Permit will meet the applicable requirements specified in 40 CFR Parts 264 and 270 for the proposed unit.

1.1 REQUEST FOR PERMIT MODIFICATION

This Class 3 permit modification request has been prepared and submitted to the NMED – Hazardous Waste Bureau (NMED-HWB) to request the addition of the proposed hazardous waste storage unit at Technical Area 63 to the Permit.

1.2 PURPOSE OF THE TRANSURANIC WASTE FACILITY

The TWF is a mission-critical component of LANL’s strategic role regarding support of the DOE’s Stockpile Stewardship Program which is administered by the NNSA and nuclear defense and research programs. LANL must have a continuing capability to process transuranic (TRU) waste and to ship that waste to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. TRU waste generally contains radioactive elements heavier than uranium, i.e., those with atomic numbers greater than 92. Mixed TRU (MTRU waste) is waste that also contains a hazardous component as defined by the Resource Conservation and Recovery Act (RCRA). This is the type of waste currently stored at TA-54, Area G, in accordance with the Permit.

The signed Compliance Order on Consent (Consent Order) with the State of New Mexico of March 2005 requires that Area G be closed and remediated by December 2015. The closure of Area G will create a gap in TRU waste management capability for waste generated by LANL in

the future. LANL must develop new capabilities for storage, characterization, and intra-site shipping of TRU waste and the TRU waste storage and characterization capabilities located at Area G need to be re-established at a different site on a schedule that supports the closure. The TWF will replace the TRU waste storage and characterization capabilities currently located at Area G. The TWF provides the necessary capacity for management of newly generated TRU waste to allow the closure of Area G in a timely and integrated manner. The TWF is part of a comprehensive, long-term strategy to consolidate hazardous and radioactive waste operations into a smaller, more compact area that can operate safely, securely, and effectively for the foreseeable future.

1.3 FACILITY DESCRIPTION

The TWF will be located at TA-63 at LANL. It will be designed, permitted, constructed, and commissioned as a hazardous waste storage unit to meet the conditions of the Permit for safe storage. The TWF is designated as a DOE Hazard Category (HC)-2 nuclear facility for radioactive material management. The TWF will also be designed, constructed, and operated within the conditions described by the LANL Site-Wide Environmental Impact Statement (SWEIS) for compliance with the National Environmental Policy Act.

The TWF is intended to replace the TRU waste storage currently taking place at TA-54 Area G. It is designed to store a maximum of 105,875 gallons (1,925 55-gallon drum or drum equivalents, D/DE). In addition to drums, the unit will also store other standardized metal containers used for TRU waste management. This storage capacity is less than 2.5% of the 4,346,590 gallon (79,029 D/DE) current storage capacity at Area G as listed in Table J-1, *Active Portion of the Facility* in Attachment J, *Hazardous Waste Management Units*, of the Permit.

The TWF will include various structures for waste management activities. A concrete pad will form a base for storage and characterization buildings, characterization trailers, and a receiving area, as well as providing storm water management and spill retention. The boundaries of the pad will designate the RCRA-permitted portion of the TWF. There will be six waste storage buildings on the pad, five of which will be used only for storage of waste containers. The additional building will be used for storage and for head space gas sampling and analysis of containers. The TWF will also include characterization trailers that are needed to certify containers to the WIPP Waste Acceptance Criteria (WAC). The TWF characterization trailers will include or be functional equivalents of those currently in operation at Area G, Pad 10, as described in the Permit. A fire suppression water storage tank will be situated for emergency fire suppression activities at the storage buildings. A retention basin will be designed to capture and distribute storm and, potentially, fire suppression water from the pad. Other functions provided by the TWF include operational support facilities, and utility services.

1.4 PERMIT MODIFICATION OUTLINE

This permit modification request is organized as follows:

- Section 1.0: Includes an introduction to the permit modification request and a crosswalk of the regulatory requirements associated with the unit requesting permitting.
- Section 2.0: Includes a description of the TWF and addresses environmental performance standards, waste characterization, security, preparedness, hazards prevention, emergency equipment, inspection requirements, and recordkeeping

requirements.

- Section 3.0: Discusses general facility requirements such as traffic patterns, location information, evaluates other federal laws and other permit activities, and training specific to the TWF.
- Section 4.0: Describes two Solid Waste Management Units (SWMUs) assessed for contamination and remediation that are located near the TWF.
- Section 5.0: Includes the closure requirements and proposed closure plan for the TWF.
- Section 6.0: Contains a list of references used throughout this document.
- Section 7.0: Contains the certification statement and signatures for this permit modification request as required by 40 CFR § 270.11.

In addition, attachments included with this permit modification request provide detailed information to meet regulatory requirements. These attachments are referenced and described within the individual sections as appropriate.

Attachment G contains proposed changes to the Permit to incorporate the descriptions and site specific equipment and procedures for this unit. Additional and revised text is proposed for Permit Parts and Attachments. The Permit sections proposed for revision include:

- Part 1, General Permit Conditions
- Part 2, General Facility Conditions
- Part 3, Storage in Containers
- Permit Attachment A, Technical Area (TA) – Unit Descriptions
- Permit Attachment B, *Part A Application*
- Permit Attachment D, General Contingency Plan
- Permit Attachment G, *Closure Plans*
- Permit Attachment J, Hazardous Waste Management Units
- Permit Attachment N, *Figures*.

The proposed changes to the Permit incorporate permit conditions appropriate for the new unit as suggested by the Permittees to meet RCRA requirements for operation of the hazardous waste management unit in a manner that protects human health and the environment. Proposed changes may be subject to further revisions subject to the NMED review.

Attachment H of this permit modification request includes presentation materials for a pre-submittal, public information meeting (as required by 40 CFR § 124.32). The attachment also includes a list of attendees, and copies of written comments collected at the meeting. The meeting occurred on August 10, 2011, at Fuller Lodge in Los Alamos, New Mexico.

Design drawings are included in this permit modification request to illustrate the construction and project details proposed for the unit structures. 40 CFR §270.14(a) requires that design drawings submitted with waste management unit applications for approval be certified by a

qualified Professional Engineer. The drawings in this permit modification request have been certified by Professional Engineers registered in the state of New Mexico. These engineers were responsible for preparation of the drawings in support of the design process for the unit. Similarly, figures such as floor plans have been certified by an architect registered to practice in New Mexico.

The design drawings included with this submittal also contain the phrase “Not for Construction, Part B Permit Application,” in addition to the certification. The addition of this phrase indicates the drawing revision at the time of submittal. The drawings included are complete in terms of the major components and structures for the project. However, there may be future design changes that do not affect the major elements of the project such as the addition of equipment or for changes made in response to NMED direction as a result of the permit modification review and approval process. Design drawings subject to such a potential change included in this submittal are noted with sheet number and date to provide a reference.

Design details presented herein are considered sufficient for the purposes of this permit modification request. The drawings included in this document present detailed information intended to facilitate review of the permit modification request and approval by NMED. These drawings will not be included in the final unit figures used for the Permit based on its current format. Should drawings be changed substantially subsequent to submittal of this permit modification request, supplemental information will be submitted to the NMED.

Table 1-1
Regulatory References and Corresponding Permit Modification Request Location

Regulatory Citation(s) 40 CFR	Description of Requirement	Location in this Permit Modification Request
§270.14(b)(1)	General facility description	Section 2.1,2.2
§270.14(b)(2)	Chemical and physical analyses of hazardous waste	Section 2.3.1
§270.14(b)(3)	Waste analysis plan	Section 2.3
§264.13(b)	Development and implementation of a written waste analysis plan	Section 2.3
§264.13(c)	Off-site waste analysis requirements	Section 2.3
§270.14(b)(4)	Security procedures and equipment	Section 2.4
§264.14	Security procedures and equipment	Section 2.4
§270.14(b)(5)	General inspection schedule	Section 2.9
§264.15(b)	General inspection schedule	Section 2.9
§264.174	Inspections/containers	Section 2.9
§264.195	Overfill control inspections	NA
§264.226	Surface impoundment monitoring and inspection	NA
§264.254	Waste pile monitoring and inspection	NA
§264.273	Land treatment and operating requirements	NA
§264.303	Landfill monitoring and inspection	NA
§264.1033	Process vent standards	NA
§264.1052	Equipment leak air emission standards	NA
§264.1053	Compressor standards	NA

§264.1058	Standards for pumps, valves, pressure relief devices, flanges, and connections	NA
§270.14(b)(6)	Request for waiver from preparedness and prevention requirements of 264 Subpart C	NA
§264.30-37	Preparedness and prevention: applicability, design and operation, required equipment, testing and maintenance of equipment, access to communications or alarm systems, required aisle space, and arrangements with local authorities	Section 2.6 and 2.7
§264.227	Surface impoundment emergency repairs	NA
§270.14(b)(7)	Contingency Plan	Section 2.7
§264.50-56	Contingency plan and emergency procedures: applicability, purpose/implementation of contingency plan, content of contingency plan, copies of contingency plan, amendment to contingency, emergency coordinator, and emergency procedures	Section 2.7
§270.14(b)(8)	Description of preparedness and prevention	Section 2.6, 2.7
§270.14(b)(8)(i)	Hazard prevention in unloading operations	Section 2.5.3
§270.14(b)(8)(ii)	Runoff prevention	Section 2.5.4
§270.14(b)(8)(iii)	Prevent contamination of water supplies	Section 2.5.5
§270.14(b)(8)(iv)	Mitigation of equipment failure and power outages	Section 2.5.6
§270.14(b)(8)(v)	Prevention of undue exposure of personnel to hazardous waste	Section 2.5.7
§270.14(b)(8)(vi)	Prevention of releases to the atmosphere	Section 2.5.8, 2.5.9
270.14(b)(9)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Section 2.8

§264.17	Procedures to prevent accidental ignition, reaction of ignitables, reaction of reactives, reaction of incompatibles, and documentation of compliance with 40 CFR §264.17 (general requirements for ignitable, reactive, or incompatible wastes)	Section 2.8
§270.14(b)(10)	Traffic pattern: volume, controls, and access	Section 3.1
§264.18(a)	Seismic considerations	Section 3.2.1
§270.14(b)(11)	Facility/unit identification and location information	Section 3.2
§270.14(b)(11)(i)	Seismic standard applicability [40 CFR §264.18(a)]	Section 3.2.1
§270.14(b)(11)(ii)	Seismic standard requirements	Section 3.2.1
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	Section 3.2.1
§270.14(b)(11)(ii)(B)	If faults which have displacement in Holocene time are present within 3,000 ft, no faults pass within 200 ft of portions of the facility where treatment, storage, or disposal will be conducted	Section 3.2.1, Attachment D
§270.14(b)(11)(iii)	100-year floodplain standard	Section 3.2.2, Fig. 3-4
§270.14(b)(11)(iv)(A-C)	Facilities located within the 100-year floodplain	NA
§270.14(b)(11)(v)	Compliance schedule for 40 CFR §264.18(b)	NA
§270.14(b)(12)	Personnel training program	Section 3.7
§270.14(b)(13)	Closure and post-closure plans	Section 5.0, Attachment F
§264, Subpart G	Closure and post-closure	Section 5.0, Attachment F
§264.178	Closure/containers	Section 5.0, Attachment F
§264.197	Closure and post-closure care/tanks	NA

§264.228	Surface impoundments	NA
§264.258	Waste piles	NA
§264.280	Land treatment	NA
§264.310	Landfills	NA
§264.351	Incinerators	NA
§264.603	Requirements by the Secretary	NA
§270.14(b)(14)	Deed restrictions/post-closure notices (40 CFR §264.119)	NA
§270.14(b)(15)	Closure cost estimate (40 CFR §264.142)	NA, Section 5.1
§270.14(b)(16)	Post-closure cost estimate (40 CFR §264.144)	NA, Section 5.1
§270.14(b)(17)	Liability insurance (40 CFR §264.147)	NA, Section 5.1
§270.14(b)(18)	Proof of financial coverage (40 CFR §264.149-150)	NA, Section 5.1
§270.14(b)(19)	Topographic map requirements	Section 3.3
§270.14(b)(19)(i)	Map scale and date	Section 3.3
§270.14(b)(19)(ii)	100-year floodplain area	Section 3.2.2, Fig. 3-4
§270.14(b)(19)(iii)	Surface waters	Section 3.3, Fig. 3-4
§270.14(b)(19)(iv)	Surrounding land uses	Section 3.3, Fig. 2-2
§270.14(b)(19)(v)	Wind rose	Section 3.3, Fig. 3-5
§270.14(b)(19)(vi)	Map orientation	Section 3.3
§270.14(b)(19)(vii)	Legal boundaries	Section 3.3, Fig. 2-3
§270.14(b)(19)(viii)	Access control	Section 3.3, Fig. 3-3
§270.14(b)(19)(ix)	Wells	Section 3.3, Fig. 3-10
§270.14(b)(19)(x)	Buildings	Section 3.3, Fig. 2-4
§270.14(b)(19)(xi)	Drainage barriers or flood control	Section 3.3, Figs. 2-5, 2-31, 2-32 and 2-33

§270.14(b)(19)(xii)	Location of operational units	Section 2.2, Fig. 2-5
§270.14(b)(20)	Considerations Under Federal Law	Section 3.5
§270.3(a)	Wild and Scenic Rivers Act	Section 3.5
§270.3(b)	National Historic Preservation Act	Section 3.5
§270.3(c)	Endangered Species Act	Section 3.5
§270.3(d)	Coastal Zone Management	Section 3.5
§270.3(e)	Fish and Wildlife Coordination Act	Section 3.5
§270.3(f)	Executive Orders	Section 3.5
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(b)(22)	A summary of the pre-application meeting	Attachment H
§270.14(c)	Groundwater monitoring requirements	NA, Section 3.4
§270.14(c)(3)	Topographic map with points of compliance	NA
§270.14(c)(3)	Proposed location of groundwater monitoring wells	NA
§270.14(c)(4)	Description of plume of contamination that has entered the groundwater from a regulated unit at the time the application was submitted	NA
§270.14(c)(4)(i)	Extent of plume indicated on topographic map	NA
§270.14(c)(4)(ii)	Identification of constituents and concentration	NA
§270.14(c)(5)	Detailed plan and engineering report describing proposed groundwater monitoring program	NA
§270.14(c)(6)	If no release detected at date of submitted, then submit following	NA
§270.14(c)(6)(i)	List of proposed indicator parameters, waste constituents, and reaction products	NA
§270.14(c)(16)(ii)	Proposed groundwater monitoring system	NA

§270.14(c)(16)(iii)	Background values for each proposed monitoring parameter	NA
§270.14(c)(16)(iv)	Description of proposed sampling, analysis, and statistic comparisons to be used	NA
§270.14(c)(7)	If a release is detected at the point of compliance, then corrective actions	NA
§270.14(d)	Information requirements for SWMUs	Section 4
§270.14(d)(1)(i)	Location of SWMUs on topographic map	Section 4
§270.14(d)(1)(ii)	Types of SWMUs	Section 4
§270.14(d)(1)(iii)	Dimensions and descriptions of SWMUs	Section 4
§270.14(d)(1)(iv)	Dates of SWMU operations	Section 4
§270.14(d)(1)(v)	Waste types managed at SWMUs	Section 4
§270.14(d)(2)	Information on releases from SWMUs	Section 4
§270.14(d)(3)	RCRA Facility Assessment sampling and analysis results	NA
§270.15	Information requirements for containers	Section 2.2

2.0 TA-63 TWF UNIT ACTIVITIES

In accordance with 40 CFR § 270.14(b), this section of the permit modification request provides a general description of LANL and a specific description of the TA-63 TWF hazardous waste management unit proposed for approval. The description of the unit includes the waste accepted at the unit, the waste storage activities, how access to the unit is controlled, and preparedness and prevention measures, including hazards prevention. This section also describes the contingency (emergency) plan; containment systems; the management of ignitable, reactive, and incompatible wastes; and inspection and recordkeeping requirements at the unit.

2.1 LANL FACILITY DESCRIPTION

LANL is located in Los Alamos County, an incorporated county, in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe. The regional location of LANL is shown on Figure 2-1. LANL is divided into TAs, as shown on Figure 2-2 and occupies an area of approximately 39 square miles. LANL and the residential and commercial areas of Los Alamos County, which occupy a combined area of approximately 109 square miles, are situated on the Pajarito Plateau. The plateau consists of a series of finger-like mesas separated by deep east-west trending canyons. Ephemeral, interrupted, or intermittent streams lie at the bottoms of all the canyons. The mesa tops range in elevation from approximately 7,800 feet (ft) above mean sea level (amsl) at the flank of the Jemez Mountains, located to the west of Los Alamos, to about 6,200 ft amsl at their eastern extent, where they terminate above the Rio Grande.

Land use in the LANL region is linked to the economy of northern New Mexico, which depends heavily on tourism, recreation, agriculture, and Federal and state government employment for its economic base. Area communities generally are small and primarily support urban uses including residential, commercial, light industrial and recreational facilities. These include the DOE, the U.S. Forest Service, Native American communities, the U.S. National Park Service, the County of Los Alamos, private land-owners, the State of New Mexico, and the Bureau of Land Management. The Native American communities in the region include the Pueblo of San Ildefonso on LANL's eastern border and six other Pueblos located nearby. Entities that serve as land stewards and determine land uses within the LANL region are depicted in Figure 2-2.

LANL's central mission is the reduction of global nuclear danger supported by research that also contributes to conventional defense, civilian, and industrial needs. This includes programs in nuclear, medium energy, and space physics; hydrodynamics; conventional explosives; chemistry; metallurgy; radiochemistry; space nuclear systems; controlled thermonuclear fusion; laser research; environmental technology; geothermal, solar, and fossil energy research; nuclear safeguards; biomedicine; health and biotechnology; and industrial partnerships. LANL is owned by the DOE and is operated jointly by the DOE NNSA and the LANS. The facility mailing address is P.O. Box 1663, Los Alamos, New Mexico, 87545.

LANL is an existing RCRA treatment and storage facility whose waste management activities are approved through the Permit. The Permit includes treatment and storage units that are current or proposed "active" operating units. This permit modification request is submitted for the addition of the TWF to the Permit as a waste storage unit. Further details regarding the

hazardous waste management units and waste types are included in the Permit and the revised Part A Permit Application included as Attachment A of this submittal.

2.2 TA-63 TWF UNIT

The following section generally describes the proposed TWF unit with detailed descriptions of the unit's structures in the subsections. The TWF will consist of one waste management unit that will provide storage in containers for TRU waste, including the hazardous component of MTRU waste and, potentially, mixed low-level waste streams. The TWF may also manage hazardous-only waste streams generated on site. The information provided in this section is submitted to address the applicable container storage requirements of 40 CFR §270.15 and Part 264, Subpart I.

The TWF will be located at TA-63 on a mesa between a branch of Mortandad Canyon on the north and Pajarito Canyon on the south in the north central portion of LANL (see Figure 2-3 for the location of TA-63 at LANL). The unit will be built at the intersection of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest. Figure 2-4 depicts this location with respect to nearby buildings and facilities. The closest buildings are shops immediately north of Puye Road, Office Building 63-111, records storage buildings immediately east of the TWF location, and buildings and structures on Pecos Drive further north of the TWF. A concrete batch plant and staging area will be required and located south-east of the TWF during the future construction activities for the Chemistry and Metallurgy Research Replacement Project at TA-55.

The primary purpose of the TWF is two-fold: first, safe indoor storage of TRU waste newly generated by LANL operations. Second, waste containers stored at the TWF will be subject to characterization including review of generator documentation, gas sampling, and non-intrusive radioassay. The overall process of waste characterization at LANL is described in Attachment C, *Waste Analysis Plan*, of the Permit.

Waste will be contact handled (CH) TRU waste; no remote-handled TRU waste will be stored at the TWF. Some TRU waste containers may be determined through final waste characterization not to meet the WIPP requirements for TRU waste. Depending on the presence of hazardous constituents, these waste containers will be reclassified as either low-level radioactive waste or mixed low-level waste and stored at the TWF until they are dispositioned appropriately.

Waste shipments will be made from the LANL waste generating facilities to the TWF for storage and then to the RCRA permitted Radioactive Assay and Nondestructive Testing (RANT) Facility at TA-54-38 West. The RANT Facility is used to load the TRU waste containers into approved steel shipment containers required for off-site shipment to the WIPP. Waste shipments may also occur from TWF to the RCRA permitted TA-50-69 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) if repackaging of the containers is necessary.

The TWF will be 1.81 acres or 78,843square feet. The layout of the unit is depicted in Figure 2-5 with the location of areas where storage will occur highlighted. The main structure for the unit will be the concrete pad providing a physical base for six waste storage buildings, several waste characterization trailers, and outside storage of waste containers too large for the buildings. The pad will be surrounded by a security fence. The boundary of the hazardous waste management unit will be limited to the northern portion of the concrete pad defined by those areas that drain to a supporting retention pond. Along the northern and western sides of the unit, this will be the

edge of the concrete pad along the bottom of the retaining walls. On the east side, the edge of the curbing for the concrete pad will be the boundary. The southern side of the revised boundary will be defined by a painted line in compliance with Permit Section 3.5(2), *Management of Containers*. The line will be situated approximately between the south east corner of the retention basin and the curb and gutter at the opposite corner of the fence line along the eastern side of the unit. This will be defined by the points at which run-off will flow to the retention basin.

To provide containment for the unit, a retention pond is designed to capture and distribute storm water at the TWF. It will also retain fire suppression water in the event of a fire. Water will be released via a manual valve providing control of the flow rate from the basin. Should a fire occur, water collected will be analyzed for contaminants prior to discharge.

The unit will also include a small storage building for calibration sources used for waste characterization activities, a covered forklift charging station, and equipment storage shed. Outside the fence, other site structures include an operations support building and a fire water storage tank and associated utility building.

2.2.1 Concrete Pad

The TWF concrete pad will be of reinforced concrete construction, on grade to provide support for the site structures and vehicle movement. The concrete pad will also provide for low combustible loading between the buildings and for the site. The pad will be laid on a graded soil and gravel base course and be nominally 8 inches thick. The existing ground at the site slopes from the northwest to the southeast. There is a significant grade difference from the northwest corner to the southwest corner of the site. After the site has been graded, portions will be lower in elevation than Pajarito Road or Puye Road. Given the elevation difference on the site, retaining walls will be constructed along the northwest portion of the site. The pad will be sloped at approximately 2% to provide for storm water and fire suppression water drainage.

The perimeter of the pad will have a 24" gutter and 6" high curb to provide run-off control. A valley gutter isolates the northern portion of the pad. Storm water and potentially contaminated firewater run-off (in the event of a fire in the storage buildings) from the northern portion of the pad flows to the valley gutter then will be channeled to the retention basin, thus, providing containment for the site in accordance with 40 CFR §264.175(b). This is a feature that negates the need for berms, dikes, or sumps around each storage building. The southern portion of the concrete pad (where waste is not stored and outside the hazardous waste management unit) slopes southeast providing drainage off the pad toward the parking lot. Refer to Figures 2-5 through 2-8 for further details regarding the pad configuration.

2.2.2 Storage Buildings

The TWF will include six storage buildings, five of which will be functionally identical and are described in this section. The additional storage building with other design elements is described in Section 2.2.3. The five buildings will measure 33 x 64 ft or approximately 2112 square feet, and will be 15 ft high. The storage buildings provide safe covered storage for LANL generated TRU waste containers through weather protection, physical security, and DOE design requirements for safety at nuclear facilities. Multiple buildings are being proposed to minimize the radioactive material content at individual storage buildings and to reduce the potential impact from accidents relative to a single larger building. Multiple smaller buildings will also reduce

overall risk associated with events such as vehicle impact or fire. The storage building floor plan is presented in Figure 2-9. These five storage buildings will be designated 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153.

Containers loaded onto pallets will be stored on a reinforced concrete floor. The building floor (i.e., mat slab) will be higher than the concrete pad to prevent run-on, and will be sloped towards a roll-up door at the building entrance for drainage in the event of a fire, in accordance with 40 CFR §264.175(b)(2) and (c).

The concrete floors will be coated to provide a sealed surface and chemical resistance although secondary containment pallets will be used to meet the containment requirements of the Permit for potential liquid containing waste in the storage buildings and also compliance with 40 CFR §264.175(b)(1). The floor coating standards include:

- Minimum Class B per National Fire Protection Association (NFPA);
- Radiation resistant as determined by American Society for Testing and Materials, International specification ASTM D 4082; and
- Decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service level II.

Further details for the floor coating are provided in Attachment B.

The storage buildings will be constructed as covered single-story structural steel frames. Each of the storage buildings and its structural members are designed to exceed the snow load for roof design, the design wind force for buildings, and the seismic loading for structural components, as described in American Society of Civil Engineers specification ASCE 7-05, *Minimum Design Loads for Buildings and Other Structures*. The document that illustrates the calculations for those loads is included in Part 6.0, *References*, of this document (LANL, 2011a). The steel frame is an ordinary moment frame with joists to attach roof panels and girts to attach wall panels. The walls of the facility will be rigid to provide protection from the elements and external forces. Gypsum board on light gauge metal studs with industrial coating will finish the interior walls. The roof is a high quality metal standing seam. Batt insulation in the ceiling and on the inside of the walls will reduce heat loss and gain inside the buildings. Electric heaters will heat the interior to prevent fire suppression systems and eyewash stations from freezing. Cooling will be provided by venting fans. In order to drain the building in the event of a fire, the floors will be constructed to provide a shallow slope (1/8 inch to 1 foot) from the back end of the building towards the front, and then out the roll-up door opening and a loading ramp to the concrete pad outside the building.

The following drawings illustrate additional design details for the storage buildings:

- Figure 2-10 shows the building foundation plan with dimensions and locations for beam supports.
- Figures 2-11 and 2-12 include support details for the building framework.
- Figure 2-13 shows structural sections for the storage buildings.
- Figure 2-14 provides thickness details of the slab and beam supports.
- Figure 2-15 shows the constructed building elevations.

- Figures 2-16 and 2-17 provide details regarding the buildings' fire protection sprinkler system including sprinkler locations and the water supply system.
- Figure 2-18 provides specifications for the buildings' emergency eyewash and shower equipment (locations in Figure 2-10).

2.2.3 Storage and Characterization Building

The sixth storage building is divided into a storage area, a room for the thermal equilibrium of containers to prepare for head space gas sampling, and additional support and analytical equipment rooms. The storage area in this building will be used for a variety of containers including SWBs and SLB2s. In order to accurately analyze headspace gas, the container temperature must be allowed to equilibrate to a minimum of 64 degrees Fahrenheit for 72 hours, as described in the Central Characterization Project procedure: CCP-TP-093, *CCP Sampling of TRU Waste Container*, (CCP, 2010). Sampling equipment is available for obtaining headspace gas samples and flammable gas samples from waste containers. Gas chromatography and mass spectrometry on the flammable gas sample will occur in an adjacent room.

The floor plan of the building measures 80 x 33 ft or approximately 2640 square ft, and the building height is approximately 15 ft. Figure 2-19 shows the floor plan of the storage building. The building will otherwise be constructed to the same standards as the other storage buildings. The building will be numbered 63-0154.

Additional facility drawings with design details for the Storage and Characterization Building are included as follows:

- Figure 2-18 provides eyewash/safety shower details (specifications are the same as Storage Buildings, shown in Figure 2-18).
- Figure 2-20 shows the building foundation plan with dimensions and locations for beam supports.
- Figures 2-21 and 2-22 provide building structural elevations including support details for the building framework.
- Figure 2-23 includes structural section construction details.
- Figure 2-24 includes foundation construction details.
- Figure 2-25 shows constructed building elevations.
- Figure 2-26 provides building section details.
- Figure 2-27 and 2-28 show the fire protection plan and its associated piping & instrumentation diagram.

2.2.4 Characterization Trailers

The TWF facility will include pads with utility hook-ups for the characterization trailers used to certify containers to DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria (WAC) for the Waste Isolation Pilot Plant*, (WIPP, 2010). The non-destructive evaluation (NDE) and non-

destructive assay (NDA) equipment will be provided for the TWF in mobile modified commercial trailers brought to the facility. These trailers are in use and functional at other DOE waste characterization sites. These trailers are currently providing this function for TRU waste management at the TA-54, Area G, Pad 10 permitted hazardous waste unit and will be moved to the TWF when it becomes operational. Radiographic assay equipment used for characterization is housed in these trailers as follows:

- Real Time Radiography (RTR) unit. The assay equipment in the trailer is designed to provide X-ray examination of the contents of TRU waste drums. This trailer is currently designated as TA-54-0497 in use at Area G.
- High-Efficiency Neutron Counter (HENC) unit. The assay equipment in the trailer is designed to provide a passive neutron and gamma measurement of 55-gallon TRU waste drums. This trailer is currently designated as TA-54-0498 in use at Area G.
- SuperHENC unit. The assay equipment in the trailer is similar to the HENC but includes a high efficiency neutron counter and a gamma counter that are both designed to handle SWBs. This trailer is currently designated as TA-54-0457 in use at Area G.

The RTR is a self-contained, non-intrusive X-ray unit, physically housed in a mobile container 48 feet in length by 8 feet wide used to X-ray waste containers up to 85 gallons in volume. Radiography is a nondestructive qualitative and semi-quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Radiography is used to examine the waste container to verify its physical form. This technique can detect prohibited items such as liquid wastes and gas cylinders, which are prohibited for WIPP disposal. Radiography examination must achieve the following to meet the WIPP criteria:

- Verify and document the physical form of each waste container.
- Identify any prohibited waste in the waste container.
- Confirm that the physical form of the waste matches its waste stream description (i.e., homogeneous solids, soil/gravel, or debris waste [including uncategorized metals]).

The HENC is a self-contained, non-intrusive, passive assay unit, physically housed in a mobile assay container 48 feet in length by 8 ½ feet wide by 12 ¾ feet high. The HENC is designed to assay 55-gallon (208 liter) drums containing fissionable radionuclides. The system simultaneously performs passive neutron counts and gamma spectrometry to detect gamma-emitting radionuclides for the purpose of determining quantitative concentrations of TRU constituents. The equipment and mobile container only require electrical power to operate. Approximately 10 to 13 drums a day can be processed through the HENC, with each drum taking approximately 45 minutes for examination. The HENC is a large rectangular-shaped neutron counter that is specifically designed to assay the container in a fixed geometry. The HENC system uses passive and add-a-source neutron analysis methods to assay the nuclide mass contained in 55-gal drums of TRU waste. Waste drums to be assayed are placed on a conveyor that feeds drums into the system.

The SuperHENC operates on the same principle as the HENC, within a similar tractor trailer. The process however, is applicable to the assay of TRU radionuclides in larger waste packages such as Standard Waste Boxes (SWBs). Data from this process is used to assay the radioactive

content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes identified via acceptable knowledge (AK).

The trailers will be numbered 63-0155, 63-0156, and 63-0157 at TA-63. Additional trailers may be needed as characterization needs for the facility change. In the event that trailers are added or moved at the unit, the permit modification procedures in Permit Section 3.1.(3) will be followed. The WIPP verification procedures for the waste containers managed in the characterization trailers are generally completed within 24 hours. In some uncommon situations, there is a potential that a waste container could be left in the characterization trailer for greater than that time period and the option for storage should be retained to preserve operational flexibility. Examples that would require such an option include situations such as inclement weather, power outages, equipment malfunctions, evacuations, and Laboratory closures.

The basis for not requiring secondary containment pallets is that the containers are located inside the trailers and the internal radioassay equipment during the characterization process. These do not represent secondary containment although they are enclosed and provide a degree of containment. The containers are never opened during the process and the potential waste volumes involved in a spill from an individual drum would be minimal based on the typical transuranic waste streams involved and the waste characterization and packaging requirements for the generators to meet the LANL TRU Waste Acceptance Criteria. In the event of a spill during active management of the containers, the primary defense for containment would be detection and remediation of the spill by the on-site personnel at the trailers or, if necessary, by the provisions of the Contingency Plan. If a spill occurred that could not be remediated or during off hours in the facility, containment would ultimately be provided by the grading of the site to the retention pond and the confinement provided by the volume of the pond and the normally closed exit valve.

Additionally, in the event that a liquid containing waste item or free liquids such as condensation are discovered in a container through the waste verification process in the trailers, the item will routinely be transported back to a storage building and managed in compliance with the secondary containment requirement in the permit provision within 24 hours. This is based on the typical multiple daily container turn-around, the identification of the container as an anomaly meriting priority, and best management policy to avoid potential waste management problems.

2.2.5 Retention Basin

The storage buildings and characterization trailers are located within the northern portion of the site. The retention basin is located south of the storage buildings and characterization trailers along the western edge of the site. The retention basin is designed to collect water from this area in two types of events. Primarily, surface storm water or melt water run-off from the concrete pavement in this area is directed to the retention basin via the slope (nominally 2%) of the concrete pad. A valley gutter also helps to channel water from the east side of the concrete pad to the retention basin. Secondly, in the event of a fire at the unit, fire suppression water will potentially flow out of the storage buildings or from other unit structures to the concrete pad and then to the retention basin.

The designed volume capacity for the retention basin includes the potential for a combination of both events. This includes run-off from a projected 25 year frequency and 2 hour duration

precipitation event (1.94 inches of precipitation resulting in approximately 85,900 gallons (11,500 cubic ft.) from 1.63 acres). For a fire suppression event, an estimate of suppression water needed is calculated from NFPA 13 factors (380 gpm for 30 min. of sprinkler demand and 500 gpm for 30 min. fire hose stream allowance), for a total of approximately 26,400 gallons (3,530 cubic ft.). Volume from both events results in a total capacity of approximately 112,300 gallons (approximately 15,000 cubic ft.). The designed total retention basin volume also includes 0.5 ft of freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.). Final dimensions of the basin will be 125 ft by 42 ft by 3.5 ft deep. Facility drawings for the retention basin foundation plan and foundation details are included as Figure 2-29 and Figure 2-30 of this permit modification request. The concrete mixture used for construction of the retention basin will also be supplemented with an additive to improve the concrete's water resistance.

The retention basin will be drained as needed via a manual release valve that is normally in the closed position in order to prevent overflow and to comply with 40 CFR §264.175(b)(5). The retention basin will also be equipped with an automated storm water sampler at a drainage point into the basin. This sampler will only be used to meet the requirements for stormwater monitoring under the *The Multi-Sector General Permit For Stormwater Discharges Associated with Industrial Activity* (MSGP) for the facility. Product specifications for the sampler are included in Attachment E of this submittal. In normal storm water events the manual drain valve will be opened and the collected storm water will be released through a pipeline at the calculated predevelopment flow rate (i.e., the rate of storm water runoff from the site prior to construction of the facility) after the opening of the valve. The released storm water will drain through the pipe line to a release site on the east side of the TWF and then to other stormwater retention structures developed for the aggregate area to be defined and included in the TA-63 TWF Multi Sector General Permit Storm Water Plan to be developed for the site. See Figure 2-34 for details concerning the storm drain plan and Figure 2-35 for construction details of the storm drain inlet. When only stormwater has been contained in the retention basin, the decision to open the drain valve will be based upon standard MSGP processes including visual examination for surface sheens, discoloration or other obvious indicators of stormwater pollution relative to the collected stormwater.

In the event of a fire at the TWF, the retention basin will serve the critical function of collecting the fire suppression water in the basin. The slope of the unit's concrete pad and the valley gutter serve to ensure that any water draining from the unit's storage buildings or the characterization trailers will be routed to the retention basin. This key design feature provides containment of possible contamination and a backup option for any emergency management activities. In such an event, collected water will remain in the basin until sampling and water-quality analysis can be performed to determine whether or not the water is contaminated. The collected water will be evaluated by obtaining a representative grab sample of the liquid and analyzing it for any hazardous waste constituents managed at the facility and reasonably expected to be present. This data will be compared to the surface water quality standards outlined in the Clean Water Act (33 U.S.C. §§ 1251 to 1387), the New Mexico WQCC Regulations (20.6.2 NMAC), and the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) to determine whether the collected water can be released, a Notice of Intent needs to be submitted to the New Mexico Groundwater Bureau, or it will be characterized to the Permit Attachment C, *Waste Analysis Plan*, standards for collection and waste disposition determination. In the event of such a fire or release,

any further decontamination of the retention basin will be subject to the provisions of Attachment D, *Contingency Plan*, of the Permit.

The concrete structure, concrete waterproofing additives and associated valve will minimize the potential for leakage of collected water from the retention basin. Routine inspections of the retention basin pursuant to Permit Section 2.6, *General Inspection Requirements* and subsequent repairs as required by Permit Section 2.6.2, *Repair of Equipment and Structures* will ensure that the water collection capability of the retention basin is maintained or mitigated. In the case of a fire water or spill event that results in collected water, the level of water in the retention basin will also be checked for the potential of over-topping and inspected daily for water levels until final disposition of the water is determined.

2.2.6 Other Project Structures

Other project structures are present at the TWF to provide support for the hazardous waste management activities at the unit. These structures are either outside the boundary of the hazardous waste management unit or do not directly store or manage hazardous waste.

The Operations Support Building provides offices and services for operations personnel and management. Personnel are housed in the separate building to ensure that radiological exposures are as low as reasonably achievable (ALARA) by increasing distance from the waste management activities. The Operations Support Building is approximately 75 ft by 80 ft. Operations and characterization personnel will be housed in this building, although it will not be occupied continuously. However, it will provide storage of waste container data and monitoring of key operational parameters and specific safety structure, system, and component (SSC) status. In addition, a public address system will be powered from this building to facilitate emergency response. The building will include offices, conference rooms, restrooms, change rooms, site security access, and circulation space for about 25 workers. The building will be outside the security control fence; windows provide visual observation of the control area. The building will use an ordinary steel moment frame and include nonload bearing metal panel walls. The exterior finish will be metal sandwich insulating panels. The roof will be a low slope membrane-type with high solar reflectance and roof and overflow drains. The floor will be reinforced concrete slab on grade and finished concrete in some areas.

Access to the waste management site is via a gated driveway east of the concrete pad. Gates are normally closed and vehicle access to the controlled area within the unit fence line requires check-in at the Operations Support Building. Pedestrian access to the controlled area also requires check-in through the Operations Support Building. Parking for site workers and visitors is provided south of the Operations Support Building and outside the controlled area fence.

Located to the north of the Operations Support Building, on the project site but outside the controlled area fence, is a dedicated fire water supply tank and utility building. The utility building is adjacent to the water tank that supplies water for the fire suppression system. This building will house two fire water pumps and instrumentation needed to ensure operation of the fire suppression system. The back-up pump is diesel powered. Access into the fenced unit will not be required for filling the diesel pump fuel tank as fueling can occur from the roadway.

Further to the north, across the access driveway is an existing groundwater monitoring well. The monitoring well is R-46, part of the LANL groundwater monitoring network. The TWF controlled area fence line is located to the west of the monitoring well. Space has been allocated to allow for routine and upset condition access to the monitoring well. Access to the TWF is not required for activities associated with the monitoring well.

A forklift charging station is located along the western edge of the site. This structure will be an open roofed shed with storage areas for the forklifts and charging equipment.

There will be an equipment storage shed on the west side of the unit. This shed will be a light warehouse of 1250 square feet and will be used to store items such as metal pallets, containers used to over-pack waste containers if necessary, and snow removal equipment. The building will be 25 ft x 50 ft x 15 ft high. The sides of the shed will be closed with a rollup (garage-type door) in addition to a personnel access/egress door. There will be no fire protection in this building.

The characterization process will require sealed radioactive sources for calibration of the HENC and SuperHENC radioassay sensors. A separate building designated the Characterization Source and Matrix Management (CSMM) Building will house sealed sources.

2.2.7 Waste Management Practices

The primary function of the TWF is to safely receive, inspect, handle, characterize, certify, store, and ship newly generated TRU waste containers to other LANL facilities for additional waste management activities or for off-site disposition. Storage at the TWF will be predominantly for waste in solid form and may include both TRU (radioactive only) or MTRU (radioactive and hazardous component) waste. Wastes that are mainly or completely in liquid form within the volume of the waste container will not be accepted at the TWF but the potential exists that a small quantity of free liquid may be present in some containers (e.g., TRU waste determined to contain liquids such as condensation or in smaller internal containers by RTR characterization after waste receipt at the TWF). Other types of mixed waste (e.g., TRU waste reclassified as low level waste through the NDE/NDA in the HENC or Super HENC) or hazardous only waste (e.g., from on-site waste generation such as empty paint cans or forklift maintenance) may also be managed at the TWF while waiting for further appropriate waste management. Wastes excluded by the LANL TRU WAC will not be accepted at the TWF, including medical, infectious, explosive or compressed gas wastes. However, the hazardous waste management unit may need to temporarily store these types of wastes (e.g., aerosol cans) that have been detected in TRU waste drums during the RTR characterization process.

TWF waste management activities will occur in three areas: the waste storage buildings, the characterization trailers, and outside storage on the concrete pad. The main storage function at the unit will occur in the waste storage buildings. Outside storage will be used for occasional storage of large containers pending further action such as re-packaging at one of LANL's other TRU facilities. Temporary waste staging will also occur at the characterization trailers during waste analysis and at the loading/unloading area during receipt of the waste containers.

2.2.7.1 Loading and Unloading

The area between the retention pond and Storage Building 63-0149 will be used for receipt of TRU waste from LANL generators and for re-shipment of waste to the TA-54-38 RANT Facility or TA-50-69 WCRRE. Waste containers will be transported to the TWF by truck and enter from the north gate on the east side. The containers will be unloaded from the trucks in the unloading area. Containers will be unloaded with electric forklifts used exclusively at the TWF to reduce potential ignition sources. Waste containers may include: 55 or 85 gal metal drums, SWBs, Standard Large Boxes 2 (SLB2s), Pipe Over-pack Containers (POCs) inside 55 gallon drums, and Over-sized Waste Boxes (OWBs). Further descriptions of these containers are included in Table 2-1. All containers will be both WIPP-compliant [DOE/WIPP 2008] and DOT 7A, Type A certified, as described in Section 3.3, *Acceptable Storage Containers*, of the Permit.

Containers may be staged in the unloading area or in Storage Building 63-0149 for a short period after unloading, anticipated to be less than 1 day under normal circumstances. Only closed and vented containers will be handled at the TWF. Waste containers will not be opened at the unit although their filter vents may be replaced if necessary. All containers received at the TWF will be equipped with WIPP-approved filtered vents that contain a sample port for headspace gas/flammable gas sampling without removing the filter. The TRU waste containers provide a confinement barrier between radiological contaminants and the environment and operations personnel. As a result of this confinement capability, the containers can be safely staged temporarily outside after unloading.

While the containers are staged at the unloading area or in Storage Building 63-0149, the following receiving operations will occur: initial inspection, verification of the container identification (scanning the container identification barcode and checking labels), wiping container surfaces, visual inspection of the filter vent, and a radiation/contamination survey (validation of generator's measurements). In the event of an abnormal condition such as inclement weather, staging at the loading/unloading area may exceed 24 hours but removal of the containers to Storage Building 63-0149 or other storage buildings will occur as quickly as possible.

2.2.7.2 Storage

After receiving activities are complete, waste containers will be transported across the TWF concrete pad using forklifts. Containers will be taken to the waste storage buildings and prepared for storage. In the buildings, drums will be placed on metal pallets in groups of four followed by banding with metal strapping. The four-pack is then placed into a storage array within the building, where it awaits further handling such as for transportation to the characterization trailers. The SWBs, SLB2s, and OWBs will also be taken into the storage buildings. Boxes without built-in devices that prevent contact with the floor will be placed on appropriately sized pallets or other structures to allow inspection and preclude contact with liquids as required by Permit Section 3.7, *Containment Systems*.

Four types of waste containers are planned to be used for storage of transuranic (TRU) waste at the TA-63 TWF. These waste container types are 55-gallon drums, SWBs, SLB2s, and OWBs. (It is also possible that a 55-gallon drum could be over-packed into an 85-gallon drum if a 55-gallon drum was damaged or there was some other concern for its integrity, but 85-gallon drums will not be used as primary waste containers.

Although 55-gallon drums and SWBs are expected to make up the majority of the containers by number, some TRU waste will also be stored in both SLB2s and OWBs. Numbers of the various types of waste containers will vary at any given time. Table 2-2 presents a scenario for waste container storage that has a maximum number of SWBs, SLB2s, and OWBs that would likely be stored at the facility. Four of the waste storage buildings would store only 55-gallon drums, a fifth storage building would store primarily SWBs but some 55-gallon drums, the storage and characterization building would store primarily SLB2s but some 55-gallon drums, and OWBs would be stored outside under this scenario. This is discussed in more detail below. The total estimated storage capacity shown in the table was rounded to 105,875 gallons for the maximum design storage capacity of the Transuranic Waste Facility. See Table 2-2 for further details on the storage capacity.

The layout of waste containers in the four storage buildings that would store only 55-gallon drums (no other container types) in this scenario consists of two rows of ten groups of pallets with four 55-gallon drums per pallet and pallets stacked three high (resulting in a total of 120 drums per row and 240 drums per waste storage building.) The layout of the rows with pallets is like that shown in Figure 2-9, Storage Building Floor Plan.)

The layout of the storage building that would store primarily SWBs and some drums in this scenario consists of two rows of groups of pallets with a single SWB stacked two high. One row would consist of a total of 10 groups of pallets with one SWB per pallet stacked two high, and the other row would consist of a total of 9 groups of pallets with one SWB per pallet stacked two high (resulting in a total of 20 SWBs in one row and 18 SWBs in the second row.) A single group of pallets with 55-gallon drums stacked three high would be located at the end of the row of 9 groups of pallets with SWBs two high. Total storage within this waste storage building would be a total of 38 SWBs and 12 55-gallon drums). The layout of the rows with pallets would be similar to that shown in Figure 2-9, except that groups of SWBs stacked two-high on pallets would replace all of the groups of drums stacked three high on pallets except for one group of pallets containing drums (this was done to ensure sufficient aisle space for emergency egress at each of the personnel doors in the storage building).

The layout of the storage and characterization building that would store SLB2s and some drums in this scenario consists of two rows of SLB2s (one high stacking) in the storage bay of the building, with two SLB2s in one row and three SLB2s in the other row. Five pallets of four 55-gallon drums (one high stacking) would be located in the Thermal Equilibration (T.E.) Room of the building. Total storage within the storage and characterization building would be a total of 5 SLB2s and 20 drums. The layout of containers under this scenario would be similar to that shown in the floor plan in Figure 2-19, Storage and Characterization Building Floor Plan, except that a row of three SLB2s would replace the row of drums on pallets in the storage bay, and a row of two SLB2s would replace the single large container shown in the figure. The layout of 55-gallon drums stored in the T.E. Room would be like that shown in the figure. Because the waste storage buildings would be filled to capacity under this scenario, the four OWBs would be stored outside on the concrete pad.

The stored containers will be arranged to meet the conditions of Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*. The central aisle in the storage buildings allows for the movement of forklifts during waste placement. In addition to the center aisle, a minimum of a two feet wide aisle space will be maintained between the rows of waste containers and the storage building walls. Four-packs of drums may be stored up to three high, SWB's and SLB2's may be stacked 2 high, and OWB containers will be stored one-high indoors.

There may be a need to store containers in different configurations at times to allow assembling of waste for retrieval and transport, waste characterization campaigns, or for segregation of incompatible wastes as required by Permit Section 2.8.2, *Incompatible Waste Precautions*. Aisle spacing of at least two feet will be maintained in any alternate configuration as required by Permit Section 3.5.1 (1) and the maximum capacity of the TWF permitted unit will not be exceeded.

2.2.7.3 Characterization

TRU waste containers stored at the TWF will be initially characterized using generator knowledge of the waste prior to being received. Newly-generated TRU waste containers are primarily characterized by AK and may go through a certified visual examination (VE) process at the waste generator location (e.g., TA-55) before being transported to the TWF. Container integrity inspection, weighing, and labeling also occur at the generator facility. Additional characterization procedures at the TWF will be used to verify the generator's waste information and certify that the waste containers are ready for shipment to WIPP as required by Permit Section C.3.2.3, *WIPP Characterization*. Characterization activities will be performed at the TWF in the characterization trailers and the Storage and Characterization Building as described below.

Waste containers will be transported to the trailers by forklifts from the storage buildings. Each of the characterization trailers includes internal and external waste handling equipment such as lifts, conveyors, and container radioassay equipment. The containers will be positioned on the trailer's conveyors. They will then be moved into the trailers' radioassay equipment and examined. After characterization, they will be removed by forklift from the trailers and put back into storage in the buildings.

Characterization and certification of containers for WIPP is performed at LANL by an independent WIPP contractor. Characterization and certification operations begin by:

- Verification that the containers are from a WIPP AK waste stream.
- Verifying that the containers have a legible radiological label/tag.
- Verifying that the containers have an external radiation dose equivalent rate less than 200 millirem/hour.
- Visual inspection to ensure satisfactory container integrity.
- Visual inspection to ensure use of approved filters and proper seating.
- Verification of the container gross weight.
- The containers are also labeled to record completion of all operations.

Typically, NDE is the first characterization operation performed on drums (only) following the verification steps noted above. The NDE is conducted using RTR performed at the RTR trailer. RTR confirms the waste contents identified in AK and detects free liquids or items or conditions that are prohibited at WIPP. RTR operations will be performed as required by Permit Section C.3.2.1, *Real-Time Radiography*, during storage at the TWF. RTR (at TWF) will not be necessary for newly-generated waste containers that underwent a certified VE process at the generator site but will be used for any other waste containers.

The NDA operation is conducted in the HENC trailer for drums and the SuperHENC trailer for SWBs. The HENC is used to detect gamma-emitting radionuclides for the purpose of determining quantitative concentration of TRU. The HENC and SuperHENC operate on the same principle, and data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes identified via AK.

All TRU containers will be tested for the presence of excessive flammable gases using Flammable Gas Analysis (FGA). The primary concerns are hydrogen and volatile organic compounds (VOCs). The presence of levels higher than those set by WIPP will not be allowed to be transported and may indicate that the hydrogen permeability of the container's vent filters has been compromised. Documentation of the levels of concern below the limit is required for WIPP certification. Internal gases will be extracted from the containers with a syringe inserted into the sampling port of the container vent filter. The sample is analyzed for volatile organic carbon compounds (VOCs) using gas chromatography/ mass spectrometry equipment located in the Storage and Characterization Building. Levels of hydrogen and methane gases are determined with a thermal conductivity detector.

A random sample of containers from TRU waste streams composed of debris waste will require Headspace Gas (HSG) sampling and analysis. Container temperature must be constant in order to collect a valid sample. Container temperature is allowed to stabilize to achieve the minimum temperature requirements for the sampling method in the thermal equilibration (TE) room located in the Storage and Characterization Building. Sampling for FGA may also be conducted in any of the waste storage buildings or on the concrete pad next to the characterization trailers if minimum temperature requirements for sampling are met. After thermal conditioning, HSG samples are collected with a syringe assembly including an evacuated SUMMA[®] canister (or equivalent) inserted into the sampling port of the vent filter. This sample is sent to the Idaho National Engineering and Environmental Laboratory (INEEL) for analysis of VOCs.

2.2.7.4 Outdoor Staging/Storage

The OWB container is too large to fit into a Nuclear Regulatory Commission (NRC) approved Type B shipping canister, and as such, will not be shipped to WIPP. OWBs will be temporarily stored at the TWF in queue for repackaging at other LANL facilities. OWB sizes vary, but will be no greater than 13 ft by 9 ft by 7 ft (on the order of a 100-drum equivalent). The radioactivity associated with these containers is relatively low compared to other containers.

OWBs may be stored in the TWF storage buildings. In the event that TWF indoor storage is approaching maximum capacity, OWBs will be stored outdoors. OWB storage will comply with the requirements of Permit Section 3.5.1.(5). OWBs stored outdoors will not be contacted by flowing storm water. Containers without stand-offs (i.e., either legs or tubing that runs either the width or length of the OWB) will be placed onto pallets. The OWBs will also be covered with tarps or other weather protective means to prevent contact with precipitation. OWBs may be stored two high outdoors on the concrete pad.

2.2.7.5 Free Liquid Restrictions

The containers to be stored at the TWF will generally contain either (1) no free liquids or (2) free liquids at less than 1% of the total container volume to meet the WIPP WAC. Any free liquid in containers at the TWF will be managed pursuant to the requirements of Permit Sections 3.6 (2) and 3.7 regarding waste labeling and containment systems. This involves the use of secondary containment pallets, maintenance of the run-on and run-off features described in Section 2.5.4 of this submittal, and removal of any spills in a timely manner as required by Permit Section 3.7.1(2).

The presence of liquid in the containers stored at the TWF is determined using either of three methods. The first method involves AK or process information supplied by the waste generators. The second method is the use of RTR to remotely examine the waste containers for liquids and other parameters. The third method for identifying free liquids is visual examination. Visual inspection if needed would necessitate opening the container and thus, would occur at other LANL storage facilities (e.g., TA-55, CMR, or TA-50-69 WCRRF). If plans are made in the future to allow the opening of containers in a suitable characterization trailer at the TWF (e.g., a visual examination trailer), this would be subject to the approval of NMED through a permit modification.

2.2.7.6 Filter Vent Changes

Vent filters that are found to be inadequate (e.g., inoperable or plugged) during container inspection or characterization will be changed out with new approved vent filters in an operation conducted using a portable HEPA filtration unit and appropriate personal protective equipment (PPE) for the operators.

2.3 AUTHORIZED WASTES AND WASTE ACCEPTANCE

The TWF will store hazardous wastes identified by one or more of the EPA Hazardous Waste Numbers presented in “Los Alamos National Laboratory General Part A Permit Application, Revision 8” included in Attachment A of this permit modification request pursuant to Permit Section 2.2, *Authorized Wastes*. These waste numbers are currently associated with wastes in storage at TA-54 included in Attachment B, *Part A Application*, of the Permit. Wastes that will not be accepted at the TWF are documented in the LANL WAC, Attachment 2, *Contact-Handled Transuranic (TRU) Waste* (LANL, 2010). Excluded wastes include medical, infectious, explosive wastes, and waste containing compressed gases. However, the hazardous waste management unit may need to temporarily store these types of wastes (e.g., aerosol cans) that have been detected in TRU waste drums during the RTR characterization process.

Wastes that are mainly or completely in liquid form within the volume of the approved waste

containers will not be accepted at the TWF. As discussed in Section 2.2 of this document, the majority of waste stored at the TWF will be mixed TRU waste. However, the potential exists that mixed low-level waste may be stored if the TRU waste is re-characterized as a result of WIPP characterization. There may also be small quantities of nonradioactive hazardous waste generated and stored on-site.

2.3.1 Characterization Procedures

Wastes to be managed at the TWF will be subject to the characterization requirements of Permit Section 2.4, *Waste Analysis*, and Attachment C, *Waste Analysis Plan (WAP)*, as applicable. A summary of the waste streams anticipated at the TWF and the applicable characterization criteria is provided in Table 2-3 of this submittal which references the relevant portions of the WAP. These requirements will be met through the routine waste characterization procedures of LANL for any hazardous or mixed low-level waste generated or stored at the unit. The waste characterization trailers on-site at the TWF will be used to provide additional waste characterization for mixed TRU waste subject to WIPP certification as described in the WAP. This includes HSG analysis at INEEL, FGA for containers at the Storage and Characterization Building, and NDA/NDE radiographic analysis in the characterization trailers as previously described.

2.3.2 Verification Frequencies

Wastes to be managed at the TWF will be subject to the waste verification requirements of Permit Section 2.4.7, *Waste Characterization Review*, and Attachment C, *Waste Analysis Plan*, of the Permit.

2.4 SECURITY AND ACCESS CONTROL

The hazardous waste management unit at the TA-63 TWF will meet the requirements of Permit Section 2.5, *Security*. The DOE provides security for the area within LANL boundaries. Guard stations will control public access to this area of LANL from Pajarito Road east and west of TA-63. Therefore, only properly identified LANL and DOE employees authorized to enter the facility or individuals under their escort will have access to the TWF.

The unit security requirement will be met because the TWF will be within a security fenced area with controlled access gates. The security fence around the waste management portion of the TWF will be at least 8 ft high and be a chain link type fence with steel pipe fence posts. Fence tops will have at least three strands of barbed wire angled away from the protected area to prevent a person from scaling the fence. Two vehicle access gates will be integrated into the fence line. These gates, when opened, shall provide at least a 16 foot wide clearance to enable vehicle access. Gates will be locked when the facility is not operational.

Controlled entry to the unit will be provided by a system of access controls (badge readers and administrative controls will be required prior to entrance) to ensure that only authorized personnel are granted access. These access controls will also ensure that all facility personnel can be identified and located in an emergency.

The TWF will be patrolled by LANL security personnel during both operational and non-operational hours to ensure that the gates are locked and that unauthorized entry does not occur. In accordance with 40 CFR §270.14(b)(19)(viii), the proposed locations of the security fences,

entry gates, and entry stations are shown in Figure 2-34.

Warning signs stating “Danger – Unauthorized Personnel Keep Out,” will be posted on the perimeter fences and gates. These will be able to be seen from any approach to the TWF in accordance with Permit Section 2.5.2, *Warning Signs*. The legends on the signs will be bilingual (i.e., English and Spanish) and will also indicate “No Trespassing by Order of the United States Department of Energy.” The signs will be legible from a distance of 25 feet. Signs for any confined areas, if necessary, may be reduced in size, but will be legible to personnel who require access to these areas. TA-63 does not have a shared boundary with the Pueblos of San Ildefonso or Santa Clara and, therefore, the signs will not include warnings in Tewa dialects.

2.5 HAZARDS PREVENTION (PROCEDURES, STRUCTURES, AND EQUIPMENT)

Descriptions of the preventive procedures, structures, and equipment at the TA-63 TWF are presented below. This information is provided in accordance with the requirements of 40 CFR § 270.14(b)(8). Adherence to the procedures and proper use of the structures and equipment will help to prevent hazards, prevent undue exposure of personnel to hazardous waste, and prevent releases to the environment.

2.5.1 Fire Protection

The TWF is bordered on two sides by roadways and by parking lot and cleared space on the third side of the roughly triangular space. Beyond the roadways, grassland gives way to sparse piñon woodland near canyons to the north. South of the TWF, ponderosa pine trees and piñon/juniper are about equally distributed and there are stands of scrub oak. Trees near and within canyons are almost all ponderosa and the terrain is covered with shrubs and bushes of various species.

Defensible fire perimeter around TWF structures will be maintained and will include the concrete pad within the fenced TWF, Puye/Pajarito Roads, and parking areas outside of the TWF. Some vegetation control including grass trimming and shrub cutting is anticipated outside the TWF during the growing season, especially to the south and east of the TWF. At least 75 ft of defensible space around the unit will be maintained for minimization of exposure to wildland fire per NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, (NFPA, 2007).

The TWF unit uses a wet-pipe sprinkler system designed in accordance with the pertinent portions of the 2010 edition of NFPA 13, *Standard for the Installation of Sprinkler Systems*, for fire suppression. The fire water supply will be sufficient for the fire suppression systems in storage buildings. Water will be supplied via the 125,000-gal tank north of the operations support building, with a combination of electric- and diesel-powered fire pumps, the tank and its associated level detection, freeze protection, pumps, and power supply for the pumps. The fire suppression water will be pumped to automatic sprinkler systems in the buildings. This system is designed in accordance with NFPA 13. Further details for the systems are shown in Figures 2-16, 2-17, 2-27, and 2-28.

Automatic fire suppression is not currently planned for the characterization trailers. Given the small size of the trailers, firefighter entry is not anticipated during an emergency; therefore, lack of fire suppression systems is not considered a potential firefighter hazard requiring built-in protection. However, the capability of providing automatic fire suppression in the future will be provided through the facility utility hookups included in the TWF design.

The fire alarm systems are designed in accordance with pertinent sections of NFPA 72, *National Fire Alarm and Signaling Code*. The storage buildings and characterization trailers in the unit will be tied into a single fire alarm panel located at the TWF Support Operations Building. Fire alarms will also be connected to the Los Alamos Fire Department (LAFD) through the Los Alamos County Consolidated Dispatch Center (LACCDC). Sprinkler system water flow, manual pull-stations, and system supervisory and trouble signals will be monitored at the fire alarm control panel. A fire alarm at any location within the TWF is currently anticipated to result in a TWF-wide alarm: horns/strobes in all appropriate facilities will sound simultaneously; a public address system will be part of this system configuration. If the public address system is to be used for emergency notification, then the system design must meet NFPA 72 requirements. Section 2.7.1 of this permit modification request submittal also includes descriptions of additional fire equipment such as fire extinguishers and alarms.

In addition to the on-site TWF capabilities, the LANL facility fire protection resources and procedures contained in Permit Section 2.11, *Contingency Plan* and Attachment D, *General Contingency Plan* of the Permit may also be utilized if the Contingency Plan is implemented in the event of a fire at the unit. These will include coordination by the LANL Emergency Manager of fire suppression activities and emergency medical services with internal and external agencies such as the LAFD .

2.5.2 Lightning Protection

Lightning protection is provided for TWF storage and storage & characterization buildings. Figures 2-35 and 2-36 present the Electrical Site Plan which provides locations for electrical poles equipped with grounding features that protect the unit structures from lightning. Figure 2-37 specifies design details for both lightning and lightning protection poles. Lightning protection consisting of a system of copper wiring connected to grounding rods protects personnel and structures by providing a path to ground for a lightning strike in the vicinity or a direct strike to a structure. Lightning protection prevents uncontrolled discharge of hazardous electrical energy in a manner that injures personnel, damages equipment or structures, or results in fire. These protective measures for lightning protection are designed to meet the requirement of Permit Section 2.8.1(5).

2.5.3 Waste Handling and Preventing Hazards during Loading/Unloading

Flatbed trucks, trailers, forklifts, or other appropriate vehicles may be used to transport waste containers to and from the waste management unit at the TWF and other LANL waste generation or management units. These vehicles will not be used to transport waste on the concrete pad. Only electric forklifts will be used for vehicular transport of waste containers within the TWF to reduce the combustible- and flammable-loading associated with TWF operations. Forklift operators may use an auxiliary boom, if necessary, to improve handling capabilities. Trained spotters may assist with container movement during forklift operations. Light drums may be handled manually or with a dolly. The use of proper handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers. Waste management personnel will be trained for safe handling operations in accordance with Attachment F, *Personnel Training Plan*, of the Permit.

2.5.4 Control of Run-on/Run-off

This information is provided to meet the requirements of 40 CFR §264.175(b)(4) and 40 CFR §270.14(b)(8)(ii). Controlling run-on and run-off at the TWF locations where waste management operations will regularly occur is accomplished by the design of the buildings and the use of control structures with appropriate contouring of surface areas. Run-on of storm water into the storage buildings will not occur. The building walls are on raised floors, and surface contouring slopes away from the building to prevent storm water from pooling against the foundations, doors, and loading areas. The internal floors of the buildings will be sloped to the front doors to prevent flooding by precipitation or storm water in addition to providing drainage to the outside.

The TWF site will maintain a nominally 2% slope to optimize drainage and the use of electric forklifts to handle waste containers. After the site has been graded, the site will be lower in elevation than Pajarito Road or Puye Road. A retention wall will maintain the differences in elevation between the roads and the site. The site will be surfaced in concrete and will include a retention basin for management of storm water and for the collection of fire suppression water until it is sampled and verified to be uncontaminated. Retention basin capacity includes the run-off from a 25-yr 2-hr precipitation event in addition to a fire event or a total capacity of approximately 137,450 gallons or 18,375 cubic feet of water.

Secondary containment will be provided where potential liquid-bearing containers are stored in the buildings to prevent run-off. Secondary containment systems (e.g. pallets) will be utilized, as needed, and will have sufficient capacity to contain at least 10 percent (%) of the volume of potential liquid-bearing containers or the volume of the largest container stored in the system, whichever is greater, pursuant to the requirements of 40 CFR §264.175(b)(3) and Permit Section 3.7, *Containment Systems*.

Waste spills or leaks will be managed inside the characterization trailers to prevent run-off. Containers stored outside on the concrete pad will be protected from contact with precipitation in accordance with Permit Section 3.5.1 (5).

Storm water run-on/run-off controls will meet requirements pursuant to the TA-63 TWF Multi Sector General Permit Storm Water Plan to be developed for the site.

2.5.5 Preventing Water Supply Contamination

The waste management unit at the TWF will be located, designed, constructed, operated, and maintained in a manner that will ensure the prevention of water supply contamination. No disposal activities will occur at the site. Waste storage activities involving any potential liquids will occur only with secondary containment (pallets) and covers, if outdoors. In the event of a release, the liquids will be removed as quickly as possible and packaged in an appropriate container. Potential spills of liquid and solid form wastes will be contained in the storage buildings or prevented from contact with the subsurface by the concrete pad until clean-up occurs. Waste containers will be inspected daily while management activities are occurring in accordance with Permit Section 2.6, *General Inspection Requirements*. Spill responses will be subject to the conditions of Permit Section 2.10.4, *Spill Response*, or Section 2.11, *Contingency Plan* regarding containment and clean-up. Given these conditions, there is little to no potential for contaminants to enter the groundwater or other water supplies as a result of normal operations or accidents at the TWF.

In addition, the depth to groundwater at Well R-46 (the groundwater monitoring well adjacent to

the northeast fenced portion of the TWF) is approximately 1,326 ft below ground surface after surface grading is completed (LANL, 2009/2010). The average annual precipitation in the Los Alamos area (including both rain and water equivalent or frozen precipitation) is 48 centimeters (cm) or 18.9 inches (in). The evaporation of freestanding water measured by pan evaporation rates significantly exceeds the annual precipitation. Representative evaporation rates for nearby locations include Santa Fe, 62.9 in/year, Cochiti Dam 88.0 in/year, Abiquiu Dam 72.13 in/year, and Jemez Dam 82.0 in/year. (WRCC, 2011). Permeability rates for soils nearby at TA-55 range from 1.5 to 5.0 cm per hour (cm/hr) in the top layers to 0.15 to 5.0 cm/hr in the lower layers. Available water-holding capacity ranges from 0.14 to 0.21 percent (Nyhan et al., 1978). Collectively, the depth to the regional aquifer, the annual moisture deficit, and soil parameters significantly limit the potential for contaminants to migrate to the groundwater in the unlikely event that contaminants reach the permeable ground surface surrounding the TWF.

The water supply lines to the TWF will be under pressure and will be equipped with backflow prevention devices to prevent potential contamination of the unit's potable water supplies. Pursuant to the requirements of 40 CFR §270.14(b)(8)(iii), no impact to water supplies is expected.

2.5.6 Mitigating Effects of Power Outages

Electrical power will be supplied at the TWF to operate building heating systems, the Public Address (PA) system, various instruments, and other electrical equipment. Evacuation alarms, equipped with a battery backup, will be located throughout the TWF and will continue to operate for eight hours during a power failure. Lighting and fire alarms will also have battery back-up power for 8 hours. Operations at the waste management unit will be discontinued until power is restored. Neither a power nor an equipment failure would affect containment at the TWF waste management unit. These backup power supplies will be used to meet the requirements of Permit Section 2.10.1, *Required Equipment*.

A seismic event of sufficient magnitude will trip a seismic switch resulting in loss of power at the unit. The three circuit breakers in the main service to the site will each have a shunt trip solenoid connected to a control power circuit. The control power circuit will interrupt the power when seismic sensors are activated by a seismic event. A control scheme that requires a minimum of two activated sensors before control power is applied to the trip coil of the breakers will be used. This scheme will minimize the nuisance tripping of power upon activation of only one sensor. The seismic sensor proposed is the Kinometrics "Etna" device as used at TA-55 or an equivalent. This design feature is preventive in nature and is specified to prevent issues associated with downed or damaged power lines.

2.5.7 Preventing Undue Exposure

To prevent undue exposure of personnel to hazardous or mixed waste, PPE appropriate for the waste containers being managed and the work performed will be worn by all on-site personnel at the TWF. Hard hats, safety shoes or boots, and gloves may also be worn while equipment is being operated and when containers are being loaded or unloaded. The different levels of PPE are defined by the Occupational Safety and Health Administration (OSHA) as follows:

Level D: Coveralls; safety shoes or boots; safety glasses or goggles; hard hat; and appropriate gloves.

Level C: Full-face, air-purifying respirator with appropriate cartridges for the chemicals or hazards present; chemical-resistant suits; chemical-resistant safety boots or booties; and inner and outer gloves.

Level B: All Level C equipment plus self-contained breathing apparatus in place of a Level C full-face respirator.

Level A: All Level B equipment, plus a fully-encapsulating chemical-resistant suit.

Most waste-handling operations at the TWF will require that personnel handling wastes or working in the unit will wear modified Level D PPE, (safety glasses and hard hats are not always required depending on the associated work hazards identified in job-specific hazard control plans). Modified Level D may include any combination of items in Level D. There are instances where an increased level of PPE is required, such as during sampling of headspace gases and change out of container vent filters, an emergency, or an unusual hazardous situation. If a situation arises during an emergency and an increased level of PPE is required, the PPE will be compatible with the hazards present. All personnel that use PPE are trained and qualified to use the equipment properly.

All personnel involved in waste-handling operations in the TWF will be required to have training appropriate for their work. Training requirements are presented in Attachment F, *Personnel Training Plan*, of the Permit. Personnel will also be required to review job hazards prior to performing waste-handling activities. Sampling plans, hazard control plans (which address monitoring equipment), and work authorizations will be required, in accordance with LANL safety procedures. The need for Personal Contamination Monitors (PCM, e.g., dosimeter, Draeger™ Tubes) will be established using the job hazard review process. Together, the required training, plans, and work authorizations will help to prevent undue exposure to personnel.

2.5.8 Air Emission Standards for Containers

The hazardous wastes that will be stored in containers at the TWF may be subject to 40 CFR Part 264, Subpart CC, “Air Emission Standards for Tanks, Surface Impoundments, and Containers” and Permit Section 3.9, *Volatile Organic Air Emissions*, implementing the Subpart CC requirements. Permit Section 3.9, *Volatile Organic Air Emissions*, implementing the Subpart CC requirements will also apply in such a case. Subpart CC standards for containers, as currently set forth by the EPA, require that containers of hazardous waste be covered so that there are no detectable emissions of volatile organic compounds to the air. Inspection and monitoring requirements are also specified.

However, as indicated in 40 CFR § 264.1080(b)(6), these standards are not currently applicable to containers that are used solely for management of radioactive mixed waste in accordance with the regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act (EPA, 1994). This exemption will apply for the majority of waste containers stored and characterized at the TWF. The basis for this exemption is the need for these containers to be vented to prevent hydrogen gas buildup as described in the next section. These containers will be clearly labeled as radioactive in accordance with Permit Section 3.6, *Waste Container Labeling*. Under 40 CFR 264.1080, the standards are also not applicable to other containers of hazardous waste with less than 500 parts per million by weight (ppmw) VOCs or containers of less than 0.1 cubic meters (m³) (approximately 26 gal) capacity, which may apply to hazardous wastes generated on-site.

The following management standards apply for hazardous wastes managed at the TWF that do not meet any of the exemptions listed in 40 CFR §264.1080(b) (or 40 CFR §265.1080(b) for wastes managed under 40 CFR Part 262 generator standards). Generator information will be used to determine whether the concentration of volatile organics in a waste stream at the point of generation is less than 500 ppmw, or is equal to or greater than 500 ppmw, which is the threshold concentration for Subpart CC requirements. In the event that this information is not available, the waste will be characterized in accordance with Attachment C, *Waste Analysis Plan*, of the Permit. Any hazardous waste that is newly-generated at the TWF or re-categorized through the characterization of waste managed at the TWF will be characterized in this manner.

Three levels of air emission controls based on container design capacity are established in 40 CFR § 264.1086(b). The TWF hazardous waste storage procedures will require Level 1 controls based upon container design capacities if hazardous waste is managed. Containers of greater than 0.1 m³ and less than 0.46 m³ (approximately 119 gal) capacity and that meet U.S. Department of Transportation (DOT) specifications under 49 CFR, Part 178, will be kept closed during storage pursuant to 40 CFR § 264.1086(c)(3). Containers undergoing waste characterization activities may be opened for access for the purposes described in 40 CFR § 264.1086(c)(3). As required by 40 CFR § 264.1086(c)(4), these containers are subject to a visual inspection and monitoring program. During storage at the TWF, the container will be inspected to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position, in accordance with 40 CFR § 264.1086(c)(1)(ii). Pursuant to the Permit Section 2.6, *General Inspection Requirements* and Attachment E, *Inspection Plan*, containers will be inspected at least weekly at the TWF to ensure that the containers remain closed during storage.

2.5.9 Preventing Releases to the Atmosphere

In summary, as described in Section 2.5.8, *Air Emission Standards for Containers*, the majority of the waste containers at the TWF will manage and store radioactive mixed waste. Containers that store radioactive mixed waste are not subject to air emission standards under Subpart CC. See 40 CFR § 264.1080(b)(6). These containers are not subject to RCRA air emission control requirements because these rules conflict with DOE technical requirements for containers holding radioactive mixed waste. Containers holding radioactive mixed waste cannot be sealed with “vapor leak-tight covers” as required under U.S. Environmental Protection Agency (EPA) rules due to unacceptable pressure buildup of hydrogen gas and the safety concerns associated with potential rupture of the container or serious explosion hazard. See U.S. EPA, 59 FR 62896, 62914 (1994). For this reason, containers holding radioactive mixed waste are exempt from EPA’s air emission standards.

This information, however, pertains solely to DOE and Occupational Safety and Health Administration (OSHA) requirements for vents and air monitoring applicable to radioactive waste containers. This information is not relevant to containers holding hazardous waste only, which, as previously stated, are required to meet Subpart CC standards for air emissions. DOE requirements, in turn, address container standards for preventing air releases from transuranic waste containers through engineered controls and operations. Transuranic waste containers must meet the U.S. Department of Transportation (DOT) Specification 7A, Type A, packaging requirements delineated in 49 CFR §173.465. These are the same container specifications for hazardous waste containers described by 40 CFR Part 264, Subpart CC §264.1086 standards.

As stated above, vent filters in radioactive waste containers are needed to meet DOE standards. All transuranic waste containers generated and in storage are required to be vented to avoid gas buildup in the containers by DOE *Radioactive Waste Management Manual*, M435.1-1, Item III. L(1)(b), implementing DOE Order 435.1, *Radioactive Waste Management*. This is also contained in the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit* at Attachment A1, Section A1-1b[2]. The vents prevent the escape of particulate emissions from the containers and restrict the release of other gases at rates dependent on their molecular weight.

In addition to the waste container conditions subject to DOE, air sampling and monitoring commensurate with the hazards of the activities planned for the site must be performed to ensure that airborne radioactive is characterized in compliance with DOE Order 458.1, “*Radiation Protection of the Public and the Environment*” and 10 CFR 835, “*Occupational Radiation Protection*.” This may involve a range of monitoring options such as continuous air monitoring and routine swipe sampling for radioactive constituents determined by the waste management activities and locations.

2.6 PREPAREDNESS AND PREVENTION

The following sections present waste management techniques that will be used at TA-63 to comply with the preparedness and prevention requirements of 40 CFR Part 264, Subpart C. Additional information on the communication and alarm equipment available at LANL is presented in Attachment D, *Contingency Plan*, of the Permit. A discussion of the emergency equipment available for use at the hazardous waste management unit at the TWF is provided in Section 2.6.1 of this document. The TWF will be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, in accordance with 40 CFR § 264.31.

2.6.1 Required Equipment

In accordance with Permit Section 2.10.1, *Required Equipment*, at a minimum, the TWF will be equipped with safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems will be located both inside and outside the unit and will be monitored. The facility monitor/control system will be in operation 24 hours a day and will be located in the access control station at the TWF. Specific facility monitor/control system equipment to be located at the TWF is discussed below.

Emergency equipment will be located throughout the TWF and will include fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment. Detailed information on the required emergency and safety equipment located at the TWF is provided below.

Pursuant to NFPA standards, fire-alarm pull boxes and/or drop box push-button alarms will be located in the TWF where waste management activities will be conducted. Fire-alarm pull boxes may be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. The TWF will also be equipped with automatic fire-suppression alarm systems. The fire-suppression alarms will be activated when water flow is detected in the sprinkler pipes of the fire-suppression system. Upon activation of the fire-alarm system, an alarm will sound and red lights will flash to alert personnel of emergency conditions. All fire-alarm pull boxes and

automatic fire-suppression systems that will be located at the TWF will alert the LAFD through the LACCDC.

In addition to the alarms described above, a PA system may also be used to announce emergency conditions or to initiate an evacuation at the TWF. The PA system will be audible throughout the TWF and will be activated at the access control station in the Operations Support Building.

Personnel working at the TWF will have the ability to communicate the location and nature of hazardous conditions using conventional telephones or cellular telephones to call the access control station. This type of call will summon assistance from the Emergency Management and Response Office, local police and fire departments, and state emergency response teams, if necessary.

Fire control equipment will be readily available for the waste management unit. Portable fire extinguishers will be available and may be used by trained on-site personnel depending on the size of the fire and the fuel source. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. Fire hydrants are located in accordance with NFPA standards on the west and east sides of the TWF pad and near the Operations Building (see Figure 2-5). Water will be supplied to the fire hydrants by a municipal water system which will provide adequate volume and pressure (i.e., greater than 1,000 gal per minute and 90 pounds per square inch static pressure) to multiple water hoses in the event of a fire. The LAFD will supply all water hoses needed in the event of a fire at the TWF.

There will be spill kits available at the TWF in the storage areas to mitigate containable spills. These kits will typically contain sorbents, neutralizers, PPE and other equipment essential for containment of spills. Trained personnel will use the spill kits only if they know what has been spilled and they are sure their actions will not put themselves or others at risk. In addition to the spill kits, cleanup equipment such as shovels, bags, drums, etc. will be available at the TWF. Overpack drums and sorbents will also be stored in an equipment storage shed on the west side of the TWF. Emergency personnel can also provide additional spill control equipment and assistance upon request depending on the size and severity of the spill.

Personnel decontamination equipment that will be available at the TWF will include safety showers and eye wash stations located inside each of the storage buildings. These will be situated at all the waste storage buildings in accordance with OSHA requirements. Additional decontamination equipment may be provided by emergency personnel. Material Safety Data Sheets MSDS (e.g., for cleaners or solvents used on site) will be available at operations areas and will provide useful exposure information in accordance with OSHA requirements.

2.6.2 Testing and Maintenance of Equipment

In accordance with Permit Section 2.10.2, *Testing and Maintenance of Equipment*, all communications and alarm systems, fire protection, and decontamination equipment at TWF will be inspected, tested, and/or maintained as provided according to the inspection schedule. The frequency of inspection will be adequate to ensure proper operation in the event of an emergency. Maintenance, repair and replacement of emergency equipment will be performed as required.

2.6.3 Access to Communications or Alarm System

When waste is being handled in the TWF hazardous waste management unit, all personnel

involved will have immediate access to an internal alarm or emergency communication devices, either directly or through visual or voice contact with another individual. These devices will include fire alarms, evacuation alarms, and cellular telephones as specified in Permit Section 2.10.3, *Access to Communications or Alarm Systems*. In the event of an emergency, communication equipment at the TWF will allow personnel to contact emergency response personnel, the access control station at the Operations Support Building, the operating group management, and/or the LACCDC operator. In addition to communications and alarm systems, the TWF personnel may carry pagers so that they can be contacted by the access control station and other LANL emergency support personnel at all times.

2.6.4 Space Requirements

Waste containers in the TWF storage units will be arranged in accordance with Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*. In addition, storage configuration within a row will depend upon the type of container, its size, and its weight restrictions. Fifty-five-gal drums will be placed on a pallet, banded in an array of four drums, and arranged in rows allowing inspection of all sides and bottom. The four-drum on a pallet array may be stacked up to three units high. SWBs and SLB2s will be stacked to a maximum of two containers high. Stacking height for other containers will be assessed on the basis of container size and weight restrictions (which may prohibit stacking), to address any safety concern.

2.7 CONTINGENCY PLAN

In accordance with 40 CFR Part 264, Subpart D and 40 CFR § 270.14(b)(7), emergency measures applicable to the TWF are provided in Attachment D, *Contingency Plan*, of the Permit. Specific information on emergency response resources and release prevention/mitigation at the TWF is provided below. A copy of the Contingency Plan in Attachment D of the Permit will be maintained at the Operations Support Building, 63-0144. Hazardous waste compliance personnel will be primarily responsible for updating the plan.

Figure 2-38 shows the evacuation route and muster area that may be used at the TWF in the event of an emergency. The evacuation route and muster area location are subject to change. A listing of emergency equipment currently available for use at the TWF is provided below.

The waste management personnel at the TWF will be trained in emergency procedures and responsible for correction of a nonsudden release from the unit if the correction can be performed safely with normal maintenance and management procedures. Personnel from the Emergency Management and Response Office may provide assistance in mitigating releases. Any correction methods for nonsudden releases that have resulted in an impact to the environment will be coordinated with the NMED.

Contingency or emergency measures are unanticipated "fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste ..." for which a schedule of remedial actions cannot be reasonably ascertained. Any remedial actions carried out under the provisions of the Contingency Plan will be performed as soon as possible to ensure protection of human health and the environment, as described in Attachment D of the Permit. These remedial actions include site cleanup; proper handling of recovered waste, contaminated soil, or contaminated surface water; decontaminating equipment, as needed; replacing or repairing equipment, as needed; and testing to verify successful cleanup.

2.7.1 Emergency Equipment at the TWF

The following sections list the equipment located at the TWF in case of an emergency. The list is similar to the unit specific lists included in the Contingency Plan of the Permit.

2.7.1.1 Fire Control Equipment:

ABC and/or BC rated fire extinguishers are located in the storage buildings and the characterization trailers. An ABC rated fire extinguisher is located in each vehicle used to transport waste containers.

Description of General Capabilities:

Portable, manually operated, fire extinguishers may be used by any qualified employee in event of a small fire. For larger fires, the LAFD is alerted.

2.7.1.2 Communication Equipment:

Telephones and the public address system are located inside the Operations Support Building.

Description of General Capabilities:

Telephones for internal and external communication are available for use by any employee. Employees can be notified of an emergency situation and appropriate response action through the PA system.

Fire alarm pull stations are located in the storage buildings and at operations support building.

Description of General Capabilities:

Manually-operated fire alarms may be activated by any employee in the event of a fire to alert TWF site personnel, LANL Emergency Response Personnel, and the LAFD.

Fire and public address system alarms

Description of General Capabilities:

The fire and public address system are activated or used to provide a sound signal to alert personnel of fires or the need to clear the area.

2.7.1.3 Decontamination Equipment:

Eyewash/emergency shower stations and MSDSs are available in the storage buildings and the Operation Support Building. MSDS information is maintained where appropriate for personnel accessibility and are used for chemicals that will be needed to support operations or emergency activities.

Description of General Capabilities:

Eyewashes and emergency showers may be used by personnel who receive a chemical splash to the eyes or body. Specific MSDSs should be reviewed prior to working with chemicals.

2.7.1.4 Personal Protective Equipment

Personnel at TWF will be required to use appropriate PPE to protect themselves from hazards found under normal conditions. This PPE may include gloves, steel toe shoes, and eye protection, additional PPE may be required during unusual hazardous situations. First aid kits and hearing protection will also be available.

Description of General Capabilities:

To prevent undue exposure of personnel to hazardous or mixed waste, PPE appropriate for the waste containers being managed will be worn by all on-site personnel at the TWF (see section 2.5.6). First aid kits may be used by personnel who sustain minor injuries at the unit in the course of operations. Hearing protection may be used by operations personnel to mitigate noise impacts.

2.7.1.5 Other

If transportation is needed for evacuation, vehicles may be obtained through the Emergency Management and Response Group.

2.7.2 Support Agreements with Outside Agencies

Information on support agreements with outside agencies, as required by 40 CFR § 264.37, is presented in Attachment D, *Contingency Plan*, of the Permit. These include local and state emergency organizations, police, fire, and medical agencies.

2.8 IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

Incompatible wastes will be segregated and separated during storage in accordance with 40 CFR § 264.177(c) and Permit Section 2.8.2, *Incompatible Wastes Precautions*. All waste will be segregated and stored in accordance with DOT compatibility groups. These DOT compatibility groups are: flammables (Class 3), oxidizers (Class 5.1), combustible and noncombustible miscellaneous hazardous material (Class 9), corrosives (Class 8), poisons (Class 6), radioactive (Class 7), acids (Class 8), reactives (Class 4), and non-regulated materials. Incompatible wastes will be separated and segregated from other wastes and materials by means of a berm, dike, wall, or other specific means (e.g., secondary containment pallets, modular sheds, distance) during storage. In addition, no incompatible waste will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 40 CFR §§ 264.177(a) and (b), and 40 CFR § 270.15(d).

There will be no sources of open flames allowed within the unit. Cutting and welding activities will not be conducted in the vicinity of waste containers. Ignitable or reactive wastes will be packaged in sealed containers and will not be exposed to ignition sources. Waste management practices of segregation and separation by distance in the TWF storage buildings will minimize the possibility of accidental ignition. Indoor storage eliminates exposure to spontaneous ignition sources such as sunlight and contact with hot surfaces. These wastes will be stored a minimum of 15 m from the TA-63 boundary in accordance with 40 CFR § 264.176 and Permit Section 2.8, *Special Requirements for Ignitable, Reactive, or Incompatible Waste*. The distance to the nearest TA-63 boundary from the TWF boundary is approximately 1.5 m (5 ft) further than the 15 m requirement as shown in Figure 2-39. This distance is only applicable for the south-western side of the TWF where no waste storage is anticipated. The areas and structures where storage occurs in the unit are all significantly over 15 m from the TA-63 boundaries.

Only non-sparking tools will be used for waste management operations such as removing plugged filter vents from waste containers. Smoking will not be allowed in the TWF. “No Smoking” signs will be conspicuously placed wherever there is a potential hazard from ignitable or reactive waste, as required by 40 CFR § 264.17(a). Precautions will be taken to prevent reactions that may generate extreme heat, pressure, fire, or explosion. TWF operations will

minimize the potential for reactions that may produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment. TRU waste containers will have vents to prevent over-pressurization as discussed previously. Containers will not be opened during storage except to replace vents if necessary. Together, these measures will meet the requirements of 40 CFR §§ 264.17(a) and (b) and 264.176. Cutting and welding activities will be conducted in the TWF only under special authorization and will not be conducted in the vicinity of waste containers. Lightning protection will be provided at the TWF site as described in Section 2.5.2 of this document.

Permit condition 2.8.2 also requires that the facility will ensure that incompatible wastes or materials are not stored so that a release or spill of these wastes might commingle in a fire suppression water holding area or tank. As a performance based permit condition, it is very unlikely that this event would occur at the TWF. The majority of transuranic waste in containers is solid form and not liquid. There is no waste management process occurring at the TWF other than storage that would raise the potential for mixing of spills (e.g., such as waste treatment involving liquid processes). The fire suppression water holding area at the TWF is the retention pond and this is relatively far from the storage buildings. The enclosed nature of the buildings will act as confinement for solid waste forms in the event of a spill. The probability of liquids in waste containers is low based on generator packaging requirements for transuranic waste and the TWF waste acceptance criteria. Any known liquid containing waste container will be stored in secondary containment pallets. The potential liquid amounts in individual containers are relatively low and waste spill remediation activities such as spill kits or berms would have an excellent probability of blocking spills from reaching the retention pond. In the event of a large spill or one that represented an immediate threat to the environment, the provisions and LANL Facility resources of the Contingency Plan would be implemented. In the event of a fire, the large amounts of collected firewater relative to the amount of potential wastes would serve to minimize the reactivity of waste mixing. A fire in a permitted unit would also involve the implementation of the Contingency Plan, including risk assessment of the runoff and resulting protective actions.

2.9 INSPECTION

In accordance with the requirements of 40 CFR §264.15 and Permit Section 2.6, *General Inspection Requirements*, the TWF will incorporate the inspection requirements outlined in Attachment E, *Inspection Plan*, of the Permit.

2.9.1 Additions to Inspection Plan Necessary for the TWF

In accordance with 40 CFR §§ 264.15(b) and 264.602, the TWF is inspected according to the schedule provided below. Inspection frequencies are adequate based on the deterioration rates of equipment/systems and the probability of harm to human health or the environment if failure of the equipment/systems occurs, or any operator error goes undetected between inspections.

2.9.1.1 On Day(s) of Waste Handling

Inspections will be conducted daily, or the day after, waste handling activities are conducted at the TWF. Waste handling activities are outlined in Attachment E, *Inspection Plan*, Section E.2.1 of the Permit.

2.9.1.2 Weekly Inspections

Weekly inspections of the storage areas at the TWF will be conducted as long as waste remains in storage. Weekly inspections will be conducted in accordance with Attachment E, *Inspection Plan*, Section E.2.2 of the Permit.

2.10 RECORDKEEPING REQUIREMENTS

In accordance with 40 CFR Part 264, Subpart E, recordkeeping requirements applicable to the TWF are discussed in the following sections. TWF operations will meet the requirements contained in Permit Section 2.12, *Recordkeeping and Reporting*.

2.10.1 Manifest Systems

Waste information supporting shipping manifests will be updated to record TWF TRU waste characterization activities. This data will support manifest information needed for shipments of waste received at, or initiated from, the LANL Facility as a whole. Documentation for each TRU waste container will be maintained from the time of receipt at the TWF and records will follow each container to the RANT Facility where the manifest is completed upon shipment to WIPP. Waste characterization data for manifests for secondary mixed low-level and hazardous waste streams at the TWF will follow the record keeping practices of Permit Section 2.12.1, *Manifest Systems* or the requirements of 40 CFR Part 262.

2.10.2 Facility Operating Record

Many of the records required under the Permit Section 2.12.2, *Facility Operating Record*, will be generated and maintained at TWF in support of LANL Facility requirements. In particular, these include:

- Hazardous waste received and managed, Section 2.12.2(1);
- Location of waste stored, Section 2.12.2(2);
- Waste analyses, Section 2.12.2.(3);
- Contingency Plan incidents, Section 2.12.2.(4);
- Inspection records, Section 2.12.2.(5);
- 40 CFR §268.7 notices, Section 2.12.2.(10);
- Secondary containment records, Section 2.12.2.(15);
- Personnel training records, Section 2.12.2.(16);
- Alternate emergency equipment, Section 2.12.2(17); and
- Fire suppression system activations, Section 2.12.2(18).

TWF personnel will be trained in the implementation of these record requirements and will maintain logbooks or other formats to enable saving applicable data. These or compiled records will be maintained in the Operations Support Building as part of the unit's operating record.

2.10.3 Availability of Facility Operating Record

The TWF operations will comply with the requirements of Permit Section 2.12.3, *Availability of Facility Operating Record*, by keeping records on-site at the Operations Support Building or by passing data on to centralized LANL records or record organizations.

2.10.4 Biennial Report

The TWF will provide timely waste management data to cover the unit's activities to support the reporting requirements of Permit Section 2.12.5, *Biennial Report*. This will include a description and the quantity of each hazardous waste the facility received during the calendar years covered by the report year and the method of treatment, storage, or disposal for each hazardous waste.

2.10.5 Unmanifested Waste Report

Waste from off-site sources may be accepted on a limited basis at LANL provided that such waste is properly characterized and manifested and meets the requirements listed in Permit Section 2.2.1, *Hazardous Waste from Off-Site Sources*. No wastes will be accepted for treatment at the TWF.

2.10.6 Additional Reports

In accordance with the requirements of 40 CFR § 264.77, LANL will also report the following to the NMED-HWB:

- Releases and unanticipated fires and explosions that require implementation of the contingency plan, as specified in 40 CFR § 264.56(i);
- Facility closures, as specified in 40 CFR § 264.115; and
- As otherwise required by 40 CFR Part 264, Subparts F, BB, and CC.

2.10.6.1 Waste Minimization

In accordance with the requirements of 40 CFR § 264.75 and Section 2.9 of the Permit, LANL develops a report outlining annual waste minimization efforts. This report is submitted to NMED-HWB prior to December 1 of each year.

2.10.6.2 Reporting Other Noncompliance

In accordance with the requirements of Permit Section 1.9.13 and 1.9.14, LANL develops an annual report outlining any non-threatening release from or at a permitted unit and all instances of noncompliance not reported as an anticipated noncompliance. This report is submitted to NMED-HWB prior to December 1 of each year.

Table 2-1
Proposed Storage Containers for Mixed Transuranic Waste

Container Type	Description	Requirements	Filter Vents ^a
Standard 55-gallon Drum	<ul style="list-style-type: none"> Gross internal volume of 7.3 ft³ (0.21 m³). Constructed of mild steel. May also contain ridge, molded polyethylene (or other compatible material) liner. 	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Pipe Overpack Container (POC)	55-gallon drum containing a pipe component and dunnage.	DOE/WIPP 11-3384 Rev. 1 Page 9 of 27 DOT Type A payload container.	One or more filter vents installed on top of the container
Standard Large Box 2 (SLB2)	Gross internal volume of 261 ft ³ Length 108" x Height 74" x Width 69"	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	Up to 6 filter vents installed on top of the container
Standard Waste Box (SWB)	Gross internal volume of 66 ft ³ (1.88 m ³). Length 69" x Height 37" x Width 52"	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Standard 85-gallon Drum Over Pack	<ul style="list-style-type: none"> Gross internal volume of 11.3 ft³ (0.32 m³). Used for over packing contaminated 55-gallon drums. 	DOT Specification 7A and is certified to meet applicable requirements for Type A packaging	One or more filter vents installed on top of the container.
100-gallon (379-liter) Drum	<ul style="list-style-type: none"> gross internal volume of 13.4 ft³ (0.38m³). May be direct loaded with contact-handled TRU mixed waste 	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Ten Drum Overpack	<ul style="list-style-type: none"> Gross internal volume of 160 ft³ (4.5 m³). Used to contain up to ten standard 55-gallon drums or one SWB 	DOT Specification 7A and is certified to meet applicable requirements for Type A packaging	One or more filter vents installed on top of the container.
Oversized Waste Box	<ul style="list-style-type: none"> Gross internal volume greater than 11.3 ft³ (0.32 m³). Used for oversized waste. 	DOT Specification 7A and is certified to meet applicable requirements for Type A packaging	Two or more filter vents installed on sides of container.

^a Vents are high-efficiency particulate air grade filters to preclude container pressurization caused by gas generation and to prevent particulate material from escaping. Vents have an orifice approximately 0.375 inches (9.53 millimeters [mm]) in diameter through which internally generated gas may pass. Filter media can be any material compatible with the contents of the container (e.g., composite carbon, sintered metal).

CFR = Code of Federal Regulations
DOT = U.S. Department of Transportation
ft³ = cubic feet
m³ = cubic meters

TABLE 2-2
Waste Container Storage Capacity Example

Container Type	Number of Containers	Nominal Container Dimensions (feet)	Nominal Container Capacity (gallons)	Total Gallons
55-Gallon Drum	992	Height = 2.79 Diameter = 1.88	55	54,560
Standard Waste Box (SWB)	38	Height = 3.03 Length = 5.73 Width = 4.33	470	17,860
Standard Large Box 2 (SLB2)	5	Height = 5.38 Length = 8.50 Width = 5.25	1,790	8,950
Oversize Waste Box (OWB)	4	Height = 7.0 Length = 13.0 Width = 9.0	6,126	24,504
			TOTAL CAPACITY	105,874

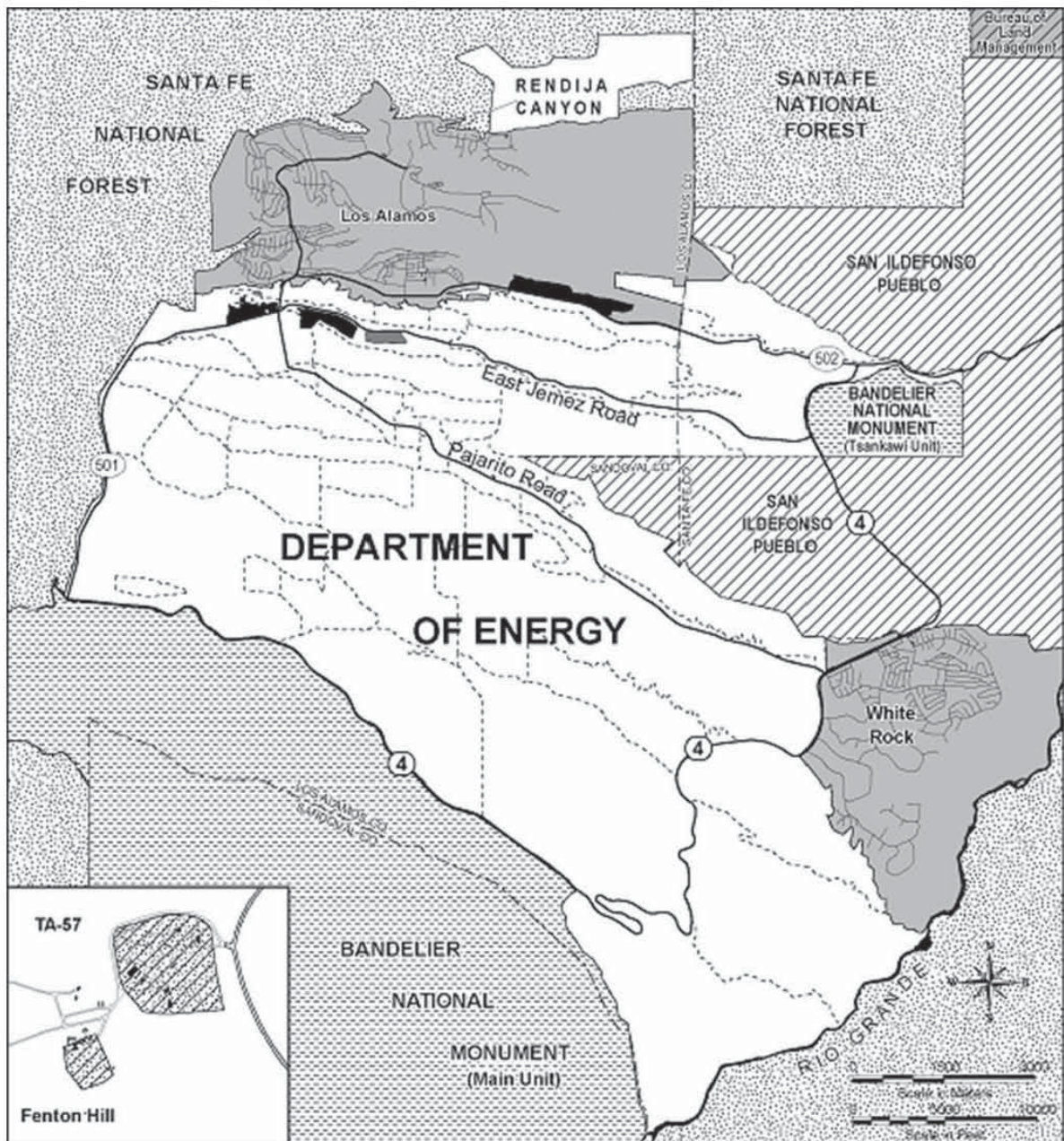
Table 2-3
References for Waste Stored at the TWF

Waste Type	Waste Stream Description	Permit Attachment C, <i>Waste Analysis Plan</i>, Waste Description Locations^a
Hazardous (generated at the TWF only)	<ul style="list-style-type: none"> Spent Solvents Contaminated Solid Waste Paint and Related Waste Corrosive Liquid Waste Solid Metals and Metallic Compounds Mercury Waste Contaminated Non-Corrosive Aqueous and Non-aqueous Solutions and Sludges Gas Cylinder Waste Used Batteries and Battery Fluids 	<ul style="list-style-type: none"> Section C.1.2.1, Non-mixed Hazardous Waste Table C-2, Descriptions of Hazardous Waste Stored at the Facility Table C-9, Parameters, Characterization Methods, and Rationale for Parameter Selection for Hazardous Waste Table C-16, Summary of Characterization Methods for Hazardous Waste
Low-Level Mixed (only TRU waste that is re-classified to Low Level Mixed will be stored at TWF until it can be dispositioned)	<ul style="list-style-type: none"> Lead Waste Noncombustible Debris Combustible Debris Organic Contaminated Combustible Solids Mercury Wastes Aqueous and Non-aqueous Liquids Contaminated with Heavy Metals and/or Organics Gas Cylinder Waste 	<ul style="list-style-type: none"> Section C.1.2.2, Mixed Low-Level Waste Table C-3, Descriptions of Mixed Low-Level Waste Stored at the Facility Table C-10, Parameters, Characterization Methods, and Rationale for Parameter Selection for Mixed Low-Level Waste Table C-17, Summary of Characterization Methods for Mixed Low-Level Waste
Transuranic Mixed	<ul style="list-style-type: none"> S3000 Homogeneous S4000 Soil/Gravel S5000 Debris 	<ul style="list-style-type: none"> Section C.1.2.3, Mixed Transuranic Waste Table C-4, Facility MTRU

		<p>Waste Stream Waste Matrix Codes Correlated with Facility Waste Identification Systems</p> <ul style="list-style-type: none">• Table C-5, Descriptions of Mixed Transuranic Waste Stored at the Facility• Table C-11, Parameters, Characterization Methods, and Rationale for Parameter Selection for Mixed Transuranic Waste• Table C-18, Summary of Characterization Methods for Mixed Transuranic Waste
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^a From *Los Alamos National Laboratory Hazardous Waste Facility Permit* (LANL, 2010)

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Land Use Surrounding LANL

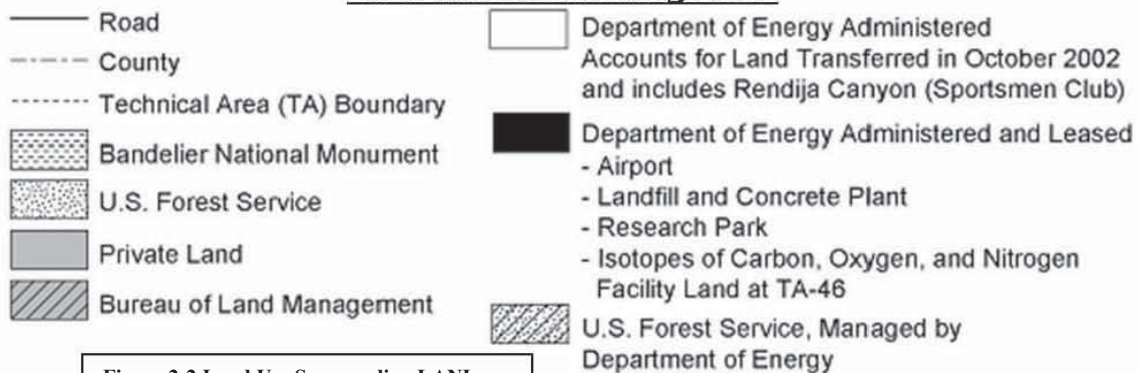


Figure 2-2. Land Use Surrounding LANL

Source: Modified from LANL 2004c.

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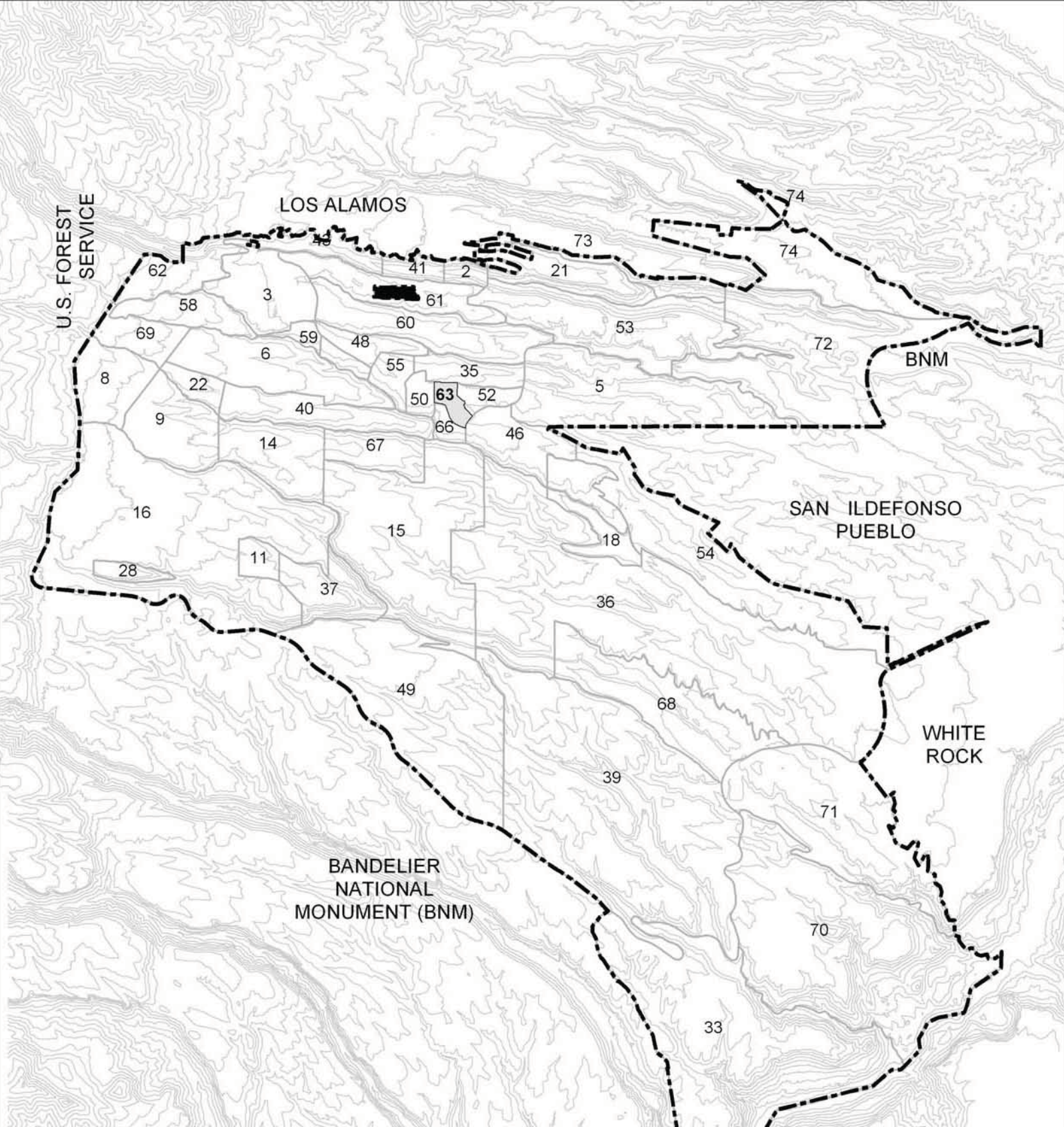
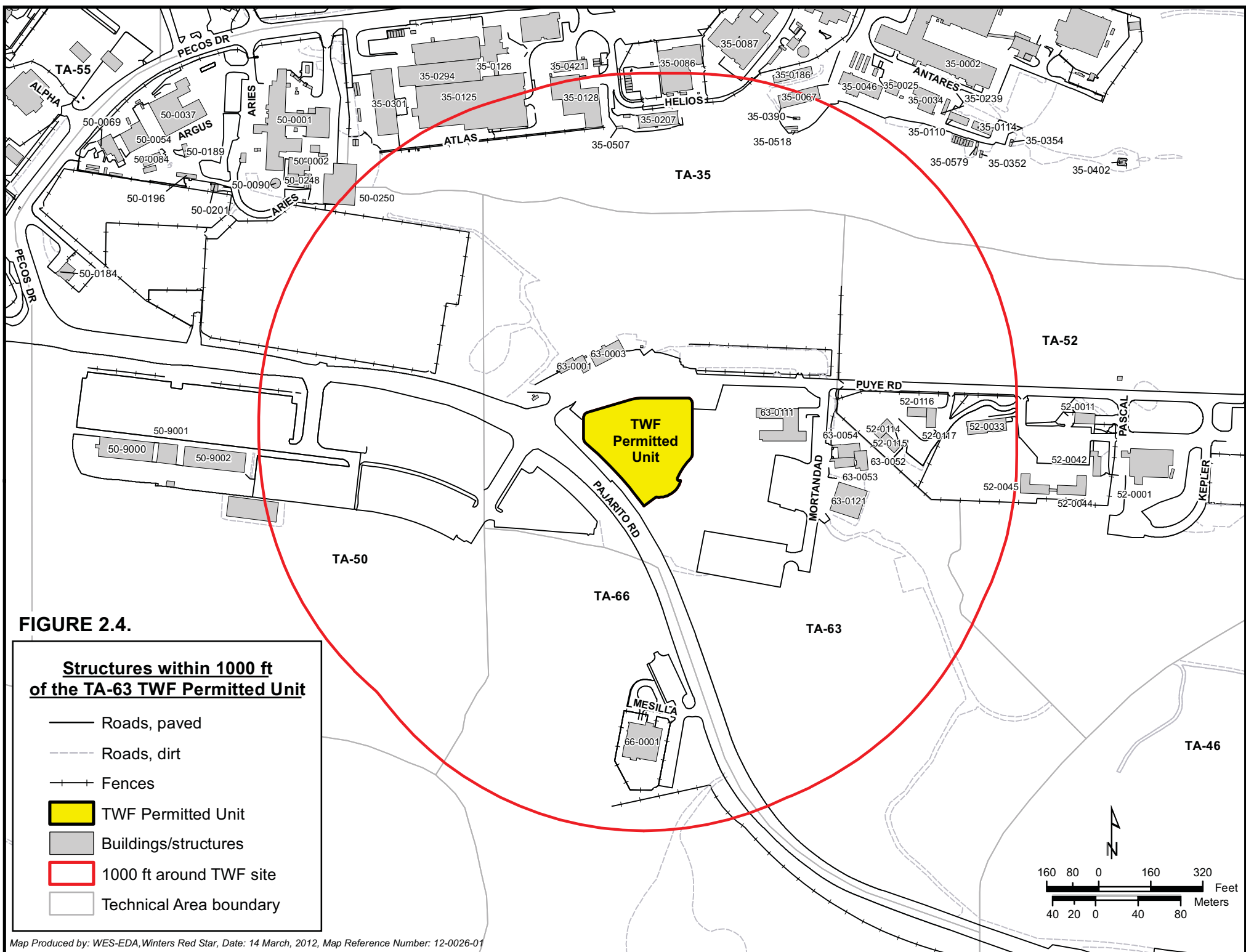


Figure 2-3. Location of TA-63 at LANL

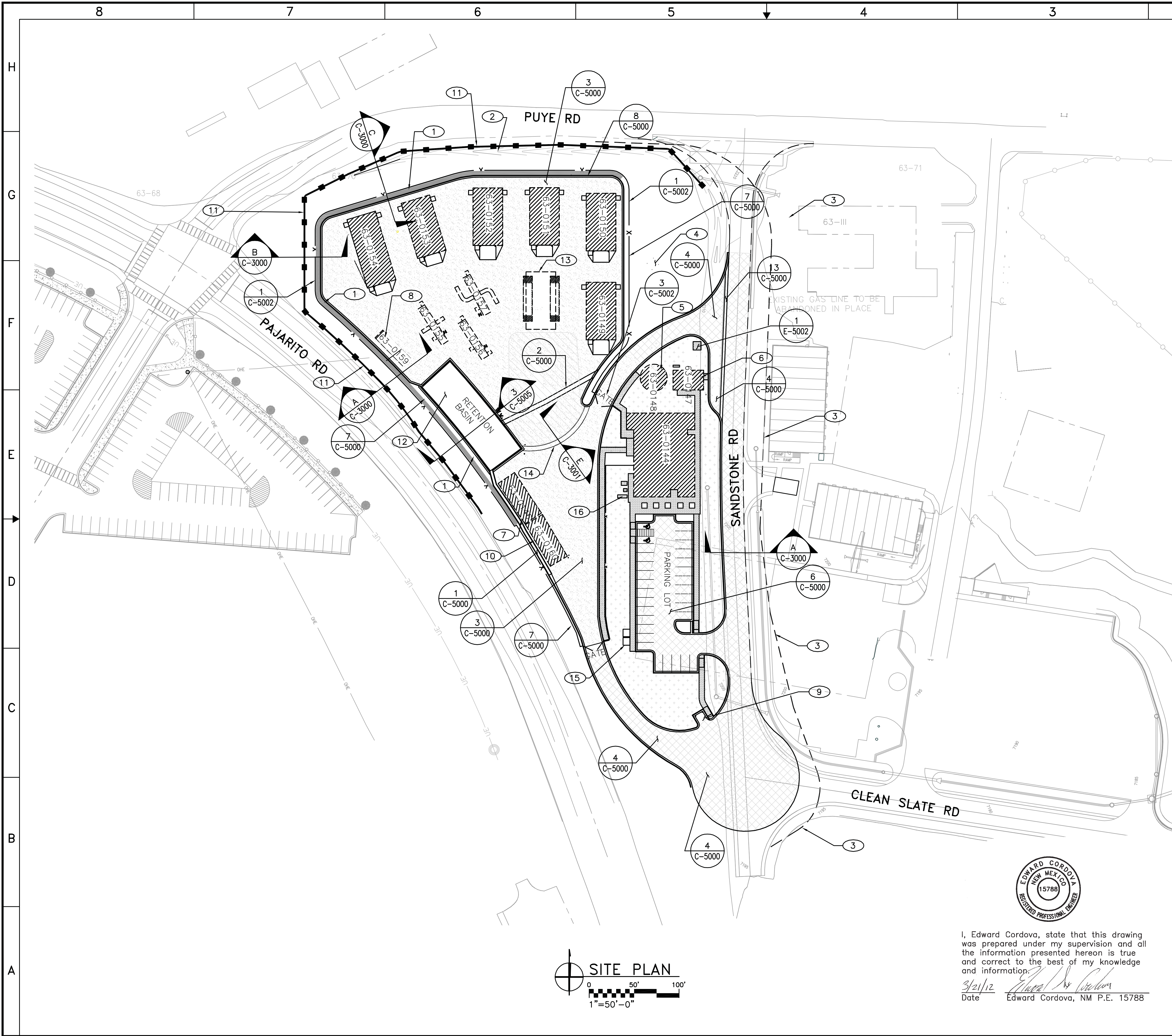
Location of TA-63 at Los Alamos National Laboratory

- Not LANL property
- LANL boundary
- TA-63
- Technical Area boundary (2010-08-13)
- Contours, 100 ft

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GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE INTENT OF THIS SHEET IS TO GIVE AN OVERALL SITE PLAN VIEW. SEE SHEETS C-1001 & C-1002 FOR MORE DETAIL.

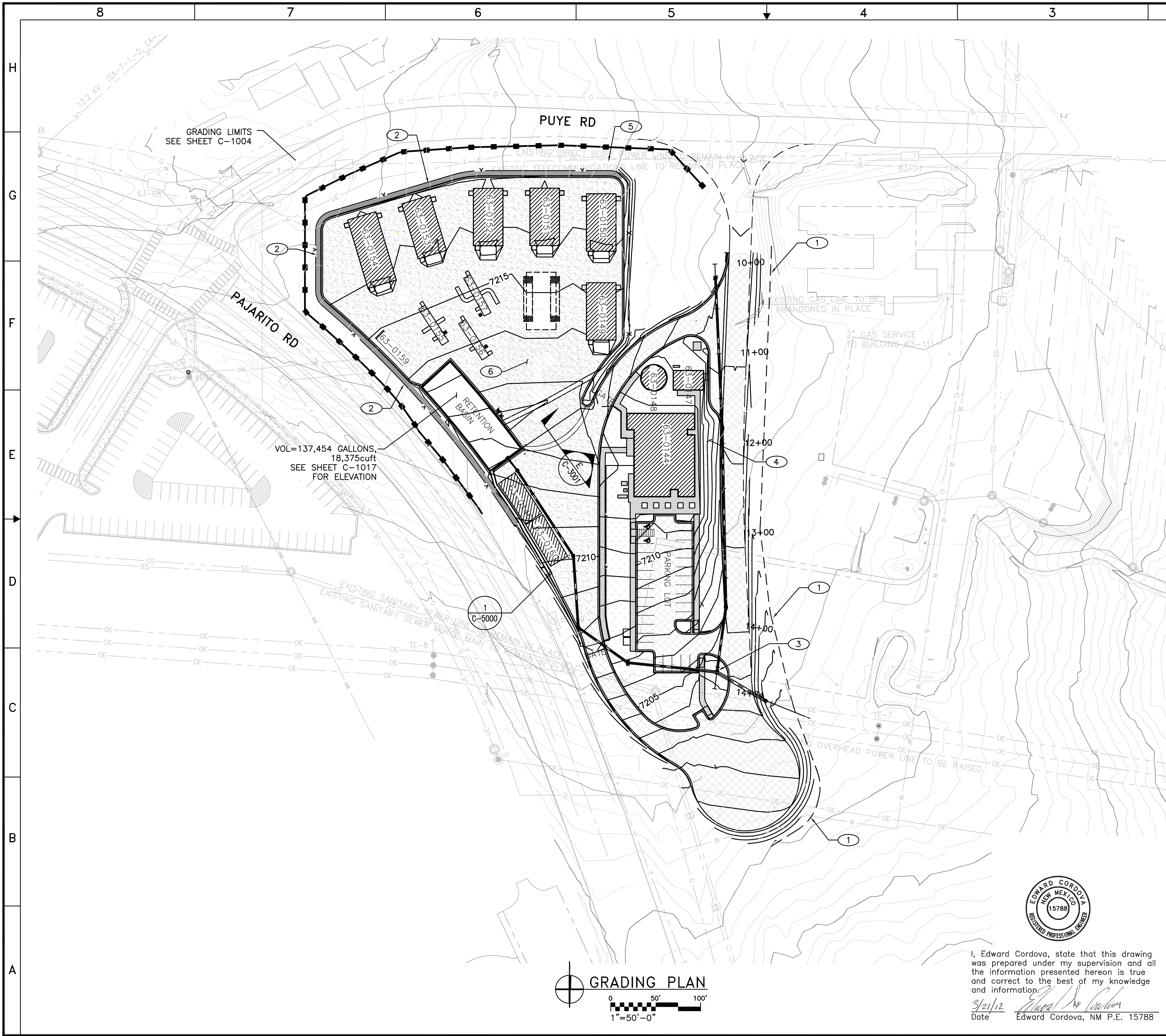
KEYED NOTES

- 1 EXISTING RETAINING WALL BUILT PER TWF PHASE A
- 2 EXISTING ROADSIDE SWALE BUILT PER TWF PHASE A
- 3 LIMITS OF CONSTRUCTION.
- 4 EXISTING MONITORING WELL TO REMAIN, DO NOT DISTURB
- 5 FIRE WATER STORAGE DIAMETER=35ft, HEIGHT=21ft, VOLUME=150,000gal
- 6 UTILITY BUILDING, SEE ARCHITECTURAL PLANS
- 7 FORKLIFT CHARGING STATION
- 8 CSMM STORAGE BUILDING
- 9 DUMPSTER PAD
- 10 EQUIPMENT STORAGE SHED
- 11 K-12 P1 VEHICULAR BARRIER, SHEET END OF CONSTRUCTION DRAWINGS. THIS COMMENT IS CLASSIFIED AS SAFETY CLASS PER LANL PSDR (102355-RPT-000012-R0)
- 12 RETENTION BASIN SEE SHEETS C-1017 & C-5005 FOR DETAILS
- 13 AREA DESIGNATED AS FUTURE EXPANSION
- 14 LIMITS OF THE LOADING & UNLOADING AREA
- 15 LEEDS STORAGE AREA (TYP. 2)
- 16 EQUIPMENT PADS, SEE MECHANICAL SHEETS

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION			DWN	DSGN	CHKD	SUB APP
WEIDLINGER-NAVARRO <div>JV</div> NORTHERN NM										
TRU WASTE FACILITY PROJECT PROJECT SITE Figure 2-5. Overall Site Plan							DRAWN	D PADILLA		
							DESIGN	J RAEI		
							CHECKED	E CORDOVA		
BLDG							DATE	03-22-12		
SUBMITTED				TA-63 APPROVED FOR RELEASE						
<div><div>PO Box 1663 Los Alamos, New Mexico 87545</div></div>							SHEET	C-1000		
							8	OF	740	
CLASSIFICATION XXX				REVIEWER XXX				DATE		
PROJECT ID				DRAWING NO					REV	
102355				C55443					F	

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GENERAL NOTES

1. THE INTENT OF THIS SHEET IS GIVE AN OVERVIEW OF THE TWF GRADING CONCEPT. REFER TO SHEETS C-1004 & C-1005 FOR DETAILED GRADING INFORMATION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE SUBCONTRACTOR WILL IMPLEMENT AND MAINTAIN BEST MANAGEMENT PRACTICES (BMPs) AND CONTROL MEASURES PRIOR TO AND DURING CONSTRUCTION AS SPECIFIED IN THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
5. THE SUBCONTRACTOR WILL STABILIZE ALL DISTURBED AREA IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) BY LANL.

KEYED NOTES

- ① LIMITS OF GRADING WORK
- ② RETAINING WALL TO BE BUILT PER PHASE A CONSTRUCTION
- ③ TIE INTO EXISTING CULVERT PIPE, BUILT PER PHASE A CONSTRUCTION
- ④ 3:1 FILL SLOPE
- ⑤ EXISTING ROADSIDE SWALE
- ⑥ LIMITS OF LOADING & UNLOADING AREA

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

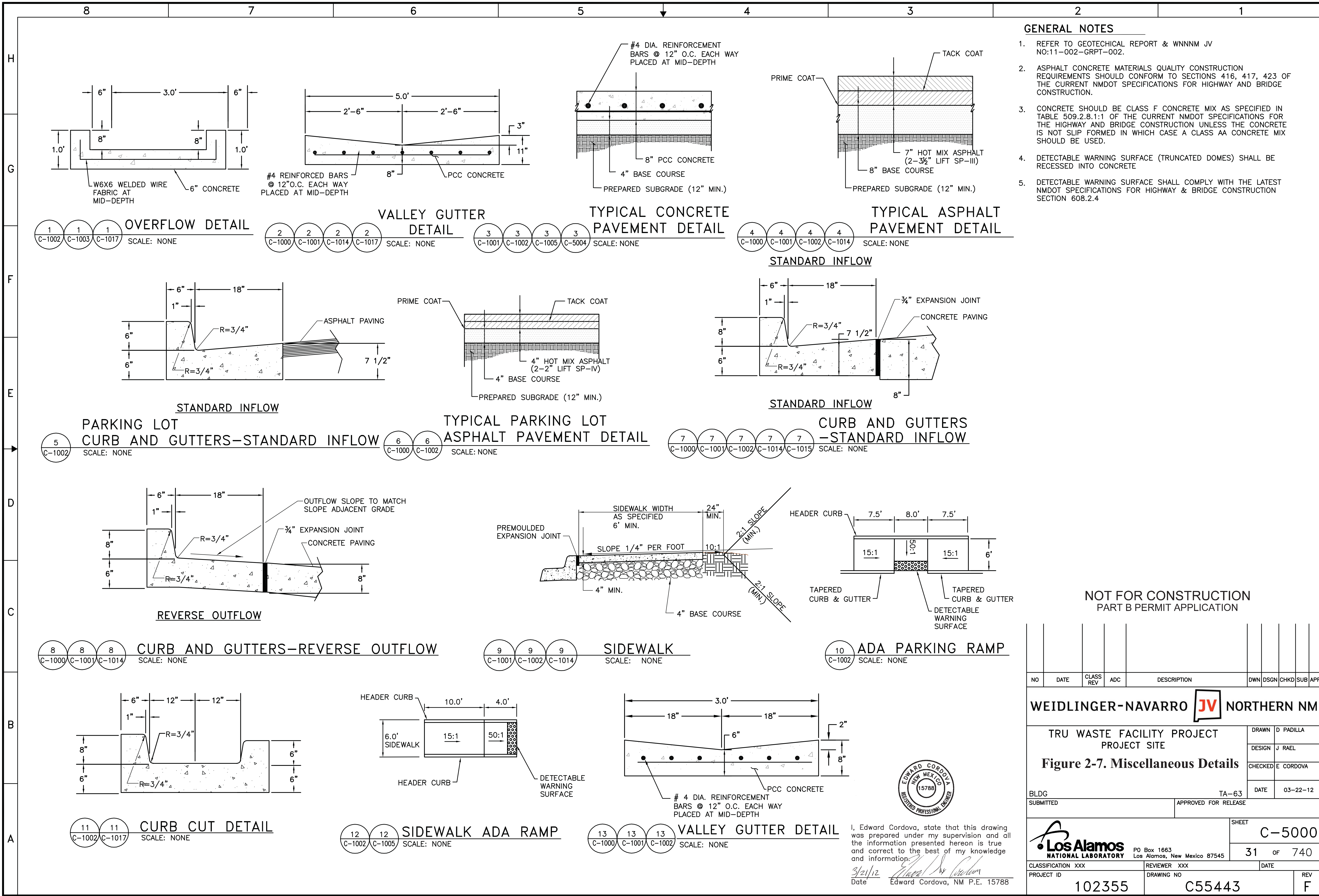
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TRU WASTE FACILITY PROJECT PROJECT SITE					DRAWN D PADILLA				
Figure 2-6. Overall Grading Plan					DESIGN J RAE				
					CHECKED E CORDOVA				
BLDG TA-63					DATE 03-22-12				
SUBMITTED					APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY					SHEET C-1003				
PO Box 1663 Los Alamos, New Mexico 87545					11 OF 740				
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PROJECT ID 102355					DRAWING NO C55443				
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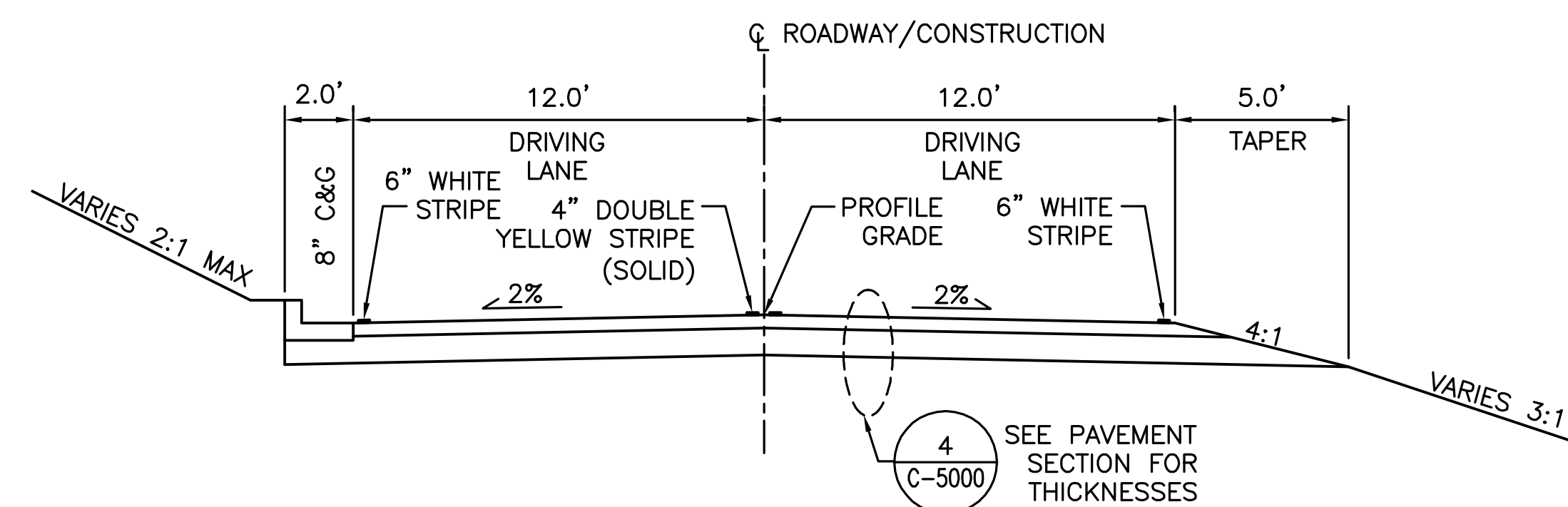


I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date Edward Cordova, NM P.E. 15788

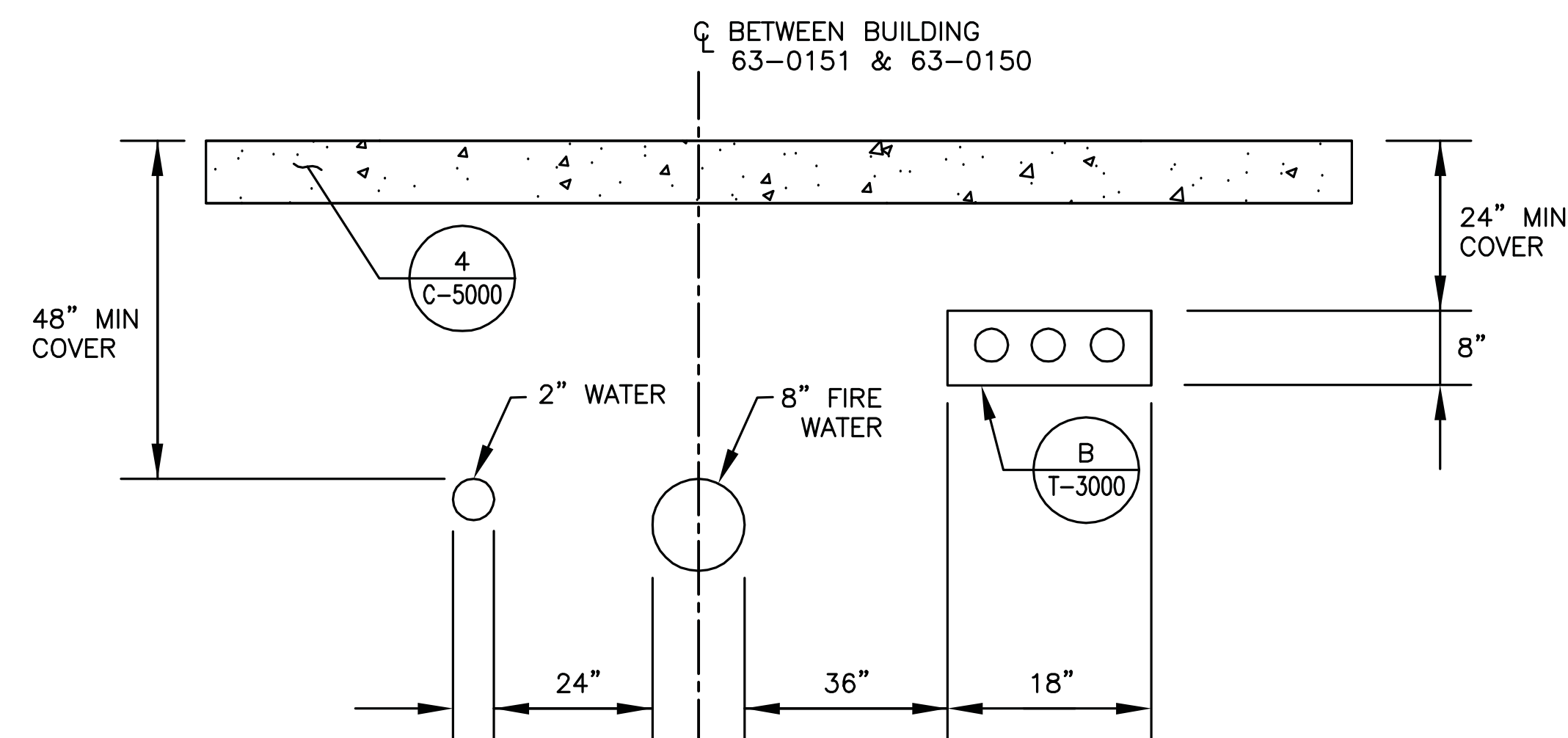
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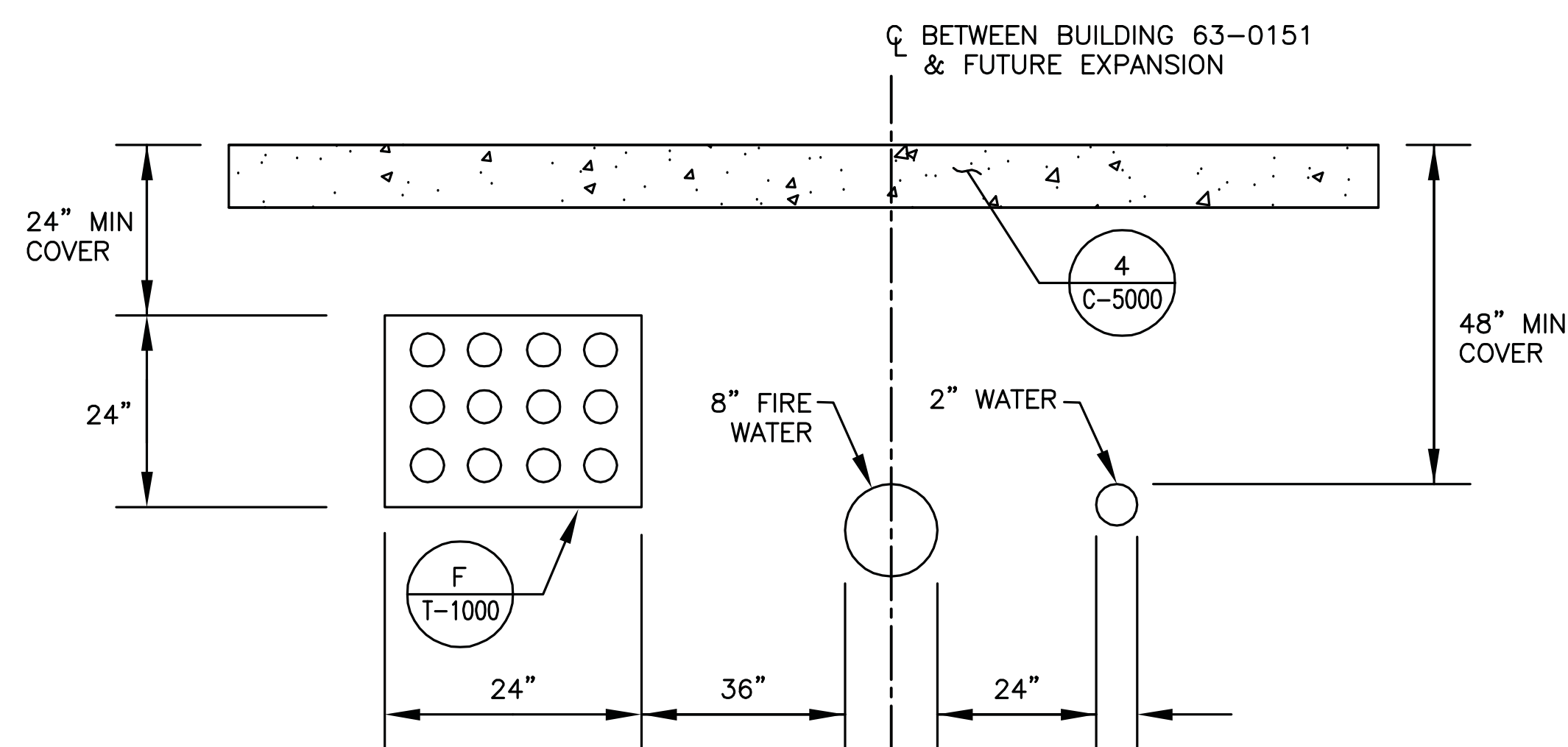


STA 12+99.77 TO STA 16+96.01
SANDSTONE ROAD TYPICAL SECTION

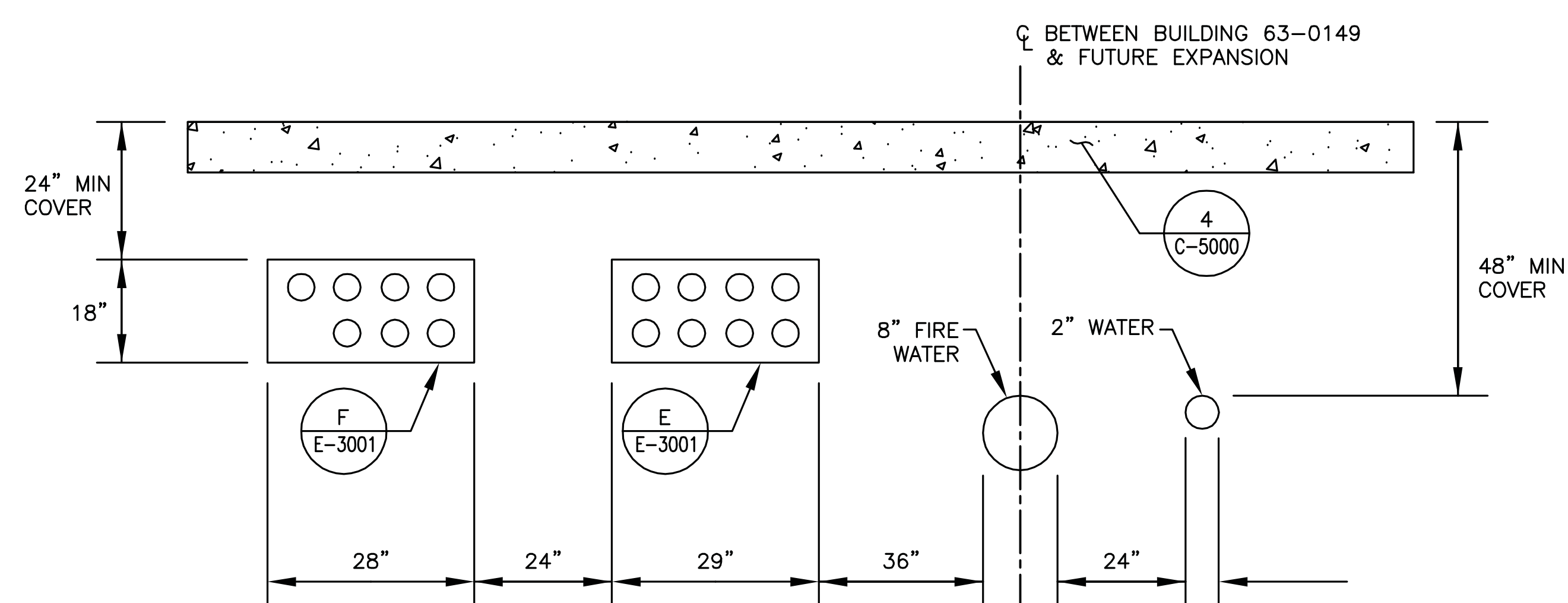
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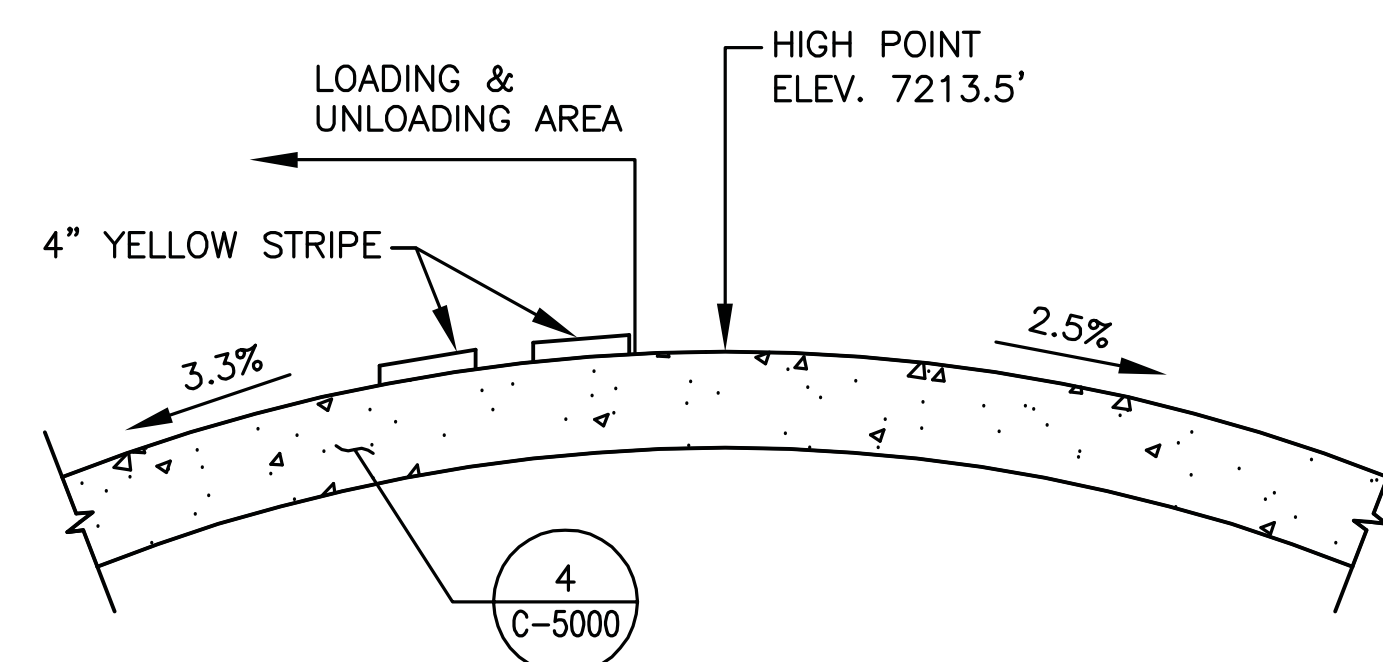
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SCALE: NONE



SECTION
SCALE: NONE




UNLOADING ZONE-SECTION VIEW

SECTION
SCALE: NONE

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

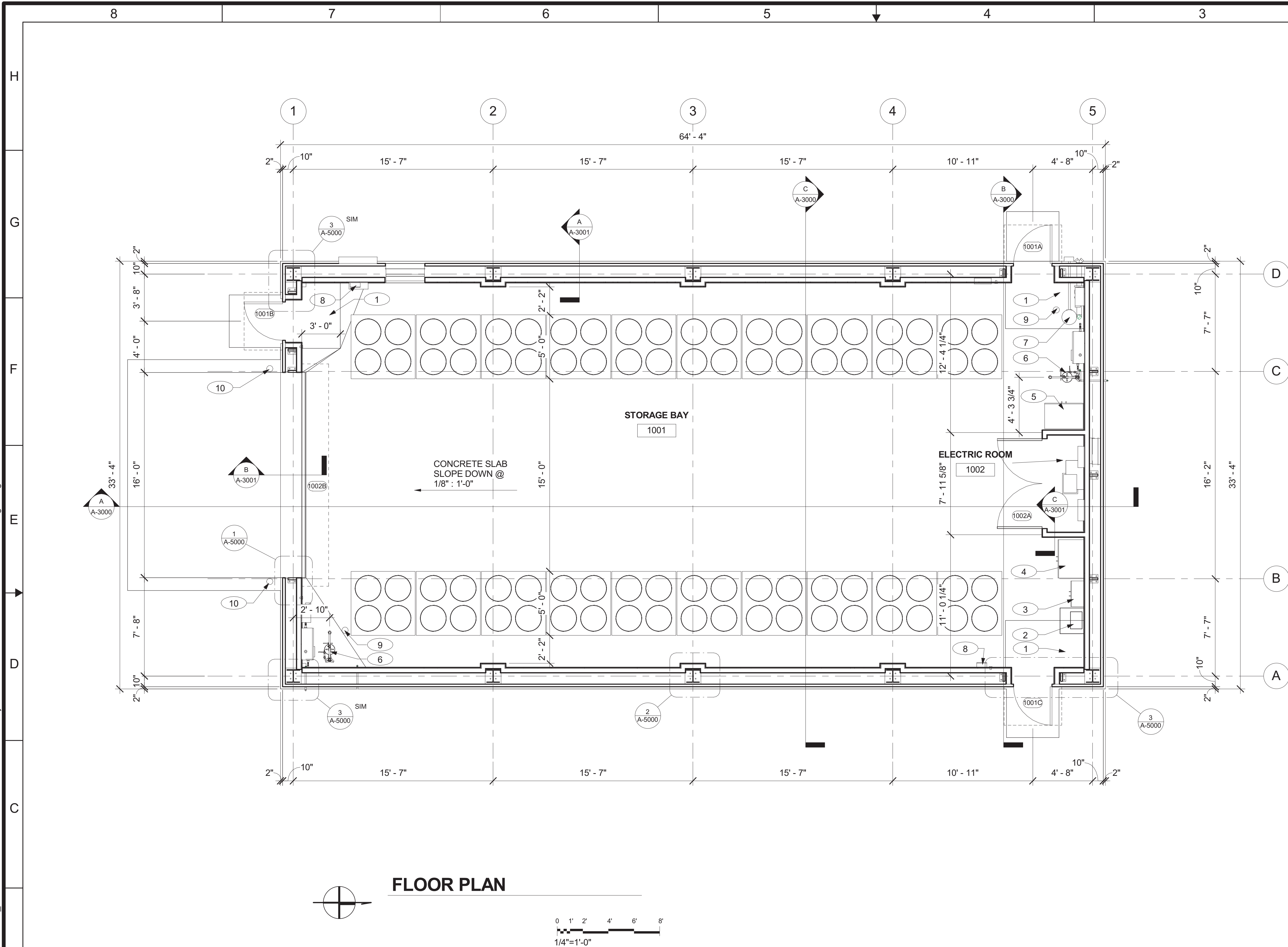
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TRU WASTE FACILITY PROJECT PROJECT SITE Figure 2-8. Sandstone Road Typical Section												DRAWN		D PADILLA					
												DESIGN		J RAEI					
												CHECKED		E CORDOVA					
												DATE		03--22--12					
BLDG												TA--63							
SUBMITTED								APPROVED FOR RELEASE											
<div> Los Alamos NATIONAL LABORATORY</div>												SHEET							
												C--3001							
PO Box 1663 Los Alamos, New Mexico 87545												30 OF 740							
CLASSIFICATION XXX								REVIEWER XXX								DATE			
PROJECT ID								DRAWING NO								REV			
102355								C55443								F			

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date Edward Cordova, NM P.E. 15788



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FLOOR PLAN

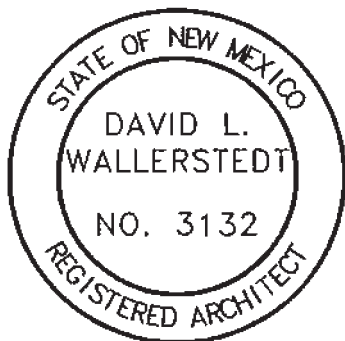
GENERAL NOTES

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2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS.
3. PALLETS AND STORAGE CANISTERS ARE NIC.
4. 36" HIGH ABOVE FINISH FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES

1. LANDING, SEE STRUCTURAL SHEET S-1000
2. COMPUTER WORK STATION SEE DETAIL 4/A-5002
3. SPILL KIT
4. SUPPLY CABINET
5. DECONTAMINATION EQUIPMENT CABINET
6. EYE WASH AND SHOWER
7. FIRE RISER
8. FIRE EXTINGUISHER
9. REMOVABLE BOLLARD, SEE DETAIL 6/A-5002
10. PERMANENT BOLLARD, SEE DETAIL 7/A-5002

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

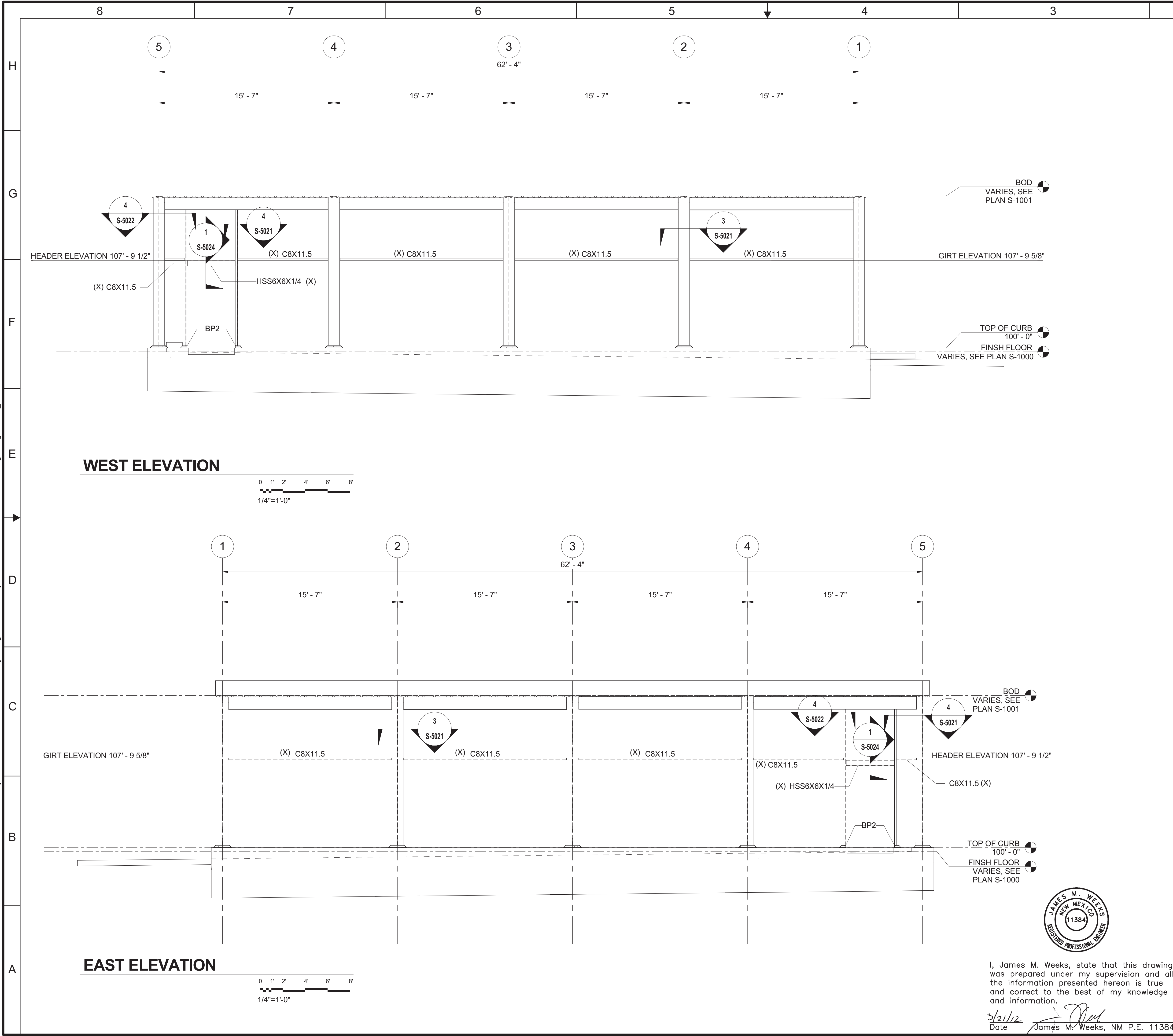


I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Date David L. Wallerstedt, NM R.A. 3132

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
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TRU WASTE FACILITY PROJECT STORAGE BUILDINGS Figure 2-9. Floor Plan					DRAWN	A. GALLEGOS			
					DESIGN	D. WALLERSTEDT			
					CHECKED	T. LEACH			
BLDG 63-0149 TO 63-0153					TA-63	DATE 03-22-12			
SUBMITTED					APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY					SHEET A-1050				
PO Box 1663, Los Alamos, New Mexico 87545					249 OF 740				
CLASSIFICATION PROJECT ID 102355					REVIEWER DRAWING NO C55444				
					DATE REV F				


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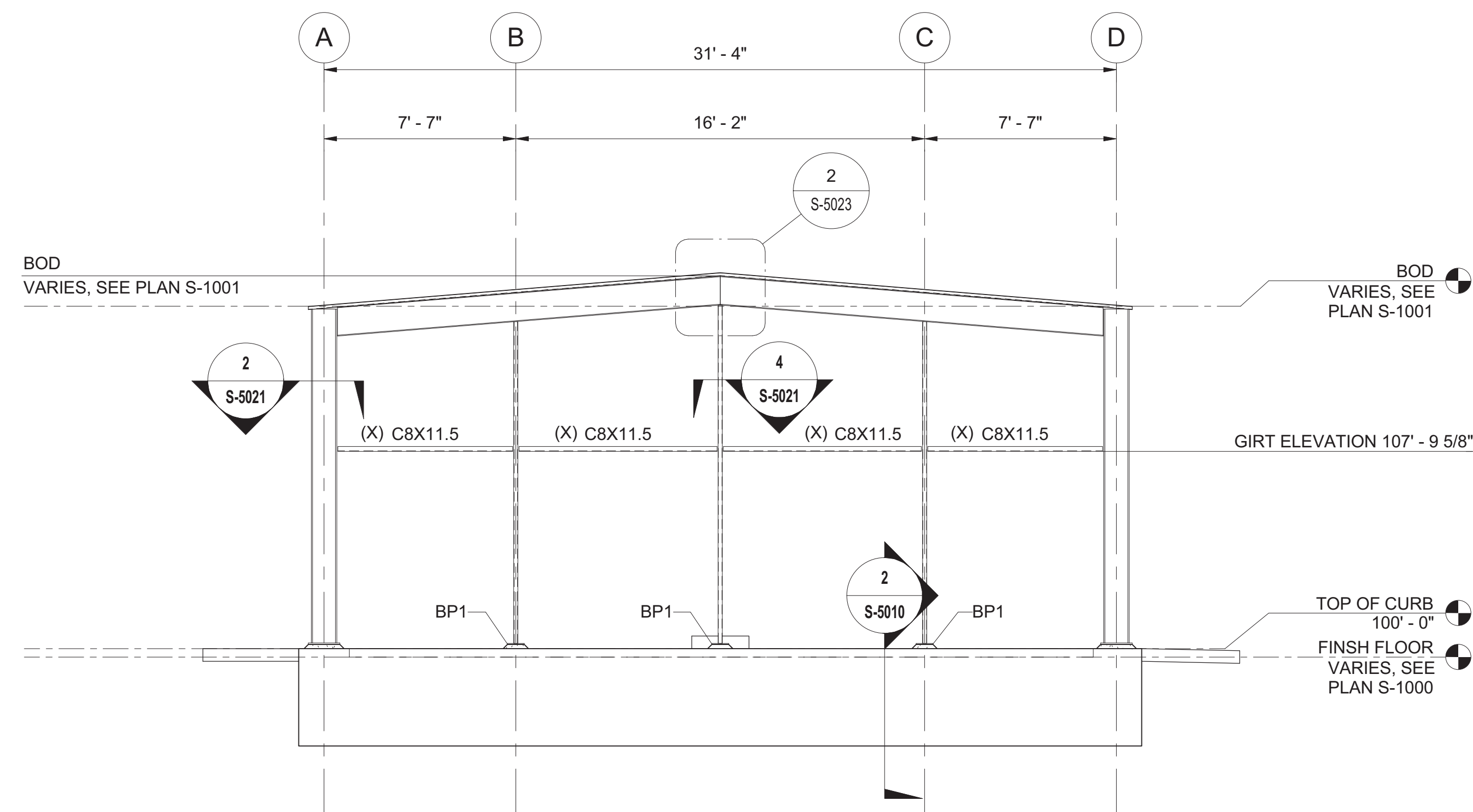


GENERAL NOTES

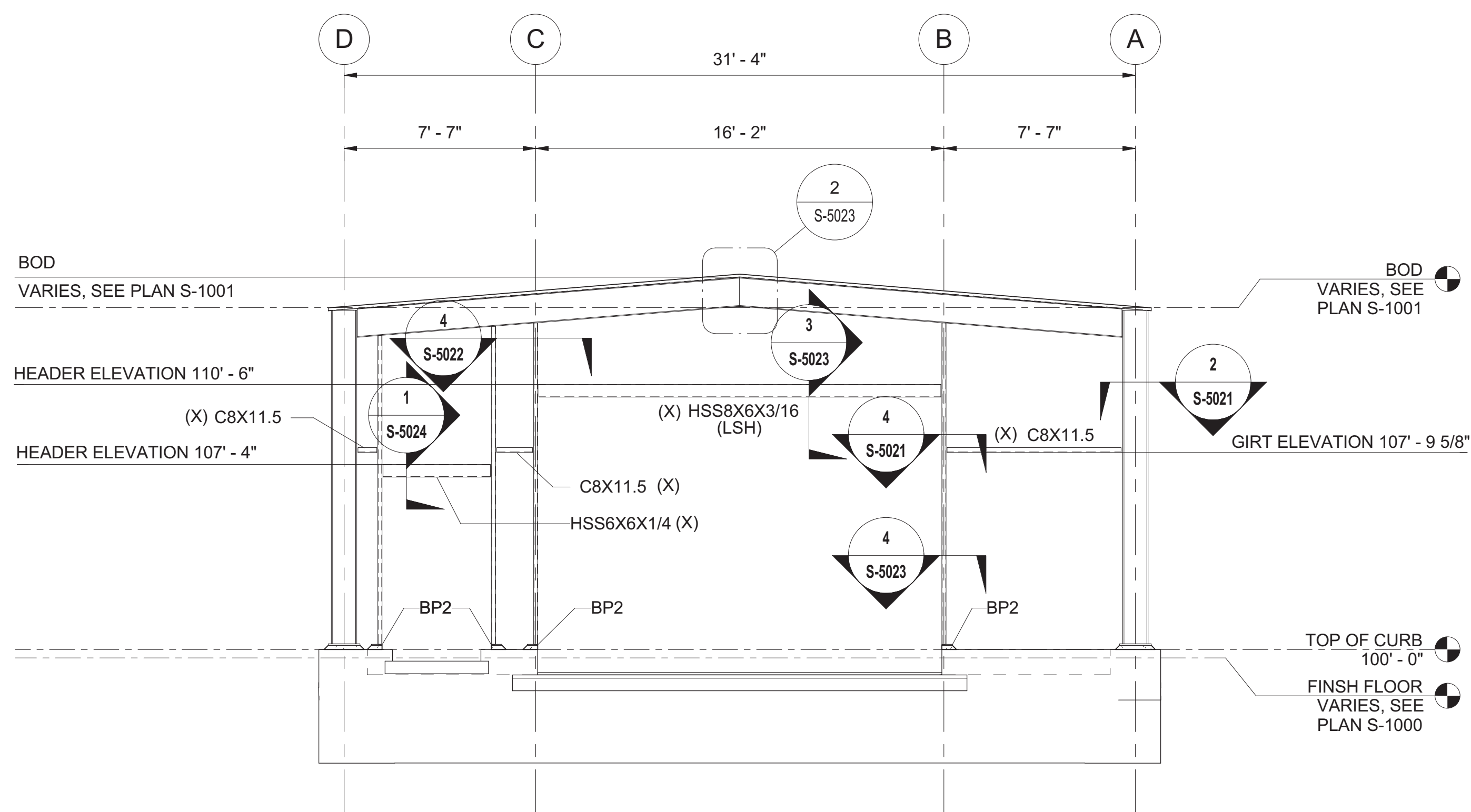
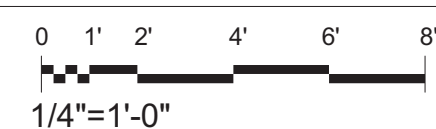
- ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
- DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
- BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
- FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- THIS DRAWING WAS GENERATED IN REVIT 2011.
- ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

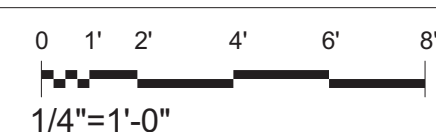
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						DESIGN	J.WEEKS			
						CHECKED	C.ROSENBERGER			
						DATE	03-22-12			
BLDG 63-0149 TO 63-0153					TA-63					
SUBMITTED				APPROVED FOR RELEASE						
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PO Box 1663 Los Alamos, New Mexico 87545					232 OF 740					
CLASSIFICATION				REVIEWER						
PROJECT ID				DRAWING NO						
102355				C55444						
				REV						
				F						



NORTH ELEVATION




SOUTH ELEVATION



GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"x36". THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

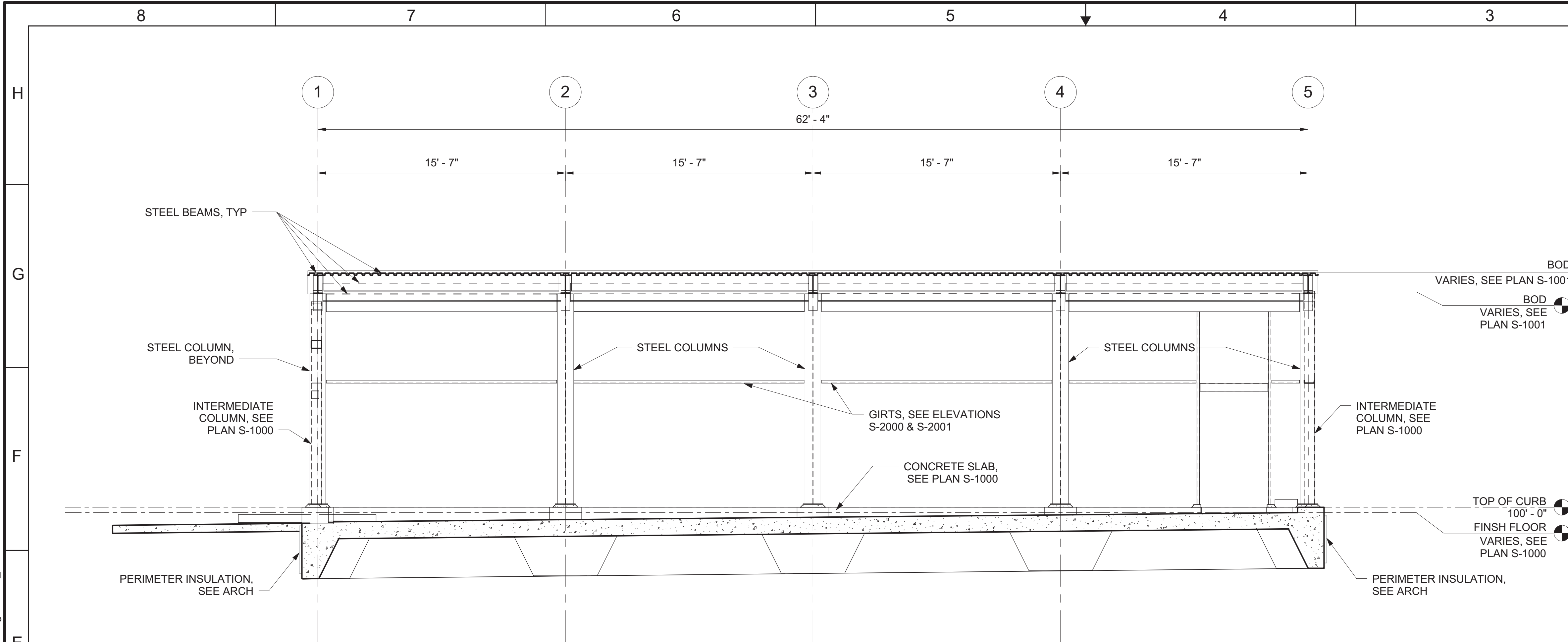
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TRU WASTE FACILITY PROJECT STORAGE BUILDINGS Figure 2-12. Structural Elevations												DRAWN	G.FLORES																
												DESIGN	J.WEEKS																
												CHECKED	C.ROSENBERGER																
												DATE	03-22-12																
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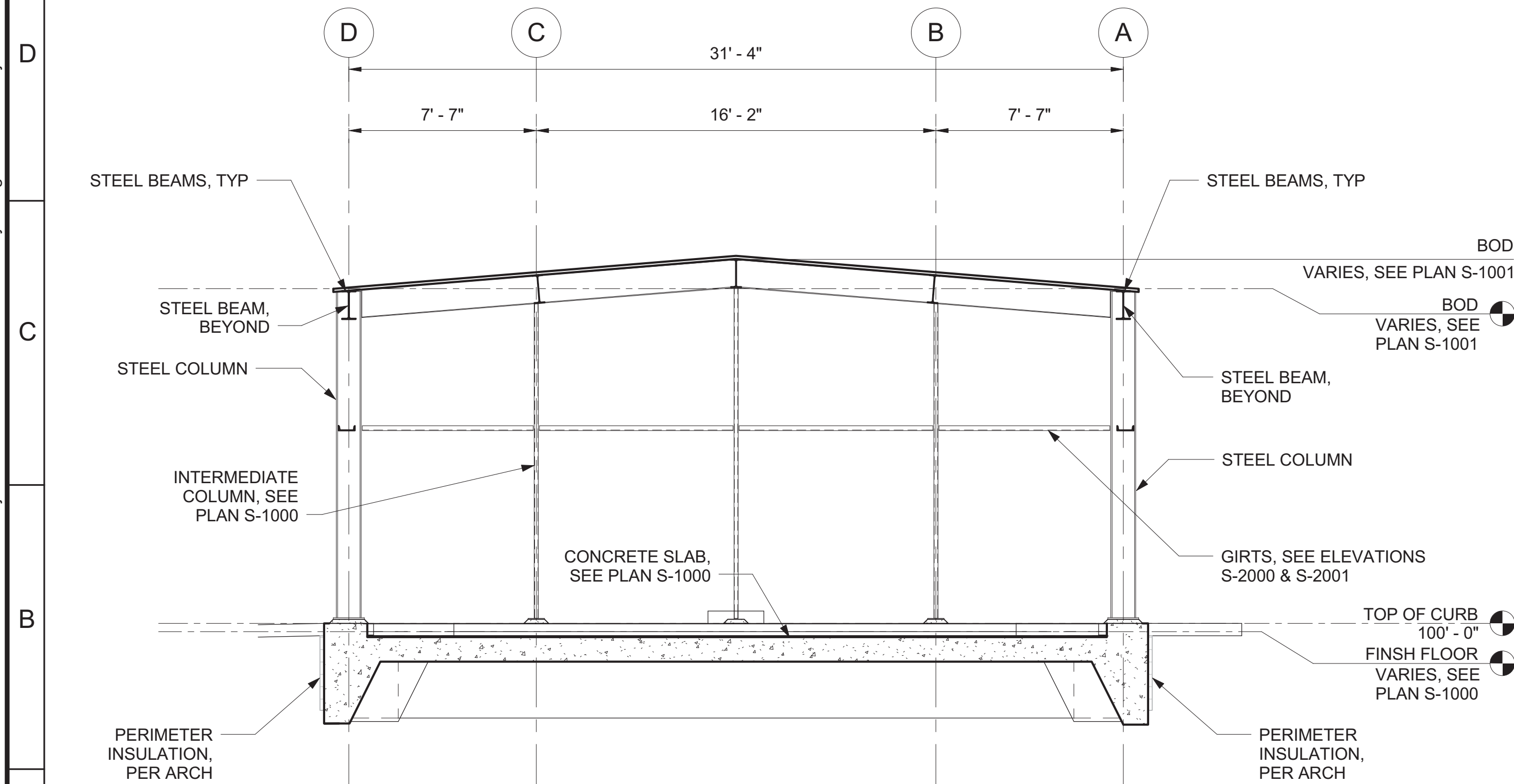
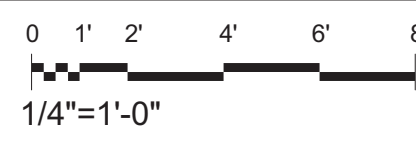
I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date James M. Weeks, NM P.E. 11384

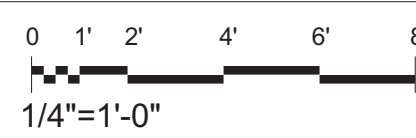
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SECTION
A
S-1000, S-1001




SECTION
B
S-1000, S-1001



GENERAL NOTES

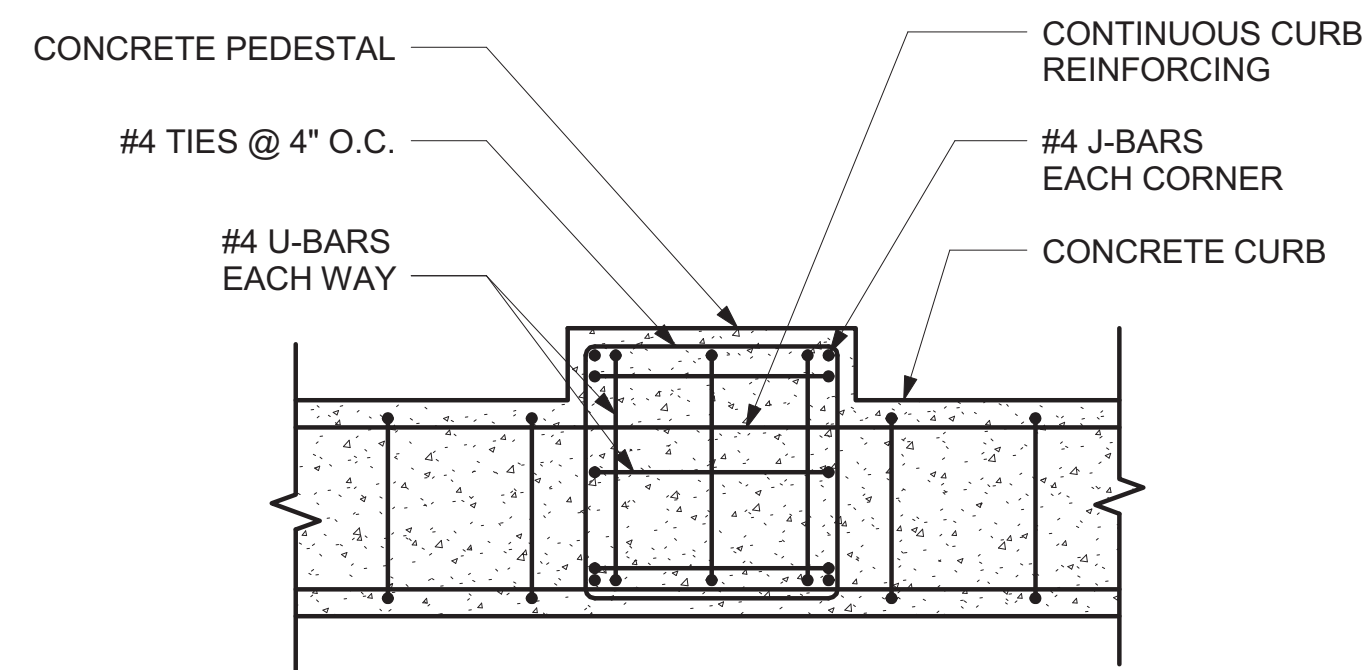
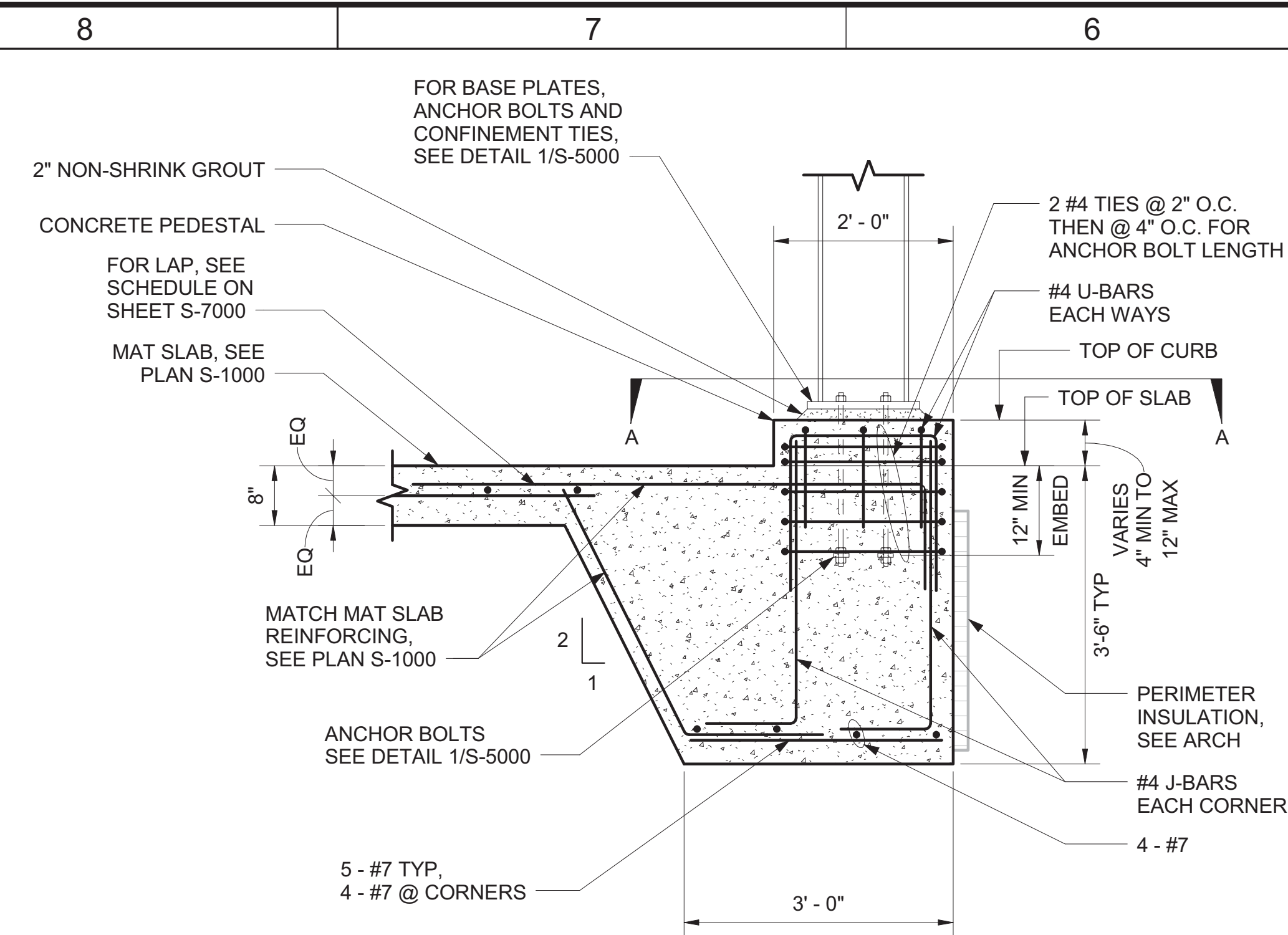
1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP	
WEIDLINGER-NAVARRO					JV					NORTHERN NM
TRU WASTE FACILITY PROJECT STORAGE BUILDINGS Figure 2-13. Structural Sections						DRAWN	G.FLORES			
						DESIGN	J.WEEKS			
						CHECKED	C.ROSENBERGER			
						DATE	03-22-12			
BLDG 63-0149 TO 63-0153						TA-63				
SUBMITTED				APPROVED FOR RELEASE						
 P.O. Box 1663 Los Alamos, New Mexico 87545						SHEET				
						S-3000				
CLASSIFICATION						234 OF 740				
PROJECT ID				REVIEWER		DATE				
102355				DRAWING NO				REV		
				C55444				F		



I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.
Date 3/21/12 James M. Weeks, NM P.E. 11384

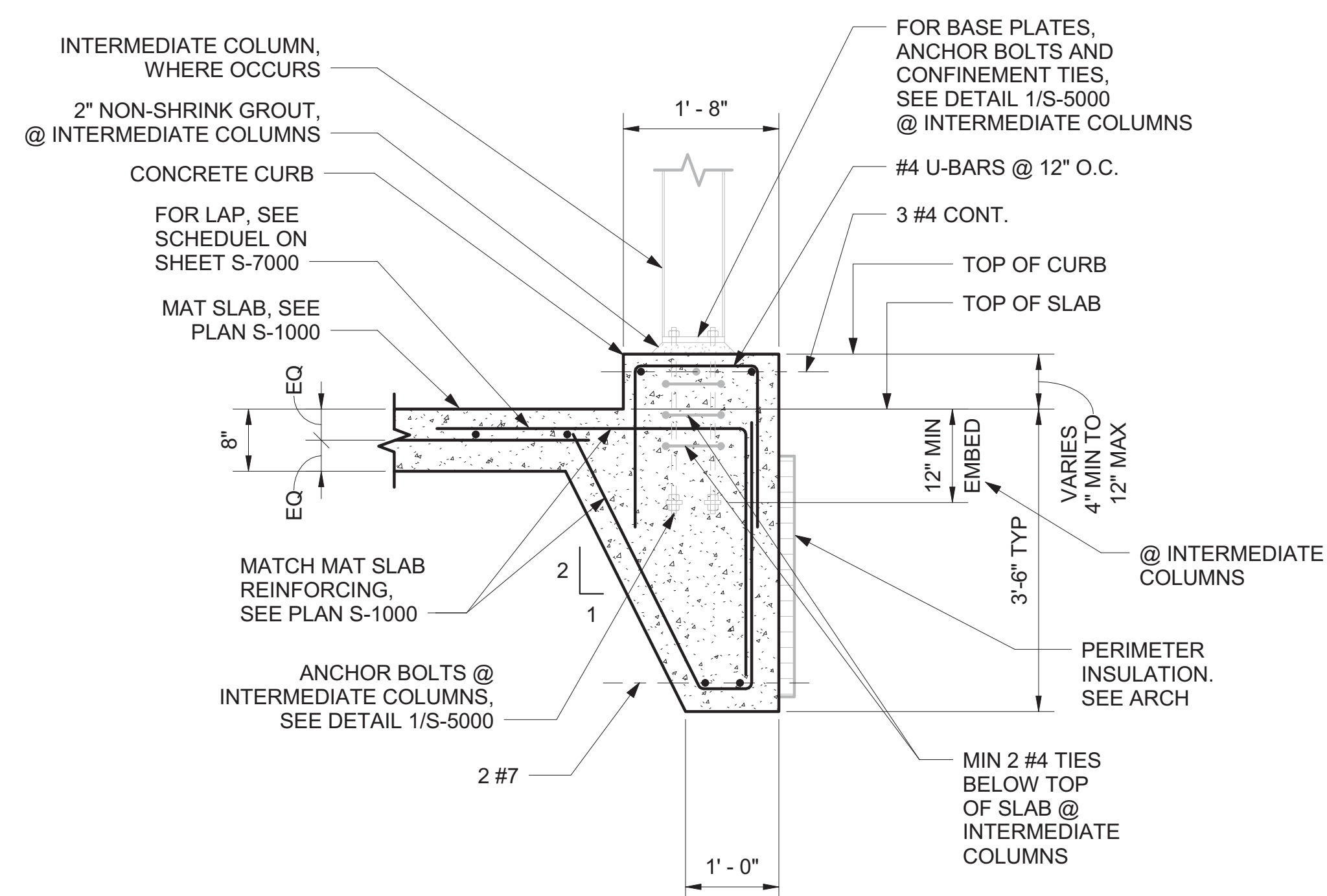


NOTE: SIM @ CORNER CONDITIONS

PLAN VIEW A-A

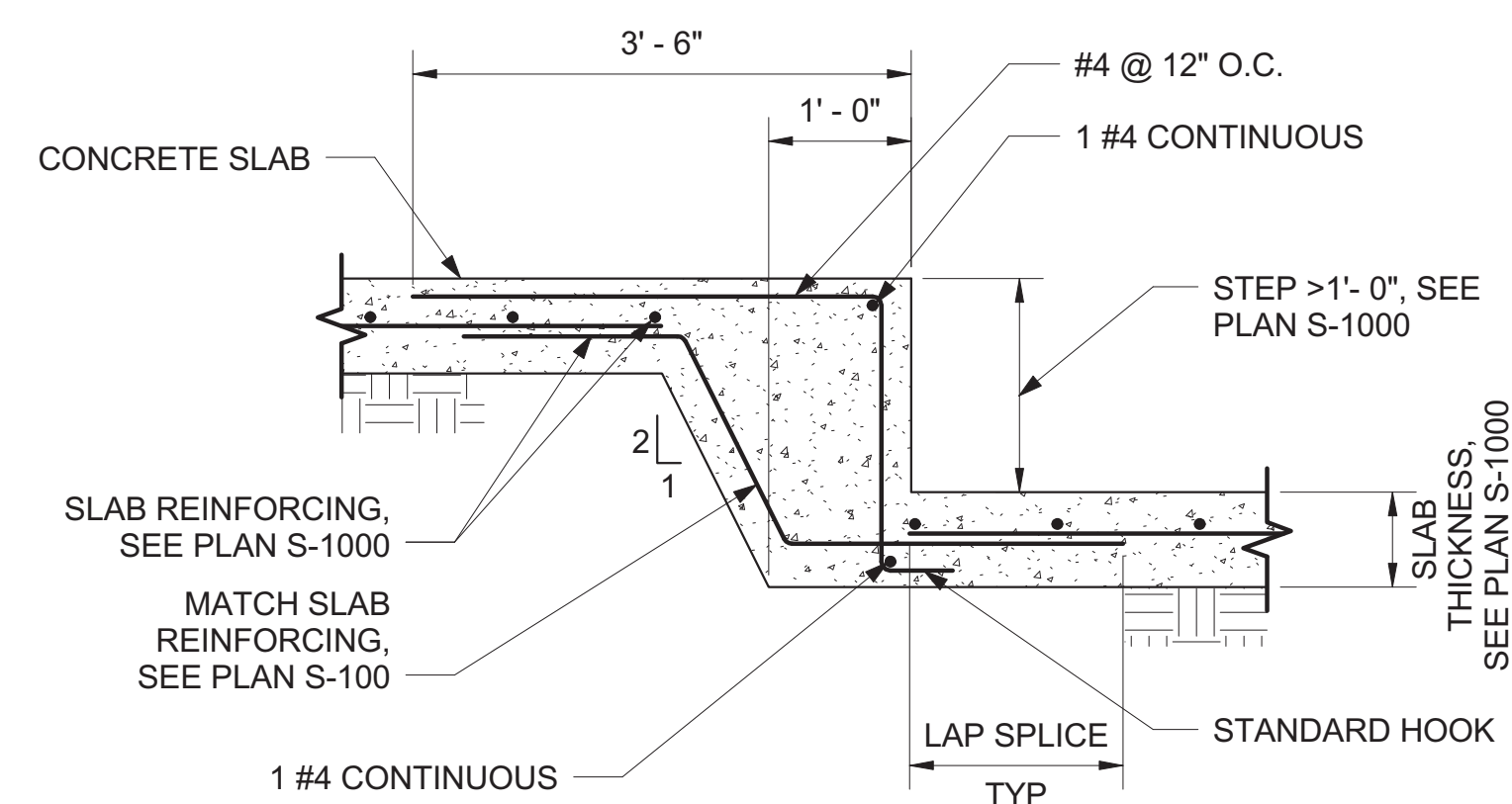
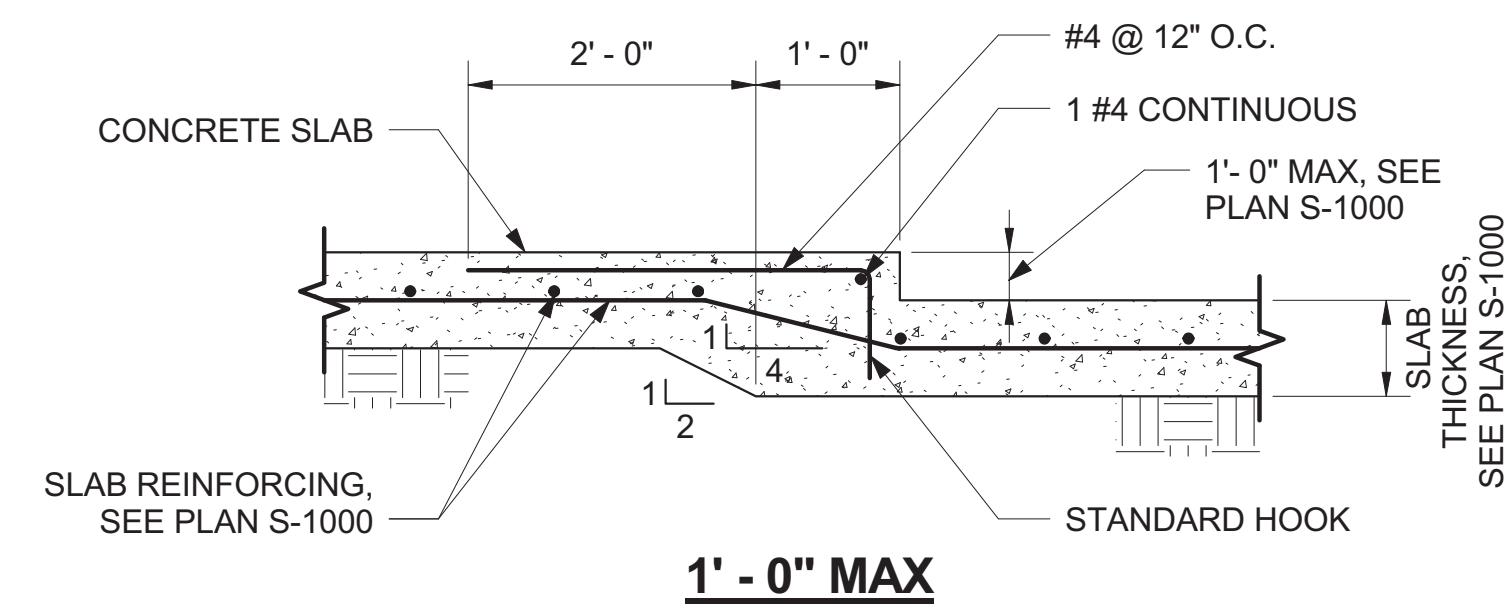
NOTE: FOR EXCAVATION REQUIREMENTS SEE DETAIL 2/S-5000.

THICKENED COLUMN MAT




NOTE: FOR EXCAVATION REQUIREMENTS SEE DETAIL 2/S-5000.

MAT SLAB TURN DOWN



SLAB STEP



I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

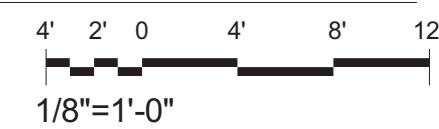
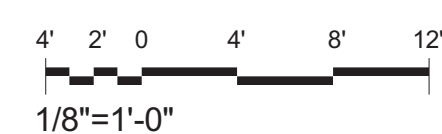
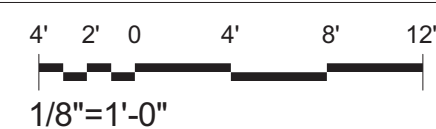
3/21/12
Date James M. Weeks, NM P.E. 11384

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. THIS DRAWING WAS GENERATED IN REVIT 2011.

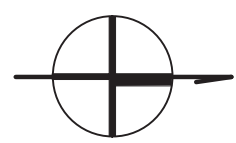
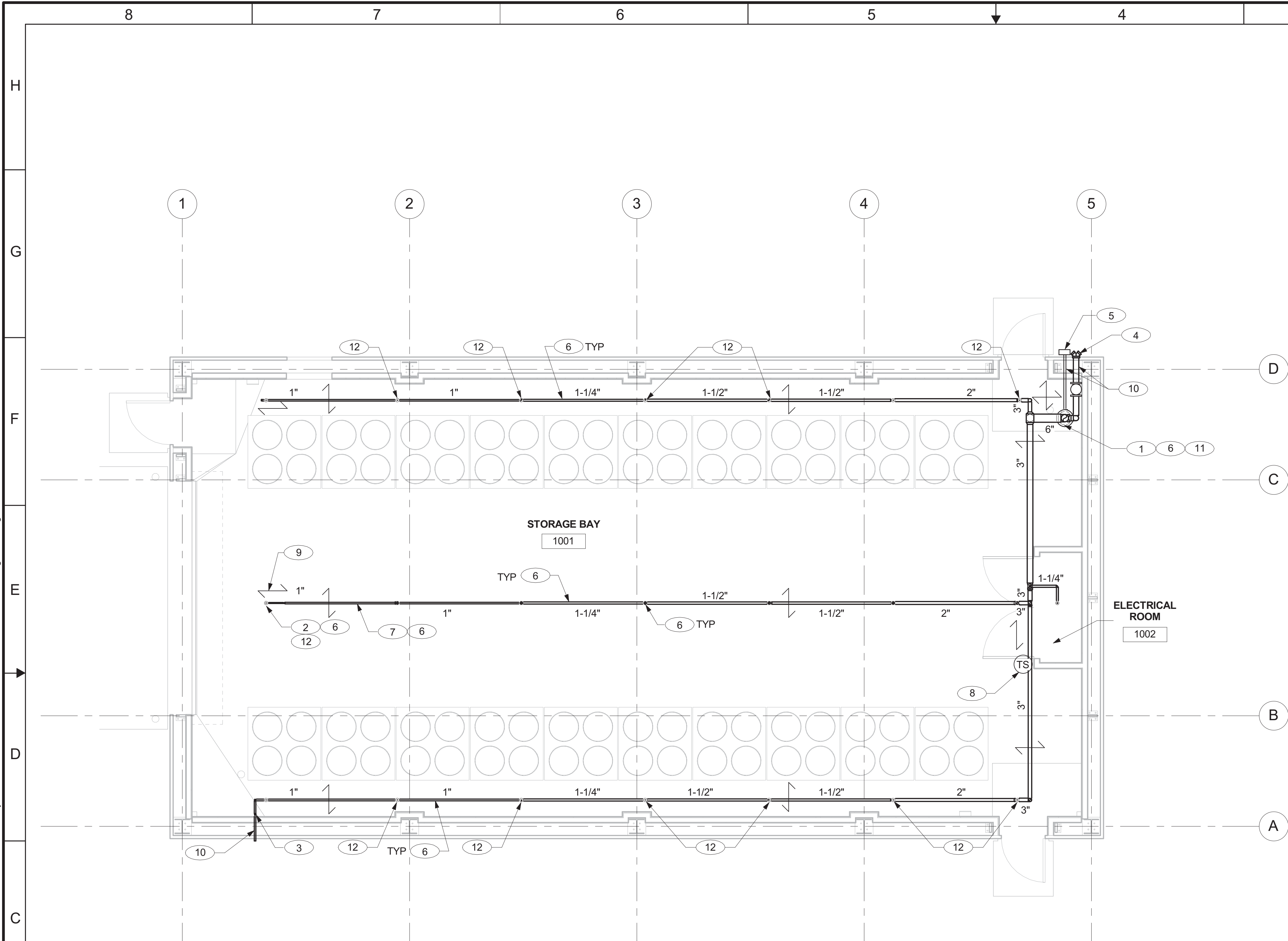
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

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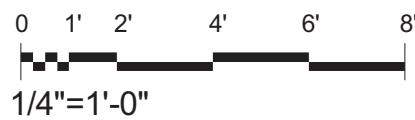


3-21-12 David L. Wallerstedt
Date David L. Wallerstedt, NM R.A. 3132

TRU WASTE FACILITY PROJECT 3/20/2012 10:41:39 AM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG\SIMP-FIRE\REVIT\STORAGE Building 1 - Mech.rvt



FIRE PROTECTION PLAN



I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 *Edward Miyoda*
Date Edward M. Miyoda, NM P.E. 8263

GENERAL NOTES

- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- THIS DRAWING WAS GENERATED IN REVIT 2011.
- SEE SHEET F-0001 FOR SYMBOLS, LEGEND, ABBREVIATION AND STRUCTURAL BRACING INFORMATION.
- FOR SEISMIC BRACING, SEE DETAILS 2 AND 3 ON SHEET F-5000.
- SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.

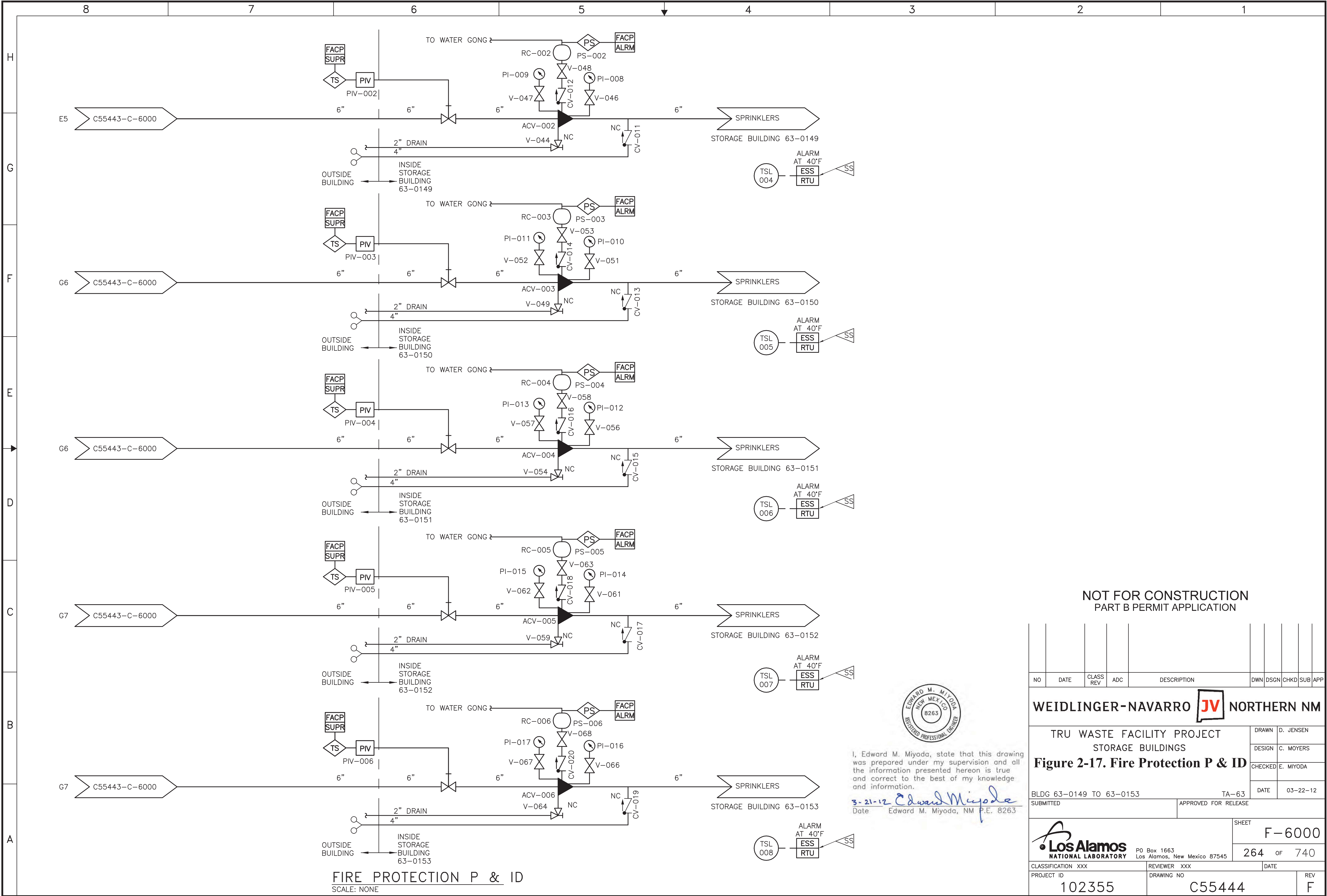
KEYED NOTES

- 6" FIRE PROTECTION RISER, SEE DETAIL 1 ON SHEET F-5000. SEE FLOOR PENETRATION DETAIL 4 ON SHEET F-5000.
- UPRIGHT SPRINKLER, TYPICAL OF 22.
- INSPECTOR'S TEST STATION, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
- FIRE DEPARTMENT CONNECTION, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
- WALL POST INDICATOR VALVE, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
- FIRE PROTECTION COMPONENTS ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-RO).
- SEE DETAIL 3 ON SHEET F-5000 FOR SWAY BRACING.
- SAFETY SIGNIFICANT TEMPERATURE SENSOR. TSL-004-BLDG63-0149; TSL-005-BLDG63-0159; TSL-006-BLDG63-0151; TSL-007-BLDG63-0152; TSL-008-BLDG63-0153.
- SEE DETAIL 2 ON SHEET F-5000 FOR SWAY BRACING.
- SEE DETAIL 5 ON SHEET F-5000 FOR PIPE THRU WALL PENETRATION.
- SEE DETAIL 4 ON SHEET F-5000 FOR PIPE THRU FLOOR PENETRATION.
- INSTALL HIGH TEMPERATURE RATED (286° F) SPRINKLER HEAD NEAR UNIT HEATER.

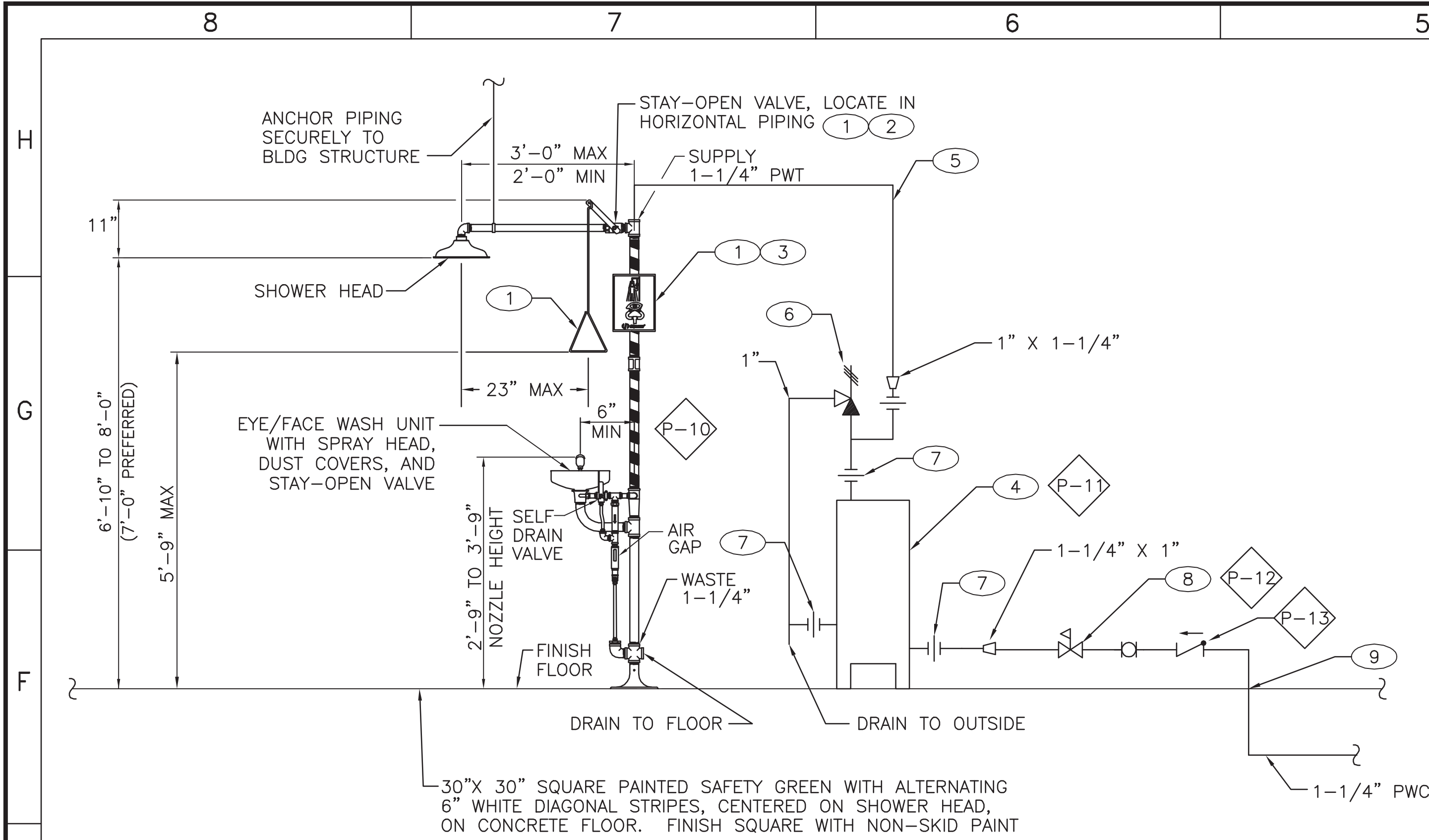
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
WEIDLINGER-NAVARRO JV NORTHERN NM									
TRU WASTE FACILITY PROJECT STORAGE BUILDINGS					DRAWN	D.BROERMAN			
Figure 2-16. Fire Protection Plan					DESIGN	E. MIYODA			
BLDG 63-0149 TO 63-0153					CHECKED	C. MOYERS			
SUBMITTED					DATE	03-22-12			
APPROVED FOR RELEASE									
Los Alamos NATIONAL LABORATORY					SHEET F-1000				
PO Box 1663, Los Alamos, New Mexico 87545					261 of 740				
CLASSIFICATION PROJECT ID 102355					REVIEWER DRAWING NO C55444				
					DATE REV F				

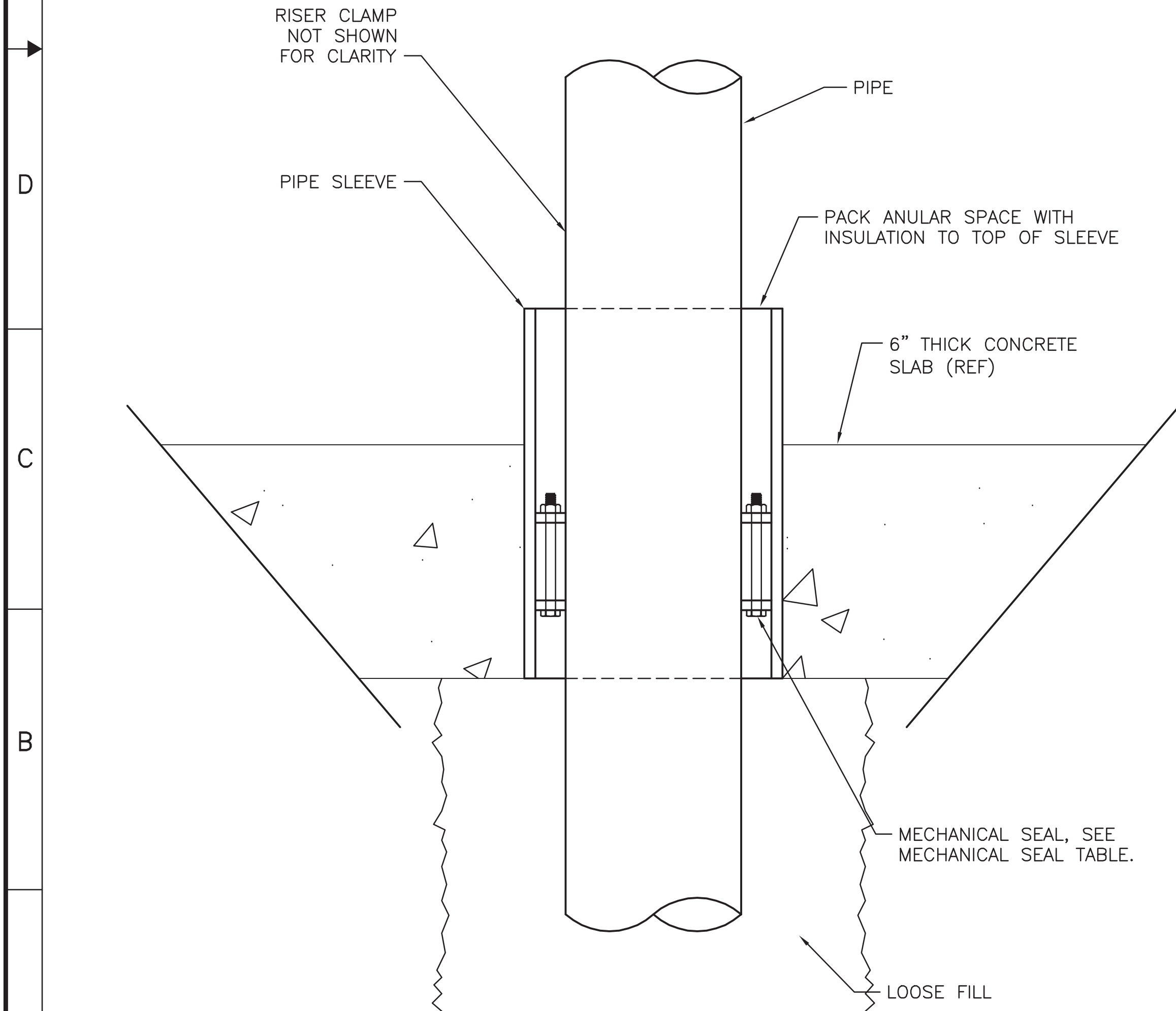
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Plotted By: BAHUNG, STEVE Plot Date: Tuesday, March 20, 2012 Plot CTB File: LANL D-SIZE.CTB Page Setup Name: PDF; InsUnits: 1; LUScale: 1.000000 Measurement: 0;



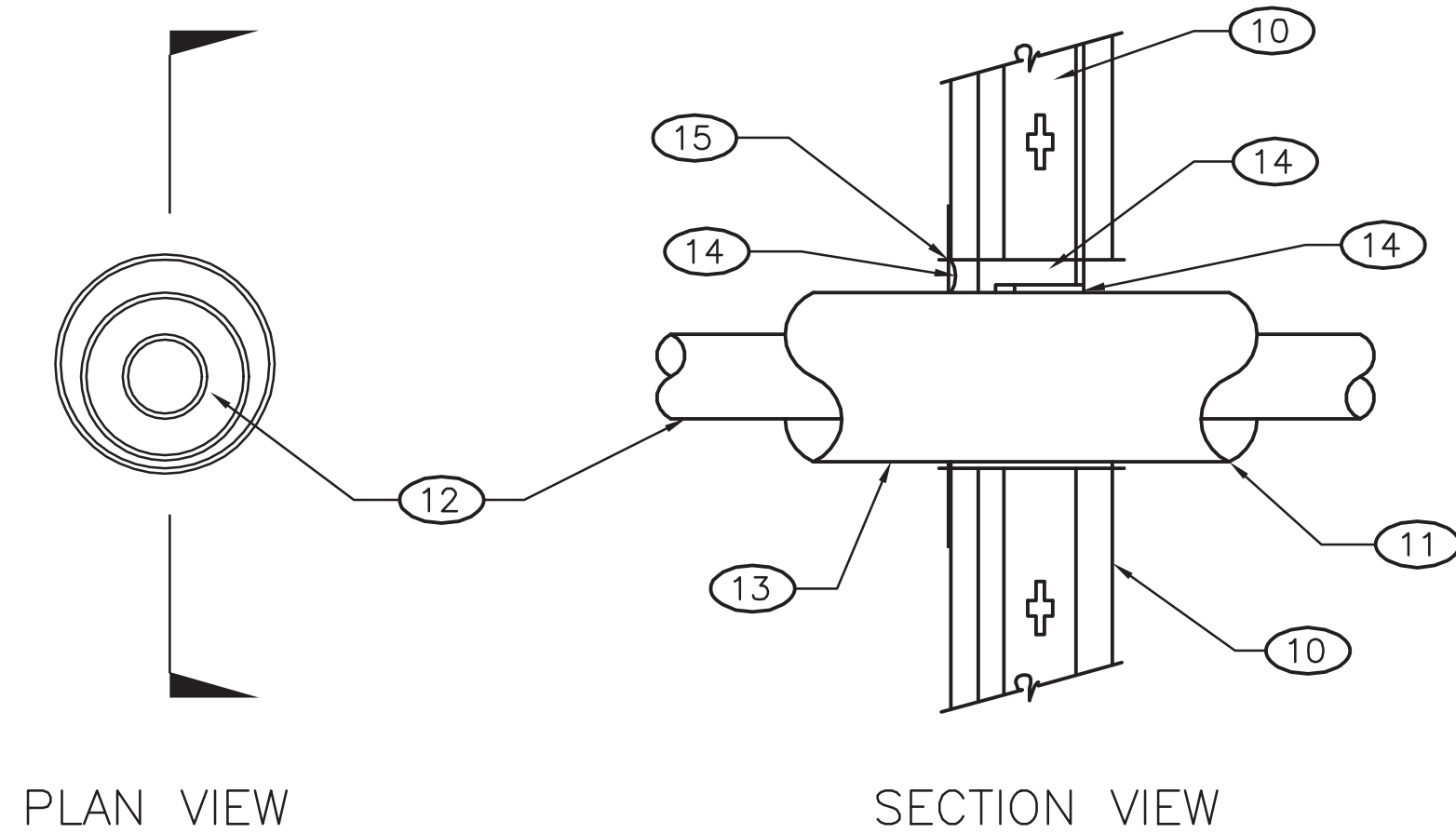
Plotted By: BAHUNG, STEVE; Plot Date: Tuesday, March 20, 2012; Plot CTB File: LANL D-SIZE.CTB; Page Setup Name: PDF; InsUnits: 1; LTScale: 1,000,000 Measurement: 0;



1 SAFETY SHOWER W/EYEWASH DETAIL
P-1000 SCALE: NONE



3 FLOOR PENETRATION DETAIL
P-1000 SCALE: NONE



2 PIPE THROUGH WALL PENETRATION
P-1000 SCALE: NONE

MECHANICAL SEAL TABLE			
NOMINAL PIPE SIZE	NOMINAL SLEEVE SIZE	METRASEAL MODEL NO.	REMARKS
4"	6"	10MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
3"	5"	8MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
2 1/2"	4"	9MS-200ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
2"	4"	6MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/4"	3"	7MS-275ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE

MECHANICAL SEAL TABLE			
NOMINAL PIPE SIZE	NOMINAL SLEEVE SIZE	METRASEAL MODEL NO.	REMARKS
8"	10"	9MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
6"	8"	7MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
4"	6"	5MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
2 1/2"	4"	10MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
2"	3 1/2"	8MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/2"	3"	7MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/4"	3"	4MS-300ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1"	2 1/2"	5MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
3/4"	2"	4MS-200ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE

KEYED NOTES:

- FURNISHED WITH EMERGENCY EQUIPMENT.
- VALVE TO BE ACCESSIBLE FOR MAINTENANCE.
- EMERGENCY SIGN(S).
- ELECTRIC SAFETY SHOWER TEPID WATER HEATER.
- TEPID WATER SUPPLY.
- TEMPERATURE AND PRESSURE RELIEF VALVE.
- PROVIDE DIELECTRIC UNION AT POINTS OF DISSIMILAR METALS.
- PRESSURE REDUCING VALVE.
- FLOOR PENETRATION, SEE DETAIL 3 ON SHEET P-5000.
- WALL ASSEMBLY - STEEL STUDS
- STEEL SLEEVE - CYLINDRICAL SLEEVE
- THROUGH PENETRANTS - PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES OF METALLIC PIPES OR TUBES MAY BE USED:

STEEL PIPE - NOM. 2" (51 mm) (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE.
- PIPE COVERING
- PACKING MATERIAL - MIN. 3" (76 mm) THICKNESS OF MIN. 4 PCF (64 kg/m³) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM FINISHED SURFACE OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

STUDS - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX SIZE OF OPENING IS 9.800"² (6.32 m²) WITH A MAX. DIMENSION OF 100" (254 cm).
- METAL RODENT SHIELD LOCATED ON EXTERIOR OF BUILDING.

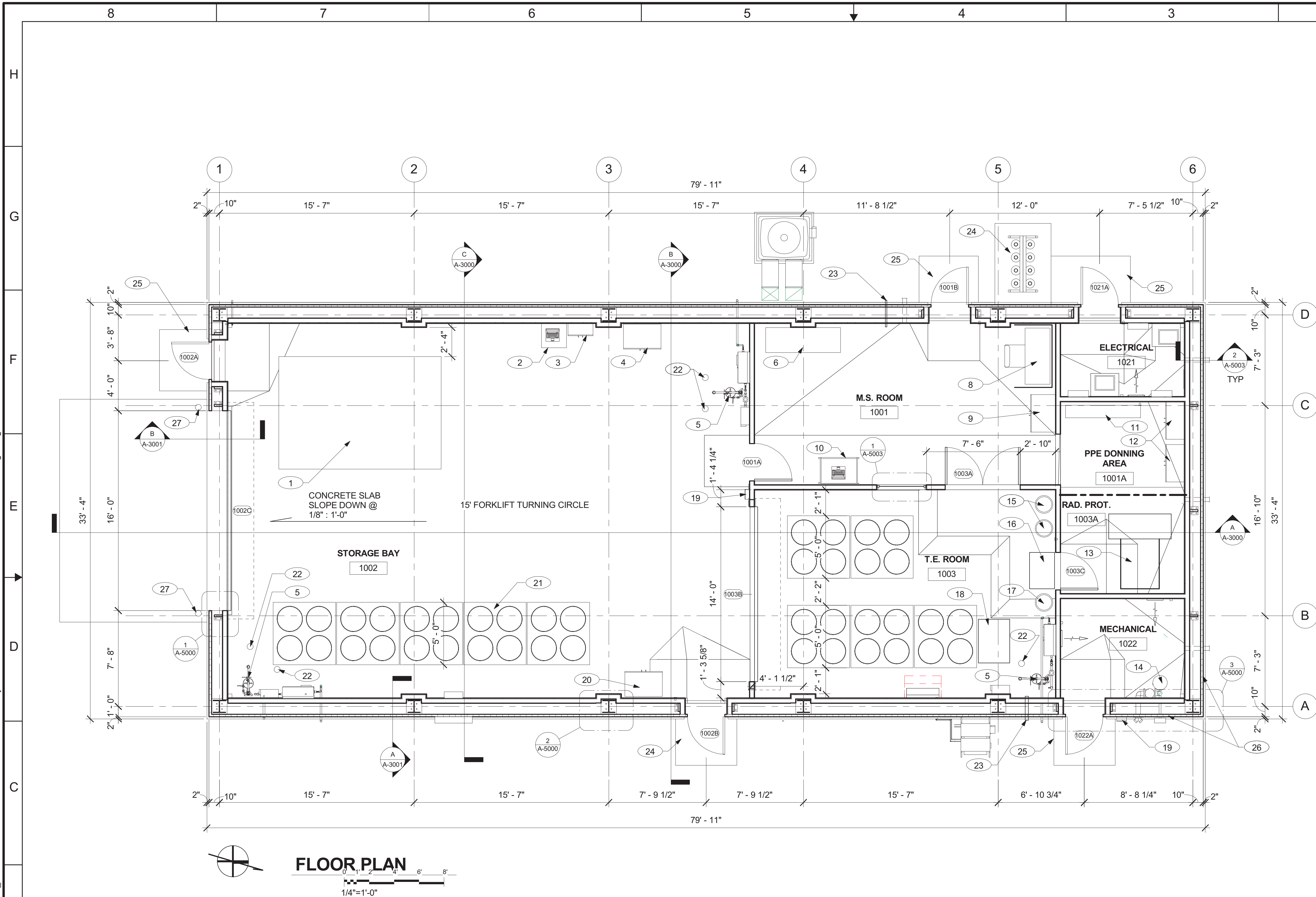


I, Charles Moyers, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date Charles Moyers, NM P.E. 16030

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
WEIDLINGER-NAVARRO JV NORTHERN NM									
TRU WASTE FACILITY PROJECT STORAGE BUILDINGS Figure 2-18. Details					DRAWN D.BROERMAN DESIGN E. MIYODA CHECKED C. MOYERS DATE 3-22-12				
BLDG 63-0149 TO 63-0153 SUBMITTED					TA-63 APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY P.O. Box 1663 Los Alamos, New Mexico 87545					SHEET P-5000 270 OF 740				
CLASSIFICATION XXX PROJECT ID 102355					REVIEWER XXX DRAWING NO C55444 REV F				



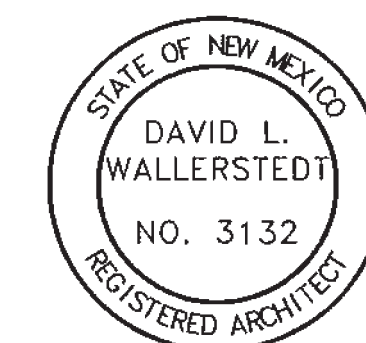
GENERAL NOTES

1. IF THIS SHEET IS NOT 24" x 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS
3. AT THE ELECTRICAL AND MECHANICAL ROOMS, ADD DOOR PLACARDS - LAMINATED PHENOLIC PLASTIC 3/16" THICK x 2" x 6" BEIGE WITH BLACK 1" HIGH LETTERING ENGRAVED HELVETICA BOLD LABELED "ELECTRICAL" AND "MECHANICAL" CENTERED 60" ABOVE THE FLOOR ON THE EXTERIOR SIDE OF THE DOOR WITH ADHESIVE.
4. 36" HIGH ABOVE FINISH FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES


- 1 LARGE CONTAINER AREA
- 2 COMPUTER WORKSTATION, SEE DETAIL 4/A-5002
- 3 SPILL KIT
- 4 SUPPLY CABINET
- 5 EYE WASH AND SHOWER STATION
- 6 MASS SPECTROMETER (NIC)
- 7 NOT USED
- 8 RP-1 COUNTING (NIC)
- 9 RP-1 STORAGE
- 10 COMPUTER CART (NIC)
- 11 BENCH
- 12 PPE STORAGE
- 13 PCM
- 14 FIRE RISER
- 15 LAUNDRY BIN (NIC)
- 16 STEP-OFF PAD
- 17 WASTE BIN (NIC)
- 18 HEPA FILTER CART (NIC)
- 19 FIRE EXTINGUISHER
- 20 DECONTAMINATION EQUIPMENT CABINET (NIC)
- 21 STORAGE CONTAINERS & PALLETS (NIC)
- 22 REMOVABLE BOLLARD, SEE DETAIL 6/A-5002
- 23 VENT TUBE
- 24 P-10 GAS BOTTLE RACK LOCATION
- 25 CONCRETE STOOP, TYPICAL - SEE STRUCTURAL DRAWINGS
- 26 ONE HOUR RATED WALL 10 FEET EITHER SIDE OF WALL MOUNTED POST INDICATOR VALVE
- 27 PERMANENT BOLLARD, SEE DETAIL 7/A-5002

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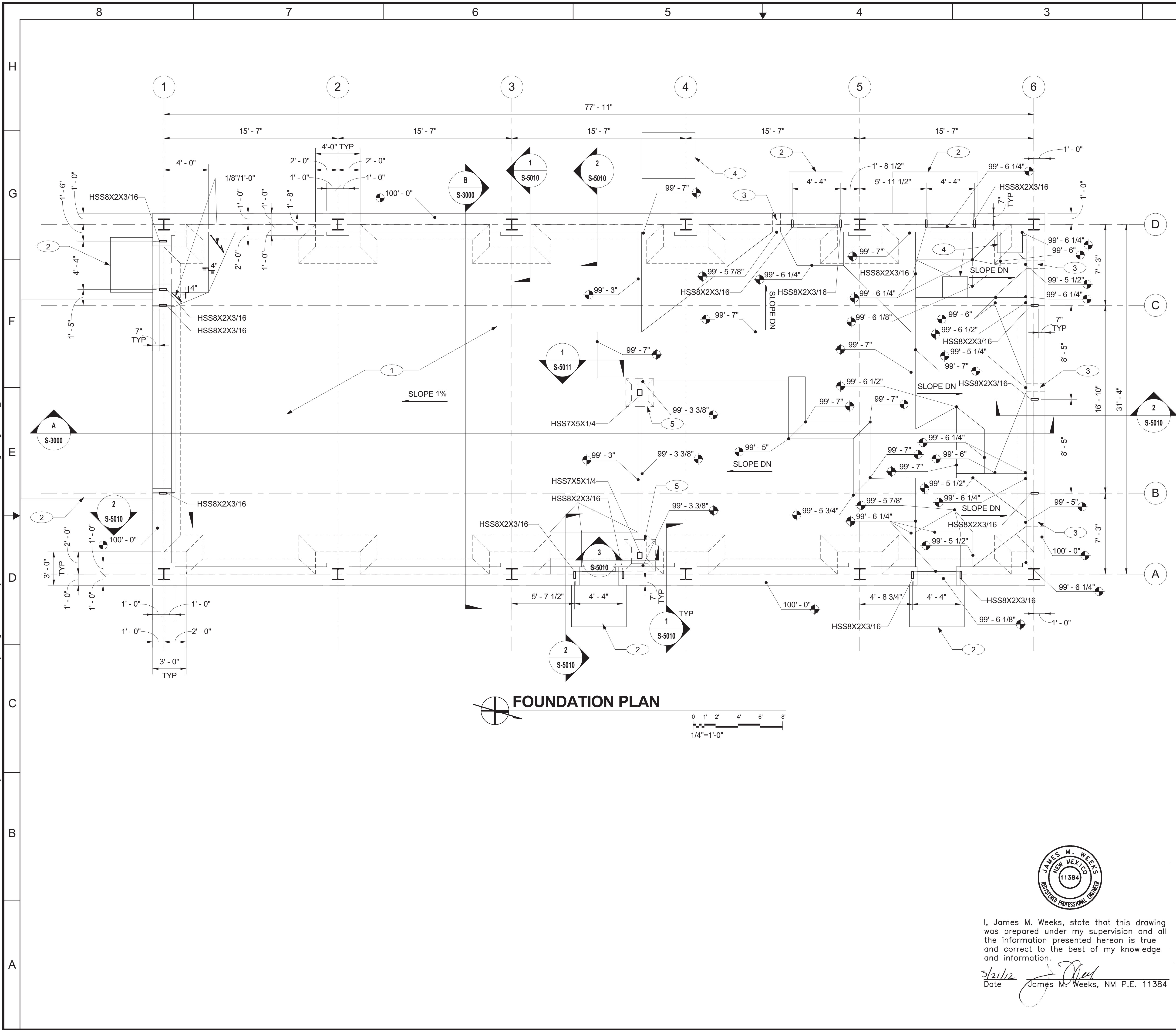


I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Date David L. Wallerstedt, NM R.A. 3132

NO	DATE	CLASS REV	ADC	DESCRIPTION		DWN	DSGN	CHKD	SUB	APP	
WEIDLINGER-NAVARRO <div>JV</div> NORTHERN NM											
TRU WASTE FACILITY PROJECT STORAGE AND CHARACTERIZATION BUILDING Figure 2-19. Floor Plan						DRAWN	A. GALLEGOS				
						DESIGN	D. WALLERSTEDT				
						CHECKED	T. LEACH				
						DATE	03-22-12				
BLDG 63-0154						TA-63					
SUBMITTED				APPROVED FOR RELEASE							
 Los Alamos NATIONAL LABORATORY						SHEET					
						A-1050					
PO Box 1663 Los Alamos, New Mexico 87545						590 OF 740					
CLASSIFICATION				REVIEWER							
PROJECT ID				DRAWING NO						REV	
102355				C55445						F	

TRU WASTE FACILITY PROJECT 3/20/2012 10:45:24 AM D:\Projects\21082016 - TRU Waste Facility Design Services\ProjectModels\STORAGE BLDG\2-Struct_flores.rvt




GENERAL NOTES

- ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
- DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
- FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
- SEE CIVIL PLANS FOR EXTERIOR SLAB AND PAVING.
- SEE SOILS REPORT FOR UNDER SLAB AND FOOTING REQUIREMENTS.
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- THIS DRAWING WAS GENERATED IN REVIT 2011.
- COORDINATE DRAIN PIPES THRU CURB WITH ARCH.
- CONCRETE SLABS, FOOTINGS, AND ALL REINFORCEMENT THEREIN ARE CLASSIFIED AS SAFETY SIGNIFICANT PER THE LANL PSDR (102355-RPT-00012-R0).
- FLOOR SLOPE IN STORAGE AREA IS CLASSIFIED AS SAFETY CLASS PER LANL PSDR (102355-RPT-00012-R0).

KEYED NOTES

- 8" CONCRETE MAT SLAB WITH #5@12"O.C. EACH WAY, SEE DETAIL 3/S-5000. FOR STEPS IN SLAB SEE DETAIL 1/S-5011.
- CONCRETE PAD, SEE CIVIL.
- STAINLESS STEEL SCUPPER THROUGH CURB, SEE DETAIL 2/S-5011.
- 4" MIN HOUSEKEEPING PAD, SEE DETAIL 1/S-5001.
- THICKENED SLAB, SEE DETAIL 3/S-5010.

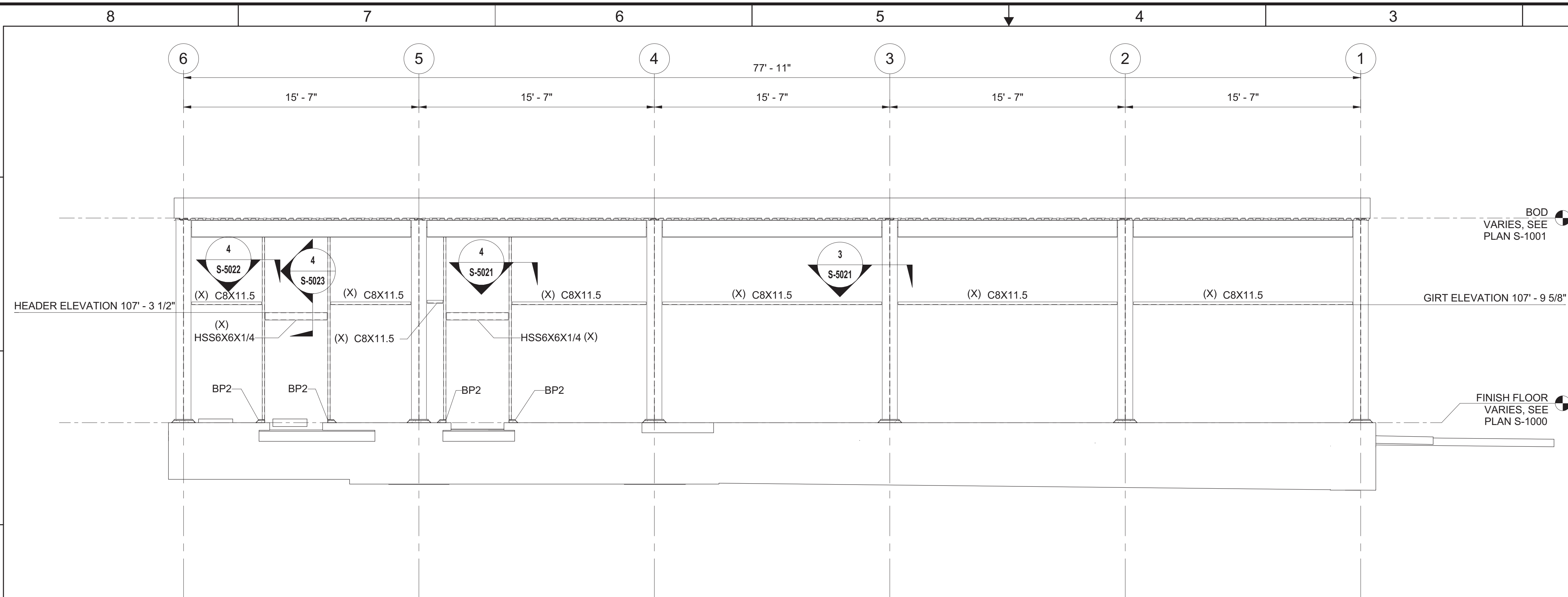
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP		
WEIDLINGER-NAVARRO <div>JV</div> NORTHERN NM											
TRU WASTE FACILITY PROJECT STORAGE & CHARACTERIZATION BUILDING Figure 2-20. Foundation Plan						DRAWN	G.FLORES				
						DESIGN	J.WEEKS				
						CHECKED	C.ROSENBERGER				
						DATE	03-22-12				
BLDG 63-0154				TA-63							
SUBMITTED				APPROVED FOR RELEASE							
<div>Los Alamos NATIONAL LABORATORY</div> <div>P.O. Box 1663 Los Alamos, New Mexico 87545</div>						SHEET				S-1000	
						570				OF	
CLASSIFICATION				REVIEWER			DATE				
PROJECT ID				DRAWING NO			REV				
102355				C55445			F				



I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

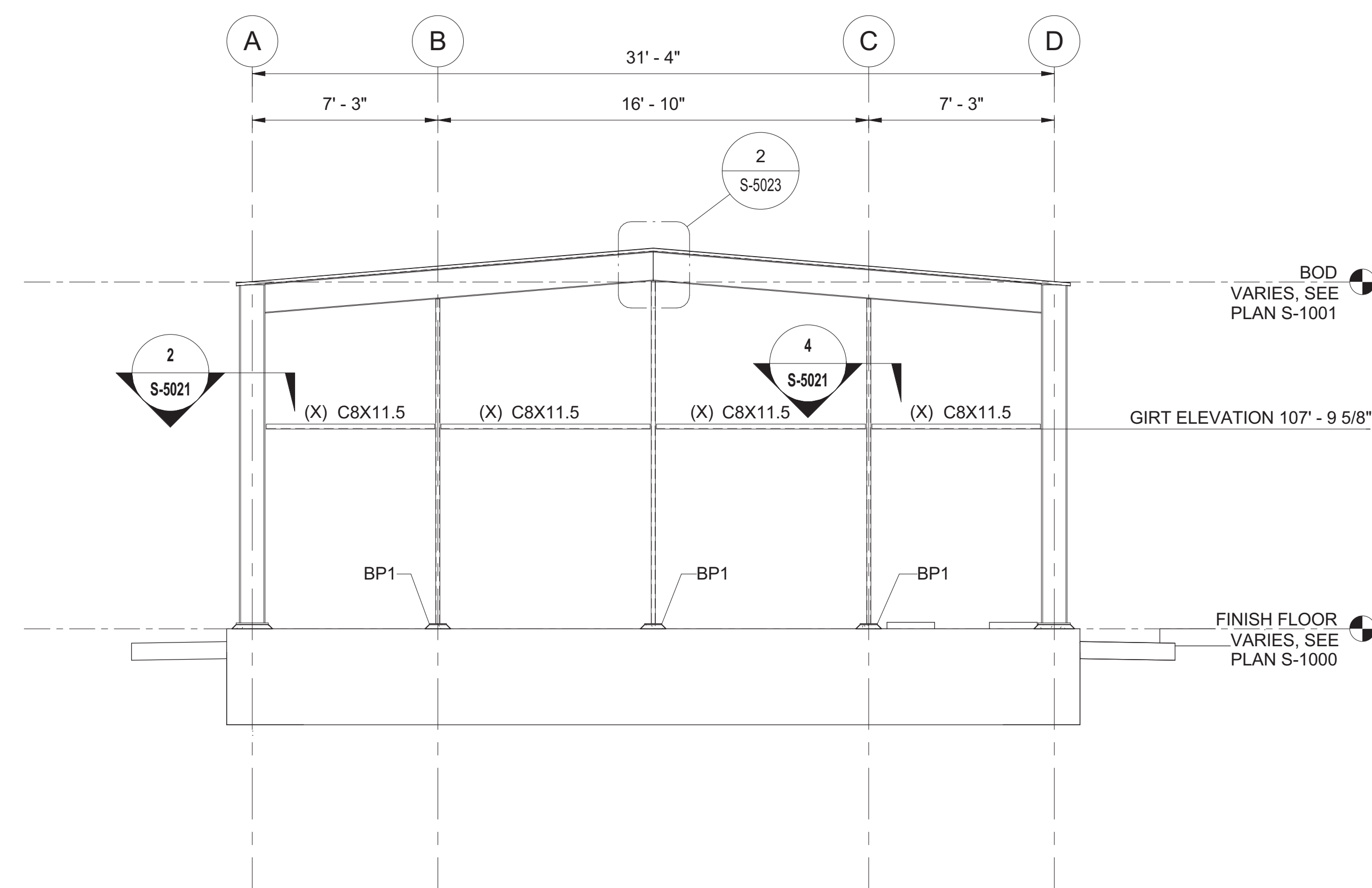
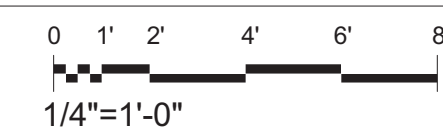
Date 3/21/12
James M. Weeks, NM P.E. 11384



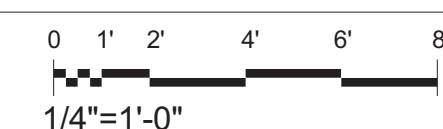
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3. BASE PLATE SCHEDULE LOCATED IN DETAIL 1/S-5000.
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WEST ELEVATION



NORTH ELEVATION



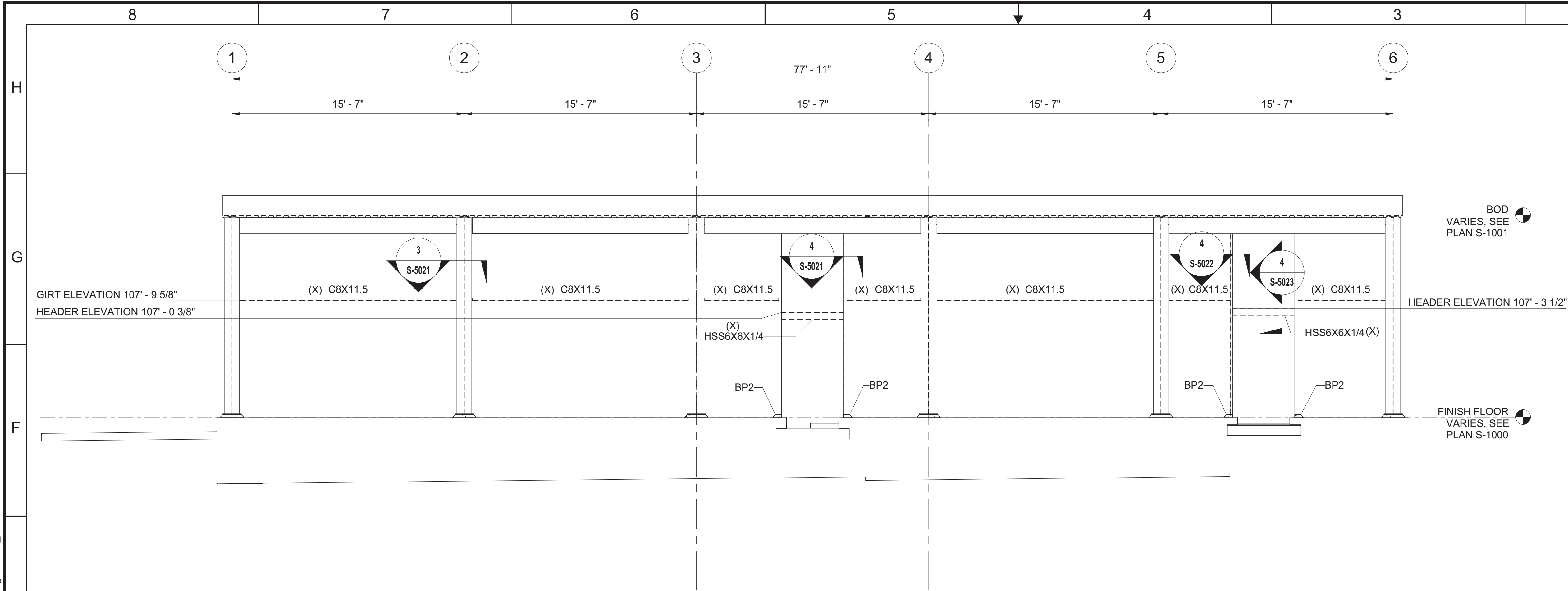
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

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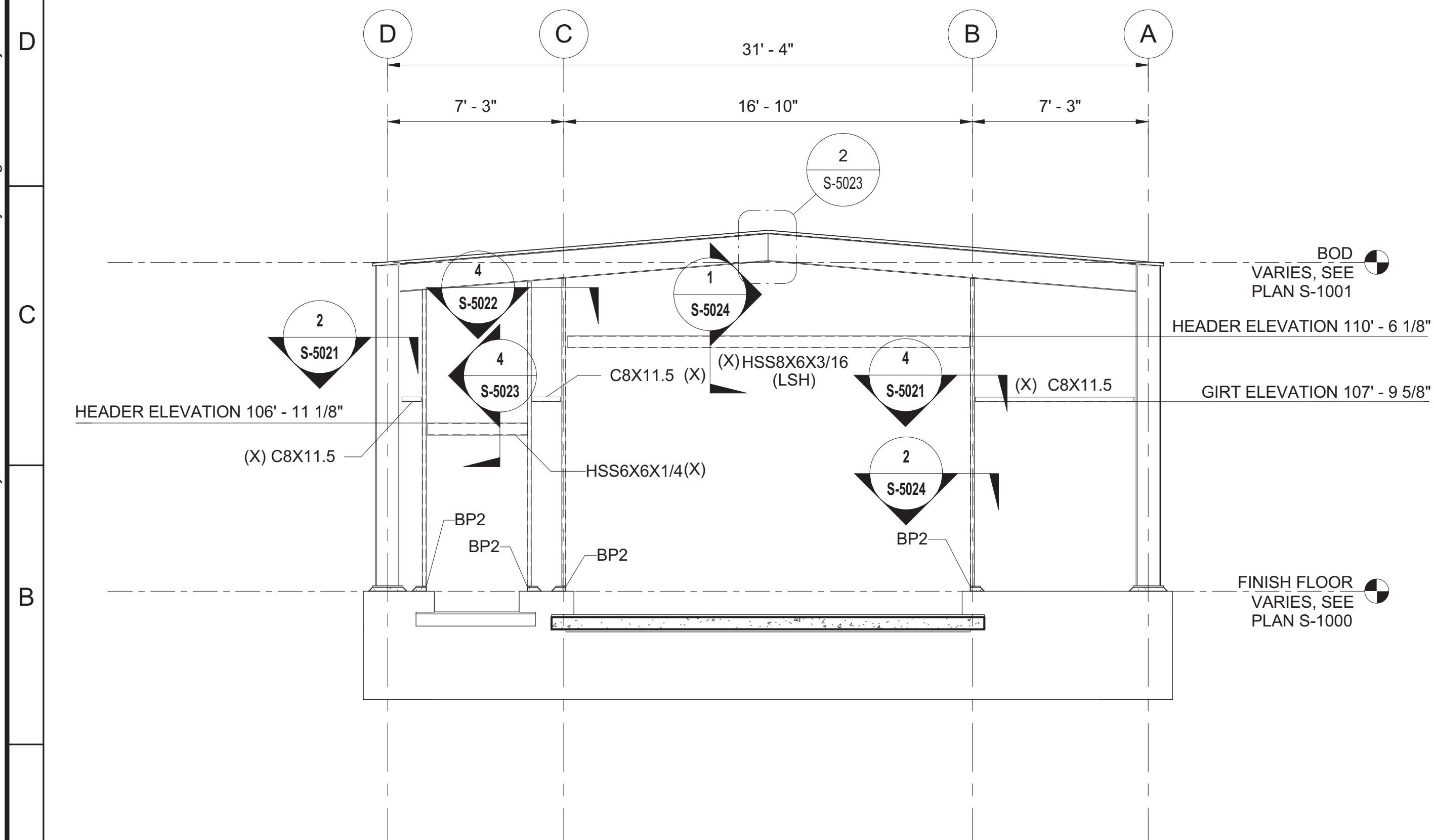
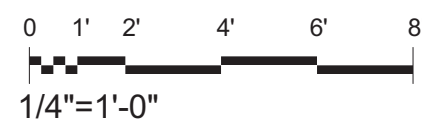
I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date James M. Weeks, NM P.F. 11384

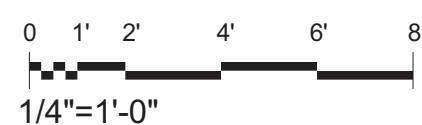
TRU WASTE FACILITY PROJECT 3/20/2012 10:45:30 AM D:\Projects\1082016 - TRU Waste Facility Design Services Project\Models\STORAGE BLDG\2\Storage Bldg2-Struct_flores.rvt



EAST ELEVATION




SOUTH ELEVATION



GENERAL NOTES

- ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
- DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
- BASE PLATE SCHEDULE LOCATED IN DETAIL 1/S-5000.
- FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
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PART B PERMIT APPLICATION

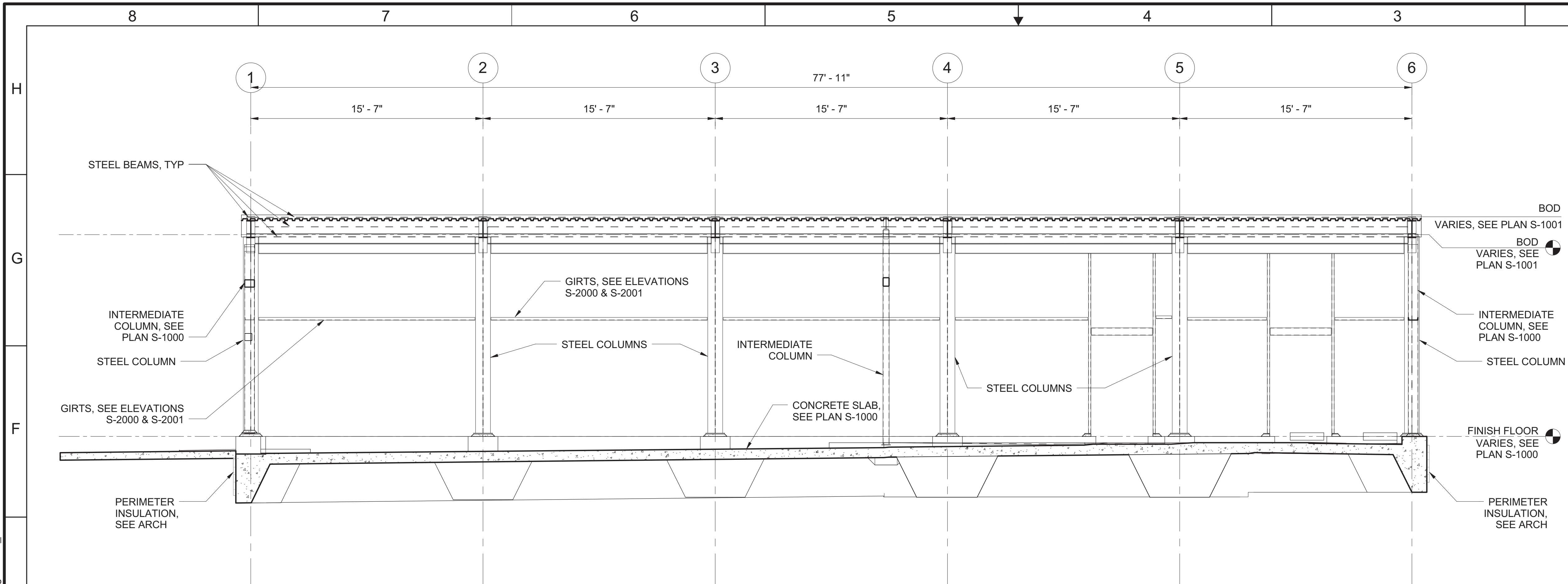
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WEIDLINGER-NAVARRO <div>JV</div> NORTHERN NM										
TRU WASTE FACILITY PROJECT STORAGE & CHARACTERIZATION BUILDING Figure 2-22. Structural Elevations						DRAWN	G.FLORES			
						DESIGN	J.WEEKS			
						CHECKED	C.ROSENBERGER			
						DATE	03-22-12			
BLDG 63-0154						TA-63				
SUBMITTED				APPROVED FOR RELEASE						
<div></div> <div>P.O. Box 1663 Los Alamos, New Mexico 87545</div>						SHEET				S-2001
						573				OF
CLASSIFICATION				REVIEWER						
PROJECT ID				DRAWING NO					REV	
102355				C55445					F	



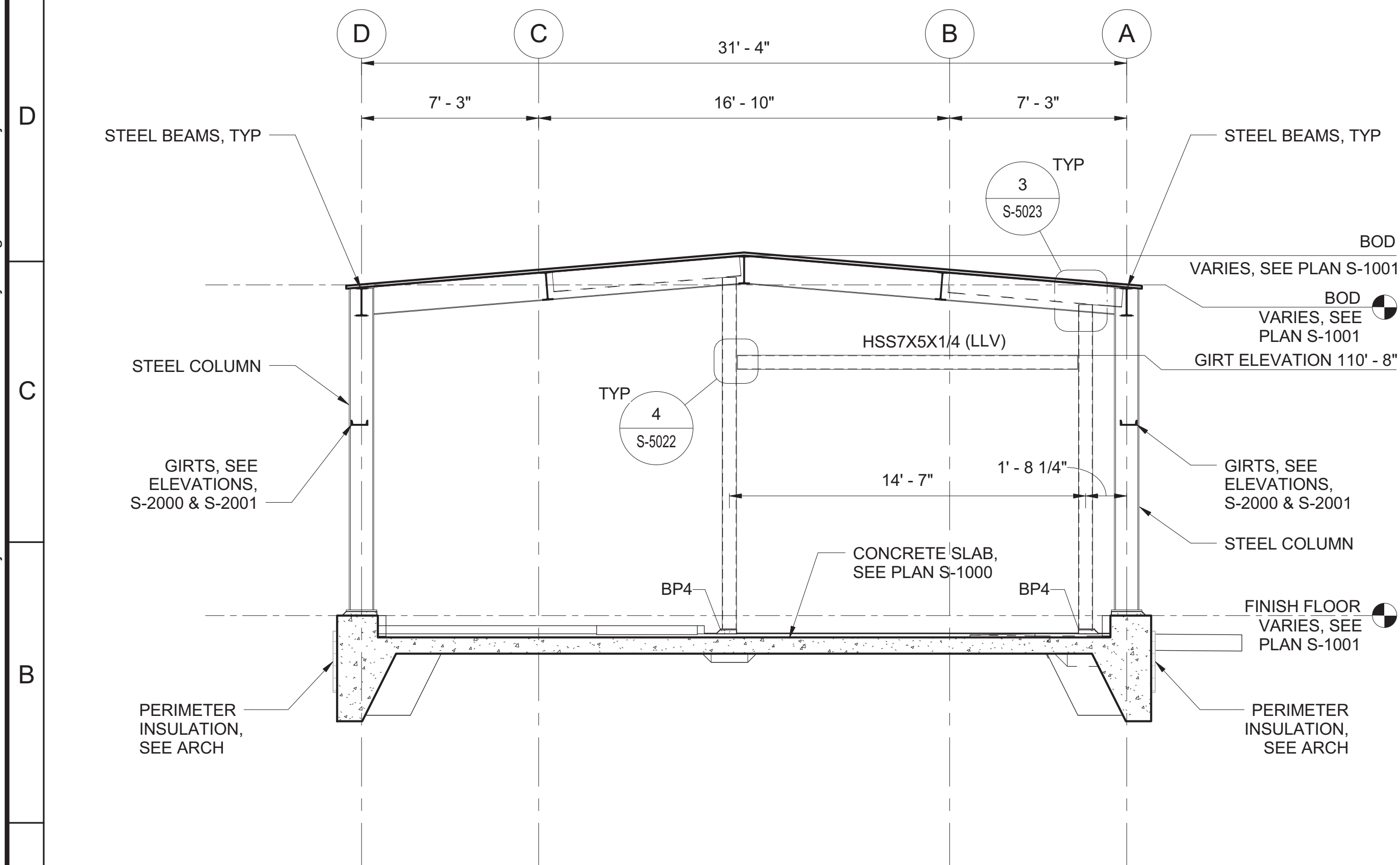
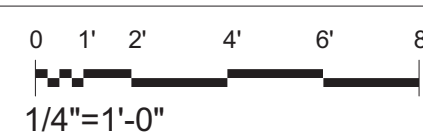
I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date James M. Weeks, NM P.E. 11384

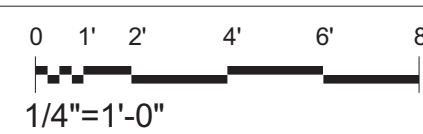
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SECTION A
S-1000, S-1001




SECTION B
S-1000, S-1001



GENERAL NOTES

- ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
- DETAILS ARE LOCATED ON SHEETS S-5000 THRU S-5023.
- FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- THIS DRAWING WAS GENERATED IN REVIT 2011.

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PART B PERMIT APPLICATION

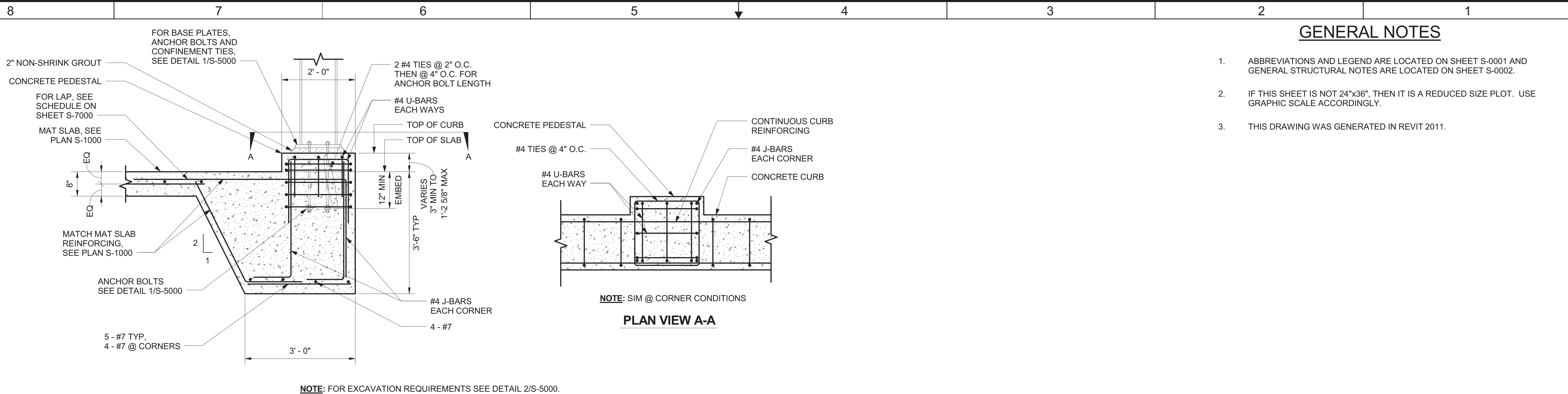
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WEIDLINGER-NAVARRO						<div>JV</div>		NORTHERN NM		
TRU WASTE FACILITY PROJECT STORAGE & CHARACTERIZATION BUILDING Figure 2-23. Structural Sections						DRAWN	G.FLORES			
						DESIGN	J.WEEKS			
						CHECKED	C.ROSENBERGER			
						DATE	03-22-12			
BLDG 63-0154						TA-63				
SUBMITTED				APPROVED FOR RELEASE						
						SHEET				
						S-3000				
P0 Box 1663 Los Alamos, New Mexico 87545						574 OF 740				
CLASSIFICATION				REVIEWER			DATE			
PROJECT ID				DRAWING NO			REV			
102355				C55445			F			



I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date James M. Weeks, NM P.E. 11384

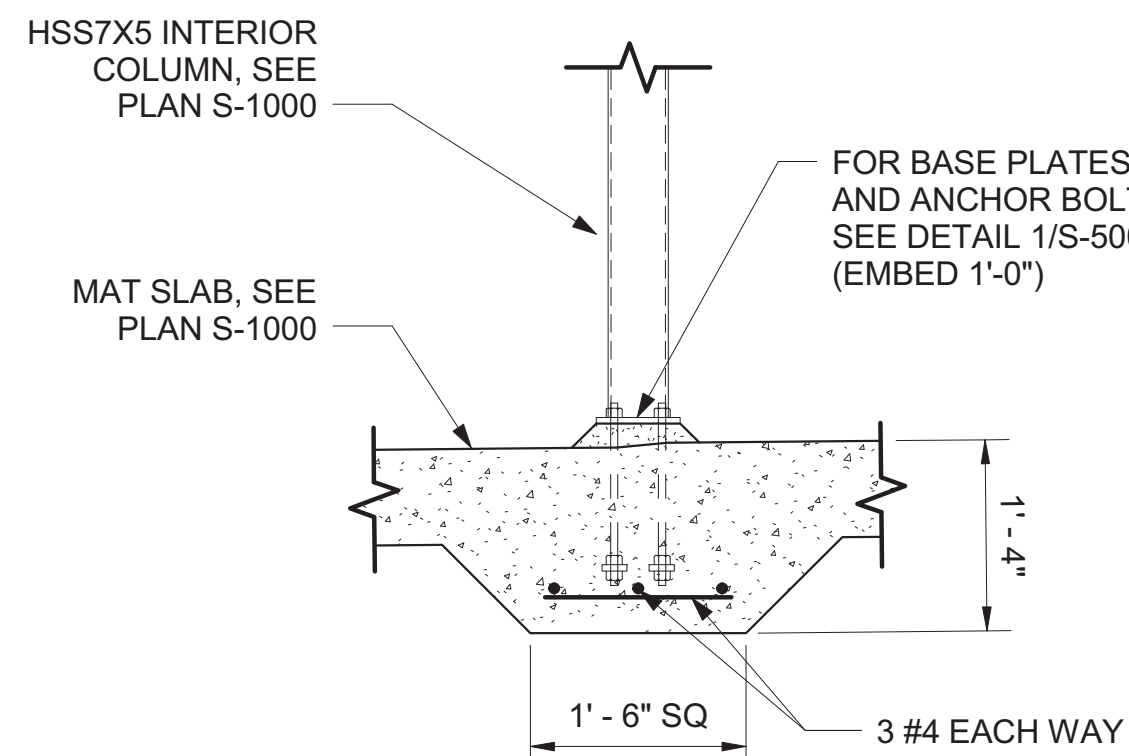
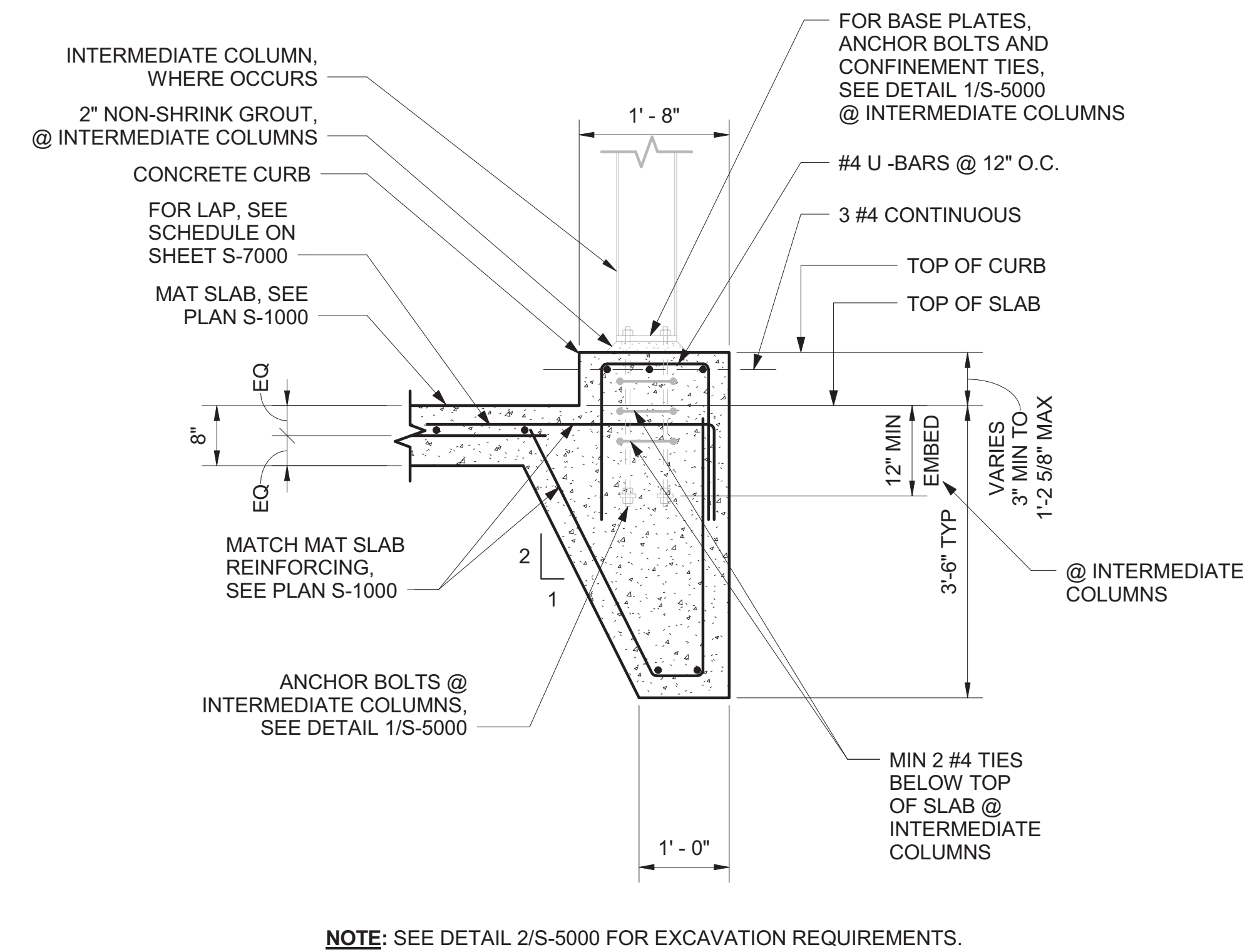
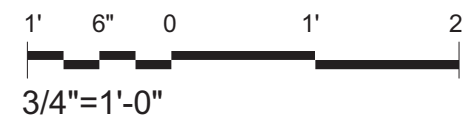
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GENERAL NOTES

- ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
- IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
- THIS DRAWING WAS GENERATED IN REVIT 2011.

1 THICKENED COLUMN MAT



2 MAT SLAB TURN DOWN AT COLUMN




3 INTERIOR COLUMN



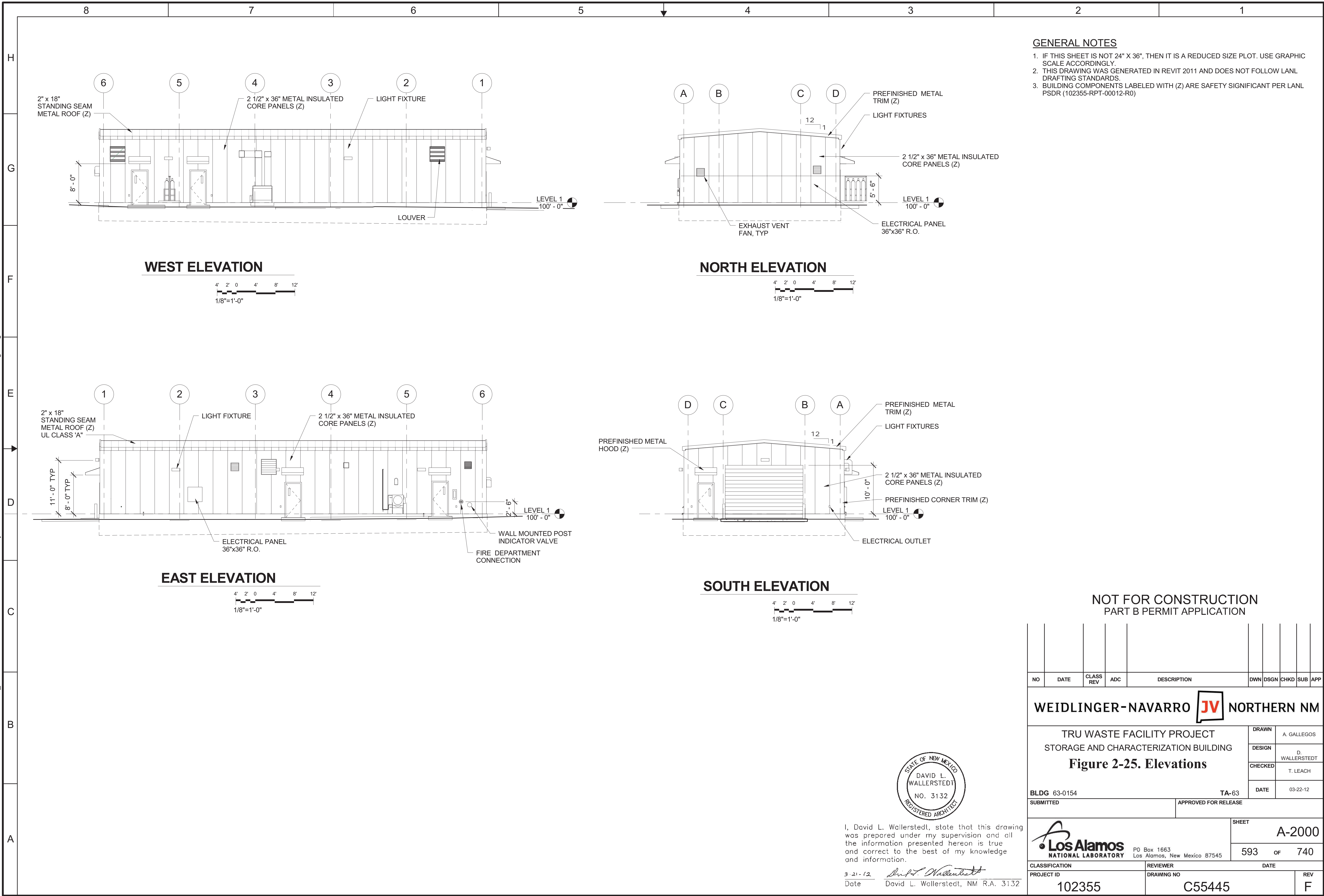
I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

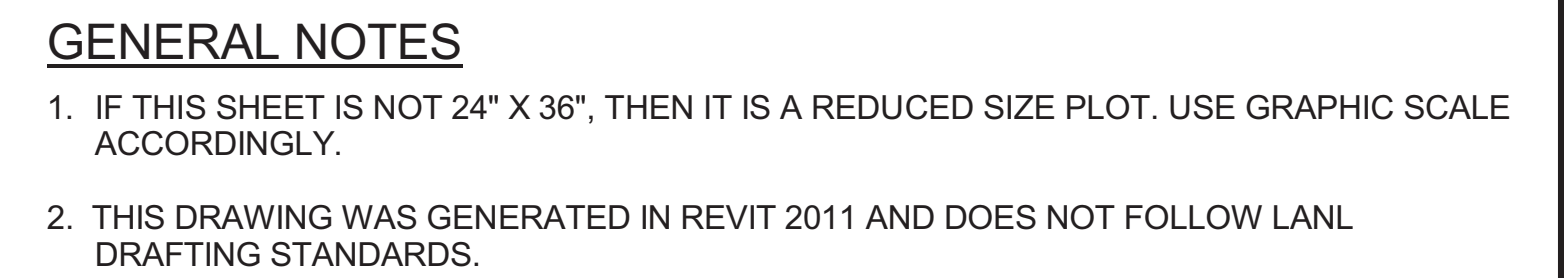
3/21/12 Date James M. Weeks, NM P.E. 11384

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

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WEIDLINGER-NAVARRO					JV					NORTHERN NM
TRU WASTE FACILITY PROJECT STORAGE & CHARACTERIZATION BUILDING Figure 2-24. Foundation Details					DRAWN	G.FLORES				
					DESIGN	J.WEEKS				
					CHECKED	C.ROSENBERGER				
					DATE	03-22-12				
BLDG 63-0154				TA-63						
SUBMITTED				APPROVED FOR RELEASE						
 Los Alamos NATIONAL LABORATORY					SHEET					
					S-5010					
PO Box 1663 Los Alamos, New Mexico 87545					577 OF 740					
CLASSIFICATION				REVIEWER						
PROJECT ID				DRAWING NO					REV	
102355				C55445					F	

TRU WASTE FACILITY PROJECT 3/20/2012 4:06:21 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG-TF ROOM\MARCH\REVIT\Storage Bldg 2 - Arch.rvt





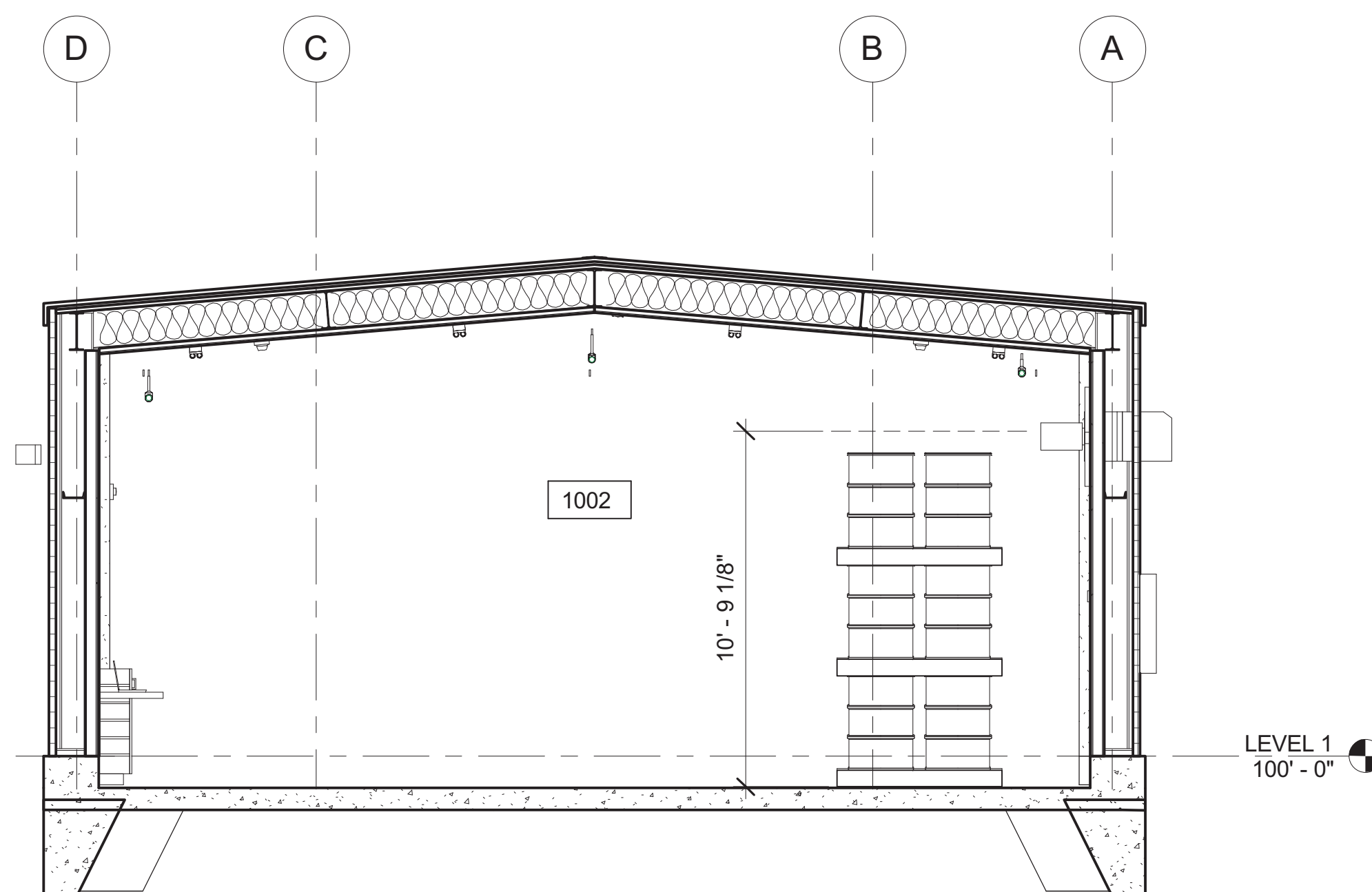
Architectural cross-section drawing of a building structure. The drawing shows a gabled roof with a 2" STANDING SEAM METAL ROOF and R-30 BATT INSULATION. The walls are constructed with METAL STUD WALL UL U425 1-HR CONSTRUCTION. The interior shows a room with a door labeled 1002 and various mechanical components. The overall width is 31' - 4" and the height is 13' - 5". A north arrow and LEVEL 1 100' - 0" are indicated.

BUILDING SECTION

B
A-1050

0 1' 2' 4' 6' 8'

$1/4" = 1'-0"$



BUILDING SECTION

C
A-1050



0 1' 2' 4' 6' 8'

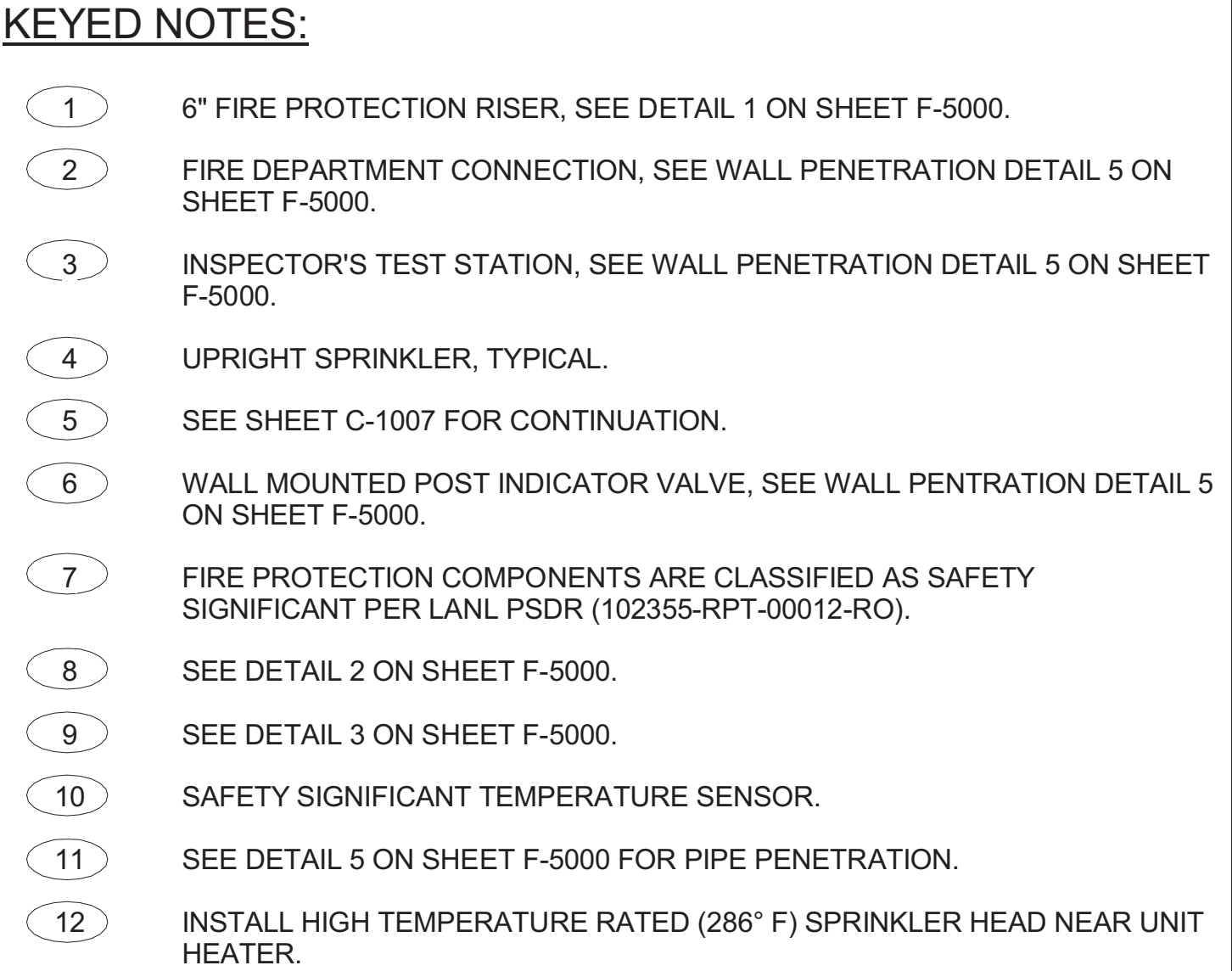
1/4"=1'-0"

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 David L. Wallerstedt
Date David L. Wallerstedt, NM R.A. 3132

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION							DWN	DSGN	CHKD	SUB	APP											
WEIDLINGER-NAVARRO  NORTHERN NM																										
TRU WASTE FACILITY PROJECT STORAGE AND CHARACTERIZATION BUILDING Figure 2-26. Building Sections											DRAWN	A. GALLEGOS														
											DESIGN	D. WALLERSTEDT														
											CHECKED	T. LEACH														
											DATE	03-22-12														
BLDG 63-0154											TA-63															
SUBMITTED				APPROVED FOR RELEASE																						
 P.O. Box 1663 Los Alamos, New Mexico 87545											SHEET					A-3000										
											594					OF					740					
CLASSIFICATION											REVIEWER											DATE				
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102355											C55445											F				

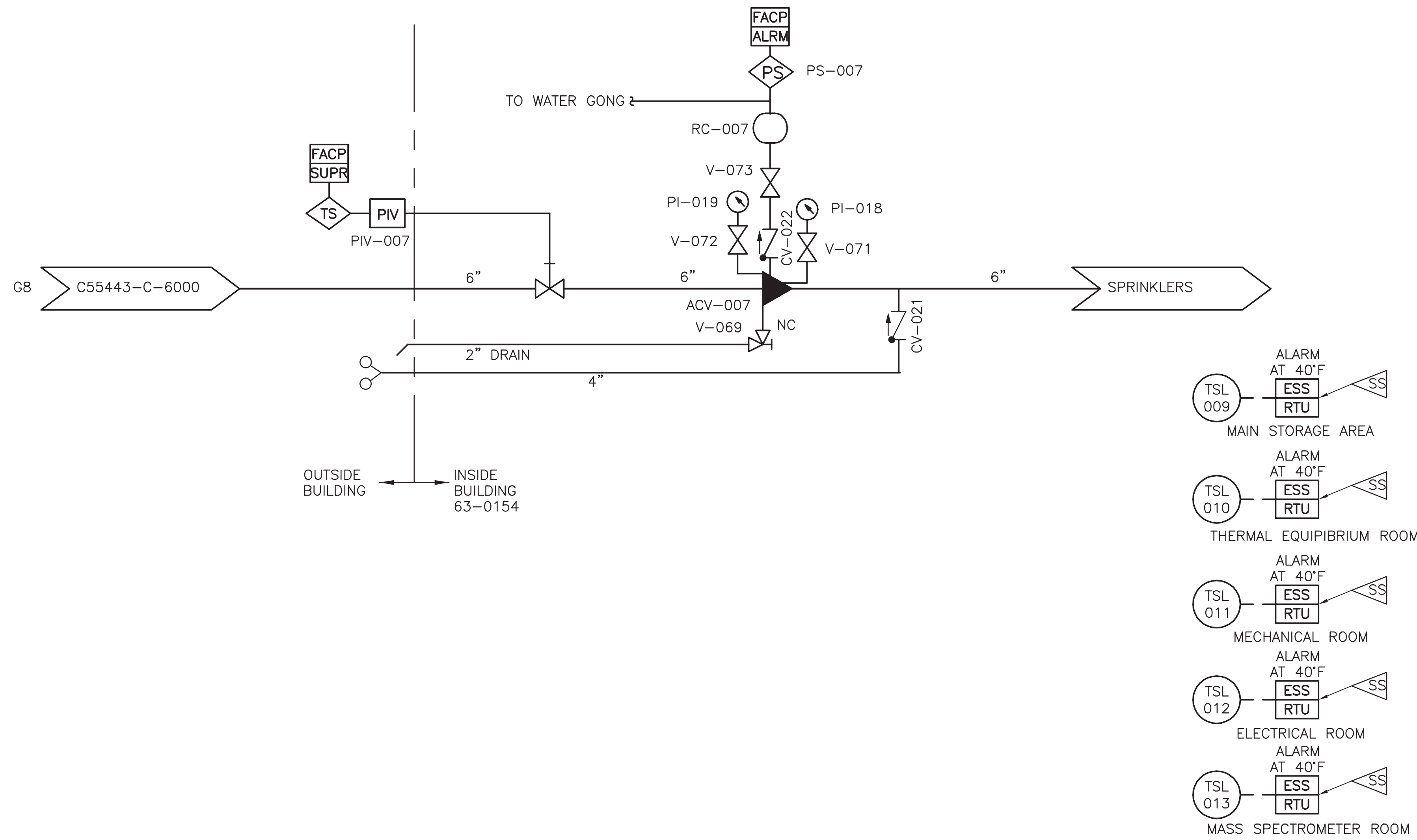


I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 *Edward Miyoda*

Date	Edward M. Miyoda, NM	P.E. 8263
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Plotted By: MOYERS, CHARLES; Plot Date: Tuesday, March 20, 2012; Plot CTB File: LANL D-SIZE.CTB; Page Setup Name: PDF; InsUnits: 1; LUScale: 1.000000 Measurement: 0;



FIRE PROTECTION P&ID
SCALE: NONE

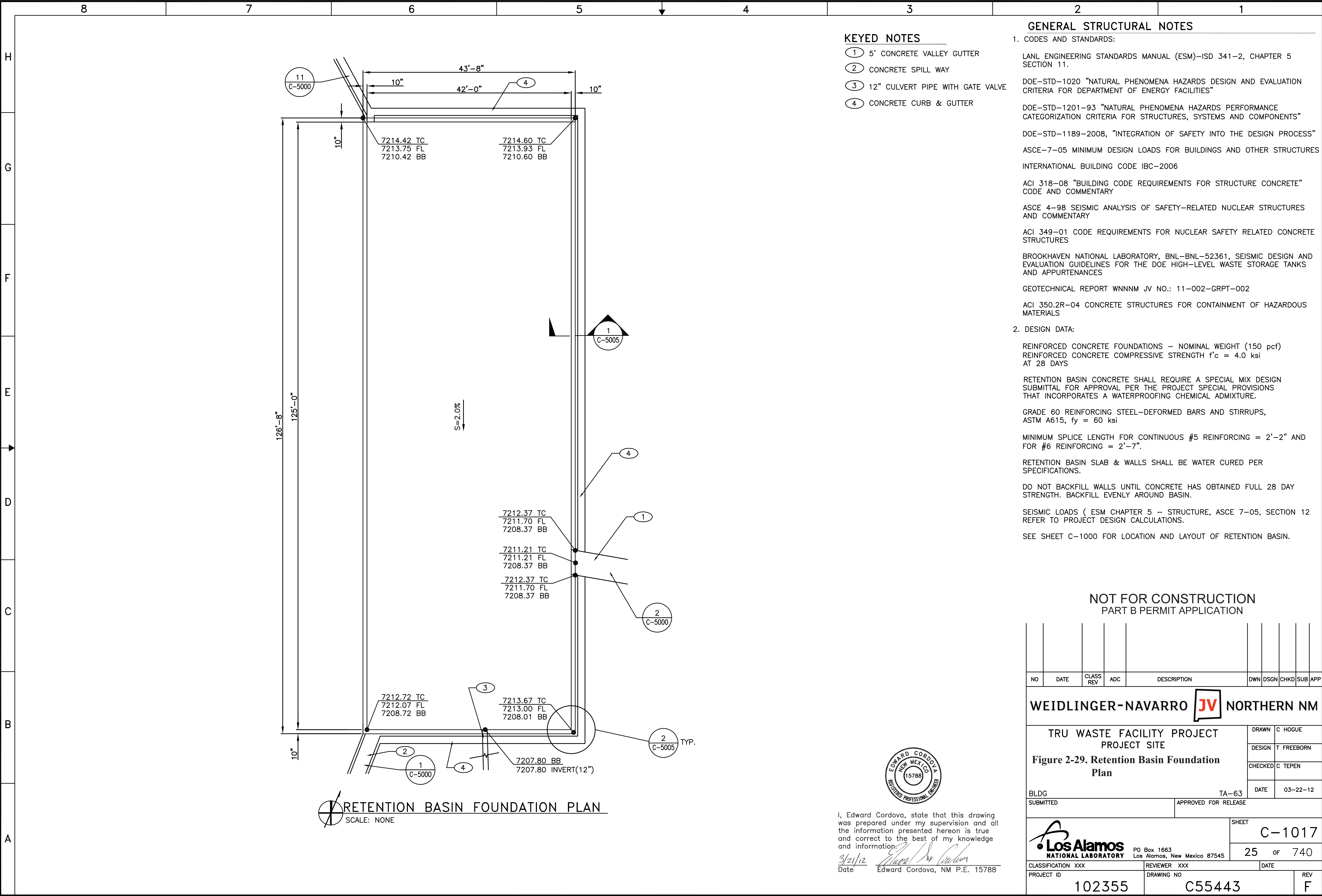
I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.
3-21-12 Edward Miyoda
Date Edward M. Miyoda, NM P.E. 8263



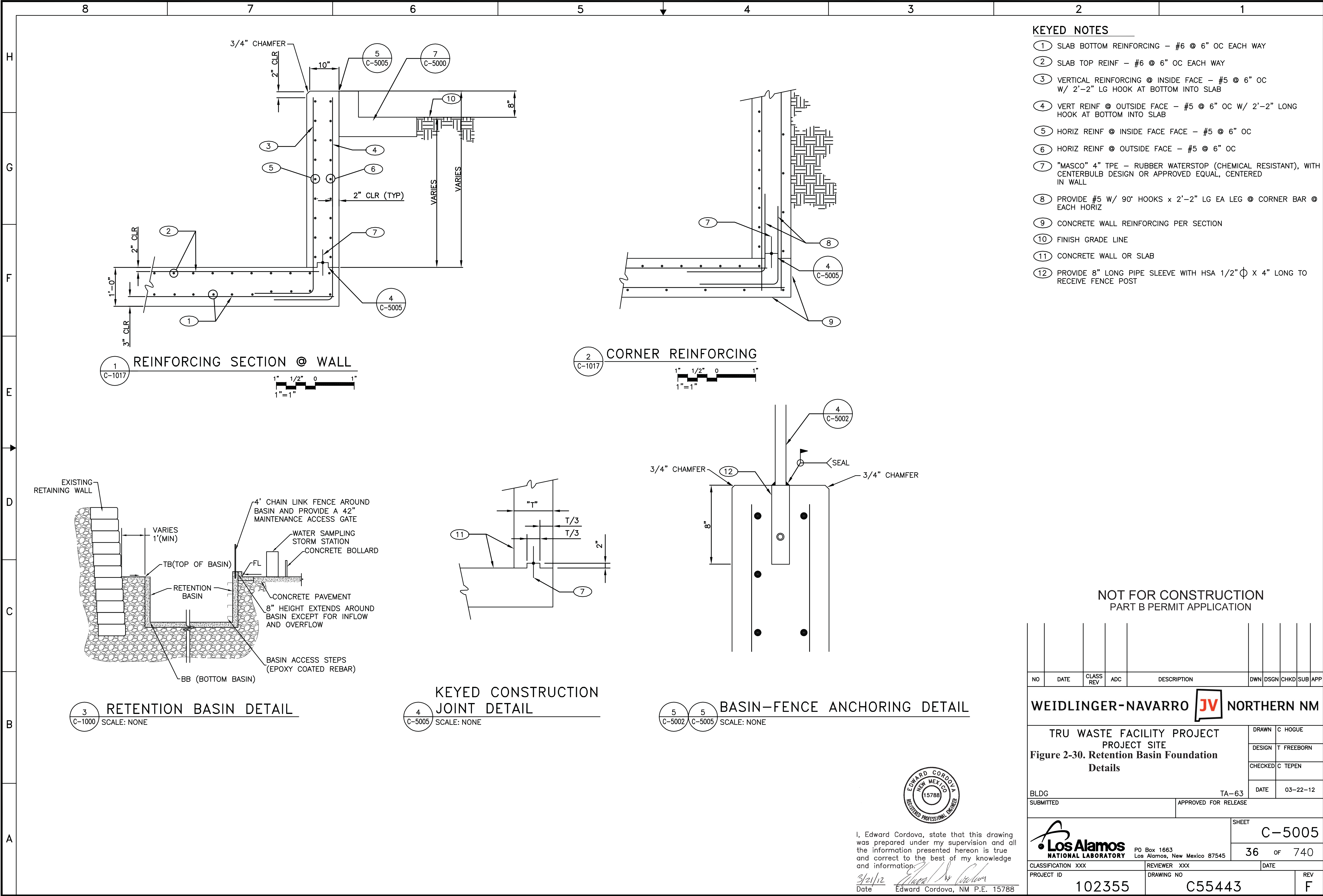
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

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TRU WASTE FACILITY PROJECT STORAGE & CHARACTERIZATION BUILDING					DRAWN D. JENSEN				
Figure 2-28. Fire Protection P & ID					DESIGN E. MIYODA				
					CHECKED C. MOYERS				
BLDG 63-0154					DATE 03-22-12				
SUBMITTED					APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY					SHEET F-6000				
P.O. Box 1663 Los Alamos, New Mexico 87545					606 OF 740				
CLASSIFICATION XXX					REVIEWER XXX				
PROJECT ID 102355					DRAWING NO C55445				
					REV F				

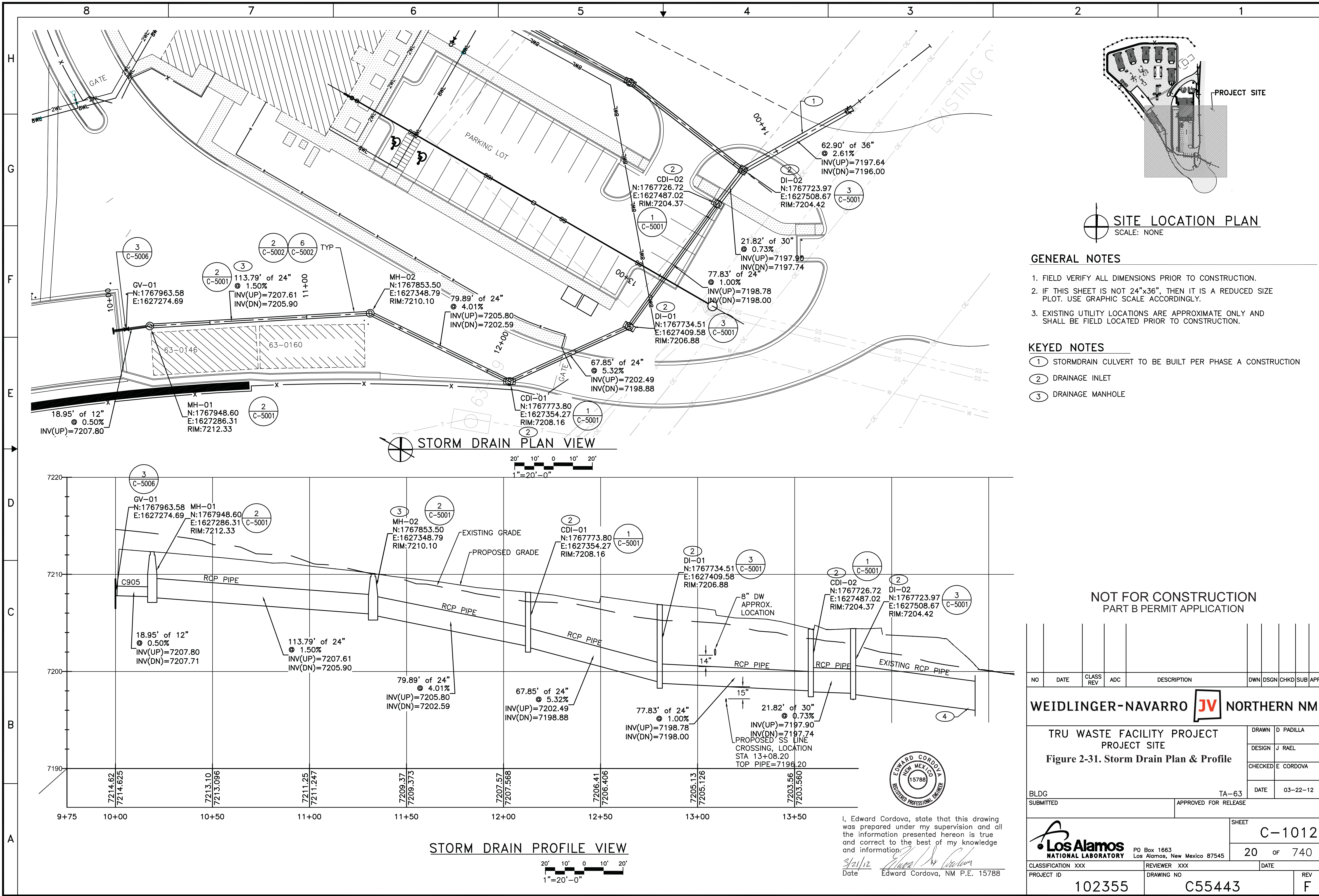
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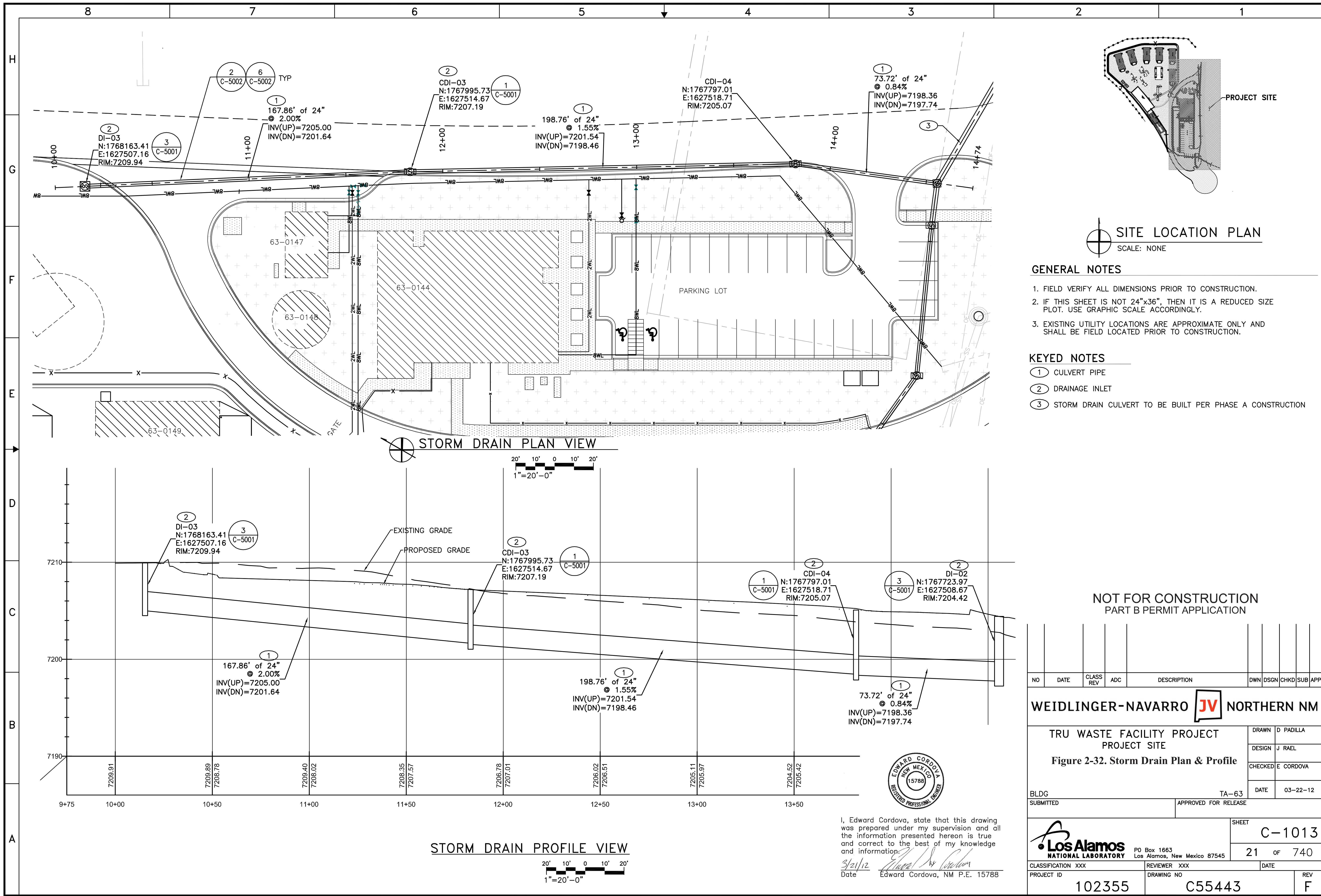
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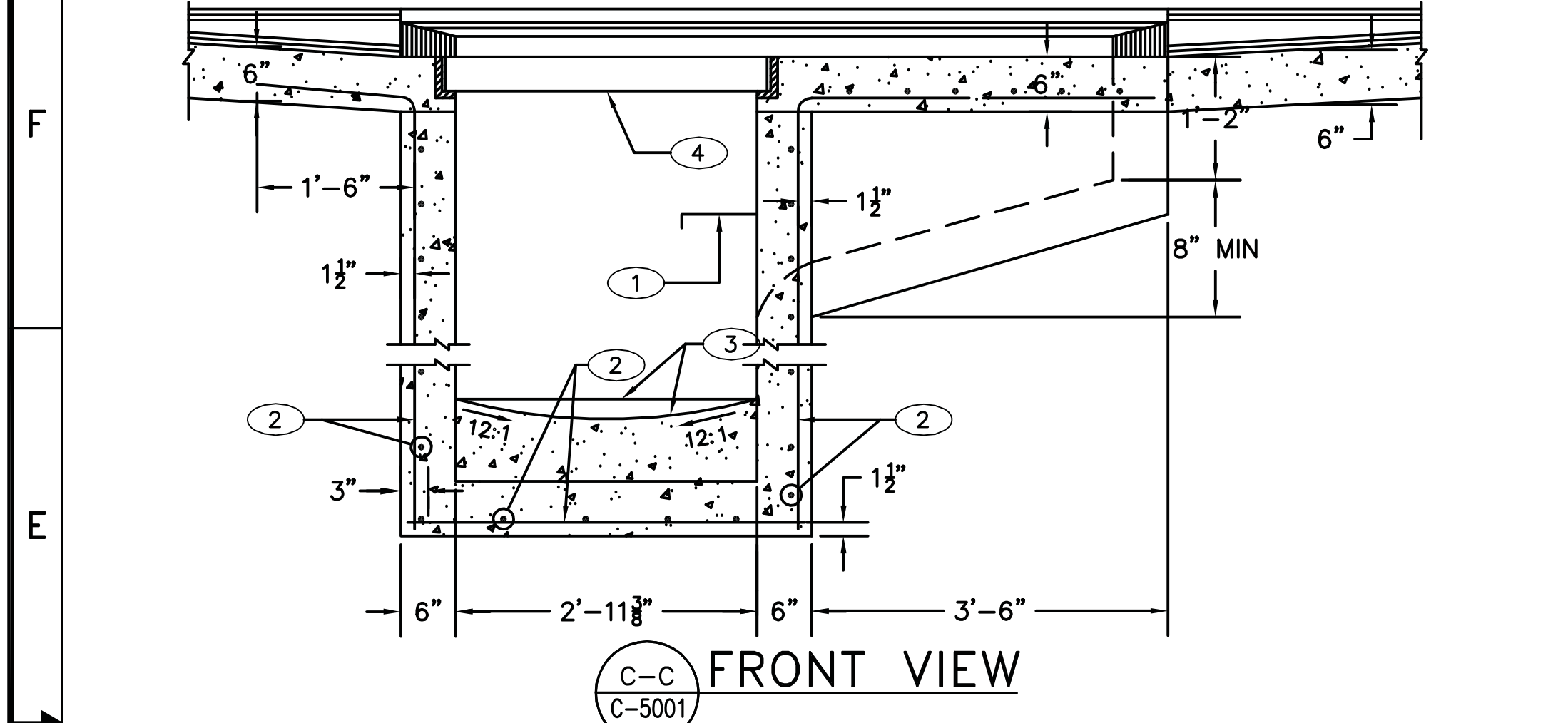
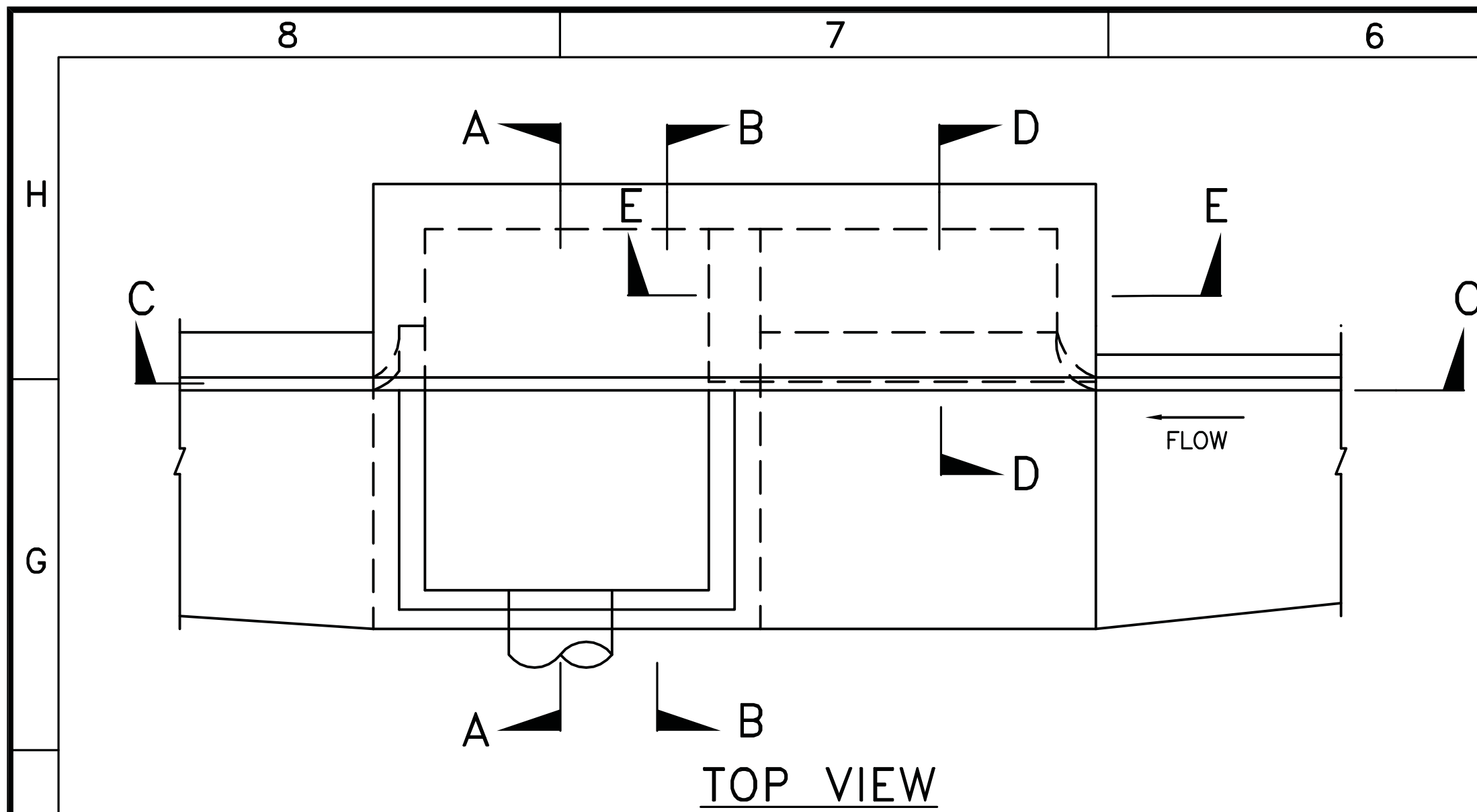
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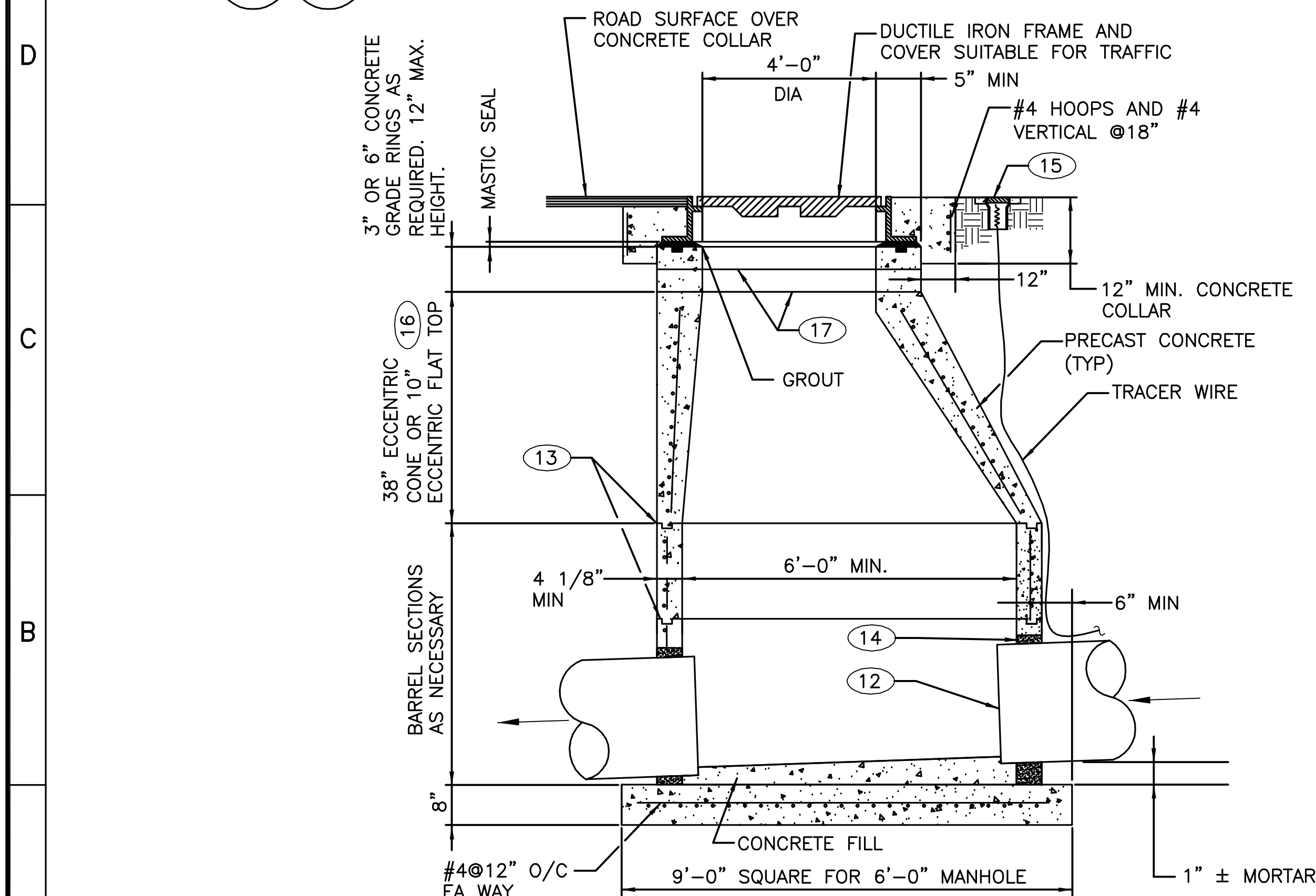
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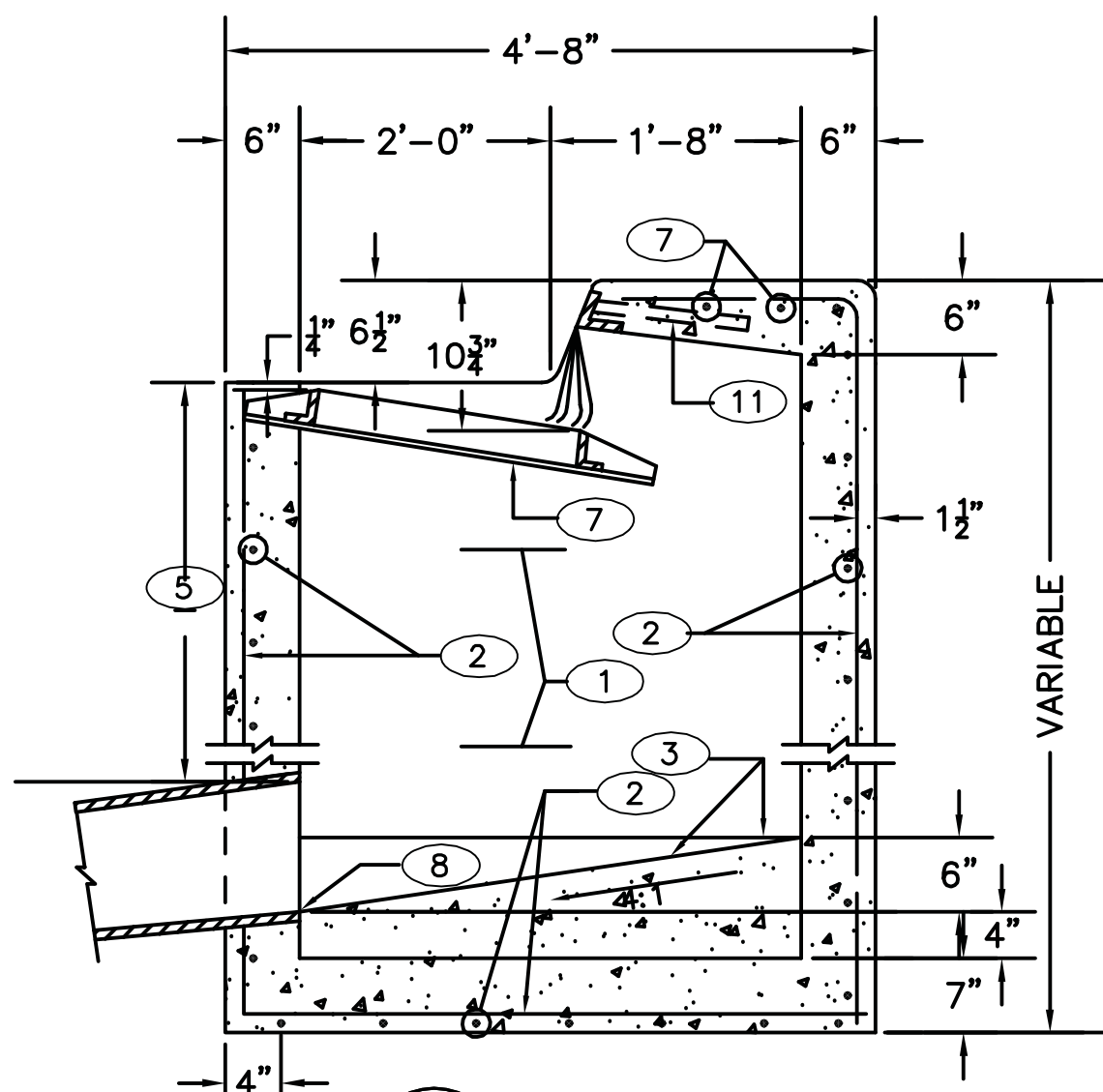
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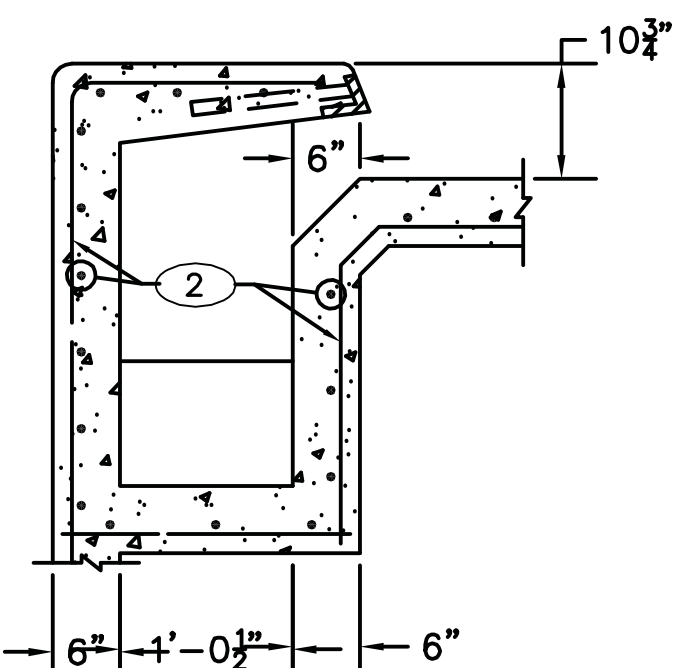
1 C-1012 1 C-1013 STORM DRAIN CURB INLET DETAIL SCALE: NONE



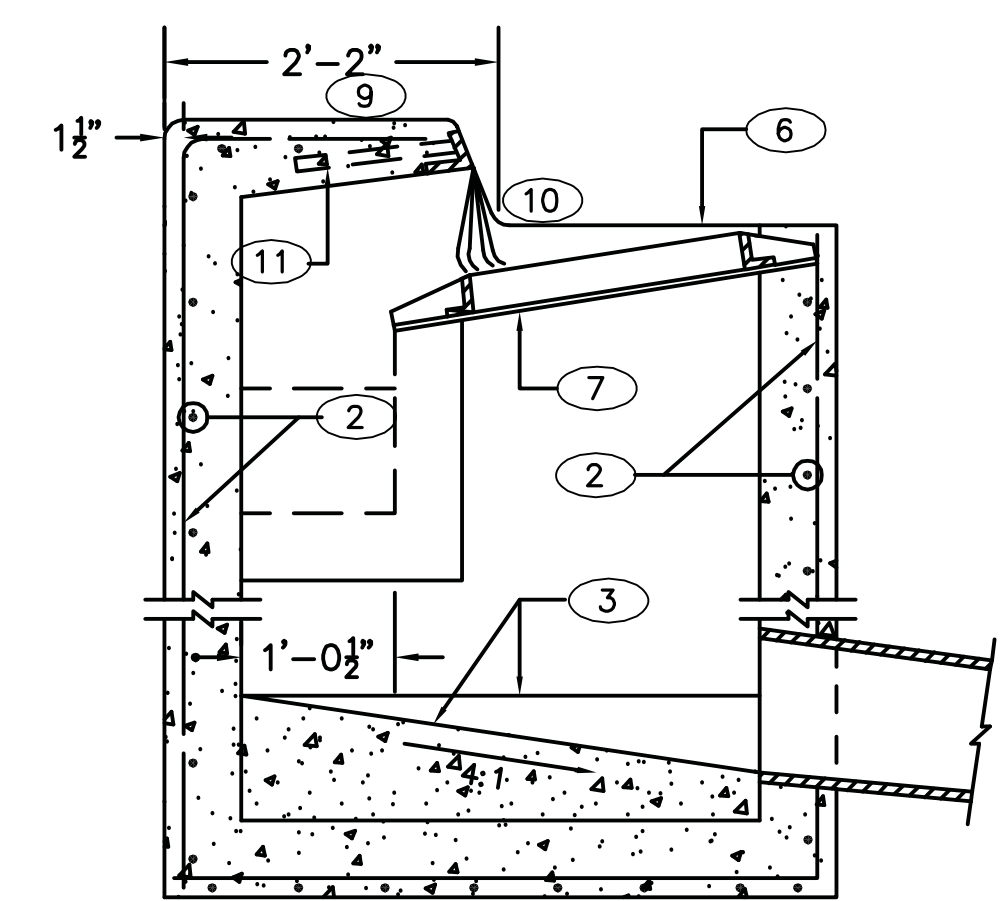
2 C-1012 STORM WATER MANHOLE DETAIL SCALE: NONE



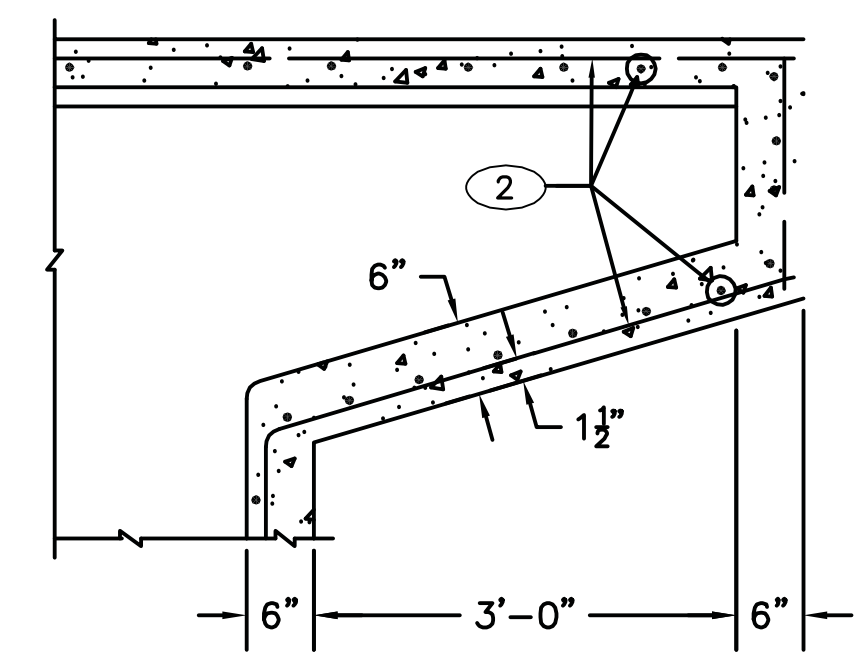
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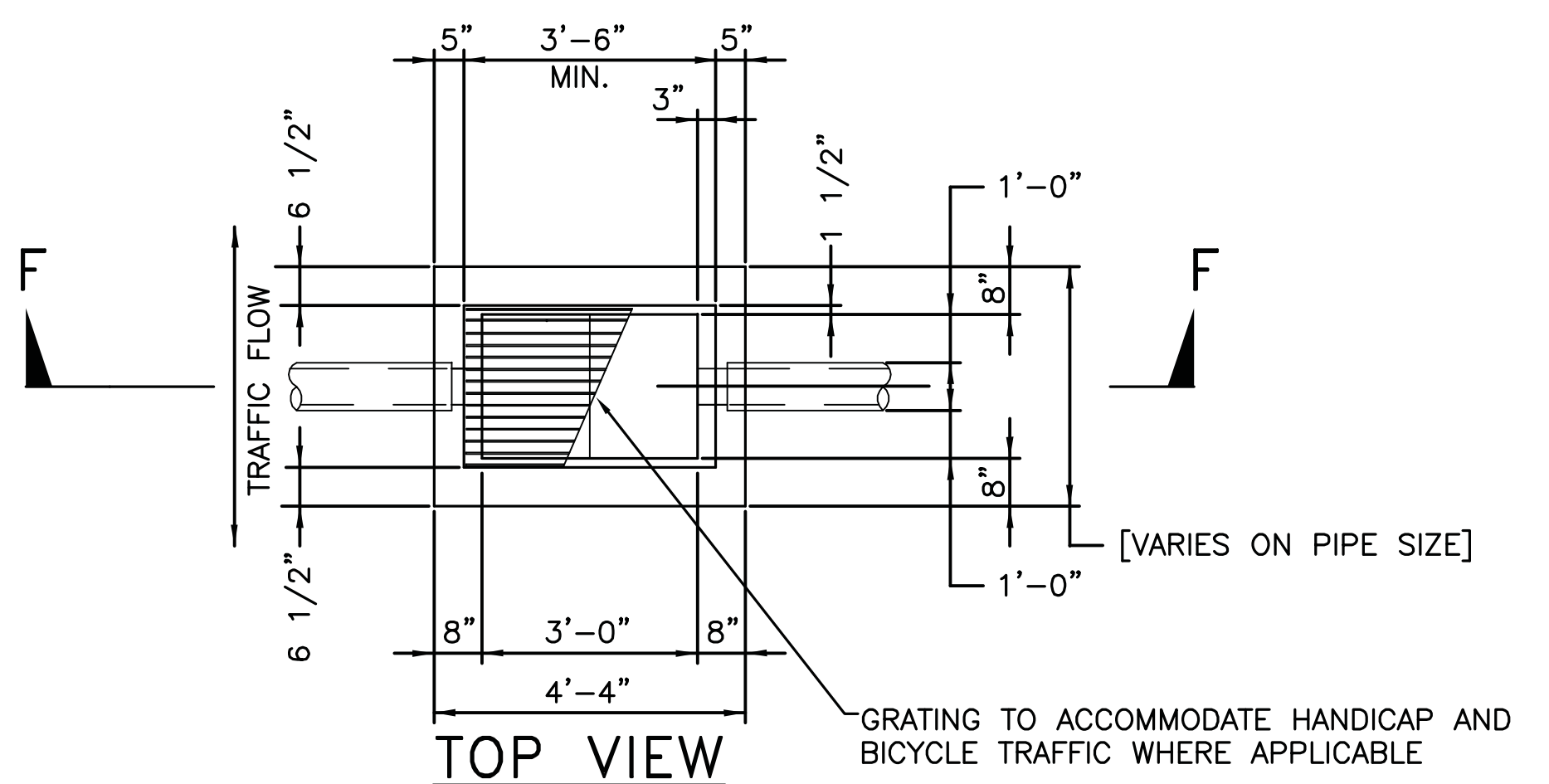
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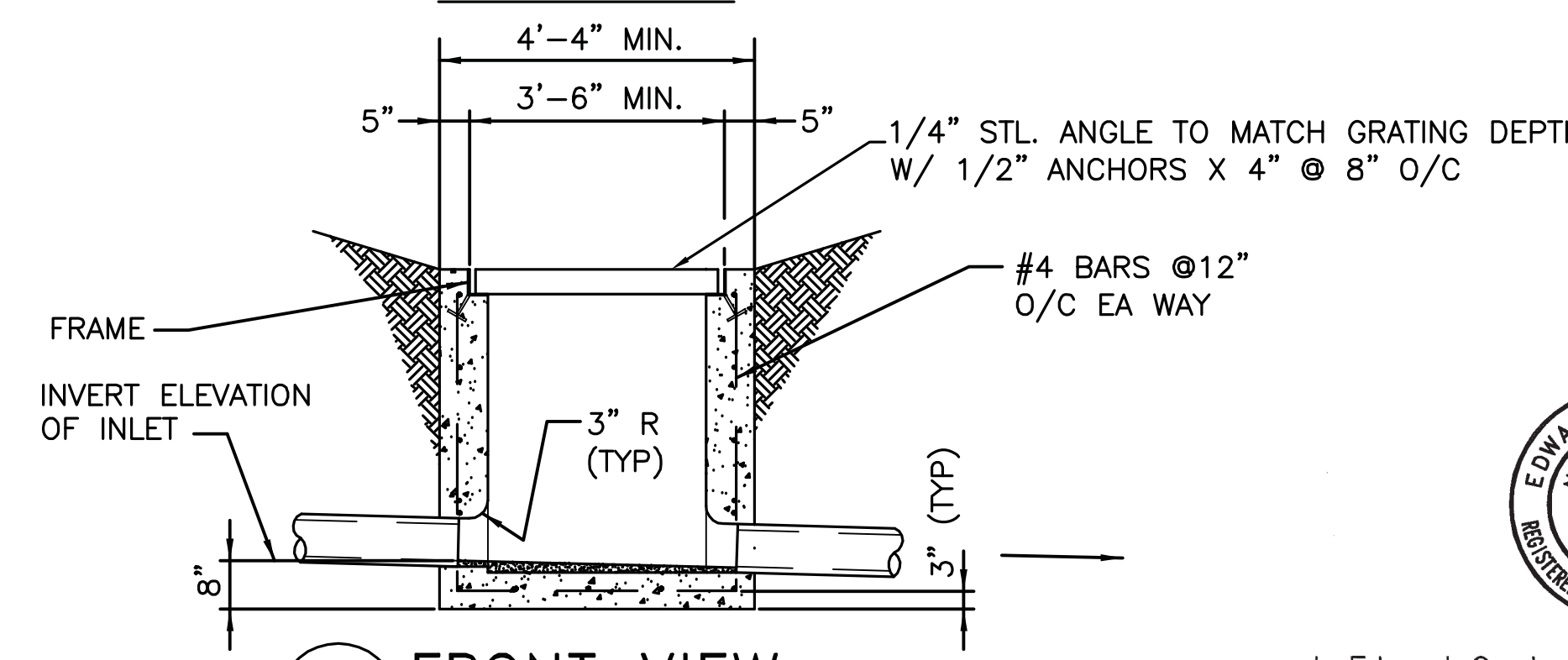
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E-E C-5001 FRONT VIEW 2 SCALE: NONE



TOP VIEW



F-F C-5001 FRONT VIEW

3 C-1012 3 C-1013 CONCRETE AREA INLET DETAIL SCALE: NONE

GENERAL NOTES

- IF HDPE STORM DRAIN PIPE IS USED, TRACER WIRE SHALL BE INSTALLED.

KEYED NOTES:

- FOR STORM INLET DEPTHS GREATER THAN 4', INSTALL STD STEPS. STEPS ARE TO BE INSTALLED ON DOWNSTREAM FACE OF INLET.
- NO. 4 BARS AT 6" OC EW.
- CONCRETE FILL MINIMUM SLOPE SHOWN
- GRATING TO ACCOMMODATE HANDICAP AND BICYCLE TRAFFIC PER NMDOT STANDARDS
- 1'-10" MIN UNLESS OTHERWISE DIRECTED.
- NORMAL GUTTER.
- GRATE FRAME.
- INVERT ELEVATION PER DESIGN.
- TOP OF CURB.
- FLOWLINE.
- ANGLE ANCHOR.
- STOP ALL PIPE 3" TO 6" INTO MANHOLE.
- CLEAN ALL JOINTS AND INSTALL SEALING GASKETS.
- GROUT WATER STOP (TYP).
- TEST STATION WITH 6" CONCRETE COLLAR.
- DO NOT USE FLAT TOPS IN PARKING LOTS OR ROADWAYS.
- MASTIC AND/OR GROUT FOR WATER TIGHT SEAL AND THE PREVENTION OF DISPLACEMENT OF RINGS AND COVER.
- PROVIDE A MINIMUM OF 12" OF SAND BEDDING BETWEEN PIPE AND VERTICAL SIDEWALLS.
- TRACER WIRE SHALL BE UTILIZED IF STORM DRAIN PIPE IS HDPE.

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
WEIDLINGER-NAVARRO JV NORTHERN NM									
TRU WASTE FACILITY PROJECT PROJECT SITE Figure 2-33. Storm Drain Inlet Details					DRAWN D PADILLA DESIGN J RAE CHECKED E CORDOVA DATE 03-22-12				
BLDG TA-63 SUBMITTED					APPROVED FOR RELEASE				
Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545					SHEET C-5001 32 OF 740				
CLASSIFICATION XXX					REVIEWER XXX				
PROJECT ID 102355					DRAWING NO C55443				
					REV F				

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.
3/21/12
Date Edward Cordova, NM P.E. 15788



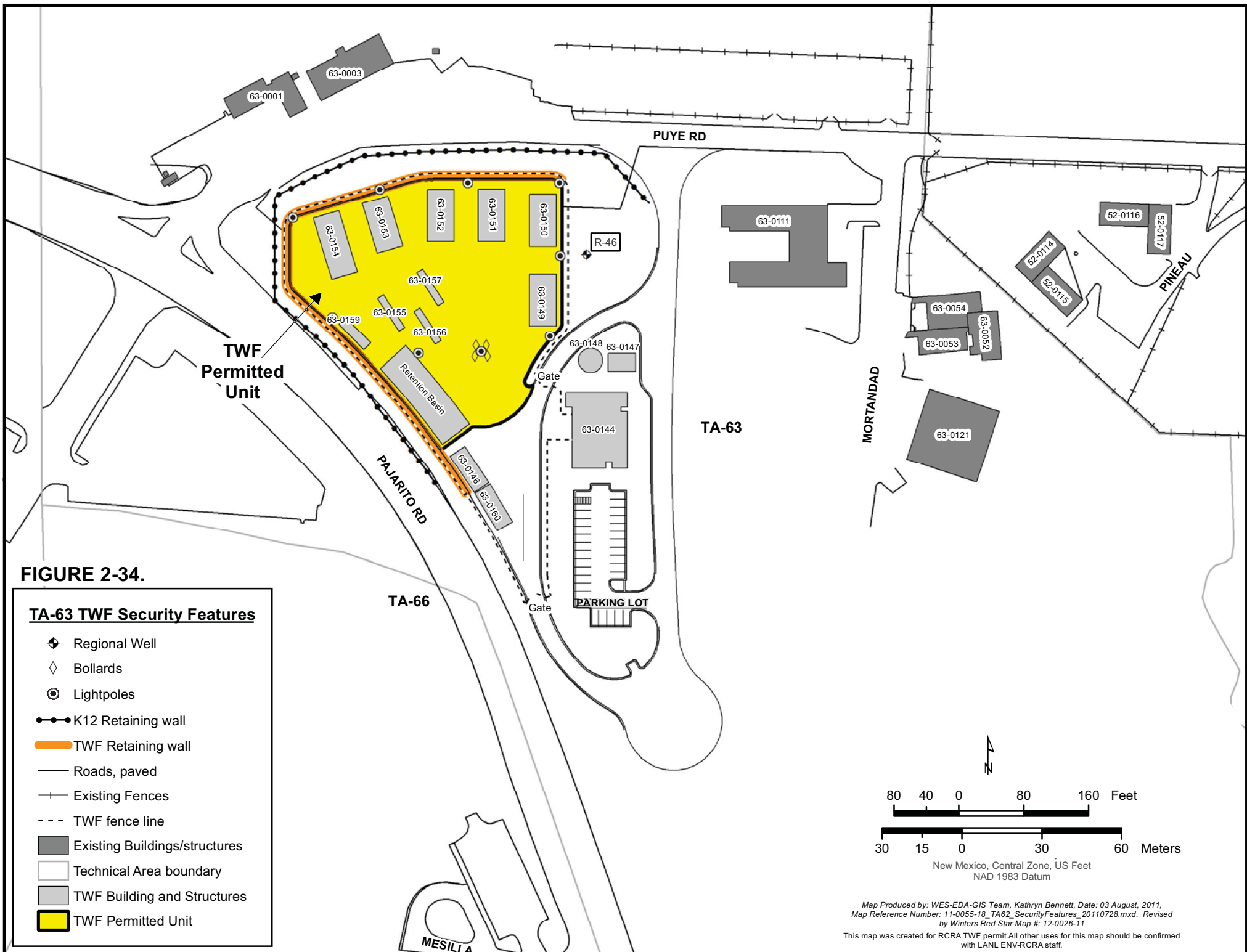
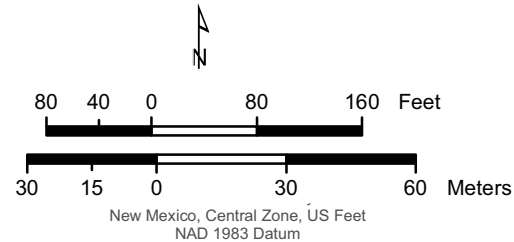


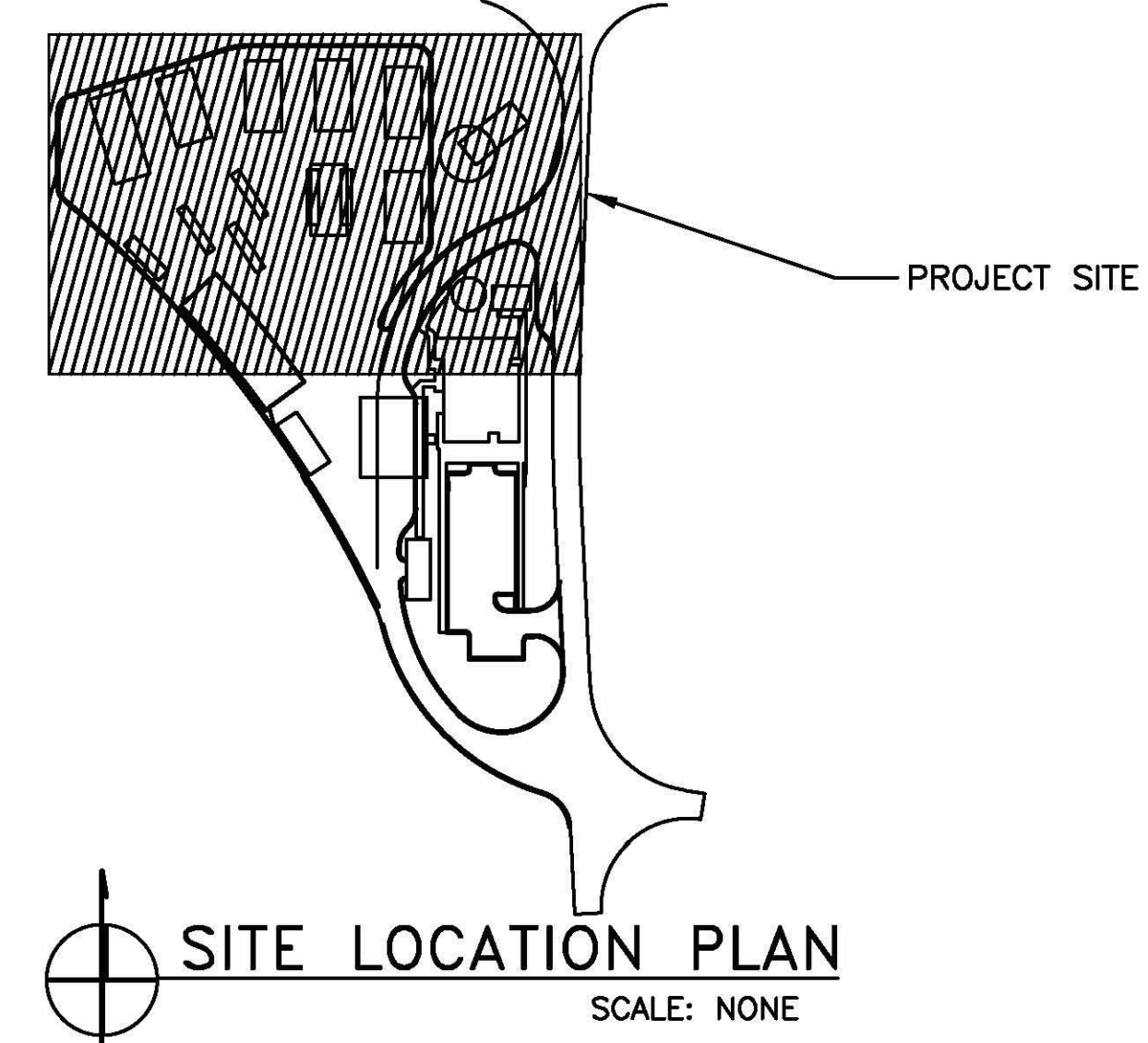
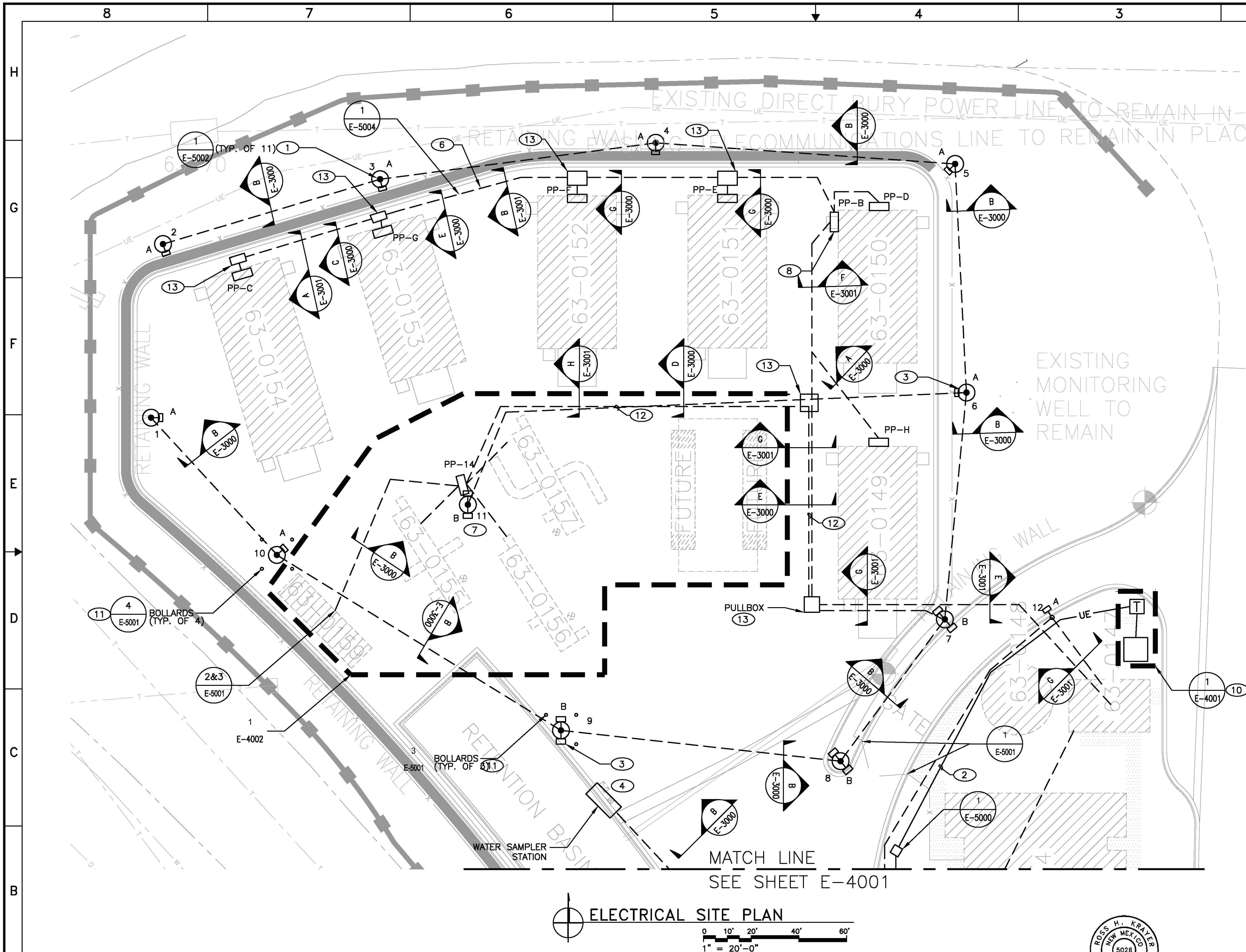
FIGURE 2-34.

TA-63 TWF Security Features

- ⊕ Regional Well
- ◇ Bollards
- ⊙ Lightpoles
- K12 Retaining wall
- TWF Retaining wall
- Roads, paved
- + Existing Fences
- - - TWF fence line
- Existing Buildings/structures
- Technical Area boundary
- TWF Building and Structures
- TWF Permitted Unit



Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011,
 Map Reference Number: 11-0055-18, TA62_SecurityFeatures_20110728.mxd. Revised
 by Winters Red Star Map #: 12-0026-11
 This map was created for RCRA TWF permit. All other uses for this map should be confirmed
 with LANL ENV-RCRA staff.

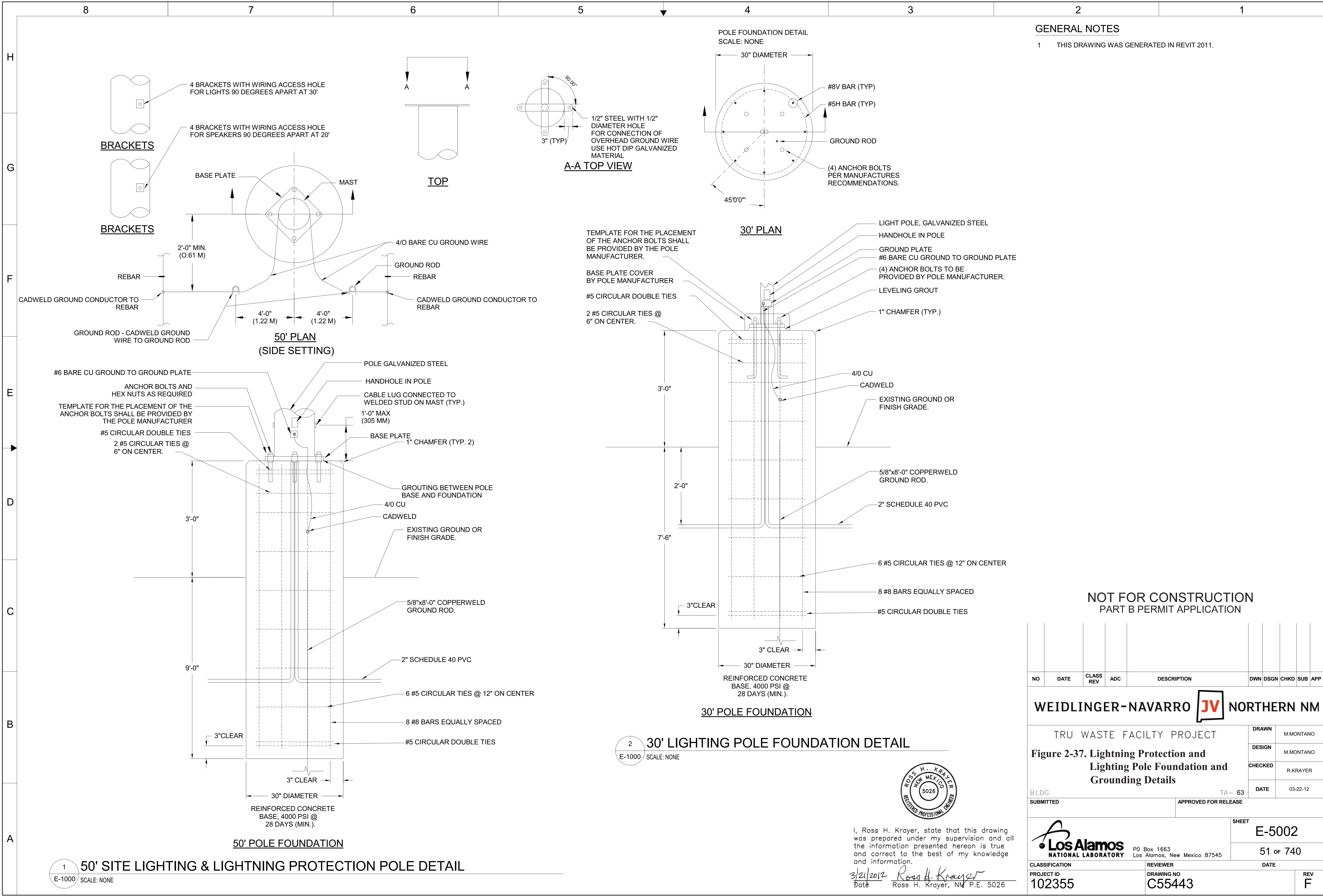


- GENERAL NOTES**
- REFER TO SHEET E-7000 FOR LIGHT FIXTURE SCHEDULE.
 - REFER TO SHEET T-4000 FOR TELECOMMUNICATIONS SITE PLAN.
- KEYED NOTES**
- 50' STEEL POLE FOR LIGHTNING PROTECTION. REF DETAIL 1, SHEET E-5002 FOR FOUNDATION AND GROUNDING REQUIREMENTS. REF. SHEET (E-1000) FOR COMPLETE LIGHTNING PROTECTION INSTALLATION.
 - 2-6" PVC RED DYED CONCRETE ENCASED. SLOPE DUCT A MINIMUM OF 4" PER 100 FEET TO MANHOLE. COORDINATE DUCT PENETRATION INTO MANHOLE WITH LANL UTILITIES.
 - REF E-7000 FOR POLE GRID COORDINATES.
 - TERMINATE CIRCUIT IN WEATHERPROOF BOX AND COVER WITH GFI RECEPTACLE FOR CORD AND PLUG CONNECTION OF WATER SAMPLER.
 - NOT USED
 - MAINTAIN SEPARATION TO I & C SYSTEM DUCT BANK. REF TO DETAIL 1, SHEET E-5004.
 - INSTALL 4 SPEAKERS (ONE ON EACH QUADRANT) OF 50' POLE AT 20' ABOVE BASE. REF 6003 OF OPERATIONS SUPPORT BUILDING SERIES FOR CONNECTION DETAILS.
 - MOUNT PANEL ON EXTERIOR OF BUILDING REF DETAIL ON STRUCTURAL
 - NOT USED
 - REFERENCED ENLARGED PLAN E-4001 IS IN UTILITY BLDG SERIES OF DWGS.
 - PERMANENT BARRIER INSTALLED 3' FROM POLE BASE.
 - MAINTAIN SEPARATION TO COMMUNICATION SYSTEM DUCT BANK. REFER TO SHEET T-1000 AND CIVIL SHEET.
 - 36"LX24"WX30"D

NO	DATE	CLASS	REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
WEIDLINGER-NAVARRO JV NORTHERN NM										
TRU WASTE FACILITY PROJECT										
PROJECT SITE										
Figure 2-35. Electrical Site Plan										
BLDG						TA-63				
SUBMITTED						APPROVED FOR RELEASE				
CLASSIFICATION XXX						REVIEWER XXX				
PROJECT ID						DRAWING NO				
102355						C55443				
DATE						REV				
3/21/2012						F				
ROSS H. KRAYE NEW MEXICO 5026 REGISTERED PROFESSIONAL ENGINEER						DATE				
3/21/2012						REV				
ROSS H. KRAYE, NM P.E. 5026						F				

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION


I, Ross H. Krayer, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.
Date 3/21/2012
Ross H. Krayer
P.E. 5026

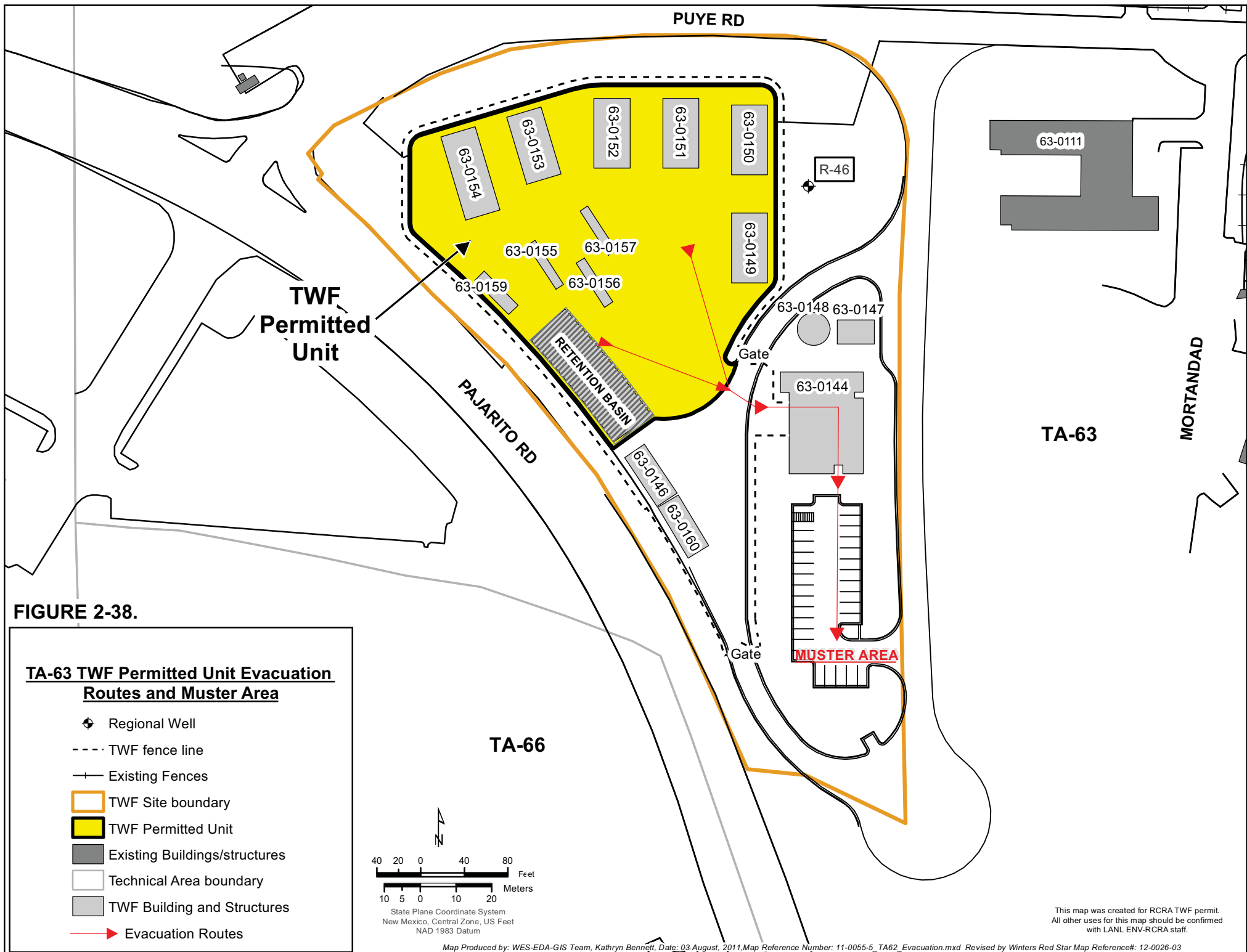


GENERAL NOTES

1 THIS DRAWING WAS GENERATED IN REVIT 2011.

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

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WEIDLINGER-NAVARRO					<div>JV</div>	NORTHERN NM			
TRU WASTE FACILTY PROJECT						DRAWN	M.MONTANO		
Figure 2-37. Lightning Protection and Lighting Pole Foundation and Grounding Details						DESIGN	M.MONTANO		
					CHECKED	R.KRAYE			
					DATE	03-22-12			
BLDG SUBMITTED					TA- 63 APPROVED FOR RELEASE				
<div> PO Box 1663 Los Alamos, New Mexico 87545</div>					SHEET	E-5002			
						51 of 740			
					CLASSIFICATION PROJECT ID 102355				
					DATE 3/21/2012				
					REV F				



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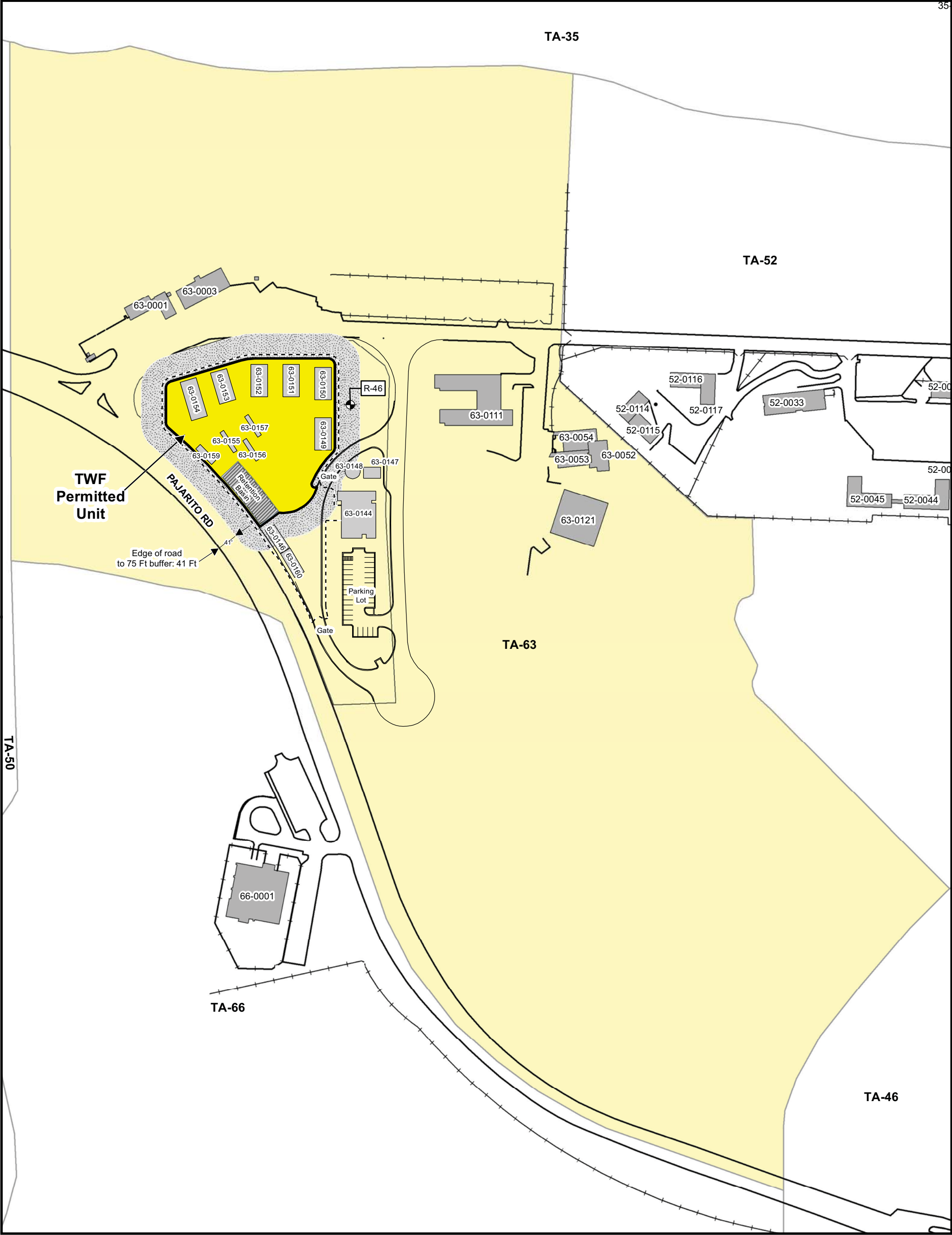
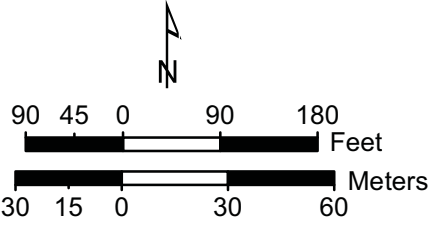
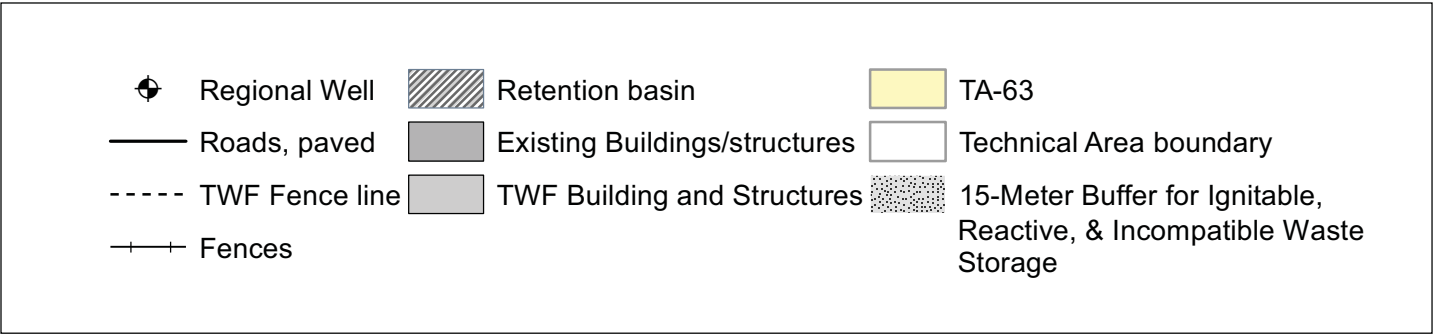


FIGURE 2-39.

TA-63 TWF Technical Area Boundary and 15-Meter Buffer for Ignitable, Reactive, and Incompatible Waste Storage



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3.0 FACILITY REQUIREMENTS

This section of the TWF permit modification request addresses facility information requirements including traffic patterns, location information (i.e., seismic standard, floodplain standard, archeological sites), provides a listing and location for required topographic maps, an evaluation of other federal laws, an evaluation of other permit activities, and training specific to the TA-63 TWF Unit.

3.1 TRAFFIC PATTERNS

In accordance with the requirements of 40 CFR §270.14(b)(10), general traffic pattern information, traffic volumes, and traffic control signals for the LANL-wide facility are provided in Appendix A of the LANL General Part B (LANL, 2003). Figure 3-1 illustrates major roads through LANL. Information specific to the TA-63 TWF is provided below.

3.1.1 Routes of Travel

The primary traffic routes used to transport hazardous waste to the TA-63 TWF include Pajarito Road, Puye Road, and the access road along the east side of the unit, see Figure 3-2. Pajarito Road is a primary thoroughfare at LANL; the following Technical Areas are located along this corridor: TA-3, TA-36, TA-48, TA-54, TA-55, TA-63, and TA-54. This road parallels the west and south borders of the TWF site. The TWF site cannot be directly accessed via Pajarito Road. This two-lane road was built for 55 mph traffic with no vehicle size restrictions, and only limited heavy truck and fuel-truck traffic prohibitions. Puye Road is a secondary two-lane road connecting Pajarito Road and TA-5, TA-52, and TA-63. Vehicle barriers will be used to protect the TWF from Pajarito and Puye Road traffic.

Waste transportation trucks that enter the TWF will park in the area between the retention pond and Storage Building 63-0149 for loading and unloading activities. Loaded electric forklifts will transport waste containers to the Characterization Trailers, the Storage Buildings, and the Storage and Characterization Building.

Other than electric forklifts, it is anticipated that the only vehicle traffic within the TWF controlled area would be semi-trucks (for occasional placement and removal of the characterization trailers), delivery trucks with specialty gases (for characterization and radiation protection equipment), and snow removal equipment. The site has been designed to provide clearance for the movement of the characterization trailers. However, due to the relatively small size of the site, removal of a particular trailer may require temporary shifting of other trailers.

It is anticipated that gas bottles for the specialty gases will be unloaded inside the gates of the site and then transported with forklifts into the controlled area. There will be a single large Dewar flask for liquid nitrogen located near the receiving area and Operations Support Building. This flask will be replenished from a truck transporting liquid nitrogen. Smaller containers will be filled from the Dewar flask and transported (fork lift, dolly, cart, as needed) to the point of use in the characterization trailers.

Snow removal equipment such as blade equipped all-terrain vehicles may also be used. Snow

removal equipment such as snow plows may be used for heavy snows, but those vehicles would not be used near waste containers stored outside, would be escorted by TWF personnel, and would be limited to speeds less than ten miles per hour. If snow removal in the vicinity of waste containers stored outside is needed, snow shovels or a snow blower will be used. Other vehicles or equipment that may be required to perform maintenance within the TWF will also be escorted and limited to speeds less than 10 miles per hour.

3.1.2 Traffic Volumes

Pajarito Road has an average daily traffic volume of approximately 4000 vehicles per 24-hour day (LANL, 2008). This includes vehicles traveling both northwest and southeast. Vehicle types include cars, light- and medium-duty trucks, and vans. Traffic volume at the TWF will not be high. Anticipated traffic volumes at the TWF will be from one to several waste shipments by truck to or from the loading/unloading area per day, forklift traffic within the unit, occasional delivery trucks for analytical gases and other supplies, and, rarely, waste characterization trailer movement. Daily use of the Operations Building parking area is anticipated for twenty to thirty vehicles, government-use and privately-owned vehicles (POV).

3.1.3 Traffic Control Signals

Roadway access to the TWF site is required for POV, site vehicles, tractors/semi-trailers, other waste trucks, delivery vehicles, and characterization trailers. Traffic control signals within and around TA-63 will include stop signs, posted speed limits, and other traffic and pedestrian control signs. The locations of existing and proposed signals and signs near the TWF are shown in Figure 3-3.

3.1.4 Road Surfacing and Load-Bearing Capacity

Roads within TA-63 are generally two-lane roads with asphaltic concrete surfaces. Load-bearing capacity for these roads is 32,000 pounds per axle. These roads are typically constructed with a 6-inch-thick base course overlain with a 3-inch-thick asphaltic concrete surface. These roads were designed and constructed to meet the American Association of State Highway and Transportation Officials Specification HS-20.

The reinforced concrete pad within the TWF boundary will be constructed to be nominally 8 inches thick in traffic bearing areas. This will meet American Concrete Institute (ACI) 360 R-92 standards for design of slabs on grade for this type of structure.

3.2 LOCATION INFORMATION

3.2.1 Seismic Standard

The proposed TWF is in compliance with the seismic location standards of 40 CFR 270.14(b)(11) and 264.18(a). These regulations require seismic studies for new facilities to demonstrate that evidence of Holocene faulting is not found within 200 feet of the waste management unit. The seismic investigation included in Attachment D, *Seismic Report*, of this permit modification request demonstrates that there has been no direct evidence observed for Holocene faulting within that radius of the TWF.

Site specific geologic investigations at TA-63 have revealed the apparent presence of lineaments near this location, i.e., topographic features of regional extent that may reflect crustal structure

within 3,000 ft. However, trench excavation and mapping of these lineaments indicates that they do not correlate with known Holocene faults. Published geologic studies in and around TA-63 (including several lengthy geologic test trenches excavated in 1992-1993), together with aerial reconnaissance of the area within a 5-mi radius from the proposed TWF, and the field reconnaissance of the lineaments and contact elevations, combine to demonstrate that no faults with Holocene displacement are present within 200 ft of the proposed TWF. Aerial reconnaissance, detailed geologic mappings of portions of LANL, and paleoseismic trenching investigations show that the focus of potential Holocene faulting at LANL is concentrated along the main Pajarito fault, over 16,000 ft (4877 m) west of the proposed TWF.

3.2.2 Floodplain Standard

Pursuant to the requirements of 270.14(b)(19)(ii), LANL has mapped all 100-year floodplain boundaries within the LANL complex, as required in "*Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory*, EPA I.D. NM0890010515" (EPA, 1998). The latest version of these maps including revisions after the Cerro Grande Fire was published in a report documenting the floodplain mapping procedures (McLin et. al., 2001).

The flood plains near TWF are shown in Figure 3-4 of this permit modification request. The TA-63 TWF is located on a mesa top between Mortandad Canyon on the north and Pajarito Canyon on the south. The proposed site for the TWF is located approximately 150 vertical ft above the floodplain limits for Mortandad Canyon at a distance of approximately 2000 ft. The site is located approximately 200 vertical ft above the floodplain limit for Pajarito Canyon at a distance of approximately 1000 ft. The site is also at the head of the Canada del Buey, thereby assuring surface water drainage to the east. Therefore, the TWF is not located within the 100-year floodplain boundary in accordance with 40 CFR §§ 270.14(b)(11)(iii through v).

3.2.3 Cultural Resources

Cultural resources are human imprints on the landscape and are defined and protected by a series of federal laws, regulations, and guidelines as described in *A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico* [LANL 2006]. The three general categories of cultural resources at LANL are archaeological resources, historic buildings and structures, and traditional cultural properties. Archaeological resources include any material remains of past human life or activities which are of archaeological interest. Historic buildings include buildings or other structures constructed after 1942 and LANL-era buildings that have been evaluated for eligibility to the National Register of Historic Places (NRHP). Traditional cultural properties are defined as a place of special heritage value to contemporary communities, often, but not necessarily American Indian groups. A total of 1802 archaeological sites at LANL have been determined eligible or potentially eligible for listing in the NRHP, along with 371 historic buildings and structures. None are within or immediately adjacent to the footprint of the TRU Waste Facility.

3.3 TOPOGRAPHIC MAPS

Topographic maps and figures are provided in this Permit modification request or referenced to meet the requirements of 40 CFR § 270.14(b)(19). The maps clearly show the map scale, the date of preparation, and a north arrow. The maps and figures used to fulfill these regulatory

requirements in this submittal include the following:

- Access roads and control features for the TA-63 TWF, Figure 3-3.
- 100-year flood plain adjacent to TA-63, Figure 3-4.
- Surface waters, including intermittent streams, near TA-63, Figure 3-4.
- Surrounding land uses (e.g., residential, recreational) are depicted on Figure 2-2.
- Windroses of average wind speed and direction day and night, measurements collected at four primary measurement stations at LANL in 2009, Figure 3-5.
- Legal boundaries of LANL (including TA-63), Figure 2-3.
- A topographic map of buildings and structures within a 1000 foot radius of the TWF at TA-63, Figure 2-4.
- A map of National Pollutant Discharge Elimination System outfall locations, Figure 3-6.
- Storm and process sewer systems at TWF, Figure 3-7.
- Drainage control features of the TWF, Figures 2-5, 2-6, 2-31, 2-32 and 2-33.
- Natural surface drainages are shown on the topographic map included as Figure 3-8.
- Fire stations serving LANL and the County of Los Alamos are shown on Figure 3-9, as well as Attachment N, Fig. 49, of the Permit.
- Map of supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-63, Figure 3-10.
- A map showing all existing and proposed wells and boreholes within an approximate one-mile radius of TA-63 is included as Figure 3-11.

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at LANL and in the vicinity of the waste management unit. As provided in 40 CFR § 270.14(b)(19), LANL has submitted the maps to the NMED at these scales and contour intervals due to the size of the waste management unit, the extent of the LANL facility, and the topographic relief in the area.

3.4 GROUNDWATER MONITORING

The groundwater monitoring requirements of 40 CFR Subpart F do not apply to the TWF as it is not a regulated unit as defined at 40 CFR 264.90(a)(2). The site is for storage in contained structures only and no spills have occurred. The groundwater monitoring well (R-46) outside the north east fence line of the TWF is included in the LANL groundwater monitoring program but is not associated with this container storage unit.

3.5 OTHER FEDERAL LAWS

The following federal laws are required under 40 CFR §§ 270.3 and 270.14(b)(20), to be given consideration when applying for a hazardous waste facility permit. When any of these laws is applicable, its procedures must be followed:

The Wild and Scenic Rivers Act (16 United States Code [USC] 1273 et seq.). This act provides

for a national wild and scenic rivers system and prohibits construction of any waterway that would have a direct adverse effect on the values for which a wild and scenic river was established.

The National Historic Preservation Act of 1966 (16 USC 470 et seq.). This act establishes a program for the preservation of historic properties throughout the country. The act has provisions that require mitigation of adverse effects to registered properties.

The Endangered Species Act of 1973 (16 USC 1531). This act provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The act prohibits any action that would jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

The Coastal Zone Management Act of 1972 (16 USC 1451 et seq.). This act establishes national policy for the management, use, protection, and development of land and water resources of the nation's coastal zones. Section 307(c) of the act and implementing regulations prohibit the U.S. EPA from issuing a permit for activity affecting coastal zone land or water without the certification from the applicant that the activity is in compliance with the state Coastal Zone Management Program.

The Fish and Wildlife Coordination Act of 1934, as amended (16 USC 661 et seq.). This act promotes the conservation of wildlife, fish, and game and integrates this conservation with water resource projects. Certain provisions of the act require that permits proposing or authorizing the impoundment, diversion, or other control or modification of any body of water be considered by the appropriate state agency for impacts to wildlife resources.

Because LANL has ongoing programs in support of the National Historic Preservation Act, the Endangered Species Act, and the Fish and Wildlife Coordination Act, consideration was given to these federal laws.

The National Historic Preservation Act is administered by the Advisory Council on Historic Preservation, appointed by the President, and the New Mexico State Historic Preservation Office. Section 106 of the Act requires DOE to consider the effects of its actions on historic properties, and provide the Council with a reasonable opportunity to comment on those actions and the manner in which DOE takes historic properties into account in their decisions. DOE accomplishes this through consultation with the State Historic Preservation Office whenever a project may potentially impact a historic property. LANL may prepare a Historic Building Survey Report assessing the eligibility of a historic building dating from the Manhattan Project and early Cold War periods (1943 to 1956) for the National Register of Historic Places and evaluating the impacts of the proposed actions. The consultation process was formalized in April 2000 through a Programmatic Agreement between DOE, the Council, and the State.

For any undertaking on DOE land that may directly or indirectly impact threatened and endangered (T&E) species or their habitat, DOE must consult with the U.S. Fish and Wildlife Service (USFWS), as provided under Section 7 of the Endangered Species Act. Similarly, DOE must consult with the USFWS for projects that would impound, divert, or otherwise control or modify a body of water, as required by the Fish and Wildlife Coordination Act.

For Endangered Species Act compliance, LANL may prepare a Biological Assessment to document the presence of T&E species and to evaluate the impacts of a project on a listed species or its habitat. DOE will then request in writing that the USFWS concurs with DOE's

findings in the Biological Assessment. In recent years, DOE and LANL have streamlined the consultation process by preparing a T&E Species Habitat Management Plan. This plan fulfills the provisions of the Endangered Species Act that require federal agencies to carry out programs for the conservation of T&E species and their habitat. The USFWS approved this plan in February 1999.

Provisions in the Wild and Scenic Rivers Act and the Coastal Zone Management Act are not applicable to LANL's activities.

Consideration will be given to Executive Orders, issued by the President, that are relevant to waste management activities at LANL. When any of these Orders is applicable, its provisions will be followed. Requirements for Executive Orders are reserved in 40 CFR § 270.3(f).

3.6 OTHER PERMIT ACTIVITIES

Other types of RCRA permits include, but are not limited to, the following;

- Permits by Rule
- Emergency Permits
- Hazardous Waste Incinerator Permits
- Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analyses
- Interim Permits for Underground Injection Control Program Wells
- Research, Development, and Demonstration Permits
- Permits for Boilers and Industrial Furnaces Burning Hazardous Waste.

None of these permit types are relevant for the proposed waste storage operations at TA-63.

3.7 TRAINING

In accordance with 40 CFR §§ 270.14(b)(12) and 264.16 and Permit Section 2.7, *Training*, training requirements for treatment, storage, and disposal facility workers at LANL are addressed in Attachment F, *Training Plan*, of the Permit. The training program instituted at the Facility includes a combination of Facility-wide courses, permitted unit-specific training, and on-the-job training (OJT). Facility-wide courses are provided internally or through external vendors and are usually classroom-based. Permitted unit-specific training may be developed and delivered within a particular permitted unit, and OJT consists of supervised and documented training focused primarily on procedures performed by individual workers.

All TWF employees and contract and support personnel who handle hazardous and/or mixed waste at the unit will receive the appropriate level of training within six months of their date of hire or transfer for work. Personnel will not be allowed to work in unsupervised waste handling positions at the TWF until they have successfully completed the appropriate level of training for their positions and responsibilities as included in Table F-1 of Attachment F of the Permit at a minimum.

Records of Facility-wide training currently sponsored or administered by central training personnel are entered by that group into the UTrain System, the official Facility training database, and these records document that the required training has been successfully completed

by the TWF workers. LANL will retain these training records in accordance with Permit Section 2.12.2, *Facility Operating Record*.

3.8 LAND DISPOSAL RESTRICTIONS

Wastes managed at the TWF will be subject to the Land Disposal Restrictions of 40 CFR Part 268, as implemented by Permit Section 2.3, *Land Disposal Restrictions*.

Document: LANL TA-63 TWF Permit Modification Request
Revision: 1.0
Date: April 2012

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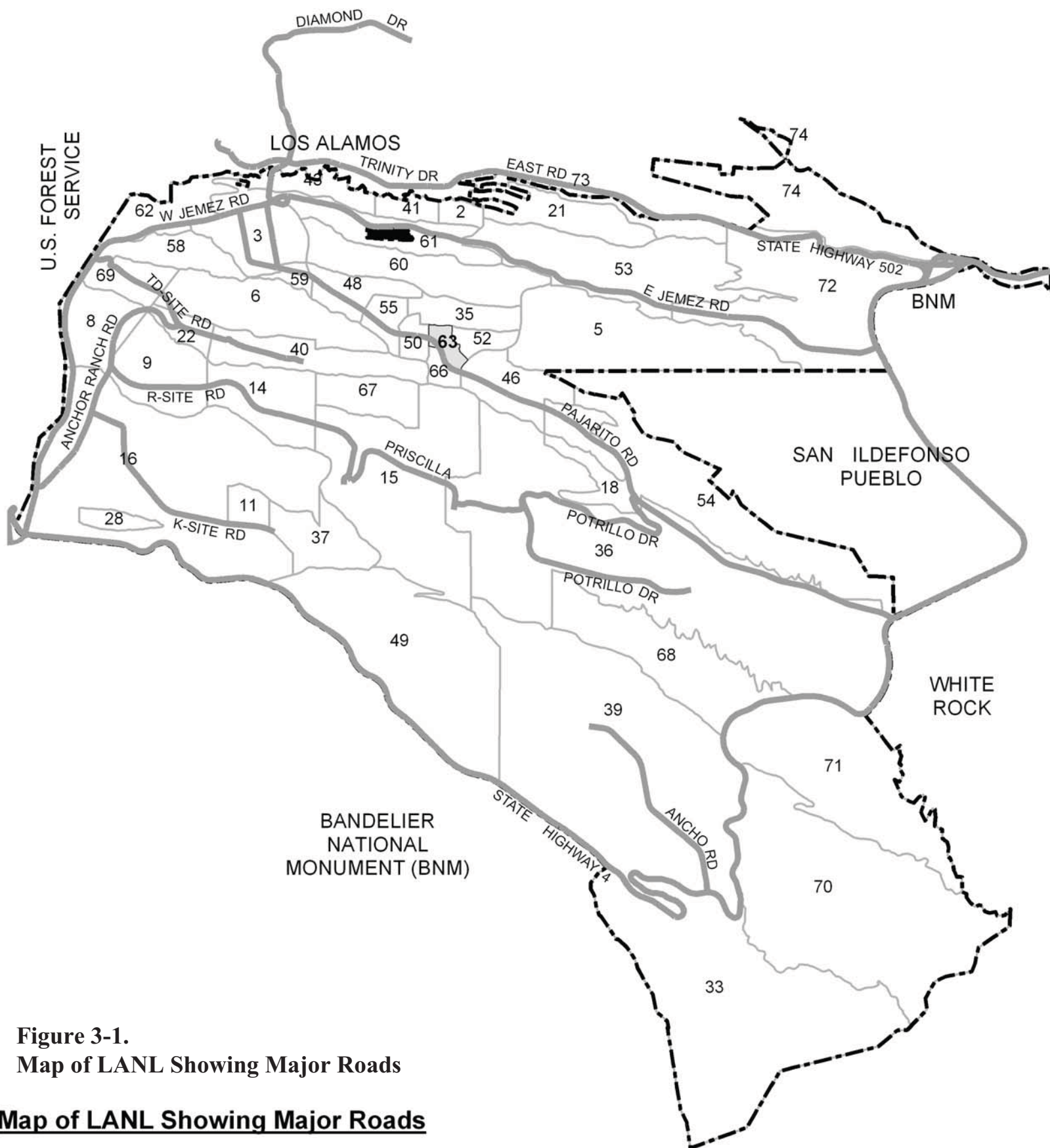
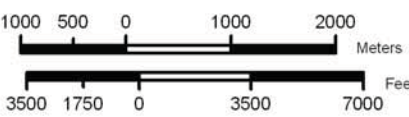


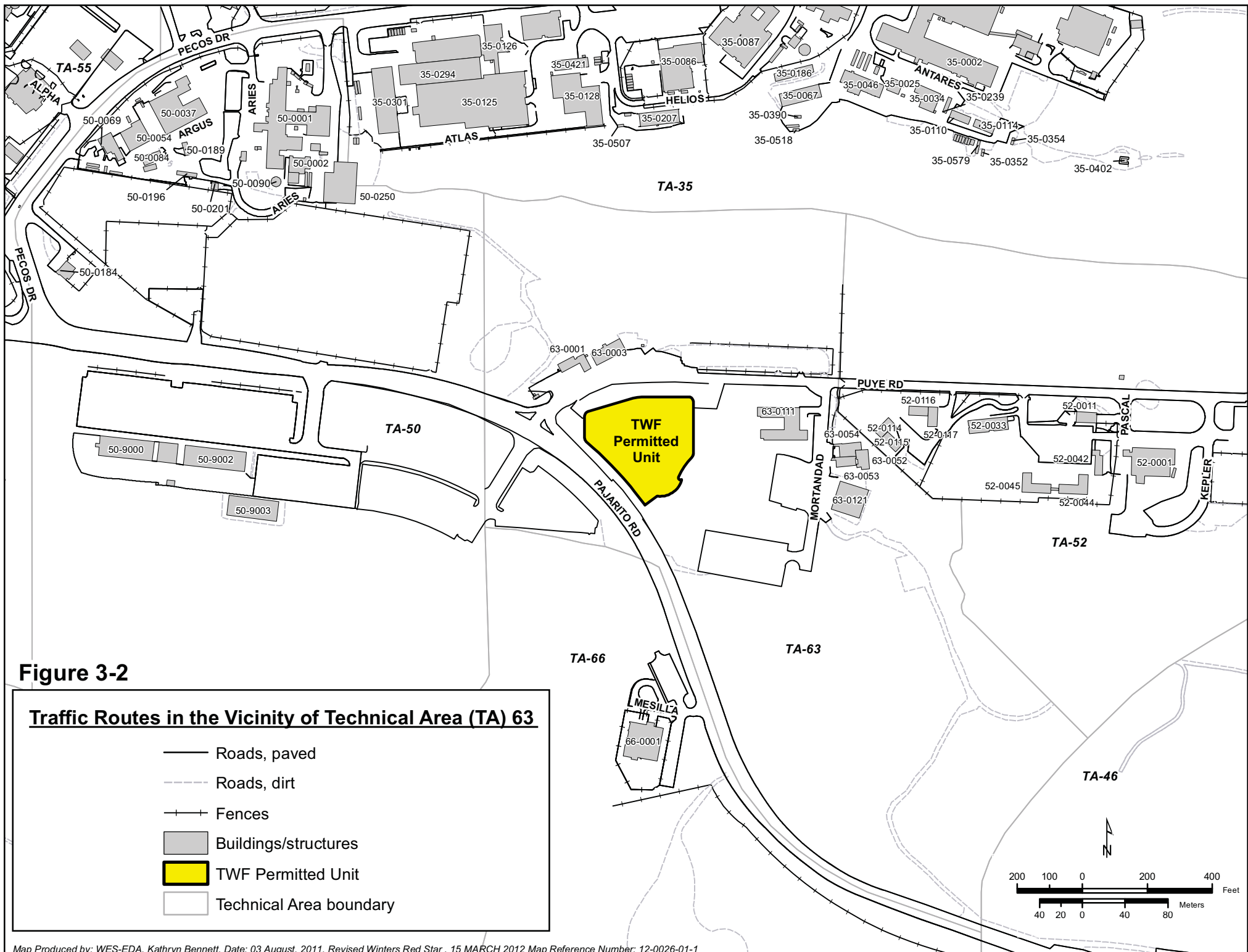
Figure 3-1.
Map of LANL Showing Major Roads

Map of LANL Showing Major Roads

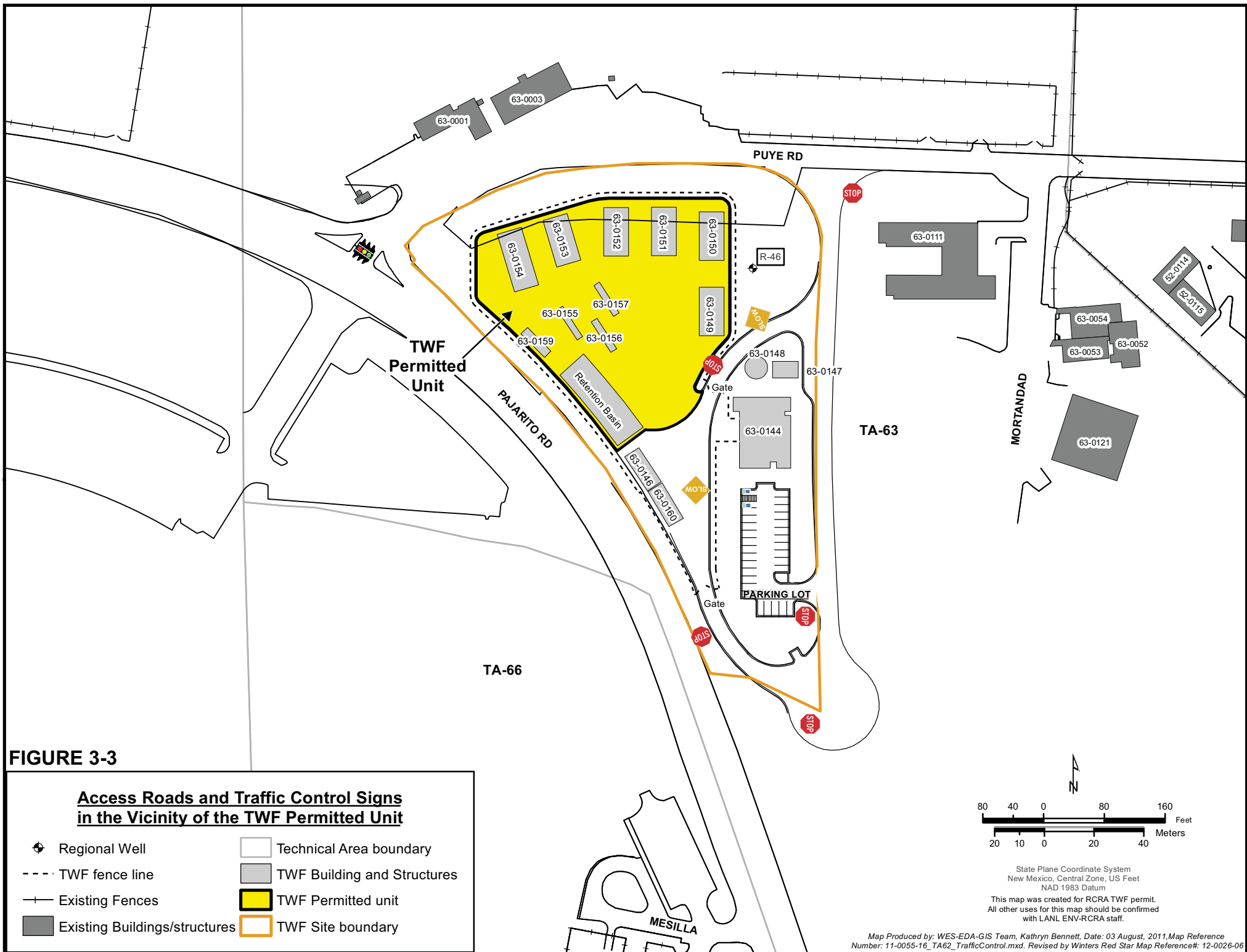
- Major Roads
- Not LANL property
- - - LANL boundary
- TA-63
- Technical Area boundary



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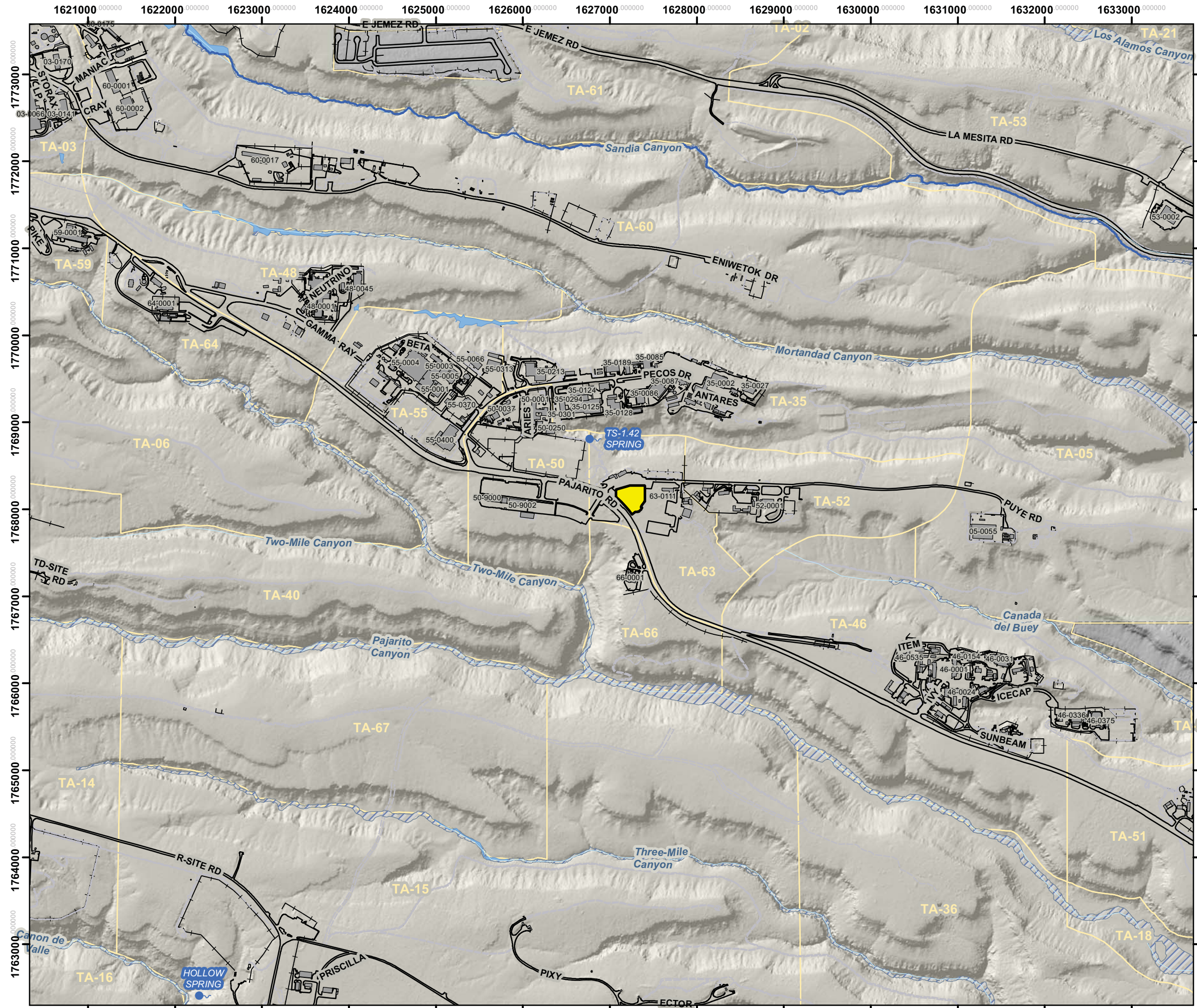
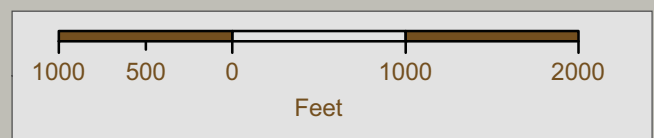
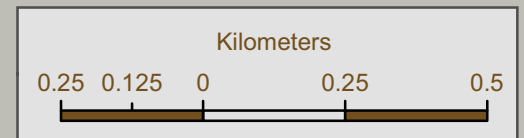


FIGURE 3-4.

Surface Water and Floodplains

Legend

- Springs
- Streams, perennial
- Drainages
- Wetlands
- Floodplains
- Buildings/structures
- TWF Permitted Unit
- Roads, paved
- Roads, dirt
- Fences
- Technical Area boundary



New Mexico State Plane Coordinate System,
Central Zone, Units in Feet.
North American Datum 1983, NGVD 1929.

Reference Grid interval equals 1000 ft

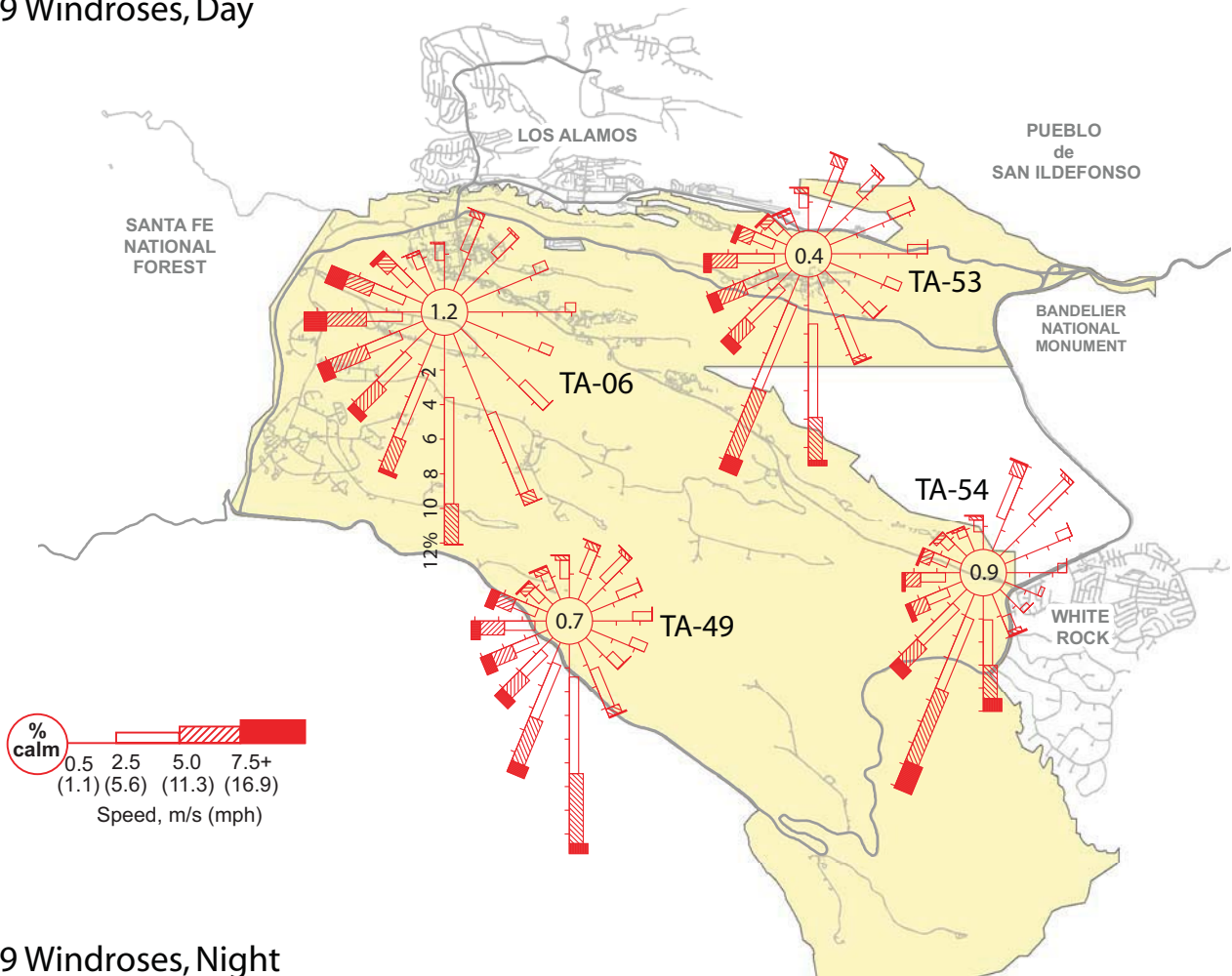
DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 14 July, 2011
Map Reference Number: 11-0055-09_TA63_WaterFeatures_NoTitle.mxd. Revised by Winters Red Star map # 12-0026-07



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2009 Windroses, Day



2009 Windroses, Night

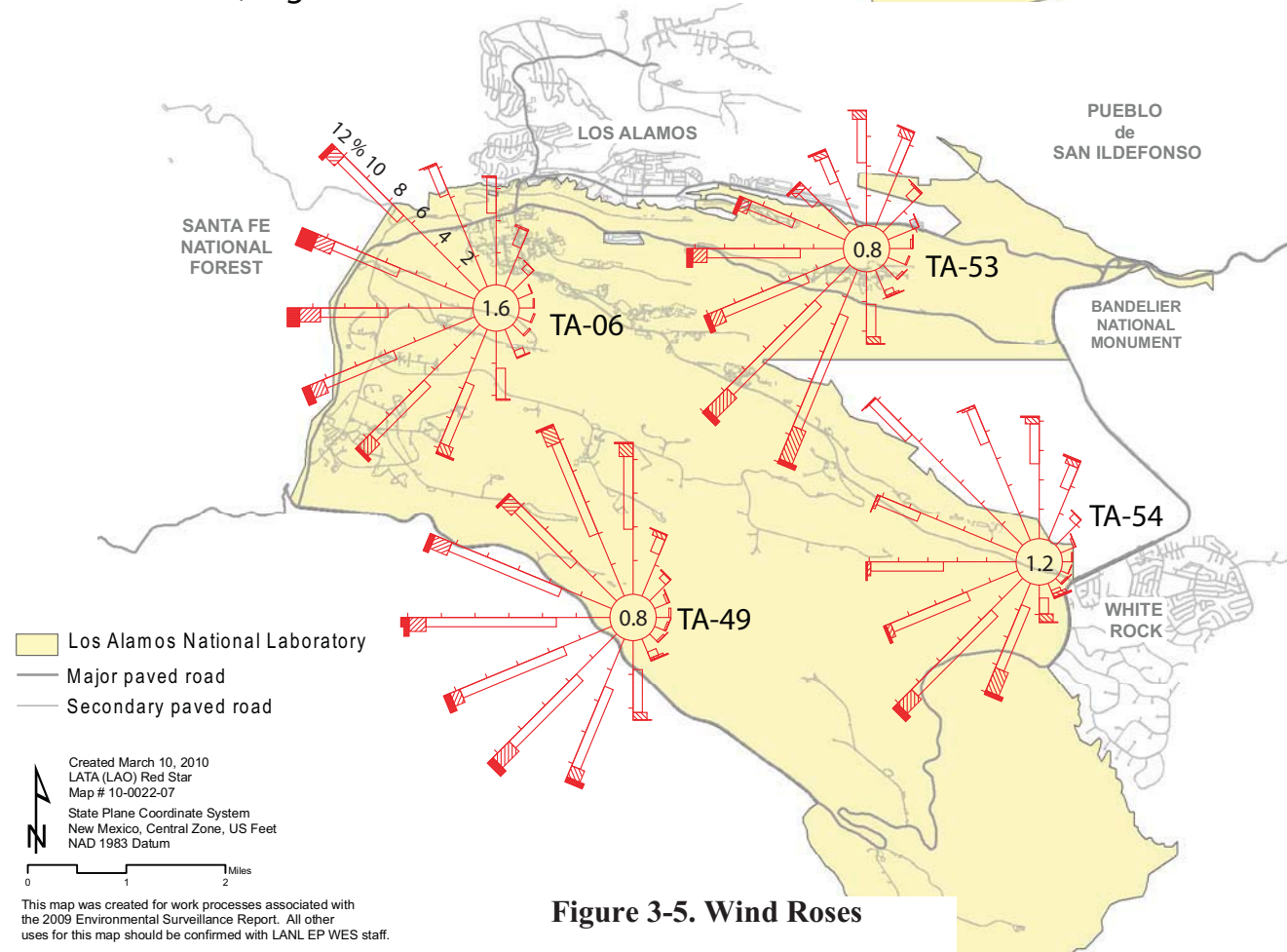
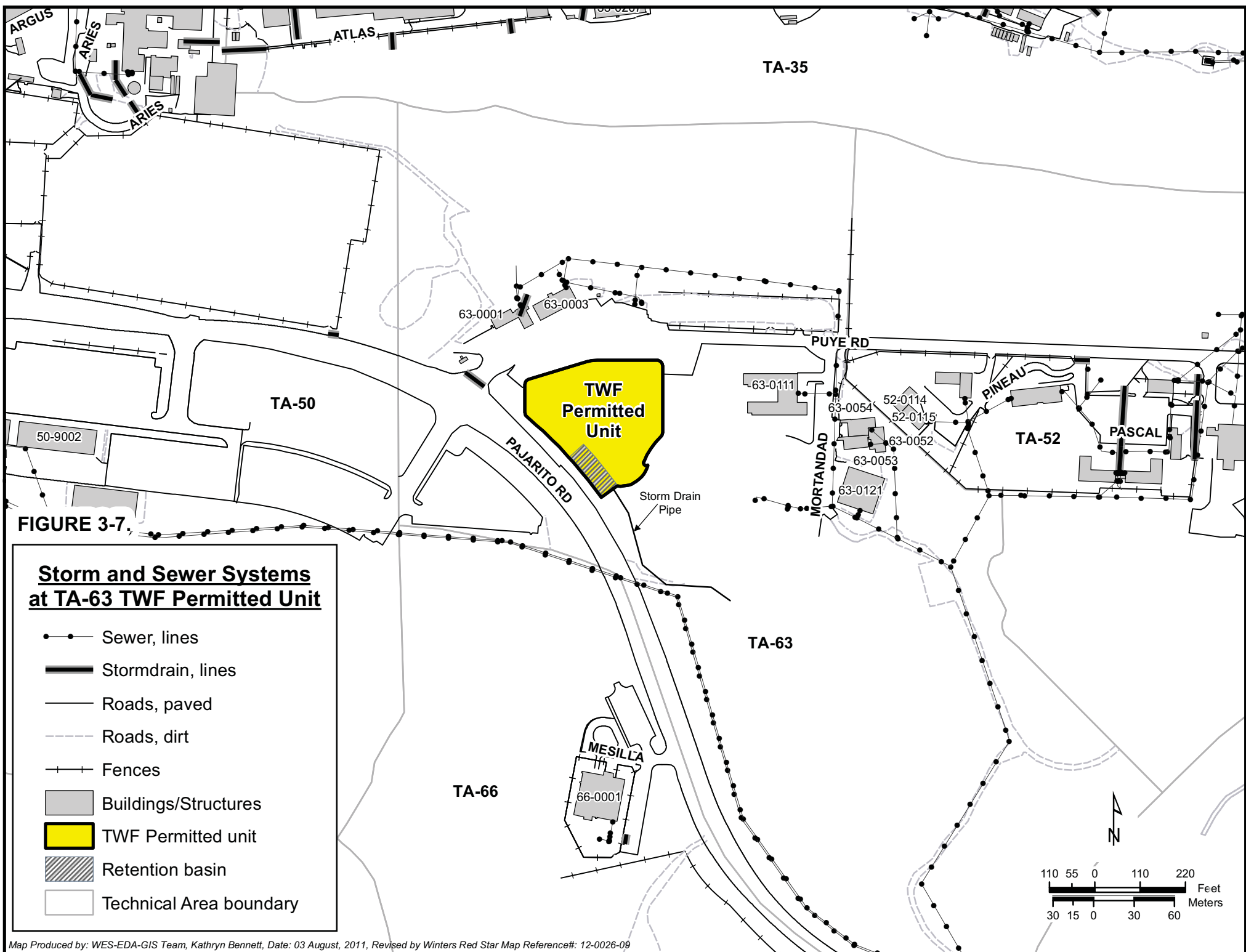


Figure 3-5. Wind Roses

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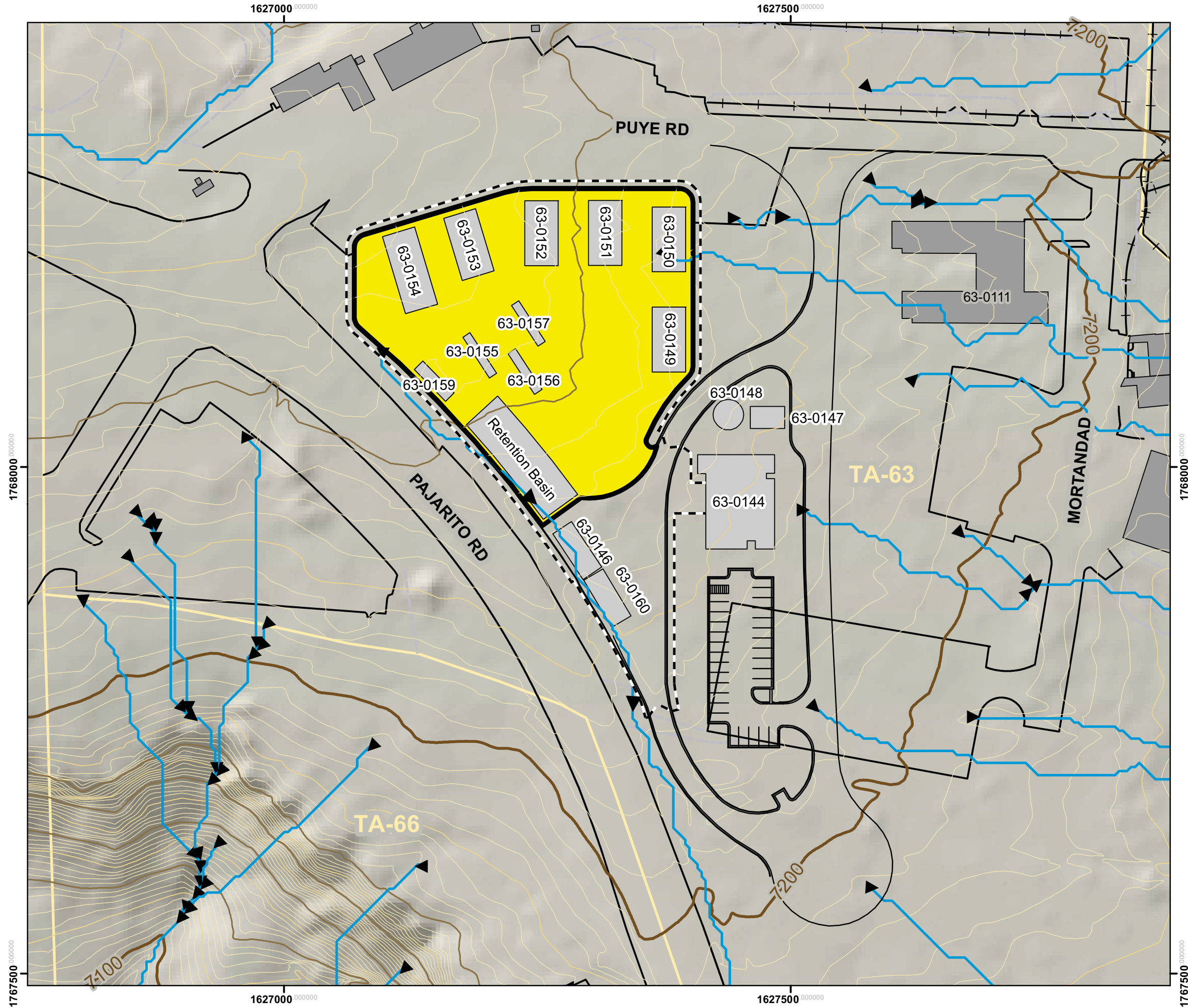
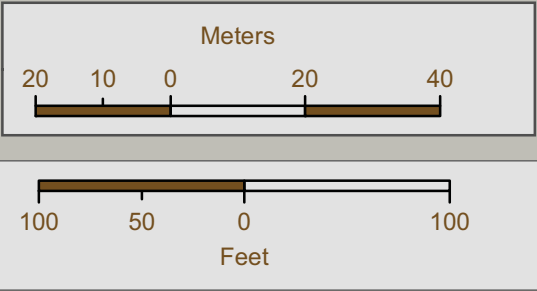


FIGURE 3-8.

Natural Surface Drainage Map

Legend

- Drainages
- Natural watercourse drainage (arrow indicates flow direction)
- Contours, 100 ft
- Contours, 20 ft
- Contours, 10 ft
- Contours, 2 ft
- Roads, paved (existing)
- Roads, dirt (existing)
- Fences, existing
- TWF fence line
- Buildings/structures
- TWF Building and Structures
- TWF Permitted Unit
- Technical Area boundary



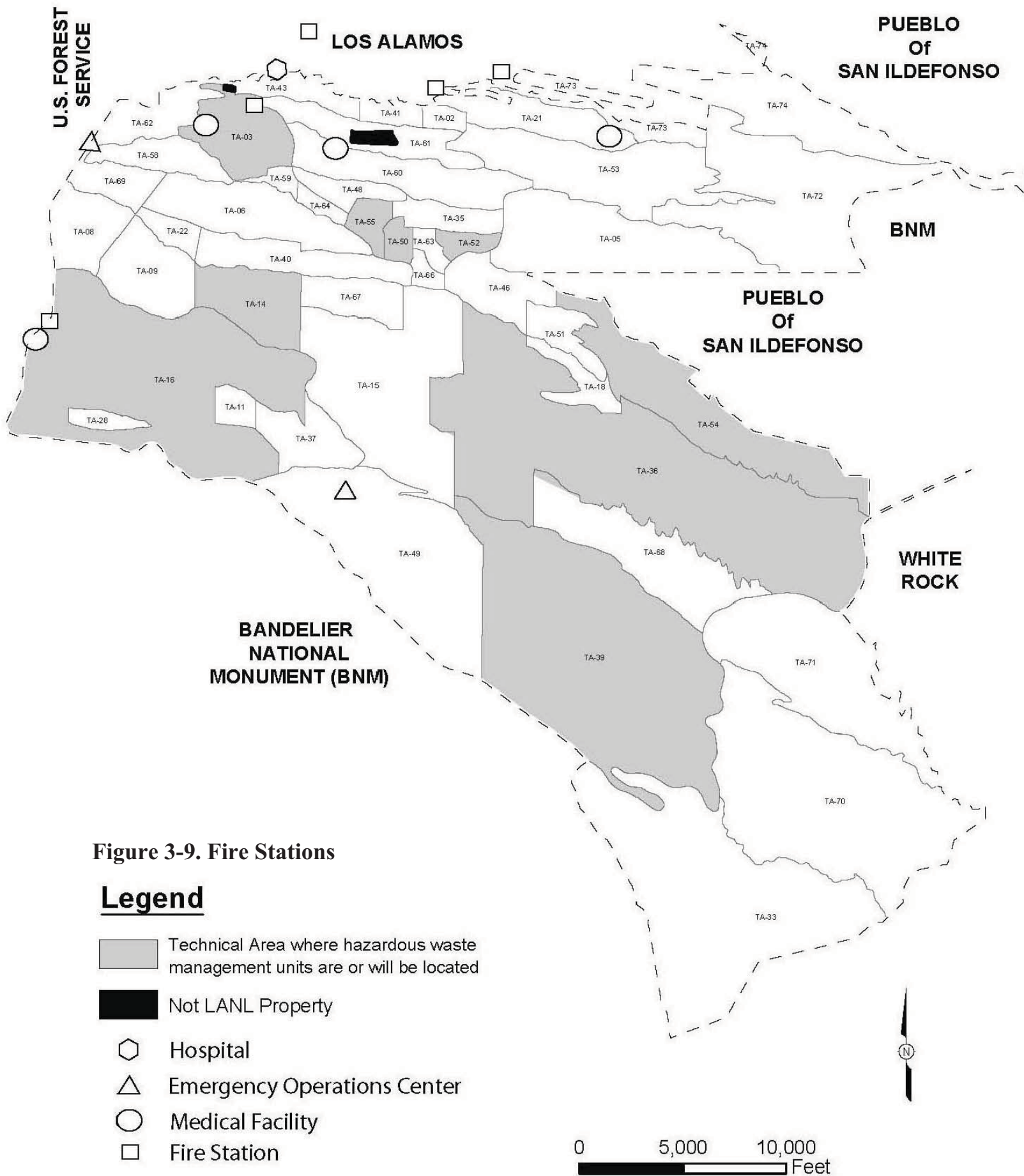
New Mexico State Plane Coordinate System,
Central Zone, Units in Feet.
North American Datum 1983. NGVD 1929
Reference Grid interval equals 500 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011
Map Reference Number: 11-0055-12_TA63_NaturalSurfaceDrainage.mxd. Revised by Winters Red Star Map #: 12-0026-10



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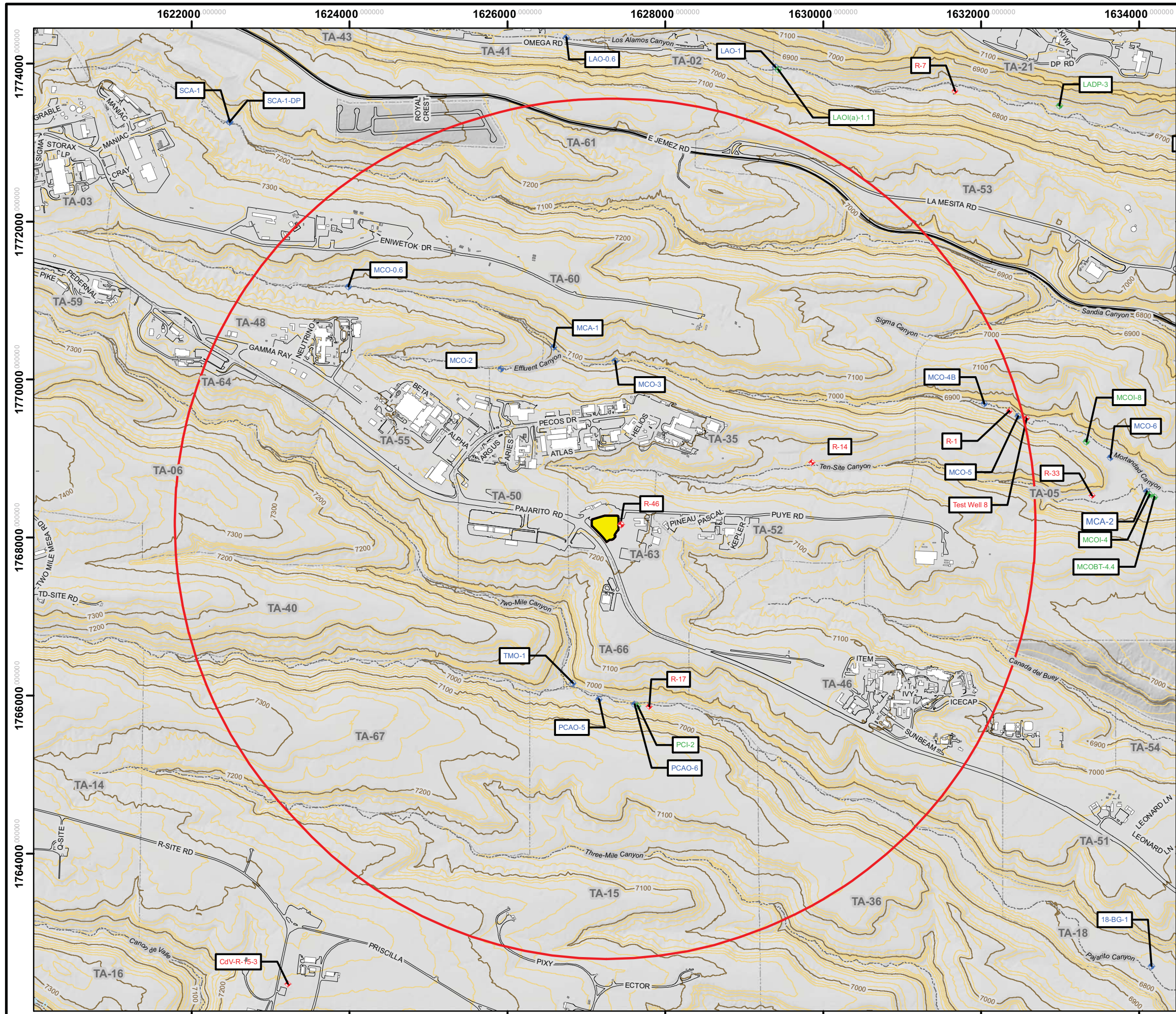
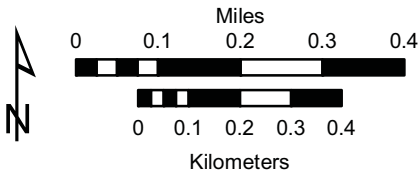


Figure 3.10.
Wells, Springs, and Surface Water
Sampling Sites Near TA-63

Wells within 1 mile of the TWF Permitted Unit*

- Regional
- Intermediate
- Alluvial
- Major road
- Minor road
- Drainage
- Contours, 100 ft
- Contours, 20 ft
- Structure
- TWF Permitted Unit
- 1 mile buffer
- TA Boundary

*There are no proposed new wells within 1 mile of the TWF (July 2011).



State Plane Coordinate System New Mexico,
Central Zone,
US Feet NAD 1983 Datum NGVD 1929
2000 ft grid interval is shown

Map Created By: Kathryn Bennett, WES-EDA-GIS,
17 August, 2011, Map # 11-0055-19, Wells, 1mile, noBoreholes
Revised By: Winters Red Star 14 MARCH 2012 Map #12-0012-02

Data Sources:

Well locations; Los Alamos National Laboratory, table of locations and attributes pulled from WQDB; Project folder 11-0056; March 24, 2011.
Boreholes; Los Alamos National Laboratory, pulled from ERDGi1v.ER.ER_location_ids_pnt; Accessed July 28, 2011; Unpublished data.
Drainages; Los Alamos National Laboratory; ENV Water Quality & Hydrology; Unpublished 2007 data.
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 06 January 2004; as published 29 November 2010.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 13 August 2010.

This map was created for RCRA reference use only. All other uses for this map should be confirmed with LANL EP-ET-ER staff.

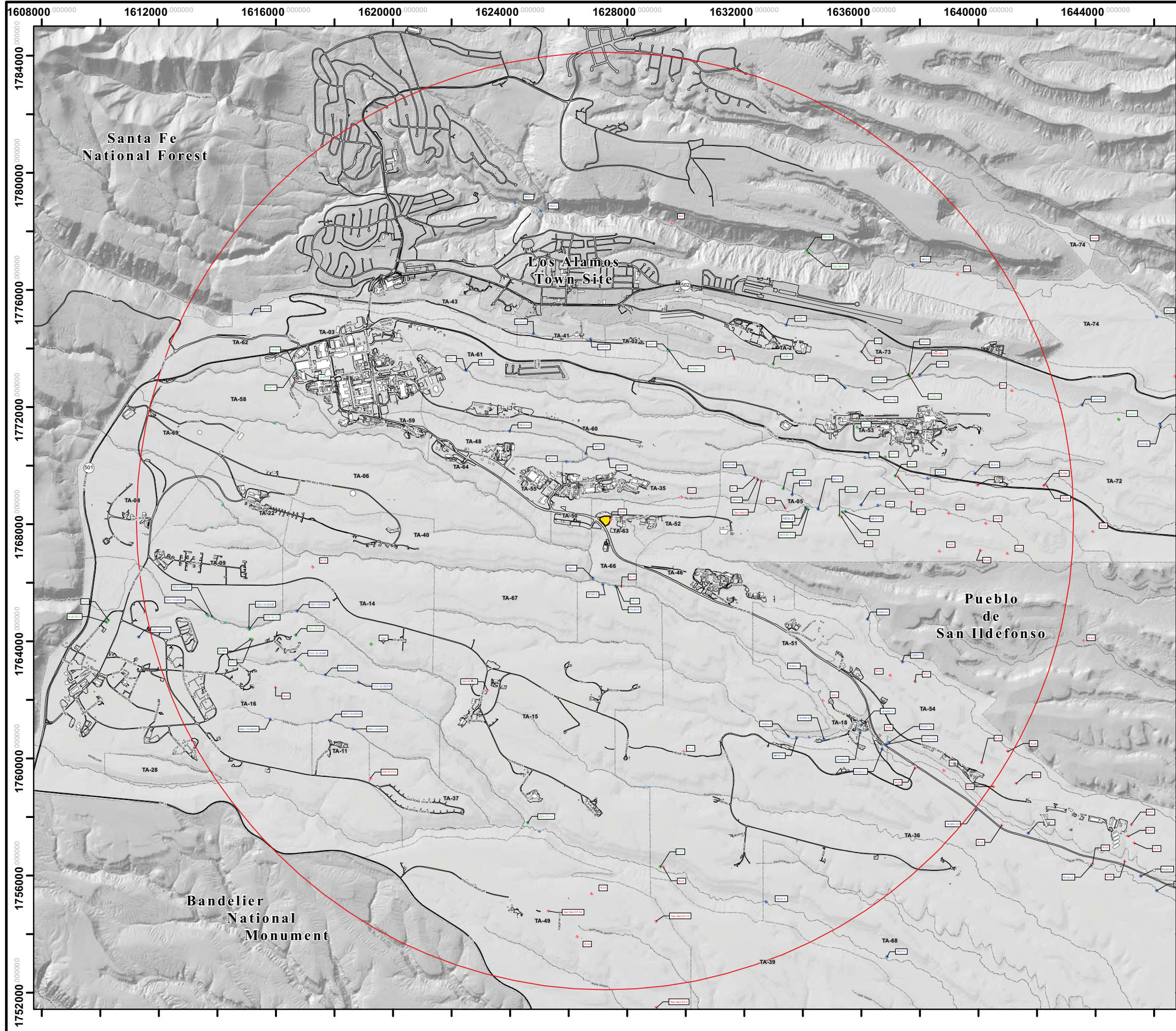


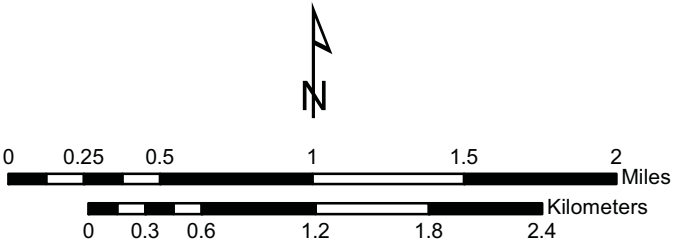
FIGURE 3-11.

**Wells and Boreholes
within
3-mile Radius of TA-63**

Wells within 3 mile of the TWF Permitted Site*

- Regional
- Intermediate
- Alluvial
- Major road
- Minor road
- Drainage
- TWF Permitted Unit
- Structure
- TA Boundary

*There are no proposed new wells within 3 mile of the TWF (July 2011).



State Plane Coordinate System New Mexico,
Central Zone,
US Feet NAD 1983 Datum NGVD 1929
2000 ft grid interval is shown

Map Created By: Kathryn Bennett, WES-EDA-GIS,
17 August, 2011, Map # 11-0055-19_Wells_1mile_noBoreholes
Revised By: Winters Red Star 14 MARCH 2012 Map #12-0012-02

Data Sources:

Well locations; Los Alamos National Laboratory, table of locations and attributes pulled from WQDB; Project folder 11-0056; March 24, 2011.
Boreholes; Los Alamos National Laboratory, pulled from ERDGi1v.ER.ER_location_ids_pnt; Accessed July 28, 2011; Unpublished data.
Drainages; Los Alamos National Laboratory; ENV Water Quality & Hydrology; Unpublished 2007 data.
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 06 January 2004; as published 29 November 2010.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 13 August 2010.

This map was created for RCRA reference use only. All other uses for this map should be confirmed with LANL EP-ET-ER staff.

4.0 CORRECTIVE ACTION

This section describes four Solid Waste Management Units (SWMUs) located in, or potentially impacting, TA-63 at LANL. Information on the SWMUs at and near TA-63 is contained in LANL's *Solid Waste Management Units Report* (LANL, 1990), hereinafter referred to as the 1990 SWMU Report, and in the *RFI Work Plan for Operable Unit 1129* (LANL, 1992), as well as other references cited below.

4.1 INTRODUCTION

The information in this section is being submitted in response to regulatory requirements in 40 CFR § 270.14(d). LANL uses the definition of a SWMU presented in the March 1, 2005 Compliance Order on Consent for LANL issued by NMED on March 1, 2005, hereinafter called the Consent Order. This definition states that SWMUs are "any discernible unit at which solid wastes have been placed at any time, and from which the Department determines there may be a risk of a release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at the Facility at which solid wastes have been routinely and systematically released; they do not include one-time spills."

4.2 SWMU DESCRIPTIONS

Descriptions of the SWMUs at and near TA-63 identified for corrective action in the Consent Order and Table K-1, *SWMUs and AOCs Requiring Corrective Action*, of the Permit are presented below. These descriptions were compiled from the *RFI Work Plan for Operable Unit 1129* (LANL, 1992), the 1990 SWMU Report, the *Addendum to "Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate"* (LANL 2004), and the *Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009 at Technical Area 50* (LANL 2011c). Brief unit and waste descriptions are also provided in Table 4-1.

4.2.1 TA-63 SWMUs

SWMUs at TA-63 include two inactive septic systems, neither of which is situated within the boundary of the TWF. Their locations are shown in Figure 4-1 of this permit modification request.

4.2.1.1 SWMU 63-001(a)

SWMU 63-001(a) is an inactive 1000-gal. septic tank (structure 63-12, formerly designated as structure 52-49) and its associated seepage pit and drain line (formerly designated as structure 52-50). The seepage pit is 4 ft in diameter and 50 ft deep. This septic system formerly served Buildings 63-3, -4, -5, and -6. The septic system was removed from service in 1993 when the lines were connected to the TA-46 SWSC. Building 63-3 is a single-story concrete-block building that contains carpentry, welding, plumbing, and paint shops and two offices. Building 63-4 is a modular office building. Buildings 63-5 and -6 are trailers that are subdivided into offices.

Potential contaminants at SWMU 63-001(a) are solvents and other unspecified chemicals. No documentation of spills, releases, or incidents at TA-63 has been found. Sampling was conducted at SWMU 63-001(a) in 1995. A total of 31 samples were collected from four locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its background value (BV). Silver was detected slightly above its BV. Three inorganic chemicals with no established BVs were also detected. Nitrate (as NO₃), nitrite (as NO₂), and nitrogen dioxide were also detected. Cesium-134 was detected in one sample. There is no established BV for this radionuclide. Plutonium-238 and plutonium-239 were detected below their surface BVs. However, because these compounds were detected at depth these results are considered greater than background. Two organic chemicals with no established BVs, xylene and di-n-butyl phthalate, were detected.

Sampling was conducted at SWMU 63-001(a) in 1995. A total of 32 samples were collected from four locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its background value (BV). Silver was detected slightly above its BV. Three inorganic chemicals with no established BVs were also detected. Nitrate (as NO₃) and nitrite (as NO₂) were also detected. Cesium-134 was detected in one sample. There is no established BV for this radionuclide. Plutonium-238 and plutonium-239 were detected below their surface BVs. However, because these compounds were detected at depth these results are considered greater than background. Two organic chemicals with no established BVs, xylene and di-n-butyl phthalate, were detected. The results of the 1995 sampling were not presented in a report, but were included in the *Addendum to "Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate"* (LANL 2004).

4.2.1.2 SWMU 63-001(b)

SWMU 63-001(b) is an inactive 920-gal. septic tank (structure 63-14) and its associated seepage pit and drainlines. The seepage pit is 4 ft in diameter and 50 ft deep. Formerly, the tank and seepage pit were designated as structures 52-154 and structure 00-462, respectively. This septic system served Building 63-1 and received only sanitary wastewater. The septic system was removed from service in 1993 when the lines were connected to the TA-46 SWSC. Building 63-1 is a single-story building that houses offices, an electronics shop, and a machine shop. The building formerly was designated structure 00-155. Potential contaminants at SWMU 63-001(b) are solvents and other unspecified chemicals. No documentation of spills, releases, or incidents at TA-63 has been found.

In 1995, RFI samples were collected at SWMU 63-001(b). A total of 31 samples were collected from 4 locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its BV. Five inorganic chemicals with no established BVs were detected below their respective screening levels: lithium, molybdenum, nitrate (as NO₃), nitrite (as NO₂), and strontium. Plutonium-238 was detected above its BV. Two organic chemicals, benzo(a)anthracene and di-n-butylphthalate, were detected below their respective screening levels.

4.2.1.3 SWMU 52-002(e) [duplicate of SWMU 63-001(a)]

In the SWMU Report (LANL1990), SWMU 52-002(e) is described as an active 1,000-gal. septic tank, TA-52-49, and its associated seepage pit, TA-52-50. The septic tank/seepage pit were located in the western portion of TA-52. In May of 1989, the western portion of TA-52 was reassigned as TA-63; septic tank TA-52-49 and its associated seepage pit, TA-52-50, were consequently reassigned as structures TA-63-12 and TA-63-13. The Structure Number Log maintained by LANL's Facility Engineering Department recorded that structures TA-52-49 and TA-52-50 were renumbered as TA-63-12 and TA-63-13. The SWMU Report, however, failed to consider the reassigned area as a portion of TA-52, but it also included that same area under its new designation of TA-63. As a component of TA-63, the septic tank and its associated seepage pit, TA-63-12, were assigned a second SWMU number, 63-001(a). Thus, the septic tank/seepage pit received two different SWMU numbers, 52-002(e) and 63-001(a).

Because this site was a duplicate of another SWMU, the Laboratory requested that it be approved for no further action and removed from the corrective action module (Module VIII) of the Laboratory's Hazardous Waste Facility Permit (LANL 1996). NMED approved this request and modified Module VIII to remove this site on December 8, 1997 (NMED 1997).

4.2.2 Corrective Action

Pursuant to 40 CFR § 264.101(a), corrective action is required only for releases of hazardous waste or hazardous constituents. The SWMUs at TA-63 will be investigated and remediated, as necessary and with NMED approval, during LANL Corrective Action Program under the Consent Order. Corrective action will generally follow the RCRA Facility Investigation/Corrective Measures Study process.

The July 15, 2011 Investigation Report (LANL, 2011c) discussed the sampling performed to define a vapor plume made up of volatile organic compounds (VOCs) beneath MDA C. In particular, the concentration data for the most prevalent VOC, trichloroethylene (TCE), were modeled to illustrate the shape and extent of the vapor plume. The Investigation Report examined the vapor plume with respect to its potential for impacting groundwater and found that the plume is situated about 700 ft above the regional aquifer with vertical and horizontal extents shown in the figures in the report. These indicate the potential for a VOC plume near or within the boundaries of the TWF site. LANL has since developed an additional report to evaluate the potential impact of the plume on affected workers. The report is titled "*The Vapor Plume at Material Disposal Area C in Relation to Pajarito Corridor Facilities*," Revised: April 12, 2012, and is included in Appendix C of this Response.

The vapor-monitoring network at MDA C is made up of 14 vapor monitoring wells with 129 sampling ports with sampling ports ranging from near the surface to 697 ft bgs. Two regional groundwater-monitoring wells, R-46 and R-60, are placed specifically to monitor for potential releases from MDA C. A total of 28 VOCs have been detected in the vapor plume beneath MDA C in the two years of quarterly monitoring data collected at the site. The maximum vapor-phase concentrations of these constituents were compared to their respective time-weighted threshold limit values (TLVs) defined by the American Conference of Governmental Industrial Hygienists (ACGIH). The time-weighted TLV is set so that a worker does not experience health effects even with daily exposure. Of the detected VOCs, only trichloroethylene (TCE) exceeds its TLV. The TLV for airborne TCE is 10 parts per million (ppm), a standard that is lower than the OSHA standard of 50 ppm. Based on the quarterly vapor monitoring data, the modeling described in the

reports shows TCE concentrations at MDA C exceed the TLV at depths of 200 to 300 ft below ground surface (bgs), with a maximum of 118% of the TLV. However, TCE concentrations have been determined to be significantly lower than the TLV at the ground surface and at 20 feet below the surface (see Figure 3 of the report).

Based on two years of quarterly monitoring data, the TCE plume appears to be steady. The plume configuration suggests that the bulk of the VOCs present in the subsurface are from past releases with little or no contribution from ongoing releases from the waste disposed at MDA C. The present TCE plume is a vapor-phase plume; there is currently no evidence of liquid-phase TCE in the subsurface at MDA C. Continued investigation and monitoring of the plume will occur as a function of the continued corrective action process under the LANL Compliance Order on Consent of 2005 as it has been to this point.

The exposure pathway of concern at the TWF site would be air emissions related to the vapor phase concentration at the surface of the site. As discussed in the April 12, 2012 report and shown in Figures 3, 4 and 5, the proposed TWF project facilities are in locations in which the measured surface concentrations of TCE are less than 5 percent of the TLV beneath the TWF and specifically at levels of five feet and 24 feet beneath the existing soil surface. Those levels correspond to anticipated surface conditions and to account for the grading that will occur at the site as described in the report. The conclusion of the report is that the vapor plume does not pose a threat to the health of LANL workers at the site nor will it pose a threat to workers during construction.

The report does not assume any mitigating circumstances for worker exposure in developing its conclusion. The TWF site contains several additional factors that will minimize air emission exposures. Two main factors are that the modeled vapor concentrations are not present across the entire site. The majority of the site is below the 1% of TLV concentration level as shown in the figures. Only the farthest corner of the northwest portion of the site exceeds the 2% level for TLV concentrations or 50 times lower than the ACGIH value. The second major factor is that the majority of the site, and all of the portions of the site where waste management activities will occur, is capped with the 8 inch thick concrete pad. This will act as an almost impermeable barrier to migration of the relatively low levels of contaminant vapor to the air above the surface. The concrete slab foundations under the storage buildings are also 8 inches.

Other mitigating factors include design conditions such as ventilation of the storage buildings and the elevation of the characterization trailers above the concrete pad. Environmental factors that would minimize worker exposure include the dilution of vapors and weather conditions in the air above the pad surface and preferential VOC transport away from the unit toward more permeable areas of the mesa top. Operational procedures to limit worker time in the waste management areas will also minimize the total amount of exposure levels. Potential future remediation activities at MDA-C associated with the corrective action program may also reduce the source concentrations for the plume.”

The option of developing a contaminant baseline is being considered. The vapor plume data assessment continues under the corrective action. Additionally, it is likely that some monitoring of construction related activities will occur that may provide more information about the actual site conditions. If it is attempted, such data will be included in the TWF unit’s operating record for assessment at the unit’s closure.

Table 4-1. Solid Waste Management Unit (SWMU) Descriptions^a

SWMU No.	Unit Type	Unit Description	Waste Description
63-001(a) ^b	Septic System	Inactive site located in the Middle Mortandad/ Ten Site Canyons at TA-63	Sanitary and industrial wastewater
63-001(b) ^b	Septic System	Inactive site located in the Middle Mortandad/ Ten Site Canyons at TA-63	Sanitary wastewater

^a Information compiled from: *Solid Waste Management Units Report* (LANL, 1990); *Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory*, EPA I.D. NM0890010515 (EPA 1998); and *RFI Work Plan for Operable Unit 1129* (LANL, 1992).

^b SWMU is identified in *Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid W Amendments to RCRA for Los Alamos National Laboratory*, EPA I.D. NM0890010515 (EPA, 1998) *LANL Hazardous Waste Facility Permit* (NMED, 2010).

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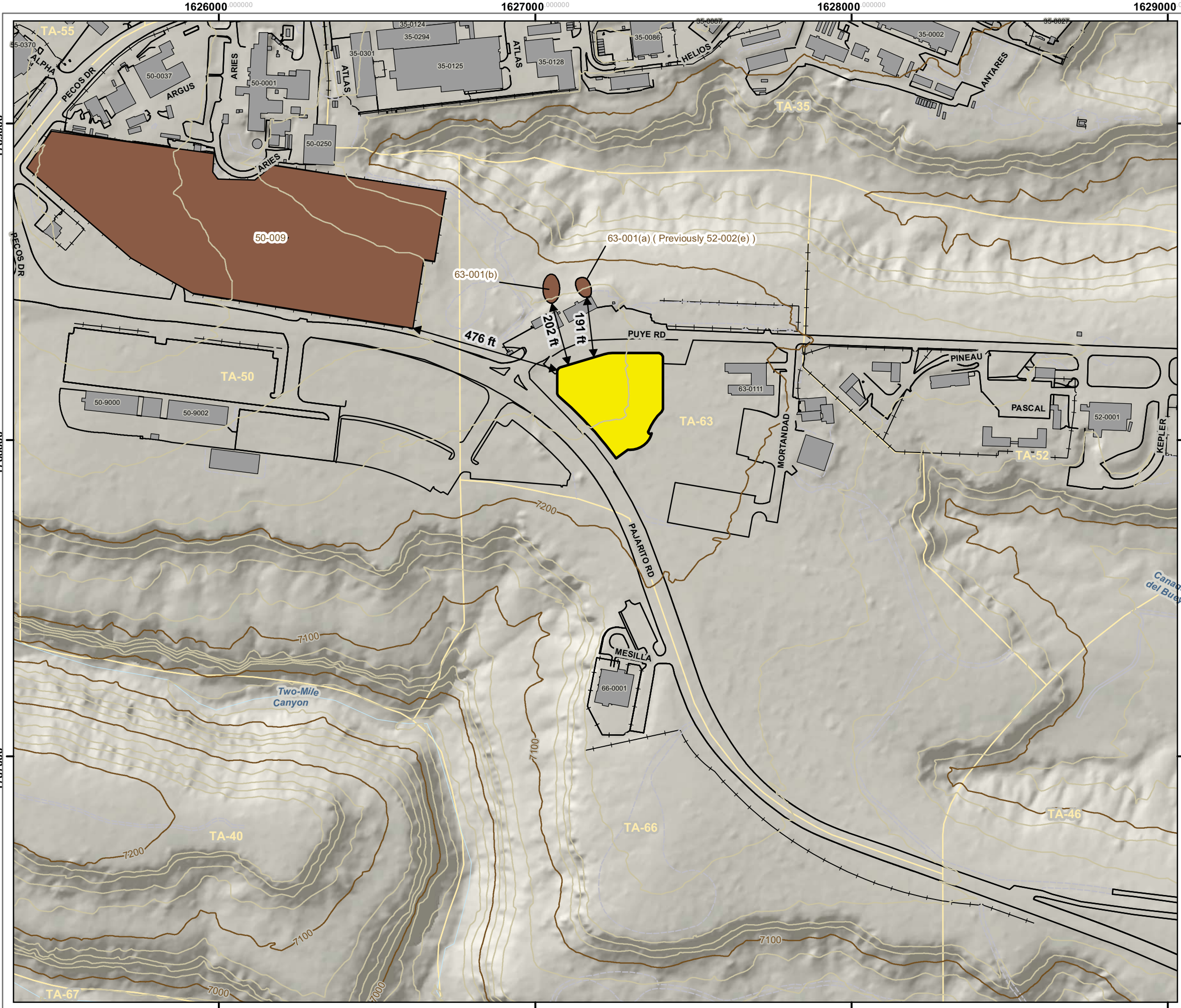
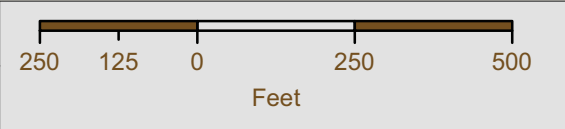
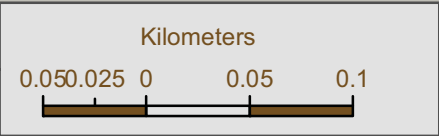


FIGURE 4-1.

Location of TA-63 SWMUs

Legend

- Drainages
- Contours, 100 ft
- Contours, 20 ft
- Roads, paved1
- Roads, dirt
- Fences
- Solid Waste Management Unit
- Buildings/Structures
- TWF Permitted Unit
- Technical Area boundary



New Mexico State Plane Coordinate System,
Central Zone, Units in Feet.
North American Datum 1983. NGVD 1929
Reference Grid interval equals 1000 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.