

# WASTEWATER STREAM CHARACTERIZATION FOR TA 16-360, 380, 1367 AND 1368

at  
Los Alamos National Laboratory

ENVIRONMENTAL STUDY  
CHARACTERIZATION REPORT # 8



**Los Alamos**

ENVIRONMENTAL MANAGEMENT DIVISION

Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

WASTEWATER STREAM  
CHARACTERIZATION FOR  
TA 16-360, 380, 1367 AND 1368

an  
ENVIRONMENTAL STUDY

prepared for:  
THE LOS ALAMOS NATIONAL LABORATORY  
Los Alamos, New Mexico

under subcontract 9-XG8-2874P-1

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## EXECUTIVE SUMMARY

Buildings 360, 380, 1367 and 1368 in TA-16 were visited to document all drain piping and to make permitting recommendations. The outfall pipes exiting the buildings are as follows:

- 1) from 16-360: one discharge to sanitary sewer, two storm water discharges, one plugged sump, one unpermitted discharge of floor drains, one steam pit drain, one fire water drain, one steam relief valve vent and one drain from a condensate pump.
- 2) from 16-380: one plugged sump, one discharge of steam condensate, one discharge to a septic tank, two fire water drains and one disconnected pipe.
- 3) from 16-1367: no drains.
- 4) from 16-1368: no drains.

An EPA Form 2D is attached for one outfall. Flows shown on the application forms are defined from information obtained during the site visit.

Recommendations for repiping are provided to allow outfall consolidation to minimize permit maintenance requirements and to bring the facility into compliance with the Laboratory's NPDES Permit. Floor drains plugging is recommended where the potential for discharge of pollutants exists.

A waste stream database has been prepared listing wastewater type and flow rate for each outfall.

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## 1.0 INTRODUCTION

On May 15, 1991, Patrick Binkley and John Sisneros of Santa Fe Engineering (SFE) toured buildings 360, 380, 1367 and 1368 in TA-16 with Loren Abercrombie of WX-12. The purpose of this study is to identify building drain piping and to characterize the wastewater flows and sources at the time of the visit. This report will not reflect any subsequent changes in piping or operation. The Wastewater Stream Characterization Policy of April 14, 1992 was followed for this study. The following tasks were performed for this purpose:

1. Building drains and all piping exiting the building were identified and laid out in schematic form;
2. Wastewater sources were identified at each drain and the wastewater was characterized according to flow rate and quality. The location of outfalls and their potential sources of discharge were determined. Potential pollutants were also noted;
3. Permit applications for discharges of clean water discharges were not prepared since these discharges do not require permitting at this time and
4. Potential problems were identified and recommendations were made for repiping, floor drain plugging and spill containment, where deemed appropriate.

The field investigation proceeded using the WX-12 drawings during a site visit to verify the SFE schematics and to insure that all pipes exiting the building were documented. The following information was used to define drain piping and characterize the wastewater streams:

1. Laboratory engineering drawings were used to prepare both WX-12 drawings and the SFE drain piping schematic. The Solid Waste Stream Characterization conducted by IT Corporation was also reviewed. The National Pollutant Discharge Elimination System (NPDES) Permit, the 1990 NPDES Permit Application submitted by Los Alamos National Laboratory (LANL) in September, 1990, the latest Federal Facilities Compliance Agreement (FFCA) between the Department of Energy (DOE) and the Environmental Protection Agency (EPA) and the Administrative Order (AO) Docket Number VI-91-1329 issued by EPA to the University of California were used for reference;
2. WX-12 verified drain piping by dye checking and
3. A site visit was performed to verify both WX-12 drawings and the SFE drain schematic, and to identify potential outfall pipes exiting the building. The visit entailed a room by room inspection of wastewater sources and drain. Interviews with site personnel were conducted to assist in wastestream characterization.

## 2.0 FIELD INVESTIGATION

The pipes exiting the building have been assigned an Outlet Piping Number. The four part number, sequentially, identifies the Technical Area where the pipe is located, the building from which the pipe discharges, the letters OPN to indicate that it is an outlet piping number and the unique number for the pipe. The piping exiting the building will be labeled for easy identification in the future.

Each drain has a unique identification number. Each number consists of three parts. The first part is the floor the drain is on. The second part has letters that indicate the drain type (abbreviations used are summarized in Table 3). The final part is a unique number for each drain. For example, the floor drain numbering on the first floor would start with 1FD1. The roof drains do not have the number identifying the floor such as RD1 for Roof Drain 1.

The function of each pipe exiting from the buildings are listed Appendix 1 in Tables 1 and 2, with an abbreviations list in Table 3. Appendix 2 contains the waste stream characterization database output, listing wastewater source, flow rates and periodicity information for each outfall drain. Completed EPA forms are in Appendix 3 for the appropriate outfalls. Appendix 4 provides a copy of the WX-12 drawings. Flow schematics of the drains from each building are attached in Appendix 5 as Figures 1 and 2.

### 3.0 RECOMMENDATIONS FOR BUILDING 360

Table 1 is a list of the drains to the building outfalls and Figure 1 is a schematic of the piping. The table lists the drains that connect to each outfall pipe and includes recommendations for changes to the drain piping. The discussion below gives the reasoning for the recommendations.

#### 3.1 Outfall 16-360-OPN-1

This outfall goes to the TA-16 sanitary treatment plant, which discharges as 03S. Permitting is not required and no EPA forms were prepared.

#### 3.2 Outfall 16-360-OPN-2

This outfall to daylight receives water from three roof drains. No changes or permitting are recommended. No EPA forms were prepared.

#### 3.3 Outfall 16-360-OPN-3

This outfall to daylight receives water from three roof drains and a water fountain. The water fountain should be repiped to the sanitary sewer. No permitting is recommended. No EPA forms were prepared.

#### 3.4 Outfall 16-360-OPN-4

This outfall once received water through an interior trough and collection sump and is permitted as 05A157. The sump drain has been plugged concrete. A high level alarm should be installed in the collecting sump. The permit for this outfall should be deleted. No EPA forms were prepared.

### 3.5 Outfall 16-360-OPN-5

This outfall receives water from three floor drains and discharges of daylight. Discharge types are fire water tempered water and air compressor condensate. Repiping this outfall to the sanitary sewer is recommended. No EPA forms were prepared.

### 3.6 Outfall 16-360-OPN-6

This outfall is a steam pit drain. The outlet could not be located and is assumed to leach into the ground. This outfall should be included in a Notice of Intent to Discharge (NOI). No EPA forms were prepared.

### 3.6 Outfall 16-360-OPN-7

This outlet is a fire water drain to daylight. This outfall should be included in an NOI. No EPA forms were prepared.

### 3.7 Outfall 16-360-OPN-8

This pipe discharges off a steam pressure relief valve to the atmosphere. This outfall should be included in an NOI. No EPA forms were prepared

### 3.8 Outfall 16-360-OPN-9

This pipe discharges to daylight from a condensate pump drain. This outfall should be included in an NOI. No EPA forms were prepared.

## 4.0 RECOMMENDATIONS FOR BUILDING 380

Table 2 is a list of the drains to the building outfalls and Figure 2 is a schematic of the piping. The table lists the drains that connect to each outfall pipe and includes

recommendations for changes to the drain piping. The discussion below gives the reasoning for the recommendations.

#### 4.1 Outfall 16-380-OPN-1

This outfall is permitted as 05A052 and once received liquid discharge from a drop inlet, two roof drains and a sump. The sources to the sump are an eye wash, floor drains, a wet dust collector and a water fountain. The outlet of the collecting sump has been plugged with concrete. A level control alarm signal unit should be installed in the collecting sump. The water fountain should be repiped to the septic tank or replaced with bottled water. The roof drain should be repiped as a separate outfall. The permit for this outfall should be deleted. No EPA forms were prepared.

#### 4.2 Outfall 16-380-OPN-2

This outfall is steam condensate and discharges near the existing outfall 05A052 at a flow rate of approximately 4 gpm at 5 minute intervals. This discharge was created because of leaks in the condensate return system. With the steady and increasing discharge flow out of this pipe, permitting the outfall or repairing the condensate system is recommended. A completed Form 2D is included in Appendix 3 for this outfall.

#### 4.3 Outfall 16-380-OPN-3

This outfall goes to a septic tank. Discharge types include rest room facilities, a janitor's sink and floor drains from the equipment room, the rest rooms and the janitor's closet. The discharge sources of concern are from the two equipment room floor drains. The types of potential liquid discharge can include battery acid, tempered water and air compressor condensate. Secondary containment is recommended around the battery bank to prevent battery acid entry into the floor drains.

Tempered water leaks and an air compressor drain are a low flow of approximately 1 gallon/month. The liquid from the air compressor should be containerized. The tempered water leaks can continue to discharge to the septic tank. Permitting is not required and no EPA forms were prepared.

#### 4.4 Outfalls 16-380-OPN-4 and 16-380-OPN-5

These outfalls are fire water drains. Outfall 16-380-OPN-4 is piped out of doors, but outfall 16-380-OPN-5 is not. The water discharges into an electrical switch room and poses a safety hazard. Repiping of this outfall to the outside is recommended. These outfalls should be included in an NOI. No EPA forms were prepared.

#### 4.5 Outfall 16-380-OPN-6

This pipe penetrates the exterior wall and was once used as a vapor vent above the roof line. It has since been disconnected within the equipment room and should be removed. No permitting is required and no EPA forms were prepared.

#### **5.0 RECOMMENDATIONS FOR BUILDINGS 1367 AND 1368**

These two buildings are transportainers next to building 360. The buildings do not have any drains. No changes are recommended. No EPA forms were prepared.

## 6.0 CONCLUSION

This document provides the information to characterize buildings 360, 380, 1367 and 1368 in TA-16. Permit application forms have been completed for the following outfalls (Appendix 3):

Form 2D:

1. 16-380-OPN-2

The remaining outfalls do not require permitting, as itemized below:

Discharge to sanitary sewer or septic tank:

1. 16-360-OPN-1
2. 16-380-OPN-3

Fire water drains:

1. 16-360-OPN-7
2. 16-380-OPN-4
3. 16-380-OPN-5

Miscellaneous:

1. 16-360-OPN-5

Discharges of Storm Water:

1. 16-360-OPN-2
3. 16-360-OPN-3

Discharges of Steam Condensate:

1. 16-360-OPN-6
2. 16-360-OPN-8
3. 16-360-OPN-9

Plugged Sumps:

1. 16-360-OPN-4
2. 16-380-OPN-1

Disconnected pipes:

1. 16-380-OPN-6

The following outfalls have storm water combined with non-storm water discharges, as defined in Forms 2D, Appendix 3:

1. 16-360-OPN-3

Recommended permitting and corrective action are outlined in Tables 1 and 2. Corrective actions should be performed as soon

as practicable to minimize the chance of unpermitted discharge of pollutants.

TABLE 1: TA-16-360 DRAIN SUMMARY

OUTFALL NUMBER	ID NUMBER	ROOM ACTIVITY	STATUS OR RECOMMENDATIONS	EPA FORM PREPARED
16-360-OPN-1 Sanitary Sewer	1FD1	Men's Rest Room	No Change	No
	1FD2	Women's Rest Room	No Change	
	1LV1	Men's Rest Room	No Change	
	1LV2	Women's Rest Room	No Change	
	1T1	Men's Rest Room	No Change	
	1T2	Women's Rest Room	No Change	
	1UR1	Men's Rest Room	No Change	
16-360-OPN-2	RD1	Roof	No Change	No
	RD2	Roof	No Change	
	RD3	Roof	No Change	
16-360-OPN-3	RD4	Roof	No Change	No
	RD5	Roof	No Change	
	RD6	Roof	No Change	
	1WF1	Shipping/Packing	Repipe to San Sewer	
16-360-OPN-4	1TD1	Shipping/Packing	Alarm & No Permit	No
16-360-OPN-5	1FD3	Equipment Room	Repipe to San Sewer	No
	1FD4	Fire Water Drain	Repipe to San Sewer	
	1FD5	Fire Water Drain	Repipe to San Sewer	
16-360-OPN-6	1SP1	Steam Pit Drain	NOI	No
16-360-OPN-7		Fire Water Drain	NOI	No
16-360-OPN-8		Steam PRV	NOI	No
16-360-OPN-9		Steam PRV	NOI	No

RECOMMENDATIONS WERE REVIEWED WITH PERSONNEL FROM WX-12, EM-8 & ENG-6

TABLE 2: TA 16-380 DRAIN SUMMARY

OUTFALL NUMBER	ID NUMBER	ROOM ACTIVITY	STATUS OR RECOMMENDATIONS	EPA FORM PREPARED
16-380-OPN-1 05A052	RD1	Roof	Separate Outfall	No
	RD2	Roof	Separate Outfall	
	1EWD1	Eye Wash	Plugged	
	1EWD2	Eye Wash	Plugged	
	1EWD3	Eye Wash	Plugged	
	1TD1	Trench Drain	Plugged	
	1SPD1	Collecting Sump	Alarm	
16-380-OPN-2		Steam Condensate	Permit	Yes
16-380-OPN-3 Septic Tank	1FD1	Equipment Room	Secondary Containment	No
	1FD2	Equipment Room	Secondary Containment	
	1FD3	Women's Rest Room	No Change	
	1FD4	Men's Rest Room	No Change	
	1FD5	Janitor's Closet	No Change	
	1LV1	Women's Rest Room	No Change	
	1LV2	Men's Rest Room	No Change	
	1SD1	Janitor's Closet	No Change	
	1T1	Women's Rest Room	No Change	
	1T2	Men's Rest Room	No Change	
	1UR1	Men's Rest Room	No Change	
16-380-OPN-4		Fire Water	NOI	No
16-380-OPN-5		Fire Water	Repipe Out Building & NOI	No
16-380-OPN-6		Disconnected Pipe	Remove	No

RECOMMENDATIONS WERE REVIEWED WITH PERSONNEL FROM WX-12, EM-8 & ENG-6

**TABLE 3**  
**SUMMARY OF ABBREVIATIONS**

ABBREVIATION	MEANING
EWD	Eye Wash Drain
FD	Floor Drain
LV	Lavatory
RD	Roof Drain
SD	Sink Drain
SP	Steam Pit
T	Toilet
TD	Trench Drain
UR	Urinal
WF	Water Fountain

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TA	BLDG	OUTLET PIPING NUMBER	EPA OUTFALL #	DRAIN #	ROOM DESCRIPTION	FLOW RATE	PERIODICITY	SEASONAL	ROOM #	SOURCE TYPES
16	360	16-360-OPN-1	03S	1FD1	BATH ROOM	50	GPY 4 DAYS PER WEEK	no	104	FLOOR WASHINGS
16	360	16-360-OPN-1	03S	1FD2	BATHROOM	50	GPY 4 DAYS PER WEEK	no	103	FLOOR WASHINGS
16	360	16-360-OPN-1	03S	1LV1	BATH ROOM	100	GPD 4 DAYS PER WEEK	no	104	HAND WASHING
16	360	16-360-OPN-1	03S	1LV2	BATH ROOM	100	GPD 4 DAYS PER WEEK	no	103	HAND WASHING
16	360	16-360-OPN-1	03S	1T1	BATH ROOM	50	GPD 4 DAYS PER WEEK	no	104	SANITARY WASTE
16	360	16-360-OPN-1	03S	1T2	BATH ROOM	50	GPD 4 DAYS PER WEEK	no	103	SANITARY WASTE
16	360	16-360-OPN-1	03S	1UR1	BATH ROOM	50	GPD 4 DAYS PER WEEK	no	104	SANITARY WASTE
16	360	16-360-OPN-2		RD1	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-2		RD2	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-2		RD3	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-3		1WF1	SHIPPING/PACKING		MORE IN SUMMER	no	101	DRINKING WATER
16	360	16-360-OPN-3		RD4	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-3		RD5	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-3		RD6	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	360	16-360-OPN-4	05A159	1TD1	SHIPPING/PACKING		4 DAYS PER WEEK	no	101	FLOOR WASHINGS
16	360	16-360-OPN-5		1FD3	EQUIPMENT ROOM	10	GPY 4 DAYS PER WEEK	no	102	AIR COMPRESSOR DRAIN
16	360	16-360-OPN-5		1FD3	EQUIPMENT ROOM	10	GPY 4 DAYS PER WEEK	no	102	TEMPERED WATER
16	360	16-360-OPN-5		1FD4	SHIPPING/PACKING		1 OR 2 TIMES PER YEA	no	101	FIRE WATER
16	360	16-360-OPN-5		1FD5	SHIPPING/PACKING		FLOW IS NIL	no	101	FLOOR WASHINGS
16	360	16-360-OPN-5		1FD5	SHIPPING/PACKING		1 OR 2 TIMES PER YEA	no	101	FIRE WATER
16	360	16-360-OPN-6		1SP1	STEAM PIT	5	GPY MINIMAL WINTER INCRE	no	102	STEAM CONDENSATE
16	360	16-360-OPN-7			EQUIPMENT ROOM		1 OR 2 TIMES A YEAR	no	102	FIRE WATER
16	360	16-360-OPN-8			EQUIPMENT ROOM	10	GPY MINIMAL WINTER INCRE	no	102	STEAM CONDENSATE
16	360	16-360-OPN-9			EQUIPMENT ROOM	10	GPY MINIMAL WINTER INCRE	no	102	CONDENSATE
16	380	16-380-OPN-1	05A052	1TD1	TRENCH DRAIN		4 DAYS PER WEEK	no		FLOOR WASHINGS
16	380	16-380-OPN-1	05A052	RD1	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	380	16-380-OPN-1	05A052	RD2	ROOF	15000	GPY MAINLY SUMMER	no	ROOF	RAIN
16	380	16-380-OPN-2			EQUIPMENT ROOM	2740	GPD WINTER INCREASE	no	105	STEAM CONDENSATE
16	380	16-380-OPN-3	SEPTIC TANK	1FD1	EQUIPMENT ROOM	10	GPY 4 DAYS PER WEEK	no	105	AIR COMPRESSOR DRAIN
16	380	16-380-OPN-3	SEPTIC TANK	1FD2	EQUIPMENT ROOM	10	GPY 4 DAYS PER WEEK	no	105	TEMPERED WATER
16	380	16-380-OPN-3	SEPTIC TANK	1FD3	BATH ROOM	10	GPY 4 DAYS PER WEEK	no	105	FLOOR WASHINGS
16	380	16-380-OPN-3	SEPTIC TANK	1FD4	BATH ROOM	50	GPY 4 DAYS PER WEEK	no	107	FLOOR WASHING
16	380	16-380-OPN-3	SEPTIC TANK	1FD5	JANITOR CLOSET	100	GPY 4 DAYS PER WEEK	no	108	FLOOR WASHING
16	380	16-380-OPN-3	SEPTIC TANK	1LV1	BATH ROOM	50	GPD 4 DAYS PER WEEK	no	106	HAND WASHING
16	380	16-380-OPN-3	SEPTIC TANK	1LV2	BATH ROOM	50	GPD 4 DAYS PER WEEK	no	107	HAND WASHING
16	380	16-380-OPN-3	SEPTIC TANK	1SD1	JANITOR CLOSET	50	GPD 4 DAYS PER WEEK	no	108	MOP WATER
16	380	16-380-OPN-3	SEPTIC TANK	1T1	BATH ROOM	25	GPD 4 DAYS PER WEEK	no	106	SANITARY WASTE
16	380	16-380-OPN-3	SEPTIC TANK	1T2	BATH ROOM	25	GPD 4 DAYS PER WEEK	no	107	SANITARY WASTE

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TA BLDG	OUTLET PIPING NUMBER	EPA OUTFALL #	DRAIN #	ROOM DESCRIPTION	FLOW RATE	PERIODICITY	SEASONAL	ROOM #	SOURCE TYPES
16 380	16-380-OPN-3	SEPTIC TANK	1UR1	BATH ROOM	25	GPD 4 DAYS PER WEEK	no	107	SANITARY WASTE
16 380	16-380-OPN-4			EQUIPMENT ROOM		1 OR 2 TIMES PER YEA	no	105	FIRE WATER
16 380	16-380-OPN-5			EQUIPMENT ROOM		1 OR 2 TIMES PER YEA	no	105	FIRE WATER
16 380	16-380-OPN-6			EQUIPMENT ROOM		NOT USED	no	105	DISCONNECTED PIPE
16 1,367	16-1367			TRANSPORTAINER		NO FLOW	no		NONE
16 1,368	16-1368			TRANSPORTAINER		NO FLOW	no		NONE



B. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item III-A. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

C. Except for storm runoff, leaks, or spills, will any of the discharges described in item III-A be intermittent or seasonal?

Yes (complete the following table)       No (go to item IV)

Outfall Number	1. Frequency		2. Flow		c. Duration (in days)
	a. Days Per Week (specify average)	b. Months Per Year (specify average)	a. Maximum Daily Flow Rate (in mgd)	b. Maximum Total Volume (specify with units)	
NA					

**IV. Production**

If there is an applicable production-based effluent guideline or NSPS, for each outfall list the estimated level of production (projection of actual production level, not design), expressed in the terms and units used in the applicable effluent guideline or NSPS, for each of the first 3 years of operation. If production is likely to vary, you may also submit alternative estimates (attach a separate sheet).

Year	a. Quantity Per Day	b. Units of Measure	c. Operation, Product, Material, etc (specify)



C. Use the space below to list any of the pollutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it will be present.

1. Pollutant	2. Reason for Discharge
NONE	

**VI. Engineering Report on Wastewater Treatment**

A. If there is any technical evaluation concerning your wastewater treatment, including engineering reports or pilot plant studies, check the appropriate box below.  
 Report Available       No Report

B. Provide the name and location of any existing plant(s) which, to the best of your knowledge, resembles this production facility with respect to production processes, wastewater constituents, or wastewater treatments.

Name	Location
NA	

**VII. Other Information (Optional)**

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

**VIII. Certification**

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

<b>A. Name and Official Title (type or print)</b> JERRY L. BELLOWS, DOE AREA MANAGER ALLEN J. TIEDMAN, ASSOC. DIRECTOR FOR OPERATIONS	<b>B. Phone No.</b> 505-667-5105 505-667-9390
<b>C. Signature</b>	<b>D. Date Signed</b>

DYE STUDY REPORT FOR BUILDINGS  
16-360 AND 16-380  
COMPILED BY ENGINEERING AND INFORMATION RESOURCES (WX-12)

BUILDING 360--Field investigated September 25, 1990.

DRAIN No	DRAIN LOCATION	END OF PIPE
1FD1	RM 104	16-360-OPN-1 sanitary sewer
1FD2	RM 103	16-360-OPN-1 sanitary sewer
1FD3	RM 102	16-360-OPN-5
1FD4	RM 101	16-360-OPN-5
1FD5	RM 101	16-360-OPN-5
SPD1	Sump	16-360-OPN-4 EPA outlet 05A159
RD1	Roof Drain	16-360-OPN-2
RD6	Roof Drain	16-360-OPN-3

BUILDING 380--Field investigated September 14, 1990.

DRAIN No	DRAIN LOCATION	END OF PIPE
1FD1	RM 105	16-380-OPN-3 septic tank
1FD2	RM 105	16-380-OPN-3 septic tank
SPD1	Sump	16-380-OPN-1 EPA outlet 05A052
RD1	Roof Drain	16-380-OPN-1 EPA outlet 05A052
RD2	Roof Drain	16-380-OPN-2 EPA outlet 05A052

4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED

DYE TESTED 06-91

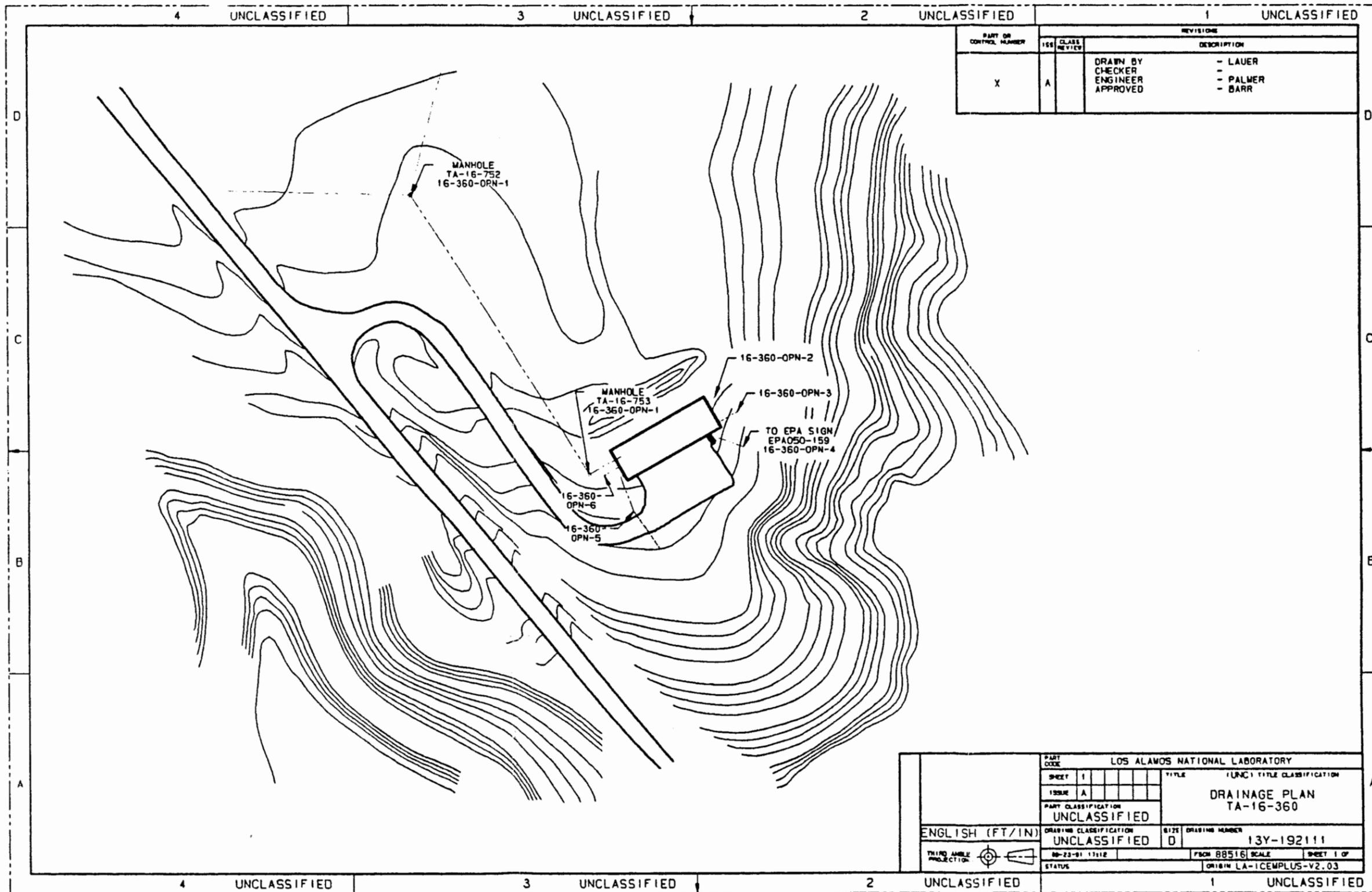
PART OR CONTROL NUMBER	REVISIONS		DESCRIPTION
	ISSUE	CLASS REVIEW	
N/A	A	LS	DRAWN BY CHECKER ENGINEER APPROVED - LAUER - BARR - PALMER - BARR

# TA - 16 - 360 INDEX SHEET

- 13Y-192111 SHT 1----SITE DRAINAGE PLAN
- 13Y-192111 SHT 2----FIRST FLOOR PLUMBING DRAIN PLAN
- 13Y-192111 SHT 3----ROOF PLAN
- 13Y-192111 SHT 4----POTENTIAL EFFLUENT
- 13Y-192111 SHT 5----ELECT. HAZARD CLASSIFICATION ZONES
- 13Y-192111 SHT 6----EVACUATION PLAN

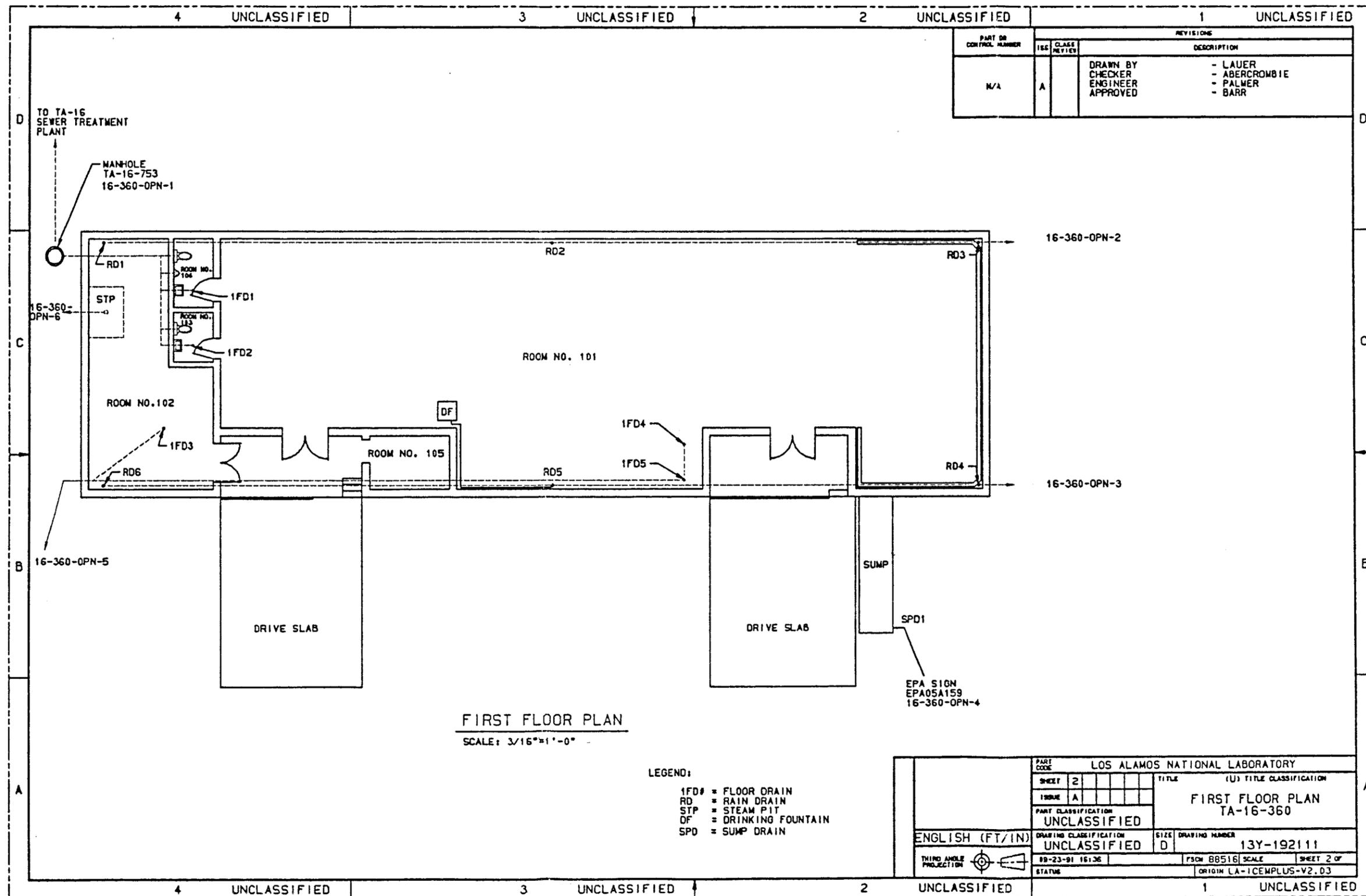
PART CODE		LOS ALAMOS NATIONAL LABORATORY	
SHEET	0	TITLE	(U) TITLE CLASSIFICATION
ISSUE	A	INDEX SHEET TA-16-360	
PART CLASSIFICATION		UNCLASSIFIED	
DRAWING CLASSIFICATION		SIZE	DRAWING NUMBER
UNCLASSIFIED		D	13Y-192111
ENGLISH (FT/IN)		89-23-91 18148	
THIRD ANGLE PROJECTION		SCALE	1/1
		ORIGIN	LA-ICEMPLUS-V2
		STATUS	

4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED



PART OR CONTROL NUMBER	REVISIONS		DESCRIPTION
	ISS	CLASS REVIEW	
X	A		DRAWN BY - LAUER CHECKER - PALMER ENGINEER - BARR APPROVED

LOS ALAMOS NATIONAL LABORATORY			
PART CODE	TITLE (UNC) TITLE CLASSIFICATION		
SHEET 1	DRAINAGE PLAN TA-16-360		
ISSUE A	UNCLASSIFIED		
PART CLASSIFICATION UNCLASSIFIED	SIZE D	DRAWING NUMBER 13Y-192111	
ENGLISH (FT/IN)	DRAWING CLASSIFICATION UNCLASSIFIED	FROM 88516	SCALE SHEET 1 OF
THIRD ANGLE PROJECTION	80-23-81 13112	STATUS ORIGIN LA-ICEMPLUS-V2.03	



UNCLASSIFIED 4

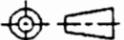
3

2

1 UNCLASSIFIED

PART OR CONTROL NUMBER	ISS	CLASS REVIEW	REVISIONS	
			DESCRIPTION	
N/A	A		DRAWN BY	- LAUER
			CHECKER	- ABERCROMBIE
			ENGINEER	- PALMER
			APPROVED	- BARR

BLDG OUTFALL NO	BLDG ROOM NO	DRAIN NO	POTENTIAL EFFLUENT
16-360-OPN-5	101	1FD4	H2O-W, H2O-F, SOAP, CLEANERS
16-360-OPN-5	101	1FD5	H2O-W, H2O-F, SOAP, CLEANERS
16-360-OPN-5	102	1FD3	H2O-W, OIL, CONDEN.
16-360-OPN-1	103	1FD2	H2O-W, TOILET
16-360-OPN-1	104	1FD1	H2O-W, TOILET, UNINNAL
16-360-OPN-2	ROOF	RD1	H2O-R
16-360-OPN-2	ROOF	RD2	H2O-R
16-360-OPN-2	ROOF	RD3	H2O-R
16-360-OPN-3	ROOF	RD4	H2O-R
16-360-OPN-3	ROOF	RD5	H2O-R
16-360-OPN-3	ROOF	RD6	H2O-R
16-360-OPN-6	102	STP	H2O-W, CONDEN.
16-360-OPN-4	SUMP	SPD1	PLUGGED

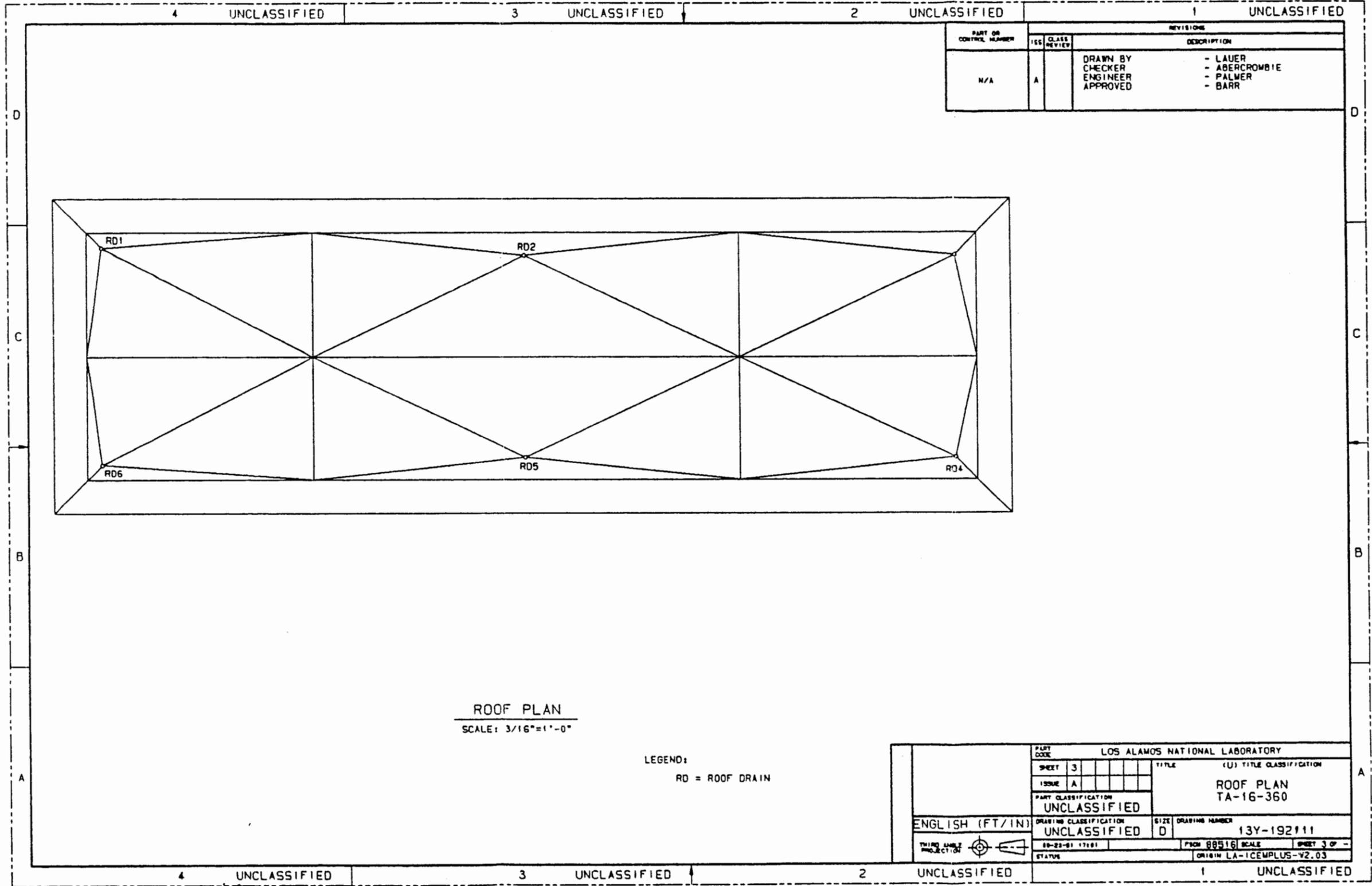
PART CODE		LOS ALAMOS NATIONAL LABORATORY	
SHEET	4	TITLE	(UNC) TITLE CLASSIFICATION
ISSUE	A	DRAIN SCHEDULE TA-16-360	
PART CLASSIFICATION		UNCLASSIFIED	
DRAWING CLASSIFICATION		SIZE	DRAWING NUMBER
UNCLASSIFIED		C	13Y-192111
THIRD ANGLE PROJECTION 		09-23-91 17:18	FSCM 88516 SCALE 1/1 SHEET 4 OF
STATUS		ORIGIN LA-ICEMPLUS-V2.03	

UNCLASSIFIED 4

3

2

1 UNCLASSIFIED



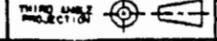
PART OR CONTROL NUMBER	REVISIONS	
	ISS	DESCRIPTION
N/A	A	DRAWN BY - LAUER CHECKER - ABERCROMBIE ENGINEER - PALMER APPROVED - BARR

ROOF PLAN  
SCALE: 3/16"=1'-0"

LEGEND:  
RD = ROOF DRAIN

PART CODE		LOS ALAMOS NATIONAL LABORATORY	
SHEET	3	TITLE	(U) TITLE CLASSIFICATION
ISSUE	A	ROOF PLAN TA-16-360	
PART CLASSIFICATION		SIZE	DRAWING NUMBER
UNCLASSIFIED		D	13Y-192111
DRAWING CLASSIFICATION		FROM	SCALE
UNCLASSIFIED		88516	3 OF -
STATUS		ORIGIN LA-1CEPLUS-V2.03	

ENGLISH (FT/IN)



4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED

D  
C  
B  
A

D  
C  
B  
A

4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED

4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED

DYE TESTED 07-91

PART OR CONTROL NUMBER	REVISONS		DESCRIPTION
	ISS	CLASS REVIEW	
N/A	A	LS	DRAWN BY CHECKER ENGINEER APPROVED - ABERCROMBIE - BARR - PALMER - BARR

# TA - 16 - 380 INDEX SHEET

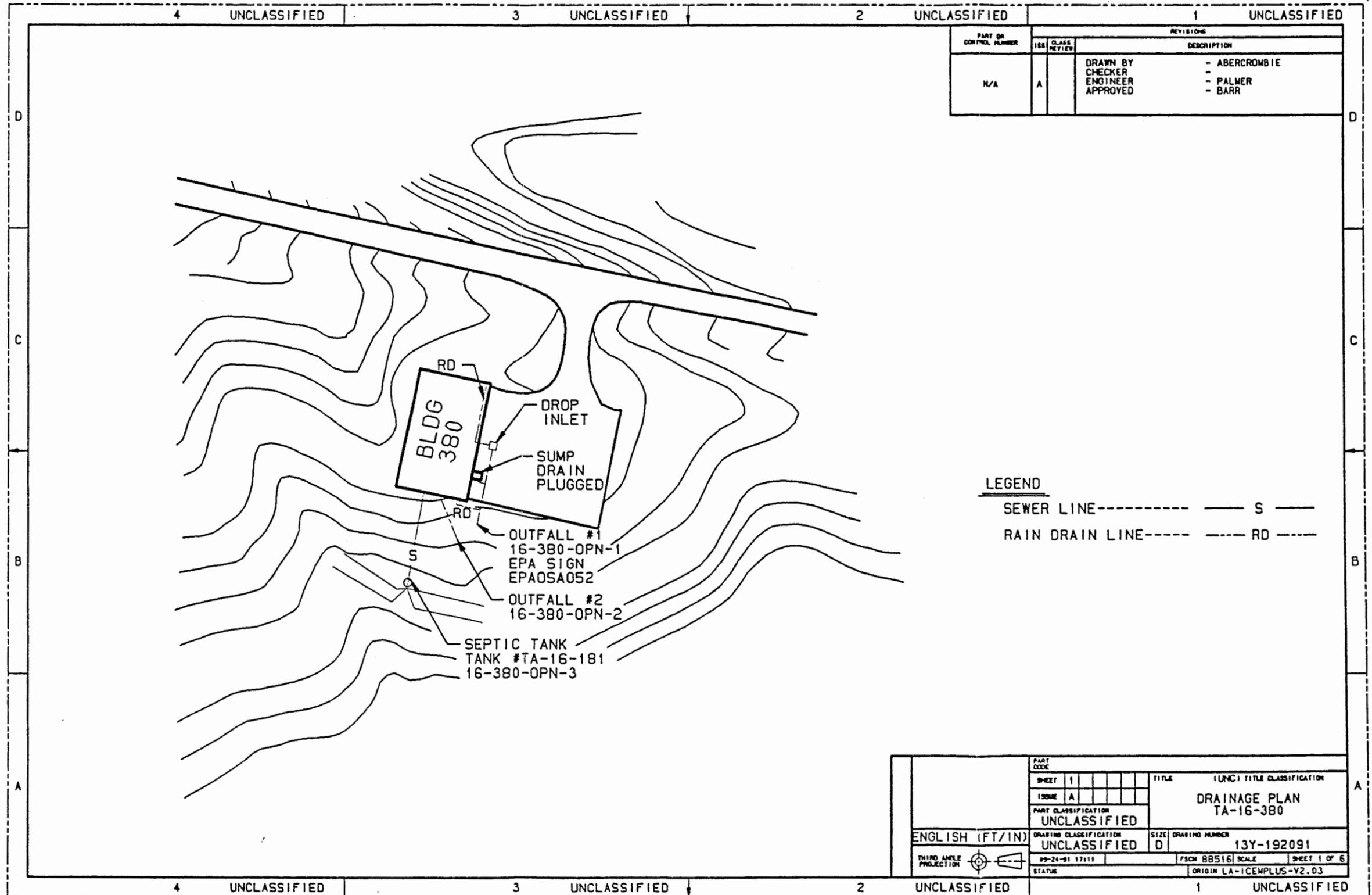
- 13Y-192091 SHT 1----SITE DRAINAGE PLAN
- 13Y-192091 SHT 2----FIRST FLOOR PLUMBING DRAIN PLAN
- 13Y-192091 SHT 3----ROOF PLAN
- 13Y-192091 SHT 4----POTENTIAL EFFLUENT
- 13Y-192091 SHT 5----ELECT. HAZARD CLASSIFICATION ZONES
- 13Y-192091 SHT 6----EVACUATION PLAN

D  
C  
B  
A

D  
C  
B  
A

4 UNCLASSIFIED 3 UNCLASSIFIED 2 UNCLASSIFIED 1 UNCLASSIFIED

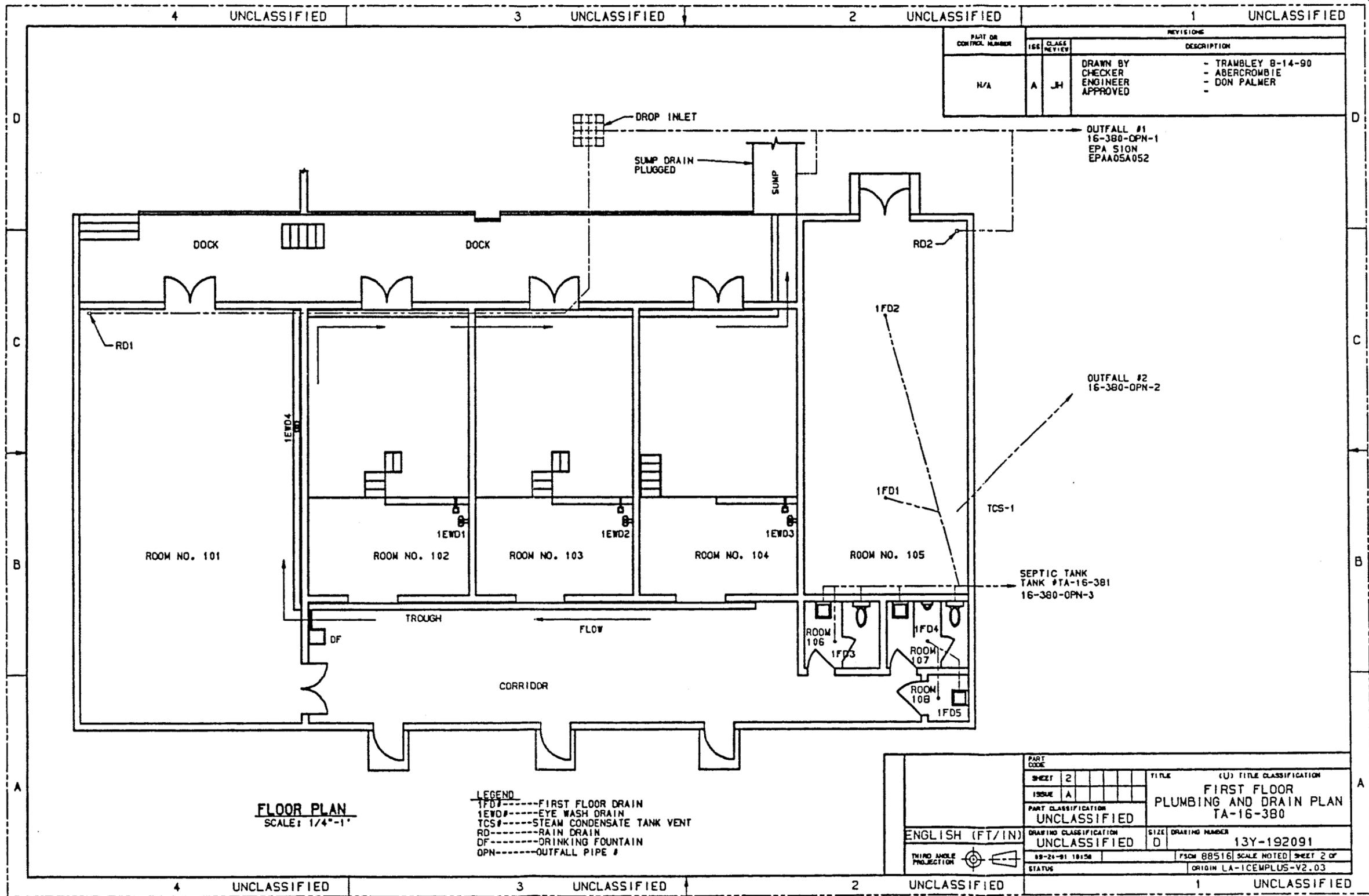
PART CODE		LOS ALAMOS NATIONAL LABORATORY	
SHEET	0	TITLE	(U) TITLE CLASSIFICATION
ISSUE	A		INDEX SHEET TA-16-380
PART CLASSIFICATION		UNCLASSIFIED	
DRAWING CLASSIFICATION		SIZE	DRAWING NUMBER
UNCLASSIFIED		D	13Y-192091
THIRD ANGLE PROJECTION 		99-24-91 17103	PSOM 88516 SCALE 1/1 SHEET 0 OF -
STATUS		ORIGIN LA-1CEMPLUS-V2.03	



PART OR CONTROL NUMBER	REVISIONS	
	ISS	CLASS REVIEW
N/A	A	DRAWN BY CHECKER ENGINEER APPROVED - ABERCROMBIE - PALMER - BARR

**LEGEND**  
 SEWER LINE ----- S -----  
 RAIN DRAIN LINE ----- RD -----

PART CODE		TITLE (UNC) TITLE CLASSIFICATION	
SHEET	1	DRAINAGE PLAN TA-16-380	
ISSUE	A	PART CLASSIFICATION UNCLASSIFIED	
DRAWING CLASSIFICATION UNCLASSIFIED		SIZE	DRAWING NUMBER 13Y-192091
ENGLISH (FT/IN)		STATUS	
THIRD ANGLE PROJECTION		89-21-91 17111	ORIGIN LA-1CEMPLUS-Y2.03



PART OR CONTROL NUMBER	ISS	CLASS REVIEW	REVISIONS	
			DESCRIPTION	
N/A	A	JH	DRAWN BY CHECKER ENGINEER APPROVED	- TRAMBLEY 8-14-90 - ABERCROMBIE - DON PALMER

OUTFALL #1  
16-380-OPN-1  
EPA SIGN  
EPA05A052

OUTFALL #2  
16-380-OPN-2

SEPTIC TANK  
TANK #TA-16-381  
16-380-OPN-3

**FLOOR PLAN**  
SCALE: 1/4"=1'

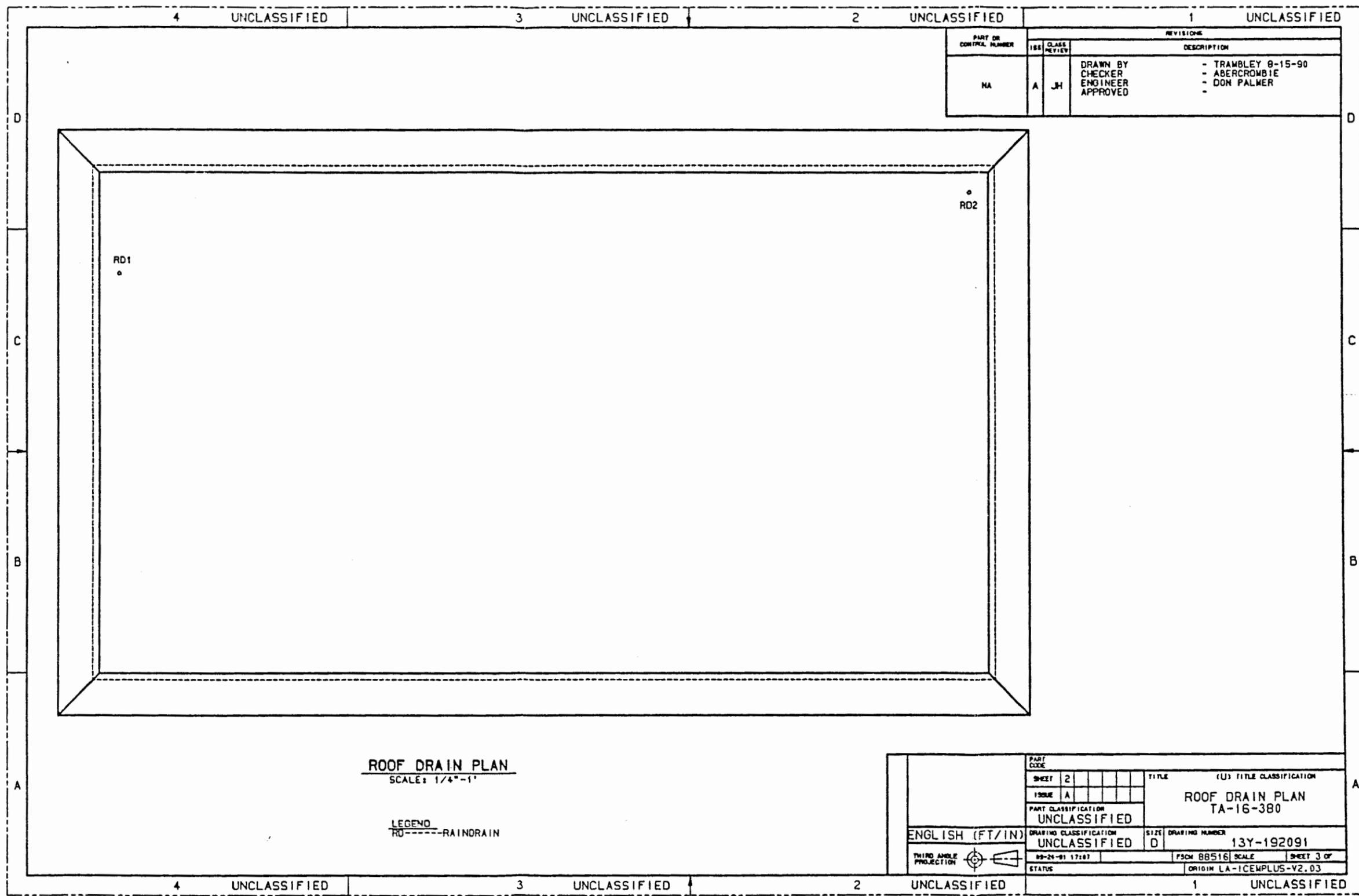
- LEGEND**
- 1FD#-----FIRST FLOOR DRAIN
  - 1EWD#-----EYE WASH DRAIN
  - TCS#-----STEAM CONDENSATE TANK VENT
  - RD-----RAIN DRAIN
  - DF-----DRINKING FOUNTAIN
  - OPN-----OUTFALL PIPE #

PART CODE		(U) TITLE CLASSIFICATION	
SHEET	2	FIRST FLOOR	
ISSUE	A	PLUMBING AND DRAIN PLAN	
PART CLASSIFICATION		TA-16-380	
UNCLASSIFIED			
DRAWING CLASSIFICATION		SIZE	DRAWING NUMBER
UNCLASSIFIED		D	13Y-192091
89-24-91 18158		FSOM 88516 SCALE NOTED SHEET 2 OF	
STATUS		ORIGIN LA-1CEPLUS-V2.03	

ENGLISH (FT/IN)

THIRD ANGLE PROJECTION





PART OR CONTROL NUMBER		ISSUE		CLASS REVIEW		REVISIONS	
		ISS	CLASS	DESCRIPTION			
NA		A	JH	DRAWN BY		- TRAMBLEY 8-15-90	
				CHECKER		- ABERCROMBIE	
				ENGINEER		- DON PALMER	
				APPROVED			

**ROOF DRAIN PLAN**  
SCALE: 1/4"=1'

LEGEND  
RD-----RAIN DRAIN

PART CODE		SHEET 2		TITLE (U) TITLE CLASSIFICATION	
ISSUE A		PART CLASSIFICATION UNCLASSIFIED		ROOF DRAIN PLAN TA-16-380	
DRAWING CLASSIFICATION UNCLASSIFIED		SIZE D		DRAWING NUMBER 13Y-192091	
ENGLISH (FT/IN)		89-24-91 17:07		FSCN 88516 SCALE SHEET 3 OF	
THIRD ANGLE PROJECTION		STATUS		ORIGIN LA-ICEPLUS-V2.03	

UNCLASSIFIED 4

3

2

1 UNCLASSIFIED

PART OR CONTROL NUMBER	CLASS		REVISIONS	
	ISS	REVIEW	DESCRIPTION	
N/A	A		DRAWN BY CHECKER ENGINEER APPROVED	- VISEL - ABERCROMBIE - PALMER 11-7-90

BLDG OUTFALL NO	BLDG ROOM NO	DRAIN NO	POTENTIAL EFFLUENT
16-380-OPN-1	ROOF	RD1	H2O-R
16-380-OPN-1	ROOF	RD2	H2O-R
16-380-OPN-1	SUMP1	SPD1	SUMP PLUGGED
16-380-OPN-2	105	TCS-1	STEAM CONDENSATE
16-380-OPN-1	101	1EWD4	H <sub>2</sub> , H2O-I
16-380-OPN-1	102	1EWD1	H <sub>2</sub> , H2O-I
16-380-OPN-1	103	1EWD2	H <sub>2</sub> , H2O-I
16-380-OPN-1	104	1EWD3	H <sub>2</sub> , H2O-I
16-380-OPN-3	105	1FD1	CA-2, CONDENSATE; TR-1, TWH-1, H2O-T, GREASE; TCA-1, OIL-H OIL-H, CONDENSATE, TCS-1, CONDENSATE; HV-1, H2O-T; H2O-W, ASBESTOS DUST POSSIBLE.
16-380-OPN-3	105	1FD2	CA-2, CONDENSATE; TR-1, TWH-1, H2O-T, GREASE; TCA-1, OIL-H OIL-H, CONDENSATE, TCS-1, CONDENSATE; HV-1, H2O-T; H2O-W, ASBESTOS DUST POSSIBLE. SURFURIC ACID
16-380-OPN-3	106	1FD3	DETERGENT, H2O-W
16-380-OPN-3	107	1FD4	DETERGENT, H2O-W
16-380-OPN-3	108	1FD5	SOLVENTS, H2O-W
16-380-OPN-3	106	T/S	TOILET, SINK
16-380-OPN-3	107	T/S	TOILET, SINK, URINAL

LEGEND

SEE "CLASS "A" EQUIPMENT CODE GUIDE"  
ENG-4-EIC-006 (REVISED 9-1-83)

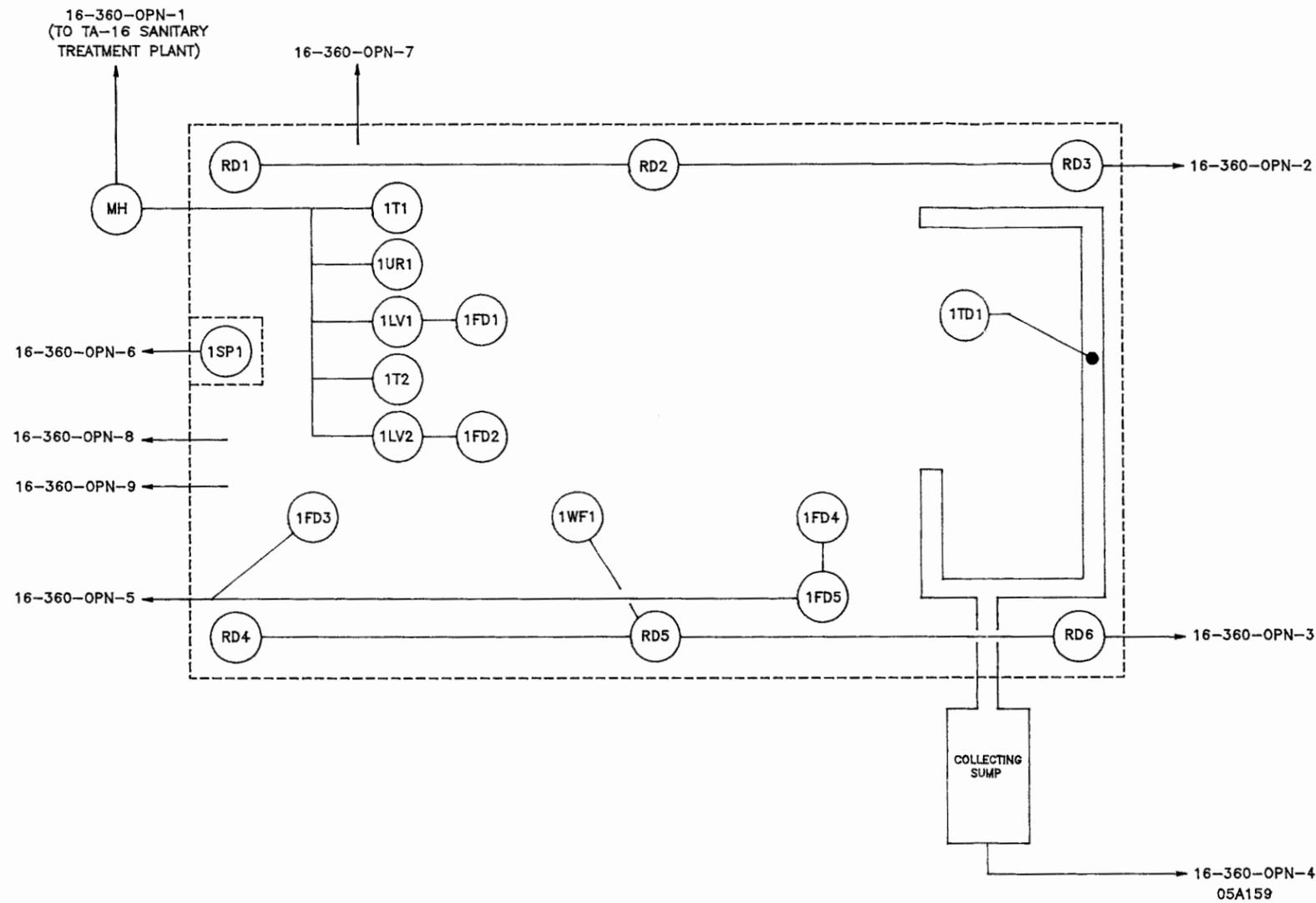
PART CODE		TITLE (UNC) TITLE CLASSIFICATION	
SHEET	4	DRAIN SCHEDULE TA-16-380	
ISSUE	A	PART CLASSIFICATION UNCLASSIFIED	
DRAWING CLASSIFICATION UNCLASSIFIED		SIZE	DRAWING NUMBER 13Y-192091
ENGLISH (FT/IN)		STATUS	ORIGIN LA-1CEMPLUS-V2.03
THIRD ANGLE PROJECTION		09-24-91 16:58	FSCM 88516 SCALE 1/1 SHEET 4 OF -

UNCLASSIFIED 4

3

2

1 UNCLASSIFIED

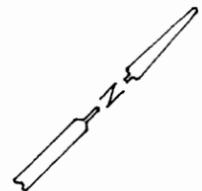


NOTES:

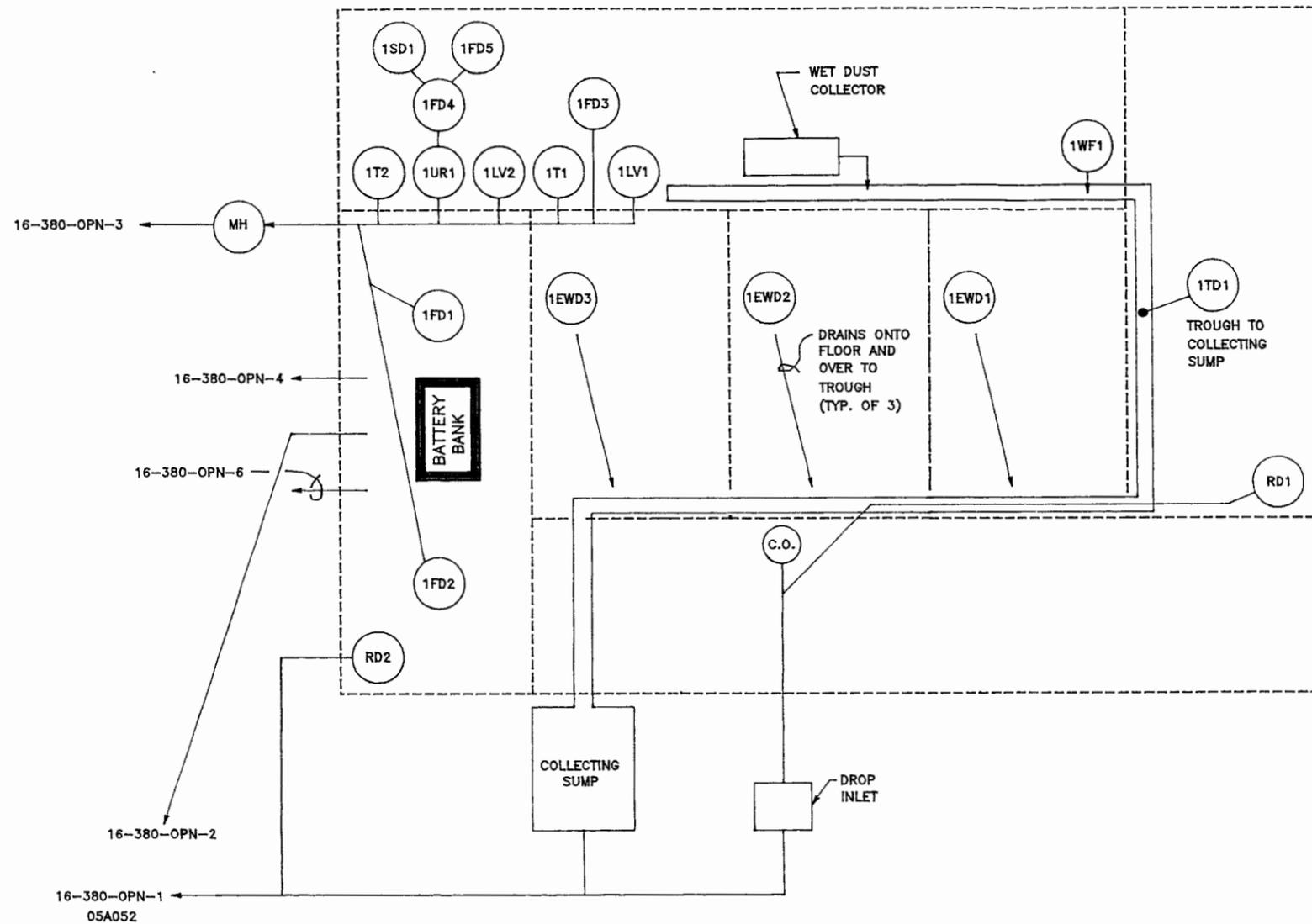
- 1) LAYOUT FROM DRAWING C-16012 AND SITE VISIT
- 2) DYE STUDY VERIFICATION BY WX-12

LEGEND:

FD	FLOOR DRAIN
LV	LAVATORY
RD	ROOF DRAIN
SP	STEAM PIT
T	TOILET
TD	TRENCH DRAIN
UR	URINAL
WF	WATER FOUNTAIN



<b>SANTA FE ENGINEERING, LTD.</b>			
TA 16-360 BUILDING DRAIN SCHEMATIC		DRAWN DESIGN CHECKED DATE	JAS JAS PEB 5/5/92
SUBMITTED	RECOMMENDED	APPROVED	
<b>Los Alamos</b>		Los Alamos National Laboratory Los Alamos, New Mexico 87545	
CLASSIFICATION		REVIEWER	DATE
REQUESTING DIVISION	LAB JOB NO.	DRAWING NO.	REV.
REQUESTING GROUP	11056-8	FIGURE 1	SHEET OF



NOTES:

- 1) LAYOUT FROM DRAWING C-15968 AND SITE VISIT
- 2) DYE STUDY VERIFICATION BY WX-12

LEGEND:

EWD	EYE WASH DRAIN
FD	FLOOR DRAIN
LV	LAVATORY
RD	ROOF DRAIN
SD	SINK DRAIN
SP	STEAM PIT
T	TOILET
TD	TRENCH DRAIN
UR	URINAL
WF	WATER FOUNTAIN

SANTA FE ENGINEERING, LTD.

TA 16-380 BUILDING  
DRAIN SCHEMATIC

DRAWN	JAS
DESIGN	JAS
CHECKED	PEB
DATE	5/5/92

SUBMITTED	RECOMMENDED	APPROVED
-----------	-------------	----------

Los Alamos Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

SHEET	OF
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CLASSIFICATION	REVIEWER	DATE
REQUESTING DIVISION	LAB JOB NO.	DRAWING NO.
REQUESTING GROUP	11056-8	FIGURE 2
		REV.

