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**WASTE PIT AREA CONTAINMENT
IMPROVEMENTS PROJECT REMOVAL ACTION
#22 FINAL REPORT CERCLA/RCRA UNIT 1
FERNALD ENVIRONMENTAL MANAGEMENT
PROJECT**

08/01/93

**FERMCO/DOE-FN
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REPORT
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FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT COMPANY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

CERCLA/RCRA UNIT 1

WASTE PIT AREA

CONTAINMENT IMPROVEMENTS PROJECT

REMOVAL ACTION #22

FINAL REPORT

AUGUST 1993

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ATTACHMENTS

1. Civil Plan View
2. Road Survey I & II
3. Airborne Emission Data

EXECUTIVE SUMMARY

This document summaries information about the Waste Pit Area Containment Improvement Project. Field Activities for the Containment Improvements Project began October 19, 1992, and was completed on July 30, 1993. A project Specific Health and Safety Plan was prepared and implemented for this project.

The Removal Action involved improvements to the vegetation cover on Waste Pits 1, 2, and 3 and regrading the drainage ditches around waste pits 4, 5, and 6. Along with regrading the ditches along the southside of Pit 4, the south berm was stabilized as part of this removal action also. Each of the areas addressed by this removal action shall reduce the spread of contamination by wind borne and water borne transport. This effort will also reduce or eliminate the exposure to individuals working in the immediate vicinity of the Waste Pit Area.

I. INTRODUCTION

This document describes activities performed during the construction of the Waste Pit Area Containment Improvements project. This document will be placed in the administrative record.

II. BACKGROUND INFORMATION

The Waste Pit Area covers approximately 37 acres of the FEMP site and consists of Waste Pits 1 through 6, the Clearwell, and the Burn Pit. While the FEMP was in operation, low-level radioactive waste generated by the various chemical and metallurgical processes were deposited in one of the six waste pits. Waste Pit 1 was backfilled and covered with clean soil in 1959. In 1964, Waste Pit 2 was backfilled and covered with clean soil. Waste Pit 3 was taken out of service, backfilled, and covered with clean soil in 1977. Waste Pit 4 was covered with clean soil in 1986. A Resource Conservation and Recovery Act (RCRA) approved bentonite cap was placed over Waste Pit 4 in 1988, and the pit was closed under an "interim" closure plan. Waste Pit 5 was taken out of service in 1987 and then covered with water. Waste Pit 6 was taken out of service in 1985 and then covered with water. The Burn Pit is currently overgrown with grass, and part of it is overlain by the Waste Pit 4 berm and liner. From 1952 until 1987, the Clearwell was used as a final settling basin for process water that passed through Waste Pit 3 and 5 prior to being discharged to the Great Miami River. The Clearwell currently receives surface water runoff from Waste Pits 1, 2, and 3 and excess storm water from Waste Pit 5 (DOE 1991b).

III. DESCRIPTION OF THE CONTAINMENT IMPROVEMENTS PROJECT, REMOVAL ACTION #22

This project addressed three (3) major areas for concern to the Waste Pit Area that included:

1. Improvements to the containment of specified contaminated soil areas,
 2. Improvements to selected drainage ditches and
 3. Improvements to the road between Waste Pits 4 and 6.
 4. Improvements to the Pit 4 south berm.
- 3.1 The containment of contaminated areas included Waste Pits 1, 2, and 3. To prevent wind erosion and minimize radiation exposure resulting from exposed Waste Pit Area surface soils. The bare areas were revegetated with grass. The recommended seed mixture was spread with seed spreaders and protected with straw and verify jute matting. Throughout the duration of the project these areas were watered until the germination of the grass was gained.

3.2 The specific ditches in the Waste Pit Area that required drainage pitch regrading and improvements were:

1. Ditches along the road between Waste Pit 3 and Waste Pit 5.
2. Ditches along the road between Waste Pit 4 and Waste Pit 6.
3. Ditches along the road south of Waste Pit 4 and south of the road along Waste Pit 4. (Also, included stabilization to the Pit 4 berm.)

All the drainage ditches with the exception of the ditches south of Waste Pit 4, were regraded and sod was replaced in the ditches. The sodded areas were watered until germination of the sod was gained. The ditches directly south of Waste Pit 4 were regraded and then rip rap was placed along this ditch and up to the top of the berm. To stabilize the berm a geotextile fabric was placed under the rip rap and secured down the entire length of the berm. A cement grout was applied over the rip rap, mostly at the bottom to fill the void spaces between the rock pieces at the bottom and create a flow channel.

The three (3) areas of concern are shown on Figure 3-4.

3.3 The road between Waste Pit 4 and 6 were identified as having elevated radioactive contamination levels. This area was improved by placing a layer of unimat over the existing unimats and spreading a 5" thick layer of gravel along the 145' x 14' road. In order to control the potential for a release of contamination the new gravel road was graded to drain to Waste Pit 6 and the drainage ditch east of Waste Pit 4.

IV. WASTE DISPOSAL SUMMARY

An objective of this project was to generate as little waste as possible. The total waste for this project was as follows:

1. 9 cubic feet of personnel protective clothing (PPE's), including tyvec suites, gloves, tape, etc.,
2. 9 cubic feet of construction debris that included wood, plastic bags with metal scraps and paper.
3. 50 cubic yards of contaminated soil.
4. 3 cubic yards of asphalt.

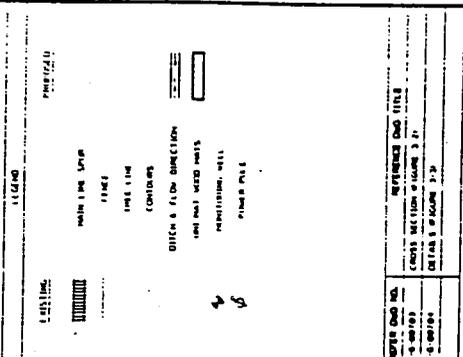
The soil stock pile will be addressed under Removal Action #17 requirements. The asphalt will be sampled and given a RCRA determination. The other construction debris has been identified as non RCRA hazardous waste and was placed in a Sealand for off-site disposal.

V. SAMPLING AND ANALYSIS SUMMARY

As specified in the Removal Action Work Plan, initial survey's were collected for airborne radioactive particulate emissions and surface contamination of the roads.

NOTES

- EXISTING CONDITIONS shown on this drawing are based on the most recent data from the Department of the Army, Corps of Engineers, District of Columbia, and the District of Columbia Department of Public Works. The contractor shall verify all existing conditions before construction.
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DISTRICT OF COLUMBIA DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS AND STANDARDS.
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PRELIMINARY
NOT FOR CONSTRUCTION

UNITED STATES
DEPARTMENT OF ENERGY
FERRARO ENVIRONMENTAL MANAGEMENT PROJECT

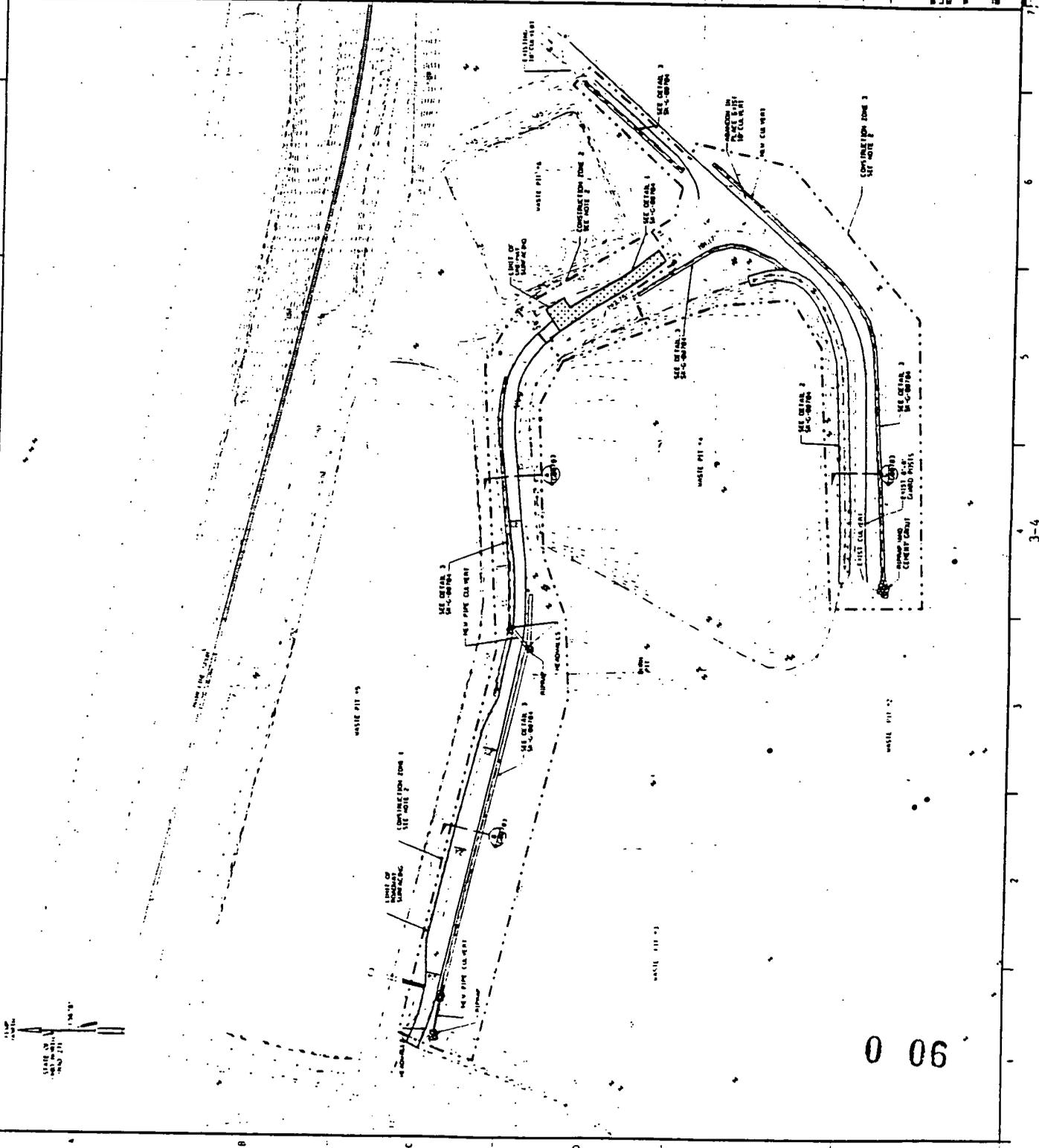
PARSONS
THE BROWN PARSONS COMPANY INC. (INCORPORATED IN CALIFORNIA)
1000 CALIFORNIA STREET, SUITE 1000
SAN FRANCISCO, CALIFORNIA 94104

WASTE PIT AREA CONTAINMENT IMPROVEMENTS

CIVIL
DRAWING NO. 100-10000-100
DATE: 10/1/77

SCALE: AS SHOWN

PROJECT NO. 100-10000
SECTION NO. 100-10000



The data collected from the air samples and the road survey's after this project was complete indicated that the samples were less than minimal detectable limits. The controls for this project were eliminated when construction was complete.

See attached data sheets.

VI. HEALTH AND SAFETY CONTROLS

The work done for this removal action was consistent with the project Specific Health and Safety Plan. The plan recognizes, evaluates, and controls all identified safety and health hazards. In addition, it provides for emergency response for hazardous operations and decontamination procedures.

There were no unusual occurrences associated with this project.

VII. QUALITY CONTROL

The Quality Control was performed by FERMCO's QA/QC department. Title III Design Work was performed by FERMCO's CRU1 Engineering. All construction work performed on this project was in the approved design limits.

VIII. RELATED ACTIVITIES

During the construction of this Removal Action, CRU1 Engineering and maintenance requested the construction assistance in the maintenance of the drainage ditch south of Waste Pit 4. (Not shown on the figure).

The work included removing the over growth of vegetation and regrading the ditch. Although with work was not included in the project scope, the additional regrading increased the capacity of the existing ditch and reduce the potential for flooding in this area.

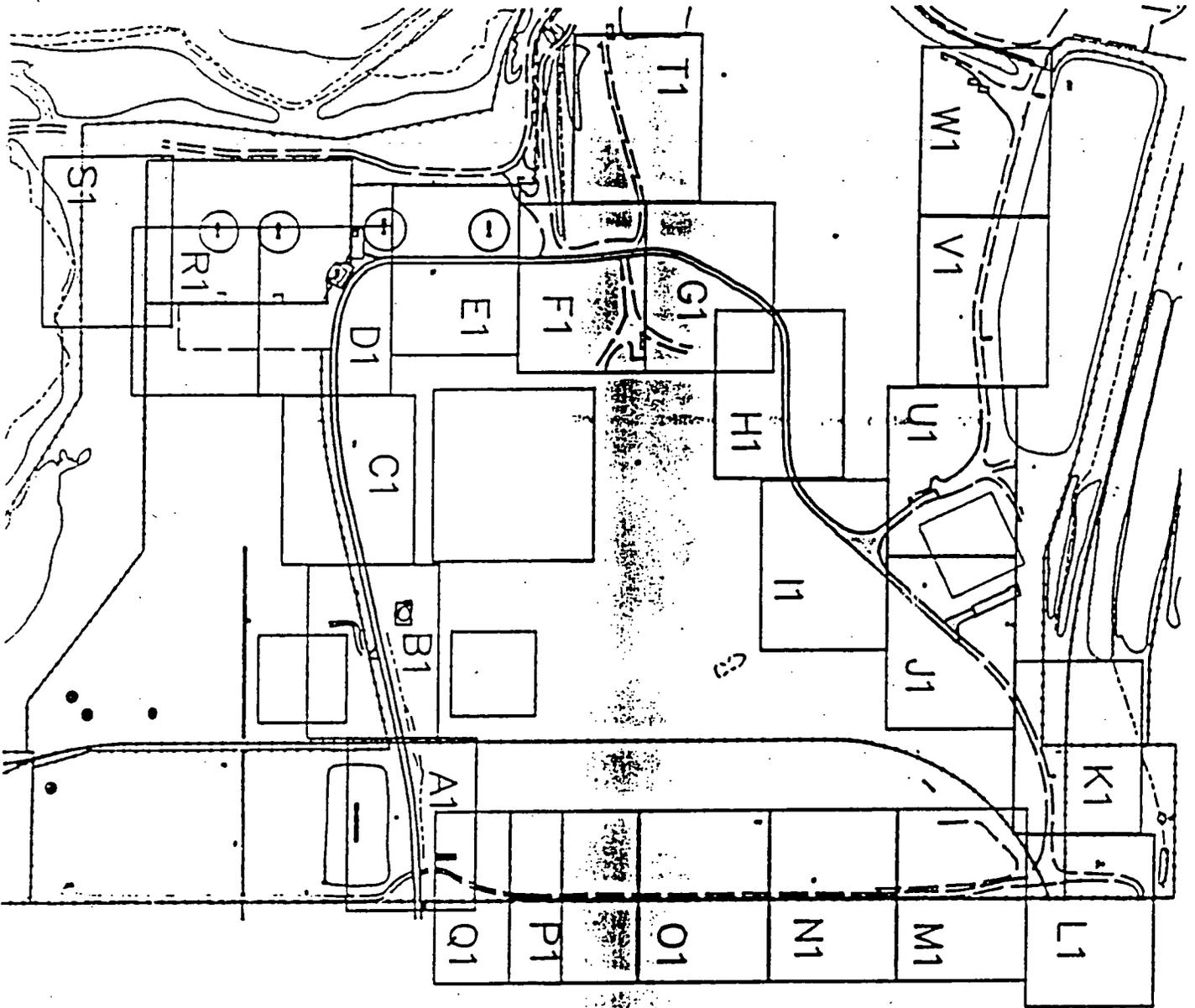
CRUI WASTE PIT AREA CONTAINMENT IMPROVEMENTS PROJECT

ROAD SURVEY'S

SURVEY I - BEFORE START OF PROJECT

SURVEY II - SURVEY AFTER PROJECT WAS COMPLETE

MDA = MINIMAL DETECTABLE ACTIVITY



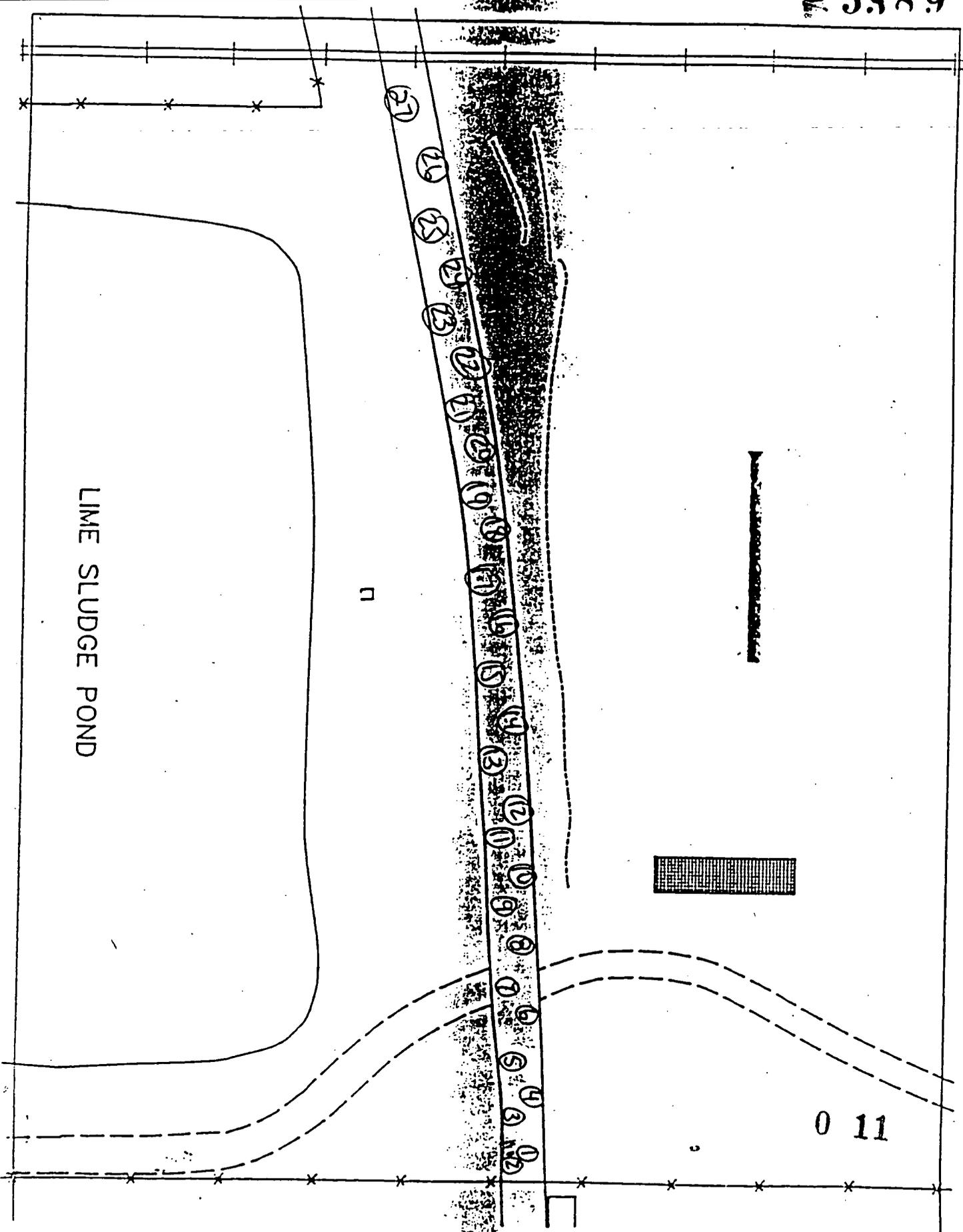
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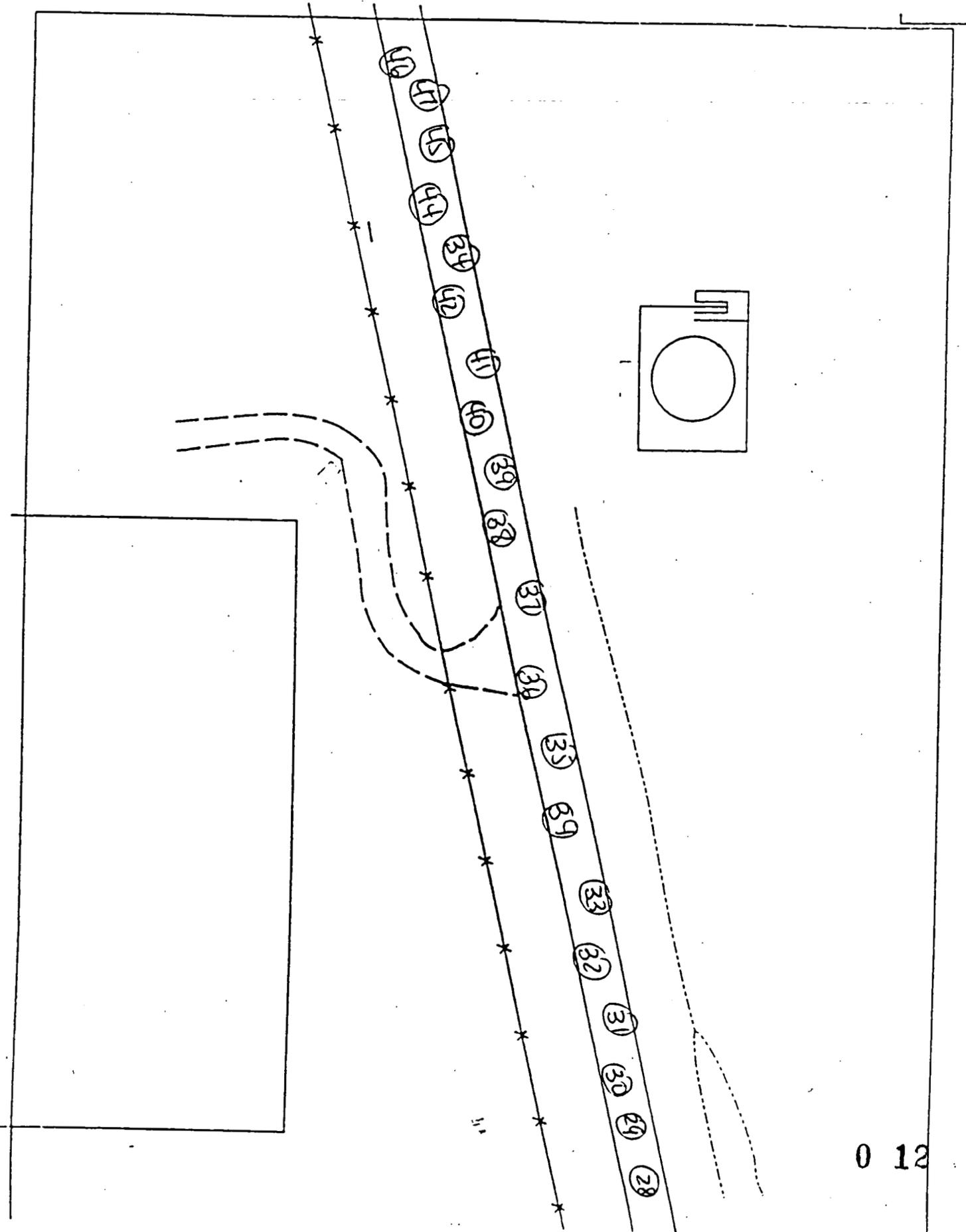
LIME SLUDGE POND

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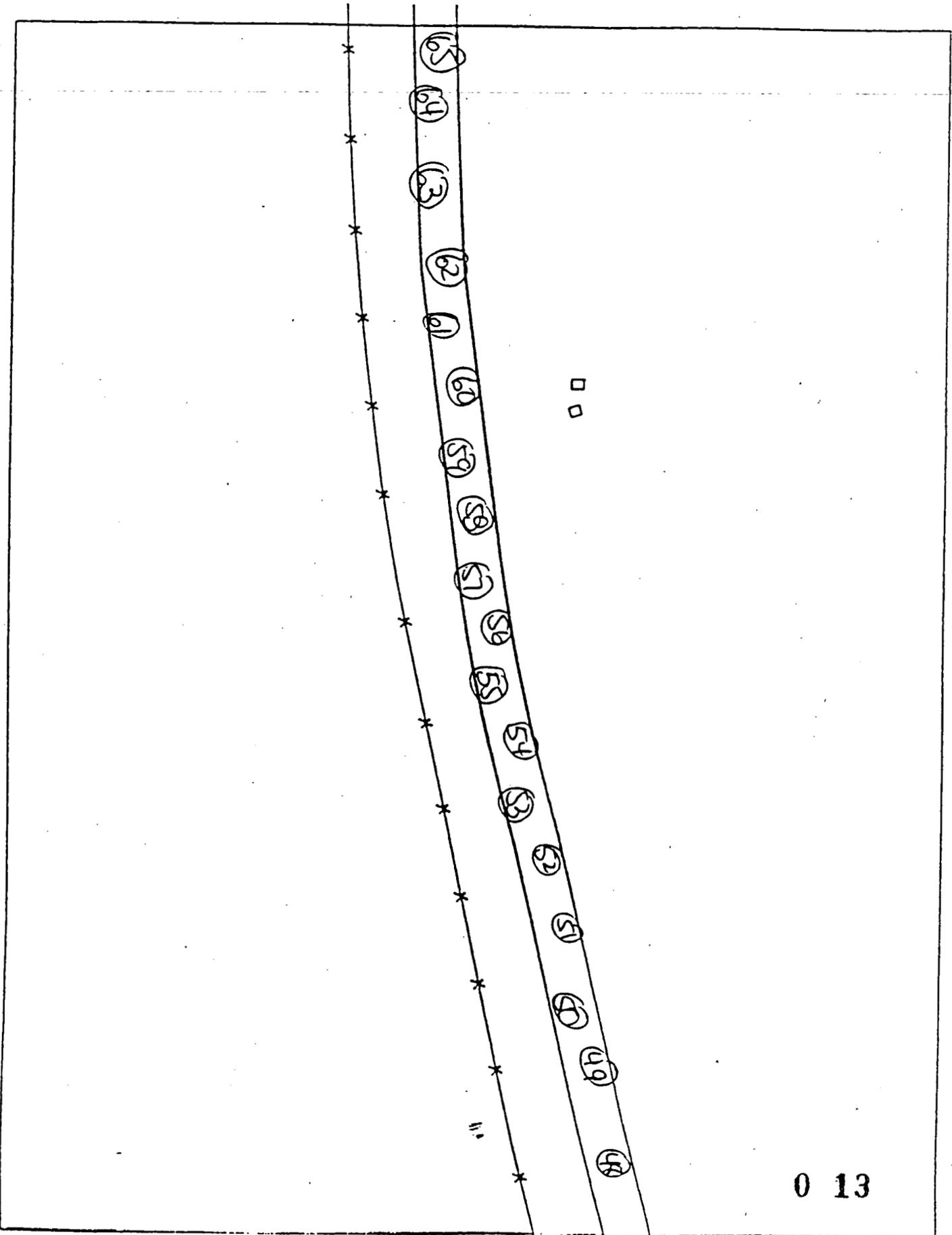
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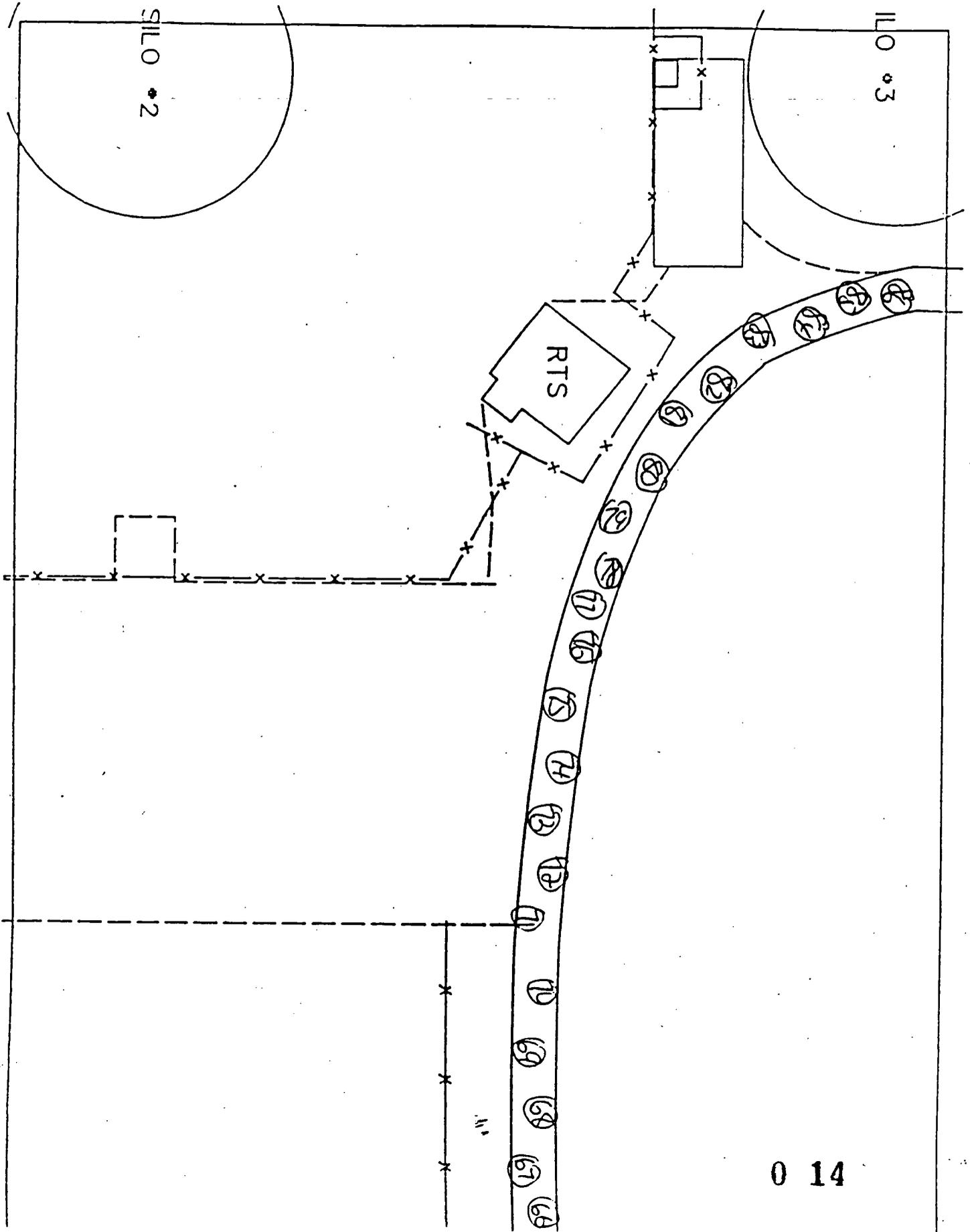
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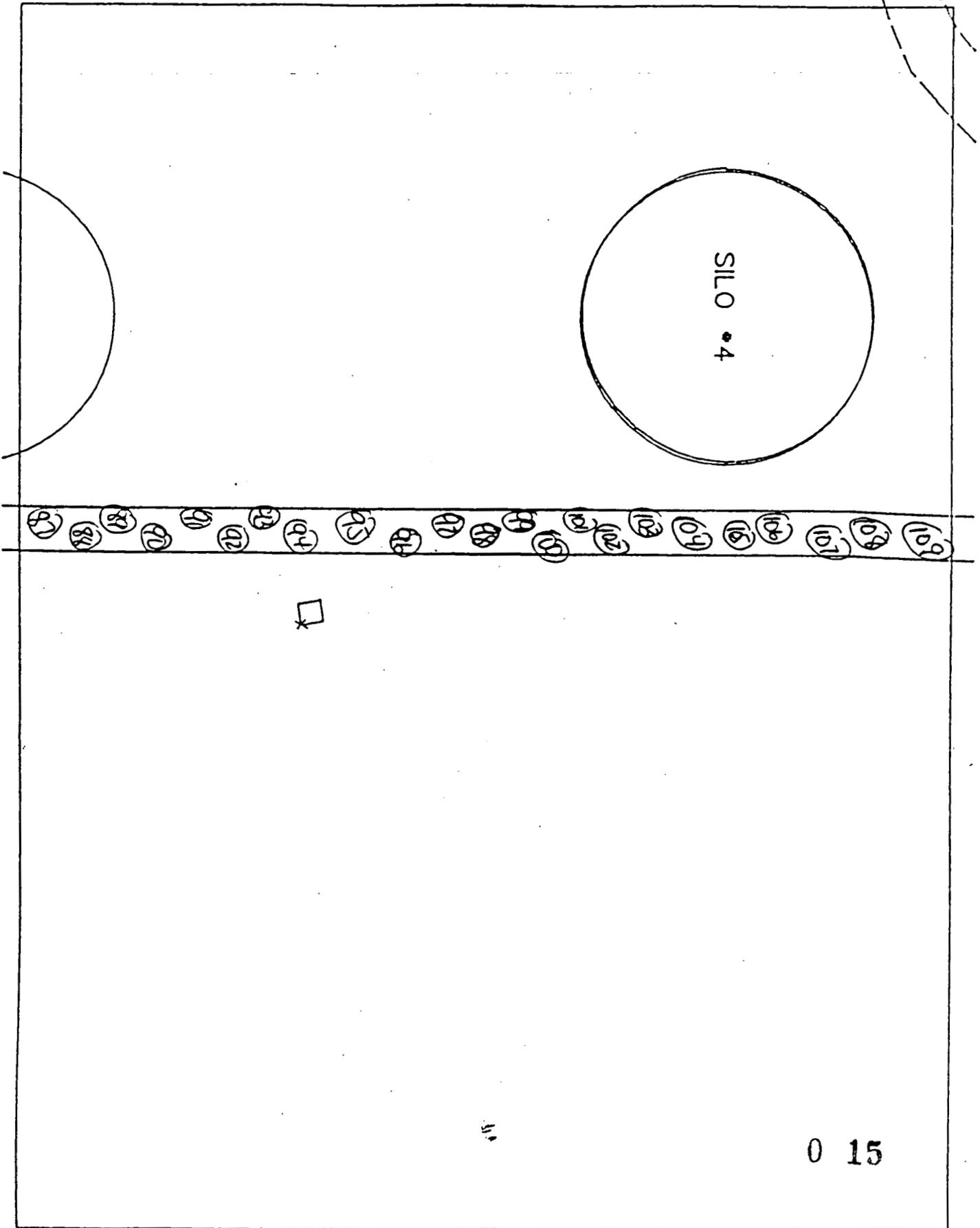




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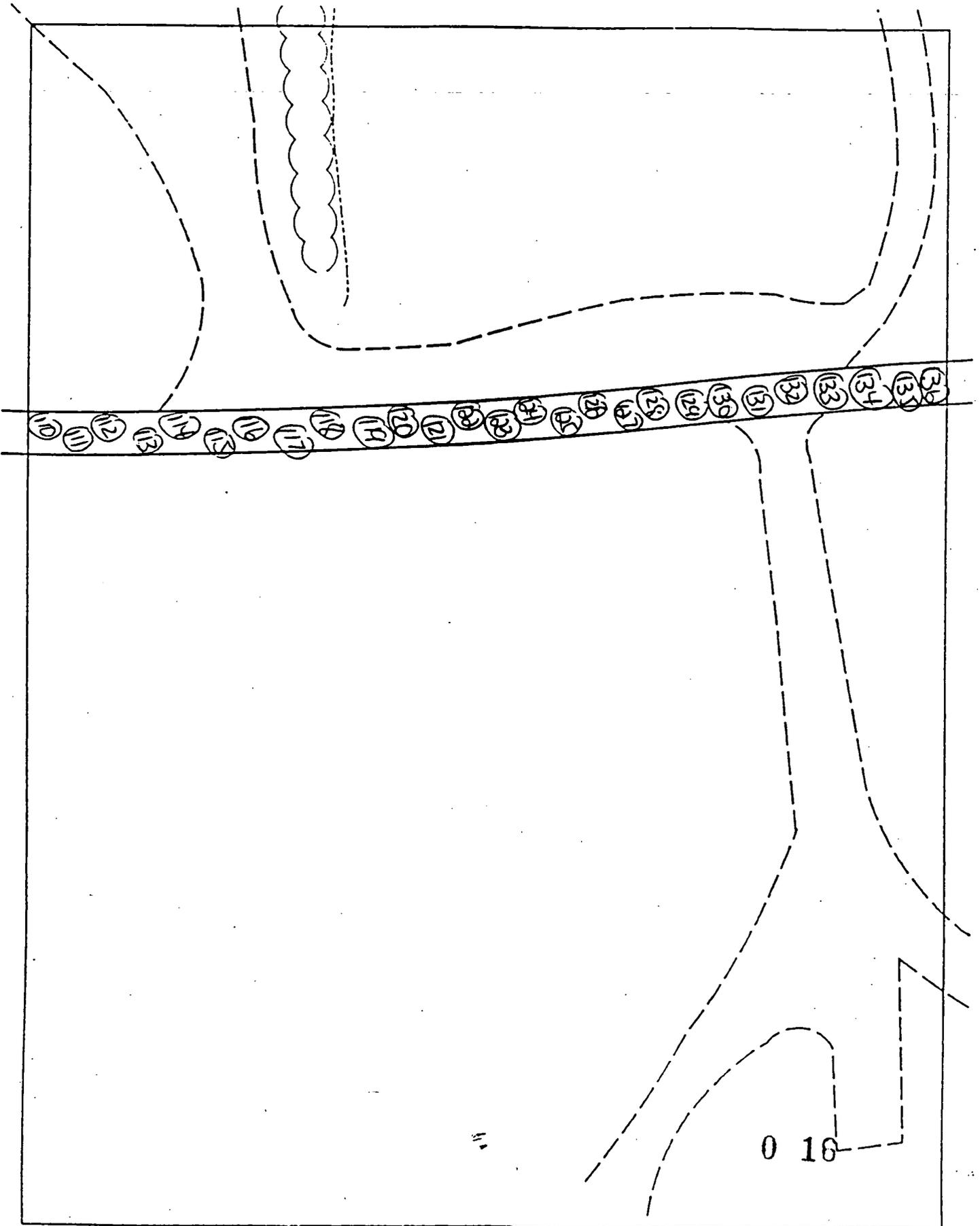




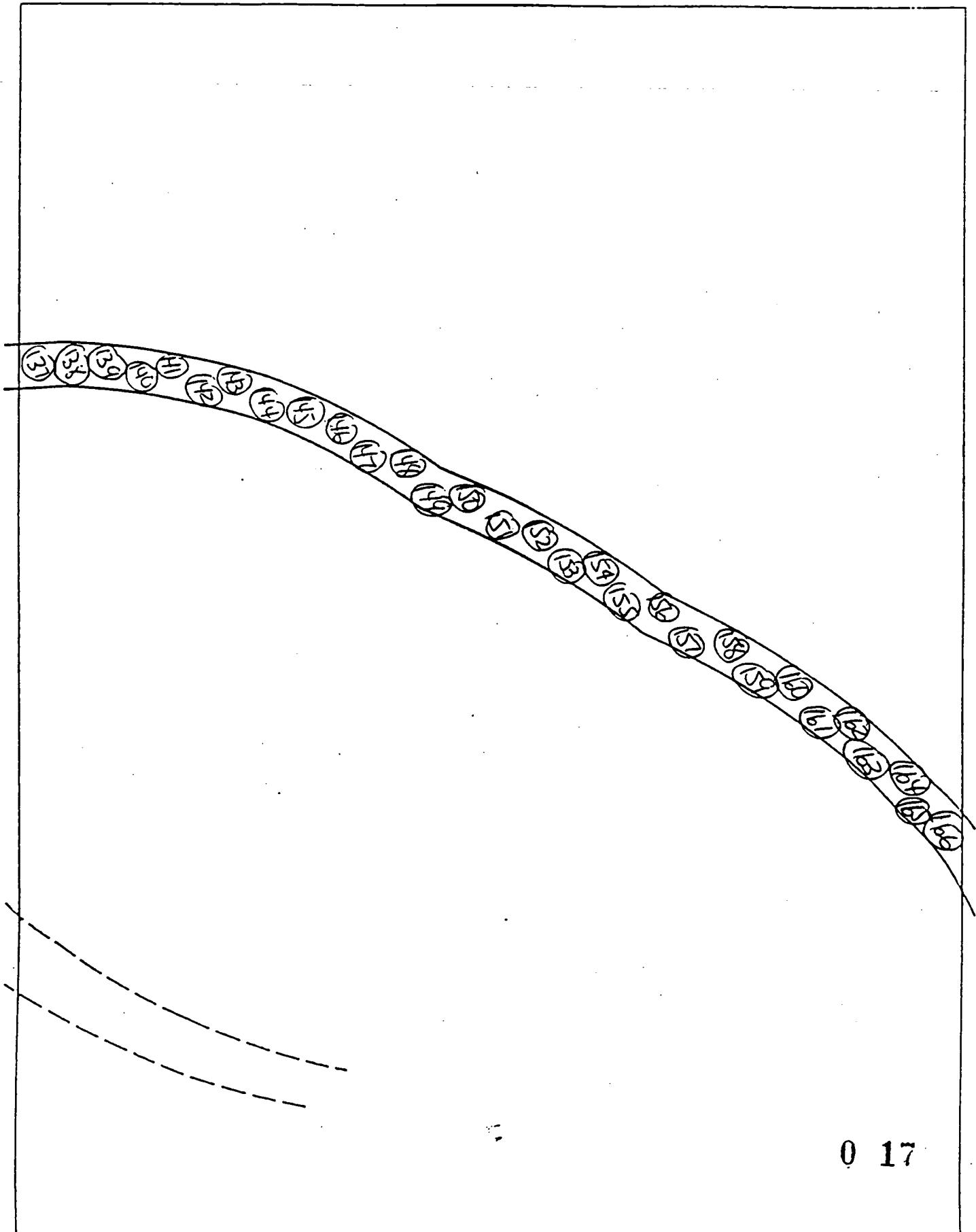


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HART 1



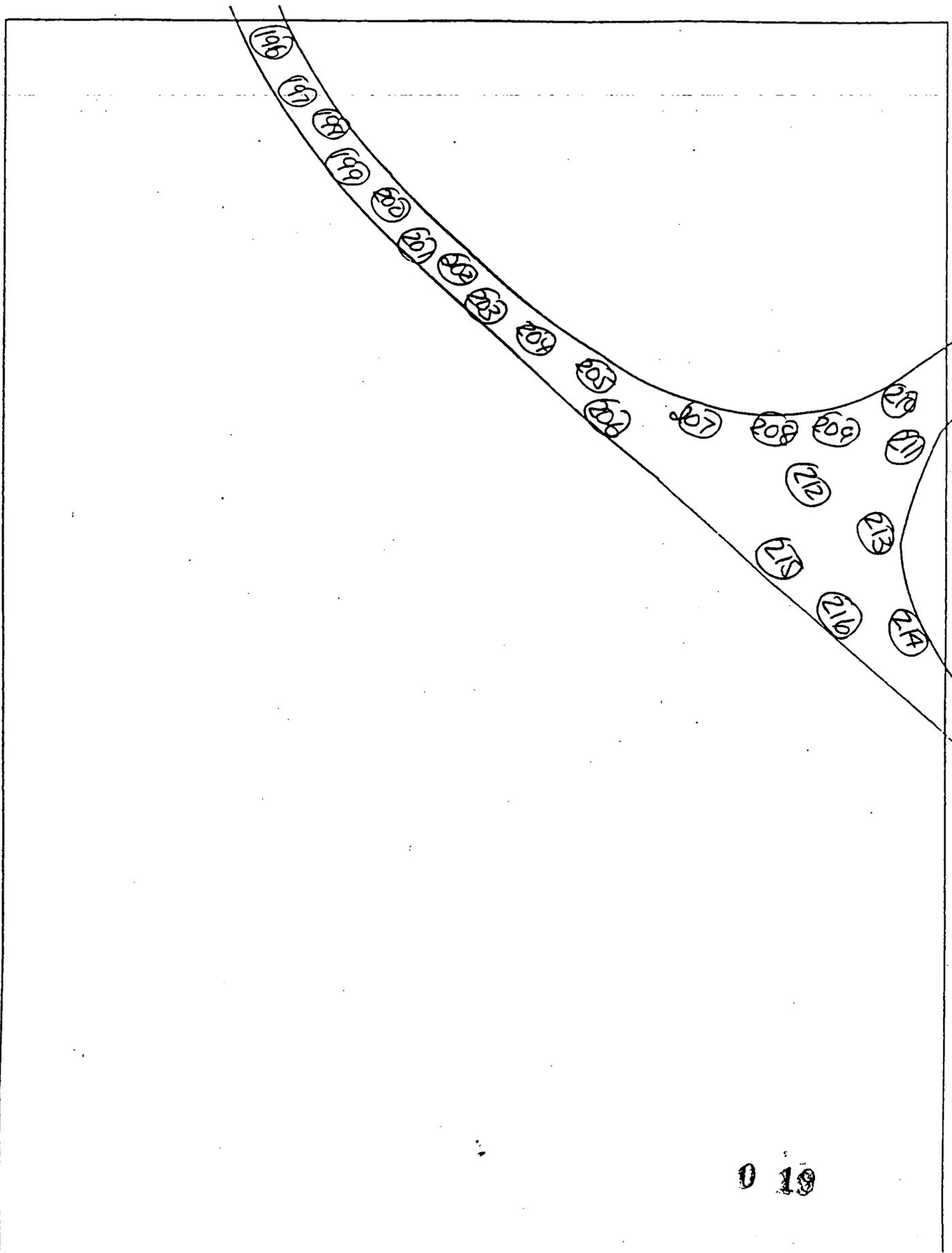
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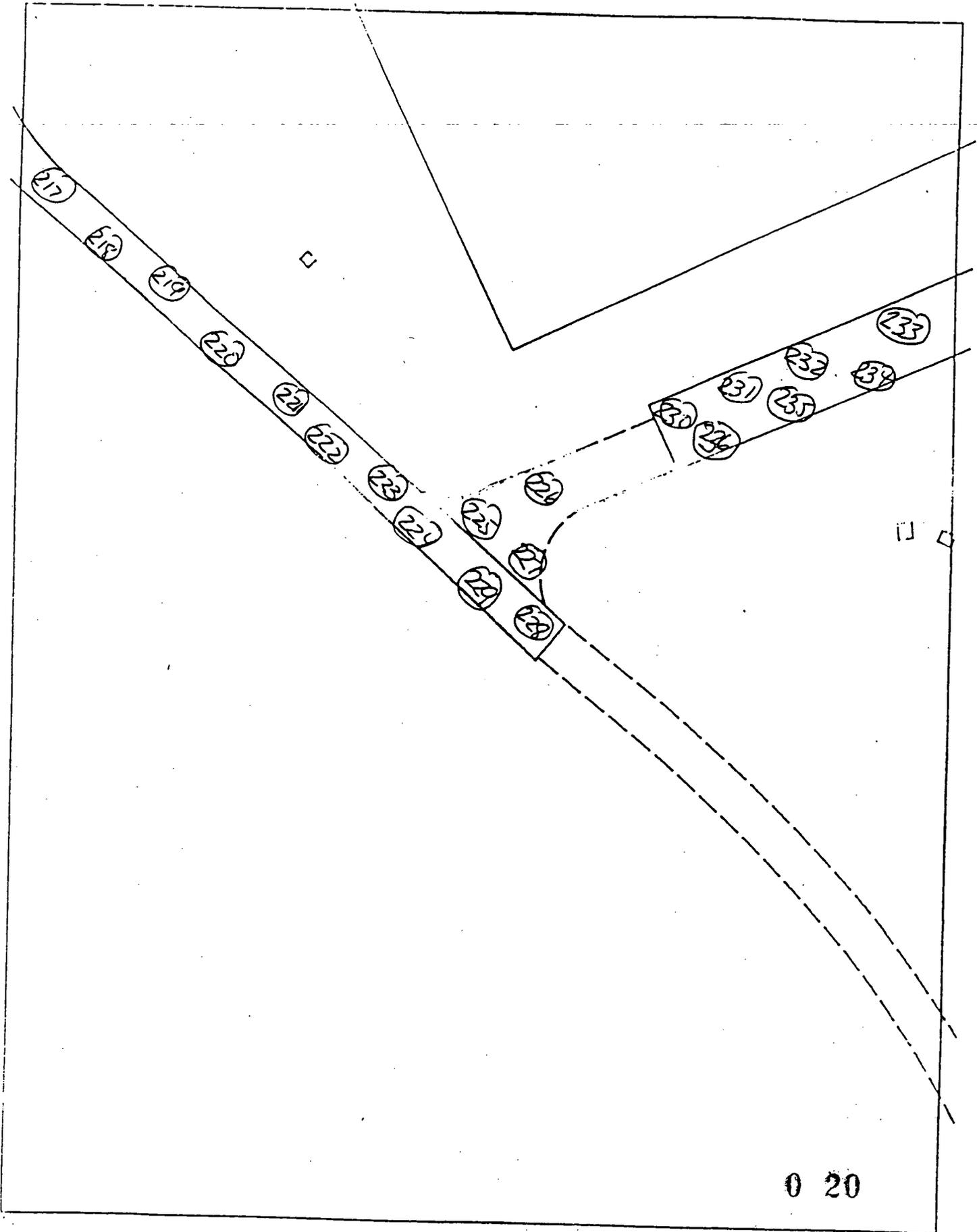


17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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PART 1





FEMP
RADIOLOGICAL SURVEY REPORT

5389
RmX-01-50

DATE: 7/17/93
 LOCATION: WSA
 LEVEL: 580
 REASON FOR SURVEY: SURVEY AREA Roped off For Controlled Area
 CRU-5
 1 of 4

INSTRUMENTS

MODEL	SERIAL NUMBER	TYPE (α, β, γ)	CALIBRATION DUE DATE	BK'D. (cpm)	EFF./CF	COUNT TIME (min)	MDA (cpm)	INSP./PERFORMANCE TEST DATE	
								YES	NO
m-3	77088	b ⁻ γ	9/93	60-90	.10/10	N/A	1000	✓	
m-3	77088	b ⁻ γ	9/93	60-90	.25/4	N/A	400	✓	
m-3	7312	b ⁺ γ	10/93	60-90	.10/10	N/A	1000	✓	
m-3	76312	b ⁻ γ	10/93	60-90	.25/4	N/A	400	✓	

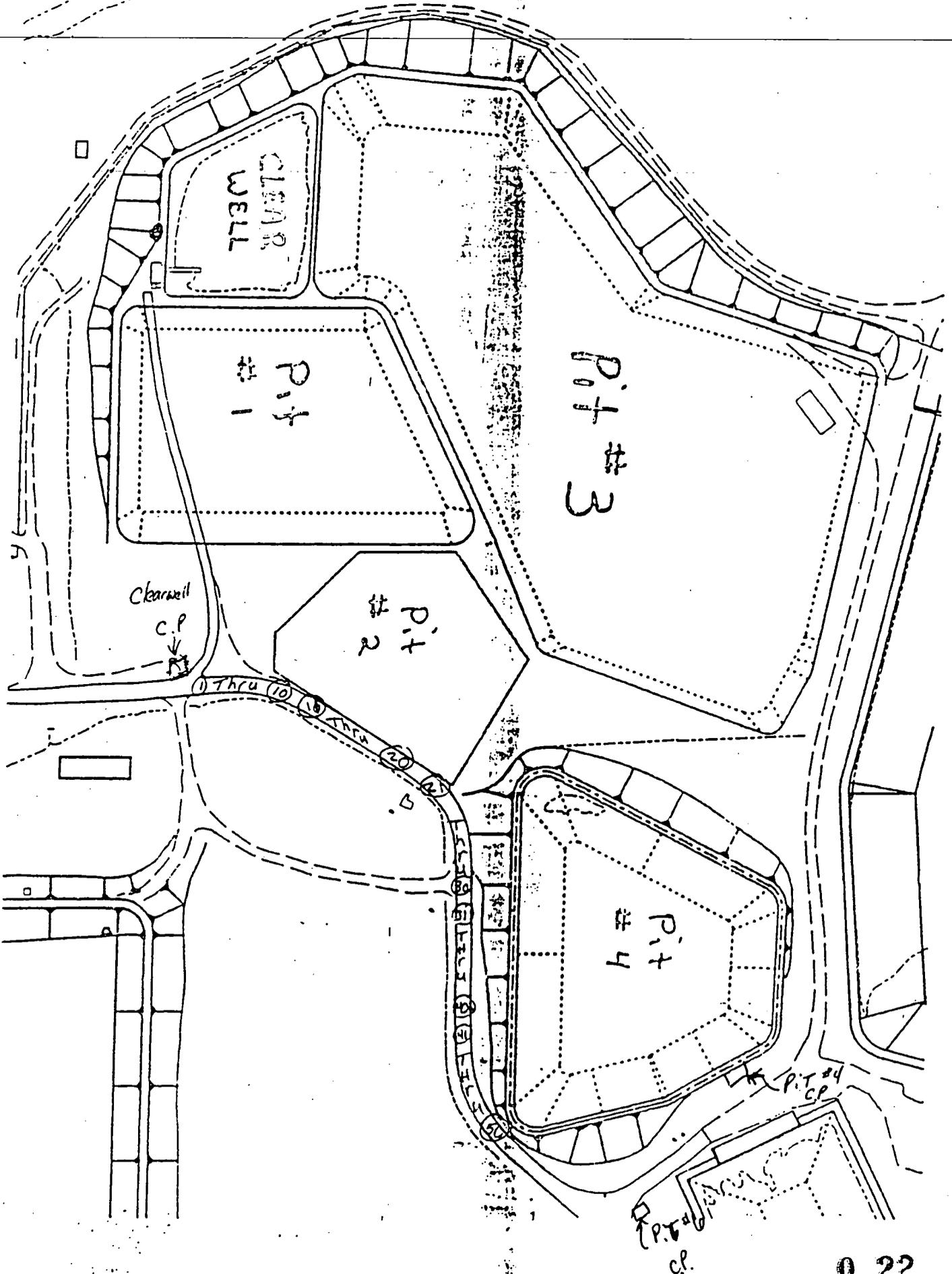
ITEM NUMBER	LOCATION AND/OR DESCRIPTION	HEIGHT (ft.)	DFM/100cm ² ALPHA		DFM/100cm ² BETA-GAMMA		CORRECTED DOSE RATE (MREM/HR)						
			REMOVABLE	FIXED PLUS REMOVABLE	REMOVABLE	FIXED PLUS REMOVABLE	γ	β	γ	β			
							CONTACT	CONTACT	AT FT.	AT FT.			
-100	PAVED ROADWAY	N/A			<mda								
101	GRAVEL ROADWAY	N/A			<mda								
102	NEW Sodded Area	N/A			<mda								
103	" " "	N/A			<mda								
104	RIP WRAP	N/A			<mda								
105	HOSE				<mda	<mda							
106	HOSE				<mda	2000							
107	HOSE				<mda	18000							
108	HOSE				<mda	3000							
109	HOSE				<mda	<mda					N/A		
110	GRAVEL parking Area				<mda	<mda							
	End Report												

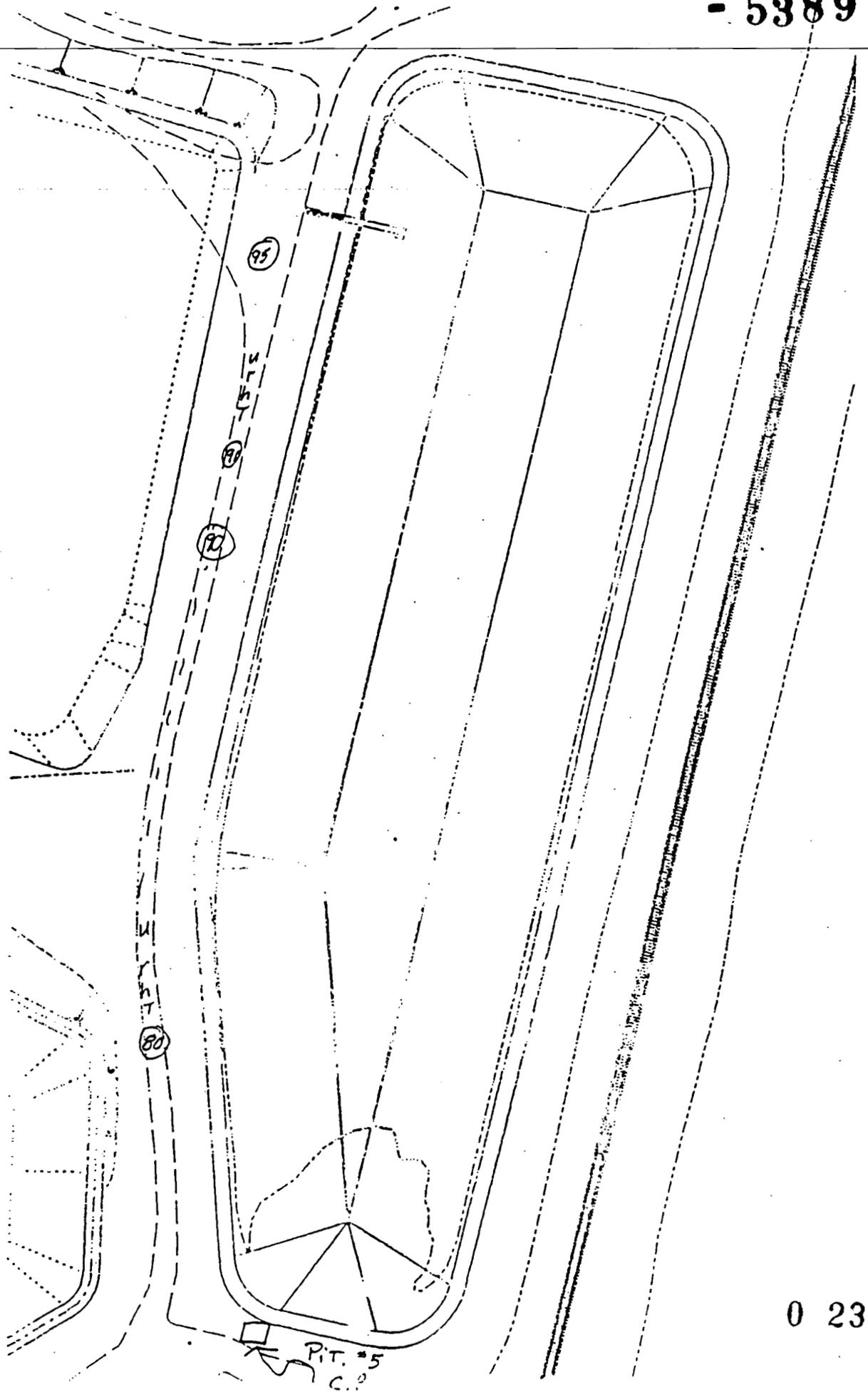
DISTRIBUTION OF COPIES

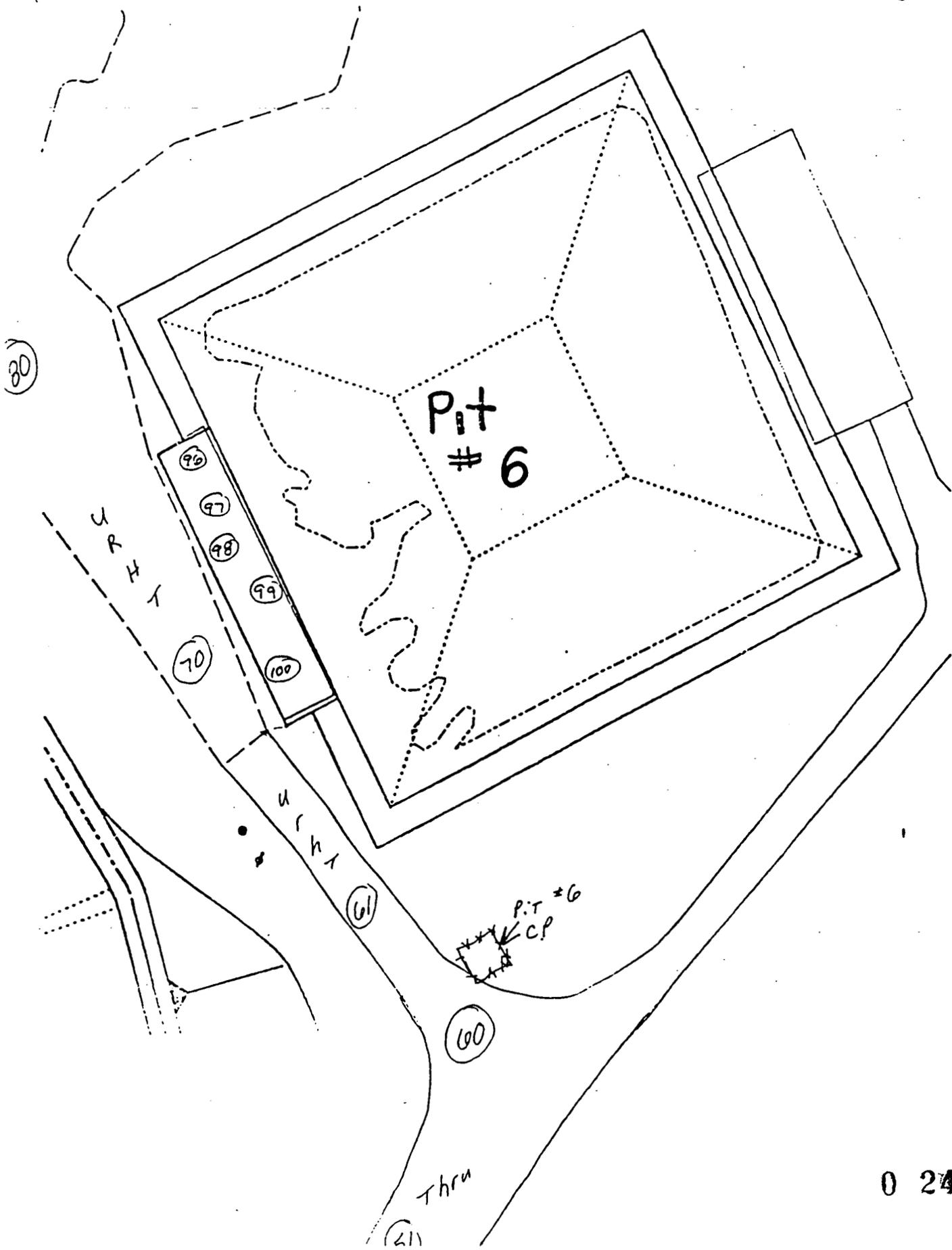
- ✓ RCT Supervisor
- ✓ Facility Supervisor
- ✓ CRU Manager

NOTIFICATION OF SURVEY RESULTS

SUPERVISOR NOTIFIED	TIME	DATE	NOTIFIED BY	REVIEWED BY	DATE
				0	21
					7-19-93



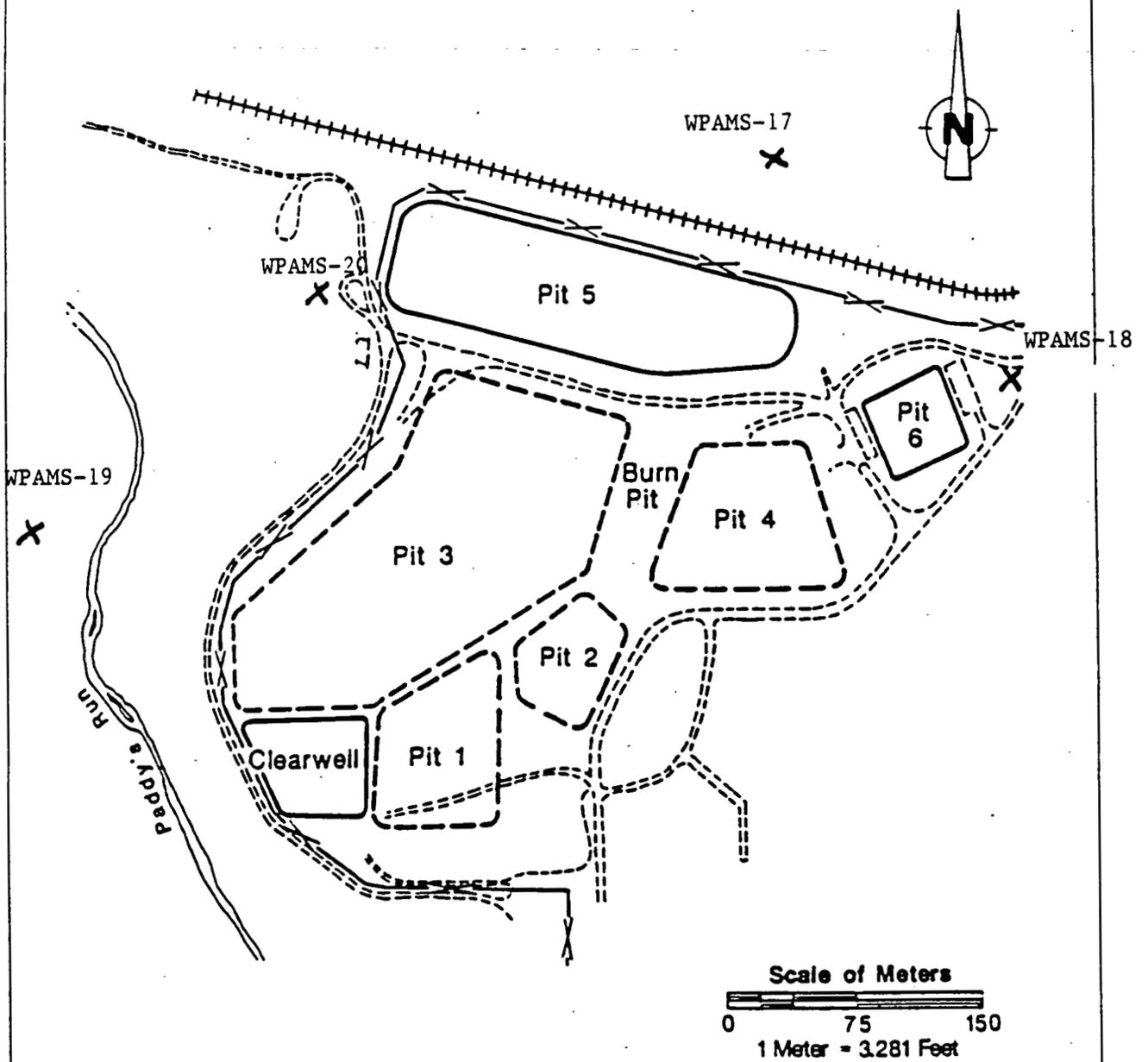




CRUI - WASTE PIT AREA CONTAINMENT IMPROVEMENTS

AIRBORNE EMISSION DATA

WASTE PIT AIR MONITORING STATION 17, 18, 19 AND 20



LEGEND

Operable Unit 1 consists of the Six Waste Storage Pits, The Clear Well and The Burn Pit.

x—x Fence

----- Covered Pit

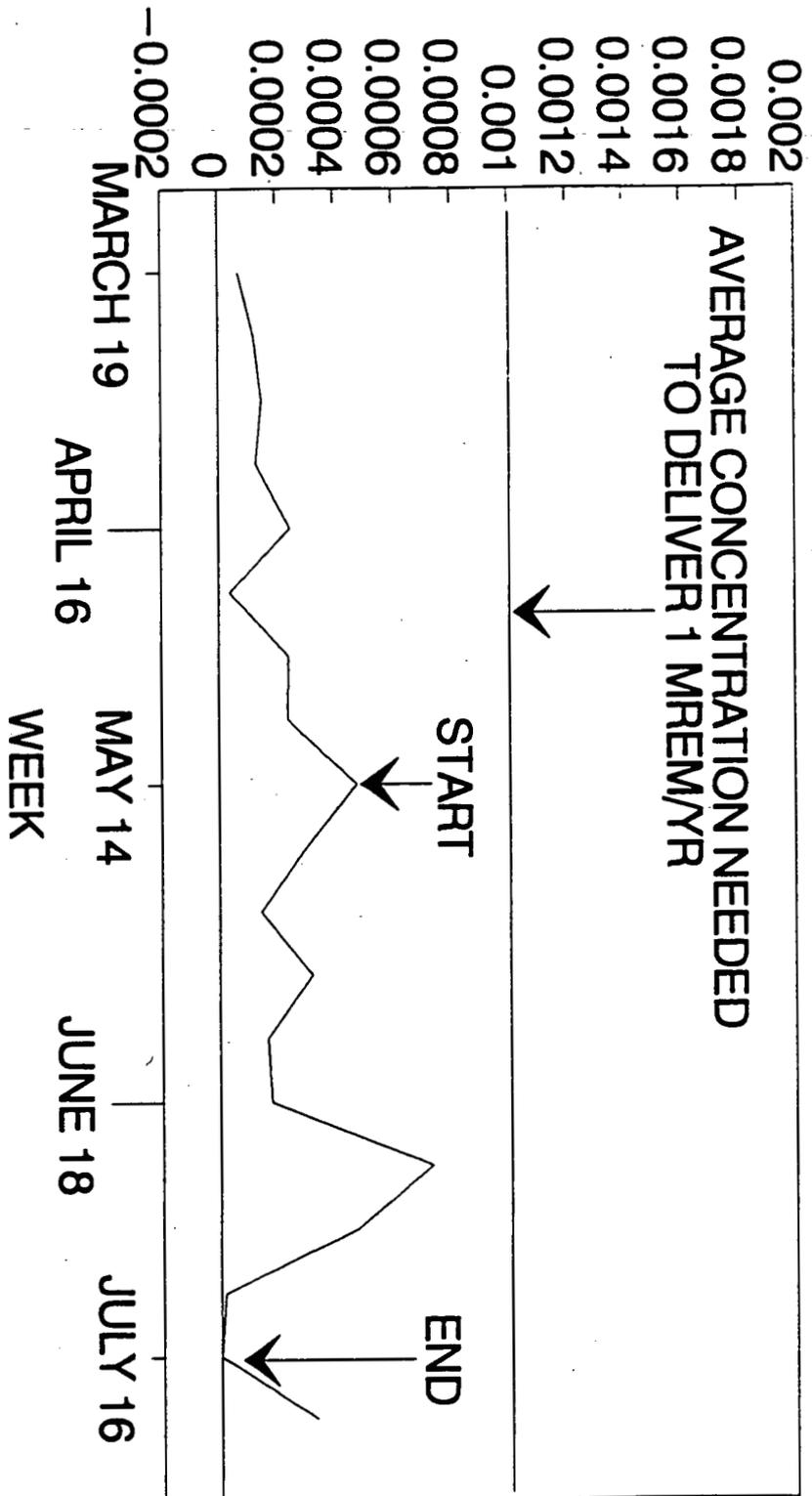
----- Roadway

+ + + + + Railroad Spur

pCi/m3

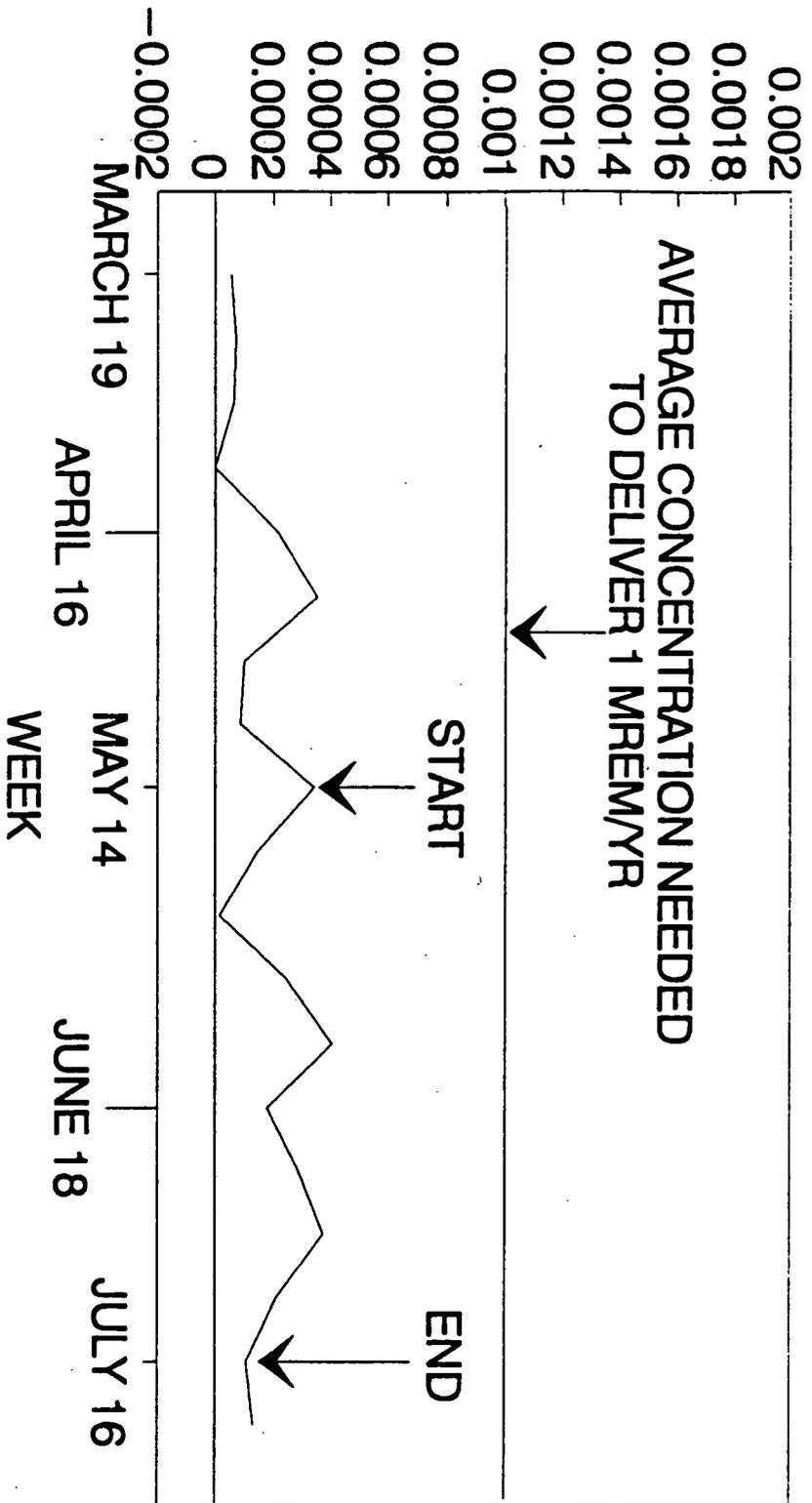
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URANIUM CONCENTRATION IN AIR
WASTEPIT AMS 20 MARCH 19 - JULY 23



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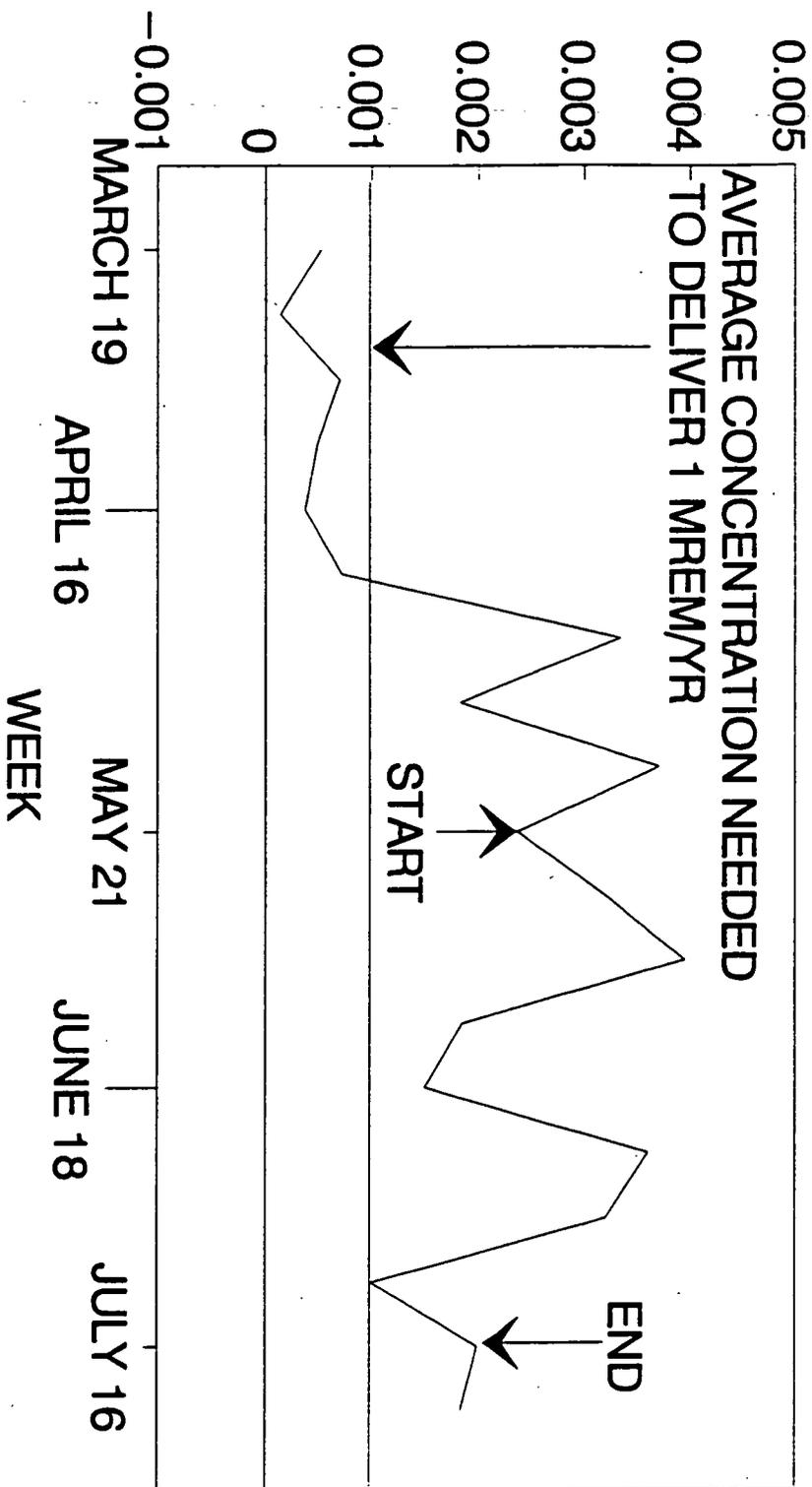
URANIUM CONCENTRATION IN AIR WASTEPIT AMS 19 MARCH 19 - JULY 23



pCi/m³

pCi/m³

URANIUM CONCENTRATION IN AIR WASTEPIT AMS 18 MARCH 19 - JULY 23



CONCENTRATION OF URANIUM IN AIR
WASTEPIT AMIS 17 MARCH 19 - JULY 23

