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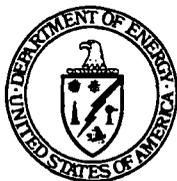
**DRAINAGE CONTROL INTERIM RESPONSE ACTION
ON SCENE COORDINATOR (OSC) REPORT**

**MOUND PLANT
MIAMISBURG, OHIO**

February 1996

FINAL

(Revision 0)



**Department of Energy
Ohio Field Office**

**Environmental Restoration Program
EG&G Mound Applied Technologies**

ENVIRONMENTAL RESTORATION PROGRAM

RELEASE BLOCKS K AND E

DRAINAGE CONTROL INTERIM RESPONSE ACTION

ON-SCENE COORDINATOR REPORT

MOUND PLANT

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EXECUTIVE SUMMARY

SITE: EG&G Mound

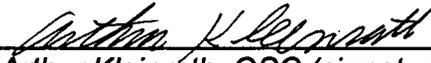
LOCATION: Miamisburg, Ohio

PROJECT DATES: August 3, 1994 - October 12, 1995

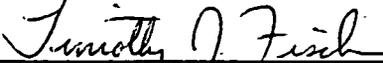
INCIDENT DESCRIPTION: The Mound Plant site is a 306-acre Department of Energy (DOE) research and development facility on the border of the City of Miamisburg in Montgomery County, Ohio. The USEPA placed the Mound Plant in Miamisburg, Ohio on the National Priorities List (NPL), as listed in 40 CFR Part 300, Appendix B, by publication in the Federal Register on 21 November 1989.

The Mound Plant initiated a Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA) program in 1984, originally under the auspices of the DOE Comprehensive Environmental Assessment Response Program (CEARP). The CERCLA program is assessing and evaluating the current risks, as necessary, for over 400 potential release sites. These potential release sites have been grouped into various operable units (OUs). Releases of radionuclide contamination into the environment occurred in areas upgradient of the response action as a result of operational incidents. The releases occurred in the 1960s and 1970s. On the basis of this consideration, the provisions of the NCP and CERCLA were implemented by the U.S. Department of Energy, Dayton Area Office (DAO), Dayton, Ohio.

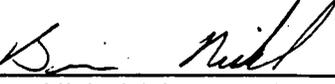
ACTIONS: A Removal Site Evaluation (RSE) provided an assessment of the potential exposure to radionuclide contaminants by migration during a storm event from known on-site contaminated source areas. The RSE provided a basis for the need for a removal action to mitigate potential radionuclide migration off site or onto the New Property, undeveloped land purchased by EG&G Mound in 1981, and contaminant exposure to human or animal populations. Preconstruction sampling was conducted on 24 January 1995. Construction began on 26 June 1995. Construction of the Drainage Control Interim Response Action was completed on 12 October 1995.

 3/2/96

Arthur Kleinrath, OSC (signature)
U.S. Department of Energy
Dayton, Ohio

 3/27/96

Tim Fischer (signature)
U.S. EPA



Brian Nickel (signature)
Ohio EPA

I. SUMMARY OF EVENTS

A. Site Conditions and Background

1. Initial Situation

The Mound Plant is a 306-acre Department of Energy (DOE) research and development facility on the border of the City of Miamisburg in Montgomery County, Ohio (Figure 1). The facility, approximately 10 miles south-southwest of Dayton and 45 miles north of Cincinnati, historically studied the chemical and metallurgical properties of various radiological materials in support of DOE. The area surrounding the plant is light residential and rural farm land. Past releases of radioactive materials have occurred at the facility. The Drainage Control Areas are located near the following release sites identified at the Mound Plant (DOE 1993b):

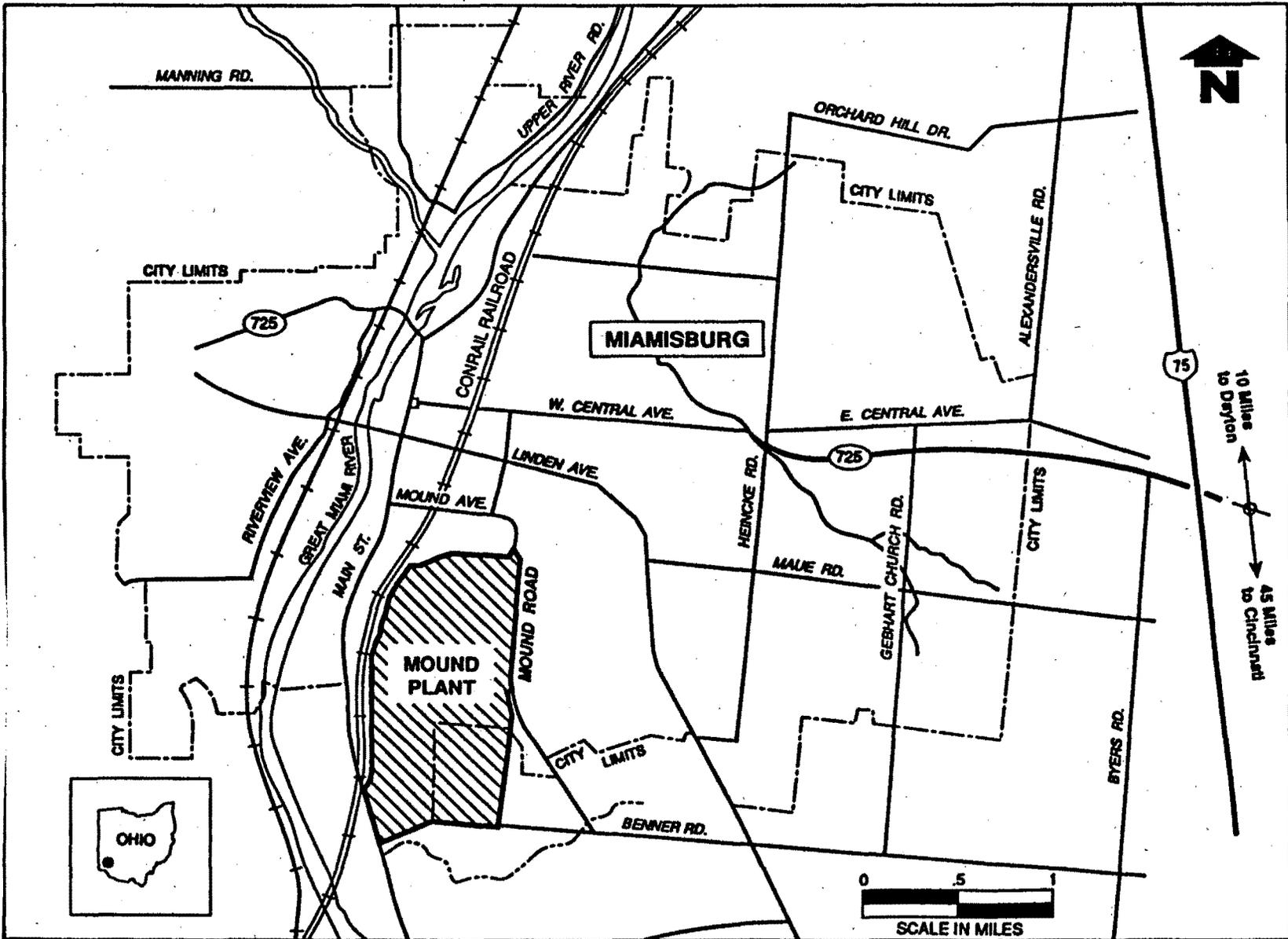
- Area 1, Bulk transfer of thorium
- Area 22, Orphan soil area
- Area 3, Thorium drum storage; Building 72 Hazardous Waste Storage Area
- Building 19 surface soils

One drainage control action is located in the west-central portion of the Mound Plant near Building 19, and the other is located at the southern boundary of the Operable Unit 5 Old Property. Figure 2 presents the intercept Drainage Control site location.

2. Location of Hazardous Substances

Radiologically contaminated soils around Building 21 and two waste storage areas are located adjacent to the South Drainage excavation. A hazardous waste accumulation area in Building 72 is located adjacent to the Building 19 Drainage excavation.

Figure 1
Physical Location of the Mound Plant



Mound location map/7-28-83

Location of Mound Plant, Miamisburg, Ohio.

3. Cause of Release or Discharge

As a result of operational incidents at Mound involving radioactive materials, a portion of the site has been contaminated. The following two areas are being assessed by the Mound Environmental Restoration/CERCLA group with regard to future action:

- Areas adjacent and upgradient to Building 19:

A Mound project analyzed soil samples collected from the areas of concern adjacent to Building 19. Several samples showed elevated levels of plutonium-238 and unspecified isotopes of thorium (see *Operable Unit 9 Site Scoping Report: Volume 3—Radiological Site Survey (Final)* (DOE June 1993) for sampling locations and detailed results). The plutonium contamination may have resulted from runoff caused by the rupture of the waste transfer system (WTS) line between the Waste Disposal (WD) Building and the SM/PP area in 1969 or by the clean-up operations that followed the rupture. This event resulted in contamination of the off-site area, known as the runoff hollow, west of the property fence line near Building 19. Thorium contamination may have resulted from thorium redrumming and storage operations in nearby areas.

- Areas adjacent and upgradient to the South Boundary separating the New Property from the Old:

A Mound site survey project analyzed soil samples collected from the areas of concern upgradient of the fenced boundary separating the old property from the new. The primary area of concern, designated as Area 1, is located near Building 21 and the contaminated soil box storage area. While presently stable, near future remedial plans include the demolition of Building 21 and the removal of contaminated soils from the area. Building 21 was used for bulk storage of thorium compounds. Area 1 was used for storage of plutonium-238 waste packages in the

mid-1960s and for storage and repackaging of thorium sludge from 1966 to 1974. Several soil samples showed elevated levels of plutonium-238 and thorium (see DOE, 1993a for sampling locations and detailed results).

4. Efforts to Locate and Obtain Response from Responsible Parties (RP)

Since the DOE is the lead agency at Mound under CERCLA, and the plutonium and thorium contamination is most likely from past Mound operations, no other Potentially Responsible Parties (PRPs) were contacted to clean up the site.

B. Organization of Response

Table 1 lists the groups responding to the Action, and their responsibilities.

C. Injury or Possible Injury to Natural Resources

1. Content and Time of Notice to Natural Resource Trustees

Not applicable

2. Trustee Damage Assessment and Restoration Activities

Not applicable

Table I
Organization of the Response

Names and Addresses	Contact	Brief Description of Duties
U.S. Department of Energy Miamisburg Area Office P.O. Box 66 1 Mound Road Miamisburg, OH 45343-3000 (513) 865-3597	Arthur Kleinrath, On-scene Coordinator	Responsible for oversight of removal action.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Monte Williams, ER Program Manager	Responsible for overall site management.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Gary Coons, ER Project Manager	Responsible for general site administration.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Dean Buckner, Field Engineer	Provided field support for contractors when dealing with Mound Plant operations.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Joyce Giesler, Construction Inspector	Located underground utilities and ensured conformance with project specifications.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Michael O'Donahue, Health Physics Supervisor	Coordinated and ensured that Health Physics support during earth disturbing activities.
EG&G Mound Applied Technologies P.O. Box 3000 Miamisburg, OH 45343-3000 (513) 865-4020	Tom Beal, Safety Coordinator	Ensured that Mound Plant safety procedures and policies were followed.
U.S. Environmental Protection Agency HSRM-6J 77 West Jackson Street Chicago, IL. 60604 (312) 886-5787	Tim Fischer, USEPA Project Manager	Provided federal agency review of site documents.

Table I
Organization of the Response

Names and Addresses	Contact	Brief Description of Duties
Ohio Environmental Protection Agency 401 East Fifth Street Dayton, OH 45402-2911 (513) 285-6456	Brian Nickel, OEPA Project Manager	Provided state agency review of site documents.
Roy F. WESTON, Inc. 11840-D Kempersprings Drive Cincinnati, OH 45240 (513) 825-3440	William M. Little, Project Manager	Responsible for WESTON management and overview.
Roy F. WESTON, Inc. 11840-D Kempersprings Drive Cincinnati, OH 45240 (513) 825-3440	Gordon Horn, P.E., Alternate Project Manager	Responsible for WESTON and EG&G Mound coordination.
Roy F. WESTON, Inc. 11840-D Kempersprings Drive Cincinnati, OH 45240 (513) 825-3440	Barry Franz, P.E., Principle Investigator	Responsible for day to day management activities.
Roy F. WESTON, Inc. 11840-D Kempersprings Drive Cincinnati, OH 45240 (513) 825-3440	Michael Szabo, P.E., Project Superintendent	Managed general on-site activities and subcontractors. Site contact for EG&G Mound.
Roy F. WESTON, Inc. 11840-D Kempersprings Drive Cincinnati, OH 45240 (513) 825-3440	Michael Szabo, P.E., Site Safety Officer	Conducted daily site safety meetings and air monitoring. Responsible for overall site safety.
Applied Science & Technology, Inc. 8401 Claude Thomas Rd., Suite 58 Franklin, Ohio 45005 (513) 743-0002	Robert H. Welsh, Project Manager	Removal contractor project manager responsible for subcontractors and for providing labor and equipment for removal action.
Applied Science & Technology, Inc. 8401 Claude Thomas Rd., Suite 58 Franklin, Ohio 45005 (513) 743-0002	Keith Holmes, Project Manager	Removal contractor project manager responsible for subcontractors and for providing labor and equipment for removal action.
Applied Science & Technology, Inc. 8401 Claude Thomas Rd., Suite 58 Franklin, Ohio 45005 (513) 743-0002	Keith Holmes, Project Superintendent	Field manager for the labor and equipment and subcontractors used during the removal action.

D. Chronological Narrative of Removal Activities

1. Threat Abatement Actions Taken

The following is a chronological narrative of major events, as they occurred at the Drainage Control Sites, derived from communication memoranda, phone conversation logs, photo documentation, and site logs.

- 14 December 1994: The Operable Unit 5, Environmental Response Program, Drainage Control Interim Response Action, Action Memorandum/Removal Site Evaluation submitted to USEPA.
- 24 January 1995: Pre-Construction sampling conducted at Building 19 Drainage and South Drainage (near Building 21).
- 26 June 1995: Initial excavation of South Drainage began. Several delays in excavation occurred while a determination was made for staging of excavated soils.
- 11 July 1995: Excavated soils from the west driveway to Building 21 had elevated radiological readings as detected by Health Physics on a FIDLER. Work was stopped until soils could be collected and analyzed by soil screening Gamma scan at the Mound Lab. The Gamma scan is a quick scan which gives quantitative results. These results included PU-238 of < 148.3 pCi/g and TH-232 of 5.93 pCi/g. According to Mound personnel, values were not a Health and Safety concern at the levels encountered. Soils with elevated FIDLER readings,

SUMMARY OF EVENTS—Chronological Narrative of Removal Activities

approximately 50 cubic yards, were stockpiled separately for later disposal by Mound

Decontamination and Decommissioning (D&D). Prior to disposal the soil was analyzed by Mound Lab using Gamma Spectrometry. Based on these results the soil was disposed of at the Mound Spoils area.

- 18 July 1995: Interim Response Action Final Work Plan Submitted. First concrete placed in the trench for South Drainage.
- 26 July 1995: Petroleum Hydrocarbons encountered in the excavation at the first driveway east of Building 21. Soil was staged separately. Mound Industrial Hygiene was immediately contacted at the first indication of a petroleum hydrocarbon odor. Mound Industrial Hygiene scanned with a Photo-Ionization Detector (PID) and Draeger tubes to determine the level of contamination. Excavation stopped until an amendment to the Health and Safety Plan (HASP) concerning excavation in a petroleum contaminated area is submitted and approved. Lightning alert issued by Mound.
- 23 August 1995: Completed Excavation of South Drainage.
- 5 September 1995: Began excavation of Building 19 Drainage trench and storm sewer.
- 6 September 1995: Over-excavation required of 40-foot section of trench by 18 inches because of poor subsoil conditions. The over excavated area was returned to the proper grade

SUMMARY OF EVENTS—Chronological Narrative of Removal Activities

by backfilling with 2 to 3 inch stone. Installation of storm sewer initiated.

- 11 September 1995: Concrete placement started on the Building 19 Drainage project.
- 25 September 1995: Excavation of Building 19 trench completed and backfilling and grading begin where concrete trench has been completed.
- 29 September 1995: The replacement water main pipe was installed after the storm sewer was installed. One of the fittings on the new pipe failed after pressure was applied to the system, as a result of a poor seal to the asbestos cement pipe (ACP). (The failure was caused by an incompatibility of the fitting with the existing ACP pipe, which had a non-standard size outside diameter.)
- 10 October 1995: Metal grating installed in trench at South Drainage and Building 19 Drainage. Final grading completed at South Drainage. Preparations were made for asphaltting at both South Drainage and Building 19 Drainage. Final portion of concrete trench wall and manhole base placed at Building 19 Drainage.
- 12 October 1995: Final excavation completed, and 50-foot section of 12-inch storm sewer installed. First layer of asphalt placed at South Drainage. Drainage control system is functionally complete.

SUMMARY OF EVENTS—Chronological Narrative of Removal Activities

- 16 October 1995: All asphalt placed at South Drainage and Building 19 Drainage as well as an additional area requested by Mound. An asphalt curb was to be installed along the section of Building 19 roadway. All final grading completed at Building 19 Drainage. All seeding at both South Drainage and Building 19 Drainage completed.
- 17 October 1995: Asphalt curb installed along roadway by Building 19.
- 24 October 1995: All fieldwork activities completed.

2. Treatment, Disposal, Alternative Technology Approaches Pursued and Followed

Sampling was conducted prior to construction to determine if any radiological contamination existed in the proposed area of excavation which would have required action. The results of the samples, which were collected at 50-foot intervals along the length of both Drainage Structures, were below the levels which would have required removal prior to the excavation.

During excavation activities, Mound Health Physics personnel continuously screened the soils with a FIDLER to monitor for potential radiological contamination. The FIDLER was used for qualitative measurement of radiological contamination. If the FIDLER registered values above background, then a sample was collected and analyzed by Gamma Scan at the Mound Rad Laboratory to get a more accurate quantitative result of the radiological contamination.

Elevated readings were detected on the FIDLER during excavation through the driveway west of Building 21. Samples were collected then analyzed by the Mound Rad Laboratory. Approximately 50 cubic yards of soil, were excavated. They were segregated by stockpiling in separate location and covered with plastic for later

analysis and disposal by Mound personnel. The soils were later analyzed by the Mound Rad. Laboratory using Gamma Spectrometry. Based on the Gamma Spectrometry results the soils did not contain elevated levels of PU-238 or TH-232, therefore the soils were disposed of in the Mound spoils area.

Petroleum hydrocarbon contaminated soils were encountered during excavation through the driveway east of Building 21. Soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX). Approximately 45 cubic yards of soil, were stockpiled in a separate location and covered with plastic during analysis for TPH and BTEX and additional radiological analysis. The offsite analytical analysis concluded BTEX concentrations were below action levels. Based on Gamma Spectrometry results the soils did not contain elevated levels of PU-238 or TH-232. The soils were thus disposed of in the Mound spoils area.

Field testing was conducted on each load of concrete to verify that the concrete met the requirements of the specifications. Concrete cylinders (a set of 4) were made daily for every 25 yards of concrete placed each day. The cylinders were broken at 7-day (1), 28-day (2), and 56-day (1 if required) to determine the strength of the concrete. The design called for a 4000 psi concrete.

Excavated soils which were unsuitable for use as backfill were disposed of in the on-site Spoils Area.

3. Public Information and Community Relations Activities Taken

The intent of the removal action (Drainage Control Interim Response Action) was described during a public information meeting held on 16 February 1995 at the Mound Action Committee meetings in the Miamisburg Civic Center. Documents were made available for public comment and response from 25 January 1995 through 28 February 1995.

E. Resources Committed

A Removal Site Evaluation was prepared as specified in Section 300.410 of the NCP (40 CFR 300.410) and incorporated into the Action Memorandum. The Action Memorandum/Removal Site Evaluation (AM/RSE) provided an assessment of the potential exposure to radionuclide contaminants by migration during a storm event from known on-site contaminated source areas. The RSE provided a basis for the need for a removal action to mitigate potential radionuclide migration off site or onto the New Property, undeveloped land purchased by EG&G Mound in 1981, and contaminant exposure to human or animal populations. The RSE concluded that a threat of potential exposure exists and a removal action is warranted.

Since this was a non-Fund Federal lead action and authorization of Superfund money was not required, conceptual cost estimates were not included in the RSE. Costs based on the contract award and change orders resulting from changed conditions in the field totaled \$783,159 for the construction of the two drainage structures.

II. EFFECTIVENESS OF THE REMOVAL

A. Actions Taken by Potentially Responsible Parties (PRP' s)

There were no PRPs other than DOE for involvement in the removal action.

B. Actions by State and Local Agencies

Ohio EPA provided state agency review of site documents. There was no local agency involvement in the removal action.

C. Actions Taken by Federal Agencies and Special Teams

The Department of Energy was responsible for oversight during the removal action and provided review of site documents. No other federal agency or special teams were involved in the removal action.

D. Actions Taken by Contractors, Private Groups, and Volunteers

WESTON acted as prime contractor on the Drainage Control Project, overseeing the construction subcontractor and other second tier subcontractors to verify conformity to the construction drawings and specifications. WESTON confirmed that all health and safety protocols were observed. WESTON also acted as an intermediary between the various subcontractors and EG&G Mound. Applied Science and Technology, Inc. was the general construction subcontractor responsible for completion of all construction activities in conformance with the design drawings and specifications. Applied Science and Technology completed all trench and ditch excavation at both South Drainage and Building 19 Drainage. Fryman-Kuck, Inc., a second tier subcontractor, completed all concrete placement for both drainage structures. A second crew from Fryman-Kuck, Inc. performed excavation and installed all storm sewer conveyance structures for the Building 19

Drainage system. Other subcontractors to WESTON included Shaw, Weiss, and DeNaples, Inc. which conducted all pre-construction and as-built surveys, and Bowser-Morner which conducted all concrete and geophysical testing. Dayton Surface Treatment, Inc. subcontracted with Applied Science and Technology to complete all the asphaltting at both Building 19 and South Drainage.

Asbestos concrete pipe (ACP) was abated by M. K. Moore and Sons, subcontracted by Fryman-Kuck, Inc., the firm under direct contract to EG&G Mound.

III. DIFFICULTIES ENCOUNTERED

A. Items that Affected the Response

Problems encountered prior to and during the construction of the two drainage systems included:

1. Design drawings which did not match existing field conditions, such as:
 - design drawing elevations not matching surveyed elevations
 - underground utilities not indicated or not located properly on design drawings
2. Contaminated soils, both radiological and chemical.
3. Poor subsoil conditions; excessive rock and wet clays.

During the pre-construction survey, it was noted that the elevations indicated on the design drawings did not coincide with elevations determined in the field. Based on the discrepancies, modifications to the design were made, with Mound approval, to meet the existing field conditions. The modifications resulted in changes to both the horizontal and vertical alignment of both drainage structures. Several weeks of field construction time were pre-empted as a result of the discrepancies and the need to present modifications Mound for approval.

Information on several underground utilities located within the Building 19 Drainage system were inaccurately indicated on the design drawings. This resulted in lost productivity while utilities were either properly located or rerouted.

Contaminated soils, both radiological and chemical, were encountered during the excavation of soils along the South Drainage system. The potential for

encountering radiological contamination was expected, although the pre-construction sampling did not indicate contamination in the area in which it was actually encountered. The problem associated with the radiological contaminated soil was locating a stockpile so that construction activities could continue. Petroleum contaminated soils encountered southeast of Building 21 had not been anticipated. The problem associated with the petroleum contaminated soil was where it should be stockpiled so that construction activities could continue. Modifications to the site HASP were required prior to resuming construction activities in the area of contamination

The original design called for using the excavated soils for backfill for the trench, ditch, and storm sewer. However, the excavated soils were unsuitable as backfill due to the amount of large rocks within the soils. As a result, the soils had to be stockpiled and ultimately disposed of in the Mound spoils area, resulting in very little effect on the excavation effort.

Constant communication between the WESTON representative and the Mound Project Manager helped to eliminate potential problems and to minimize the effect of the problems encountered.

B. Issues of Intergovernmental Coordination

Intergovernmental coordination efforts between federal and state parties were successful for this removal action.

C. Difficulties Interpreting, Complying With, or Implementing Policies and Regulations

No difficulties in interpreting, complying with, or implementing policies and regulations were encountered during this removal action.

IV. RECOMMENDATIONS

A. Means to Prevent a Recurrence of the Discharge or Release

Since the Drainage Control structures were designed to mitigate any future release problems, no recommendations apply.

B. Means to Improve Removal Activities

There are no recommendations to improve removal activities at this site.

C. Proposals for Changes in Regulations and Response Plans

There are no proposals for changes in regulations and response plans as they pertain to this site.

LIST OF SUPPLEMENTAL DOCUMENTS

The following list contains titles of additional reports and documents concerning the Mound Drainage Control Interim Response Action.

Contact Arthur Kleinrath, CERCLA On-Scene Coordinator for the Mound Site at (513) 865-3597 to request access to these supplemental documents.

DOCUMENTS

Action Memorandum (in CERCLA public reading room)

Construction Specifications

Health and Safety Plan and amendments

Glossary of Abbreviations and Definitions

ACP	Asbestos-Containing Pipe
AM/RSE	Action Memorandum/Removal Site Evaluation
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CEARP	Comprehensive Environmental Assessment and Response Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DAO	Dayton Area Office
D&D	Decontamination and Decommissioning
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration (Program)
HASP	Health and Safety Plan
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NPL	National Priorities List
OEPA	Ohio Environmental Protection Agency
pCi/g	picocurie per gram
PID	Photo-ionization Detector
ppb	parts per billion
psi	Pounds per square inch
RSE	Removal Site Evaluation
SARA	Superfund Amendments and Reauthorization Act of 1986
TPH	Total Petroleum Hydrocarbons
WESTON	Roy F. WESTON, Inc.
WD	Waste Disposal
WTS	Waste Transfer System

APPENDICES

Appendix A

Site Location Map and Site Drawings

Appendix B

Photograph Documentation

Appendix C

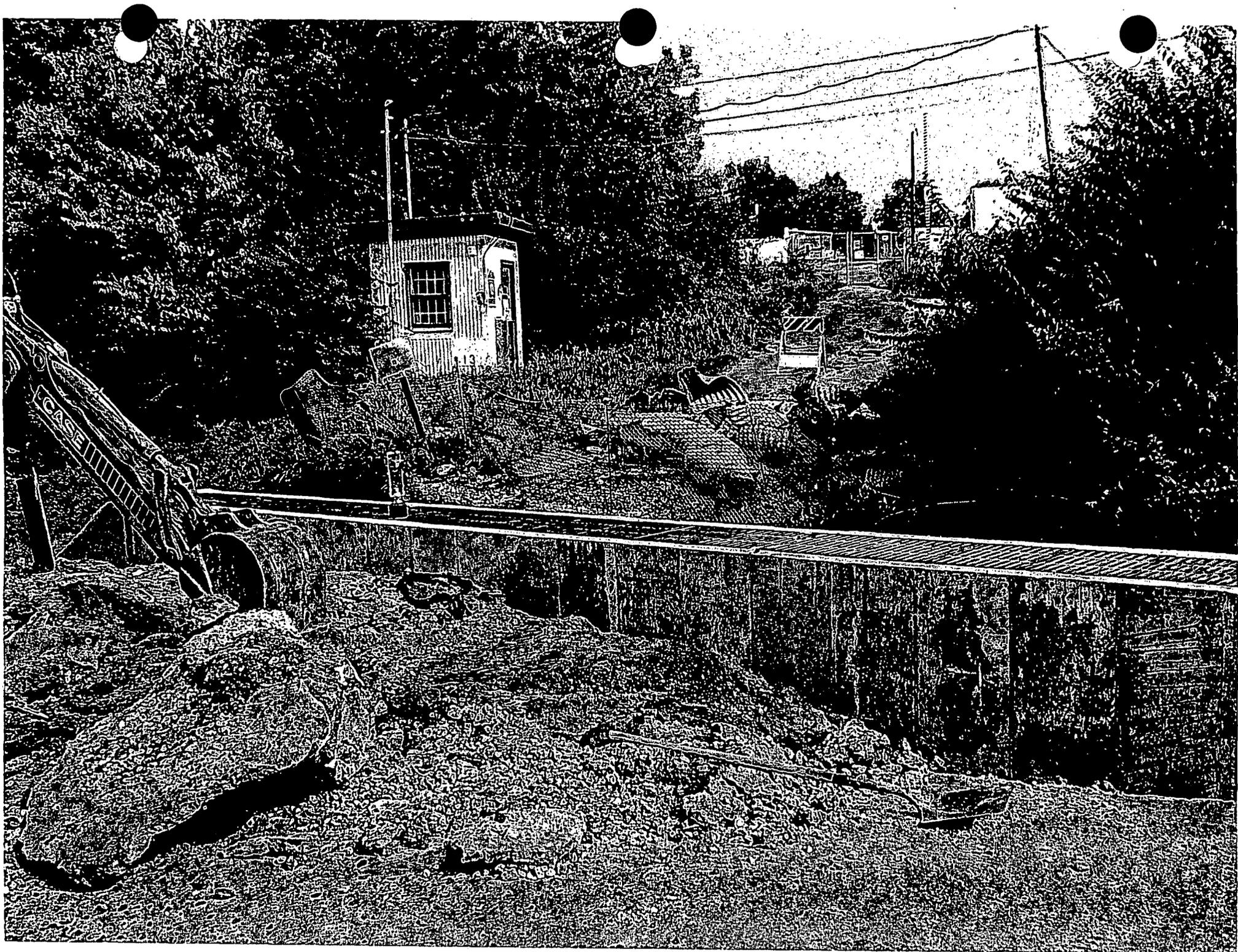
Sample Results

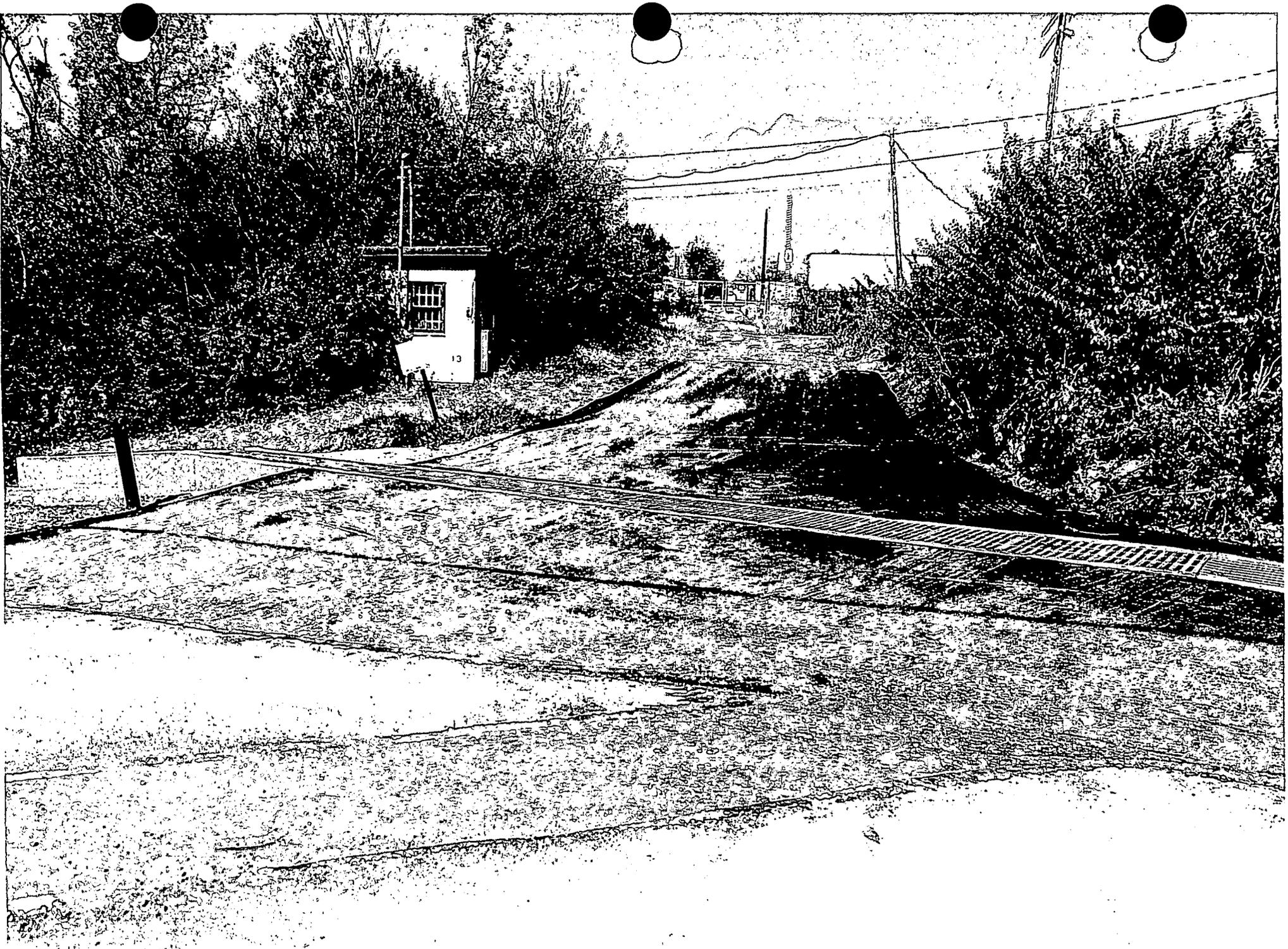
APPENDIX A

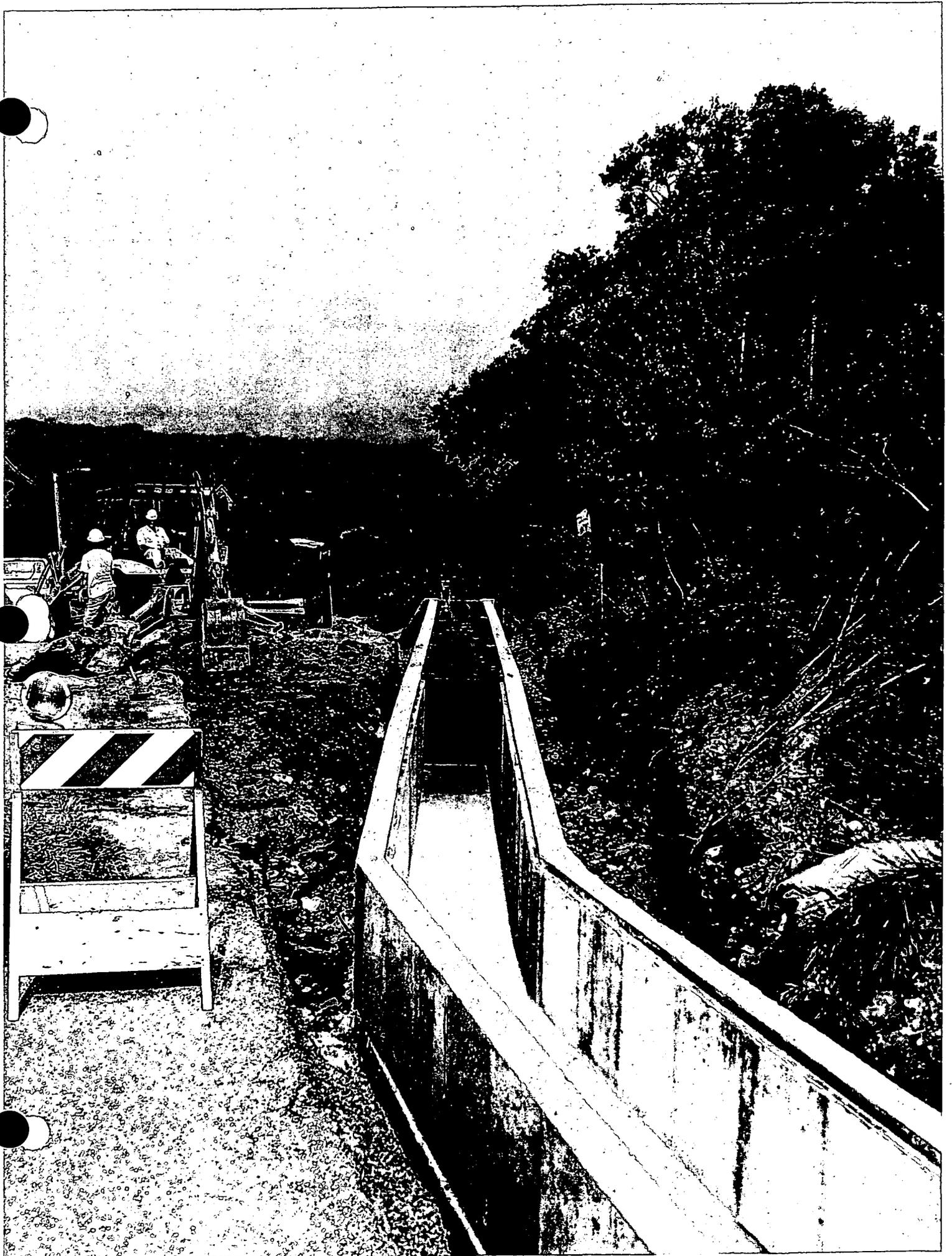
SITE LOCATION MAP AND SITE DRAWINGS

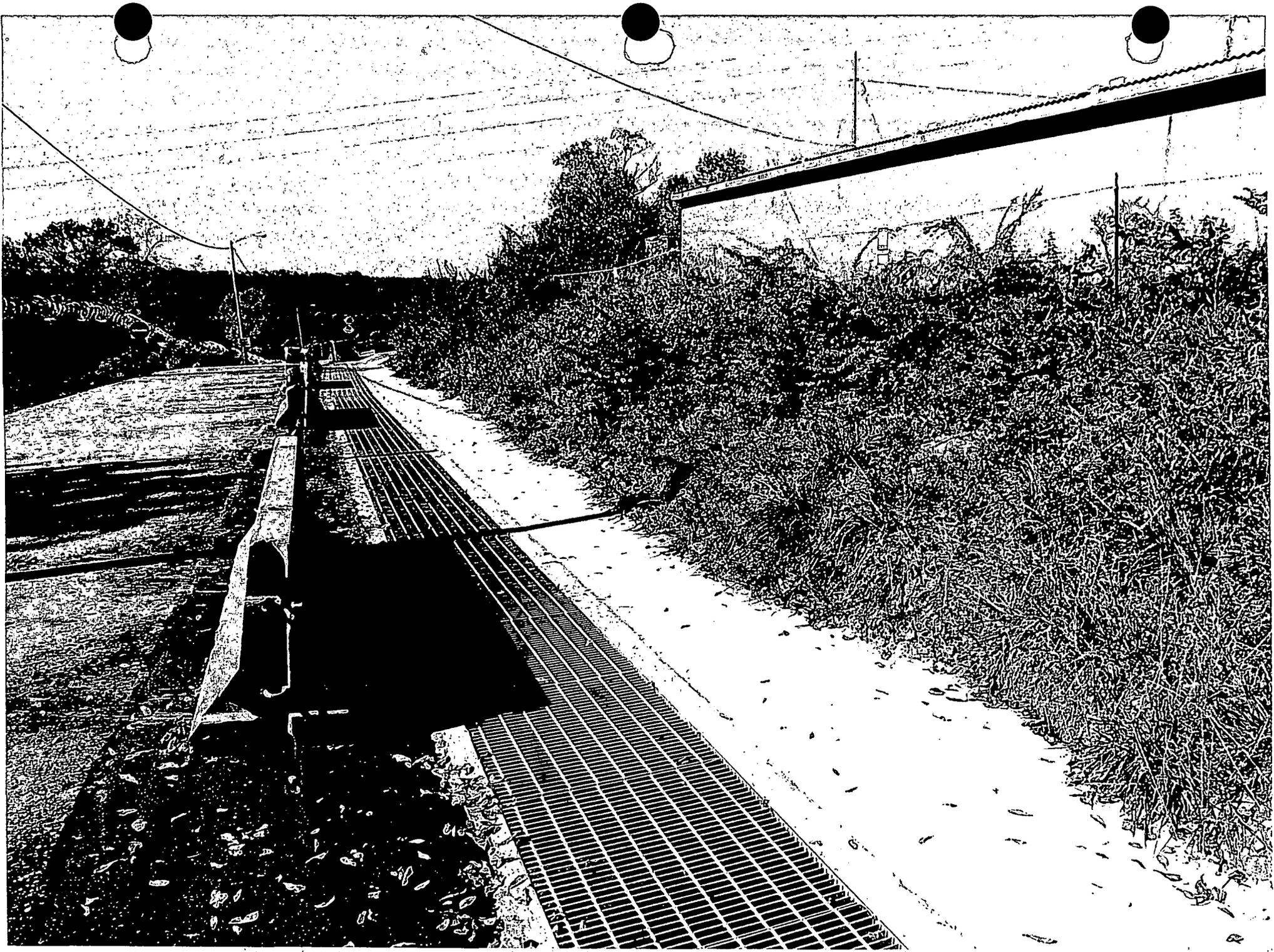
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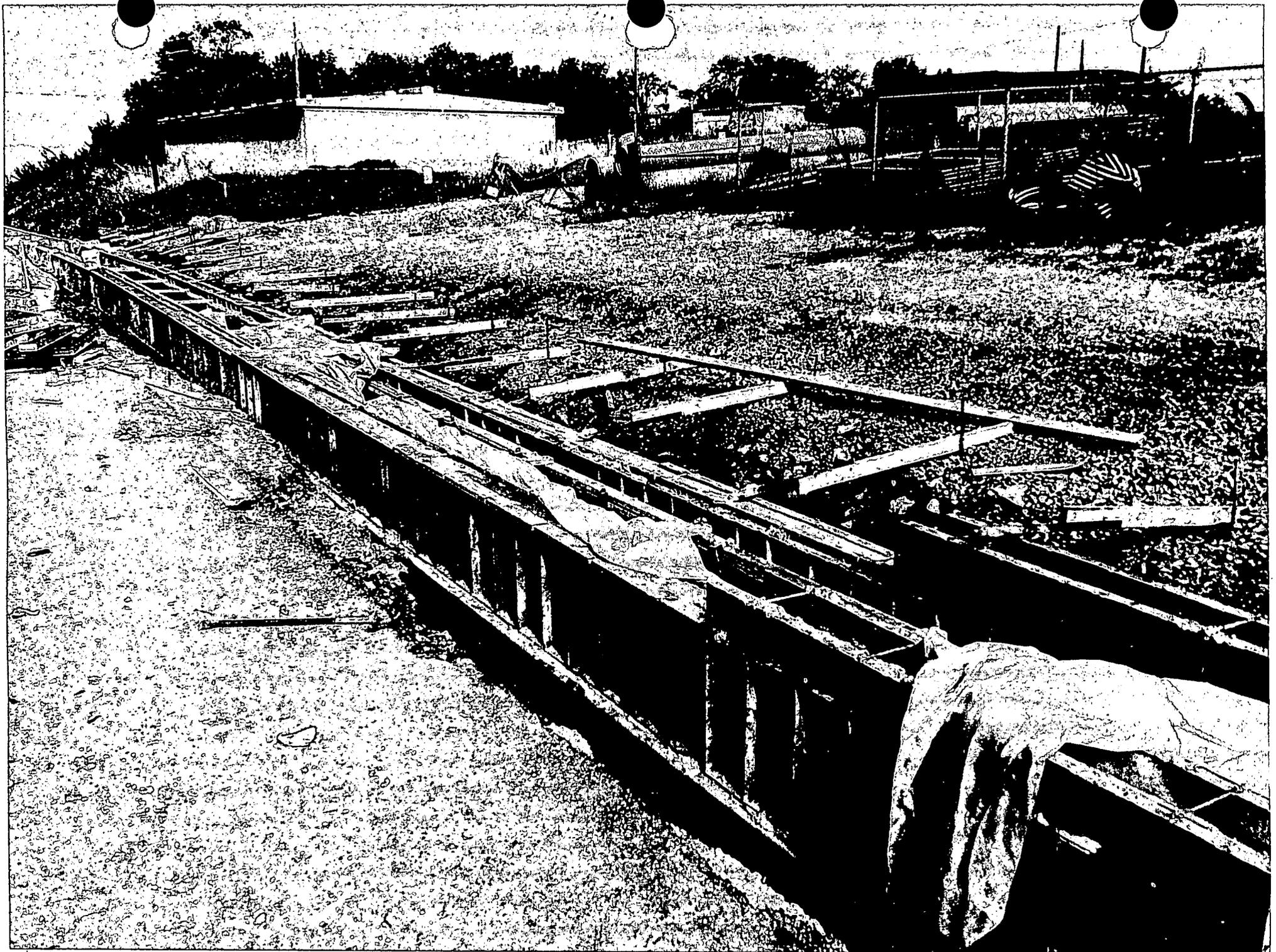
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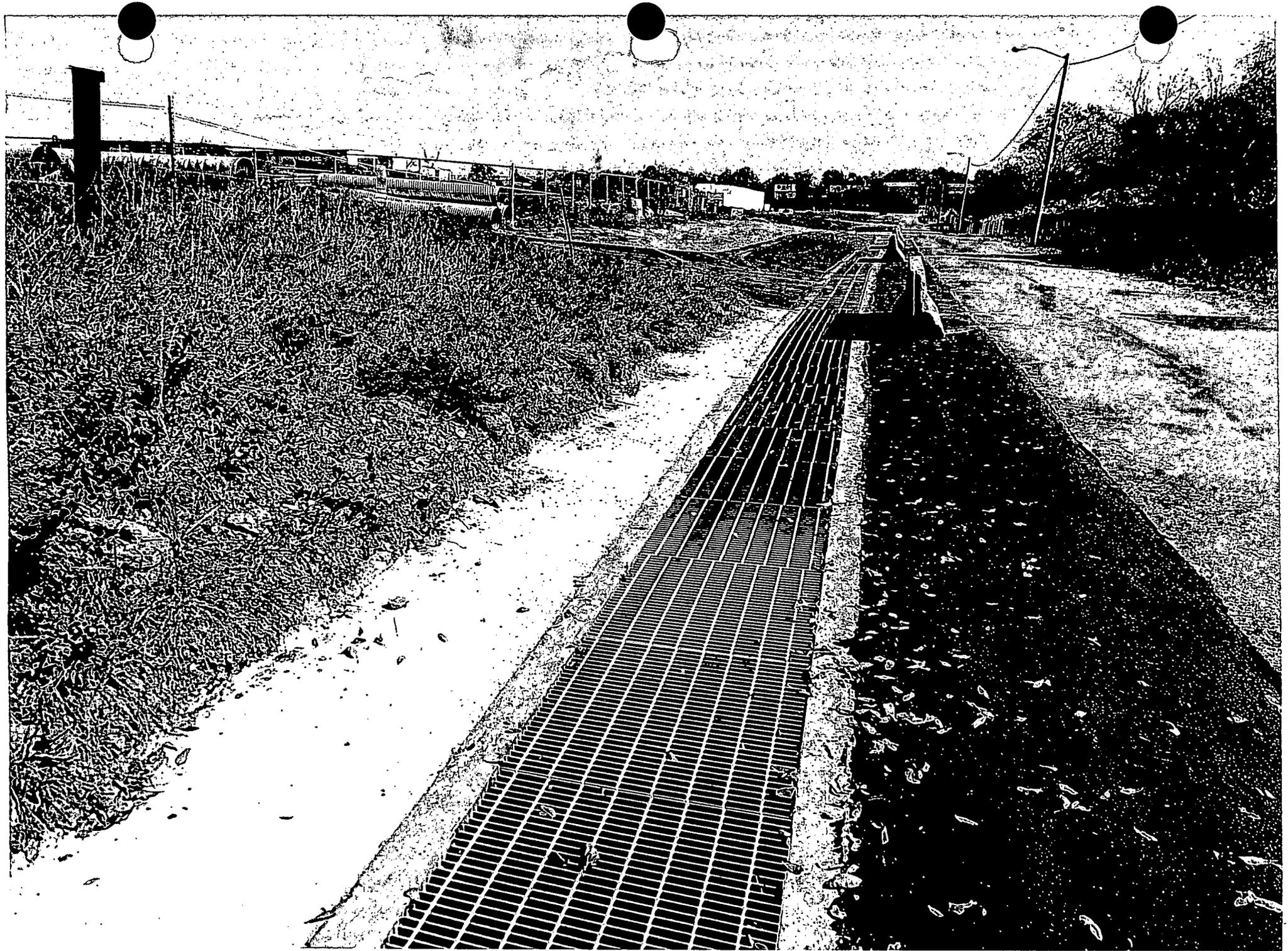




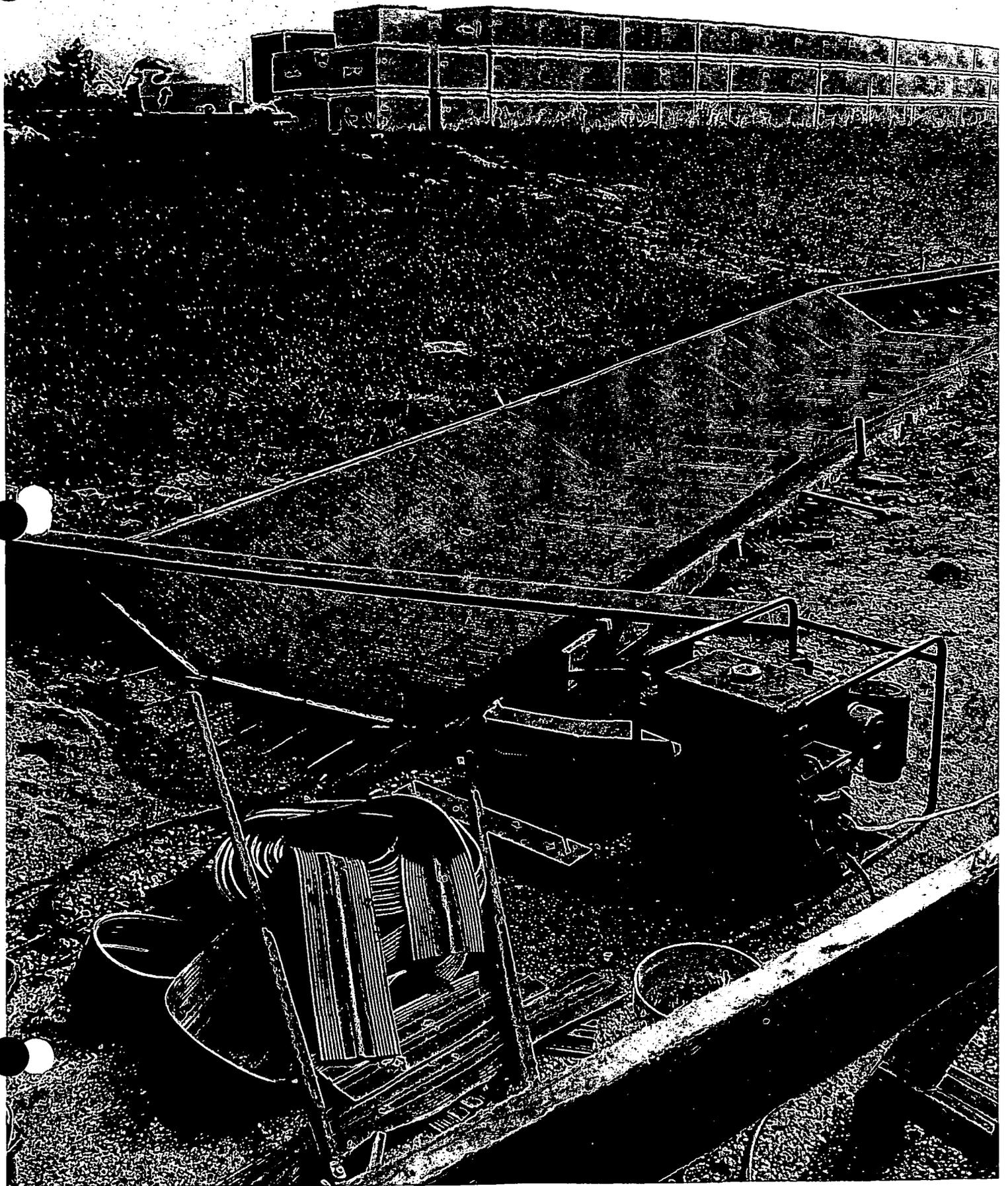




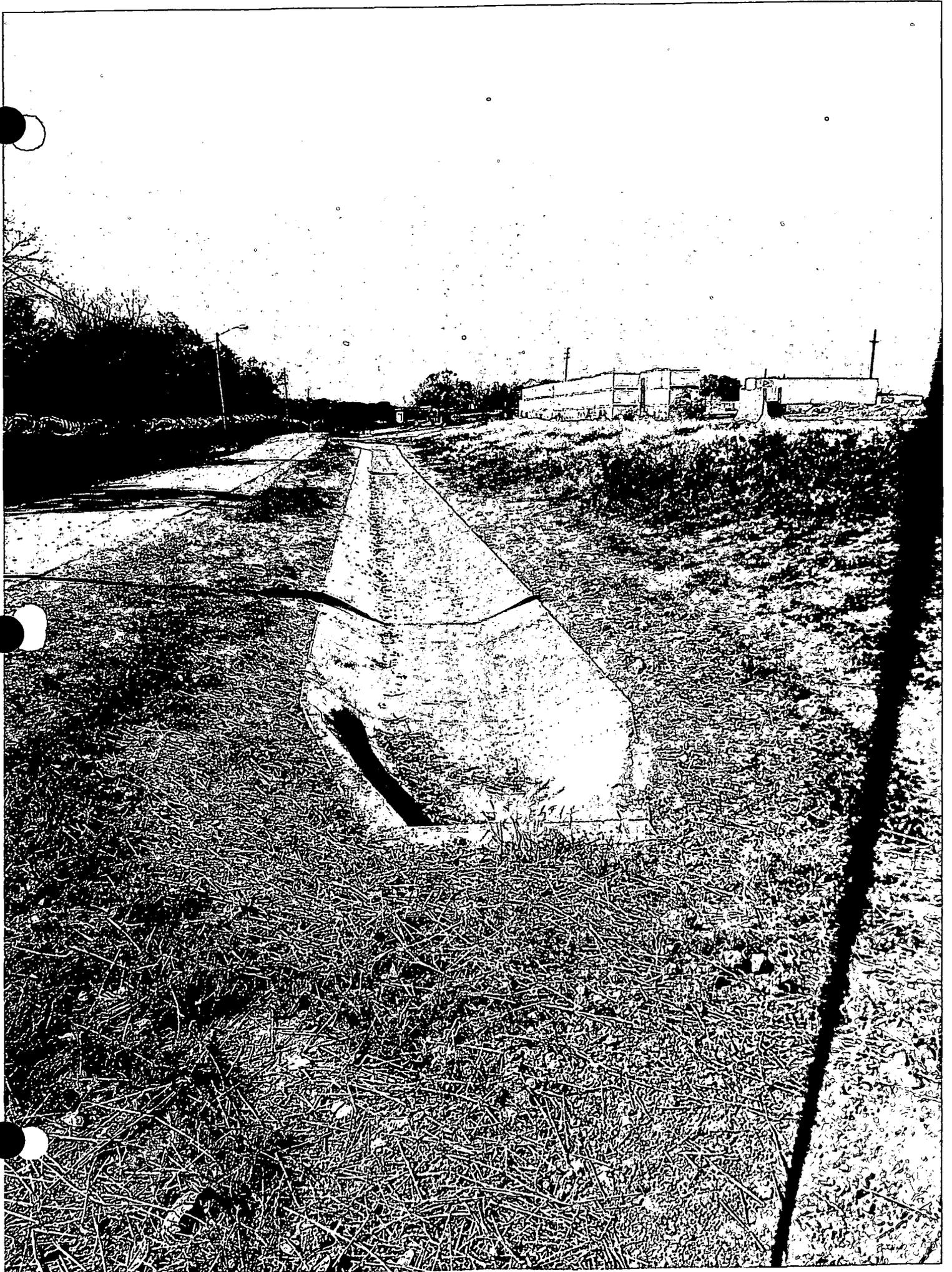


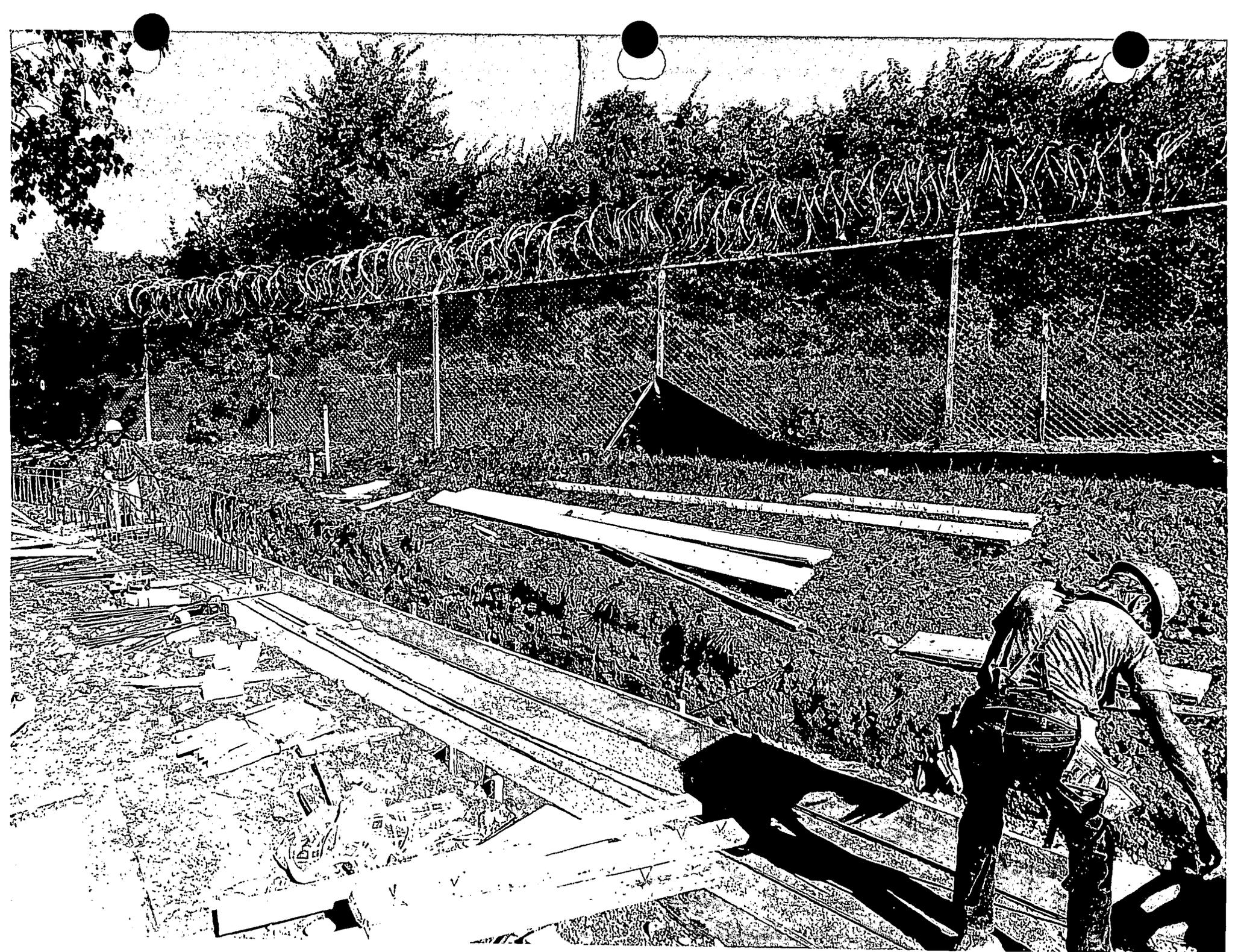




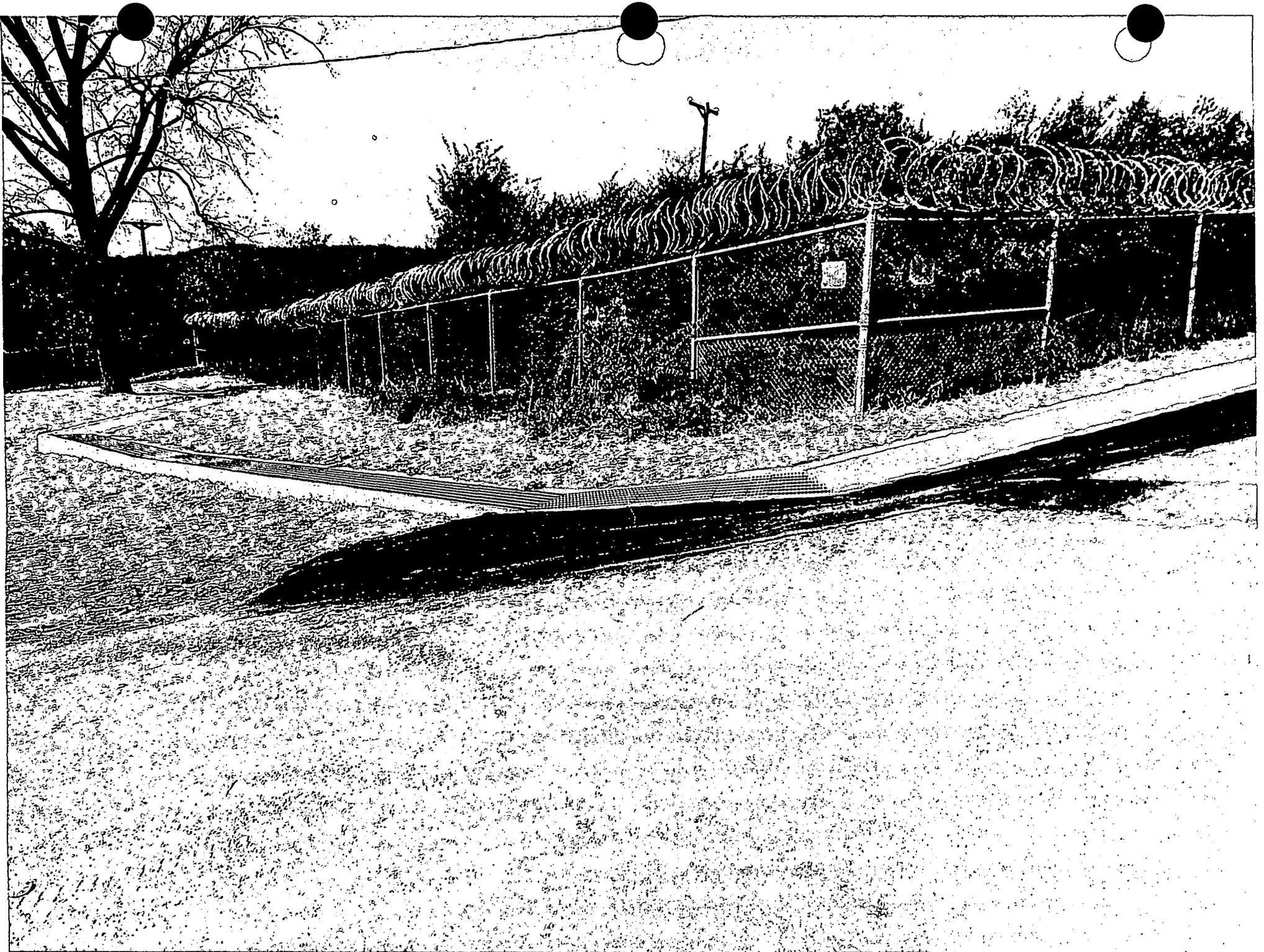




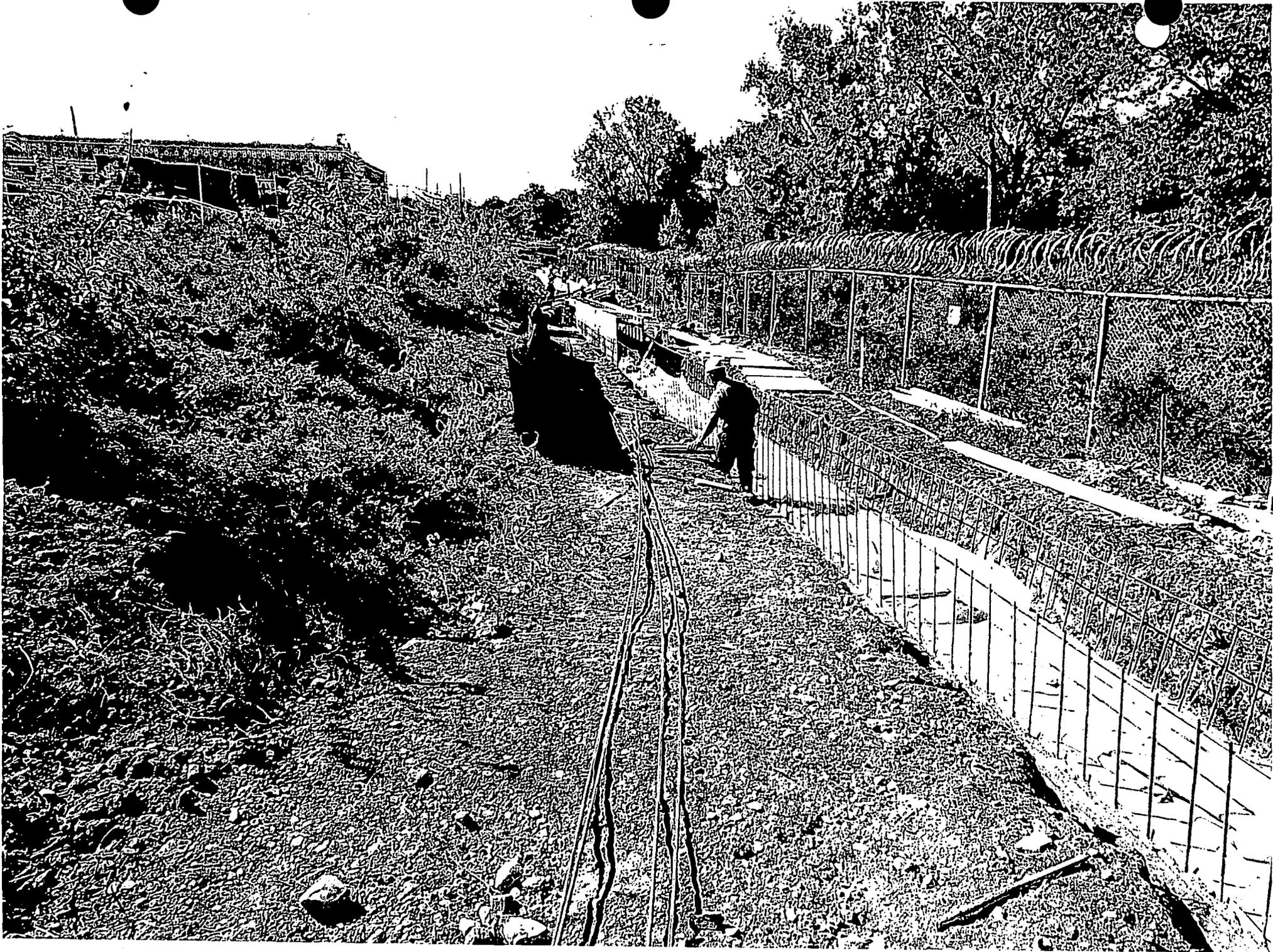


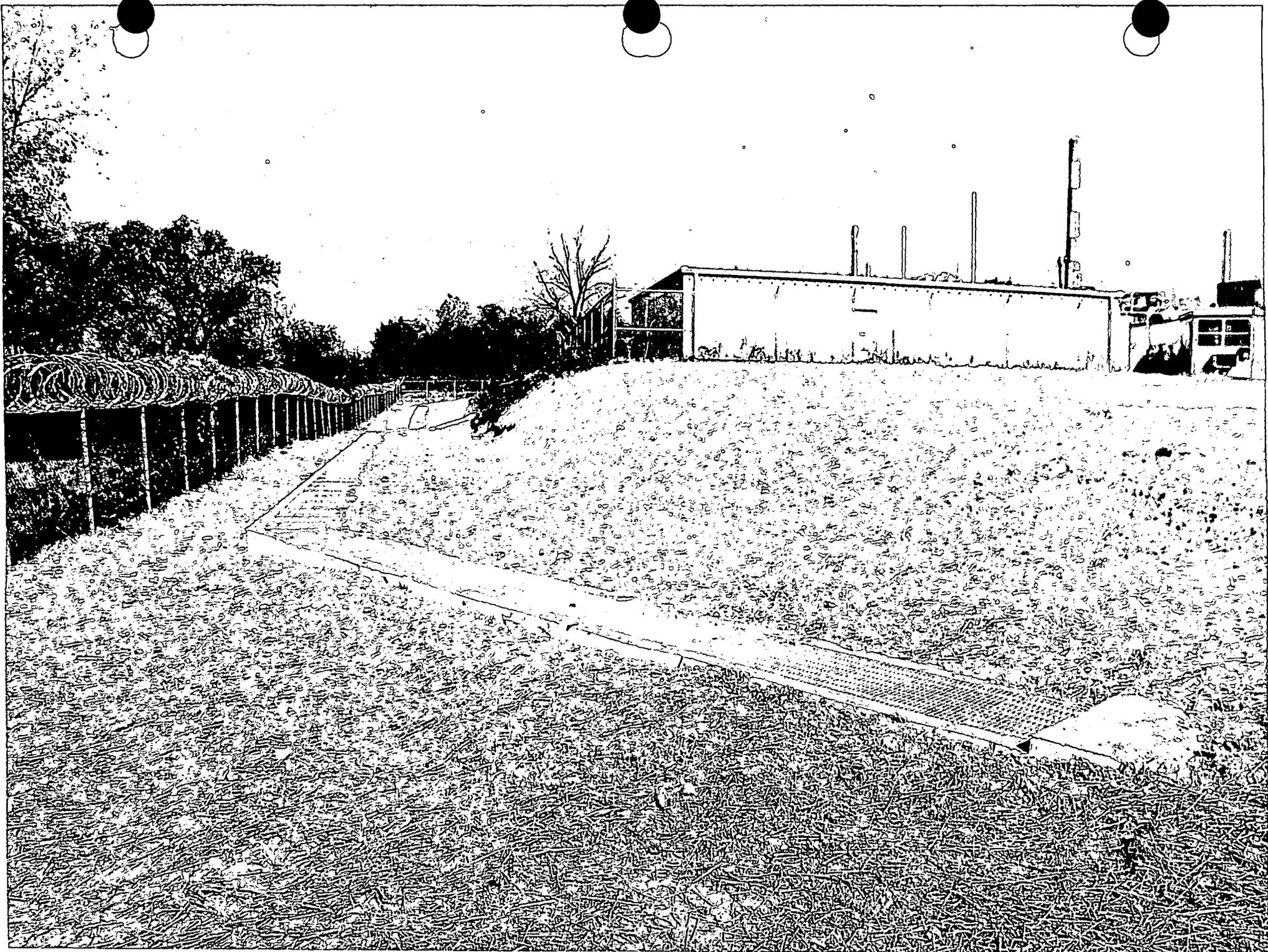












APPENDIX C
SAMPLE RESULTS

**C1: Pre-Construction Sampling results
(24 January 1995)**

**C2: Stockpile Sample Results
(11 July 1995)**

**C3: Petroleum Hydrocarbon Sampling
Results (26 July 1995)**

APPENDIX C1
Pre-Construction Sampling results
(24 January 1995)

WESTON
1/24/95
SAMPLE
RESULTS

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(MD-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO-TOPIES	GRID LOCATION	WELL
9501211	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.5	5	N WESTON DRAINAGE CTRL MSN1001 0-6"	C
9501209	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.4	12	N WESTON DRAINAGE CTRL MSN1002 4.5'-5.3'	A
9501212	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.7	0	N WESTON DRAINAGE CTRL MSN2001 0-6"	B
9501208	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.9	2	N WESTON DRAINAGE CTRL MSN2002 4'-5'	B
9501204	01/24/95	01/25/95	[REDACTED]	5983	CONT	1.4	2	N WESTON DRAINAGE CTRL MSN3001 0-6"	B
9501203	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.7	0	N WESTON DRAINAGE CTRL MSN3002 1'-1.5'	C
9501207	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.5	16	N WESTON DRAINAGE CTRL MSN4001 0-6"	A
9501205	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.6	12	N WESTON DRAINAGE CTRL MSN4002 4'-5'	A
9501210	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.3	0	N WESTON DRAINAGE CTRL MSN5001 0-6"	C
9501206	01/24/95	01/25/95	[REDACTED]	5983	CONT	0.5	7	N WESTON DRAINAGE CTRL MSN5002 4'-5'	B

Post-It Fax Note	7671	Date	1/30/95	# of pages	5
To	JULIE SCHUCKERD	From	J. THACKETT	Co./Dept	
Phone #		Co.	E.G. & MANNING	Phone #	
Fax #	513-825-3336	Fax #	513-865-4455		

WESTON
1/26/95
A.M. SAMPLE RESULTS

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(MD-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO-TOPIES	GRID LOCATION	WELL
9501254	01/26/95	01/26/95	[REDACTED]	983	CONT	0.9	18	N WESTON DRAINAGE CTRL MSN2101 AT 0-6"	A
9501255	01/26/95	01/26/95	[REDACTED]	983	CONT	0.8	5	N WESTON DRAINAGE CTRL MSN2102 AT 4-5'	B
9501256	01/26/95	01/26/95	[REDACTED]	983	CONT	0.5	3	N WESTON DRAINAGE CTRL MSN2201 AT 0-6"	C
9501257	01/26/95	01/26/95	[REDACTED]	983	CONT	1.0	9	N WESTON DRAINAGE CTRL MSN2202 AT 4-5'	A
9501258	01/26/95	01/26/95	[REDACTED]	983	CONT	0.8	15	N WESTON DRAINAGE CTRL MSN2301 AT 0-6"	B
9501259	01/26/95	01/26/95	[REDACTED]	983	CONT	0.8	0	N WESTON DRAINAGE CTRL MSN2302 AT 4-5'	C
9501260	01/26/95	01/26/95	[REDACTED]	983	CONT	0.4	5	N WESTON DRAINAGE CTRL MSN2401 AT 0-6"	C
9501261	01/26/95	01/26/95	[REDACTED]	983	CONT	1.4	20	N WESTON DRAINAGE CTRL MSN2402 AT 4-5'	A
9501262	01/26/95	01/26/95	[REDACTED]	983	CONT	0.6	64	N WESTON DRAINAGE CTRL MSN2501 AT 0-6"	B
9501263	01/26/95	01/26/95	[REDACTED]	983	CONT	0.9	1	N WESTON DRAINAGE CTRL MSN2502 AT 4-5'	C
9501264	01/26/95	01/26/95	[REDACTED]	983	CONT	0.8	48	N WESTON DRAINAGE CTRL MSN2601 AT 0-6"	C
9501265	01/26/95	01/26/95	[REDACTED]	983	CONT	0.9	0	N WESTON DRAINAGE CTRL MSN2602 AT 4-5'	C
9501266	01/26/95	01/26/95	[REDACTED]	983	CONT	0.6	9	N WESTON DRAINAGE CTRL MSN2701 AT 0-6"	B
9501267	01/26/95	01/26/95	[REDACTED]	983	CONT	0.8	9	N WESTON DRAINAGE CTRL MSN2702 AT 4-5'	A
9501268	01/26/95	01/26/95	[REDACTED]	983	CONT	1.0	4	N WESTON DRAINAGE CTRL MSN2801 AT 0-6"	C

1/26/95
A.M. SAMPLE
RESULTS

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(ND-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO- TOPES	GRID LOCATION	WELL	
9501269	01/26/95	01/26/95	[REDACTED]	5983	CONT	1.0	20	N	WESTON DRAINAGE CTRL MSN2802 AT 4-5'	A
9501270	01/26/95	01/26/95	[REDACTED]	5983	CONT	0.7	0	N	WESTON DRAINAGE CTRL MSN2901 AT 0-6"	B
9501271	01/26/95	01/26/95	[REDACTED]	5983	CONT	1.3	15	N	WESTON DRAINAGE CTRL MSN2902 AT 4-5'	A

1/26/95
P.M. SAMPLE
RESULTS

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(MD-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO- TOPES	GRID LOCATION	WELL	
9501283	01/26/95	01/30/95	[REDACTED]	5983	CONT	0.4	15	N	WESTON DRAINAGE CTRL MSN0301 AT 0-6"	A
9501284	01/26/95	01/30/95	[REDACTED]	5983	CONT	0.8	0	N	WESTON DRAINAGE CTRL MSN0302 AT 4-5'	B
9501285	01/26/95	01/30/95	[REDACTED]	5983	CONT	0.4	0	N	WESTON DRAINAGE CTRL MSN3101 AT 0-6"	C
9501297	01/26/95	01/30/95	[REDACTED]	5983	CONT	0.0	17	N	WESTON DRAINAGE CTRL MSN3102 AT 4-5'	C
9501287	01/26/95	01/30/95	[REDACTED]	5983	CONT	0.5	0	N	WESTON DRAINAGE CTRL MSN3201 AT 0-6"	B
9501288	01/26/95	01/30/95	[REDACTED]	5983	CONT	1.3	3	N	WESTON DRAINAGE CTRL MSN3202 AT 4-5'	C
9501294	01/26/95	01/30/95	[REDACTED]	5983	CONT	1.1	32	N	WESTON DRAINAGE CTRL MSN3301 AT 0-6"	C
9501290	01/26/95	01/30/95	[REDACTED]	5983	CONT	1.6	15	N	WESTON DRAINAGE CTRL MSN3302 AT 4-5'	C
9501298	01/26/95	01/30/95	[REDACTED]	5983	CONT	1.0	3	N	WESTON DRAINAGE CTRL MSN3401 AT 0-6"	B
9501292	01/26/95	01/30/95	[REDACTED]	5983	CONT	1.3	22	N	WESTON DRAINAGE CTRL MSN3402 AT 4-5'	B

- TEST CRITERIA -

- 1.) ACTIVITY IN THE 88 KEV WINDOW CALIBRATED FOR TH-232.
- 2.) ACTIVITY IN THE 17 KEV WINDOW CALIBRATED FOR PU-238.
- 3.) INDICATION OF OTHER ISOTOPES (Y) MEANS THAT ISOTOPES OTHER THAN TH-232 AND PU-238 MAY BE PRESENT.

SEE GAMMA SPECTROSCOPY REPORT.

- METHOD STATISTICS -

WELL	PU - 238		TH - 232	
	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)
A	31	13	2.1	0.9
B	31	13	2.1	0.9
C	25	11	2.6	1.1

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(ND-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO- TOPES	GRID LOCATION	WELL
9501243	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.7	18	H WESTON DRAINAGE CTRL MSN1301 AT 0-6"	A
9501244	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.4	0	H WESTON DRAINAGE CTRL MSN1302 AT 4-5'	B
9501245	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.1	4	H WESTON DRAINAGE CTRL MSN1401 AT 0-6"	C
9501246	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.4	0	H WESTON DRAINAGE CTRL MSN1402 AT 4-5'	C (457g)
9501247	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.9	2	H WESTON DRAINAGE CTRL MSN1501 AT 0-6"	B
9501248	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.4	16	H WESTON DRAINAGE CTRL MSN1502 AT 4-5'	A (722g)
9501249	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.4	8	H WESTON DRAINAGE CTRL MSN1601 AT 0-6"	B
9501250	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.6	2	H WESTON DRAINAGE CTRL MSN1602 AT 4-5'	C

- TEST CRITERIA -

- 1.) ACTIVITY IN THE 88 KEV WINDOW CALIBRATED FOR TH-232.
 - 2.) ACTIVITY IN THE 17 KEV WINDOW CALIBRATED FOR PU-238.
 - 3.) INDICATION OF OTHER ISOTOPES (Y) MEANS THAT ISOTOPES OTHER THAN TH-232 AND PU-238 MAY BE PRESENT.
- SEE GAMMA SPECTROSCOPY REPORT.

- METHOD STATISTICS -

WELL	PU - 238		TH - 232	
	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)
A	31	13	2.1	0.9
B	31	13	2.1	0.9
C	25	11	2.6	1.1

Page No. 1
01/26/95

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
 (MD-80030, OP. 1355)
 400 SECOND COUNT
 PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO- TOPES	GRID LOCATION	WELL
9501234	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.4	13	N WESTON DRAINAGE CTRL MSN0201 AT 0-6"	A
9501235	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.0	2	N WESTON DRAINAGE CTRL MSN0202 AT 4-5'	B
9501236	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.2	13	N WESTON DRAINAGE CTRL MSN1701 AT 0-6"	C
9501237	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.8	14	N WESTON DRAINAGE CTRL MSN1702 AT 4-5'	A
9501238	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.3	0	N WESTON DRAINAGE CTRL MSN1801 AT 0-6"	B
9501239	01/25/95	01/26/95	[REDACTED]	5983	CONT	1.4	16	N WESTON DRAINAGE CTRL MSN1802 AT 4-5'	C
9501240	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.9	3	N WESTON DRAINAGE CTRL MSN1901 AT 0-6"	B
9501241	01/25/95	01/26/95	[REDACTED]	5983	CONT	0.9	3	N WESTON DRAINAGE CTRL MSN1902 AT 4-5'	C

- TEST CRITERIA -

- 1.) ACTIVITY IN THE 88 KEV WINDOW CALIBRATED FOR TH-232.
 - 2.) ACTIVITY IN THE 17 KEV WINDOW CALIBRATED FOR PU-238.
 - 3.) INDICATION OF OTHER ISOTOPES (Y) MEANS THAT ISOTOPES OTHER THAN TH-232 AND PU-238 MAY BE PRESENT.
- SEE GAMMA SPECTROSCOPY REPORT.

- METHOD STATISTICS -

WELL	PU - 238		TH - 232	
	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)
A	31	13	2.1	0.9
B	31	13	2.1	0.9
C	25	11	2.6	1.1

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(MD-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO-TOPEs	GRID LOCATION	WELL
9501223	01/25/95	01/25/95	5983	CONT	0.8	27	N	WESTON DRAINAGE CTRL MSN0101 @ 0-6"	A
9501218	01/25/95	01/25/95	5983	CONT	0.8	0	N	WESTON DRAINAGE CTRL MSN0102	B
9501221	01/25/95	01/25/95	5983	CONT	1.1	2	N	WESTON DRAINAGE CTRL MSN1101 @ 0-6"	C
9501216	01/25/95	01/25/95	5983	CONT	0.5	4	N	WESTON DRAINAGE CTRL MSN1102 @ 4'-5'	C
9501220	01/25/95	01/25/95	5983	CONT	0.9	13	N	WESTON DRAINAGE CTRL MSN1201	C
215	01/25/95	01/25/95	5983	CONT	0.5	0	N	WESTON DRAINAGE CTRL MSN1202 @ 4'-5'	B
9501227	01/25/95	01/25/95	5983	CONT	1.2	9	N	WESTON DRAINAGE CTRL MSN6001 @ 0-6"	A
9501225	01/25/95	01/25/95	5983	CONT	0.4	12	N	WESTON DRAINAGE CTRL MSN6002 @ 4'-5'	B
9501226	01/25/95	01/25/95	5983	CONT	0.2	5	N	WESTON DRAINAGE CTRL MSN7001 @ 0-6"	A
9501228	01/25/95	01/25/95	5983	CONT	0.9	0	N	WESTON DRAINAGE CTRL MSN7002 @ 4'-5'	B
9501219	01/25/95	01/25/95	5983	CONT	0.5	7	N	WESTON DRAINAGE CTRL MSN8001 @ 0-6"	A
9501224	01/25/95	01/25/95	5983	CONT	0.6	0	N	WESTON DRAINAGE CTRL MSN8002 @ 4'-5'	C
9501217	01/25/95	01/25/95	5983	CONT	0.3	13	N	WESTON DRAINAGE CTRL MSN9001 @ 0-6"	A
222	01/25/95	01/25/95	5983	CONT	0.7	0	N	WESTON DRAINAGE CTRL MSN9002 @ 4'-5'	B

- TEST CRITERIA -

- 1.) ACTIVITY IN THE 88 KEV WINDOW CALIBRATED FOR TH-232.
 - 2.) ACTIVITY IN THE 17 KEV WINDOW CALIBRATED FOR PU-238.
 - 3.) INDICATION OF OTHER ISOTOPES (Y) MEANS THAT ISOTOPES OTHER THAN TH-232 AND PU-238 MAY BE PRESENT.
- SEE GAMMA SPECTROSCOPY REPORT.

- METHOD STATISTICS -

WELL	PU - 238		TH - 232	
	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)
A	31	13	2.1	0.9
B	31	13	2.1	0.9
C	25	11	2.6	1.1

TEST RESULTS - SODIUM IODIDE SOIL SCREEN
(MD-80030, OP. 1355)
400 SECOND COUNT
PREPARED BY BETTY PETERS -EXT. 4408

SAMPLE NO.	DATE COLLECTED	DATE SCREENED	SAMPLER	SAMP TYPE	88 KEV WINDOW	17 KEV WINDOW	MORE ISO-TOPEs	GRID LOCATION	WELL
9501251	01/26/95	01/26/95	██████████ 5983	CONT	0.7	0	N	WESTON DRAINAGE CTRL NSN2901 AT 0-6" (EPA)	B

- TEST CRITERIA -

- 1.) ACTIVITY IN THE 88 KEV WINDOW CALIBRATED FOR TH-232.
 - 2.) ACTIVITY IN THE 17 KEV WINDOW CALIBRATED FOR PU-238.
 - 3.) INDICATION OF OTHER ISOTOPES (Y) MEANS THAT ISOTOPES OTHER THAN TH-232 AND PU-238 MAY BE PRESENT.
- SEE GAMMA SPECTROSCOPY REPORT.

- METHOD STATISTICS -

WELL	PU - 238		TH - 232	
	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)	MDA (pCi/g)	UNCERTAINTY (+/-) (95 % CONFIDENCE) (pCi/g)
A	31	13	2.1	0.9
B	31	13	2.1	0.9
C	25	11	2.6	1.1

APPENDIX C2

Stockpile Sample Results (11 July 1995)

o u n d

Electronic Message/AOS

From :Dean Buckner
BUCKDA
Dept. :Engineering
Tel. No :
Date :06-Dec-1995 02:15pm EST
Subject :Interim Responce Action Drainage Ditch Project, Soil Dispo

TO :GARY L. COONS (COONGL)
CC :James Fontaine (FONTJP)
CC :Joseph C. Miles (MILEJC)
CC :STEPHEN D. ROHRIG (ROHRSD)

The final action pertaining to the drainage ditch construction was to characterize and dispose of excavated soil staged near Bldg. 21. Accordingly, a sampling plan was implimented which showed RAD to be below contamination limits. The soil is scheduled to be removed to the spoils area the week of 12-11-95.

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00570
FILE ID: GSB00007.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.02	6,500,000
Pb-210	0.8	1,300,000
Ra-226	1.6	26,300
Ac-227 (D)	< 0.07	31
Th-228	< 2.7	671
Th-229	< 0.2	104
Th-230	< 2.4	650
Th-232 (D)	2.8	130
Pa-231	< 0.7	160
U-235	< 0.1	1,730
U-238 (D)	< 1.5	1,730
Pu-238	< 19.2	452
Am-241	< 0.03	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.03213 nCi/g

Σ Respirator 0.0813499

Σ

Description:

EXCAVATED SOIL E OF 21 #1

Collector: XXXXXXXXXX 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/15/95 Counted By: 5801

Report By: 5882

INITIALS: XXXXXXXXXX

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00571
FILE ID: SSC00012.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.02	6,500,000
Pb-210	0.7	1,300,000
Ra-226	1.5	26,300
Ac-227 (D)	< 0.1	31
Th-228	< 2.2	671
Th-229	< 0.1	104
Th-230	< 2.1	650
Th-232 (D)	2.2	130
Pa-231	< 0.5	160
U-235	< 0.1	1,730
U-238 (D)	< 1.2	1,730
Pu-238	< 18	452
Am-241	< 0.02	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.02875 nCi/g Σ Respirator 0.0714269 Σ _____

Description:

EXCAVATED SOIL E OF 21 #2

Collector: 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/15/95 Counted By: 4535

Report By: 5882

INITIALS:

Post-It™ brand fax transmittal memo 7671 # of pages 4

To	DEAN BUCKNER	From	Roy W. Goss
Co.		Co.	
Dept.		Phone #	3493
Fax #	3407	Fax #	

ALYSIS ORT

SAMPLE ID: HPG00572
FILE ID: HPG00572.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.1	6,500,000
Pb-210	1	1,300,000
Ra-226	2	26,300
Ac-227 (D)	< 0.08	31
Th-228	< 1.8	671
Th-229	< 0.1	104
Th-230	< 1.8	650
Th-232 (D)	0.8	130
Pa-231	< 0.4	160
U-235	< 0.1	1,730
U-238 (D)	< 1.2	1,730
Pu-238	< 14.2	452
Am-241	< 0.02	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.02361 nCi/g

Σ Respirator 0.0499420

Σ

Description:

EXCAVATED SOIL E OF 21 #3

Collector: [redacted] 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/15/95 Counted By: 5755

Report By: 5882

INITIALS: [redacted]

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00573
FILE ID: GSB00008.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.02	6,500,000
Pb-210	0.9	1,300,000
Ra-226	1.7	26,300
Ac-227 (D)	< 0.08	31
Th-228	< 2.6	671
Th-229	< 0.17	104
Th-230	< 2.3	650
Th-232 (D)	2.3	130
Pa-231	< 0.4	160
U-235	< 0.14	1,730
U-238 (D)	< 1.5	1,730
Pu-238	< 18	452
Am-241	< 0.02	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Σ DOT 0.03014 nCi/g Σ Respirator 0.0727071 Σ _____

Description:

EXCAVATED SOIL E OF 21 SAMPLE #4

Collector: ████████, 5314

Date Collected: 1/15/95

Comments:

Σ Respirator <1 indicates soil levels below limits. Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/22/95 Counted By: 5801

Report By: 5755

INITIALS: ████████

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00574
FILE ID: GSB00009.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.05	6,500,000
Pb-210	1.2	1,300,000
Ra-226	1.7	26,300
Ac-227 (D)	< 0.08	31
Th-228	< 2.4	671
Th-229	< 0.16	104
Th-230	< 2.2	650
Th-232 (D)	1.8	130
Pa-231	< 0.4	160
U-235	< 0.14	1,730
U-238 (D)	< 1.5	1,730
Pu-238	< 18	452
Am-241	< 0.02	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.02966 nCi/g Σ Respirator 0.0683131 Σ _____

Description:

EXCAVATED SOIL E OF 21 SAMPLE #5

Collector: 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/22/95

Counted By: 5755

Report By: 5755

INITIALS:

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00575
FILE ID: GSD00021.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.03	6,500,000
Pb-210	0.7	1,300,000
Ra-226	1.5	26,300
Ac-227 (D)	< 0.06	31
Th-228	< 1.7	671
Th-229	< 0.1	104
Th-230	< 1.6	650
Th-232 (D)	0.6	130
Pa-231	< 0.3	160
U-235	< 0.1	1,730
U-238 (D)	< 1.5	1,730
Pu-238	< 14	452
Am-241	< 0.02	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.02222 nCi/g Σ Respirator 0.0463883 Σ

Description:

EXCAVATED SOIL E OF 21 SAMPLE #6

Collector: 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/22/95

Counted By: 5755

Report By: 5755

INITIALS

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00576
FILE ID: HPG00576.SPE

<u>Isotope</u>	<u>Activity (pCi/g)</u>	<u>Resp. Limit (pCi/g)</u>
Co-60	< 0.01	1,390,000
Cs-137	0.01	6,500,000
Pb-210	0.7	1,300,000
Ra-226	0.7	26,300
Ac-227 (D)	0.2	31
Th-228	< 2	671
Th-229	< 0.1	104
Th-230	< 1.6	650
Th-232 (D)	0.7	130
Pa-231	< 0.3	160
U-235	0.03	1,730
U-238 (D)	0.6	1,730
Pu-238	< 18.9	452
Am-241	< 0.02	400

Other Nuclides:

<u>Isotope</u>	<u>Activity (pCi/g)</u>	<u>Resp. Limit (pCi/g)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Σ DOT 0.02587 nCi/g

Σ Respirator 0.06237041

Σ _____

Description:

EXCAVATED SOIL EAST OF BD-21 #7

Collector: _____ 5314

Date Collected: 11/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT

Date: 11/27/95 Counted By: 4535

Report By: 5390

INITIALS: _____

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00577
FILE ID: HPG00577.S0

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)
Co-60	< 0.01	1,390,000
Cs-137	0.07	6,500,000
Pb-210	0.7	1,300,000
Ra-226	1	26,300
Ac-227 (D)	< 0.06	31
Th-228	< 0.19	671
Th-229	< 0.1	104
Th-230	< 1.4	650
Th-232 (D)	0.5	130
Pa-231	< 0.3	160
U-235	< 0.1	1,730
U-238 (D)	< 1	1,730
Pu-238	< 12	452
Am-241	< 0.01	400

Other Nuclides:

Isotope	Activity (pCi/g)	Resp. Limit (pCi/g)

Σ DOT 0.01744 nCi/g Σ Respirator 0.0383032 Σ _____

Description:

EXCAVATED SOIL E OF 21 SAMPLE #8

Collector: ████████ 5314

Date Collected: 1/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health Physics on May 15, 1995.

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT limits.

Date: 11/22/95 Counted By: 5801

Report By: 5755

INITIALS ████████

SOIL ANALYSIS REPORT

SAMPLE ID: HPG00578
FILE ID: HPG00578.SPE

<u>Isotope</u>	<u>Activity (pCi/g)</u>	<u>Resp. Limit (pCi/g)</u>
Co-60	< 0.01	1,390,000
Cs-137	0.02	6,500,000
Pb-210	0.5	1,300,000
Ra-226	0.7	26,300
Ac-227 (D)	0.9	31
Th-228	3.9	671
Th-229	< 0.2	104
Th-230	< 2.6	650
Th-232 (D)	2.8	130
Pa-231	< 0.4	160
U-235	< 0.04	1,730
U-238 (D)	0.6	1,730
Pu-238	< 26.1	452
Am-241	0.04	400

Other Nuclides:

<u>Isotope</u>	<u>Activity (pCi/g)</u>	<u>Resp. Limit (pCi/g)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Σ DOT 0.03881 nCi/g Σ Respirator 0.12304633 Σ _____

Description:
EXCAVATED SOIL E. OF BD-21 #9

Collector: 5314

Date Collected: 11/13/95

Comments:

Σ Respirator <1 indicates soil levels below limits.
Values > or = 1 indicate the soil levels exceed alarm limits for that operation. Respirator limits provided by Health

Σ DOT 2 nCi/g limit, total activity.

(D) denotes identification by daughter emissions. Sample is assumed to be in secular equilibrium.

< by activity means it is less than the MDA. MDA value is used in calculation of respirator, spoils, and DOT

Date: 11/28/95 Counted By: 5882 Report By: 5390 INITIALS:

APPENDIX C3

**Petroleum Hydrocarbon Sampling Results
(26 July 1995)**

05376-055-001
FILE 7.2

ROY P. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/18/93

CLIENT: BGLG-MOUND/PFTA
WORK ORDER: 05376-045-002-9999-00

WESTON BATCH #: 95081934

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT		
-001	MND55-D540-0003	% Solids	78.4		0.0		1.0
		Petroleum Hydrocarbons	7.8	MG/KG	4.2		1.0
-002	MND55-D530-0003	% Solids	85.7		0.0		1.0
		Petroleum Hydrocarbons	28.6	MG/KG	4.1		1.0
-003	MND55-D520-0003	% Solids	83.5		0.0		1.0
		Petroleum Hydrocarbons	30.8	MG/KG	4.2		1.0
-004	MND55-D510-0003	% Solids	79.3		0.0		1.0
		Petroleum Hydrocarbons	20.7	MG/KG	4.0		1.0
-005	MND55-D500-0003	% Solids	83.3		0.0		1.0
		Petroleum Hydrocarbons	3.3	u MG/KG	3.3		1.0

TPH results of samples
Taken in excavation along
Bldg 21 because of high field
instrument readings

ROY P. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/18/93

CLIENT: EG&G-MOUND/FFTA

WESTON BATCH #: 95081934

WORK ORDER: 05376-045-002-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANKO	95LHC104-MB1	Petroleum Hydrocarbons	3.3	u MG/KG	3.3	1.0

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 08/18/95

CLIENT: EG&G-MOUND/PFTA

WESTON BATCH #: 9508L834

WORK ORDER: 05376-045-002-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	RECOV	DILUTION FACTOR (SPK)
-001	MRD55-DS40-0003	Petroleum Hydrocarbons	175	7.8	179	93.8	1.0
		Petroleum Hydrocarbons	176	7.8	179	94.0	1.0
BLANK10	95LHC104-MB1	Petroleum Hydrocarbons	132	3.3 u	140	94.4	1.0
		Petroleum Hydrocarbons	132	3.3 u	140	94.4	1.0

ROY F. WESTON INC.

INORGANICS PRECISION REPORT 08/18/95

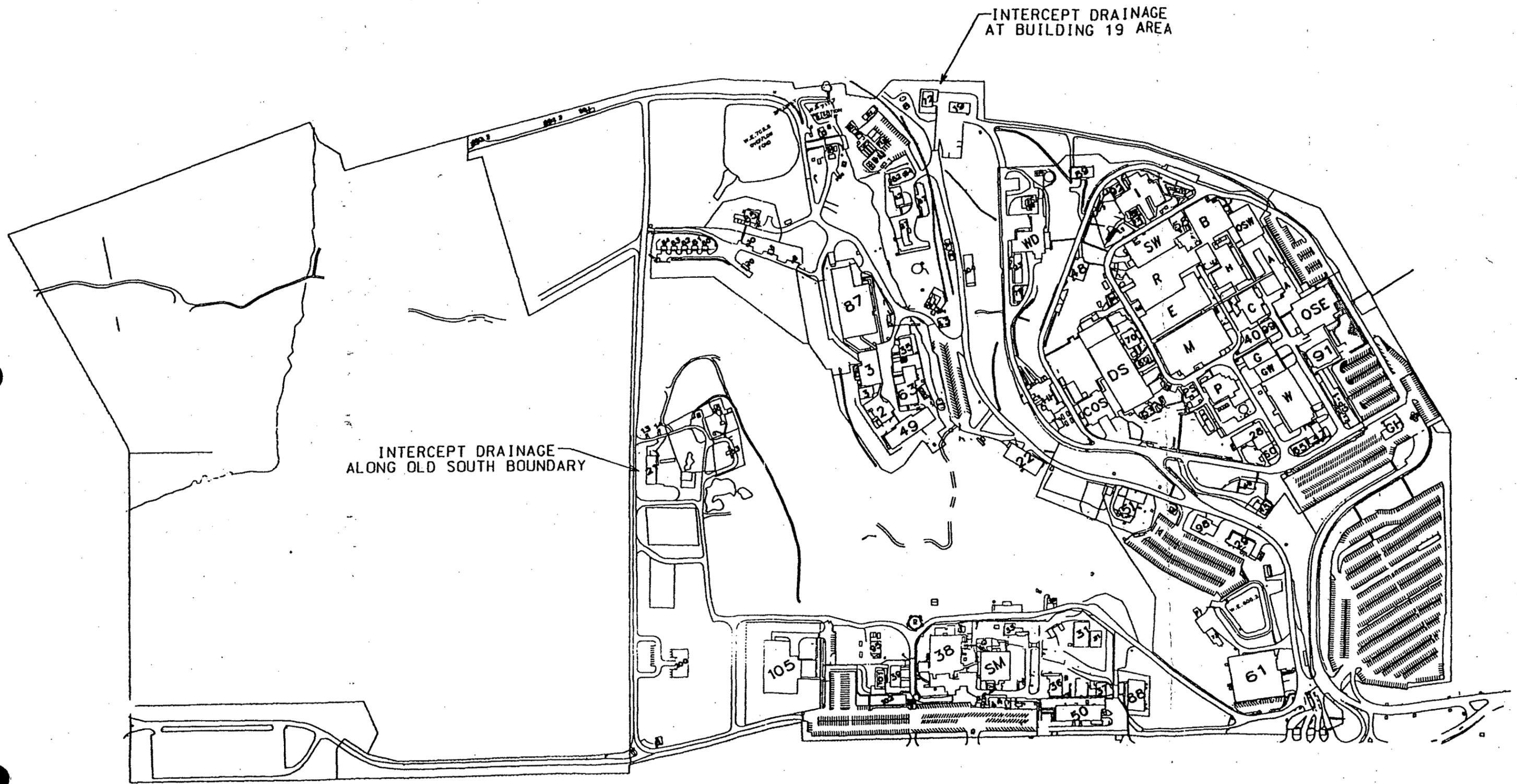
CLIENT: BG&G-MOUND/FPTA

WESTON BATCH #: 95081914

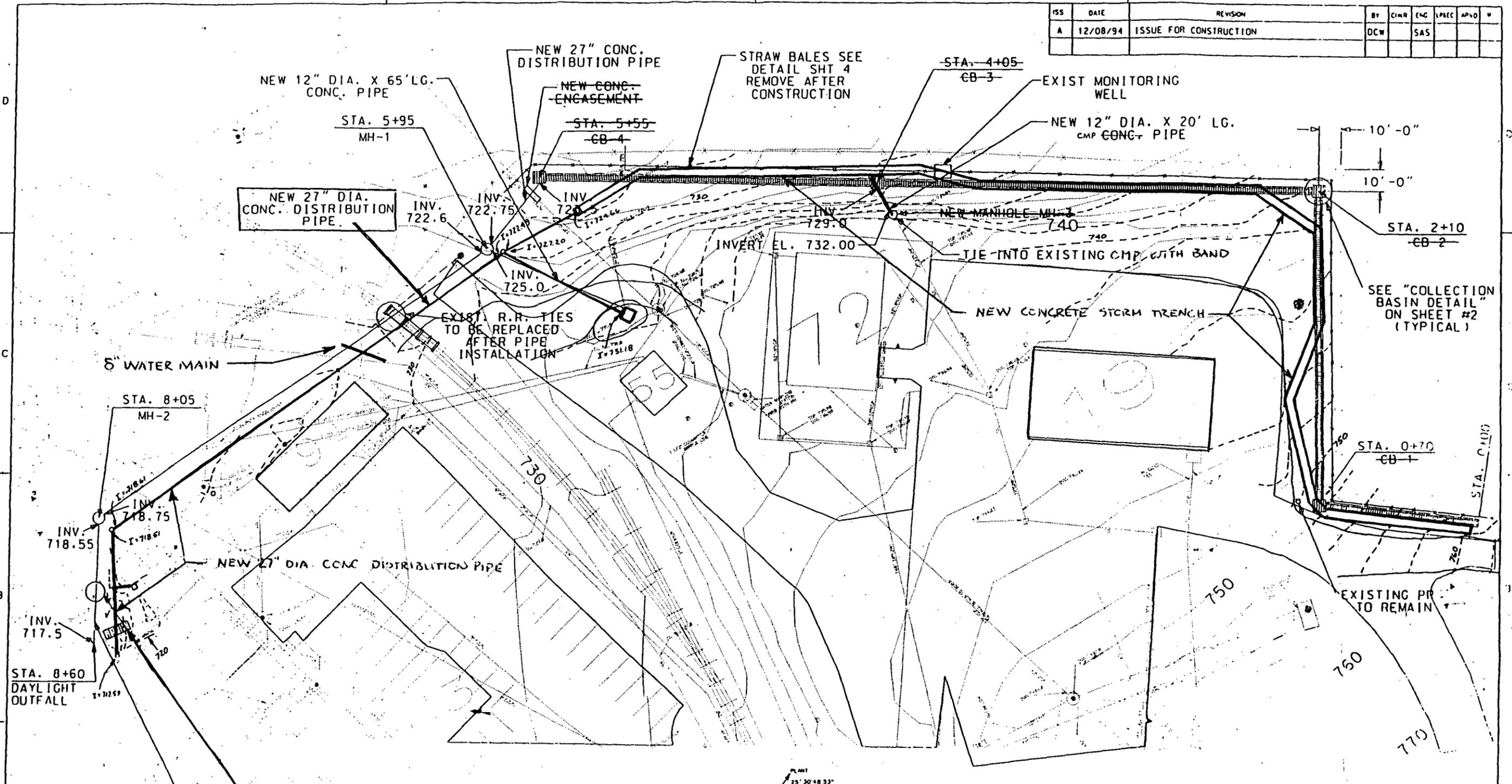
WORK ORDER: 05376-045-002-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	STD	DILUTION FACTOR (REP)
-001RNP	MND55-DS40-0003	† Solids	78.4	76.0	3 1	1.0
		Petroleum Hydrocarbons	7.8	8.3	5 7	1.0

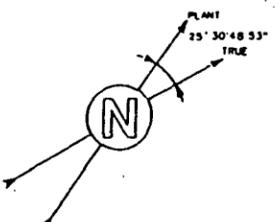
Figure 2
Intercept Drainage Control Site Location



ISS	DATE	REVISION	BY	CHKD	ENG	INSP	APVD	W
A	12/08/94	ISSUE FOR CONSTRUCTION	DCW		SAS			

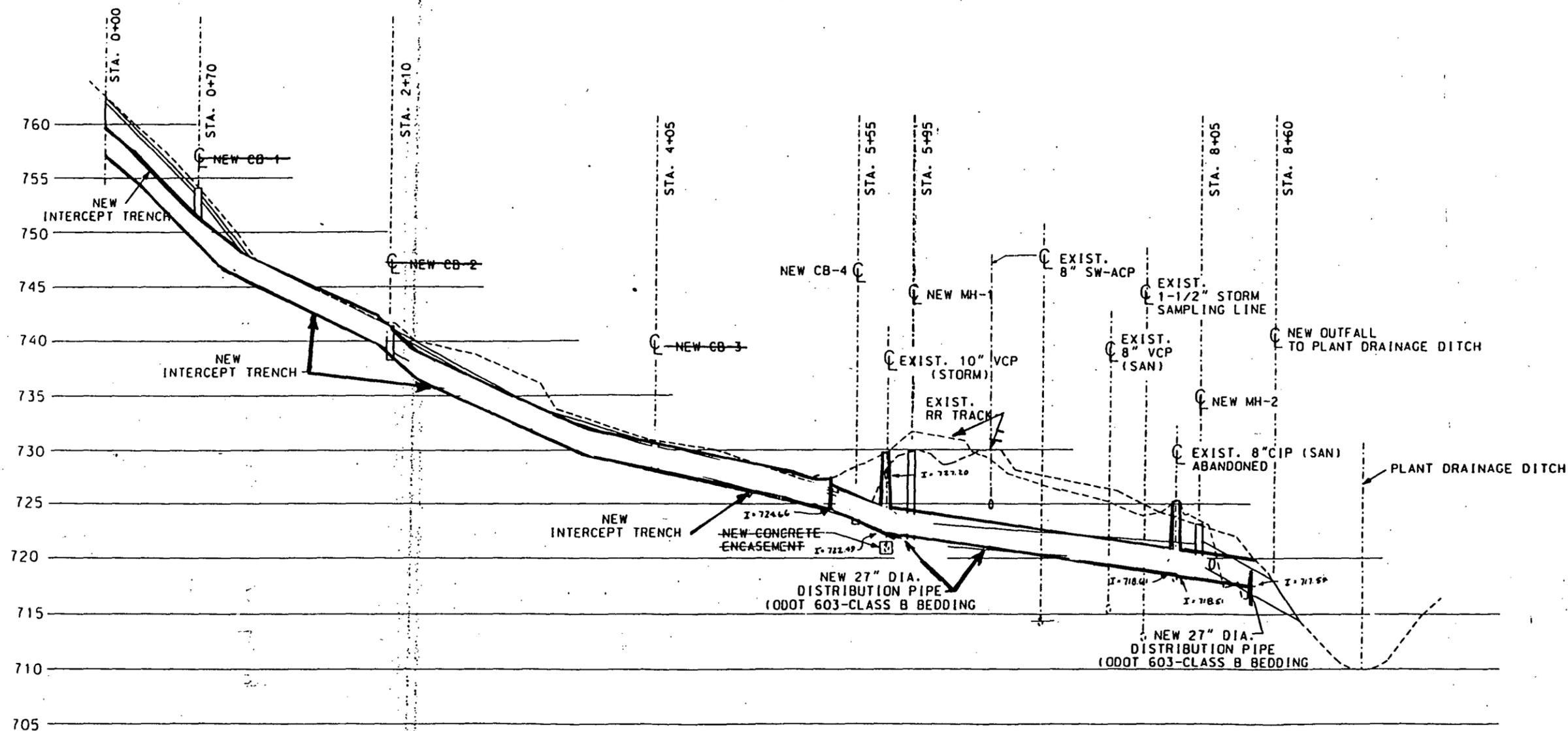


PARTIAL SITE PLAN
SCALE: 1"=20'-0"



- NOTE:
- All existing field conditions shall be inspected for interferences with new construction prior to fabrication of conc. pipe, reinforcement and other items.
 - The new construction shall be surveyed and field located prior to fabrication of conc. pipes, reinforcement and all other items.

NO	RECD	DESCRIPTION/DATE																								
		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
AS-BUILT DRAWINGS DECEMBER 20 1995		INTERCEPT DRAINAGE BLDG 19 AREA																								
DESIGN ENG Spesord.P.E.		DRAWING CLASSIFICATION UNCLASSIFIED																								
PROJ MGR Spesord.P.E.		DWG TITLE MD-RFL-12/08/94																								
SPONS ENG SUPV		DRAFTER FSD940447																								
LP & EC		DATE 12/08/94																								
ENG MGR		SCALE 1"=20'																								
APVD		STATUS MD-RFL-12/08/94																								



INTERCEPT DRAINAGE PROFILE

VERTICAL SCALE: 1"=5'
 HORIZONTAL SCALE: 1"=40'

AS-BUILT DRAWINGS
 DECEMBER 20, 1995

DRAWING NUMBER		
FSD940447		
DRAWING CLASSIFICATION		
UNCLASSIFIED		
SIZE	CMR 14065	SCALE AS NOTED
1)	ISSR A	SHEET 2
STATUS		
M) REF. 12/01/95		

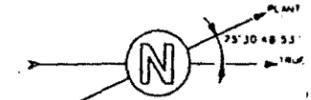
ISS	DATE	REVISION	BY	CHKD	ENG	APP'D	DATE
A	12/08/94	ISSUE FOR CONSTRUCTION	KRW		SJS		

DRAWING NOTES:

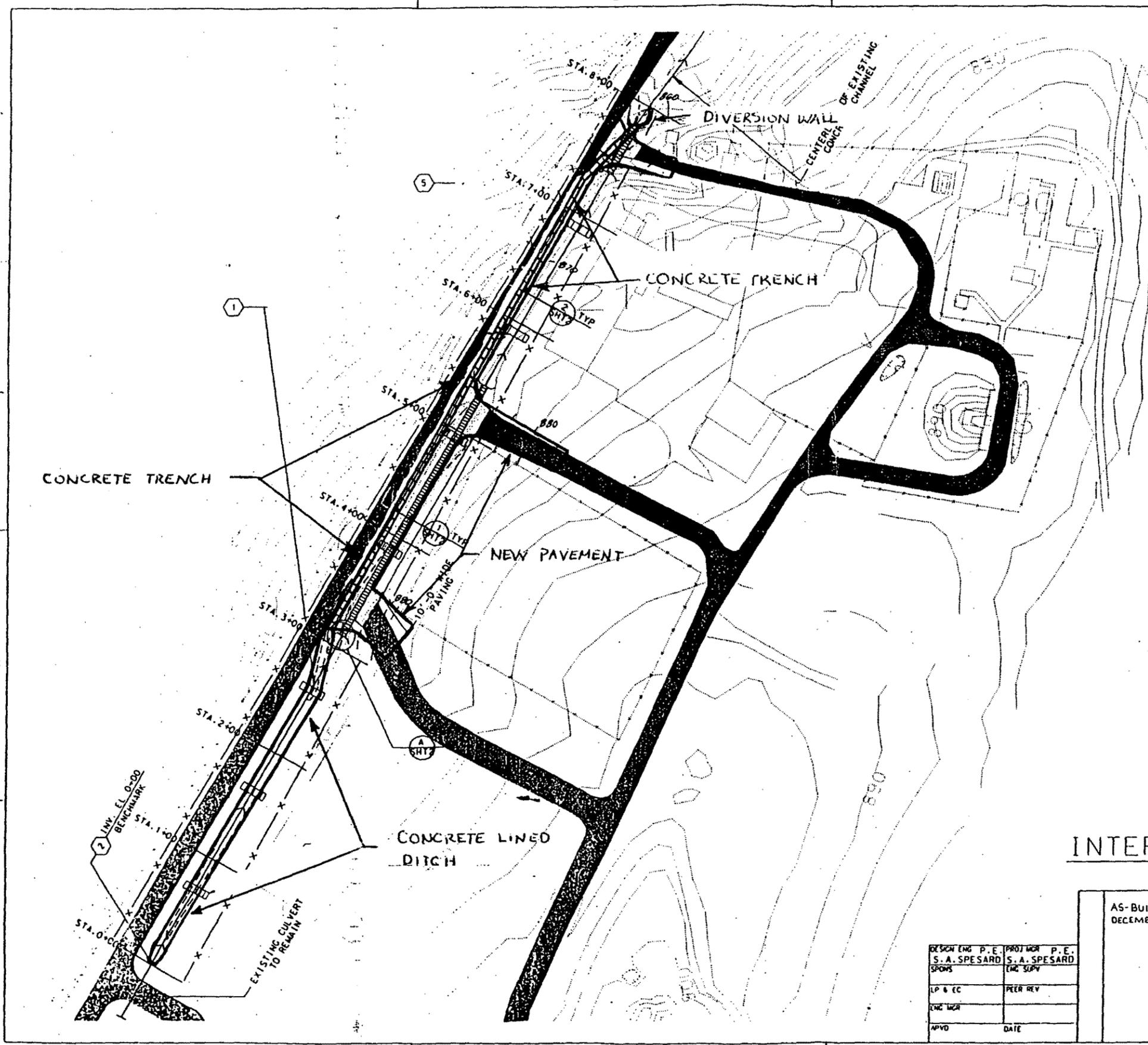
- ① CENTERLINE OF NEW INTERCEPT DITCH AND TRENCH (SEE PROFILE ON SHT. 2)
- ② INVERT AT EXISTING CULVERT SHALL BE USED AS THE REFERENCE ELEVATION FOR CONSTRUCTION.
- ③ PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A SURVEY OF EXISTING CONDITIONS. SURVEY TO BE PERFORMED BY LICENSED SURVEYER AND SHALL INCLUDE ELEVATIONS AND COORD. LOCATIONS. AS-BUILT SURVEY SHALL BE PROVIDED AT THE COMPLETION OF CONSTRUCTION.
- ④ THE AREA OF CONSTRUCTION HAS BEEN SAMPLED AND KNOWN CONTAMINATED SOIL IS SCHEDULED TO BE REMOVED BY THE BUYER; DURING CONSTRUCTION HEALTH PHYSICS COVERAGE WILL BE PROVIDED BY THE BUYER. ALL EXCAVATION ACTIVITIES ARE TO BE COORDINATED WITH THE BUYER.
- ⑤ NEW SEDIMENT CONTROL SILT FENCE. REMOVE AFTER DITCH/TRENCH CONSTRUCTION. SEE DETAIL DRAWING FSD940448.
- ⑥ NEW STRAW BALES (SINGLE LAYER @ 100' O.C.) - USED AS SEDIMENT CONTROL. REMOVE AFTER DITCH AND TRENCH CONSTRUCTION. SEE DETAIL ON DRAWING FSD940448

LEGEND

- NEW ASPHALT PAVEMENT
- NEW CONCRETE
- EXISTING CONTOUR
- EXISTING GRADE (SEE PROFILE). SEE NOTE ③
- CENTER LINE OF NEW INTERCEPT DITCH (DIRECTION OF FLOW)
- NEW INTERCEPT TRENCH GRATE - NTS
- NEW EROSION CONTROL SILT FENCE
- NEW EROSION CONTROL STRAW BALES
- EXISTING GRADE (SEE SHT. 3 OF 3)
- EXISTING FENCE
- EXIST. ROAD SURFACE



INTERCEPT DRAINAGE - PLAN VIEW



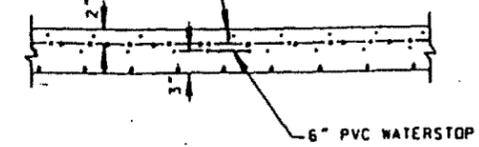
DESIGN ENG P.E. S. A. SPESARD	PROJ MGR P.E. S. A. SPESARD
SPONS	ENG SUPV
LP & EC	PEER REV
ENG MGR	
APVD	DATE

NO	RECD	DESCRIPTION/MATERIAL																								
		AS-BUILT DRAWINGS DECEMBER 20, 1995																								
SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
ISSUE																										
SHEET	1	2	3	4	5	6	TITLE																			
ISSUE	A	A	A				INTERCEPT DRAINAGE ALONG OLD SOUTH BOLIDITY																			
PART CLASSIFICATION		DRAWING CLASSIFICATION																								
		UNCLASSIFIED																								
		Dwg Type SFE																								
		MO-REL-12/08/94																								

NOTES: SECTION 1&2

- ① NEW O.D.O.T. 404 - 3" THICK
- ② NEW O.D.O.T. 304 - 4" THICK (COMPACTED)
- ③ CONTROL JOINTS SHALL BE 10'-0" ON CENTER (MAX) (SEE JOINT DETAIL, THIS SHEET FOR DITCH)
- ④ CONTROL JOINTS SHALL BE ON 40'-0" CENTERS MAX. (SEE DWG. FSD940447, SHT. 3 FOR TRENCH)

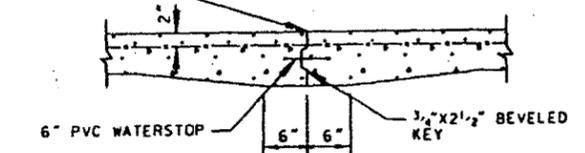
1 1/2" X 1/4" SAWCUT, FILL W/ CONC. COLOR SEALANT



TYPICAL INTERCEPT DITCH CONTROL JOINT

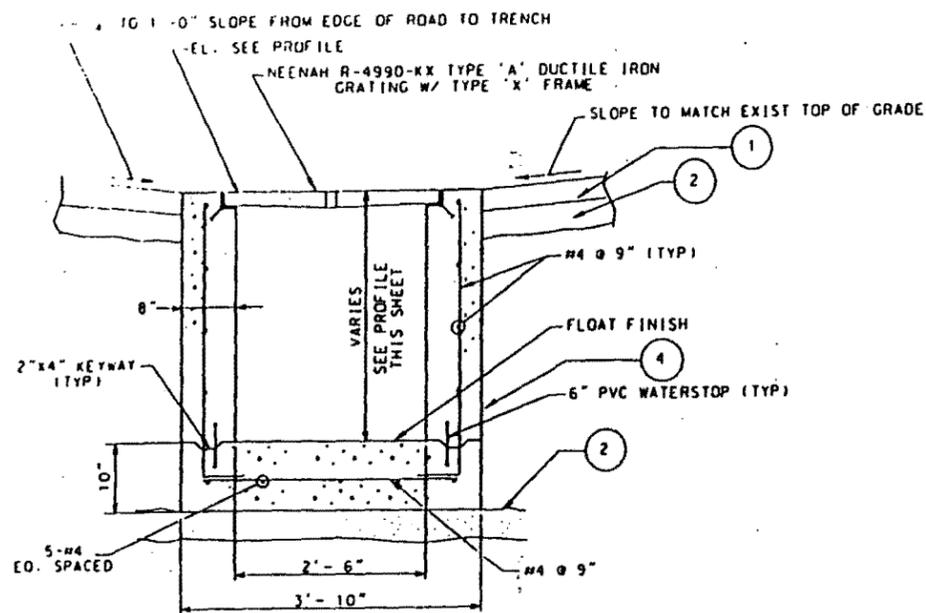
SCALE: 1"=1'-0"

EDGE EACH SIDE W/ 1/4" RADIUS, FILL W/ CONC. COLOR SEALANT



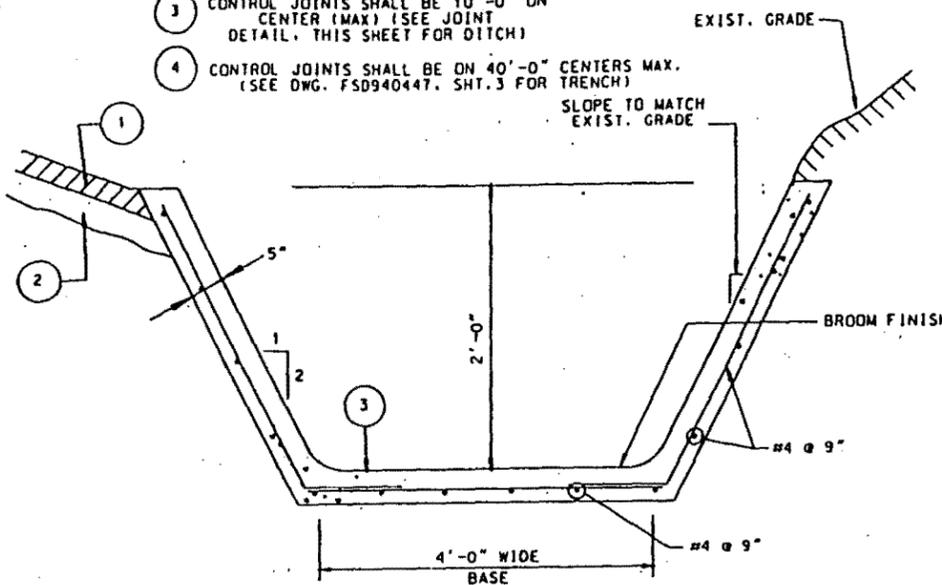
TYPICAL INTERCEPT DITCH CONSTRUCTION JOINT

SCALE: 1"=1'-0"



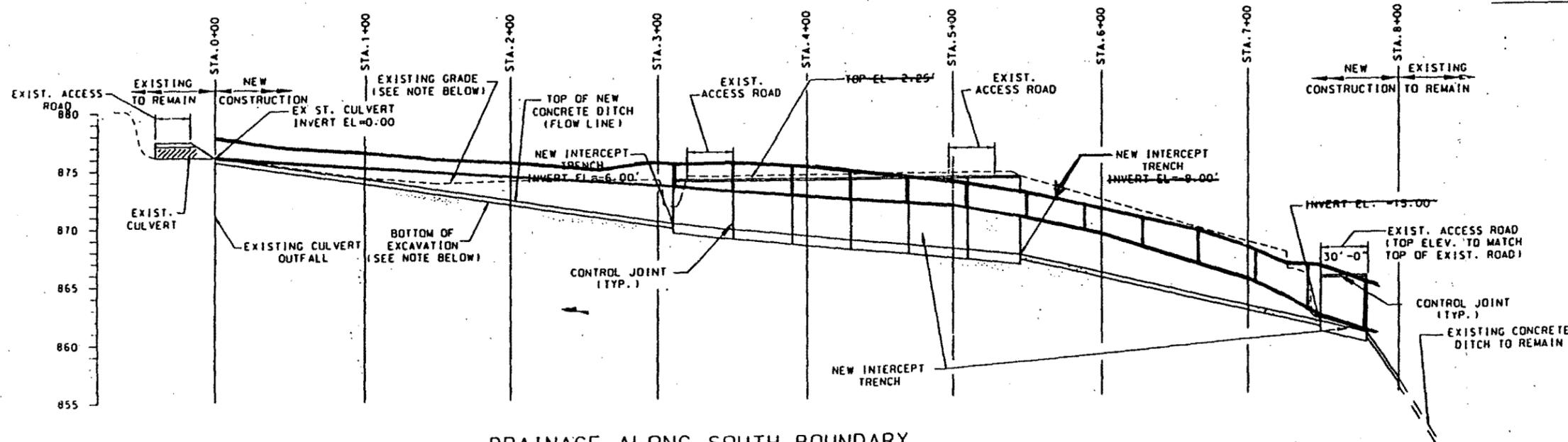
INTERCEPT TRENCH AT VEHICLE ACCESS WAY SECTION 1

SCALE: 1"=1'-0"



INTERCEPT DITCH SECTION 2

SCALE: 1"=1'-0"



DRAINAGE ALONG SOUTH BOUNDARY PROFILE AT CENTERLINE NEW DRAINAGE INTERCEPT DITCH

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=5'

NOTE: Rock is expected to be encountered 2 feet below the existing grade. Excavation of approx. 550 cys. of rock is anticipated in order to reach the bottom of the excavation. Disposal of rock is to be at an off site location.

AS-BUILT DRAWINGS
DECEMBER 20 1998

DRAWING NUMBER		
FSD940416		
DRAWING CLASSIFICATION		
UNCLASSIFIED		
SIZE	DATE	SCALE NOTED
D	ISSUE A	SHEET 2 OF 3
STATUS		
MD-RFL-12/08/94		