NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
DIVISION OF ENFORCEMENT FIELD OPERATION
METRO BUREAU OF WATER AND HAZARDOUS WASTE ENFORCEMENT

INVESTIGATION REPORT

MJPDES #:NJ0068268
NJ0088315-RFA#316

DATE:12/27/1994

INVESTIGATOR/S:Kevin Marlowe
TITLE: Principal Environmental Specialist
ADDITIONAL PERSONNEL:Mark Miller, BOGWP

INCIDENT LOCATION:Kearny Smelting and Refining Corporation
MUNICIPALITY:Kearny
STREET ADDRESS:936 Harrison Avenue
COMPLAINANT:Mark Miller, Geologist, BOGWP PHONE:(609) 292- 0407

RESPONSIBLE PARTY:Kearny Smelting and Refining Corporation
MUNICIPALITY: see above
STREET ADDRESS: see above
CONTACT:Michael Rothschild
TITLE:President PHONE:(201)991-7276

OTHERS:Francine Rothschild, Lou Pisciotta,

WEATHER:Clear, Sunny TEMPERATURE:45-50F
PHOTOGRAPHS:no TYPE: NUMBER:
SAMPLES:no TYPE:

PURPOSE:Follow up site visit to check on responses from Kearny Smelting to Bureau of Operational Groundwater Permits' requests for information.

RECORD OF VIOLATIONS(S): The facility has not implemented BMPs for its General Stormwater Permit. Raw material, Scrap, product, slag, and waste is still exposed to stormwater. A bypass line from the contact cooling pit is eventually discharged to the storm sewer in violation of N.J.A.C. 7:14A-3 Appendix A Part III F.

FINDINGS: The facility no longer uses its lagoon water for contact cooling water for the ingot furnaces and molds. A tank installed by KSRC is now used as recirculating system for contact cooling of the ingots. The ingot cooling pit is open to the ground and groundwater seeps in. The system stores this ground water for use and citywater is used for makeup. During nonoperational periods (weekends and holidays) a diversion valve is opened and the ingot cooling pit is pumped via overland flow to a loading dock pit. This pit is pumped to the storm sewer and eventually to Frank's Creek.

The laboratory sink discharges to the lagoon. The acids, bases and other laboratory chemicals are now dumped into a carboy and flushed down the toilet to PVSC. The facility has not notified PVSC of this

849720013

HUDSON REGIONAL HEALTH COMMISSION
215 ~~88~~ HARRISON AVENUE
HARRISON, NEW JERSEY 07029

201) 485-7001

FIELD INVESTIGATION

Date: October 22, 1987
Log#: K 87-014

Location: Kearny Smelting and Refining Corp.
936 Harrison Avenue
Kearny, N.J. 07032

Nature of Incident: Heavy smoke condition and hazardous substance discharge.

Findings: At site 5:30 p.m. to 6:30 p.m.

While passing site with HRHC Director, Robert Ferraiuolo, heavy smoke conditions were observed being emitted from the scrubber stack at this facility. Smoke was observed impacting at ground level downwind. We attempted to access the facility unsuccessfully. A plume observation record was completed for a 30 minute observation period. A violation of 7:27-6.2d.

We again attempted to enter the facility. All gates were locked. The scrubber was operating and the #4 oil furnace could be seen operating through the open door. No workers were noted on site. One car (plate, N.J. BZN 51F) was present in the parking lot. For a period of 30 minutes we attempted to contact the operator from the facility gates through various means unsuccessfully.

During this period a substantial quantity of oil estimated at several hundred gallons with visible pools was noted along the facility's eastern fence. Also a white 4" PVC pipe which crossed the fence at the northeast corner of the facility and discharged to a drainage ditch. A white liquid was being discharged and the ditch was completely white.

Actions to be taken: Immediate follow up on October 24, 1987. DEQ-012 to be processed for smoke violation. Hazardous substance discharge and wastewater discharge to be referred to DEP and investigated by HRHC.

Investigated by:

Gary Garetano

Gary Garetano,
County Environmental Health Coordinator

849720017

HUDSON REGIONAL HEALTH COMMISSION
25 XXX HARRISON AVENUE
HARRISON, NEW JERSEY 07029

(201) 485-7001

NOTICE OF VIOLATION

DATE: October 23, 1987

NAME OF FACILITY: Kearny Smelting and Refining Corporation

LOCATION OF FACILITY: 936 Harrison Avenue, Kearny, N.J. 07032

NAME OF OPERATOR: Mr. Michael Rothchild

You are hereby NOTIFIED that during my inspection of your facility on the above date, the following violation(s) of the Solid Waste Management Act, (N.J.S.A. 13:1E-1 et seq.) and Regulations (N.J.A.C. 7:26-1 et seq.) promulgated thereunder and/or the Spill Compensation and Control Act, (N.J.S.A. 58:10-23.11 et seq.) and Regulations (N.J.A.C. 7:1E-1 et seq.) promulgated thereunder were observed. This Notice of Violation will be forwarded to the New Jersey Department of Environmental Protection, Division of Waste Management for further action.

DESCRIPTION OF VIOLATION: N.J.S.A. 58:10-23.11C - Discharge of a hazardous substance (#4 oil), and discharge of hazardous substances zinc and lead into surface water (lagoon). N.J.S.A. 58:10-23.11e - Failed to notify the Department (NJDEP) of said discharge.

Remedial action to correct these violation(s) must be initiated immediately, and conducted in accordance with applicable regulations. Within fifteen(15) days of receipt of this Notice of Violation, you shall submit in writing, to the investigator issuing this notice and to the N.J.D.E.P., Division of Waste Management at the address below, the corrective measures you have taken to attain compliance. The issuance of this document serves as notice to you that a violation has occurred and does not preclude the State of New Jersey, or any of its agencies from initiating further administrative or legal action, or from assessing penalties, with respect to this or other violations. Violations of these regulations are punishable by penalties of $25,000 per violation.

Issued by: [signature]

N.J.D.E.P., Dave Beeman
Division of Waste Management
2 Babcock Place
West Orange, N.J. 07052

849720018

HUDSON REGIONAL HEALTH COMMISSION

215 ~~303~~ HARRISON AVENUE
HARRISON, NEW JERSEY 07029

(201) 485-7001

(201) 485-7002

FIELD INVESTIGATION (FOLLOW-UP)

Date: October 23, 1987

Log #: K 87-014

Location: Kearny Smelting and Refining Corp.
936 Harrison Avenue
Kearny, N.J. 07032

Follow UP:

8:45 a.m. - 9:15 a.m.: All appropriate notifications were made to NJDEP - Trenton Dispatch, Bureau of Emergency Response, Division of Hazardous Waste Management (Metro), Water (Metro). DEP not responding at this time. HRHC to conduct initial investigation, attempt to have remedial measures implemented and make written referrals to NJDEP.

9:45 - 10:30 a.m.: At site, met with Mr. Michael Rothchild, President and Mr. Douglas Reichard. I informed both individuals that a violation was being processed for smoke emissions from the scrubber stack on 10/23/87. I reported the difficulty gaining access to the facility. Mr. Reichard stated the employee was "probably watching the World Series". No equipment malfunctions were known to have occurred during the period of violation.

Oil Discharge: Mr. Reichard reported a valve on a fuel return line failed approximately 2-3 weeks ago releasing what he estimated as 200 gallons of #4 oil. Mr. Reichard reported he had obtained sorbent pads from a fuel oil supplier and was conducting remediation.

No remedial measures were noted to be in place at this time. Approximately 300 sq. ft. of heavily contaminated soil and gravel surface was noted. Liquid pools were noted which contained approximately ½" of oil floating on water.

Mr. Reichard and Mr. Rothchild were informed that an oil discharge was a discharge of a hazardous substance and that N.J.S.A. 58:10-23.11C&E were applicable. They were informed that a DCO must be hired for immediate remediation and the DCO Master List was supplied. Mr. Rothchild inquired as to whether oil contaminated soil could be treated in a rotary kiln outside. I informed him that this would require NJDEP permits and might not be acceptable.

Wastewater Discharges: This facility generates wastewater which contains zinc and possibly lead and other metals. The scrubber wastewater is collected in two tanks on site. The resultant sludge containing primarily zinc oxide is shipped offsite to Modern Industries identified as being in South Jersey. This materials is sent for recycling purposes and is not manifested.

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The wastewaters observed entering a drainage ditch are primarily from a source identified as the "conveyor pit pump"and the laboratory. This drainage ditch enters a surface water which is several thousand square feet in area. The liquid contents are milky white which may be due to zinc oxide. The facility identifies this as a "settling pond." Mr. Reichard reported this discharge is allowed. No permits could be produced. I informed Mr. Rothchild and Mr. Reichard that this discharge and settling pond require NJPDES permits. Furthermore, if no permits were obtained this operation would constitute discharge of a hazardous substance (zinc, possibly lead).

Actions to be taken: NOV's to be issued for hazardous substance discharges and failure to notify. Follow up to be conducted to verify remediation of oil discharge. Referrals to be made to DHWM for evaluation of waste disposal practices (offsite shipment of sludges and settling pond) and to DWR regarding NJPDES applicability.

Investigated by:

Gary Garetano

Gary Garetano,
County Environmental Health Coordinator

849720025

Form DWR-052
3/81

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

REPORT OF PHONE CALL OR VISIT

Bureau or Office Metro Enforcement

In ✓ Out

Date 10/29/87 Time 910 AM

H-29-1087

File Kearny

Routing White

Person Contacted Gary Gaetano Phone No. 201-485-7001

Affiliation Hudson Regional Health

Subject of (Call) Visit Kearny Smelting and Refining Corp.
936 Harrison Ave. Kearny

Summary of (Call) Visit

Kearny Smelting has an unpermitted discharge of scrubber water from their zinc smelting operation. The wastewater is believed to contain zinc and lead. The discharge caused the adjacent creek to turn white yesterday.

Please call Gary regarding results of investigation. He is going out there today.

Action Recommended

849720027

Signature

FILE

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, NEW JERSEY 08625

John W. Gaston, Jr.
Director

January 31, 1984

Mr. Michael Rothschild, President
Kearny Smelting and Refining Corporation
936 Harrison Avenue
Kearny, NJ 07029

Dear Mr. Rothschild:

On January 3, 1984, a representative of the Division of Water Resources (DWR) conducted an inspection at the Kearny Smelting and Refining Corporation facility in Kearny in response to a citizens complaint referral. During the inspection the following observations were made:

1. Kearny Smelting and Refining Corporation (KSRC) is discharging wastewater originating from the following sources into the surface or ground waters of this State:

    a. Wash down sink inside the building.
    b. Overflow from the cooling tower and settling tanks.
    c. Leaking valve at the electrostatic precipitator.
    d. A surface impoundment used to collect wastewater discharged from the KSRC facility.

2. Numerous empty and damaged drums are stored in the rear of the property.

3. The entire plant site area is in need of improved housekeeping methods.

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4. Kearny Smelting and Refining Corporation does not have nor has it ever applied for a New Jersey Pollutant Discharge Elimination System (NJPDES) Permit as required by Section 6.a of the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.

Kearny Smelting and Refining Corporation is therefore directed to:

1. Immediately cease all unpermitted discharges.

2. Properly dispose of all damaged drums.

3. Institute a housekeeping program to improve the general appearance, cleanliness and possible hazardous conditions which may exist at the site.

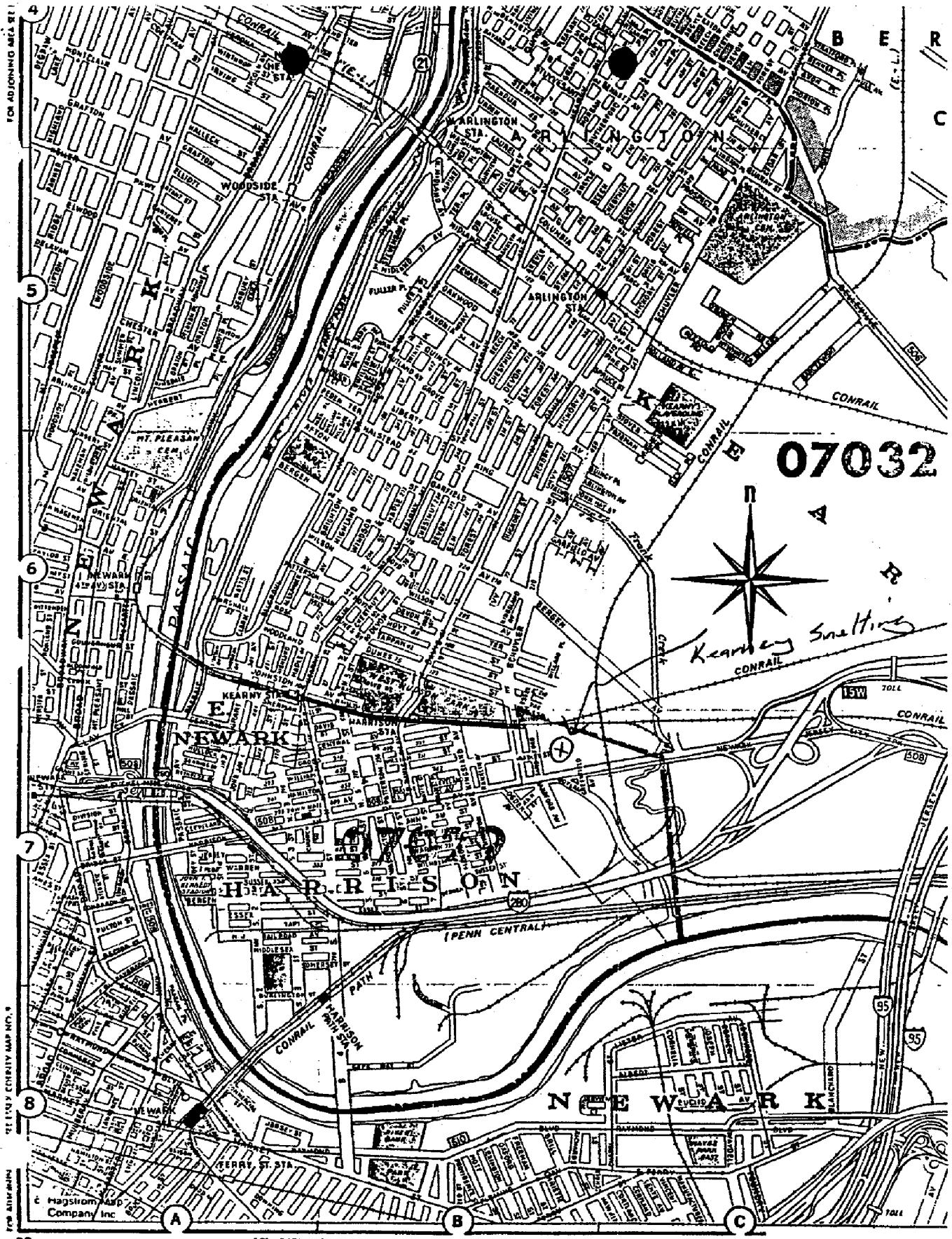
4. Submit a written report to this office within thirty (30) days of this letter detailing the corrective action taken, including the disposition of the surface impoundment on the property.

Enclosed please find a package of the necessary materials with which to apply for a NJPDES Permit. You are hereby directed to submit the completed application within thirty (30) calendar days of the date of receipt of this Directive. The application must be sent to the following address, with a copy of the cover letter to this writer:

Ms. Ellen Radow
Office of Permits Administration (OPA)
Water Quality Management Element
Division of Water Resources
P.O. Box CN-029
Trenton, NJ 08625

Any questions concerning the completion of the application should be addressed to Ms. Radow or the OPA staff, who may be reached at (609) 292-5262.

Failure to comply with this Directive may result in further enforcement action by this office, including the imposition of penalties pursuant to



FOR ADJOINING AREA SEE ESSEX COUNTY MAP NO. 10

849720030

849720031

A TROUGH RUNS THROUGH THE BUILDING WHICH COLLECTS GROUND WATER FOR COOLING.

UNPERMITTED DISCHARGES:

1. WASH DOWN SINK DISCHARGES TO OUTSIDE BUILDING
2. OVERFLOW FROM COOLING TOWER AND SETTLING TANKS DISCHARGES TO STORM DRAIN.
3. VALVE LEAKING AT PRECIPITATOR DISCHARGES TO STORM DRAIN.

ENTIRE SITE IN NEED OF A GOOD HOUSEKEEPING PROGRAM.

NUMEROUS EMPTY AND DAMAGED DRUMS AND STORED IN THE REAR OF THE FACILITY.

A LAGOON (SURFACE IMPOUNDMENT) IS LOCATED AT THE REAR OF THE FACILITY. THIS LAGOON IS USED TO COLLECT ALL THE WASTE WATER GENERATED FROM KEARNY SMELTING & REFINING CO. THIS LAGOON IS ON THE PROPERTY OF KEARNY SMELTING.

BUILDING IS NOT SERVICED BY SANITARY SEWERS. SANITARY FACILITIES DISCHARGE TO A SEPTIC TANK.

1. A SEWER LATERAL PERMIT
2. PERMIT FOR IMPROVEMENTS IN HOUSEKEEPING.
3. PERMIT TO VERIFY REPAIR OF LEAKING VALVE.

Form DEP-001
2/83

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

REPORT OF: ☐ PHONE CALL ☒ VISIT

DATE 1/3/84

TIME

REFERRED TO TBH

BUREAU OR OFFICE

FILE KEARNY SMELTING

PERSON CONTACTED MR. MICHAEL ROTH SCHILD, PRES PHONE NO.

AFFILIATION/ADDRESS KEARNY SMELTING AND REFINING CORP.

SUBJECT OF CALL/VISIT 936 HARRISON AVE, KEARNY, N.J. 07032

SUMMARY OF CALL/VISIT

ABOVE FACILITY IS IN THE BUSINESS OF SMELTING AND REFINING COPPER BASE SCRAP. ALL SLAG AND RESIDUE IS SOLD FOR RECOVERY.

City Water & Groundwater → Cooling of Ingots → Holding Tank → Re-circulate

City Water → 3,000 Gal. Storage Tank → Cooling Jacket (Furnace) → Cooling Tower → Re-circulate

City Water & Groundwater → Cooling Exhaust Fan/Furnace → Cooling Tower Settling Tanks → Waste to Storm Sewer

ACTION RECOMMENDED Electrostatic Precipitator → Final Wet Scrubber

Zinc Oxide Slurry → Madison Industries, Old Bridge, N.J.

OVER

Signature

849720032

State of New Jersey
Department of Environmental Protection and Energy
Site Remediation Program
CN 028
Trenton, NJ 08625-0028
Tel. # 609-292-1250
Fax. # 609-633-2360

Scott A. Weiner
Commissioner

Lance R. Miller
Assistant Commissioner

Prepared by: _____

Date: October 11, 1991

IN THE MATTER OF	:	ADMINISTRATIVE
THE KEARNY SMELTING SITE	:	CONSENT
AND	:	ORDER
KEARNY SMELTING & REFINING CORPORATION	:	

This Administrative Consent Order is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection and Energy (hereinafter "NJDEPE" or the "Department") by N.J.S.A. 13:1D-1 et seq. and the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and the Spill Compensation and Control Act, N.J.S.A. 58:10-23.11 et seq. and duly delegated to the Assistant Director for the Responsible Party Cleanup Element of the Division of Responsible Party Site Remediation pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. Kearny Smelting and Refining Corporation, a New Jersey corporation (hereinafter "KSRC"), owns and operates a nonferrous metals manufacturing facility on a 11.461 acre parcel, located at or around 936 Harrison Avenue, Kearny Township, Hudson County, designated as Block 276, Lot 3.1B according to the Township of Kearny tax maps (hereinafter the "Site"). The Site is bordered by industrial sites on the southern and eastern sides, residential areas to the west, and the Erie Lackawanna Railroad to the north. An unlined lagoon (hereinafter "lagoon") is located within the Site. The flow into the unlined lagoon and the lagoon's outflow represent discharges to surface and ground waters.

2. From the commencement of operations in or around 1945 until approximately 1975 KSRC operated on the Site pursuant to its lease agreement with Mendel Samuel and Sons Incorporated. The northwest corner of the Site was occupied by the American Lithographic Varnish Company during the 1940's and 1950's. According to KSRC, from approximately 1975 to the present, this portion of the Site has been occupied by Diesel Components, Inc.

3. During the smelting process KSRC melts approximately 50,000-60,000 pounds of scrap metal per day, containing copper, tin and/or

zinc alloys, in a rotary smelting furnace, in order to produce bronze and brass ingots. This process results in discharges to the lagoon at the Site. These discharges include, but are not necessarily limited to: a) non-contact cooling water, from the extrusion process, b) contact cooling water from a holding tank which is part of the air pollution treatment system used to cool furnace gases, as well as from a 4 inch pump which is float activated and releases the waste water from the ingot cooling system, and c) waste water from a laboratory sink, which originates as city water and mixes with furnace cooling water, beaker cooling water and wash basin water.

4. In 1968 , KSRC applied to the State of New Jersey and obtained air pollution permits for the construction and operation of air pollution control equipment to control the release of air contaminants from its manufacturing operations.

5. On January 8, 1980, after citing the Right of Entry clause of the Water Pollution Control Act, N.J.S.A. 58:10A-6 to an employee of KSRC, a representative of the Department was denied a tour of the Site to inspect a discharge that was visible from a nearby site.

6. By a letter dated February 4, 1980, the United States Environmental Protection Agency notified KSRC of its responsibility to apply for a National Pollutant Discharge Elimination System (hereinafter "NPDES") permit for discharges emanating from onsite sources into the surface waters of the United States.

7. On April 16, 1980 KSRC was notified in a letter from the Kearny Department of Public Health, that dumping of facility waste in the eastern portion of the Site must cease due to the lack of a permit in violation of local ordinance #83-14. KSRC responded in a letter dated April 18, 1980 stating that they were issued a permit to dump when the Site was purchased. To date, no record of a valid permit has been found.

8. On March 29, 1983 the Township of Kearny Health Department observed KSRC emitting a grayish-white plume from their facility, with large amounts of fly ash particulate material being deposited on local cars, homes, and roadways. Based on these observations the Kearny Township Health Department issued two summonses to KSRC for two separate violations of the Kearny Public Health Nuisance Code due to the emissions, under which KSRC was assessed $100 for each violation. KSRC paid this penalty assessment.

9. On January 3, 1984, a NJDEPE representative observed KSRC discharging wastewater, consisting of washdown from a sink inside a building at the Site, the overflow from the facility's cooling tower and settling tanks, and wastewater from a leaking valve on an electrostatic precipitator, into the lagoon.

10. On January 31, 1984, in response to a citizen's complaint, the Department conducted an investigation of the facility and found KSRC discharging wastewater into state waters from; a) an indoor washdown sink, b) cooling tower and settling tank overflow, c) a leaking electrostatic precipitator, and d) the lagoon, without a NJPDES permit. The Department thus ordered KSRC to:

a. Immediately cease all unpermitted discharges;

b. Submit to NJDEPE a completed New Jersey Pollution Discharge Elimination System (NJPDES) permit application for the unpermitted discharges into the waters of the state from the unlined lagoon;

c. Submit to NJDEPE within thirty days of the receipt of the directive, a written report detailing the corrective action taken.

11. On February 25, 1986, the Department issued an Administrative Order pursuant to the Air Pollution Control Act, N.J.S.A. 26:2C-1 to KSRC for operating the facility's electric melting furnace while the bag collector was disconnected, resulting in a $400 penalty assessment, which was paid on March 7, 1986.

12. On April 14, 1986, the Department conducted an inspection of the Site which revealed the mismanagement of hazardous waste and/or solid waste including but not necessarily limited to; mounds of incinerator ash, hundreds of metal drums, and transformers on the eastern side of the building, as well as poor housekeeping throughout the Site.

13. On September 24, 1986 the Department conducted sampling onsite, consisting of 6 soil samples, 4 air samples, and 1 surface water sample. On October 30, 1986 soil sample results revealed that the onsite soils were contaminated with the following priority pollutant metals in the following concentrations:

Antimony	427 ppm
Arsenic	31 ppm
Beryllium	41 ppm
Cadmium	600 ppm
Chromium	468 ppm
Copper	17,200 ppm
Lead	15,300 ppm
Mercury	10 ppm
Nickel	458 ppm
Silver	1,130 ppm
Zinc	81,200 ppm

14. On September 28, 1987, the Department issued KSRC an Administrative Order pursuant to the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq. and by N.J.S.A. 13:1D-1 et seq., to KSRC, in connection with the removal of the hood from an electric furnace at the Site, resulting in the release of fugitive emissions to the air. The Department issued an $800 penalty to KSRC for the above violation the full amount of which was paid by KSRC on November 16, 1987.

15. On the evening of October 22, 1987, a Hudson Regional Health Officer (HRHO) observed KSRC emitting a heavy smoke emission and discharging of fuel oil from the Site. KSRC discharged an estimated 100-1000 gallons of fuel oil along the eastern fence line in a 1 hour period. The HRHO also observed a discharge of white liquid from a 4 inch PVC pipe,

originating in the facility's conveyor pit pump into a drainage ditch which enters the unlined lagoon.

16. As a followup to the October 22, 1987 investigation, on October 23, 1987, the HRHO issued KSRC a Notice of Violation pursuant to the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 et seq.) and regulations (N.J.A.C. 7:1E-1 et seq.) for discharging No. 4 fuel oil, process generated wastewater containing zinc and lead into the unlined lagoon as well as failing to notify the Department of said discharge.

17. On October 27, 1987 KSRC notified the Department of a spill of approximately 125 gallons of No. 4 fuel oil into the soil in a 15-20 foot radius of the facility's pumphouse 2 weeks prior. This release was reportedly due to a failed pressure valve. The facility was also observed discharging wastewater originating as contact and noncontact cooling water, contaminated stormwater runoff, laboratory waste, and water from the air scrubber device into State waters without a valid NJPDES permit. KSRC contends that this spill is the 125 gallon spill referenced in paragraph 15.

18. On October 30,1987, KSRC filed a NJPDES Permit Application with the NJDEPE, Division of Water Resources, Bureau of Permits. The Department assigned the Application Number 0068268. The Department is currently reviewing this application.

19. On November 5, 1987, the Department issued KSRC a NOV pursuant to the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., to KSRC for causing illegal discharges to its surface impoundment (lagoon referenced in paragraph 1). Sampling conducted by the Department during this investigation revealed the discharge of the following pollutants:

a. chloride
b. copper
c. lead
d. nickel
e. zinc.

20. On November 16, 1987, the Department issued an Administrative Order pursuant to N.J.S.A. 13:1D-1 et seq. and the Air Pollution Control Act, N.J.S.A. 27:2C-1 et seq., to KSRC along with a penalty assessment of $400.00 for the emission of particles of over 20% opacity from the facility's smoke stacks, the full amount of which was paid on April 12, 1988.

21. On July 13, 1989 a Department inspection of the Site revealed poor housekeeping of the facility, resulting in the discharge of contaminated runoff into state waters. An unregistered 10,000 gallon No. 2 fuel oil underground storage tank was also discovered during that inspection. KSRC maintains that this tank has since been removed. The Departmental inspector also discovered that KSRC has above ground petroleum storage capacity in excess of 1,320 gallons without a Spill Prevention Control and Countermeasures (SPCC) plan which is required pursuant to 40 C.F.R. 112 (USEPA regulations for oil pollution prevention), of all facilities possessing above ground storage of petroleum. These tanks have since been enclosed by reenforced cast concrete containment structures. To date no

SPCC plan or registration form has been submitted to the Department by KSRC.

22. On June 27, 1990, a Departmental investigation of the site revealed that blue wastewater was present in the unlined lagoon.

23. During a November 20, 1990 investigation of the Site, NJDEPE and New Jersey State Police inspectors issued KSRC a summons in connection with placing debris in the waters of the State of New Jersey under N.J.S.A. 23:5-28.

24. On December 3, 1990, as a followup to the November 20, 1990 investigation, NJDEPE and the New Jersey State Police conducted an investigation at the Site and observed the presence of heavy land moving equipment apparently used for landfilling lowland soil with cyanide salts and smelting by-products. Several areas of recent fill were discovered when the ground gave way under the investigating personnel. The pond closest to the foundry was found to be a milky-white color and was receiving a grayish white runoff from the foundry. Sampling conducted at this time revealed the presence of zinc, lead and cyanide in the lagoon. The Department maintains that the zinc and lead was a result of a leaking scrubbing device.

25. Some or all of the substances referenced in these Findings above are hazardous substances pursuant to the Spill Compensation and Control Act, N.J.S.A., 58:10-23.11b(k).

26. The hazardous substances referenced above were discharged and continue to discharge into the waters and onto the lands of the State of New Jersey in violation of the Spill Compensation and Control Act, specifically N.J.S.A. 58:10-23.11c.

27. The substances referenced in these Findings above are pollutants pursuant to the Water Pollution Control Act, N.J.S.A. 58:10A-3n.

28. KSRC discharged the pollutants referenced above onto the lands and into the waters of the State of New Jersey without a permit in violation of the Water Pollution Control Act, specifically N.J.S.A. 58:10A-6.

29. KSRC has acknowledged responsibility for certain discharges referenced in these Findings.

30. Based on these FINDINGS, the Department has determined that KSRC has violated the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., specifically N.J.S.A. 58:10A-6, and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq., specifically N.J.A.C. 7:14A-1.2(c) and the Spill Compensation and Control Act, 58:10-23.11 et seq. and regulations promulgated pursuant thereto, N.J.A.C. 7:1E-1.1 et seq., and the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., and regulations promulgated pursuant thereto, N.J.A.C. 7:26-1.1 et seq.

31. To determine the nature and extent of the problem presented by the discharge of pollutants and hazardous substances at and around the site and the mismanagement of wastes, and to develop environmentally sound remedial actions, it is necessary to conduct a remedial investigation and feasibility

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 15 2003

GENERAL NOTICE LETTER
CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Francine Rothschild, President
Kearny Smelting & Refining
936 Harrison Ave #5
Kearny, New Jersey 07032

RE: Diamond Alkali Superfund Site
Notice of Potential Liability for
Response Actions in the Lower Passaic River, New Jersey

Dear Ms. Rothschild:

The United States Environmental Protection Agency ("EPA") is charged with responding to the release and/or threatened release of hazardous substances, pollutants, and contaminants into the environment and with enforcement responsibilities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §9601 et seq. Accordingly, EPA is seeking your cooperation in an innovative approach to environmental remediation and restoration activities for the Lower Passaic River.

EPA has documented the release or threatened release of hazardous substances, pollutants and contaminants into the six-mile stretch of the river, known as the Passaic River Study Area, which is part of the Diamond Alkali Superfund Site ("Site") located in Newark, New Jersey. Based on the results of previous CERCLA remedial investigation activities and other environmental studies, including a reconnaissance study of the Passaic River conducted by the United States Army Corps of Engineers ("USACE"), EPA has further determined that contaminated sediments and other potential sources of hazardous substances exist along the entire 17-mile tidal reach of the Lower Passaic River. Thus, EPA has decided to expand the Study to include the areal extent of contamination to which hazardous substances from the six-mile stretch were transported; and those sources from which hazardous substances outside the six-mile stretch have come to be located within the expanded Study Area.

By this letter, EPA is notifying Kearny Smelting & Refining of its potential liability relating to the Site pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a). Under CERCLA, potentially responsible parties ("PRPs") include current and past owners of a facility, as well as persons who arranged for the disposal or treatment of hazardous substances at the Site, or the transport of hazardous substances to the Site.

851770001

In recognition of our complementary roles, EPA has formed a partnership with USACE and the New Jersey Department of Transportation-Office of Maritime Resources ("OMR") ["the governmental partnership"] to identify and to address water quality improvement, remediation, and restoration opportunities in the 17-mile Lower Passaic River. This governmental partnership is consistent with a national Memorandum of Understanding ("MOU") executed on July 2, 2002 between EPA and USACE. This MOU calls for the two agencies to cooperate, where appropriate, on environmental remediation and restoration of degraded urban rivers and related resources. In agreeing to implement the MOU, the EPA and USACE will use their existing statutory and regulatory authorities in a coordinated manner. These authorities for EPA include CERCLA, the Clean Water Act, and the Resource Conservation and Recovery Act. The USACE's authority stems from the Water Resources Development Act ("WRDA"). WRDA allows for the use of some federal funds to pay for a portion of the USACE's approved projects related to ecosystem restoration.

For the first phase of the Lower Passaic River Project, the governmental partners are proceeding with an integrated five- to seven-year study to determine an appropriate remediation and restoration plan for the river. The study will involve investigation of environmental impacts and pollution sources, as well as evaluation of alternative actions, leading to recommendations of environmental remediation and restoration activities. This study is being conducted by EPA under the authority of CERCLA and by USACE and OMR, as local sponsor, under WRDA. EPA, USACE, and OMR are coordinating with the New Jersey Department of Environmental Protection and the Federal and State Natural Resource Trustee agencies. EPA, USACE, and OMR estimate that the study will cost approximately $20 million, with the WRDA and CERCLA shares being about $10 million each. EPA will be seeking its share of the costs of the study from PRPs.

Based on information that EPA evaluated during the course of its investigation of the Site, EPA believes that hazardous substances were being released from Kearny Smelting & Refining's facility located at 936 Harrison Avenue in Kearny, New Jersey, into the Lower Passaic River. Hazardous substances, pollutants and contaminants released from the facility into the river present a risk to the environment and the humans who may ingest contaminated fish and shellfish. Therefore, Kearny Smelting & Refining may be potentially liable for response costs which the government may incur relating to the study of the Lower Passaic River. In addition, responsible parties may be required to pay damages for injury to, destruction of, or loss of natural resources, including the cost of assessing such damages.

Enclosed is a list of the other PRPs who have received Notice letters. This list represents EPA's findings on the identities of PRPs to date. We are continuing efforts to locate additional PRPs who have released hazardous substances, directly or indirectly, into the Passaic River. Inclusion on, or exclusion from, the list does not constitute a final determination by EPA concerning the liability of any party for the release or threat of release of hazardous substances at the Site. Be advised that notice of your potential liability at the Site is being forwarded to all parties on this list.

We request that you consider becoming a "cooperating party" for the Lower Passaic River

Project. As a cooperating party, you, along with many other such parties, will be expected to fund EPA's share of the study costs. Upon completion of the study, it is expected that CERCLA and WRDA processes will be used to identify the required remediation and restoration programs, as well as the assignment of remediation and restoration costs. At this time, the commitments of the cooperating parties will apply only to the study. For those who choose not to cooperate, EPA may apply the CERCLA enforcement process, pursuant to Sections 106 (a) and 107(a) of CERCLA, 42 U.S.C. §9606(a) and §9607(a) and other laws.

Pursuant to CERCLA Section 113(k), EPA must establish an administrative record that contains documents that form the basis of EPA's decision on the selection of a response action for a site. The administrative record files, which contain the documents related to the response action selected for this Site are located at EPA's Region 2 office (290 Broadway, New York) on the 18th floor. You may call the Records Center at (212) 637-4308 to make an appointment to view the administrative record for the Lower Passaic River Project.

EPA will be holding a meeting with all PRPs on October 29, 2003 at 10:00 AM in Conference Room 27A at the Region 2 office. At that meeting, EPA will provide information about the actions taken to date in the Lower Passaic River, as well as plans for future activities. After the presentation, PRPs will be given the opportunity to caucus, and EPA will return to answer any questions that might be generated during the private session. Please be advised that due to increased security measures, all visitors need to be registered with the security desk in the lobby in order to gain entry to the office. In order to ensure a smooth arrival, you will need to provide EPA with a list of attendees no later than October 15, 2003.

EPA recommends that the cooperating parties select a steering committee to represent the group's interest as soon as possible, since EPA expects a funding commitment for the financing of the CERCLA share of the $20 million study by mid-November 2003. If you wish to discuss this further, please contact Ms. Alice Yeh, Remedial Project Manager, at (212) 637-4427 or Ms. Kedari Reddy, Assistant Regional Counsel, at (212) 637-3106. Please note that all communications from attorneys should be directed to Ms. Reddy.

Sincerely yours,

George Pavlou, Director
Emergency and Remedial Response Division

Enclosure

851770003

PRPs in Receipt of Notice Letters:

PRP	Legal Counsel
J. Roger Hirl President and Chairman of the Board Occidental Chemical Co. Occidental Tower 5005 LBJ Freeway Dallas, Texas 75244	Paul W. Herring, Esq. Andrews & Kurth L.L.P. 1717 Main Street, Suite 3700 Dallas, Texas 75201
Joseph Gabriel Vice President of Operations 360 North Pastoria Environmental Corp. 1100 Ridgeway Avenue Rochester, New York 14652-6280	Philip Sellinger, Esq. Sills Cummis Zuckerman One Riverfront Plaza Newark, NJ 07102
Robert Ball, President Alcan Aluminum Corporation 100 Erieview Plaza, 29th Floor Cleveland, Ohio 44114	Lawrence Salibra, Esq. Alcan Aluminum Corporation 6060 Parkland Blvd. Mayfield Hts., OH 44124
Mark Epstein, President Alden Leeds Inc. 55 Jacobus Ave. Kearny, New Jersey 07032	Eric Aronson, Esq. Whitman Breed Abbott & Morgan One Gateway Center Newark, NJ 07102
Alan Bendelius, President Alliance Chemical, Inc. Linden Avenue Ridgefield, New Jersey 07657	Fredi L. Pearlmutter, Esq. Cooper, Rose & English, LLP 480 Morris Avenue Summit, New Jersey 07901-1527
William Gentner, President The Andrew Jergens Co. 2535 Spring Grove Ave. Cincinnati, Ohio 45214	A. Christian Worrell III, Esq. Head & Ritchey, LLP 1900 Fifth Third Center 511 Walnut Street Cincinnati, OH 45202
Gary Cappeline, President Ashland Specialty Chemical Co. 5200 Blazer Parkway Dublin, Ohio 43017	Stephen Leermakers, Esq. Ashland Specialty Chemical Co. 5200 Blazer Parkway Dublin, OH 43017
Klaus Peter Loebbe, President BASF Corporation 3000 Continental Drive North Mount Olive, New Jersey 07828	Nan Bernardo, Esq. and Nancy Lake Martin, Esq. BASF Corporation 3000 Continental Drive North Mount Olive, NJ 07828

Joseph Akers, Vice President Bayer Corporation 100 Bayer Road Pittsburgh, Pennsylvania 15205-9741	Gerard Hickel, Esq. Bayer Corporation 100 Bayer Road Pittsburgh, PA 15205-9741
Yvan Dupay, President Benjamin Moore & Co. 51 Chestnut Ridge Road Montvale, New Jersey 07645	Arthur Schulz, Esq. Environmental Counsel 4910 Massachusetts Ave., N.W. Suite 221 Washington, DC 20016
Alberto Celleri, President Chemical Compounds Inc. 10 Baldwin Court Roseland, New Jersey 07086	Jim Giannotti Chemical Compounds Inc. 29-75 Riverside Avenue Newark, NJ 07104
President Chris-Craft Industries, Inc. 767 Fifth Avenue, 46th Floor New York, New York 10153	Brian Kelly, Esq. Chris-Craft Industries, Inc. 767 Fifth Avenue, 46th Floor New York, NY 10153
John Guffey, President Coltec Industries, Inc. 3 Coliseum Centre 2550 West Tyvola Road Charlotte, North Carolina 28217	John R. Mayo, Esq. Coltec Industries, Inc. 430 Park Avenue New York, NY 10022
Roger Marcus, President Congoleum Corporation 3705 Quakerbridge Road Mercerville, New Jersey 08619	Russell Hewit, Esq. Dughi & Hewit 340 North Avenue Cranford, NJ 07016
Martin Benante, Chairman Curtiss-Wright Corp. 4 Becker Farm Road Roseland, New Jersey 07068	James Maher, Esq. Curtiss-Wright Corp. 4 Becker Farm Road Roseland, NJ 07068
Antonio Perez, President Eastman Kodak Company 343 State Street Rochester, New York 14650	Elliot Stern, Esq. Eastman Kodak Company 343 State Street Rochester, NY 14650
Edgar Woolard, Chairman E.I. du Pont de Nemours & Co. 1007 Market Street Wilmington, Delaware 19898	Bernard J. Reilly, Esq. Corporate Counsel E.I. du Pont de Nemours & Co. 1007 Market Street Wilmington, DE 19898

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David Weisman, CEO Elan Chemical Company 268 Doremus Ave. Newark, New Jersey 07105	Jeffrey Schwartz, Esq. Sarber Schlesinger Satz & Goldstein One Gateway Center Newark, NJ 07102
Al Reisch, President E M Sergeant Pulp & Chemical Co. Inc. 6 Chelsea Road Clifton, New Jersey 07102	None
Mark Tucker, Esq. Essex Chemical Corp. 2030 WMDC Midland, Michigan 48674	Kenneth Mack, Esq. Fox, Rothschild, O'Brien & Frankel Princeton Pike Corp.Center 997 Lenox Drive, Building 3 Lawrenceville, NJ 08648
Todd Walker, President Fairmount Chemical Co. Inc. 117 Blanchard St. Newark, New Jersey 07105	John Ix, Esq. Porzio Bromberg & Newman 163 Madison Ave. Morristown, NJ 07962
Bradley Buechler, President Franklin-Burlington Plastics Inc. 113 Passaic Ave. Kearny, New Jersey 07032	Robert M. Becker, Esq. Kraemer, Burns, Mytelka & Lovell, P.A. 675 Morris Ave. Springfield, NJ 07081
Henry Benz, President Hoescht Celanese Chemicals, Inc. Route 202-206 P.O.Box 2500 Somerville, New Jersey 08876	Anne Conley-Pitchell, Esq. Hoescht Celanese Corp. Route 202-206 P.O.Box 2500 Somerville, NJ 08876
Francine Rothschild, President Kearny Smelting & Refining 936 Harrison Ave #5 Kearny, New Jersey 07032	None
Henry Schact, CEO Lucent Technologies, Inc. 600 Mountain Avenue Murray Hill, New Jersey 07974	Ralph McMurry, Esq. Hill, Betts & Nash LLP 1 Riverfront Plaza, Suite 327 Newark, NJ 07102-5401
Richard Meelia, President Mallinckrodt, Inc. 675 McDonnell Blvd. Hazelwood, Missouri 63042	Patricia Duft, Esq. Mallinckrodt, Inc. 675 McDonnell Blvd. Hazelwood, MO 63042

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Richard Mahoney, CEO Monsanto Company 800 N. Lindbergh Blvd. St. Louis, Missouri 63167	L. William Higley, Esq. Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167
Joseph Galli, President Newell Rubbermaid, Inc. 29 E. Stephenson St. Freeport, Illinois 61032	Peter Schultz, Director Environmental Affairs Newell Co. 4000 Auburn St. Rockford, IL 61101
Jean-Pierre van Rooy, President Otis Elevator Company North American Operations 10 Farm Springs Road Farmington, Connecticut 06032	Sarah Hurley, Esq. Robinson & Cole LLP 695 East Main Street Stamford, CT 06904-2305
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Henry McKinnell, Chairman Pfizer Inc. 235 E. 42nd St. New York, New York 10017	Michael McThomas, Esq. Pfizer Inc. 235 E. 42nd St. New York, NY 10017
Raymond LeBoeuf, President PPG Industries, Inc. One PPG Place Pittsburgh, Pennsylvania 15272	Joseph Karas, Esq. PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272
Lawrence Codey, President PSE&G Co. P.O. Box 570 Newark, New Jersey 07101-0570	Hugh Mahoney, Esq. PSE&G Co. P.O. Box 570 Newark, NJ 07101
Phillip D. Ashkettle, President Reichhold Chemicals, Inc. P.O. Box 13582 Research Triangle Park, North Carolina 27709	Adam S. Walters, Esq. Phillips, Lytle, Hitchcock, Blaine & Huber 3400 Marine Midland Center Buffalo, NY 14203
Robert McNeeley, President Reilly Industries, Inc. 1510 Market Square Center 151 North Delaware Street Indianapolis, Indiana 46204	Paul Rivers, Director Corporate Environmental Affairs Reilly Industries, Inc. 1500 S. Tibbs Avenue Indianapolis, IN 46242

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Robert Finn, President RSR Corporation 2777 Stemmons Freeway, Suite 1800 Dallas, Texas 75207	Howard Myers, Esq. RSR Corporation 2777 Stemmons Freeway, Suite 1800 Dallas, TX 75207
Christopher Connor, CEO The Sherwin-Williams Company 101 Prospect Avenue, N.W. Cleveland, Ohio 44115-1075	Donald McConnell, Esq. The Sherwin-Williams Co. 101 Prospect Ave., N.W. Cleveland, OH 44115
George Barrett, President Teva Pharmaceuticals USA Inc. 1090 Horsham Road North Wales, Pennsylvania 19454	Kirsten E. Bauer, Esq. Teva North America 1090 Horsham Road North Wales, PA 19454
Robert Senior, President Three County Volkswagen 701 Riverside Ave. Lyndhurst, New Jersey 07071	Robert DiLascio, Esq. 30 Park Avenue, Suite 101 Lyndhurst, NJ 07071
Michael Jordan, President Westinghouse Electric Corp. 11 Stanwix Street Pittsburgh, Pennsylvania 15222	Roger Willis, Esq. Westinghouse Electric Corp. 11 Stanwix Street Pittsburgh, PA 15222
Isaac Weinberger, President Wiggins Plastics Inc. 547 Maitland Ave. Teaneck, New Jersey 07666	None

851770008

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Dan Raviv Associates, Inc.
Consultants in hydrogeology, water quality, landfill hydrology and ECRA compliance

November 10, 1993

State of New Jersey
Department of Environmental Protection and Energy
Bureau of State Case Management
401 East State Street - Fifth Floor
CN-028
Trenton, New Jersey 08625-0028

Attention: Mr. David Sweeney, Section Chief

DUPLICATE

Re: Draft Remedial Investigation Report
Kearny Smelting and Refining Corporation
Kearny, New Jersey
DRAI Job No. 91C926

Dear Mr. Sweeney:

On behalf of Kearny Smelting and Refining Corporation (KSRC), Dan Raviv Associates, Inc. (DRAI) hereby submits four (4) copies of the "Draft Remedial Investigation Report" (RI Report) as required by paragraph 38 of the Administrative Consent Order (ACO) executed by the New Jersey Department of Environmental Protection and Energy (NJDEPE) on October 11, 1991. The RI report has been prepared in accordance with the requirements of Appendix B of the ACO.

If you have any questions or need additional information, please call.

Very truly yours,

DAN RAVIV ASSOCIATES, INC.

John J. Trela, Ph.D.
Technical Director and Senior Consultant

JJT/rf
D3-2393/LET-01.WP5

Enc.
c: Mr. Michel Rothschild (KSRC)

57 East Willow Street, Millburn, New Jersey 07041 (201) 564-6006/FAX (201) 564-6442

Dan Raviv Associates, Inc.
Consultants in hydrogeology, water quality, landfill hydrology and ECRA compliance

VOLUME I OF II
TEXT, FIGURES AND TABLES

DRAFT REMEDIAL INVESTIGATION REPORT
KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

DRAI JOB NO. 91C926

prepared for:

Kearny Smelting and Refining Corporation
936 Harrison Avenue
Kearny, New Jersey

Attention: Mr. Michel G. Rothschild

prepared by:

Dan Raviv Associates, Inc.
57 East Willow Street
Millburn, New Jersey 07041

November 1993

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10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

10.1.1 Soils

The following conclusions can be made from the soil samples' analytical results:

(1) The following elements, compounds or classes of compounds are determined to be in compliance with the prevailing soil cleanup criteria: VOCs, AEs, PCBs, cadmium, chromium, cyanide and phenol;

(2) All shallow soil samples analyzed for arsenic are in compliance with the criterion except for one sample. Overall, the soil samples are compliance with the standards.

Some deep samples had elevated levels of arsenic; however, these concentrations are apparently related to the emplacement of historic fill on the site or to the native geologic material and not to on-site operations. This supported by the absence of metals used on-site (i.e., copper, lead and zinc) from the samples where arsenic was detected;

(3) The soil analytical data demonstrate that the following metals are not in compliance with the current soil cleanup criteria: beryllium, copper and zinc. The source of these metals in the on-site soils appears to be related to the on-site smelting operations. Even though beryllium, copper and zinc are found at elevated concentrations in the soils, the analytical results of the ground water sampling for these metals does not demonstrate any violations of the NJGWQS. Lead was only detected in one well (MW-11s) during May 1993 at a concentration of 33 ppb, which exceeds the NJGWQS. After 50 years of operation, the impact of the on-site metal contamination in the soils is insignificant in relation to the ground water and surface water qualities.

10.1.2 Sediments

The following conclusions can be made from the sediment samples' analytical results:

(1) Sediment cores Sed-1, Sed-2 and Sed-4 had elevated levels of beryllium, cadmium, copper, lead and zinc. Beryllium, copper and zinc have not adversely impacted the ground or surface water. Hence, the significant of the elevated levels in the sediment cores with respect to the ground and surface water qualities is minimal.

(2) Sediment core Sed-3 is characterized by elevated levels of thallium and an absence of copper, lead, and zinc, which are related to the on-site operations. It is likely that the elevated levels of thallium found in core Sed-3 are not related to on-site operations because of the absence of copper, lead and zinc. Thallium levels found in core Sed-3 are most likely related to historic fill placed on the property in the early 1900's.

(3) Cadmium and thallium in the sediments have resulted in some minor local impacts to the ground water quality. The highest cadmium, concentration detected in the shallow wells was 32 ppb, eight times the standard of 4 ppb. Cadmium concentrations exceeded the standard in nine of the 11 on-site shallow wells. Thallium was detected in concentrations in excess of the NJGWQS in six of the 11 shallow on-site wells. The values detected ranged from 51 to 194 ppb.

10.1.3 Sludge

The following conclusions can be made from the sludge samples' analytical results:

(1) Both sludge samples ST-1 and ST-2 meet the sludge quality criteria for a Class A sludge.

(2) The sludge found in both septic tanks outside the main smelting building pose no threat to the soil or ground water quality on-site.

10.1.4 Ground Water

The following conclusions can be made from the ground water level measurements:

(1) Ground water flow in the shallow perched water zone is radial from the on-site lagoon and has a strong southwest component. Additionally, a localized mound appears in the vicinity of well MW-1s.

(2) Ground water flow in the deep aquifer is to the south and water level elevations drop to below MSL in some deep monitoring wells.

(3) The ground water elevation in the shallow perched zone is higher than in the deep zone in all monitoring well pairs.

(4) Analyses of the water level differences demonstrate that the two aquifer zones are interconnected beneath the site. Contamination introduced into the shallow zone migrates downward into the deeper aquifer as well as laterally.

10.1.4.1 Shallow Wells

The following conclusions can be made from the ground water samples' analytical results from the shallow wells:

(1) The following elements, compound or classes of compound have been determined to be in compliance with the NJGWQS: B/Ns, AEs, Pesticides, PCBs, beryllium, copper and zinc. Even though beryllium, copper, zinc and benzo(a)pyrene in the soils exceed the soil cleanup criteria, none of these compound have exceeded the NJGWQS in any ground water samples.

(2) VOC contamination occurs sporadically in the shallow ground water zone and apparently is not related to on-site activities, since

the VOCs are not found in the on-site soil, sediment or surface water samples.

(3) Cadmium, nickel, lead and thallium were detected above their respective NJGWQS in the shallow ground water zone.

Cadmium exceeded its 4 ppb NJGWQS in 14 of 18 shallow well samples collected and analyzed in May and July 1993. The highest concentration of cadmium was 32 ppb.

Lead exceeded its 10 ppb NJGWQS only one time (May 1993 well MW-11s at 33 ppb).

The nickel standard of 100 ppb was exceeded in well MW-5s during both the May 1993 (213 ppb) and July 1993 (116 ppb, average) samplings.

The thallium standard of 10 ppb was exceeded during May 1993 in wells MW-2s, MW-10s and MW-11s and during July 1993 in wells MW-5s, MW-7s, MW-9s and MW-10s with a range of 51 to 194 ppb for both sampling events. The thallium in the shallow perched ground water is most likely related to the area of thallium contamination detected in the location of the sediment core Sed-3 and not on-site manufacturing operations. Core Sed-3 is most likely related to historic fill placed on the site in the early 1900's.

(4) Based on the distribution of metal contamination in the shallow perched ground water, only cadmium and thallium demonstrated any significant site-wide impacts. Although cadmium occurs widely in the shallow perched ground water, its concentrations are comparatively low (maximum is 32 ppb). Thallium has a smaller area of distribution in the shallow perched ground water (wells MW-2s, Mw-5s, MW-7s, MW-9s, Mw-10s and MW-11s) but occurs at higher relative concentrations (51 to 194 ppm).

(5) The shallow perched ground water on the KSRC site should not be considered a ground water Class II-A aquifer. The remedial investigation has demonstrated that this is a perched ground water layer of limited areal extent and small saturated thickness under high water conditions and completely absent in significant areas of the site under low water conditions. The hydrogeologic and environmental significance of this perched ground water zone is very limited.

10.1.4.2 Deep Wells

The following conclusions can be made from the ground water samples' analytical results obtained from the deep wells:

(1) The deep ground water aquifer samplings demonstrated that arsenic, cadmium and thallium exceeded the NJGWQS.

(2) The arsenic standard of 8 ppb was exceeded only in well MW-4d. The values reported are 16 ppb in May 1993 and 39 ppb in July 1993. The adverse impacts from arsenic are restricted to only one

well (MW-4d) and no ground water arsenic plume is demonstrated. The arsenic impact is localized and has a small areal extent.

(3) Cadmium was detected in excess of its 4 ppb NJGWQS in wells MW-2d (8 ppb in May 1993 and 10 ppb in July 1993) and MW-4d (11 ppb in May 1993). These concentrations are not considered to be highly significant on a regional basis.

(4) The thallium NJGWQS of 10 ppb was exceeded in wells MW-2d (65 ppb in May 1993 and 127 ppb in July 1993) and MW-4d (66 ppb in July 1993).

10.1.5 Surface Water

The following conclusions can be made from the surface water samples' analytical results:

(1) The ground water flow in the area of the lagoon demonstrates that radial flow from the lagoon is occurring. This suggests that the lagoon is actually performing as an infiltration/percolation lagoon. For comparative purposes, the Class II-A NJGWQS have been used as a basis to examine the water quality of the surface water in the lagoon since the water has potential to impact the ground water in this area.

(2) Based on item (1) above, cadmium and lead exceed the Class II-A NJGWQS in both surface water samples (SW-1 and SW-2).

(3) The water found in the lagoon is likely adversely impacting the ground water quality in the shallow perched zone surrounding the lagoon.

10.2 Recommendations

The following recommendations address areas where additional RI activities are necessary for the KSRC site:

(1) The area of thallium contamination in the lagoon sediments and vicinity should be further sampled in order to delineate the source. About four to six soil borings should be completed and the soil and/or sediments should be sampled and analyzed for thallium.

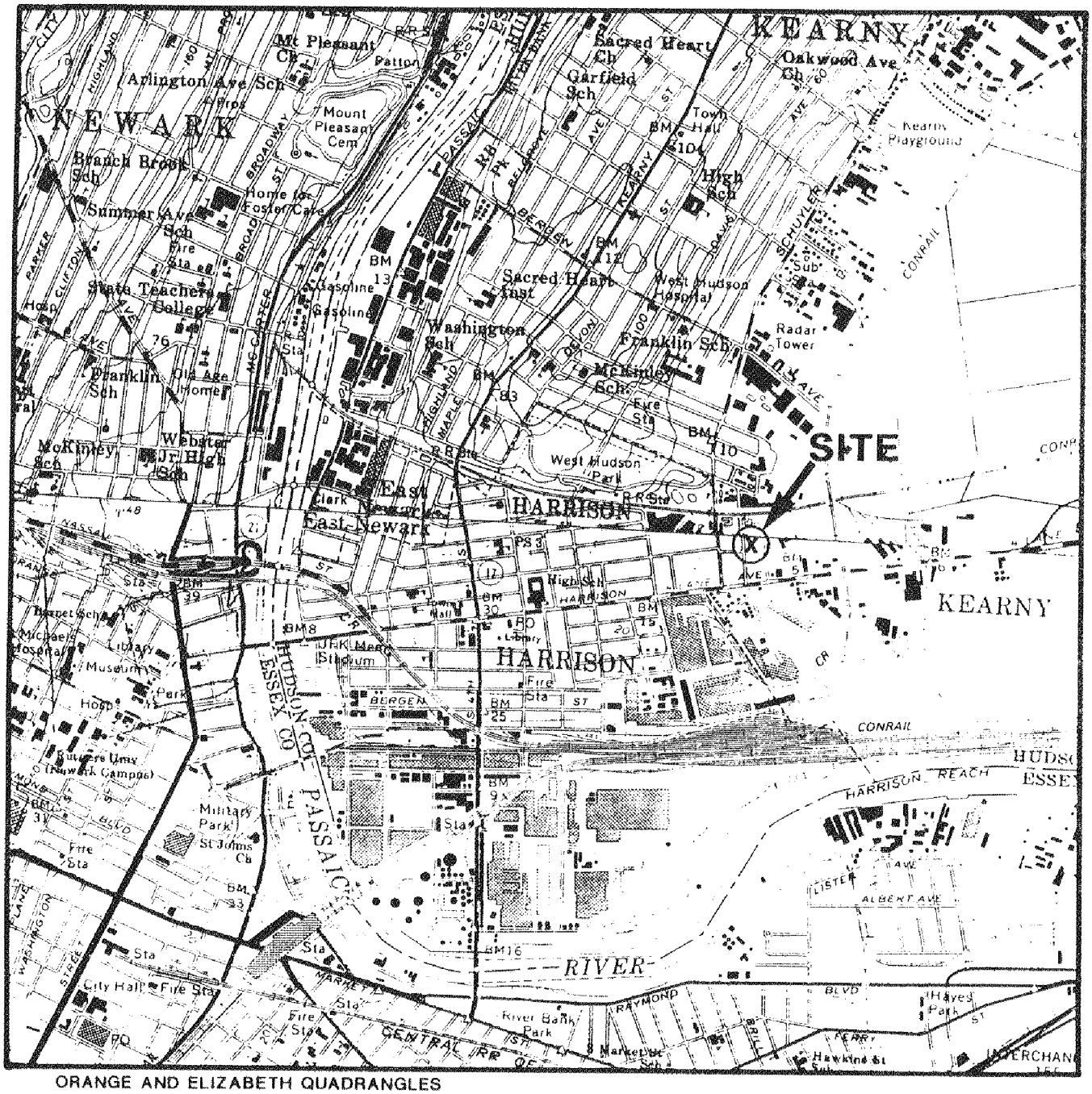
(2) Monitoring of both ground water zones should be conducted quarterly for a period of one year to determine if the metal contamination decreases in both zones. All wells at the KSRC site should be sampled and analyzed for PP-M.

(3) The sludge found in the two on-site septic systems pose no threat to the ground water beneath the KSRC property. However, periodic cleaning of the septic systems and disposal of the sludge should be performed on a regular basis. No further sampling is necessary.

(4) The soil boring installation and analyses performed as part of this RI is adequate to delineate the horizontal and vertical

extent of soil contamination. Therefore, no further soil sampling is recommended for the KSRC site except as noted in item (1) above.

(5) All discharges of process water to the lagoon from the KSRC operations should be discontinued under a reasonable compliance schedule.



ORANGE AND ELIZABETH QUADRANGLES
7.5 MINUTE SERIES

0 2,000 FT.
APPROXIMATE SCALE

N

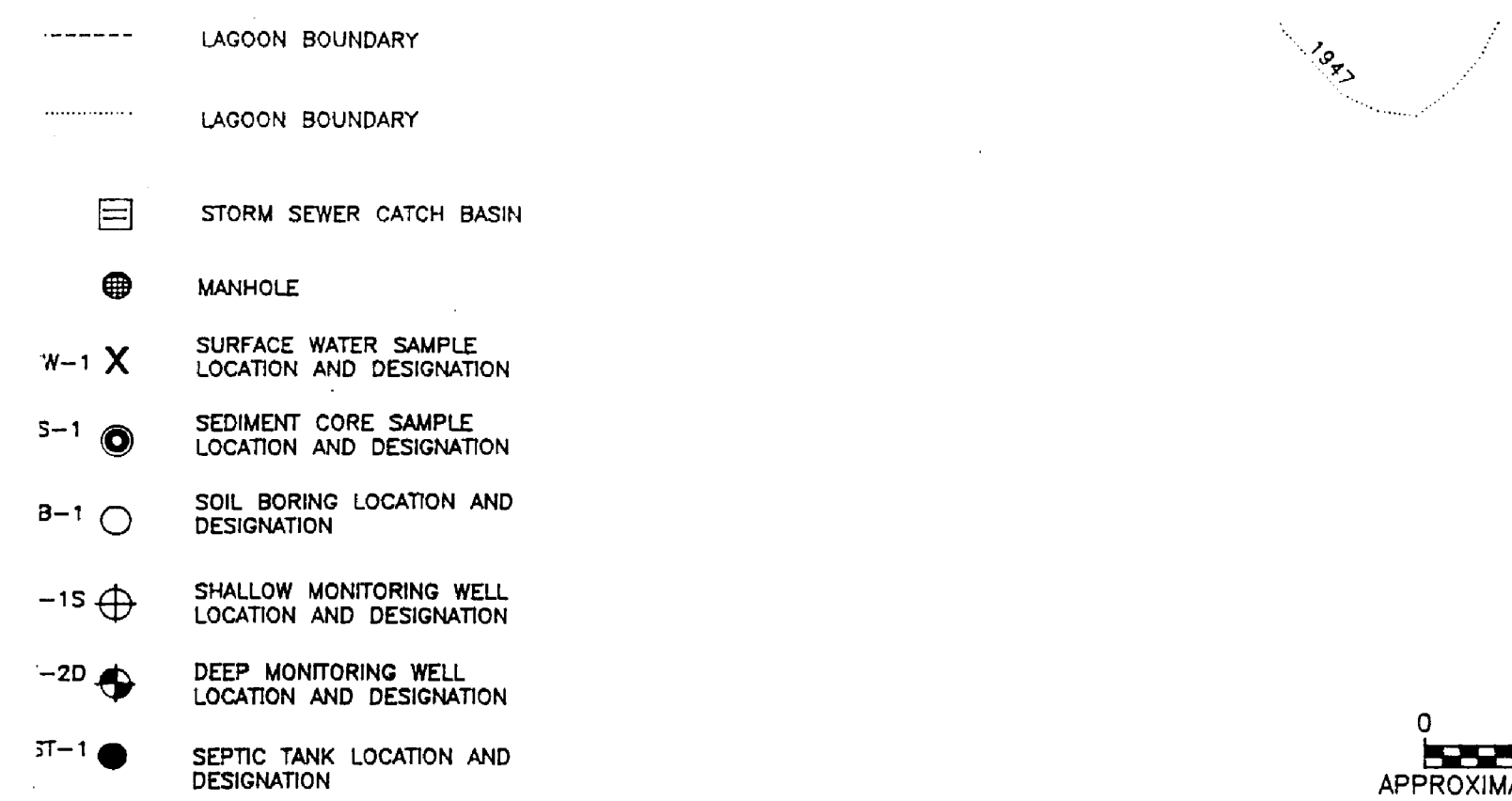
Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

SITE LOCATION MAP

KEARNY SMELTING AND REFINING CORP. - KEARNY, NJ

PREPARED BY: MC/MV	DATE: DECEMBER 1991
JOB NO.: 91C926	FIGURE: 1

137136



NOTES: 1) SHALLOW WELLS SCREENED ABOVE THE MEADOW MAT LAYER, IN ARTIFICIAL FILL

2) DEEP WELLS SCREENED BELOW MEADOW MAT LAYER, IN NATURAL OVERBURDEN

3) ALL RESULTS IN PARTS PER BILLION (ppb)

4) BCC = BELOW CLEANUP CRITERIA

5) ( ) = RESULTS OF FIELD DUPLICATE

Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

GROUND WATER ANALYTICAL RESULTS IN EXCESS OF NJDEPE GROUND WATER QUALITY STANDARDS
MAY 1993

KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

PREPARED BY: KW/ODL	DATE: JULY 1993
JOB NO.: 91C926	FIGURE: 11

926-02

TIERRA-B-016020

EXPLANATION

PROPERTY LINE

1969 LAGOON BOUNDARY

STORM SEWER CATCH BASIN

MANHOLE

0 60 FT.

APPROXIMATE SCALE

Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

STORMWATER MANAGEMENT PLAN
PARCEL LOCATION MAP

KEARNY SMELTING AND REFINING CORP. – KEARNY, NJ

PREPARED BY: FWW/LB	DATE: MAY 1995
JOB NO.: 91C926	FIGURE: 1

LAGOON BOUNDARY

LAGOON BOUNDARY

STORM SEWER CATCH BASIN

MANHOLE

SURFACE WATER SAMPLE LOCATION AND DESIGNATION

SEDIMENT CORE SAMPLE LOCATION AND DESIGNATION

SOIL BORING LOCATION AND DESIGNATION

SHALLOW MONITORING WELL LOCATION AND DESIGNATION

DEEP MONITORING WELL LOCATION AND DESIGNATION

SEPTIC TANK LOCATION AND DESIGNATION

0 40 FT.

APPROXIMATE SCALE

NOTES: 1) SHALLOW WELLS SCREENED ABOVE THE MEADOW MAT LAYER, IN ARTIFICIAL FILL

2) DEEP WELLS SCREENED BELOW MEADOW MAT LAYER, IN NATURAL OVERBURDEN

3) ALL RESULTS IN PARTS PER BILLION (ppb)

4) BCC = BELOW CLEANUP CRITERIA

5) ( ) = RESULTS OF FIELD DUPLICATE

Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

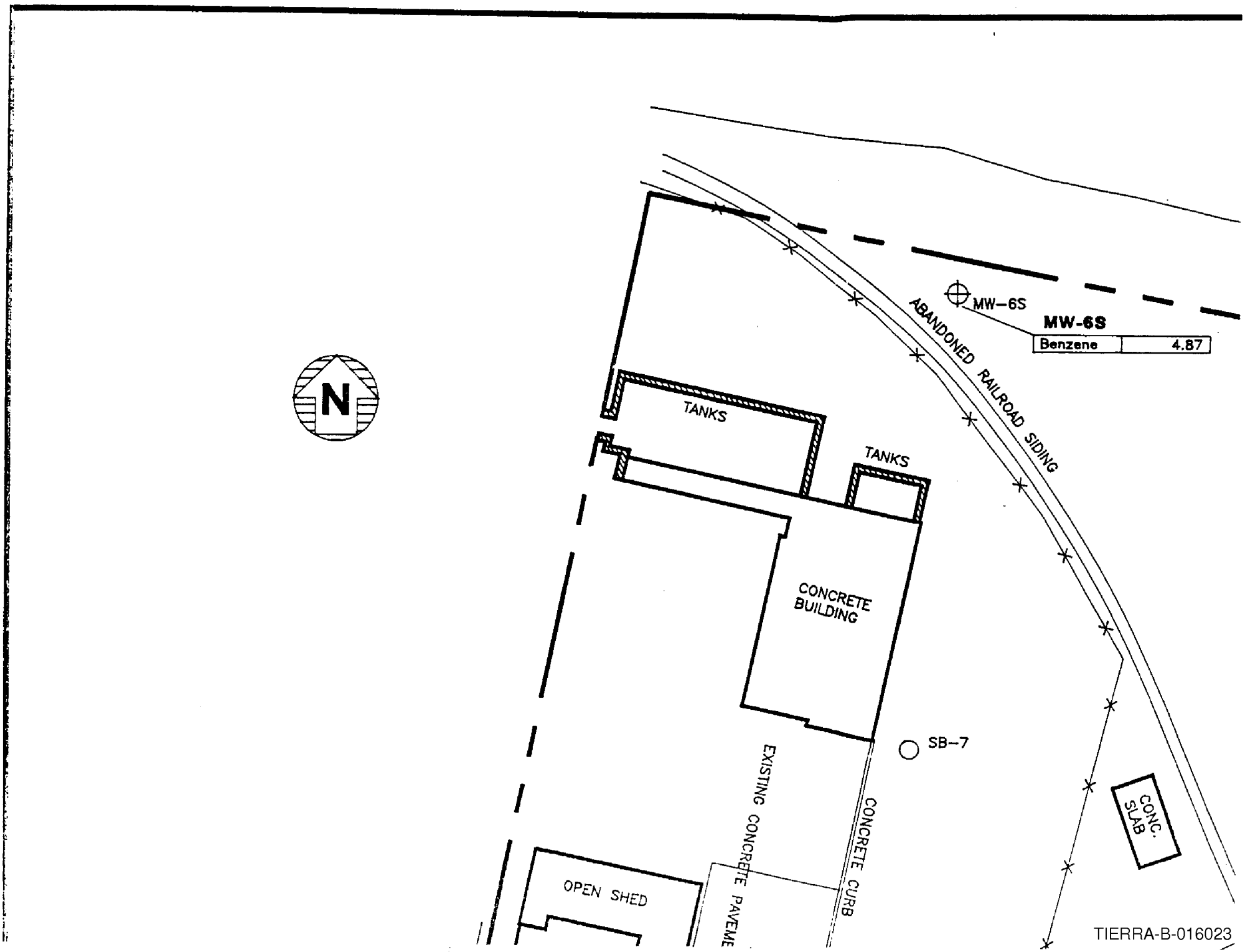
GROUND WATER ANALYTICAL RESULTS IN EXCESS OF NJDEPE GROUND WATER QUALITY STANDARDS

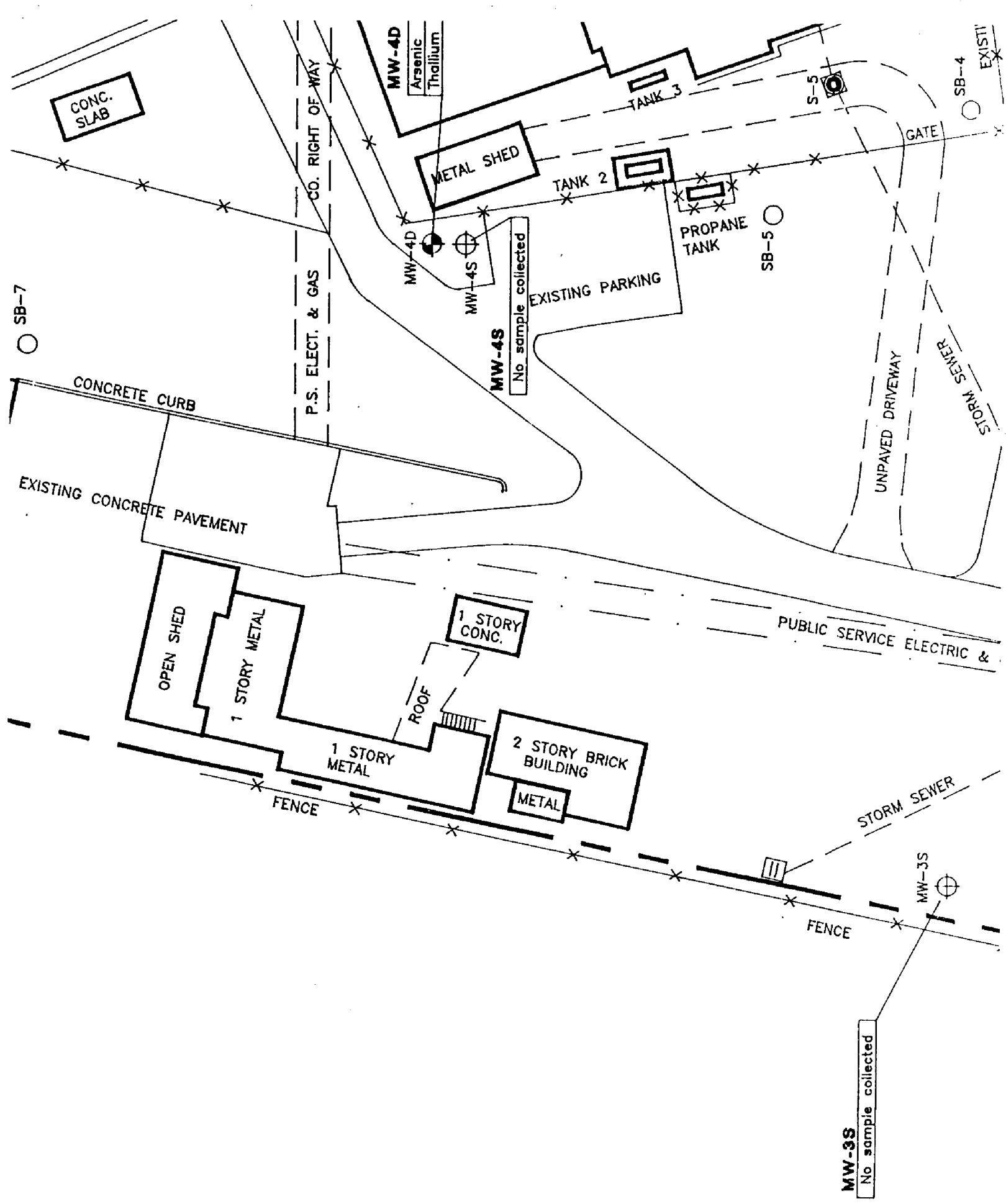
JULY 1993

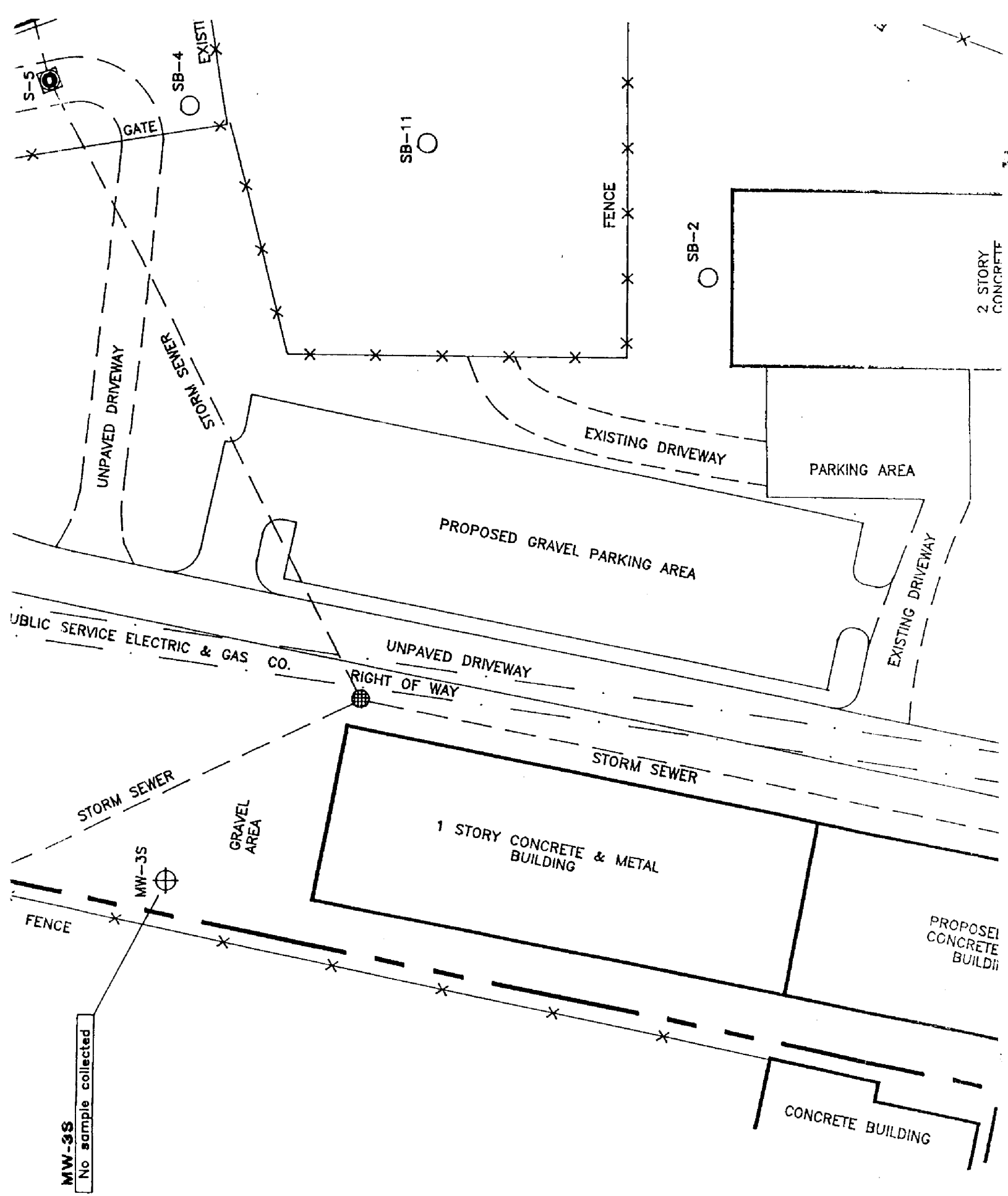
KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

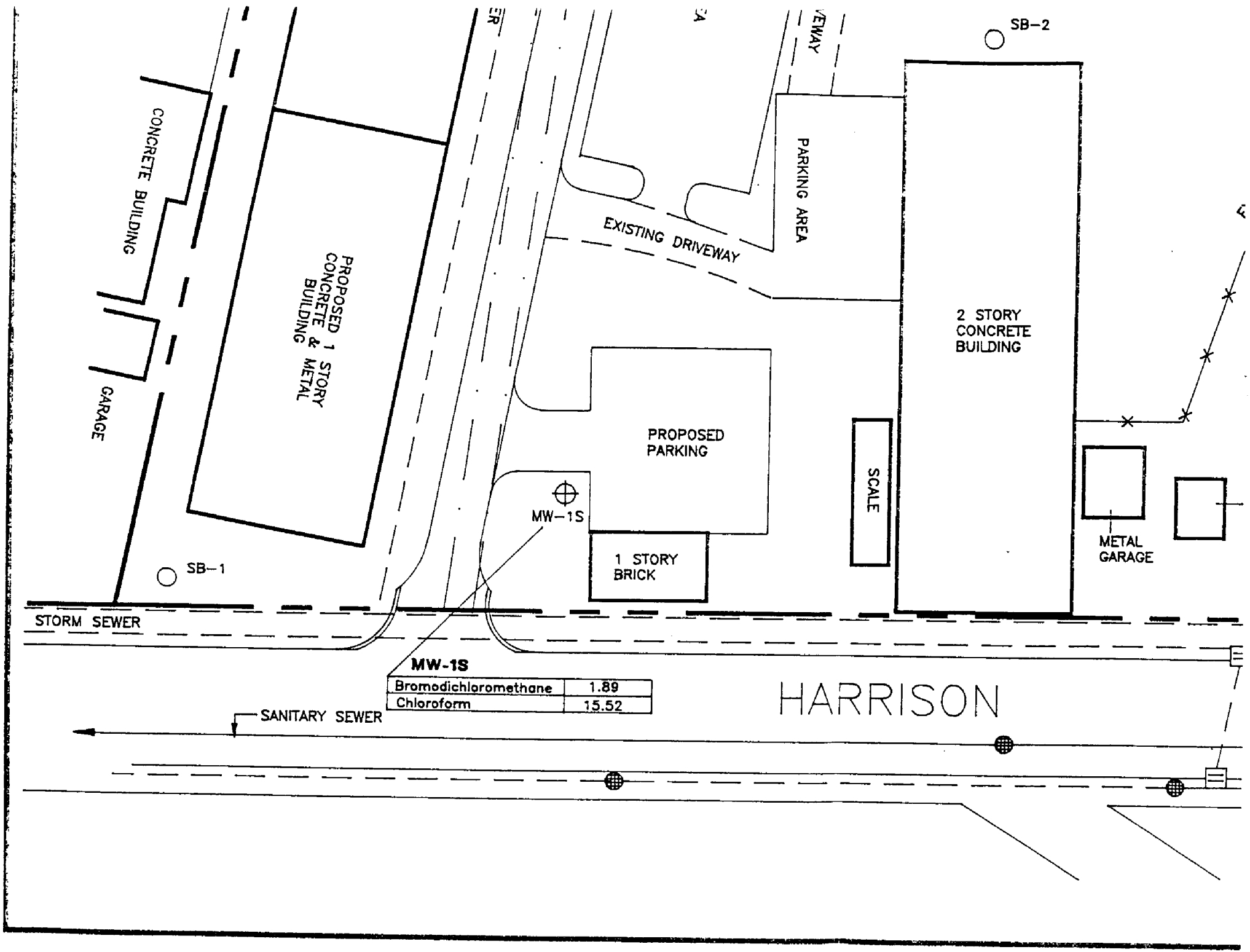
PREPARED BY: KW/MV	DATE: SEPTEMBER 1993
JOB NO.: 91C926	FIGURE: 12

TIERRA-B-016022

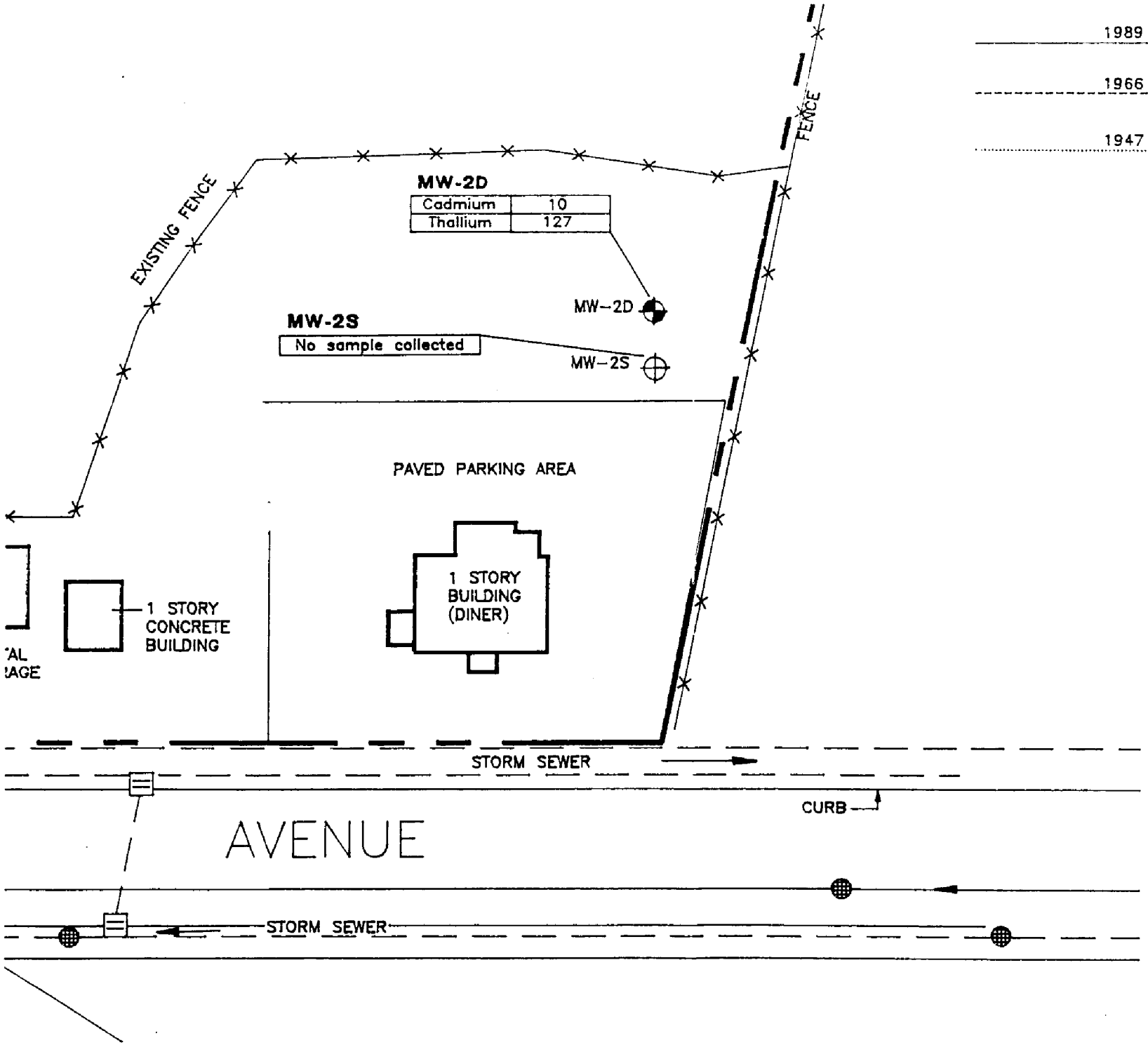

N
MW-6S
MW-6S
Benzene
4.87
ABANDONED RAILROAD SIDING
TANKS
TANKS
CONCRETE BUILDING
SB-7
EXISTING CONCRETE PAVEME
CONCRETE CURB
OPEN SHED
CONC. SLAB
TIERRA-B-016023


MW-4D
Arsenic
Thallium
CONC. SLAB
CO. RIGHT OF WAY
TANK 3
S-5
SB-4
EXISTI
GATE
METAL SHED
TANK 2
PROPANE TANK
SB-5
MW-4D
MW-4S
No sample collected
EXISTING PARKING
SB-7
P.S. ELECT. & GAS
MW-4S
CONCRETE CURB
UNPAVED DRIVEWAY
STORM SEWER
EXISTING CONCRETE PAVEMENT
OPEN SHED
1 STORY METAL
1 STORY CONC.
ROOF
PUBLIC SERVICE ELECTRIC &
1 STORY METAL
2 STORY BRICK BUILDING
METAL
FENCE
STORM SEWER
MW-3S
FENCE
MW-3S
No sample collected


S-5
SB-4
EXISTI
GATE
SB-11
FENCE
SB-2
2 STORY
UNPAVED DRIVEWAY
STORM SEWER
EXISTING DRIVEWAY
PARKING AREA
PROPOSED GRAVEL PARKING AREA
EXISTING DRIVEWAY
UBLIC SERVICE ELECTRIC & GAS CO.
UNPAVED DRIVEWAY
RIGHT OF WAY
STORM SEWER
STORM SEWER
GRAVEL AREA
1 STORY CONCRETE & METAL BUILDING
MW-3S
FENCE
PROPOSEI
CONCRETE
BUILDI
MW-3S
No sample collected
CONCRETE BUILDING



TIERRA-B-016026



1989 LAGOON BC

1966 LAGOON BC

1947 LAGOON BC

STORM SEV

MANHOLE

SW-1 SURFACE W LOCATION A

S-1 SEDIMENT C LOCATION A

SB-1 SOIL BORIN DESIGNATIO

MW-1S SHALLOW M LOCATION A

MW-2D DEEP MONI LOCATION A

ST-1 SEPTIC TAN DESIGNATIO

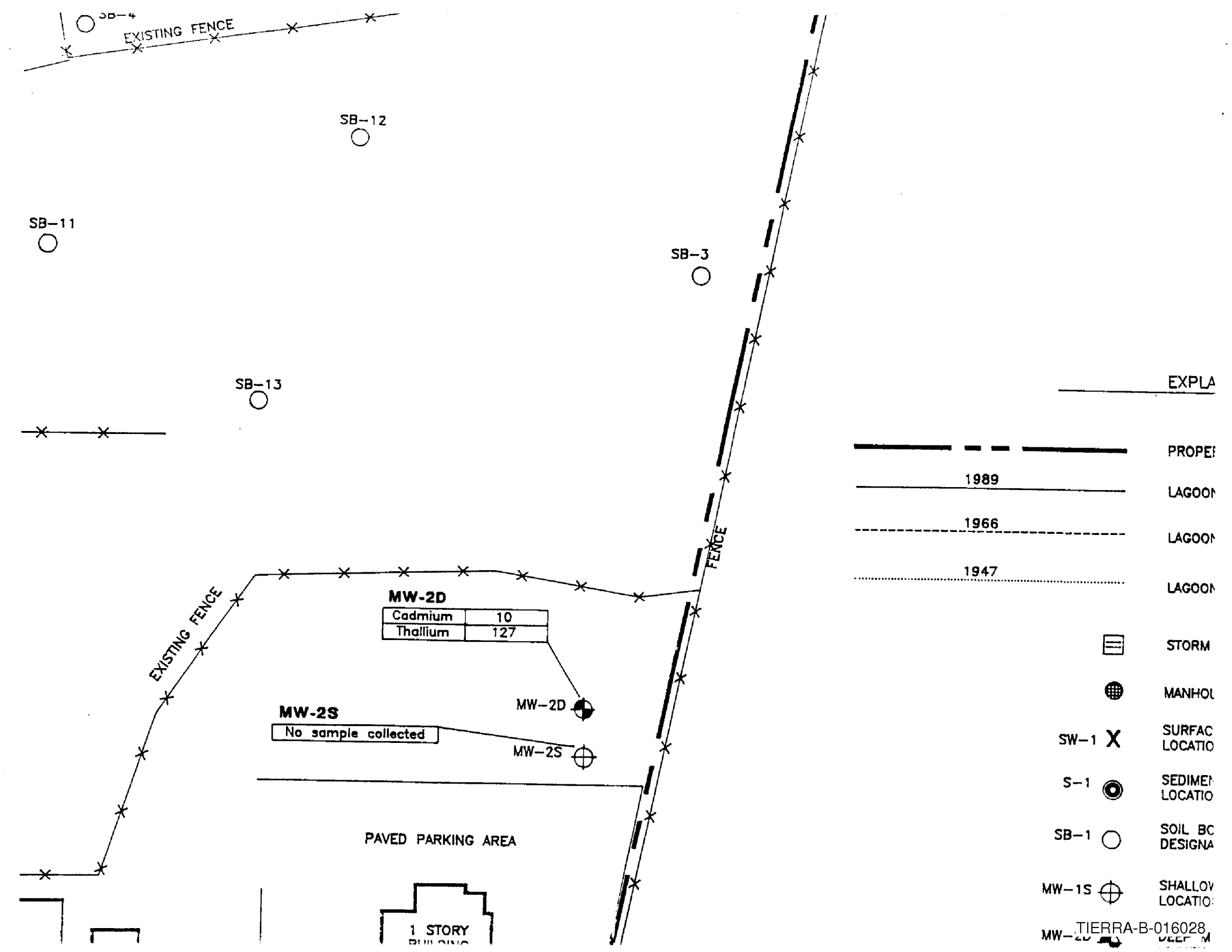
NOTES: 1) SHALLOW WE MEADOW MA

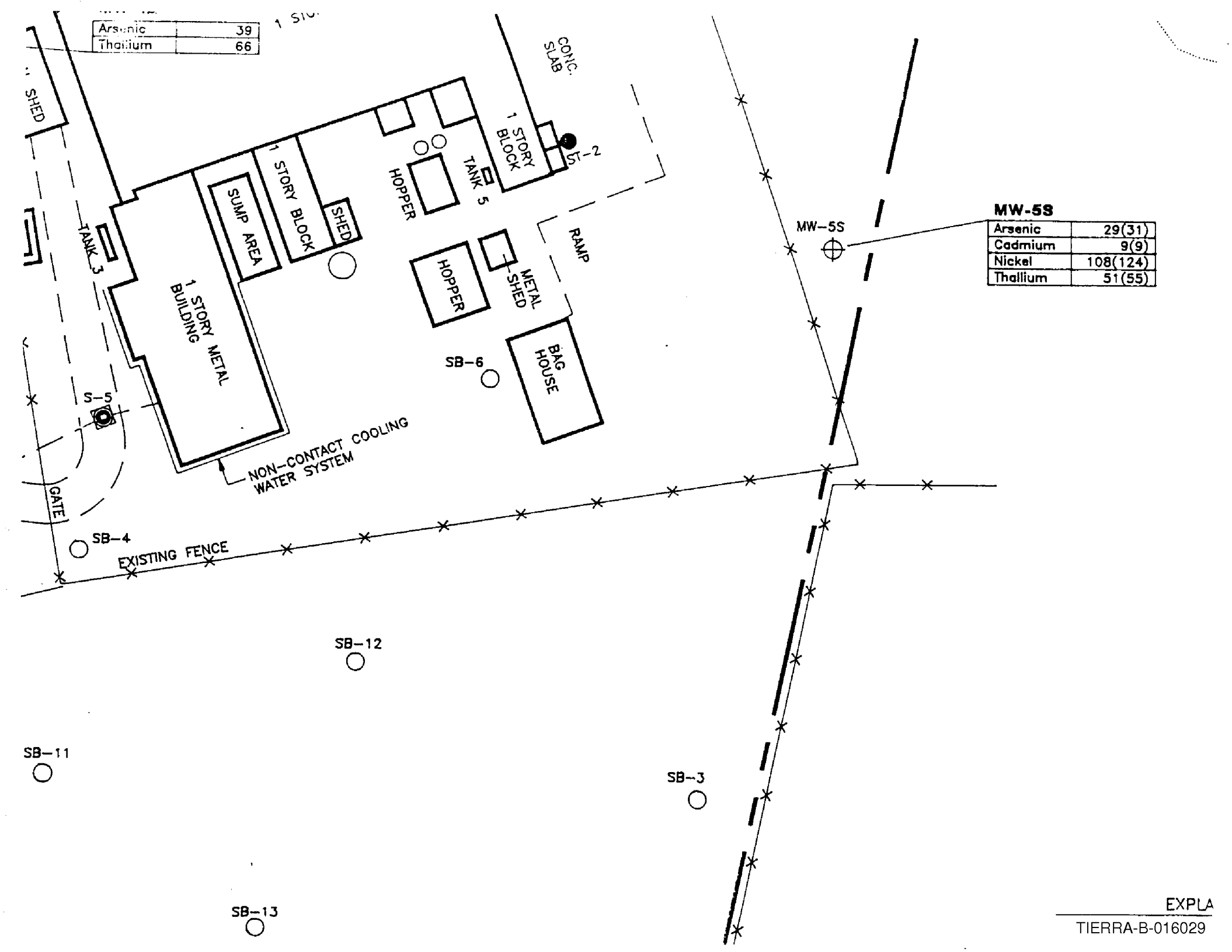
2) DEEP WELLS MAT LAYER.

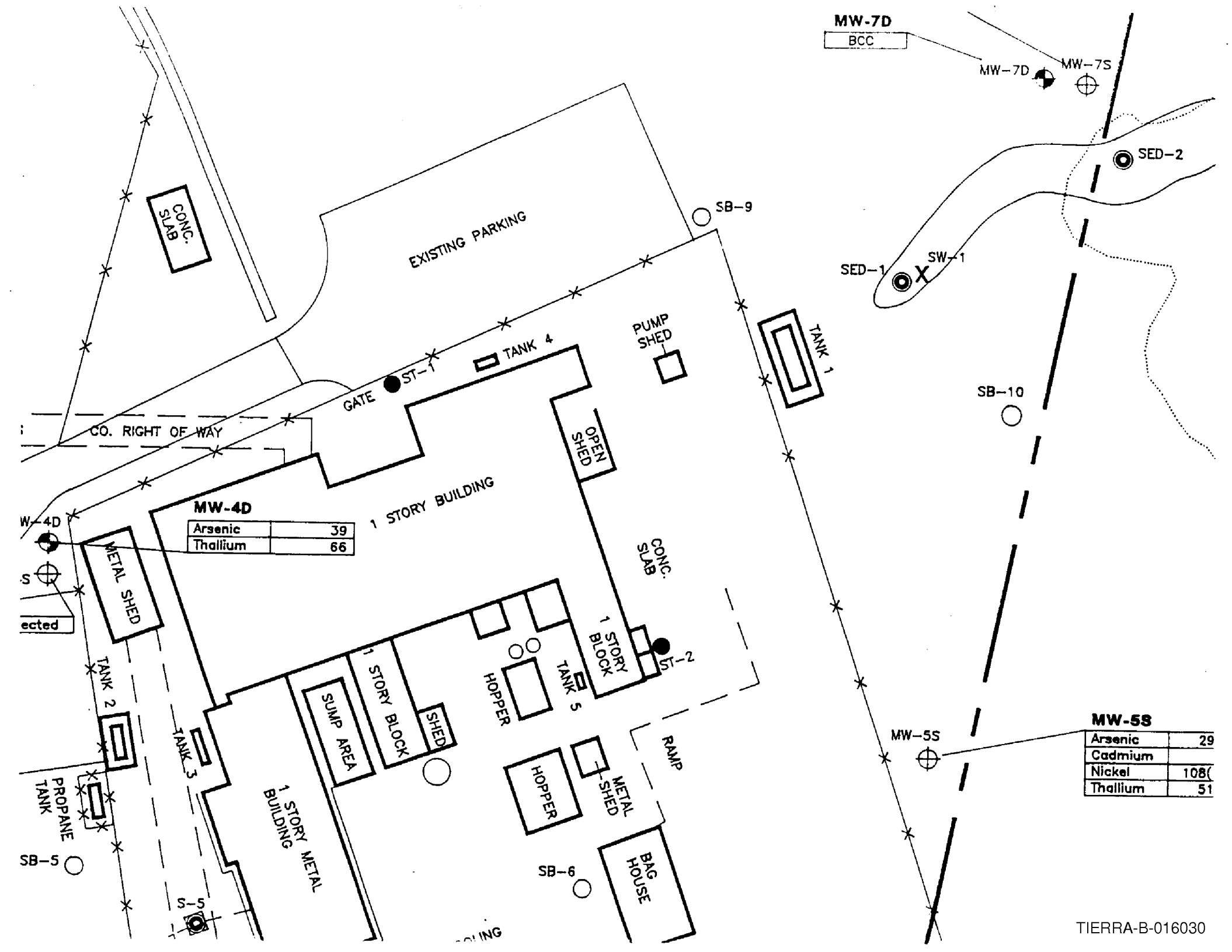
3) ALL RESULTS (ppb)

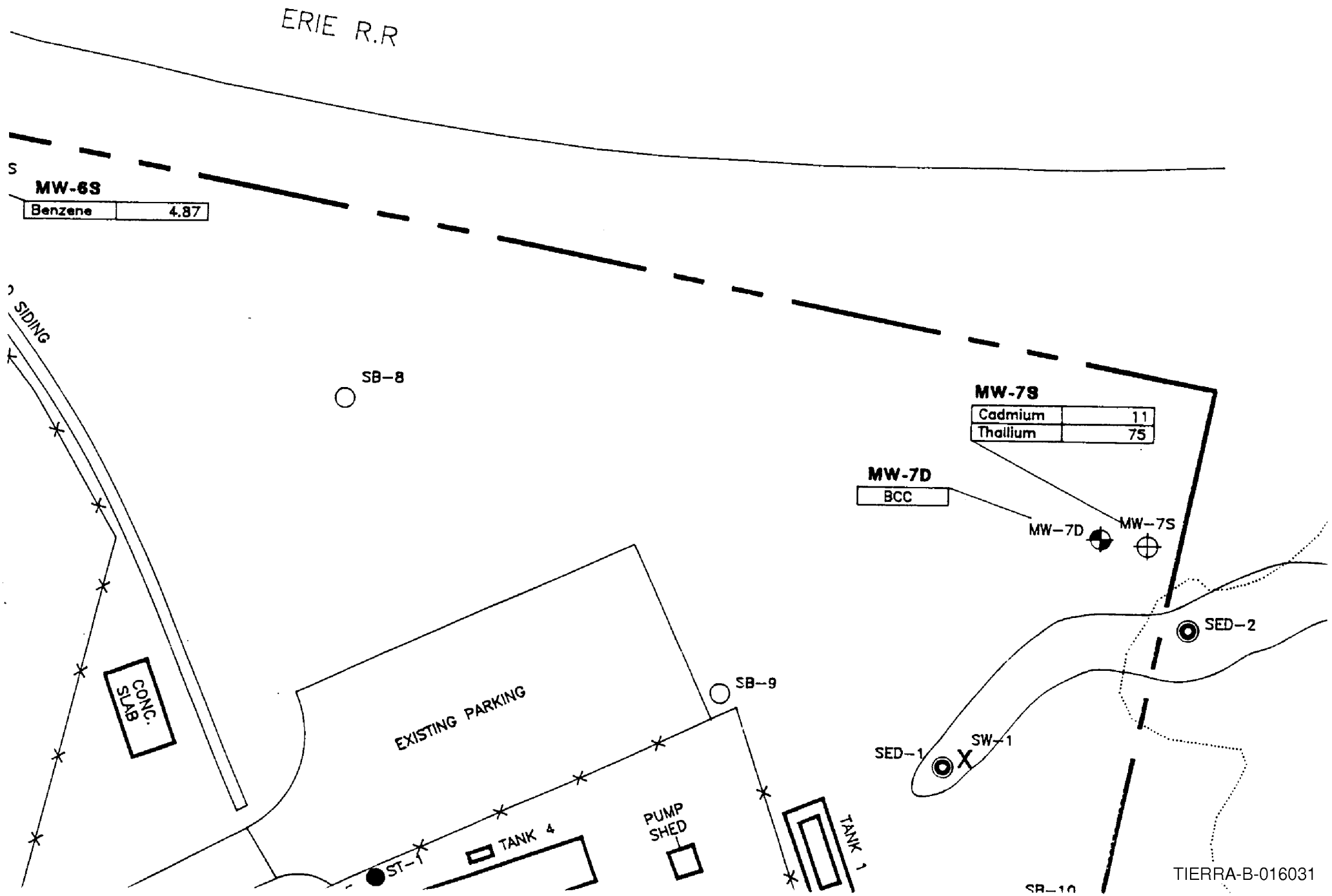
4) BCC = BELC

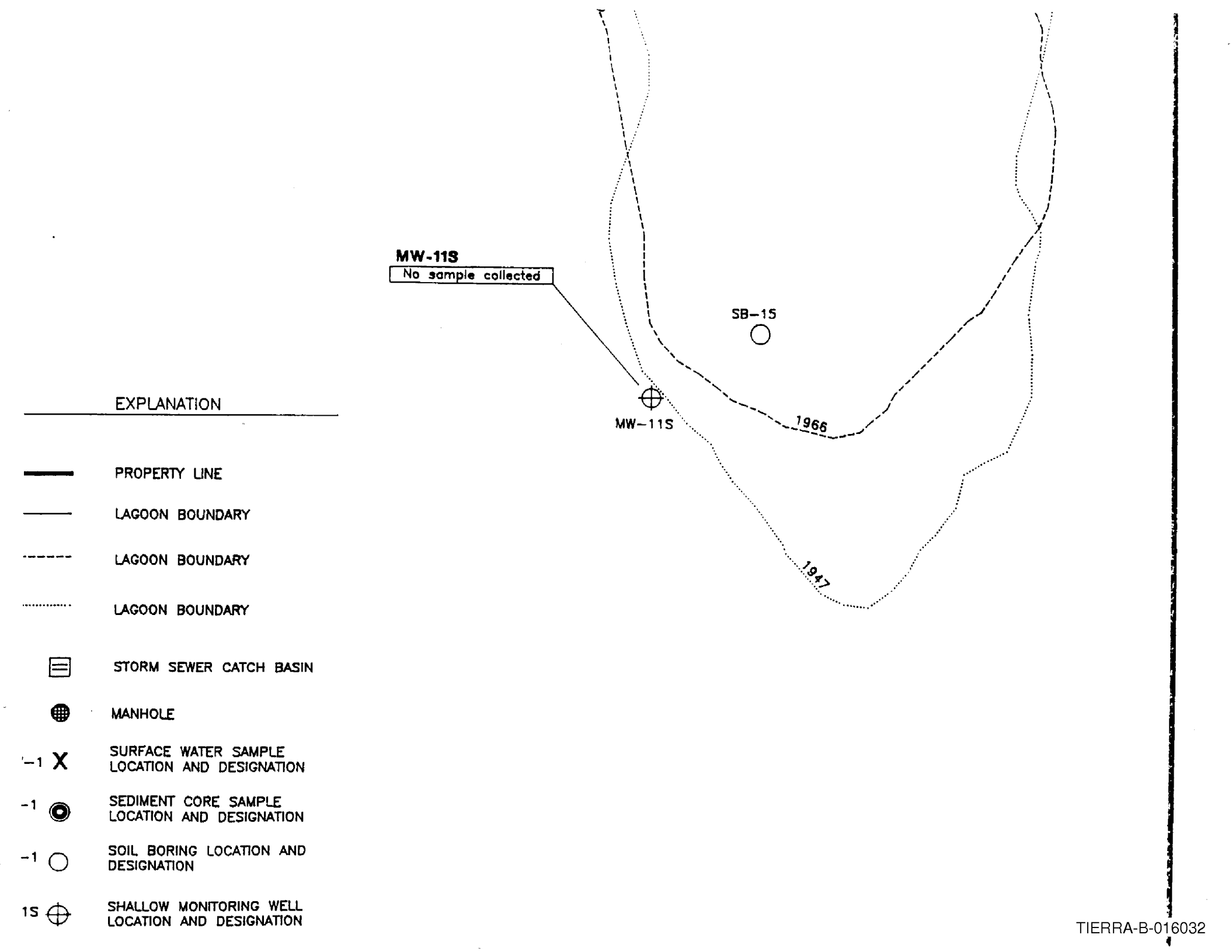
5) ( ) = RES



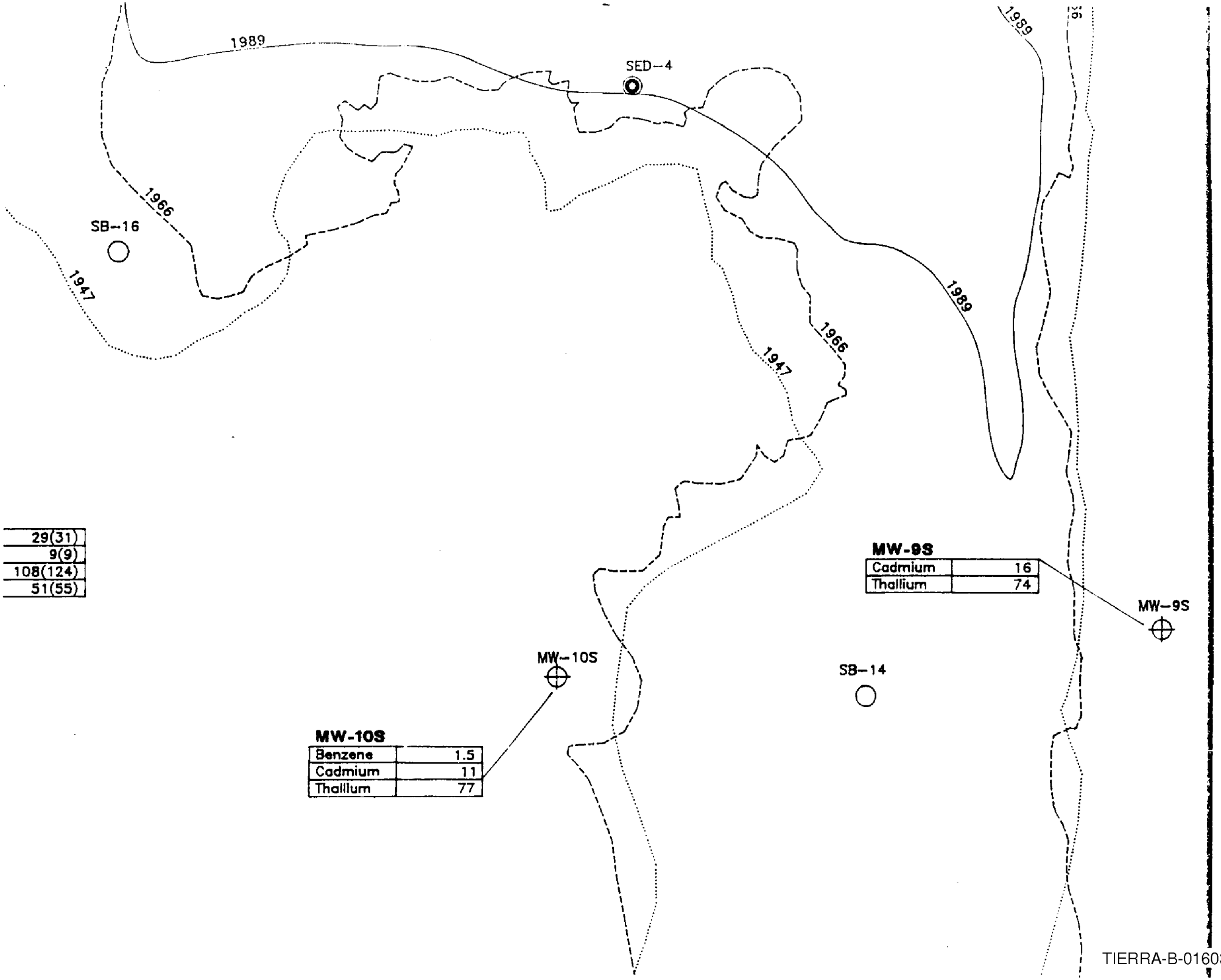

Arsenic 39
Thallium 66
SHED
CONC. SLAB
1 STORY BLOCK
ST-2
HOPPER
TANK 5
SUMP AREA
1 STORY BLOCK
SHED
TANK 3
1 STORY METAL BUILDING
HOPPER
METAL SHED
RAMP
MW-5S
MW-5S
Arsenic 29(31)
Cadmium 9(9)
Nickel 108(124)
Thallium 51(55)
SB-6
BAG HOUSE
S-5
NON-CONTACT COOLING WATER SYSTEM
GATE
SB-4
EXISTING FENCE
SB-12
SB-11
SB-3
SB-13
EXPLA
TIERRA-B-016029


MW-7D
BCC
MW-7D
MW-7S
SED-2
SED-1
SW-1
SB-10
SB-9
EXISTING PARKING
CONC. SLAB
CO. RIGHT OF WAY
GATE
ST-1
TANK 4
PUMP SHED
TANK 1
OPEN SHED
1 STORY BUILDING
MW-4D
Arsenic 39
Thallium 66
CONC. SLAB
METAL SHED
TANK 2
TANK 3
1 STORY BLOCK
SUMP AREA
SHED
HOPPER
TANK 5
1 STORY BLOCK
ST-2
RAMP
PROPANE TANK
1 STORY METAL BUILDING
HOPPER
METAL SHED
BAG HOUSE
SB-5
SB-6
S-5
MW-5S
MW-5S
Arsenic 29
Cadmium
Nickel 108
Thallium 51
TIERRA-B-016030


ERIE R.R
MW-6S
Benzene 4.87
SIDING
SB-8
MW-7S
Cadmium 11
Thallium 75
MW-7D
BCC
MW-7D
MW-7S
SED-2
SB-9
CONC. SLAB
EXISTING PARKING
SED-1
SW-1
ST-1
TANK 4
PUMP SHED
TANK 1
SB-10
TIERRA-B-016031

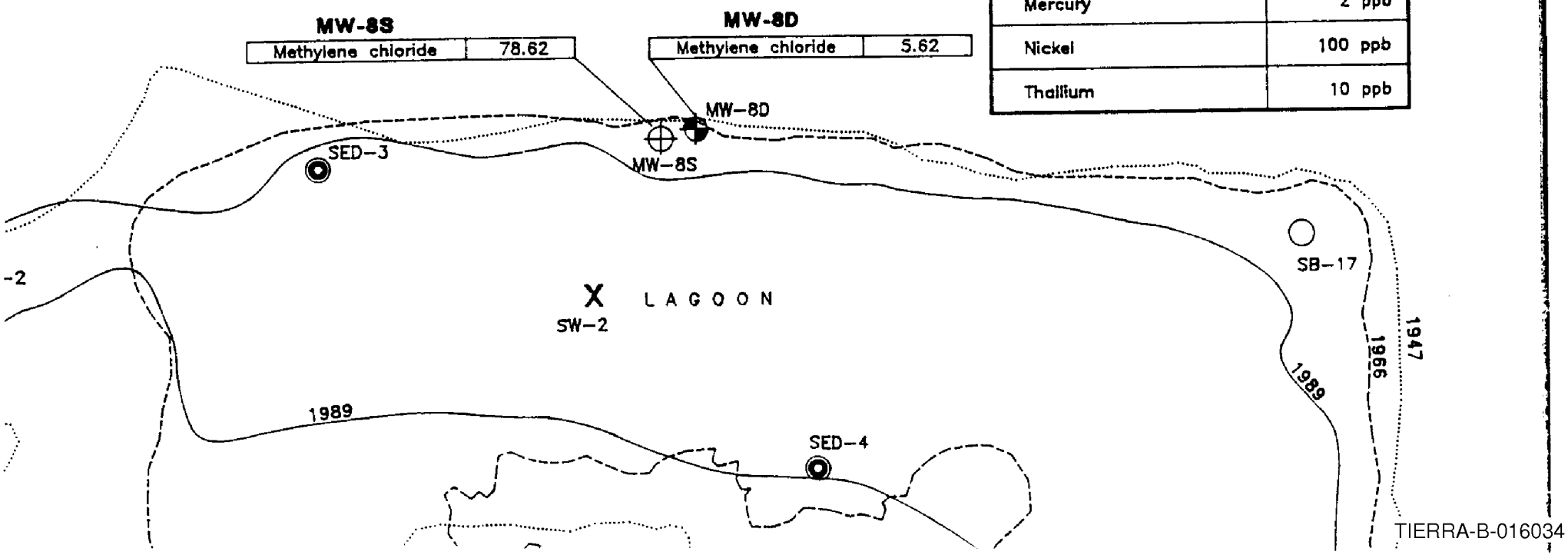


TIERRA-B-016032

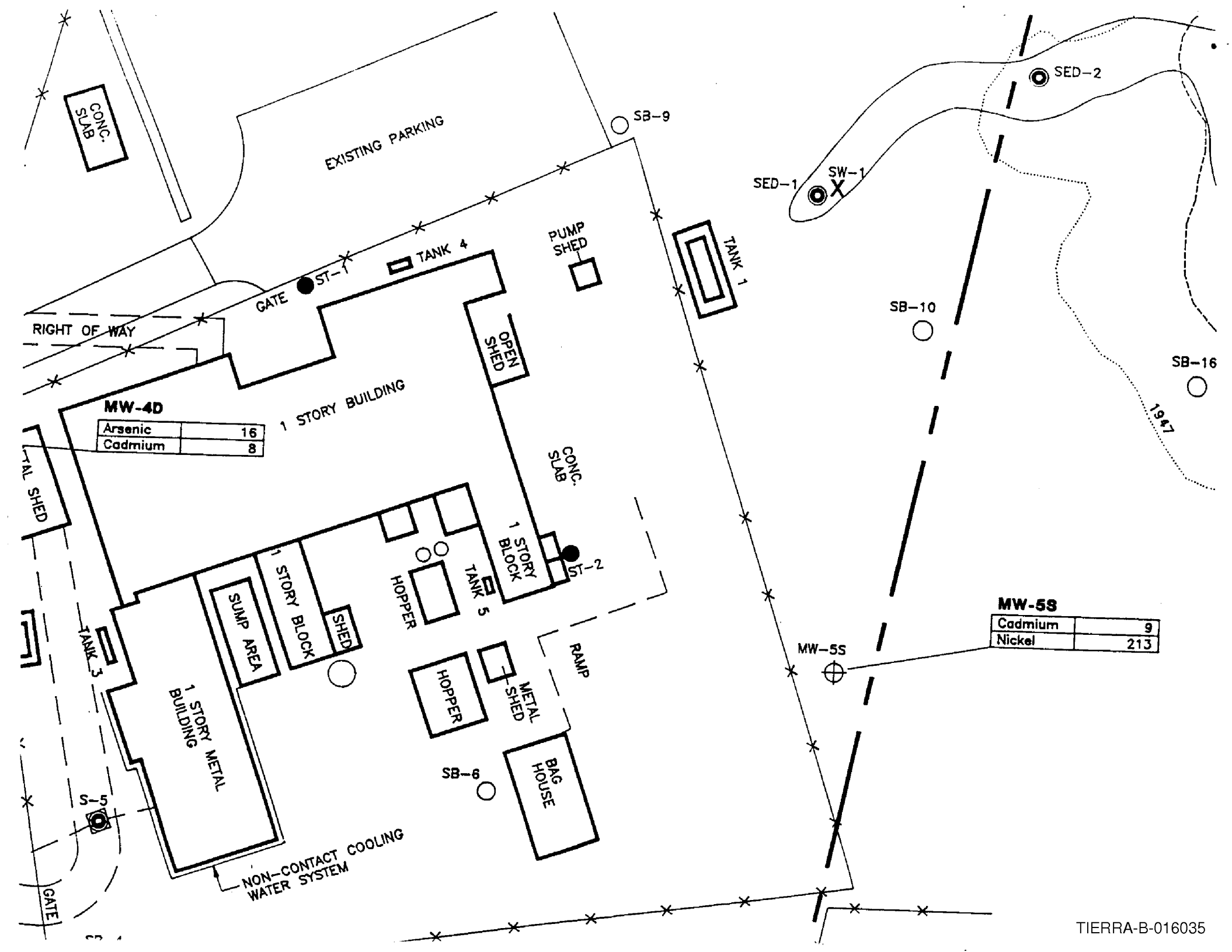


TIERRA-B-016033

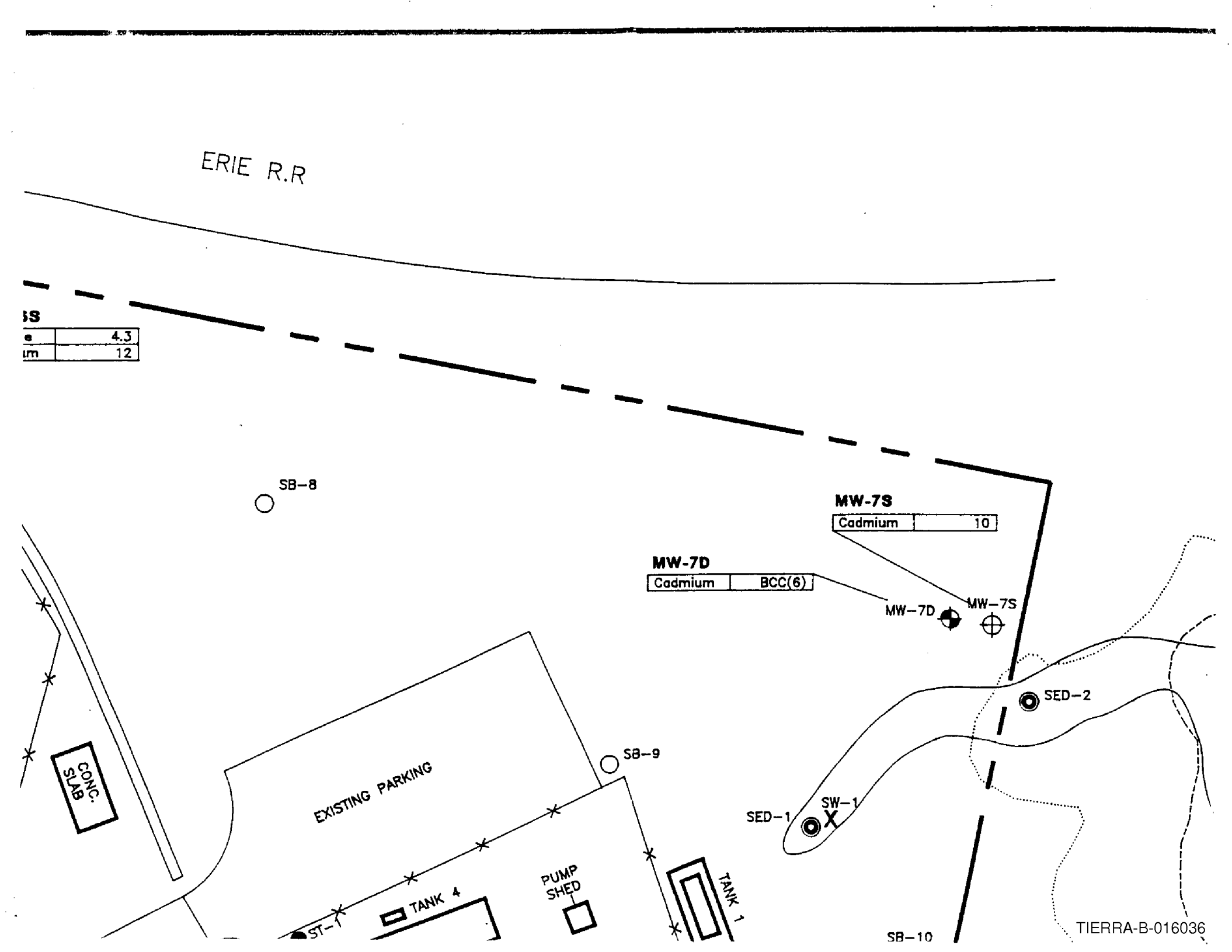
NJDEPE GROUND WATER QUALITY STANDARDS	
Benzene	1 ppb
Bromodichloromethane	1 ppb
Chlorobenzene	4 ppb
Chloroform	6 ppb
Trichloroethylene	1 ppb
Arsenic	8 ppb
Beryllium	20 ppb
Cadmium	4 ppb
Chromium	100 ppb
Copper	1,000 ppb
Lead	10 ppb
Mercury	2 ppb
Nickel	100 ppb
Thallium	10 ppb

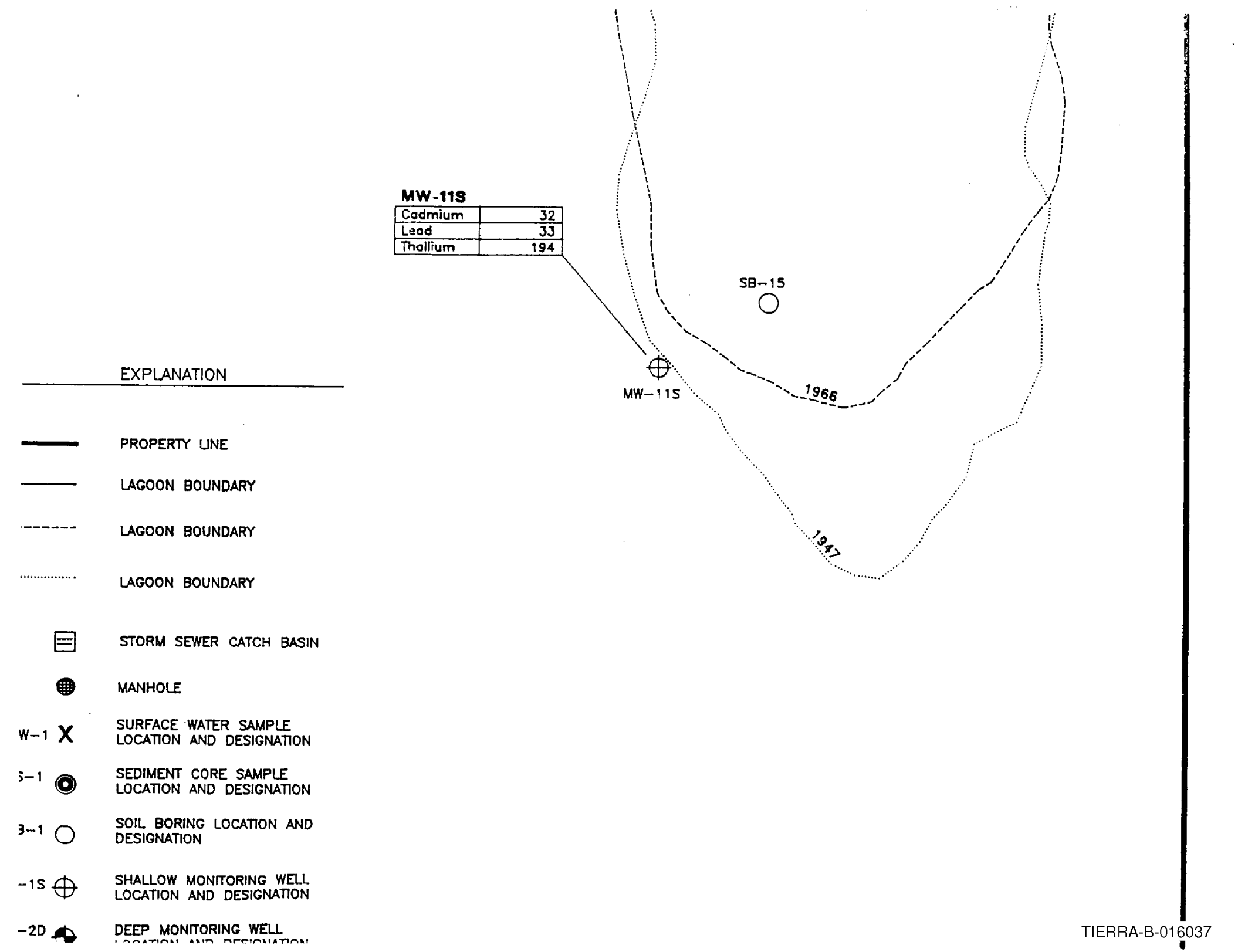


TIERRA-B-016034

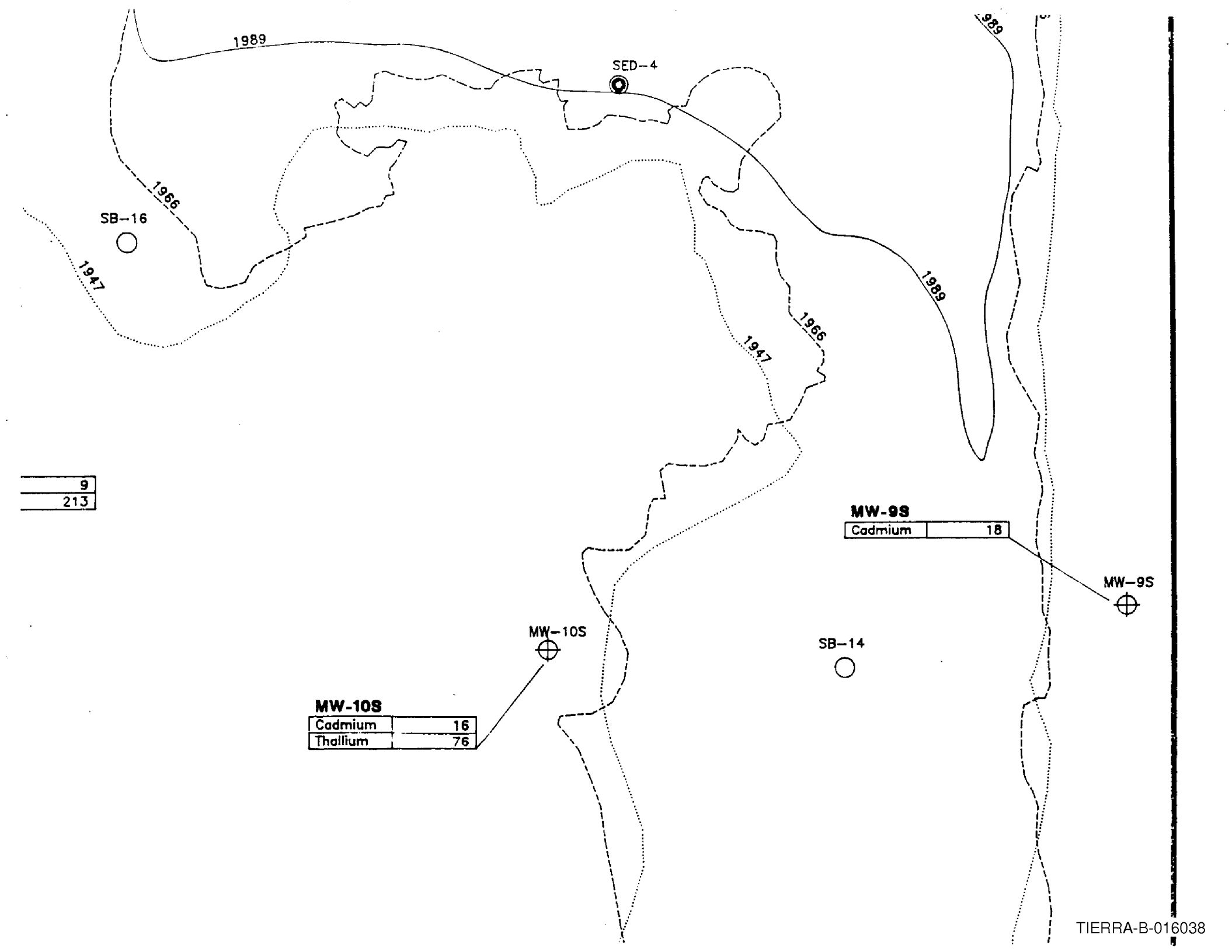


TIERRA-B-016035

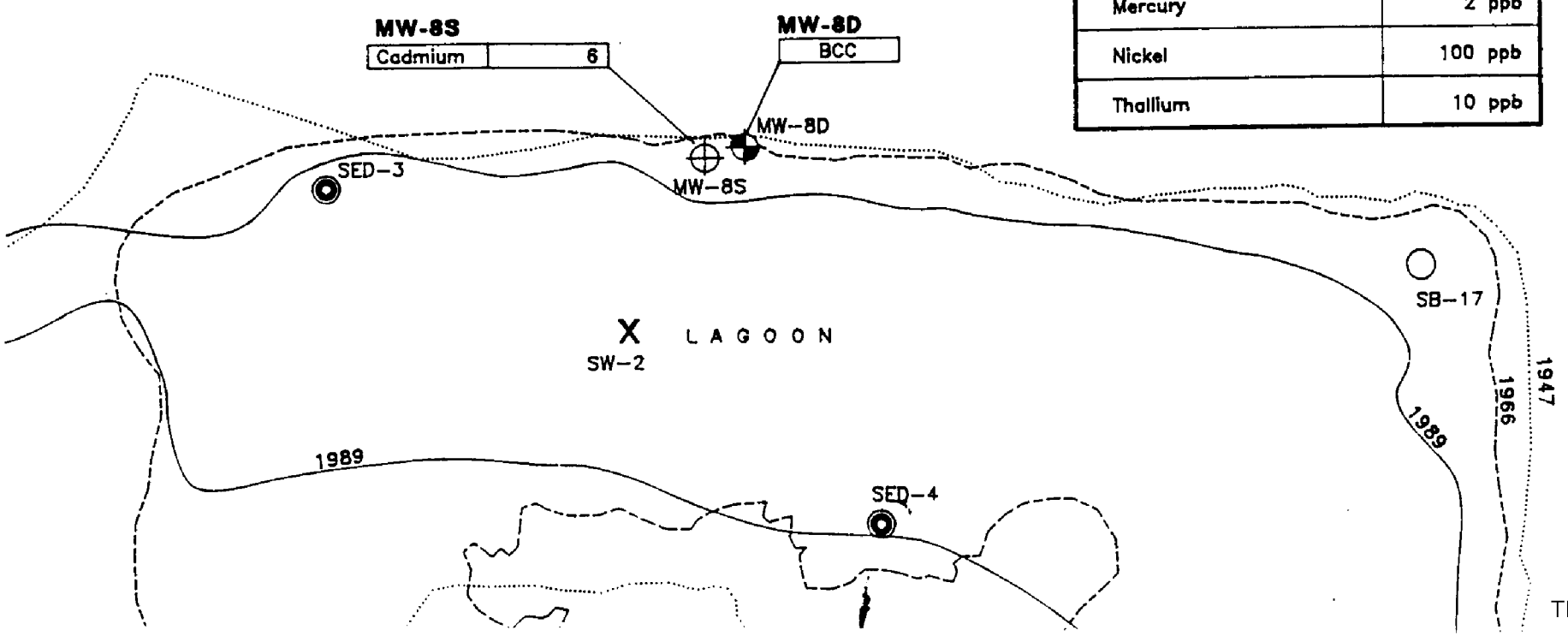

ERIE R.R
SS
e 4.3
ım 12
SB-8
MW-7S
Cadmium 10
MW-7D
Cadmium BCC(6)
MW-7D
MW-7S
SED-2
SB-9
CONC. SLAB
EXISTING PARKING
SED-1
SW-1
PUMP SHED
TANK 4
TANK 1
ST-1
SB-10
TIERRA-B-016036



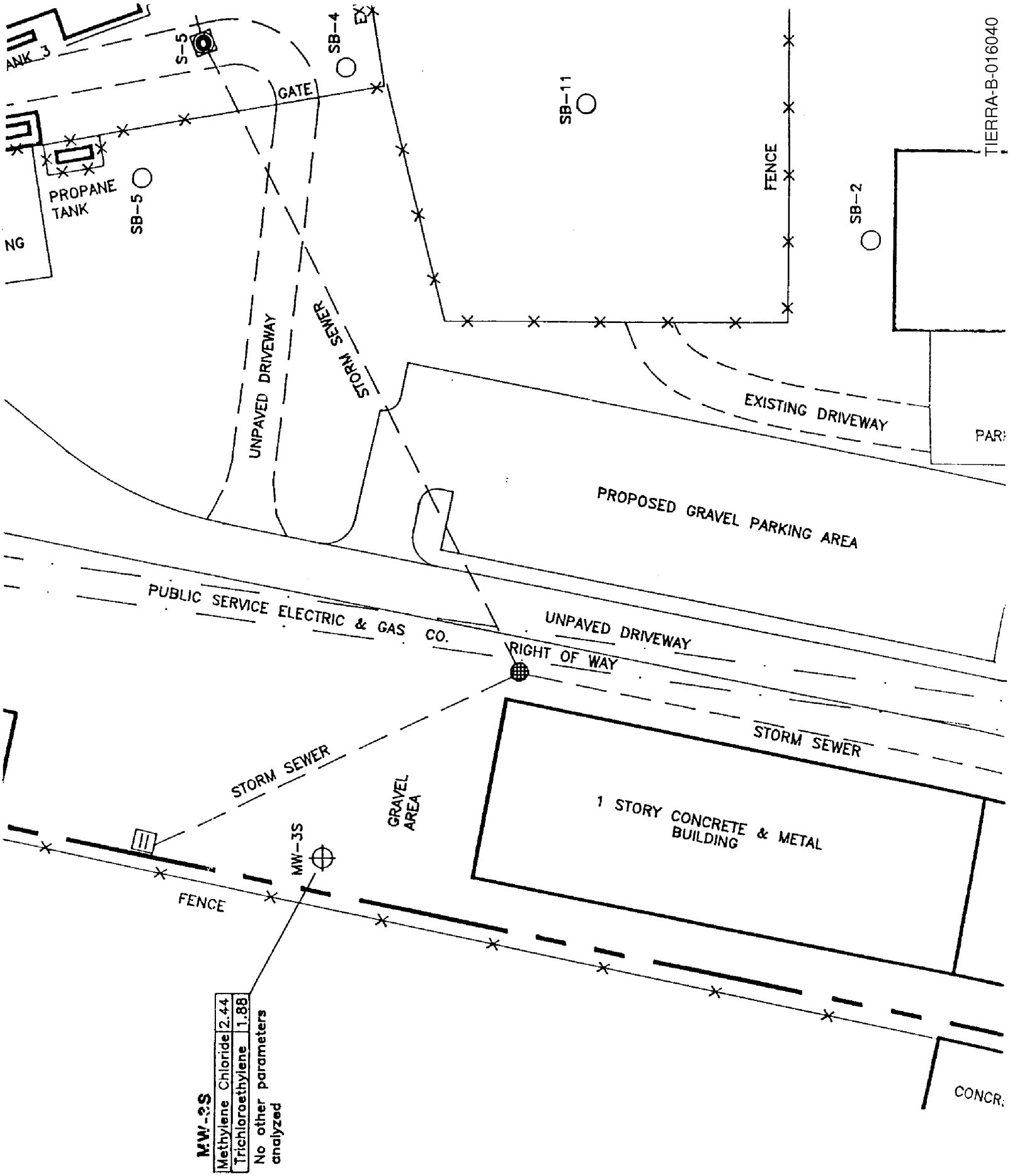
TIERRA-B-016037

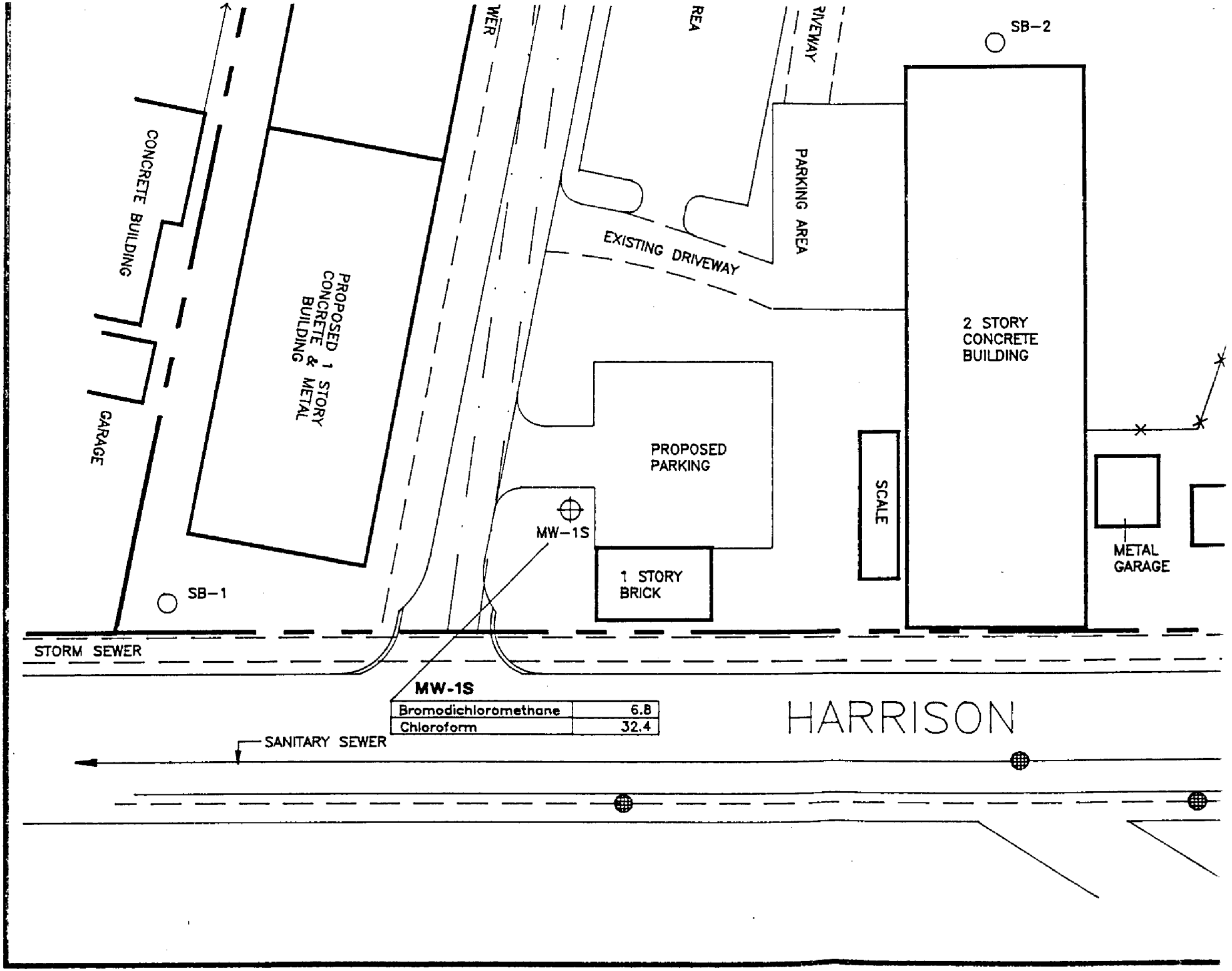

1989
SED-4
1966
SB-16
1947
1989
1966
1947
1989
9
213
MW-9S
Cadmium 18
MW-9S
MW-10S
SB-14
MW-10S
Cadmium 16
Thallium 76
TIERRA-B-016038

NJDEPE GROUND WATER QUALITY STANDARDS	
Benzene	1 ppb
Bromodichloromethane	1 ppb
Chlorobenzene	4 ppb
Chloroform	6 ppb
Trichloroethylene	1 ppb
Arsenic	8 ppb
Beryllium	20 ppb
Cadmium	4 ppb
Chromium	100 ppb
Copper	1,000 ppb
Lead	10 ppb
Mercury	2 ppb
Nickel	100 ppb
Thallium	10 ppb

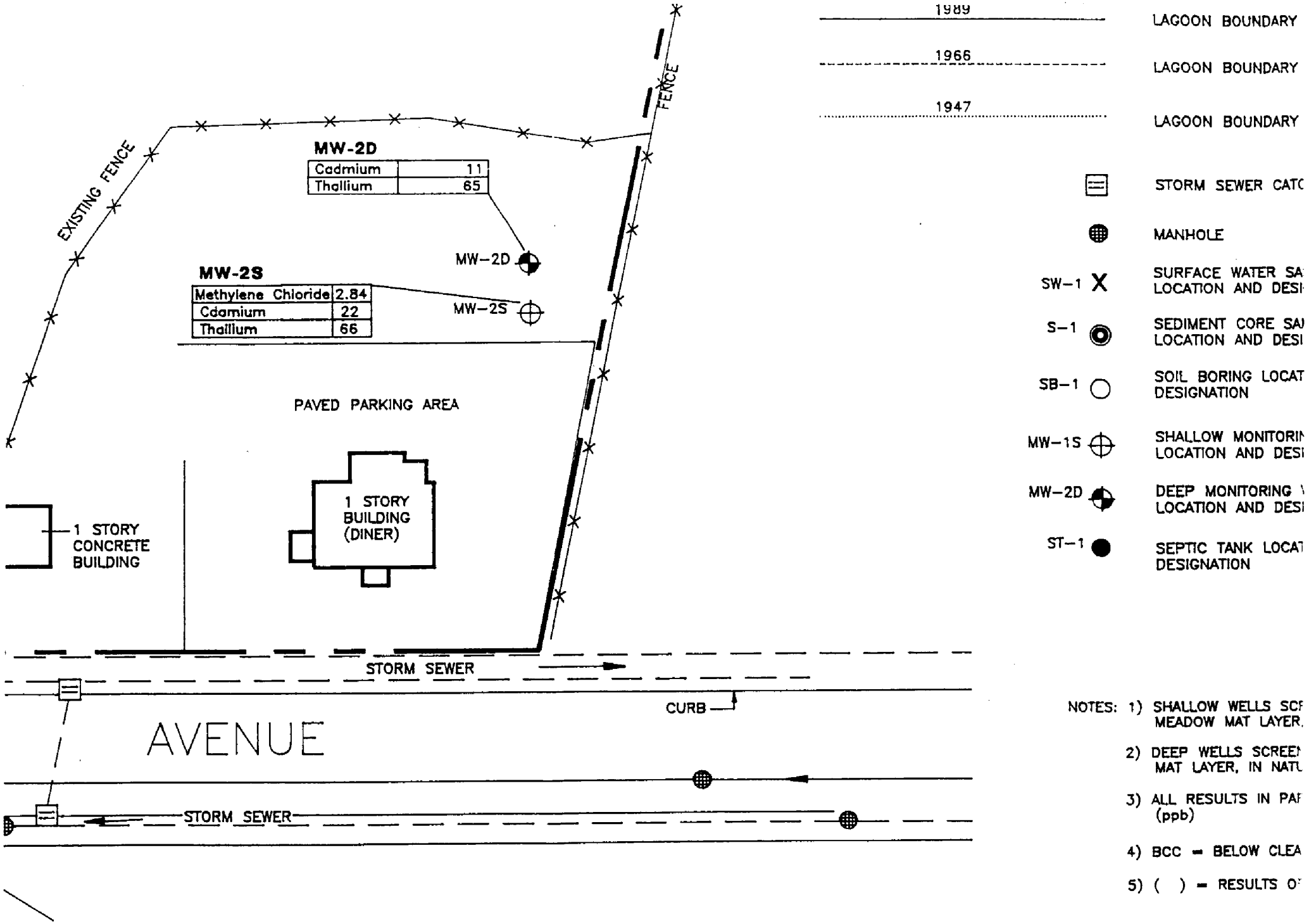


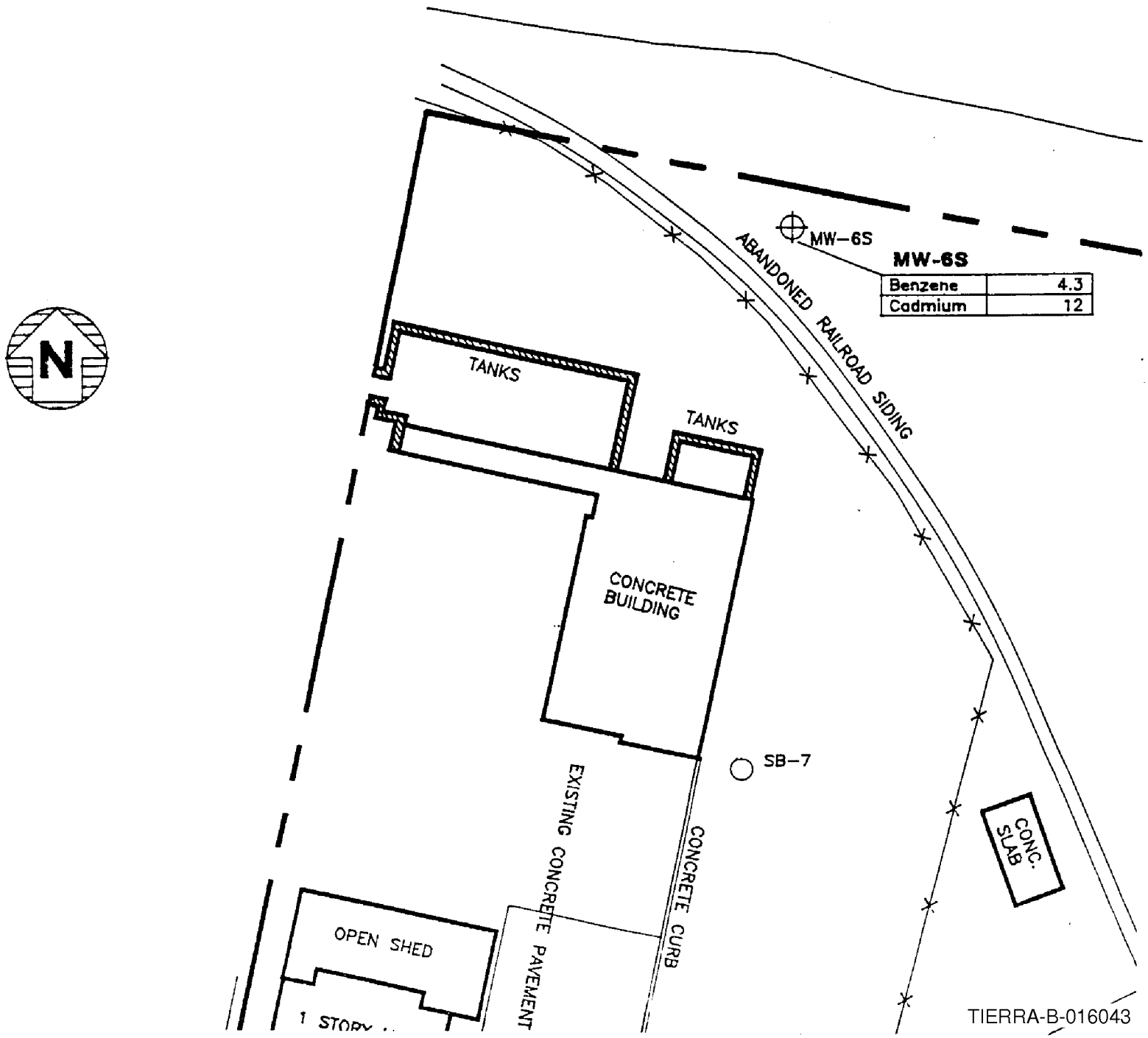
TIERRA-B-016039


TIERRA-B-016040
ANK 3
S-5
SB-4
GATE
SB-11
FENCE
SB-2
PROPANE TANK
SB-5
NG
UNPAVED DRIVEWAY
STORM SEWER
EXISTING DRIVEWAY
PROPOSED GRAVEL PARKING AREA
PUBLIC SERVICE ELECTRIC & GAS CO.
RIGHT OF WAY
UNPAVED DRIVEWAY
STORM SEWER
STORM SEWER
GRAVEL AREA
1 STORY CONCRETE & METAL BUILDING
MW-3S
FENCE
CONCR.
MW-3S
Methylene Chloride 2.44
Trichloroethylene 1.88
No other parameters analyzed

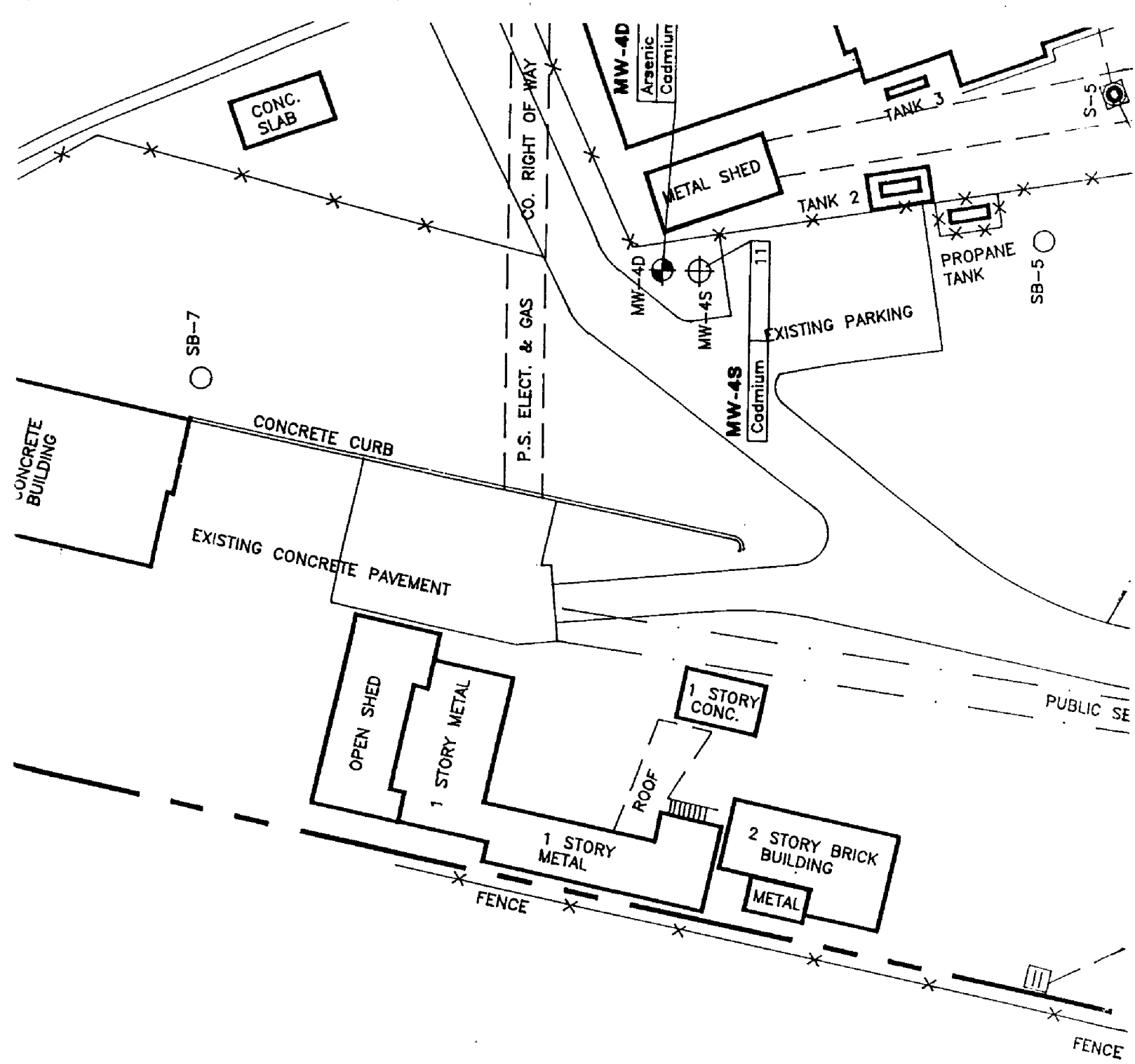


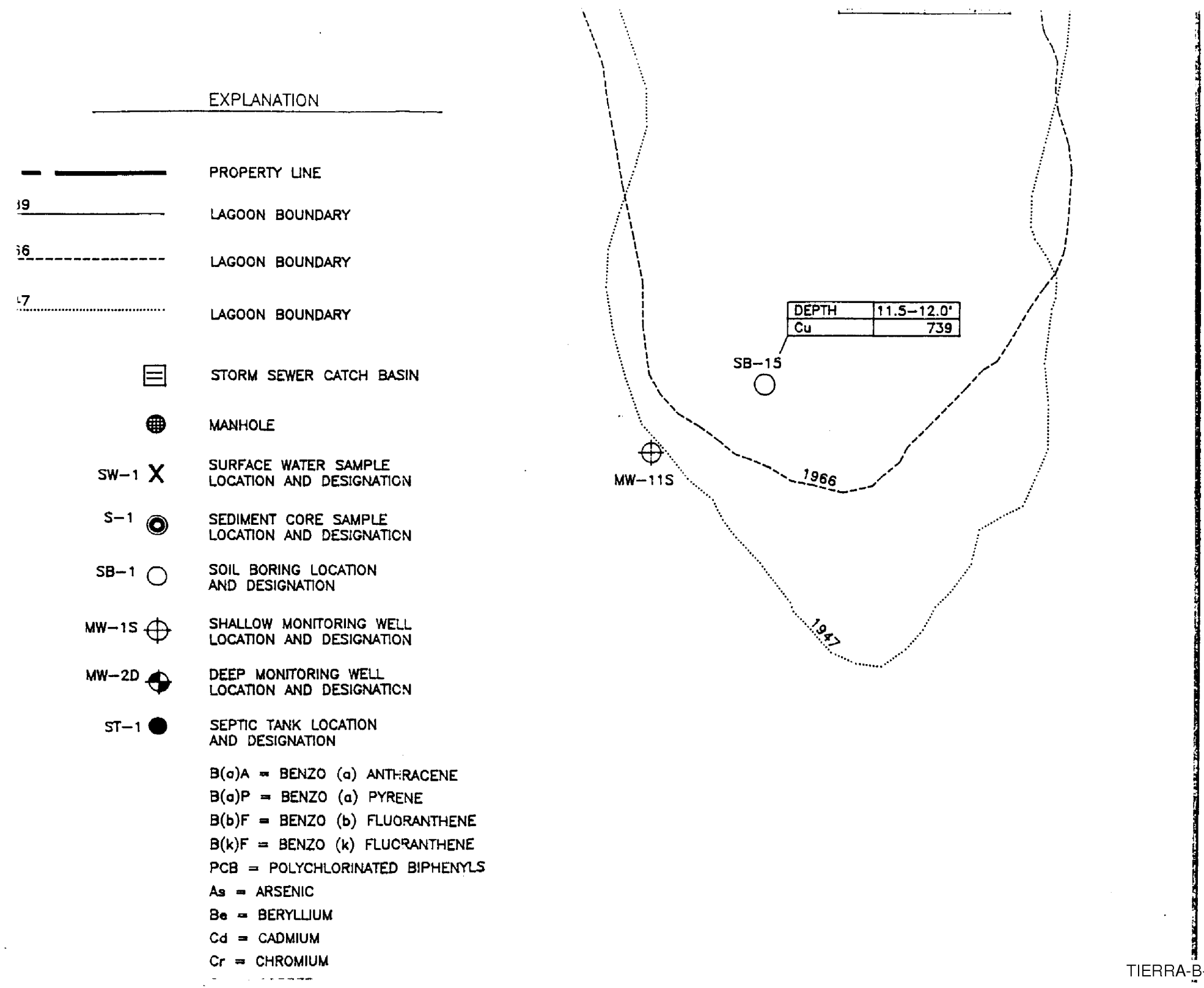
TIERRA-B-016041


1989
LAGOON BOUNDARY
1966
LAGOON BOUNDARY
1947
LAGOON BOUNDARY
STORM SEWER CATC
MANHOLE
SW-1
SURFACE WATER SA
LOCATION AND DESI
S-1
SEDIMENT CORE SA
LOCATION AND DESI
SB-1
SOIL BORING LOCAT
DESIGNATION
MW-1S
SHALLOW MONITORI
LOCATION AND DESI
MW-2D
DEEP MONITORING
LOCATION AND DESI
ST-1
SEPTIC TANK LOCAT
DESIGNATION
EXISTING FENCE
FENCE
MW-2D
Cadmium 11
Thallium 65
MW-2S
Methylene Chloride 2.84
Cdamium 22
Thallium 66
PAVED PARKING AREA
1 STORY BUILDING (DINER)
1 STORY CONCRETE BUILDING
STORM SEWER
CURB
AVENUE
STORM SEWER
NOTES: 1) SHALLOW WELLS SCI
MEADOW MAT LAYER.
2) DEEP WELLS SCREE
MAT LAYER, IN NATU
3) ALL RESULTS IN PA
(ppb)
4) BCC = BELOW CLEA
5) ( ) = RESULTS O

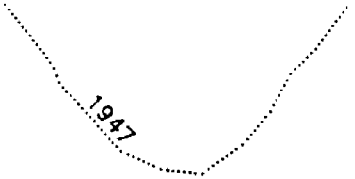


TIERRA-B-016043


CONC. SLAB
CO. RIGHT OF WAY
MW-4D
Arsenic
Cadmium
TANK 3
S-5
METAL SHED
TANK 2
PROPANE TANK
SB-5
MW-4D
MW-4S
EXISTING PARKING
SB-7
P.S. ELECT. & GAS
MW-4S
Cadmium
CONCRETE CURB
CONCRETE BUILDING
EXISTING CONCRETE PAVEMENT
OPEN SHED
1 STORY METAL
1 STORY CONC.
PUBLIC SE
ROOF
1 STORY METAL
2 STORY BRICK BUILDING
METAL
FENCE
FENCE
MW-3S
Methylene Chloride 2,44



TIERRA-B-016045



SB–1 ○ SOIL BORING LOCATION AND DESIGNATION

MW–1S ⊕ SHALLOW MONITORING WELL LOCATION AND DESIGNATION

MW–2D ⊕ DEEP MONITORING WELL LOCATION AND DESIGNATION

ST–1 ● SEPTIC TANK LOCATION AND DESIGNATION

B(a)A = BENZO (a) ANTHRACENE
B(a)P = BENZO (a) PYRENE
B(b)F = BENZO (b) FLUORANTHENE
B(k)F = BENZO (k) FLUORANTHENE
PCB = POLYCHLORINATED BIPHENYLS
As = ARSENIC
Be = BERYLLIUM
Cd = CADMIUM
Cr = CHROMIUM
Cu = COPPER
Pb = LEAD
Tl = THALLIUM
Zn = ZINC

NOTES:
1) SHALLOW WELLS SCREENED ABOVE THE MEADOW MAT LAYER, IN ARTIFICIAL FILL
2) DEEP WELLS SCREENED BELOW MEADOW MAT LAYER, IN NATURAL OVERBURDEN
3) ONLY THOSE SAMPLES WITH COMPOUNDS EXCEEDING NJDEPE PROPOSED SOIL CLEANUP CRITERIA ARE REPORTED HERE. SEE TABLES I THROUGH V FOR ALL DETECTED COMPOUNDS
4) BCC = COMPOUND DETECTED BELOW NON–RESIDENTIAL DIRECT CONTACT SOIL CLEANUP CRITERIA
5) ALL RESULTS REPORTED IN PARTS PER MILLION (ppm).

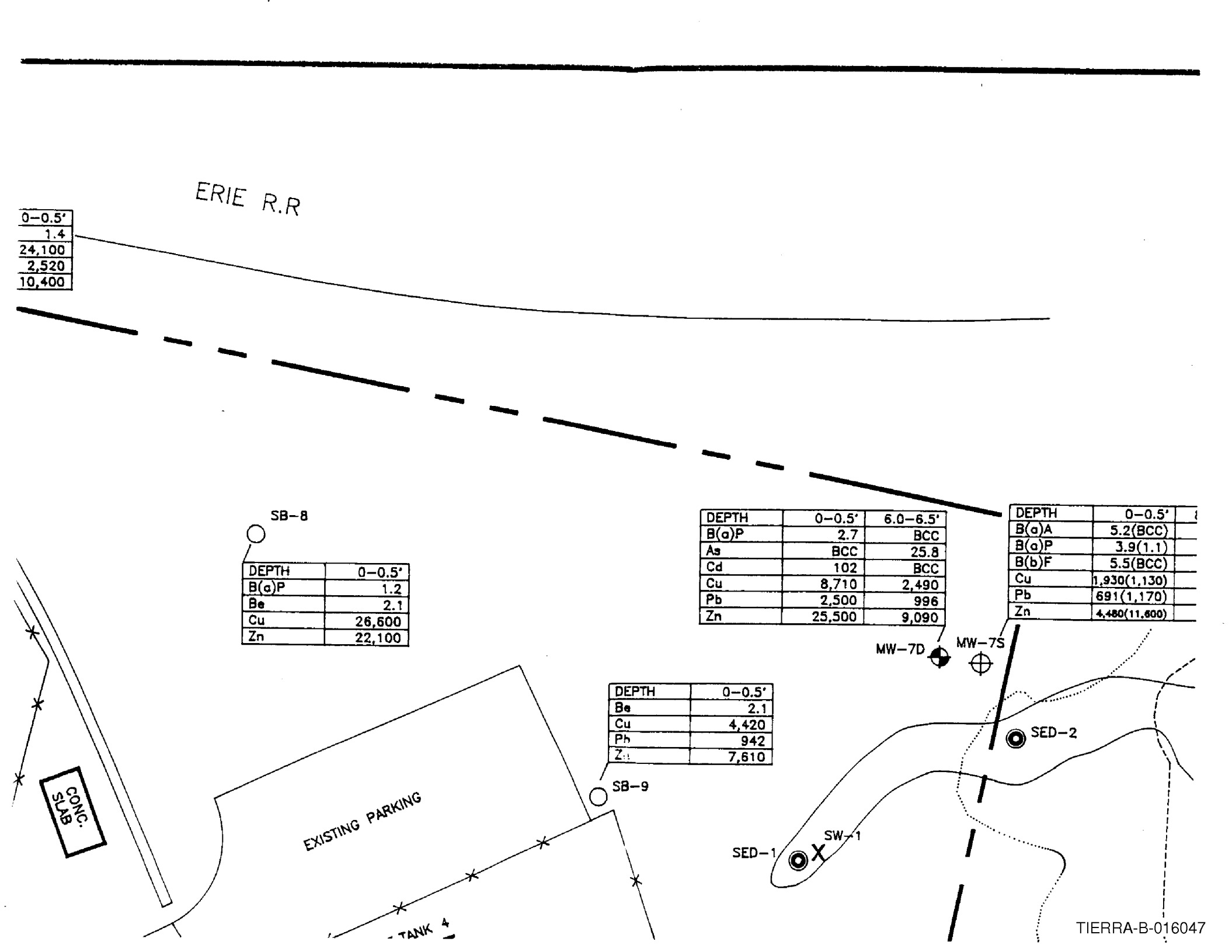
0 40 FT.
APPROXIMATE SCALE

Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

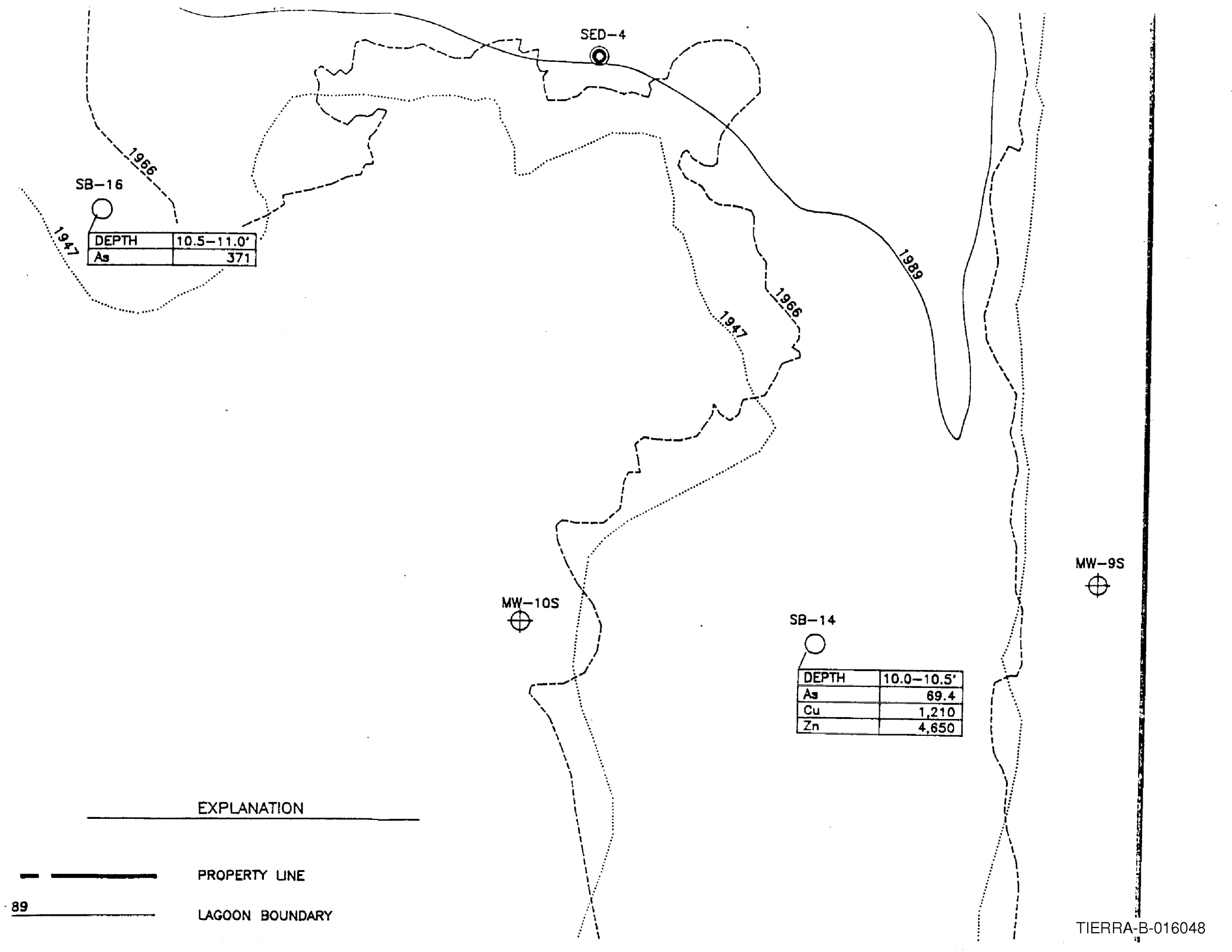
SOIL BORING SAMPLE ANALYTICAL RESULTS
IN EXCESS OF NJDEPE SOIL CLEANUP CRITERIA

KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

PREPARED BY: KW/LB	DATE: JULY 1993
JOB NO.: 91C926	FIGURE: 10



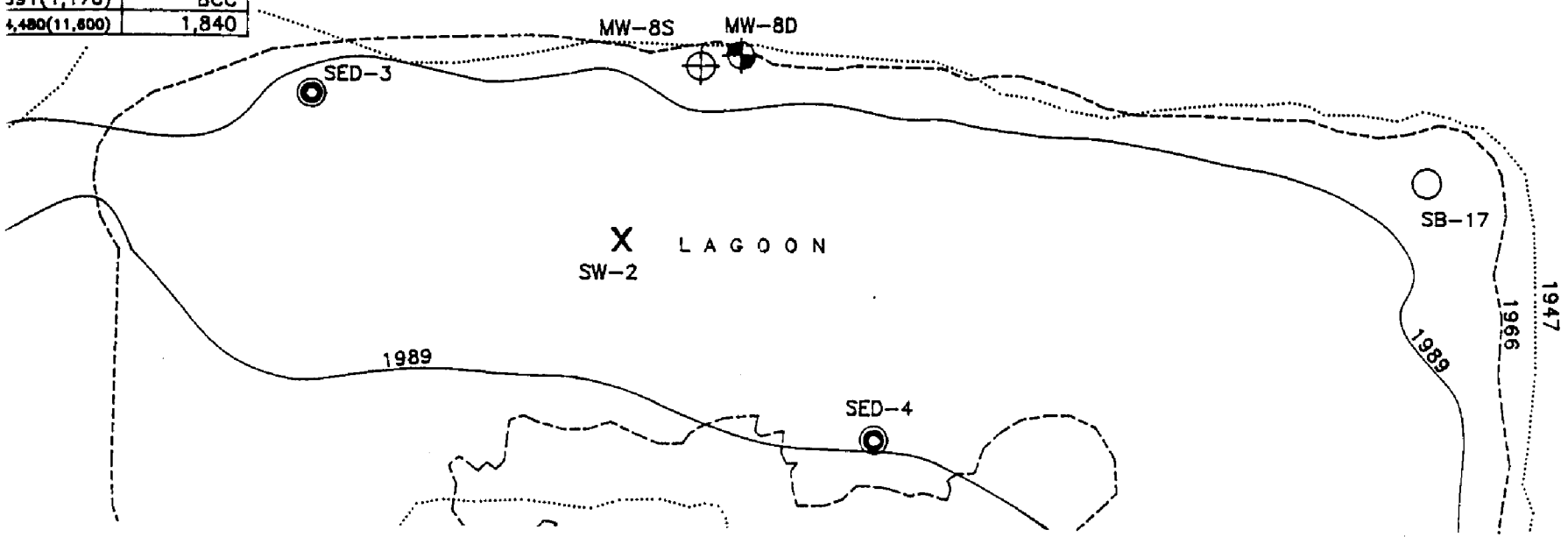
TIERRA-B-016047



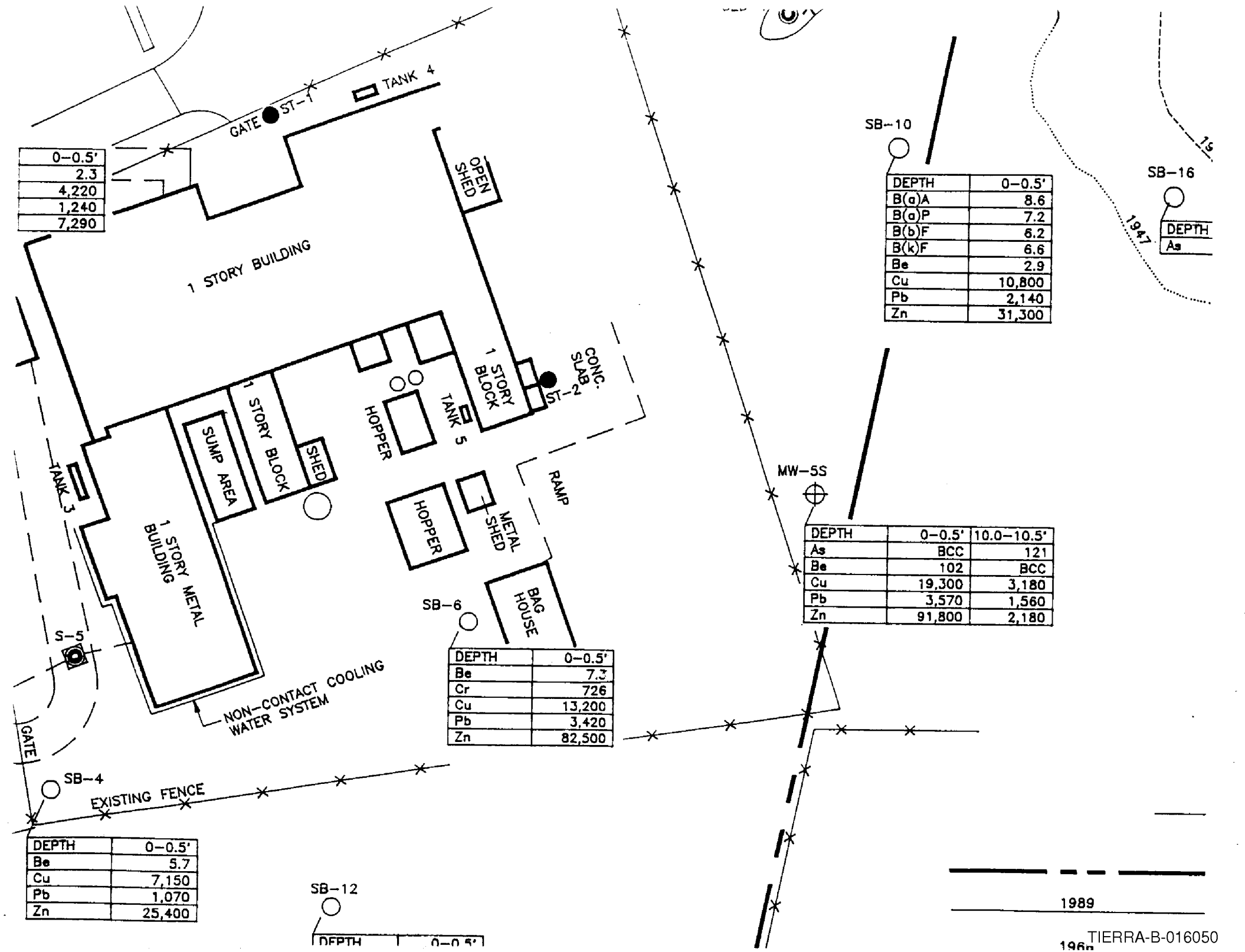
TIERRA-B-016048

PARAMETER	DIRECT CONTACT SOIL CRITERIA NONRESIDENTIAL	IMPACT TO GROUND WATER SOIL CRITERIA
B(a)A	4ppm	500ppm
B(a)P	0.66ppm	100ppm
B(b)F	4ppm	500ppm
B(k)F	4ppm	500ppm
PCB	2ppm	100ppm
As	20ppm	- -
Be	1ppm	- -
Cd	100ppm	- -
Cr	500ppm	- -
Cu	600ppm	- -
Pb	600ppm	- -
Tl	2ppm	- -
Zn	1,500ppm	- -

0-0.5'	8.5-9.0'
5.2(BCC)	BCC
3.9(1.1)	BCC
5.5(BCC)	BCC
,930(1,130)	2,130
691(1,170)	BCC
4,480(11,600)	1,840



TIERRA-B-016049



0–0.5'
2.3
4,220
1,240
7,290

DEPTH	0–0.5'
B(a)A	8.6
B(a)P	7.2
B(b)F	6.2
B(k)F	6.6
Be	2.9
Cu	10,800
Pb	2,140
Zn	31,300

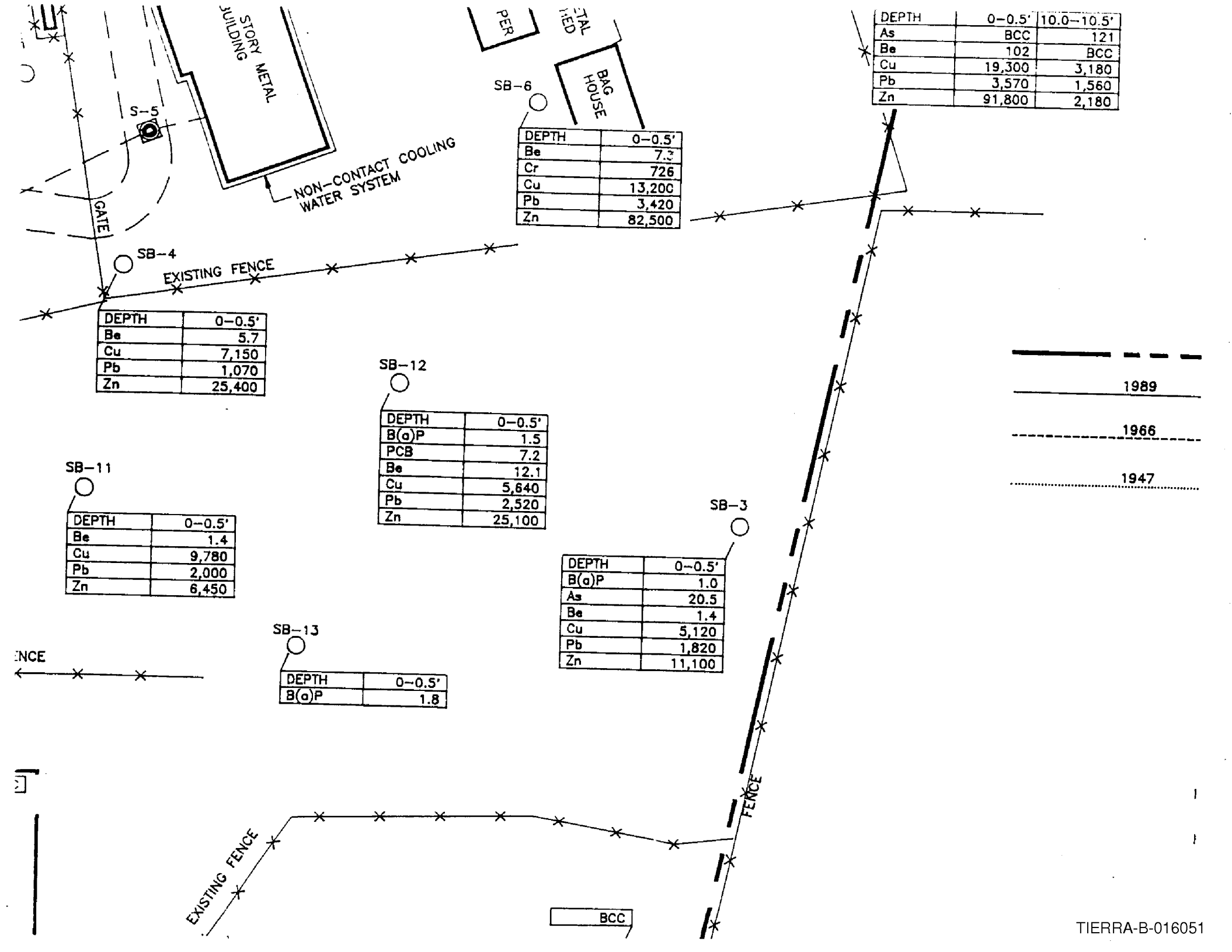
DEPTH
As

DEPTH	0–0.5'	10.0–10.5'
As	BCC	121
Be	102	BCC
Cu	19,300	3,180
Pb	3,570	1,560
Zn	91,800	2,180

DEPTH	0–0.5'
Be	7.3
Cr	726
Cu	13,200
Pb	3,420
Zn	82,500

DEPTH	0–0.5'
Be	5.7
Cu	7,150
Pb	1,070
Zn	25,400

DEPTH	0–0.5'



DEPTH	0–0.5'
Be	7.2
Cr	726
Cu	13,200
Pb	3,420
Zn	82,500

DEPTH	0–0.5'	10.0–10.5'
As	BCC	121
Be	102	BCC
Cu	19,300	3,180
Pb	3,570	1,560
Zn	91,800	2,180

DEPTH	0–0.5'
Be	5.7
Cu	7,150
Pb	1,070
Zn	25,400

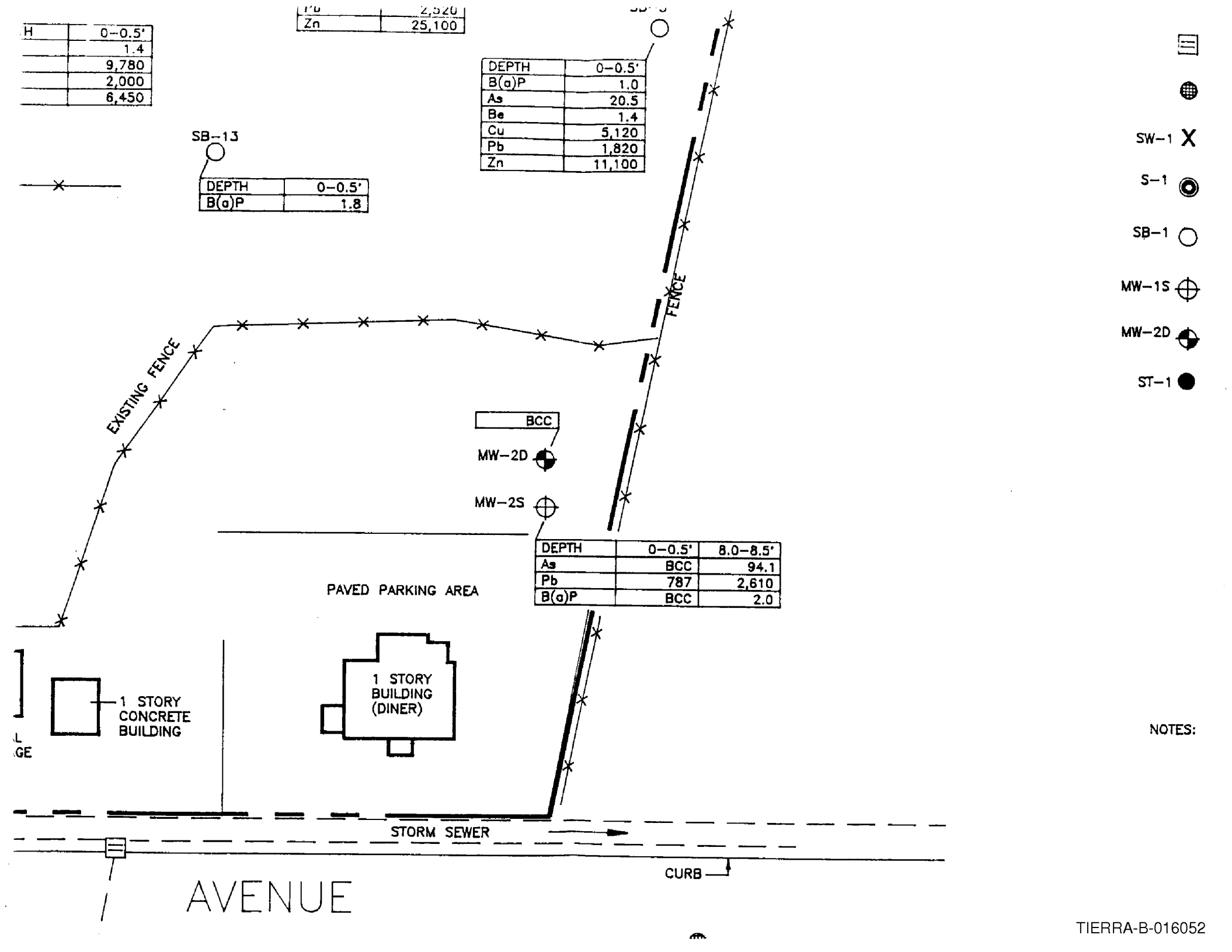
DEPTH	0–0.5'
B(a)P	1.5
PCB	7.2
Be	12.1
Cu	5,640
Pb	2,520
Zn	25,100

DEPTH	0–0.5'
Be	1.4
Cu	9,780
Pb	2,000
Zn	6,450

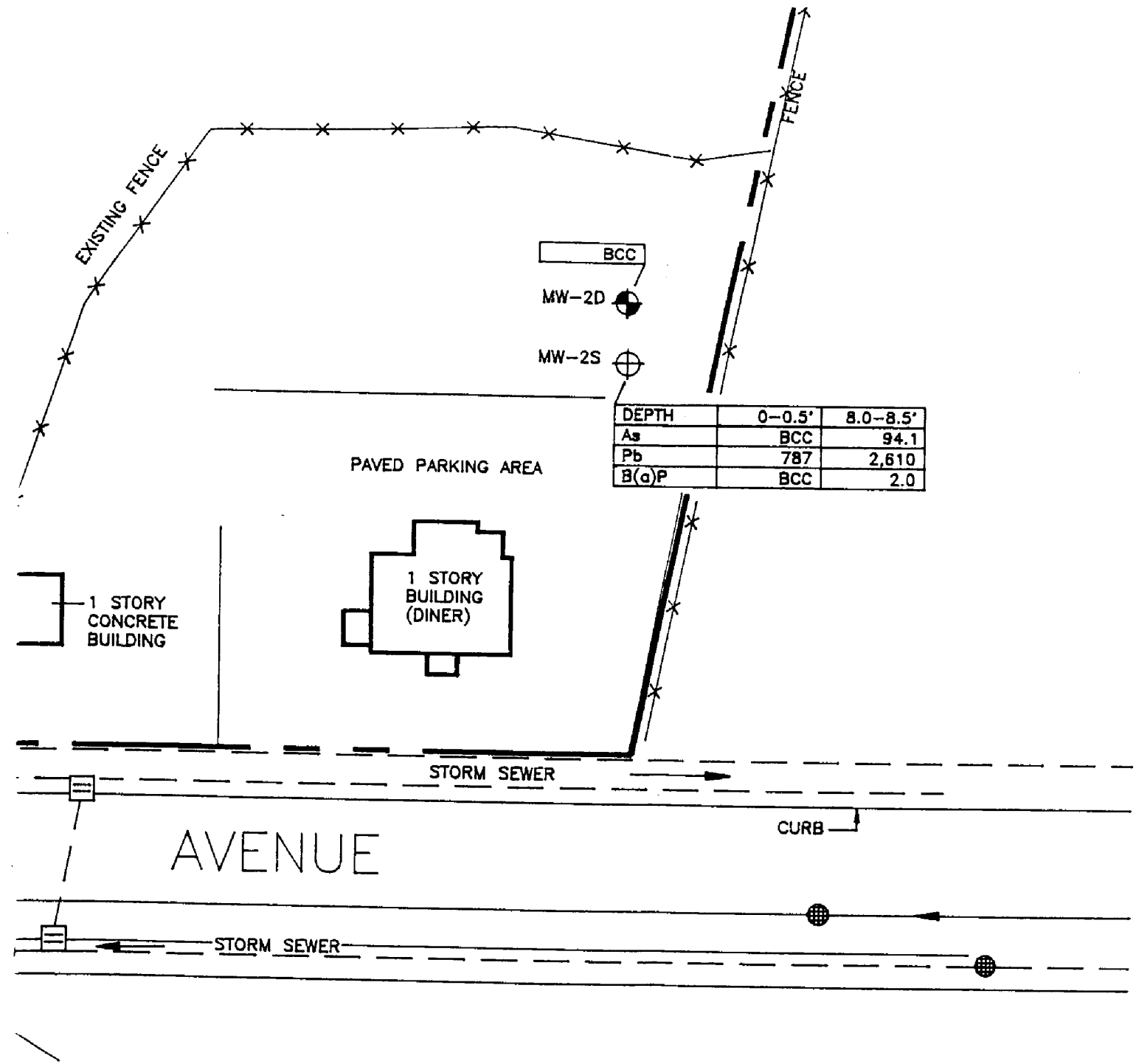
DEPTH	0–0.5'
B(a)P	1.0
As	20.5
Be	1.4
Cu	5,120
Pb	1,820
Zn	11,100

DEPTH	0–0.5'
B(a)P	1.8

TIERRA-B-016051



TIERRA-B-016052



DEPTH	0–0.5'	8.0–8.5'
As	BCC	94.1
Pb	787	2,610
B(a)P	BCC	2.0

SB–1 ○ S
A

MW–1S ⊕ S
L

MW–2D ◓ D
L

ST–1 ● S
A

B
B
B
B
P
As
Be
Cc
Cr
Cu
Pb
Tl
Zn

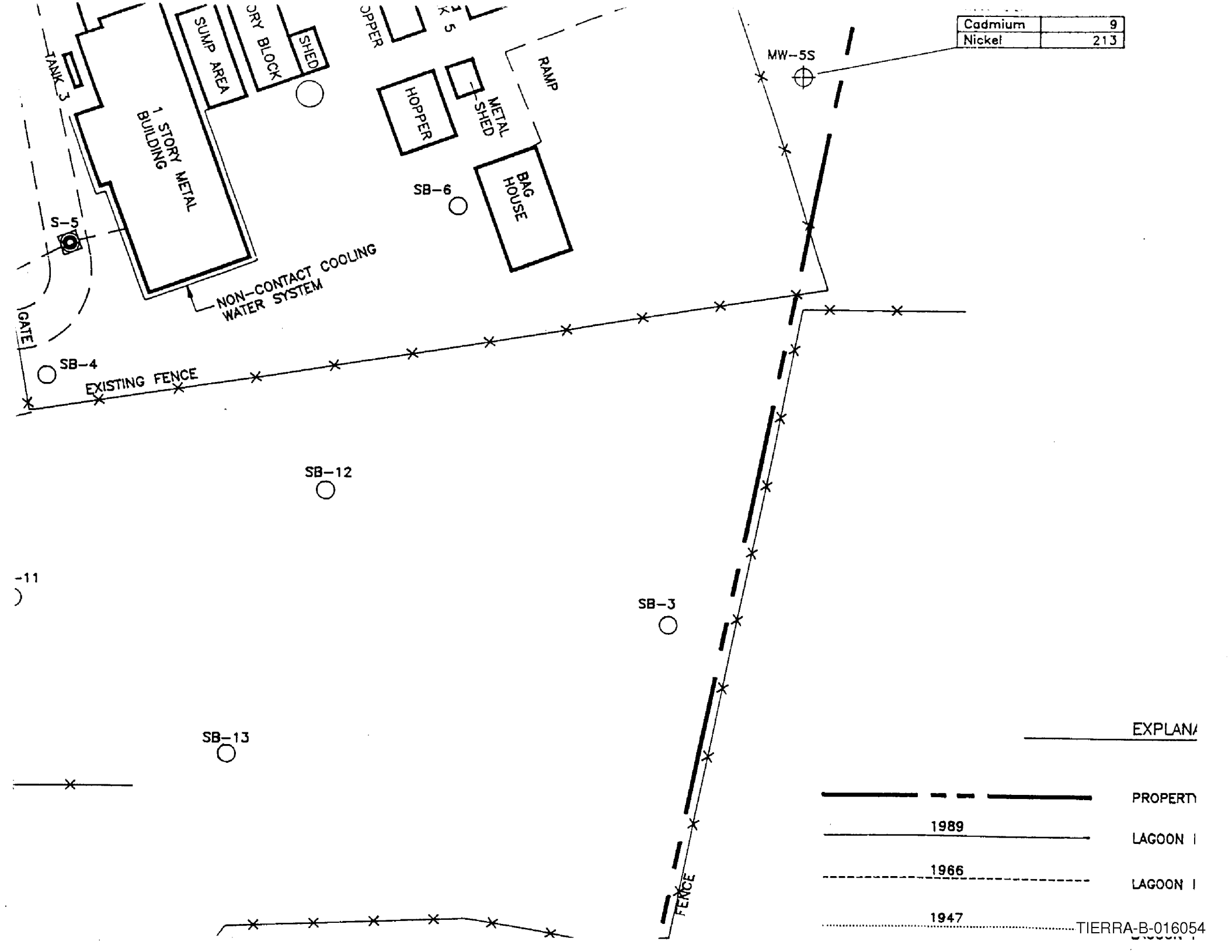
NOTES: 1) SH
ME

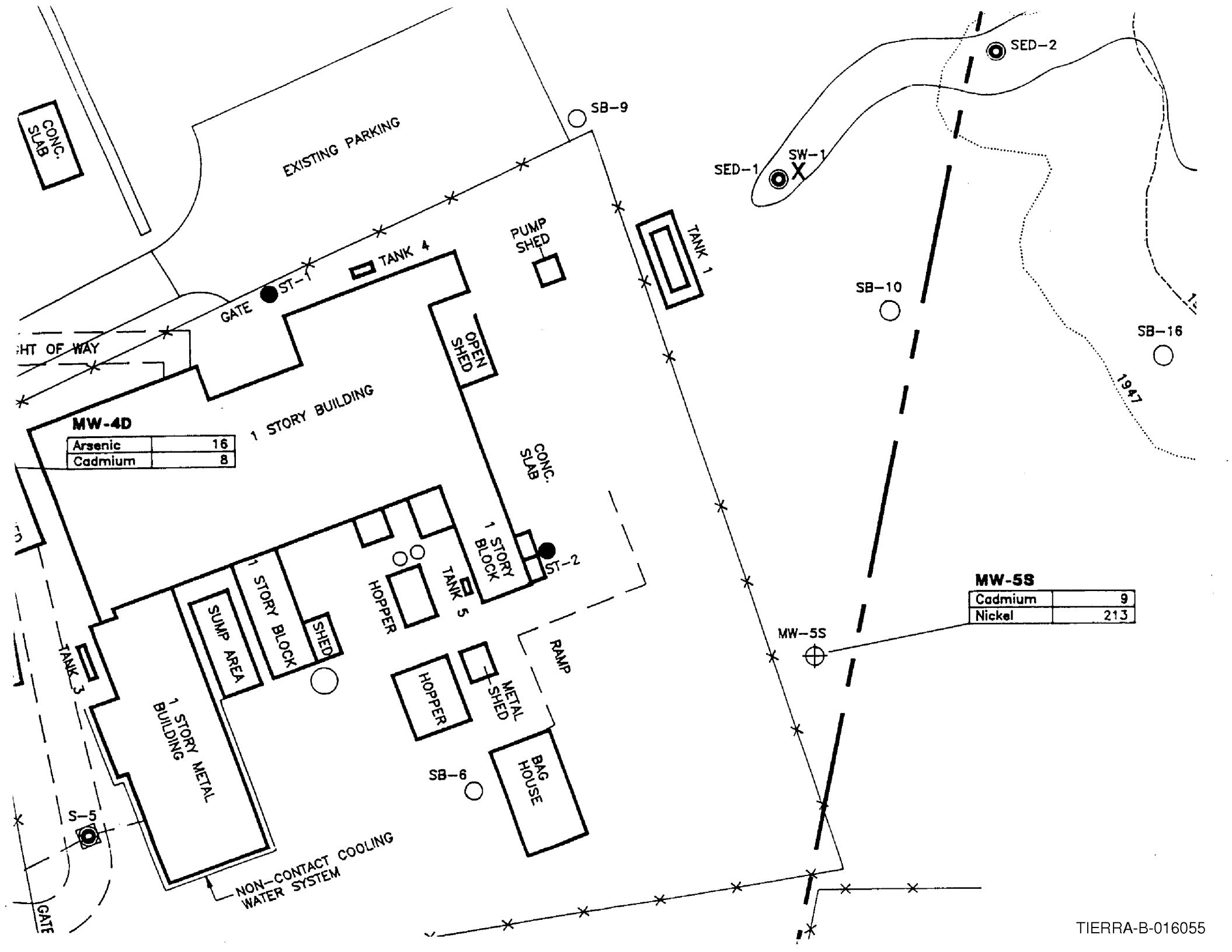
2) DE
MA

3) ON
EX
CL
SE
DE

4) BC
NO
SO

5) ALI
PE


Cadmium 9
Nickel 213
MW-5S
TANK 3
SUMP AREA
SHED
HOPPER
METAL SHED
RAMP
1 STORY METAL BUILDING
BAG HOUSE
SB-6
S-5
NON-CONTACT COOLING WATER SYSTEM
GATE
SB-4
EXISTING FENCE
SB-12
SB-3
SB-13
FENCE
EXPLANA
PROPERTY
1989
LAGOON I
1966
LAGOON I
1947



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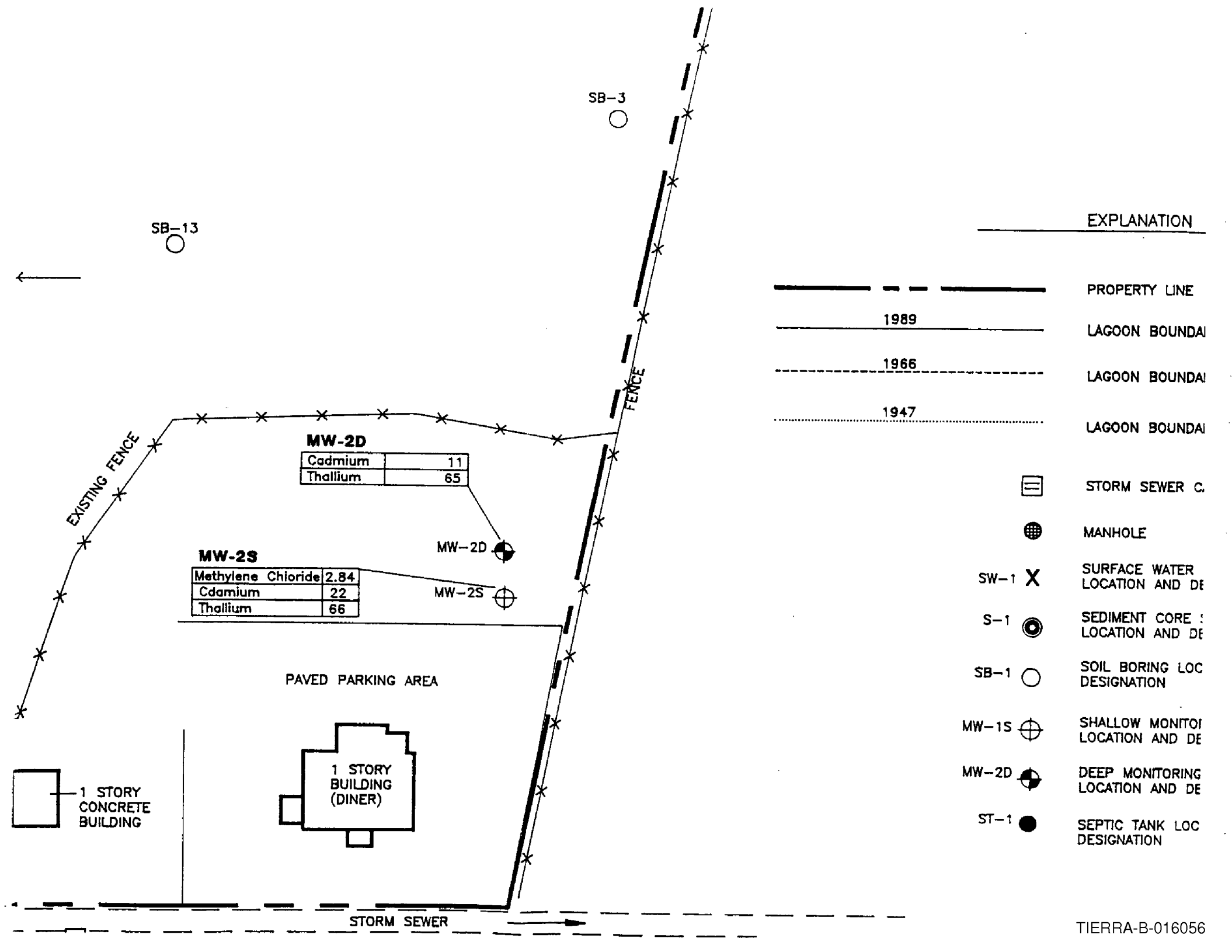

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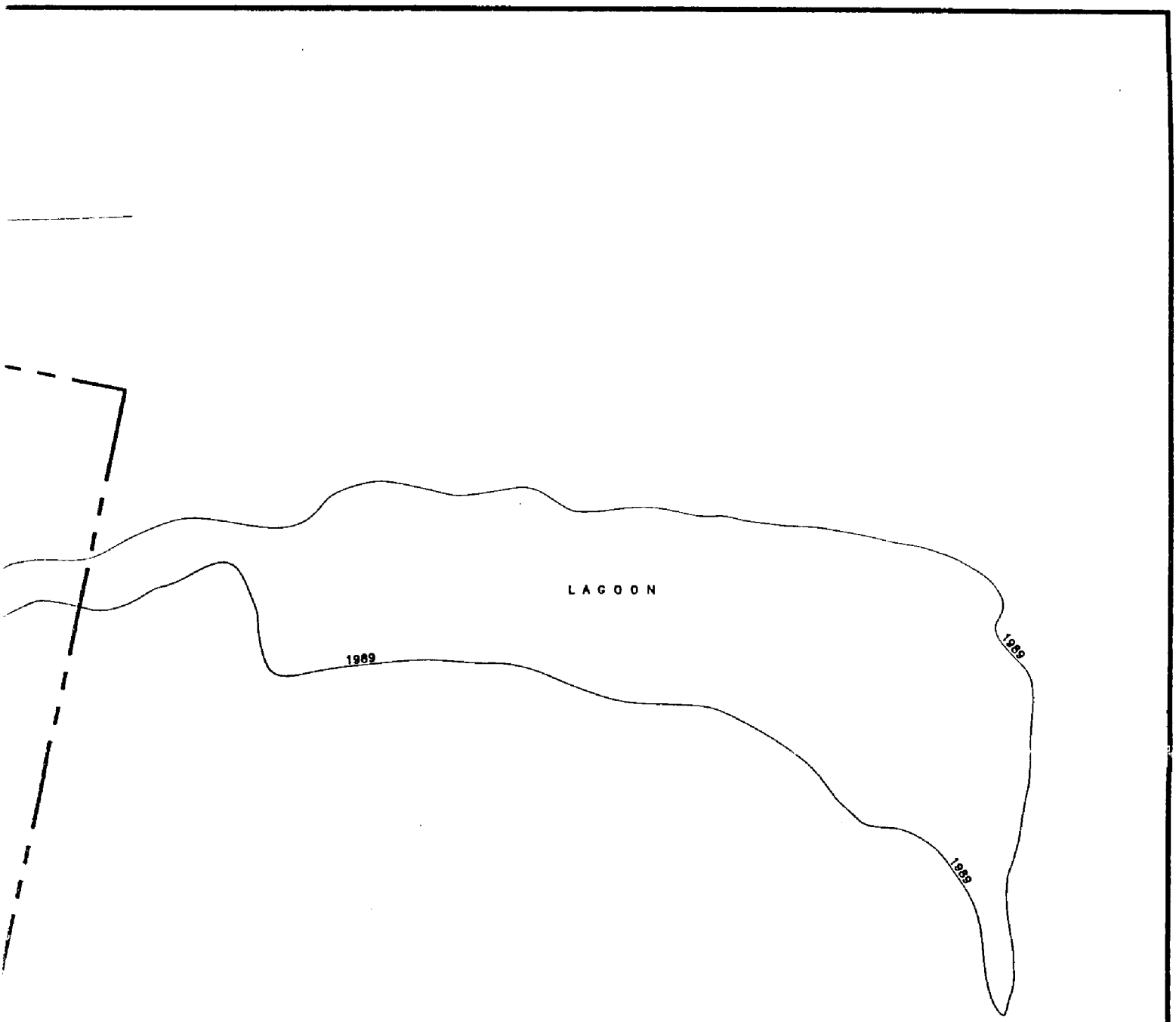
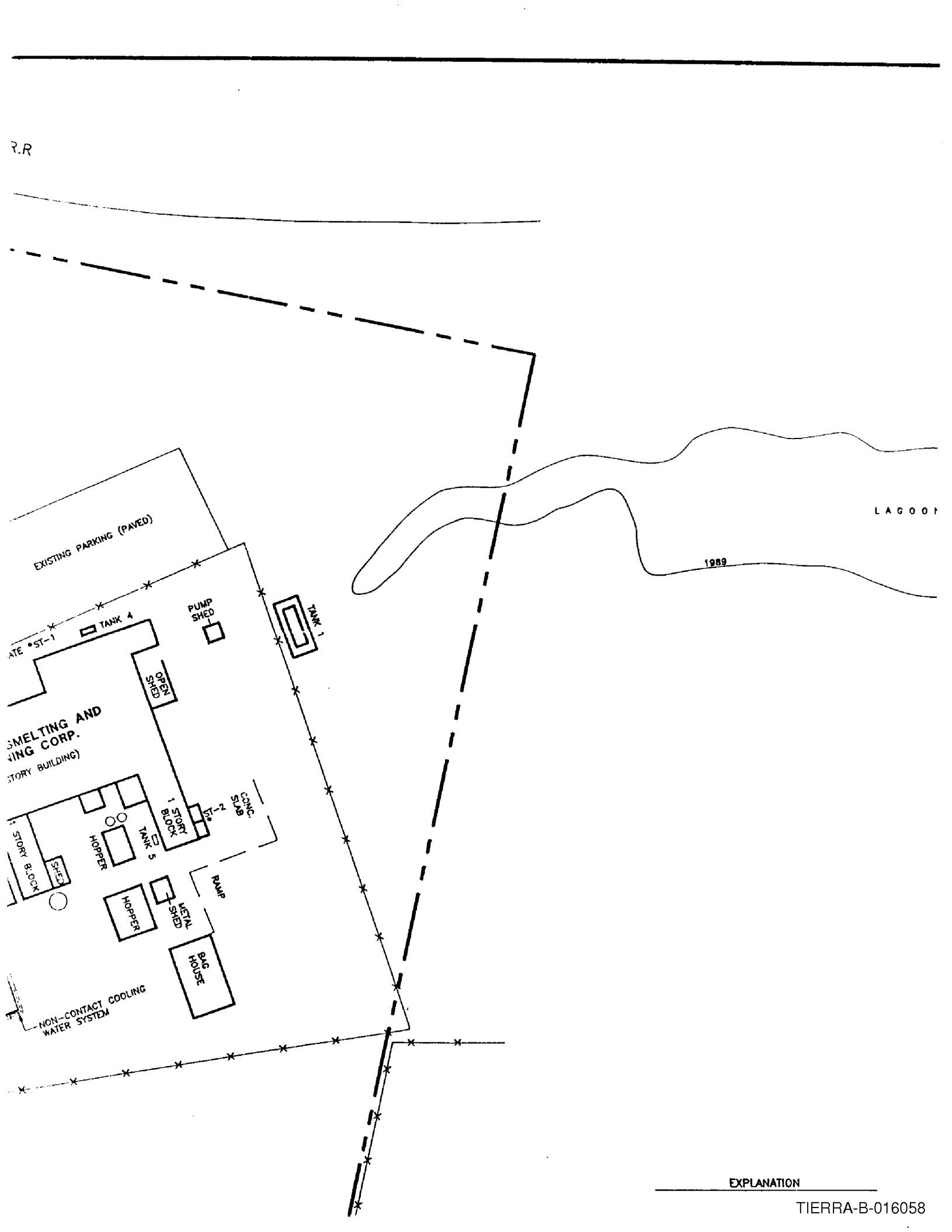
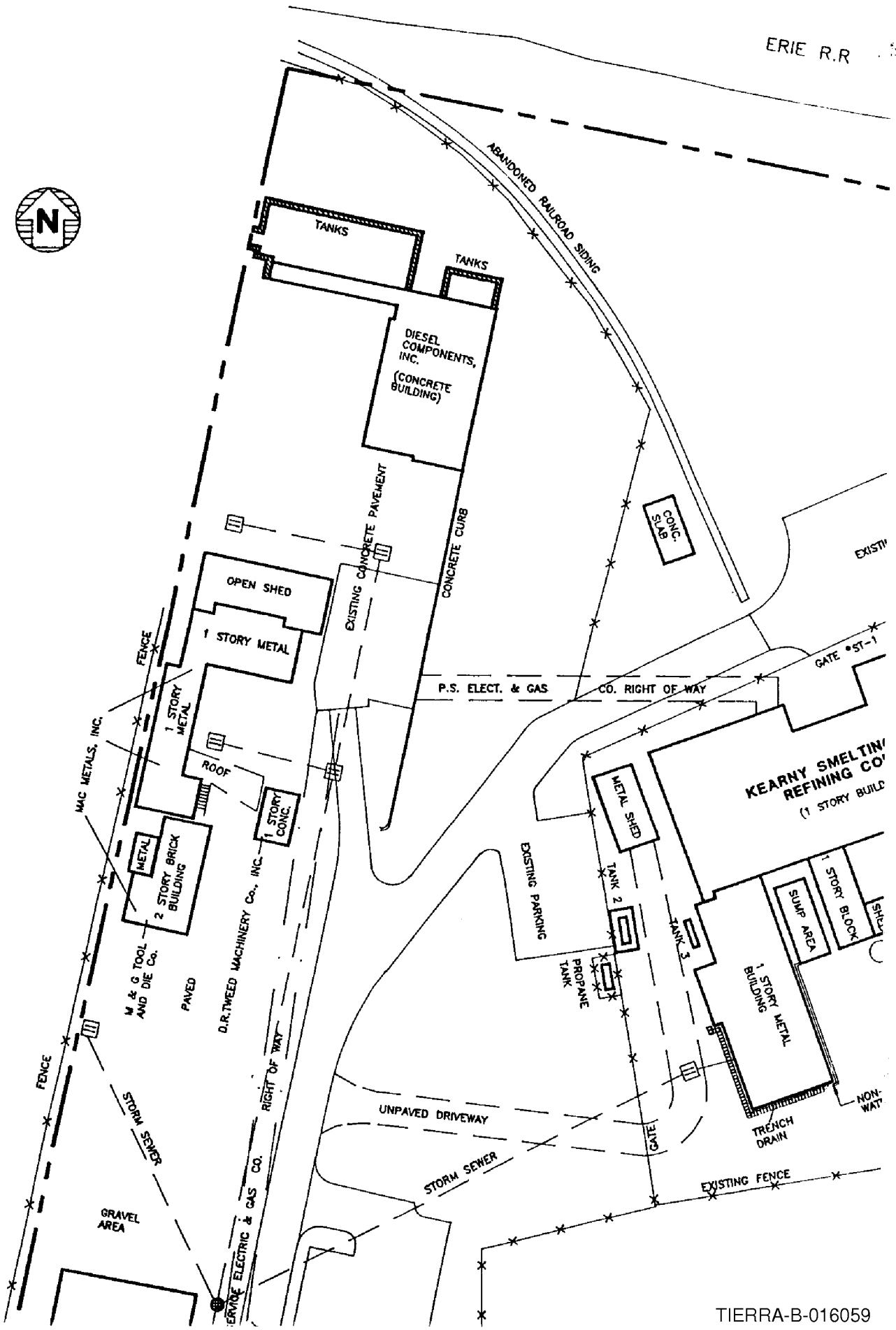


EXPLANATION


R.R
EXISTING PARKING (PAVED)
PUMP SHED
TANK 4
TANK 1
OPEN SHED
SMELTING AND
WING CORP.
STORY BUILDING)
1 STORY BLOCK
CONC. SLAB
HOPPER
TANK 5
RAMP
METAL SHED
BAG HOUSE
NON-CONTACT COOLING WATER SYSTEM
1989
LAGOO
EXPLANATION



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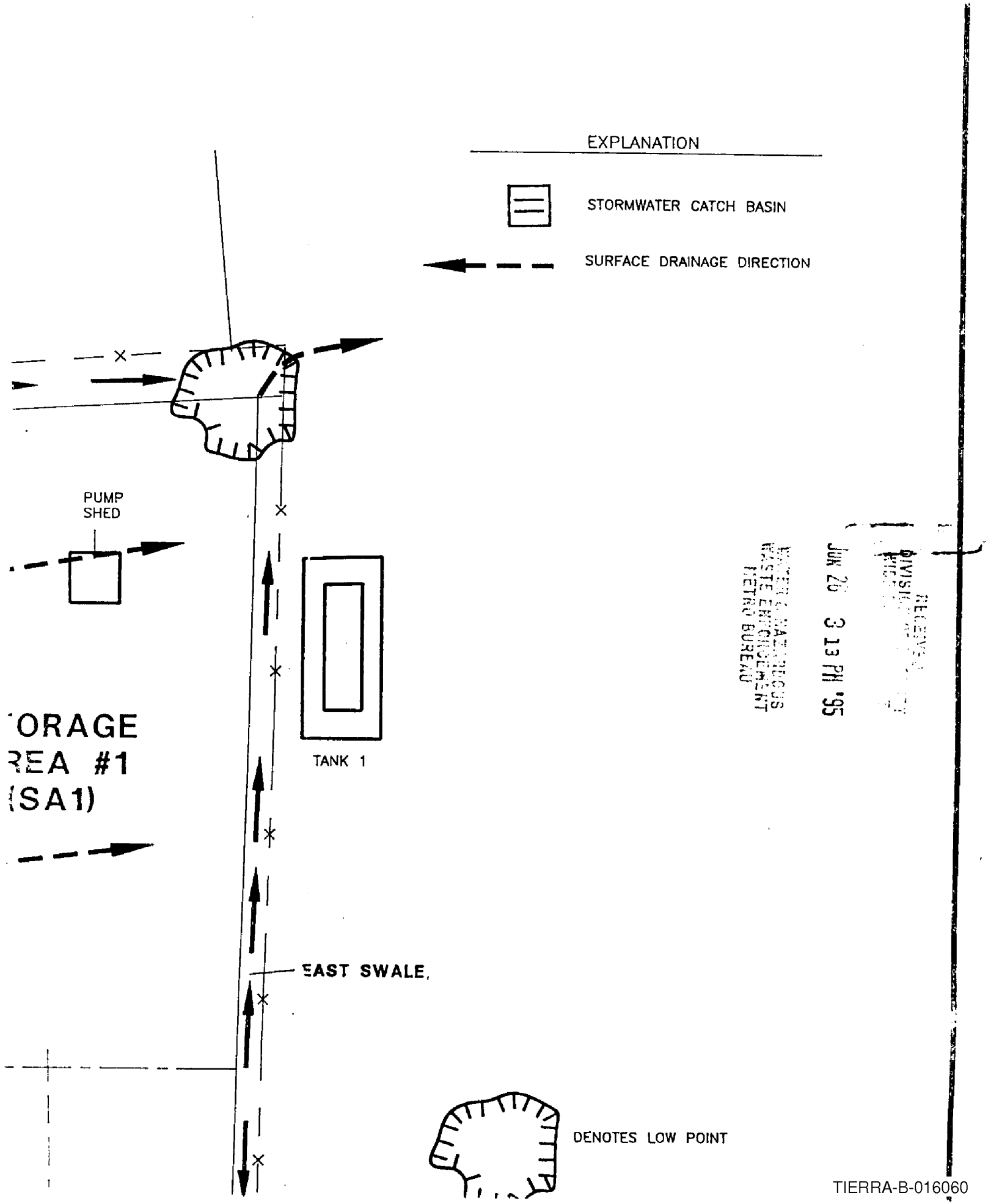

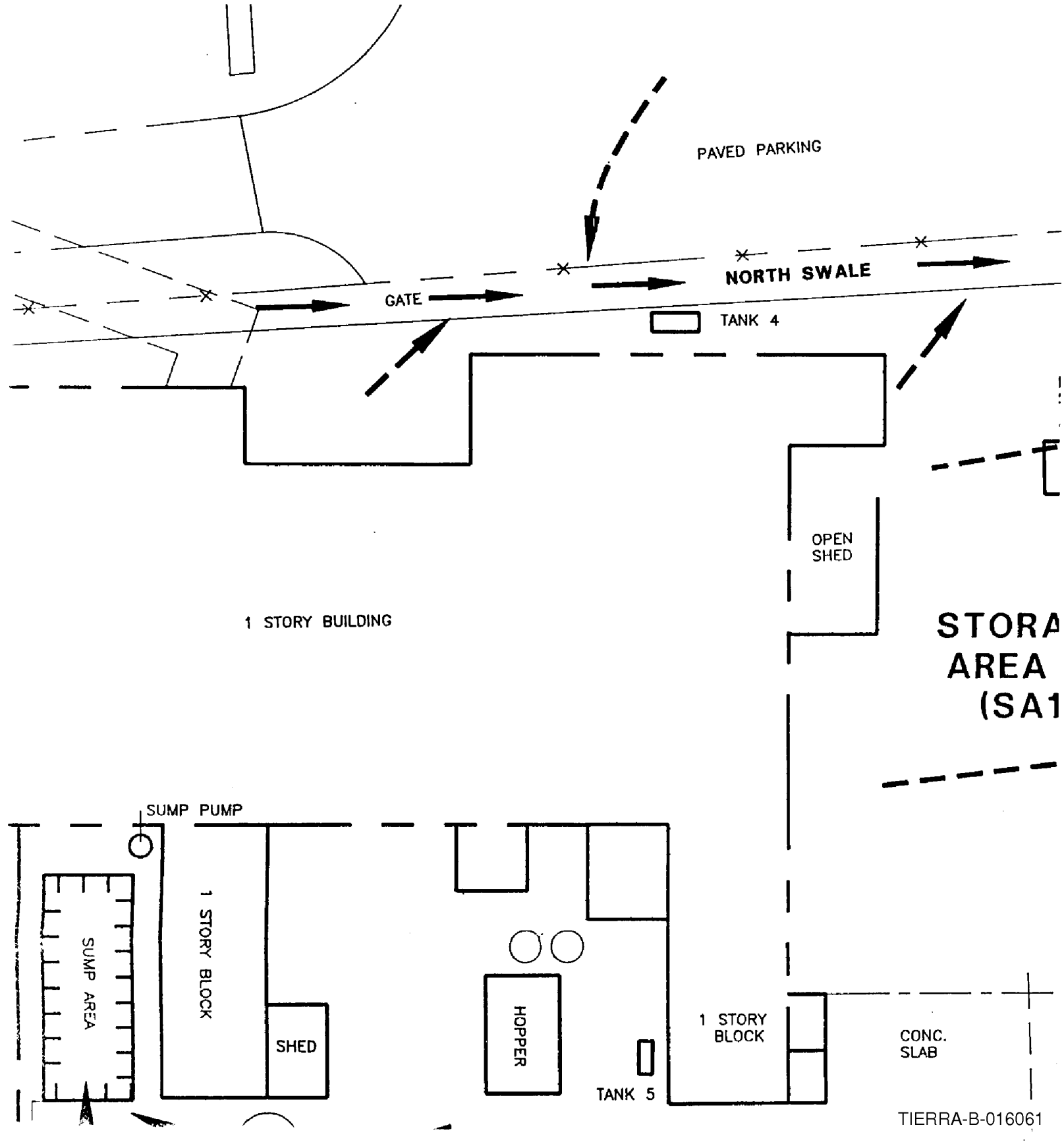

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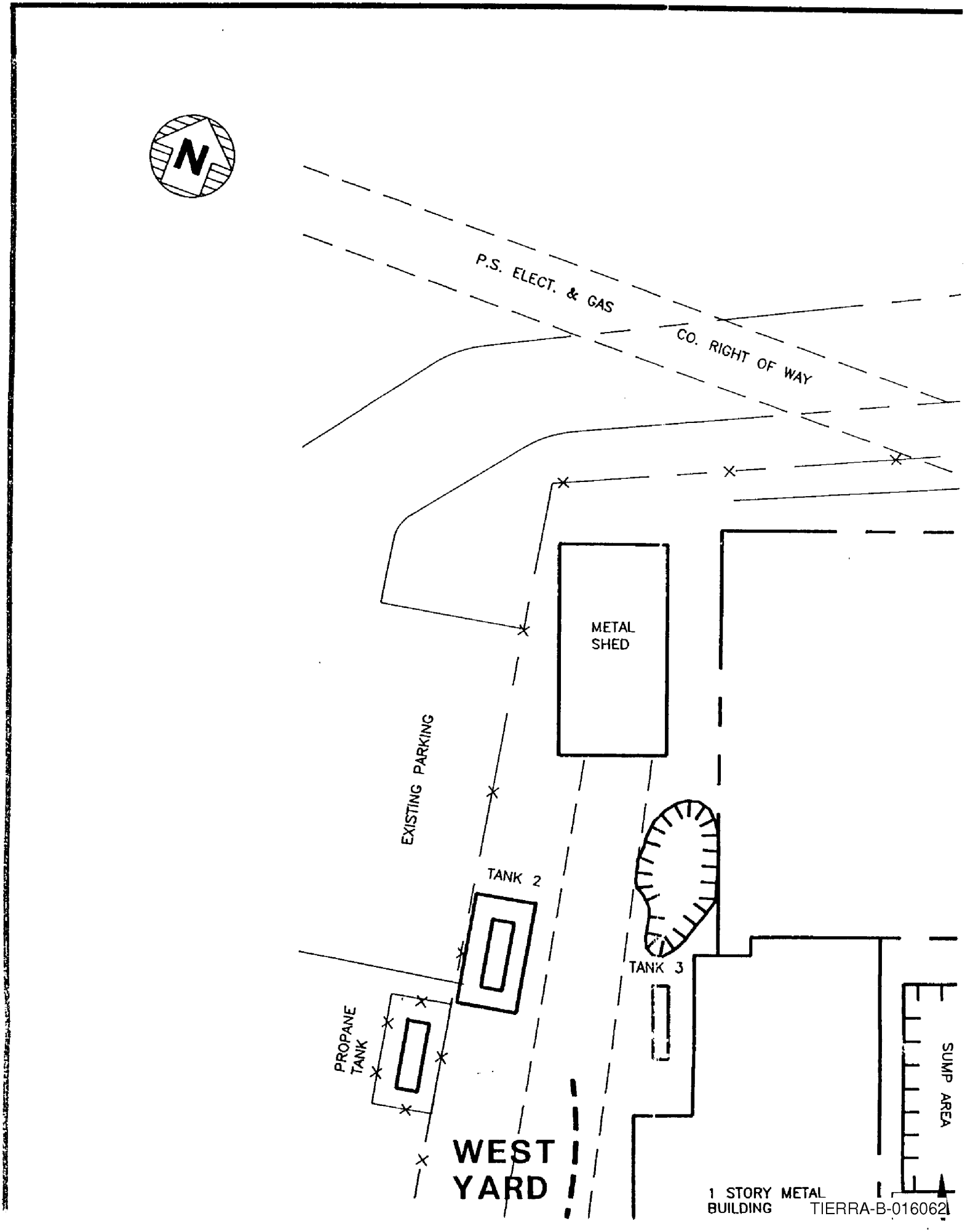
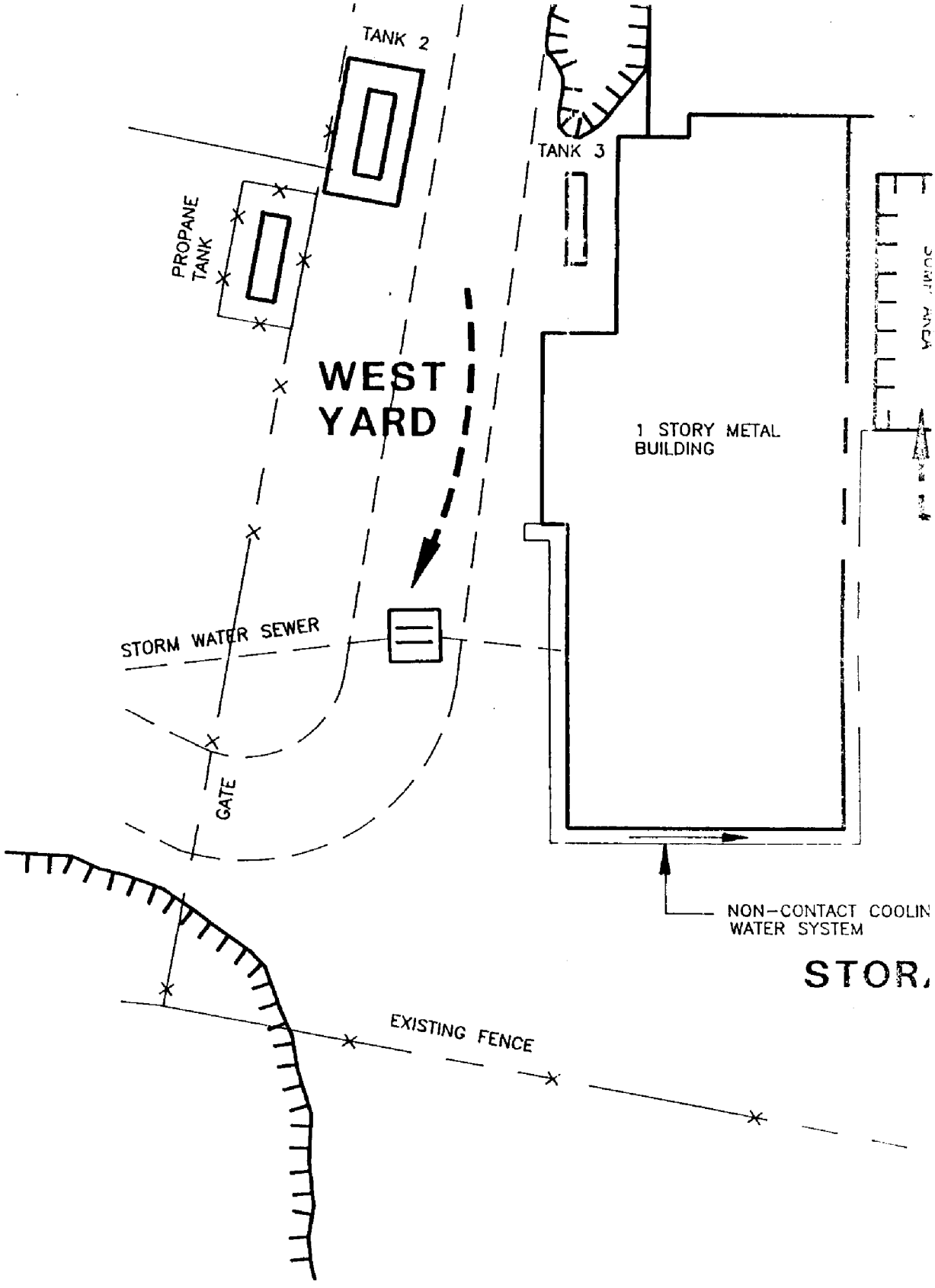
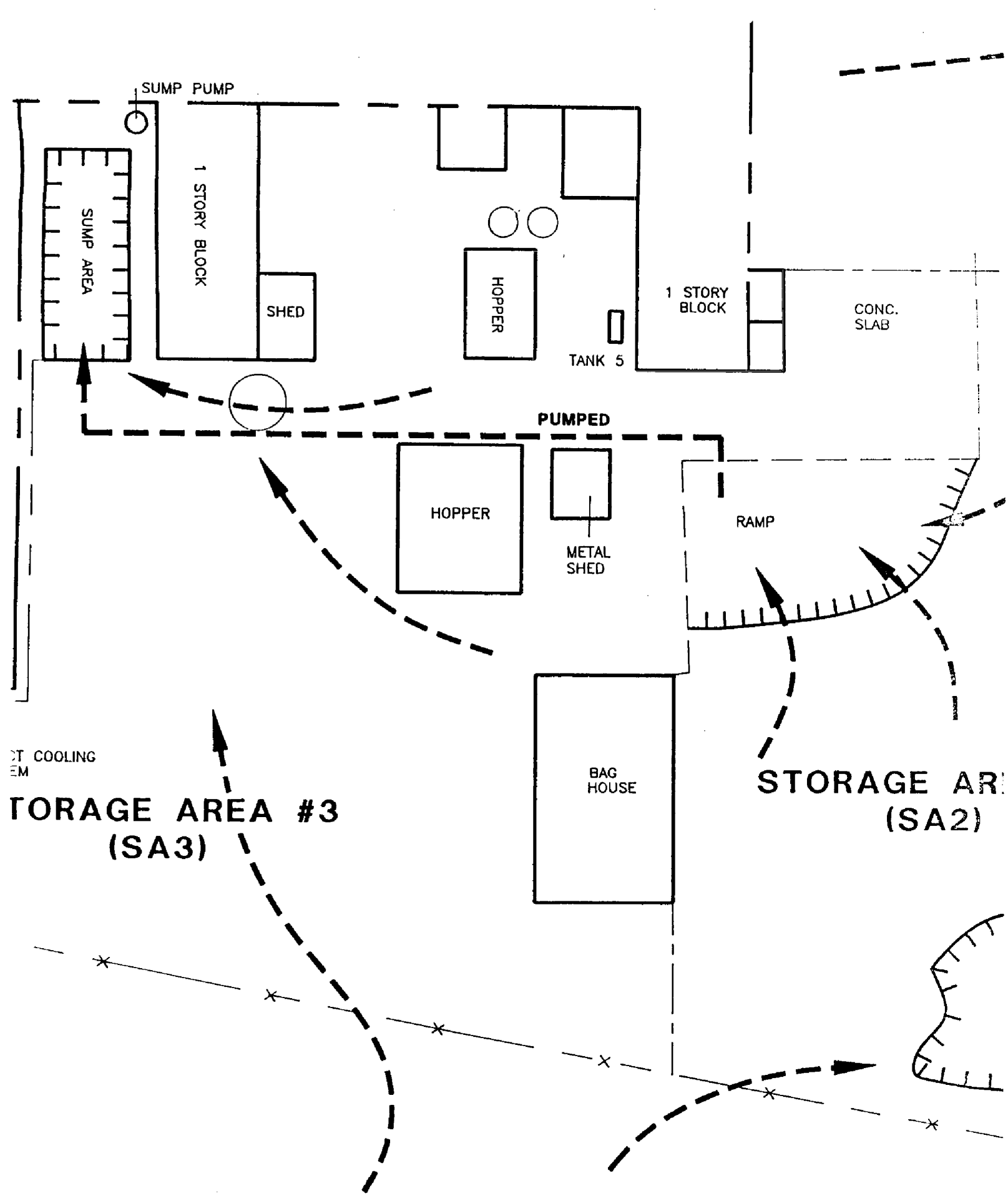
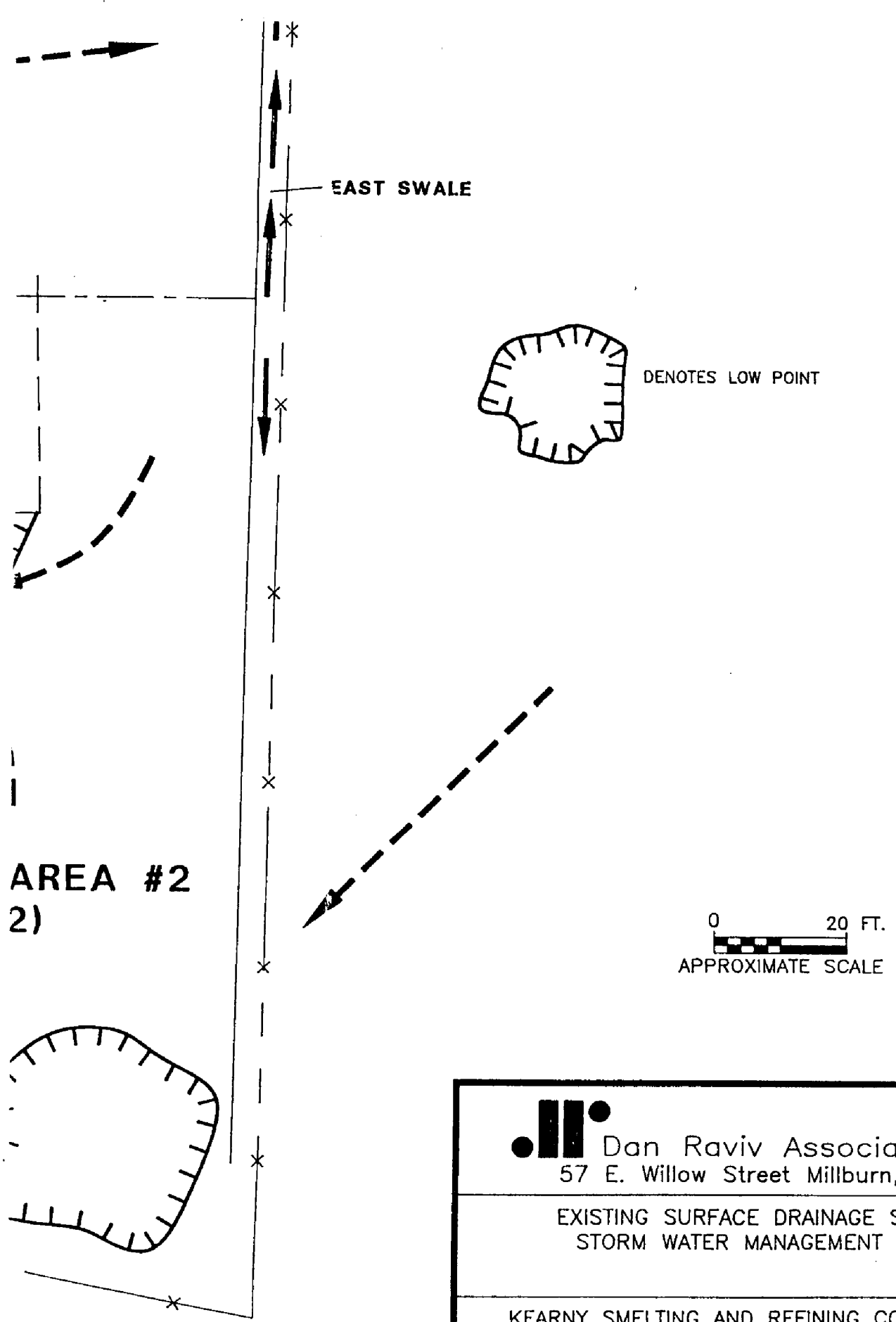

N
P.S. ELECT. & GAS
CO. RIGHT OF WAY
METAL SHED
EXISTING PARKING
TANK 2
TANK 3
PROPANE TANK
WEST YARD
SUMP AREA
1 STORY METAL BUILDING
TIERRA-B-016062


TANK 2
TANK 3
PROPANE TANK
WEST YARD
1 STORY METAL BUILDING
STORM WATER SEWER
GATE
NON-CONTACT COOLIN
WATER SYSTEM
STOR
EXISTING FENCE


SUMP PUMP
SUMP AREA
1 STORY BLOCK
SHED
HOPPER
TANK 5
1 STORY BLOCK
CONC. SLAB
PUMPED
HOPPER
METAL SHED
RAMP
BAG HOUSE
CT COOLING
EM
TORAGE AREA #3
(SA3)
STORAGE AR
(SA2)

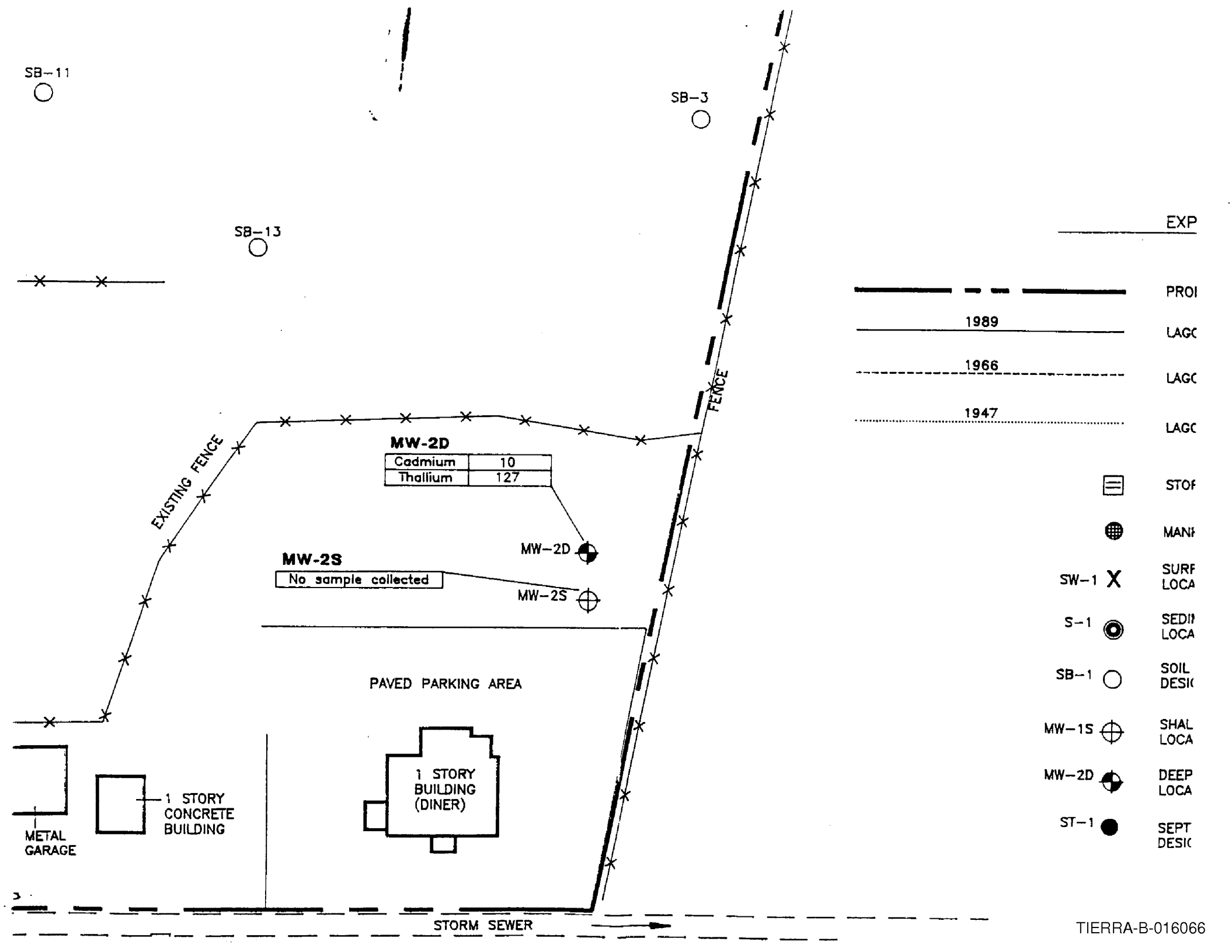


Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

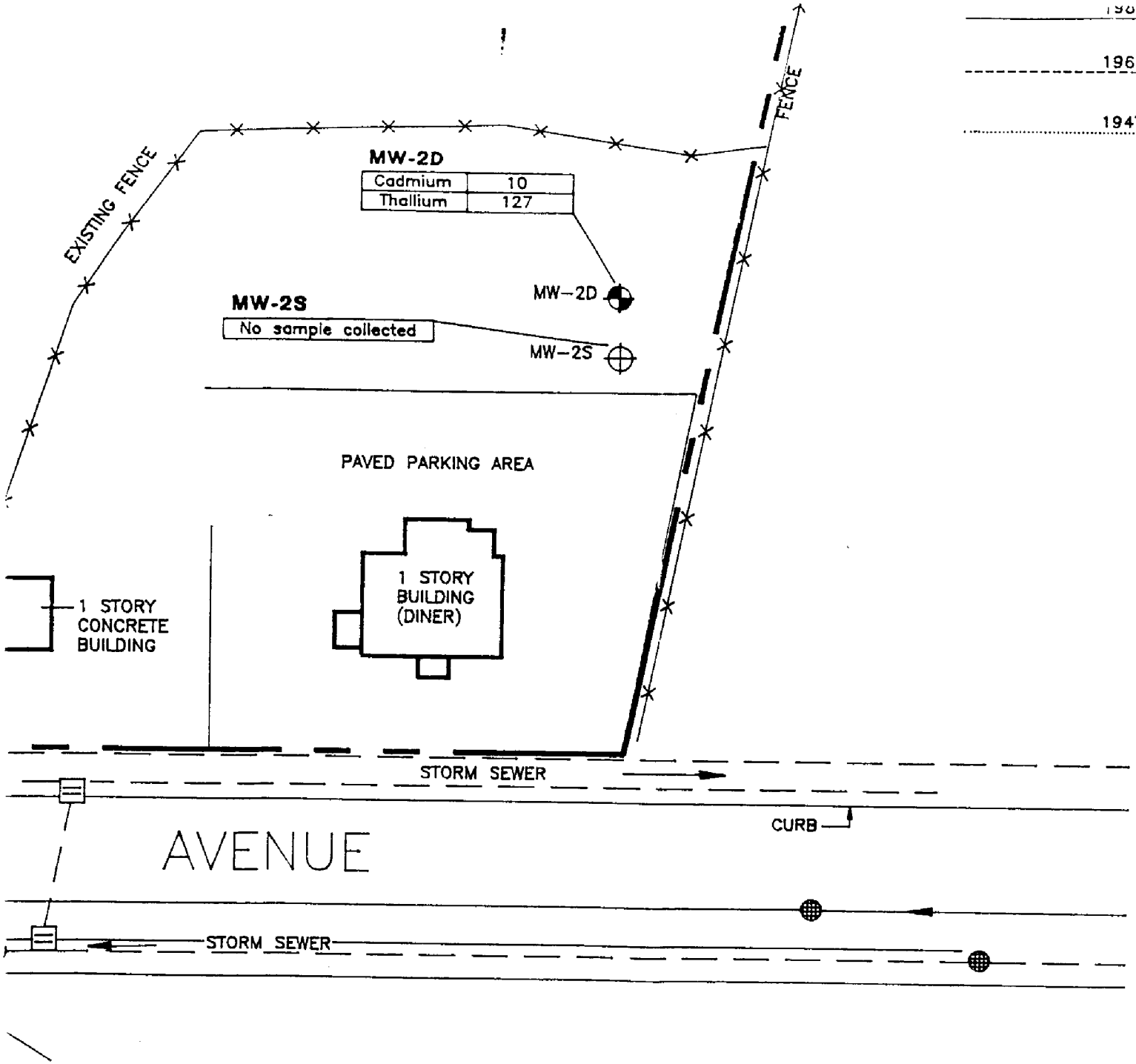
EXISTING SURFACE DRAINAGE SYSTEM
STORM WATER MANAGEMENT PLAN

KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

PREPARED BY: FWW/LB	DATE: MAY 1995
JOB NO.: 91C926	FIGURE: 2



TIERRA-B-016066



1989 LAGOON BOUNDA

1966 LAGOON BOUNDA

1947 LAGOON BOUNDA

STORM SEWER C

MANHOLE

SW-1 X SURFACE WATER LOCATION AND DE

S-1 SEDIMENT CORE LOCATION AND DE

SB-1 SOIL BORING LOC DESIGNATION

MW-1S SHALLOW MONITOR LOCATION AND DE

MW-2D DEEP MONITORING LOCATION AND DE

ST-1 SEPTIC TANK LOC DESIGNATION

NOTES: 1) SHALLOW WELLS SC MEADOW MAT LAYER

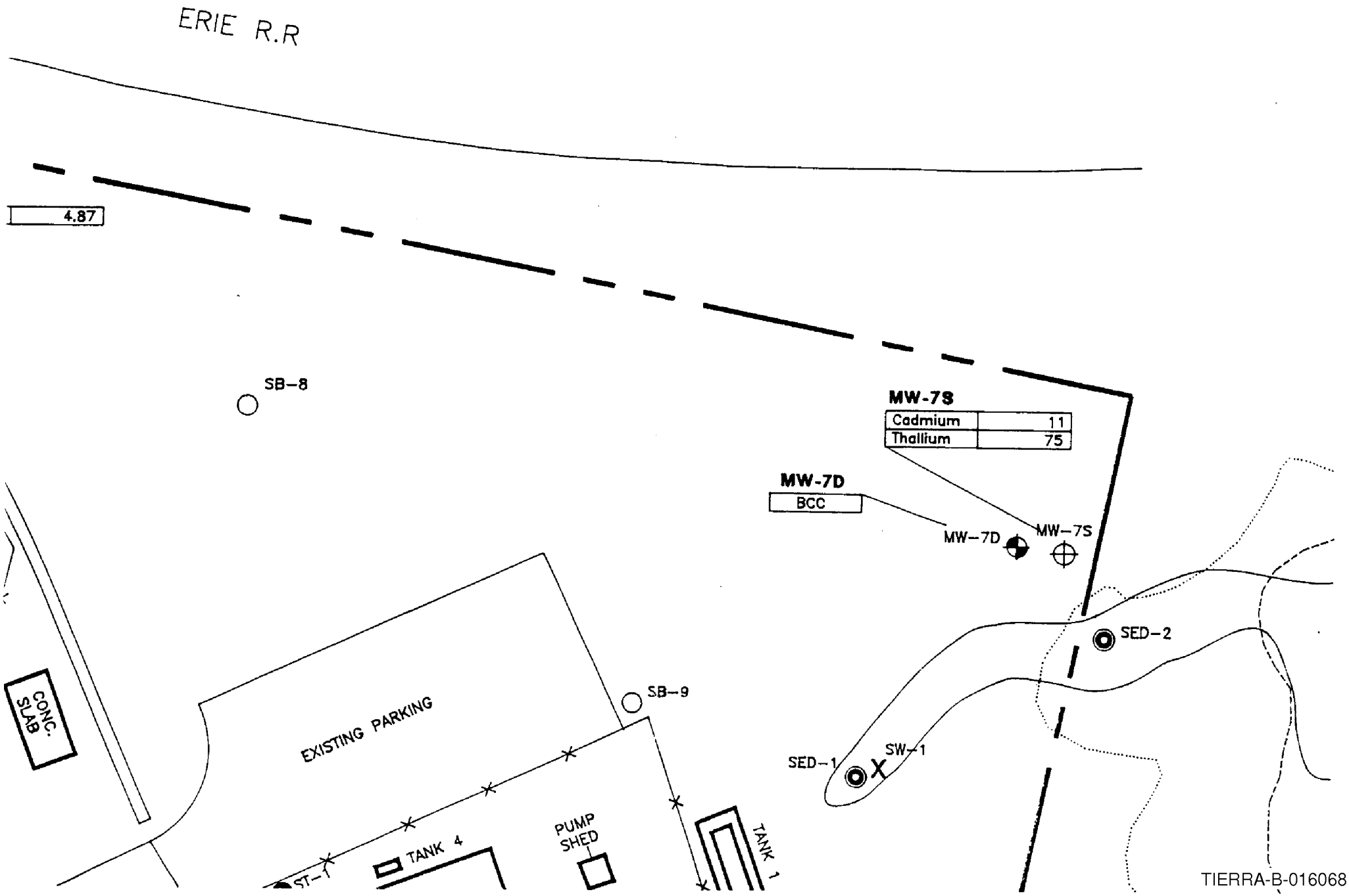
2) DEEP WELLS SCREE MAT LAYER, IN NATI

3) ALL RESULTS IN PA (ppb)

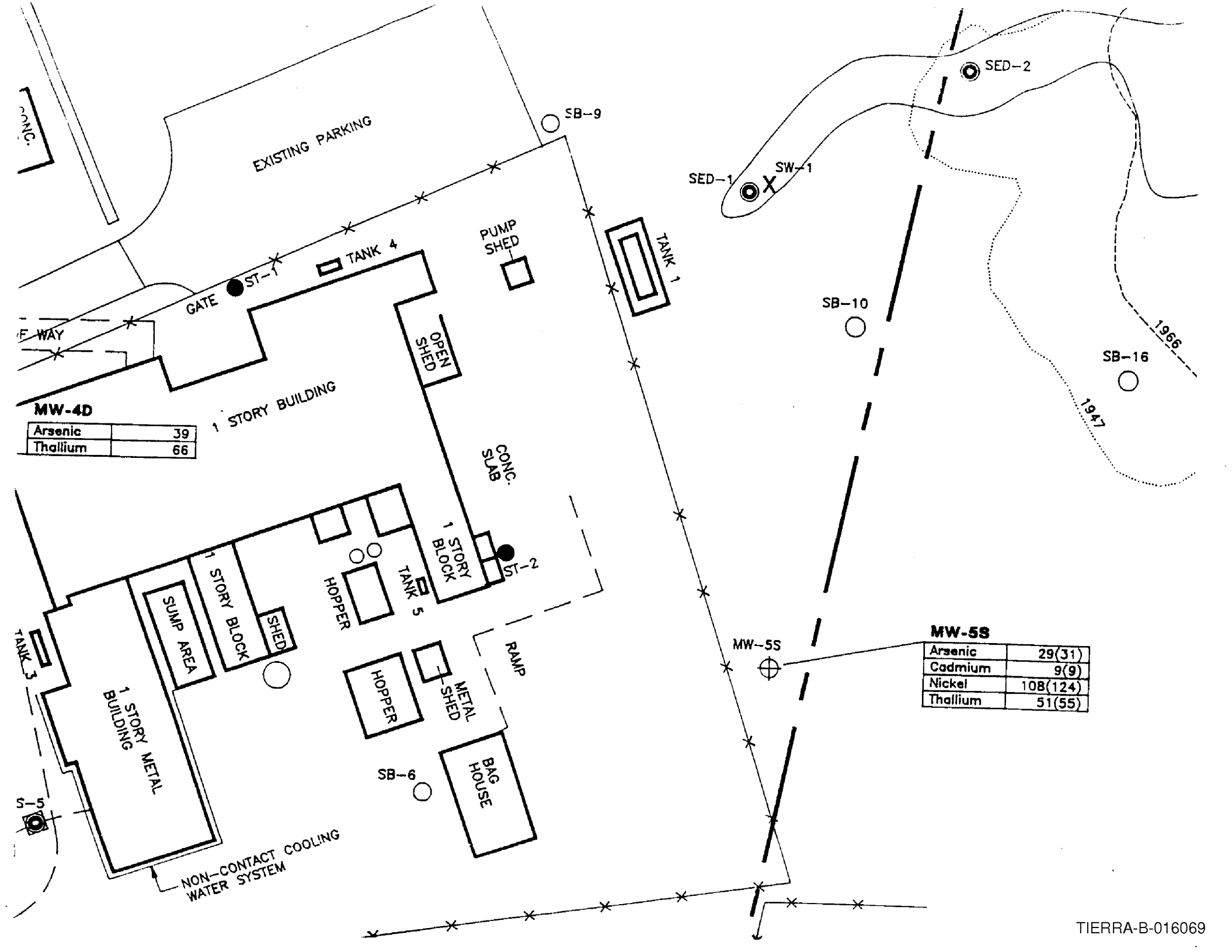
4) BCC = BELOW CLEA

5) ( ) = RESULTS O

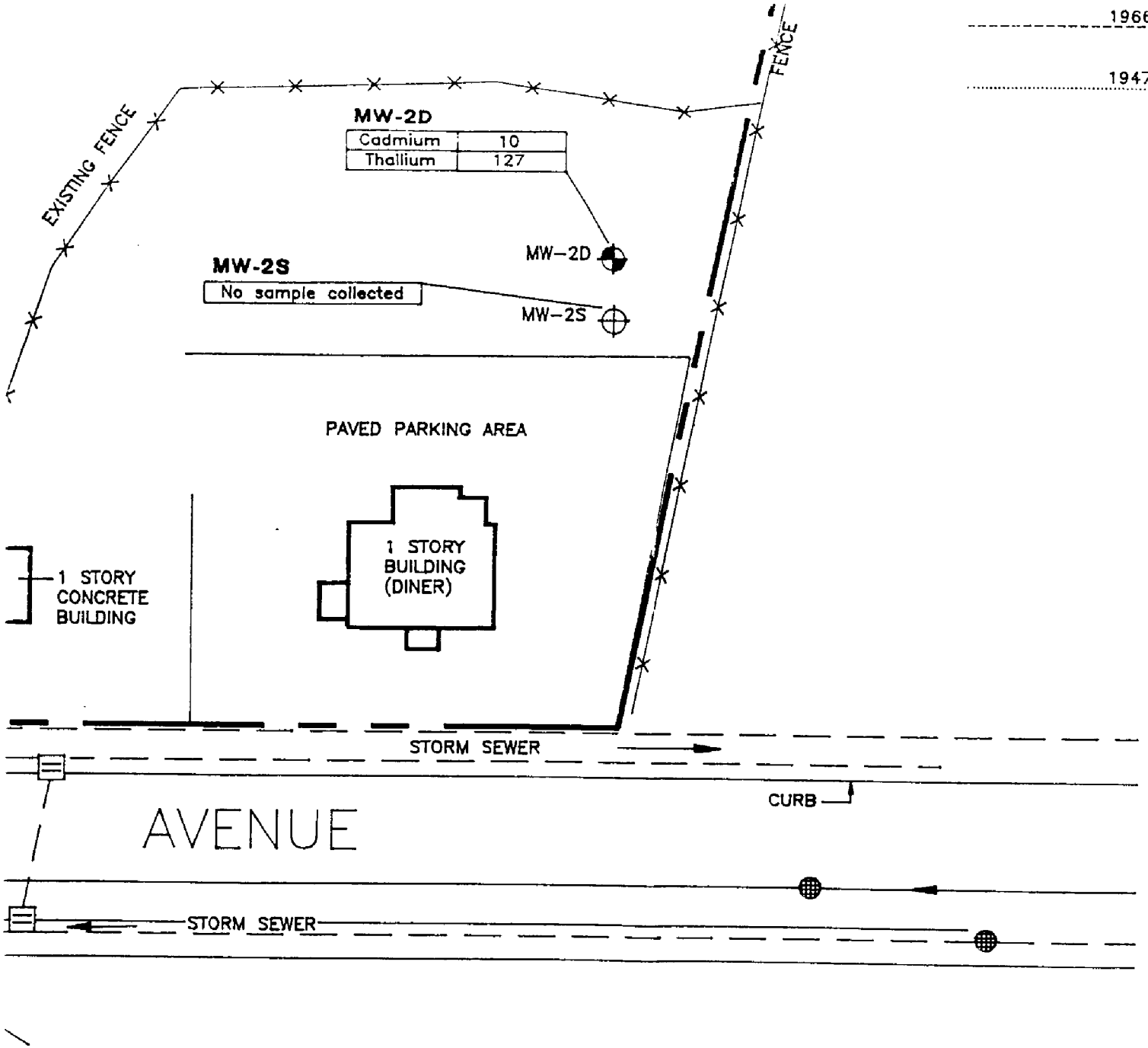
TIERRA-B-016067



TIERRA-B-016068



TIERRA-B-016069



1966 LAGOON BOUNDARY

1947 LAGOON BOUNDARY

STORM SEWER CATC

MANHOLE

SW-1 SURFACE WATER SAM LOCATION AND DESIC

S-1 SEDIMENT CORE SAM LOCATION AND DESIG

SB-1 SOIL BORING LOCATI DESIGNATION

MW-1S SHALLOW MONITORIN LOCATION AND DESIG

MW-2D DEEP MONITORING W LOCATION AND DESIG

ST-1 SEPTIC TANK LOCATI DESIGNATION

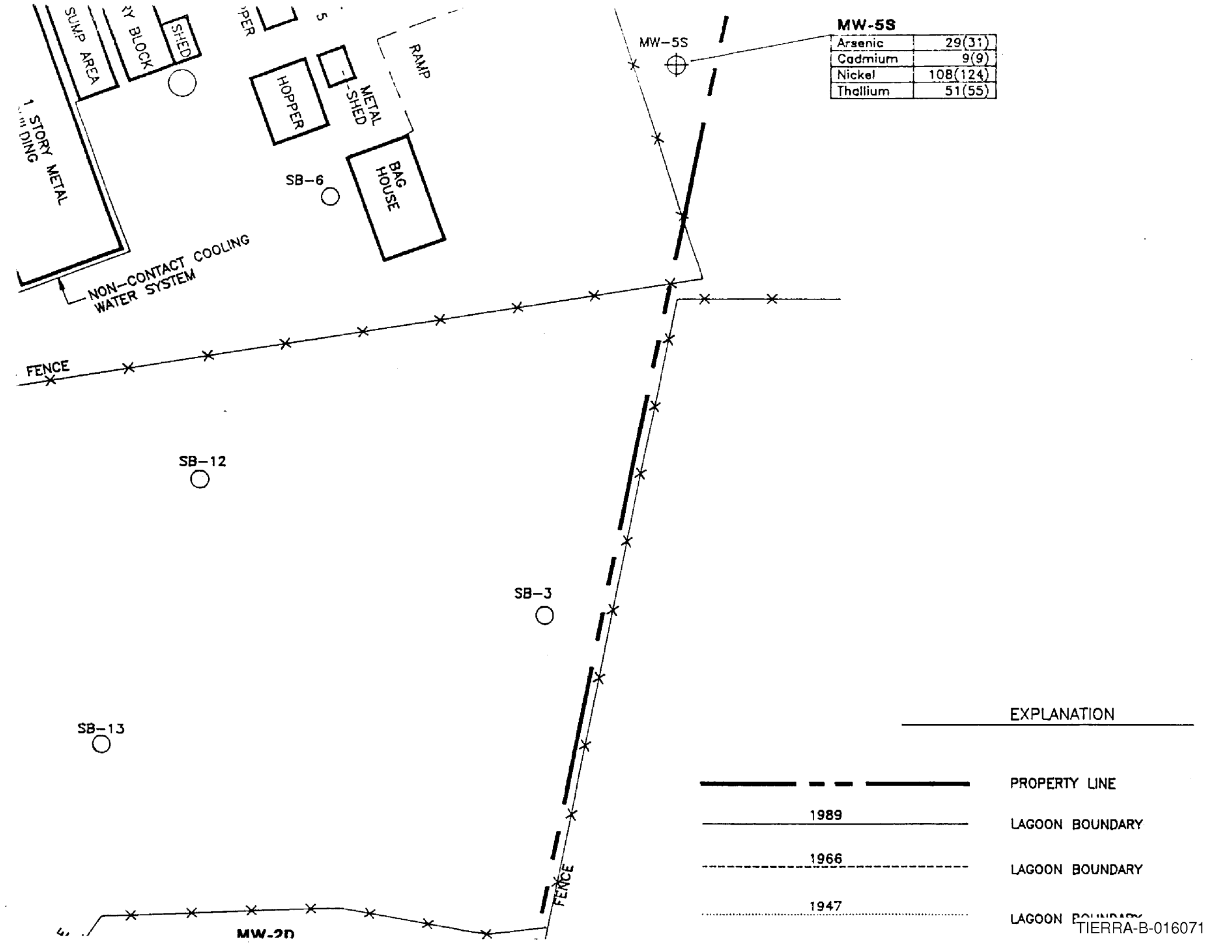
NOTES: 1) SHALLOW WELLS SCRE MEADOW MAT LAYER,

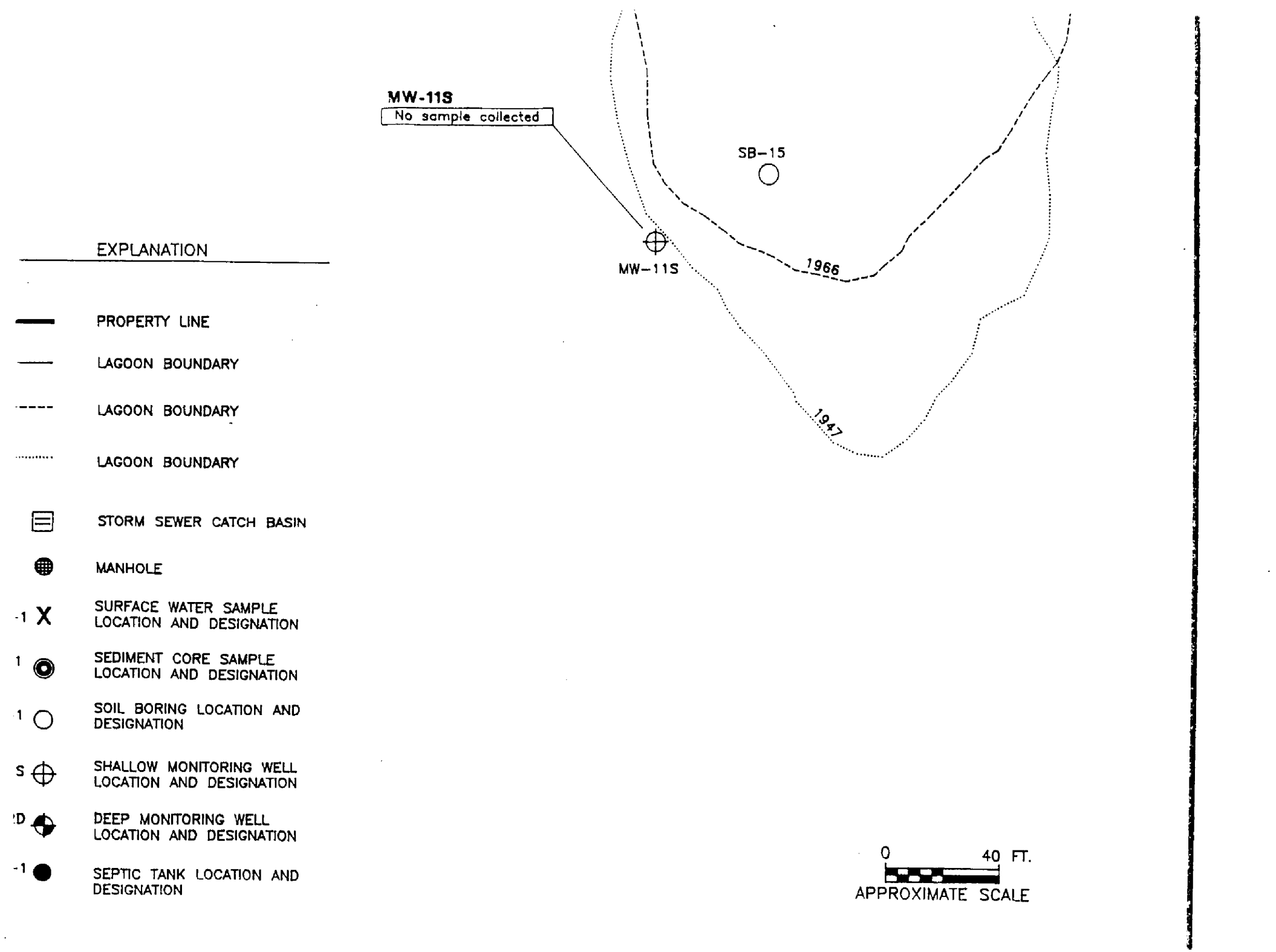
2) DEEP WELLS SCREENE MAT LAYER, IN NATUR

3) ALL RESULTS IN PARTS (ppb)

4) BCC = BELOW CLEANU

5) ( ) = RESULTS OF





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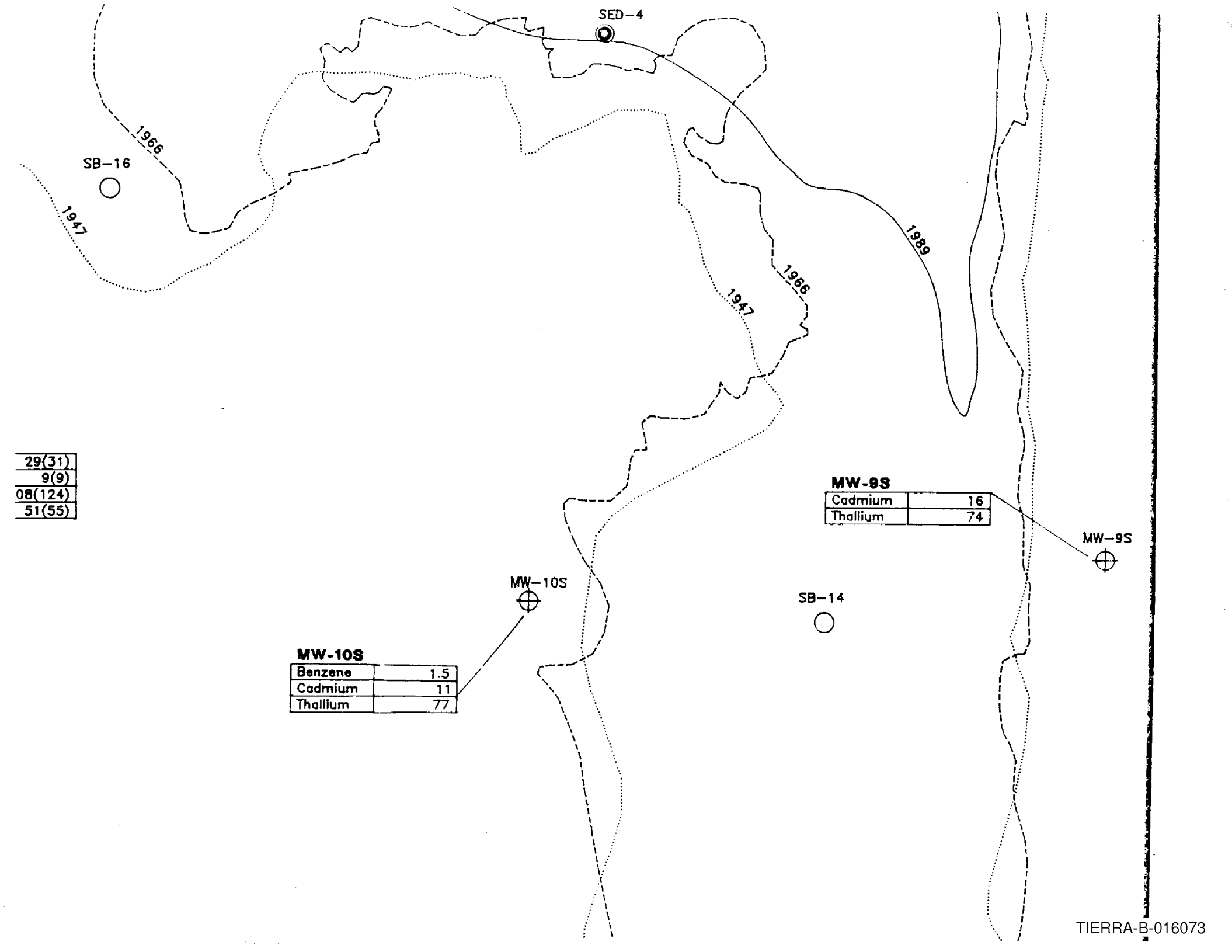
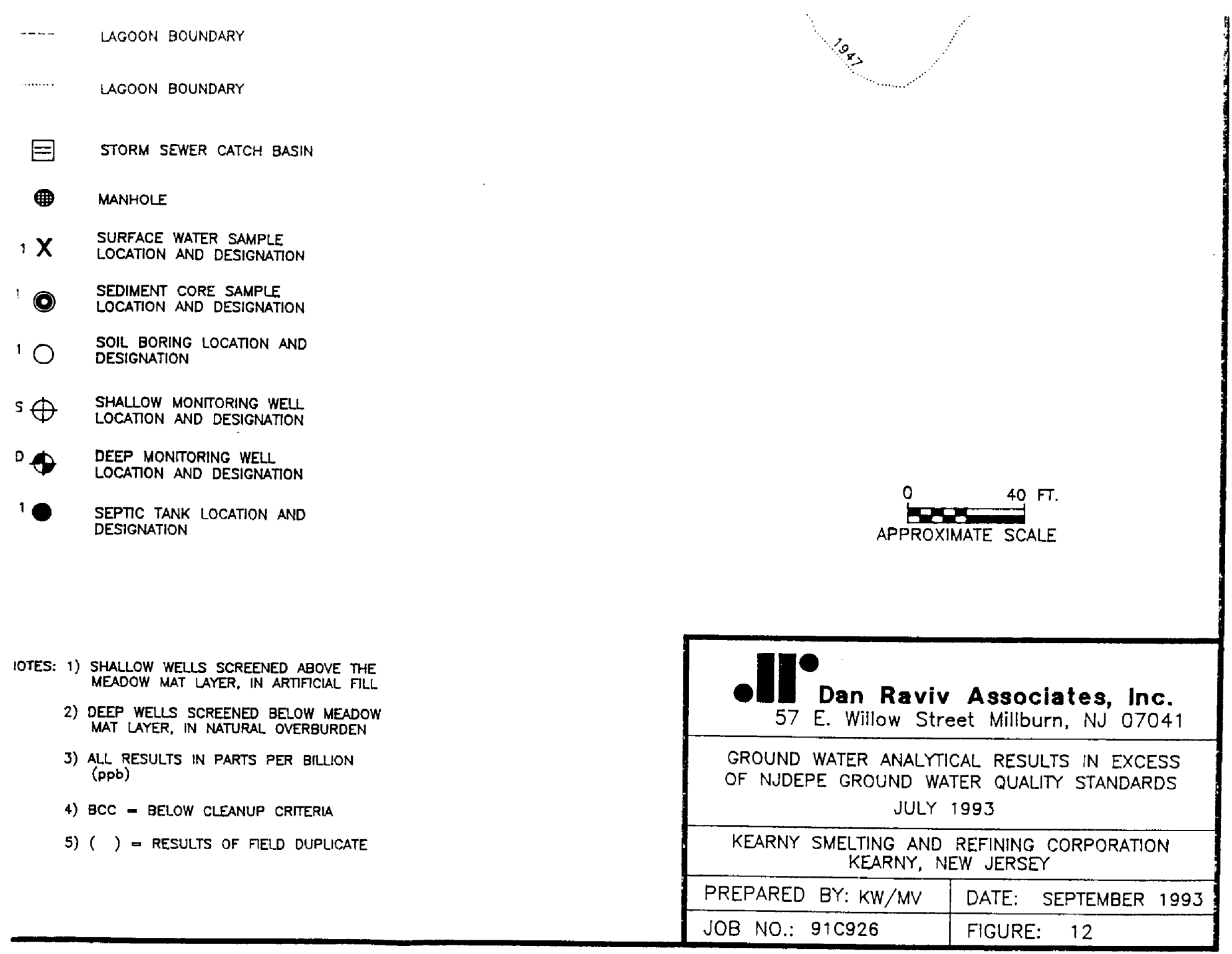

SED-4
SB-16
1966
1947
1989
1966
1947
29(31)
9(9)
08(124)
51(55)
MW-9S
Cadmium 16
Thallium 74
MW-9S
MW-10S
SB-14
MW-10S
Benzene 1.5
Cadmium 11
Thallium 77
TIERRA-B-016073



NOTES: 1) SHALLOW WELLS SCREENED ABOVE THE MEADOW MAT LAYER, IN ARTIFICIAL FILL

2) DEEP WELLS SCREENED BELOW MEADOW MAT LAYER, IN NATURAL OVERBURDEN

3) ALL RESULTS IN PARTS PER BILLION (ppb)

4) BCC = BELOW CLEANUP CRITERIA

5) ( ) = RESULTS OF FIELD DUPLICATE

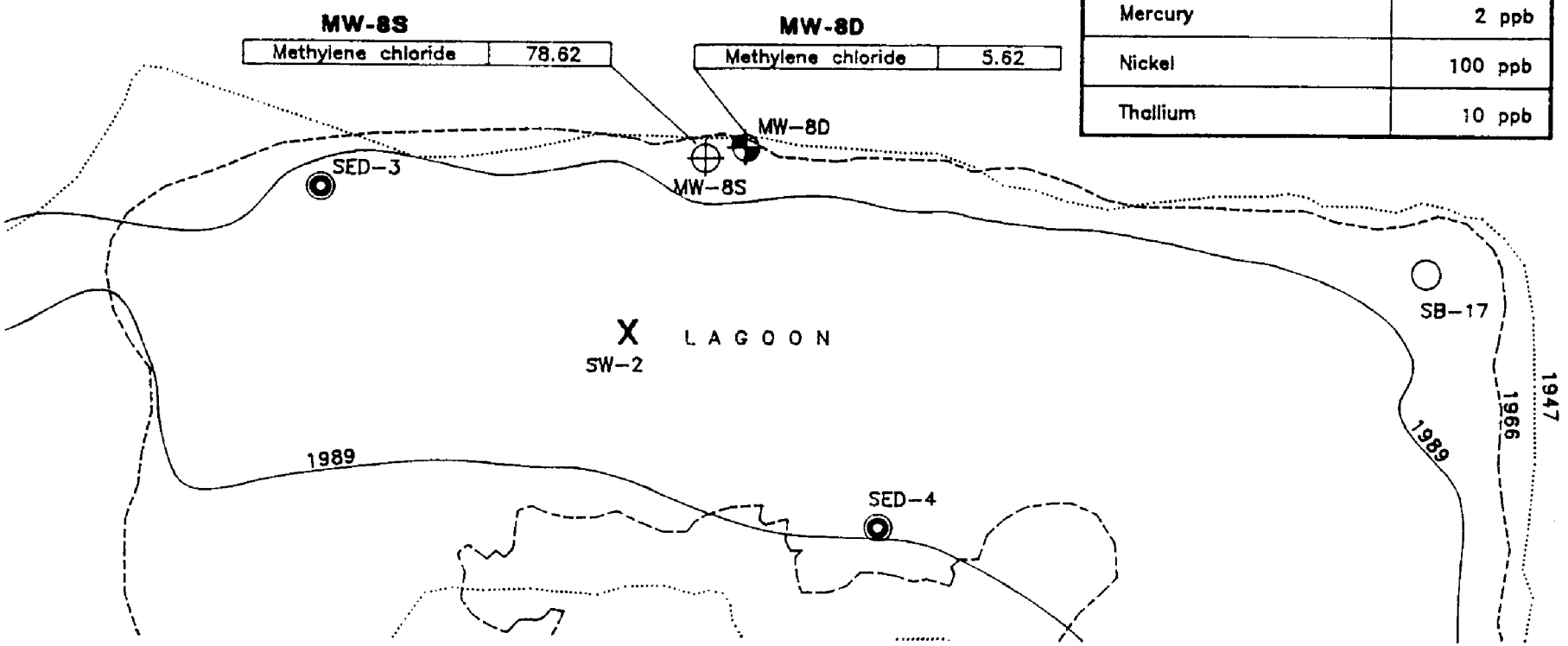
Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

GROUND WATER ANALYTICAL RESULTS IN EXCESS OF NJDEPE GROUND WATER QUALITY STANDARDS
JULY 1993

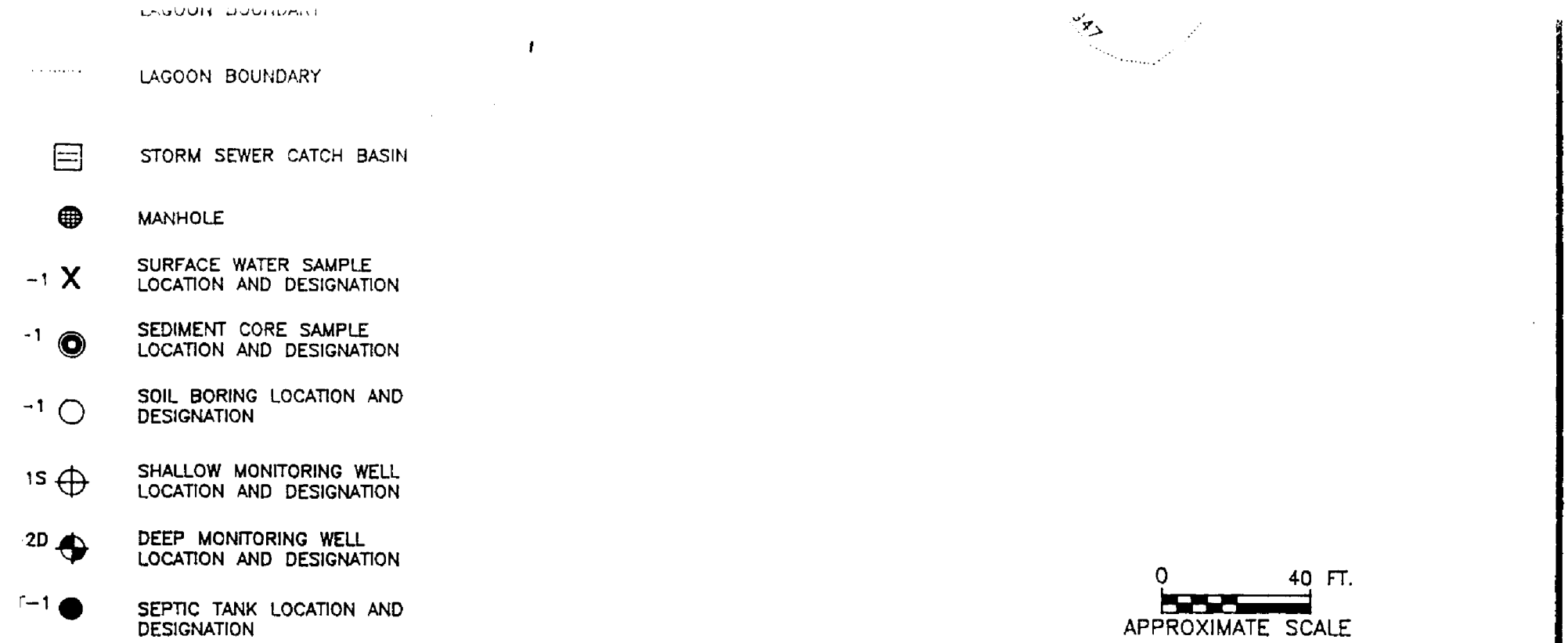
KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

PREPARED BY: KW/MV	DATE: SEPTEMBER 1993
JOB NO.: 91C926	FIGURE: 12

NJDEPE GROUND WATER QUALITY STANDARDS	
Benzene	1 ppb
Bromodichloromethane	1 ppb
Chlorobenzene	4 ppb
Chloroform	6 ppb
Trichloroethylene	1 ppb
Arsenic	8 ppb
Beryllium	20 ppb
Cadmium	4 ppb
Chromium	100 ppb
Copper	1,000 ppb
Lead	10 ppb
Mercury	2 ppb
Nickel	100 ppb
Thallium	10 ppb



TIERRA-B-016075



NOTES: 1) SHALLOW WELLS SCREENED ABOVE THE MEADOW MAT LAYER, IN ARTIFICIAL FILL

2) DEEP WELLS SCREENED BELOW MEADOW MAT LAYER, IN NATURAL OVERBURDEN

3) ALL RESULTS IN PARTS PER BILLION (ppb)

4) BCC = BELOW CLEANUP CRITERIA

5) ( ) = RESULTS OF FIELD DUPLICATE

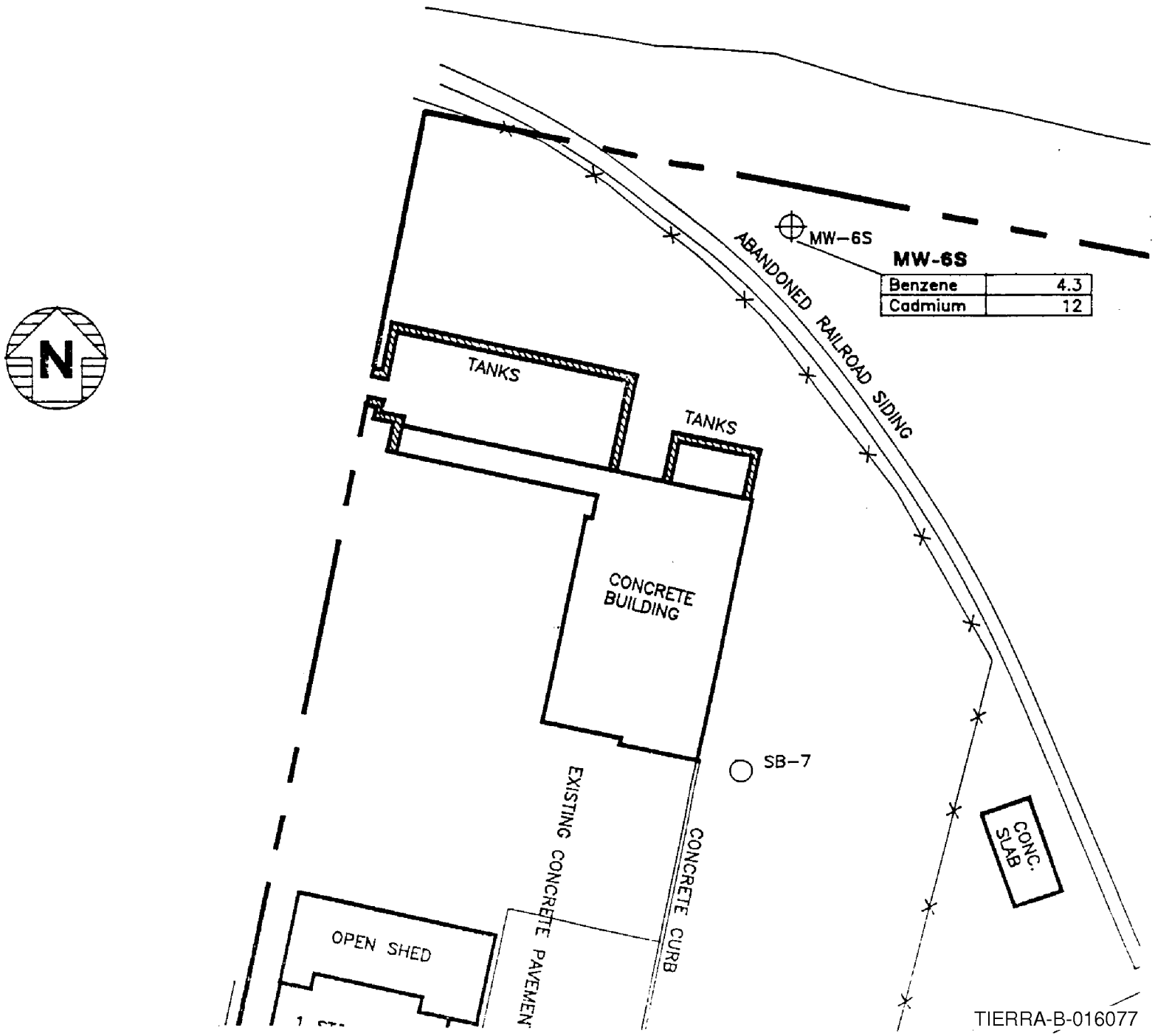
Dan Raviv Associates, Inc.
57 E. Willow Street Millburn, NJ 07041

GROUND WATER ANALYTICAL RESULTS IN EXCESS OF NJDEPE GROUND WATER QUALITY STANDARDS
MAY 1993

KEARNY SMELTING AND REFINING CORPORATION
KEARNY, NEW JERSEY

PREPARED BY: KW/ODL	DATE: JULY 1993
JOB NO.: 91C926	FIGURE: 11

926-02



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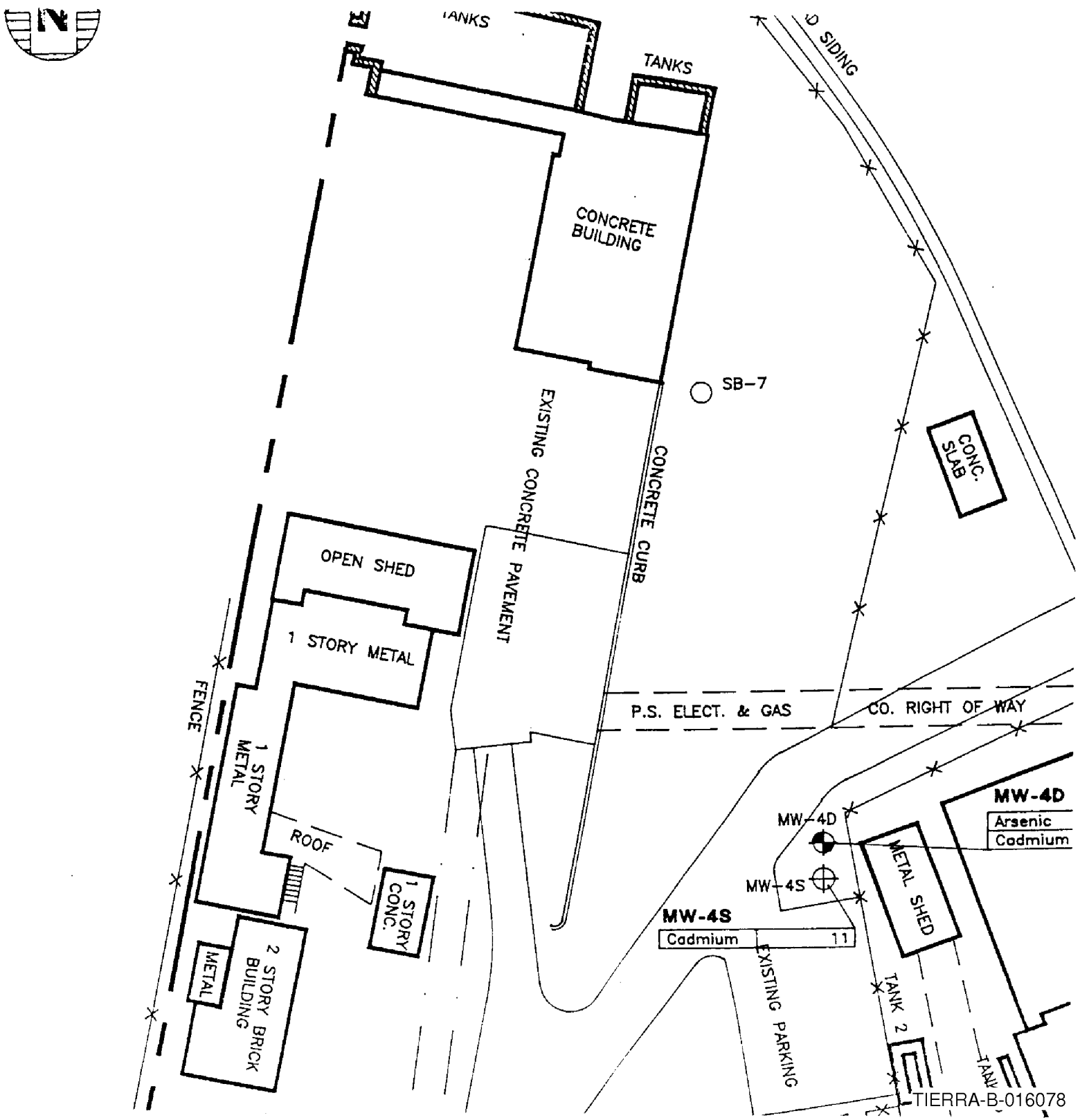

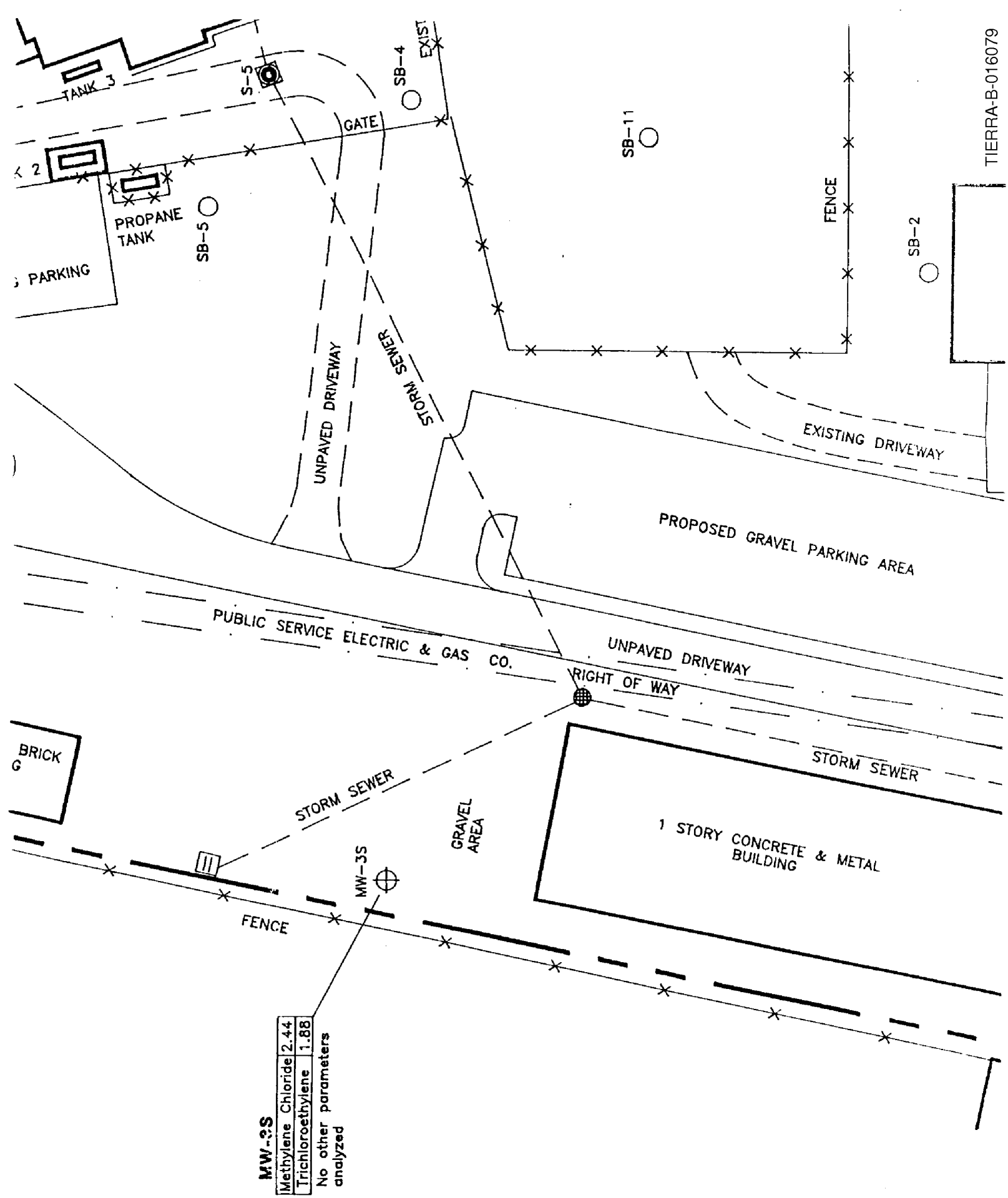

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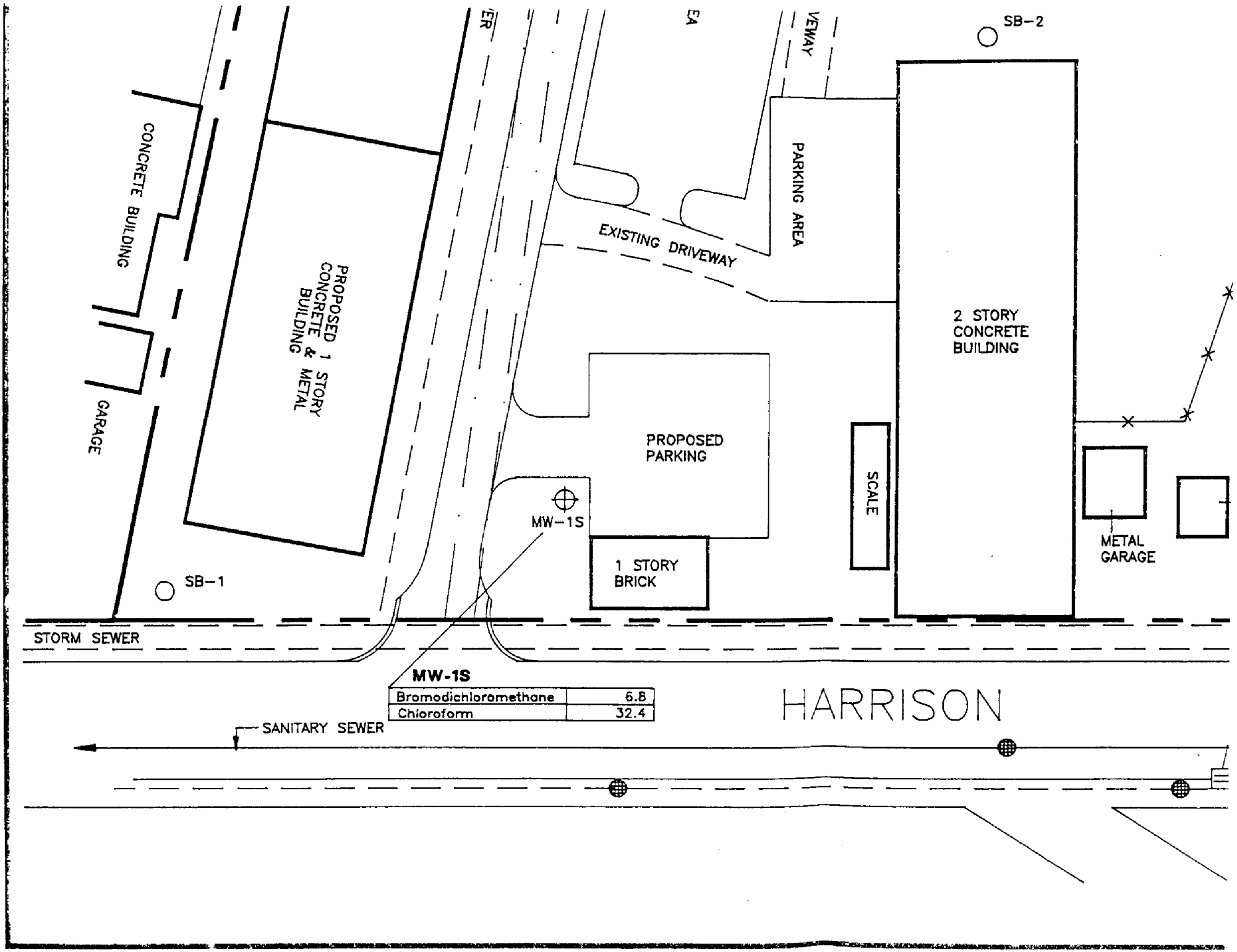
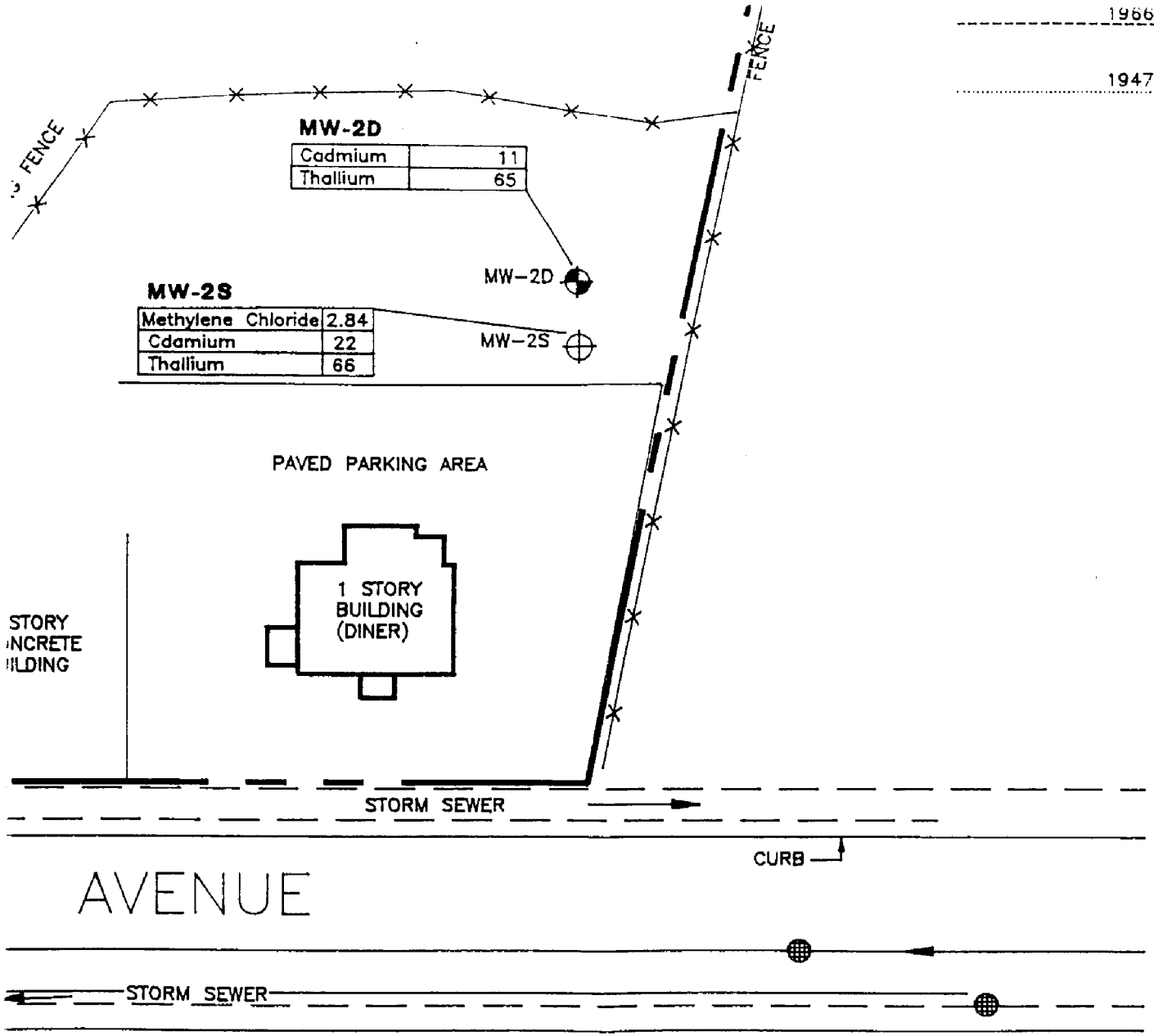


TIERRA-B-016080



1966 ---------- LAGOON BOUNDARY

1947 ..... LAGOON BOUNDARY

STORM SEWER CATCH BASIN

MANHOLE

SW-1 X SURFACE WATER SAMPLE LOCATION AND DESIGNATION

S-1 SEDIMENT CORE SAMPLE LOCATION AND DESIGNATION

SB-1 SOIL BORING LOCATION AND DESIGNATION

MW-1S SHALLOW MONITORING WELL LOCATION AND DESIGNATION

MW-2D DEEP MONITORING WELL LOCATION AND DESIGNATION

ST-1 SEPTIC TANK LOCATION AND DESIGNATION

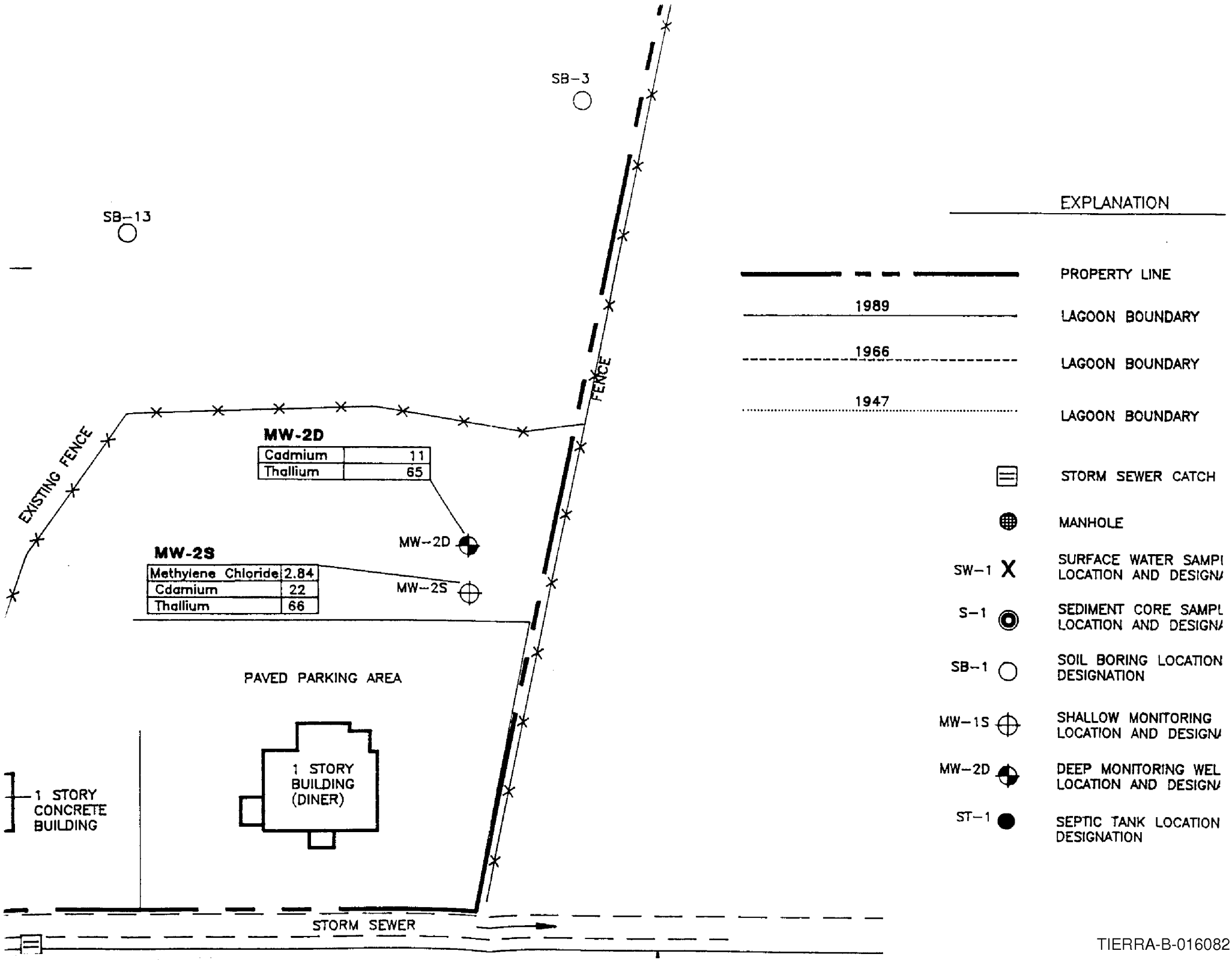
NOTES: 1) SHALLOW WELLS SCREENED A MEADOW MAT LAYER, IN ARTIF

2) DEEP WELLS SCREENED BELO MAT LAYER, IN NATURAL OVE

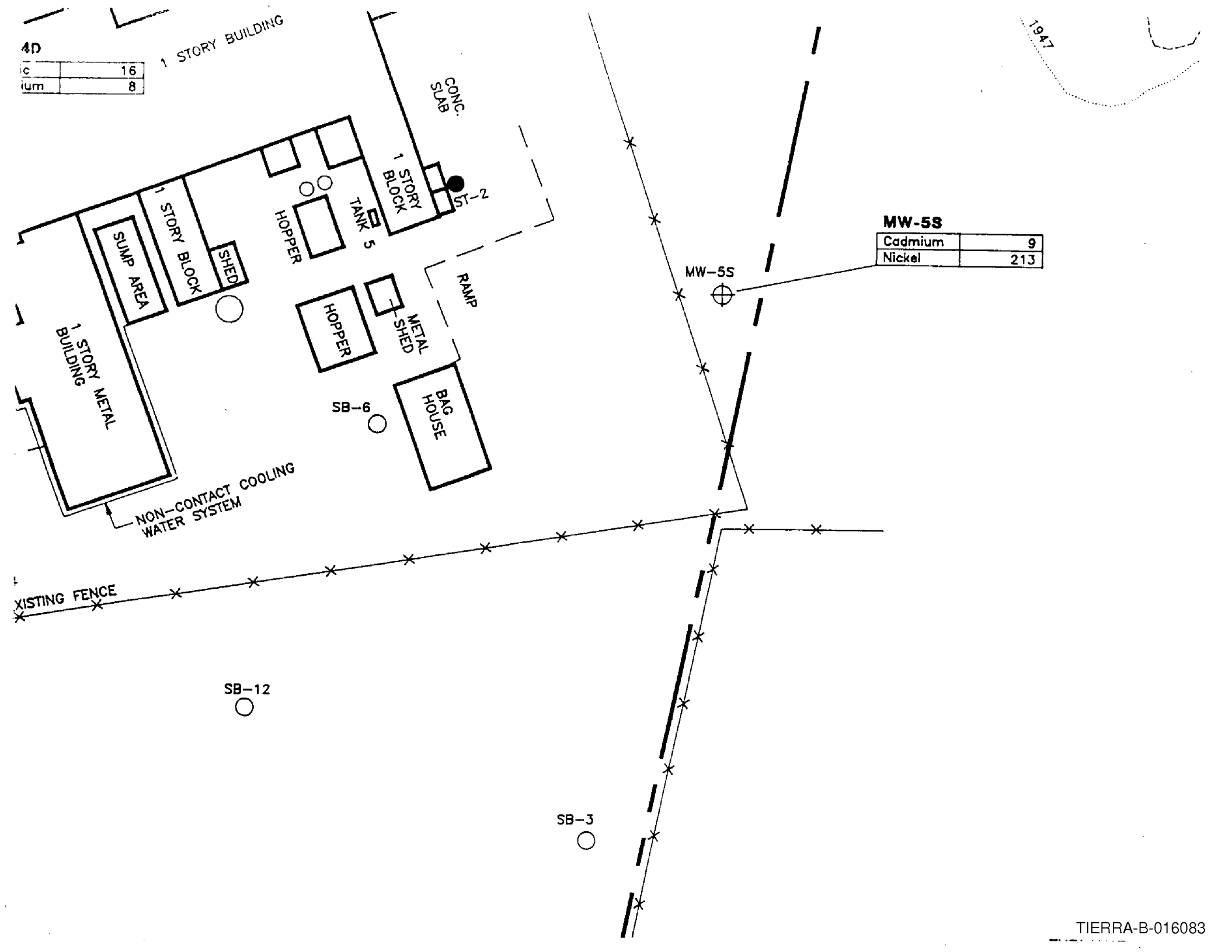
3) ALL RESULTS IN PARTS PER (ppb)

4) BCC = BELOW CLEANUP CRIT

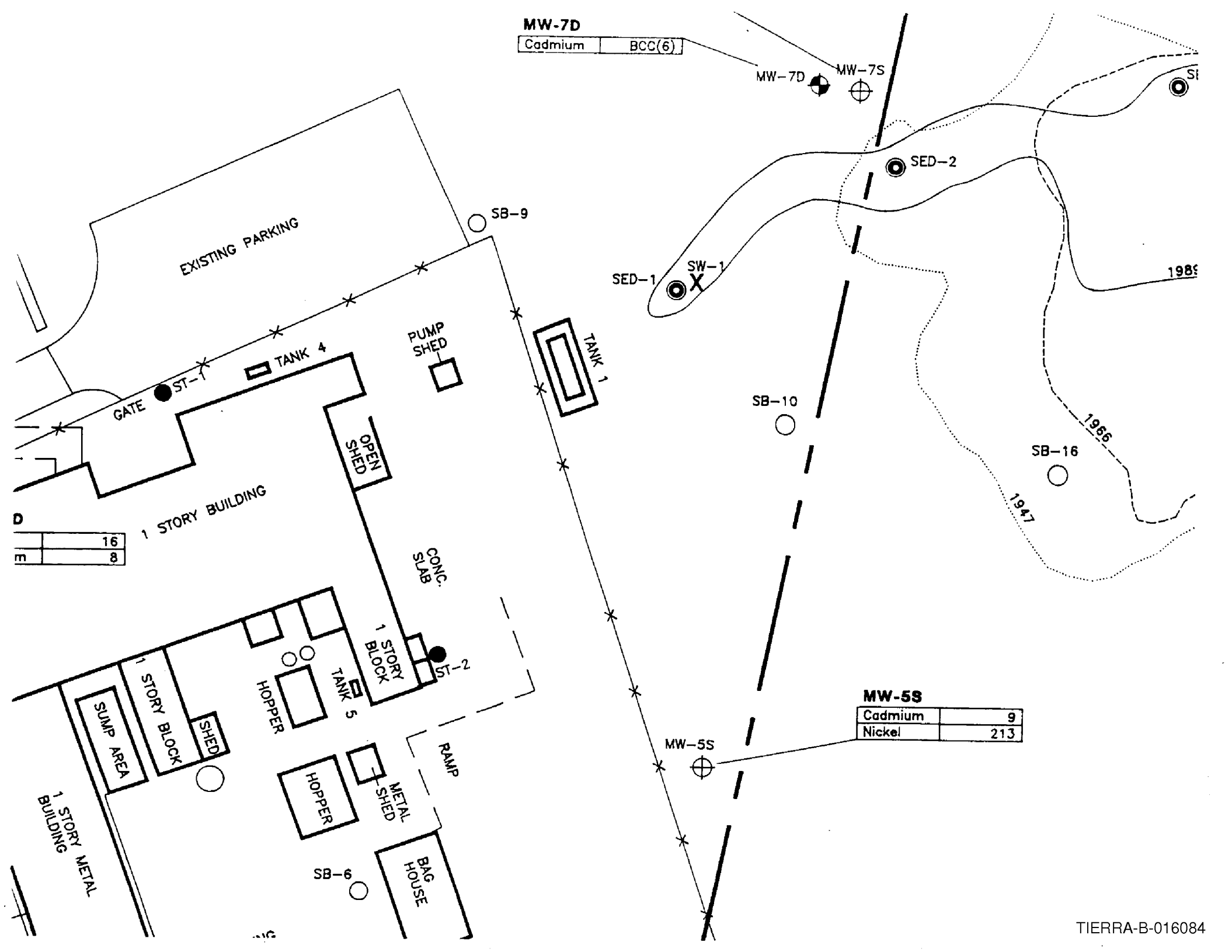
5) ( ) = RESULTS OF FIELD D

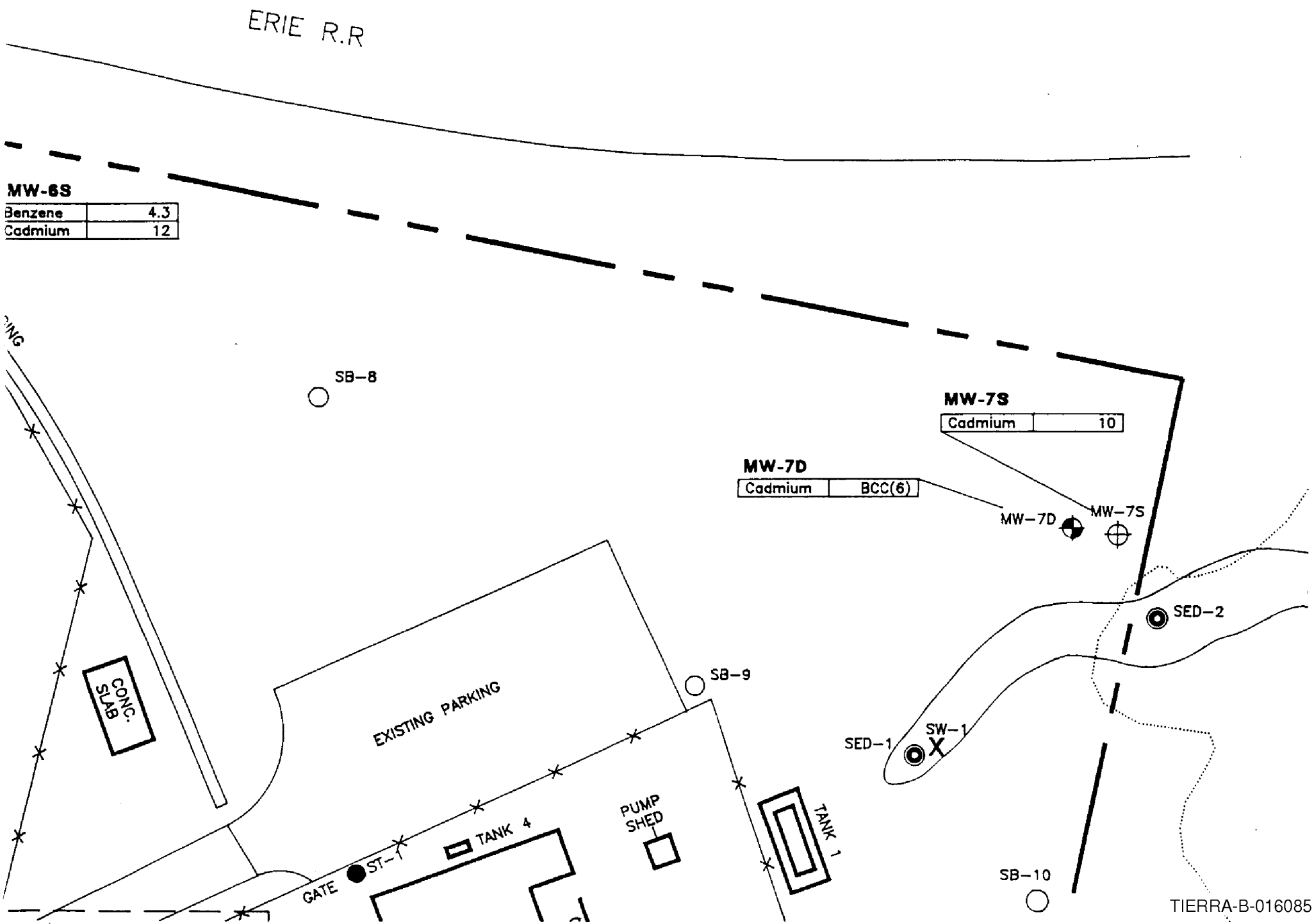


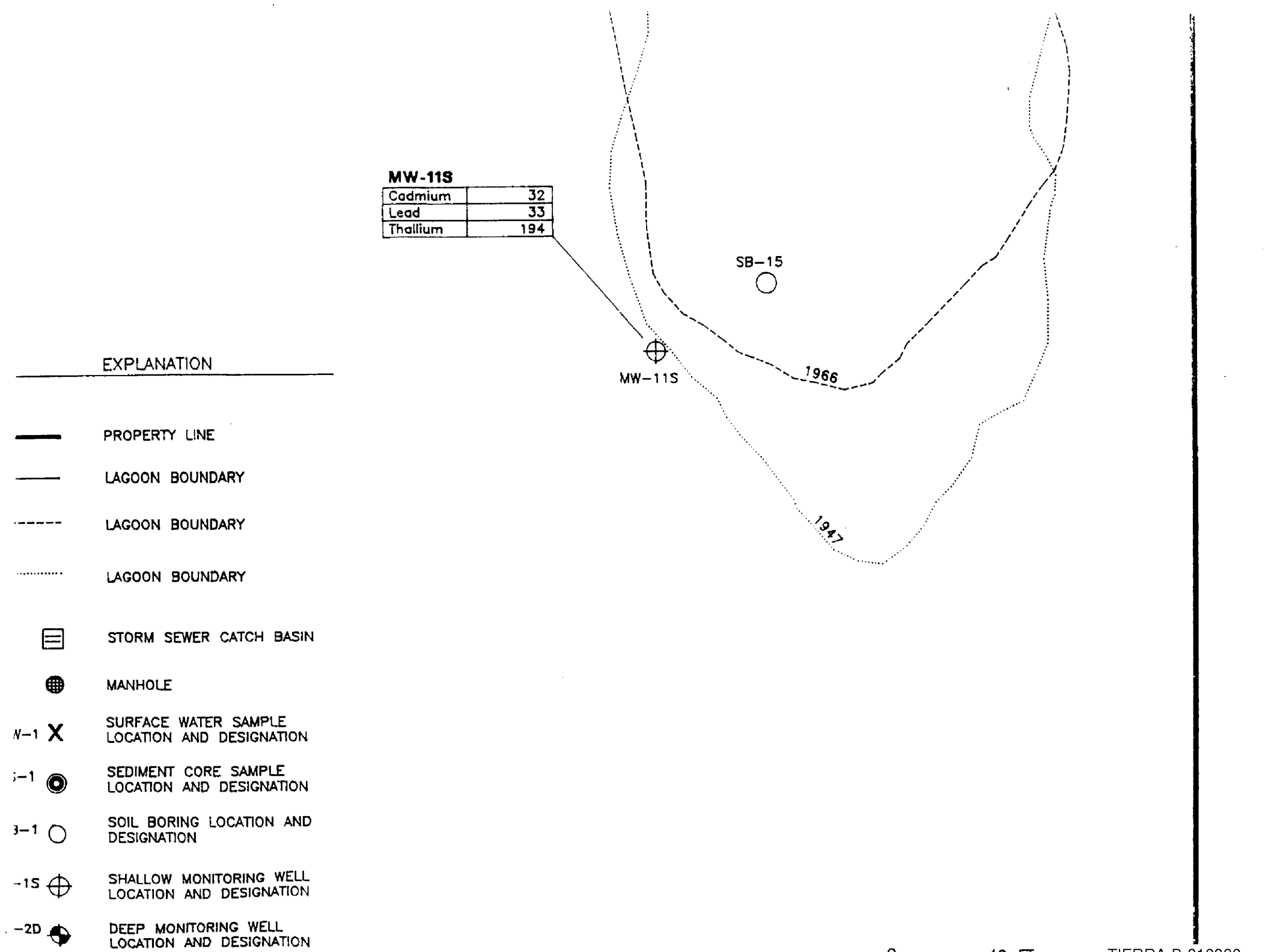
TIERRA-B-016082

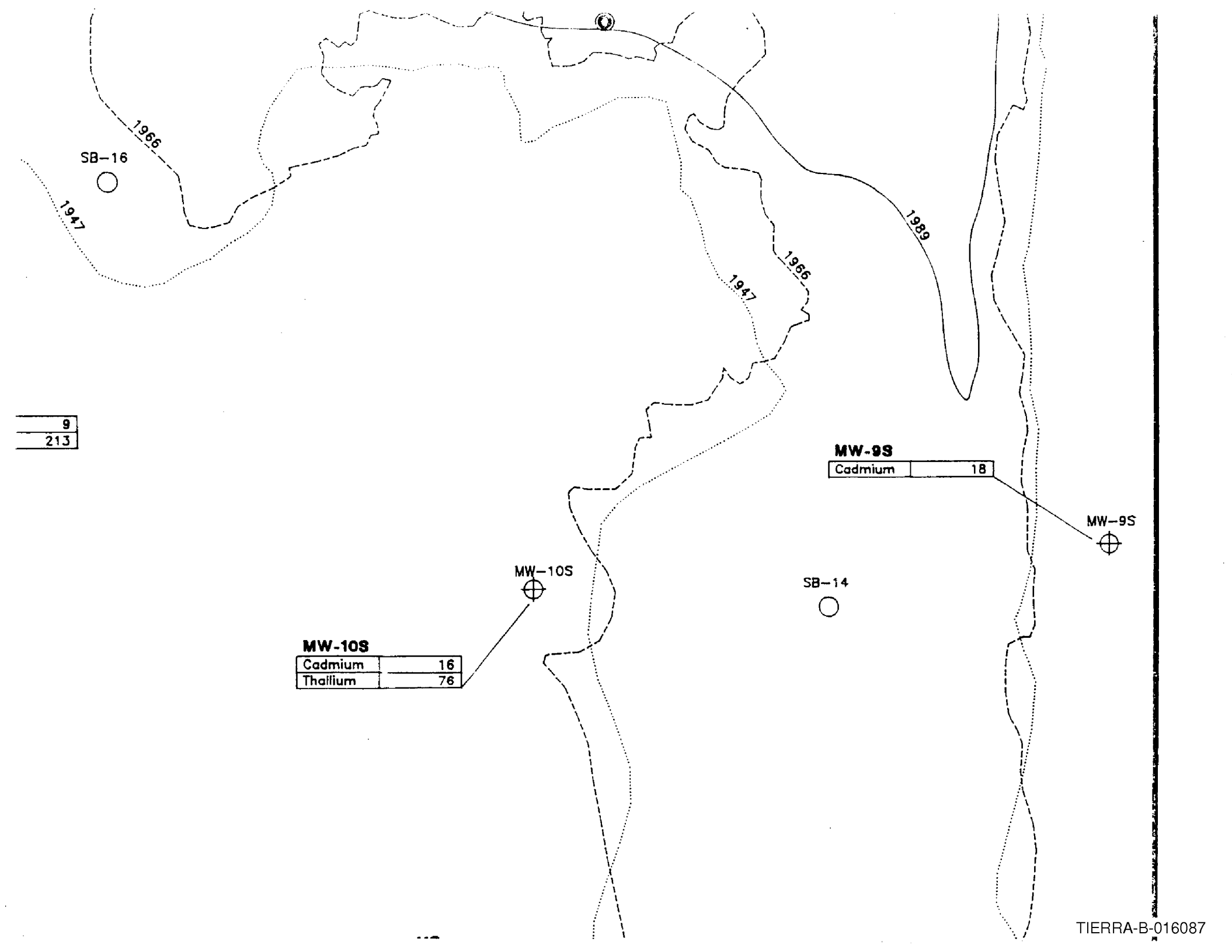


TIERRA-B-016083


MW-7D
Cadmium BCC(6)
MW-7D
MW-7S
SED-2
SED-1
SW-1
SB-9
SB-10
SB-16
EXISTING PARKING
PUMP SHED
TANK 4
TANK 1
GATE
ST-1
OPEN SHED
1 STORY BUILDING
CONC. SLAB
1 STORY BLOCK
ST-2
HOPPER
TANK 5
SUMP AREA
1 STORY BLOCK
SHED
RAMP
HOPPER
METAL SHED
1 STORY METAL BUILDING
SB-6
BAG HOUSE
MW-5S
Cadmium 9
Nickel 213
1966
1947
TIERRA-B-016084

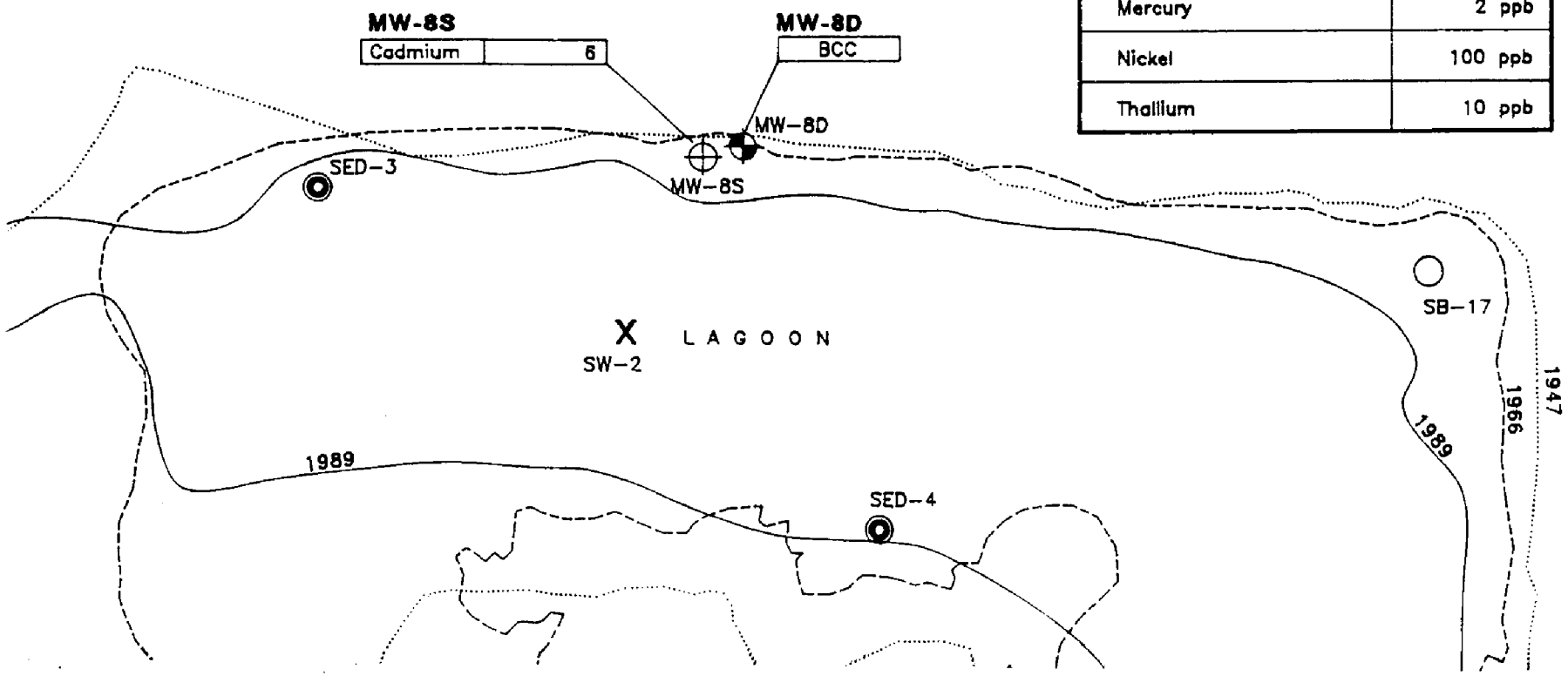

ERIE R.R
MW-6S
Benzene 4.3
Cadmium 12
SB-8
MW-7S
Cadmium 10
MW-7D
Cadmium BCC(6)
MW-7D
MW-7S
SED-2
SB-9
CONC. SLAB
EXISTING PARKING
SED-1
SW-1
PUMP SHED
TANK 4
TANK 1
GATE
ST-1
SB-10
TIERRA-B-016085


MW-11S
Cadmium 32
Lead 33
Thallium 194
SB-15
MW-11S
1966
1947
EXPLANATION
PROPERTY LINE
LAGOON BOUNDARY
LAGOON BOUNDARY
LAGOON BOUNDARY
STORM SEWER CATCH BASIN
MANHOLE
SURFACE WATER SAMPLE LOCATION AND DESIGNATION
SEDIMENT CORE SAMPLE LOCATION AND DESIGNATION
SOIL BORING LOCATION AND DESIGNATION
SHALLOW MONITORING WELL LOCATION AND DESIGNATION
DEEP MONITORING WELL LOCATION AND DESIGNATION
0
40 FT.
TIERRA-B-016086

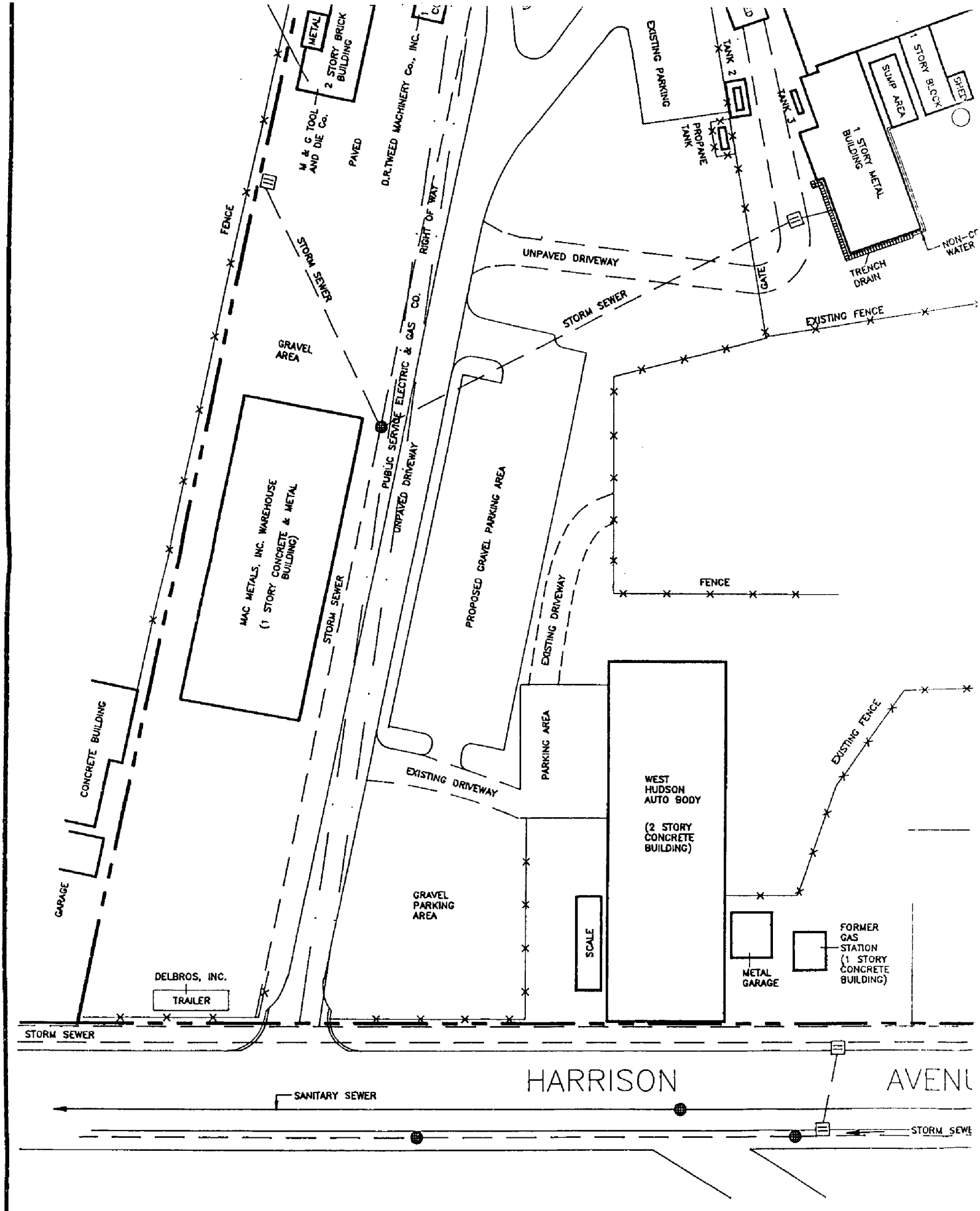


TIERRA-B-016087

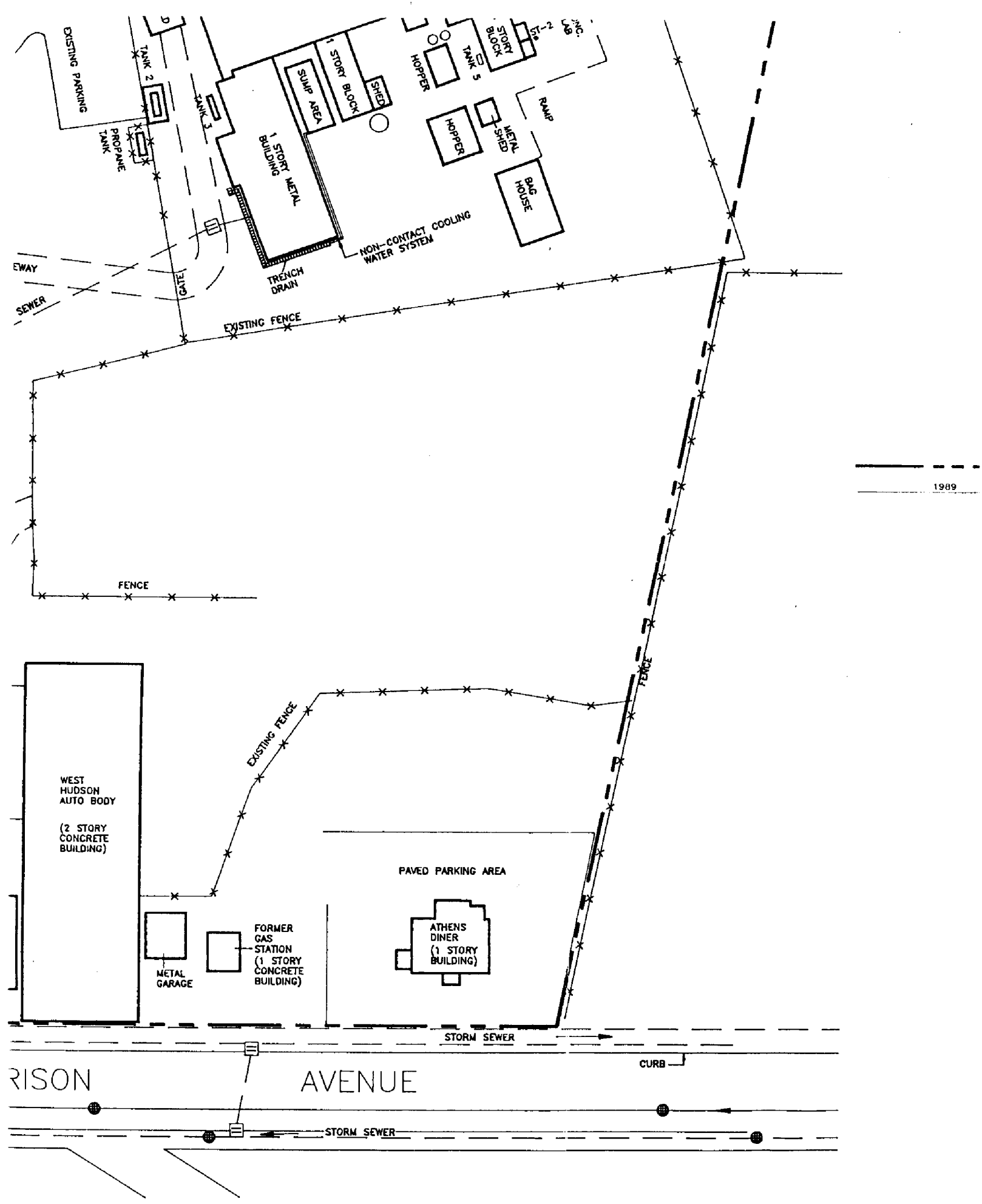
NJDEPE GROUND WATER QUALITY STANDARDS	
Benzene	1 ppb
Bromodichloromethane	1 ppb
Chlorobenzene	4 ppb
Chloroform	6 ppb
Trichloroethylene	1 ppb
Arsenic	8 ppb
Beryllium	20 ppb
Cadmium	4 ppb
Chromium	100 ppb
Copper	1,000 ppb
Lead	10 ppb
Mercury	2 ppb
Nickel	100 ppb
Thallium	10 ppb

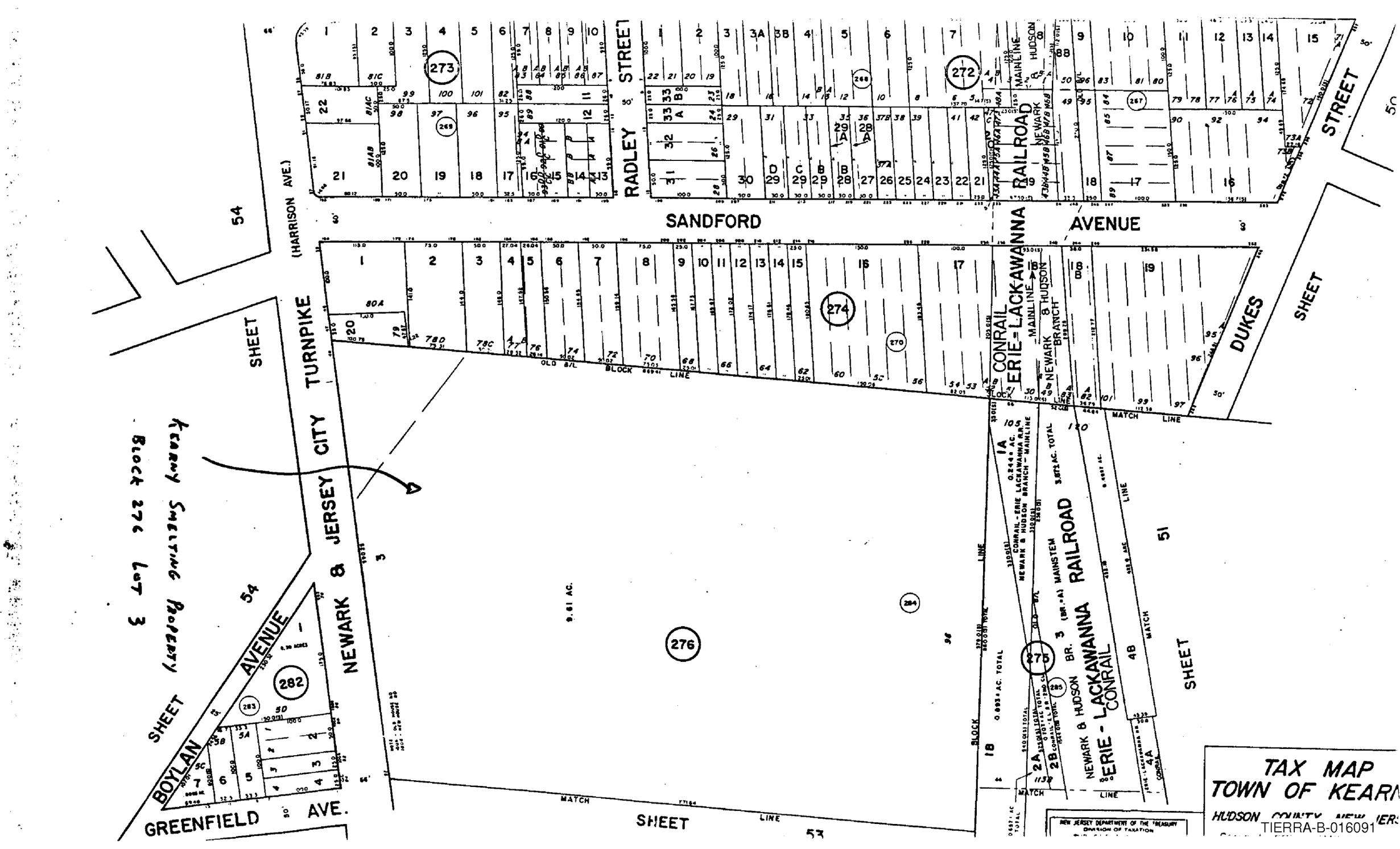


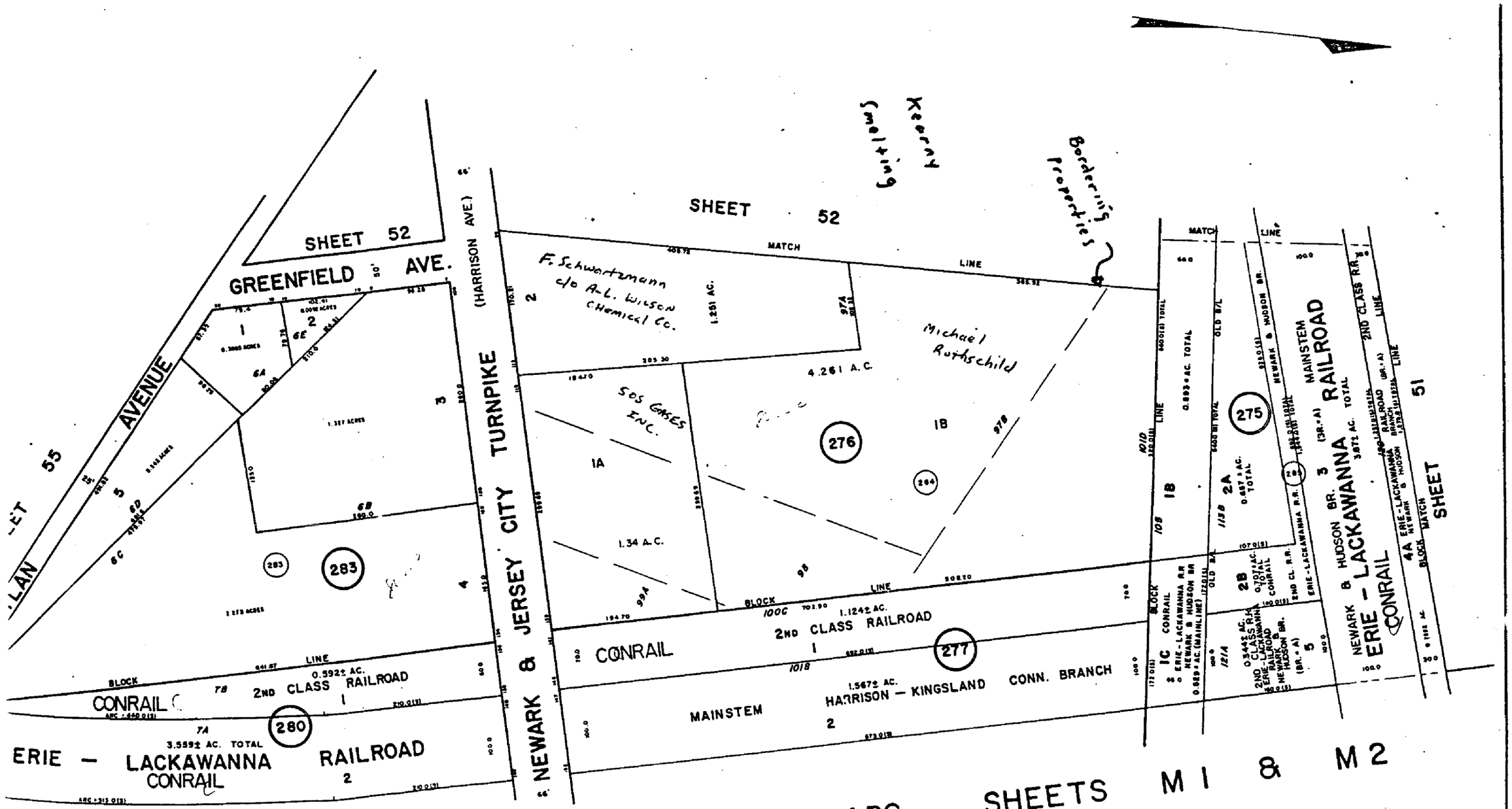
TIERRA-B-016088



TIERRA-B-016089


EXISTING PARKING
TANK 2
TANK 3
PROPANE TANK
1 STORY BUILDING METAL
SUMP AREA
1 STORY BLOCK
SHED
HOPPER
TANK 5
STORY BLOCK
HOPPER
METAL SHED
RAMP
BAG HOUSE
NON-CONTACT COOLING WATER SYSTEM
TRENCH DRAIN
GATE
SEWER
EXISTING FENCE
FENCE
1989
WEST HUDSON AUTO BODY
(2 STORY CONCRETE BUILDING)
EXISTING FENCE
FENCE
PAVED PARKING AREA
ATHENS DINER
(1 STORY BUILDING)
FORMER GAS STATION
(1 STORY CONCRETE BUILDING)
METAL GARAGE
STORM SEWER
CURB
RISON AVENUE
STORM SEWER


RADLEY STREET
SANDFORD AVENUE
(HARRISON AVE.)
CONRAIL ERIE-LACKAWANNA MAINLINE & HUDSON NEWARK BRANCH
NEWARK & HUDSON BRANCH - MAINLINE
NEWARK & HUDSON RAILROAD
ERIE - LACKAWANNA CONRAIL
NEWARK & JERSEY CITY TURNPIKE
DUKES
BOYLAN AVENUE
GREENFIELD AVE.
OLD B/L
BLOCK LINE
MATCH LINE
SHEET
Kearny Sheeting Property
Block 274 Lot 3
TAX MAP
TOWN OF KEARN
HUDSON COUNTY, NEW JERS
NEW JERSEY DEPARTMENT OF THE TREASURY
DIVISION OF TAXATION
TIERRA-B-016091


SHEET 52
GREENFIELD AVE.
(HARRISON AVE.)
NEWARK & JERSEY CITY TURNPIKE
SHEET 52
MATCH LINE
F. Schwartzmann c/o A.L. Wilson Chemical Co.
1.251 AC.
4.261 A.C.
Michael Rothschild
505 Gases Inc.
1.34 A.C.
276
283
280
277
275
1A
1B
1C
2A
2B
3
4
5
6A
6B
6C
6D
6E
7A
7B
1.124± AC.
2ND CLASS RAILROAD
CONRAIL
0.592± AC.
2ND CLASS RAILROAD
3.559± AC. TOTAL
ERIE – LACKAWANNA RAILROAD
CONRAIL
1.567± AC.
HARRISON – KINGSLAND CONN. BRANCH
MAINSTEM
NEWARK & HUDSON BR.
ERIE – LACKAWANNA RAILROAD
CONRAIL
MAINSTEM
NEWARK & HUDSON BR.
ERIE – LACKAWANNA RAILROAD
CONRAIL
SHEET 51
SEE KEARNY MEADOWLAND TAX MAPS SHEETS M1 & M2
407
TAX MAP
TOWN OF
TIERRA-B-016092