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Final Report

REMEDIAL INVESTIGATION FIGURES AND TABLES

(VOLUME I)

NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

Contract No. N62472-86-C-1282
January 1992

Prepared for:

Northern Division
Naval Facilities Engineering Command
Lester, Pennsylvania

TRC
TRC Environmental Corporation

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LAND HOLDINGS – NEWPORT NAVAL COMPLEX

Area	Acreage		
	Pre–SER	Excessed	Retained
Coasters Harbor Island	112	0	112
Naval Hospital	42	0	42
Cloyne Court Housing	26	0	26
Coddington Point	190	0	190
Coddington Point	208	22	186
NUSC	191	0	191
Melville South, Midway, and Defense Highway	441	2	439
Melville North	478	218	260
Prudence Island	600	600	0
Goat Island	52	52	0
Fort Adams	102	77	25
Sachuest Point	189	189	0
Third Beach (leased)	2	0	2
Fort Weatherhill	7	7	0
Beaver Tail Point	165	165	0
	2,805	1,374	1,431

Source: U.S. Navy 1986 Master Plan and NETC Public Works Department

TABLE 1-2

SITE 01 – McALLISTER POINT LANDFILL

VERIFICATION STEP (*)
SURFACE SOIL & LEACHATE SPRING SAMPLE RESULTS

PARAMETER	STANDARD (PPB) (1)(*) ACUTE	CHRONIC	LEACHATE CONCENTRATION (PPB) 07	08 (wet)	08 (dry)
VOLATILE ORGANICS:					
ETHYLBENZENE			30		
TOLUENE			26		
METALS:					
CADMIUM	43	9.3	0.028	0.058	0.054
CHROMIUM	1,100	50	ND	0.028	0.032
CYANIDE			0.017	0.876	0.097

PARAMETER	SOIL COMPOSITE SAMPLE (PPM)
CHROMIUM	7.3
COPPER	13.5
LEAD	9
NICKEL	20.5
ZINC	0.3
CYANIDE	0.047
PHENOLS	0.027

ND = Not Detected

(1) Salt Water Quality Standards (RIDEM, 1988).
(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

(Wet) Indicates During Wet Weather
(Dry) Indicates During Dry Weather

TABLE 1-3

SITE 01 – McALLISTER POINT LANDFILL

VERIFICATION STEP – SEDIMENT AND MUSSEL SAMPLE RESULTS (*)

SAMPLE CONCENTRATION (PPM)

SUBSTRATES AND METALS	SAMPLE NUMBER 09	10	11	12	13	BACKGROUND SAMPLE NUMBER N1	N2
Sediment:							
Chromium	7.5	7	6.3	17.5	14.8	11.5	8
Lead	70	77.5	57.5	900	327	27.5	6.8
Copper	28.3	133.2	153.4	1455	655	18.3	10.3
Nickel	19.3	22	32.8	64	55.5	21.3	11.3
Mussels:							
Copper	6	6.4	9.2	12.2	28.3	7.2	4.3
PCBs	0.38	<0.01	0.29	0.33	0.29	0.36	0.37

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-4

SITE 01 – McALLISTER POINT LANDFILL

CHARACTERIZATION STEP – SEDIMENT AND MUSSEL SAMPLE RESULTS (*)

MUSSEL SAMPLE CONCENTRATION (PPM)

SAMPLE NUMBER:	12	13	14	BG-1	BG-2	BG-2 (DUP)
METAL						
Chromium	3.5	1	1.4	1.1	2.8	1.4
Lead	19.9	7.5	19.7	4.9	3.8	5.2
Copper	20.6	9.2	14.1	6.8	8.2	5.4
Nickel	6.6	4	4.4	4.9	5.1	4.9

SEDIMENT SAMPLE CONCENTRATION (PPM)

SAMPLE NUMBER:	14	15	16	!7	18	19	20
METAL							
Chromium	22	14.3	12.7	8.7	17.1	14.8	14.3
Lead	267	78.2	44	21.5	34.9	33.6	32.3
Copper	890	63.4	33.2	20.8	22.8	25.4	16.6
Nickel	86.6	20.3	17.2	11.5	16.9	17.8	14.2

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-5

SITE 01 – McALLISTER POINT LANDFILL

CHARACTERIZATION STEP
SUMMARY OF SEDIMENT METAL CONCENTRATION RESULTS (*)

SAMPLE LOCATION	SEDIMENT CONCENTRATIONS RANGE (PPM)			
	CHROMIUM	LEAD	COPPER	NICKEL
Near Shore (Stations 12 to 14)	14 – 22	267 – 900	655 – 1,455	55 – 87
Off-Shore (Stations 15 to 16)	12 – 14	44 – 78	33 – 63	17 – 20
Out to 400' from Shore (Station 17 to 20)	9 – 17	21 – 35	17 – 21	11 – 18
Controls (Stations N-1 and N-2)	8 – 12	7 – 28	10 – 18	11 – 21

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-6

SITE 01 – McALLISTER POINT LANDFILL

U.S. ARMY CORPS OF ENGINEERS – SEDIMENT & MUSSEL SAMPLE RESULTS (*)

SAMPLE CONCENTRATION (PPM)

SUBSTRATES AND COMPOUND	SAMPLE NUMBER 01	02	03	04	05	06	CONTROL SAMPLE 07
Sediment:							
Cadmium	3	ND	11	12	7	8	ND
Chromium	57	69	98	94	2,190	86	11
Copper	1,370	556	25,000	1,220	2,810	3,981	16
Nickel	1,340	90	225	154	1,130	440	33
Lead	3,130	814	4,410	2,290	587	3,680	1,760
Zinc	2,440	814	2,410	1,790	587	1,760	67
PCBs	0.49	0.66	2.03	1.58	0.07	0.86	0.01
Petroleum Hydrocarbons	480	300	400	330	170	1,100	30
Mussels:							
Chromium	ND	ND	ND	2	ND	ND	ND
Copper	1.4	2.8	1.6	1.5	ND	ND	ND
Zinc	18	23	23	18	16	14	15
PCBs	0.12	0.05	0.01	0.3	0.03	0.05	0.04

(*) As Reported in the Gould Island, McAllister Point & Allen Harbor Sediment & Mussel Sampling Report (U.S. Army Corps of Engineers)

TABLE 1-7

SITE 01 – McALLISTER POINT LANDFILL

CHARACTERIZATION STEP – GROUND WATER SAMPLE RESULTS (*)

CONCENTRATIONS (PPB)

Parameter	Wells Downgradient of Landfill (Stations 21 and 22)	Well Upgradient of Landfill (Station 23)	Ground Water Standard (*)
Phenols	13 to 21	7	3,500
Phthalates	<10 to 64	366 to 931	–
Chromium	20 to 220	20 to 90	100
Copper	70 to 1,400	40 to 110	1,000
Lead	40 to 1,580	40 to 100	50
Mercury	0.2 to 0.7	0.8	2
Nickel	40 to 300	40 to 190	13.4
Zinc	200 to 500	82	5,000
Cyanide	5 to 13	5 to 9	–
Chlorides (ppm)	1.3 to 795	1.6 to 3.8	–
pH (std. units)	6.41 to 7.01	5.84 to 6.18	–
All Other Priority Pollutants		None above Detection Limit	

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-8

SITE 02 – MELVILLE NORTH LANDFILL

VERIFICATION STEP – SEDIMENT AND MUSSEL SAMPLE RESULTS (*)

SUBSTRATES AND METALS	SAMPLE CONCENTRATION (PPM) SAMPLE NUMBER 04	05	06	BACKGROUND SAMPLE NUMBER N-1	N-2
Sediment:					
Chromium	4.3	9.3	5.8	11.5	8
Lead	2.3	7.5	5.8	27.5	6.8
Copper	4	16	5.5	18.3	10.3
Nickel	8.3	10.8	10.3	21.3	11.3
Mussels:					
PCBs	0.08	0.35	0.03	0.36	0.37

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-9

SITE 12 – TANK FARM 4

CHARACTERIZATION STEP – TANK WATER SAMPLE RESULTS (*)

		SAMPLE CONCENTRATION					
TANK NUMBER	STATION NUMBER	pH (Std-Units)	LEAD (ppm)	TOTAL SUSPENDED SOLIDS (ppm)	AMMONIA-NITROGEN (ppm)	BIOCHEMICAL OXYGEN DEMAND (5-day) (ppm)	PETROLEUM-BASED HYDROCARBONS (ppm)
37	12	7.17	<0.04	79.2	0.76	46	7.5
38	15	7.60	<0.04	25.6	0.89	12	4
39	13	7.85	<0.04	7.2	0.74	3	7.3
45	14	7.40	<0.04	99.6	0.48	20	14.2
46	16	7.50	<0.04	29.2	0.67	17	21.9
47	17	7.60	<0.04	37.6	0.48	7	36.7

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1–10

SITE 12 – TANK FARM 4

CHARACTERIZATION STEP (*)
GROUND WATER SAMPLE RESULTS

STATION NUMBER	SAMPLING DATE	SAMPLE CONCENTRATION (PPM) LEAD	PETROLEUM–BASED HYDROCARBONS
10	11/20/84	0.04	<1.0
	12/17/84	<0.04	3.3
	1/07/85	<0.04	2.7
	1/28/85	<0.04	<1.0
11	11/20/84	0.06	1.9
	12/17/84	<0.04	12.3
	1/07/85	0.10	3.6
	1/28/85	<0.04	2.3

(*) As Reported in the Confirmation Study Report on Hazardous Waste Sites at NETC (Loureiro Engineering Associates, 1986)

TABLE 1-11

SITE 13 – TANK FARM 5

1983 TIBBETTS ENGINEERING TANK INVESTIGATION
TANK WATER & OIL SAMPLE RESULTS (*)

PARAMETER	Tank Sample Number:	SAMPLE CONCENTRATION (PPB) 53-O-A	53-O-B	53-W-A	53-W-B
Metals:					
Lead		53,000	53,200	520	130
Volatile Organic Compounds:					
Vinyl Chloride		ND	ND	71	194
Methylene Chloride		520,000	24,000	330	1,150
Trichlorofluoromethane		15,000	ND	ND	ND
1,1-Dichloroethylene		182,000	75,000	190	148
1,1-Dichloroethane		ND	ND	ND	134
trans-1,2-Dichloroethylene		152,000	111,000	3,025	2,530
1,2-Dichloroethane		51,000	11,000	ND	ND
1,1,1-Trichloroethane		1,230,000	344,000	ND	739
Trichloroethylene		1,300,000	362,000	ND	ND
Tetrachloroethylene		340,000	206,000	ND	72

PARAMETER	Tank Sample Number:	SAMPLE CONCENTRATION (PPB) 56-O-A	56-O-B	56-W-A	56-W-B
Metals:					
Lead		44,900	45,400	390	70
Volatile Organic Compounds:					
Vinyl Chloride		ND	ND	440	187
Methylene Chloride		90,000	18,000	440	180
1,1-Dichloroethylene		3,000	4,000	ND	ND
trans-1,2-Dichloroethylene		ND	36,000	630	ND
Chloroform		ND	4,000	100	ND
1,2-Dichloroethane		6,000	5,000	ND	ND
1,1,1-Trichloroethane		24,000	30,000	ND	ND
Trichloroethylene		28,000	29,000	ND	ND
Tetrachloroethylene		16,000	23,000	110	540

ND = Not Detected
O – Indicates an Oil Sample
W – Indicates a Water Sample
A – Indicates Pure Oil or Pure Water
B – Indicates that the sample fractions were separated and composited.

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

TABLE 1-12

SITE 13 – TANK FARM 5

1983 TIBBETTS ENGINEERING TANK INVESTIGATION TANK SLUDGE SAMPLE RESULTS (*)

	SAMPLE CONCENTRATION (PPM)	
METALS	TANK 53	TANK 56
Arsenic	ND	ND
Barium	1,244	804
Cadmium	13.7	17.3
Chromium	212	248
Lead	22,500	14,700
Mercury	1.6	0.83
Selenium	ND	ND
Silver	5.9	21

ND = Not Detected

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

TABLE 1–13

SITE 13 – TANK FARM 5

1985 ERA TANK INVESTIGATION
TANK WATER & OIL SAMPLE RESULTS (*)

	SAMPLE CONCENTRATION (PPB)					
PARAMETER	53–O	53–WT	53–WB	56–O	56–WT	56–WB
Volatile Organic Compounds:						
Vinyl Chloride	ND	216	1,300	ND	ND	ND
Methylene Chloride	217,000	ND	82	178,000	ND	ND
Chloroform	47,000	524	261	166,000	649	146
1,2–Dichloroethane	148,000	ND	336	ND	ND	ND
1,1,1–Trichloroethane	75,000	130	253	2,600	ND	ND
Trichloroethylene	88,600	ND	13	606	ND	ND
Tetrachloroethylene	33,800	ND	ND	490	ND	ND
Benzene	119,000	706	824	27,500	ND	ND
Toluene	778,000	4,500	5,140	312,000	ND	ND
Ethylbenzene	448,000	211	379	265,000	ND	ND
Xylenes	1,600,000	813	1,000	875,000	ND	ND
Semi–volatile Organic Compounds:						
Naphthalene	550,000	38	10	880,000	ND	ND
Isophrone	ND	19	ND	ND	ND	ND
2,4–Dimethyphenol	ND	70	60	ND	55	14
Metals:						
Cadmium	<400	5	8	<400	7	7
Copper	4,500	30	<20	21,000	60	40
Lead	104,000	60	50	54,000	70	60
Mercury	450	<1	<1	180	<1	<1
Nickel	9,800	<40	<40	33,000	50	70
Silver	6,000	<10	<10	<1000	<10	<10
Zinc	42,800	10	10	128,000	120	100
Misc. Parameters (Reported in PPM)						
BOD (5–day)	––	390	300	––	40	40
Phenol (total)	1.9	2.1	2.1	4.3	0.74	0.4
Total Kjeldhl Nitrogen	––	5.4	8.9	––	3.3	3.3
Sulfide	––	0.02	0.02	––	0.03	1.1

ND = Not Detected
O – Indicates an Oil Sample
WT – Sample Collected from the Top of the Tank Water
WB – Sample Collected from the Bottom of the Tank Water

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

TABLE 1-14

SITE 13 – TANK FARM 5

1985 ERA TANK INVESTIGATION
TANK WATER, SAMPLE RESULTS (*)

SAMPLE CONCENTRATION (PPB)

PARAMETER	TANK 49	TANK 50	TANK 51	TANK 52	TANK 54	TANK 55	TANK 58	TANK 59
Volatile Organic Compounds:								
Methylene Chloride	ND	113	70	613	15	651	ND	ND
1,1-Dichloroethylene	ND	ND	ND	71	ND	ND	ND	ND
1,1-Dichloroethane	ND	12	ND	28	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ND	11	ND	124	ND	ND	ND	ND
Chloroform	ND	10	1,400	6	4	24	ND	ND
1,2-Dichloroethane	ND	14	702	134	23	187	ND	ND
1,1,1-Trichloroethane	ND	ND	309	9	ND	ND	ND	ND
Trichloroethylene	ND	ND	13	36	ND	ND	ND	ND
Benzene	ND	42	33	74	ND	7	ND	ND
Toluene	ND	86	97	35	ND	10	ND	ND
Ethylbenzene	ND	48	49	59	ND	ND	ND	ND
Xylenes	ND	152	287	71	ND	ND	ND	ND
Metals:								
Copper	50	60	70	30	30	30	20	50
Lead	<50	<50	60	<50	<50	<50	<50	<50
Mercury	<1	<0.5	<0.5	<1	<0.5	<0.5	<0.5	0.6
Zinc	10	20	90	20	20	10	20	10
Misc. Parameters (Reported in PPM)								
Total Suspended Solids	15.9	17.9	16.8	16.1	13.7	14	12.2	14.8
BOD (5-day)	16	8	400	75	<2	5	<2	4
Nitrate	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	<0.01	0.1
Oil & Grease	1.5	9.1	2	2.8	1.7	3.9	0.7	2
Phenol (total)	0.04	0.17	3.5	0.5	0.05	0.1	0.03	0.07
Ammonia (as N)	0.06	0.63	0.76	2.8	0.1	0.27	0.16	0.04
Sulphate	4.9	61.3	6.6	<4	14.5	<4	11.9	14.5
pH (std. units)	7.4	6.5	5.6	8.1	7.1	7.7	6.9	6.9

ND = Not Detected
O – Indicates an Oil Sample
WT – Sample Collected from the Top of the Tank Water
WB – Sample Collected from the Bottom of the Tank Water

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

TABLE 1–15

SITE 13 – TANK FARM 5

1985 ERA TANK INVESTIGATION
GROUND WATER SAMPLE RESULTS (*)

	SAMPLE CONCENTRATION (PPB)				
PARAMETER	MW–53W	MW–53E	MW–56W	MW–56E	(1) STANDARD
Volatile Organic Compounds:					
Methylene Chloride	54	178	304	ND	–
trans–1,2–Dichloroethylene	46	166	ND	ND	100
Chloroform	353	401	18	12	100
1,2–Dichloroethane	229	211	ND	ND	5
1,1,1–Trichloroethane	4,400	4,400	17	ND	200
Trichloroethylene	785	1,400	ND	ND	5
Tetrachloroethylene	14	262	ND	ND	5
Benzene	155	300	ND	ND	5
Ethylbenzene	ND	374	ND	ND	70
Xylenes	140	1,620	ND	ND	10,000
Metals:					
Arsenic	<10	<10	<10	<10	50
Barium	<500	<500	<500	<500	2,000
Cadmium	7	5	<5	<5	5
Chromium	<50	<50	<50	<50	100
Lead	<50	<50	<50	<50	5
Mercury	<0.5	1.2	1.4	0.8	2
Selenium	<10	<10	<10	<10	50
Silver	<10	<10	<10	<10	50

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

(1) Standars Compiled from 1991 Drinking Water Regulations Under the Safe Drinking Water Act.

ND = Not Detected

TABLE 1–16

SITE 13 – TANK FARM 5

OCTOBER 1986 ERA TANK INVESTIGATION
GROUND WATER SAMPLE RESULTS (*)

	SAMPLE CONCENTRATION (PPB)						
PARAMETER Well Number:	1	2	3D	3S	4	5	(1) Standard
Volatile Organic Compounds:							
trans–1,2–Dichloroethylene	ND	3	26	1	ND	ND	100
Chloroform	ND	10	ND	3	12	ND	100
1,2–Dichloroethane	ND	ND	18	ND	ND	ND	5
1,1,1–Trichloroethane	ND	5	101	5	ND	ND	200
Trichloroethylene	ND	1	35	2	ND	ND	5
Tetrachloroethylene	ND	ND	2	ND	ND	ND	5
Benzene	ND	ND	2	ND	ND	ND	5
Toluene	ND	ND	3	ND	ND	ND	1,000
Ethylbenzene	ND	ND	3	ND	ND	ND	700
Xylenes	ND	ND	39	ND	ND	ND	10,000
1,1–Dichloroethane	ND	2	2	4	ND	ND	–
Trichlorofluoromethane	ND	ND	1	ND	ND	ND	–

ND = Not Detected

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)

(1) Standards Compiled from 1991 Drinking Water Regulations Under the Safe Drinking Water Act.

TABLE 1–17

SITE 13 – TANK FARM 5

NOVEMBER 1986 ERA TANK INVESTIGATION
GROUND WATER SAMPLE RESULTS (*)

	SAMPLE CONCENTRATION (PPB)				
PARAMETER	MW–53W	MW–53E	MW–56W	MW–56E	STANDARD (1)
Volatile Organic Compounds:					
trans–1,2–Dichloroethylene	400	1,100	ND	ND	100
1,1,1–Trichloroethane	330	930	ND	ND	200
Trichloroethylene	24	800	ND	ND	5
Tetrachloroethylene	16	25	ND	ND	5
Benzene	ND	330	ND	ND	5
Toluene	ND	1,400	ND	ND	1,000
Ethylbenzene	ND	150	ND	ND	700
Xylenes	65	600	ND	ND	10,000
1,1–Dichloroethane	14	32	ND	ND	–
1,1–Dichloroethylene	57	170	ND	ND	7
Bromodichloromethane	49	470	ND	ND	100

ND = Not Detected

(*) As Reported in the Draft Report Tank Closure Plan for Tanks 53 & 56 at Tank Farm 5 (ERA, 1987)
(1) Standards Compiled from 1991 Drinking Water Regulations Under the Safe Drinking Water Act.

SECTION 2

TABLES

TRC

TABLE 2-1

US EPA CONTRACT LABORATORY PROGRAM TARGET COMPOUND LIST

VOLATILE ORGANIC COMPOUNDS

CHLOROMETHANE
BROMOMETHANE
VINLY CHLORIDE
CHLOROETHANE
METHYLENE CHLORIDE
ACETONE
CARBON DISULFIDE
1,1-DICHLORETHENE
1,1-DICHLORETHANE
1,2-DICHLORETHENE (total)
CHLOROFORM
1,2-DICHLORETHANE
2-BUTANONE
1,1,1-TRICHLOROETHANE
CARBON TETRACHLORIDE
VINYL ACETATE
BROMODICHLOROMETHANE
1,2-DICHLOROPROPANE
cis-1,3-DICHLOROPROPENE
TRICHLOROETHENE
DIBROMOCHLOROMETHANE
1,1,2-TRICHLOROETHANE
BENZENE
trans-1,3-DICHLOROPROPENE
BROMOFORM
4-METHYL1-2-PENTANONE
2-HEXANONE
TETRACHLOROETHENE
1,1,2,2-TETRACHLOROETHANE
TOLUENE
CHLOROBENZENE
ETHYLBENZENE
STYRENE
XYLENE (total)

BASE NEUTRAL/ACID EXTRACTABLES

PHENOL
bis(2-CHLOROETHYL)ETHER
2-CHLOROPHENOL
1,3-DICHLOROBENZENE
1,4-DICHLORBENZENE
BENZYL ALCOHOL
1,2-DICHLOROBENZENE
2-METHYLPHENOL
bis(2-CHLOROISOPROPYL)ETHER
4-METHYLPHENOL
N-NITROSO-DI-N-PROPYLAMINE
HEXACHLOROETHANE
NITROBENZENE
ISOPHORONE
2-NITROPHENOL
2,4-DIMETHYLPHENOL
BENZOIC ACID
bis(2-CHLOROETHOXY)METHANE
2,4-DICHLOROPHENOL
1,2,4-TRICHLOROBENZENE
NAPHTHALENE (*)
4-CHLOROANILINE
HEXACHLOROBUTADIENE
4-CHLORO-3-METHYLPHENOL
2-METHYLNAPHTHALENE (*)
HEXACHLOROCYCLOPENTADIENE
2,4,6-TRICHLOROPHENOL
2,4,5-TRICHLOROPHENOL
2-CHLORONAPHTHALENE (*)
2-NITROANILINE
DIMETHYLPHTHALATE
ACENAPHTHYLENE (*)
2,6-DINITROTOLUENE
3-NITROANILINE
ACENAPHTHENE (*)
1,4-DINITROPHENOL
4-NITROPHENOL
DIBENZOFURAN
2,4-DINITROTOLUENE
DIETHYLPHTHALATE
4-CHLOROPHENYL-PHENYLETHER
FLUORENE (*)
4-NITROANILINE
4,6-DINITRO-2-METHYLPHENOL
N-NITROSODIPHENYLAMINE
4-BROMOPHENYL-PHENYLETHER
HEXACHLOROBENZENE
PENTACHLOROPHENOL
PHENANTHRENE (*)
ANTHRACENE (*)
DI-n-BUTYLPHALATE
FLUORANTHENE (*)
PYRENE (*)
BUTYLBENZYLPHTHALATE
3,3'-DICHLOROBENZIDINE
BENZO(a)ANTHRACENE (**)
CHRYSENE (**)
bis(2-ETHYLHEXYL)PHTHALATE
DI-n-OCTYL PHTHALATE
BENZO(b)FLUORANTHENE (**)
BENZO(k)FLUORANTHENE (**)
BENZO(a)PYRENE (**)
INDENO(1,2,3-cd)PYRENE (**)
DIBENZO(A,H)ANTHRACENE (**)
BENZO(g,h,i)PERYLENE (**)

PESTICIDE/PCB

ALPHA-BHC
BETA-BHC
DELTA-BHC
GAMMA-BHC(LINDANE)
HEPTACHLOR
ALDRIN
HEPTACHLOR EPOXIDE
ENDOSULFAN I
DIELDRIN
4,4-DDE
ENDRIN
ENDOSULFAN II
4,4-DDD
ENDOSULFAN SULFATE
4,4-DDT
METHOXYCHLOR
ENDRIN KETONE
ALPHA-CHLORDANE
GAMMA-CHLORDANE
TOXAPHENE
AROCLOR-1016
AROCLOR-1221
AROCLOR-1232
AROCLOR-1242
AROCLOR-1248
AROCLOR-1254
AROCLOR-1260

TARGET ANALYTE LIST - METAL ELEMENTS

ALUMINUM
ANTIMONY
ARSENIC
BARIUM
BERYLLIUM
CADMIUM
CALCIUM
CHROMIUM
COBALT
COPPER
IRON
LEAD
MAGNESIUM
MANGANESE
MERCURY
NICKEL
POTASSIUM
SELENIUM
SILVER
SODIUM
THALLIUM
VANADIUM
ZINC

OTHER INORGANIC ELEMENTS

CYANIDE

(*) - Compound is a Polynuclear Aromatic Hydrocarbon (PAH).
(**) - Compound is considered a Carcinogenic PAH.

TABLE 2–2

SITE 02 – MELVILLE NORTH LANDFILL
TEST PIT SOIL SAMPLE SUMMARY

Test Pit Number	Number of Samples	SAMPLE DEPTH (ft)	Type of Analysis
1	1	3.5	TCL, TAL, Dioxin (Archived)
2	0	--	--
3	0	--	--
4	1	1.5–2.5	TCL, TAL, Dioxin (Archived)
5	1	4	TCL, TAL, Dioxin (Archived)
6	0	--	--
7	1	3–4	TCL, TAL, Dioxin (Archived)

TABLE 2–3

SITE 01 – McALLISTER POINT LANDFILL
TEST BORING SOIL SAMPLE SUMMARY

Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
B–1	14	2*	(2–4*; 10–12)
B–2	20	3	(2–4; 8–10; 18–20)
B–3	24	3	(2–4; 16–18; 22–24)
B–4	18	2*	(2–4*; 6–8)
B–5	28	3*	(6–8; 14–16*; 22–24)
B–6	20	3	(6–8; 8–10; 16–18)
B–7	18	3	(6–8; 12–14; 16–18)
B–8	12	2	(2–4; 10–12)
B–9	18	3	(4–6; 10–12; 16–18)
B–10	21	3	(2–4; 8–10; 10–12)
B–11	16	1	(2–4)
B–12	26	3	(10–12; 22–24; 24–26)
B–13	10	1	(0–2)

* A duplicate sample was collected.

Note: B–12 and B–13 are aborted monitoring well borings.

TABLE 2–4

SITE 01 – McALLISTER POINT LANDFILL
SHALLOW AND DEEP WELL BORING SOIL SAMPLE SUMMARY

Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
M–1	38	2	(2–4; 6–8)
M–2	20	3	(10–12; 16–18; 18–20)
M–3	26	3	(12–14; 18–20; 22–24)
M–4	12	2	(6–8; 10–12)
M–5	17	2	(6–8; 15–17)
M–6	14	3	(2–4; 8–10; 12–14)
M–7	30	2	(2–4; 4–6)

TABLE 2–5

SITE 02 – MELVILLE NORTH LANDFILL
TEST BORING SOIL SAMPLE SUMMARY

Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
B–1	6	1	(0–2)
B–2	8	1	(0–2)
B–3	11	3	(0–2; 2–4; 4–5.5)
B–4	10	2	(4–6; 8–10)
B–5	12	2	(2–4; 10–12)
B–6	10	3	(0–2; 4–6; 8–10)
B–7	12	3	(2–4; 8–10; 10–12)
B–8	10	2	(2–4; 4–6)
B–9	10	3	(2–4; 4–6; 8–10)
B–10	8	1	(4–6)
B–11	10	1	(8–10)
B–12	8	2*	(4–6; 6–8*)
B–13	8	1	(6–8)

* A duplicate sample was collected.

TABLE 2–6

SITE 02 – MELVILLE NORTH LANDFILL
SHALLOW WELL BORING SOIL SAMPLE SUMMARY

Well Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
M–1	12	3	(2–4; 4–6; 8–10)
M–2	12	3	(2–4; 5–7; 8–10)
M–3	12	3	(2–4; 6–8; 10–12)
M–4	16	3	(4–6; 8–10; 14–16)
M–5	12	1	(0–2)

TABLE 2–7

SITE 09 – OLD FIRE FIGHTING TRAINING AREA
TEST BORING SOIL SAMPLE SUMMARY

Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
B–1	9	1	(6–8)
B–2	11	3	(2–4; 6–8; 8–10)
B–3	14	3	(6–8; 8–10; 12–14)
B–4	12.5	2	(4–6; 10–12)
B–5	12	2	(4–6; 6–8)
B–6	14	2	(4–6; 10–12)
B–7	10.5	2	(4–6, 6–8)

TABLE 2–8

SITE 09 – OLD FIRE FIGHTING TRAINING AREA
WELL BORING SOIL SAMPLE SUMMARY

Well Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
M–1	8.5	3	(2–4; 4–6; 8–10)
M–2	14	3	(2–4; 5–7; 8–10)
M–3	14	3	(2–4; 6–8; 10–12)
M–4	See boring B–7 for sample summary*		
M–5	18	1	(0–2)

* Monitoring well MW–4S was installed in the borehole of boring B–7.

TABLE 2–9

SITE 12 – TANK FARM FOUR
SHALLOW AND DEEP WELL BORING SOIL SAMPLE SUMMARY

Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
M–1	14	1*	(2–4)
M–2	30.5	1	(14–16)
M–3	27	1	(16–18)
M–4	16	1	(2–4)
M–5	26	1	(16–18)

* Duplicate sample was collected.

TABLE 2–10

SITE 13 – TANK FARM FIVE
WELL BORING SOIL SAMPLE SUMMARY

Well Boring Number	Boring Depth (ft)	Number of Samples	Sample Intervals (ft)
M–1	27	1	(12–14)
M–2	20	1	(10–12)
M–3	20	1	(6–8)
M–4	32	1	(16–18)
M–5	27	1	(12–14)
M–6	12	1	(0–2)
M–7	45	1	(12–14)
M–8	45	1	(29–31)
M–9	43	1	(27–29)
M–10	42	1	(26–28)
RW–1	45	2	(5–7; 33–35)

TABLE 2-11

MONITORING WELL CONSTRUCTION SUMMARY

Well ID	Total Well Depth (ft)	Bentonite Seal Depth (ft)	Sand Pack Depth (ft)	Well Screen Depth (ft)
Site 01 – McAllister Point Landfill				
MW-1	35	15-17	17-35	20-35
MW-2	18	2.5-3.5	3.5-18	5-18
MW-3S	22.5	8.5-10.5	10.5-22.5	12.5-22.5
MW-3D	42	22-25	25-42	27-42
MW-4	7.5	2-2.5	2.5-7.5	3-7.5
MW-5S	14	2-3	3-14	4-14
MW-5D	42.5	21.5-25	25-42.5	27.5-42.5
MW-6	14	2-3	3-14	4-14
MW-7	38	4-8	8-38	10-38
Site 02 – Melville North Landfill				
MW-1	13	2-2.5	2-13	3-13
MW-2	13	2-2.5	2-13	3-13
MW-3	13	2-2.5	2-13	3-13
MW-4	14	2-3	3-14	4-14
MW-5	13	2-2.5	2-13	3-13
Site 09 – Old Fire Fighting Training Area				
MW-1	13.5	1-1.5	1.5-13.5	3.5-13.5
MW-2	14	1-2	2-14	4-14
MW-3	14	1-2	2-14	4-14
MW-4	13	1-2	2-13	3-13
MW-5	18	2-4	4-18	8-18
Site 12 – Tank Farm Four				
MW-1S	12.5	1-1.5	1.5-12.5	2.5-12.5
MW-1D	54	34-39	39-54	39-54
MW-2	30	11-13	13-30	15-30
MW-3S	27	8-10	10-27	12-27
MW-3D	54	34-39	37.5-54	39-54
MW-4	15	2-3	3-15	5-15
MW-5S	26	11-13	13-26	16-26
MW-5D	42	19-24	24-42	27-42
Site 13 – Tank Farm Five				
MW-1	27	8-11	11-27	12-27
MW-2	22	3-5	5-22	7-22
MW-3	22	3-5	5-22	7-22
MW-4	31	14-15	15-31	16-31
MW-5	27	8-10	10-27	12-27
MW-6	13	2-2.5	2.5-13	3-13
MW-7	45	20.5-22.5	22.5-45	25-45
MW-8	45	20-23	23-45	25-45
MW-9	37.5	12.5-15.5	15.5-37.5	17.5-37.5
MW-10	36	12-14	14-36	15-36
RW-1	45	20-22	22-45	25-45

NOTE: All depths relative to ground surface at boring.

TABLE 2-12
WELL DEVELOPMENT DATA

SITE 01 – MCALLISTER POINT LANDFILL

WELL NO.	DATE	PURGE METHOD	PURGE VOLUME	OBSERVATIONS
MW-1	1/23/90	WATERRA PUMP	30 GAL'S	DARK BROWN (SILTY) TO CLEAR, NO ODOR
MW-2	1/24/90	WATERRA PUMP	3 GAL'S	GRAY (SILTY), WENT DRY AFTER 5 MIN.
MW-3	1/24/90	WATERRA PUMP	15 GAL'S	DARK GRAY (SILTY) TO CLEAR, NO ODOR
MW-3D	1/24/90	WATERRA PUMP	40 GAL'S	DARK GRAY (SILTY) TO CLEAR, NO ODOR
MW-4	1/23/90	WATERRA PUMP	20 GAL'S	GRAY (SILTY) TO CLEAR, ORGANIC ODOR
MW-5S	1/23/90	WATERRA PUMP	20 GAL'S	BROWN (SILTY) TO CLEAR, SHEEN PRESENT
MW-5D	1/23/90	WATERRA PUMP	30 GAL'S	GRAY-GREEN (SILTY) TO CLEAR, NO ODOR
MW-6	6/21/90	WATERRA PUMP	50 GAL'S	GRAY (SILTY), NO ODOR
MW-7	6/22/90	WATERRA PUMP	50 GAL'S	GRAY (SILTY), NO ODOR

SITE 02 – MELVILLE NORTH LANDFILL

WELL NO.	DATE	PURGE METHOD	PURGE VOLUME	OBSERVATIONS
MW-1	4/23/90	WATERRA PUMP	20 GAL'S	SILTY TO CLEAR, NO ODOR
MW-2	4/23/90	WATERRA PUMP	45 GAL'S	REMAINED SLIGHTLY CLOUDY, NO ODOR
MW-3	4/23/90	WATERRA PUMP	45 GAL'S	STRONG PETROLEUM ODOR AND SHEEN
MW-4	4/24/90	WATERRA PUMP	13 GAL'S	STRONG PETROLEUM ODOR AND SHEEN
MW-5	4/24/90	WATERRA PUMP	45 GAL'S	REMAINED SLIGHTLY CLOUDY, NO ODOR

SITE 09 – OLD FIRE FIGHTING TRAINING AREA

WELL NO.	DATE	PURGE METHOD	PURGE VOLUME	OBSERVATIONS
MW-1	4/27/90	WATERRA PUMP	25 GAL'S	SILTY TO CLEAR, NO ODOR
MW-2	4/26/90	WATERRA PUMP	30 GAL'S	SILTY TO CLEAR, STRONG PETROL. ODOR AND SHEEN
MW-3	4/26/90	WATERRA PUMP	80 GAL'S	STAYED SILTY, STRONG PETROL. ODOR AND SHEEN
MW-4	4/26/90	WATERRA PUMP	15 GAL'S	SILTY TO CLEAR, SLIGHT PETROL. ODOR
MW-5	4/26/90	WATERRA PUMP	50 GAL'S	REMAINED SLIGHTLY SILTY

SITE 12 – TANK FARM FOUR

WELL NO.	DATE	PURGE METHOD	PURGE VOLUME	OBSERVATIONS
MW-1S	5/21/90	WATERRA PUMP	20 GAL'S	SILTY TO CLEAR, NO ODOR
	6/15/90	WATERRA PUMP	22 GAL'S	SILTY TO CLEAR, NO ODOR, (REDEVELOPMENT)
MW-1D	6/18/90	AIR	165 GAL'S	SILTY TO CLEAR, NO ODOR, pH STABLE
MW-2	6/04/90	WATERRA PUMP	55 GAL'S	BLACK (SILTY) TO CLEAR, NO ODOR
MW-3S	5/30/90	WATERRA PUMP	35 GAL'S	SILTY TO CLEAR, NO ODOR
	6/15/90	WATERRA PUMP	50 GAL'S	SILTY TO CLEAR, NO ODOR (REDEVELOPMENT)
MW-3D	6/18/90	AIR	165 GAL'S	SILTY TO CLEAR, pH STABLE
MW-4	6/04/90	WATERRA PUMP	40 GAL'S	SILTY TO CLEAR, NO ODOR
MW-5S	6/05/90	WATERRA PUMP	45 GAL'S	SILTY TO CLEAR, NO ODOR
	6/15/90	WATERRA PUMP	25 GAL'S	SILTY TO CLEAR, NO ODOR (REDEVELOPMENT)
MW-5D	6/18/90	AIR	20 GAL'S	EXTREMELY SILTY TO SILTY, VERY SLOW RATE, pH STABLE

SITE 13 – TANK FARM FIVE

WELL NO.	DATE	PURGE METHOD	PURGE VOLUME	OBSERVATIONS
MW-1	5/17/90	WATERRA PUMP	75 GAL'S	VERY SILTY, SLOW RATE, NO ODOR
MW-2	5/17/90	WATERRA PUMP	50 GAL'S	VERY SILTY TO CLEAR, NO ODOR
MW-3	5/17/90	WATERRA PUMP	50 GAL'S	VERY SILTY TO CLEAR, NO ODOR
MW-4	5/21/90	WATERRA PUMP	30 GAL'S	VERY SILTY TO CLEAR, SLOW RATE, NO ODOR
MW-5	5/17/90	WATERRA PUMP	50 GAL'S	VERY SILTY TO CLEAR, NO ODOR
MW-6	5/21/90	WATERRA PUMP	50 GAL'S	VERY SILTY TO CLEAR, NO ODOR

TABLE 2-13

SITE 01 – MCALLISTER POINT LANDFILL
WATER LEVEL MEASUREMENTS

WELL NO.	GROUND EL.	INNER CASING EL.	DEPTH TO WATER 4/3/90	DEPTH TO WATER 7/18/90	DEPTH TO WATER 9/20/90	DEPTH TO WATER 1/31/91	WATER TABLE EL. 4/3/90	WATER TABLE EL. 7/18/90	WATER TABLE EL. 9/20/90	WATER TABLE EL. 1/31/91
MW-1	29.66	31.77	25.32	27.26	26.97	24.68	6.45	4.51	4.8	7.09
MW-2	33.82	35.77	--	--	--	--	--	--	--	--
MW-3S	31.59	34.04	20.48	20.87	21.3	20.74	13.56	13.17	12.74	13.3
MW-3D	31.76	34.28	22.59	24.14	25.28	23.24	11.69	10.14	9	11.04
MW-4	25.9	28.5	8.02	--	--	8.31	20.48	--	--	20.19
MW-5S	17.75	20.32	8.82	10.66	11.48	8.53	11.5	9.66	8.84	11.79
MW-5D	18.09	20.57	15.64	16.61	16.47	13.97	4.93	3.96	4.1	6.6
MW-6	19.74	22.89	**	12.04	13.24	9.04	**	10.85	9.65	13.85
MW-7	30.16	32.88	**	18.9	20.73	13.03	**	13.98	12.15	19.85
MW-21	25.04	27.5	23.86	*	*	23.49	3.64	*	*	4.01
MW-22	15.63	17.76	13.94	*	*	13.66	3.82	*	*	4.1
MW-23	40.29	40.71	14.89	*	*	*	25.82	*	*	*

-- WELL WAS DRY AT TIME OF MEASUREMENTS
** WELL WAS NOT INSTALLED AT TIME OF MEASUREMENTS
* WATER LEVEL WAS NOT TAKEN AT THIS WELL.

TABLE 2-14

GROUND WATER FIELD PARAMETER VALUES

SITE 01 – McALLISTER POINT LANDFILL

WELL NUMBER	pH	TEMPERATURE (°C)	CONDUCTANCE (μmhos/cm)
MW-1D	6.5	11	350
MW-2S*	---	--	---
MW-3S	6.2	12	1310
MW-3D	6.1	12	550
MW-4S	6.3	10	1800
MW-5S	6.2	11	450
MW-5D	6.3	11	160
MW-6S	5.8	14	140
MW-7S	5.7	14	290
MW-21	7.0	12	3000
MW-22	7.0	11	450
MW-23	7.5	11	400

*Insufficient water available.

SITE 02 – MELVILLE NORTH LANDFILL

WELL NUMBER	pH	TEMPERATURE (°C)	CONDUCTANCE (μmhos/cm)
MW-1	6.3	17.7	240
MW-2	6.2	15.5	190
MW-3	6.1	14.2	220
MW-4	5.9	14.8	250
MW-5	5.4	19.3	250

SITE 09 – OLD FIRE FIGHTING TRAINING AREA

WELL NUMBER	pH	TEMPERATURE (°C)	CONDUCTANCE (μmhos/cm)
MW-1	7.4	15.9	500
MW-2	6.7	13.1	13050
MW-3	6.6	16.5	2150
MW-4	6.3	16.5	570
MW-5	6.2	17.7	920

SITE 12 – TANK FARM FOUR

WELL NUMBER	pH	TEMPERATURE (°C)**	CONDUCTANCE (μmhos/cm)
MW-1S	6.2	----	330
MW-1D	6.3	----	440
MW-2	5.9	----	152
MW-3S	5.9	----	248
MW-3D	5.9	----	330
MW-4*	----	----	---
MW-5S	5.9	----	318
MW-5D	6.0	----	329
MW-10	6.1	----	199
MW-11	6.1	----	419

*Insufficient water available

**Temperature probe not functioning

SITE 13 – TANK FARM FIVE

WELL NUMBER	pH	TEMPERATURE (°C)	CONDUCTANCE (μmhos/cm)
MW-1	6.0	14.3	280
MW-2	5.9	11.3	247
MW-3	6.2	14.0	279
MW-4*	----	----	---
MW-5	6.0	14.1	498
MW-6	6.0	15.9	279
ERA86-1	5.9	17.4	185
ERA86-2*	----	----	---
ERA86-4	6.1	16.3	90
MW53-E*	----	----	---
MW53-W	6.4	17.7	280
MW56-E	6.1	17.3	278
MW56-W	6.2	15.9	278

*Insufficient water available

TABLE 2-15

SITE 02 - MELVILLE NORTH LANDFILL
WATER LEVEL MEASUREMENTS

WELL NO.	GROUND EL.	INNER CASING EL.	DEPTH TO WATER 7/17/90	DEPTH TO WATER 9/20/90	DEPTH TO WATER 1/31/91	WATER TABLE EL. 7/17/90	WATER TABLE EL. 9/20/90	WATER TABLE EL. 1/31/91
MW-1	9.69	12.44	8.30	8.36	7.32	4.14	4.08	5.12
MW-2	11.58	14.06	6.06	7.77	4.38	8.00	6.29	9.68
MW-3	12.01	14.76	9.14	8.85	6.70	5.62	5.91	8.06
MW-4	14.53	17.46	13.22	13.36	10.78	4.24	4.10	6.68
MW-5	21.83	25.03	10.80	12.45	5.78	14.23	12.58	19.25

TABLE 2-16

SITE 09 – OLD FIRE FIGHTING TRAINING AREA
WATER LEVEL MEASUREMENTS

WELL NO.	GROUND EL.	INNER CASING EL.	DEPTH TO WATER 6/17/90	DEPTH TO WATER 9/20/90	DEPTH TO WATER 1/31/91	WATER TABLE EL. 6/17/90	WATER TABLE EL. 9/20/90	WATER TABLE EL. 1/31/91
MW-1	11.34	11.14	5.73	5.87	5.64	5.41	5.27	5.50
MW-2	9.07	8.76	5.87	6.40	4.40	2.89	2.36	4.36
MW-3	9.85	9.61	6.08	5.87	5.37	3.53	3.74	4.24
MW-4	7.73	7.53	5.73	4.81	4.13	1.80	2.72	3.40
MW-5	12.47	12.30	6.69	6.99	6.28	5.61	5.31	6.02

TABLE 2-17

SITE 12 – TANK FARM FOUR
WATER LEVEL MEASUREMENTS

WELL NO.	GROUND EL.	INNER CASING EL.	DEPTH TO WATER 7/19/90	DEPTH TO WATER 9/20/90	DEPTH TO WATER 1/31/91	WATER TABLE EL. 7/19/90	WATER TABLE EL. 9/20/90	WATER TABLE EL. 1/31/91
MW-1S	50.72	53.40	8.13	10.59	6.02	45.27	42.81	47.38
MW-1D	50.87	53.40	13.34	15.65	10.73	40.06	37.75	42.67
MW-2	38.82	41.25	21.24	22.05	19.05	20.01	19.20	22.20
MW-3S	72.58	75.28	24.66	25.35	19.28	50.62	49.93	56.00
MW-3D	73.59	76.60	27.42	29.00	22.35	49.18	47.60	54.25
MW-4	34.15	37.34	16.51	17.82	14.64	20.83	19.52	22.70
MW-5S	115.21	118.26	23.60	24.72	20.56	94.66	93.54	97.70
MW-5D	115.18	118.27	31.60	33.49	27.02	86.67	84.78	91.25

TABLE 2-18

SITE 13 – TANK FARM FIVE
WATER LEVEL MEASUREMENTS

WELL NO.	GROUND EL.	INNER CASING EL.	DEPTH TO WATER 7/17/90	DEPTH TO WATER 9/20/90	DEPTH TO WATER 1/31/91	DEPTH TO WATER 4/30/91	WATER TABLE EL. 7/17/90	WATER TABLE EL. 9/20/90	WATER TABLE EL. 1/31/91	WATER TABLE EL. 4/30/91
MW-1	31.21	33.97	17.10	17.71	15.52	15.26	16.87	16.26	18.45	18.71
MW-2	40.23	42.83	13.43	13.85	13.05	12.84	29.40	28.98	29.78	29.99
MW-3	47.16	50.08	12.30	12.83	11.20	11.22	37.78	37.25	38.88	38.86
MW-4	49.51	52.89	32.03	34.40	21.92	--	20.86	18.49	30.97	--
MW-5	74.37	77.37	19.16	21.45	16.65	15.13	58.21	55.92	60.72	62.24
MW-6	73.02	75.33	9.20	11.74	3.82	3.33	66.13	63.59	71.51	72
MW-7	69.04	71.85	**	**	--(1)	--	**	**	--(1)	--
MW-8	66.59	69.49	**	**	27.76	--	**	**	41.73	--
MW-9	78.94	82.27	**	**	18.31	--	**	**	63.96	--
MW-10	80.84	83.53	**	**	19.90	--	**	**	63.63	--
RW-1	68.59	72.12	**	**	24.71	--	**	**	47.41	--

(1) UNABLE TO ACCESS WELL DUE TO NAVY LOCK ON CASING.
** – WELL WAS NOT INSTALLED AT TIME OF SAMPLING.
-- WATER LEVEL WAS NOT RECORDED AT THIS DATE.

TABLE 2-19
SITE 12 – TANK FARM FOUR
PIEZOMETER AND SURFACE WATER LEVELS

WELL POINT I.D. NUMBER	WELL POINT ELEVATION (FT ABOVE MLW)	GAUGING STAKE ELEVATION (FT ABOVE MLW)	DEPTH TO WATER IN W.P. (FEET)	DEPTH TO STREAM SURFACE (FEET)	ELEVATION OF WATER IN W.P. (FT ABOVE MLW)	ELEVATION OF STREAM SURFACE (FT ABOVE MLW)
WP-2	7.85	6.50	3.02	2.77	4.83	3.73
WP-3	10.45	7.08	3.75	2.58	6.70	4.5
WP-4	12.10	8.81	4.96	1.89	7.14	6.92
WP-5	12.84	8.79	4.65	2.55	8.19	6.24
WP-6	14.42	11.62	4.34	1.84	10.08	9.78

PIEZOMETRIC LEVELS AND SURFACE WATER LEVELS RECORDED ON JULY 24, 1990.

TABLE 2–20
SITE 13 – TANK FARM FIVE
PIEZOMETER AND SURFACE WATER LEVELS

WELL POINT I.D. NUMBER	WELL POINT ELEVATION (FT ABOVE MLW)	GAUGING STAKE ELEVATION (FT ABOVE MLW)	DEPTH TO WATER IN W.P. (FEET)	DEPTH TO STREAM SURFACE (FEET)	ELEVATION OF WATER IN W.P. (FT ABOVE MLW)	ELEVATION OF STREAM SURFACE (FT ABOVE MLW)
WP–2	11.90	9.78	4.38	2.60	7.54	7.16
WP–3	24.59	23.80	3.45	3.40	21.14	20.40
WP–4	33.41	31.46	4.26	2.67	29.15	28.79
WP–5	62.11	60.04	4.86	2.95	57.25	57.09

PIEZOMETRIC LEVELS AND SURFACE WATER LEVELS RECORDED ON JULY 24, 1990.

TABLE 2–21

TANK FARMS FOUR AND FIVE
TANK WATER FIELD PARAMETER VALUES

SITE 12 – TANK FARM FOUR

TANK NO.	pH	TEMP (°C)	COND (μmhos/cm)
37	7.6	12.0	100
38	7.7	12.4	110
39	---	---	---
40	(*)	(*)	(*)
41	7.4	12.1	320
42	8.0	13.6	130
43	8.2	14.0	120
44	7.3	12.7	150
45	7.1	12.6	170
46	8.4	12.0	120
47	7.1	12.7	150
48	8.2	11.1	110

SITE 13 – TANK FARM FIVE

TANK NO.	pH	TEMP (°C)	COND (μmhos/cm)
49	7.7	14.0	200
50	7.1	14.7	3,150
51	7.2	13.5	930
52	7.1	12.9	3,950
53	7.3	13.7	2,250
54	7.9	12.0	170
55	7.3	13.8	190
56	7.3	12.9	2,490
57	---	---	---
58	7.2	12.3	140
59	7.4	13.8	150

(*) – WATER SAMPLE COULD NOT BE COLLECTED FROM THIS TANK.

TABLE 2-22

SITE 12 – TANK FARM FOUR
TANK CONTENTS PHYSICAL CHARACTERISTICS

TANK NO	OIL THICKNESS (FEET)	OIL VOLUME (GALLONS)	WATER THICKNESS (FEET)	WATER VOLUME (GALLONS)	SLUDGE THICKNESS (FEET)	SLUDGE VOLUME (GALLONS)	BOTTOM OF TANK (FEET)	COMMENTS
37	0.12	9,486	12.94	1,022,525	0	0	35.19	THICK BLACK OIL
38	0.04	3,162	25.10	1,983,785	0	0	35.18	THICK BLACK OIL
39	0.66	52,174	28.75	2,272,717	0	0	35.37	THICK BLACK OIL
40	----	-----	-----	-----	--	--	-----	OLIVE-GREEN/BLACK THICK OIL, FROM PUMP HOUSE
41	0.13	10,277	8.51	672,724	0	0	35.26	LIGHT BLACK OIL
42	0.51	39,920	6.40	505,531	0	0	35.18	VERY THICK BLACK OIL
43	0.04	3,162	17.66	1,395,646	0	0	35.19	THICK BLACK OIL
44	0.37	29,248	17.66	1,395,646	0	0	35.29	THICK BLACK OIL
45	0.06	4,743	10.34	817,388	0	0	35.24	THICK BLACK OIL
46	0.01	791	9.41	743,475	0	0	35.26	THICK BLACK OIL
47	0.07	5,534	10.60	837,940	0	0	35.30	THICK BLACK OIL
48	0.04	3,162	20.02	1,582,601	0	0	35.37	THICK BLACK OIL

TABLE 2–23

SITE 13 – TANK FARM FIVE
TANK CONTENTS PHYSICAL CHARACTERISTICS

TANK NO	OIL THICKNESS (FEET)	OIL VOLUME (GALLONS)	WATER THICKNESS (FEET)	WATER VOLUME (GALLONS)	SLUDGE THICKNESS (FEET)	SLUDGE VOLUME (GALLONS)	BOTTOM OF TANK (FEET)	COMMENTS
49	0.04	3,162	25.20	1.991,690	0	0	35.40	BROWN, LIGHT OIL
50	2.84	224,505	25.26	1.996,434	2.90	229,248	36.30	BLACK LIGHT OIL, THICK BLACK SLUDGE
51	0.31	24,111	19.49	1,540,704	0.25	19,763	35.31	DARK BROWN, LIGHT OIL
52	0.36	28,458	25.30	1,999,596	0.08	6,324	35.17	DARK BROWN/BLACK LIGHT OIL
53	0.30	23,715	27.88	2,203,942	0.08	6,324	34.06	DARK BROWN LIGHT OIL
54	0.02	1,581	20.07	1,586,554	0	0	35.38	BLACK, LIGHT OIL
55	0.01	791	14.02	1,108,295	0	0	35.34	BROWN, LIGHT OIL; LAYER TOO THIN TO SAMPLE
56	0.62	49,012	17.68	1,397,622	0.08	6,324	34.97	DARK BROWN, LIGHT OIL
57	0.21	16,601	30.77	2,432,400	0	0	35.28	BLACK, LIGHT OIL
58	0.13	10,277	33.39	2,639,514	0	0	35.31	DARK BROWN, LIGHT OIL
59	0.08	6,324	10.78	852,170	0	0	35.29	MEDIUM–THICK, BLACK OIL

SECTION 3

TABLES

TRC

TABLE 3-1

SITE 01 – MCALLISTER POINT LANDFILL
VERTICAL HYDRAULIC GRADIENT VALUES

Well Cluster Number	Vertical Distance (ft)(1)				Head Difference (ft)(2)				Gradient (ft/ft)			
	4/3/90	7/18/90	9/20/90	1/31/91	4/3/90	7/18/90	9/20/90	1/31/91	4/3/90	7/18/90	9/20/90	1/31/91
MW-3	16.30	15.91	15.48	16.04	-1.87	-3.03	-3.74	-2.26	-0.115	-0.190	-0.242	-0.141
MW-5	28.41	26.57	25.75	28.70	-6.57	-5.70	-4.74	-5.19	-0.231	-0.215	-0.184	-0.181

NOTES: (1) The vertical distance is the difference in elevation between the water table and the middle of the screened interval in the deep well.

(2) The head difference is the elevation of the deep well piezometric level minus the water table elevation. Thus, negative signs represent downward gradients.

TABLE 3-2

SITE 01 – MCALLISTER POINT LANDFILL
AVERAGE HORIZONTAL HYDRAULIC GRADIENT AND LINEAR VELOCITIES

Location			Average Horizontal Gradient (ft/ft)	Average Linear Velocity (ft/day)
SHALLOW WELLS:				
MW-6	to	MW-5	0.0056	0.0061
MW-4	to	MW-6	0.0135	0.0147
MW-3S	to	MW-4	0.0380	0.0417
MW-7	to	MW-3S	0.0134	0.0147
DEEP WELLS:				
MW-3D	to	MW-5D	0.0077	0.0091
MW-3D	to	MW-1D	0.0049	0.0057

NOTES: The hydraulic conductivity value for shale at the site (0.117 ft/day) was derived from slug tests performed during the investigation. The conductivity of the fill (0.57 ft/day) was taken from the HELP Model and is the given conductivity value for municipal waste

Effective porosities of 10% for shale (Driscoll, 1986) and 52% for the fill (HELP Model) were assumed.

TABLE 3-3

SITE 02 - MELVILLE NORTH LANDFILL
AVERAGE HORIZONTAL HYDRAULIC GRADIENT AND LINEAR VELOCITIES

Location		Average Horizontal Gradient (ft/ft)	Average Linear Velocity (ft/day)
SHALLOW WELLS:			
MW-5	MW-2	0.0327	0.0676
MW-2	MW-1	0.0187	0.0387
MW-3	MW-4	0.0027	0.0055

NOTES: The hydraulic conductivity value for the overburden material at the site(0.31 ft/day) was derived from slug tests performed during the investigation.

An effective porosity of 15% for the till overburden was assumed (Driscoll, "Groundwater and Wells", 1986).

TABLE 3-4

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
AVERAGE HORIZONTAL HYDRAULIC GRADIENT AND LINEAR VELOCITIES

Location		Average Horizontal Gradient (ft/ft)	Average Linear Velocity (ft/day)
SHALLOW WELLS:			
MW-1	MW-2	0.0068	0.0135
MW-5	MW-3	0.0066	0.0131
MW-3	MW-4	0.0040	0.0080

NOTES: The hydraulic conductivity values for the overburden material at the site (0.30 ft/day) was derived from slug tests performed during the investigation.

An effective porosity of 15% for the till overburden was assumed (Driscoll, "Groundwater and Wells", 1986).

TABLE 3–5

SITE 12 – TANK FARM FOUR
VERTICAL HYDRAULIC GRADIENT VALUES

Well Cluster Number	Vertical Distance (ft)(1)			Head Difference (ft)(2)			Gradient (ft/ft)		
	7/19/90	9/20/90	1/31/91	7/19/90	9/20/90	1/31/91	7/19/90	9/20/90	1/31/91
MW–1	40.98	38.52	43.09	–5.21	–5.06	–4.71	–0.127	–0.131	–0.109
MW–3	24.54	23.85	29.92	–1.44	–2.33	–1.75	–0.059	–0.098	–0.058
MW–5	13.95	12.83	16.99	–7.99	–8.76	–6.45	–0.573	–0.683	–0.380

NOTES: (1) The vertical distance is the difference in elevation between the water table and the middle of the screened interval in the deep well.

(2) The head difference is the elevation of the deep well piezometric level minus the water table elevation. Thus, negative signs represent downward gradients.

TABLE 3-6

SITE 12 – TANK FARM FOUR
AVERAGE HORIZONTAL HYDRAULIC GRADIENTS AND LINEAR VELOCITIES

Location		Average Horizontal Gradient (ft/ft)	Average Linear Velocity (ft/day)
SHALLOW WELLS:			
MW-5S	MW-3S	0.187	0.285
MW-3S	MW-1S	0.041	0.063
MW-3S	MW-2	0.144	0.219
DEEP WELLS:			
MW-5D	MW-3D	0.162	0.070
MW-3D	MW-1D	0.052	0.023

NOTES: Hydraulic conductivity values for the till (0.23 ft/day) and shale (0.043 ft/day) at the site were derived from slug tests performed during the investigation.

Effective porosities of 15% for the till, and 10% for shale were assumed (from Driscoll, "Groundwater and Wells", 1986).

TABLE 3-7

SITE 13 – TANK FARM FIVE
AVERAGE HORIZONTAL HYDRAULIC GRADIENTS AND LINEAR VELOCITIES

Location		Average Horizontal Gradient (ft/ft)	Average Linear Velocity (ft/day)
MW-6	MW-5	0.0146	0.0189
MW-5	MW-4	0.0398	0.0516
MW-5	MW-3	0.0288	0.0373
MW-3	MW-2	0.0128	0.0166

NOTES: The hydraulic conductivity value for the weathered shale at the site (0.195 ft/day) was derived from slug tests performed during the investigation.

Effective porosities of 15% for the weathered shale was assumed.

SECTION 4

TABLES

TRC

TABLE 4-1

SITE 01 – MCALLISTER POINT LANDFILL
SAMPLE SUMMARY

MATRIX (SAMPLE TYPE)	NUMBER OF SAMPLES ENVIRONMENTAL	DUPLICATE	FIELD BLANK	TRIP BLANK(1)	EPA SPLIT	ANALYSES(2)
SURFACE SOIL	15	2	–	3	–	A,B,C,D,E
	–	–	3		–	A,B,C,D
	4	1	1	1	–	A
	2	–	–	–	–	D
TEST BORINGS	26	3	–	–	–	A,B,C,D,E
	4	–	6	8	–	A,B,C,D
	1	–	–	–	–	A,D,E
	2	–	–	–	–	F
WELL BORINGS	10	–	–	–	–	A,B,C,D,E
	8	1	5	5	–	A,B,C,D
GROUND WATER	11	1	1	4	2	A,B,C,D
TAP WATER (3)	2	–	–	–	–	A,B,C,D
LEACHATE SPRING WATER	1	–	–	1	–	A,B,C,D

(1) – Trip blanks analyzed for volatile organic compounds only.
(2) – Analyses performed as follows:
A) Target Compound List Volatile Organic Compounds
B) Target Compound List Base Neutral/Acid Extractable Compounds
C) Target Compound List Pesticide/PCB Compounds
D) Target Analyte List (Metals & Cyanide)
E) 2,3,7,8-TCDD (Dioxin) Archived
F) TCLP Analysis
(3) – Samples of Tap Water Used In Equipment Decontamination.

TABLE 4-2

SITE 02 – MELVILLE NORTH LANDFILL
SAMPLE SUMMARY

MATRIX (SAMPLE TYPE)	NUMBER OF SAMPLES ENVIRONMENTAL	DUPLICATE	FIELD BLANK	TRIP BLANK(1)	EPA SPLIT	ANALYSES(2)
SURFACE SOIL	15	1	–	2	–	A,B,C,D,E
	–	–	2	–	1	A,B,C,D
	2	–	–	–	–	H
TEST PITS	4	–	–	1	1	A,B,C,D,E
TEST BORINGS	24	1	–	3	2	A,B,C,D,E
	1	–	–	–	–	A,B,C
	1	–	–	–	–	F
WELL BORINGS	12	–	–	1	–	A,B,C,D
	1	–	–	–	–	A,B,C
GROUND WATER	5	–	–	2	1	A,B,C,D
SEDIMENT	3	–	–	–	–	A,B,C,D
OIL SAMPLE	1	–	–	–	–	A
WASTE PILE	12	–	–	–	–	A,G,H

(1) – Trip blanks analyzed for volatile organic compounds only.

(2) – Analyses performed as follows:

A) Target Compound List Volatile Organic Compounds

B) Target Compound List Base Neutral/Acid Extractable Compounds

C) Target Compound List Pesticide/PCB Compounds

D) Target Analyte List (Metals & Cyanide)

E) 2,3,7,8-TCDD (Dioxin) Archived

F) TCLP Analysis

G) EP Toxicity, Ignitability, Corrosivity, Reactivity

H) Target Compound List PCB Compounds

TABLE 4-3

SITE 09 – OLD FIRE FIGHTING TRAINING AREA
SAMPLE SUMMARY

MATRIX (SAMPLE TYPE)	NUMBER OF SAMPLES ENVIRONMENTAL	DUPLICATE	FIELD BLANK	TRIP BLANK(1)	EPA SPLIT	ANALYSES(2)
SURFACE SOIL	6	–	–	1	1	A,B,C,D,E
TEST BORINGS	13	–	1	1	–	A,B,C,D
	2	–	–	–	–	A,B,C
WELL BORINGS	6	–	–	1	–	A,B,C,D
GROUND WATER	5	–	–	2	1	A,B,C,D

(1) – Trip blanks analyzed for volatile organic compounds only.
(2) – Analyses performed as follows:
A) Target Compound List Volatile Organic Compounds
B) Target Compound List Base Neutral/Acid Extractable Compounds
C) Target Compound List Pesticide/PCB Compounds
D) Target Analyte List (Metals & Cyanide)

TABLE 4-4

SITE 12 – TANK FARM FOUR
SAMPLE SUMMARY

MATRIX (SAMPLE TYPE)	NUMBER OF SAMPLES ENVIRONMENTAL	DUPLICATE	FIELD BLANK	TRIP BLANK(1)	EPA SPLIT	ANALYSES(2)
SURFACE SOIL	2	–	–	1	2	A,B,C,D,E
	26	1	–	–	–	E,F
WELL BORINGS	4	–	–	–	–	A,B,C,D
	1	1	–	–	1	A,B,C,D,E
GROUND WATER	9	1	–	4	1	A,B,C,D
	1	–	–	–	–	A,C
SURFACE WATER	4	–	1	1	1	A,B,C,D
SEDIMENT	12	1	–	3	2	A,B,C,D
TANK WATER	11	1	2	4	1	A,B,D
TANK OIL	7	1	–	2	–	A,B,D,I
	4	–	–	–	–	A,B,D,H,I
	2	–	–	–	–	G
STRUCTURE SAMPLING						
SOIL	2	–	–	3	–	A,B,D,H,I
	1	–	1	–	1	A,B,D,I
WATER	1	–	–	1	–	A,B,D,I
	1	–	–	–	–	A,B,D

(1) – Trip blanks analyzed for volatile organic compounds only.
(2) – Analyses performed as follows:
A) Target Compound List Volatile Organic Compounds
B) Target Compound List Base Neutral/Acid Extractable Compounds
C) Target Compound List Pesticide/PCB Compounds
D) Target Analyte List (Metals & Cyanide)
E) Total Petroleum Hydrocarbon
F) Lead
G) TCLP Analysis
H) EP Toxicity
I) Target Compound List PCB Compounds

TABLE 4–5

SITE 13 – TANK FARM FIVE
SAMPLE SUMMARY

MATRIX (SAMPLE TYPE)	NUMBER OF SAMPLES ENVIRONMENTAL	DUPLICATE	FIELD BLANK	TRIP BLANK(1)	EPA SPLIT	ANALYSES(2)
SURFACE SOIL	24	3	–	–	–	E,F
	2	–	–	–	2	A,B,C,D,E
	–	–	1	–	–	A,E,F
WELL BORINGS	5	–	2	–	1	A,B,C,D,E
	5	–	–	–	–	A,B,C,D
	1	–	–	–	–	A,B,C,E
	1	–	–	2	–	A
GROUND WATER	5	1	1	–	2	A,B,C,D
	2	–	1	–	–	A,B,C,D,E
	5	–	–	–	–	E,F
	2	–	–	–	–	A,B
	1	–	–	6	–	A
SURFACE WATER	5	1	1	2	2	E,F
SEDIMENT	5	1	–	–	1	E,F,H
TANK WATER	11	1	1	2	1	A,B,D
TANK OIL	10	1	–	3	–	A,B,D,H
SLUDGE FROM TAMK	1	–	–	–	–	A,B,D,G,H
OIL/WATER SEPARATOR						
SOIL	2	1	–	1	1	A,B,C,D
WATER	1	–	–	–	–	A,B,C,D

(1) – Trip blanks analyzed for volatile organic compounds only.
(2) – Analyses performed as follows:
A) Target Compound List Volatile Organic Compounds
B) Target Compound List Base Neutral/Acid Extractable Compounds
C) Target Compound List Pesticide/PCB Compounds
D) Target Analyte List (Metals & Cyanide)
E) Total Petroleum Hydrocarbon
F) Lead
G) EP Toxixity, Ignitability, Corrosivity, Reactivity
H) Target Compound List PCB Compounds
I) TCLP Analysis

TABLE 4–6

INORGANIC ANALYTE BACKGROUND LEVELS

ANALYTE	CONCENTRATION (PPM)
Silver	1
Aluminum	15,300
Arsenic	15
Barium	65
Beryllium	1
Calcium	1,900
Cadmium	1
Cobalt	15
Chromium	30
Copper	65
Iron	29,400
Mercury	1
Potassium	1,100
Magnesium	4,500
Manganese	600
Sodium	230
Nickel	35
Lead	315
Antimony	6
Selenium	1
Thallium	1
Vanadium	45
Zinc	280
Cyanide	1

(*) – Level approximately equal (rounded off) to the highest concentration detected in the two background surface soil samples (SS–16 & SS–17) collected near Site 01 – McAllister Point Landfill. If analyte was not detected in either background sample, the contract required detection limit is listed as the background level.

TABLE 4-7

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF SURFACE SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SURFACE SOIL SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SS-01	NE	NE	NE	√	ND	Cu
SS-02	ND	√	√	√	ND	NE
SS-03	ND	NE	NE	NE	ND	NE
SS-04/SS-18[7]	NE/NE	NE/NE	NE/NE	NE/NE	ND/ND	NE
SS-05	ND	NE	NE	NE	ND	Cd,Cr
SS-06	NE	√	√	√	ND	NE
SS-07/SS-19[7]	ND/ND	√/NE	√/NE	√/√	ND/ND	NE
SS-08	ND	√	√	√	ND	Al,As,Ca,Co,Cr,Cu, Fe,Hg,Mg,Ni,Pb,V,Zn
SS-09	ND	√	√	√	ND	Ca,Co,Cr,Fe,V
SS-10	ND	NE	NE	√	ND	As,Cu,Fe
SS-11	ND	√	√	√	ND	Se
SS-12	ND	NE	NE	√	NE	Ca,Cd,Cr,Cu,Fe,Ni, Pb,V,Zn
SS-13	ND	√	√	√	NE	Ca,Cd,Cu,Fe,Ni,Sb, Pb,V,Zn
SS-14	ND	NE	NE	√	NE	Ca,Cd,Cu,Fe,Na,Pb, Sb,V,Zn
SS-15	ND	√	√	√	NE	Ag,Ba,Be,Ca,Cd,Co, Cr,Cu,Fe,Mn,Na,Ni, Pb,Sb,V,Zn
SS-16	NA	NA	NA	NA	NA	NE
SS-17	NA	NA	NA	NA	NA	NE

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding developed contaminant level.
√ - Exceeds developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-8

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B01-1/B01-3[7]	2-4	ND/ND	NE/NE	NE/NE	√/NE	ND/ND	As,Ca,Co,Fe, Mg
B01-2	10-12	ND	NE	ND	ND	ND	Fe,Mg
B02-1	0-2	ND	NE	NE	NE	ND	Na
B02-2	8-10	NE	√*	√*	√*	NE	Ba,Ca,Cd,Cr, Cu,Fe,Na,Ni, Pb,Sb,V,Zn
B02-3	18-20	NE	NE	ND	ND	ND	Co,Fe,Mg, Mn,Ni
B03-1	2-4	NE	NE	NE	√*	NE	Ca,Pb
B03-2	16-18	NE	NE	ND	ND	ND	Ca,Cd,Co,Cr, Cu,Fe,Hg,Ni, V,Zn
B03-3	22-24	NE	√*	NE	NE	NE	As,Co
B04-1/B04-3[7]	2-4	ND/NE	NE/NE	NE/NE	√/√*	NE/NE	As,Co,Fe,Sb
B04-2	6-8	NE	NE	ND	ND	ND	NE
B05-1	6-8	√	NA	NA	NA	NA	Ba,Na
B05-2/B05-4[7]	14-16	NE/NE	√*/√	√*/√	√*/√	NE/NE	As,Ba,Be,Ca, Cd,Co,Cr,Cu, Fe,Mn,Na,Ni, Pb,Sb,V,Zn
B05-3	22-24	√*	NE	NE	ND	NE	Ca,Cd,Co,Cr, Cu,Fe,Mn,Ni, Sb,V,Zn
B06-1	6-8	NE	√	√	√	ND	Fe,Na
B06-2	8-10	NE	√	√	√	ND	Ca
B06-3	16-18	NE	√*	√*	√*	ND	Ca,Cu,Fe,Na, V,Zn

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-8

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS
(continued)

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B07-1	6-8	NE	√	NE	√	NE	Ag,Ca,Co,Fe
B07-2	12-14	√*	√*	√*	√*	ND	Ag,Ca,Cd,Cr, Cu,Fe,Na,Ni, Pb,Sb,V,Zn
B07-3	16-18	NE	NE	ND	ND	ND	Al,Ag,As,Ca, Co,Fe,Mg
B08-1	2-4	NE	NE	NE	√*	ND	Ca
B08-2	10-12	NE	NE	NE	ND	ND	NE
B09-1	4-6	ND	√*	NE	√*	ND	Fe
B09-2	10-12	NE	√	NE	NE	ND	Ba,Be,Ca,Cd, Cr,Cu,Fe,Hg, Mg,Na,Ni,Pb, Sb,V,Zn
B09-3	16-18	NE	NE	NE	NE	NE	Ba,Ca,Cd,Cr, Cu,Fe,Mn,Na, Ni,Sb,V,Zn
B10-1	2-4	NE	√*	√*	√*	ND	V
B10-2	8-10	NE	NE	NE	NE	NE	NE
B10-3	10-12	NE	NE	NE	ND	NE	NE
B11-1	2-4	ND	NE	NE	NE	NE	As,Co,Fe,Mg, Mn,Ni

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-8

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS
(continued)

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B12-1	10-12	NE	√	√	√	NE	Ag,Ba,Ca,Co, Cr,Cu,Fe,Hg, Na,Ni,Pb,Sb, V,Zn
B12-2	22-24	NE	√*	√*	√*	√*	Ag,Ba,Be,Ca, Co,Cr,Cu,Fe, Hg,Na,Mn,Ni, Pb,V,Zn
B12-3	24-26	ND	ND	ND	ND	NE	Ag,Al,Ca,Co, Cu,Cr,Fe,Mg, Ni,Mn,V,Zn
B13-1	0-2	ND	ND	ND	ND	ND	NE

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-9

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF WELL BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M01-1	2-4	NE	NE	NE	NE	NE	Al
M01-2	6-8	ND	ND	ND	ND	ND	Co
M02-1	10-12	NE	NE	NE	√*	NE	Ag,Ca,Cd,Co, Fe,Mn,V
M02-2	16-18	NE	NE	NE	√	NE	Ag,Ba,Be,Ca, Cd,Co,Cr,Cu, Fe,Na,Ni,Pb, V,Zn
M02-3	18-20	NE	ND	ND	ND	NE	Ag,Co,Fe,Mg, Mn,Ni
M03-1/M03-4[7]	12-14	NE/NE	√/√	√/√	√/√	ND/ND	As/Cd,Sb
M03-2	18-20	NE	√*	√*	√*	ND	As,Ca,Cd,Co, Cu,Fe,Na,V,Zn
M03-3	22-24	NE	√	√	√	ND	Ag,Ba,Ca,Cd, Cr,Cu,Fe,Na, Ni,Pb,Sb,V,Zn
M04-1	6-8	NE	√*	√*	√*	ND	Al,As,Ca,Cd, Co,Cu,Fe,Mg, Mn,Ni,V
M04-2	10-12	NE	ND	ND	ND	ND	Ag,Co,Fe,Mn, Ni

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-9

SITE 01 - McALLISTER POINT LANDFILL
SUMMARY OF WELL BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS
(continued)

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M05-1	6-8	NE	NE	NE	ND	NE	NE
M05-2	15-17	NE	NE	ND	ND	ND	NE
M06-1	2-4	NE	NE	NE	NE	NE	As
M06-2	8-10	ND	√*	√*	√*	NE	As,Co,Fe
M06-3	12-14	ND	ND	ND	ND	ND	As,Co,Fe,Mn, Ni
M07-1	2-4	ND	NE	NE	√*	ND	Cu
M07-2	4-6	ND	NE	NE	NE	ND	Co

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-10

SITE 01 - MCALLISTER POINT LANDFILL
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)	
VOLATILE ORGANICS				
Benzene	3S	6	5[2]	(F)
	4	5[6]		
Xylene	4	44	20[3]	(F)
	5S	160	10,000[2]	(F)
PCBs				
Aroclor-1254	5S	0.73	0.5[2]	(F)
INORGANICS				
Silver	3S	126	50[4]	(L)
			50[3]	(P)
Aluminum	1	130,000	90[3]	(P)
	3S	205,000		
	3D	6,860		
	4	69,500		
	5S	284,000		
	5D	412		
	6	112,000		
	7	176,000		
	21	4,340		
	22	1,880/4030[5]		
	23	3,270		
Arsenic	3S	85.8	50[2]	(F)
	5S	71.4		
	7	84.4		
	21	89.4		
	22	64.8/97.2[5]		
	23	54.2		
Beryllium	1	3	1[2]	(T)
	3S	9.5		
	4	2		
	5S	12.8		
	6	4.9		
	7	7.1		
	23	1[6]		

TABLE 4-10

SITE 01 - MCALLISTER POINT LANDFILL
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)
INORGANICS			
Cadmium	3S	57.1	5[2] (F)
	5S	5.6	10[4] (P)
	6	8	
Chromium	6	136	100[2] (F)
	7	248	50[4] (P)
Copper	3S	3160	1300[2] (P) 1000[3] (F)
Iron	1	327,000	300[3] (F)
	3S	500,000	
	3D	40,300	
	4	339,000	
	5S	537,000	
	5D	702	
	6	399,000	
	7	374,000	
	21	16,000	
	22	34,100/14,900[5]	
	23	58,800	
Mercury	3S	8.4	2[2] (F)
Manganese	1	2,910	50[3] (F)
	3S	13,500	
	3D	2,090	
	4	6,550	
	5S	4,760	
	5D	57.8	
	6	13,700	
	7	21,000	
	21	906	
	22	5,190/970[5]	
	23	1,140	
	LS-1	54.8	
Nickel	1	306	100[2] (T)
	3S	517	
	4	190	
	5S	658	
	6	524	
	7	678	

TABLE 4-10

SITE 01 - MCALLISTER POINT LANDFILL
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (μg/l)	ACTION LEVEL[1] (μg/l)
INORGANICS			
Lead	1	60	5[2] (P)
	3S	4,800	
	3D	25.7	
	4	197	
	6	1,000	
	7	260	
	21	53.6	
	22	44.4/45.2[5]	
	23	42.8	
Antimony	1	41.3	10/5[2] (T)
	3S	259	
	4	64.2	
	5S	101	
	21	36.7	
	LS-1	77.1	
Zinc	3S	12,100	5000[3] (F)

(1) The most stringent Federal standard or criteria is listed as the action level.

(2) The Federal Maximum Contaminant Level (MCL).

(3) A secondary Federal Drinking Water Standard based on organoleptic data (i.e., taste and odor).

(4) The National Interim Primary Drinking Water Regulation (NIPDWR).

(5) Duplicate samples collected at this location.

(6) Detected concentration is equal to the action level.

(F) - Final
(P) - Proposed
(T) - Tentative
(L) - Listed

TABLE 4-11

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF SURFACE SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SURFACE SOIL SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SS-01	ND	√	√	√	√	NE
SS-02	ND	NE	NE	√	√	Hg
SS-03	ND	NE	NE	NE	NE	V
SS-04	ND	NE	NE	NE	NE	V
SS-05	NE	NE	NE	NE	ND	Ag,Ba,Cr,Cu,Sb,V,Zn Cn
SS-06	ND	√	√	√	ND	NE
SS-07	ND	NE	NE	√	ND	Sb
SS-08	ND	NE	NE	√	ND	NE
SS-09	ND	√	√	√	ND	NE
SS-10	ND	NE	NE	√	ND	NE
SS-11/SS-16[7]	ND/ND	NE/√	NE/√	√/√	ND/ND	As,Ba,Co,Fe,Pb,V
SS-12	NE	NE	NE	NE	NE	Sb
SS-13	ND	ND	ND	ND	ND	Sb
SS-14	ND	ND	ND	ND	ND	NE
SS-15	ND	NE	NE	NE	ND	V
SS-20	NA	NA	NA	NA	NE	NA
SS-21	NA	NA	NA	NA	NE	NA

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding developed contaminant level.
√ - Exceeds developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-12

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF TEST PIT SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
TP-1	NE	√	√	√	√	Ag,Ba,Ca,Cd,Co,Cr, Cu,Fe,Mn,Ni,Pb,Sb, V,Zn
TP-4	NE	NE	NE	NE	ND	Ag,Ba,Be,Cd,Co,Cr, Cu,Ni,Pb,Sb,V,Zn
TP-5	√	√	√	√	ND	Ca,Cd,Cu,Fe,Pb,V,Zn
TP-7	ND	NE	NE	NE	NE	Ag,As,Ba,Ca,Cd,Co, Cr,Cu,Fe,Mn,Na,Ni, Pb,Sb,V,Zn

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding developed contaminant level.
√ - Exceeds developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-13

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B01-1	0-2	ND	√	√	√	ND	NE
B02-1	0-2	NE	ND	ND	ND	NE	Cd,Co,V
B03-1	0-2	NE	NE	NE	√	NE	Ca,Co,Cr,V
B03-2	2-4	NE	ND	ND	ND	NE	Al,Ca,Co,V
B03-3	4-5.5	ND	NE	NE	ND	NE	NE
B04-1	4-6	√*	√*	√*	√*	NE	Ag,Ba,Ca,Cd, Co,Cr,Cu,Fe, Na,Ni,Sb,Se, V,Zn
B04-2	8-10	NE	NE	NE	NE	ND	V
B05-1	0-2	NE	NE	NE	NE	ND	NA
B05-2	10-12	ND	ND	ND	ND	ND	Cd,Co,Fe,Mn
B06-1	0-2	ND	NE	NE	NE	NE	Ba,Cu,Pb,Sb, V,Zn
B06-2	4-6	NE	ND	ND	ND	ND	As,Ba,Ca,Cd, Co,Cr,Cu,Fe, Mn,Ni,Pb,V,Zn
B06-3	6-8	ND	ND	ND	ND	ND	Cd,Co,Cu,Fe, V,Zn
B07-1	2-4	ND	NE	NE	NE	ND	Co,Mn,V
B07-2	8-10	√*	NE	NE	NE	ND	Ba,Ca,Cd,Co, Cr,Cu,Fe,Na, Ni,Pb,Sb,V,Zn

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.

TABLE 4-13

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS
(continued)

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B07-3	10-12	NE	ND	ND	ND	ND	Cd,Cu,Na,V,Zn
B08-1	2-4	ND	NE	NE	ND	ND	Ba,Ca,Cd,Co, Cr,Cu,Fe,Mn, Na,Ni,Pb,Sb, V,Zn
B08-2	4-6	ND	ND	ND	ND	ND	Ag,Cd,Cr,Cu, Fe,Ni,Pb,V,Zn
B09-1	2-4	ND	√*	√*	√*	ND	NE
B09-2	4-6	ND	√	√	√	ND	Ag,Ba,Ca,Cd, Co,Cr,Cu,Fe, Hg,K,Mn,Na, Ni,Pb,Sb,V, Zn,Cn
B09-3	8-10	ND	NE	NE	√	ND	Cd
B10-1	4-6	ND	ND	ND	ND	ND	NE
B11-1	8-10	ND	NE	ND	ND	ND	NE
B12-1	4-6	NE	NE	NE	√	NE	Ag,Ba,Be,Ca, Cd,Co,Cu,Fe, Mn,Na,Ni,Pb, Sb,V,Zn
B12-2/B12-4[7]	6-8	NE/NE	√/√*	√/√*	√/√*	NE/NE	Ag,Ba,Be,Ca, Cd,Co,Cr,Cu, Fe,Hg,Mn,Na, Ni,Pb,Sb,V,Zn
B13-1	6-8	NE	NE	NE	NE	ND	Ba,Ca,Cu,Ni, Pb,Sb

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Contaminant level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.

TABLE 4-14

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF WELL BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M01-1	2-4	NE	NE	NE	NE	ND	Cd,Cu,Sb,Zn
M01-2	4-6	ND	NE	ND	ND	ND	NE
M01-3	8-10	ND	NE	NE	ND	ND	Na,Sb,Zn
M02-1	2-4	ND	NE	NE	√	NE	Ag,Ba,Be,Ca, Cd,Co,Cr,Cu, Fe,Mn,Ni,Sb, V,Zn
M02-2	5-7	ND	NE	NE	NE	NE	Ag,Ba,Ca,Cd, Co,Cr,Cu,Fe, Mg,Na,Ni,Pb, Sb,V,Zn
M02-3	10-12	ND	ND	ND	ND	ND	NE
M03-1	2-4	ND	NE	NE	NE	NE	Ba,Ca,Cd,Co, Fe,Mn,Ni,Pb, Sb,V,Zn
M03-2	6-8	√*	√*	√*	√*	√*	NA
M03-3	10-12	ND	√	√	√	√	Ba,Ca,Cd,Co, Cr,Cu,Fe,Mn, Ni,Sb,V,Zn
M04-1	4-6	ND	ND	ND	NE	ND	NE
M04-2	8-10	√*	√*	√*	√*	√*	NE
M04-3	14-16	ND	NE	NE	ND	ND	NE
M05-1	12-14	ND	NE	NE	ND	ND	Mg

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-15

SITE 02- MELVILLE NORTH LANDFILL
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)	
VOLATILE ORGANICS				
Benzene	3	16	5[2]	(F)
	4	49		
Ethylbenzene	4	44	30[3]	(F)
			700[2]	(F)
Xylene	4	110	20[3]	(F)
			10,000[2]	(F)
BASE NEUTRALS				
1,4-Dichlorobenzene	4	83	75[2]	(F)
PCBs				
Aroclor-1260	4	40	0.5[2]	(F)
INORGANICS				
Aluminum	1	1080	90[3]	(P)
	2	29200		
	3	17000		
	4	15200		
	5	93200		
Beryllium	2	1.7	1[2]	(T)
	3	1.1		
	5	3.8		
Cadmium	2	14.7	5[2]	(F)
	3	10.1	10[4]	(P)
Chromium	2	62.8	100[2]	(F)
	3	54.5	50[4]	(P)
	5	121		
Iron	1	18,000	300[3]	(F)
	2	77,200		
	3	59,200		
	4	122,000		
	5	208,000		

TABLE 4-15

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)	
INORGANICS (CONT'D)				
Manganese	1	549	50[3]	(F)
	2	2080		
	3	860		
	4	4210		
	5	3660		
Nickel	2	137	100[2]	(T)
	3	126		
	5	221		
Lead	1	67.5	5[2]	(P)
	2	960		
	3	385		
	4	23.5		
	5	28.5		

(1) The most stringent Federal standard or criteria is listed as the action level.

(2) The Federal Maximum Contaminant Level (MCL).

(3) A secondary Federal Drinking Water Standard based on organoleptic data (i.e., taste and odor).

(4) The National Interim Primary Drinking Water Regulation (NIPDWR).

(5) Duplicate samples collected at this location.

(F) - Final
(P) - Proposed
(T) - Tentative

TABLE 4-16

SITE 02 - MELVILLE NORTH LANDFILL
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SD-8	NE	NE	NE	√	ND	Na
SD-9	NE	NE	NE	NE	ND	Co
SD-10	ND	NE	NE	√	ND	Ca,Cr,Cu,Ni,Zn

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding developed contaminant level.
√ - Exceeds developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-17

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
SUMMARY OF SURFACE SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SURFACE SOIL SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SS-01	ND	NE	NE	ND	NE	NE
SS-02	NE	NE	NE	NE	ND	NE
SS-03	ND	NE	NE	ND	ND	NE
SS-04	ND	NE	NE	NE	ND	Ca,Mg
SS-05	ND	NE	NE	NE	ND	NE
SS-06	ND	√	√	√	ND	Co,Fe,Mg,Mn,Na

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding developed contaminant level.
√ - Exceeds developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-18

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
SUMMARY OF TEST BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
B01-1	6-8	NE	NE	NE	√*	ND	Ca,Cu,Na,Pb
B02-1	2-4	ND	NE	NE	NE	ND	NE
B02-2	6-8	NE	NE	NE	ND	ND	Ca
B02-3	8-10	ND	NE	NE	ND	ND	Ca,Mn
B03-1	6-8	ND	NE	NE	√*	ND	Na
B03-2	8-10	NE	NE	NE	√	ND	NA
B03-3	12-14	NE	NE	NE	NE	ND	Co,Na
B04-1	4-6	ND	NE	NE	NE	ND	NE
B04-2	10-12	ND	ND	ND	ND	ND	NE
B05-1	4-6	NE	NE	NE	NE	ND	Ca,Mn,Na
B05-2	6-8	ND	NE	NE	ND	ND	Na
B06-1	4-6	√*	NE	NE	NE	ND	NA
B06-2	10-12	ND	ND	ND	ND	ND	Co,Fe,Mn,Na
B07-1	4-6	ND	√	√	√*	ND	NE
B07-2	6-8	ND	√*	√*	√	ND	NE

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganic compounds.

(7) Duplicate samples collected at this location.

TABLE 4-19

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
SUMMARY OF WELL BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M02-1	6-8	√*	√	√	√*	ND	Ca,Cd,Cu,Fe, Na,Pb,Zn
M02-2	12-14	ND	√*	√*	ND	ND	Ba,Ca,Cd,Co, Cu,Fe,Na,Pb, Zn
M03-1	6-8	NE	NE	NE	NE	ND	Fe,Se
M03-2	12-14	ND	NE	ND	ND	ND	Fe,Na
M05-1	8-10	ND	√*	√*	√	ND	Co,Se
M05-2	12-14	ND	NE	ND	ND	ND	Co,Fe,Mn

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Contaminant level of 1 ppm established for PCBs.

(6) Background levels established for inorganic compounds.

(7) Duplicate samples collected at this location.

TABLE 4-20

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)
BNAs			
Benzo(a)anthracene	2	3	0.1[2] (T)
Chrysene	2	4	0.2[2] (T)
Benzo(b)fluoranthene	2	1	0.2[2] (T)
Benzo(a)pyrene	2	2	0.2[2] (T)
INORGANICS			
Aluminum	1	1890	90[3] (T)
	2	16100	
	3	44600	
	4	18800	
	5	14500	
Beryllium	3	2.4	1[2] (T)
Cadmium	2	48.8	5[2] (F) 10[4] (P)
Iron	1	5750	300[3] (F)
	2	132000	
	3	157000	
	4	43900	
	5	41700	
Mercury	2	2.1	2[2] (F)
Manganese	1	4620	50[3] (F)
	2	1410	
	3	5020	
	4	8720	
	5	6140	
Lead	1	17	5[2] (P)
	2	4120	
	3	448	
	4	48.2	
	5	11.7	

TABLE 4-20

SITE 09 - OLD FIRE FIGHTING TRAINING AREA
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (μg/l)	ACTION LEVEL[1] (μg/l)
INORGANICS			
Antimony	2	24.5	10/5[2] (T)
Zinc	2	12400	5000[3] (F)

(1) The most stringent Federal standard or criteria is listed as the action level.

(2) The Federal Maximum Contaminant Level (MCL).

(3) A secondary Federal Drinking Water Standard based on organoleptic data (i.e., taste and odor).

(4) The National Interim Primary Drinking Water Regulation (NIPDWR).

(5) Duplicate samples collected at this location.

(F) - Final
(P) - Proposed
(T) - Tentative

TABLE 4-21

SITE 12 - TANK FARM FOUR
SUMMARY OF SURFACE SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SURFACE SOIL SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SS-42	ND	NE	NE	NE	ND	NE
SS-44	ND	NE	NE	NE	ND	NE

SURFACE SOIL SAMPLE LOCATION	LEAD[8]
SS-37	NE
SS-37D	NE
SS-38	NE
SS-38D	NE
SS-39	NE
SS-39D/ SS-50D(7)	NE/NE
SS-40	NE
SS-40D	NE
SS-41	NE
SS-41D	NE
SS-42D	NE
SS-43	NE
SS-43D	NE
SS-44D	NE

SURFACE SOIL SAMPLE LOCATION	LEAD[8]
SS-45	NE
SS-45D	NE
SS-46	NE
SS-46D	NE
SS-47	NE
SS-47D	NE
SS-48	NE
SS-48D	NE
SS-1	NE
SS-2	NE
SS-3	NE
SS-4	NE

ND - Not detected in sample.
NE - Not exceeding developed contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Action level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.
(8) Background level of 315 ppm established for lead.

TABLE 4-22

SITE 12 - TANK FARM FOUR
SUMMARY OF WELL BORING SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M01-1/M01-2[7]	2-4	ND/ND	ND/ND	ND	ND	ND	As,Co,Fe,Mn, Ni,Sb
M02-1	14-16	NE	ND	ND	ND	ND	As,Co,Fe,Sb
M03-1	16-18	NE	ND	ND	ND	ND	As,Co,Fe,Mn, Sb
M04-1	2-4	NE	NE	ND	ND	ND	Sb
M05-1	16-18	ND	ND	ND	ND	ND	Co,Fe,Ni,Sb

NA - Not analyzed for in this sample.
ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.
* - Highest concentration found of the samples from this boring.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Action level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-23

SITE 12 - TANK FARM FOUR
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)
INORGANICS			
Aluminum	1S	22300	90[3] (P)
	2	251000	
	3S	251000/39300[5]	
	3D	2320	
	5S	57900	
	6	39300	
	10	177	
	11	186	
Arsenic	2	448	50[4] (F)
	3S	284/260[5]	
	6	260	
Beryllium	2	8.5	1[2] (T)
	3S	7.5	
	5S	7.2	
Cadmium	3S	5.8	5[2] (F)
	5S	8.5	10[4] (P)
Chromium	2	391	100[2] (F)
	3S	372/55.8[5]	50[4] (P)
	5S	213	
Iron	1S	57800	300[3] (F)
	1D	9250	
	2	71600	
	3S	64300/96200[5]	
	5S	87900	
	5D	19000	
	10	7530	
	11	3450	
Manganese	1S	1100	50[3] (P)
	1D	1570	
	2	6680	
	3S	9740/1180[5]	
	3D	2260	
	5S	11500	
	5D	1200	
	10	1640	
	11	565	

TABLE 4-23

SITE 12 - TANK FARM FOUR
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (μg/l)	ACTION LEVEL[1] (μg/l)
INORGANICS			
Nickel	2	749	100[2] (T)
	3S	590/81.5[5]	
	5S	447	
Lead	1S	22	5[2] (P)
	2	55	
	3S	20/156[5]	
	5S	136	
	10	27.2	

(1) The most stringent Federal standard or criteria is listed as the action level.

(2) The Federal Maximum Contaminant Level (MCL).

(3) A secondary Federal Drinking Water Standard based on organoleptic data (i.e., taste and odor).

(4) The National Interim Primary Drinking Water Regulation (NIPDWR).

(5) Duplicate samples collected at this location.

(F) - Final
(P) - Proposed
(T) - Tentative

TABLE 4–24

SITE 12 – TANK FARM 4
SUMMARY OF SURFACE WATER SAMPLE INORGANIC ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

ANALYTE	SAMPLE NUMBER	CONCENTRATION (PPB)	ACTION LEVEL (1) ACUTE (PPB)	ACTION LEVEL (1) CHRONIC (PPB)
CADMIUM	SW–4	3.3	3.92 (2)	1.13 (2)
LEAD	SW–1	3.6	81.6 (2)	3.2 (2)
ZINC	SW–1	325	117 (2)	106 (2)

(1) – U.S. EPA Ambient Water Quality Criteria for the protection of aquatic life.
(2) – Represents concentrations for a $CaCO_3$ hardness of 100 mg/l.

TABLE 4-25

SITE 12 - TANK FARM FOUR
SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SEDIMENT SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs[1]	TOTAL BNAs[2]	TOTAL PAHs[3]	TOTAL CaPAHs[4]	TOTAL PCBs[5]	INORGANICS[6]
SD1-1	0-1	ND	ND	ND	ND	ND	As,Fe
SD1-2	1-2	ND	NE	ND	ND	ND	Fe
SD2-1/SD7-1[7]	0-1	ND/ND	ND/NE	ND	ND	ND	Co,Fe
SD2-2	1-2	ND	ND	ND	ND	ND	Co
SD3-1	0-1	ND	ND	ND	ND	ND	Co
SD3-2	1-2	NE	ND	ND	ND	ND	NE
SD4-1	0-1	ND	ND	ND	ND	ND	NE
SD4-2	1-2	ND	NE	ND	ND	ND	NE
SD5-1	0-1	ND	ND	ND	ND	ND	Co
SD5-2	1-2	ND	ND	ND	ND	ND	As,Co
SD6-1	0-1	ND	ND	ND	ND	ND	Fe
SD6-2	1-2	ND	ND	ND	ND	ND	Fe

ND - Not detected in sample.
NE - Not exceeding established contaminant level.
√ - Exceeds established contaminant level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Action level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

(7) Duplicate samples collected at this location.

TABLE 4-26

SITE 13 - TANK FARM FIVE
SUMMARY OF SURFACE SOIL SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

SURFACE SOIL SAMPLE LOCATION	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
SS-56	NE	NE	NE	NE	ND	Co,Mg
SS-57	NE	NE	NE	NE	ND	Mg

SURFACE SOIL SAMPLE LOCATION	LEAD[8]
SS-1	√
SS-2/SS-5[7]	NE
SS-3	NE
SS-4	NE
SS-49	NE
SS-49D	NE
SS-50/SS-60[7]	NE/NE
SS-50D	NE
SS-51	NE
SS-51D	NE
SS-52	NE
SS-52D	NE

SURFACE SOIL SAMPLE LOCATION	LEAD[8]
SS-53/SS-61[7]	NE/NE
SS-53D	NE
SS-54	NE
SS-54D	NE
SS-55	NE
SS-55D	NE
SS-56D	NE
SS-57D	NE
SS-58	NE
SS-58D	NE
SS-59	NE
SS-59D	NE

ND - Not detected in sample.
NE - Not exceeding established contaminant or background level.
√ - Exceeds developed action level.

(1) Contaminant level of 1 ppm established for total volatile organics.
(2) Contaminant level of 10 ppm established for total base neutral and acid extractable compounds.
(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.
(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.
(5) Action level of 1 ppm established for PCBs.
(6) Background levels established for inorganics.
(7) Duplicate samples collected at this location.
(8) Background level of 315 ppm established for lead.

TABLE 4-27

SITE 13 - TANK FARM FIVE
SUMMARY OF MONITORING WELL BORING SAMPLE ANALYTICAL RESULTS
EXCEEDING ESTABLISHED CONTAMINANT LEVELS

BORING SAMPLE NUMBER	SAMPLE INTERVAL (FT)	TOTAL VOCs(1)	TOTAL BNAs(2)	TOTAL PAHs(3)	TOTAL CaPAHs(4)	TOTAL PCBs(5)	INORGANICS(6)
M01-1	12-14	ND	NE	ND	ND	ND	Co,Mn
M02-1	10-12	NE	ND	ND	ND	ND	As,Co,Sb
M03-1	6-8	ND	ND	ND	ND	ND	As,Co
M04-1	16-18	ND	ND	ND	ND	ND	As,Fe,Mg,Sb
M05-1	12-14	ND	NE	ND	ND	ND	Ag,Ca,Co,Fe, Mn,Ni
M06-1	0-2	ND	NE	ND	ND	ND	NE

ND - Not detected in sample.
NE - Not exceeding established contaminant or background level.

(1) Contaminant level of 1 ppm established for total volatile organics.

(2) Contaminant level of 10 ppm established for total base/neutral and acid extractable compounds.

(3) Contaminant level of 10 ppm established for total polynuclear aromatic hydrocarbons.

(4) Contaminant level of 1 ppm established for total carcinogenic polynuclear aromatic hydrocarbons.

(5) Action level of 1 ppm established for PCBs.

(6) Background levels established for inorganics.

TABLE 4-28

SITE 13 - TANK FARM FIVE
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (µg/l)	ACTION LEVEL[1] (µg/l)	
VOLATILE ORGANICS				
1,2-Dichloroethane	53W	23	5[2]	(F)
1,2-Dichloroethene	53W	630	70[2*]	(F)
Trichloroethene	53W	38	5[2]	(F)
Tetrachloroethene	53W	7	5[2]	(F)
Ethylbenzene	53W	47	30[3]	(F)
			700[2]	(F)
Xylene	53W	100	20[3]	(F)
			10,000[2]	(F)
INORGANICS				
Aluminum	1	9480	90[3]	(P)
	2	161000		
	3	107000		
	5	190000/158000[5]		
	6	88000		
	53W	3900		
	56W	39800		
Arsenic	2	154	50[4]	(T)
	3	73.7		
	5	265/204[5]		
Beyllium	2	10.2	1[2]	(T)
	3	7.2		
	5	9.4/7.9[5]		
	6	5.5		
	56W	2.4		
Cadmium	2	5[6]	5[2]	(F)
			10[4]	(P)
Chromium	2	271	100[2]	(F)
	3	183	50[4]	(P)
	5	384/312[5]		
	6	116		

TABLE 4-28

SITE 13 - TANK FARM FIVE
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

COMPOUND	WELL NUMBER	CONCENTRATION (g/l)	ACTION LEVEL[1] (g/l)
INORGANICS (CONT'D)			
Copper	1	52.4	1000[3] (P)
	2	182	1300[2] (P)
	3	67.3	
	5	304/254[5]	
	6	297	
	56W	92.6	
Iron	1	101000	300[3] (F)
	2	679800	
	3	452000	
	5	787100/471000[5]	
	6	288000	
	53W	34700	
	56W	144000	
Manganese	1	1240	50[3] (P)
	2	8440	
	3	10200	
	5	5430/4470[5]	
	6	7650	
	53W	4720	
	56W	7600	
Nickel	2	474	100[2] (T)
	3	10200	
	5	530/447[5]	
	6	341	
	56W	210	
Lead	1	66.4	5[2] (P)
	2	630	
	3	170	
	5	530/447[5]	
	6	108	
	53W	13.4	
	53E	115	
	56W	44.5	
	56E	80.5	
	86-1	21.6	
	86-4	20.2	

TABLE 4-28

SITE 13 - TANK FARM FIVE
SUMMARY OF GROUND WATER ANALYSES RESULTS
EXCEEDING DEVELOPED ACTION LEVELS

---

(1) The most stringent Federal standard or criteria is listed as the action level.

(2) The Federal Maximum Contaminant Level (MCL).

(3) A secondary Federal Drinking Water Standard based on organoleptic data (i.e., taste and odor).

(4) The National Interim Primary Drinking Water Regulation (NIPDWR).

(5) Duplicate samples collected at this location.

(6) Detected concentration is equal to the action level.

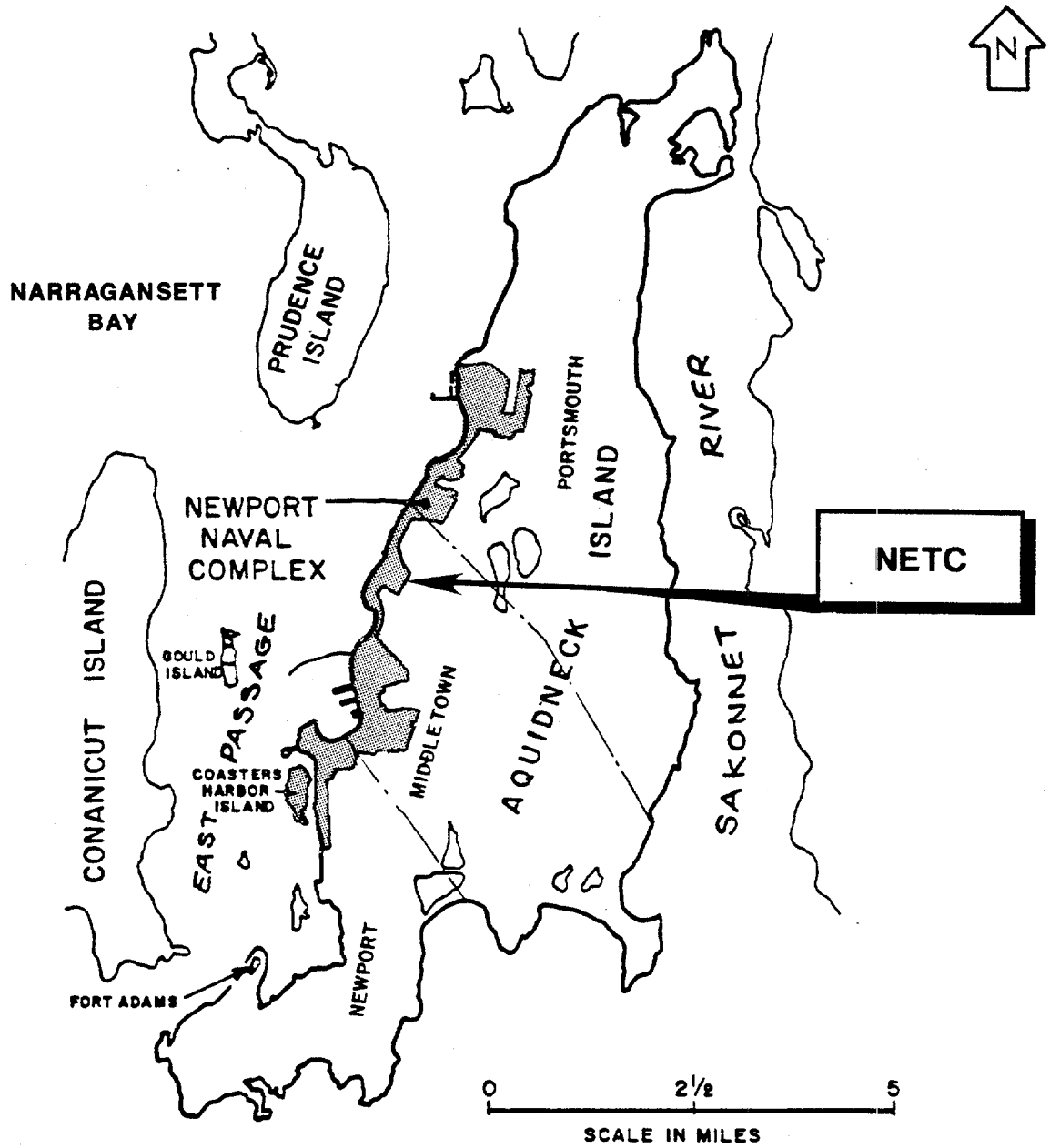
(F) - Final
(P) - Proposed
(T) - Tentative

* The action level for 1,2-Dichloroethene is based on cis-1,2-Dichloroethene and not 1,2-Dichloroethene (total).

SECTION 1

FIGURES

TRC



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NAVAL EDUCATION TRAINING CENTER

NEWPORT RHODE ISLAND

FIGURE 1-1.

NAVAL EDUCATION AND TRAINING CENTER VICINITY MAP

SOURCE: INITIAL ASSESSMENT STUDY (ENVIRODYNE, 1983)

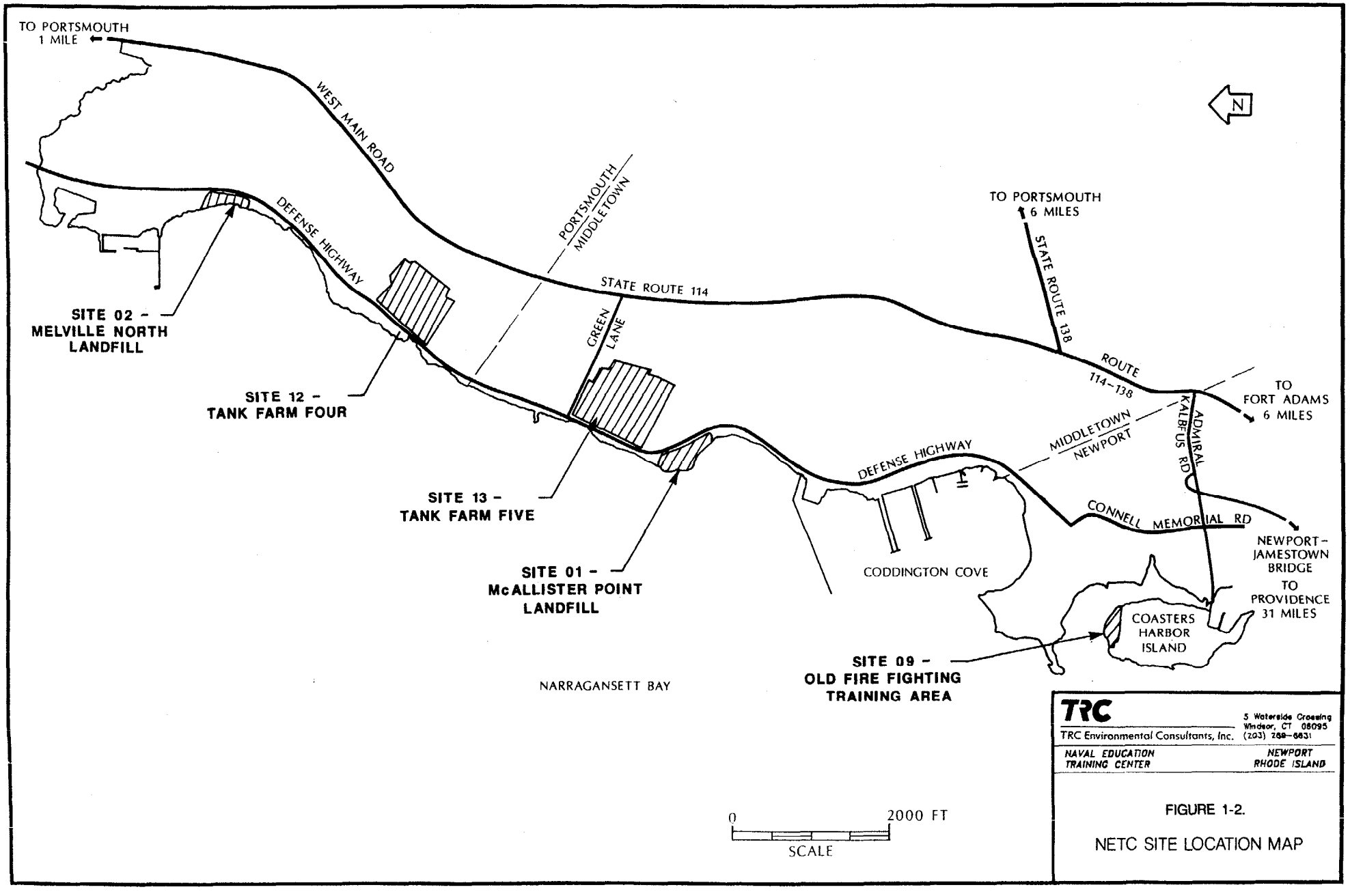

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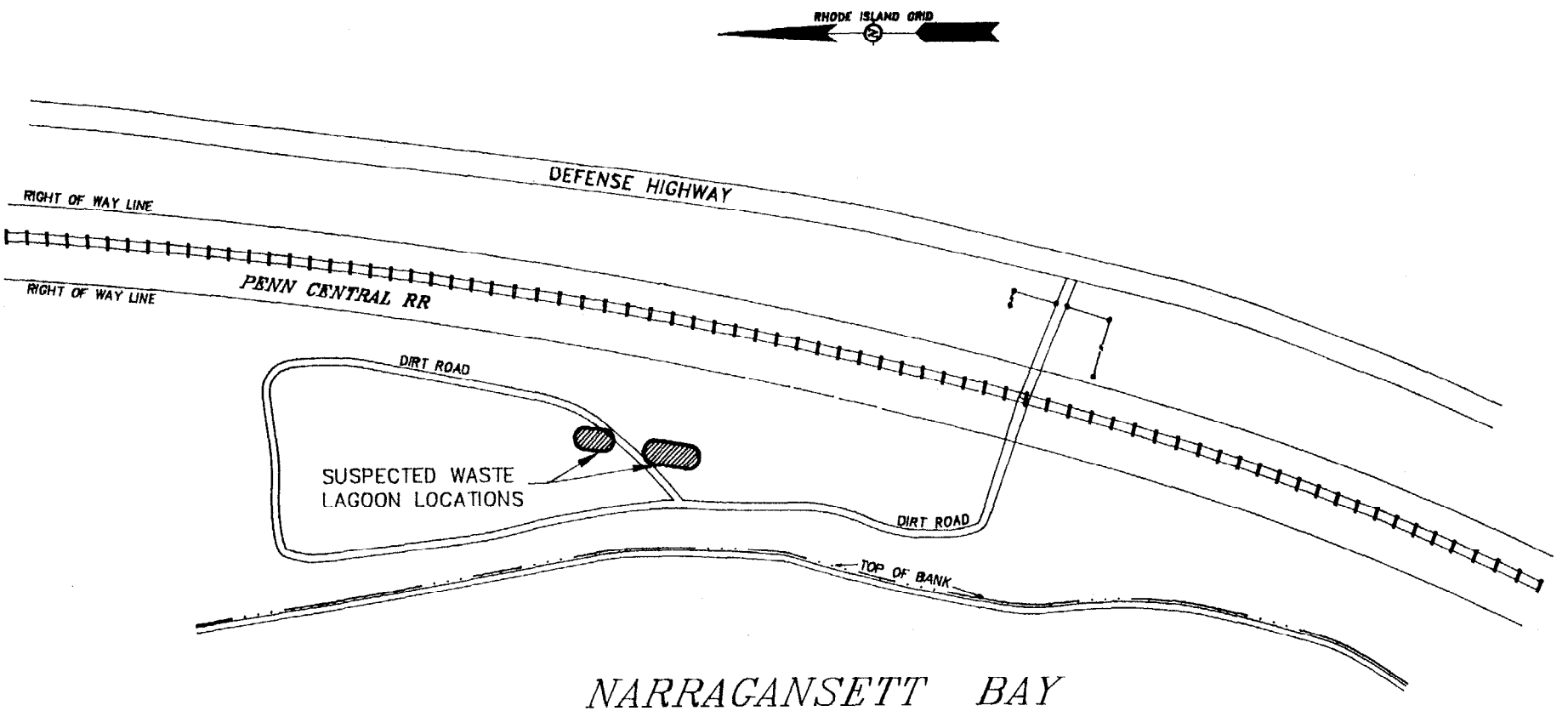
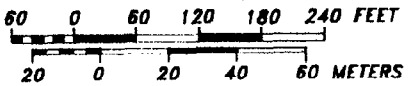
FIGURE 1-2.

NETC SITE LOCATION MAP





NOTE: LAGOON LOCATIONS BASED ON UNDATED AERIAL PHOTO (ESTIMATED 1970–1975).

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SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 1-3.

SUSPECTED WASTE LAGOON LOCATIONS

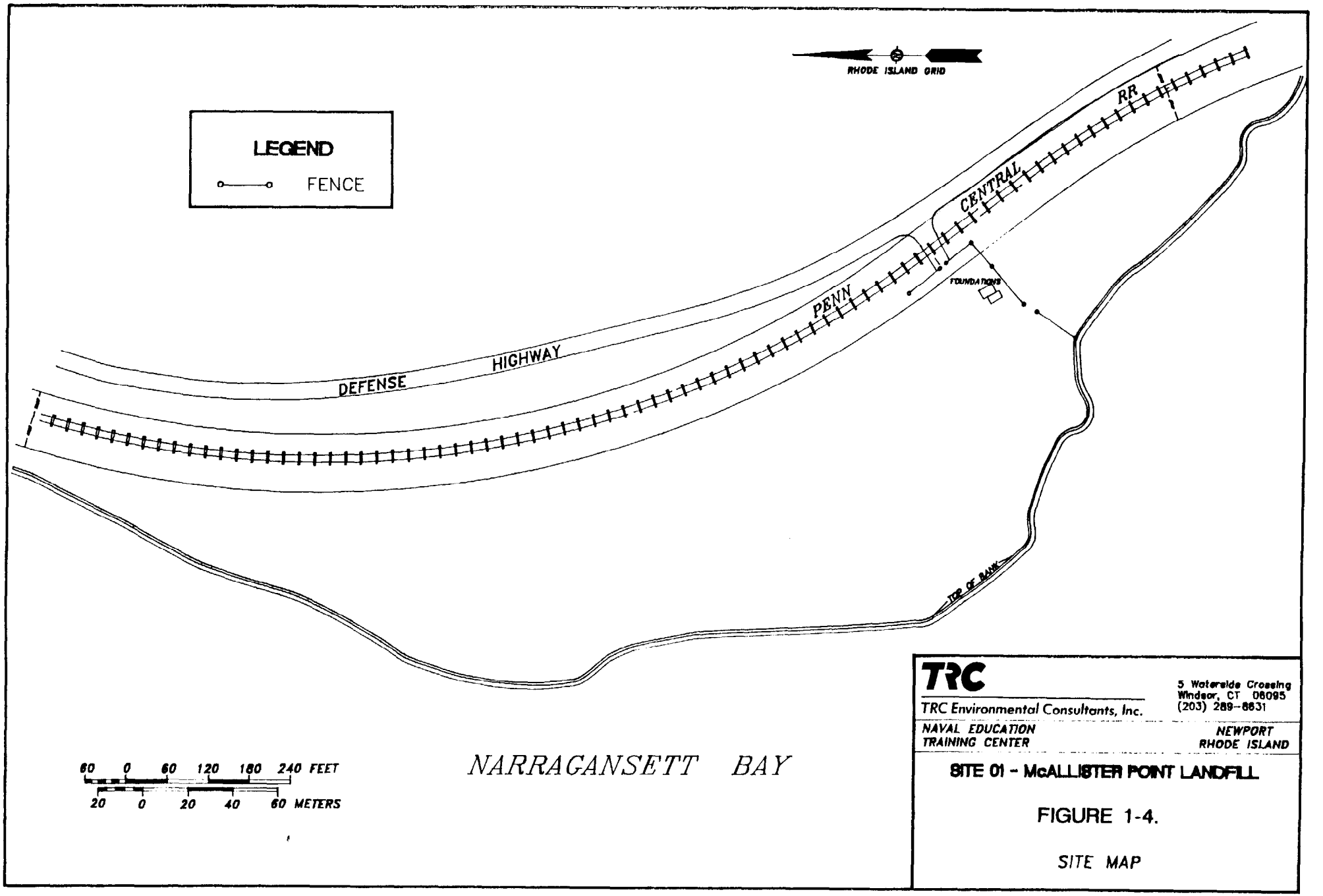
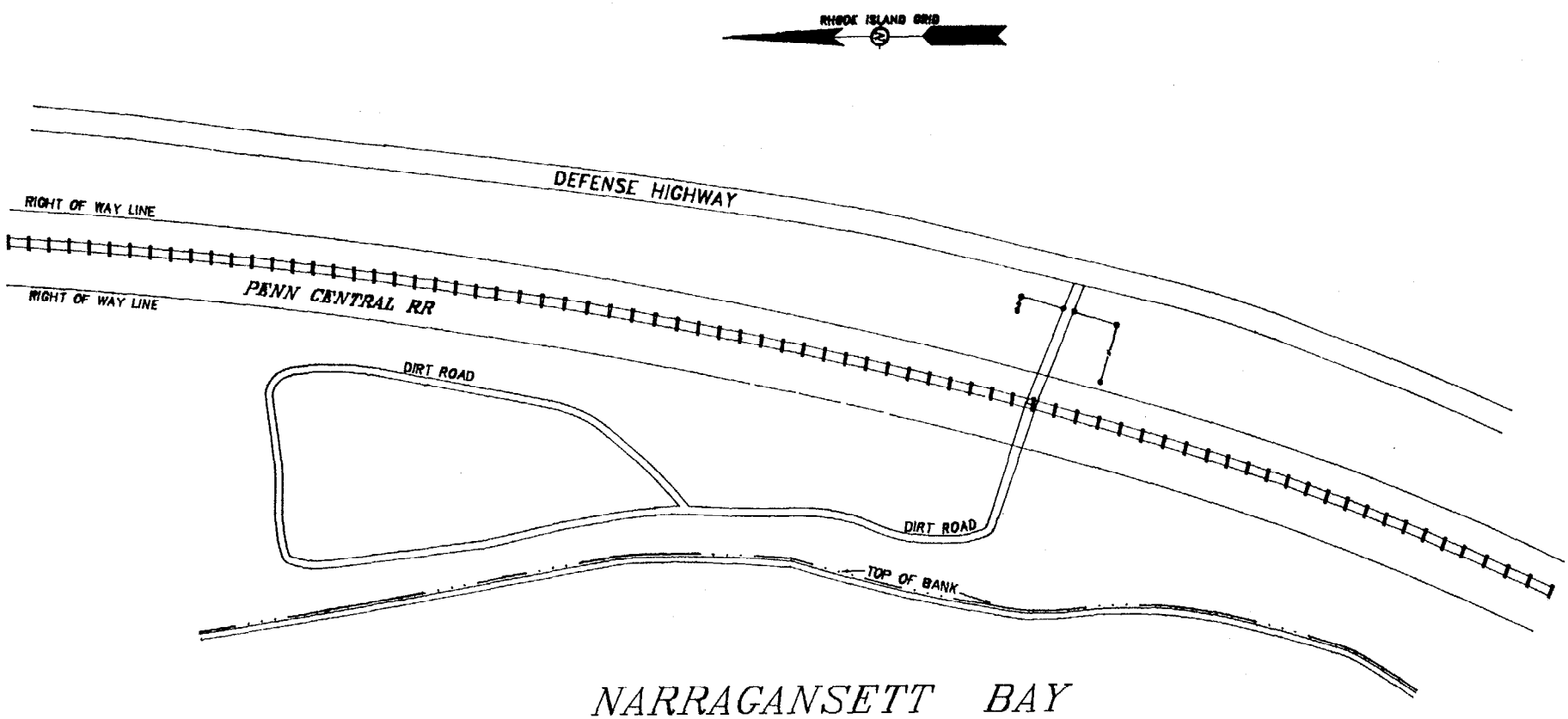
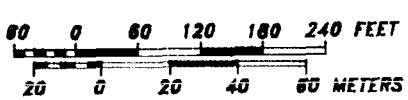


FIGURE 1-4.

SITE MAP





LEGEND

FENCE

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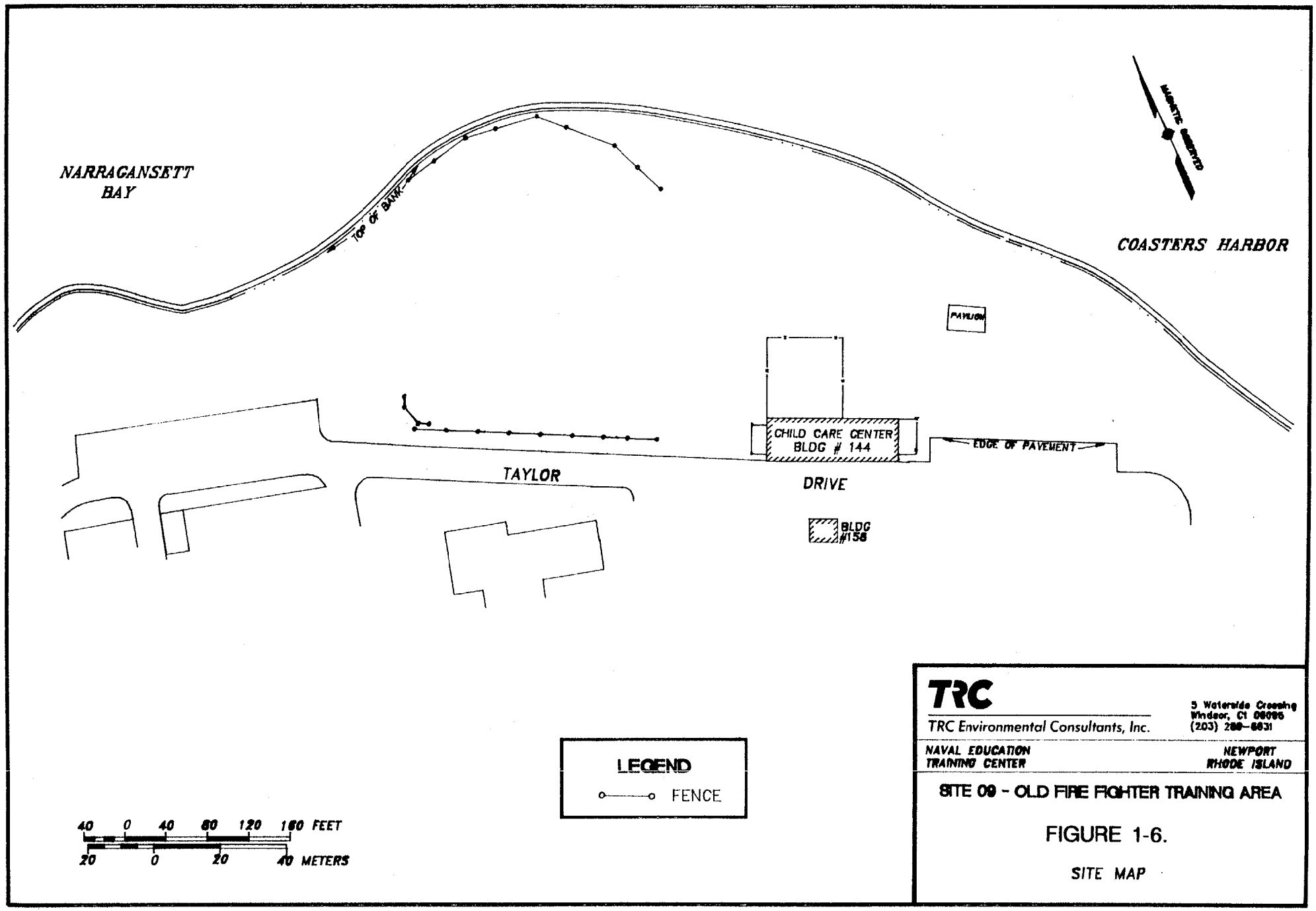
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 1-5.

SITE MAP


NARRAGANSETT BAY
TOP OF BANK
COASTERS HARBOR
PAVILION
CHILD CARE CENTER
BLDG # 144
EDGE OF PAVEMENT
TAYLOR
DRIVE
BLDG #158
LEGEND
FENCE
40 0 40 80 120 160 FEET
20 0 20 40 METERS
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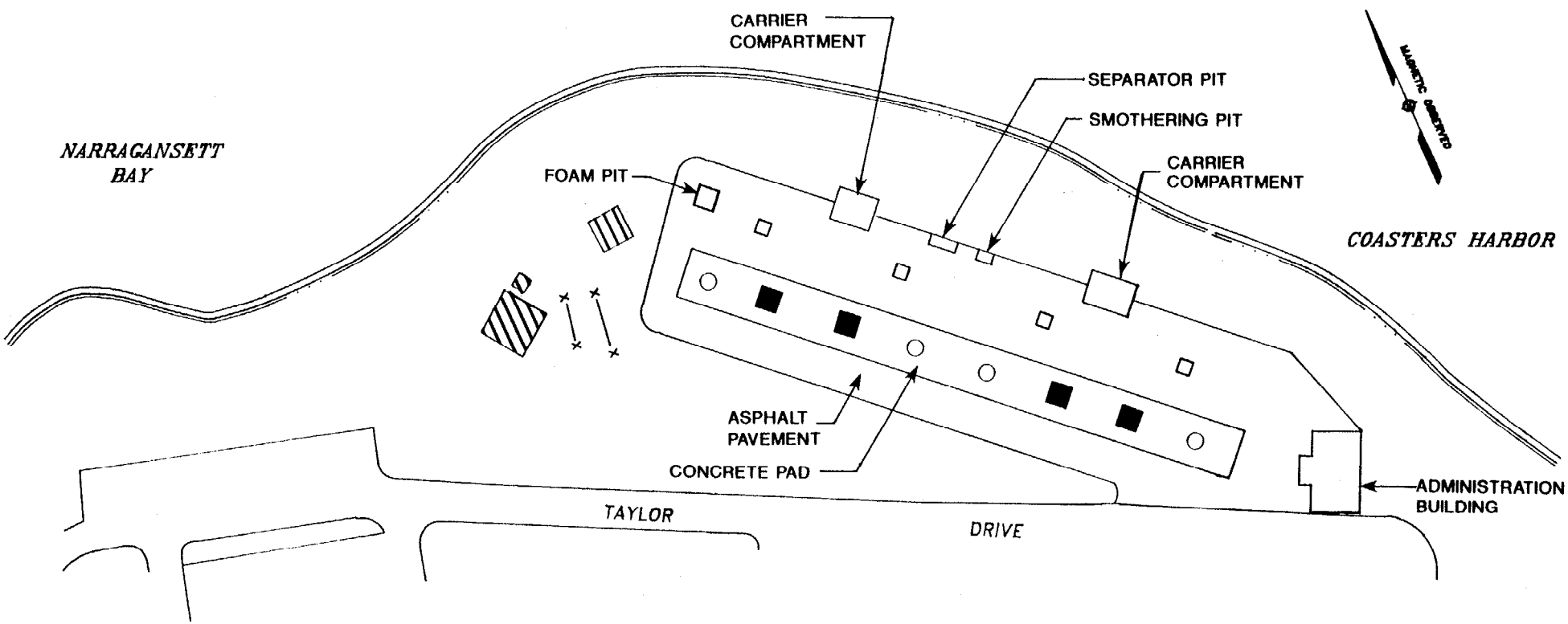
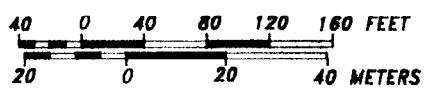
NAVAL EDUCATION TRAINING CENTER
NEWPORT RHODE ISLAND
SITE 09 - OLD FIRE FIGHTER TRAINING AREA
FIGURE 1-6.
SITE MAP





SOURCE: FIRE FIGHTERS SCHOOL LOCATION PLAN MAP, PUBLIC WORKS DRAWING NO. 7146-78 (U.S. NAVY, 1943)

LEGEND

- OIL TANK
- CHRISTMAS TREES
- SUCTION PUMP
- WOOD STRUCTURE
- OBSTACLE FENCE

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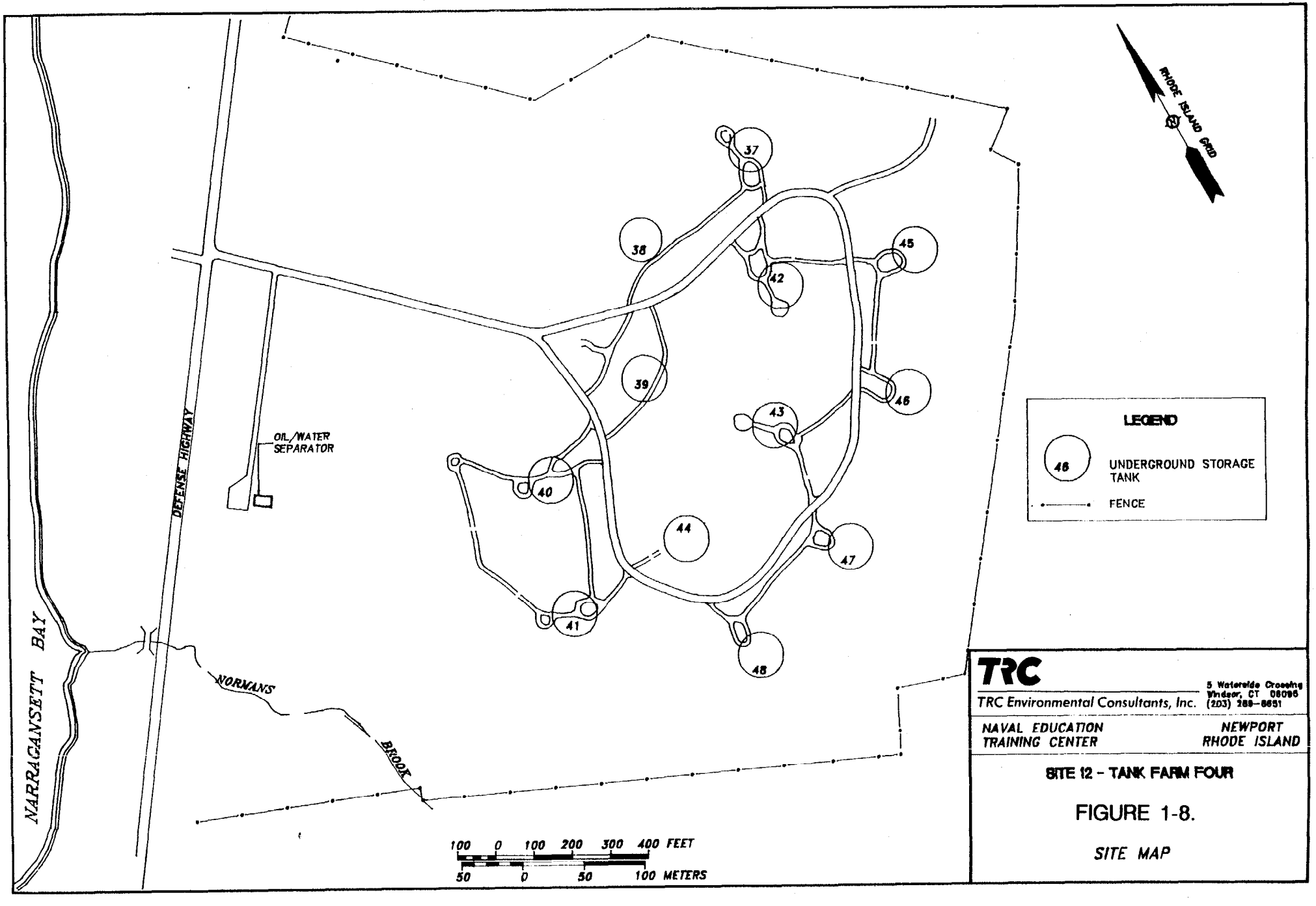
SITE 09 - OLD FIRE FIGHTING TRAINING AREA

FIGURE 1-7.

1943 SITE DETAILS MAP


RHODE ISLAND GRID
LEGEND
UNDERGROUND STORAGE TANK
FENCE
37
38
39
40
41
42
43
44
45
46
47
48
OIL/WATER SEPARATOR
DEFENSE HIGHWAY
NARRAGANSETT BAY
NORMANS BROOK
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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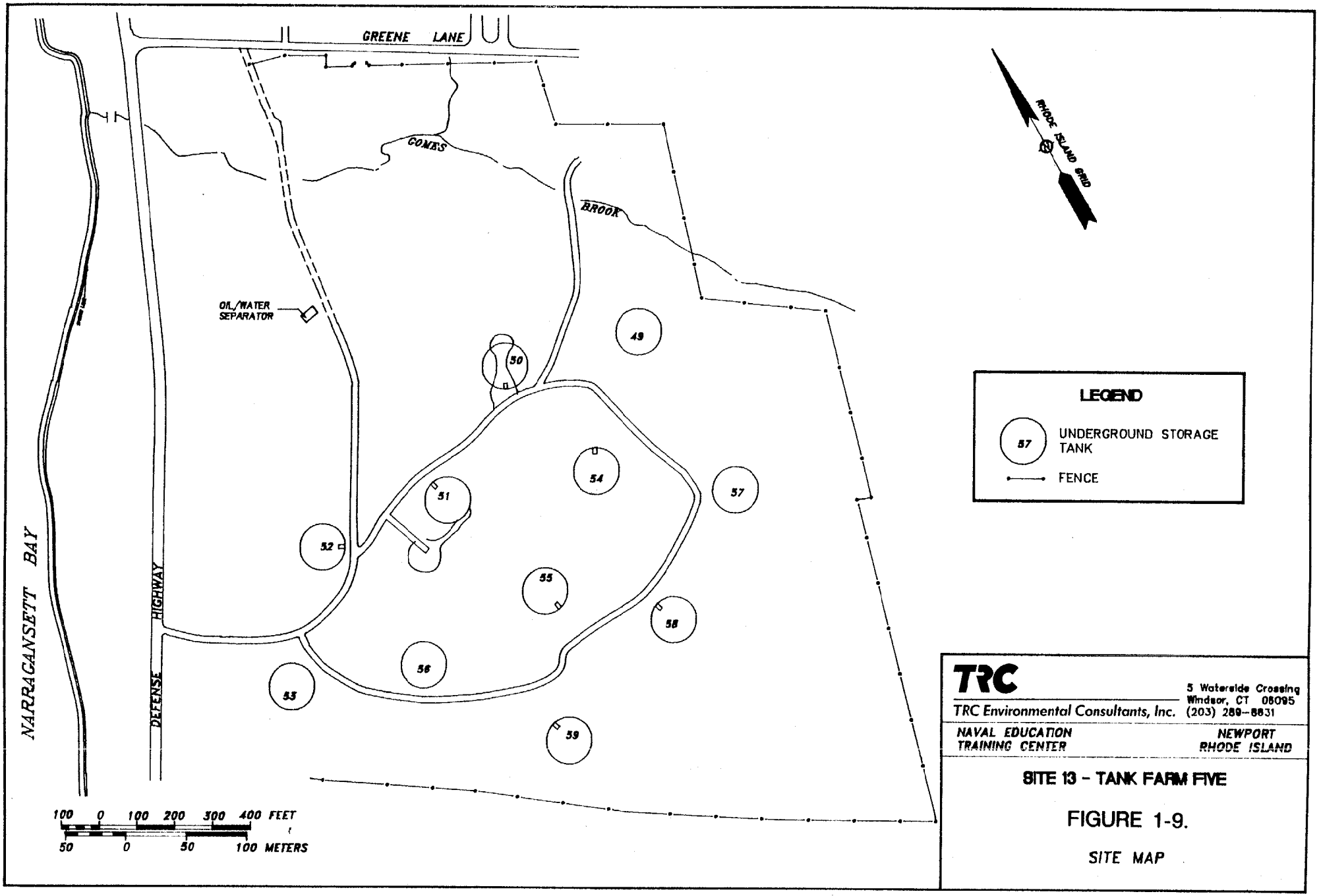
SITE 12 - TANK FARM FOUR
FIGURE 1-8.
SITE MAP


GREENE LANE
COMBS
BROOK
OIL/WATER SEPARATOR
NARRAGANSETT BAY
DEFENSE HIGHWAY
RHODE ISLAND GRID
49
50
51
52
53
54
55
56
57
58
59
LEGEND
57 UNDERGROUND STORAGE TANK
FENCE
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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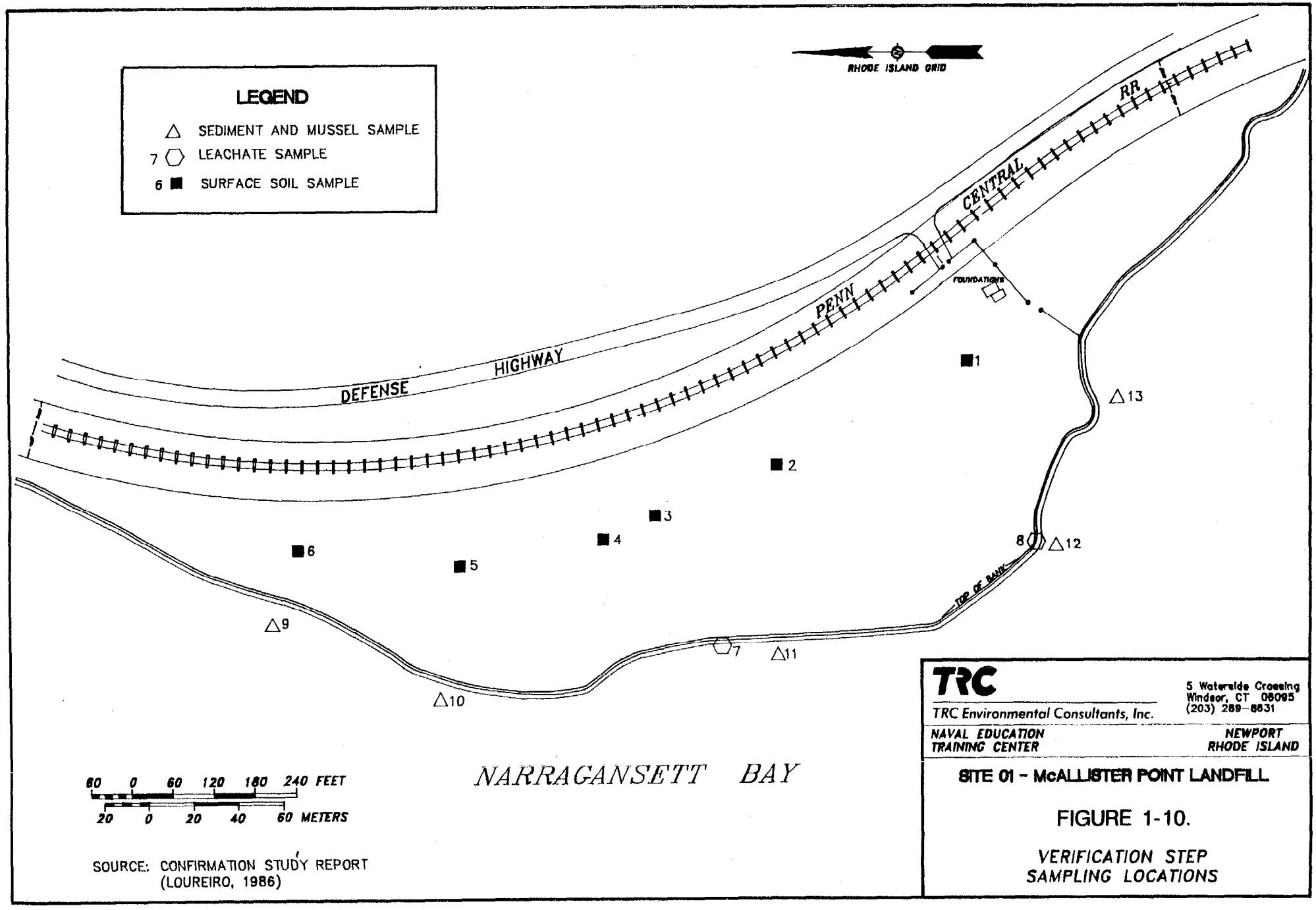
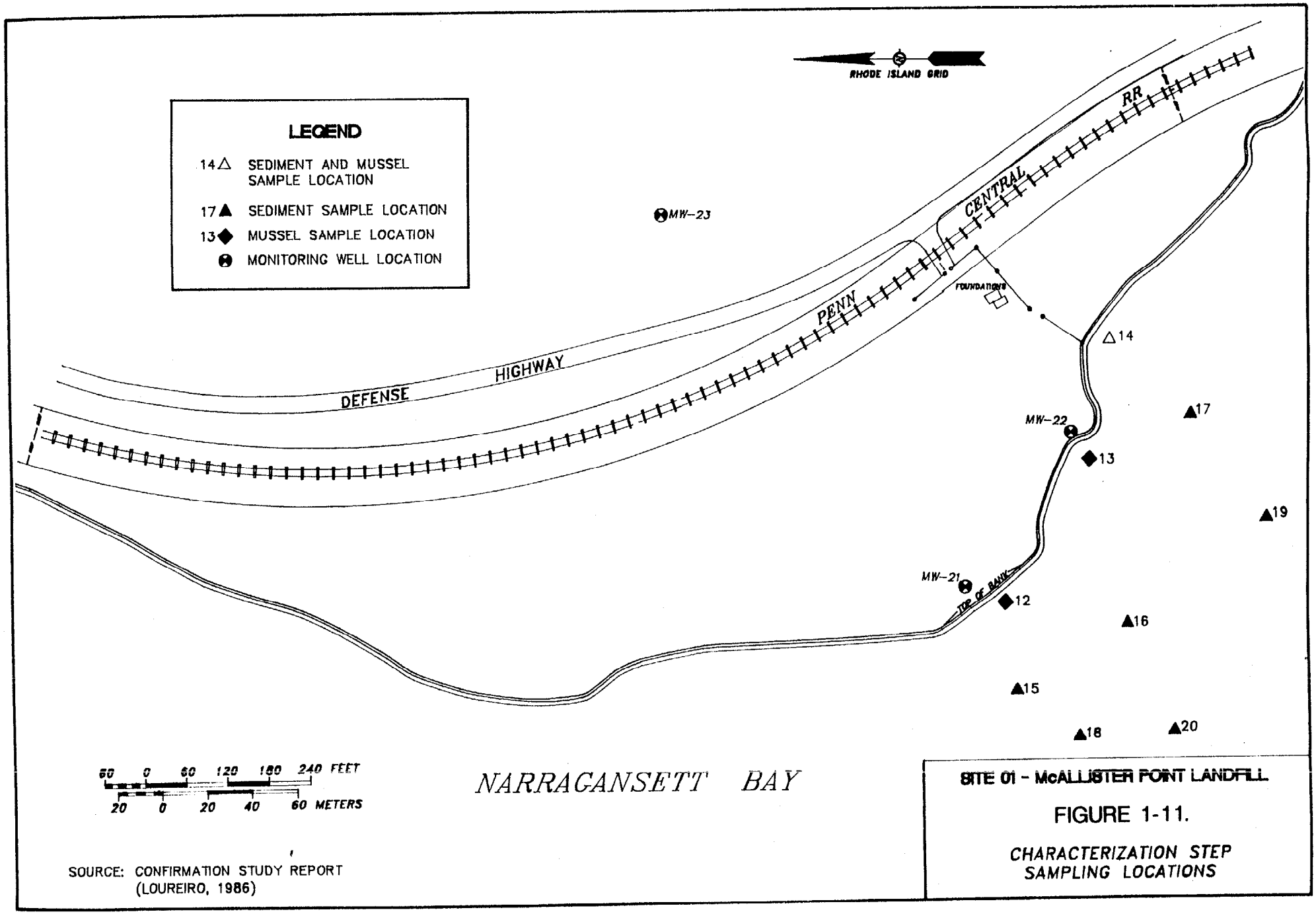
NEWPORT RHODE ISLAND
SITE 13 - TANK FARM FIVE
FIGURE 1-9.
SITE MAP



SOURCE: CONFIRMATION STUDY REPORT (LOUREIRO, 1986)

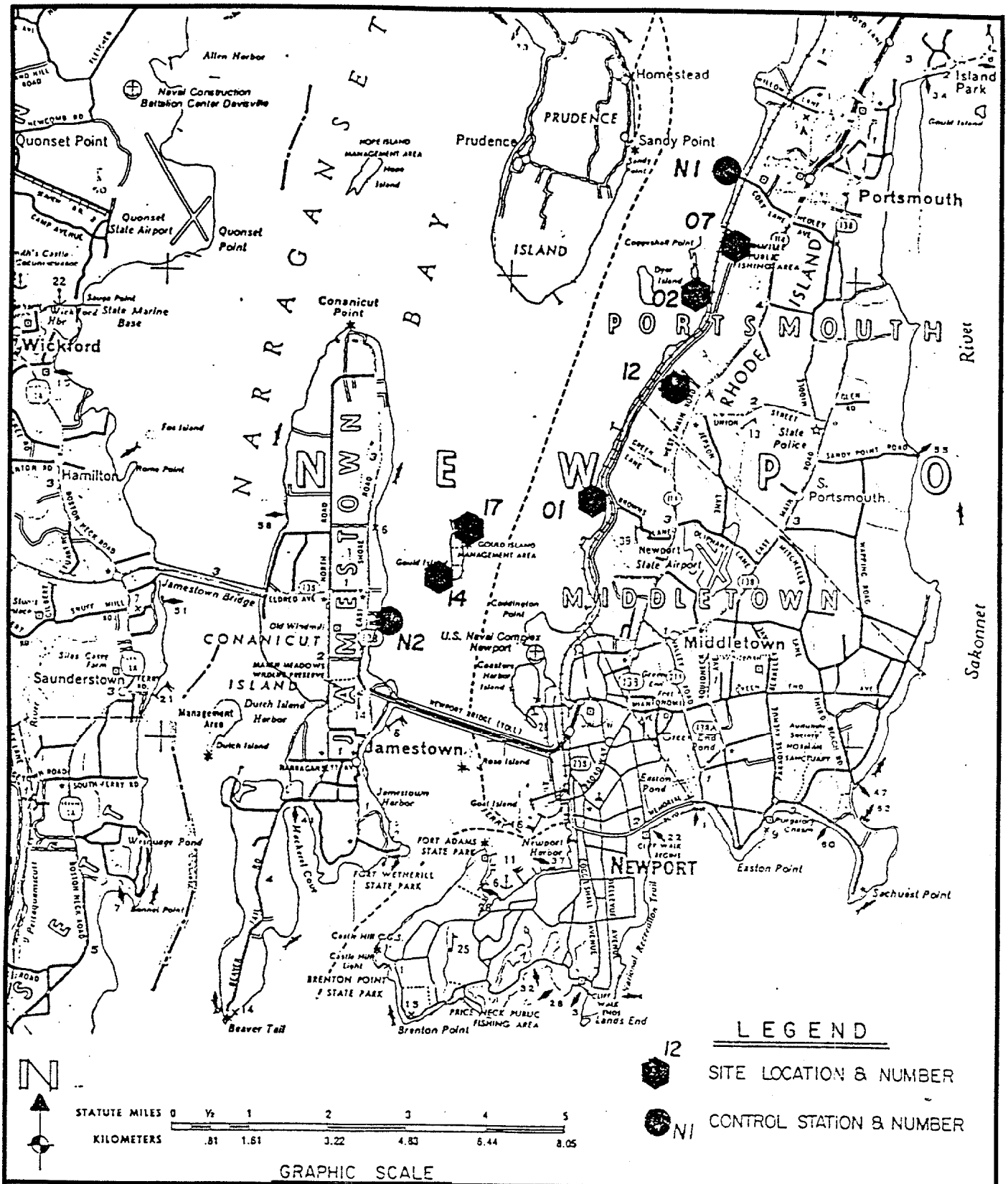


SOURCE: CONFIRMATION STUDY REPORT (LOUREIRO, 1986)

SITE 01 - McALLISTER POINT LANDFILL

FIGURE 1-11.

CHARACTERIZATION STEP SAMPLING LOCATIONS



SOURCE: CONFIRMATION STUDY REPORT (LOUREIRO, 1986)

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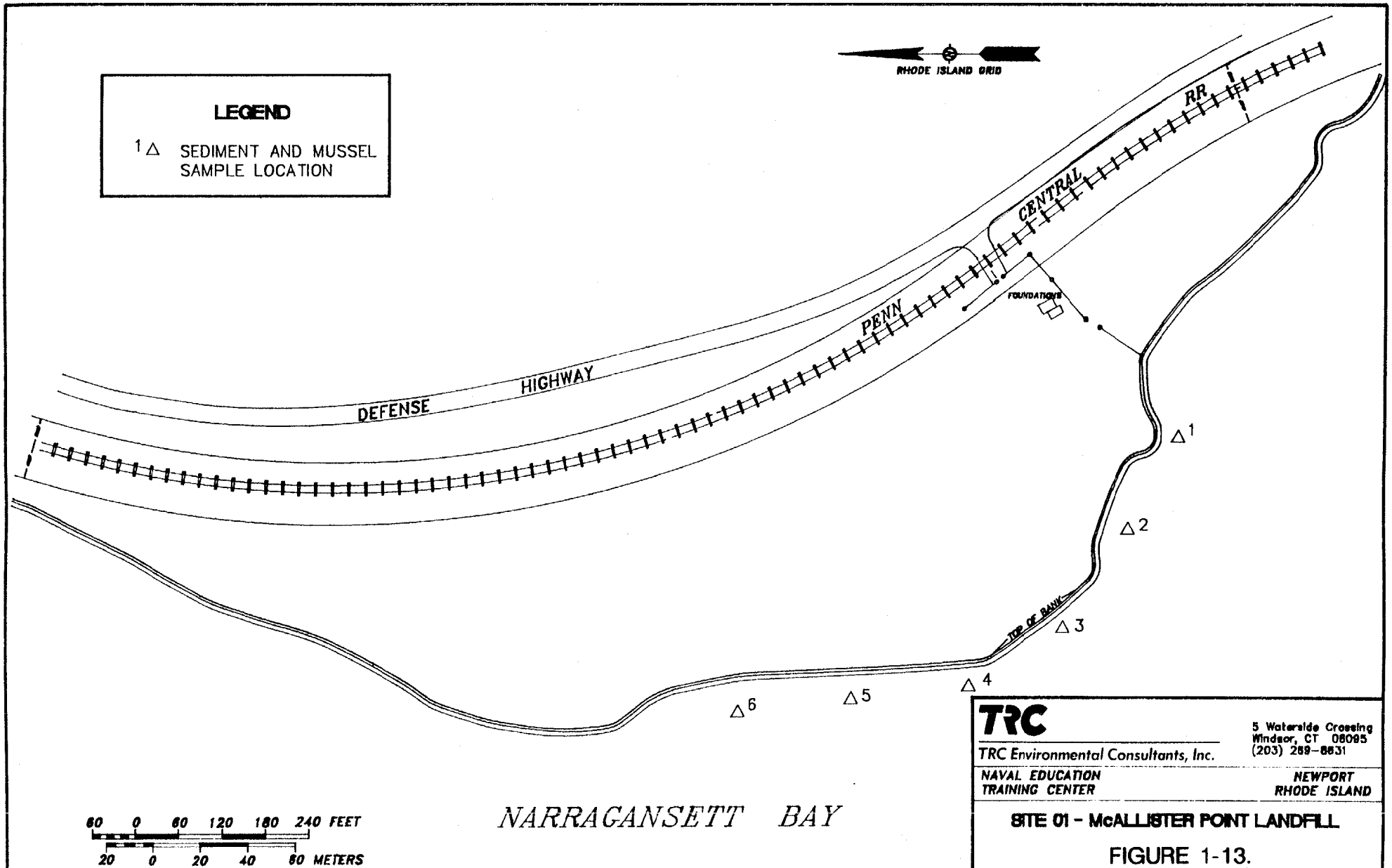
FIGURE 1-12.

CONFIRMATION STUDY CONTROL AND BACKGROUND SAMPLE LOCATIONS



SOURCE: REPORT ON GOULD ISLAND, McALLISTER POINT, AND ALLEN HARBOR SEDIMENT AND MUSSEL SAMPLING (U.S. ACE, 1988).

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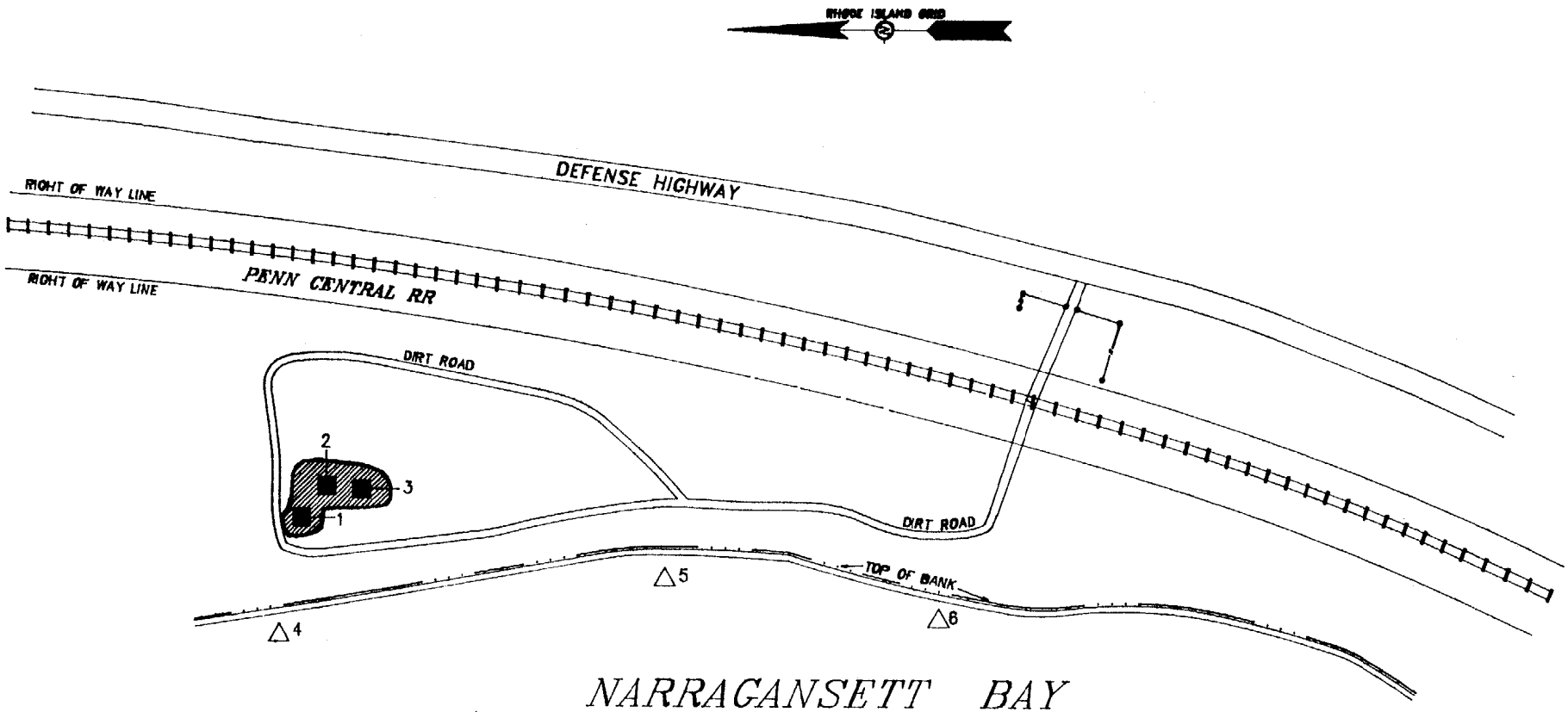
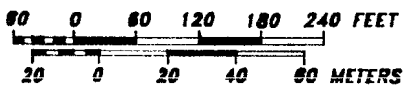
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 1-13.

ARMY CORPS OF ENGINEERS SEDIMENT AND MUSSEL SAMPLING LOCATIONS





SOURCE: CONFIRMATION STUDY REPORT (LOUREIRO, 1986).

LEGEND

4△ SEDIMENT AND MUSSEL SAMPLE LOCATION

3 ■ SOIL SAMPLE LOCATION

▨ OILY DEPOSITS

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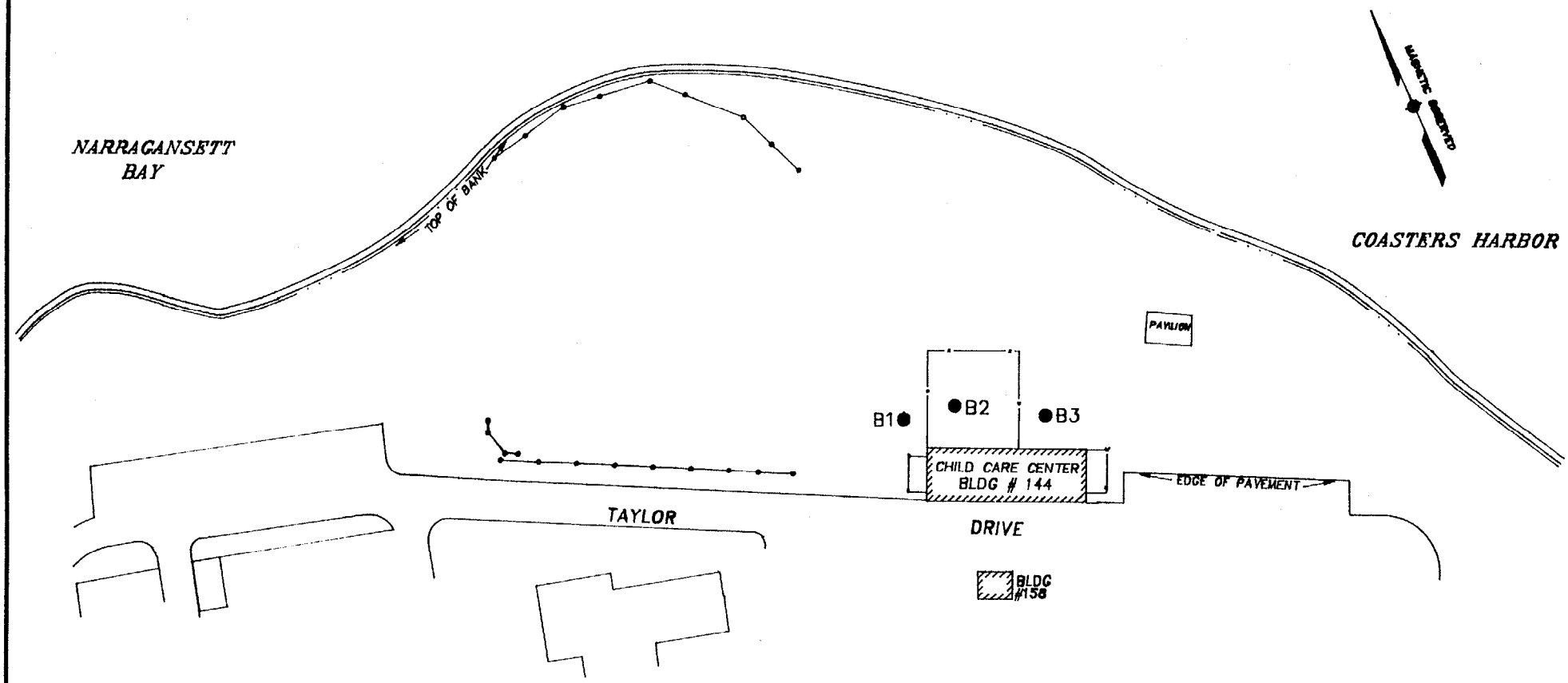
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 1-14.

VERIFICATION STEP SAMPLING LOCATIONS



40 0 40 80 120 160 FEET

20 0 20 40 METERS

LEGEND

B1● GEOTECHNICAL BORING

SOURCE: DESIGN DEVELOPMENT FINAL SUBMISSION DESIGN ANALYSIS REPORT, EXPANSION OF CHILD CARE CENTER (SEA, 1987)

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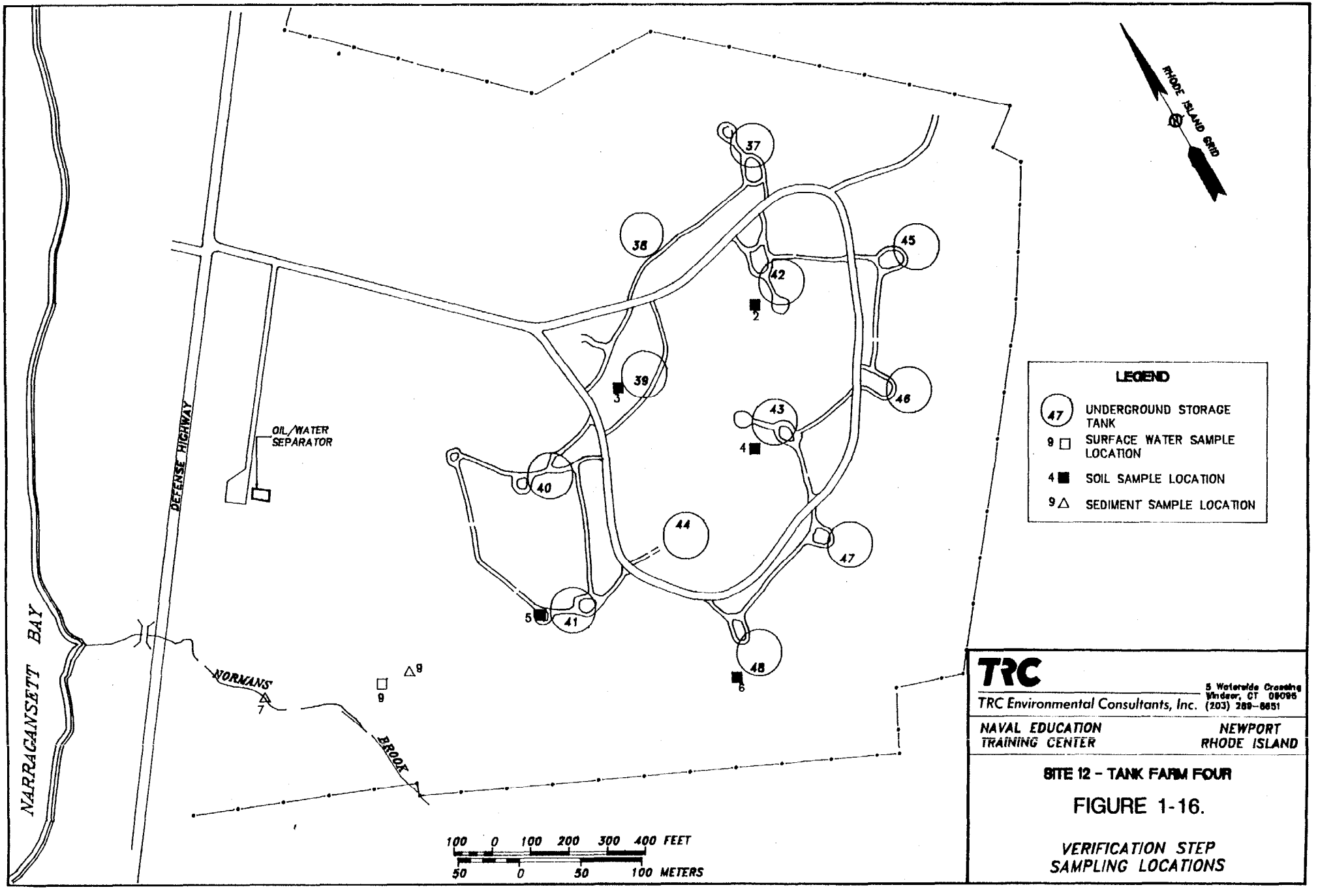
SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 1-15.

GEOTECHNICAL BORING LOCATION MAP


RHODE ISLAND GRID
LEGEND
47 UNDERGROUND STORAGE TANK
9 SURFACE WATER SAMPLE LOCATION
4 SOIL SAMPLE LOCATION
9 SEDIMENT SAMPLE LOCATION
OIL/WATER SEPARATOR
DEFENSE HIGHWAY
NARRAGANSETT BAY
NORMANS BROOK
37
38
39
40
41
42
43
44
45
46
47
48
2
3
4
5
6
7
9
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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SITE 12 - TANK FARM FOUR
FIGURE 1-16.
VERIFICATION STEP SAMPLING LOCATIONS

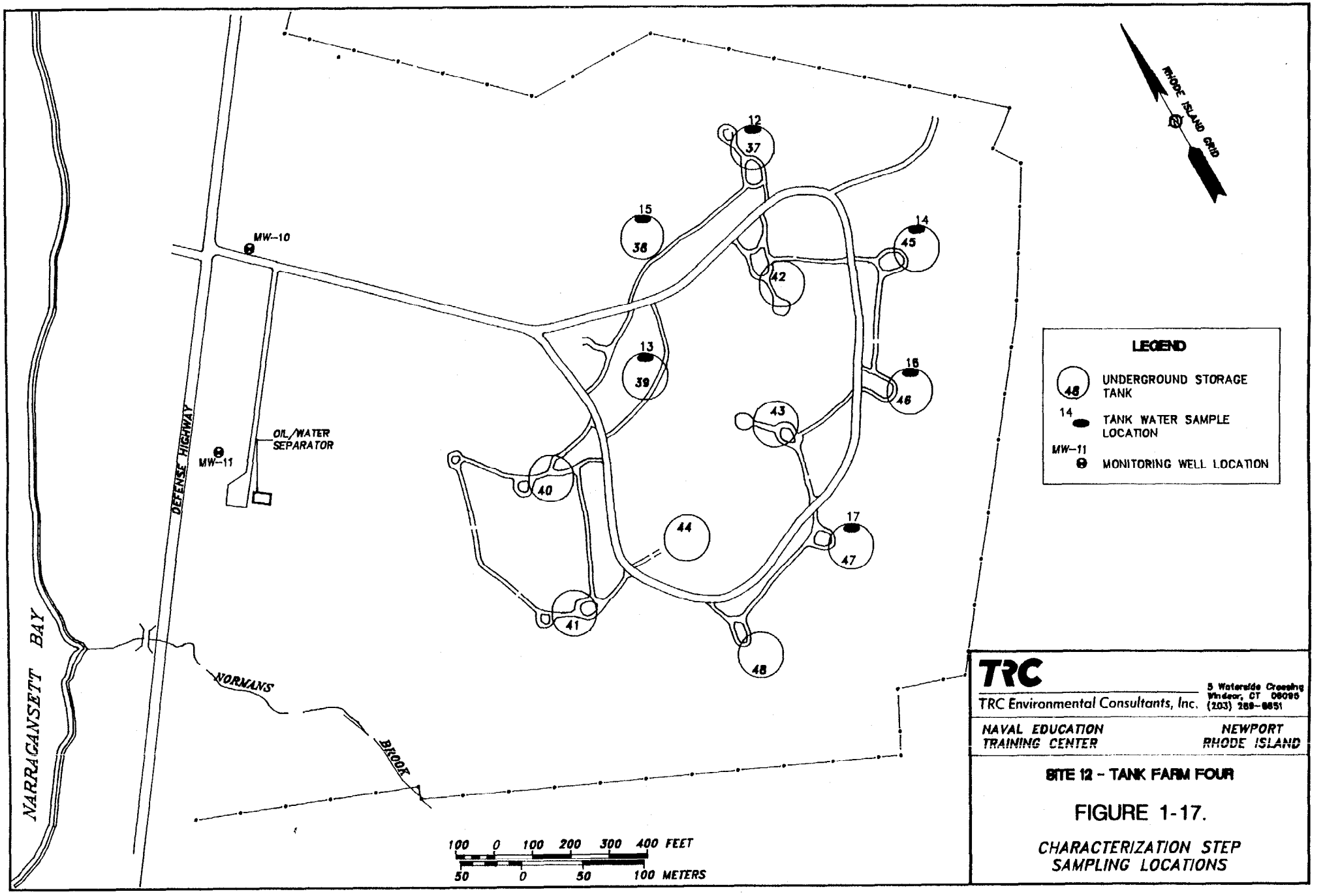
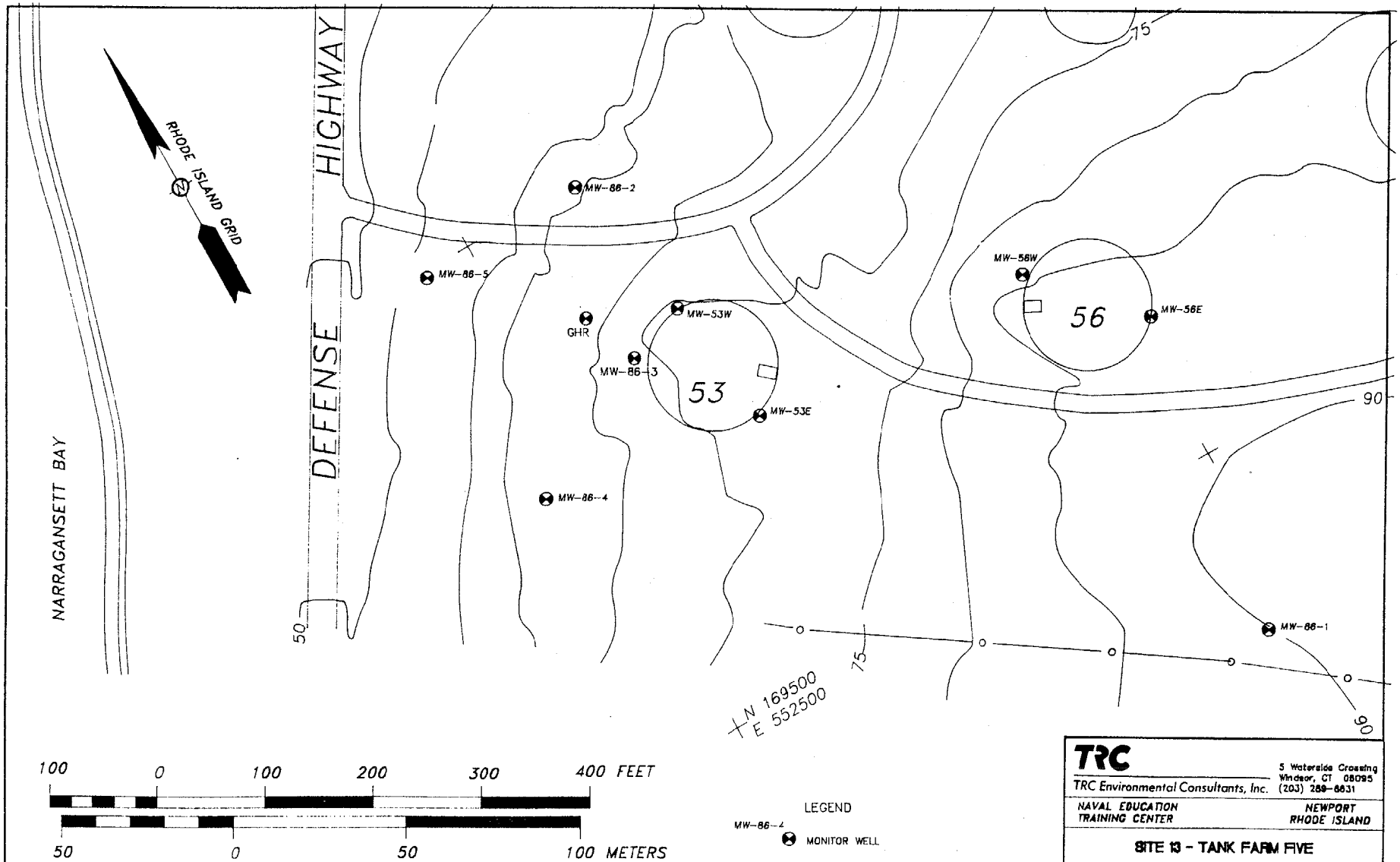


FIGURE 1-17.

CHARACTERIZATION STEP SAMPLING LOCATIONS



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SITE 13 - TANK FARM FIVE

FIGURE 1-18.

SITE MAP - TANKS 53 AND 56
(SHOWING MONITOR WELLS INSTALLED DURING PREVIOUS INVESTIGATIONS)

SECTION 2

FIGURES

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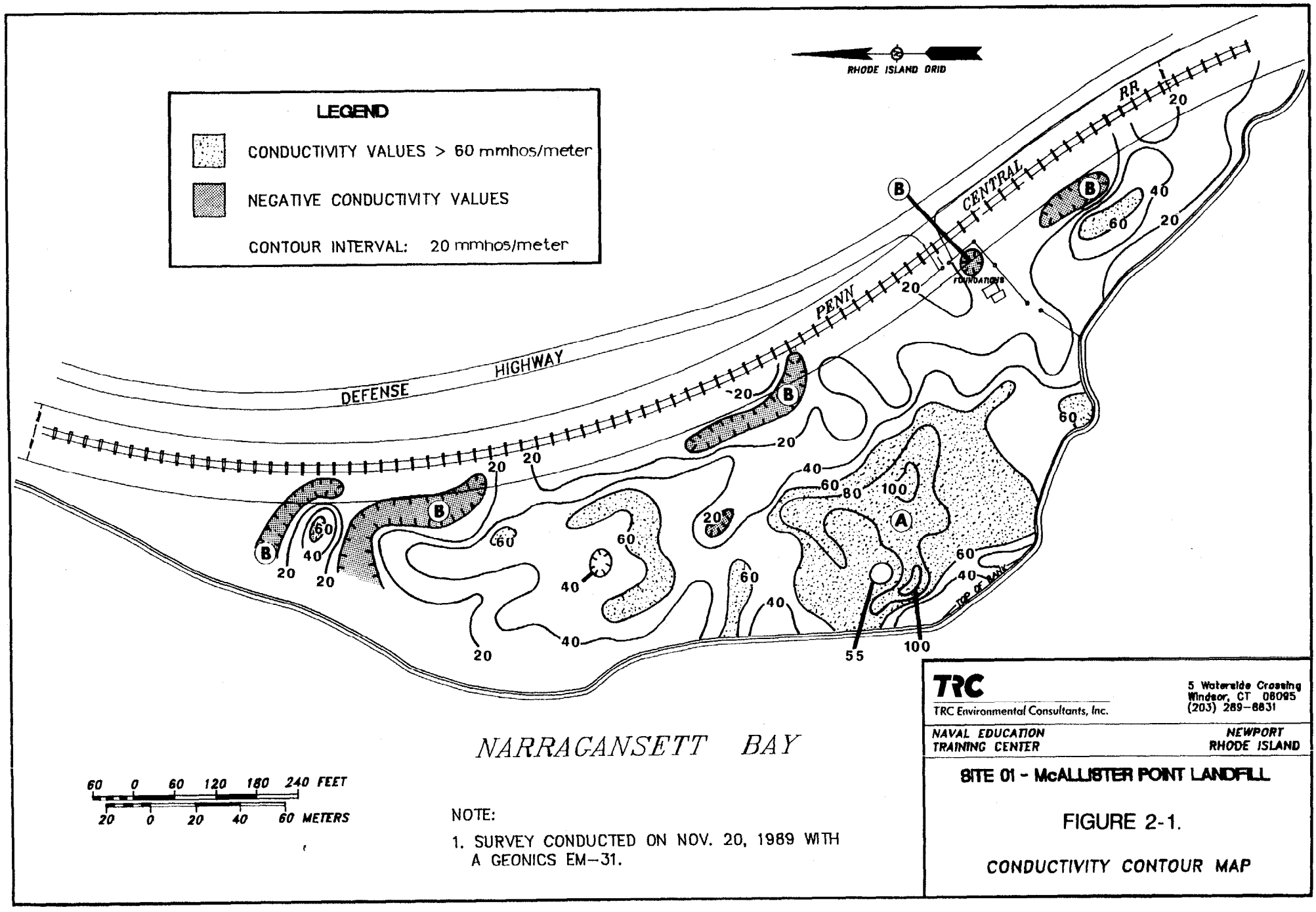
LEGEND
CONDUCTIVITY VALUES > 60 mmhos/meter
NEGATIVE CONDUCTIVITY VALUES
CONTOUR INTERVAL: 20 mmhos/meter
RHODE ISLAND GRID
DEFENSE HIGHWAY
PENN CENTRAL RR
FOUNDATIONS
NARRAGANSETT BAY
TOP OF BANK
60 0 60 120 180 240 FEET
20 0 20 40 60 METERS
NOTE:
1. SURVEY CONDUCTED ON NOV. 20, 1989 WITH A GEONICS EM-31.
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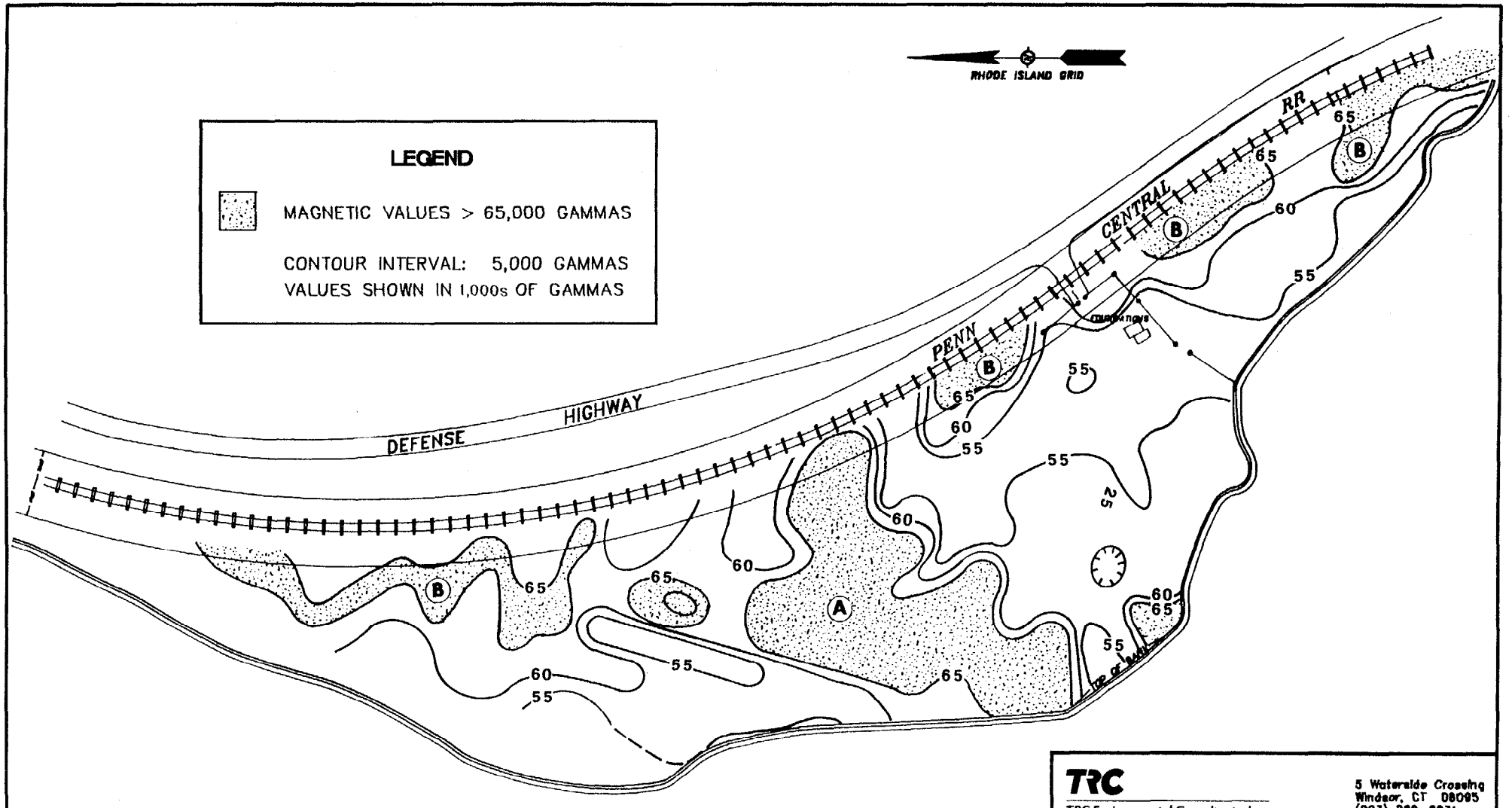
SITE 01 - McALLISTER POINT LANDFILL
FIGURE 2-1.
CONDUCTIVITY CONTOUR MAP



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

NOTES:

1. SURVEY CONDUCTED ON NOV. 20, 1989 WITH A GEOMETRICS G-846 MAGNETOMETER.
2. MAGNETIC VALUES OF 55,683 GAMMAS AND 55,699 GAMMAS OBSERVED AT BASE STATION AT START AND END OF SURVEY, RESPECTIVELY.

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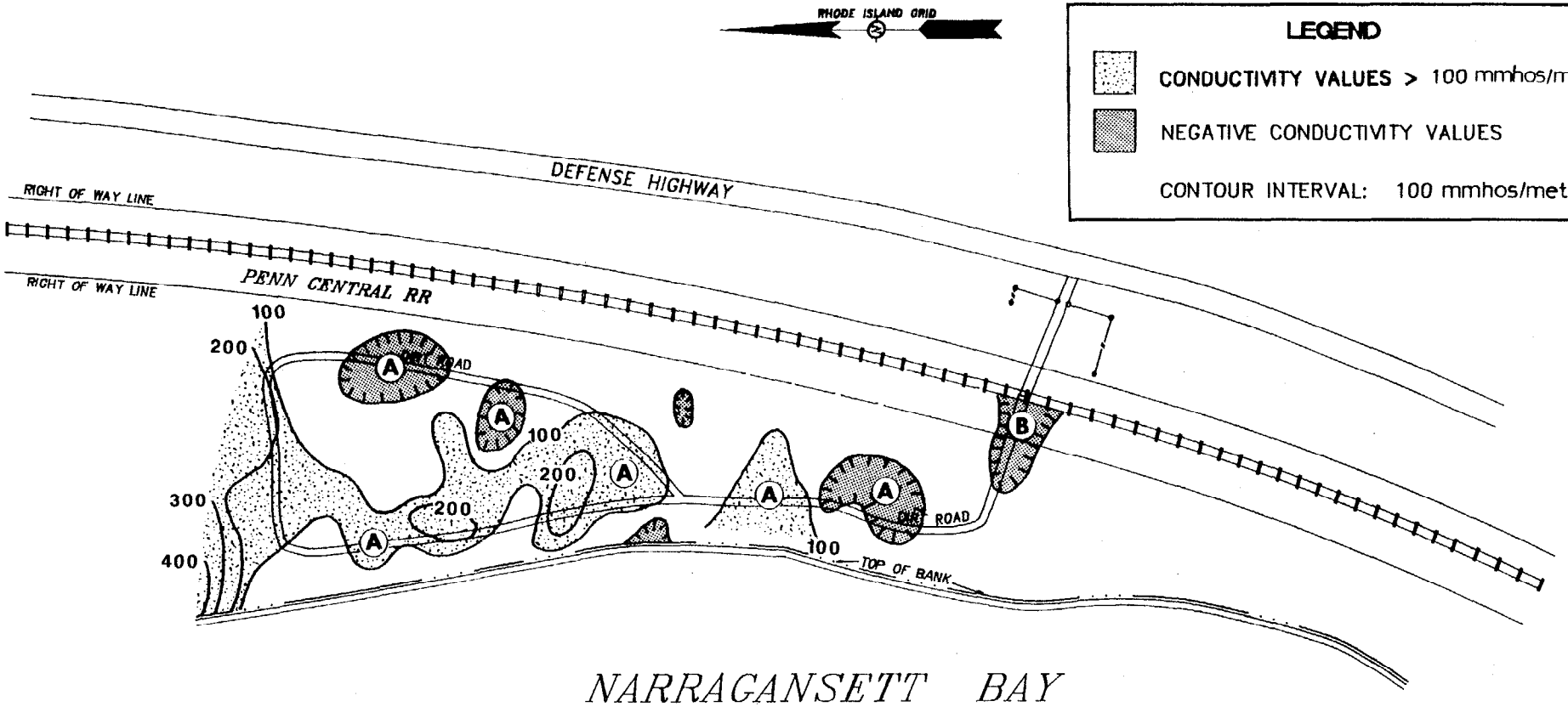
FIGURE 2-2.

MAGNETIC CONTOUR MAP



LEGEND

CONDUCTIVITY VALUES > 100 mmhos/meter

NEGATIVE CONDUCTIVITY VALUES

CONTOUR INTERVAL: 100 mmhos/meter

60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

NOTE:

1. SURVEY CONDUCTED ON APRIL 5, 1990 WITH A GEONICS EM-31.

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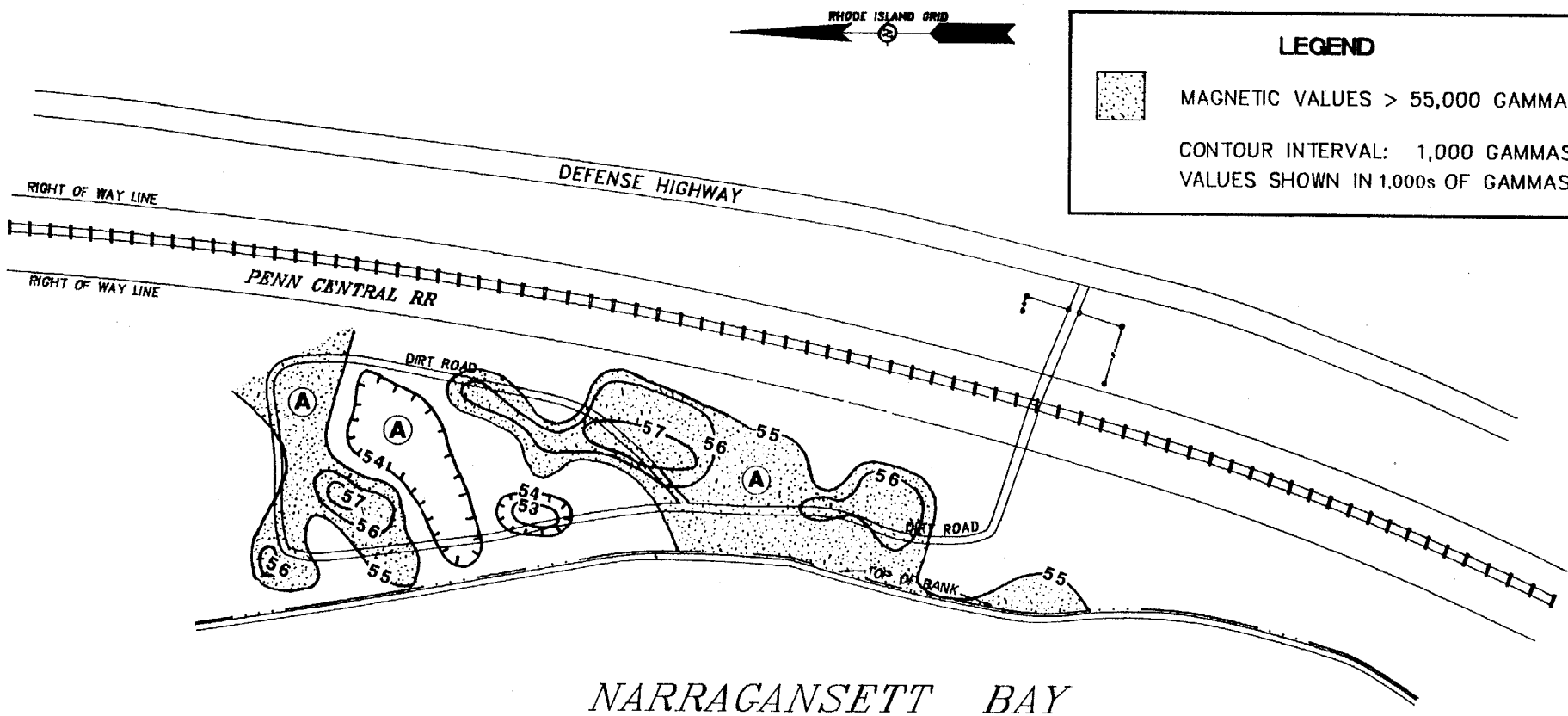
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-3.

CONDUCTIVITY CONTOUR MAP



LEGEND

MAGNETIC VALUES > 55,000 GAMMAS

CONTOUR INTERVAL: 1,000 GAMMAS
VALUES SHOWN IN 1,000s OF GAMMAS

60 0 60 120 180 240 FEET
20 0 20 40 60 METERS

NOTES:

1. SURVEY CONDUCTED ON APRIL 5, 1990 WITH A GEOMETRICS G-846 MAGNETOMETER.
2. MAGNETIC VALUES OF 54,741 GAMMAS AND 54,765 GAMMAS OBSERVED AT BASE STATION AT START AND END OF SURVEY, RESPECTIVELY.

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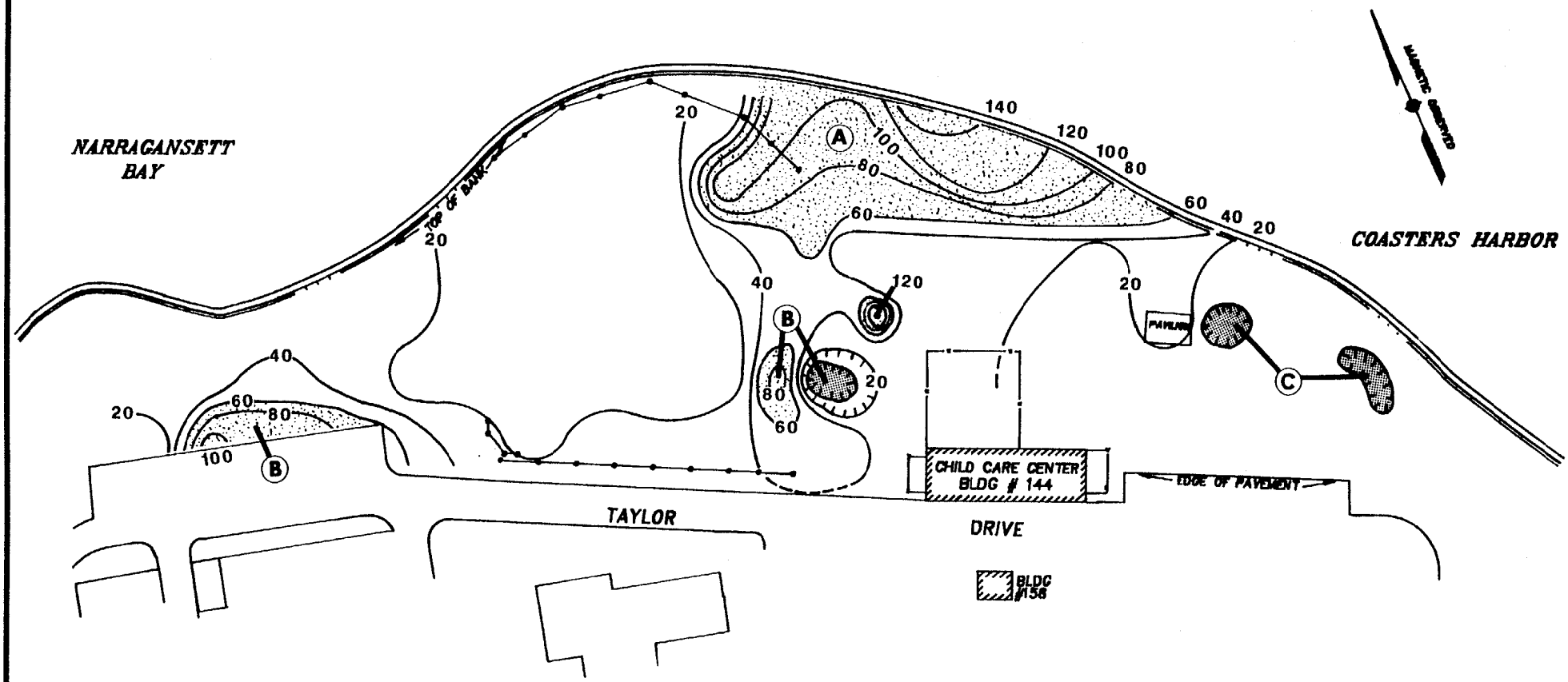
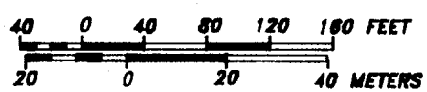
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-4.

MAGNETIC CONTOUR MAP





NOTE:

1. SURVEY CONDUCTED ON APRIL 5, 1990 WITH A GEONICS EM-31.

LEGEND

CONDUCTIVITY VALUES > 60 mmhos/meter

NEGATIVE CONDUCTIVITY VALUES

CONTOUR INTERVAL: 20 mmhos/meter

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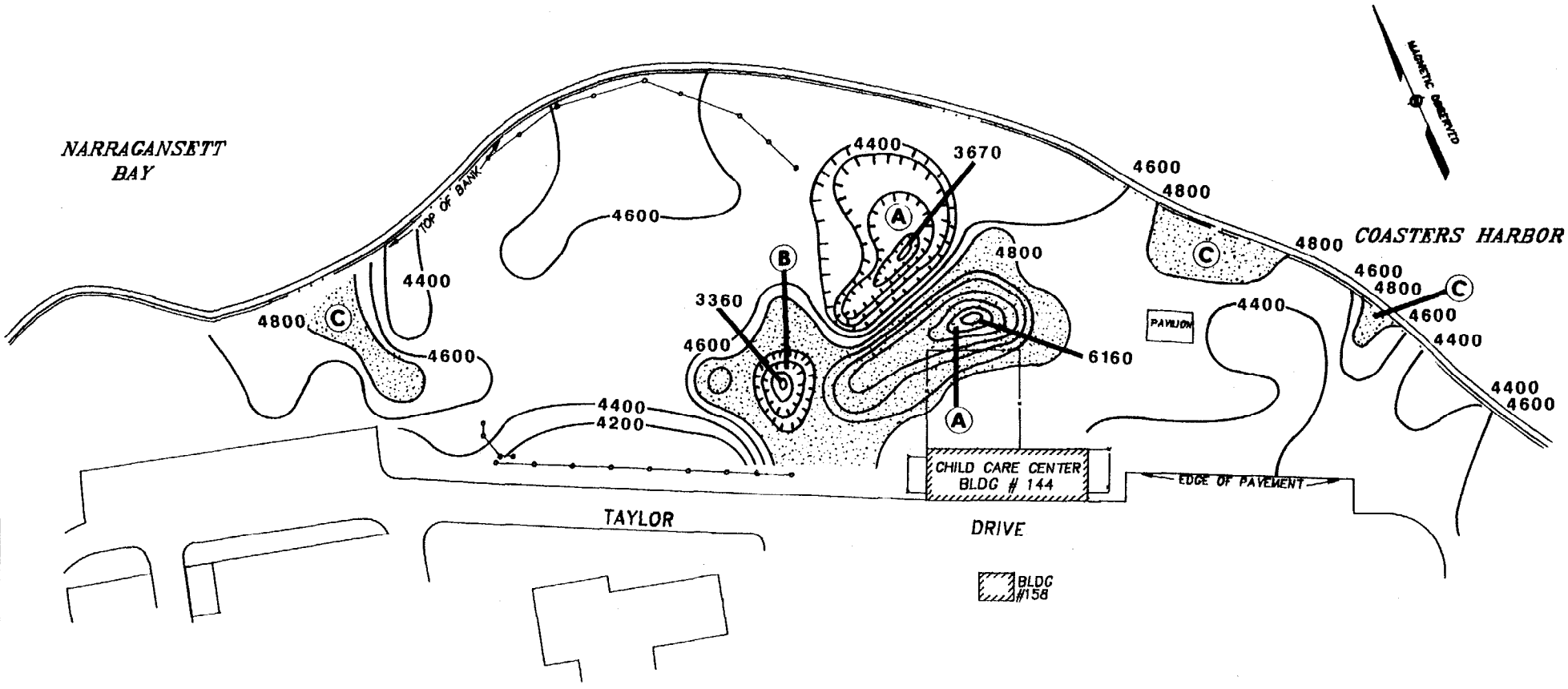
SITE 09 - OLD FIRE FIGHTING TRAINING AREA

FIGURE 2-5.

CONDUCTIVITY CONTOUR MAP



LEGEND

MAGNETIC VALUES > 54,800 GAMMAS

CONTOUR INTERVAL: 200 GAMMAS
VALUES SHOWN ARE LESS 50,000 OF ACTUAL.

40 0 40 80 120 160 FEET
20 0 20 40 METERS

NOTES:

1. SURVEY CONDUCTED ON APRIL 5, 1990 WITH A GEOMETRICS G-846 MAGNETOMETER.
2. MAGNETIC VALUES OF 54,491 GAMMAS AND 54,488 GAMMAS OBSERVED AT BASE STATION AT START AND END OF SURVEY, RESPECTIVELY.

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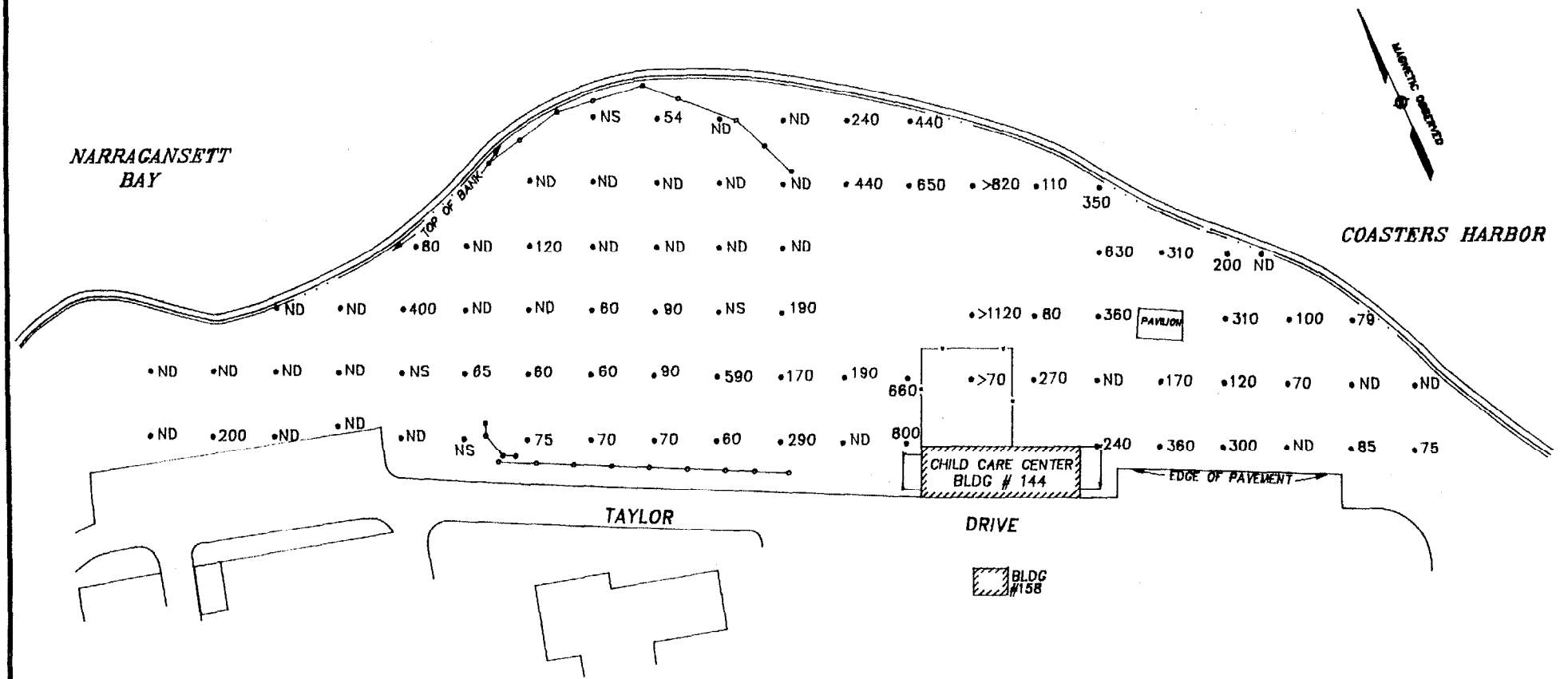
SITE 09 - OLD FIRE FIGHTING TRAINING AREA

FIGURE 2-6.

MAGNETIC CONTOUR MAP



40 0 40 80 120 160 FEET

20 0 20 40 METERS

LEGEND

•	SOIL GAS SAMPLE POINT
290	SOIL GAS CONCENTRATION (ppb)
ND	NOT DETECTED ABOVE BACKGROUND LEVELS
NS	NO SAMPLE COLLECTED (PONDED WATER)

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SITE 09 - OLD FIRE FIGHTING TRAINING AREA

FIGURE 2-7.

SOIL GAS SURVEY RESULTS

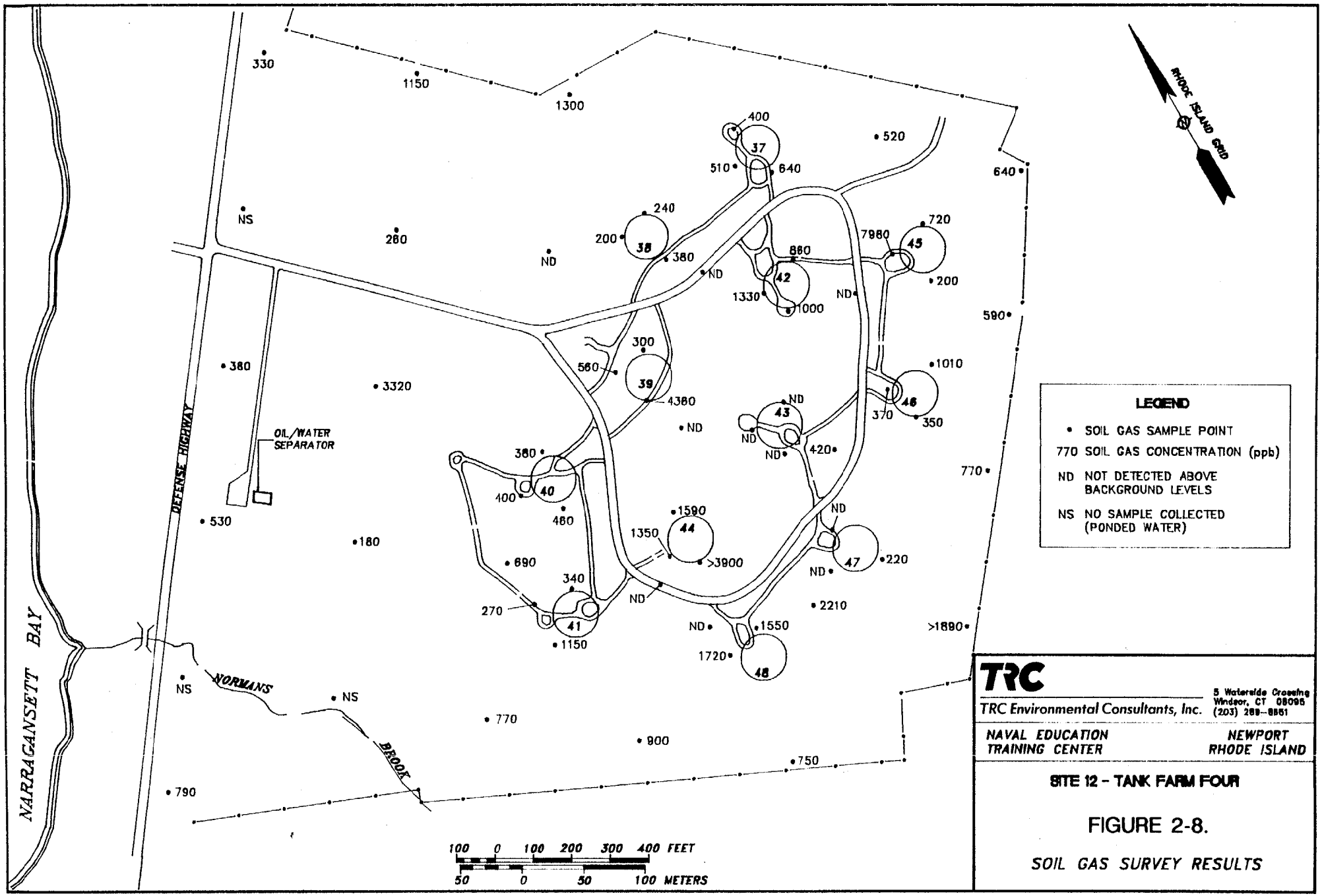
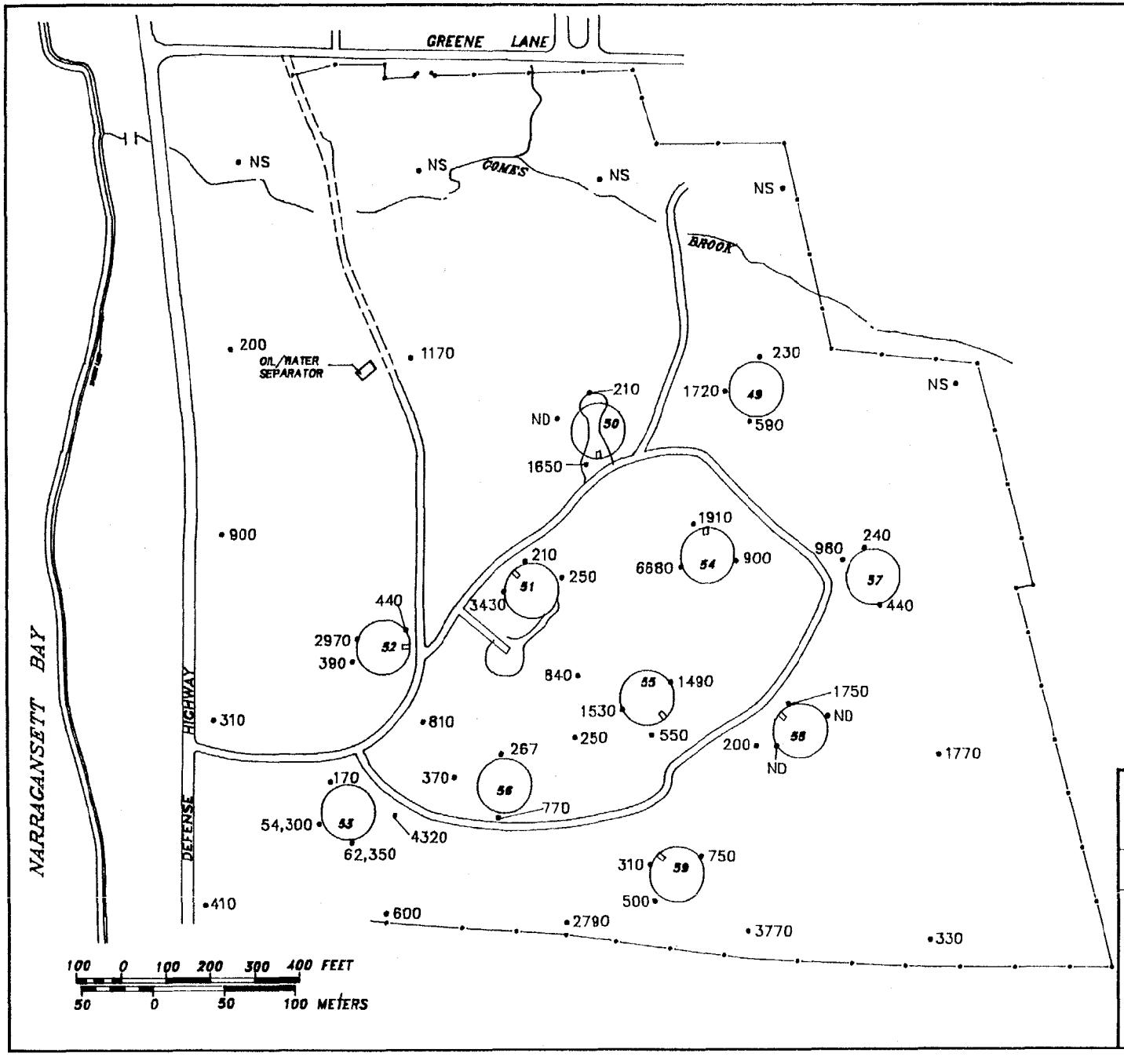


FIGURE 2-8.

SOIL GAS SURVEY RESULTS



LEGEND

- • SOIL GAS SAMPLE POINT
- 1770 SOIL GAS CONCENTRATION (ppb)
- ND NOT DETECTED ABOVE BACKGROUND LEVELS
- NS NO SAMPLE COLLECTED (PONDED WATER)

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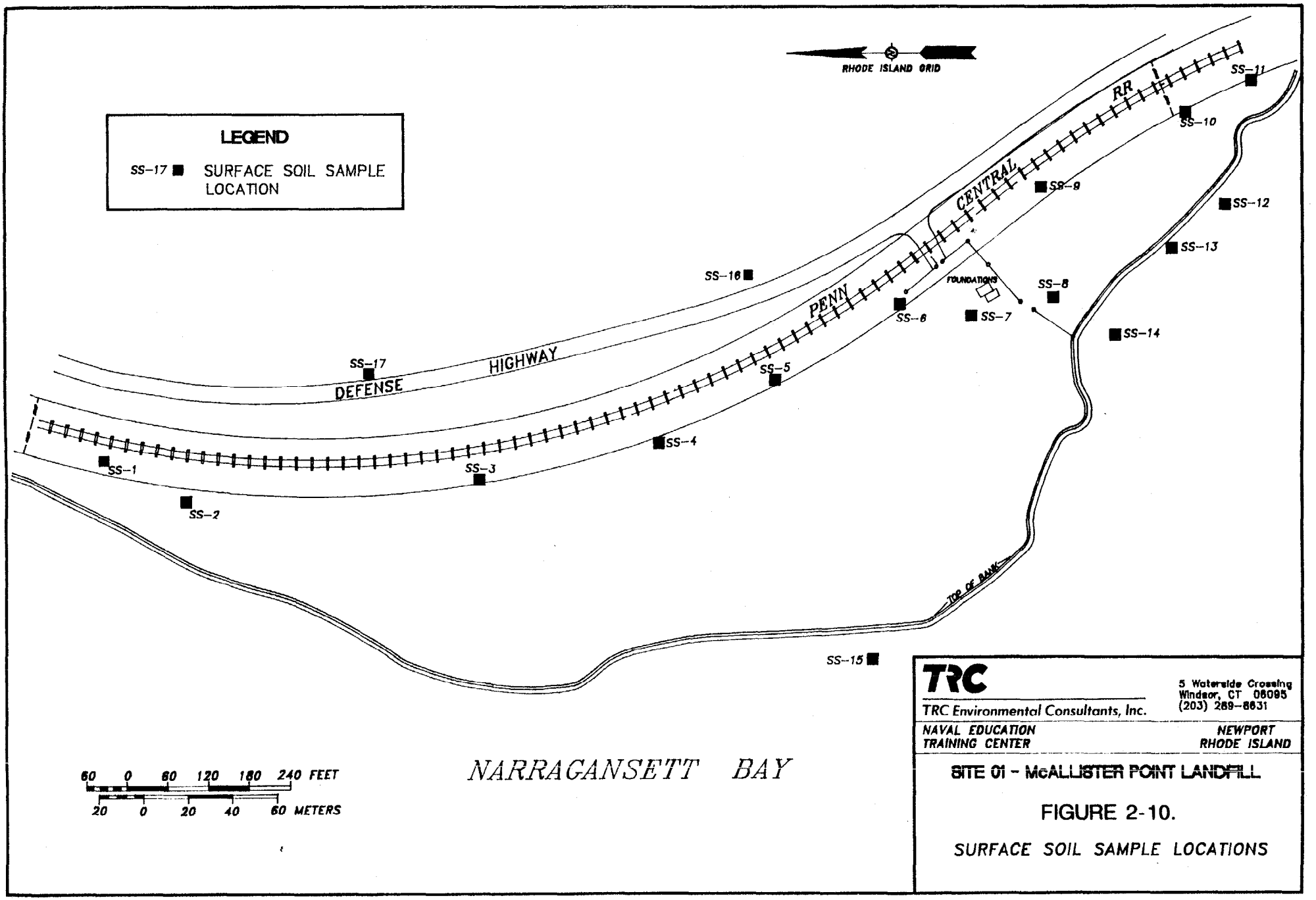
SITE 13 - TANK FARM FIVE

FIGURE 2-9.

SOIL GAS SURVEY RESULTS



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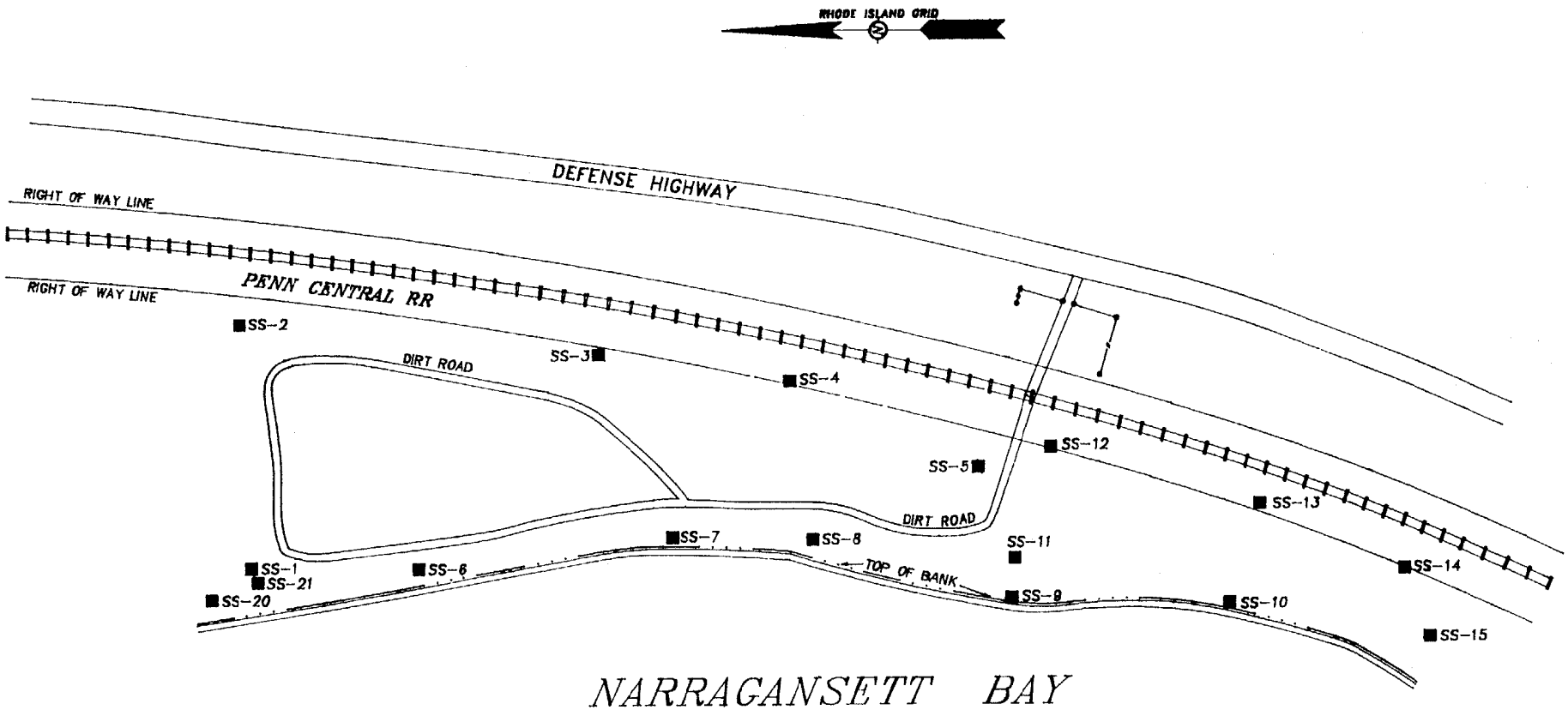
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 2-10.

SURFACE SOIL SAMPLE LOCATIONS



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

SS-15 ■ SURFACE SOIL SAMPLE LOCATION

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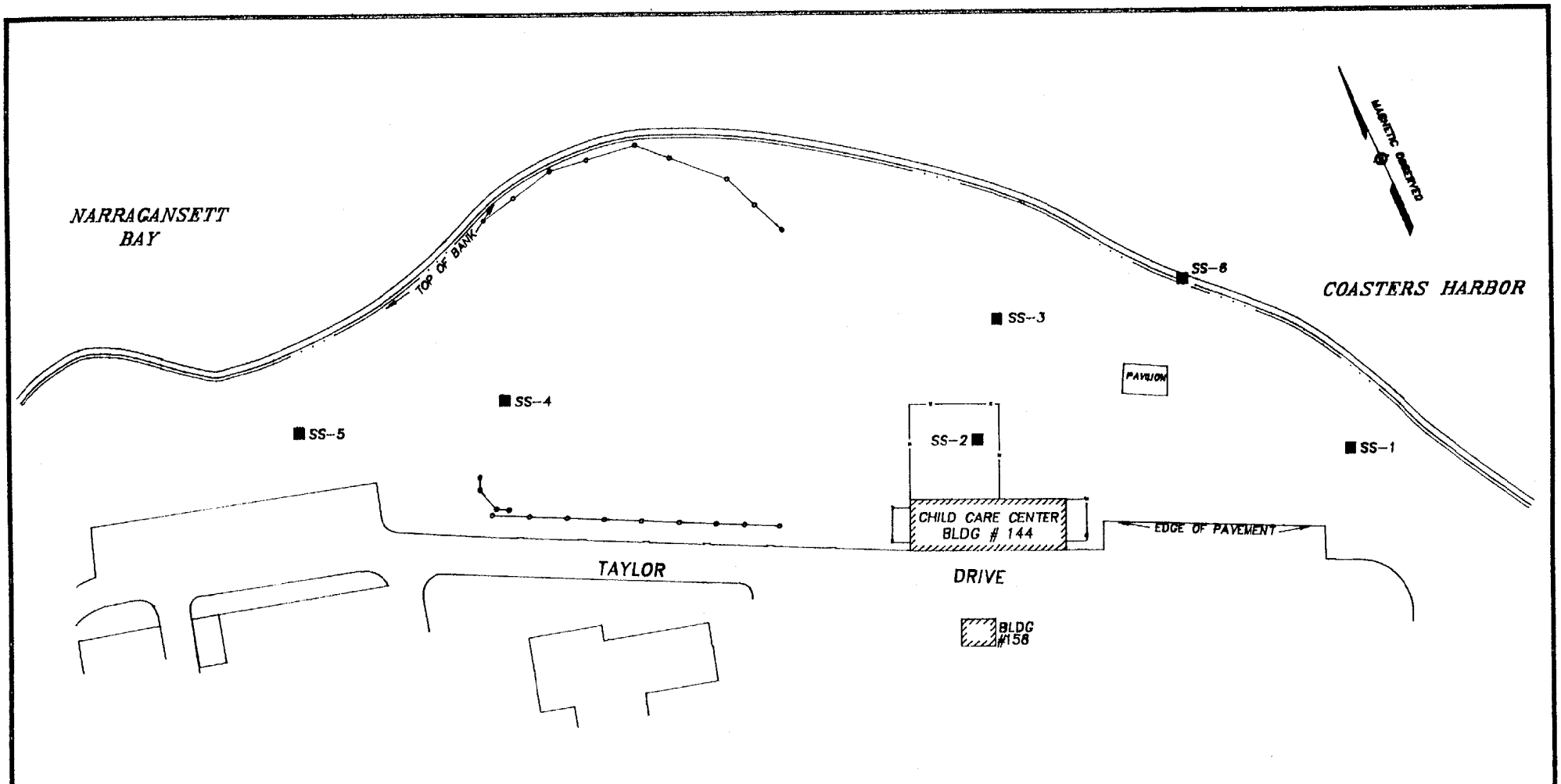
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-11.

SURFACE SOIL SAMPLE LOCATIONS



LEGEND

SS-4 ■ SURFACE SOIL SAMPLE LOCATION

40 0 40 80 120 160 FEET
20 0 20 40 METERS

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SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 2-12.

SURFACE SOIL SAMPLE LOCATIONS

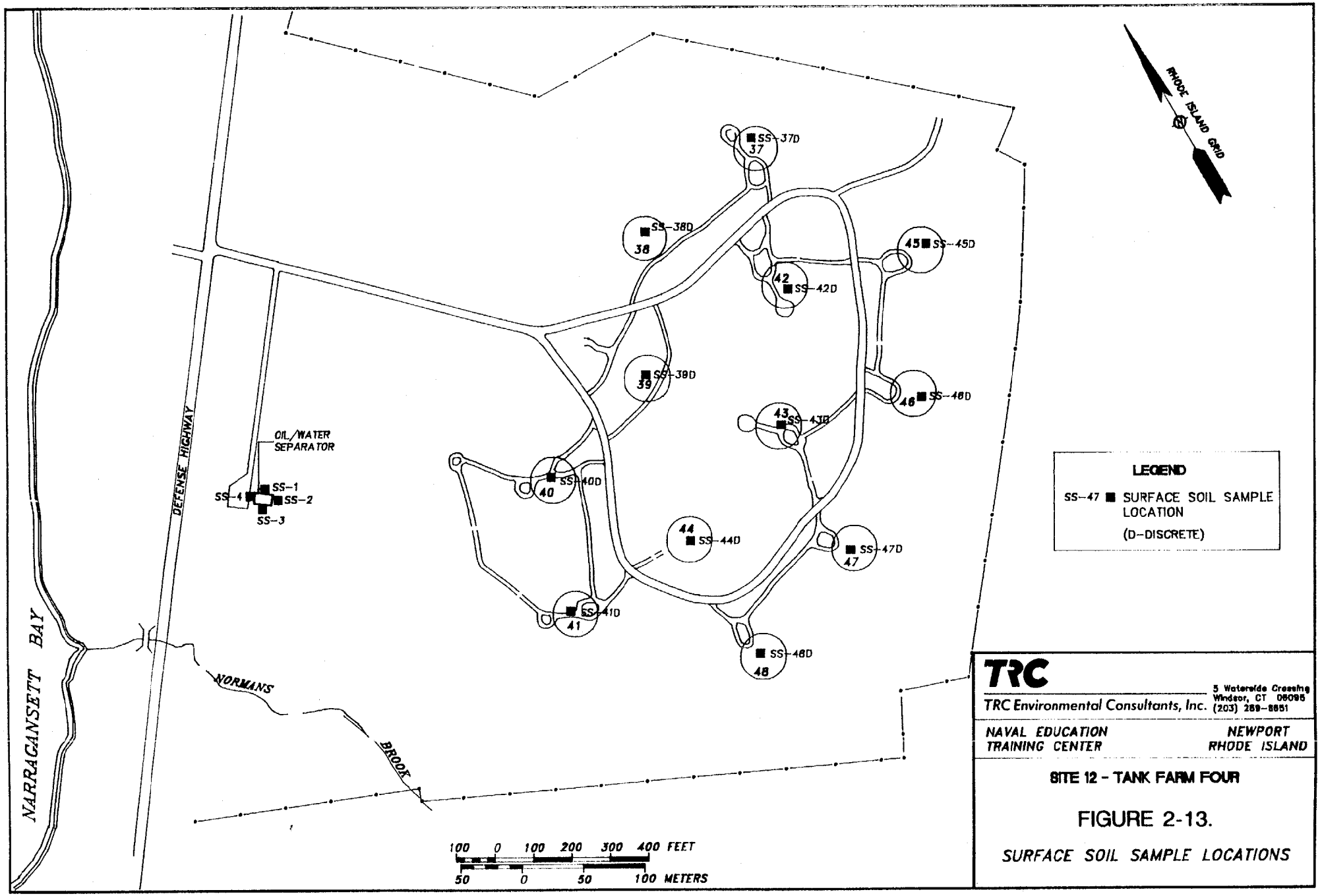


FIGURE 2-13.

SURFACE SOIL SAMPLE LOCATIONS

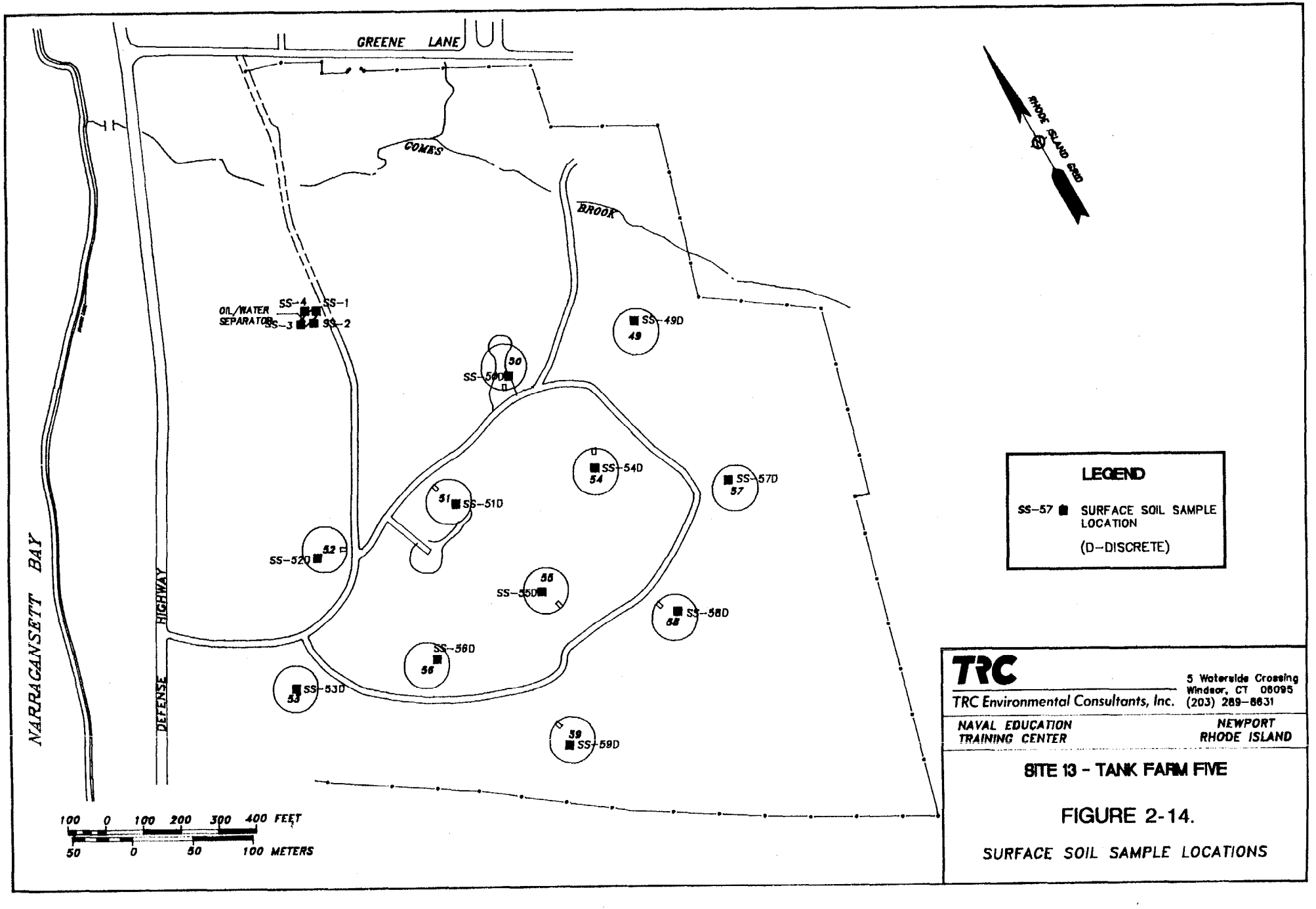
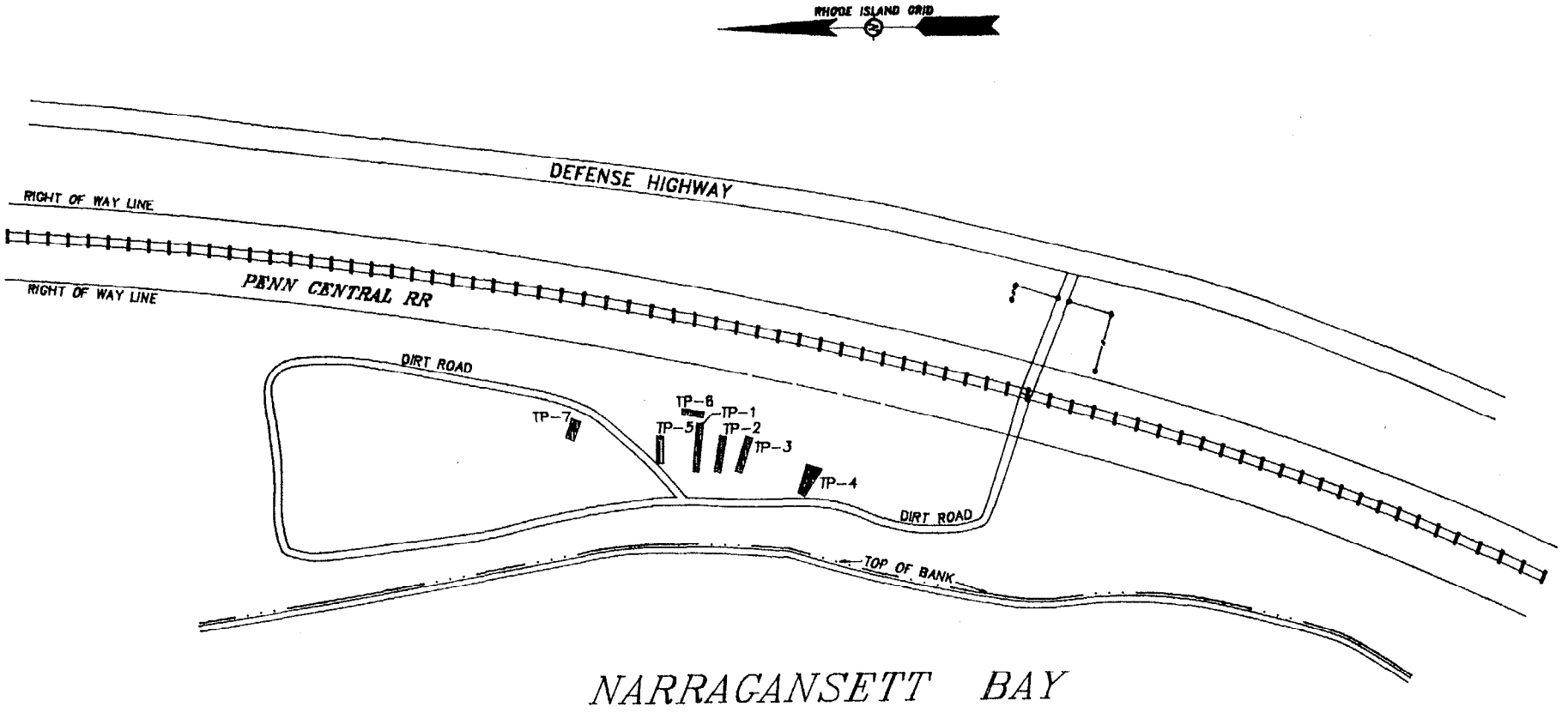


FIGURE 2-14.

SURFACE SOIL SAMPLE LOCATIONS



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

TP-4 ■ TEST PIT LOCATION

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SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-15.

TEST PIT LOCATIONS

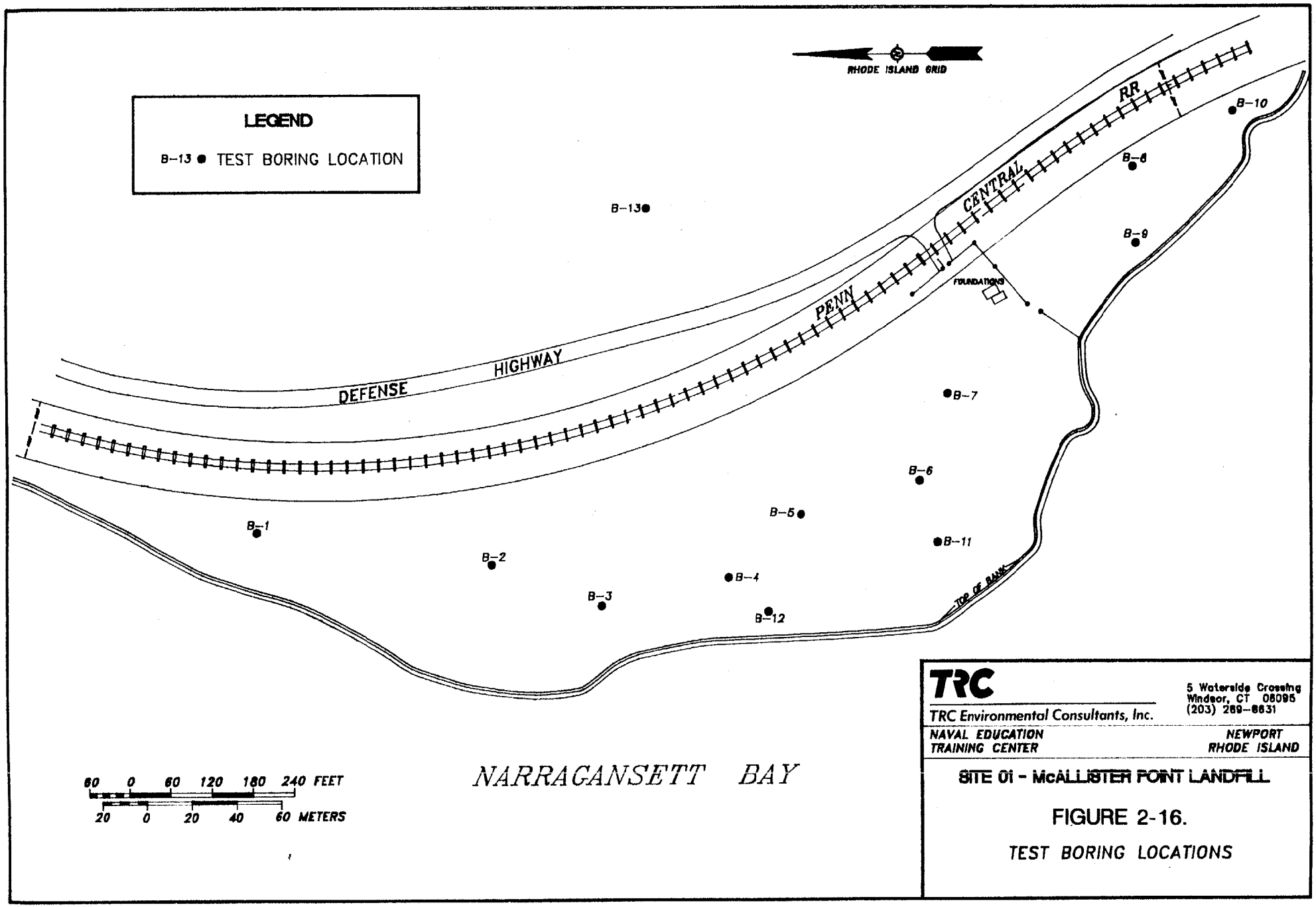
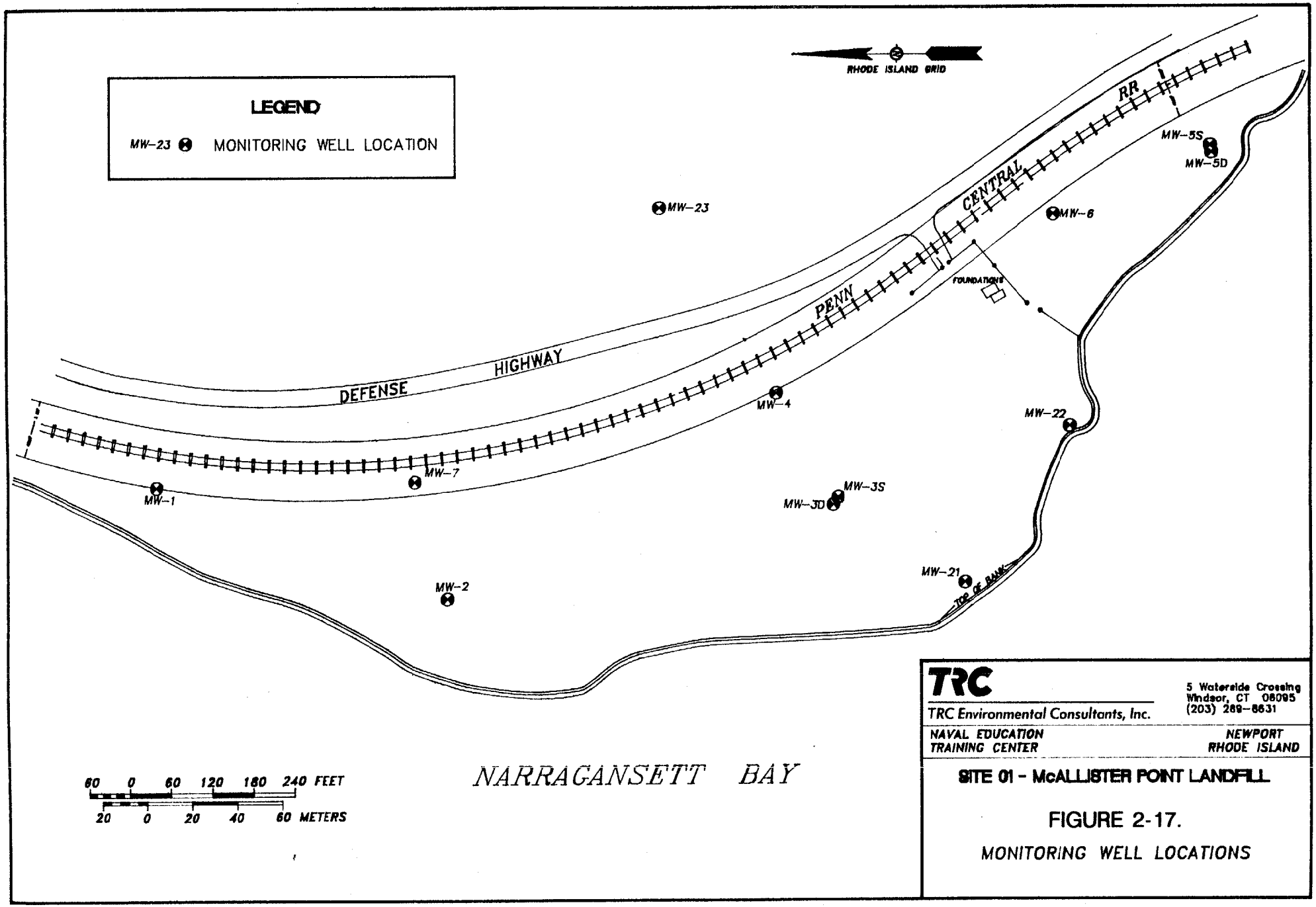


FIGURE 2-16.

TEST BORING LOCATIONS



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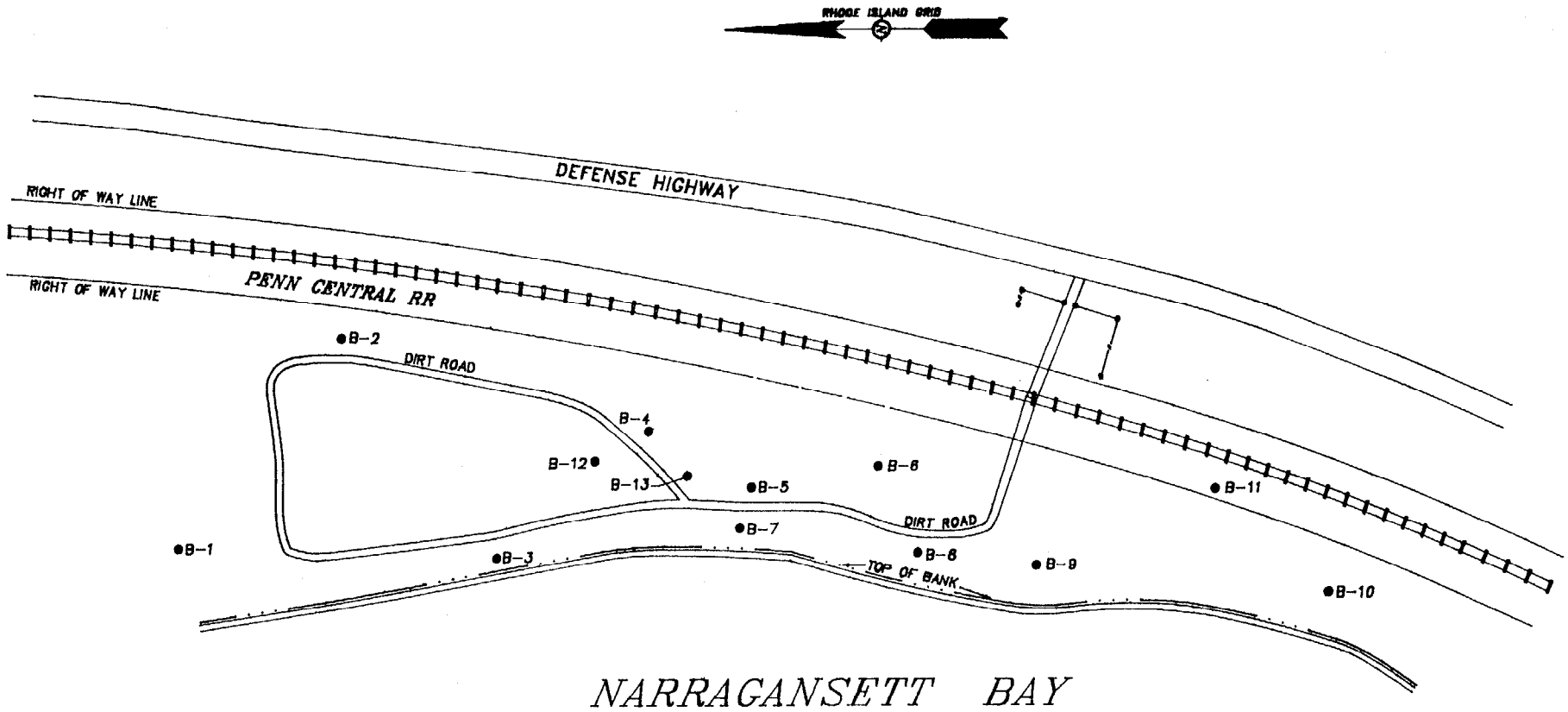
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 2-17.

MONITORING WELL LOCATIONS



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

B-13 ● TEST BORING LOCATION

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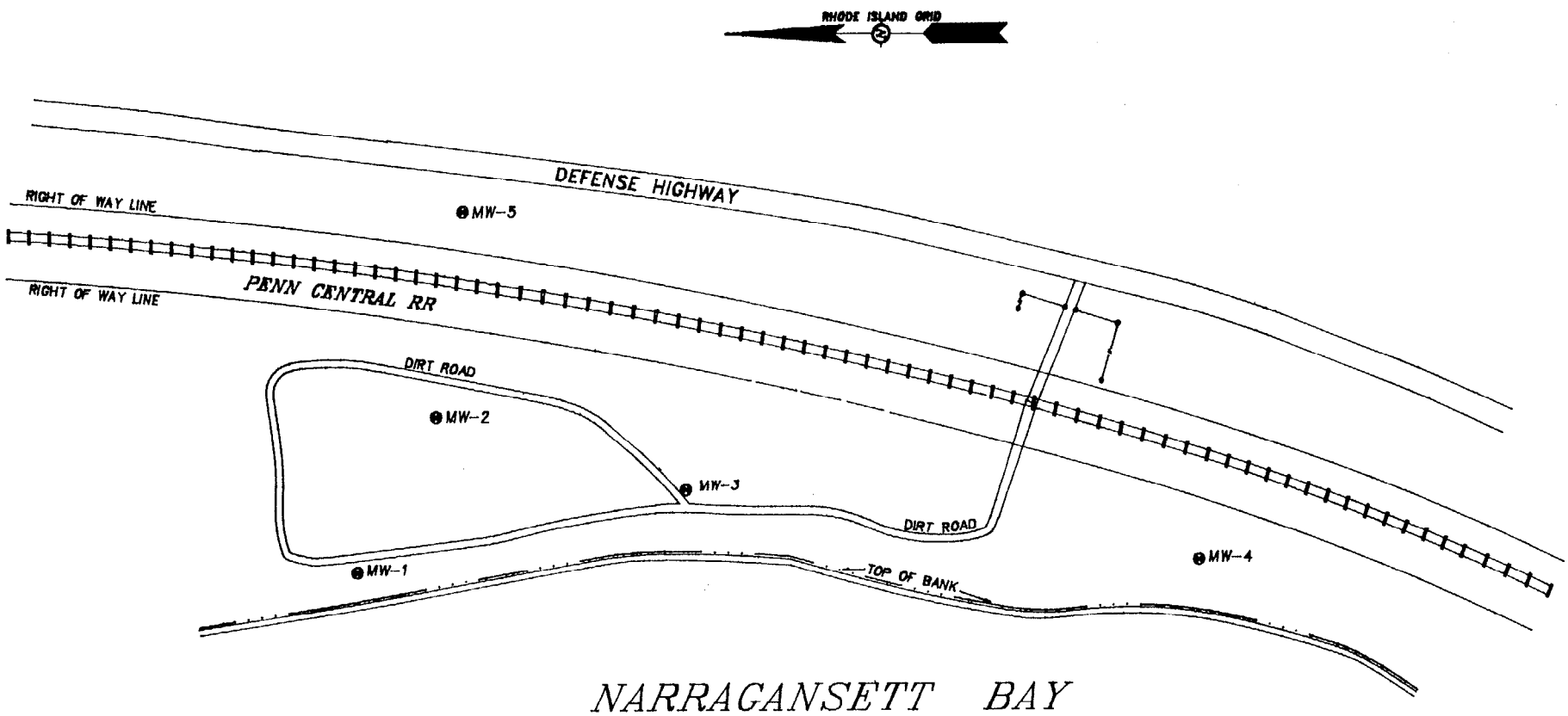
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-18.

TEST BORING LOCATIONS



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

MW-4 ● MONITORING WELL LOCATION

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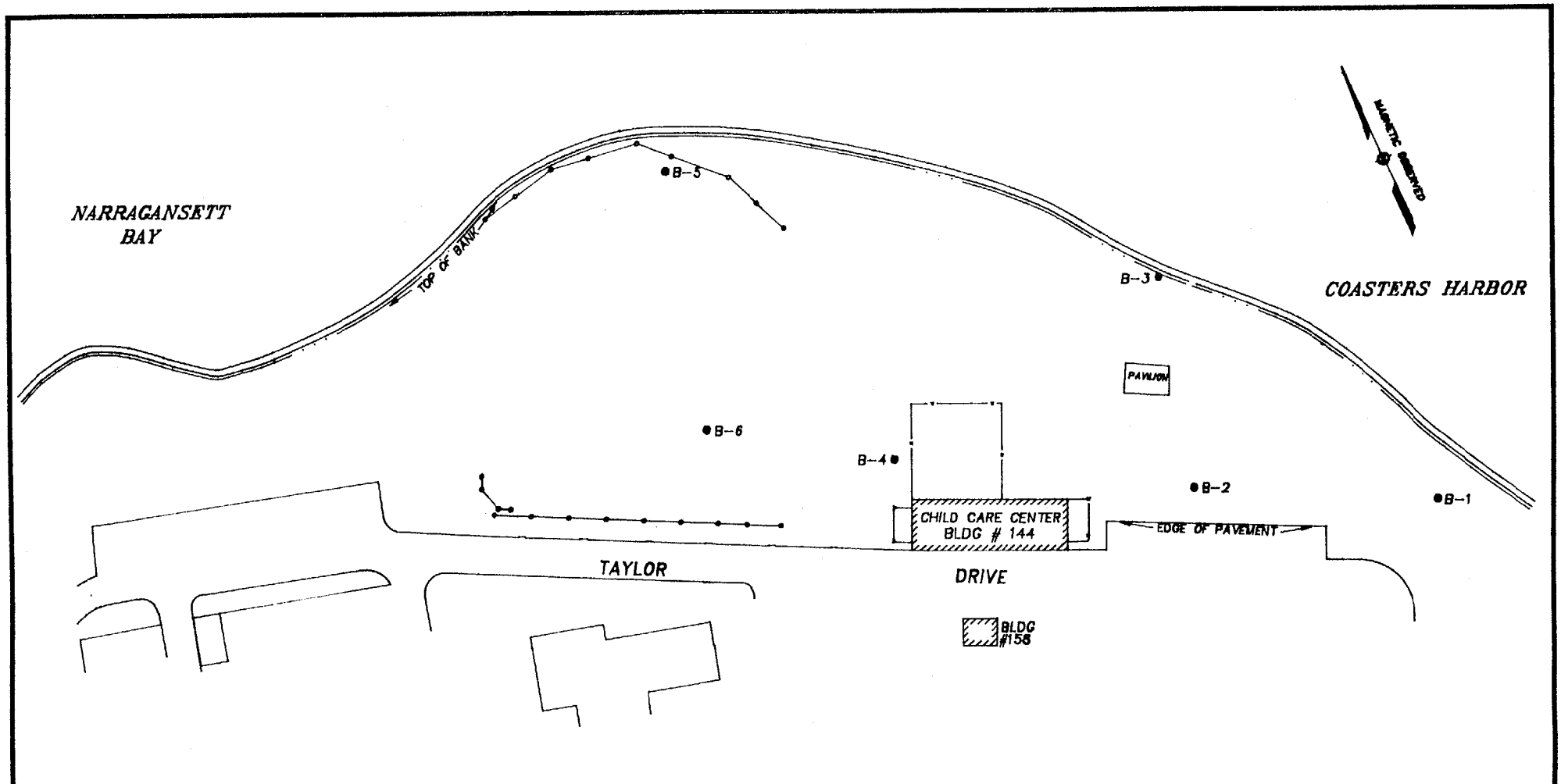
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 2-19.

MONITORING WELL LOCATIONS



LEGEND

B-2 ● TEST BORING LOCATION

40 0 40 80 120 160 FEET

20 0 20 40 METERS

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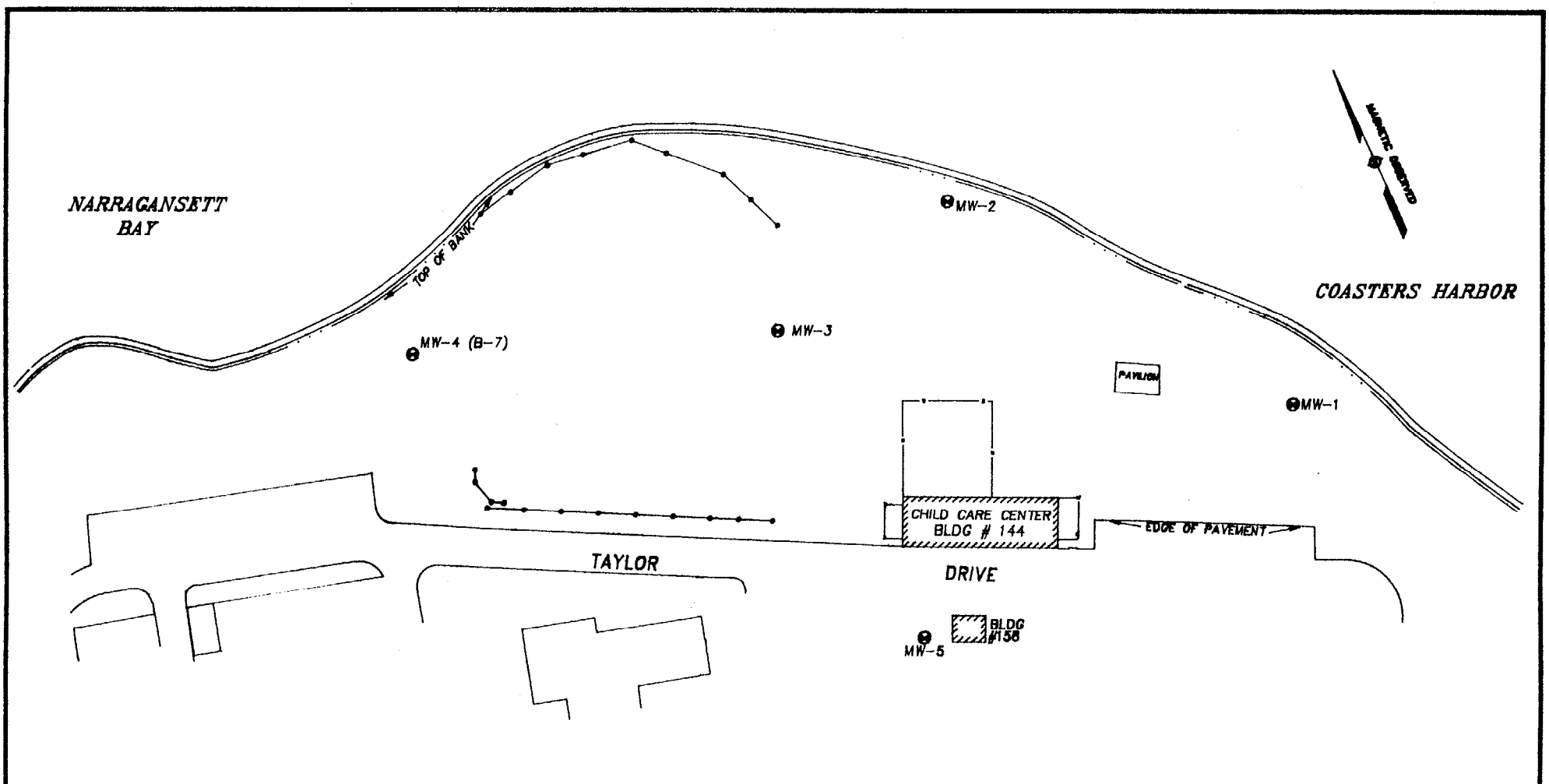
SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 2-20.

TEST BORING LOCATIONS



LEGEND

MW-3 ⊖ MONITORING WELL LOCATION

40 0 40 80 120 160 FEET
20 0 20 40 METERS

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SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 2-21.

MONITORING WELL LOCATIONS

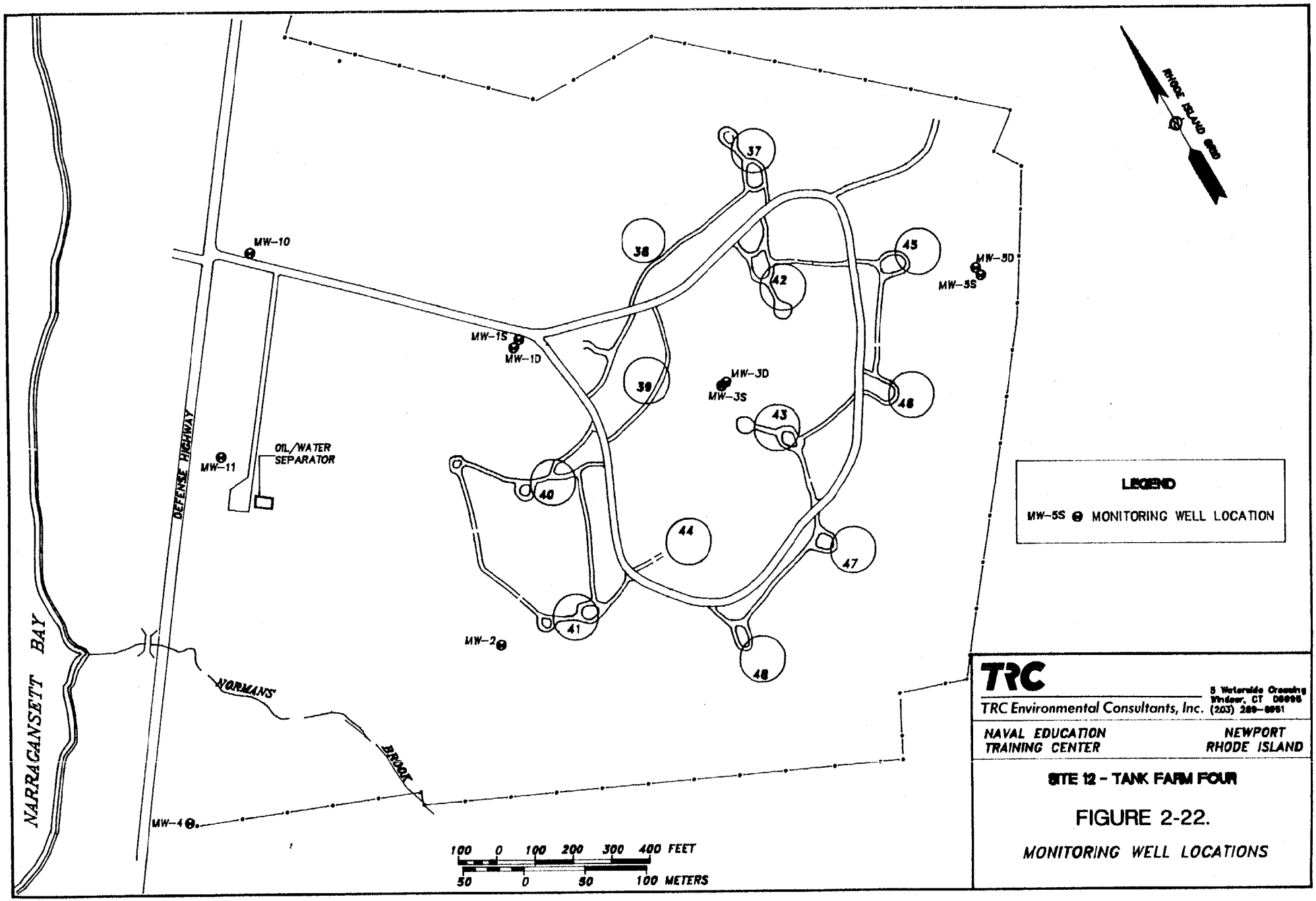

FIGURE 2-22.

MONITORING WELL LOCATIONS

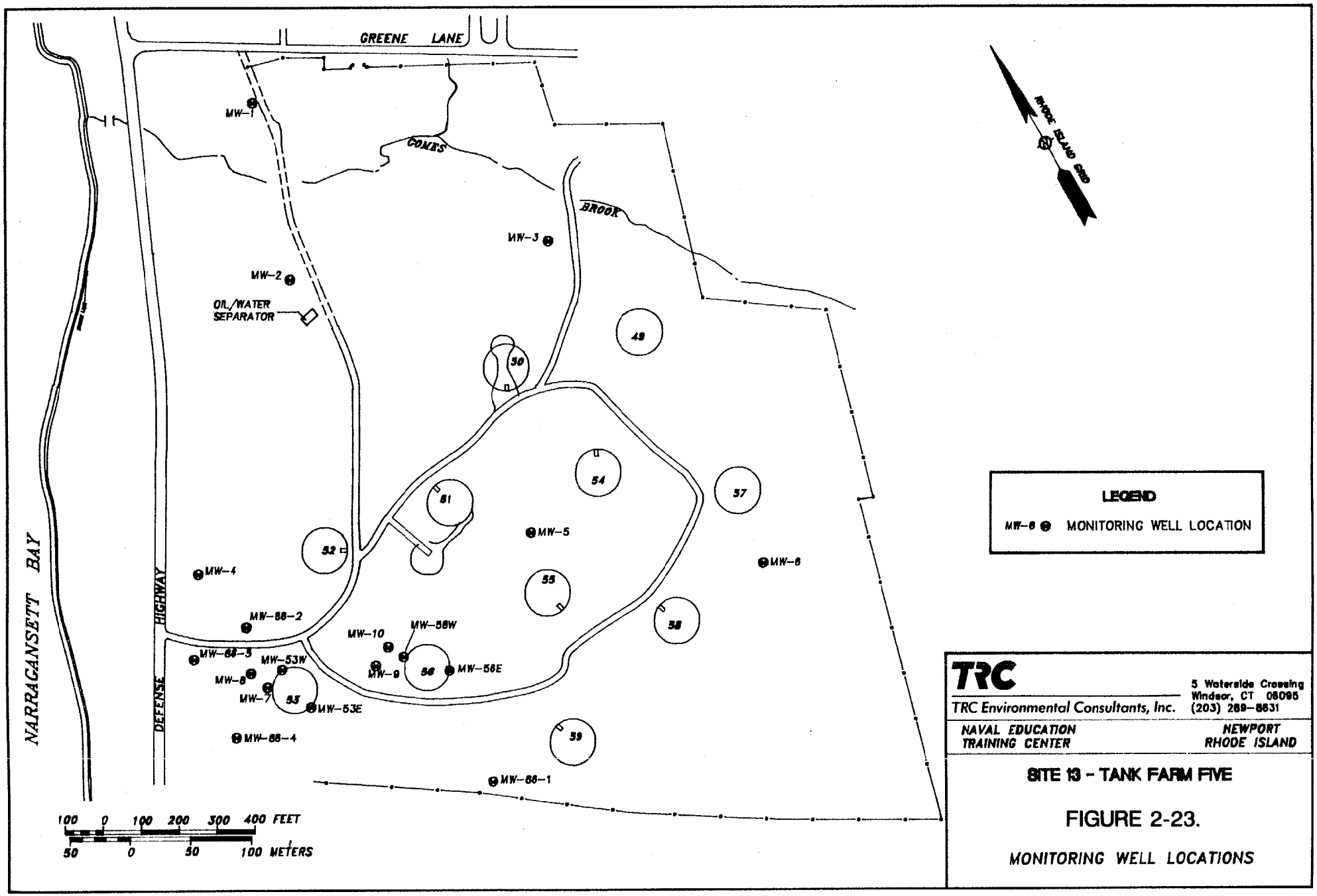

FIGURE 2-23.

MONITORING WELL LOCATIONS

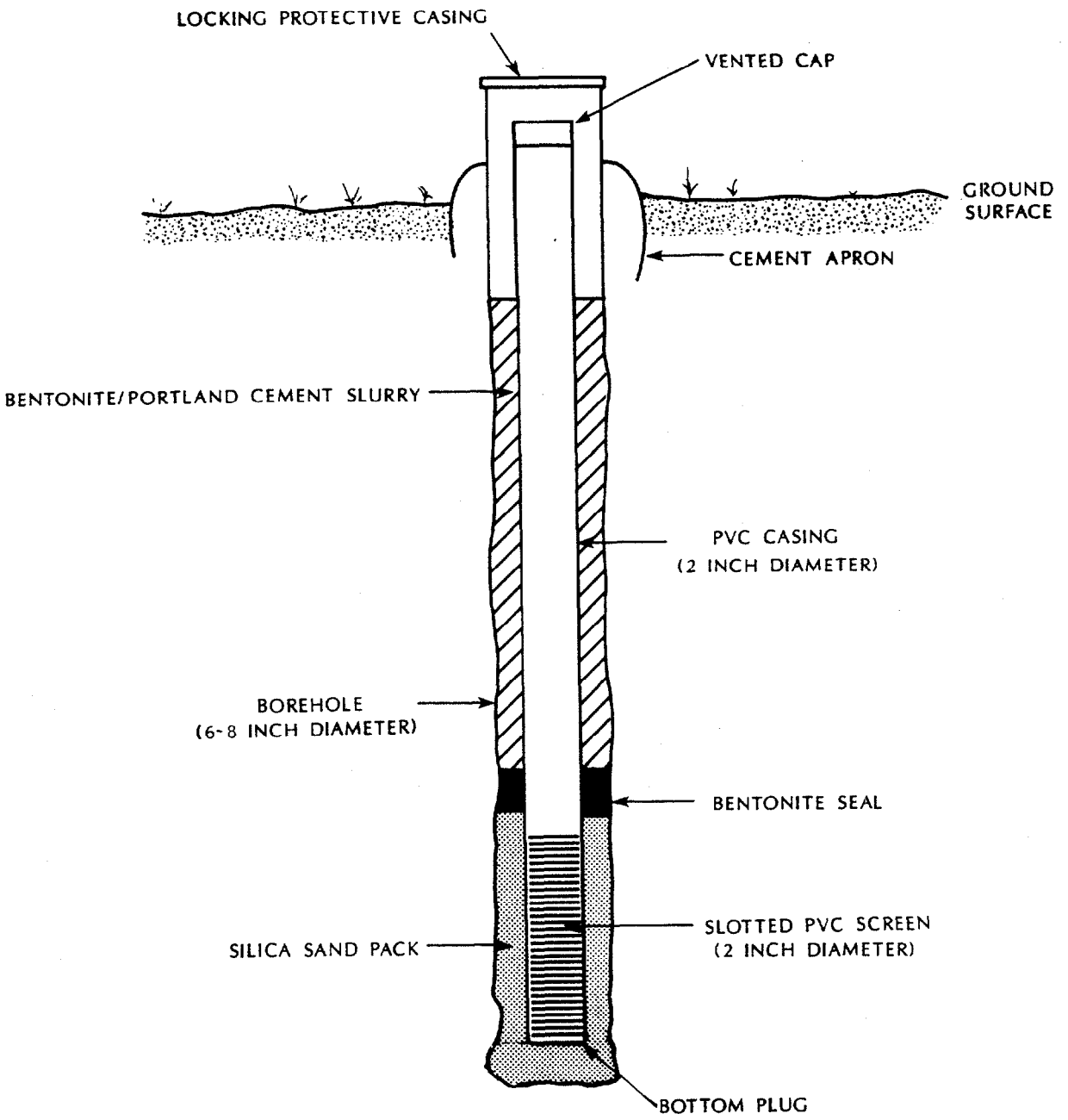

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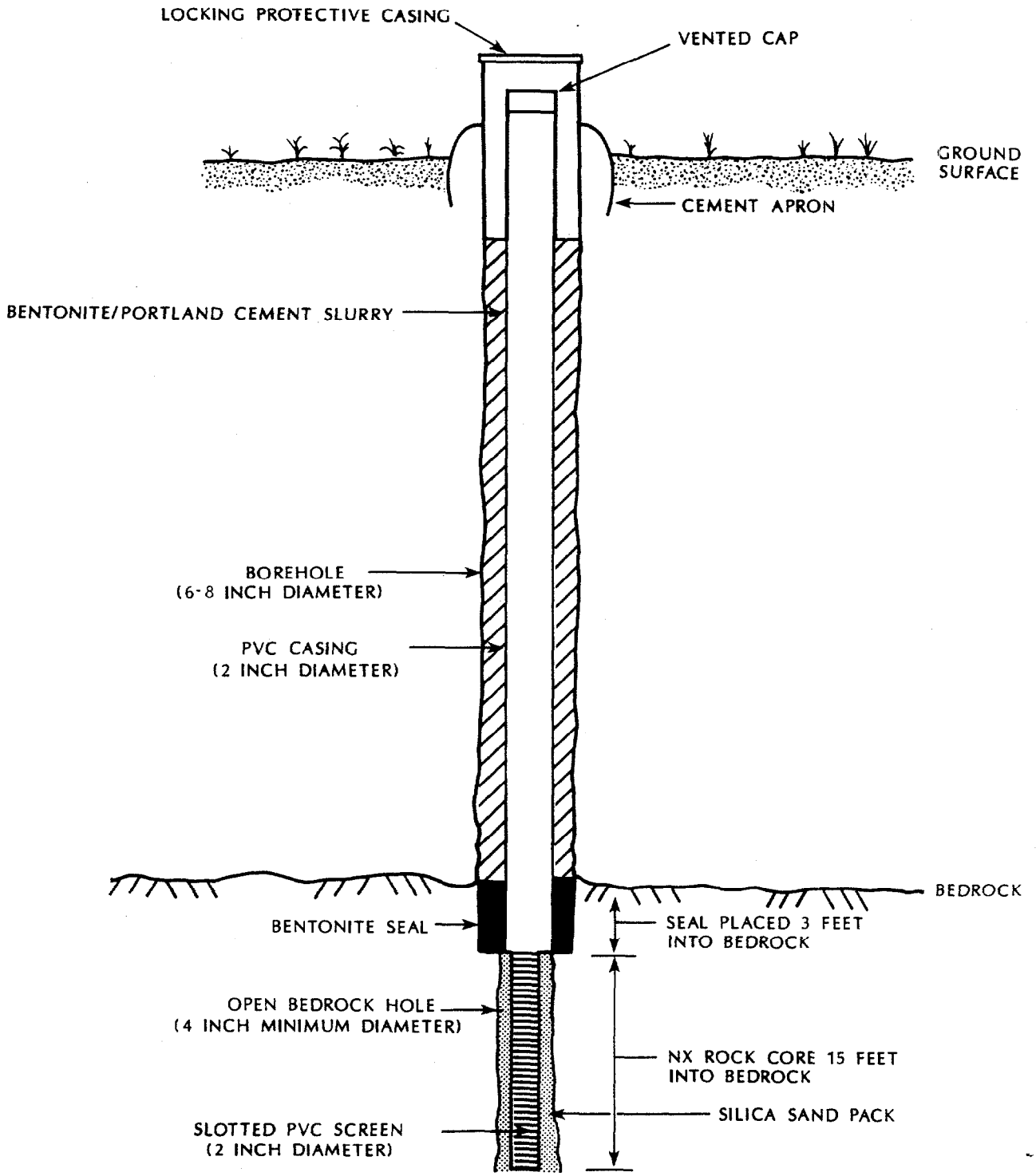
FIGURE 2-24.
OVERBURDEN MONITORING WELL CONSTRUCTION DIAGRAM



NOT TO SCALE

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FIGURE 2-25.
BEDROCK MONITORING WELL CONSTRUCTION DIAGRAM

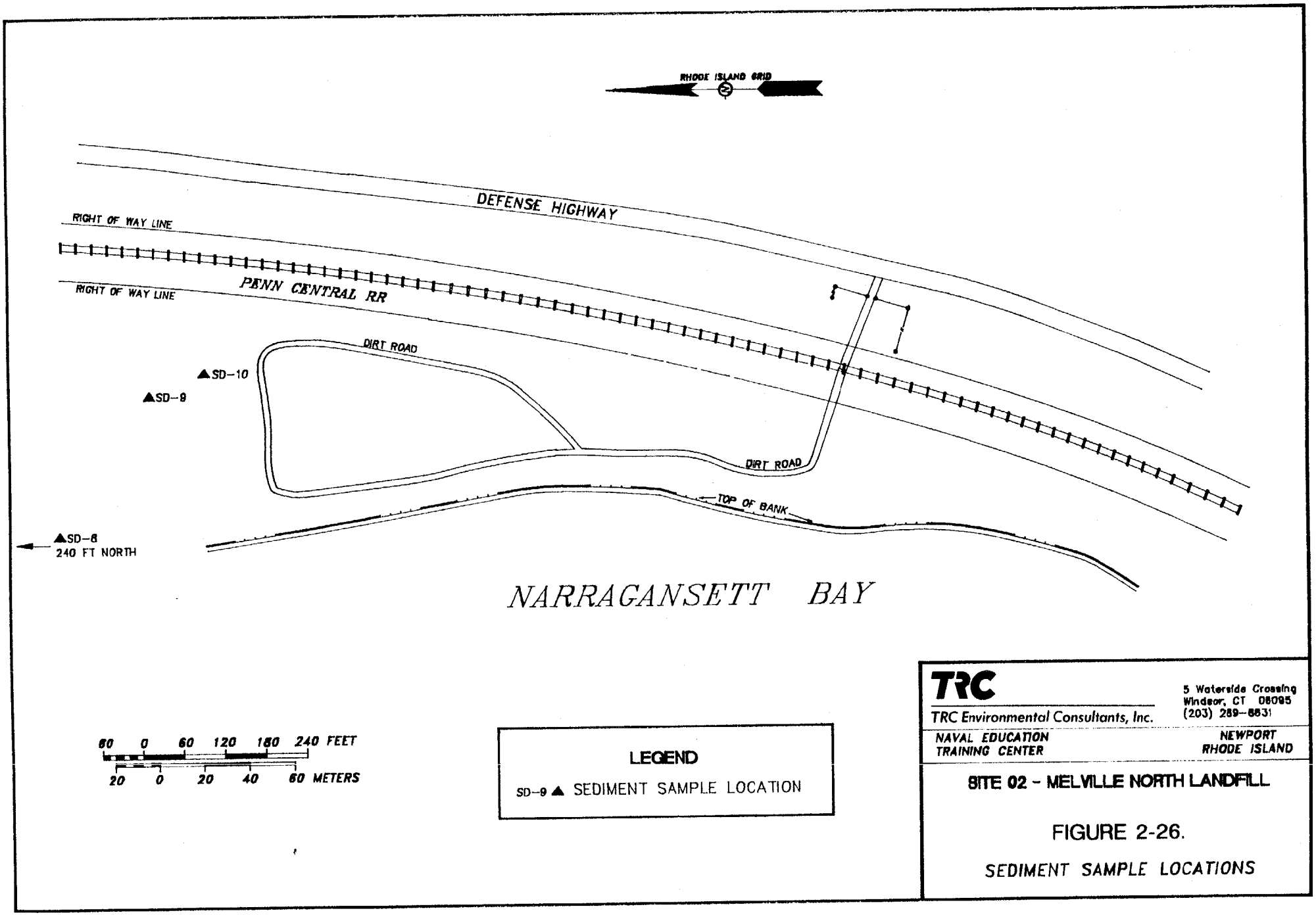


FIGURE 2-26.

SEDIMENT SAMPLE LOCATIONS

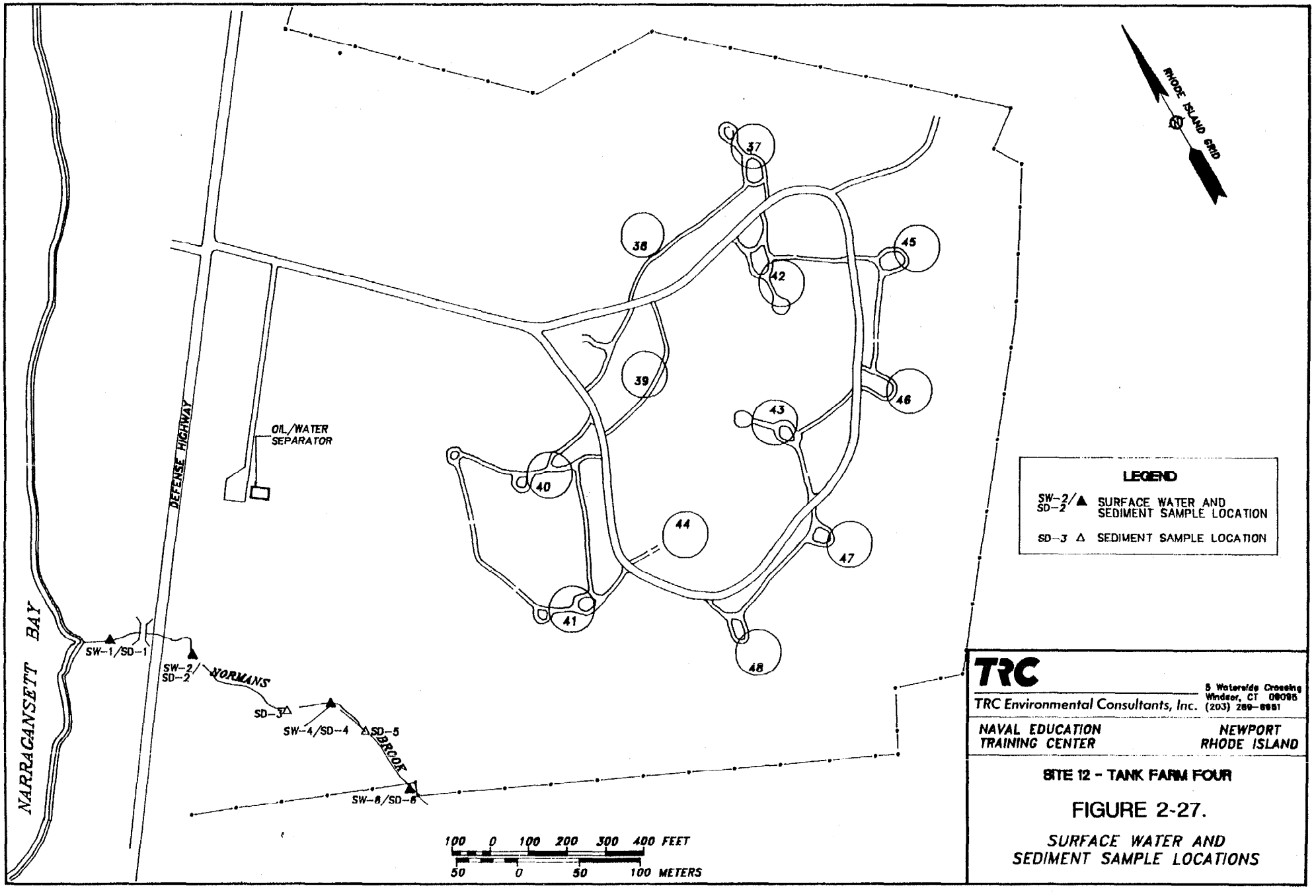
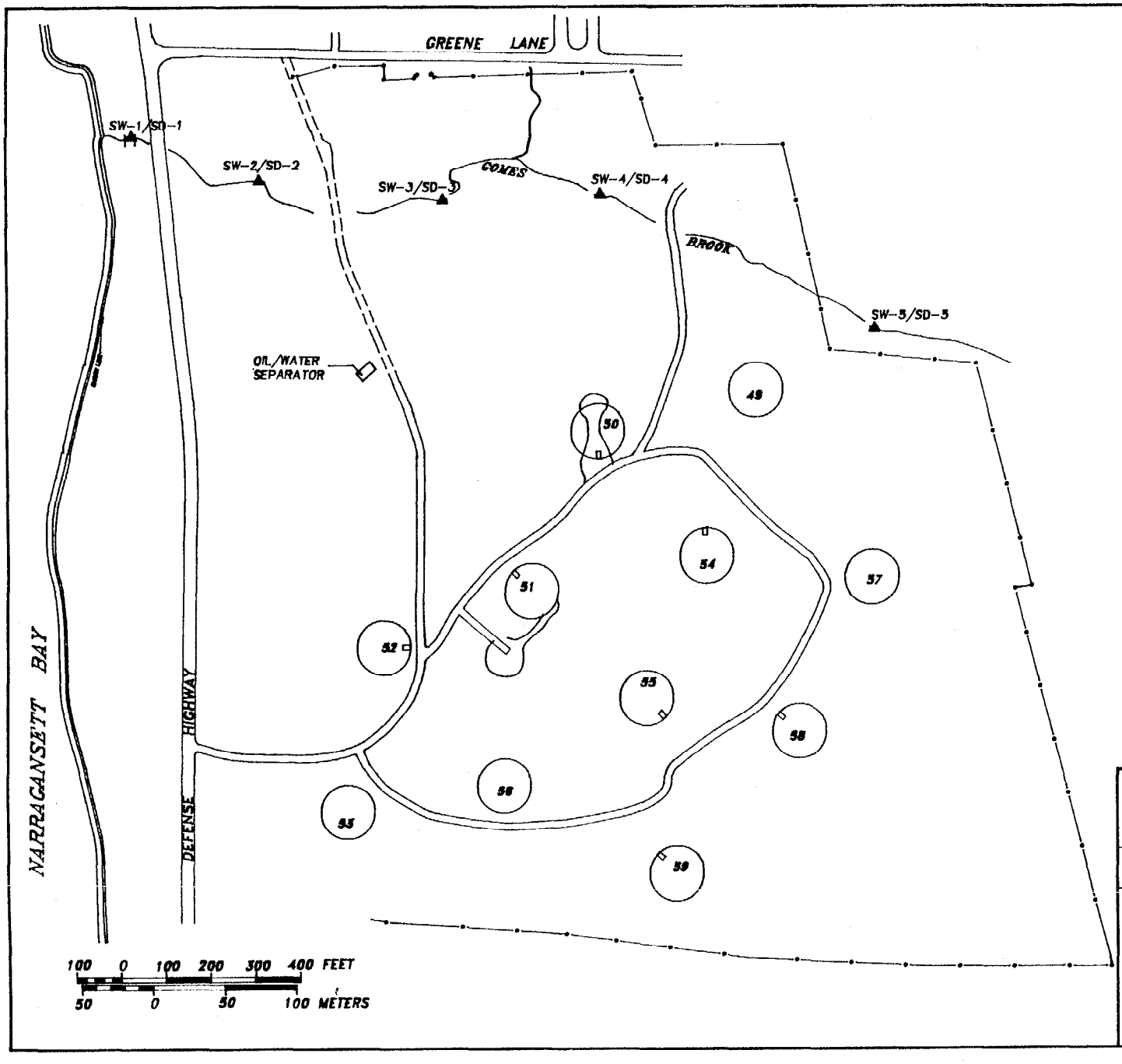
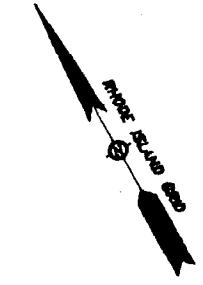


FIGURE 2-27.

SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS





LEGEND

SW-5/SD-5 ▲ SURFACE WATER AND SEDIMENT SAMPLE LOCATION

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SITE 13 - TANK FARM FIVE

FIGURE 2-28.

SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS

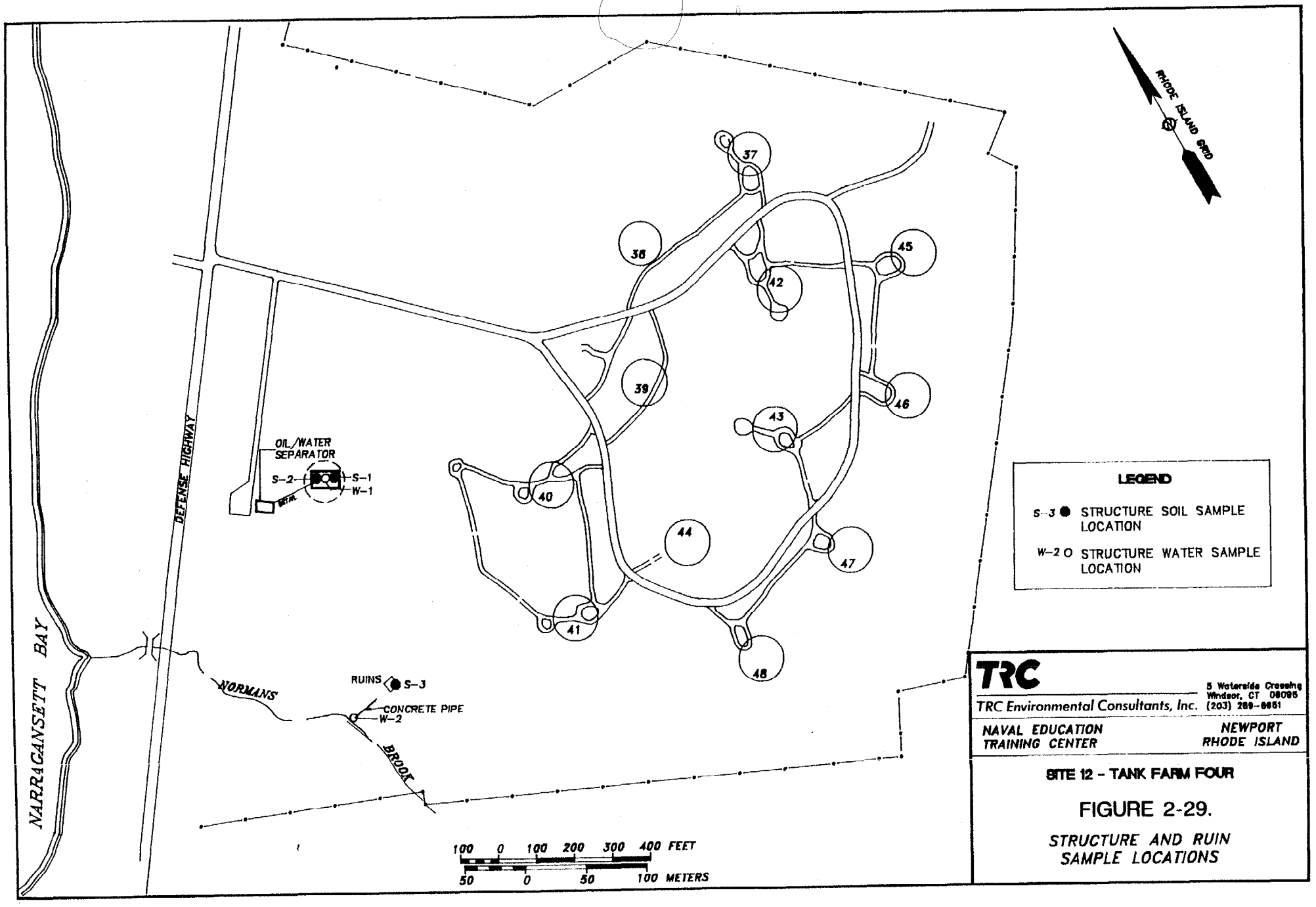


FIGURE 2-29.

STRUCTURE AND RUIN SAMPLE LOCATIONS

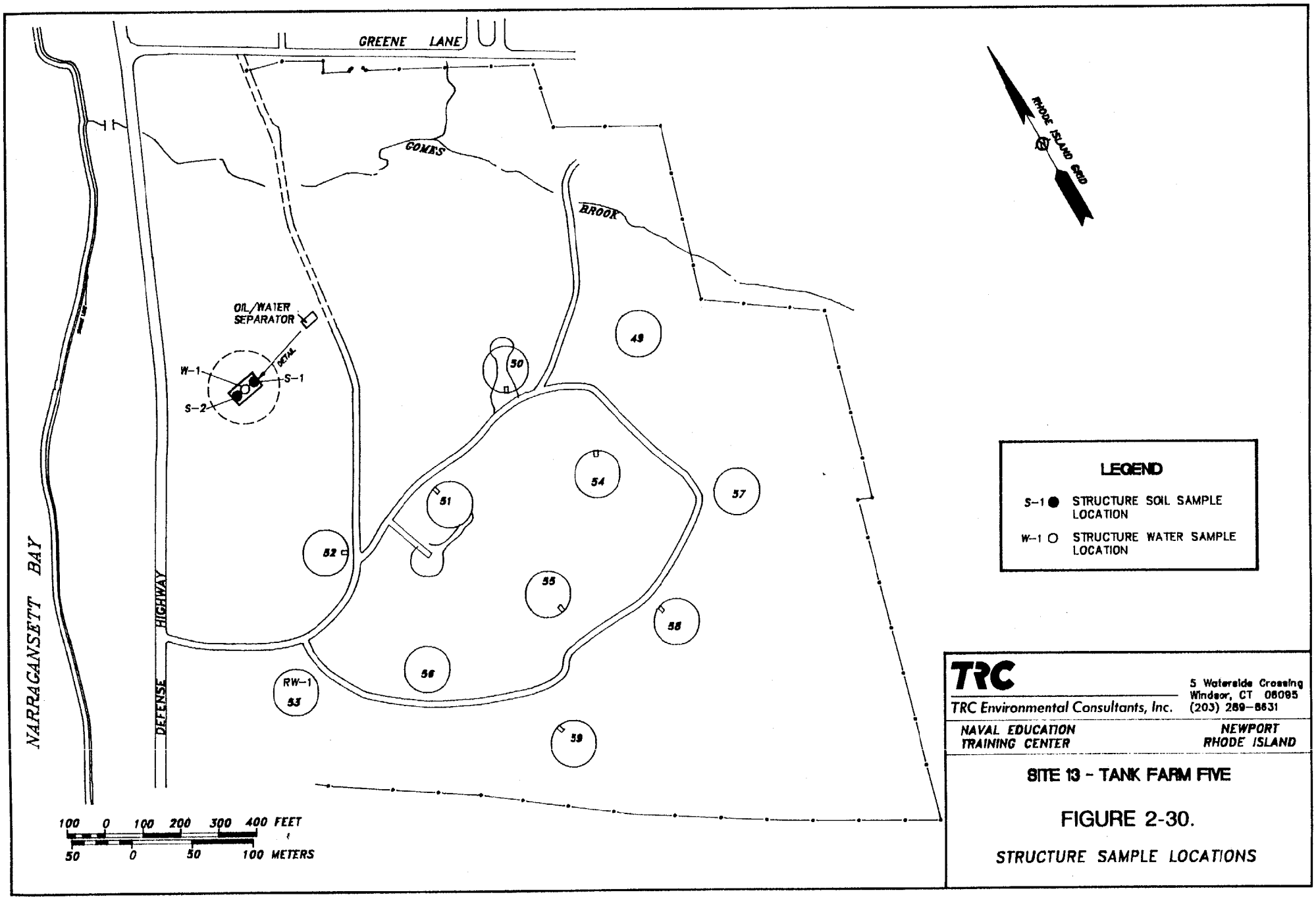


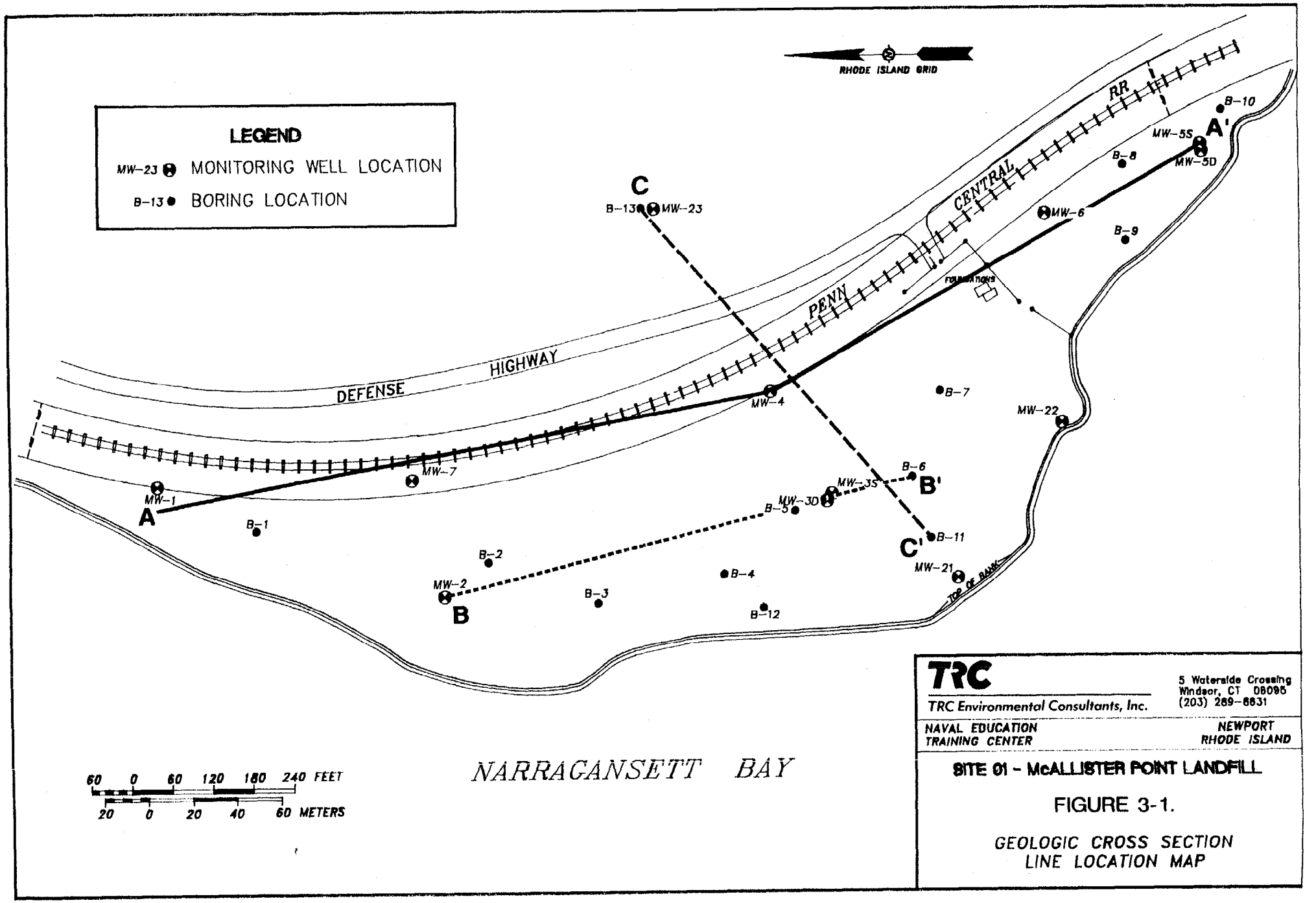
FIGURE 2-30.

STRUCTURE SAMPLE LOCATIONS

SECTION 3

FIGURES

TRC


LEGEND
MW-23 MONITORING WELL LOCATION
B-13 BORING LOCATION
RHODE ISLAND GRID
DEFENSE HIGHWAY
PENN CENTRAL RR
FOUNDATIONS
TOP OF BANK
NARRAGANSETT BAY
A
A'
B
B'
C
C'
MW-1
MW-2
MW-3D
MW-3S
MW-4
MW-5S
MW-5D
MW-6
MW-7
MW-21
MW-22
MW-23
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
60 0 60 120 180 240 FEET
20 0 20 40 60 METERS
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Windsor, CT 06095
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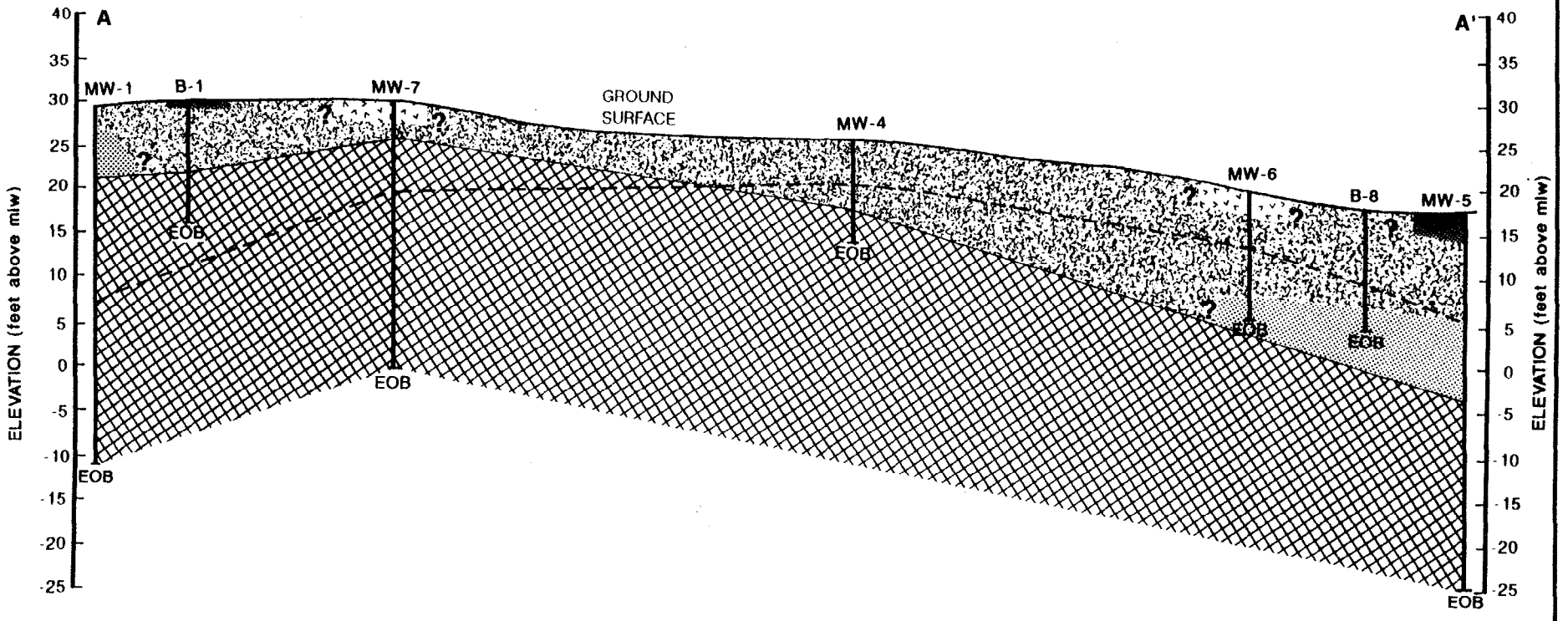
NAVAL EDUCATION TRAINING CENTER
NEWPORT RHODE ISLAND
SITE 01 - McALLISTER POINT LANDFILL
FIGURE 3-1.
GEOLOGIC CROSS SECTION LINE LOCATION MAP



LEGEND

- — — GROUND WATER TABLE (01/31/91)
- SAND & SILT FILL
- CLAY/SILT FILL
- FILL (DEBRIS, ASH)
- TILL, (FINE SAND & SILT, SOME SHALE PIECES)
- SHALE (HIGHLY WEATHERED TO COMPETENT)

EOB- END OF BORING

0 200 FT
HORIZONTAL SCALE

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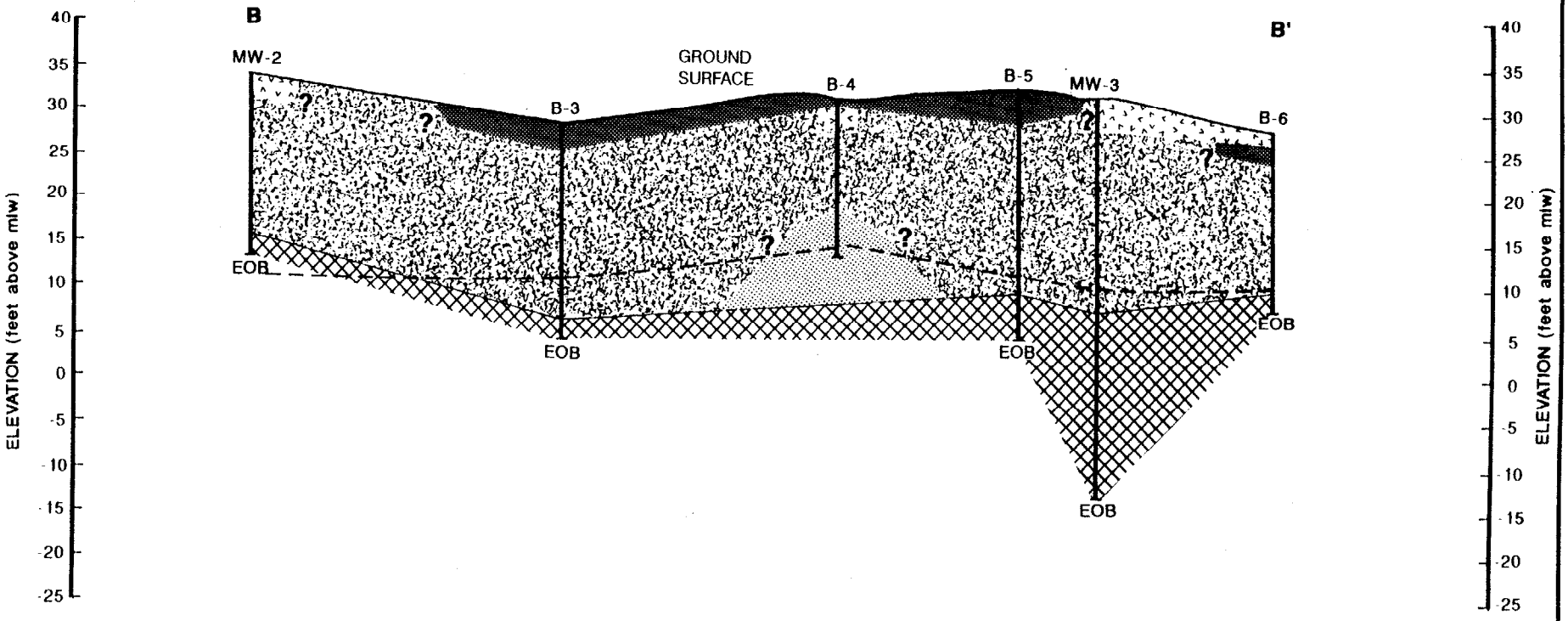
FIGURE 3-2.

GEOLOGIC CROSS SECTION LINE A-A'



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

- — — GROUND WATER TABLE (01/31/91)
- SAND & SILT FILL
- CLAY/SILT FILL
- FILL (DEBRIS, ASH)
- TILL (FINE SAND & SILT, SOME SHALE PIECES)
- SHALE (HIGHLY WEATHERED TO COMPETENT)

EOB- END OF BORING

0 120 FT
HORIZONTAL SCALE

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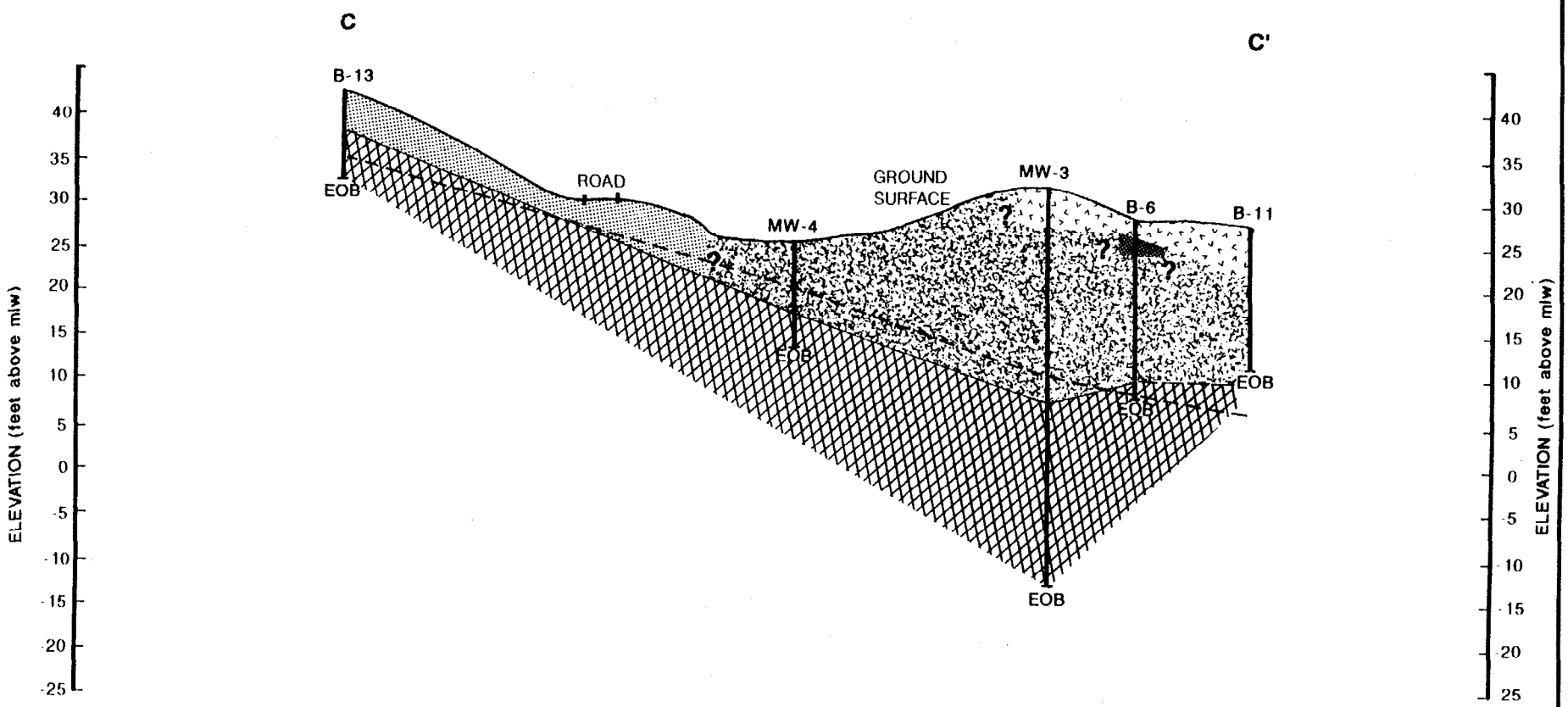
FIGURE 3-3.

GEOLOGIC CROSS SECTION LINE B-B'



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

- — — GROUND WATER TABLE (01/31/91)
- SAND & SILT FILL
- CLAY/SILT FILL
- FILL (DEBRIS, ASH)
- TILL (FINE SAND & SILT, SOME SHALE PIECES)
- SHALE (HIGHLY WEATHERED TO COMPETENT)

EOB- END OF BORING

0 120 FT
HORIZONTAL SCALE

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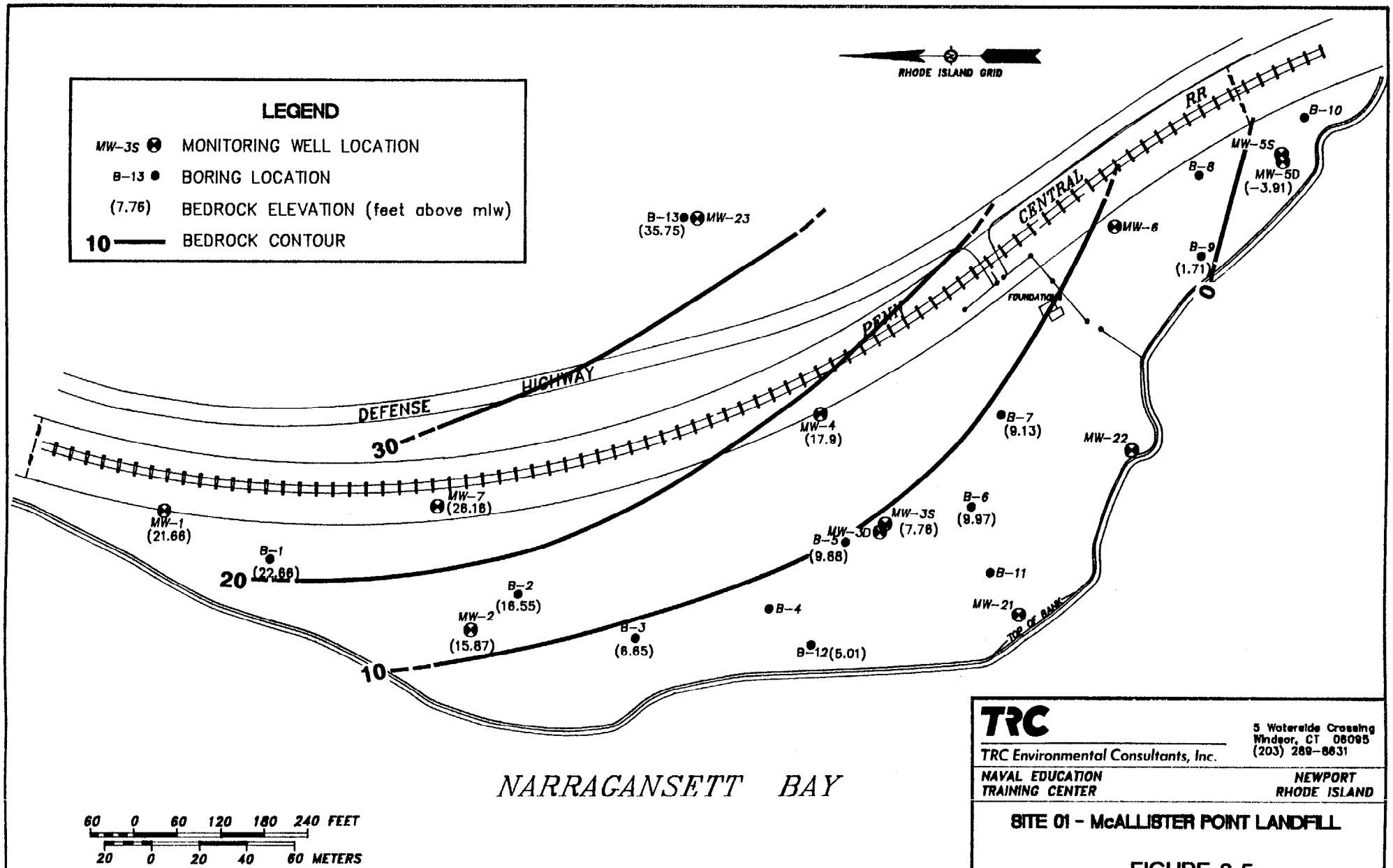
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 3-4.

GEOLOGIC CROSS SECTION LINE C-C'



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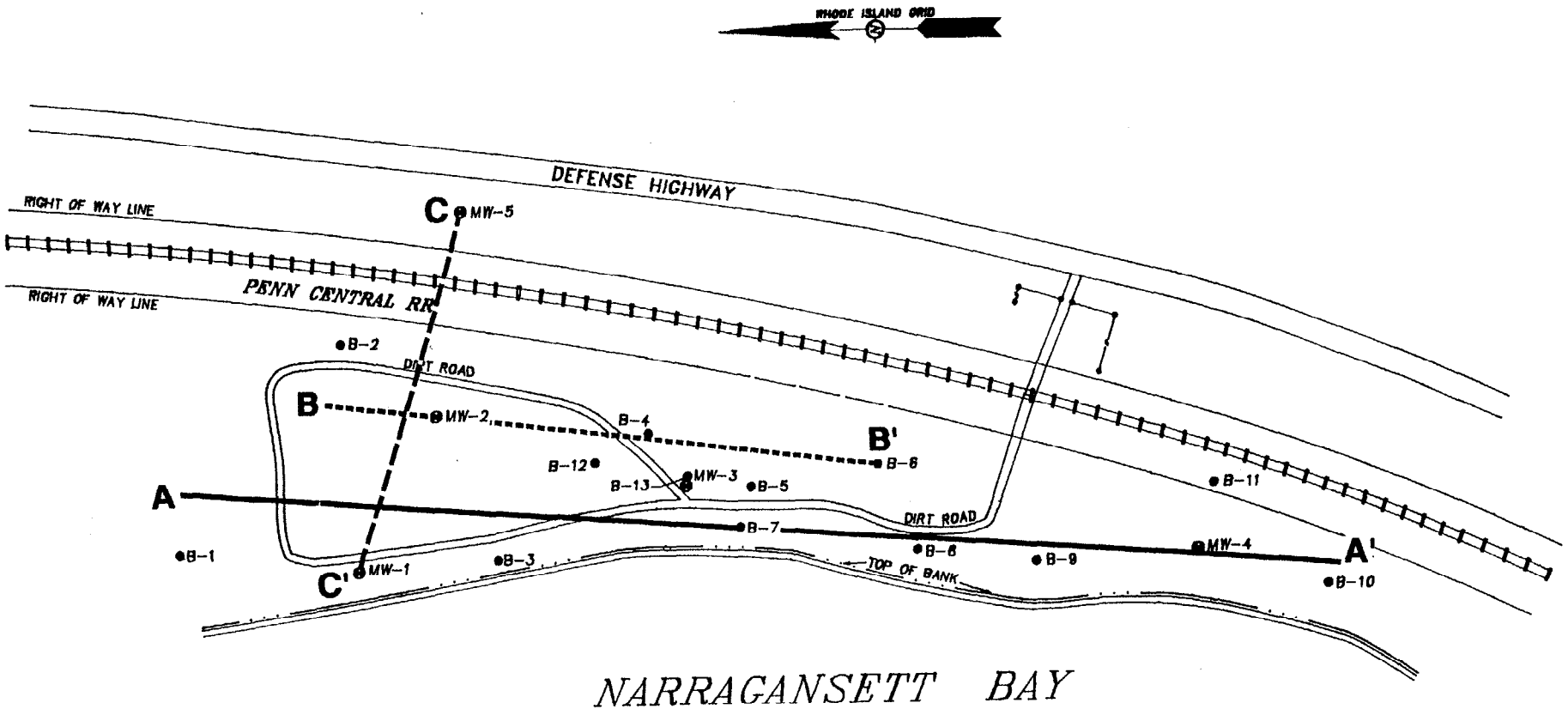
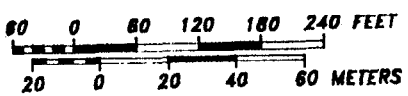
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 3-5.

BEDROCK CONTOUR MAP





LEGEND

MW-1 ● MONITORING WELL LOCATION

B-3 ● BORING LOCATION

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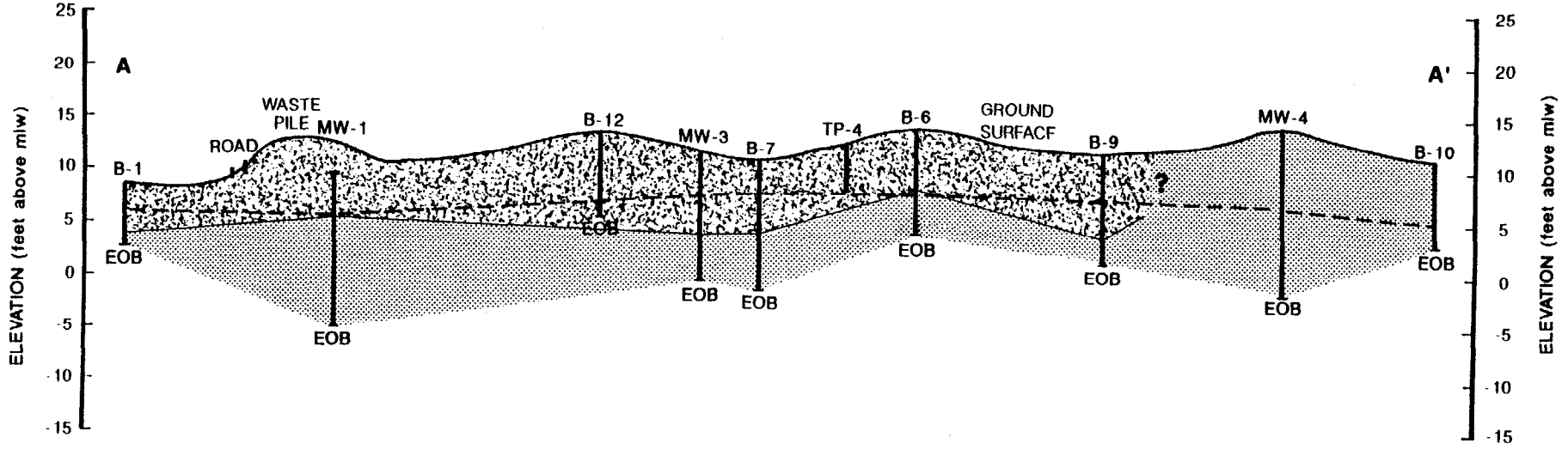
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 3-6.

GEOLOGIC CROSS SECTION LINE LOCATION MAP



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

FILL (SAND, SHALE, DEBRIS, ASH)

TILL (SAND & SILT, ROCK FRAGMENTS)

EOB - END OF BORING

GROUND WATER TABLE (01/31/91)

0 200 FT
HORIZONTAL SCALE

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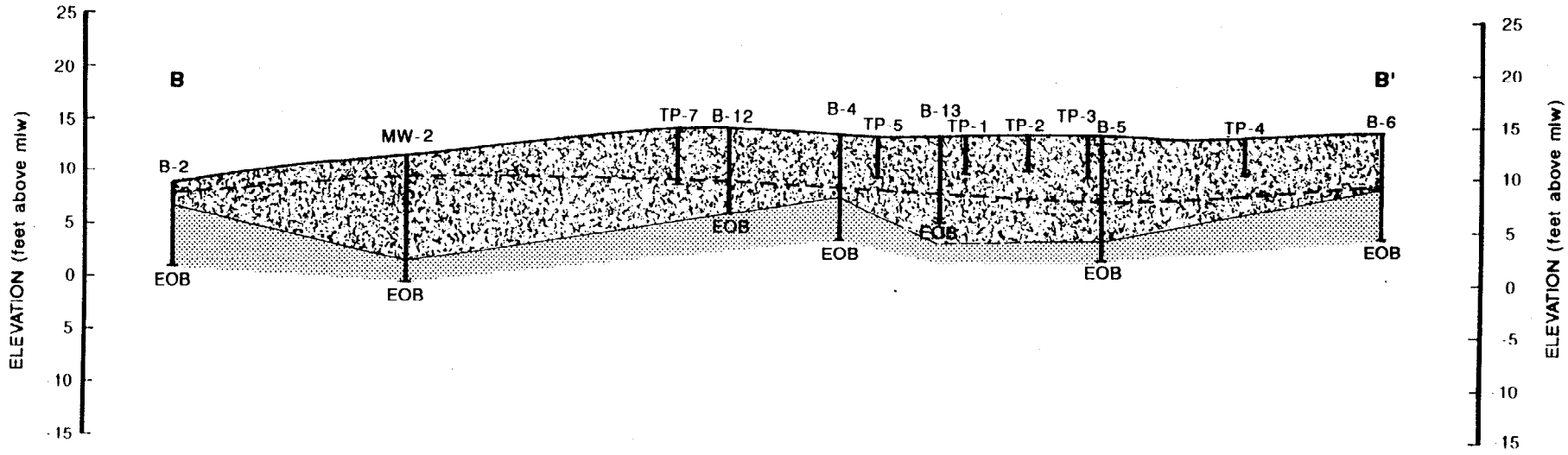
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 3-7.

GEOLOGIC CROSS SECTION LINE A-A'



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

FILL (SAND, SHALE, DEBRIS, ASH)

TILL (SAND & SILT, ROCK FRAGMENTS)

EOB - END OF BORING

— — GROUND WATER TABLE (01/31/91)

0 120 FT
HORIZONTAL SCALE

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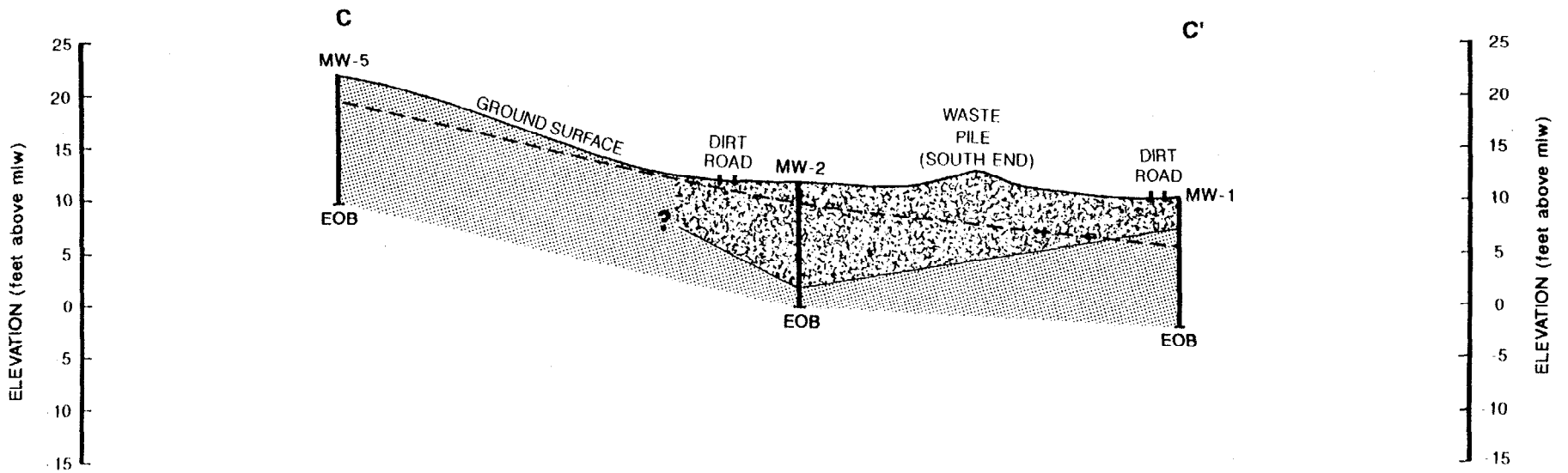
FIGURE 3-8.

GEOLOGIC CROSS SECTION LINE B-B'



LEGEND

FILL (SAND, SHALE, DEBRIS, ASH)

TILL (SAND & SILT, ROCK FRAGMENTS)

EOB - END OF BORING

— — GROUND WATER TABLE (01/31/91)

0 100 FT
HORIZONTAL SCALE

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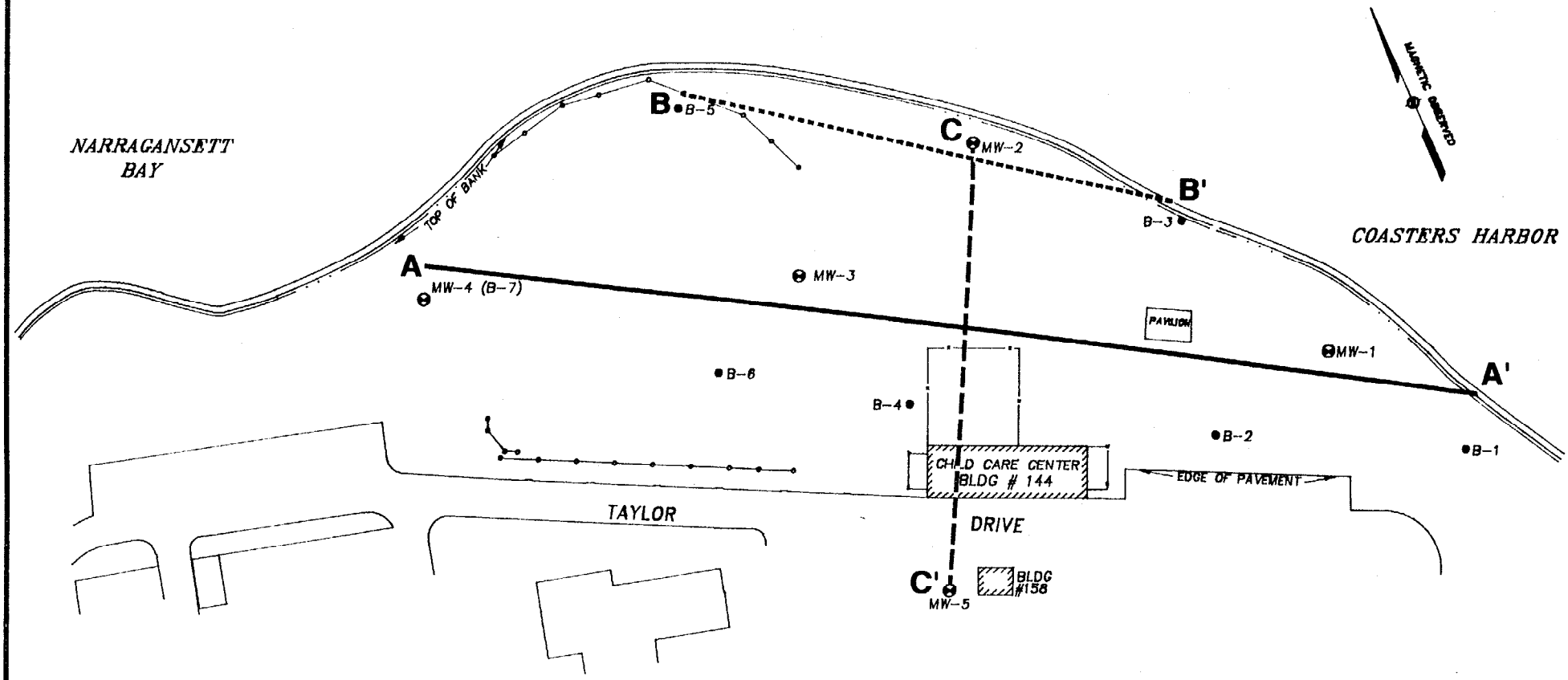
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 3-9.

GEOLOGIC CROSS SECTION LINE C-C'



LEGEND

MW-1 ⊖ MONITORING WELL LOCATION

B-4 ● BORING LOCATION

40 0 40 80 120 160 FEET

20 0 20 40 METERS

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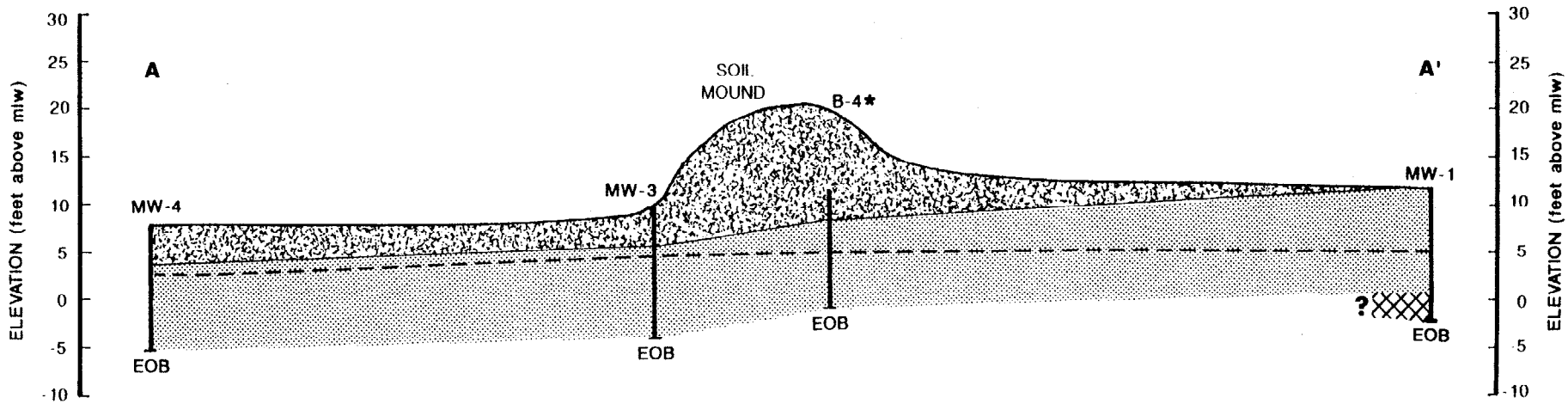
SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 3-10.

GEOLOGIC CROSS SECTION LINE LOCATION MAP



LEGEND

FILL (CONCRETE, BRICKS, ASPHALT)

TILL (SAND & SILT, SOME GRAVEL)

SANDSTONE

EOB-END OF BORING

— — GROUND WATER TABLE (01/31/91)

0 100 FT
HORIZONTAL SCALE

* NOTE: BORING B-4 IS OFFSET 60' TO SOUTH OF CROSS SECTION LINE (OFF OF MOUND)

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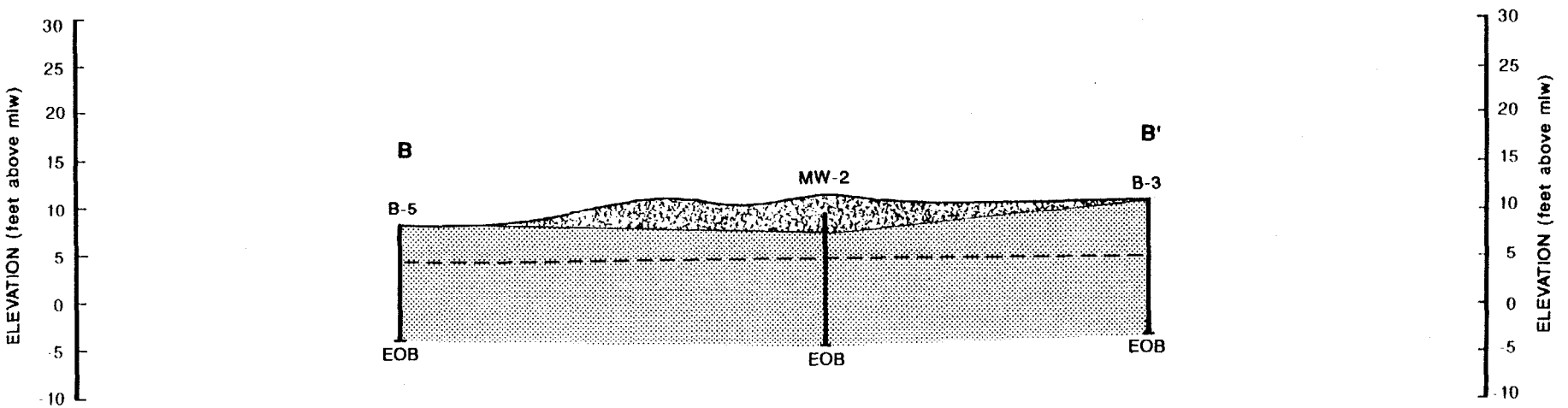
FIGURE 3-11.

GEOLOGIC CROSS SECTION LINE A-A'



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

FILL (CONCRETE, BRICKS, ASPHALT)

TILL (SAND & SILT, SOME GRAVEL)

EOB-END OF BORING

— — GROUND WATER TABLE (01/31/91)

0 100 FT
HORIZONTAL SCALE

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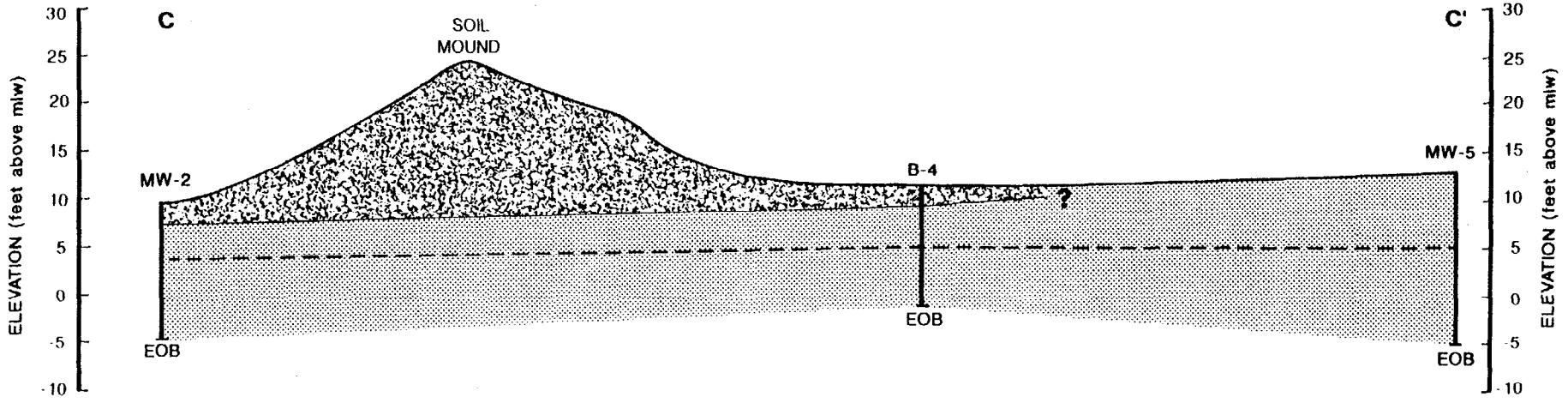
FIGURE 3-12.

GEOLOGIC CROSS SECTION LINE B-B'



LEGEND

FILL (CONCRETE, BRICKS, ASPHALT)

TILL (SAND & SILT, SOME GRAVEL)

EOB-END OF BORING

GROUND WATER TABLE (01/31/91)

0 50 FT

HORIZONTAL SCALE

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SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 3-13.

GEOLOGIC CROSS SECTION LINE C-C'

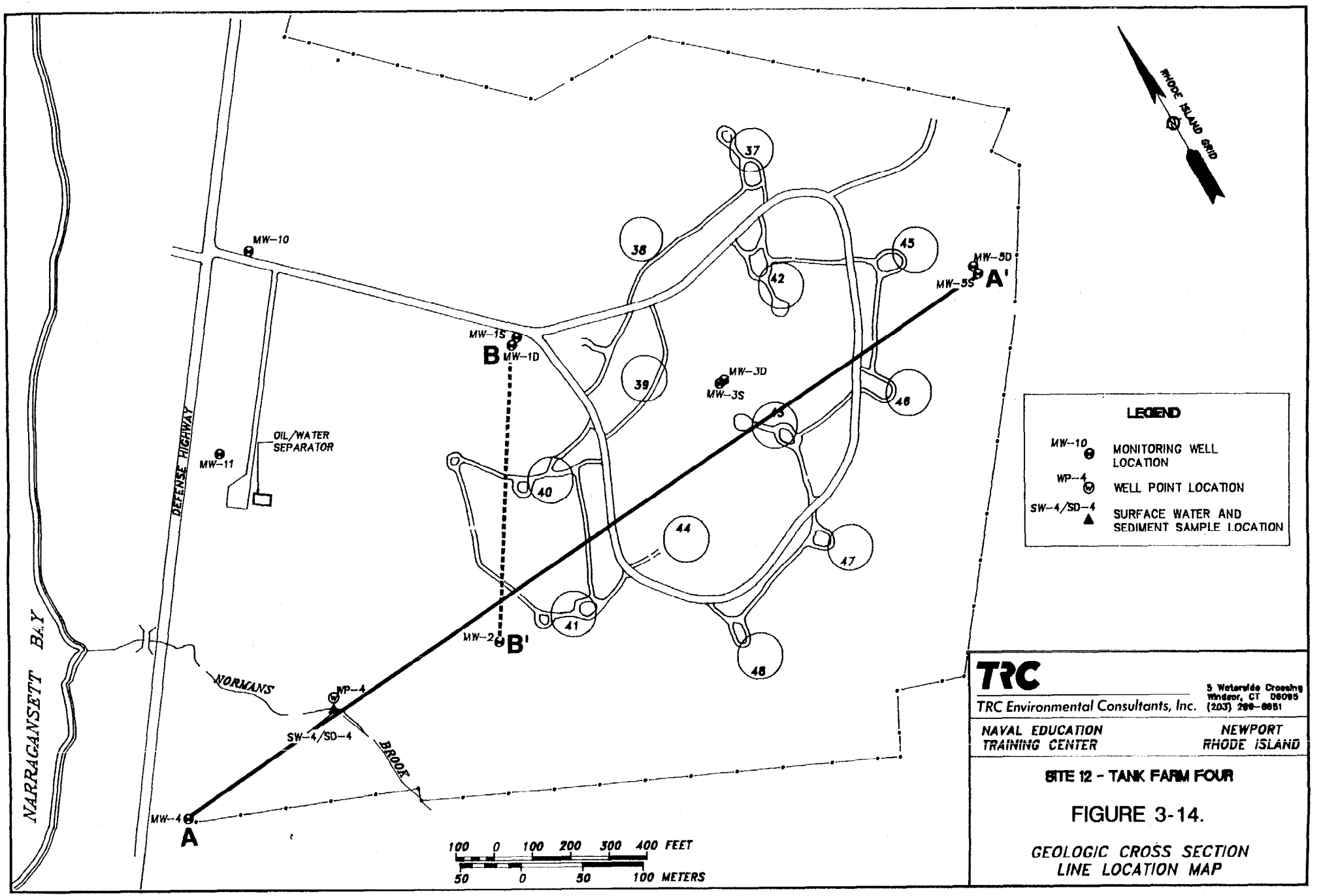
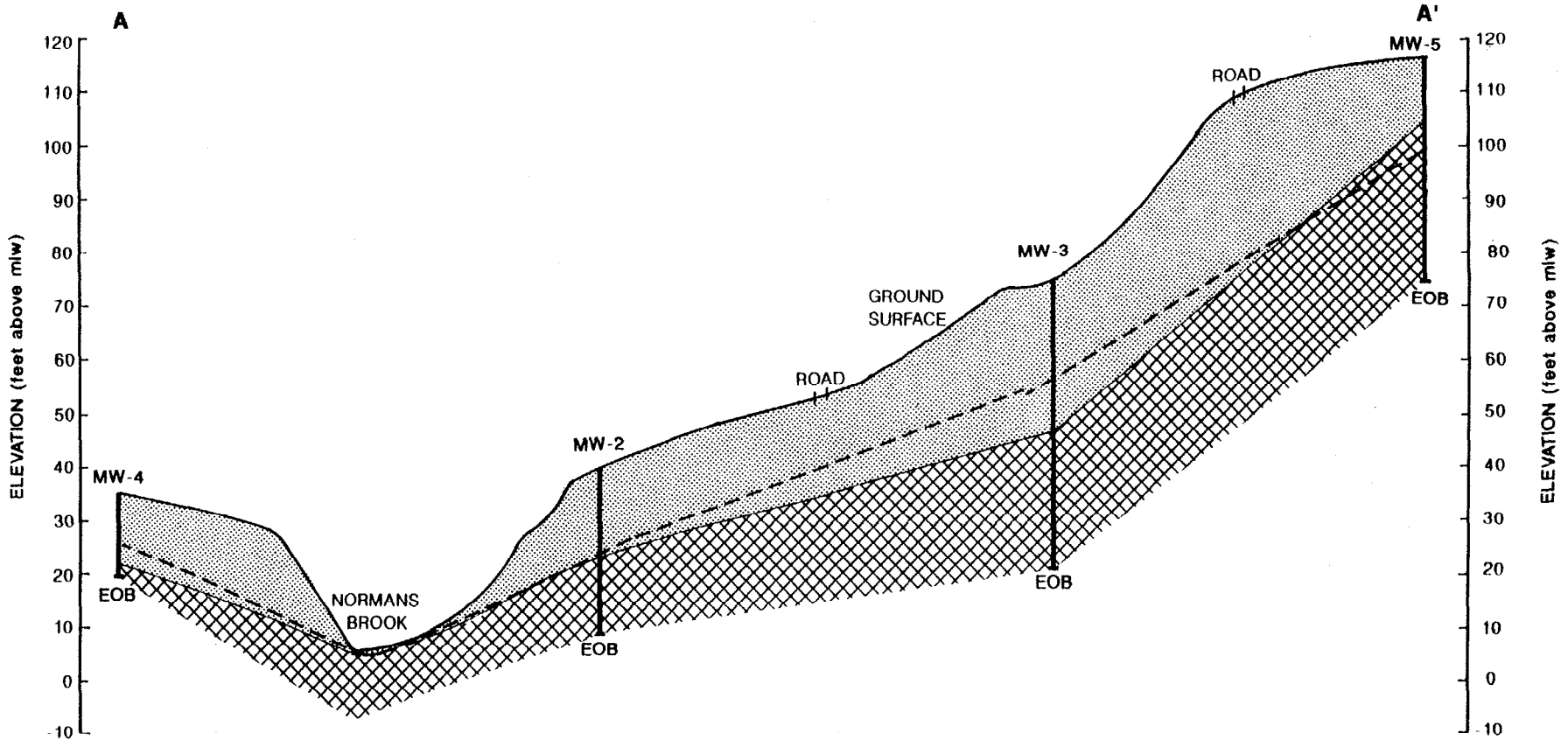


FIGURE 3-14.

GEOLOGIC CROSS SECTION LINE LOCATION MAP



LEGEND

TILL (SAND & SILT)

SHALE (WEATHERED TO COMPETENT)

EOB-END OF BORING

GROUND WATER TABLE (04/30/91)

NOTE: GROUND WATER TABLE ELEVATIONS MEASURED IN SHALLOW WELLS AT EACH LOCATION

0 400 FT
HORIZONTAL SCALE

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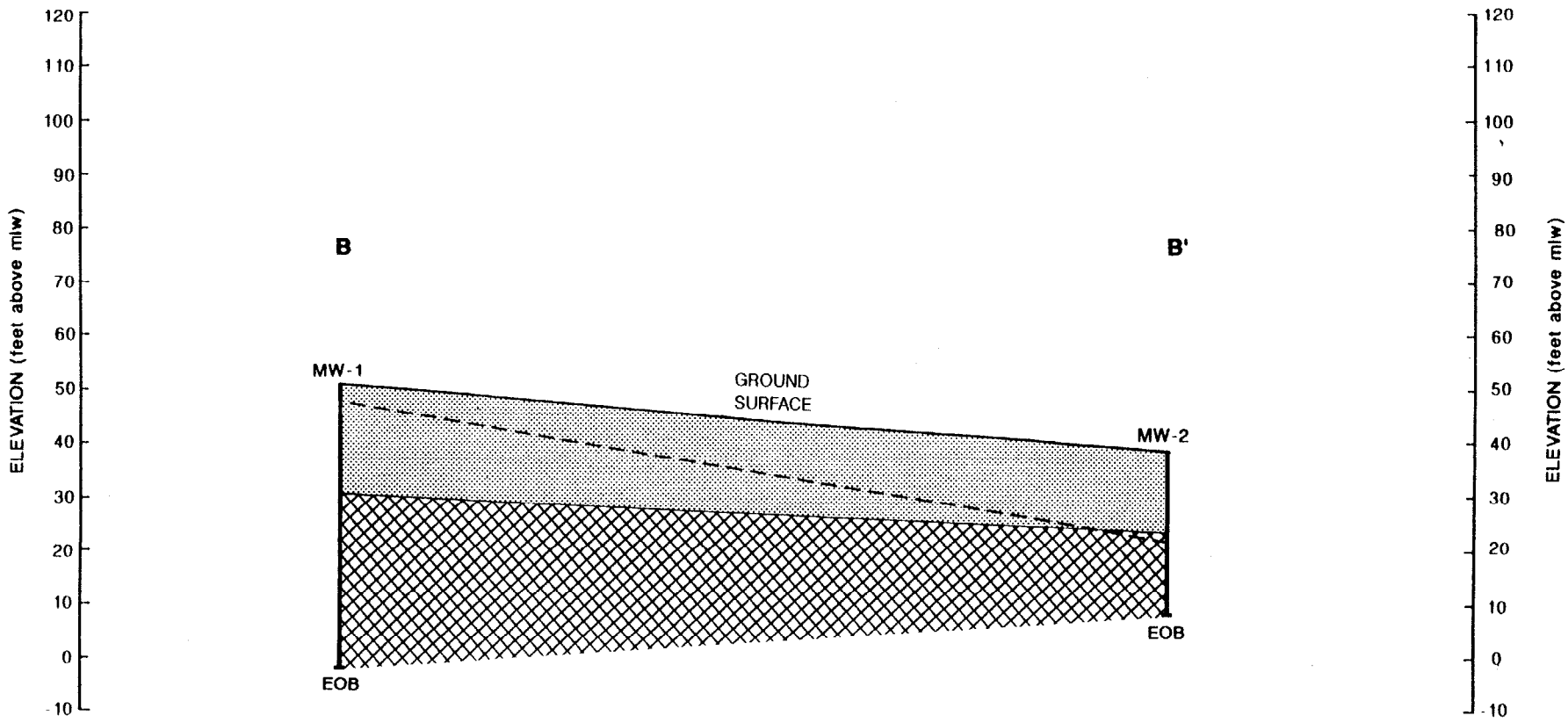
SITE 12 - TANK FARM FOUR

FIGURE 3-15.

GEOLOGIC CROSS SECTION LINE A-A'



LEGEND

TILL (SAND & SILT)

SHALE (WEATHERED TO COMPETENT)

EOB-END OF BORING

— — GROUND WATER TABLE (04/30/91)

NOTE: GROUND WATER TABLE ELEVATIONS MEASURED IN SHALLOW WELLS AT EACH LOCATION

0 200 FT

HORIZONTAL SCALE

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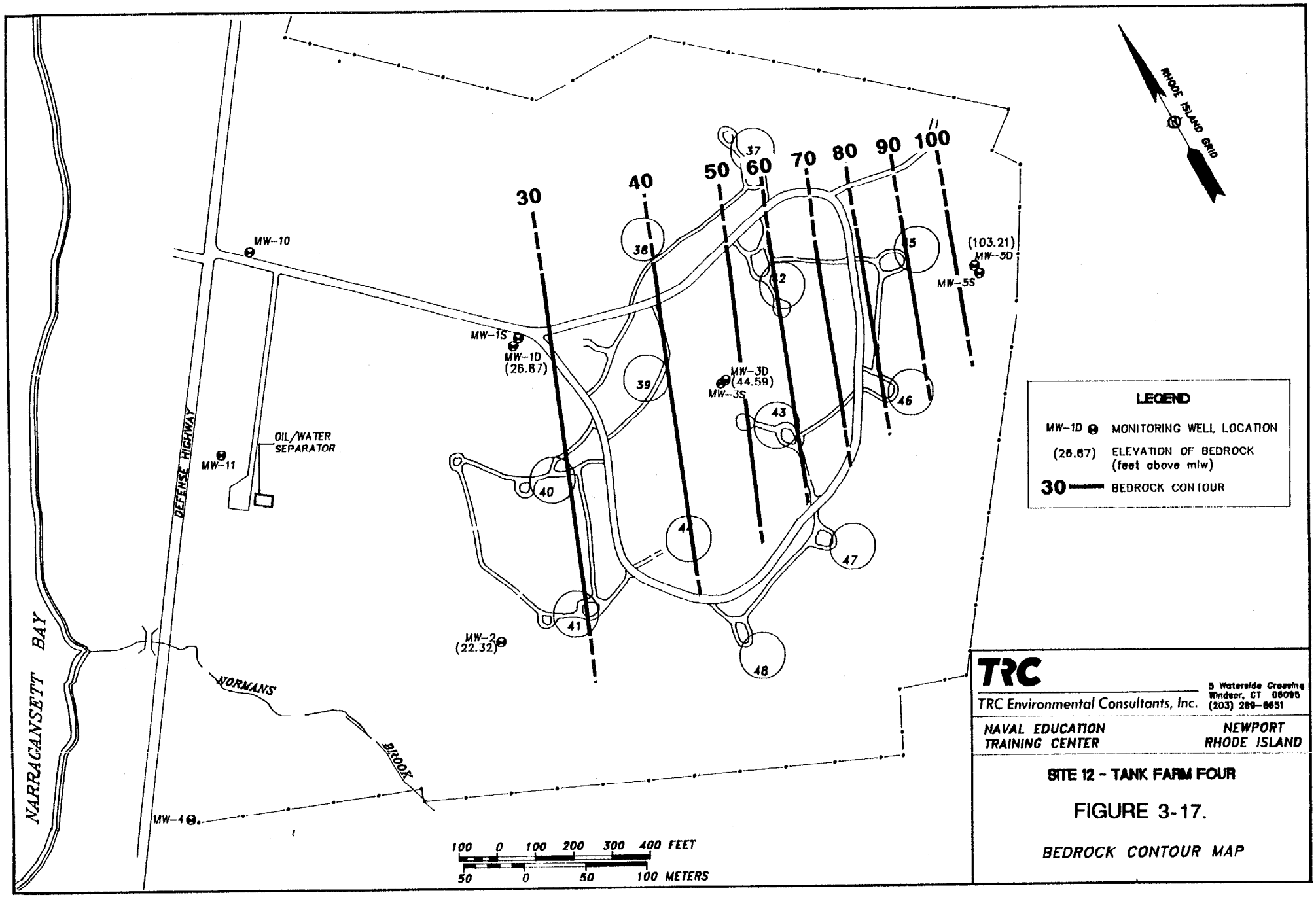
SITE 12 - TANK FARM FOUR

FIGURE 3-16.

GEOLOGIC CROSS SECTION LINE B-B'


RHODE ISLAND GRID
30
40
50
60
70
80
90
100
37
38
39
40
41
42
43
45
46
47
48
MW-10
MW-11
MW-1S
MW-1D
(26.87)
MW-3D
(44.59)
MW-3S
(103.21)
MW-5D
MW-5S
MW-2
(22.32)
MW-4
OIL/WATER
SEPARATOR
DEFENSE HIGHWAY
NARRAGANSETT BAY
NORMANS
BROOK
LEGEND
MW-1D MONITORING WELL LOCATION
(26.87) ELEVATION OF BEDROCK (feet above mlw)
30 BEDROCK CONTOUR
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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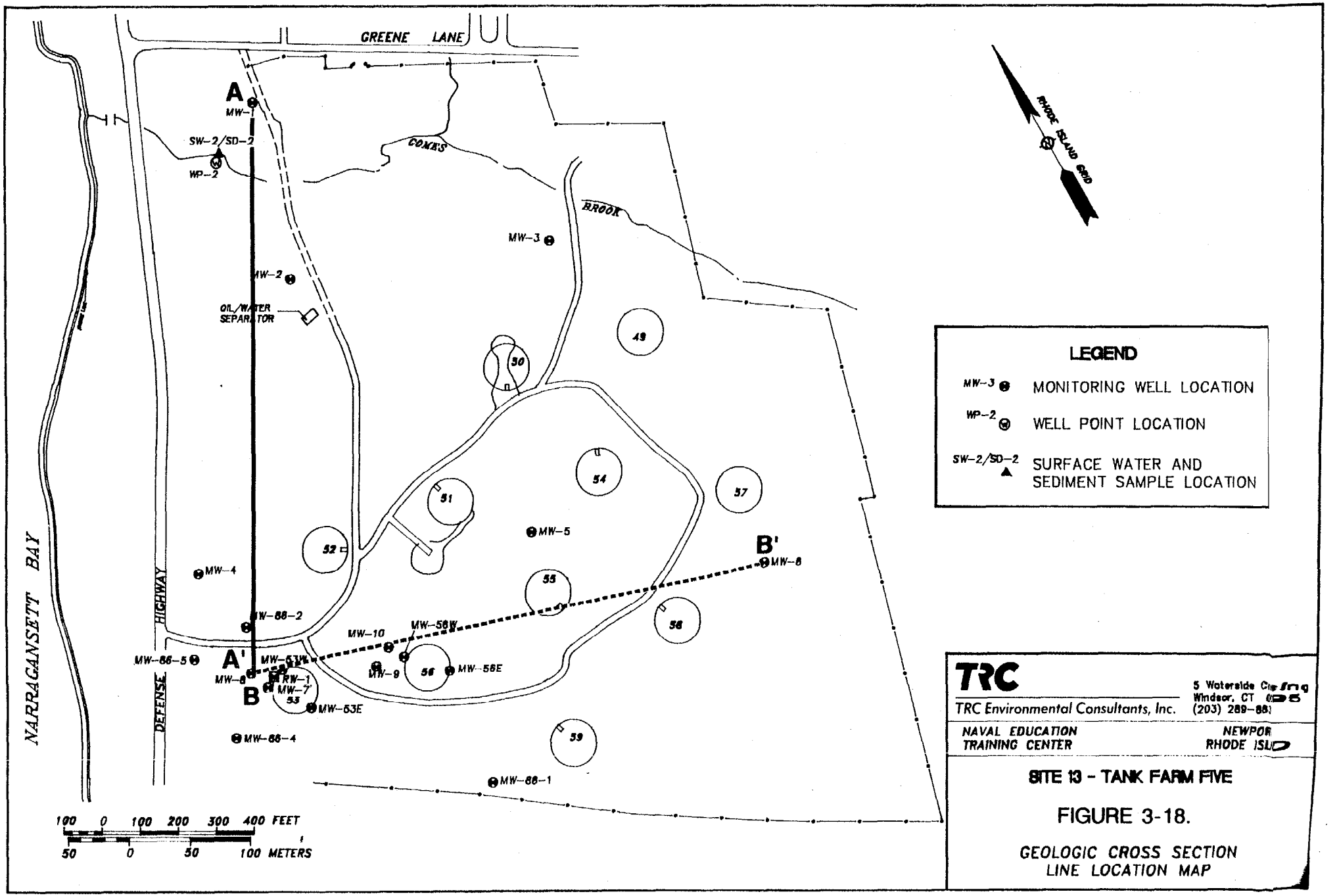
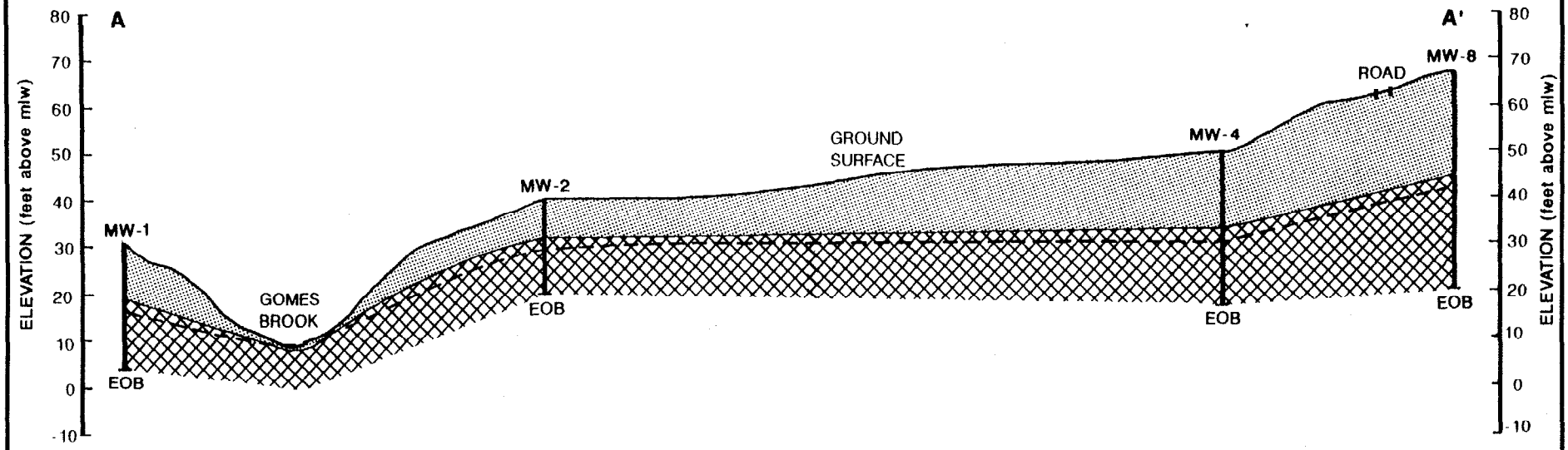
SITE 12 - TANK FARM FOUR
FIGURE 3-17.
BEDROCK CONTOUR MAP



SITE 13 - TANK FARM FIVE

FIGURE 3-18.

GEOLOGIC CROSS SECTION LINE LOCATION MAP



LEGEND

TILL (SAND & SILT)

SHALE (WEATHERED TO COMPETENT)

EOB - END OF BORING

— — GROUND WATER TABLE (01/31/91)

0 200 FT
HORIZONTAL SCALE

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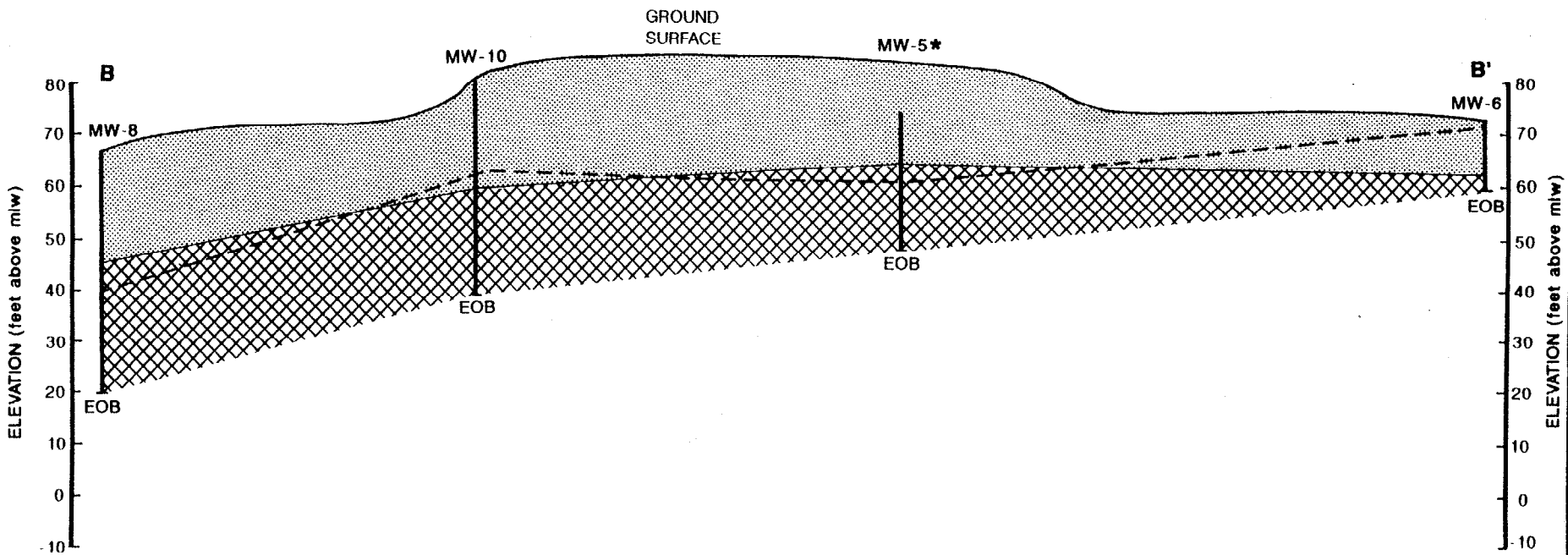
SITE 13 - TANK FARM FIVE

FIGURE 3-19.

GEOLOGIC CROSS SECTION LINE A-A'



LEGEND

TILL (SAND & SILT)

SHALE (WEATHERED TO COMPETENT)

EOB - END OF BORING

GROUND WATER TABLE (01/31/91)

*NOTE: MW-5 IS OFF-SET 200 FT. TO THE NORTH OF THE CROSS SECTION LINE

0 200 FT
HORIZONTAL SCALE

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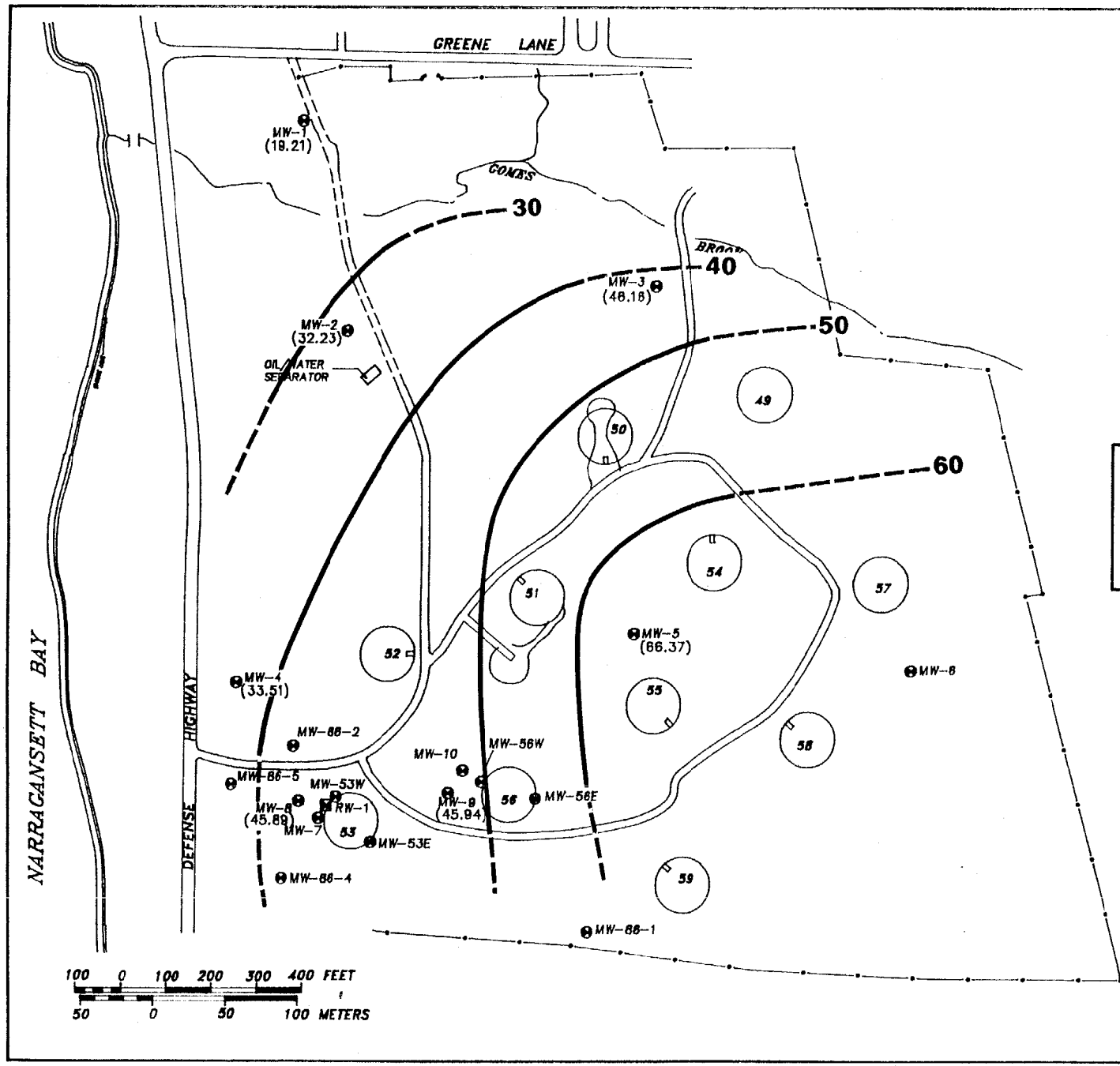
SITE 13 - TANK FARM FIVE

FIGURE 3-20.

GEOLOGIC CROSS SECTION LINE B-B'



LEGEND

MW-1 ⊗	MONITORING WELL LOCATION
(19.21)	BEDROCK ELEVATION (feet above mlw)
30 —	BEDROCK CONTOUR

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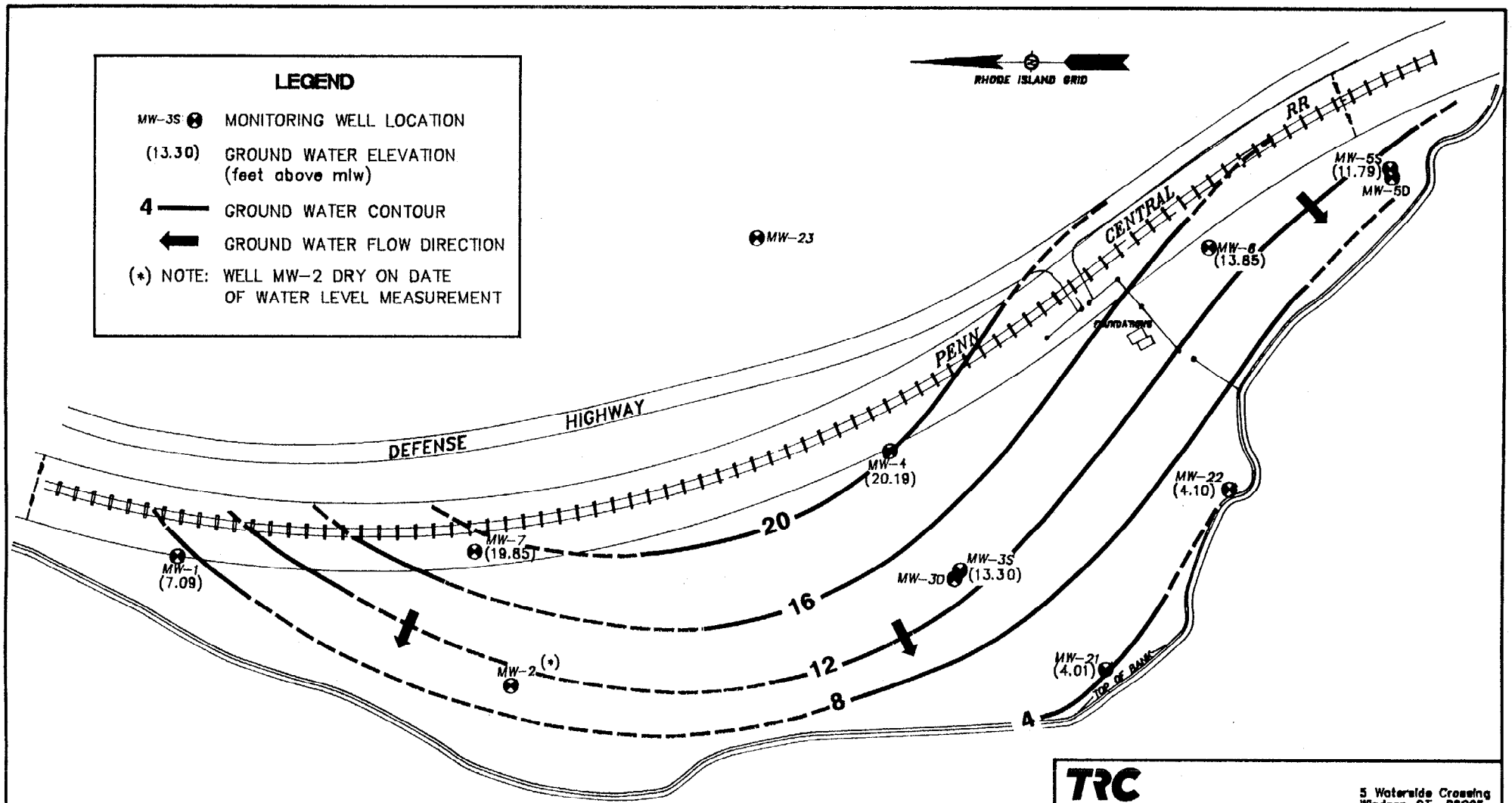
SITE 13 - TANK FARM FIVE

FIGURE 3-21.

BEDROCK CONTOUR MAP



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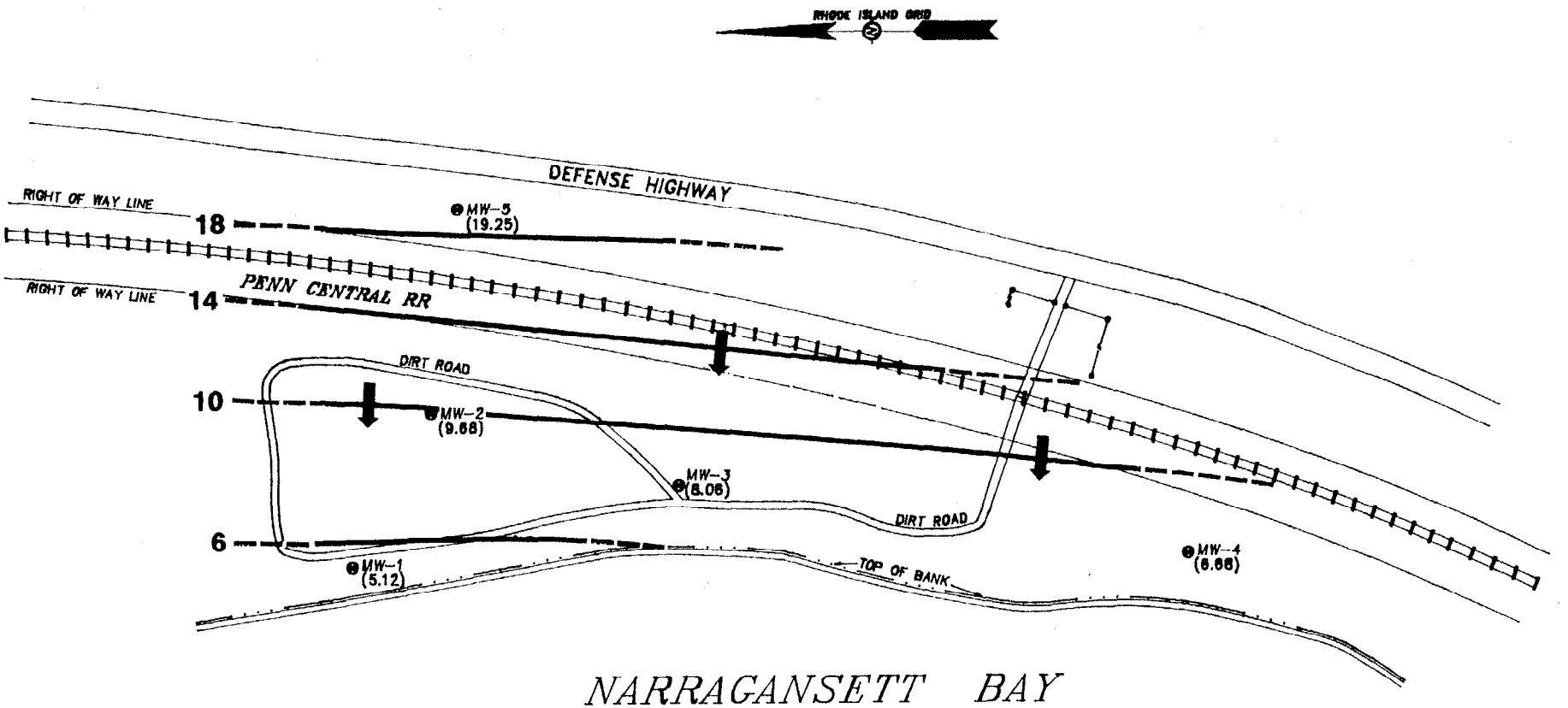
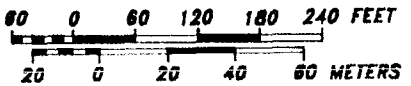
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 3-22.

GROUND WATER TABLE CONTOUR MAP
01/31/91





LEGEND

MW-3 ●	MONITORING WELL LOCATION
(8.06)	GROUND WATER ELEVATION (feet above mlw)
6 ——	GROUND WATER CONTOUR
⬅	GROUND WATER FLOW DIRECTION

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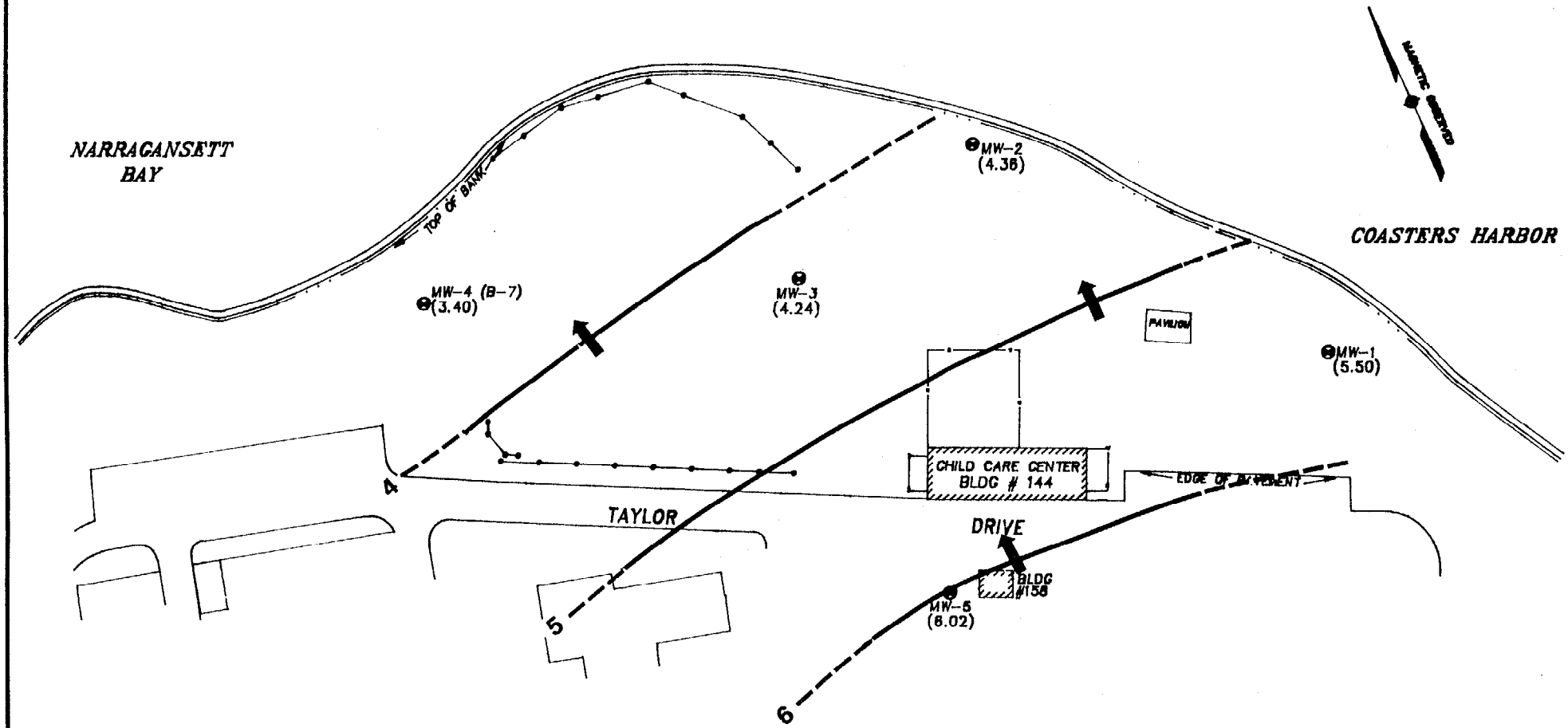
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 3-23.

GROUND WATER TABLE CONTOUR MAP
01/31/91



LEGEND

MW-3 ● MONITORING WELL LOCATION

(4.24) GROUND WATER ELEVATION (feet above mlw)

6 GROUND WATER CONTOUR

GROUND WATER FLOW DIRECTION

40 0 40 80 120 160 FEET

20 0 20 40 METERS

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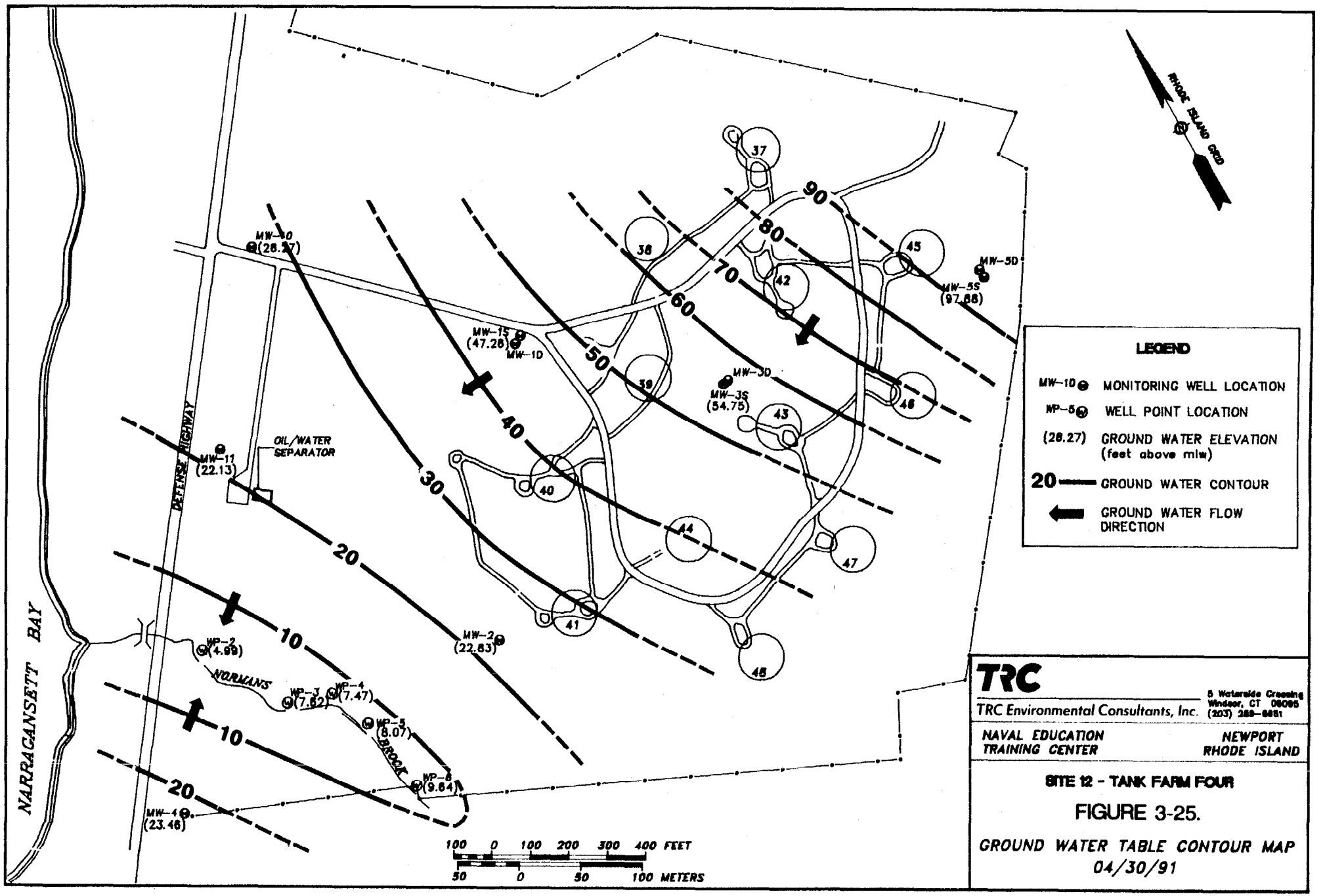
SITE 09 - OLD FIRE FIGHTER TRAINING AREA

FIGURE 3-24.

GROUND WATER TABLE CONTOUR MAP

01/31/91


NARRAGANSETT BAY
DEFENSE HIGHWAY
OIL/WATER SEPARATOR
NORMANS BROOK
MW-10 (28.27)
MW-11 (22.13)
MW-15 (47.28)
MW-1D
MW-3D
MW-3S (54.75)
MW-5D
MW-5S (97.88)
MW-2 (22.83)
MW-4 (23.46)
WP-2 (4.89)
WP-3 (7.62)
WP-4 (7.47)
WP-5 (8.07)
WP-6 (9.64)
10
20
30
40
50
60
70
80
90
37
38
39
40
41
42
43
44
45
46
47
48
RHODE ISLAND GRID
100 0 100 200 300 400 FEET
50 0 50 100 METERS
LEGEND
MW-10 MONITORING WELL LOCATION
WP-5 WELL POINT LOCATION
(28.27) GROUND WATER ELEVATION (feet above mlw)
20 GROUND WATER CONTOUR
GROUND WATER FLOW DIRECTION
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SITE 12 - TANK FARM FOUR
FIGURE 3-25.
GROUND WATER TABLE CONTOUR MAP
04/30/91

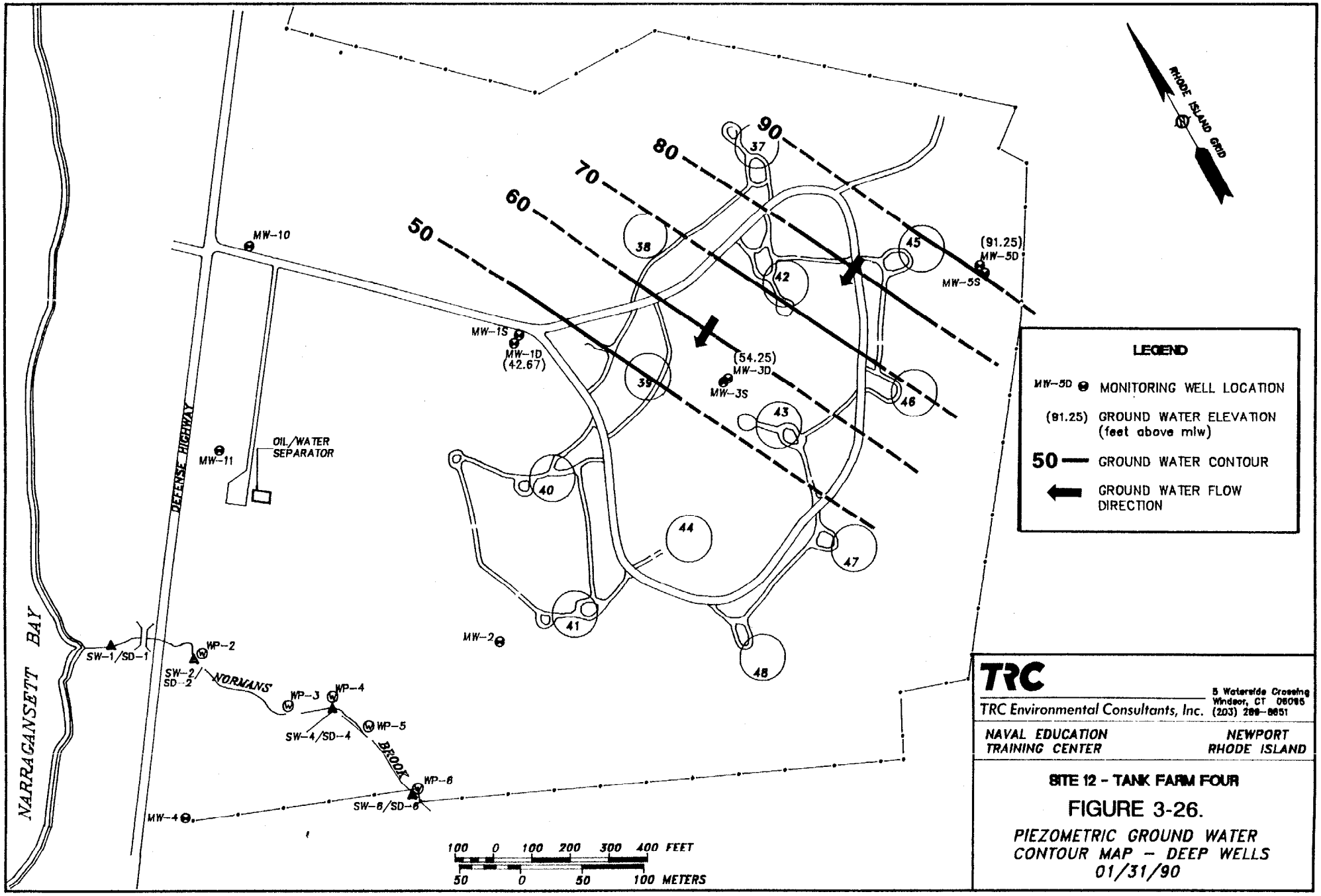
RHODE ISLAND GRID
N
90
80
70
60
50
37
38
39
40
41
42
43
44
45
46
47
48
(91.25)
MW-5D
MW-5S
(54.25)
MW-3D
MW-3S
MW-1S
MW-1D
(42.67)
MW-10
MW-11
MW-2
MW-4
OIL/WATER
SEPARATOR
DEFENSE HIGHWAY
NARRAGANSETT BAY
SW-1/SD-1
WP-2
SW-2/
SD-2
NORMANS
WP-3
WP-4
SW-4/SD-4
WP-5
BROOK
WP-6
SW-6/SD-6
100 0 100 200 300 400 FEET
50 0 50 100 METERS
LEGEND
MW-5D MONITORING WELL LOCATION
(91.25) GROUND WATER ELEVATION (feet above mlw)
50 GROUND WATER CONTOUR
GROUND WATER FLOW DIRECTION
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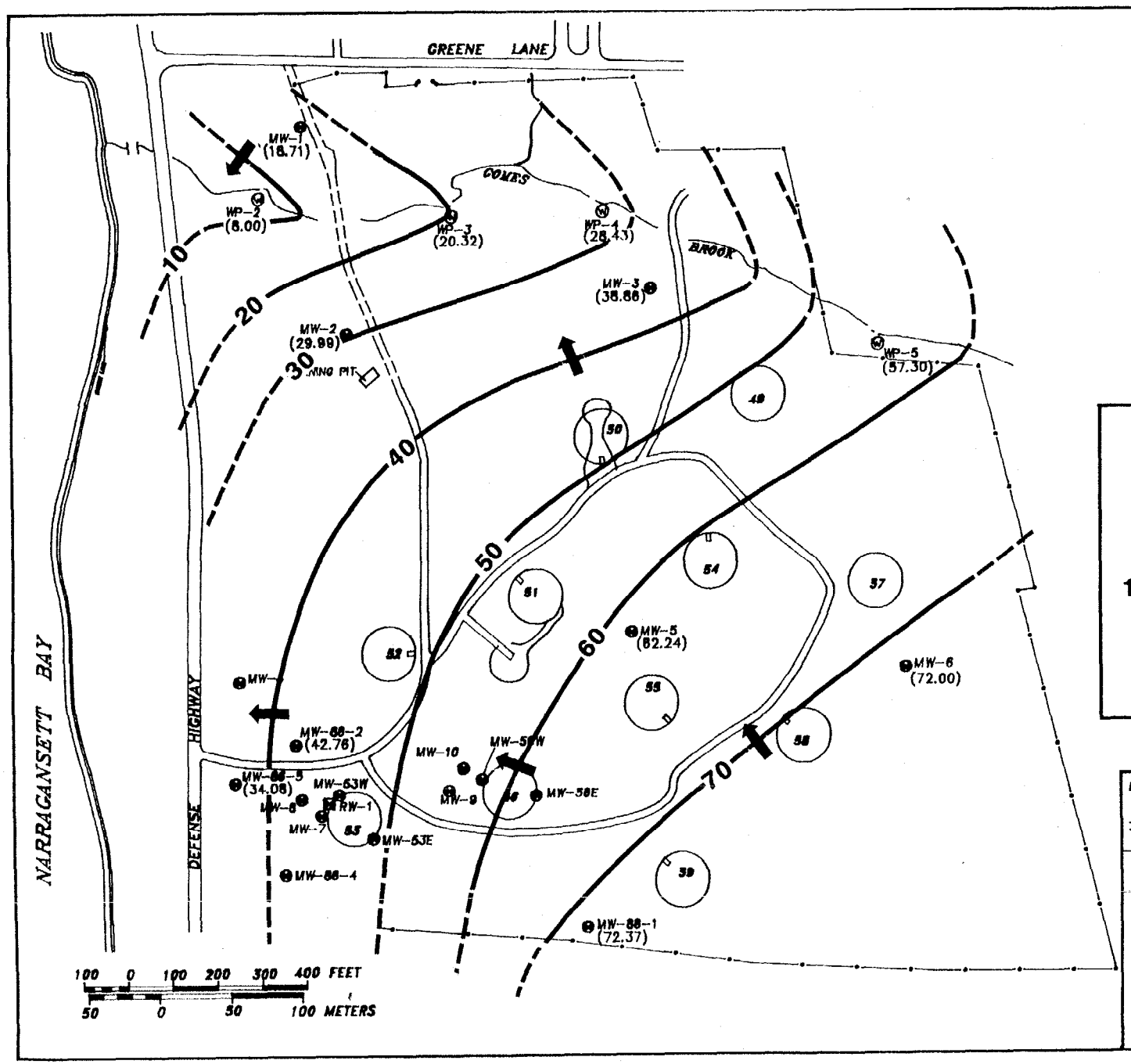
FIGURE 3-26.
PIEZOMETRIC GROUND WATER CONTOUR MAP - DEEP WELLS
01/31/90



LEGEND

MW-6 ● MONITORING WELL LOCATION

WP-2 ⊗ WELL POINT LOCATION

(72.00) GROUND WATER ELEVATION (feet above mlw)

10 —— GROUND WATER CONTOUR

⬅ GROUND WATER FLOW DIRECTION

NOTE: THIS MAP INCLUDES WELL POINT WATER ELEVATION DATA

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SITE 13 - TANK FARM FIVE

FIGURE 3-27.

GROUND WATER TABLE CONTOUR MAP
04/30/91

SECTION 4

FIGURES

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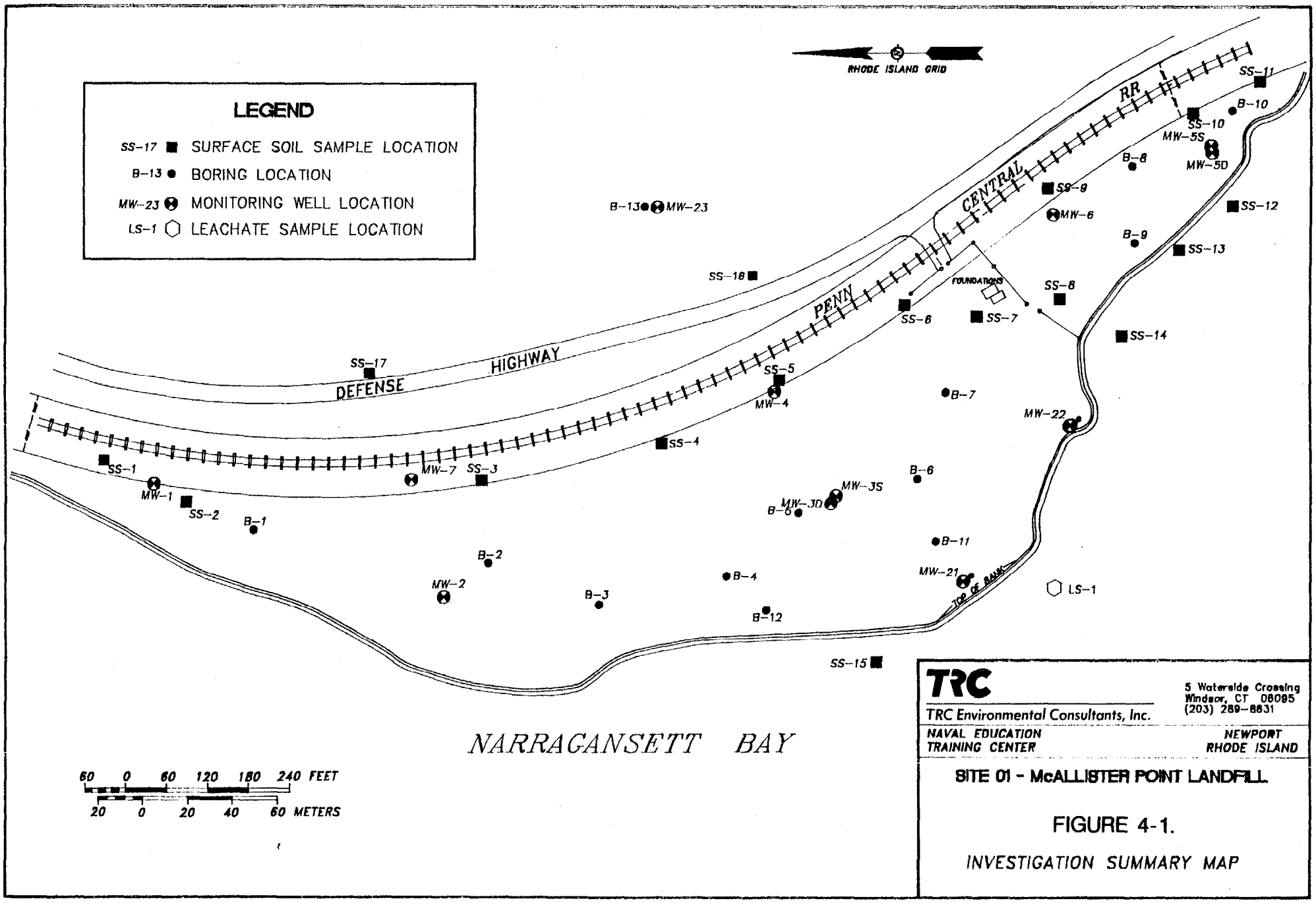

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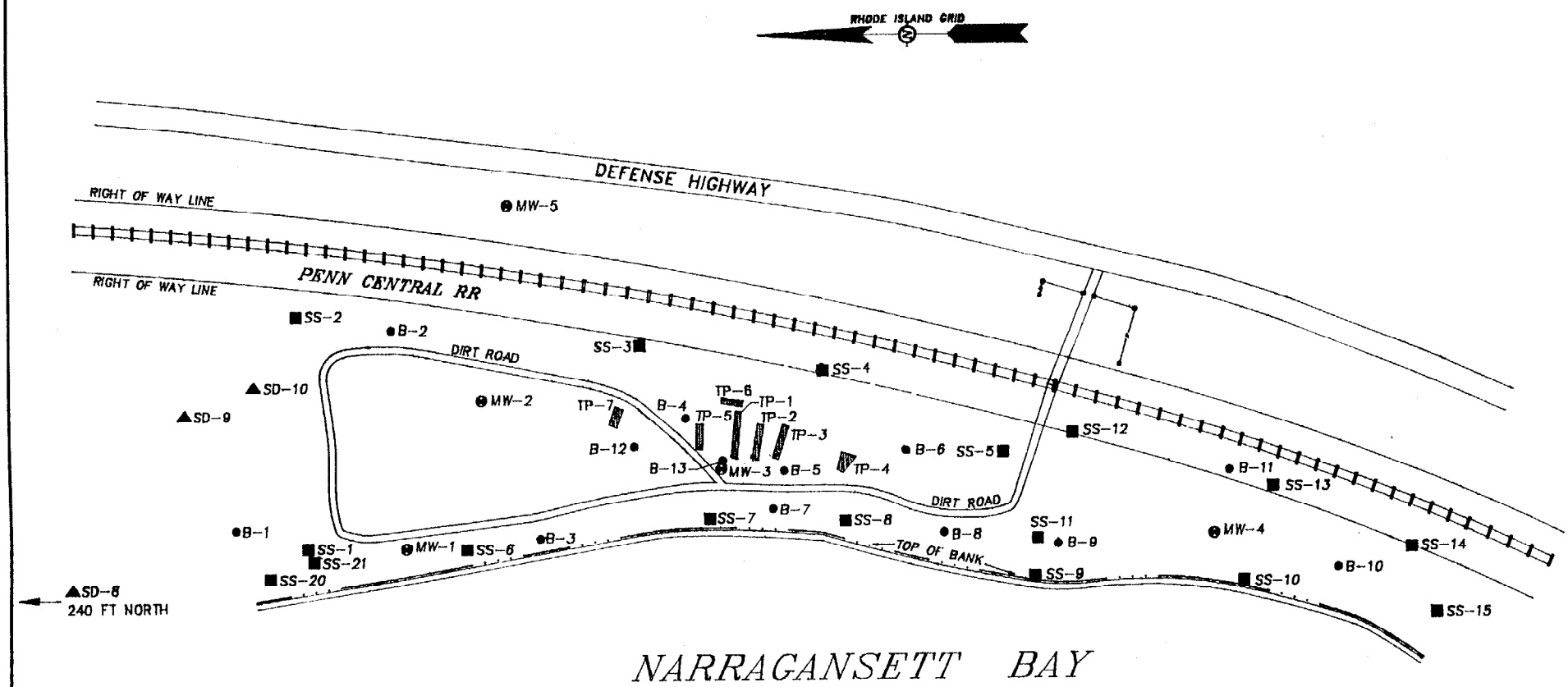
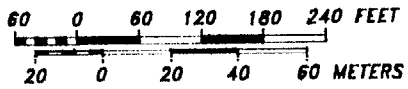
SITE 01 - McALLISTER POINT LANDFILL

FIGURE 4-1.

INVESTIGATION SUMMARY MAP





LEGEND

SS-8 ■	SURFACE SOIL SAMPLE LOCATION
B-7 ●	BORING LOCATION
MW-4 ⊕	MONITORING WELL LOCATION
SD-10 ▲	SEDIMENT SAMPLE LOCATION
TP-7 ▮	TEST PIT LOCATION

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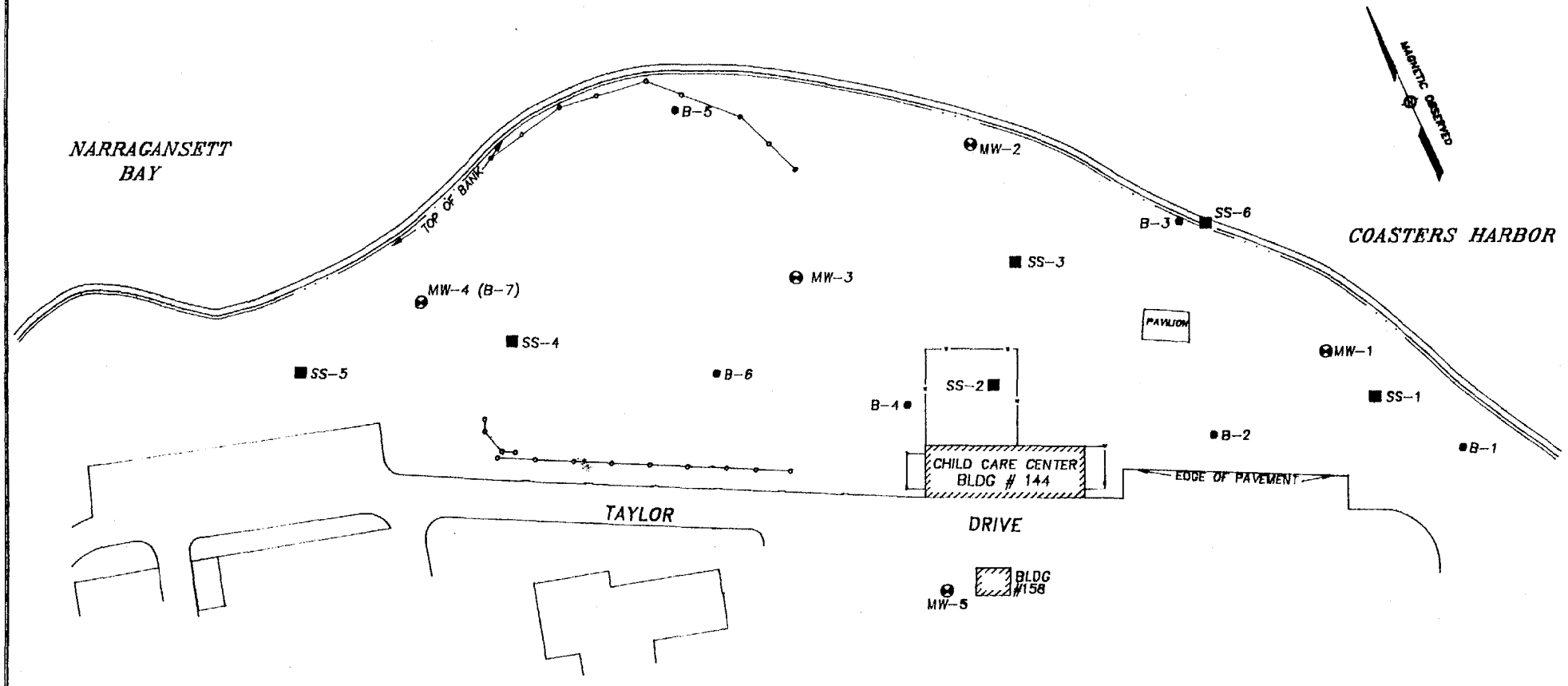
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 4-2.

INVESTIGATION SUMMARY MAP



40 0 40 80 120 160 FEET

20 0 20 40 METERS

LEGEND

SS-5 ■ SURFACE SOIL SAMPLE LOCATION

B-6 ● BORING LOCATION

MW-5 ⊗ MONITORING WELL LOCATION

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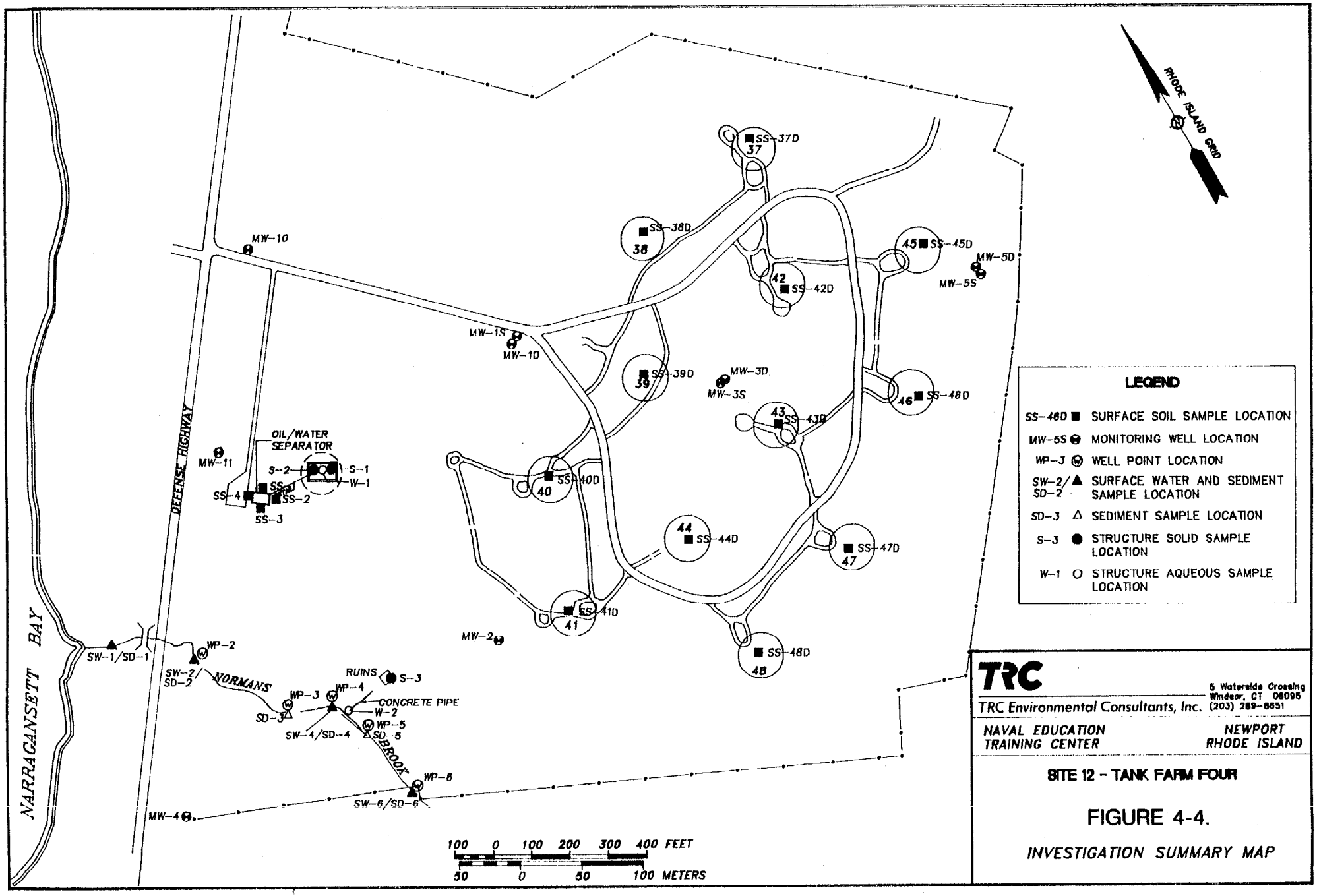
BITE 09 - OLD FIRE FIGHTING TRAINING AREA

FIGURE 4-3.

INVESTIGATION SUMMARY MAP



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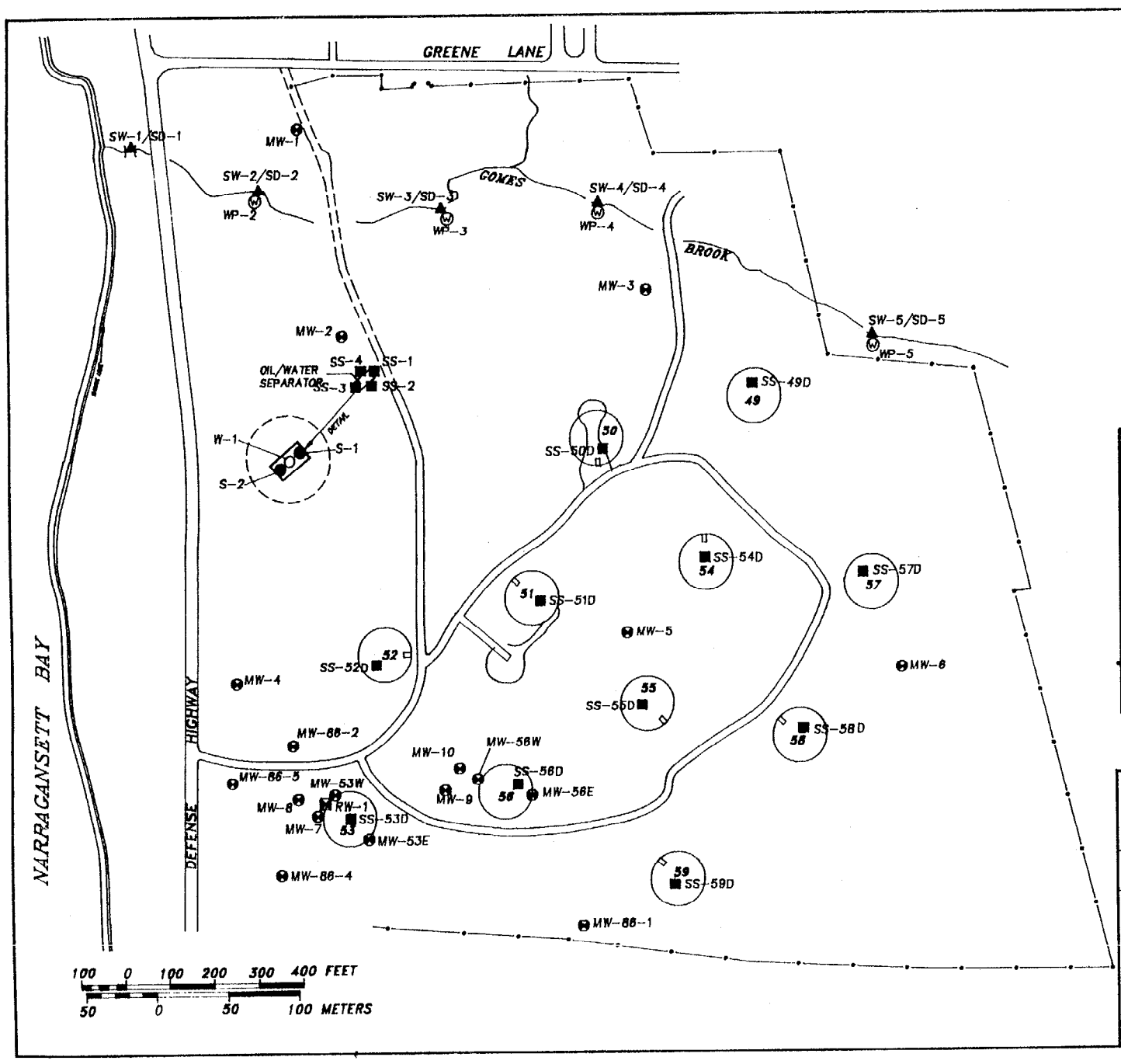
SITE 12 - TANK FARM FOUR

FIGURE 4-4.

INVESTIGATION SUMMARY MAP



LEGEND

SS-57 ■	SURFACE SOIL SAMPLE LOCATION
MW-6 ⊗	MONITORING WELL LOCATION
WP-2 Ⓦ	WELL POINT LOCATION
SW-2/SD-2 ▲	SURFACE WATER AND SEDIMENT SAMPLE LOCATION
S-1 ●	STRUCTURE SOLID SAMPLE LOCATION
W-1 ○	STRUCTURE AQUEOUS SAMPLE LOCATION

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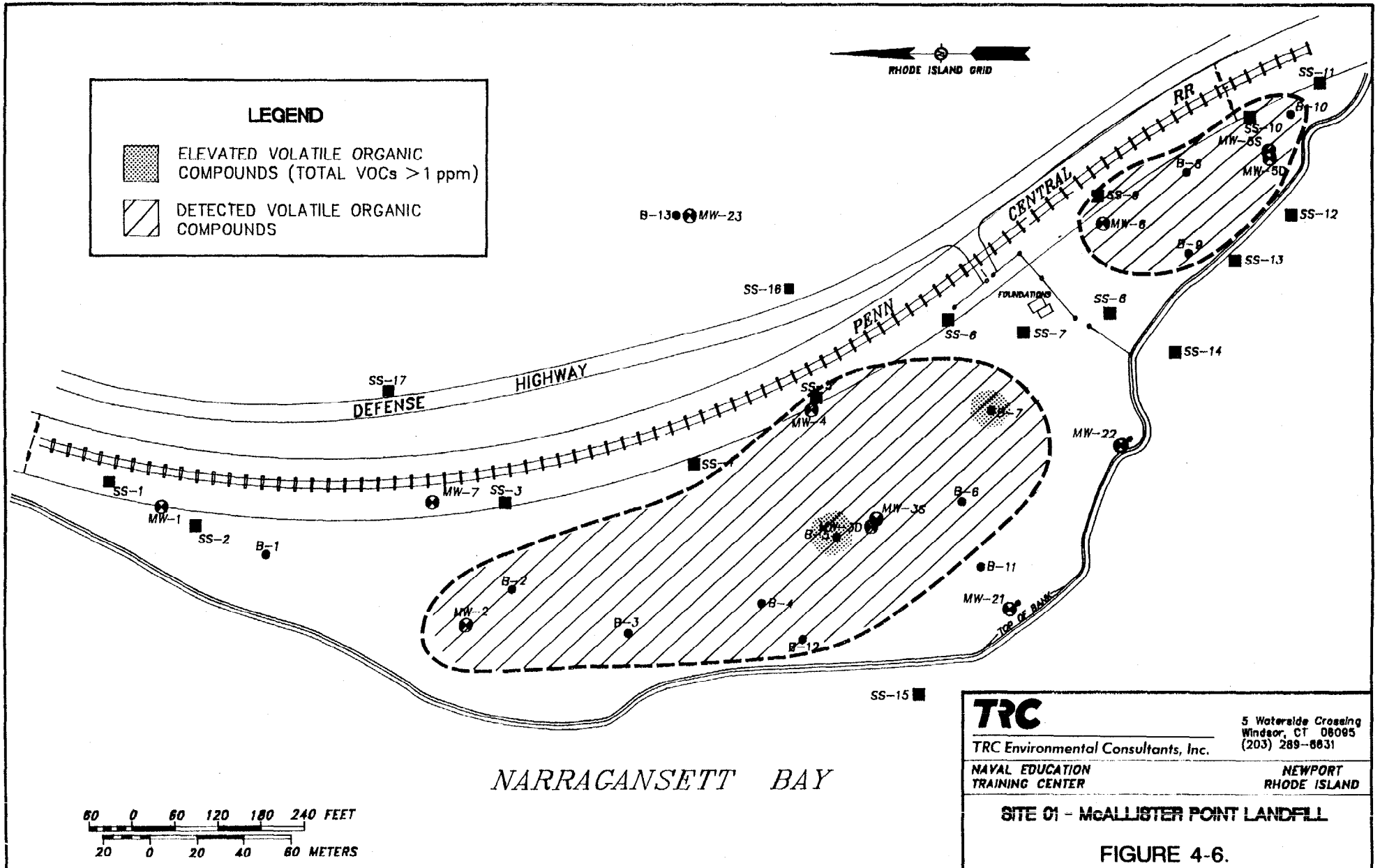
SITE 13 - TANK FARM FIVE

FIGURE 4-5.

INVESTIGATION SUMMARY MAP



NOTE: LOW LEVEL VOCS DETECTED IN REANALYSIS OF SURFACE SOIL SAMPLES SS-01, SS-04 AND SS-06

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SITE 01 - McALLISTER POINT LANDFILL

FIGURE 4-6.

EXTENT OF VOLATILE ORGANIC SOIL CONTAMINATION

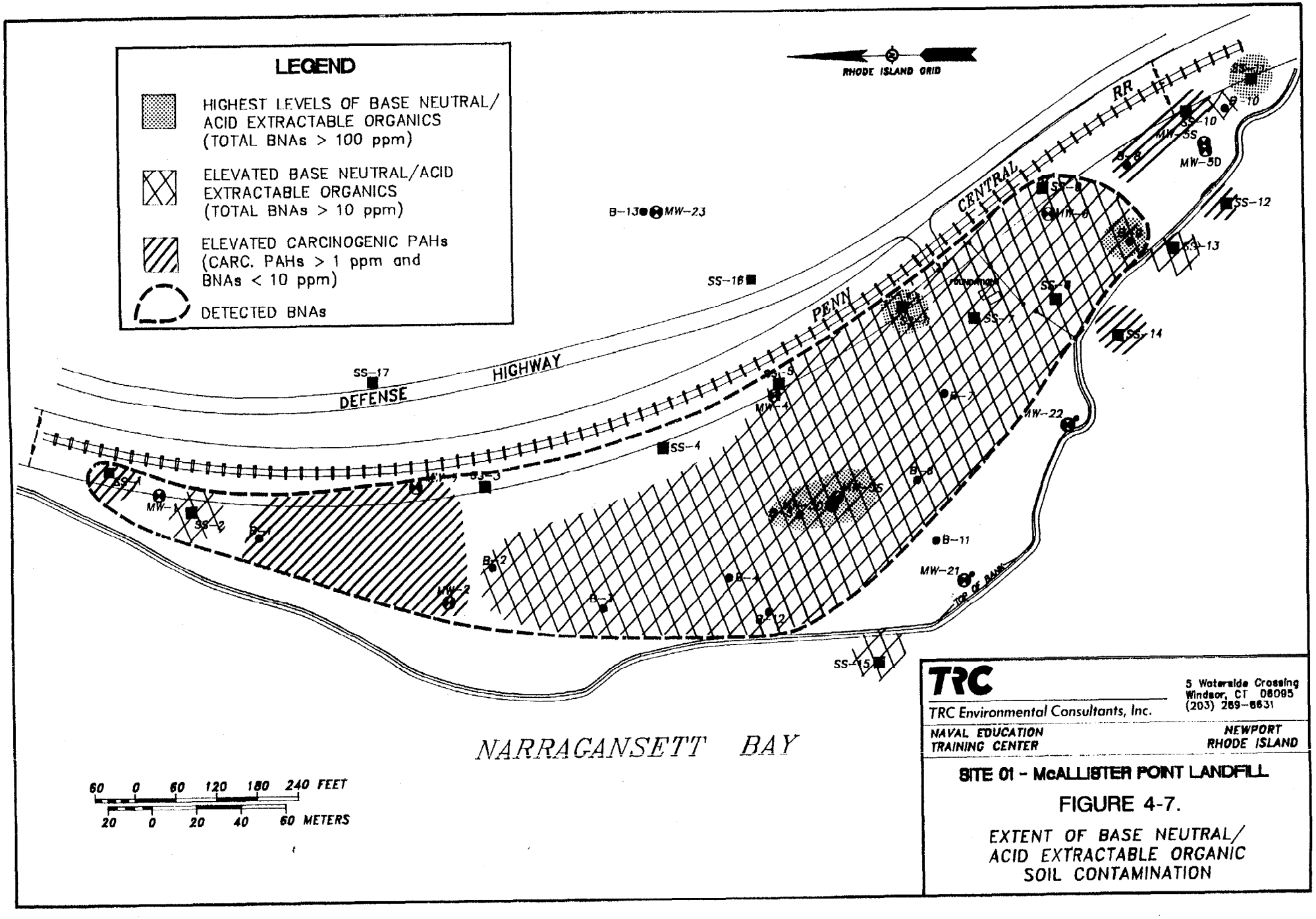

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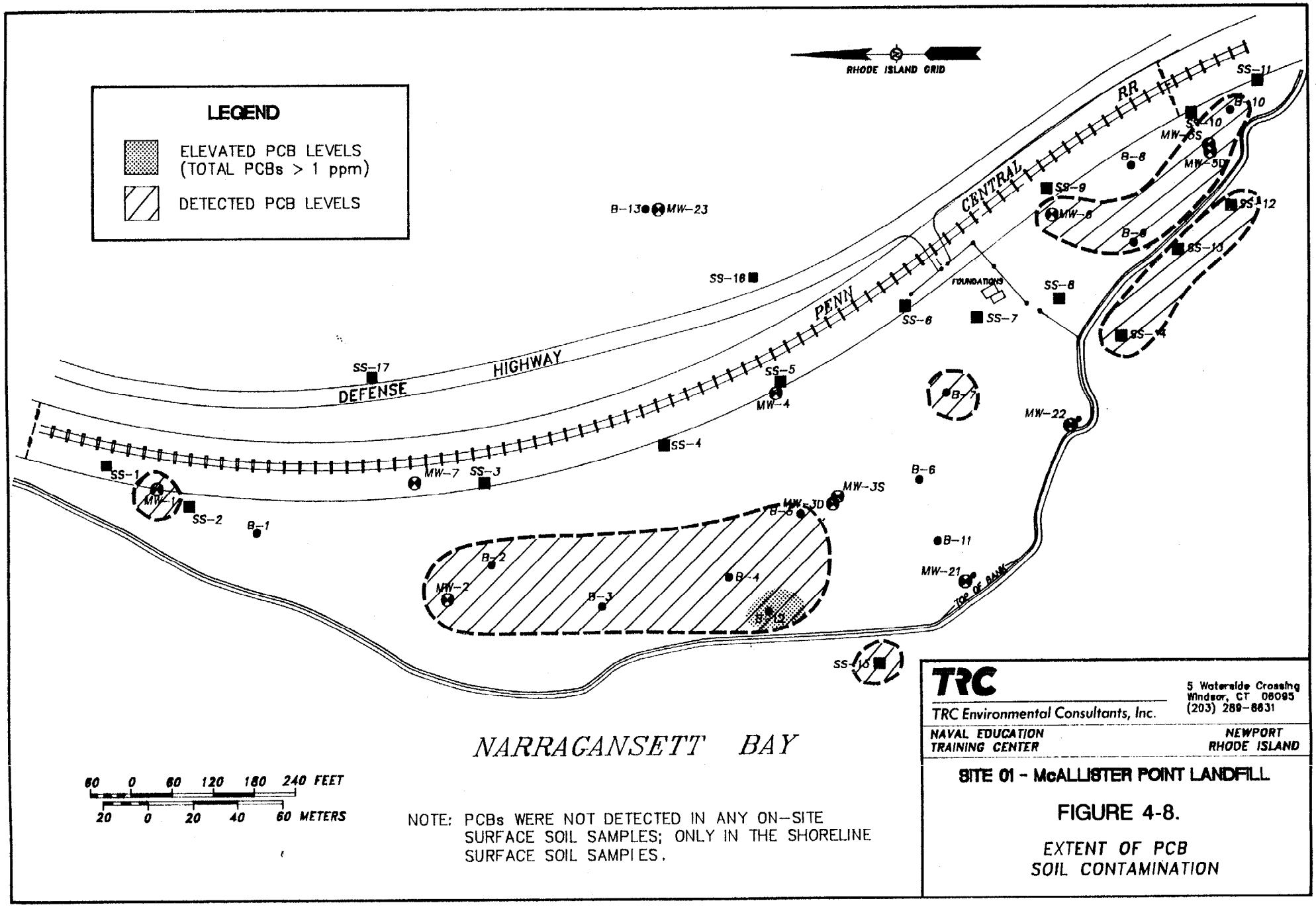
FIGURE 4-7.

EXTENT OF BASE NEUTRAL/ ACID EXTRACTABLE ORGANIC SOIL CONTAMINATION



NOTE: PCBs WERE NOT DETECTED IN ANY ON-SITE SURFACE SOIL SAMPLES; ONLY IN THE SHORELINE SURFACE SOIL SAMPLES.

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FIGURE 4-8.

EXTENT OF PCB SOIL CONTAMINATION

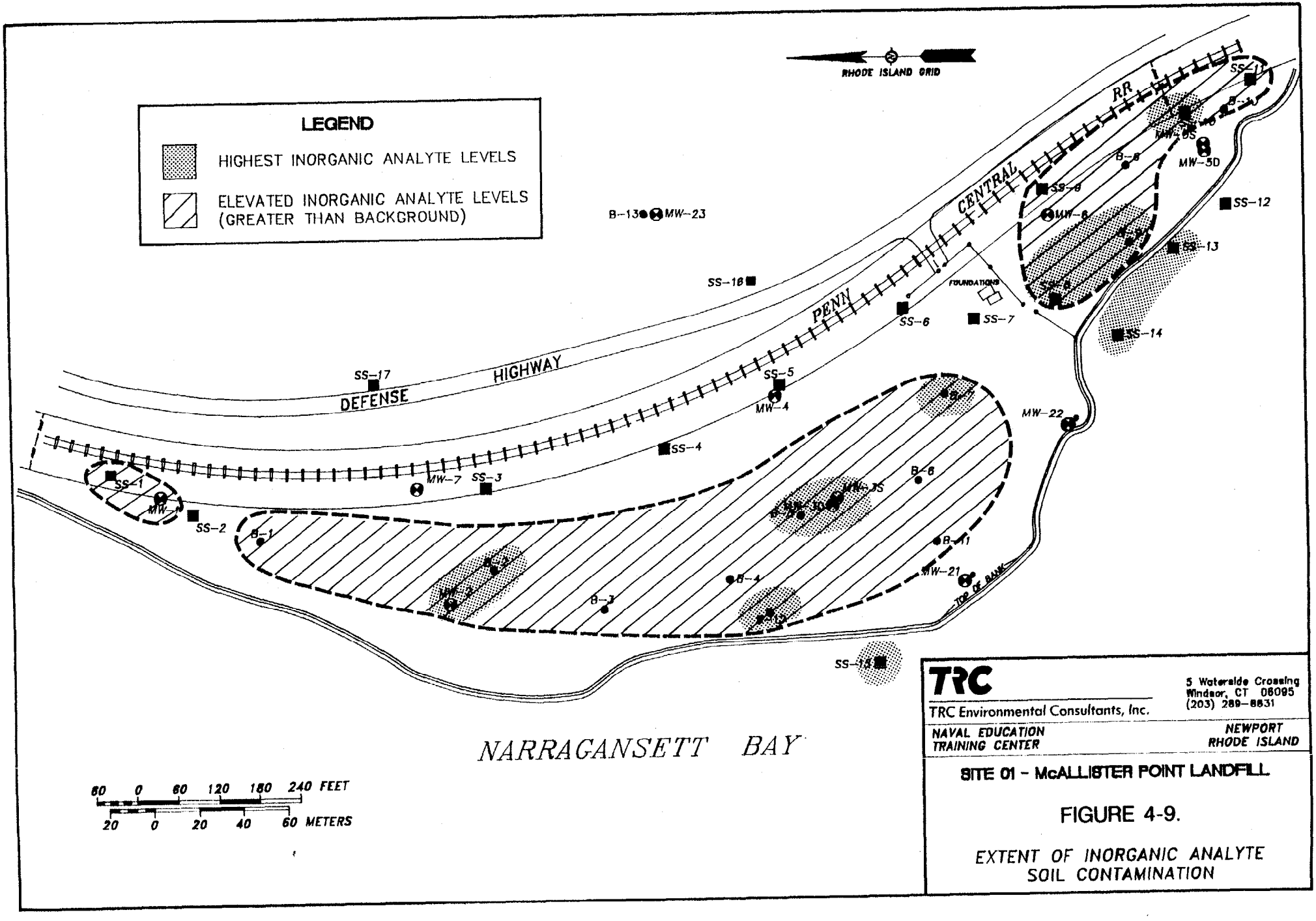
LEGEND
HIGHEST INORGANIC ANALYTE LEVELS
ELEVATED INORGANIC ANALYTE LEVELS (GREATER THAN BACKGROUND)
RHODE ISLAND GRID
DEFENSE HIGHWAY
PENN CENTRAL RR
FOUNDATIONS
TOP OF BANK
NARRAGANSETT BAY
SS-1
SS-2
SS-3
SS-4
SS-5
SS-6
SS-7
SS-8
SS-11
SS-12
SS-13
SS-14
SS-15
SS-16
SS-17
MW-1
MW-2
MW-3
MW-4
MW-5D
MW-6
MW-7
MW-21
MW-22
MW-23
B-1
B-3
B-4
B-6
B-8
B-11
B-13
60 0 60 120 180 240 FEET
20 0 20 40 60 METERS
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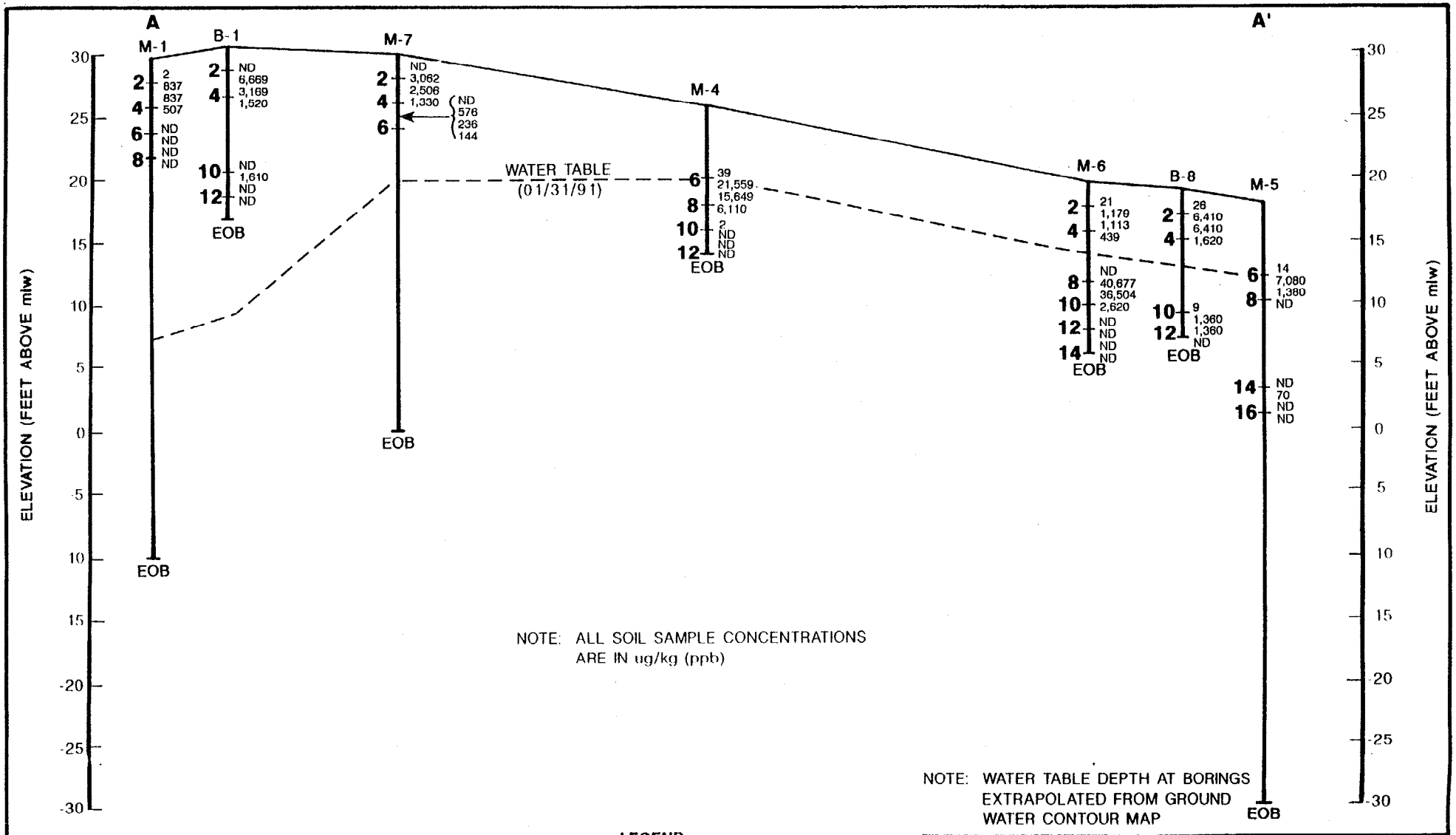
FIGURE 4-9.
EXTENT OF INORGANIC ANALYTE SOIL CONTAMINATION



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

2 - TOTAL VOLATILE ORGANIC COMPOUNDS

837 - TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

937 - TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

507 - TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND - NOT DETECTED

EOB - END OF BORING

2 – 4 - 2 TO 4 FOOT DEPTH BELOW GRADE

0 200 FT
HORIZONTAL SCALE

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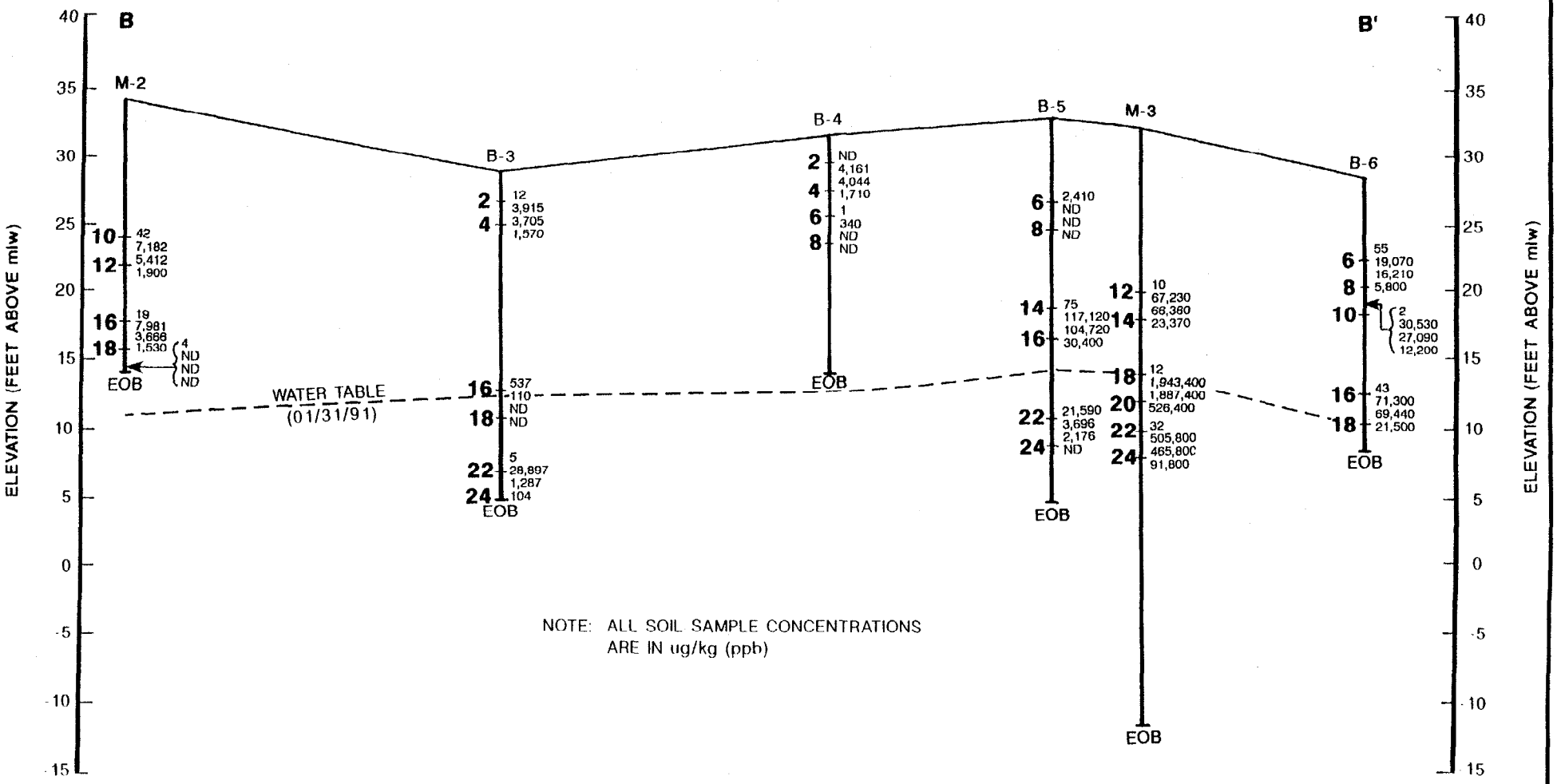
FIGURE 4-10.

SUBSURFACE SOIL CONTAMINATION CROSS SECTION LINE A-A'



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

12 - TOTAL VOLATILE ORGANIC COMPOUNDS

3,915 - TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

3,705 - TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

1,570 - TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND - NOT DETECTED

EOB - END OF BORING

2 / 4 - 2 TO 4 FOOT DEPTH BELOW GRADE

0 — 120 FT
HORIZONTAL SCALE

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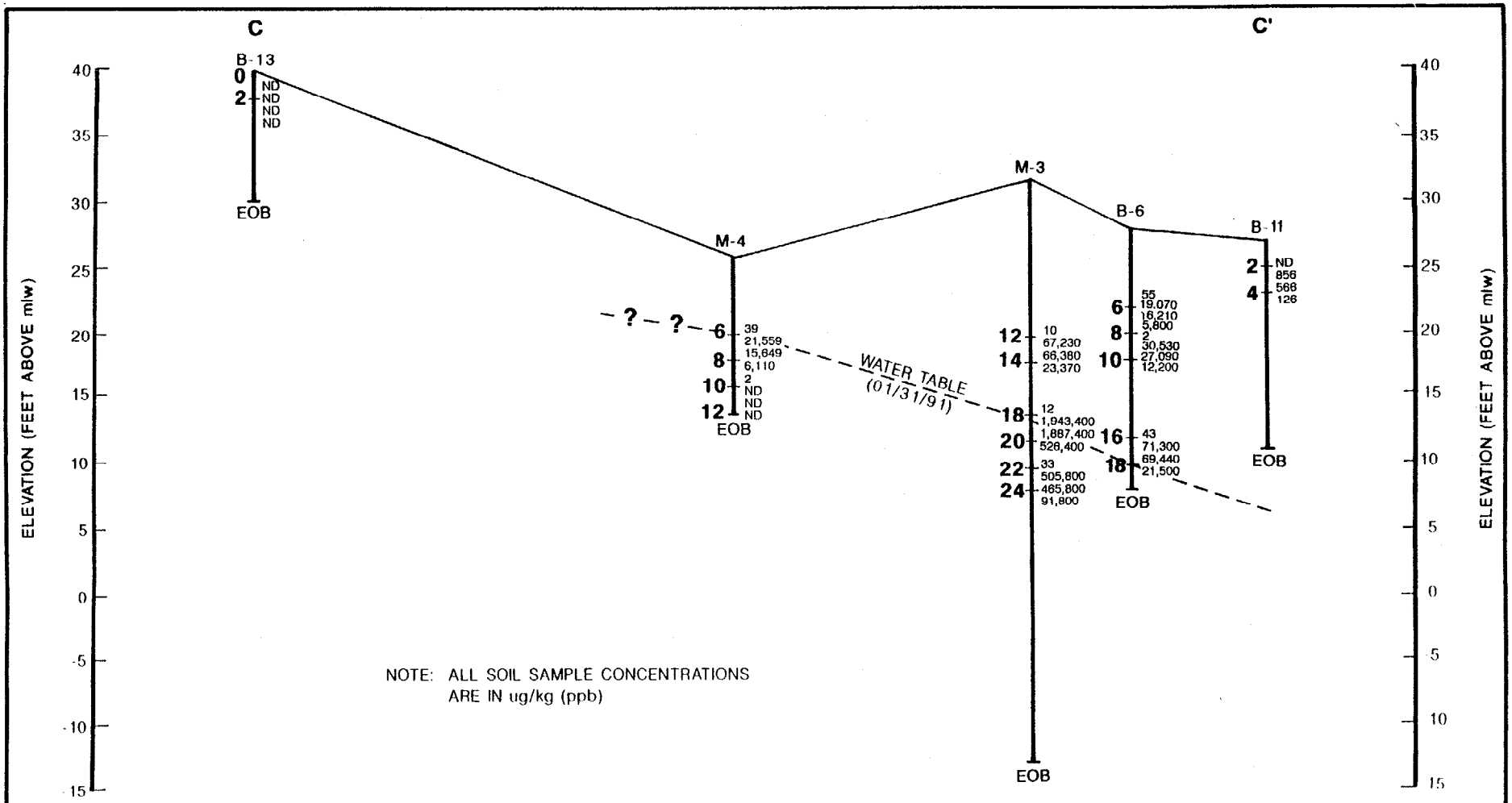
FIGURE 4-11.

SUBSURFACE SOIL CONTAMINATION
CROSS SECTION LINE B-B'



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

39 – TOTAL VOLATILE ORGANIC COMPOUNDS

21,559 – TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

15,649 – TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

6,110 – TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND – NOT DETECTED

EOB – END OF BORING

6 – 8 – 6 TO 8 FOOT DEPTH BELOW GRADE

0 — 120 FT

HORIZONTAL SCALE

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FIGURE 4-12.

SUBSURFACE SOIL CONTAMINATION CROSS SECTION LINE C-C'

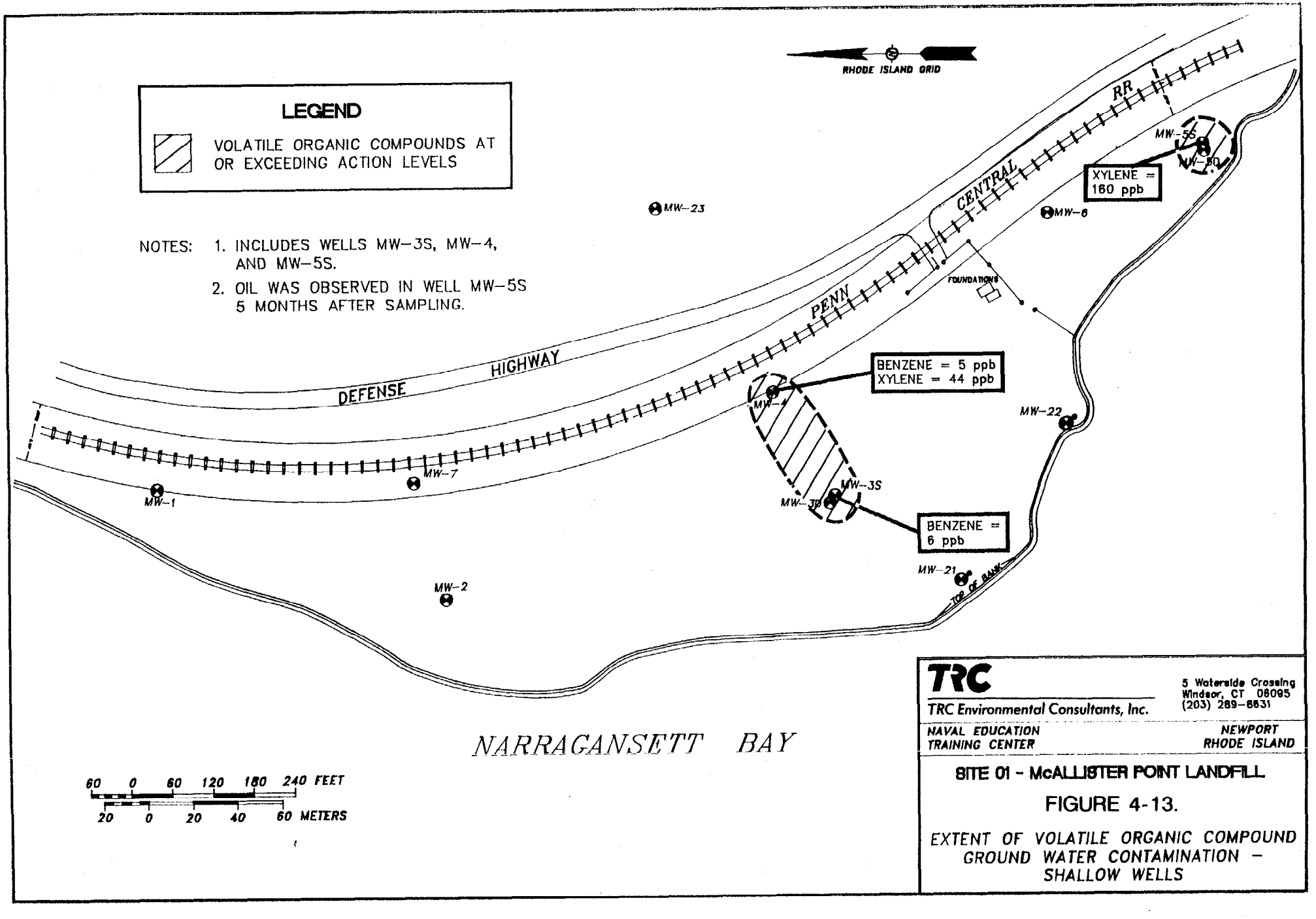

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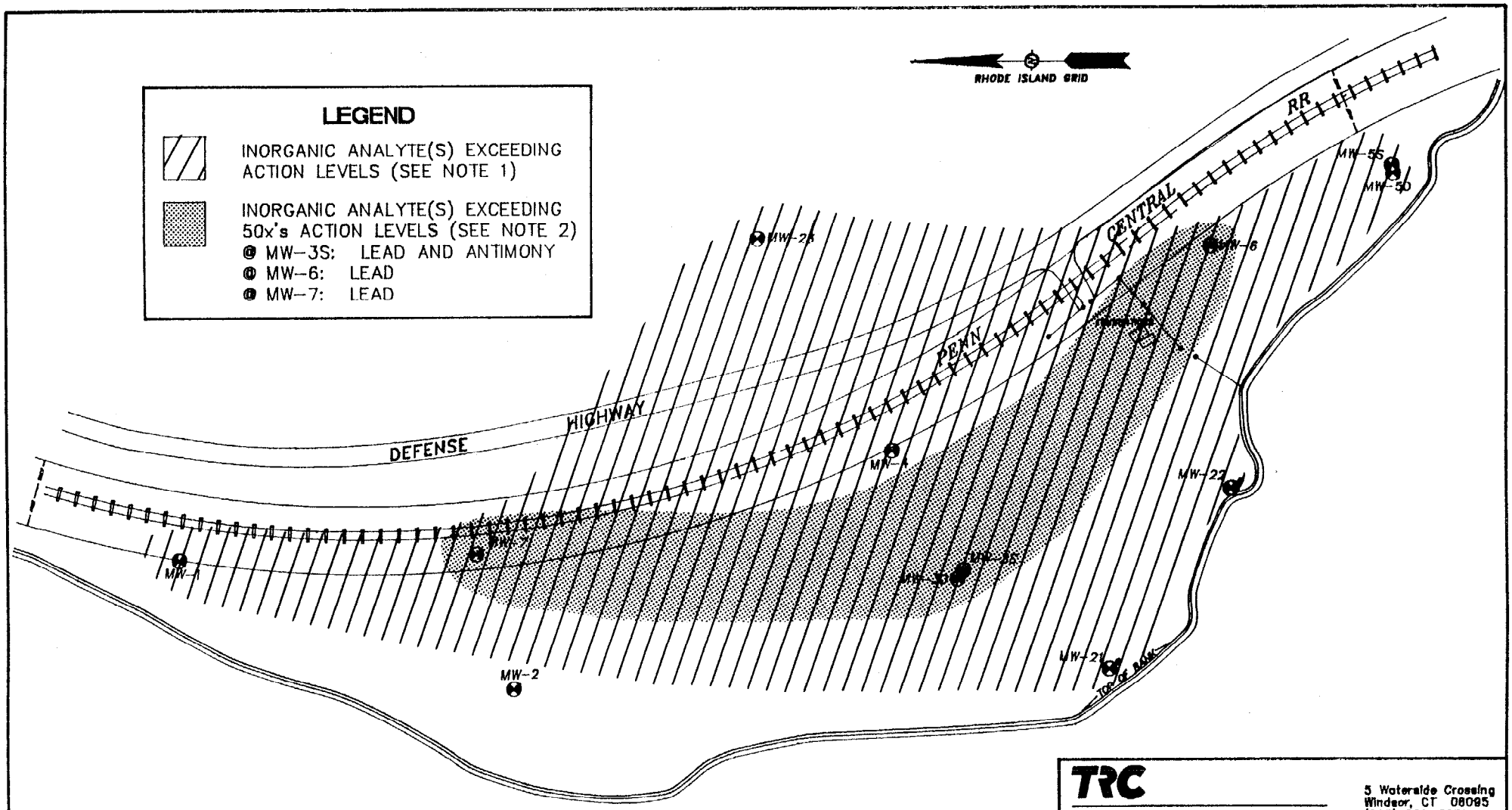
FIGURE 4-13.

EXTENT OF VOLATILE ORGANIC COMPOUND GROUND WATER CONTAMINATION - SHALLOW WELLS



NOTES:

1. SAMPLE NOT COLLECTED FROM MW-2; DRY ON SAMPLING DATE.
2. ALUMINUM, IRON AND MANGANESE ALSO EXCEEDING 50x's ACTION LEVELS IN MOST WELLS.

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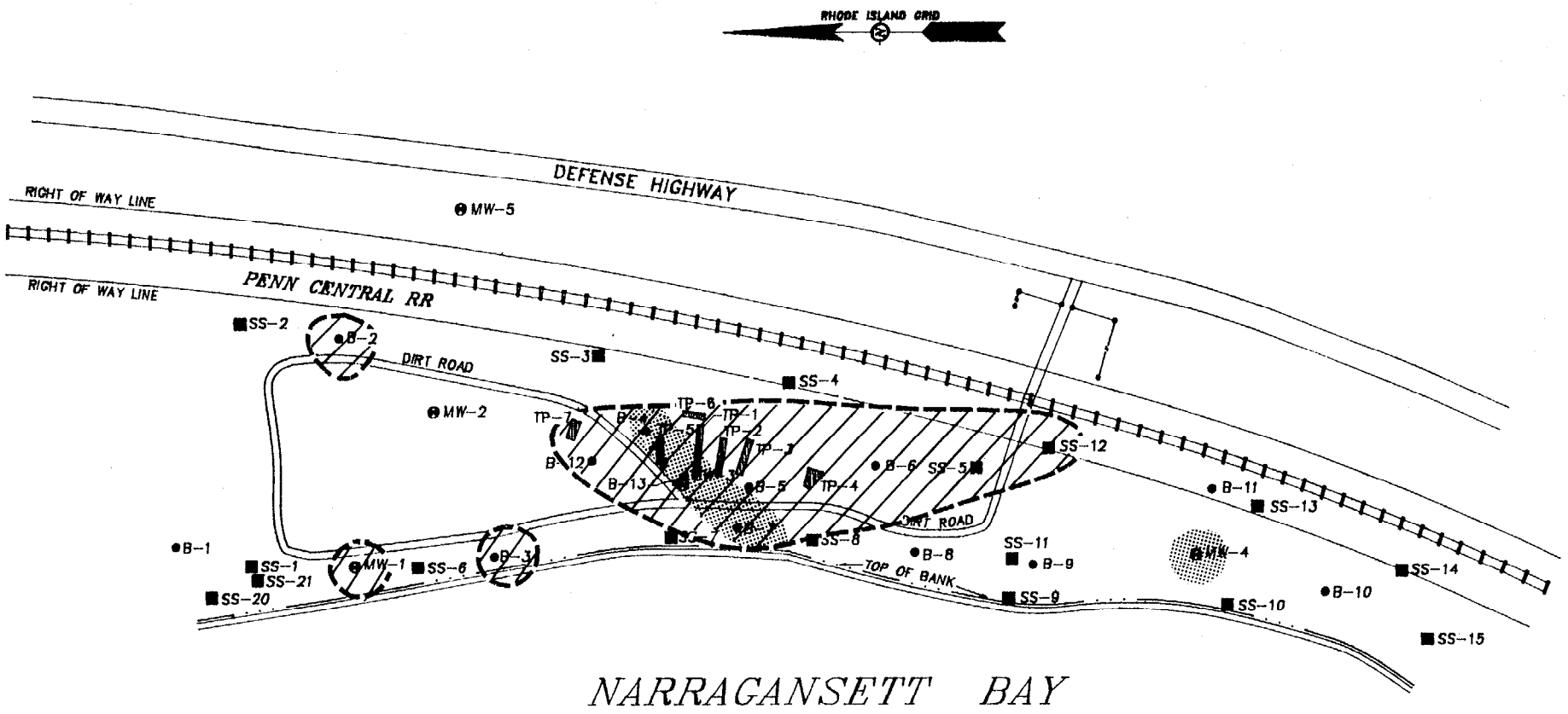
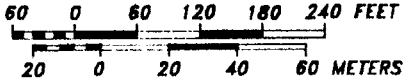
FIGURE 4-14.

EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION





LEGEND

- ELEVATED VOLATILE ORGANIC LEVELS (TOTAL VOCs > 1 ppm)
- DETECTED VOLATILE ORGANIC COMPOUNDS

NOTE: ONLY LOW LEVELS (1–5 ppb) OF TOLUENE WERE DETECTED IN SOIL SAMPLES FROM LOCATIONS SS–5, SS–12 AND MW–1.

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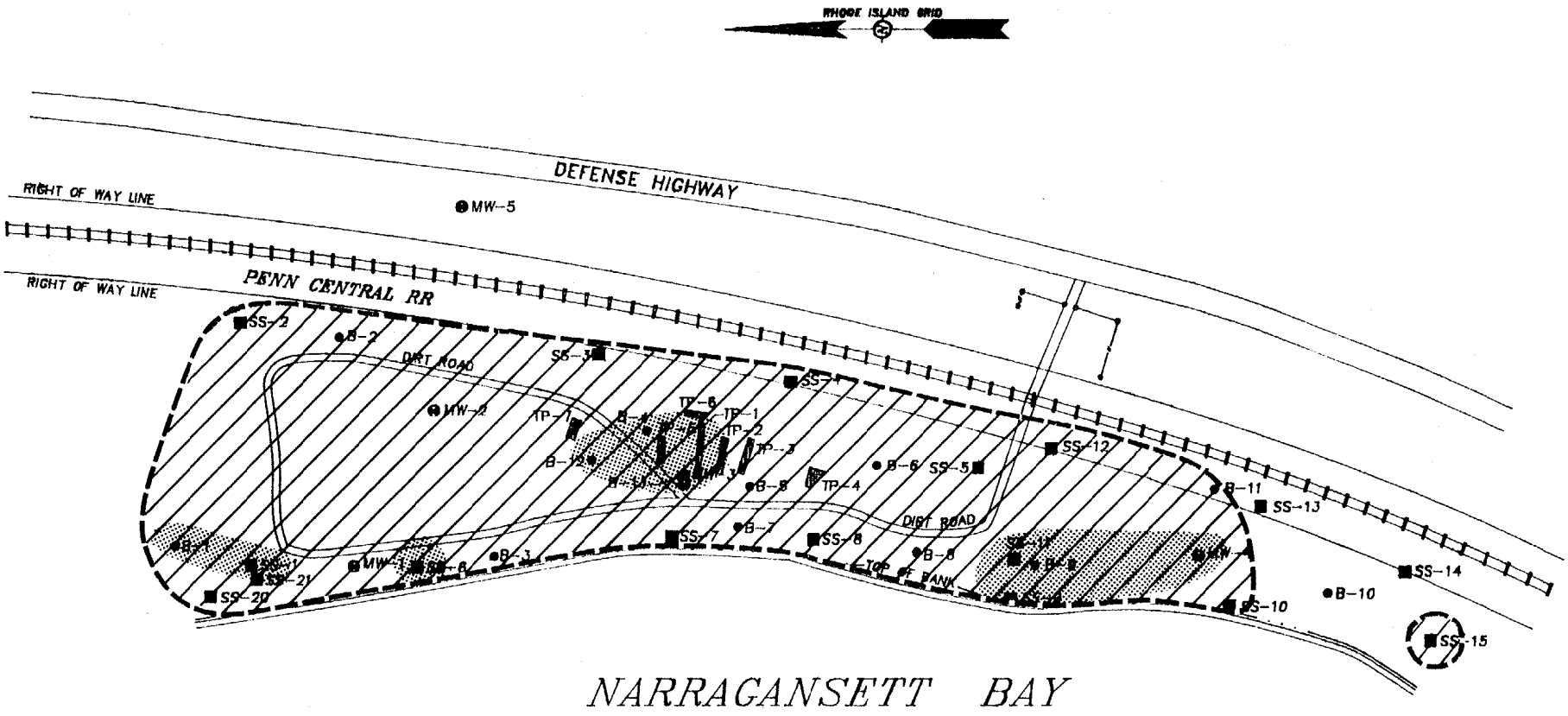
FIGURE 4-15.

EXTENT OF VOLATILE ORGANIC COMPOUND SOIL CONTAMINATION



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

ELEVATED BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS (TOTAL BNAs > 10 ppm)

DETECTED BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

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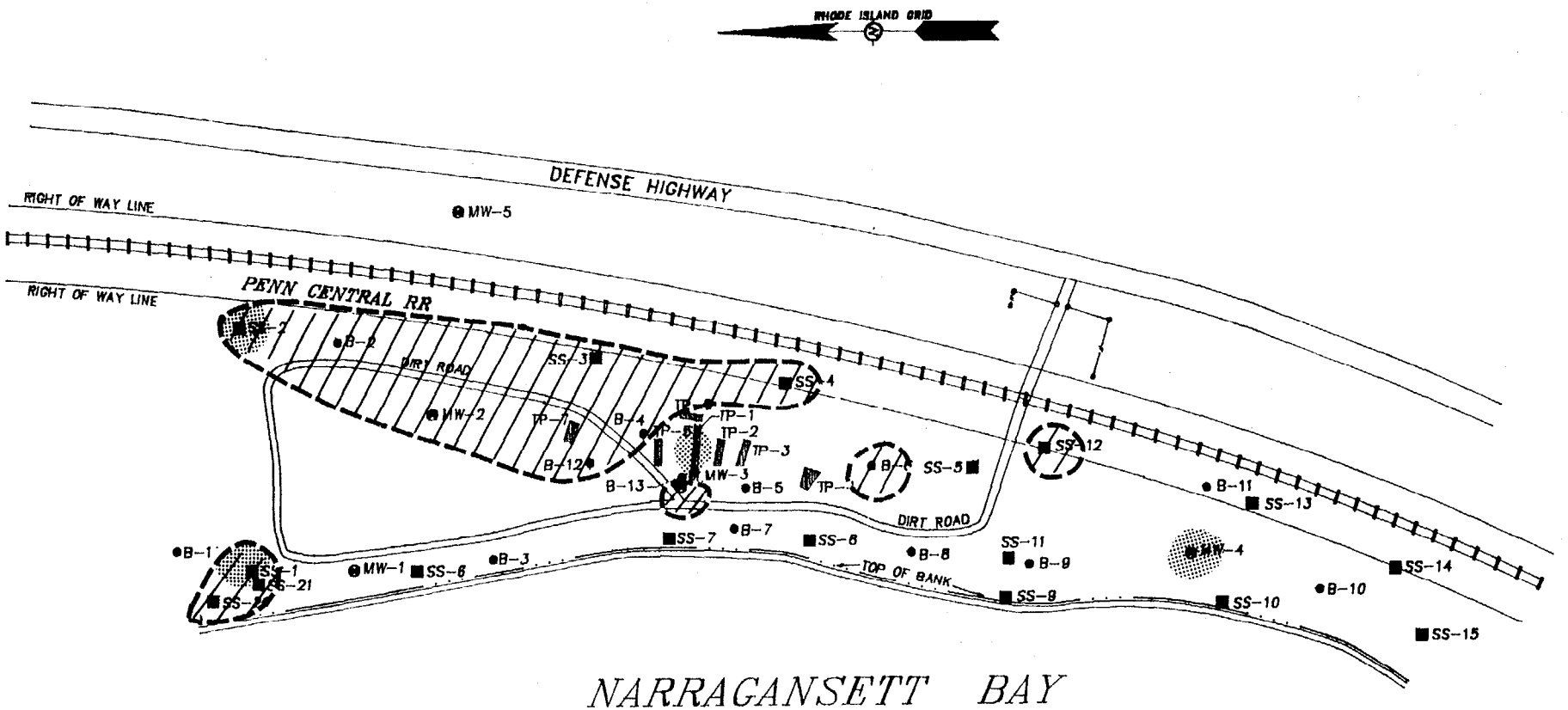
FIGURE 4-16.

EXTENT OF BASE NEUTRAL/ ACID EXTRACTABLE ORGANIC COMPOUND SOIL CONTAMINATION



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

ELEVATED PCB LEVELS (TOTAL PCBs > 1 ppm)

DETECTED PCB LEVELS

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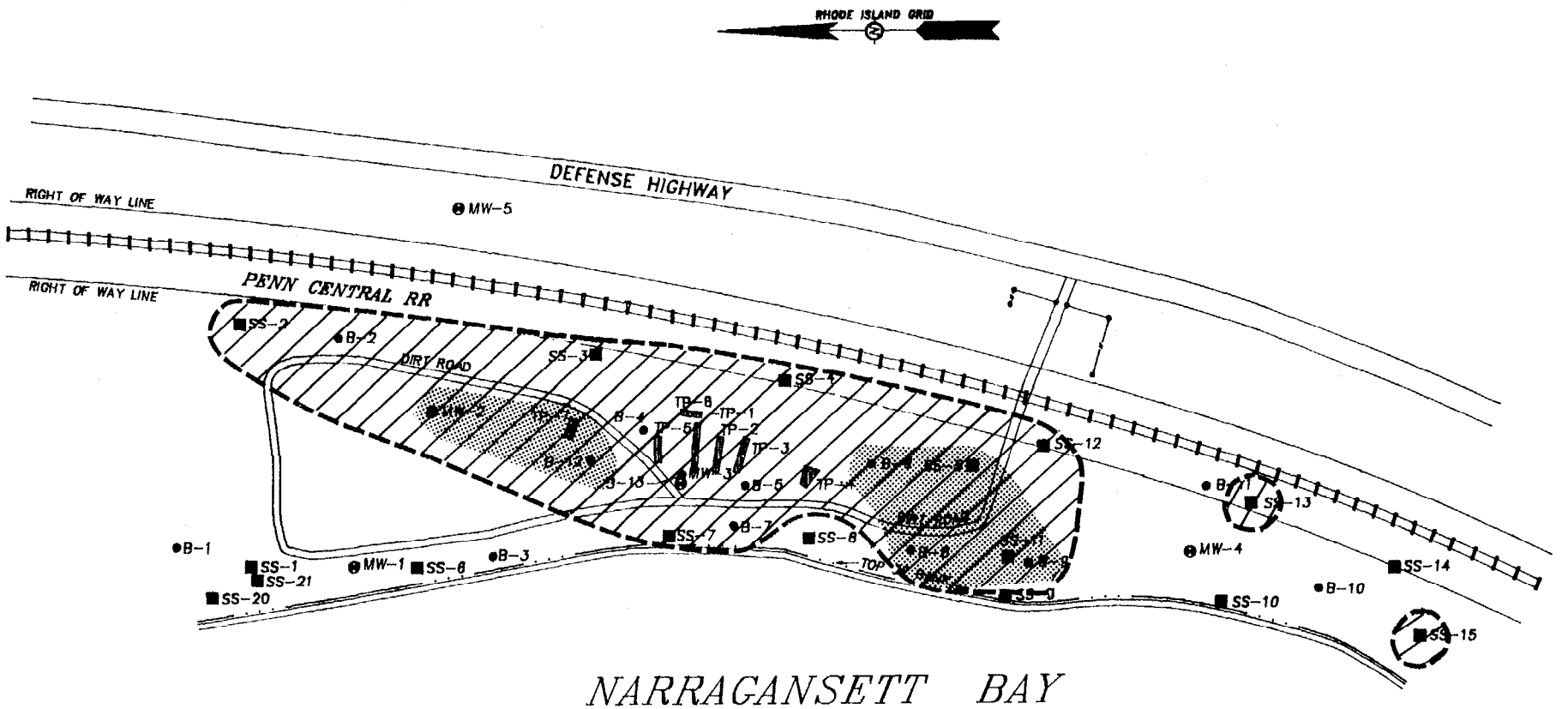
FIGURE 4-17.

EXTENT OF PCB SOIL CONTAMINATION



60 0 60 120 180 240 FEET

20 0 20 40 60 METERS

LEGEND

HIGHEST INORGANIC ANALYTE LEVELS

ELEVATED INORGANIC ANALYTE LEVELS (GREATER THAN BACKGROUND)

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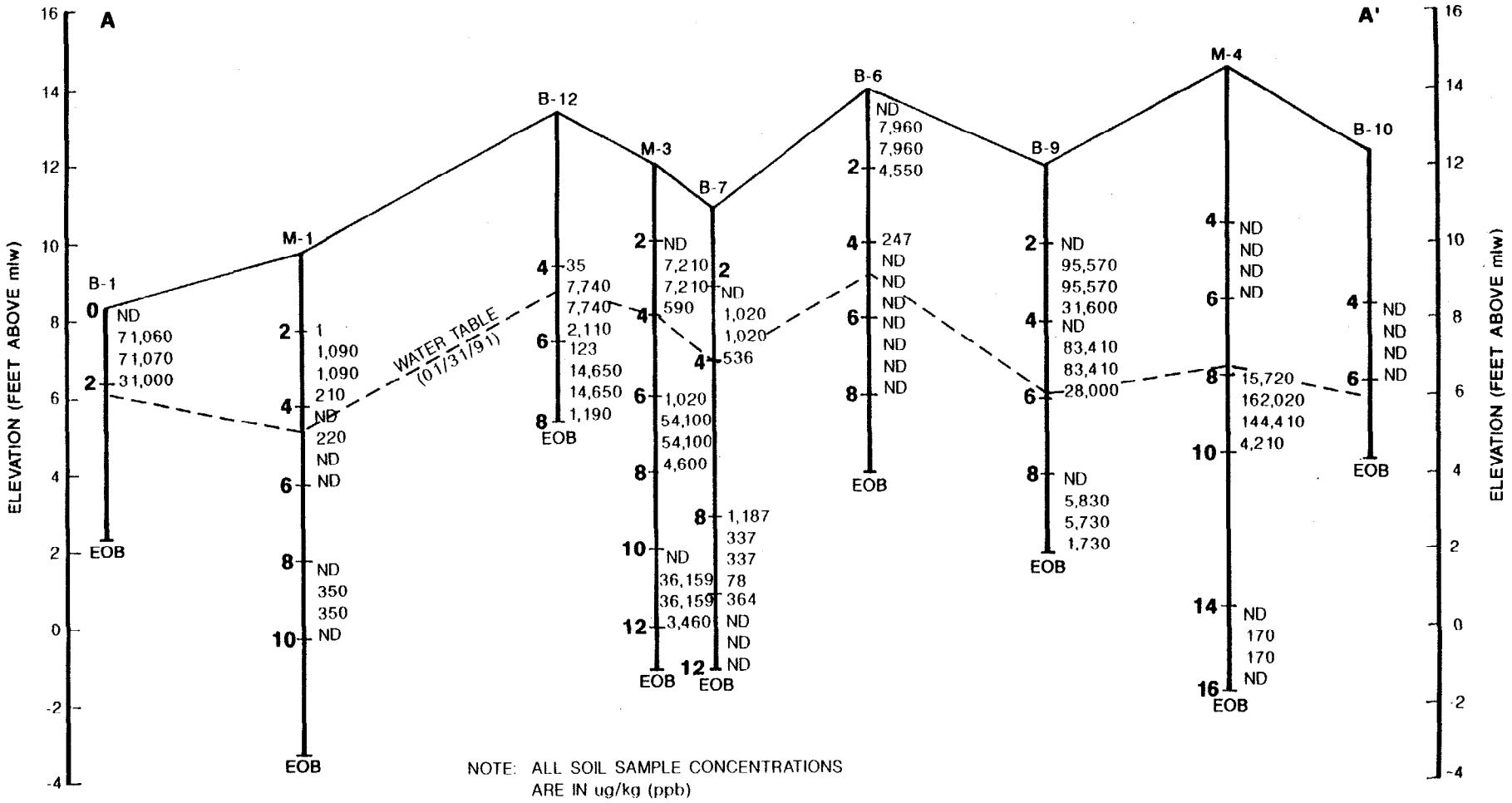
FIGURE 4-18.

EXTENT OF INORGANIC ANALYTE SOIL CONTAMINATION



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

1	- TOTAL VOLATILE ORGANIC COMPOUNDS
1,090	- TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS
1,090	- TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS
210	- TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS
ND	- NOT DETECTED
EOB	- END OF BORING
2 ↕ 4	- 2 TO 4 FOOT DEPTH BELOW GRADE

0 — 200 FT
HORIZONTAL SCALE

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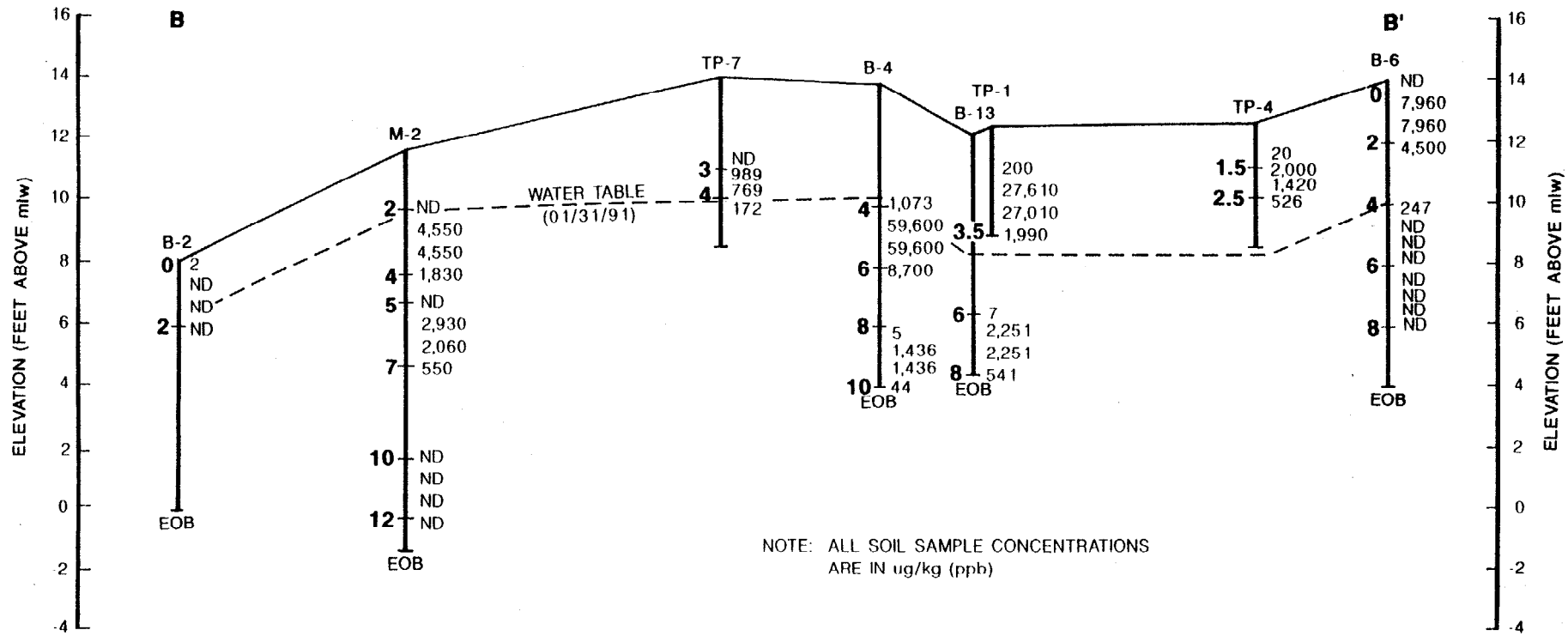
FIGURE 4-19.

SUBSURFACE CONTAMINATION CROSS SECTION LINE A-A'



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

1073 – TOTAL VOLATILE ORGANIC COMPOUNDS

59,600 – TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

59,600 – TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

8,700 – TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND – NOT DETECTED

EOB – END OF BORING

4 – 4 TO 6 FOOT DEPTH BELOW GRADE
6

0 — 120 FT
HORIZONTAL SCALE

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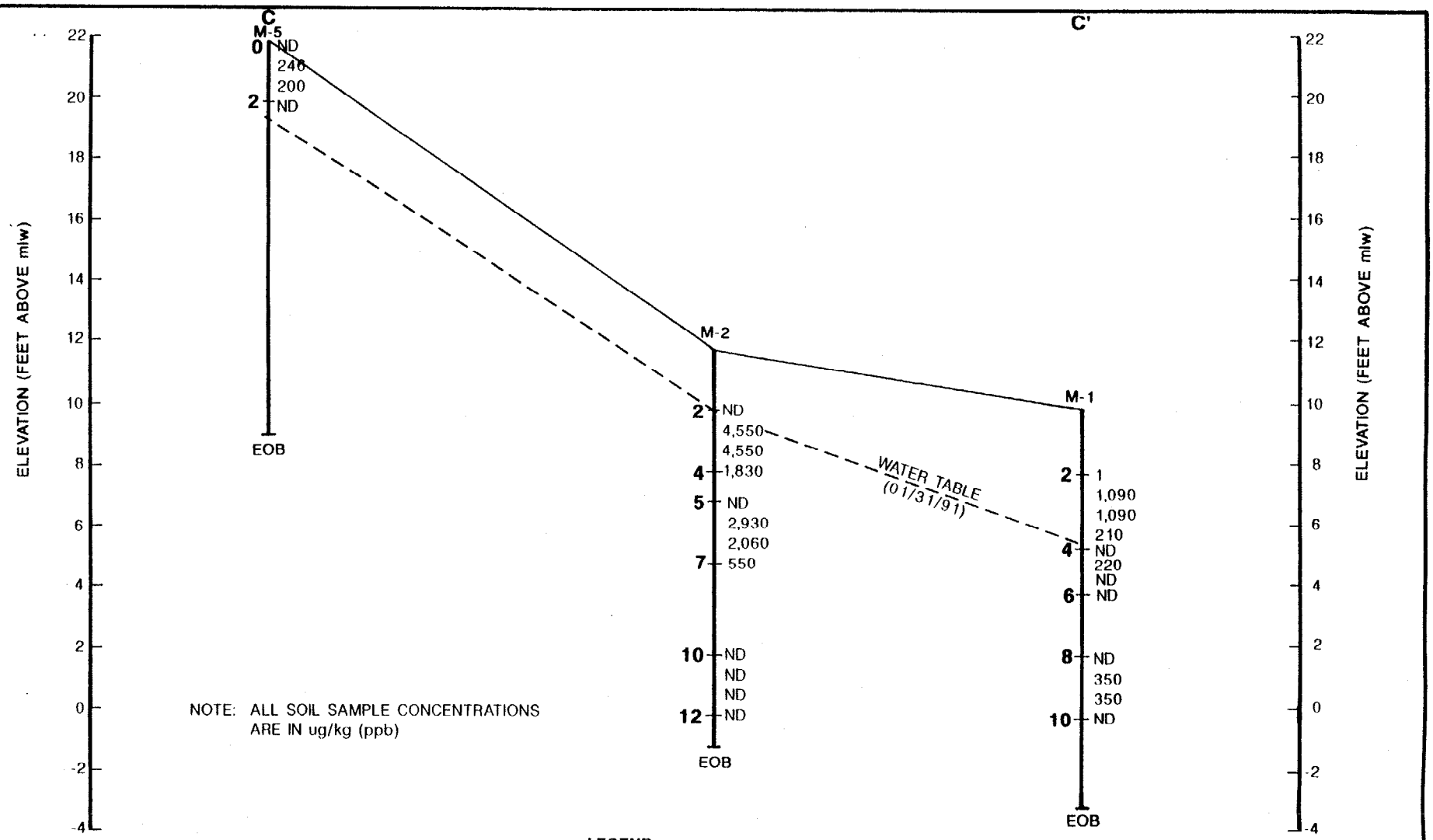
FIGURE 4-20.

SUBSURFACE CONTAMINATION
CROSS SECTION LINE B-B'



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

LEGEND

1 - TOTAL VOLATILE ORGANIC COMPOUNDS

1,090 - TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

1,090 - TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

210 - TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND - NOT DETECTED

EOB - END OF BORING

2 / 4 - 2 TO 4 FOOT DEPTH BELOW GRADE

0 — 120 FT

HORIZONTAL SCALE

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

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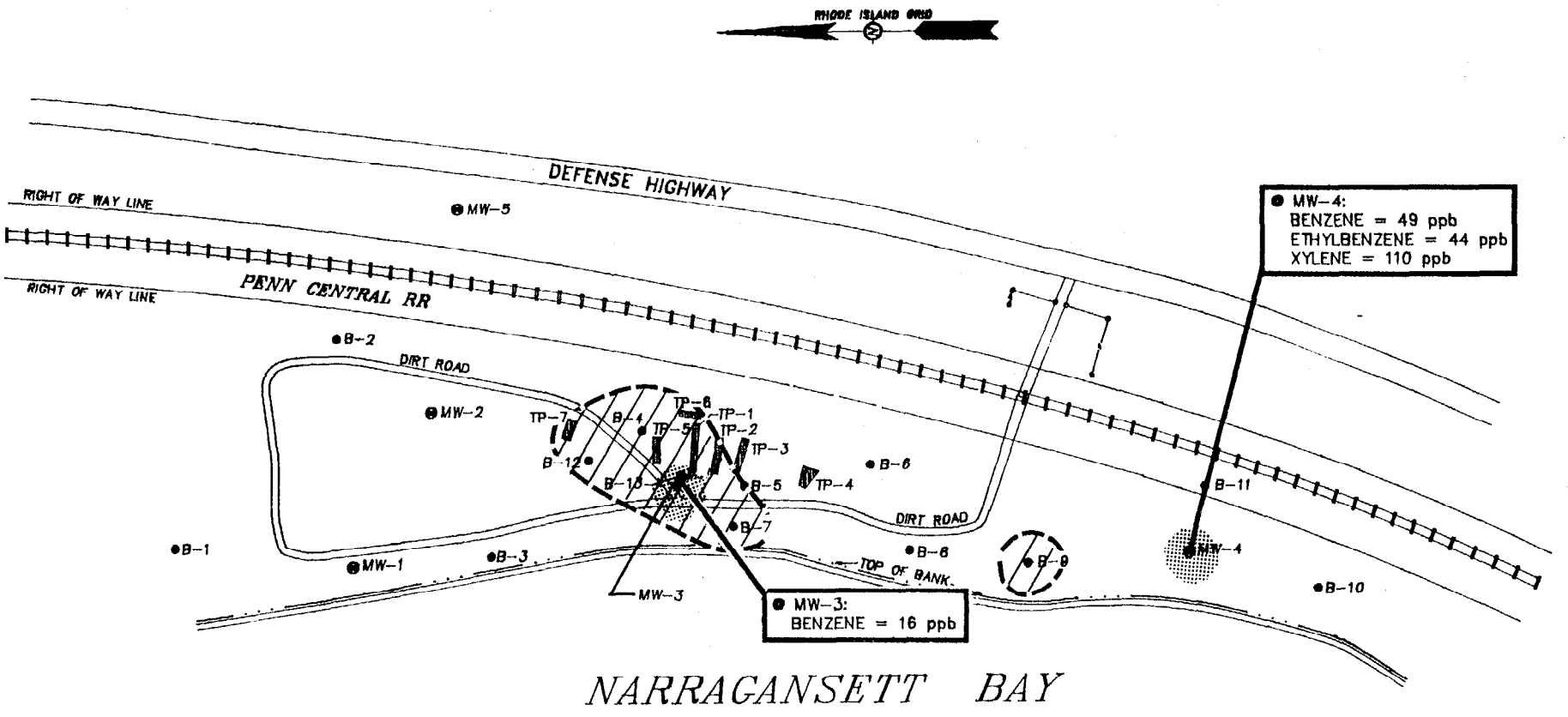
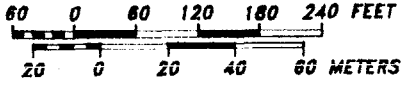
SITE 02 - MELVILLE NORTH LANDFILL

FIGURE 4-21.

SUBSURFACE CONTAMINATION CROSS SECTION LINE C-C'





LEGEND

- LEVELS EXCEEDING VOLATILE ORGANIC COMPOUND ACTION LEVELS
- AREA WHERE PETROLEUM PRODUCT, SHEEN, AND/OR ODOR WAS OBSERVED AT WATER TABLE

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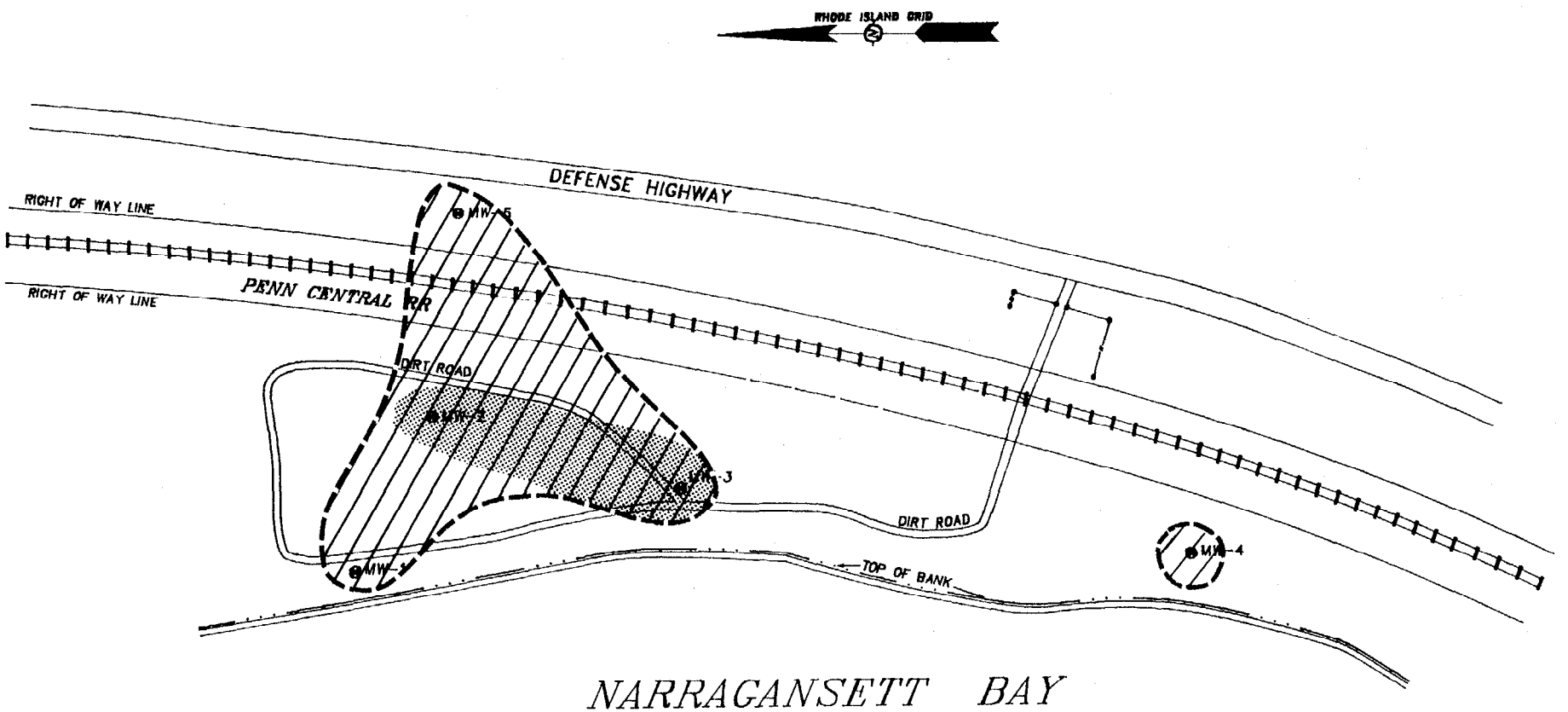
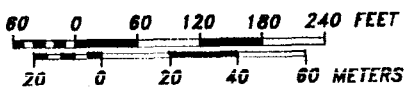
FIGURE 4-22.

EXTENT OF VOLATILE ORGANIC COMPOUND GROUND WATER CONTAMINATION





LEGEND

INORGANIC ANALYTE(S) EXCEEDING ACTION LEVELS

INORGANIC ANALYTE(S) EXCEEDING 50x's ACTION LEVELS*
@ MW-2: LEAD
@ MW-3: LEAD

*NOTE: ALUMINUM, IRON AND MANGANESE ALSO EXCEEDING 50x's ACTION LEVELS IN MOST WELLS.

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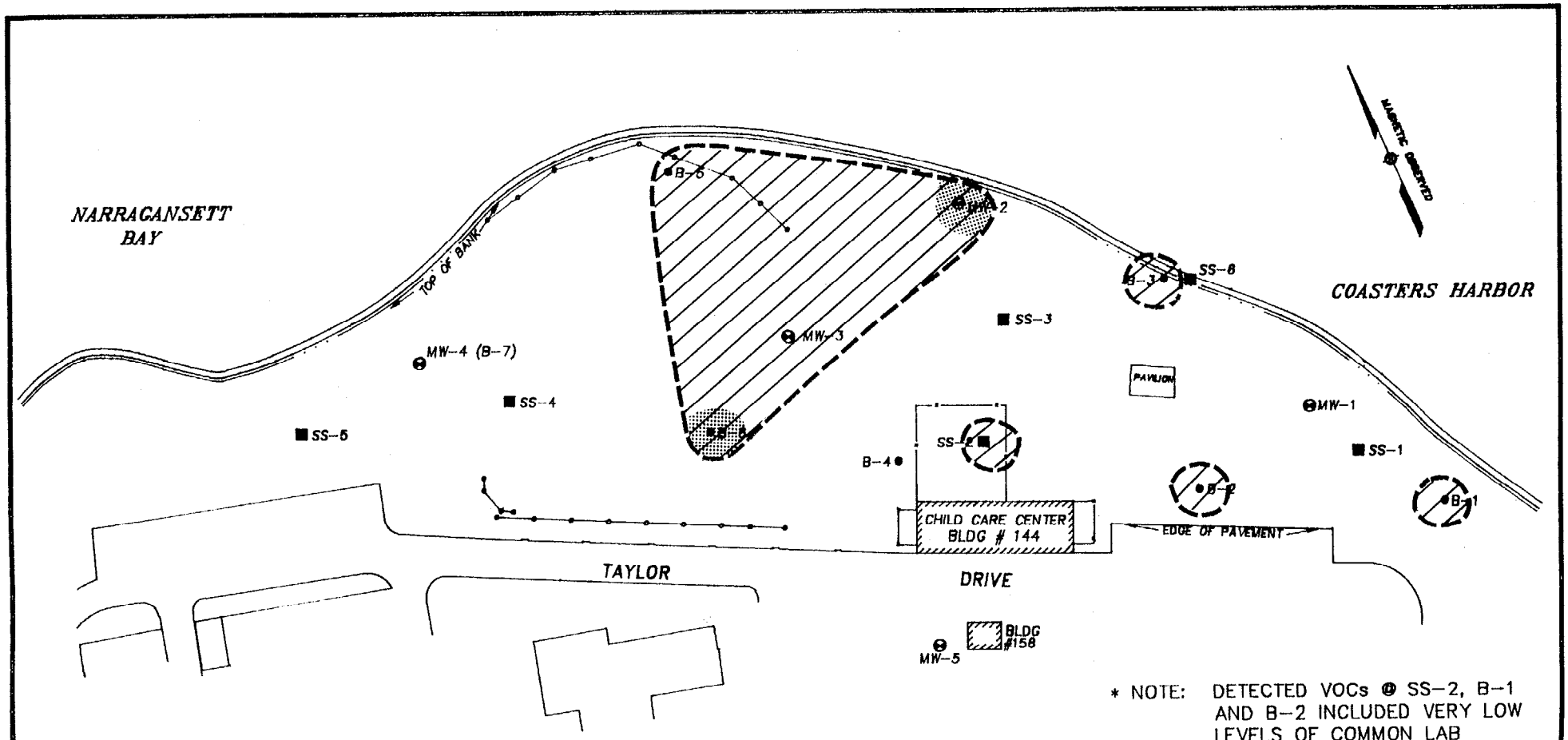
FIGURE 4-23.

EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION



* NOTE: DETECTED VOCs @ SS-2, B-1 AND B-2 INCLUDED VERY LOW LEVELS OF COMMON LAB CONTAMINANTS.

40 0 40 80 120 160 FEET
20 0 20 40 METERS

LEGEND

ELEVATED LEVELS OF VOLATILE ORGANIC COMPOUNDS (TOTAL VOCs > 1 ppm)

DETECTED VOLATILE ORGANIC COMPOUNDS*

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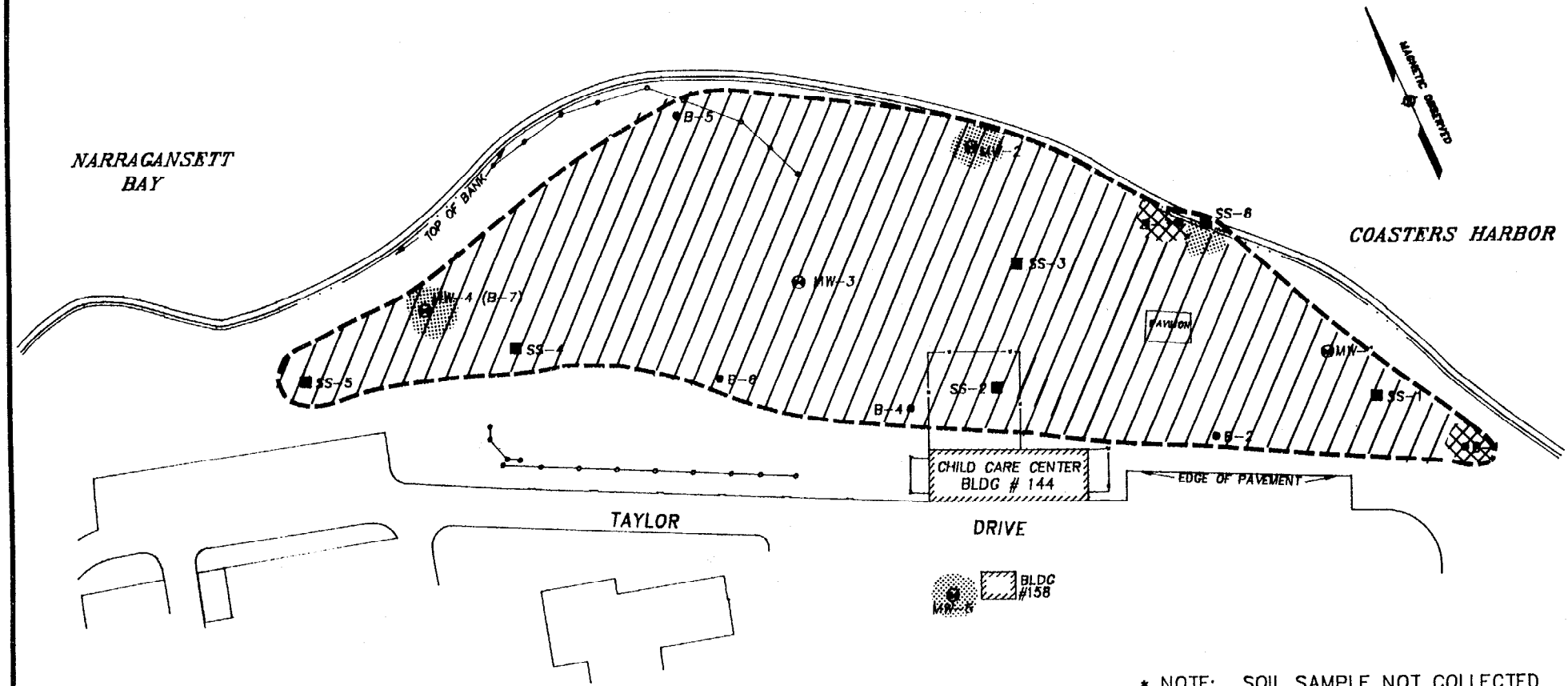
FIGURE 4-24.

EXTENT OF VOLATILE ORGANIC COMPOUND SOIL CONTAMINATION



* NOTE: SOIL SAMPLE NOT COLLECTED FROM MW-1 WELL BORING.

40 0 40 80 120 160 FEET
20 0 20 40 METERS

LEGEND

- ELEVATED BASE NEUTRAL/ ACID EXTRACTABLE ORGANIC COMPOUNDS (TOTAL BNAs > 10 ppm)
- ELEVATED CARCINOGENIC PAHs (CARC. PAHs > 1 ppm AND BNAs < 10 ppm)
- DETECTED BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS*

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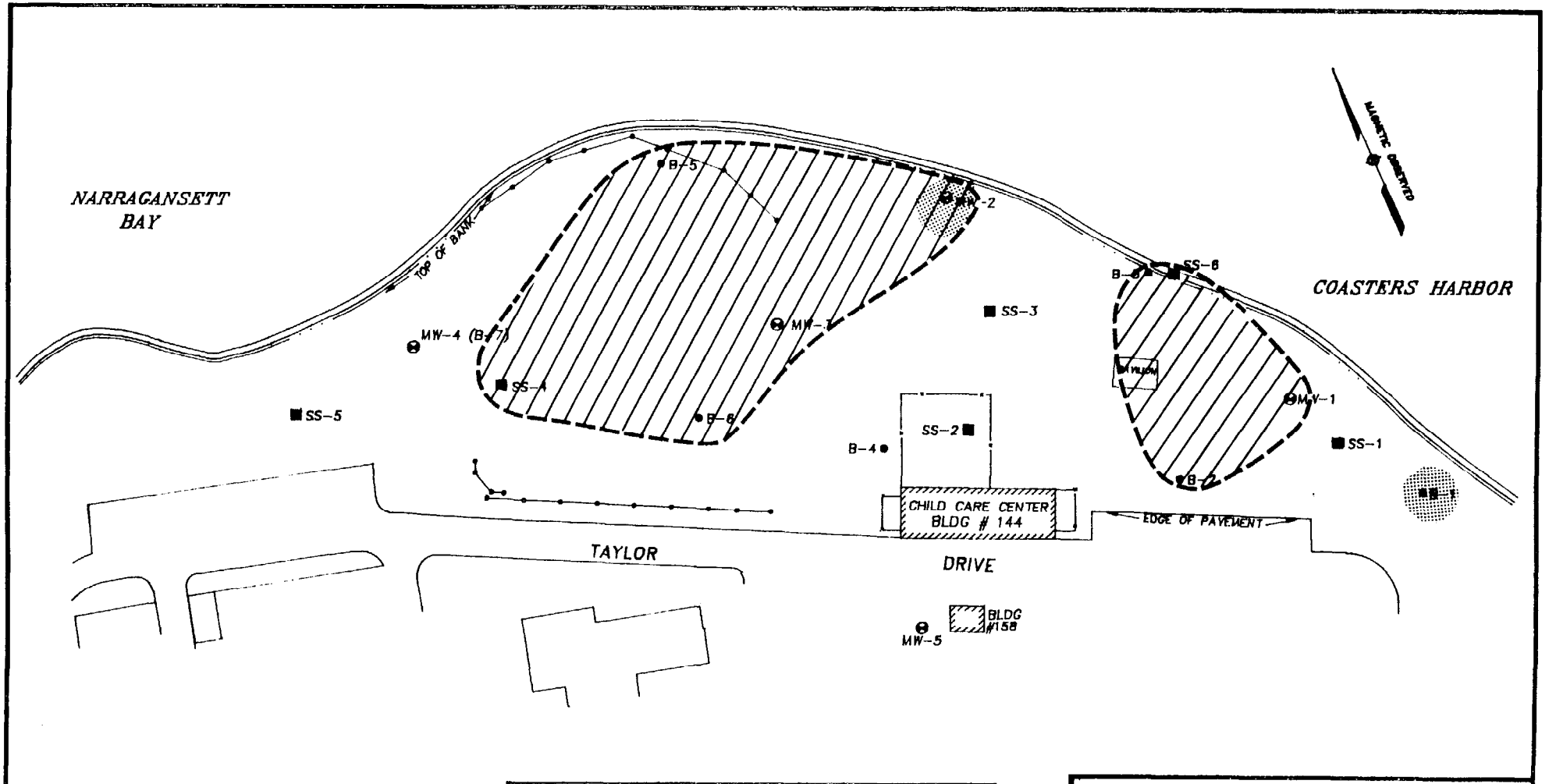
FIGURE 4-25.

EXTENT OF BASE NEUTRAL/ ACID EXTRACTABLE ORGANIC COMPOUND SOIL CONTAMINATION



40 0 40 80 120 160 FEET

20 0 20 40 METERS

LEGEND

HIGHEST INORGANIC ANALYTE LEVELS

ELEVATED INORGANIC ANALYTE LEVELS (GREATER THAN BACKGROUND)

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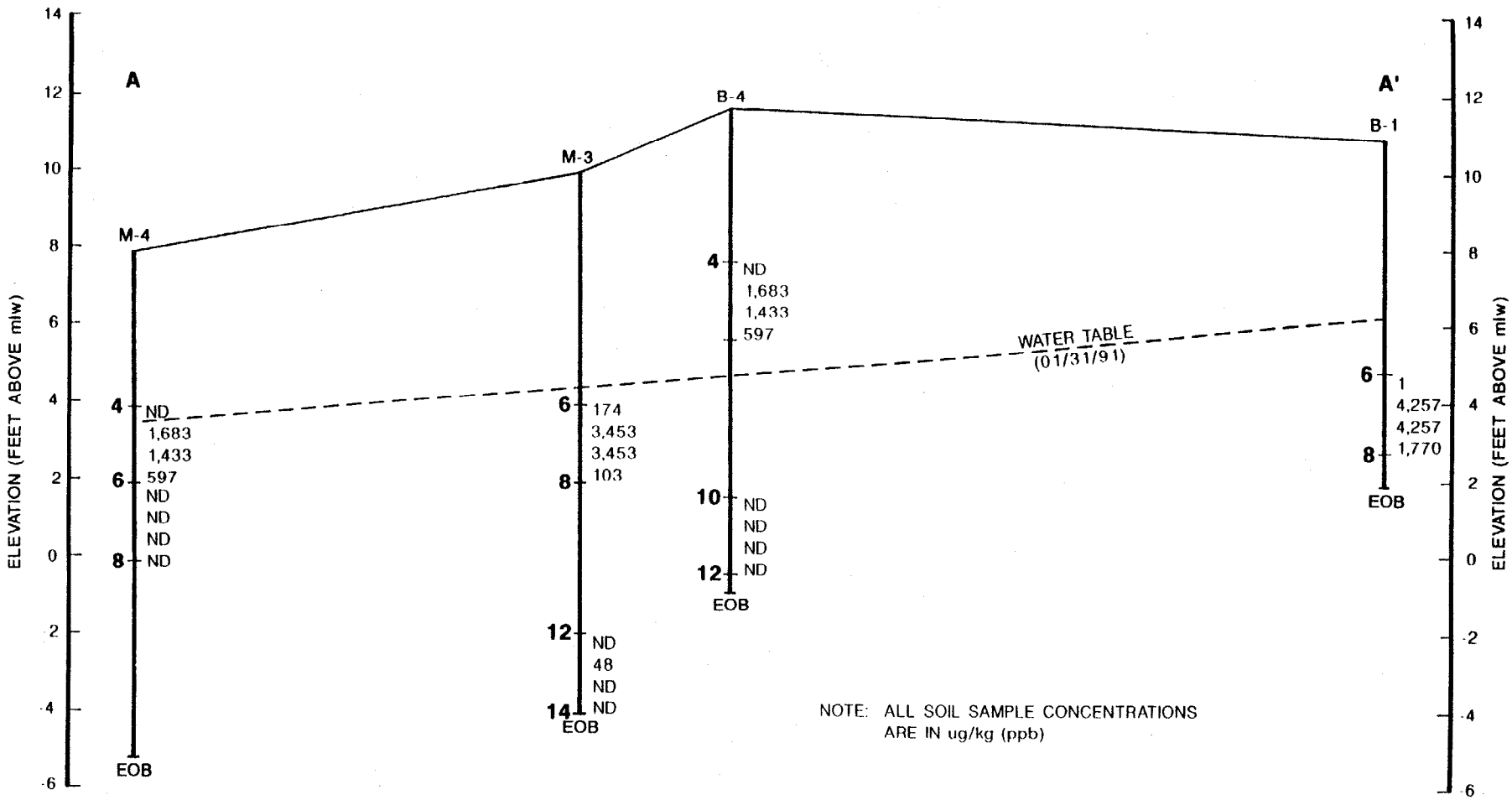
FIGURE 4-26.

EXTENT OF INORGANIC ANALYTE SOIL CONTAMINATION



NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

174 -TOTAL VOLATILE ORGANIC COMPOUNDS

3,453-TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

3,453-TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

103 -TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND -NOT DETECTED

EOB -END OF BORING

6 - 8 - 6 TO 8 FOOT DEPTH BELOW GRADE

0 100 FT
HORIZONTAL SCALE

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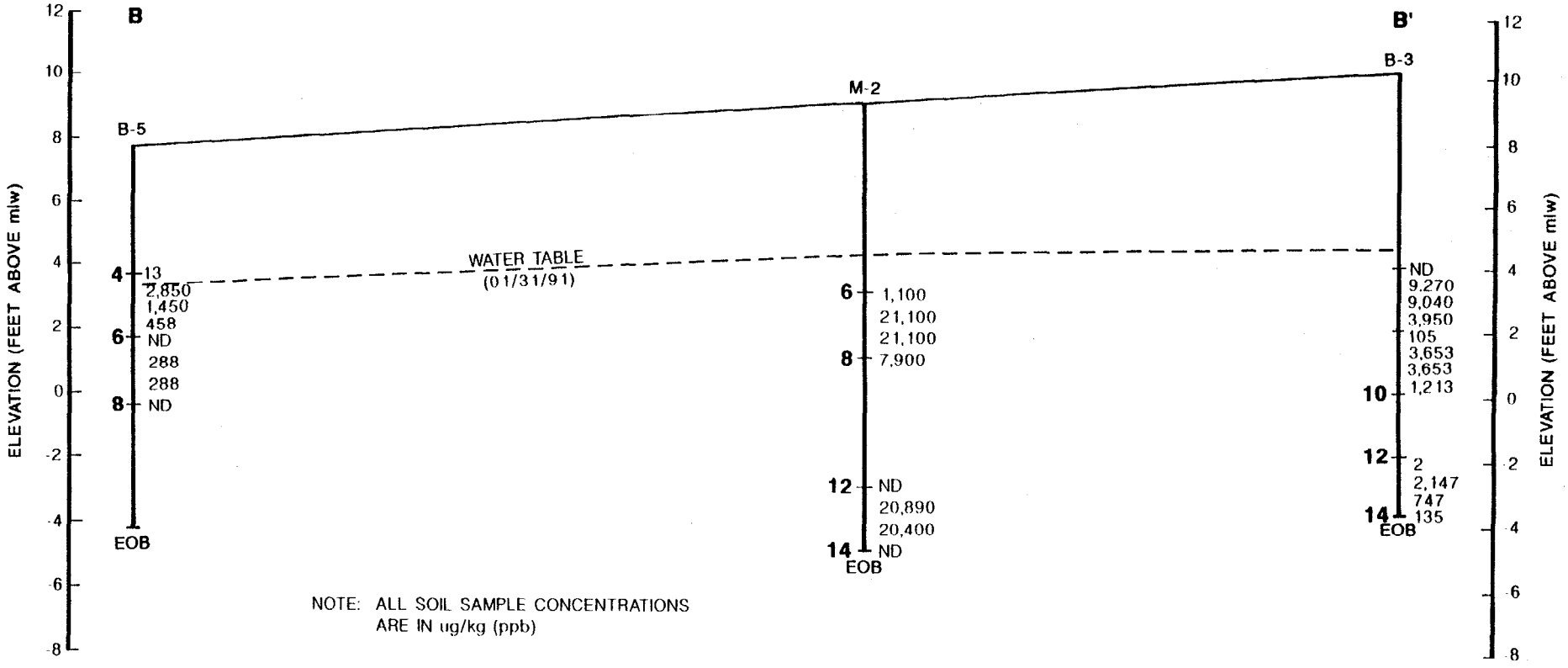
FIGURE 4-27.

SUBSURFACE SOIL CONTAMINATION
CROSS SECTION LINE A-A'



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

13 - TOTAL VOLATILE ORGANIC COMPOUNDS

2,850 - TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

1,450 - TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

458 - TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND - NOT DETECTED

EOB - END OF BORING

4 / 6 - 4 TO 6 FOOT DEPTH BELOW GRADE

0 — 60 FT
HORIZONTAL SCALE

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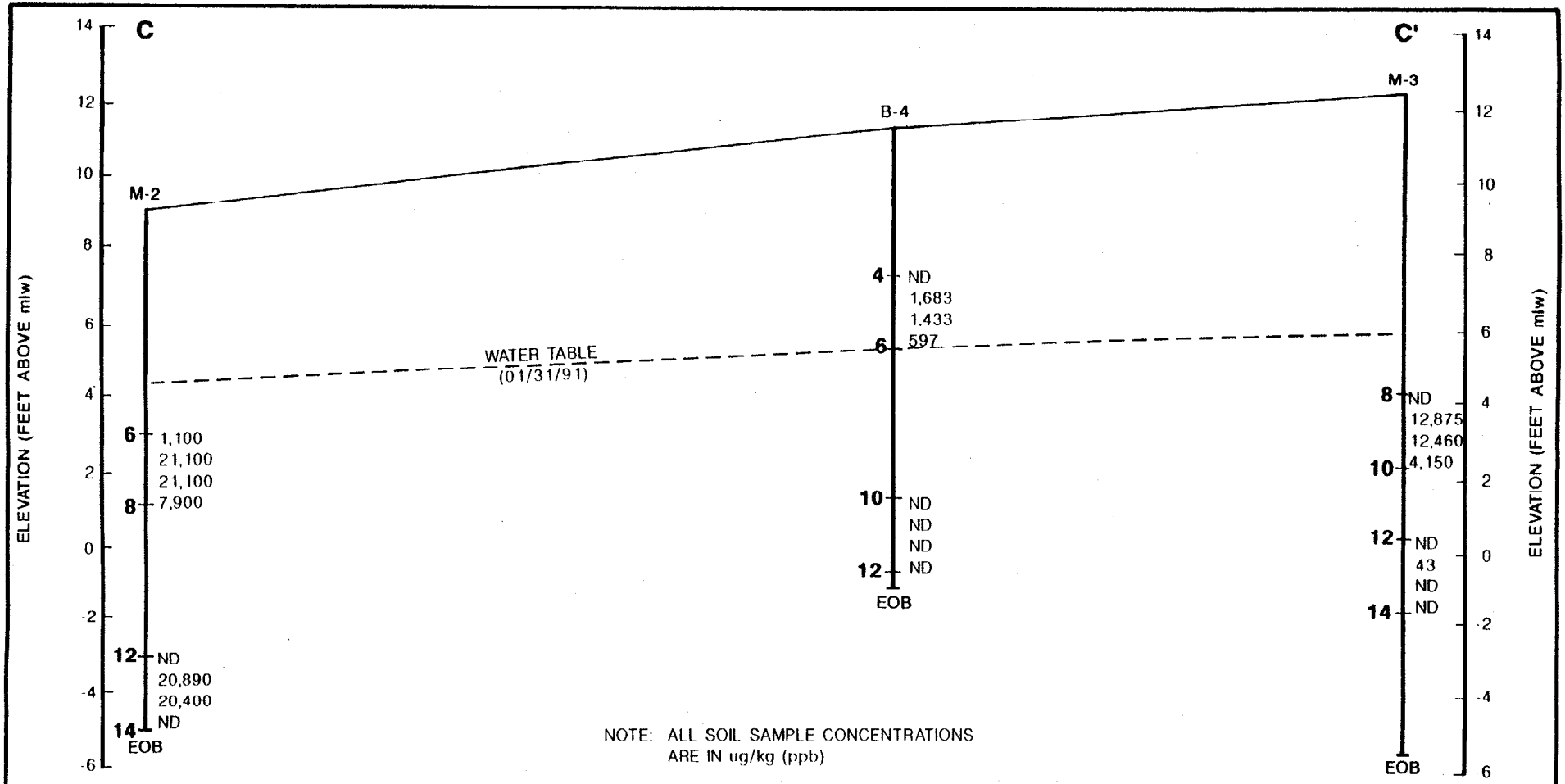
FIGURE 4-28.

SUBSURFACE SOIL CONTAMINATION CROSS SECTION LINE B-B'



NOTE: ALL SOIL SAMPLE CONCENTRATIONS ARE IN ug/kg (ppb)

NOTE: WATER TABLE DEPTH AT BORINGS EXTRAPOLATED FROM GROUND WATER CONTOUR MAP

LEGEND

1,100 - TOTAL VOLATILE ORGANIC COMPOUNDS

21,100 - TOTAL BASE NEUTRAL/ACID EXTRACTABLE ORGANIC COMPOUNDS

21,100 - TOTAL POLYNUCLEAR AROMATIC HYDROCARBONS

7,900 - TOTAL CARCINOGENIC POLYNUCLEAR AROMATIC HYDROCARBONS

ND - NOT DETECTED

EOB - END OF BORING

6 – 8 - 6 TO 8 FOOT DEPTH BELOW GRADE

0 — 40 FT
HORIZONTAL SCALE

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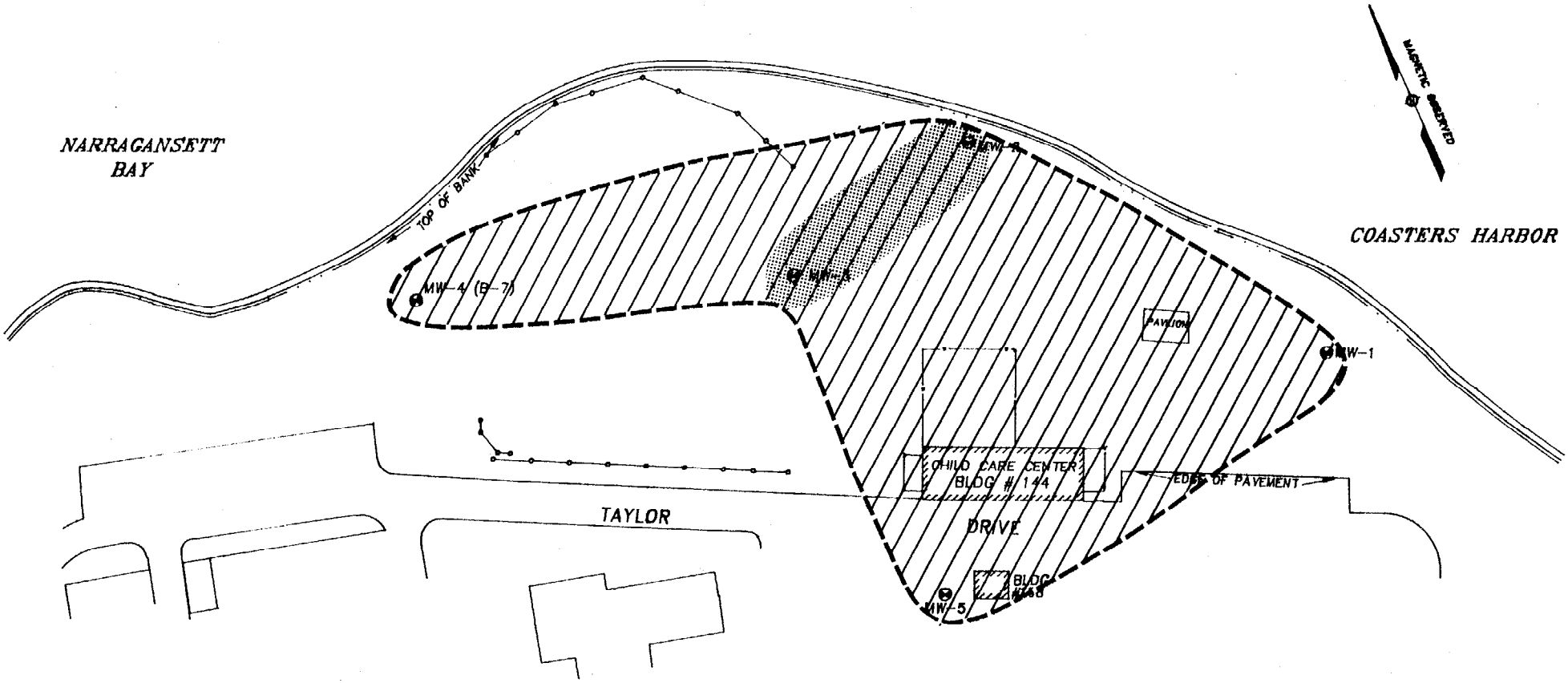
FIGURE 4-29.

SUBSURFACE SOIL CONTAMINATION
CROSS SECTION LINE C-C'



40 0 40 80 120 160 FEET

20 0 20 40 METERS

LEGEND

INORGANIC ANALYTE(S) EXCEEDING ACTION LEVELS

INORGANIC ANALYTE(S) EXCEEDING 10x's ACTION LEVELS*
@ MW-2: LEAD
@ MW-3: LEAD

* NOTE: ALUMINUM, IRON AND MANGANESE ALSO EXCEEDING 10x's THEIR ACTION LEVELS AT ALL WELLS.

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FIGURE 4-30.

EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION

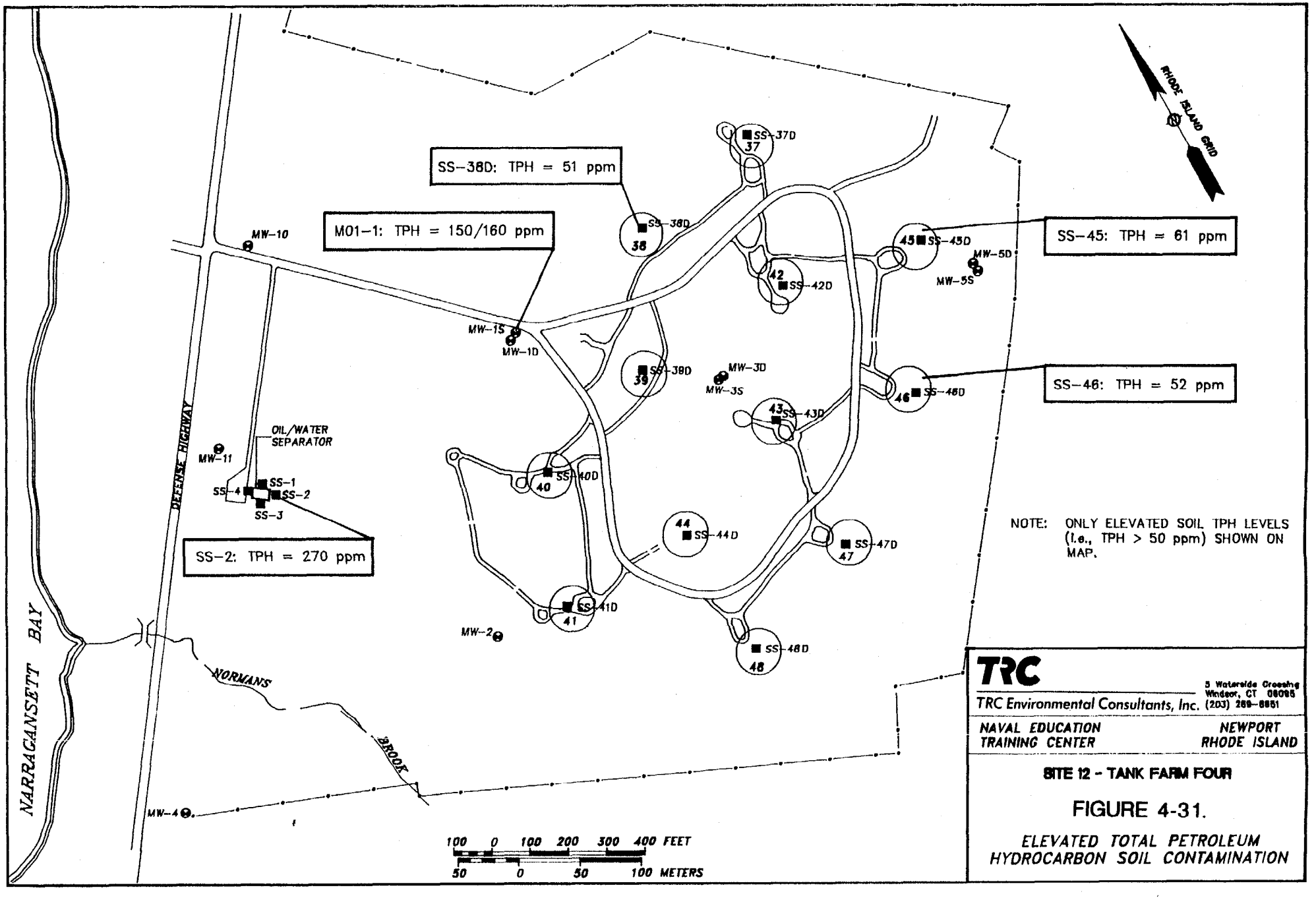

FIGURE 4-31.

ELEVATED TOTAL PETROLEUM HYDROCARBON SOIL CONTAMINATION

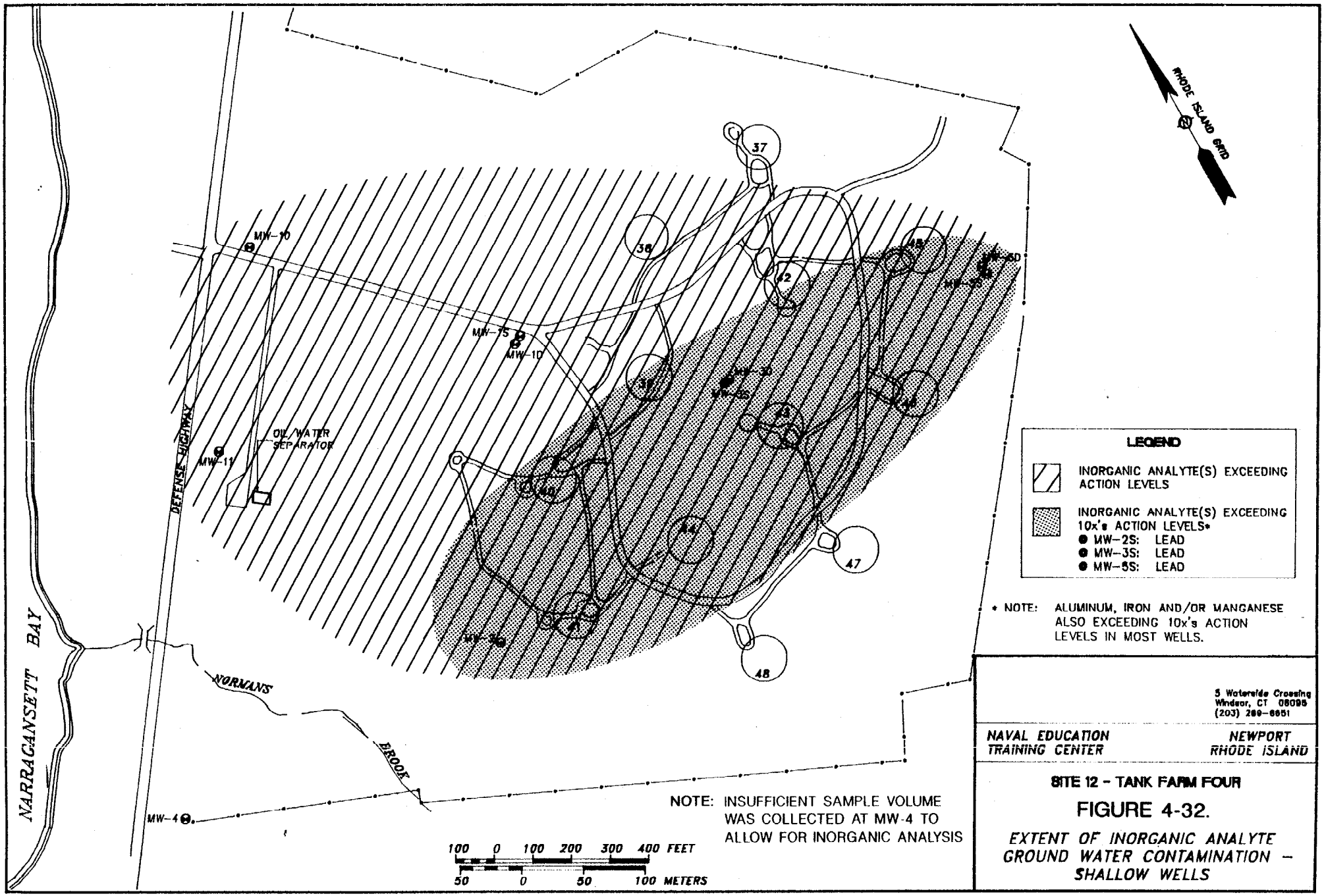
NARRAGANSETT BAY
DEFENSE HIGHWAY
NORMANS BROOK
OIL/WATER SEPARATOR
MW-10
MW-11
MW-4
MW-7S
MW-7D
MW-2S
MW-3S
MW-5S
MW-5D
MW-6S
MW-6D
37
38
39
42
43
44
45
46
47
48
RHODE ISLAND GRID
LEGEND
INORGANIC ANALYTE(S) EXCEEDING ACTION LEVELS
INORGANIC ANALYTE(S) EXCEEDING 10x's ACTION LEVELS*
MW-2S: LEAD
MW-3S: LEAD
MW-5S: LEAD
* NOTE: ALUMINUM, IRON AND/OR MANGANESE ALSO EXCEEDING 10x's ACTION LEVELS IN MOST WELLS.
NOTE: INSUFFICIENT SAMPLE VOLUME WAS COLLECTED AT MW-4 TO ALLOW FOR INORGANIC ANALYSIS
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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FIGURE 4-32.
EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION - SHALLOW WELLS

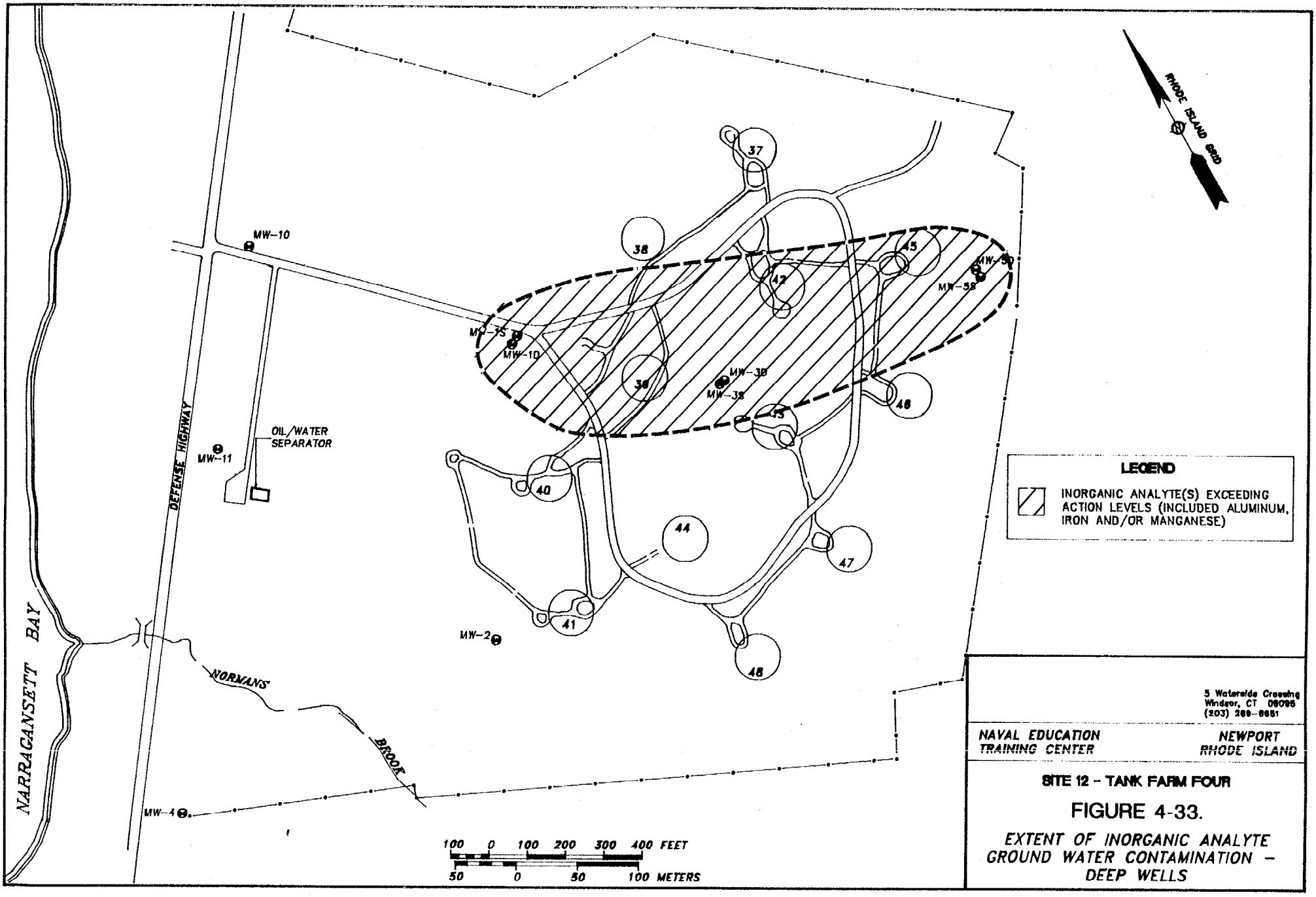

FIGURE 4-33.

EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION - DEEP WELLS

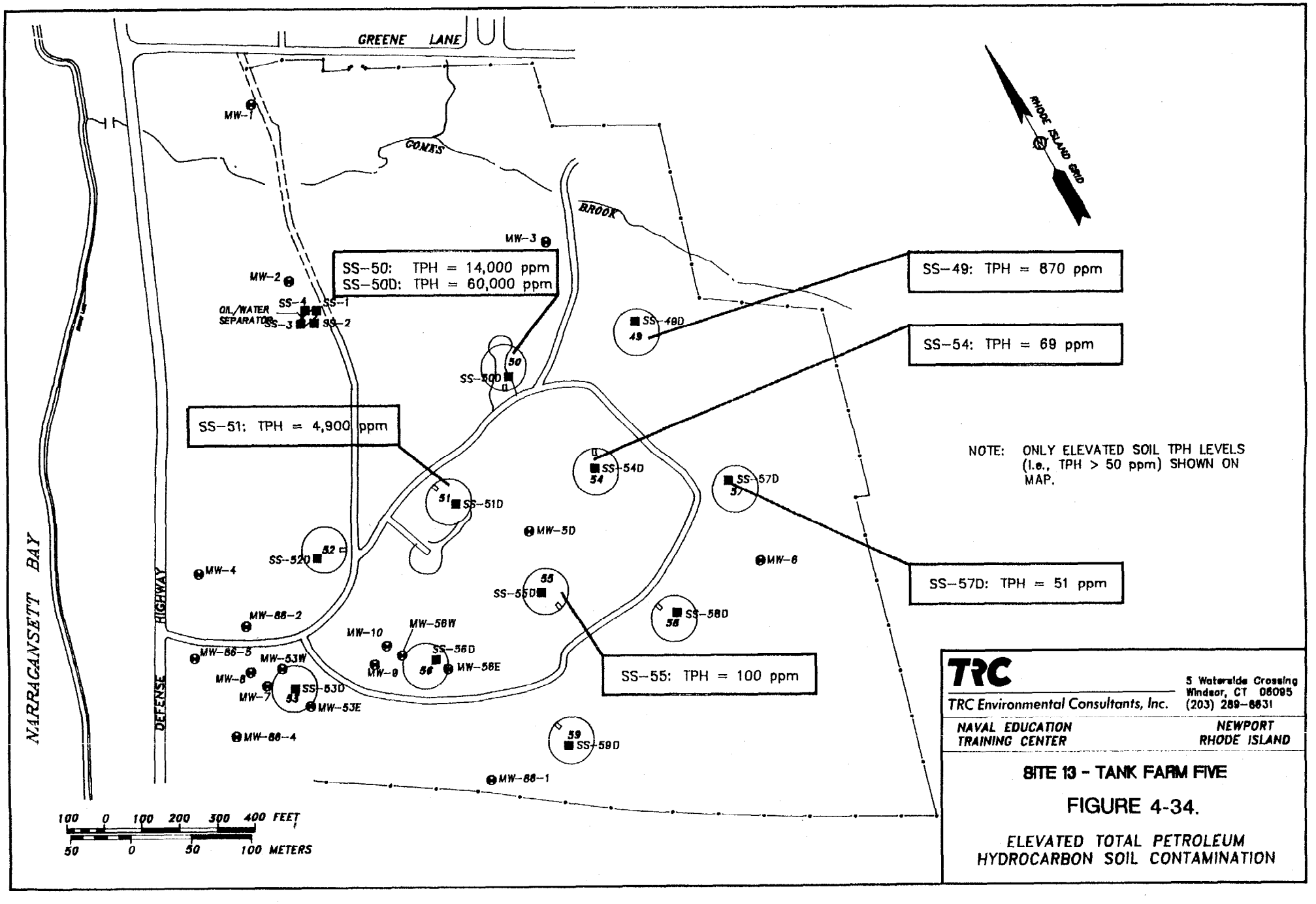
GREENE LANE
CONE'S BROOK
RHODE ISLAND GRID
NARRAGANSETT BAY
DEFENSE HIGHWAY
MW-1
MW-2
MW-3
MW-4
MW-5D
MW-6
MW-7
MW-8
MW-9
MW-10
MW-53W
MW-53E
MW-56W
MW-56E
MW-66-1
MW-66-2
MW-66-4
MW-66-5
OIL/WATER SEPARATOR
SS-1
SS-2
SS-3
SS-4
SS-49D
SS-50D
SS-51D
SS-52D
SS-53D
SS-54D
SS-55D
SS-56D
SS-57D
SS-58D
SS-59D
SS-50: TPH = 14,000 ppm
SS-50D: TPH = 60,000 ppm
SS-49: TPH = 870 ppm
SS-54: TPH = 69 ppm
SS-51: TPH = 4,900 ppm
SS-57D: TPH = 51 ppm
SS-55: TPH = 100 ppm
NOTE: ONLY ELEVATED SOIL TPH LEVELS (i.e., TPH > 50 ppm) SHOWN ON MAP.
100 0 100 200 300 400 FEET
50 0 50 100 METERS
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FIGURE 4-34.
ELEVATED TOTAL PETROLEUM HYDROCARBON SOIL CONTAMINATION

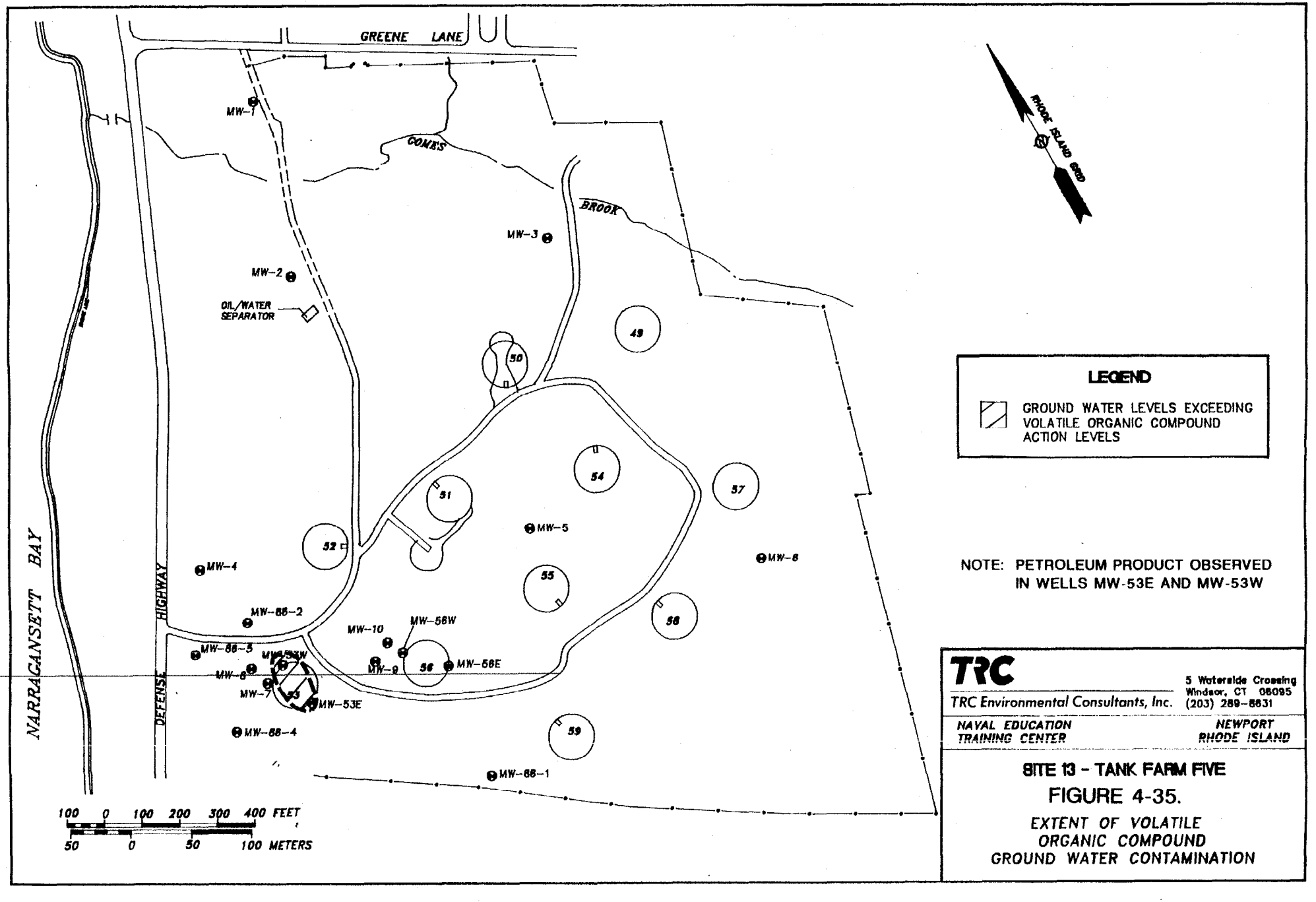
GREENE LANE
COMES
BROOK
NARRAGANSETT BAY
DEFENSE HIGHWAY
RHODE ISLAND GRID
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10
MW-53E
MW-53W
MW-56E
MW-56W
MW-66-1
MW-66-2
MW-66-4
MW-66-5
OIL/WATER SEPARATOR
49
50
51
52
53
54
55
56
57
58
59
100 0 100 200 300 400 FEET
50 0 50 100 METERS
LEGEND
GROUND WATER LEVELS EXCEEDING VOLATILE ORGANIC COMPOUND ACTION LEVELS
NOTE: PETROLEUM PRODUCT OBSERVED IN WELLS MW-53E AND MW-53W
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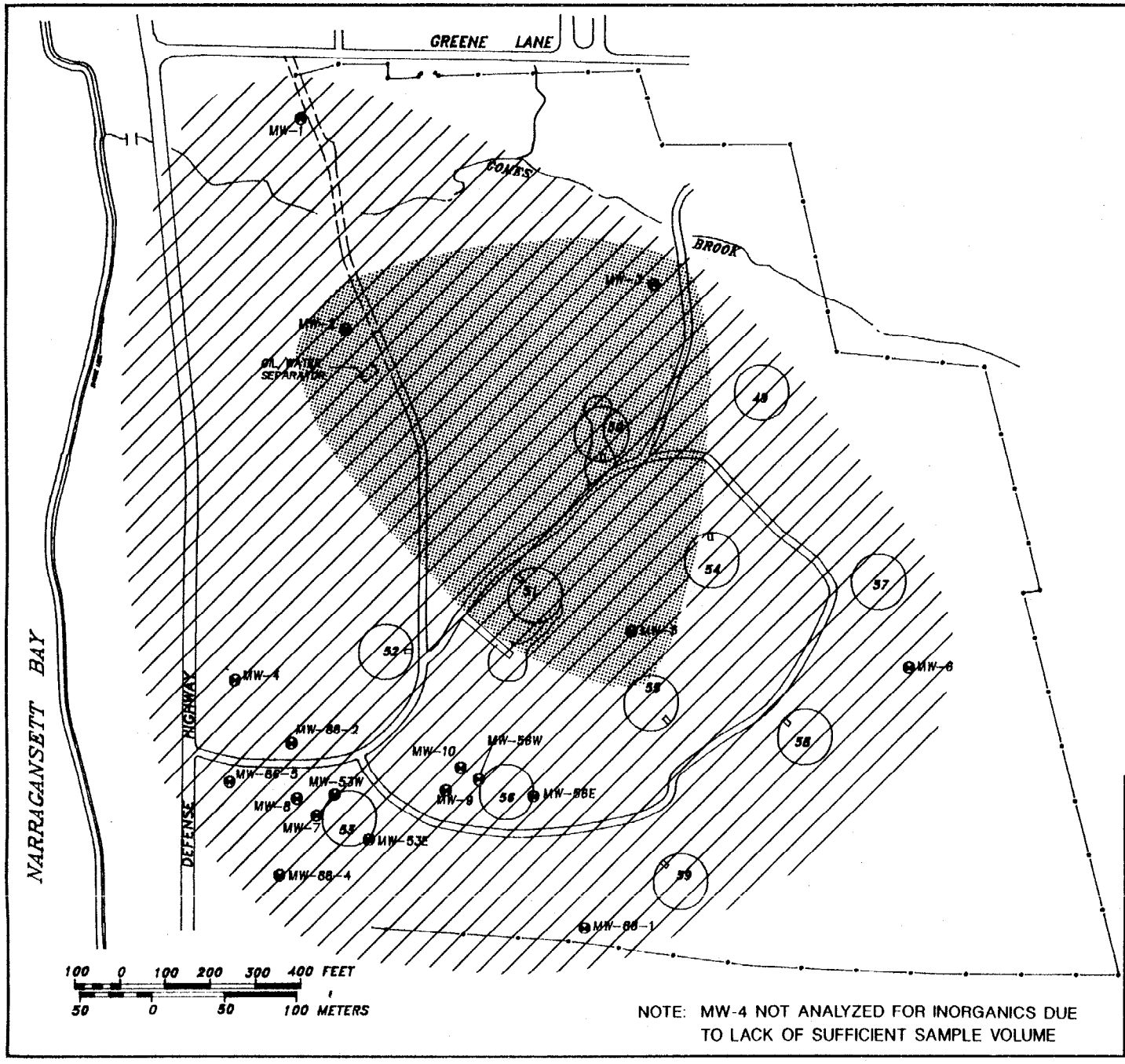
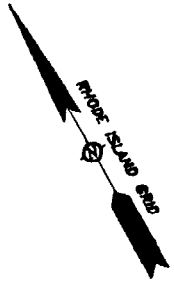
FIGURE 4-35.
EXTENT OF VOLATILE ORGANIC COMPOUND GROUND WATER CONTAMINATION





LEGEND

- INORGANIC ANALYTE(S) EXCEEDING ACTION LEVELS
- INORGANIC ANALYTE(S) EXCEEDING 100x's ACTION LEVELS *
  - MW-2: COPPER AND LEAD
  - MW-3: LEAD
  - MW-5: COPPER AND NICKEL

* NOTE: ALUMINUM, IRON AND MANGANESE ALSO EXCEEDING 100x's ACTION LEVELS IN MOST WELLS.

NOTE: MW-4 NOT ANALYZED FOR INORGANICS DUE TO LACK OF SUFFICIENT SAMPLE VOLUME

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SITE 13 - TANK FARM FIVE

FIGURE 4-36.

EXTENT OF INORGANIC ANALYTE GROUND WATER CONTAMINATION