INSTALLATION RESTORATION PROGRAM

SITE INVESTIGATION TECHNICAL MEMORANDUM

INTERIM REPORT OF FINDINGS FOR CESSPOOL/SEPTIC TANK SURVEY; FIELD-SCREENING RESULTS

Prepared for:

National Guard Bureau
Andrews Air Force Base, Maryland

Submitted to:

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Oak Ridge, Tennessee

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October 1, 1991

Janice

1. Please send a copy of test results to Pat Primi.

2. Send a classification package (2G) and copy of SI plan and test results, etc. to Bob McKinn

Thanks

Tony

SITE INVESTIGATION
TECHNICAL MEMORANDUM

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1.0 INTRODUCTION

The Department of Defense established the Installation Restoration Program (IRP) to identify, investigate and remediate contamination resulting from earlier waste disposal practices or spills at military installations. The sequence of activities of the IRP include:

Preliminary Assessment (PA)

Site Investigation (SI)

Remedial Investigation (RI)

Feasibility Study (FS)

Remedial Action (RA)

These steps have been supplemented with the concept of a Decision Document (DD) and Focused Feasibility Study/Remedial Measures, to provide a mechanism to perform immediate actions during any stage of the IRP, or to address, at any point, the "no action" alternative with a DD.

The National Guard Bureau (NBG) requested the support of the Department of Energy and Martin Marietta Energy Systems, Inc., Hazardous Waste Remedial Actions Program (HAZWRAP) in conducting the IRP for Suffolk County Air National Guard Base (SCANGB) in Westhampton Beach, New York (Figure 1). In 1986, Dames and Moore published the results of a Records Search (equivalent to PA) conducted for HAZWRAP, for former Air Force sites at Suffolk County Airport that are not presently leased by the Air National Guard (Dames and Moore, 1986) In 1987, the results of a Records Search for sites at the SCANGB was published by Dynamac Corporation through the Hazardous Materials Technical Center contract administered by the Defense Logistics Agency (HMTC, 1987). In 1989, HAZWRAP requested the services of ABB Environmental Services, Inc. (ABB-ES) to perform the SI portion of the IRP at the sites identified in the HMTC Records Search.

The SI was initiated with a kick-off meeting at SCANGB in July 1989. On July 25, 1989, a meeting was held to brief regulatory officials on the SI program for SCANGB. A program to investigate former fuel spill sites, hazardous waste storage areas, and a drainage ditch was presented by ABB-ES to meeting attendees. At the

request of the Suffolk County Department of Health Services, the NGB decided to add cesspools and septic tanks to the list of sites that would be included in the SI.

The septic system sites were designated as Sites 8A through 8L: Old Base Septic System. This system consisted of 46 cesspools, septic tanks, an oil/mud trap and dry wells identified on the SCANGB utility maps available from the Base's Civil Engineer's Office. These particular components of the Old Base Septic System were selected by the Guard because they receive discharges from several buildings or individual buildings where industrial and/or equipment maintenance activities occurred. The list of cesspools and septic tanks to be surveyed is shown in Table 1, and the locations of individual sites are illustrated in Figure 2.

In August 1991, ABB-ES completed a Site Investigation Sampling and analysis Plan (SAP) for the SI activities at SCANGB (ABB-ES, 1991). The first phase of the SI was initiated in August 1991, and includes the cesspool/septic tank survey. Briefly, this survey consists of the following tasks:

- Perform geophysical ground-penetrating radar (GPR) survey to locate cesspools/septic tanks identified on utility maps provided by the Base.
- Verify cesspool/septic tank locations by excavating with a backhoe.
- Sample sediments to perform field-screening analyses for volatile and semivolatile organic compounds and metals.
- Send samples to a subcontractor laboratory for confirmatory analyses.

The detailed methodologies used to perform this survey are described in the SAP (ABB-ES, 1991).

This Technical Memorandum presents the preliminary findings of the cesspool/septic tank survey. The investigation methods are summarized, preliminary findings are described, the conclusions are presented and a list of references is provided.

2.0 INVESTIGATION METHODOLOGIES

2.1 VERIFICATION OF CESSPOOL AND SEPTIC TANK LOCATIONS

On August 26, 1991, ABB-ES began a search for 46 cesspools/septic tanks, an oil/mud trap and dry wells appearing on the Base's Detail Utility Map Grid #64 (utility map). Twelve sub-sites (Site 8A through 8L) make up Site 8, the Old Base Septic System (Figure 3 through 11). The search began with a walk-over of the Old Base Septic System. During this initial survey, the covers of 16 structures were identified at the ground surface.

The GPR survey was used in an attempt to locate the remaining 30 cesspools. The GPR survey resulted in identification of 16 subsurface anomalies at locations corresponding to cesspools on the Base's utility map. The approximate location of the remaining 14 cesspools were marked at the ground surface by scaling their locations from the utility map. Verification of the locations of the 16 cesspools identified by GPR and the 14 cesspools measured off of the Base's utility map was conducted using a backhoe and operator provided by the Guard.

Thirteen of the 16 cesspool locations identified by GPR were confirmed by excavating with the backhoe. Two of the anomalies, believed to be cesspools (Site 8H, Cesspool #1 and #2) that were not excavated are located under the asphalt in back of the southwest corner of Building #369. A complex of five cesspools was shown at this location on the utility map, and three were excavated. These had identical construction features, and data were gathered on them. The other two were not excavated in order to avoid disruption to vehicular traffic; however, their existence is not questioned. The final anomaly (Site 8C, Cesspool #5) identified by the GPR was excavated to reveal fill containing concrete debris.

Thirteen of the 14 cesspool locations that were marked from the utility map were excavated. One suspected cesspool location was not excavated because it was in the same area as the fuel tanks in the motor pool parking lot (Building #230). After discussion with the Base Civil Engineer, it was decided that it was not possible for a cesspool to be in that location. Of the 13 locations that were excavated, only one cesspool was found (Site 8C, Cesspool #11).

At Site 8C, concrete debris was found during excavation of the suspected cesspool locations (#5, #7 and #2). It is possible that the debris represents remnants of destroyed and abandoned cesspools. It should be noted that of the four cesspools

actually located at Site 8C, three were shown to be "abandoned" on the utility map. Upon inspection of the contents of the four cesspools, the only one shown on the map to be active (Cesspool #11) was virtually dry. The three "abandoned" cesspools contained varying amounts of fluids and appeared active.

Three basic types of cesspool construction and design were found: stacked and perforated cylindrical concrete rings, and cesspool block.

The dimensions of the cesspools ranged from 10 to 15 feet in diameter with a depth between 10 and 25 five feet. The cesspool bottoms appeared to be open to the surrounding soil, but this could not be confirmed at all locations.

The septic tanks appeared to be non-perforated concrete tanks approximately ten feet in diameter with the exception of Septic Tank #1 at Site 8L, which was brick lined.

2.2 SAMPLING PROTOCOLS

Of the cesspools/septic tanks, dry wells and an oil/mud trap that were sampled, all but six could be sampled through the top. Of those that were sampled through the top, 15 had metal man-hole covers and nine had slide-off concrete lids (one location required a backhoe to move the lid). The six cesspools that could not be sampled from the top were sampled through a hole that was made in the side of the structure.

On September 9, 1991, ABB-ES commenced sampling of the old base septic system. Sludge and liquid samples were collected from nine septic tanks, 15 cesspools, two dry wells and one oil/mud trap. In addition, two distribution boxes (#1 and #2) were sampled at Site 8H (Figure 7). The distribution boxes were sampled in lieu of collecting samples from Cesspools #1 and #2, which were located beneath the asphalt roadway.

Two cesspools could not be sampled because they were dry and did not contain sludge or retrievable sediment--these include Cesspool #1 at Site 8A and Cesspool #4 at Site 8H. At Site #5, samples would have had to be collected through the side of the cesspool. Upon excavation of the side-wall, liquid sewage began flowing out through the side of the cesspool block wall. The liquid was not sampled because it would not be representative of the sludge on the bottom or past disposal practices. Instead, a sediment/sludge sample was collected from Distribution Box #2, which is immediately upgradient from Cesspool #5.

The samples were collected using a clean stainless steel gravity core sampling tube, a stainless steel bottom-loading bailer and a stainless steel bucket and spoon. Upon opening the cover to the cesspool/septic tank, dry well, distribution box or oil/mud trap, the depth of the structure was measured using a length of stiff plastic pipe. The width of the structure was also estimated when possible. The width of the tank could not always be determined--it depended on how full the tank was with sewage. When sludge samples were collected, the sampled material was removed from the gravity core sampling tube and placed in the bucket. The sludge was removed from the bucket with the spoon, placed in the appropriate sample jars and placed on ice in order to reduce volatilization. Liquid samples were collected with a bailer and poured directly into the appropriate pre-preserved bottles. In general, most of the material that was sampled from the tanks consisted of a brown to black, oily, sandy sludge. All sampling equipment was cleaned over the open tank with a high-pressure steam sprayer, Liquinox, and deionized water after each use.

2.3 FIELD-SCREENING METHODS FOR ORGANIC CONTAMINANTS

Two "split" samples were collected from each sample location. One sample was analyzed on-site in the mobile laboratory for organic contaminants--these results were used for screening purposes. The second identical sample was sent to a subcontractor laboratory for confirmatory analyses. The following is a brief summary of the field screening methods used to identify organic contaminants in the samples collected from the Old Base Septic System.

2.3.1 Volatile Organic Compounds (VOCs)

Screening for VOCs was performed on-site using established gas chromatographic techniques. The exact method was modeled against USEPA Methods 601 and 602. These approved methods achieve low parts-per-billion (ppb) detection limits of halogenated and aromatic volatile compounds in water. Modifications to the method were made to provide for the analyses of soil and sludge. Briefly, the method used a "purge and trap" instrument to release and concentrate volatile compounds from the sludge. A "slug" containing contaminants was then transferred to a gas chromatograph (GC) where they were separated according to their molecular weight and boiling point. Finally, the separated compounds were passed through a series of two detectors where they were identified and quantitated. A photoionization detector (PID) was used for the identification of aromatic compounds while an electrolytic conductivity detector (ELCD) was used to identify halogenated compounds.

VOCs identified in the SAP as target compounds of concern for this operation were: cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1,1-trichloroethane, benzene, trichloroethene, toluene, tetrachloroethene, chlorobenzene, ethylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene(1), and naphthalene. No standard for 1,2,4-trichlorobenzene was available, therefore, there are no screening data for this compound. However, the target analyte list was expanded from those listed in the SAP to include 1,3-dichlorobenzene and chlorobenzene. 1,3-Dichlorobenzene was added to the list to include all of the dichlorobenzene isomers, and chlorobenzene was added because it is a degradation product of dichlorobenzene and would probably be present in conjunction with the parent compound.

Quality control procedures were performed daily to ensure the integrity of the data. These procedures included initial and continuing calibrations, use of low- and medium-level method blanks, cleaning blanks, and the analysis of matrix spikes and matrix spike duplicates.

2.3.2 Semivolatile Organic Compounds (SVOCs)

Screening for SVOCs was performed on-site using a similar gas chromatographic technique for compound separation. An additional preparation step was required prior to SVOC analysis since it is more difficult to release this class of compound from a given media. In lieu of a "purge and trap" to release contaminants, a methylene chloride extraction of the sludges was performed prior to injection on the GC. Although effective, this extraction does not provide for the same concentration factor as does a "purge and trap"; therefore, the detection limits for SVOCs were approximately three orders of magnitude higher than for VOCs (1 ppm). As with the screening technique for VOCs, contaminants are separated in the GC according to their molecular weight and boiling point. In addition, a "non-selective" flame ionization detector (FID) was used for compound identification and quantification. In highly contaminated media, this detector is subject to false positives of target analytes, therefore, CLP confirmation is recommended. Regardless of whether or not false positives exist, this screening method is excellent for the identification of gross contamination.

SVOCs identified as target compounds of concern for this operation were: acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. This list is more extensive than that listed in the SAP. Eight additional polycyclic aromatic

hydrocarbons (PAHs) were added, because they are all indicative of fuel contamination and are often discovered together. In addition, the chemical supplier provided this mix as a standard for calibration; therefore, it was decided to gather as much information as possible and use the entire mix. The b and k isomers of benzofluoranthene coeluted on the GC; therefore, the data are presented as a total concentration of the two isomers.

Quality control procedures were performed daily to ensure the integrity of the data. These procedures included initial and continuing calibrations, low and medium level method blanks, cleaning blanks, solvent blanks, and the analyses of matrix spikes and matrix spike duplicates.

3.0 RESULTS

The screening data indicate that a large number of volatile and semivolatile organic contaminants are present at high levels in the septic system at the base (Table 1). The types of compounds found include fuel constituents, cleaning solvents and components of oil, lubricants and paint products. As shown in Table 2, action levels were exceeded for most of the compounds detected.

The action levels for at least one compound were exceeded at all sites except Site 8L (Tables 3 and 4). Contaminants were detected at or above action levels in 21 of 29 structures sampled.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the search for cesspools/septic tanks identified in the SAP, and the field-screening of samples from these structures, were described in Section 3.0. The following conclusions are derived from these results:

- Several cesspools and septic tanks identified on the utility map provided by the Base apparently do not exist. There is insufficient information available to assess whether these structures were ever built, or whether they were abandoned and removed.

- A total of 29 cesspools, septic tanks, distribution boxes, dry wells and an oil and mud trap were sampled.

- Field-screening analyses of the samples indicate that volatile organics and/or semivolatile organics are present at concentrations exceeding the action levels specified in the SAP in all but one of the structures sampled.

- The contaminants detected are indicative of fuel, oil and lubricant, solvent and paint products. There is insufficient information available at this time to determine how and when the release of these products occurred.

Based on the findings and conclusions, the following recommendations are provided:

- Initiate a source removal action to remove grossly contaminated sediments and liquids from the sampled structures.

- Upgrade and enforce waste management plans to prevent future releases of hazardous substances to the septic systems.

- Continue planned investigations at the sampled structures to assess the distribution of contamination in bottom sediments and surrounding soil, as well as the impact on the quality of groundwater.

- Develop plans to search for and investigate all septic systems on the Base for potential contamination.

- Recommend to Suffolk County that septic systems on county-owned property that was previously owned by the U.S. Air Force be investigated for potential contamination.

ABB Environmental Services, Inc., 1991. "Site Investigation Sampling and Analysis Plan - Suffolk County Air National Guard Base, Westhampton Beach, New York"; prepared for the Hazardous Waste Remedial Actions Program; Oak Ridge, Tennessee; August 1991.

Dames and Moore, 1986. "Phase I Records Search for Suffolk County Air Force Base (Retired), Suffolk County Airport, Westhampton Beach, New York", Preliminary Draft; September 18, 1986.

Hazardous Materials Technical Center (HMTC), 1987. "Phase I Records Search for 106th Aerospace Rescue and Recovery Group, New York Air National Guard, Suffolk County Air National Guard Base, Westhampton Beach, New York"; Rockville, Maryland; July 1987.

TABLE 1
LIST OF CESSPOOLS AND SEPTIC TANKS
TO BE SURVEYED

INTERIM REPORT OF FINDINGS
SUFFOLK COUNTY AIR NATIONAL GUARD BASE

SITE DESCRIPTION	BUILDING	CESSPOOLS/SEPTIC TANKS/DRY WELLS
8A	230	Oil and Mud Trap and 2 attached cesspools, 11,500 gallons each
8B	230	1 septic tank (3,000 gallons) and attached cesspool (11,500 gallons)
8C	218, 220, 222, 329	1 septic tank (unknown capacity), 1 abandoned septic tank, 8 cesspools, 7 abandoned cesspools
8D	264	2 cesspools (unknown capacity
8E	270	1 cesspool (2,310 gallons)
8F	276	1 septic tank (897 gallons) and attached cesspool (3,384 gallons)
8G	358	1 septic tank (3,840 gallons) and 2 attached cesspools (13,356 gallons each)
8H	370	5 cesspools (12,690 gallons) shared with Building 369 and 1 septic tank
8I	378	1 septic tank (2,229 gallons), 1 cesspool (5,875 gallons), and 1 dry well
8J	395	1 dry well
8K	395	1 septic tank (1,000 gallons) and 3 attached cesspools (3,000 gallons each)
8L	395	1 abandoned septic tank (unknown capacity) and 1 abandoned cesspool (unknown capacity)

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TABLE 2

SUMMARY OF CESSPOOL/ SEPTIC TANK FINDINGS
INTERIM REPORT OF FINDINGS
SUFFOLK COUNTY AIR NATIONAL GUARD BASE

TARGET COMPOUNDS	ACTION LEVEL a.	CONCENTRATION RANGES SOLIDS	LIQUIDS
VOLATILE ORGANIC (ppb)		Not Lab Results Field Result	
TRANS-1,2-DICHLOROETHENE (b)	10000 b		
CIS-1,2-DICHLOROETHENE (b)	10000 b	ND-12000	ND-710
1,1,1-TRICHLOROETHANE	10000	ND-1600000	ND-1700
TRICHLOROETHENE	10000	ND-250000	ND-37
TETRACHLOROETHENE	1000	ND-2100	ND-23
CHLOROBENZENE	10000	ND-240000	ND-6
1,2-DICHLOROBENZENE	10000	ND-140000	ND-73
1,3-DICHLOROBENZENE	7000	ND-13000	ND-18
1,4-DICHLOROBENZENE	10000	ND-1600000	ND-2200
BENZENE	400	ND-31000	ND
TOLUENE	10000	ND-630000	ND-120
ETHYLBENZENE	10000	ND-37000	ND-12
m/p-XYLENE (c)	10000 c	ND-52000	ND-40
o-XYLENE (c)	10000 c	ND-32000	ND-30
NAPTHALENE	10000	ND-81000	ND-130
SEMI-VOLATILE ORGANIC (~~ppm~~) ppb			
ACENAPHTHYLENE	10000	ND-330000	ND
ACENAPHTHENE	10000	ND-250000	ND
FLUORENE	10000	ND-130000	ND
PHENANTHRENE	10000	ND-1200000	ND
ANTHRACENE	10000	ND-440000	ND
FLUORANTHENE	10000	ND-230000	ND
PYRENE	10000	ND-1600000	ND
BENZO(A)ANTHRACENE	10000	ND-610000	ND
CHRYSENE	10000	ND-10000000	ND
BENZO(b,k)FLUORANTHENE (d)	10000 d	ND-1300000	ND-3
BENZO(A)PYRENE	10000	ND-1100000	ND-5
INDENO(1,2,3-CD)PYRENE	10000	ND-9800000	ND-31
DIBENZO(A,H)ANTHRACENE	10000	ND-1200000	ND-16
BENZO(G,H,I)PERYLENE	10000	ND-3800000	ND-30

NOTES:

a – Action levels were developed for sediments only, based on modeling of contaminant movement through soil and groundwater.

b – The action level for Dichloroethene is reported as total of cis- and trans- isomers.

c – The action level of Xylene is reported as a total of meta(m)-, para(p), and ortho(o) isomers.

d – Due to coelution of Benzo(b)fluoranthene and Benzo(k)fluoranthene results are reported as total concentration.

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TABLE 3
RESULTS OF FIELD-SCREENING OF CESSPOOL/SEPTIC TANK SAMPLES FOR VOLATILE ORGANICS
INTERIM REPORT OF FINDINGS

SITE/	STRUCTURE	MATRIX	VOLATILE ORGANICS (ppb) TDCE	CDCE	TCA	TCE	PCE	CBEN	2DCB	3DCB	4DCB	BEN	TOL	EBEN	MXYL	OXYL	NAPH
8A	MUD/OIL TRAP	LIQUID	--	31	--	--	23	--	4	--	3	--	30	11	40	12	--
	CESSPOOL #2	SOLID	--	28	--	--	6	28	360	140	180	92	2400	160	51	130	1400
8B	SEPTIC TANK #1	LIQUID	--	7	--	--	--	--	--	--	--	--	5	--	19	--	--
	CESSPOOL #1	SOLID	--	--	--	--	--	88	--	--	96	--	1200	--	69	--	--
8C	SEPTIC TANK #1	LIQUID	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		SOLID	--	10000	--	--	2100	--	--	--	1200	--	11000	--	13000	--	--
	SEPTIC TANK #2	SOLID	--	3100	--	--	--	24000	610	1100	37000	--	360000	32000	7100	3300	--
	CESSPOOL #1	SOLID	--	--	--	--	--	--	--	--	21	--	30	--	--	--	--
	CESSPOOL #3	SOLID	--	--	--	--	--	--	--	--	5700	--	9800	--	6400	9800	--
	CESSPOOL #4	SOLID	--	--	--	--	--	--	--	--	2400	--	--	--	--	--	--
	CESSPOOL #11	SOLID	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8E	CESSPOOL #1	SOLID	--	12000	46000	18000	210	--	37000	13000	20000	--	66000	1800	7200	3700	3100
8F	SEPTIC TANK #1	SOLID	--	3100	1600000	250000	--	--	--	--	1600000	13000	630000	10000	52000	22000	62000
	CESSPOOL #1	SOLID	--	--	--	--	--	--	800	--	28000	31000	11000	21000	52000	32000	13000
8G	SEPTIC TANK #1	SOLID	--	9100	8300	--	--	--	140000	11000	99000	--	15000	--	56000	22000	81000
	CESSPOOL #1	SOLID	--	--	--	4	13	--	--	--	5	--	--	--	--	--	--
	CESSPOOL #2	SOLID	--	--	--	--	--	--	59000	9700	110000	--	--	37000	14000	4700	29000
8H	SEPTIC TANK #1	SOLID	--	--	--	--	--	250	130	94	430	--	--	--	380	--	--
	CESSPOOL #3	SOLID	--	--	17000	610	--	--	320	1100	39000	--	430	--	460	--	2600
	CESSPOOL #3	LIQUID	--	--	--	--	--	--	73	--	67	--	--	--	--	30	130
	DIST. BOX #1	LIQUID	--	--	1700	37	--	--	51	18	2200	--	73	12	28	11	88
8I	SEPTIC TANK #1	SOLID	--	--	360	31	--	--	--	--	130	--	--	--	--	--	210000
	CESSPOOL #1	SOLID	--	--	--	--	--	--	--	--	--	--	--	--	--	--	76

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TABLE 3 (continued)
RESULTS OF FIELD-SCREENING OF CESSPOOL/SEPTIC TANK SAMPLES
FOR VOLATILE ORGANICS
INTERIM REPORT OF FINDINGS

SITE/	STRUCTURE	MATRIX	VOLATILE ORGANICS (ppb) TDCE	CDCE	TCA	TCE	PCE	CBEN	2DCB	3DCB	4DCB	BEN	TOL	EBEN	MXYL	OXYL	NAPH
8J	DRYWELL #1		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8K	SEPTIC TANK #1	SOLID	--	--	--	--	--	--	--	--	3400	--	--	--	--	--	--
	CESSPOOL #1	SOLID	--	1200	--	--	--	--	--	--	910	--	--	--	--	--	170000
	CESSPOOL #2		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	CESSPOOL #3		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8L	SEPTIC TANK #1		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTE:

TCDE = trans-1,2-Dichloroethene, CDCE = cis-1,2-Dichloroethene, TCA = 1,1,1-Trichloroethane, TCE = Trichloroethene, PCE = Tetrachloroethene, CBEN = Chlorobenzene, 2DCB = 1,2-Dichlorobenzene, 3DCB = 1,3-Dichlorobenzene, 4DCB = 1,4-Dichlorobenzene, BEN = Benzene, TOL = Toluene, EBEN = Ethylbenzene, MXYL = m/p-Xylene, OXYL = o-Xylene, NAPH = Napthalene.

01-Oct-91

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TABLE 4
RESULTS OF FIELD-SCREENING OF CESSPOOL/SEPTIC TANK SAMPLES
FOR SEMIVOLATILE ORGANICS
INTERIM REPORT OF FINDINGS

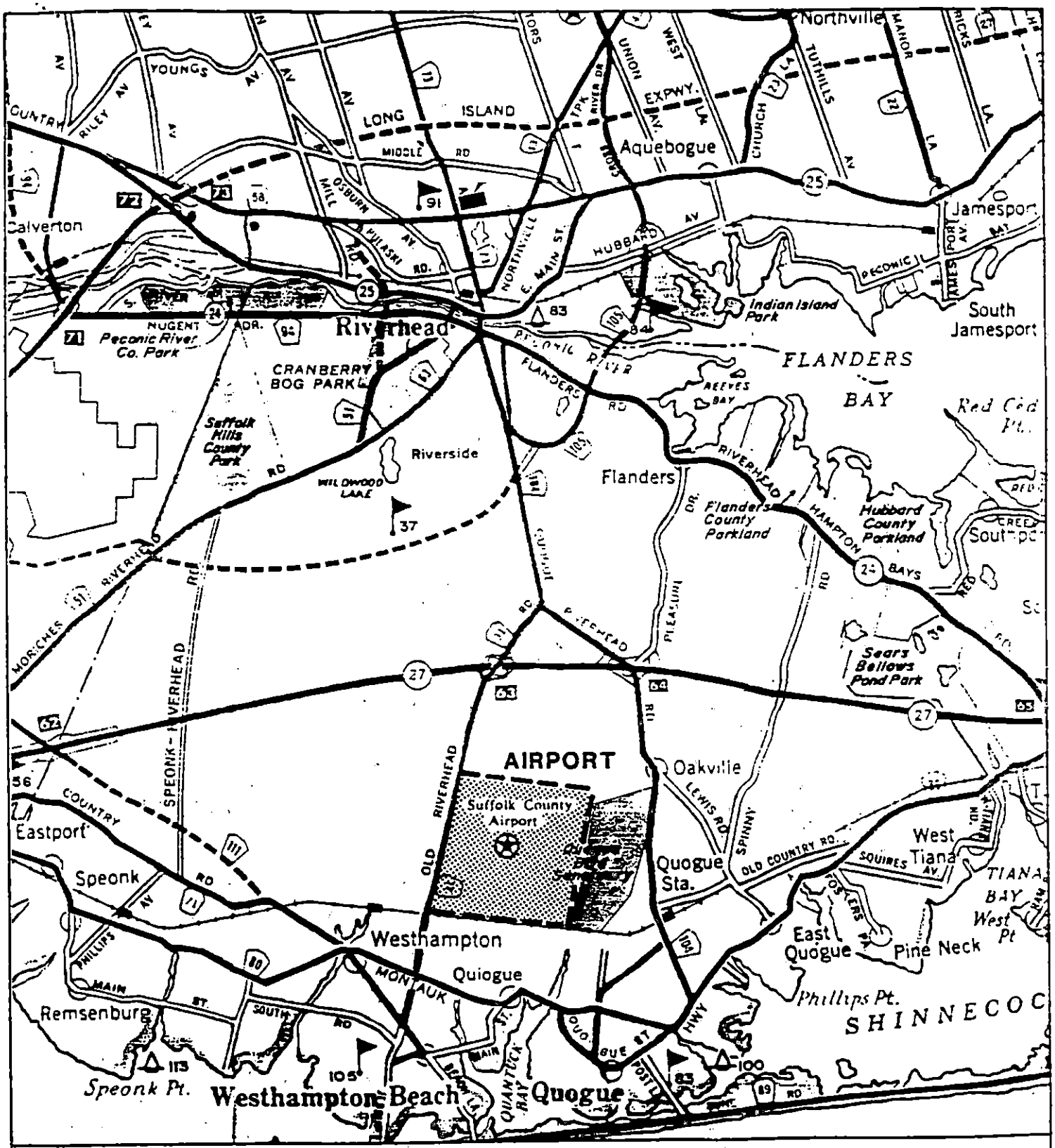
SITE/	STRUCTURE	MATRIX	SEMIVOLATILE ORGANICS (ppm) ACNP	ACNE	FLUO	PHNE	ANTC	FLUOR	PYR	BAA	CHRY	BBKF	BAP	IDNO	DAHA	BGHIP
8A	MUD/OIL TRAP	LIQUID	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	CESSPOOL #2	SOLID	9	--	--	3	5	4	6	9	10	32	39	20	--	--
8B	SEPTIC TANK #1	LIQUID	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	CESSPOOL #1	SOLID	--	6	--	8	6	--	--	--	2	23	26	290	--	170
8C	SEPTIC TANK #1	LIQUID	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		SOLID	120	250	30	500	400	--	67	57	--	430	500	9800	1100	3800
	SEPTIC TANK #2	SOLID	27	68	130	330	130	29	25	69	--	63	100	1300	250	310
	CESSPOOL #1	SOLID	--	--	--	--	--	--	--	--	--	19	48	80	66	490
	CESSPOOL #3	SOLID	30	29	--	--	58	--	33	27	140	510	89	940	170	1400
	CESSPOOL #4	SOLID	14	--	--	94	--	--	15	--	--	--	240	3600	480	810
	CESSPOOL #11															
8E	CESSPOOL #1	SOLID	38	51	--	671	51	160	10	46	57	71	39	1600	110	190
8F	SEPTIC TANK #1	SOLID	32	--	--	350	--	53	24	29	26	--	28	1800	--	140
	CESSPOOL #1															
8G	SEPTIC TANK #1	SOLID	330	96	81	910	260	--	1600	610	10000	1300	1100	2900	1200	1600
	CESSPOOL #1	SOLID	--	--	--	--	--	--	--	--	--	--	13	110	--	--
	CESSPOOL #2	SOLID	270	76	--	140	--	--	120	--	--	230	180	8900	670	2100
8H	SEPTIC TANK #1	SOLID	--	--	--	--	--	--	1	--	--	--	2	250	14	37
	CESSPOOL #2	SOLID	--	--	--	4	--	--	--	--	--	3	2	190	37	58
	CESSPOOL #2	LIQUID	--	--	--	--	--	--	--	--	--	3	5	31	--	--
	DIST. BOX #1	SOLID	--	--	--	--	--	--	--	--	--	4	--	48	21	35
	DIST. BOX #1	LIQUID	--	--	--	--	--	--	--	--	--	3	--	22	16	30
8I	SEPTIC TANK #1	SOLID	55	14	23	1200	440	230	72	86	180	300	270	5200	900	700

TABLE 4 (continued)
RESULTS OF FIELD-SCREENING OF CESSPOOL/SEPTIC TANK SAMPLES
FOR SEMIVOLATILE ORGANICS
INTERIM REPORT OF FINDINGS

SITE/	STRUCTURE	MATRIX	SEMIVOLATILE ORGANICS (ppm) ACNP	ACNE	FLUO	PHNE	ANTC	FLUOR	PYR	BAA	CHRY	BBKF	BAP	IDNO	DAHA	BGHIP
8J	DRYWELL #1	SOLID	--	--	--	1	--	7	7	4	4	10	6	--	--	--
8K	SEPTIC TANK #1															
	CESSPOOL #1	SOLID	84	--	--	200	77	87	310	21	2000	330	140	980	250	89
	CESSPOOL #2		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	CESSPOOL #3		--	--	--	--	--	--	--	--	--	--	--	--	--	--
8L	SEPTIC TANK #1		--	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTES:

ACNP = Acenaphthylene, ACNE = Acenaphthene, FLUO = Fluorene, PHNE = Phenanthrene, ANTC = Anthracene, FLUOR = Fluoranthene, PYR = Pyrene, BAA = Benzo(A)Anthracene, CHRY = Chrysene, BBKF = Benzo(b/k)Fluoranthene, BAP = Benzo(A)Pyrene, IDNO = Indeno(1,2,3-CD)Pyrene, DAHA = Dibenzo(A,H)Anthracene, BGHIP = Benzo(G,H,I)Perylene



SOURCE: HAGSTROM ROAD MAP

SCALE IN MILES

0 1 2

FIGURE 1
SITE LOCATION MAP

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

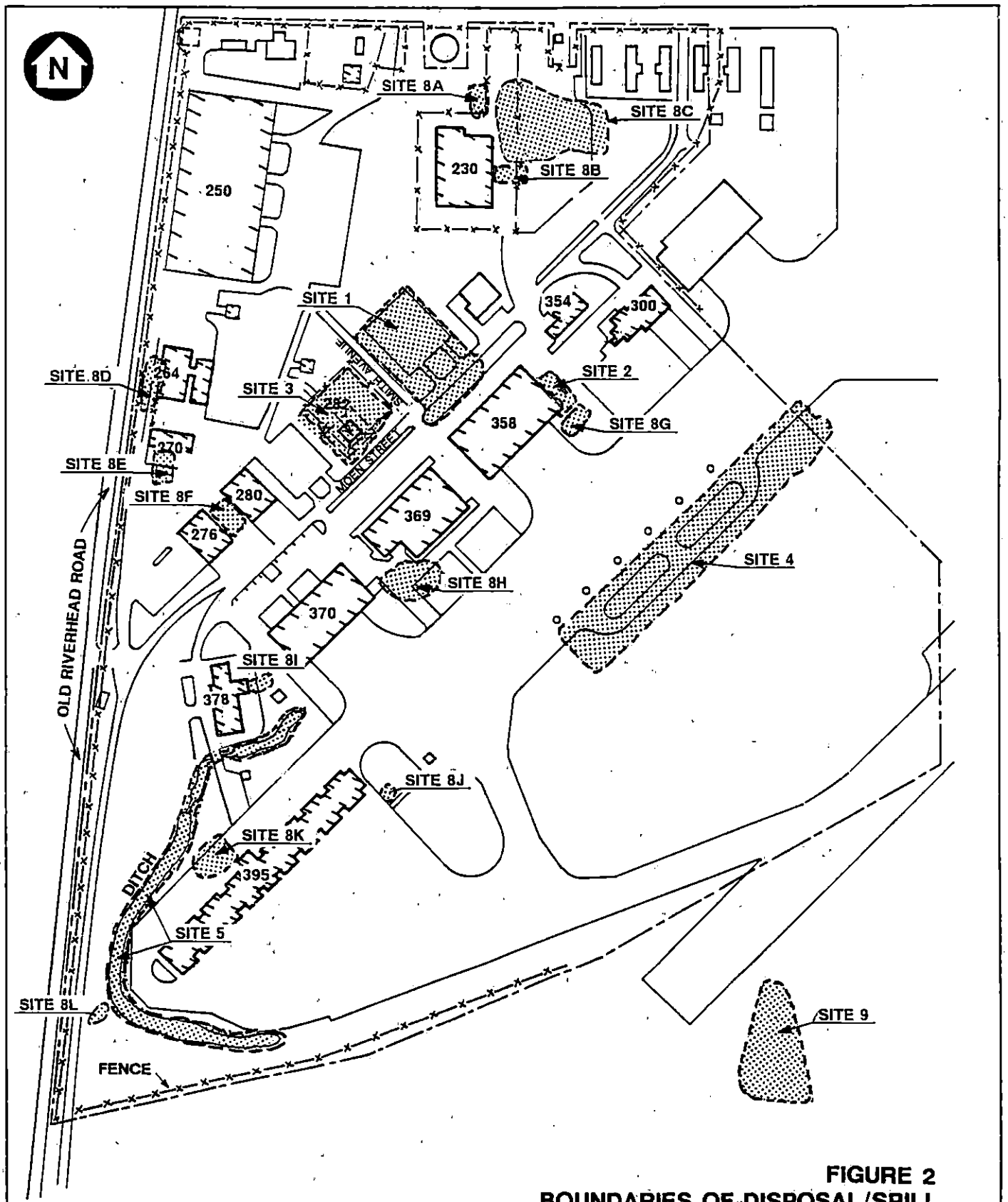


FIGURE 2
BOUNDARIES OF DISPOSAL/SPILL INVESTIGATION SITES
SITE INVESTIGATION

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

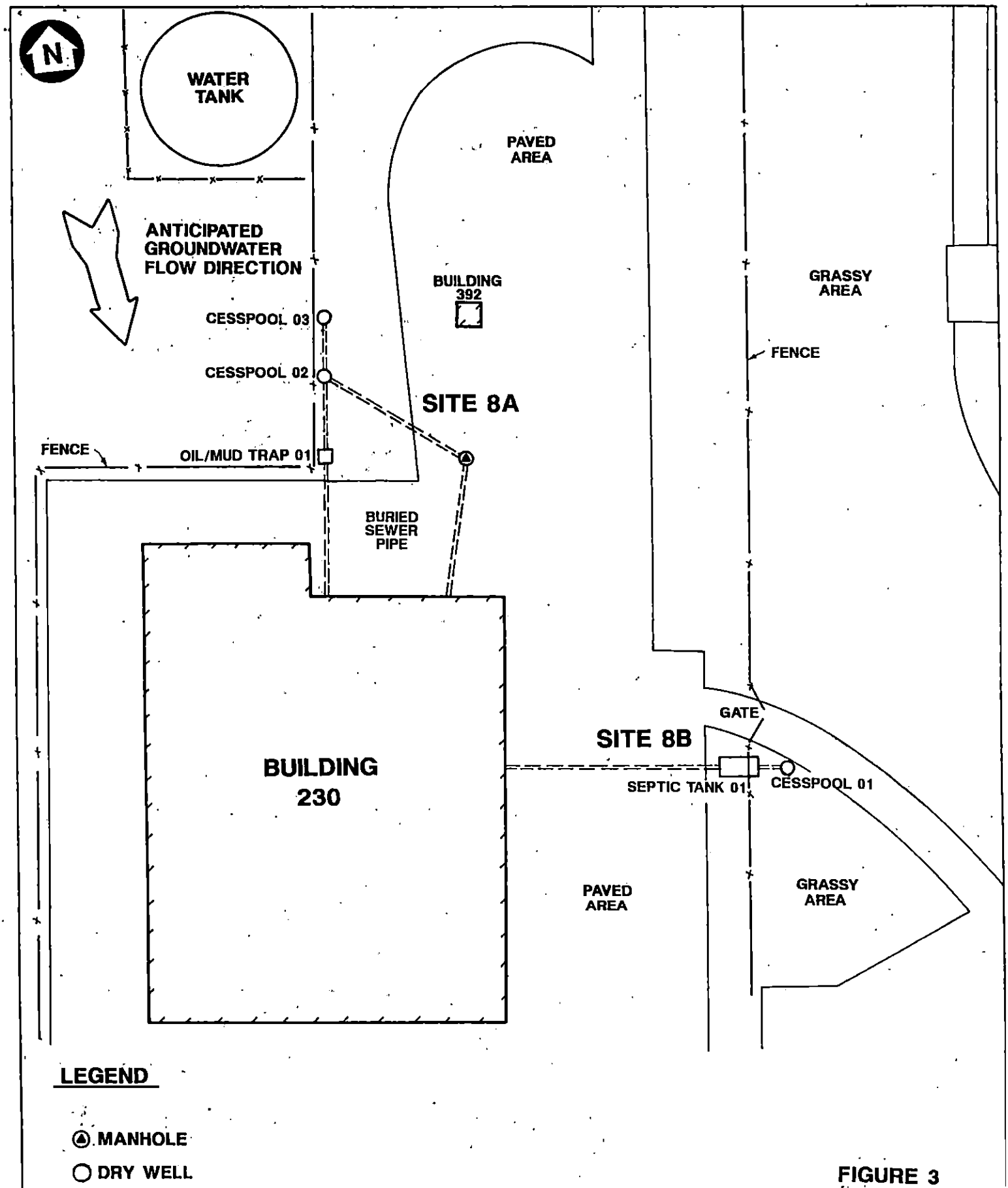


FIGURE 3
SITE 8A AND 8B EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

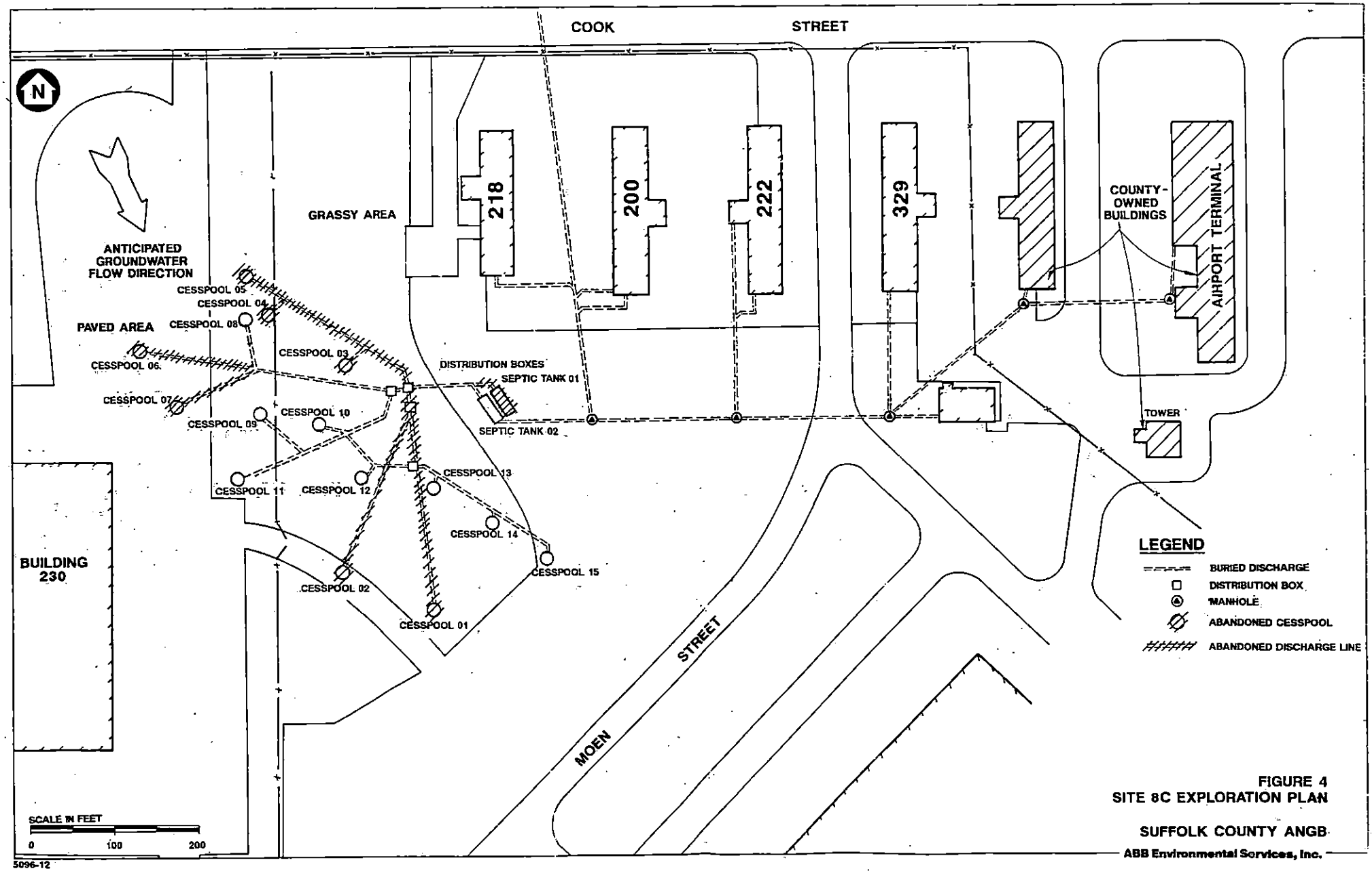


FIGURE 4
SITE 8C EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

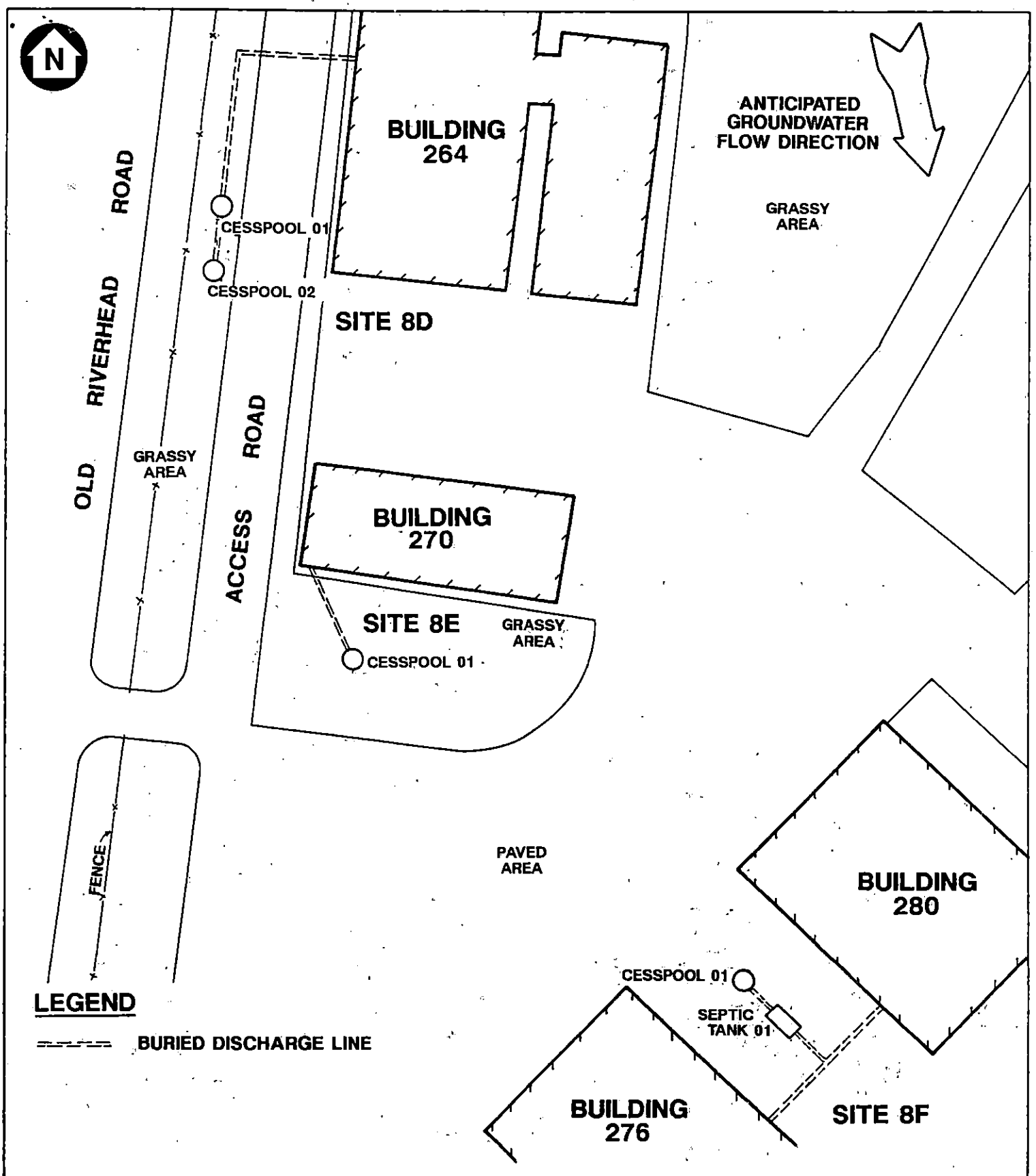


FIGURE 5
SITES 8D, 8E, AND 8F EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

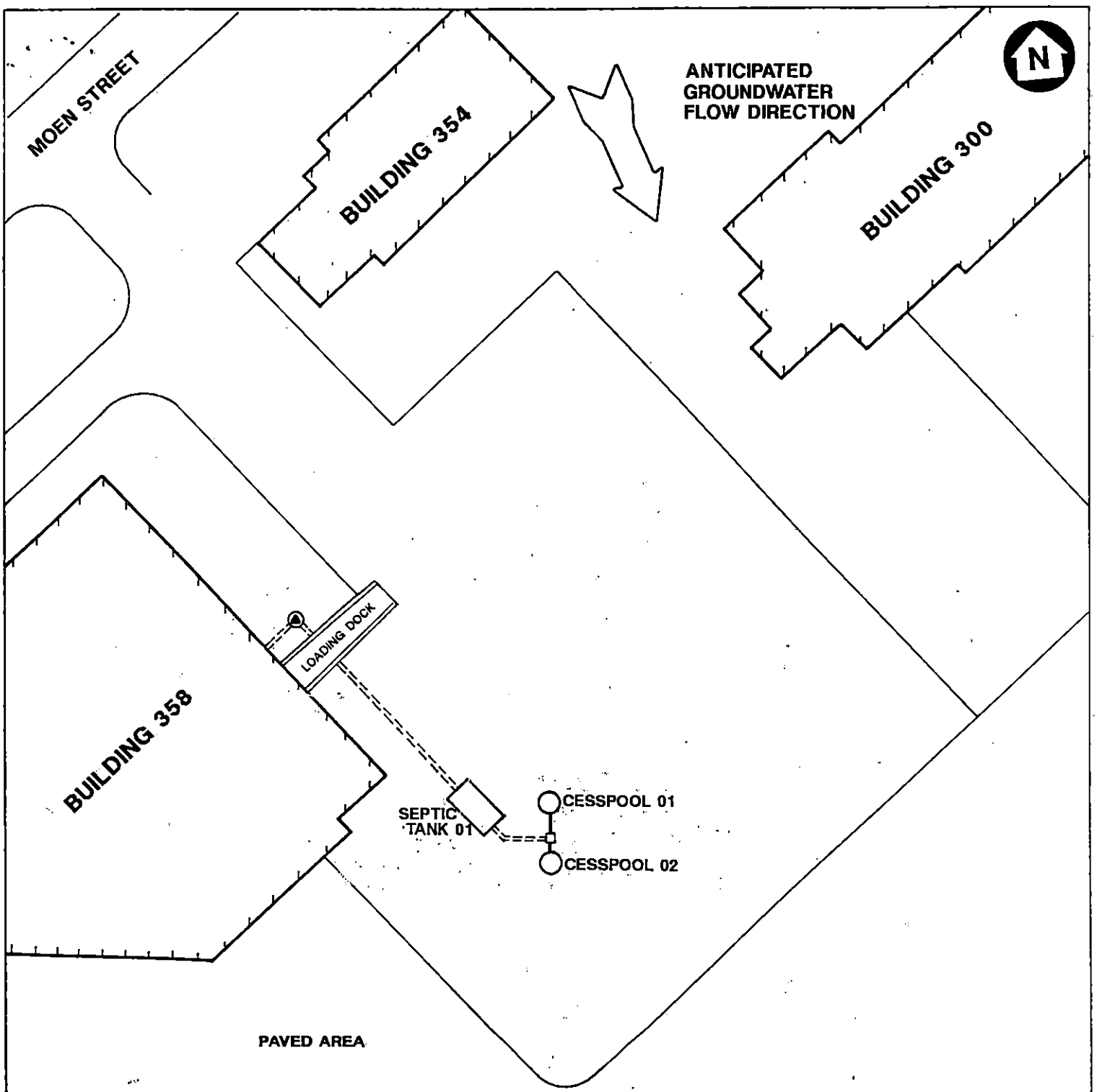


FIGURE 6
SITE 8G EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

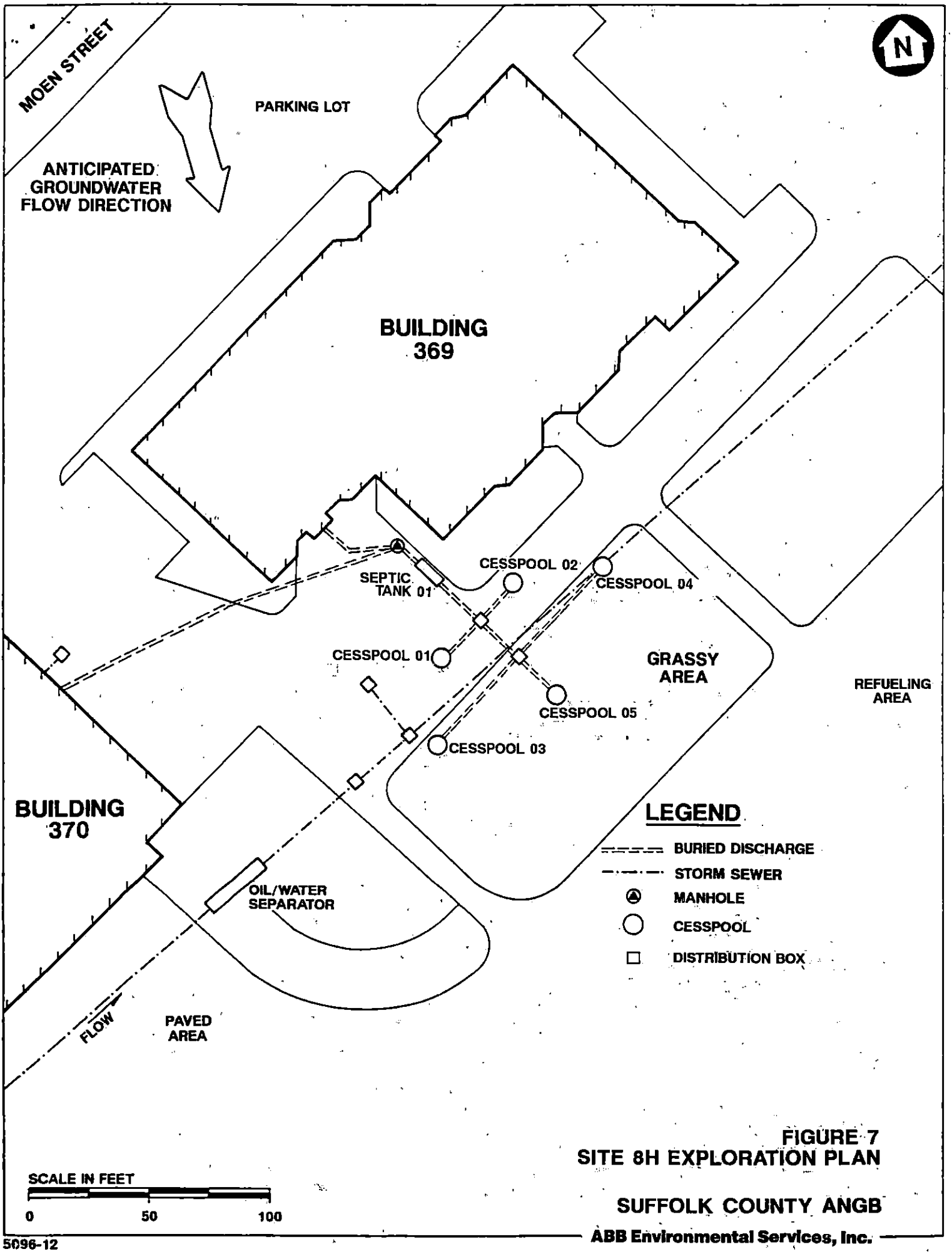


FIGURE 7
SITE 8H EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

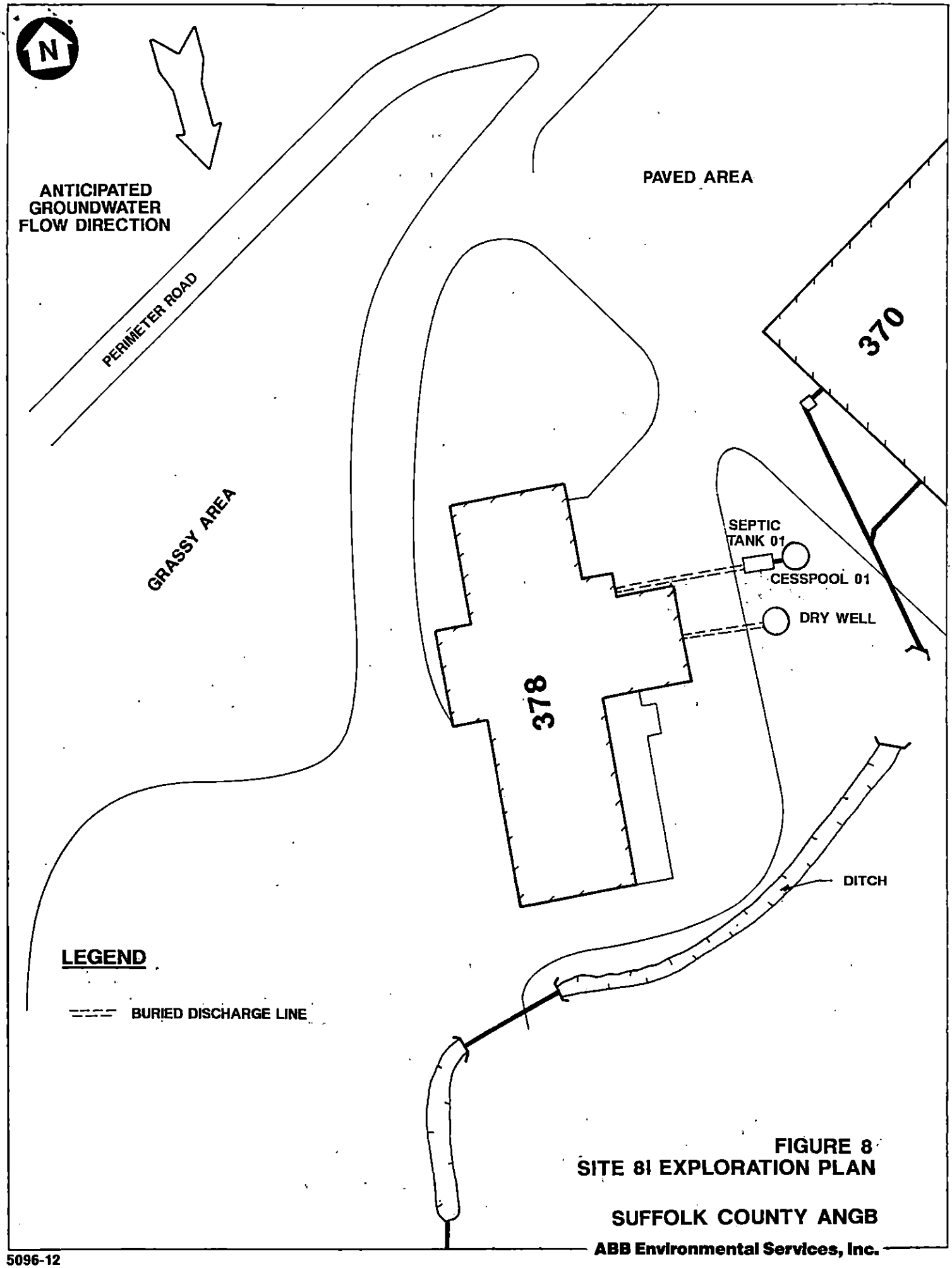


FIGURE 8
SITE 81 EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

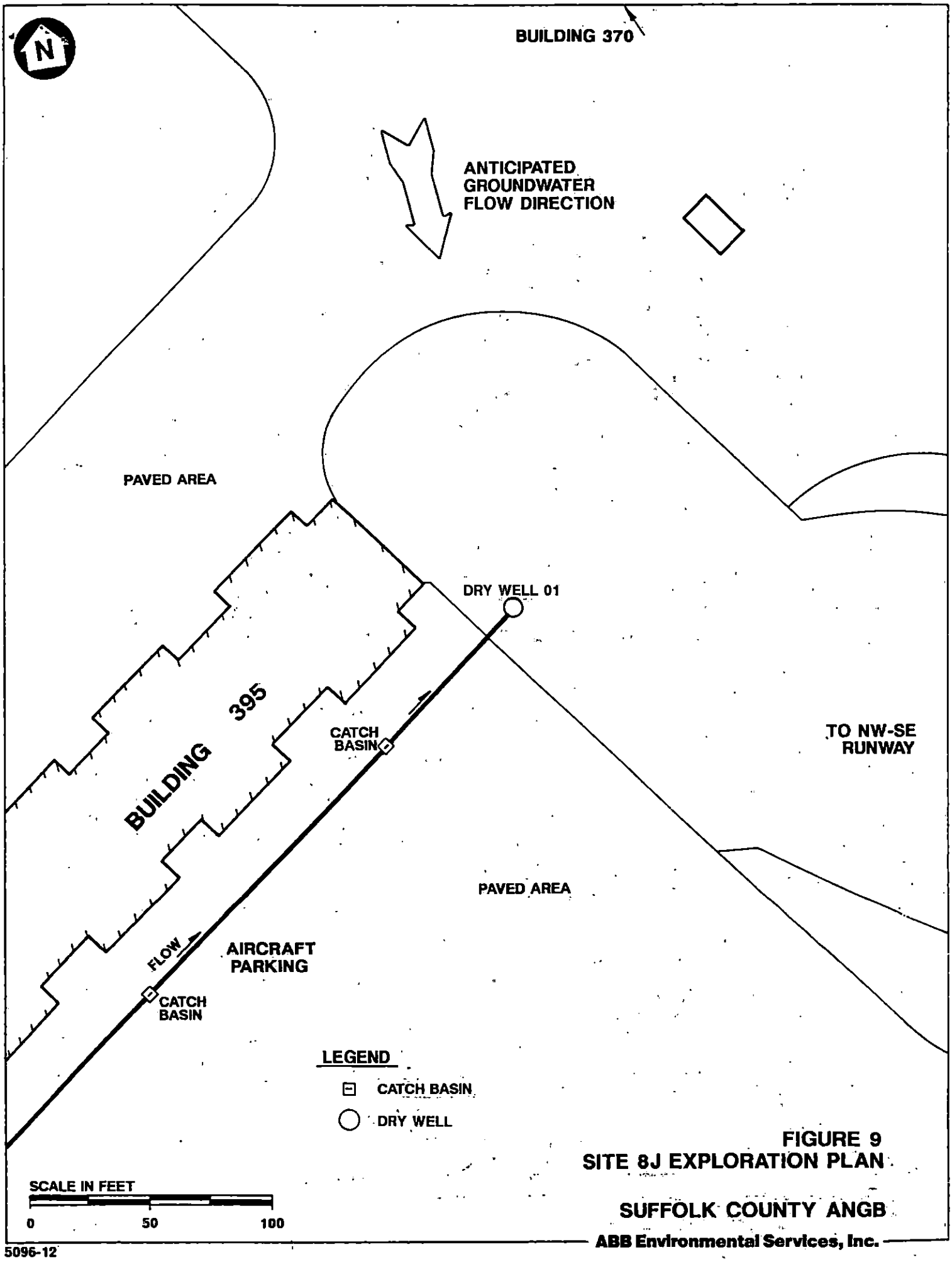


FIGURE 9
SITE 8J EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

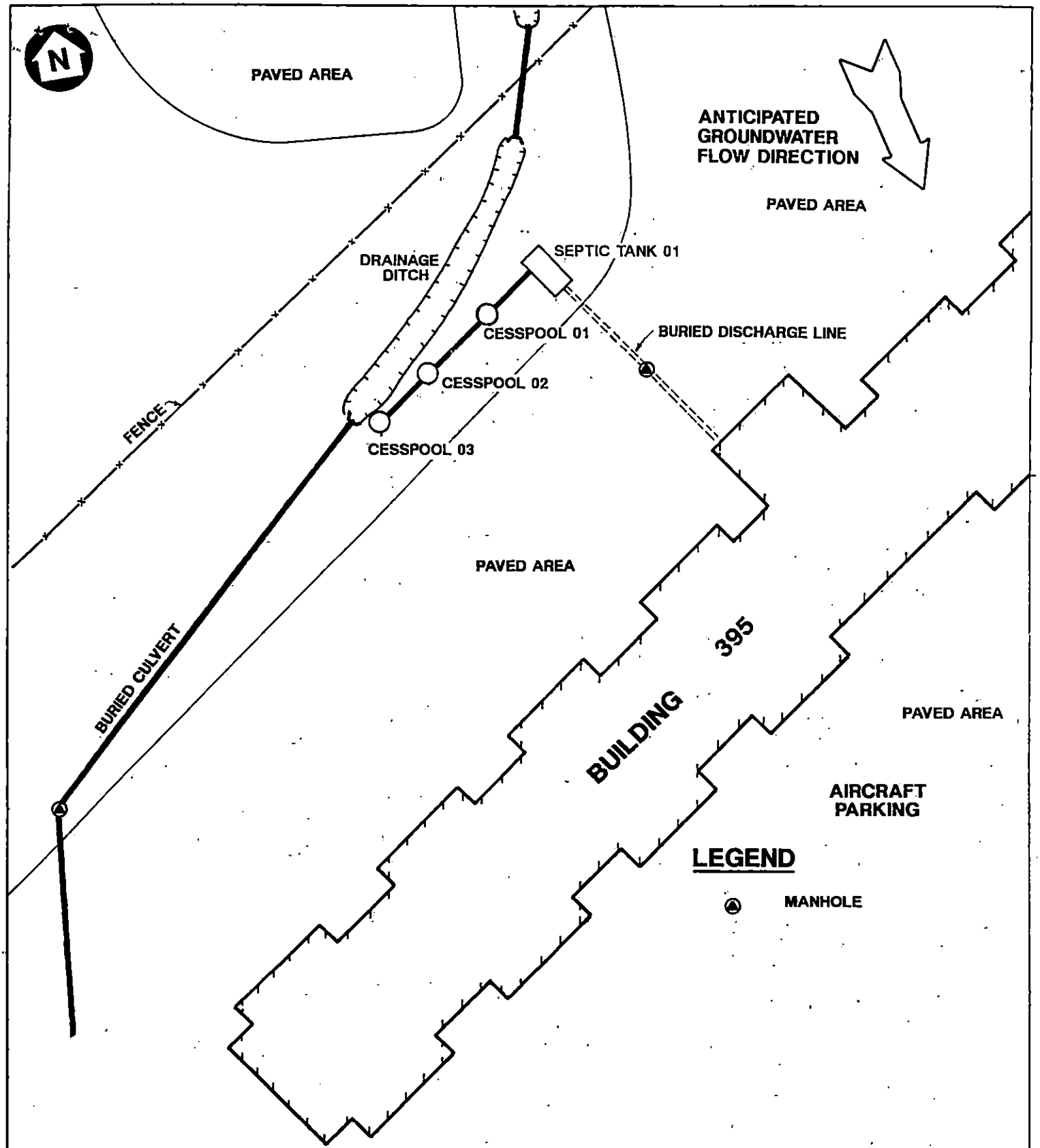


FIGURE 10
SITE 8K EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12

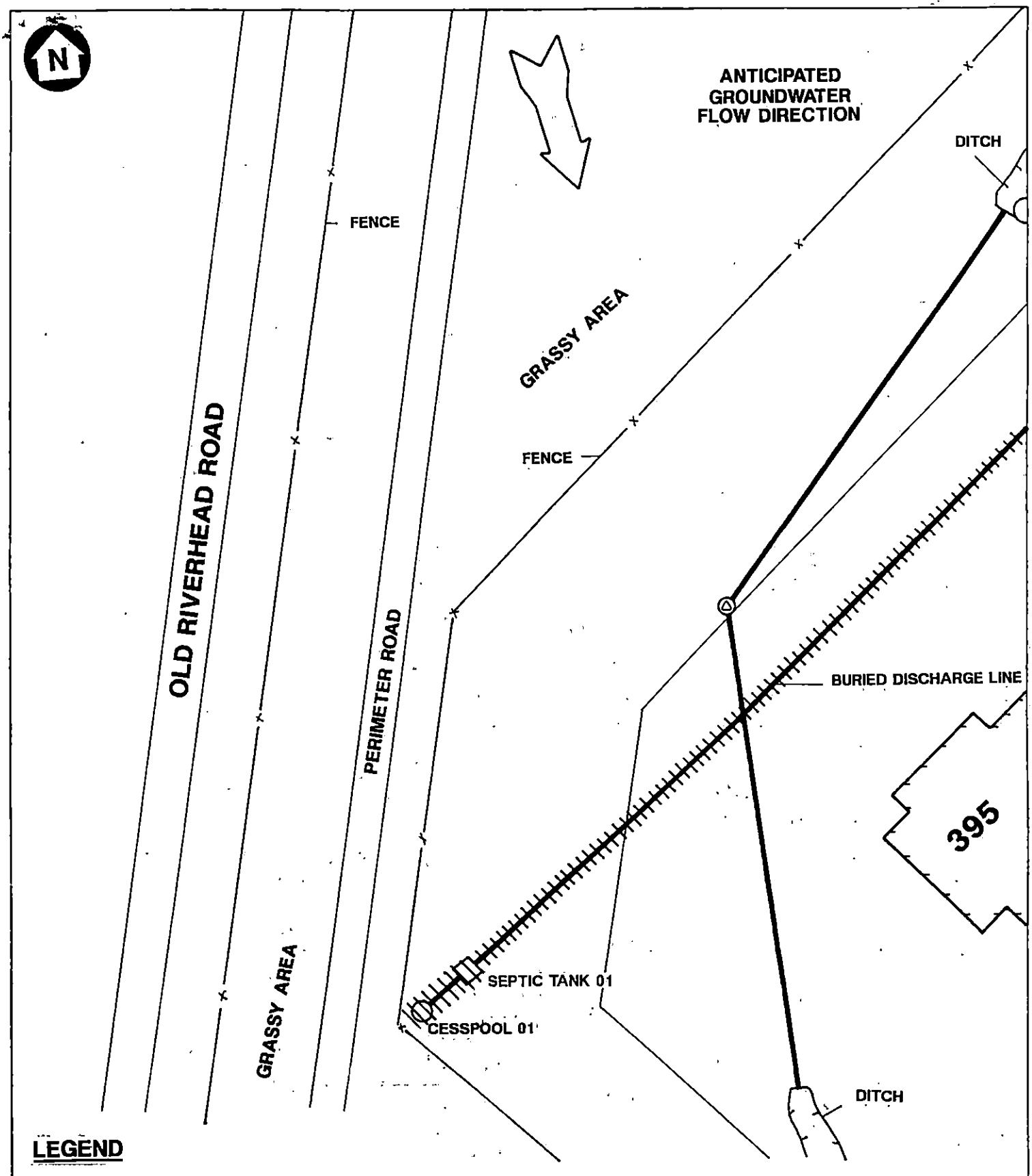


FIGURE 11
SITE 8L EXPLORATION PLAN

SUFFOLK COUNTY ANGB

ABB Environmental Services, Inc.

5096-12