EPA WORK ASSIGNMENT NO. 186-24X3
EPA CONTRACT NO.: 68-01-7250

HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

RI/FS SCOPING MEETING
MARCH 29, 1988

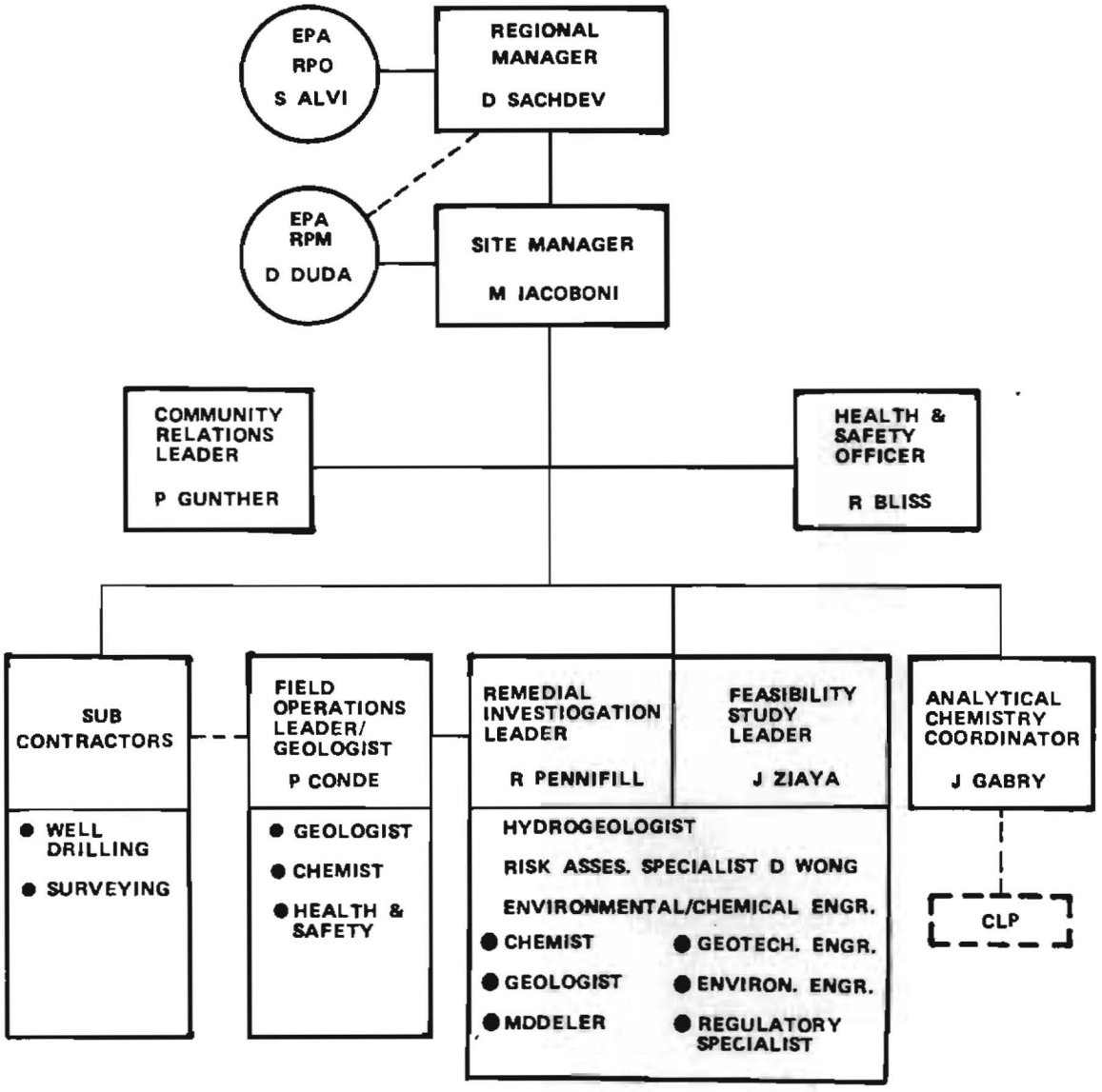
PREPARED BY
EBASCO SERVICES INCORPORATED

HOOKER/RUCO SITE

RI/FS PROJECT TEAM

DR. DEV SACHDEV, PH.D., P.E.	-	REGIONAL MANAGER
MARIO IACOBONI, P.E.	-	SITE MANAGER
ROGER PENNIFILL	-	RI TASK LEADER
JOSEPH ZIAYA	-	FS TASK LEADER
DR. DIANA WONG	-	RISK ASSESSMENT LEADER
PETER CONDE	-	FIELD OPERATIONS LEADER
ROBERT BLISS	-	HEALTH AND SAFETY OFFICER
PAMELA GUNTHER	-	COMMUNITY RELATIONS LEADER

HOOKER/RUCO SITE



AGENDA

RI/FS SCOPING MEETING
HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

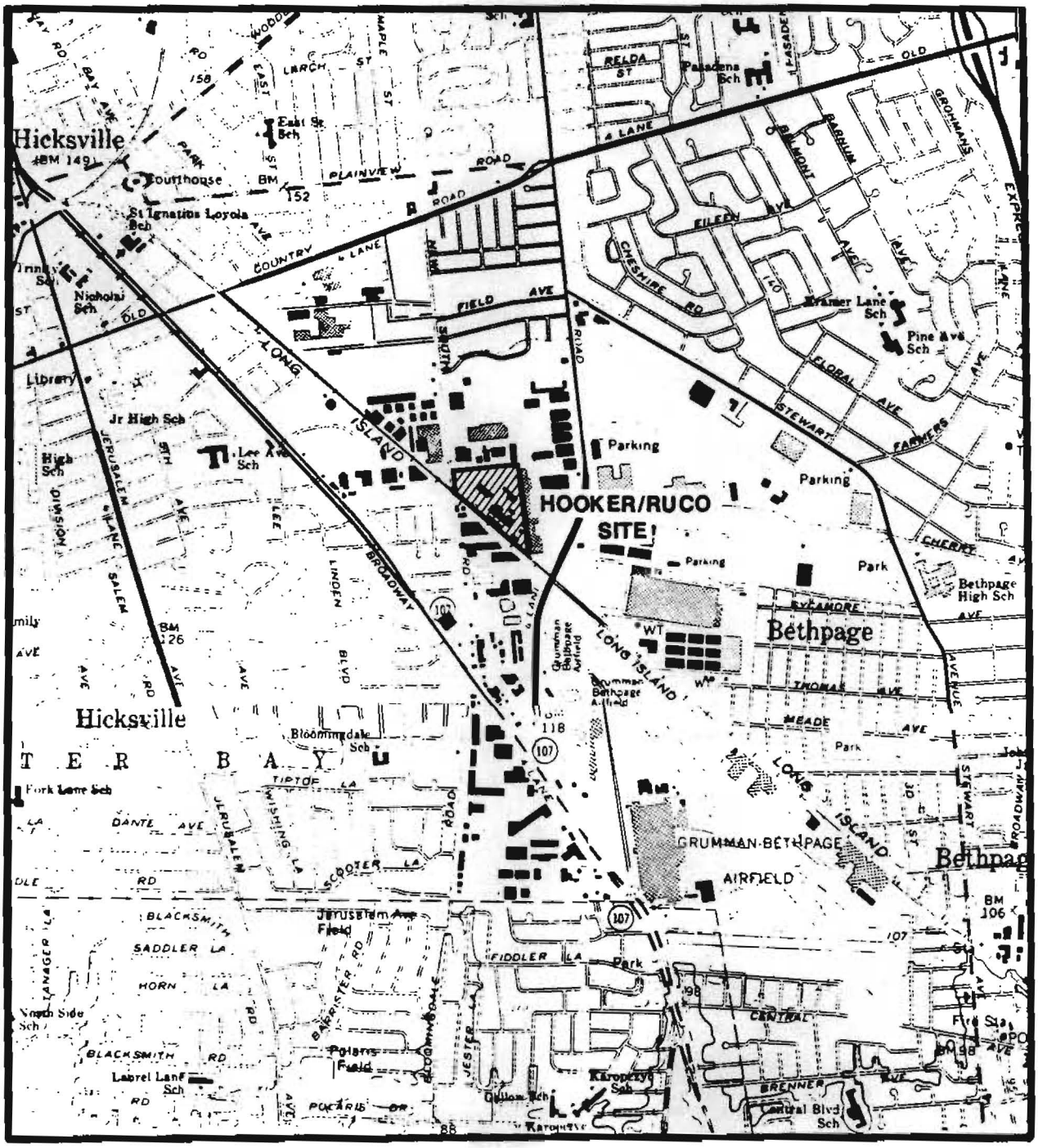
o	INTRODUCTION AND REVIEW OF AGENDA	MARIO IACOBONI
o	SITE BACKGROUND	MARIO IACOBONI
o	GEOHYDROLOGY	ROGER PENNIFILL
o	SUMMARY OF AVAILABLE DATA AND PRELIMINARY RISK ASSESSMENT	DIANA WONG
o	SCOPE OF REMEDIAL INVESTIGATION	ROGER PENNIFILL
o	PRELIMINARY IDENTIFICATION OF REMEDIAL TECHNOLOGIES AND ALTERNATIVES	JOSEPH ZIAYA
o	SUMMARY	MARIO IACOBONI

SITE DESCRIPTION

LOCATION - HICKSVILLE, NEW YORK
AREA - 14 ACRES

SURROUNDING LAND USES

- INDUSTRIAL AND RESIDENTIAL WITH SOME COMMERCIAL
- NEAREST RESIDENTIAL AREA IS LOCATED WITHIN A FEW HUNDRED FEET TO THE SOUTHWEST OF THE SITE
- GRUMMAN AEROSPACE CORPORATION LOCATED IMMEDIATELY TO THE EAST AND SOUTH OF THE SITE
- INDUSTRIAL FACILITIES LOCATED IMMEDIATELY TO THE NORTH OF THE SITE



MN GN

12½° 222 MILS

3°01' 18 MILS

0 ½ 1 MILES

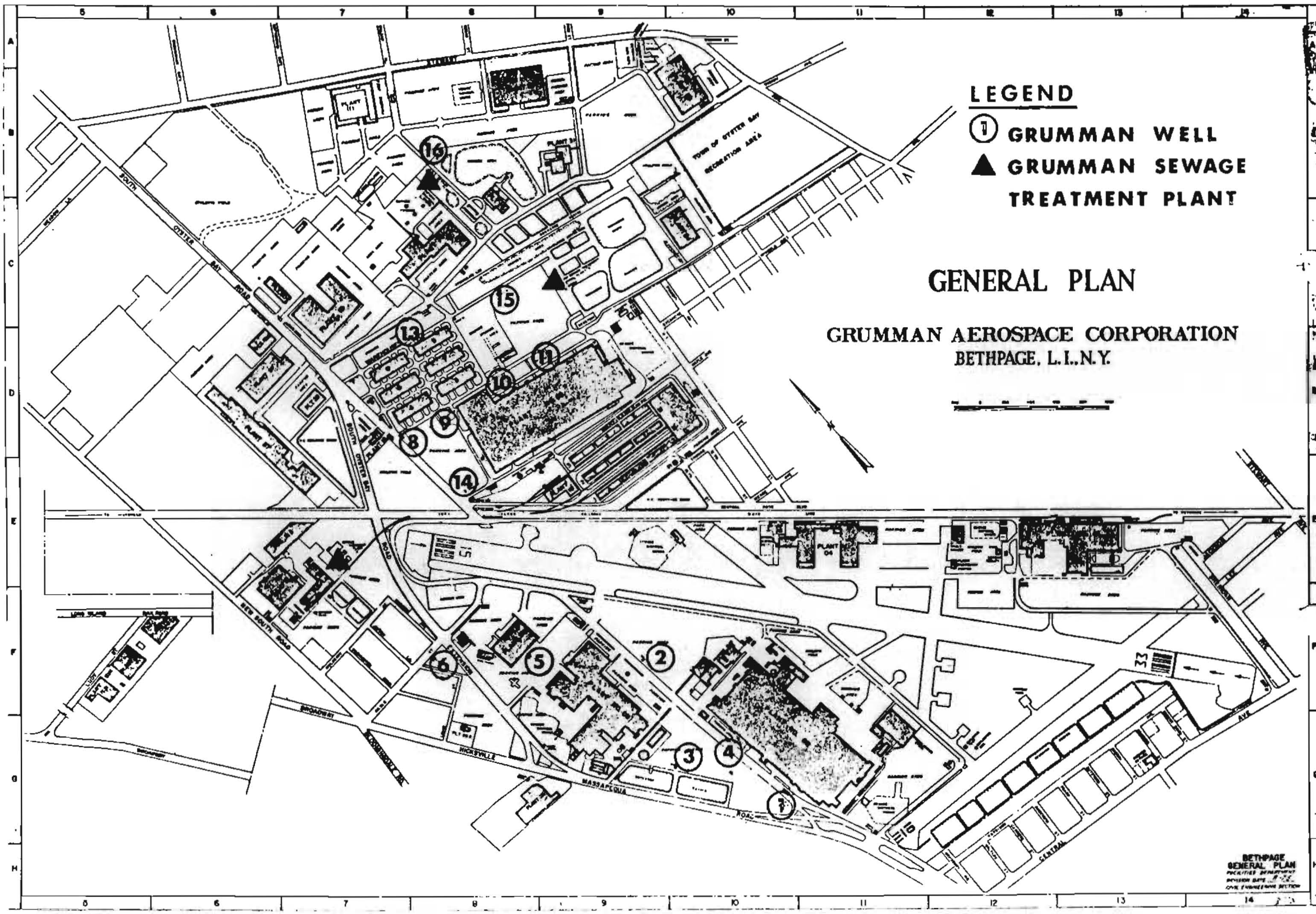
0 1000 2000 3000 4000 5000 FEET

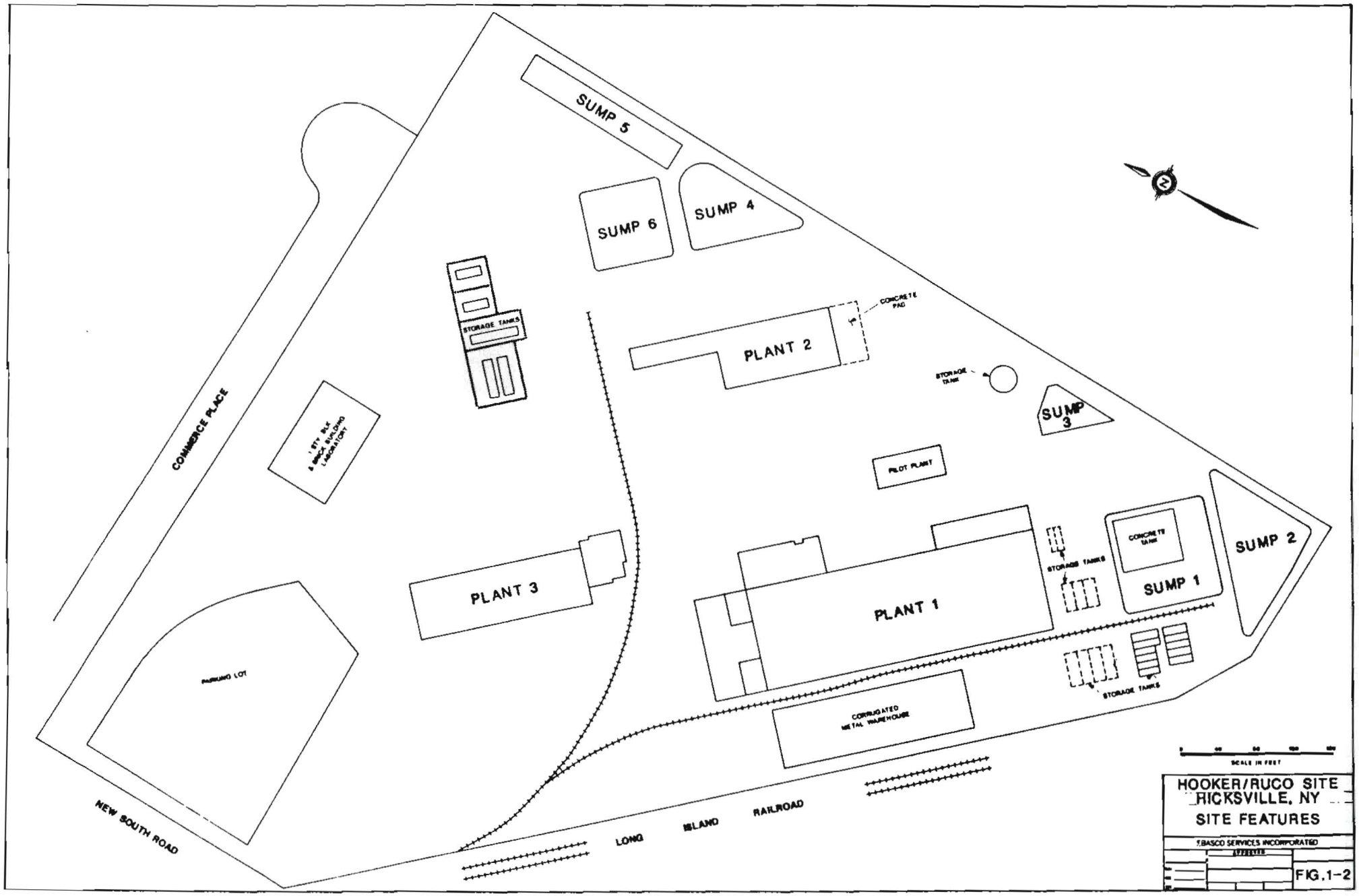
HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

FIGURE 1-1
SITE LOCATION

EBASCO SERVICES INCORPORATED

ADAPTED FROM U.S.S.S. AMITYVILLE, FREEPORT, HUNTINGTON AND HICKSVILLE, NY, QUADRANGLE'S, PHOTOREVISED 1979.


LEGEND
GRUMMAN WELL
GRUMMAN SEWAGE TREATMENT PLANT
GENERAL PLAN
GRUMMAN AEROSPACE CORPORATION
BETHPAGE, L.I.N.Y.
SOUTH OYSTER BAY ROAD
NEW SOUTH ROAD
BROADWAY
HICKSVILLE
MASSAPEQUA
ROAD
CENTRAL
AVE
BETHPAGE
GENERAL PLAN


SUMP 5
SUMP 6
SUMP 4
STORAGE TANKS
PLANT 2
CONCRETE PAD
STORAGE TANK
SUMP 3
COMMERCE PLACE
PILOT PLANT
PLANT 3
PLANT 1
STORAGE TANKS
CONCRETE TANK
SUMP 1
SUMP 2
PARKING LOT
CORRUGATED METAL WAREHOUSE
STORAGE TANKS
NEW SOUTH ROAD
LONG ISLAND RAILROAD
SCALE IN FEET
HOOKER/RUCO SITE
RICKSVILLE, NY
SITE FEATURES
TABSCO SERVICES INCORPORATED
FIG. 1-2

PAST OWNERSHIP

1946 TO 1956	INSULAR CHEMICAL COMPANY AND RUBBER CORPORATION OF AMERICA
1956 TO 1965	RUBBER CORPORATION OF AMERICA
1955 TO 1982	HOOKER CHEMICAL CORPORATION
1982 TO PRESENT	RUCO POLYMER CORPORATION

INDUSTRIAL ACTIVITY

1946 - 1956	-	PRODUCTION OF VARIOUS PLASTIC/SYNTHETIC COMPOUNDS INCLUDING FILMS, SHEETING AND RUBBER PRODUCTS.
1956 - 1975	-	PVC RESIN FACILITY GENERATED VINYL CHLORIDE POLYMER MAX PRODUCTION = 10 MILLION LB PER YR
1955 - PRESENT	-	PRODUCTION OF VARIOUS POLYESTER PRODUCTS AVG PRODUCTION - 5 TO 10 MILLION LB PER YR
MID 1950's - PRESENT	-	PRODUCTION OF DIESTER PRODUCTS AVG PRODUCTION - LESS THAN 5 MILLION LB PER YR
EARLY 1960's - PRESENT	-	PRODUCTION OF VARIOUS POLYURETHANE PRODUCTS AVG PRODUCTION = 1 MILLION LB PER YR
CURRENT OPERATION	-	POLYESTER PRODUCTION = 25 MILLION LB PER YR POLYURETHANE PRODUCTION - 2 TO 3 MILLION LB PER YR SOME SPECIALTY PRODUCTS ARE ALSO PRODUCED.

DISPOSAL ACTIVITY

1946 - 1968	-	SOLID AND LIQUID WASTE WAS DISPOSED OF AT THE SYOSSET MUNICIPAL LANDFILL.
1968 - 1978	-	SOLID AND LIQUID WASTE WAS DISPOSED OF AT THE BETHPAGE MUNICIPAL LANDFILL.
1973 - 1974	-	SOLID WASTE WAS DISPOSED OF AT THE BRENTWOOD LANDFILL (PRIVATE).
1971 - 1977	-	LIQUID ORGANIC WASTE WAS ACCEPTED BY ROLLINS ENVIRONMENTAL FOR DISPOSAL.
1956 - 1975	-	WASTEWATER FROM THE PVC RESIN FACILITY (PLANT 2) WAS DISCHARGED TO ON-SITE SAND SUMPS 4, 5 AND 6. SUMPS WERE SCRAPPED ONCE YEARLY WITH SOLIDS DISPOSED OF AT THE SYOSSET, BETHPAGE AND BRENTWOOD LANDFILLS.
1951 TO 1974	-	WASTEWATER FROM THE ESTER/PLASTICIZER MANUFACTURING FACILITY (PLANT 1) WAS DISCHARGED INTO ON-SITE SAND SUMPS 1 AND 2.
1975 - PRESENT	-	ALL ESTER WASTES INCINERATED ON-SITE WITH THE EXCEPTION OF THE SOLIDS WHICH COLLECT WITHIN THE CONCRETE ESTER WASTE HOLDING TANK.
	-	ESTER HOLDING TANK SOLIDS REMOVED BY DISPOSAL CONTRACTOR.
	-	OTHER MISCELLANEOUS WASTES AE REMOVED BY DISPOSAL CONTRACTOR (INCLUDING SPENT SOLVENTS, LAB WASTES AND UNWANTED INVENTORY).

SITE VISIT HIGHLIGHTS

- THE SITE IS CURRENTLY USED IN THE MANUFACTURING OF VARIOUS PLASTIC AND SYNTHETIC PRODUCTS.

- SUMP 1 HISTORICALLY USED FOR DISPOSAL OF ESTER/PLASTICIZER WASTE CURRENTLY HOUSES A CONCRETE HOLDING TANK FROM WHICH THESE WASTES ARE FED TO AN ON-SITE INCINERATOR.

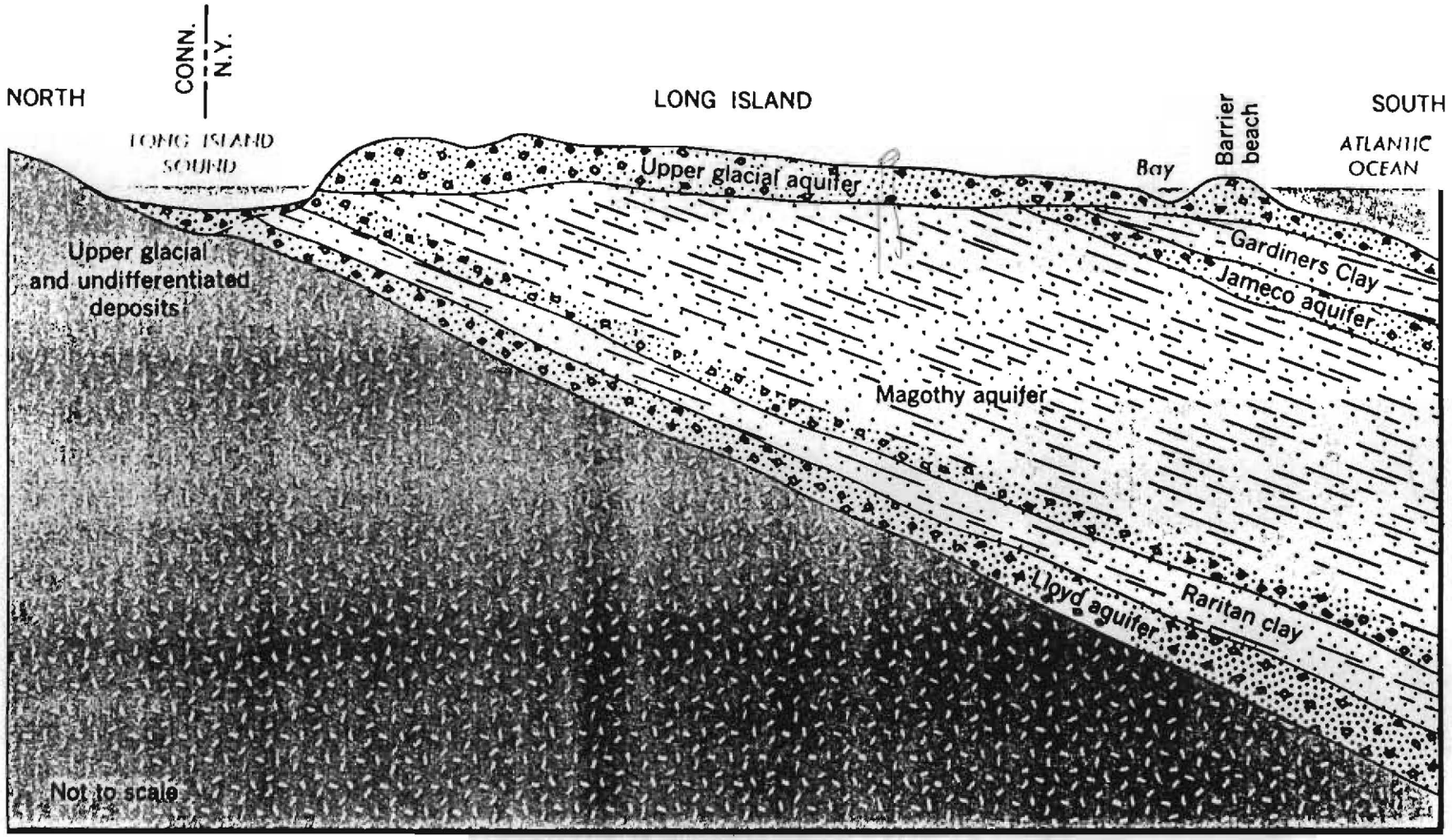
- SUMP 2 IS CURRENTLY UTILIZED TO COLLECT PORTION OF THE SITE RUNOFF.

- SUMP 3, THE PILOT PLANT SUMP CONTAINED WHAT APPEARED TO BE SITE RUNOFF.

- SUMP 4, CURRENTLY RECEIVES A DISCHARGE FROM THE COOLING TOWERS WHICH IS REGULATED UNDER SPEDES.

- SUMPS 5 AND 6 HAVE BEEN FILLED.

- SITE PERSONNEL INDICATED THAT AT THE CURRENT TIME ALL PROCESS WASTE STREAMS ARE EITHER INCINERATED ON-SITE OR DISPOSED OFF-SITE UNDER CONTRACT.



EXPLANATION

Clay

Sand clay, clayey sand, and silt

Sand

Gravel

Consolidated rock

GENERALIZED GEOLOGIC CROSS SECTION LONG ISLAND, NEW YORK

FROM: NEW YORK WATER RESOURCES COMMISSION BULLETIN 62

CHEMICALS USED AT SITE

- PRODUCTION OF POLY (VINYL CHLORIDE) AND VINYL CHLORIDE AND VINYL ACETATE COPOLYMER

  - VINYL CHLORIDE
  - VINYL ACETATE
  - PLASTICIZER (PHTHALATE, ADIPATE, ETC.)
  - STABILIZER (BARIUM-CADMIUM SOAPS)
  - TRICHOLORETHYLENE

- PRODUCTION OF STYRENE-BUTADIENE LATEX

  - BUTADIENE
  - STYRENE
  - ROSIN ACID SOAP
  - CHAIN TRANSFER AGENT

- PRODUCTION OF ESTER PLASTICIZER

  - GLYCOLS
  - ALCOHOLS
  - PERCHLOROETHYLENE
  - ADIPIC ANHYDRIDE
  - TRIMELLITIC ANHYDRIDE
  - MALEIC ANHYDRIDE
  - ISOPHTHALIC ANHYDRIDE

CHEMICALS USED AT SITE (CONT'D)

- PRODUCTION OF POLYURETHANE

  - ALCOHOLS
  - SOLVENTS (TOLUENE, DMF, MEK)
  - ISOCYANATES
  - MOCA (CROSS-LINKING AGENT)
  - PHENYL MERCURIC PROPIONATE

- BOILER SYSTEM

  - DICHROMATE
  - NITRILOTRIACETIC ACID
  - PENTACHLOROPHENOL
  - HYDRAZINE

Boiler water
PCB also used

WASTE GENERATED ON-SITE

PLANT 2 PVC & SBR LATEX SUMPS (SUMPS 4, 5 AND 6)

1. - WASTEWATER CONTAINED 0.1% PVC RESIN SOLIDS, 600-1,200 PPM VINYL CHLORIDE, METHOCEL, STABILIZERS (BARIUM & CADMIUM SOAPS), TRICHLOROETHYLENE, VINYL ACETATE, STYRENE CONDENSATE.

   - 2,000,000 GALLONS/YEAR

   - SUMP #6 WAS SCRAPED ONCE/YEAR & SCRAPINGS WERE SENT TO SYOSSET, BETHPAGE & BRENTWOOD LANDFILLS.

   - SUMPS WERE INACTIVE SINCE 1975

2. PLANT 1 ESTER SUMP (SUMPS 1 & 2)

   - WASTEWATER CONTAINS 1-10% MIXED GLYCOLS AND ALCOHOLS, PERCHLOROETHYLENE, METHANOL, ORGANIC ACIDS (ADIPIC, TRIMELLITIC, PHTHALIC, ISOPHTHALIC)

   - 4,000 GALLONS/DAY

   - SINCE 1975, AN INCINERATION SYSTEM HAS BEEN INSTALLED TO BURN ESTER WASTE.

3. BOILER BLOWDOWN (SUMP 3)

   - 10,800 GALLONS/DAY

   - CONTAINED BOILER TREATMENT CHEMICALS

   - ORGANIC SPILLAGE AND ORGANIC LEAKS FROM WASTE DRUMS COULD GO TO SUMP 3.

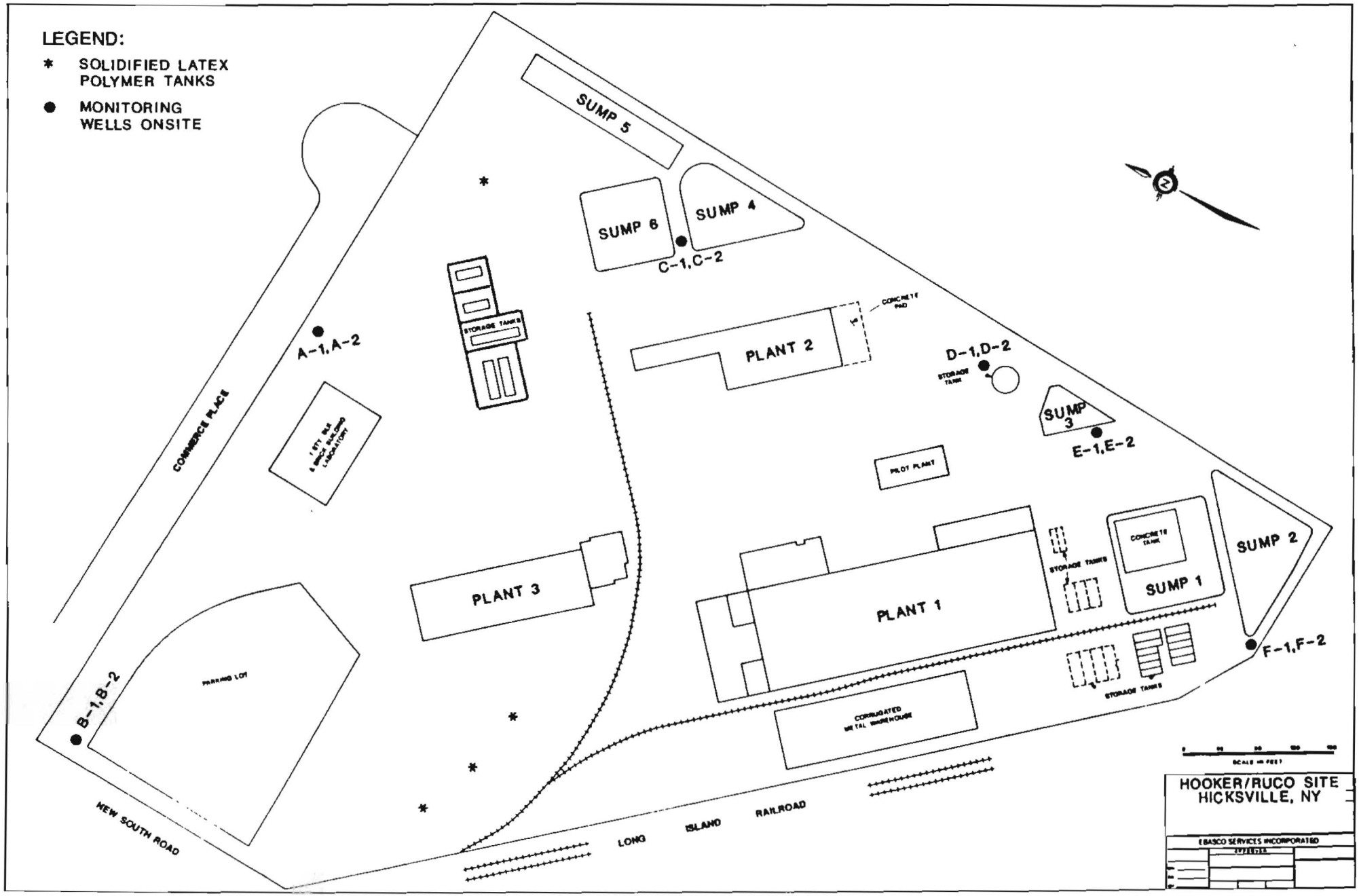
WASTE GENERATED ON-SITE (CONT'D)

4. WASTE DRUMS OF ORGANICS (INCLUDING PERCHLOROETHYLENE, SOLUTION URETHANE, SOLVENTS SUCH AS DMF, TOLUENE, MEK, WASTE PLASTICIZER, ETC.) WERE STORED ADJACENT TO BUILDING 2. NUMEROUS DRUMS WERE LEAKING AND ORGANICS CONTAMINATED THE GROUND. CONCRETE PAD WAS BUILT IN 1979.

5. IN 1962, ONE LATEX TANK TRAILER WAS BURIED IN BETWEEN PLANT 2 SOLVENT FARM AND PVC CATALYST COLD ROOM.

6. THREE BURIED LATEX STORAGE TANKS. THE TANKS WERE FILLED WITH SAND.

7. PCB SPILLED IN FRONT OF PILOT PLANT.


LEGEND:
* SOLIDIFIED LATEX POLYMER TANKS
● MONITORING WELLS ONSITE
SUMP 5
SUMP 6
SUMP 4
C-1,C-2
A-1,A-2
STORAGE TANKS
CONCRETE PAD
PLANT 2
D-1,D-2
STORAGE TANK
SUMP 3
E-1,E-2
PILOT PLANT
COMMERCE PLACE
PLANT 3
PLANT 1
STORAGE TANKS
CONCRETE TANK
SUMP 1
SUMP 2
F-1,F-2
B-1,B-2
PARKING LOT
CORRUGATED METAL WAREHOUSE
STORAGE TANKS
NEW SOUTH ROAD
LONG ISLAND RAILROAD
HOOKER/RUCO SITE
HICKSVILLE, NY
EBASCO SERVICES INCORPORATED

SUMMARY OF 1984 ANALYSES

A. GROUNDWATER

COMPOUNDS	CONCENTRATION (UG/L) WITHIN WELLS											
	A-1	A-2	B-1	B-2	C-1	C-2	D-1	D-2	E-1	E-2	F-1	F-2
TRICHLOROETHYLENE		25					16					
TETRACHLOROETHYLENE						50	160					
VINYL CHLORIDE									7		140	50
1,2-TRANS DCE							24		30		130	200
1,1-DCE												
C.O.D. (MG/L)	3	4	3	4	13	3	9		25	15	46	66
T.O.C. (MG/L)	1.2	1.5	1.6	1.4	4.2	1.8	2.4	1.3	8.2	8.7	22	14
PH									6.7 (NORMAL)	8.8		

C.O.D. (BACKGROUND)=3-4 MG/L (AS REPORTED BY LBG)

T.O.C. (BACKGROUND)=2 MG/L (")

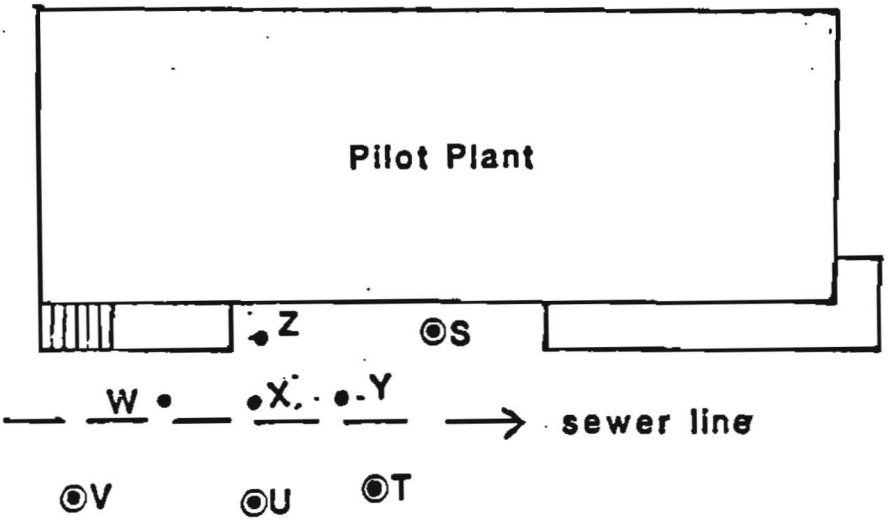
B. SOIL

COMPOUNDS	CONCENTRATION (MG/KG) WITHIN SOIL SAMPLES												
	B	C (FROM SUMP 6)			D	E				F		
	5'	0-1-1/2'	25'	50'	5'	0.5-2'	5'	5-25'	50'	1'	20'	30'
TRICHLOROETHYLENE												
TETRACHLOROETHYLENE	0.31	0.367				244	1.07	0.194			1.70	0.12
AROCLOR 1248			0.53	0.12	0.21	0.94	0.18	0.10	0.27			
LEAD										0.26	0.12	0.11

SUMMARY OF 1984 ANALYSES (CONT'D)

THERMINOL SPILL AREA:

		AROCLOR 1248 (MG/KG)
SITE W	1 FT.	20,000
	1-2.5 FT.	2,200
SITE X	0.5-1.0	23,000
	1.0-2.5	1,300
SITE Y	1-2.5	11,000
	2.5-4.0	500
SITE Z	0.5-2.0	22,000
	2.0-3.5	7,300
	3.5-5.0	1,900
	5.0-6.5	87



LBG

SUMMARY OF 1985 ANALYSIS RESULTS

A. GROUNDWATER

COMPOUNDS	CONCENTRATION (UG/L) WITHIN WELLS											
	A-1	A-2	B-1	B-2	C-1	C-2	D-1	D-2	E-1	E-2	F-1	F-2
TCE		27		3	11	4.1						
PCE	12	23				18	15					
VINYL CHLORIDE									42		38	
1,2-TRANS DCE	3.4	14							161		22	
1,1-DCE						18	15					
CADMIUM					30							
C.O.D.(MG/L)	6	5	4	10	10	3	9	8	4.6	28	170	51
T.O.C.(MG/L)	1.4	1.1	1.4						12	4.2	43	
BIS-(2-ETHYLHEXYL) PHTHALATE						15		52	11		17	21

C.O.D. (UPGRADIENT, MG/L) = 3-10 MG/L
T.O.C. (UPGRADIENT, MG/L) = 1-4 MG/L

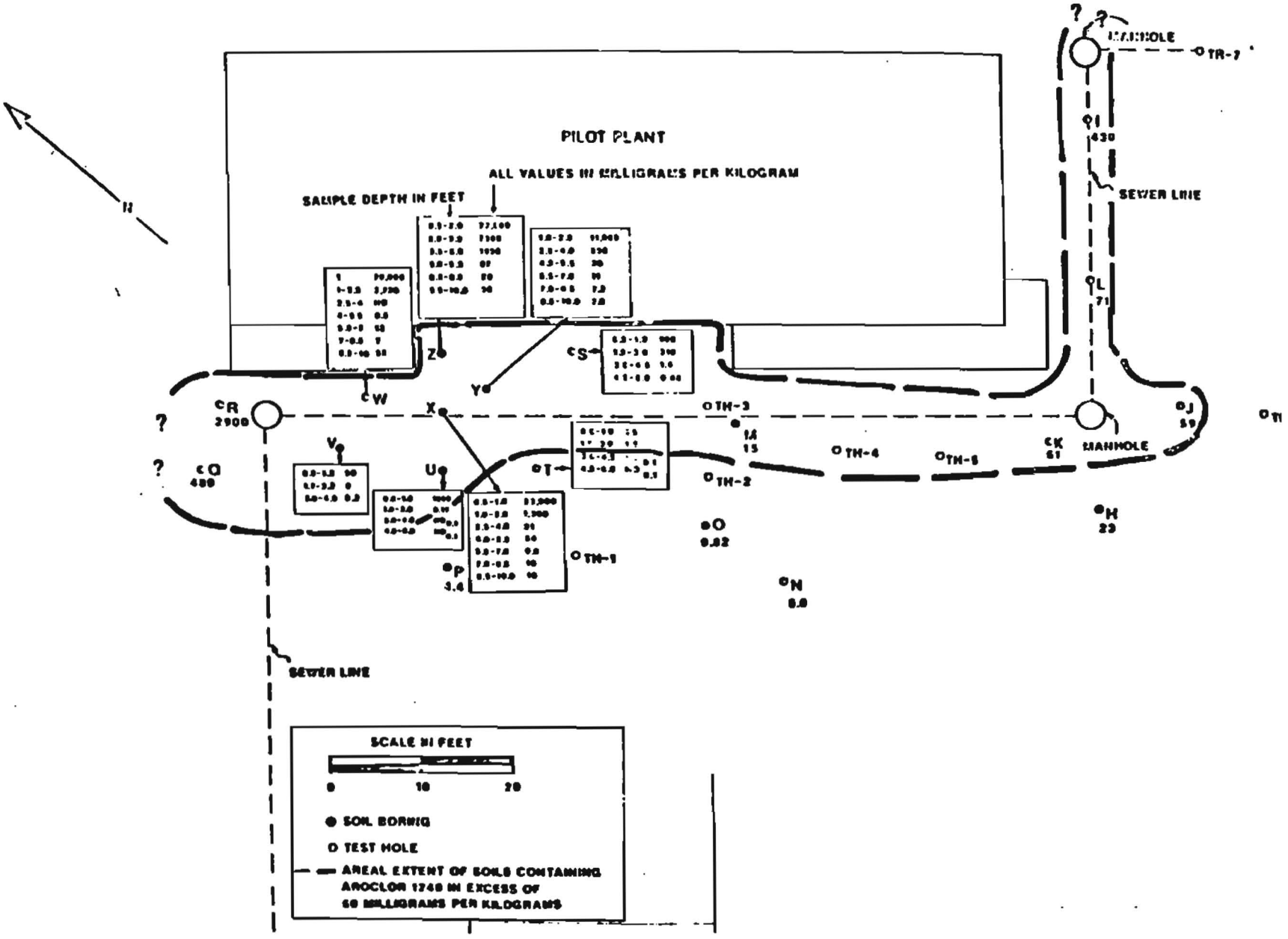
B. SOIL - AROCLOR 1248

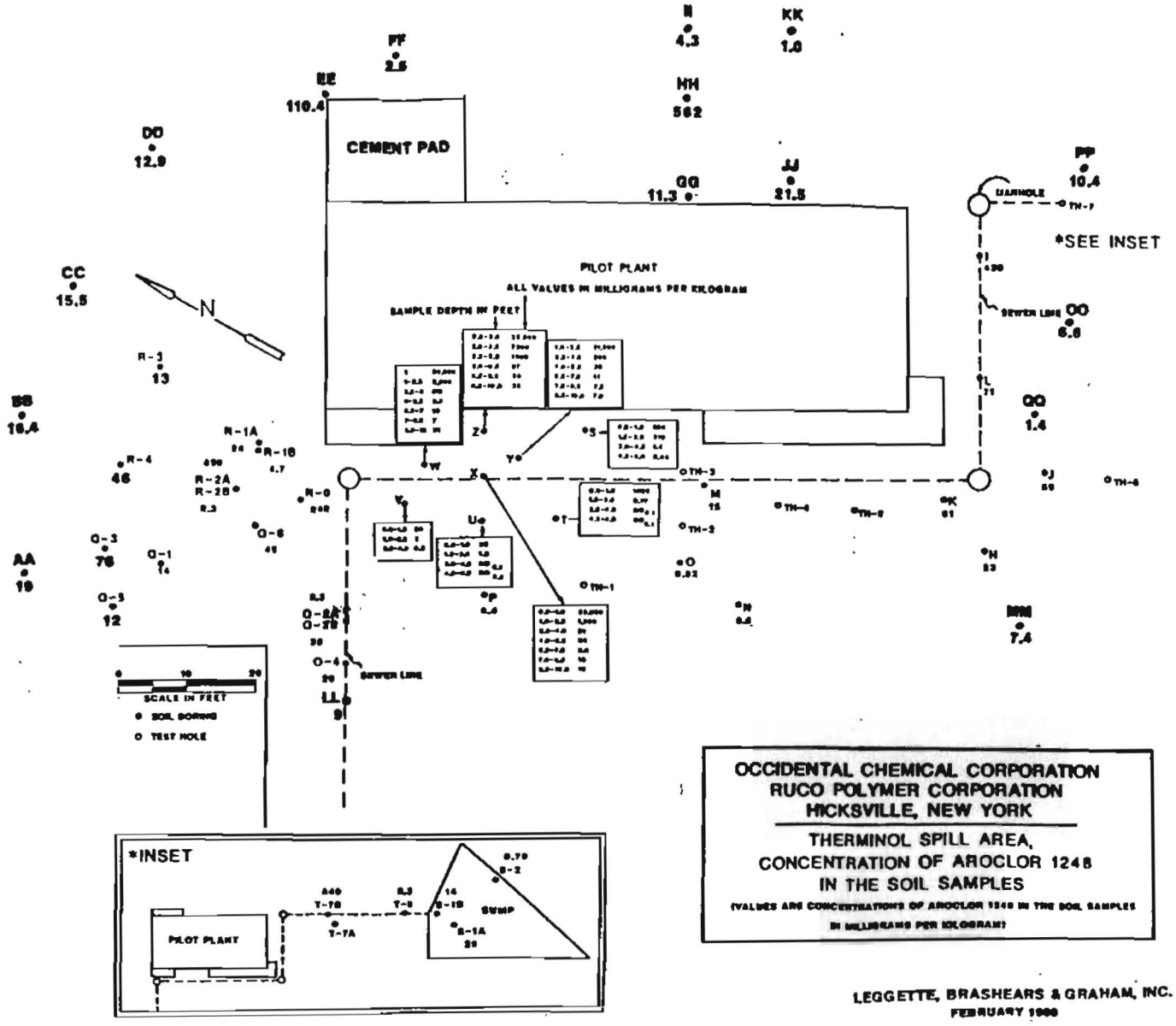
DEPTH (FT)	CONCENTRATION (MG/KG) OF AROCLOR 1248 WITHIN SOIL SAMPLES					
	1	2	3	4	5	6
SITE S	900		310	1.4		0.44
T	25		1.5			
U	1800/405		0.17			
V	50		5	0.3		

SUMMARY OF 1986 PCB ANALYSES

METHOD: EPA 8080

SAMPLE LOCATION	DEPTH (FT.)	PCB CONCENTRATION (MG/KG)
R	0 - 1.1	2,900/2,710
Q	0.4 - 1.0	480/1,060
P	0.4 - 1.0	4.4
O	1.6 - 1.9	0.82
N	0.7 - 0.85	8.0
M	1.5 - 1.7	15
L	1.1	71
K	0.9	61
J	0.4 - 1.0	59
I	0.2 - 1.5	430/357
H	0.4 - 0.7	23
G	0.0 - 0.5	0.41


PILOT PLANT
ALL VALUES IN MILLIGRAMS PER KILOGRAM
SAMPLE DEPTH IN FEET
MANHOLE
TR-7
SEWER LINE
MANHOLE
TH-3
TH-4
TH-5
TH-2
TH-1
SEWER LINE
SCALE IN FEET
0
10
20
SOIL BORING
TEST HOLE
AREAL EXTENT OF SOILS CONTAINING AROCLOR 1248 IN EXCESS OF 50 MILLIGRAMS PER KILOGRAMS


CEMENT PAD
PILOT PLANT
ALL VALUES IN MILLIGRAMS PER KILOGRAM
SAMPLE DEPTH IN FEET
*SEE INSET
MANHOLE
SEWER LINE
N
SCALE IN FEET
SOIL BORING
TEST HOLE
*INSET
PILOT PLANT
SUMP
OCCIDENTAL CHEMICAL CORPORATION
RUCO POLYMER CORPORATION
HICKSVILLE, NEW YORK
THERMINOL SPILL AREA,
CONCENTRATION OF AROCLOR 1248
IN THE SOIL SAMPLES
(VALUES ARE CONCENTRATIONS OF AROCLOR 1248 IN THE SOIL SAMPLES
IN MILLIGRAMS PER KILOGRAM)
LEGGETTE, BRASHEARS & GRAHAM, INC.
FEBRUARY 1988

REVIEW OF EXISTING DATA

- GROUNDWATER:
  - PARAMETERS TESTED INADEQUATE
  - HOLDING TIME NOT OBSERVED IN 1ST ROUND OF SAMPLING

- SOIL:
  - PARAMETERS TESTED INADEQUATE
  - INCORRECT EXTRACTION METHOD FOR SOIL CONTAMINANTS IN 1ST ROUND OF SAMPLING
  - HOLDING TIME NOT OBSERVED IN 1ST ROUND OF SAMPLING
  - DETECTION LIMIT FOR VOLATILE ORGANICS NOT LOW ENOUGH IN 1ST ROUND

- AIR:
  - NOT ENOUGH INFORMATION TO PROVIDE AN ESTIMATE OF LEVEL OF CONTAMINATION IN THE AIR (VOLATILE OR RESUSPENDED PARTICULATES)

TESTING PROGRAM

GROUNDWATER

1. VOLATILE ORGANICS
2. ACID/BASE/NEUTRAL COMPOUNDS
3. METALS
4. PESTICIDES/PCB
5. TOTAL PHENOLS

SOIL

1. VOLATILE ORGANICS
2. ACID/BASE/NEUTRAL COMPOUNDS
3. METALS
4. PESTICIDES/PCB
5. MOCA
6. TOTAL PHENOLS

AIR

IN PHASE I, AIR CONTAMINANTS WILL BE MODELED FROM SOIL DATA.

IN PHASE II, AMBIENT AIR MONITORING WILL BE PERFORMED IF NECESSARY.

PRELIMINARY RISK ASSESSMENT

ENVIRONMENTAL MEDIA OF CONCERN

- GROUNDWATER
- SOIL
- AIR

EXPOSURE PATHWAY

- RESIDENTIAL EXPOSURE TO GROUNDWATER CONTAMINATION
  - A. PUBLIC WATER SUPPLY
  - B. PRIVATE WELLS FOR IRRIGATION
- WORKERS ON-SITE AND RESIDENTS WHO LIVE NEAR THE PLANT COULD BE EXPOSED TO CONTAMINANTS ADSORBED ON RESUSPENDED AIRBORNE SURFACE SOIL PARTICLES.
- WORKERS ON-SITE AND RESIDENTS NEARBY COULD BE EXPOSED TO VOLATILE ORGANICS VOLATILIZED FROM CONTAMINATED SOIL AND WASTEWATER.

ENVIRONMENTAL DATA NEEDED FOR FINAL RISK ASSESSMENT

- GROUNDWATER CONTAMINANT IDENTIFICATION (ON-SITE)
- RESIDENTIAL/PUBLIC WATER SUPPLY CONTAMINATION (OFF-SITE)
- SOIL CONTAMINANT IDENTIFICATION (ON-SITE)
- AIR CONTAMINANT SURVEY (ON-SITE)
- SURVEY OF NEARBY OFF-SITE WELLS
- EVALUATION OF SURFACE RUNOFF

PRELIMINARY LISTING OF POTENTIAL ARARS

(APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, AND TO BE CONSIDERED MATERIAL)

CONTAMINANT - SPECIFIC

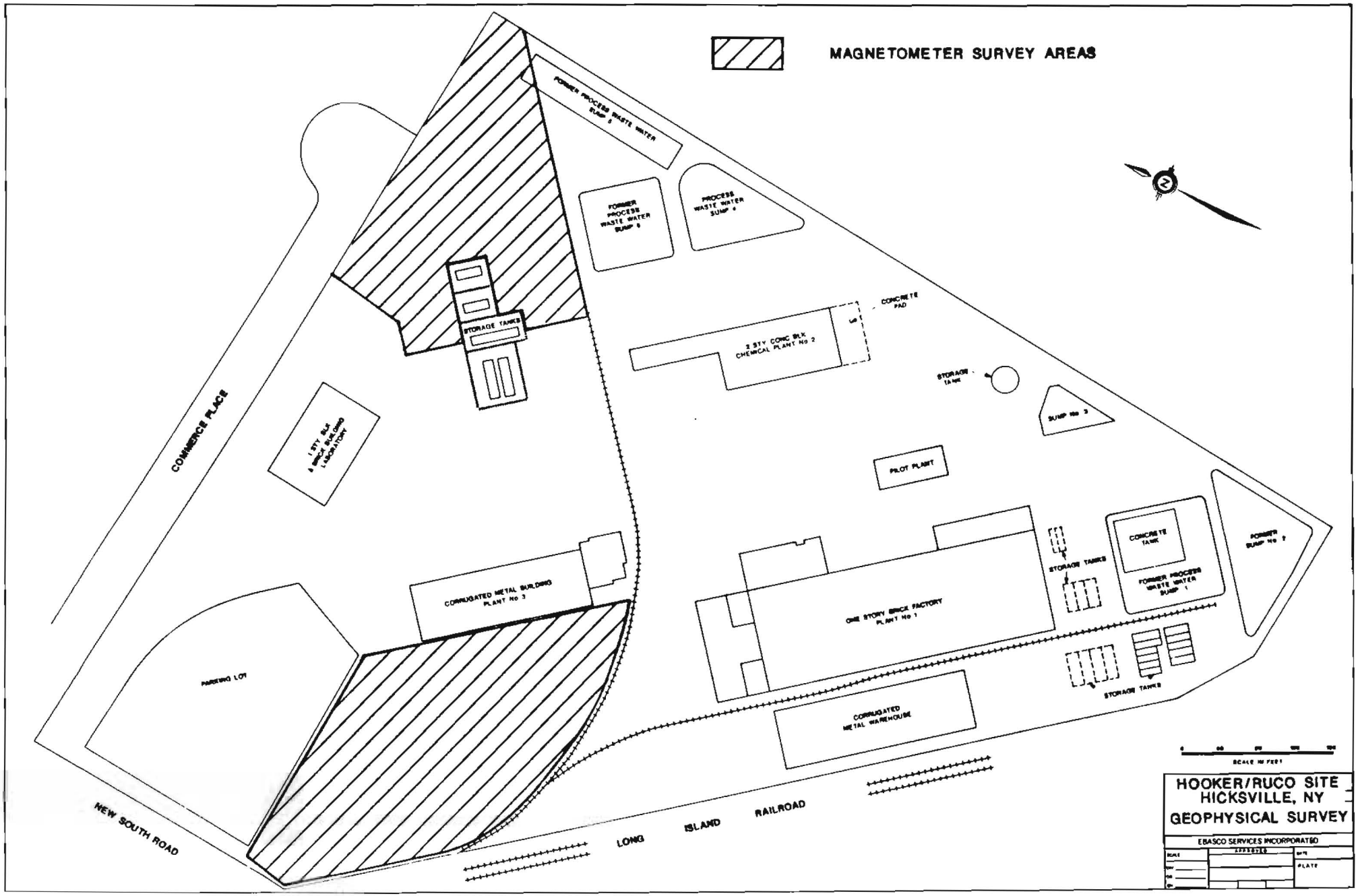
- SAFE DRINKING WATER ACT MCLS, MCLGS
- NEW YORK DRINKING WATER STANDARDS
- NEW YORK GROUNDWATER QUALITY STANDARDS
- RCRA GROUNDWATER PROTECTION STANDARDS
- NEW YORK SPDES DISCHARGE TO GROUNDWATER EFFLUENT STANDARDS/LIMITATIONS
- CONDITIONS OF NEW YORK SPDES DISCHARGE TO GROUNDWATER PERMIT ISSUED TO FACILITY
- EPA DRINKING WATER HEALTH ADVISORIES (TO BE CONSIDERED)

LOCATION - SPECIFIC

- SAFE DRINKING WATER ACT SOLE-SOURCE AQUIFER REQUIREMENTS
- NEW YORK SPDES GROUNDWATER EFFLUENT STANDARDS FOR NASSAU/SUFFOLK COUNTIES

ACTION - SPECIFIC

- RCRA TREATMENT FACILITY STANDARDS (SOIL TREATMENT)
- EPA EFFLUENT LIMITATION GUIDELINES FOR ORGANIC CHEMICALS FACILITIES (GROUNDWATER TREATMENT)
- EPA/NEW YORK SOLID/HAZARDOUS WASTE MANAGEMENT REQUIREMENTS (ON-SITE/OFF-SITE DISPOSAL OF TREATED SOIL, SOIL TREATMENT RESIDUE)
- EPA/NEW YORK SPDES STORMWATER RUNOFF REQUIREMENTS (DISCHARGE OF TREATED GROUNDWATER TO STORM DRAIN)


MAGNETOMETER SURVEY AREAS
FORMER PROCESS WASTE WATER SUMP 2
FORMER PROCESS WASTE WATER SUMP 5
PROCESS WASTE WATER SUMP 4
STORAGE TANKS
CONCRETE PAD
2 STY CONC BLK CHEMICAL PLANT NO 2
STORAGE TANK
SUMP No 3
1 STY BLK & BRICK BUILDING LABORATORY
PILOT PLANT
CONCRETE TANK
FORMER PROCESS WASTE WATER SUMP 1
FORMER SUMP No 2
STORAGE TANKS
CORRUGATED METAL BUILDING PLANT No 3
ONE STORY BRICK FACTORY PLANT No 1
PARKING LOT
CORRUGATED METAL WAREHOUSE
STORAGE TANKS
COMMERCE PLACE
NEW SOUTH ROAD
LONG ISLAND RAILROAD
SCALE IN FEET
HOOKER/RUCO SITE
HICKSVILLE, NY
GEOPHYSICAL SURVEY
EBASCO SERVICES INCORPORATED
PLATE

SAMPLE SUMMARY
HOOKER/RUCO PHASE 1

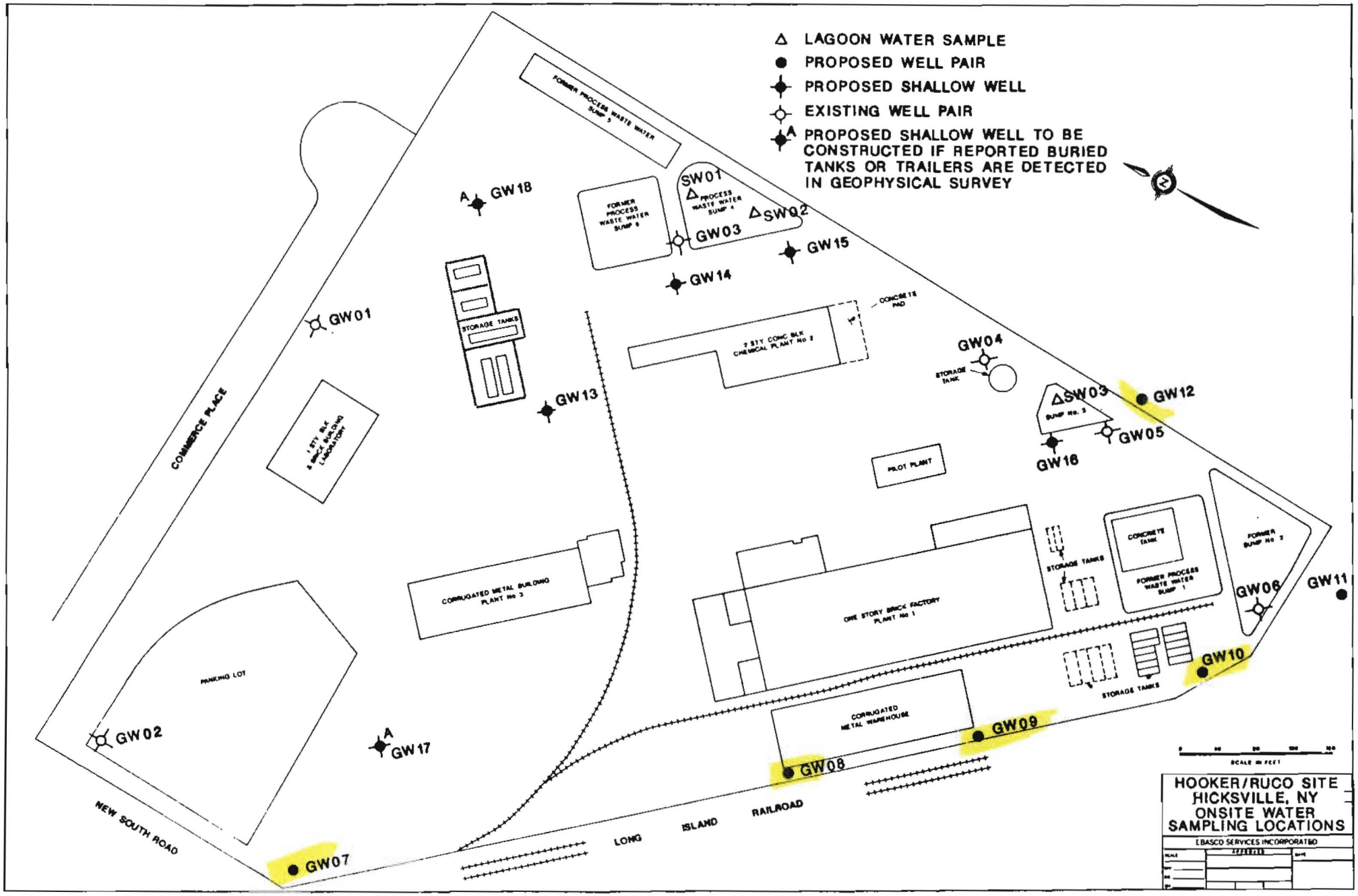
TYPE	NUMBER OF LOCATIONS	SAMPLES PER LOCATION SOIL	SAMPLES PER LOCATION WATER	TOTAL SAMPLES SOIL[1]	TOTAL SAMPLES WATER[1]
SHALLOW WELLS (<100')					
EXISTING ON-SITE[4]	6	-	1	-	6
EXISTING OFF-SITE	6	-	1	-	6
NEW[4]	14	3	1	42	14
DEEP WELLS (>100')					
EXISTING ON-SITE[4]	6	-	1	-	6
EXISTING OFF-SITE	1	-	1	-	1
NEW[4]	8	-	1	-	8
SURFACE WATER (LAGOONS)	3	-	1	-	3
WATER LEVELS					
NEW SHALLOW PIEZOMETERS	4				
DEEP (FROM ABOVE WELLS)	14				
SHALLOW (FROM ABOVE WELLS)	27				
SOIL BORINGS					
LAGOONS[3]	13	3	-	39	-
TANK AREAS	7	2	-	14	-
DRUM PAD AREA	6	2	-	12	-
OLD DRUM STORAGE AREA	4	2	-	8	-
PILOT PLANT, PCB SPILL	8	2	-	16	-
SUMP 1, OLD DRAINAGE LINE	2	2	-	4	-
TOTAL[2]				135	44

1 ALL SAMPLES TO BE ANALYZED FOR ALL TCL PARAMETERS EXCEPT CYANIDE. SOILS WILL BE TESTED FOR MOCA. WATER FOR PH, SPECIFIC CONDUCTANCE AND TEMPERATURE.

2 DOES NOT INCLUDE BLANKS, OR DUPLICATES.

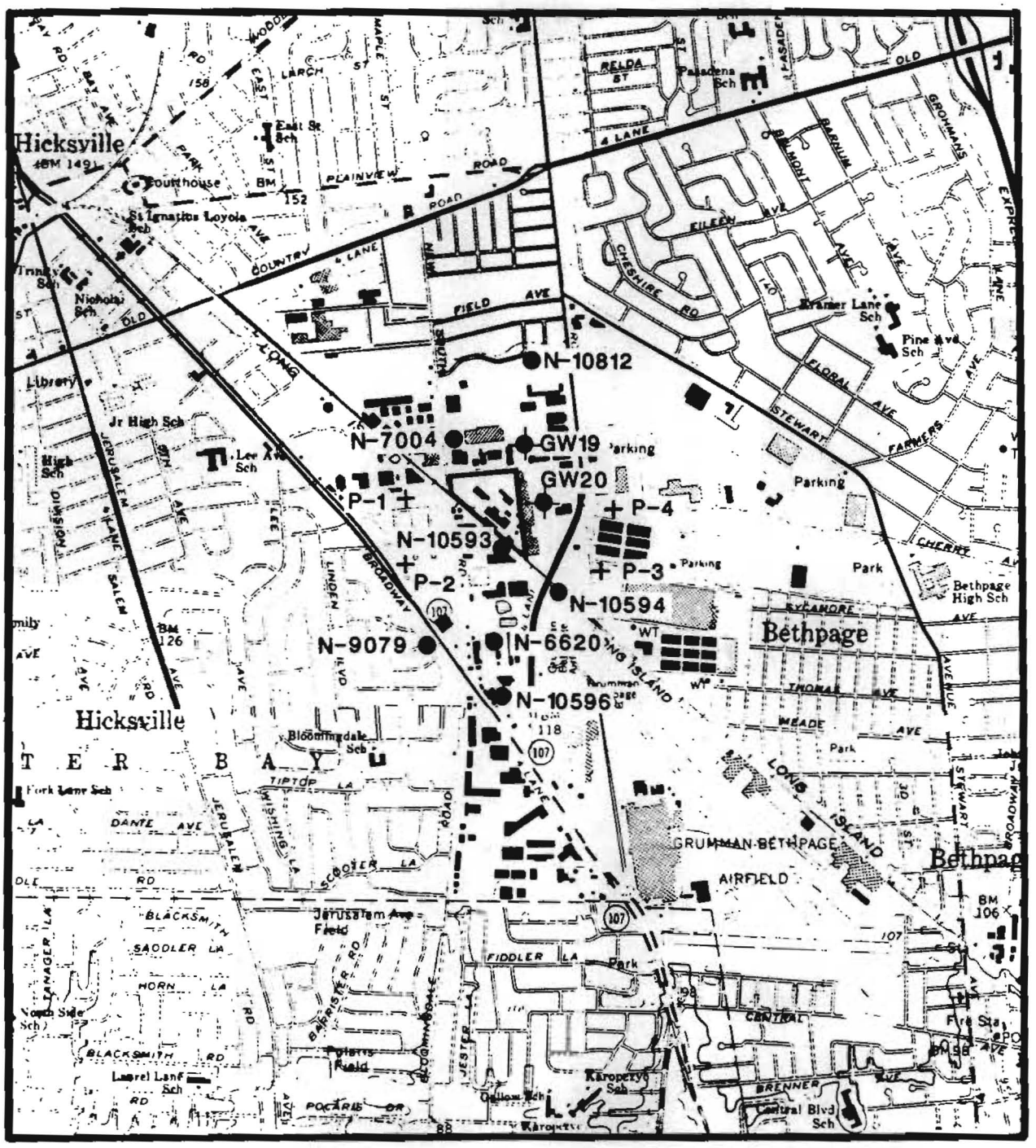
3 2 SOIL SAMPLES FROM EACH OLD SUMP OR LAGOON (TOTAL OF 12 SAMPLES) WILL BE TESTED FOR ORGANIC CONTENT, MOISTURE CONTENT AND CATION EXCHANGE CAPACITY

4 WATER SAMPLES GW01, GW03 AND GW11 WILL ALSO BE TESTED FOR BOD, TOC, OIL AND GREASE, ALKALINITY, TSS, TDS, HARDNESS, CHLORIDE, SULFATE AND COD.


LAGOON WATER SAMPLE
PROPOSED WELL PAIR
PROPOSED SHALLOW WELL
EXISTING WELL PAIR
PROPOSED SHALLOW WELL TO BE CONSTRUCTED IF REPORTED BURIED TANKS OR TRAILERS ARE DETECTED IN GEOPHYSICAL SURVEY
GW01
GW02
GW03
GW04
GW05
GW06
GW07
GW08
GW09
GW10
GW11
GW12
GW13
GW14
GW15
GW16
GW17
GW18
SW01
SW02
SW03
COMMERCE PLACE
NEW SOUTH ROAD
LONG ISLAND RAILROAD
PARKING LOT
STORAGE TANKS
PILOT PLANT
ONE STORY BRICK FACTORY PLANT No 1
CORRUGATED METAL BUILDING PLANT No 3
CORRUGATED METAL WAREHOUSE
FORMER PROCESS WASTE WATER SUMP 1
FORMER PROCESS WASTE WATER SUMP 2
CONCRETE TANK
CONCRETE PAD
HOOKER/RUCO SITE
HICKSVILLE, NY
ONSITE WATER SAMPLING LOCATIONS
EBASCO SERVICES INCORPORATED

PROPOSED OFF-SITE WELL SAMPLING LOCATIONS

WELL #	DEPTH	PURPOSE
EXISTING		
N-6620	87	DOWNGRADIENT WATER QUALITY
N-9079	70	DOWNGRADIENT WATER QUALITY
N-10593	77	DOWNGRADIENT WATER QUALITY
N-10594	76	DOWNGRADIENT WATER QUALITY
N-10596	71	DOWNGRADIENT WATER QUALITY
N-7004	150	UPGRADIENT WATER QUALITY
N-10812	93	UPGRADIENT WATER QUALITY
PROPOSED WELL PAIRS		
GW-19	APPROX. 70' & 130'	UPGRADIENT WATER QUALITY
GW-20	APPROX. 70' & 130'	UPGRADIENT WATER QUALITY

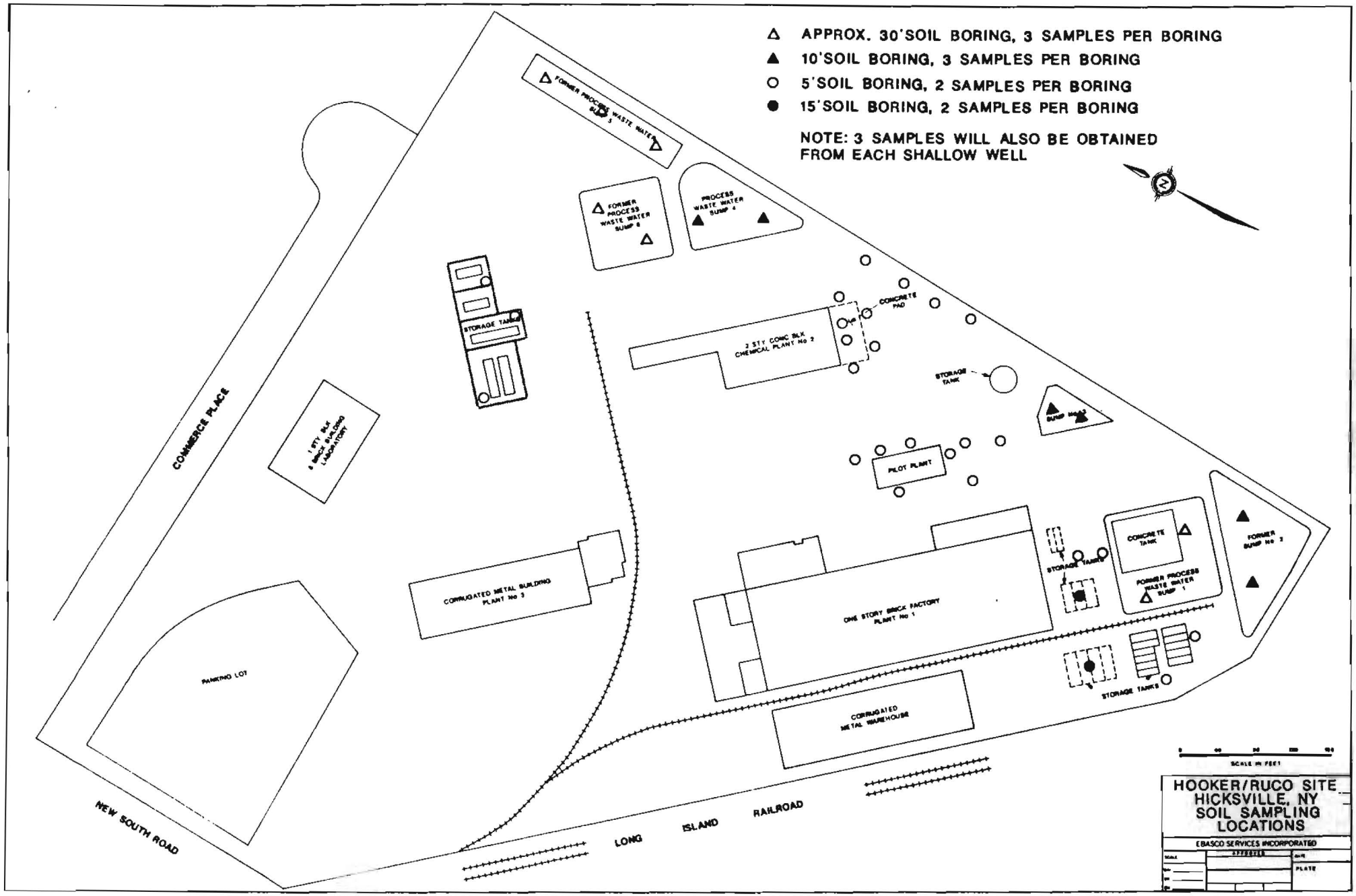


HOOKER/RUCO SITE
HICKSVILLE, NEW YORK

PROPOSED OFFSITE WELL AND PIEZOMETER LOCATIONS

EBASCO SERVICES INCORPORATED

ADAPTED FROM U.S.S.S. AMITYVILLE, FREEPORT, HUNTINGTON AND HICKSVILLE, NY, QUADRANGLE'S, PHOTOREVISED 1979.


△ APPROX. 30'SOIL BORING, 3 SAMPLES PER BORING
▲ 10'SOIL BORING, 3 SAMPLES PER BORING
○ 5'SOIL BORING, 2 SAMPLES PER BORING
● 15'SOIL BORING, 2 SAMPLES PER BORING
NOTE: 3 SAMPLES WILL ALSO BE OBTAINED FROM EACH SHALLOW WELL
N
COMMERCE PLACE
NEW SOUTH ROAD
LONG ISLAND RAILROAD
FORMER PROCESS WASTE WATER SUMP 3
FORMER PROCESS WASTE WATER SUMP 6
PROCESS WASTE WATER SUMP 4
STORAGE TANK
1 STY BLK & BRICK BUILDING LABORATORY
2 STY CONC BLK CHEMICAL PLANT No 2
CONCRETE PAD
STORAGE TANK
SUMP No 5
PILOT PLANT
CORRUGATED METAL BUILDING PLANT No 3
ONE STORY BRICK FACTORY PLANT No 1
STORAGE TANKS
CONCRETE TANK
FORMER PROCESS WASTE WATER SUMP 1
FORMER SUMP No 2
PARKING LOT
CORRUGATED METAL WAREHOUSE
STORAGE TANKS
SCALE IN FEET
HOOKER/RUCO SITE
HICKSVILLE, NY
SOIL SAMPLING LOCATIONS
EBASCO SERVICES INCORPORATED
APPROVED
PLATE

FEASIBILITY STUDY
STAGE I OBJECTIVES

DEVELOPMENT OF ALTERNATIVES

- o IDENTIFY POTENTIAL TECHNOLOGIES
- o SCREENING OF TECHNOLOGIES
- o ASSEMBLE TECHNOLOGIES INTO REMEDIAL ALTERNATIVES

STAGE II OBJECTIVES

PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES

- o SCREENING OF REMEDIAL ALTERNATIVES AGAINST REQUIREMENTS
  - EFFECTIVENESS IN REDUCING TOXICITY, MOBILITY, OR VOLUME
  - IMPLEMENTABILITY
  - COST
- o CONSULTATION WITH USEPA
- o RATIONALE FOR ELIMINATION OF REMEDIAL ALTERNATIVES
- o CARRY INNOVATIVE TECHNOLOGIES THROUGH THE PRELIMINARY SCREENING PROCESS

FEASIBILITY STUDY (CONT'D)

STAGE III OBJECTIVES

DETAILED EVALUATION OF REMEDIAL ALTERNATIVES PASSING THE STAGE II PROCESS

- o ASSESS THE EFFECTIVENESS OF REMEDIAL ALTERNATIVES
  - PROTECTION OF HUMAN HEALTH
  - PROTECTION OF THE ENVIRONMENT
  - FEDERAL AND STATE ARARs
  - PERMANENT REDUCTION OF TOXICITY, MOBILITY, OR VOLUME
  - TECHNICAL RELIABILITY
- o ASSESS IMPLEMENTABILITY
  - TECHNICAL FEASIBILITY
  - AVAILABILITY OF TECHNOLOGY
  - ABILITY TO MONITOR, MAINTAIN, OR REPLACE THE TECHNOLOGY OVER TIME
  - ADMINISTRATIVE FACTORS
- o ASSESS COST FACTORS
  - PRESENT WORTH ANALYSIS
  - CONSTRUCTION
  - LONG-TERM OPERATION AND MAINTENANCE
- o ADDRESS THE LONG-TERM EFFECTIVENESS FACTORS CITED IN SARA, SECTION 121 (B)(1)
  - TOXICOLOGY
  - MAINTENANCE
  - POTENTIAL FAILURE OF REMEDIAL ACTION AND REMEDIATION COSTS
  - POTENTIAL THREAT TO HUMAN HEALTH AND THE ENVIRONMENT
- o COMPARE RELATIVE STRENGTHS AND WEAKNESSES OF EACH REMEDIAL ALTERNATIVE
- o RANK REMEDIAL ALTERNATIVES FOR REVIEW BY USEPA

USEPA memo Nine Points

GROUNDWATER REMEDIAL ALTERNATIVES

RESPONSE ACTION	REMEDIAL ALTERNATIVES	DATA REQUIREMENTS
NO ACTION	o GROUNDWATER MONITORING o INSTITUTIONAL CONTROLS	o RISK ASSESSMENT
CONTAINMENT	o INSTALLATION OF A CAPPING SYSTEM o GROUNDWATER DIVERSION	o CONTAMINANT CHARACTERISTICS o GEOHYDROLOGIC CONDITIONS
GROUNDWATER PUMPING, TREATMENT, AND DISPOSAL	ON-SITE o VOLATILE ORGANICS - AIR OR STEAM STRIPPING - CARBON ADSORPTION	o GROUNDWATER CHARACTERISTICS
	o SEMI-VOLATILE ORGANICS (IF ANY) - CARBON ADSORPTION - AEROBIC BIOLOGICAL DEGRADATION - CHEMICAL OXIDATION - REVERSE OSMOSIS	o GROUNDWATER CHARACTERISTICS
	o METALS (IF ANY) - ION EXCHANGE - CHEMICAL PRECIPITATION - REVERSE OSMOSIS	o GROUNDWATER CHARACTERISTICS
	OFF-SITE o TREATMENT OPTIONS SAME AS ABOVE	o GROUNDWATER CHARACTERISTICS
	DISPOSAL o RECHARGE BASINS o GROUNDWATER INJECTION o SANITARY SEWER	o REGULATORY REQUIREMENTS, GROUNDWATER CHARACTERISTICS, AND TREATMENT FACILITY LIMITATIONS

SOIL REMEDIAL ALTERNATIVES

RESPONSE ACTION	REMEDIAL ALTERNATIVES	DATA REQUIREMENTS
NO ACTION	o GROUNDWATER MONITORING o INSTITUTIONAL REQUIREMENTS	o RISK ASSESSMENT
CONTAINMENT	o INSTALLATION/MAINTENANCE OF CAPPING SYSTEM	o RISK ASSESSMENT, CONTAMINANT CHARACTERIZATION
	o IMPERMEABLE BARRIERS - GROUT CURTAINS AND BOTTOM SEALING	o GEOHYDROLOGIC CONDITIONS, CONTAMINANT CHARACTERIZATION
EXCAVATION, TREATMENT AND DISPOSAL	ON-SITE	
	o VOLATILE ORGANICS - MECHANICAL AERATION - INCINERATION	o SOIL AND CONTAMINANT CHARACTERISTICS
	o SEMI-VOLATILE ORGANICS (IF ANY) - SOIL WASHING - INCINERATION - STABILIZATION/SOLIDIFICATION	o SOIL AND CONTAMINANT CHARACTERISTICS
	o METALS (IF ANY) - SOIL WASHING - CHEMICAL FIXATION - STABILIZATION/SOLIDIFICATION	o SOIL AND CONTAMINANT CHARACTERISTICS
	o POLYCHLORINATED BIPHENYLS (PCBs) - INCINERATION - KPEG	o SOIL AND CONTAMINANT CHARACTERISTICS
	IN-SITU	
	o VITRIFICATION	o SOIL AND CONTAMINANT CHARACTERISTICS
	o ENHANCED FLUSHING	o SOIL AND CONTAMINANT CHARACTERISTICS, GEOHYDROLOGIC CONDITIONS
	OFF-SITE	
	o SIMILAR TO ON-SITE TREATMENT	o SOIL AND CONTAMINANT CHARACTERISTICS

SOIL REMEDIAL ALTERNATIVES (CONT'D)

RESPONSE ACTION	REMEDIAL ALTERNATIVES	DATA REQUIREMENTS
EXCAVATION, TREATMENT AND DISPOSAL (CONT'D)	DISPOSAL - ON-SITE o MAY BE USED AS FILL ON-SITE AFTER TREATMENT	o RISK ASSESSMENT, REGULATORY REQUIREMENTS
	DISPOSAL - OFF-SITE o LANDFILL (RCRA OR OTHER)	o AVAILABLE SPACE, REGULATORY REQUIREMENTS
	o INCINERATION	o CONTAMINANT CHARACTERISTICS, REGULATORY REQUIREMENTS

ADDITIONAL GROUNDWATER AND SOIL CHARACTERIZATION FOR EVALUATING REMEDIAL ALTERNATIVES

GROUNDWATER

- o FIELD MEASUREMENTS
  - PH
  - SPECIFIC CONDUCTANCE
  - TEMPERATURE

- o LABORATORY ANALYSES (IN ADDITION TO TCL PARAMETERS)
  - TYPICAL SPDES PARAMETERS (BOD, COD, TOC, OIL AND GREASE, TSS, TDS)
  - OTHER PARAMETERS (ALKALINITY, HARDNESS, CHLORIDE, SULFATE)

SOIL

- o ORGANIC CONTENT
- o MOISTURE CONTENT
- o CATION EXCHANGE CAPACITY