TABLES

TABLE 1

RESULTS OF FIELD PERMEABILITY TESTING

WELL NO.[1]	STRATIGRAPHIC UNIT[2]	PERMEABILITY (cm/sec)
W-1	Sand	1.89×10^{-3}
W-2	Sand	2.37×10^{-4}
W-3	Sand	6.19×10^{-5}
W-4	Sand	1.58×10^{-3}
W-5	Sand	8.8×10^{-4}
W-6	Silt	6.1×10^{-6}
W-7A	Silt	2.2×10^{-5}
W-7B	Sand	2.26×10^{-4}
W-8	Silt	5.8×10^{-7}
W-9	Sand	1.03×10^{-3}

[1] See Figure 2 for well locations.

[2] Indicates type of materials the well sensing zone is in contact with.

TABLE 2

GROUND WATER ELEVATION MEASUREMENTS[1]

DATE	W-1 EL.104.276	W-2 EL.98.841	W-3 EL.99.606	W-4 EL.101.951	W-5 EL.100.406	W-6 EL.99.836	W-7A EL.98.461	W-7B EL.98.511	W-8 EL.100.906	W-9 EL.100.854	W-10 EL.101.730	HARBOR[2] EL.100.916
11/28/84	95.576	95.621	NA[3]	95.201	95.576	NA	95.221	95.761	NA	NA	NA	95.666
12/3/84	Obstructed	95.111	95.926	94.521	94.906	93.896	94.991	95.201	90.906	95.094	NA	94.586
12/6/84[4]	96.496	92.781	95.586	94.161	95.226	94.436	95.241	95.611	88.706	94.144	NA	94.996
12/6/84[5]	92.806	92.781	93.606	94.051	94.106	93.406	95.191	95.481	93.256	95.284	NA	-
12/7/84	94.746	93.441	75.216[6]	93.951	93.306	81.796[6]	93.461	92.911	78.886[6]	93.874	NA	92.916
1/30/85	95.146	94.731	Frozen	94.731	94.926	94.566	Frozen	Frozen	94.756	94.704	94.03	95.496

(1) Table presents elevations in feet as referenced from plant datum. Well top elevations surveyed by Allied.

(2) Harbor measurements obtained at 375-foot mark on western bulkhead.

(3) Not available. Well not installed as of this date.

(4) Measurements made at 0800 hours.

(5) Measurements obtained at various times immediately preceding field permeability testing.

(6) These wells had not recovered fully from development and permeability testing conducted approximately 18 hours earlier.

TABLE 3

REGIONAL GROUND WATER QUALITY DATA

WELL NO.	LATITUDE	LONGITUDE	DATE COLLECTED	PH	CHROMIUM (TOTAL) ug/l	ARSENIC ug/l	IRON ug/l	SILVER ug/l	BARIUM ug/l	CALCIUM ug/l	LEAD ug/l	MERCURY ug/l	SELENIUM ug/l
153 W-46 Esskay (Owner)	39° 17' 32" (Approximate)	76° 33' 53" (Approximate)	12-4-81	4.8	1	0	60	<1	130	3	<1	1.4	1
151 W-35	39° 17' 19"	76° 37' 10"	4-28-82	4.0	<1	1	5,500	<1	80	<3	<1	<.1	<1
1N3E-11 Hood Vinegar #3	39° 18' 05"	76° 33' 44"	5-3-82	5.2	<1	1	80	<1	60	<3	3	.4	13
1N3E-09	39° 18' 05"	76° 33' 44"	5-3-82	5.3	<1	1	110	<1	76	<3	2	.7	6

FROM: U.S. Department of the Interior, Geologic Survey, unpublished data.
See Figure 8 for well locations.

TABLE 4

SUMMARY OF USEPA ANALYSES OF HARBOR SAMPLES OBTAINED NEAR ALLIED PLANT[1]

SAMPLE TYPE	HYDROCARBONS	METALS								
		As mg/kg	Hg mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Mn mg/kg	Ni mg/kg	Pb mg/kg	Zn mg/kg
Sediment[2]	7,539	45	3.2	5	1,115	426	294	54	99	651
		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Interstial Water[2]	---	34	2	<2	186	16	1,755	<5	88	1,055
Harbor Water[3]	---	8	0.2	8	19	14	380	43	<50	20

[1] From USEPA, 1977. Station is located at 39° 16' 31" lat. and 76° 35' 51" long.

[2] Average values from a 10-foot core sample split by depth into seven zones.

[3] Filtered.

T

RESULTS
HARBOR

SAMPLE IDENTIFICATION[1]	pH (1:1)	Eh[2] +/-mV [3]	TOTAL ANALYSES[4]			
			TOTAL CHROMIUM	HEXAVALENT CHROMIUM	BARIUM	IRON
			(ppm)			
S-1	7.55	-92	210	2.5	18	16,0(
S-2	7.50	+15[5]	170	2.0	19	19,0(
S-3 *	7.35	-43	1,800	130	31	12,0(

[1] See Figure 2 for sampling locations.
[2] Time to reach Eh equilibrium was approximately 20 minutes for each sample.
[3] Millivolts.
[4] Total analyses performed on soil samples digested in perchloric acid.
[5] Eh reading eventually went negative with time; no oxidation apparent.

E 9

ANALYSIS
:DIMENTS

EP TOXICITY LEACHATE								
ARSENIC	BARIUM	CADMIUM	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
(mg/l)								
<0.001	0.18	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.01	0.01
<0.001	0.10	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.01	0.01
0.001	0.10	<0.01	<0.01	<0.01	<0.01	0.0016	<0.01	0.01

RESULT:
DENSE SILT/(

SAMPLE IDENTIFICATION	TOTAL ANALYSES(1)			
	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	BARIUM	IRON
	(ppm)			
✓ Boring W-1; S-19 (45-46.5 ft)	320	340/200(2)	17	19,000
✓ Boring W-2; S-13 (31-32.5 ft)	1,300	900/920	12	5,000
Boring W-3; S-15 (36-37.5 ft)	18	<0.1/<0.1	20	460
Boring W-7A; S-17 (39-40.5 ft)	46	<0.1/86	1.3	2,000
ok Boring W-10; S-16 (38.5-40 ft)	23	<0.5	27/31(3)	3,000

(1) Total chromium, barium, and iron analyses were performed on soil samples dige
Laboratories of Baltimore, utilizing a soil extract-colorimetry procedure (Re

(2) Hexavalent chromium analyses were not duplicative; rather, subsamples from wi

(3) Indicates sample was analyzed in duplicate.

.E 8

' ANALYSIS
' LAYER SAMPLES

EP TOXICITY LEACHATE								
ENIC	BARIUM	CADMIUM	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
(mg/l)								
)01	0.02	0.01	19	16	0.05	<0.0002	<0.001	<0.001
001	0.01	0.03	39	38	<0.01	0.0003	<0.001	<0.001
001	<0.01	0.02	0.03	<0.25	0.02	<0.0002	<0.001	<0.001
001	<0.01	<0.01	0.06	<0.25	<0.01	<0.0002	<0.001	<0.001
)06	0.18/0.18(3)	0.002	0.03/0.03(3)	<0.01	<0.01	<0.0002	<0.001	<0.001

d in perchloric acid. Hexavalent chromium analyses were conducted by Gascoyne
nauer, 1982).

n the same sampling interval were analyzed separately.

RESULT
SOFT SIL

SAMPLE IDENTIFICATION	TOTAL ANALYSES[1]			
	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	BARIUM	IRON
	(ppm)			
Boring W-2; S-7 (16-17.5 ft)	96	<0.1/<0.1[2]	23	16,000
✓ Boring W-3; S-5 (11-12.5 ft)	24,000	550/770	16	11,000
W-4 S-6 Boring W-5; S-10 (23.5-25 ft)	170	<0.1/<0.1	15	16,000
✓ Boring W-6; S-14 (33.5-35 ft)	16,000	480	480	18,000
Boring W-7A; S-9 (21-22.5 ft)	120	0.5/<0.1	18	22,000
W7B Boring W-8; S-7 (16-17.5 ft)	61	<0.1	18	13,000
Boring W-8; S-10 (23.5-25 ft)	50	<0.1/<0.1	14	15,000
Boring W-9; S-10 (23.5-25 ft)	37	<0.1/<0.1	11	16,000
Boring W-9; S-14 (33.5-35 ft)	56	<0.1/<0.1	4.6	5,100
✓ Boring W-10; S-7 (16-17.5 ft)	26,000/26,000[3]	4,900	73	29,000
Boring B-3; S-8 (18.5-20 ft)	500	<0.1	9.1	14,000
Boring B-4; S-7 (16-17.5 ft)	36	<0.1/0.1	22	21,000
ok Boring B-5; S-5 (11-12.5 ft)	51	<0.1	34	32,000

(1) Total chromium, barium, and iron analyses were performed on soil samples dige
Laboratories of Baltimore, utilizing a soil extract-colorimetry procedure (Re

(2) Hexavalent chromium analyses were not duplicative; rather, subsamples from wi

(3) Indicates sample was analyzed in duplicate.

LE 6

F ANALYSIS
AYER SAMPLES

EP TOXICITY LEACHATE								
ENIC	BARIUM	CADMIUM	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
(mg/l)								
002	0.07	0.02	0.18	<0.25	0.02	<0.0002	<0.001	<0.001
001	0.01	0.02	33	16	<0.01	0.0002	<0.001	0.001
003	0.03	0.01	0.08	<0.25	0.01	<0.0002	<0.001	<0.001
003	0.36	0.02	30	16	0.03	<0.0002	0.002	<0.001
002	0.03	<0.01	0.3	<0.25	<0.01	<0.0002	<0.001	<0.001
004	0.20	<0.01	0.07	<0.25	0.02	0.0003	<0.001	0.001
006	<0.01	<0.01	0.06	<0.25	<0.01	<0.0002	<0.001	<0.001
003	0.05	0.04	0.04	<0.25	0.03	<0.0002	<0.001	<0.001
004	0.05	0.04	0.06	<0.25	<0.01	<0.0002	<0.001	<0.001
.001	0.16	<0.01	131	122	<0.01	<0.0002	<0.001	<0.001
.01	0.13	<0.01	0.02	<0.25	<0.01	0.0010	<0.001	<0.001
002	0.08	<0.01	<0.01	<0.25	<0.01	0.0006	<0.001	<0.001
001	0.11	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.001	<0.001

:d in perchloric acid. Hexavalent chromium analyses were conducted by Gascoyne
:nauer, 1982).

n the same sampling interval were analyzed separately.

RESULT
SAND I

SAMPLE IDENTIFICATION	TOTAL ANALYSES[1]			
	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	BARIUM	IRON
	(ppm)			
Boring W-1; S-9 (21-22.5 ft)	120	11/12[2]	2.7	170
✓ Boring W-1; S-16 (38.5-40 ft)	930	390/410	5.4	750
✓ Boring W-2; S-12 (28.5-30 ft)	1,700	940/1,000	5.4	640
✓ Boring W-3; S-12 (28.5-30 ft)	1,600	<0.1/<0.1	9.1	2,600
✓ Boring W-4; S-11 (26-27.5 ft)	670	240/1,900	3.6	1,200
Boring W-5; S-15 (36-37.5 ft)	40	NA[3]	3.6	2,300
W-6 ✓ Boring W-7A; S-13 (31-32.5 ft)	1,600	1,600/1,700	15	920
W7B,8 No visual evidence Boring W-9; S-19 (46-47.5 ft)	12	<0.1/<0.1	<1	550
Boring W-10; S-13 (31-32.5 ft)	74	74	29	260
Boring B-1; S-6 (13.5-15 ft)	47	11	3.4	840
Boring B-1; S-7 (16-17.5 ft)	61	2.9/5.8	2.5	3,300
Boring B-2; S-8 (18.5-20 ft)	99	4.4/10	4.4	1,600
Boring B-3; S-12 (28.5-30 ft)	98/99[4]	1.5	1.5	610
Boring B-4; S-11 (26-27.5 ft)	83	<0.1/<0.1	19	16,000
ok Boring B-5; S-9 (21-22.5 ft)	16	<0.1	20	2,000
ok no visual evidence Boring B-5; S-19 (46.47.5 ft)	8.5	<0.1	25	260/260[4]

(1) Total chromium, barium, and iron analyses were performed on soil samples dige
Laboratories of Baltimore, utilizing a soil extract-colorimetry procedure (Re

(2) Hexavalent chromium analyses were not duplicative; rather, subsamples from wi

(3) Not analyzed.

(4) Indicates sample was analyzed in duplicate.

LE 7

ANALYSIS
R SAMPLES

EP TOXICITY LEACHATE								
ENIC	BARIUM	CADMIUM	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
(mg/l)								
001	0.03	<0.01	0.90	0.50	0.02	<0.0002	<0.001	<0.001
001	0.08	0.01	23	24	0.05	0.0003	<0.001	<0.001
008	0.06	0.02	64	58	0.02	<0.0002	<0.001	<0.001
006	0.04	0.03	59	<0.25	0.26	<0.0002	<0.001	<0.001
002	0.10	0.01	45	29	<0.01	<0.0002	<0.001	<0 001
001	0.05	<0.01	0.04	<0.25	0.01	<0.0002	<0.001	<0.001
003	<0.01	0.04	99	95	<0.01	0.0002	<0.001	<0.001
001	0.02	0.04	0.05	<0.25	<0.01	<0.0002	0.002	<0.001
001	0.18	<0.001	3.7	3.5	<0.01	<0.0002	<0.001	<0.001
01	0.02	<0.01	0.64	0.75	<0.01	0.0003	<0.001	<0.001
001	0.04	<0.01	0.27	<0.25	<0.01	<0.0002	<0.001	0.001
001	0.02	<0.01	0.35	0.25	<0.01	<0.0002	<0.001	<0.001
001	0.04	<0.01	0.11	<0.25	<0.01	<0.0002	0.002	<0.001
01	0.07	<0.01	0.02	<0.25	0.08	0.0004	<0.001	<0.001
001	0.13	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.001	<0.001
001	0.14	<0.01	0.06	<0.01	<0.01	<0.0002	<0.001	<0.001

d in perchloric acid. Hexavalent chromium analyses were conducted by Gascoyne
nauer, 1982).

n the same sampling interval were analyzed separately.

T

RESULTS
FILL LA

SAMPLE IDENTIFICATION	TOTAL ANALYSES(1)			
	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	BARIUM	IRON
	(ppm)			
see pg 4-5 Boring W-1; S-1 (1-2.5 ft)	6,200	190/350(2)	6.3/5.4(3)	30,000
Boring W-2; S-1 (1-2.5 ft)	5,600	5.6/200	18	17,000
W-3 Boring W-4; S-1 (1-2.5 ft)	150	35/65	7.3	12,000
Boring W-4; S-8 (18.5-20 ft)	350	28	7.3	5,800
Boring W-5; S-1 (1-2.5 ft) *	930	62/76	35	17,000
Boring W-6; S-1 (1-2.5 ft)	5,500	1,100	33	30,000
Boring W-6; S-5 (11-12.5 ft)	2,200	250	49	31,000
Boring W-7A; S-3 (6-7.5 ft) *	6,200	120/920	38	11,000
7B Boring W-8; S-1 (1-2.5 ft) *	860	35	1.3	12,000
Boring W-9; S-4 (8.5-10 ft)	25	<0.1/<0.1	2.4	4,900
Boring W-10; S-5 (11-12.5 ft)	34,000	2,900	71	19,000
Boring B-1; S-1 (1-2.5 ft)	300	9.4/8.7	24	12,000
Boring B-2; S-2 (3.5-5 ft) *	3,200	<0.1/0.1	17	20,000
Boring B-3; S-2 (3.5-5 ft) *	7,000	0.9	10	19,000
Boring B-4; S-1 (1-2.5 ft) *	18,000	16/290	7.2	16,000

B-5 S-1,3

(1) Total chromium, barium, and iron analyses were performed on soil samples dige
Laboratories of Baltimore, utilizing a soil extract-colorimetry procedure (Re

(2) Hexavalent chromium analyses were not duplicative; rather, subsamples from wi

(3) Indicates sample was analyzed in duplicate.

LE 5

F ANALYSIS
R SAMPLES

EP TOXICITY LEACHATE								
ENIC	BARIUM	CADMIUM	TOTAL CHROMIUM	HEXAVALENT CHROMIUM	LEAD	MERCURY	SELENIUM	SILVER
(mg/l)								
.001	0.06	0.03	270	215	<0.01	<0.0002	<0.001	0.001
002	0.22	0.06	52	60	<0.01	<0.0002	<0.001	<0.001
.001	0.11	0.01	2.6	2.2	<0.01	<0.0002	<0.001	<0.001
001	0.10	0.02	3.1	0.75	0.04	<0.0002	<0.001	<0.001
001	0.14	0.03	3.8	3.2	0.02	<0.0002	0.001	<0.001
.001	0.16	0.03	30	32	0.03	<0.0002	<0.001	<0.001
.001	0.11	0.02	15	13/14	<0.01	<0.0002	<0.001	<0.001
001	0.47	0.03	4.1	<0.25	<0.01	0.0002	0.006	<0.001
.001	0.42	0.05	2.2	1.5	<0.01	<0.0002	<0.001	<0.001
.001	0.12	0.03	0.04	<0.25	<0.01	<0.0002	<0.001	<0.001
.001	0.12	<0.001	140/140(3)	150/150(3)	<0.01	0.0009	<0.001	<0.001
006	0.38	0.05	0.50	0.25	0.05	<0.0002	0.006	<0.001
002	<0.01	<0.01	0.04	<0.25	<0.01	<0.0002	<0.001	<0.001
005	0.25	0.03	0.45	<0.25	<0.01	<0.0002	0.008	<0.001
003	0.07	0.03	0.29	<0.25	<0.01	<0.0002	0.003	<0.001

ed in perchloric acid. Hexavalent chromium analyses were conducted by Gascoyne
enauer, 1982).

in the same sampling interval were analyzed separately.

TABLE 10

THRESHOLD LEVELS FOR EP TOXICITY TEST METALS

METAL	THRESHOLD (mg/l)
Arsenic	5.0
Barium	100
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0

TABLE 11

SOIL ANALYSIS SUMMARY
OF BASE-NEUTRAL EXTRACTABLE
PRIORITY POLLUTANTS
BORING W-4; SAMPLE S-9 (21 TO 22.5 FEET)

PARAMETER	CAS NUMBER(1)	CONCENTRATION mg/kg(2)
Acenaphthene	83-32-9	2.2
Acenaphthylene	208-96-8	0.24
Anthracene	120-12-7	≤7.4(5)
Benzidine	92-87-5	<0.40
Benzo(a)anthracene	56-55-3	≤3.4(5)
Benzo(a)pyrene	50-32-8	3.8
3,4-Benzofluoranthene	205-99-2	≤2.0(5)
Benzo(g,h,i)perylene	191-24-2	0.69
Benzo(k)fluoranthene	207-08-9	≤2.0(5)
Bis(2-chloroethoxy)methane	111-91-1	<0.10
Bis(2-chloroethyl)ether	111-44-4	<0.10
Bis(2-chloroisopropyl)ether	39638-32-9	<0.10
Bis(chloromethyl)ether(3)	542-88-1	<0.40
Bis(2-ethylhexyl)phthalate	117-81-7	<0.10
4-Bromophenyl phenyl ether	101-55-3	<0.10
Butyl benzyl phthalate	85-68-7	<0.10
2-Chloronaphthalene	91-58-7	<0.10
4-Chlorophenyl phenyl ether	7005-72-3	<0.10
Chrysene	218-01-9	≤3.4(5)
Dibenzo(a,h)anthracene	53-70-3	<0.10
1,2-Dichlorobenzene	95-50-1	<0.10
1,3-Dichlorobenzene	541-73-1	<0.10
1,4-Dichlorobenzene	106-46-7	<0.10
3,3'-Dichlorobenzidine	91-94-1	<0.10

18.11 mg/kg Total BNE's

No acid extractables?

No volatiles?

TABLE 11
(Continued)

PARAMETER	CAS NUMBER[1]	CONCENTRATION mg/kg[2]
Diethyl phthalate	84-66-2	<0.10
Dimethyl phthalate	131-11-3	<0.10
Di-n-butyl phthalate	84-74-2	<0.10
2,4-Dinitrotoluene	121-14-2	<0.10
2,6-Dinitrotoluene	606-20-2	<0.10
Di-n-octyl phthalate	117-84-0	<0.10
1,2-Diphenylhydrazine (Azobenzene)[4]	122-66-7	<0.10
Fluoranthene	206-44-0	4.1
Fluorene	86-73-7	1.4
Hexachlorobenzene	118-71-1	<0.10
Hexachlorobutadiene	87-68-3	<0.10
Hexachlorocyclopentadiene	77-47-4	<0.10
Hexachloroethane	67-72-1	<0.10
Indeno(1,2,3-cd)pyrene	193-39-5	0.58
Isophorone	78-59-1	<0.40
Naphthalene	91-20-3	1.3
Nitrobenzene	98-95-3	<0.10
N-Nitrosodimethylamine	62-75-9	<0.10
N-Nitrosodi-n-propylamine	621-64-7	<0.10
N-Nitrosodiphenylamine (Diphenylamine)[4]	86-30-6	<0.10
Phenanthrene	85-01-8	≤7.4[5]
Pyrene	129-00-0	3.8
1,2,4-Trichlorobenzene	120-82-1	<0.10
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1764-01-6	<0.10

TABLE 11 FOOTNOTES

(1) The numbers presented in this column are the Chemical Abstracts Service (CAS) numbers used for cataloging the indicated compounds in the Chemical Abstracts Index.

(2) mg/kg = milligrams per kilogram or parts per million.

(3) Decomposes rapidly in water.

(4) Detected as compound in parentheses.

(5) $\leq$ = Compound was found at a concentration equal to or less than the indicated value. Compounds are reported as "less than or equal to" the indicated concentration because some compounds exhibit the same mass spectra and retention times and therefore cannot be resolved.

TABLE 12

WATER QUALITY SUMMARY
GENERAL CHEMISTRY

PARAMETER	UNITS	SAMPLE IDENTIFICATION[1] S-1	S-2	S-3
Field Parameters:				
pH	-	7.2	7.5	6.9
Temperature	°C	9	8	7
Specific Conductivity	umhos/cm	12,500	12,500	12,500
Eh	+/-mV	+490	+481	+282
General Chemistry:				
Acidity	mg/l[2] $CaCO_3$	<1	<1	<1
Alkalinity	mg/l $CaCO_3$	62	70	48
Chloride	mg/l	6,100	6,300	5,000/5,100
Chromium (Hexavalent)	mg/l	<2.5	<2.5	7.5
Nitrate	mg/l NO_3-N	0.6/0.6	0.6/0.4	1.1/1.2
Residue:				
Filterable (TDS)	mg/l	11,100	9,480	8,750
Nonfilterable (TSS)	mg/l	17	23	214
Sulfate	mg/l SO_4-2	1,000	900	750
Total Organic Carbon (TOC)	mg/l	6	5	4

TABLE 12
(Continued)

PARAMETER	UNITS	SAMPLE IDENTIFICATION[1] B-2	B-3	B-5
Field Parameters:				
pH	-	7.05	10.55	8.0
Temperature	°C	13	11	16
Specific Conductivity	umhos/cm	600	700	1,600
Eh	+/-mV	+446	+396	+242
General Chemistry:				
Acidity	mg/l[2] $CaCO_3$	<1	<1	<1
Alkalinity	mg/l $CaCO_3$	66	996	820
Chloride	mg/l	340/420[3]	280	180
Chromium (Hexavalent)	mg/l	2.5	85	<0.01/<0.01
Nitrate	mg/l NO_3-N	0.6/0.7	0.6/0.5	0.1/0.1
Residue:				
Filterable (TDS)	mg/l	857	3,420	1,200
Nonfilterable (TSS)	mg/l	1,060	826	18,000
Sulfate	mg/l SO_4-2	35	700	130
Total Organic Carbon (TOC)	mg/l	2	45	39

TABLE 12
(Continued)

PARAMETER	UNITS	SAMPLE IDENTIFICATION[1] W-1	W-2	W-3	W-4	W-5
Field Parameters:						
pH	-	10.3	10.3	0.6	12.3	6.8
Temperature	°C	15	14	17	15	16
Specific Conductivity	umhos/cm	24,000	17,250	>50,000	33,500	13,250
Eh	+/-mV	+319	+287	+658	+352	+317
General Chemistry:						
Acidity	mg/l[1] $CaCO_3$	4	<1	98,600	<1	<1
Alkalinity	mg/l $CaCO_3$	6,300	9,360	<1	11,900	1,020
Chloride	mg/l	2,300	1,500	850	3.5	4,600
Chromium (Hexavalent)	mg/l	2,500	1,500	<2.5	7,500/7,500	30
Nitrate	mg/l NO_3-N	50	48	57	135	0.4/0.4
Residue:						
Filterable (TDS)	mg/l	25,000	17,000	92,400	30,800	8,540
Nonfilterable (TSS)	mg/l	544	311	338	852	82
Sulfate	mg/l SO_4-2	6,200	1,950	80,000/80,000	3,250	44
Total Organic Carbon (TOC)	mg/l	100	490	1,200	110	11

TABLE 12
(Continued)

PARAMETER	UNITS	SAMPLE IDENTIFICATION[1] W-6	W-7A	W-7B	W-8	W-9	W-10
Field Parameters:							
pH	-	8.6	6.9	6.7	7.1	11.35	11.3
Temperature	°C	16	17	15	15	14	16
Specific Conductivity	umhos/cm	16,500	10,000	24,000	6,000	4,450	19,300
Eh	+/-mV	+559	+312	+426	+498	+236	+286
General Chemistry:							
Acidity	mg/l[1] $CaCO_3$	<1	<1	<1	<1	<1	<1
Alkalinity	mg/l $CaCO_3$	3,100	1,100	3,520	1,840	396	6,900
Chloride	mg/l	3,800	1,800	1,900	800	340/350	3,100
Chromium (Hexavalent)	mg/l	1,250	1,250	7,500/8,000	7.5	45/50	280
Nitrate	mg/l NO_3-N	42/39	55	350/365	0.3	1.6	7.0/7.6
Residue:							
Filterable (TDS)	mg/l	12,900	8,920	28,800	4,470	3,290	17,000
Nonfilterable (TSS)	mg/l	572	93	294	567	120	270/300
Sulfate	mg/l SO_4-2	800	1,350	4,950	840	1,200	2,100
Total Organic Carbon (TOC)	mg/l	110	28	130	56	14	140

(1) See Figure 2 for sampling locations.
(2) mg/l = milligrams per liter or parts per million.
(3) The indicated sample was analyzed in duplicate.

TABLE 13

WATER QUALITY
METALS ANALYSIS SUMMARY
GROUND WATER SAMPLES

PARAMETER	UNITS[2]	SAMPLE IDENTIFICATION[1] B-2	B-3	B-5	W-1	W-2	W-3	W-4
Metals:								
Aluminum	mg/l	0.45	5.2	62	1.2	11	2,400	6.8
Arsenic	mg/l	0.004/0.005[3]	0.016	0.058/0.055	<0.001	0.05	2.4	0.03
Barium	mg/l	0.08/0.05	0.36	0.85	0.22	0.12	0.05	0.13
Cadmium	mg/l	<0.001/<0.001	<0.001	0.005/0.007	<0.001	<0.001	0.47	<0.001
Calcium	mg/l	110	13	180	12	5.5	410	2.2
Chromium (Total)	mg/l	0.18/0.19	79	5.3	2,200	1,400	9,200	6,200/5,500
Iron	mg/l	0.19	2.5	270	0.50	0.65	4,100	0.32
Lead	mg/l	0.01	0.02	0.28	<0.01	0.02	0.49	0.02
Magnesium	mg/l	9.3	3.1	57/58	2.1	2.1	820	0.18
Manganese	mg/l	0.11	0.06	30	0.04	0.03	64	0.09
Mercury	mg/l	0.0006	0.0006	<0.0002	<0.0002	0.0008	0.0044	0.0020
Potassium	mg/l	16	88	160/170	1,500	110	650	98
Selenium	mg/l	0.002/0.003	0.007	0.002/0.001	0.048	0.104	0.023	0.035
Silica	mg/l	34	46	61/57	38	39	840	1,200
Silver	mg/l	<0.001/<0.001	0.001	<0.001	0.001	<0.001	0.003	<0.001
Sodium	mg/l	170	1,200	510	6,600	5,900	5,300	9,100

TABLE 13
(Continued)

PARAMETER	UNITS[1]	SAMPLE IDENTIFICATION[1] W-5	W-6	W-7A	W-7B	W-8	W-9	W-10
Metals:								
Aluminum	mg/l	0.46	0.48	0.49	0.63	0.70	0.31	<1.0/<1.0
Arsenic	mg/l	0.003	0.006	<0.001	0.002	0.002	0.003	1.2
Barium	mg/l	0.28	0.10	0.09	0.16	0.28	0.17	0.05
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023
Calcium	mg/l	220	76	240	160	330/320	56	22/22
Chromium (Total)	mg/l	62	1,100	1,100	6,200	2.0/1.4	39/39	282
Iron	mg/l	0.09	0.17	0.19	0.37	1.2/1.2	0.07	3.5/3.5
Lead	mg/l	0.02	<0.01	<0.01	<0.01	0.03	<0.01	0.15
Magnesium	mg/l	360	180	96	170	120	1.4/1.4	18
Manganese	mg/l	0.60	0.08	0.12	0.10	0.52	<0.01	0.06/0.05
Mercury	mg/l	<0.0002	0.0023	0.0060	0.0012	0.0018	<0.0002	0.0011/0.0011
Potassium	mg/l	160	140	63	260	63	250/250	2,000
Selenium	mg/l	0.003	0.009	0.003	0.006	0.003	0.004	0.037
Silica	mg/l	70	60	36	24	100	46/46	10
Silver	mg/l	0.001	0.19	0.001	0.001	<0.001	<0.001	<0.001
Sodium	mg/l	2,500	4,300	2,100	7,500/7,500	1,300	930	4,500/4,500

(1) See Figure 2 for sampling locations.
(2) mg/l = milligrams per liter or parts per million.
(3) The indicated sample was analyzed in duplicate.

TABLE 14

METALS ANALYSIS SUMMARY
SURFACE WATER SAMPLES

PARAMETER	UNITS[2]	SAMPLE IDENTIFICATION[1] S-1	S-2	S-3
Aluminum, Total	mg/l	1.7	1.0	16
Aluminum, Dissolved	mg/l	0.29	0.24	1.3/1.4
Arsenic, Total	mg/l	<0.001	<0.001	<0.001
Arsenic, Dissolved	mg/l	0.002	0.002	0.002
Barium, Total	mg/l	0.04	0.04	0.12
Barium, Dissolved	mg/l	0.08	0.04	0.14
Cadmium, Total	mg/l	0.001	<0.001	0.001
Cadmium, Dissolved	mg/l	<0.001	<0.001	<0.001
Calcium, Total	mg/l	190	210	190
Calcium, Dissolved	mg/l	220	210	190
Chromium, Total	mg/l	0.77	0.55	14
Chromium, Dissolved	mg/l	0.08	0.34	12
Iron, Total	mg/l	2.2	1.0	25
Iron, Dissolved	mg/l	0.10	0.08	2.3
Lead, Total	mg/l	0.20	0.02/<0.01[2]	0.20
Lead, Dissolved	mg/l	<0.01/0.02	0.03	0.02
Magnesium, Total	mg/l	410	430	360
Magnesium, Dissolved	mg/l	430	400	380
Manganese, Total	mg/l	0.20	0.16	0.78
Manganese, Dissolved	mg/l	0.10	0.10	0.22
Mercury, Total	mg/l	0.0016	0.0005	0.0023/0.0022
Mercury, Dissolved	mg/l	0.0020	0.0005	0.0003
Potassium, Total	mg/l	120	120	100
Potassium, Dissolved	mg/l	120	110	110
Selenium, Total	mg/l	0.009	0.018	0.017
Selenium, Dissolved	mg/l	0.006	0.005	0.004
Silica, Total	mg/l	21	15	5.8
Silica, Dissolved	mg/l	8.3	7.9	3.9
Silver, Total	mg/l	0.003	<0.001	0.001
Silver, Dissolved	mg/l	0.001	<0.001	<0.001
Sodium, Total	mg/l	3,100	3,200	2,700
Sodium, Dissolved	mg/l	3,300	3,000	2,900

(1) See Figure 2 for sampling locations.

(2) mg/l = milligrams per liter or parts per million.

TABLE 15

CHROMIUM DILUTION FACTORS
NECESSARY FOR GROUND WATER AND SURFACE WATER ANALYSES

SAMPLE IDENTIFICATION	HEXAVALENT CHROMIUM	TOTAL CHROMIUM
B-2	10	1
B-3	10	50
B-5	100	10
S-1	10	1
S-2	10	1
S-3	10	10
W-1	1,000	1,000
W-2	1,000	1,000
W-3	10	5,000
W-4	10,000	2,000
W-5	10	20
W-6	1,000	500
W-7A	1,000	500
W-7B	1,000	2,000
W-8	10	1
W-9	10	20
W-10	1,000	100

TABLE 16

RESULTS OF MASS LOADING CALCULATIONS
DAILY OFF-SITE CHROMIUM MIGRATION

QUADRANT[1]	TOTAL CHROMIUM (lbs/day)		HEXAVALENT CHROMIUM (lbs/day)	
A	0.44	6.8%	0.41	W-2
B	0.54	23%	<0.01	W-3
C	3.10	20%	2.48	W-1A,B
D	19.95	[illegible]	15.56	W-4
E	0.07	[illegible]	0.03	W-5
F	1.49	12%	1.31	W-6
G	0.08	[illegible]	0.02	[illegible]
H	0.11	18%	0.09	[illegible]
TOTAL	25.78		19.90	

[1]See Figure 9 for quadrant locations.

TABLE 17

RESULTS OF X-RAY DIFFRACTION ANALYSIS
WHITE CRYSTALLINE BULKHEAD RESIDUES

SAMPLE	$MgCr_2(CO_3)_6.4H_2O$ (STICHTITE)	$Mg_{10}(OH)_{18}Cl_2$ (Magnesium Hydroxide Chloride)	$Al(OH)_3$ (GIBBSITE)	α-QUARTZ	CALCITE
West Shore (As received)	--	--	--	(5-10)%	(50+)%
North Shore (As received)	(25-50)%	(25-50)%	(10-25)%	(5-10)%	(5-10)%
North Shore (Heated to 105°C)	--	(25-50)%	(25-50)%	(5-10)%	(5-10)%

TABLE 18

ENERGY DISPERSIVE SPECTROMETER ANALYSIS

DESCRIPTION	DETECTOR COUNTS[1]									
	Mg(Kα)	Al(Kα)	Si(Kα)	Ca(Kα)	Mn(Kα) Ca(Kβ)	Cr(Kα)	Cr(Kβ)	Fe(Kα)	Cl(Kα)	Ni(Kα)
West Shore "Crystal" Sample, X-Ray	899	316	1895	11187	1938	1265	495	545	--	367
West Shore "Crystal" Sample, Spot	2120	1011	4718	14504	2294	697	420	565	--	--
North Shore "Crystal" Sample, X-Ray	4746	1459	1155	4618	1106	1266	692	860	2068	--
North Shore "Crystal" Sample, Spot	911	589	306	2089	673	1212	890	1036	351	850

[1] Counts are relative to percentage of these elements detected in the sample.

TABLE 19

RESULTS OF ANALYSIS
WEST SHORE AND NORTH SHORE BULKHEAD WATER SAMPLES

PARAMETER	UNITS	WEST SHORT BULKHEAD	WEST SHORE BOTTOM	NORTH SHORE
pH	-	8.85	9.00	5.10
Eh	+/-mV	+441	+442	IS[1]
Total Organic Carbon	mg/l	2	4	10
Specific Conductance	umhos/cm	10,000	10,400	6,000
Filterable Residue	mg/l	9,700	9,600	IS
Aluminum	mg/l	<1.0	<1.0	IS
Arsenic	mg/l	0.005	<0.001	IS
Barium	mg/l	0.03	0.07	IS
Cadmium	mg/l	<0.001	0.007	IS
Calcium	mg/l	120	140	IS
Chromium, Total	mg/l	75	160	IS
Chromium, Hexavalent	mg/l	8.4	2.4	IS
Iron	mg/l	0.50	0.05	IS
Lead	mg/l	<0.01	<0.01	IS
Magnesium	mg/l	380	210	IS
Manganese	mg/l	0.18	<0.01	IS
Mercury	mg/l	0.0009	0.0131	IS
Nitrate	mg/l NO_3-N	1.6	9.6	IS
Potassium	mg/l	120	1.1	IS
Selenium	mg/l	<0.01	<0.001	IS
Silica	mg/l Si	1.1	4.3	IS
Silver	mg/l	0.013	<0.001	IS
Sodium	mg/l	2,400	27	IS
Sulfate	mg/l SO_4	880	880	IS

[1] Insufficient sample volume for detailed analysis.

TABLE 20

WEST SHORE BOTTOM RESIDUE SEDIMENT SAMPLE
EP TOXICITY LEACHATE

PARAMETER	RESULTS (mg/l)[1]
Arsenic	0.006
Barium	0.62
Cadmium	<0.001
Chromium, Total	72
Chromium, Hexavalent	42/40[2]
Lead	<0.01
Mercury	0.0004
Selenium	<0.001
Silver	<0.001

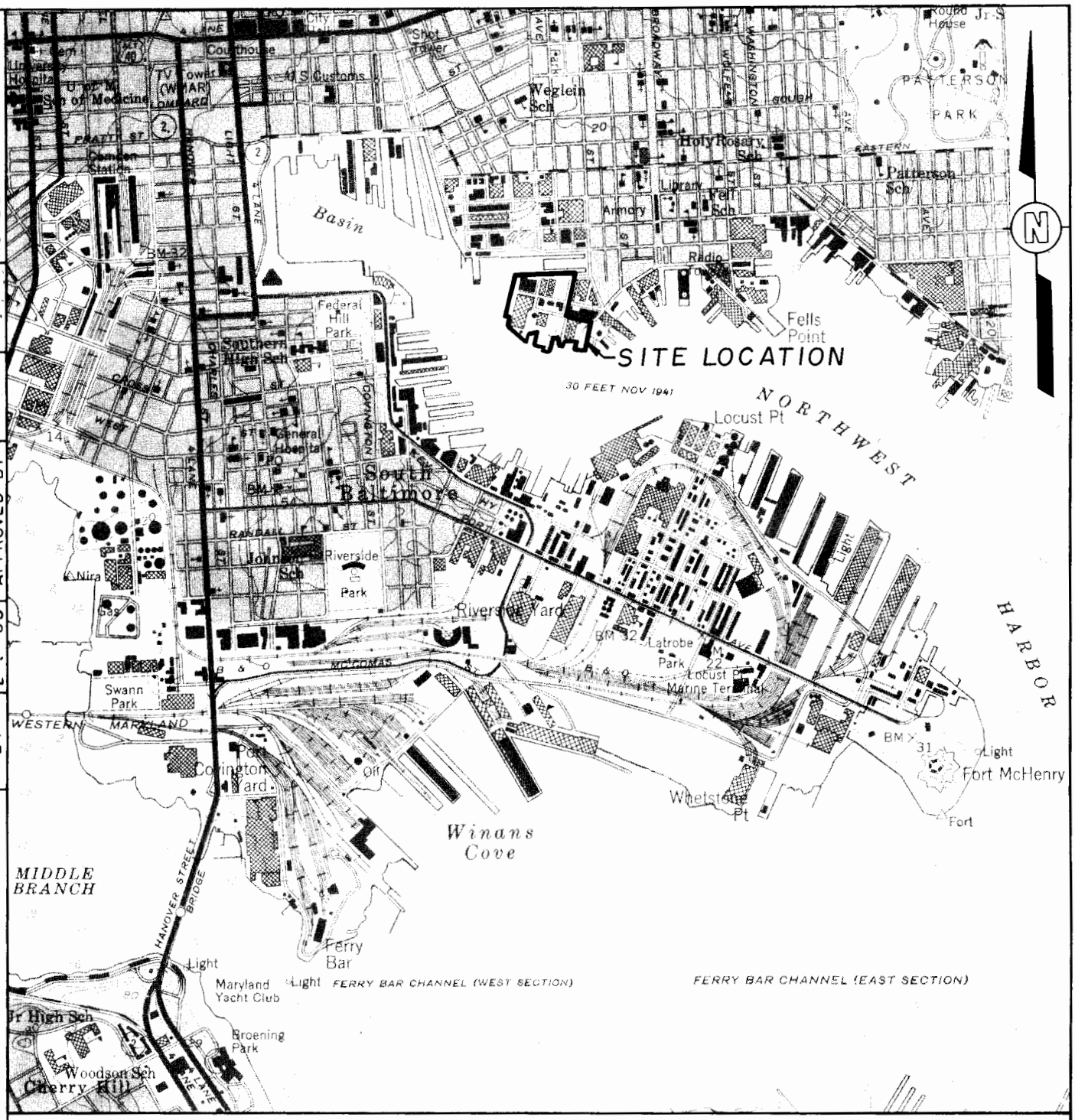
ACID DIGESTION - TOTAL ANALYSIS

PARAMETER	RESULTS (ppm)
Barium	80
Iron	130
Chromium, Total	12,000
Chromium, Hexavalent	8,200

[1] mg/l = milligrams per liter or parts per million.
[2] The sample was analyzed in duplicate.
[3] ppm - parts per million.

FIGURES

DRAWN BY	D. Weick 2-5-85	CHECKED BY	LRS 4-29-85	DRAWING NUMBER	846502-A17
		APPROVED BY			



SCALE

2000 0 2000 FEET

FIGURE I

BALTIMORE CHROME WORKS
SITE LOCATION MAP

PREPARED FOR

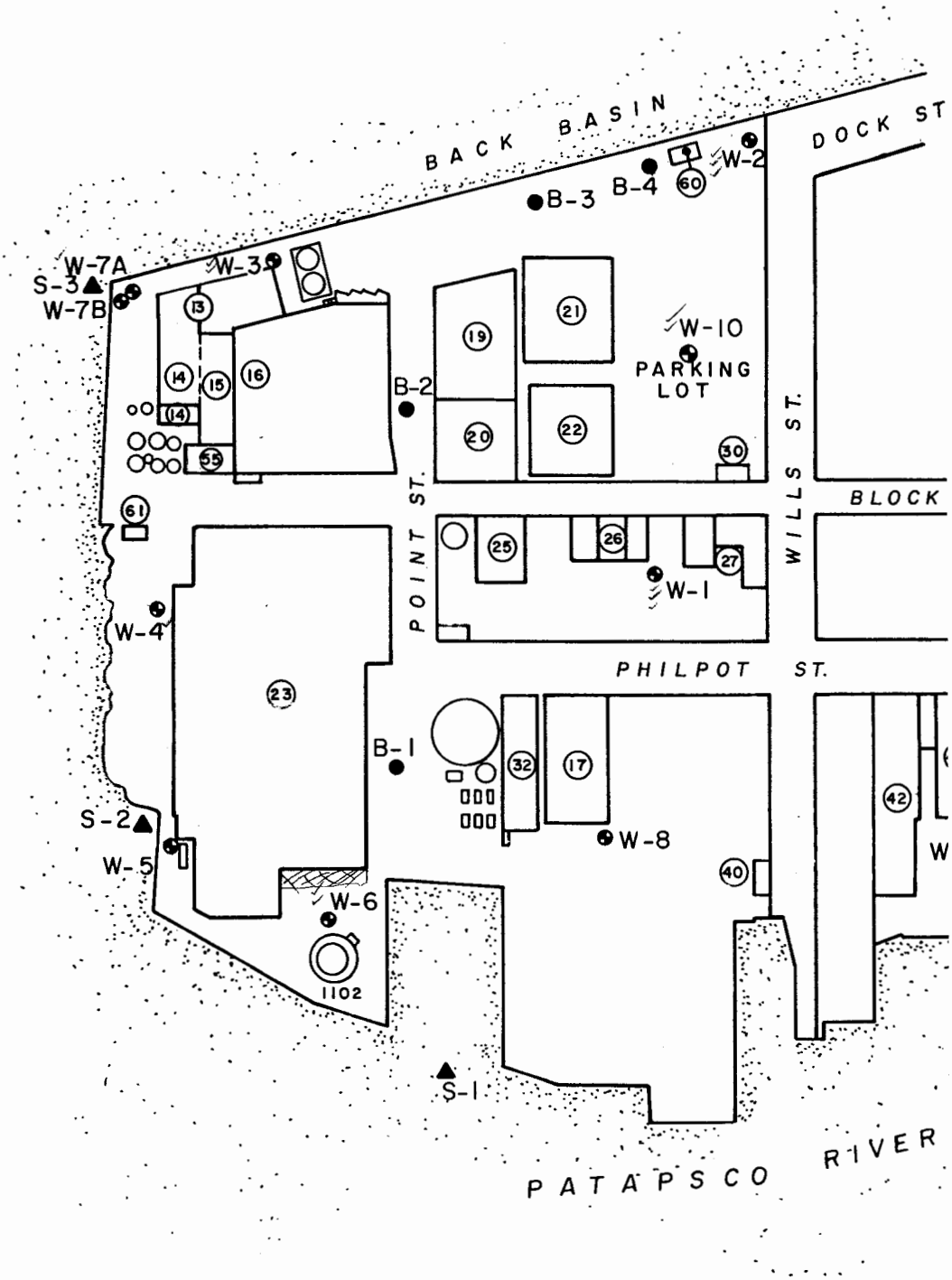
ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

REFERENCE:
U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAP-
BALTIMORE EAST, MD., DATED: 1953
PHOTOREVISED 1966 AND 1974, SCALE: 1" = 2000

IT CORPORATION

19 1253 HERCULENE. A&B SMITH CO., PGH., PA

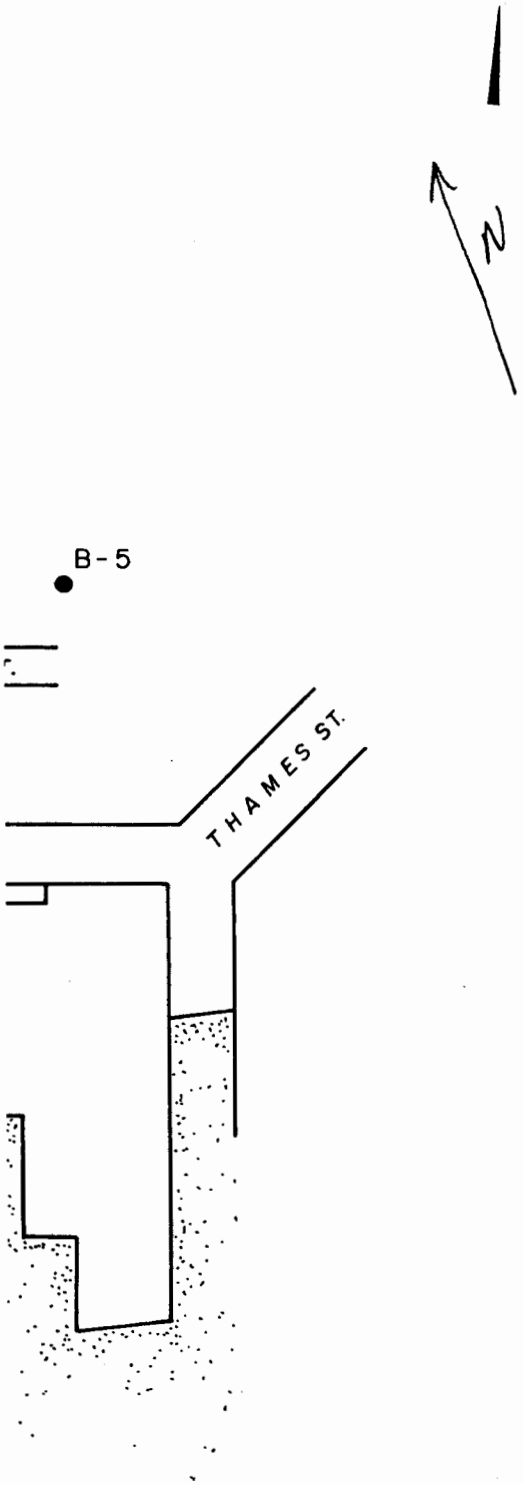
DRAWN BY	D. Weick	CHECKED BY	LRS	4-29-85	DRAWING NUMBER 846502-B1
	7-18-84	APPROVED BY	JLH	4-29-85	



REFERENCE:

ALLIED CHEMICAL CORP. INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12·27·78; SCALE: 1" = 125'

19 1253 HERCULENE. A&B SMITH CO., PGH., PA



LEGEND:

- (13) POTASH & KOREON PLANTS
- (14) SOD. CHROMATE PLANT
- (15) REPACK WAREHOUSE
- (16) S.P. WAREHOUSE
- (17) STORAGE BLDG.
- (19) CONTAINER WAREHOUSE
- (20) BOILER HOUSE
- (21) STORES BLDG.
- (22) SHOPS BUILDING
- (23) SODIUM BICH. PLANT
- (25) LOCKER BLDG.(HOURLY)
- (26) PERSONNEL & MEDICAL
- (27) MAIN OFFICE & ACCOUNTING
- (30) GUARD HOUSE.
- (32) STORAGE BLDG.
- (40) BOWIE SMITH BLDG.
- (42) GRAFFLIN BAG BLDG.
- (43) MILLER BLDG.
- (55) CHROMIC ACID PLANT
- (60) CAR WASH
- (61) BOAT HOUSE
- W-2 MONITORING WELL
- B-2 SOIL BORING
- S-1 HARBOR SAMPLING LOCATION; WATER AND SEDIMENT

SCALE

0 175 350 FEET

FIGURE 2

BALTIMORE CHROME WORKS
SITE PLAN AND LOCATION OF
BORINGS, MONITORING WELLS
AND HARBOR SAMPLING LOCATIONS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

ERA	SYSTEM	SERIES	FORMATION	THICKNESS(ft)	COMPOSITION
CENOZOIC	QUATERNARY	PLEISTOCENE	LOWLAND* DEPOSITS	0-150+	SAND AND GRAVEL; COBBLES AND BOULDERS NEAR BASE; VARICOLORED SILTS AND CLAYS; BROWN TO GRAY LIGNITIC SILTY CLAY
			UPLAND DEPOSITS	0-25±	CROSS-BEDDED, POORLY SORTED, MEDIUM TO COARSE WHITE TO RED SAND AND GRAVEL; BOULDERS AT BASE; MINOR PINK AND YELLOW SILTS AND CLAYS
MESOZOIC	CRETACEOUS	POTOMAC	RARITAN	100(?)	VARICOLORED CLAY, SAND AND GRAVEL
			PATAPSCO	300(?)	LENTICULAR BEDS OF SAND, CLAY AND GRAVEL
			ARUNDEL CLAY	25-200	DARK GRAY TO RED LIGNITIC CLAYS; ABUNDANT SIDERITE CONCENTRATIONS
			PATUXENT*	150-250	LENTICULAR BEDS OF CROSS-BEDDED ARGILLACEOUS SANDS AND QUARTZ GRAVELS; PALE GRAY SILTS AND CLAYS
PALEOZOIC	PRE-CAMBRIAN	—	—	—	HARD CRYSTALLINE ROCK; PRIMARLY SCHIST; GRANITE GNEISS AND GABBRO

* INDICATES FORMATION ENCOUNTERED BENEATH THE SITE

REFERENCES:

BENNETT R.R. AND R.R. MEYER, 1952, ECOLOGY AND GROUND WATER RESOURCES OF THE BALTIMORE AREA, STATE OF MARYLAND BOARD OF NATURAL RESOURCES, DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES, BULLETIN NO. 4.

MARYLAND GEOLOGIC SURVEY, 1968, GEOLOGIC MAP OF MARYLAND, JOHN HOPKINS UNIVERSITY, BALTIMORE.

FIGURE 3

GENERALIZED STRATIGRAPHIC COLUMN OF THE BALTIMORE AREA

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

DRAWN BY J. LOGRECO 4-11-85
CHECKED BY LRS 4-29-85
APPROVED BY JLH 4-29-85
DRAWING NUMBER 846502-A19

65360

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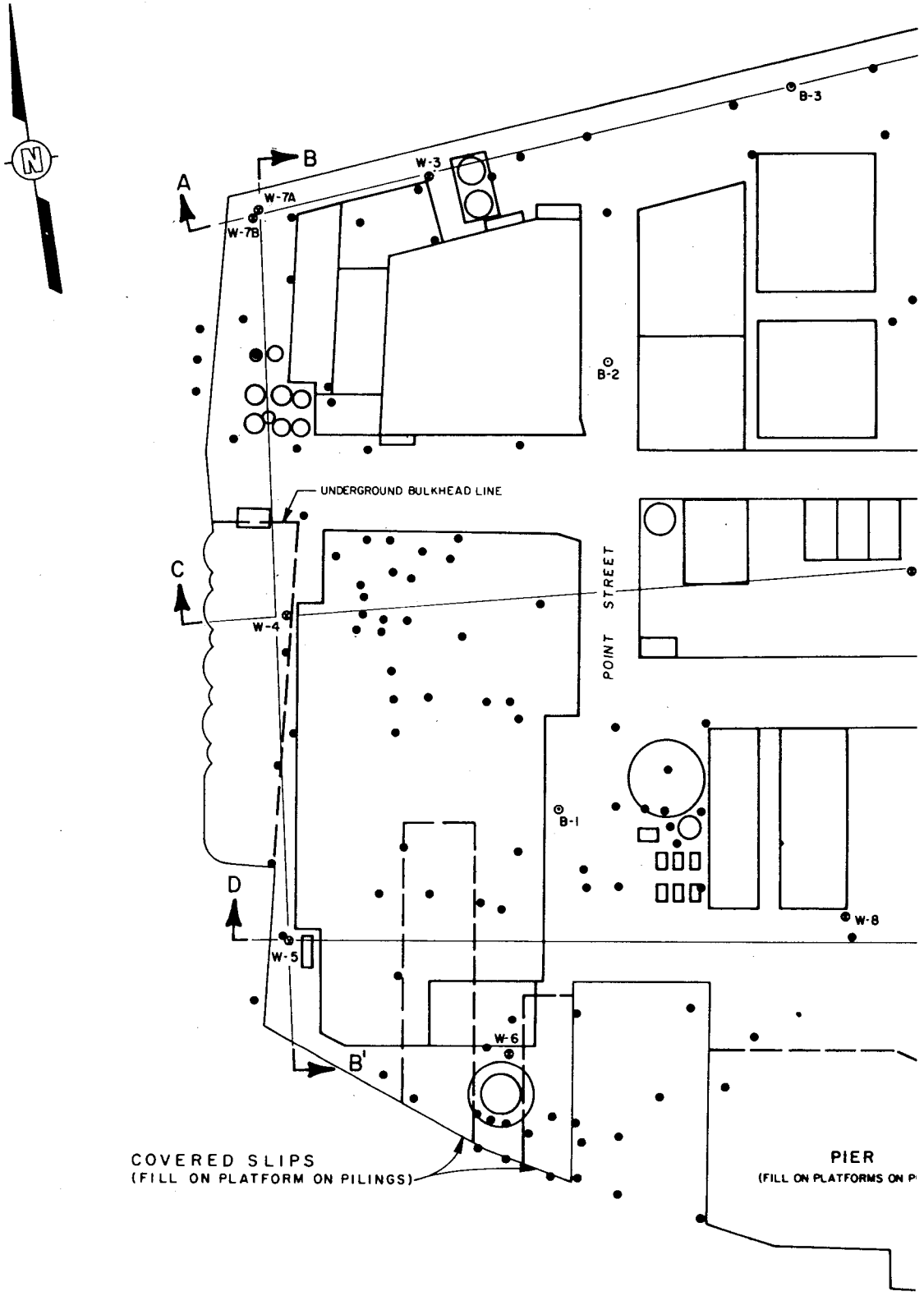
"Do Not Scale This Drawing"

IT CORPORATION

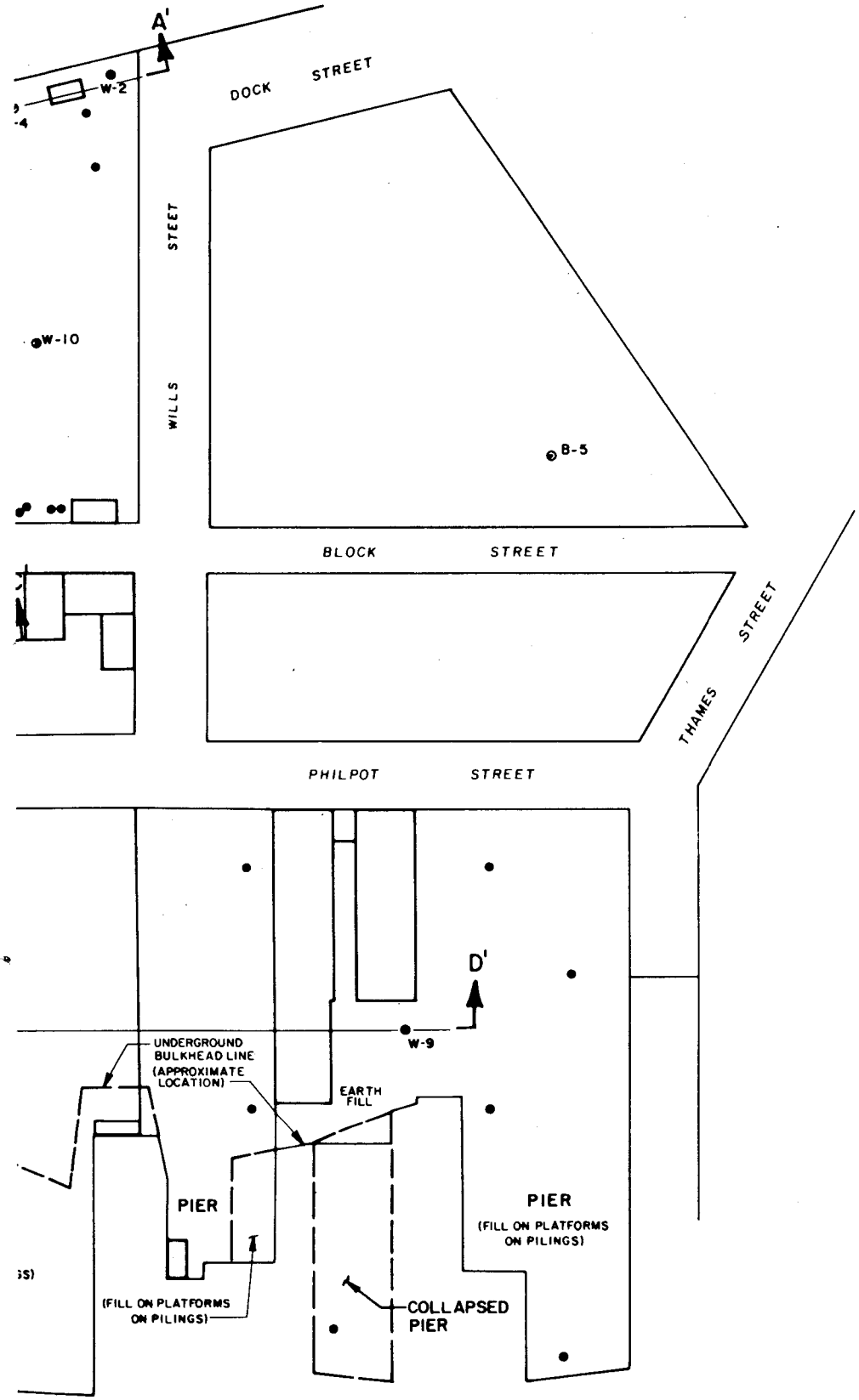
DRAWN BY	Trs	CHECKED BY	LRS	DRAWING NUMBER	846502-E1
	1-28-85	APPROVED BY	JLH		4-29-85



REFERENCES:

1. ALLIED CHEMICAL CORP INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED 12-27-78, SCALE 1" = 125'
2. ALLIED CHEMICAL CORPORATE ENGINEERING DEPARTMENT, DRAWING No. 10785-44; EXISTING DRAINAGE SYSTEM, DATED 10-5-72, SCALE: 1" = 60'

10 1972 HERCULENE A&B SMITH CO PGH PA



LEGEND

- ● BORINGS DRILLED IN CONJUNCTION WITH PILE DRIVING OR OTHER CONSTRUCTION (DRILLED BY RAYMOND CONCRETE PILE CO., GOW DIVISION, BETWEEN 1941 AND 1972)
- ⊙ B-2 BORINGS RECENTLY INSTALLED BY IT CORPORATION
- ⊕ W-4 WELLS RECENTLY INSTALLED BY IT CORPORATION

SCALE
0 60 120 FEET

NOTE:
FOR CROSS SECTIONS A-A', B-B', C-C', AND D-D', SEE FIG. 5

FIGURE 4

LOCATIONS OF RECENT AND KNOWN HISTORIC BORINGS

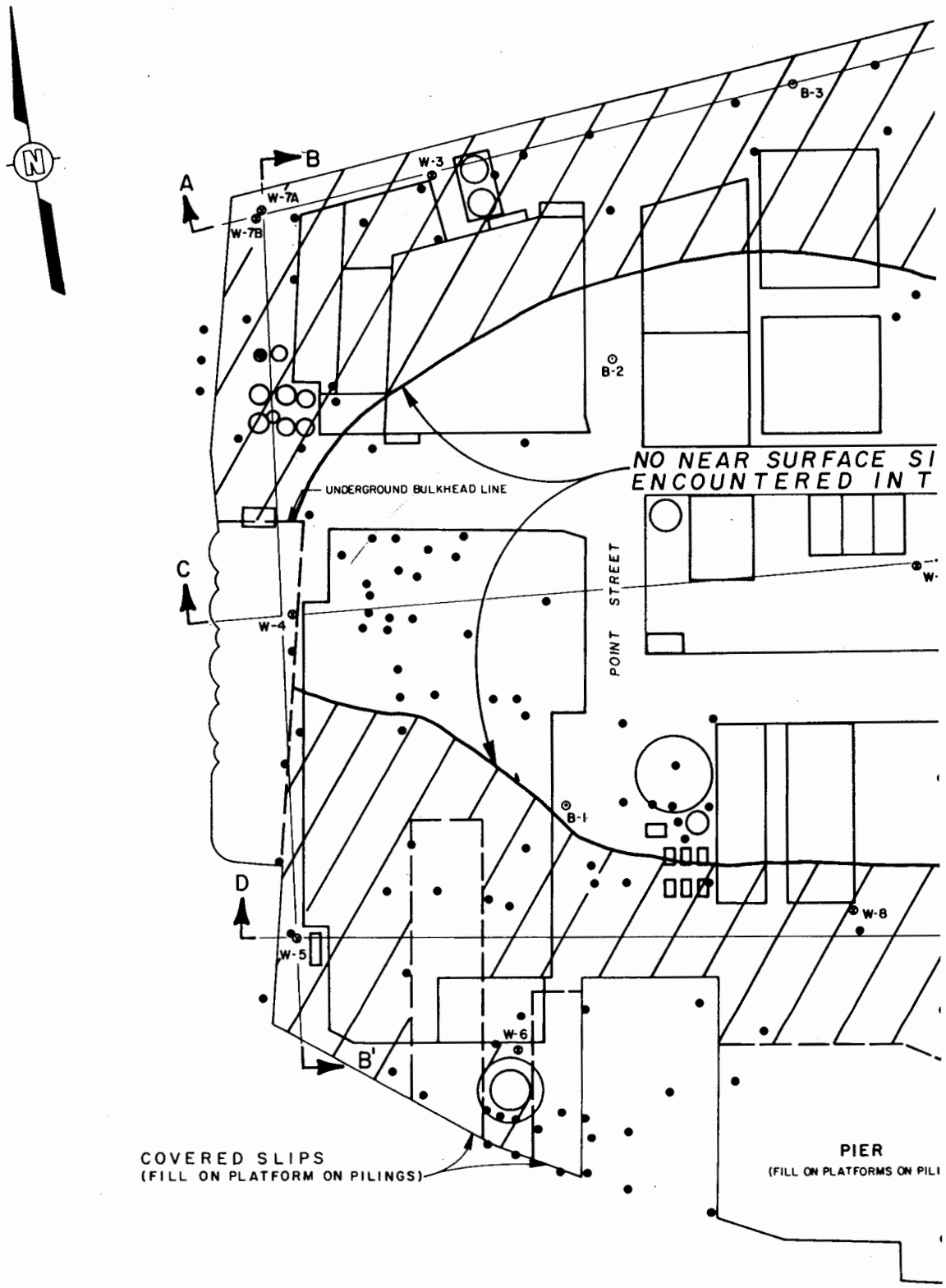
BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

DRAWN BY	J. LaGrasso	2-8-85	CHECKED BY		DRAWING NUMBER	846502-E3
			APPROVED BY			



REFERENCES:

1. ALLIED CHEMICAL CORP INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED 12-27-78; SCALE 1" = 125'.
2. ALLIED CHEMICAL CORPORATE ENGINEERING DEPARTMENT, DRAWING No. 10785-44; EXISTING DRAINAGE SYSTEM; DATED 10-5-72, SCALE: 1" = 60'.

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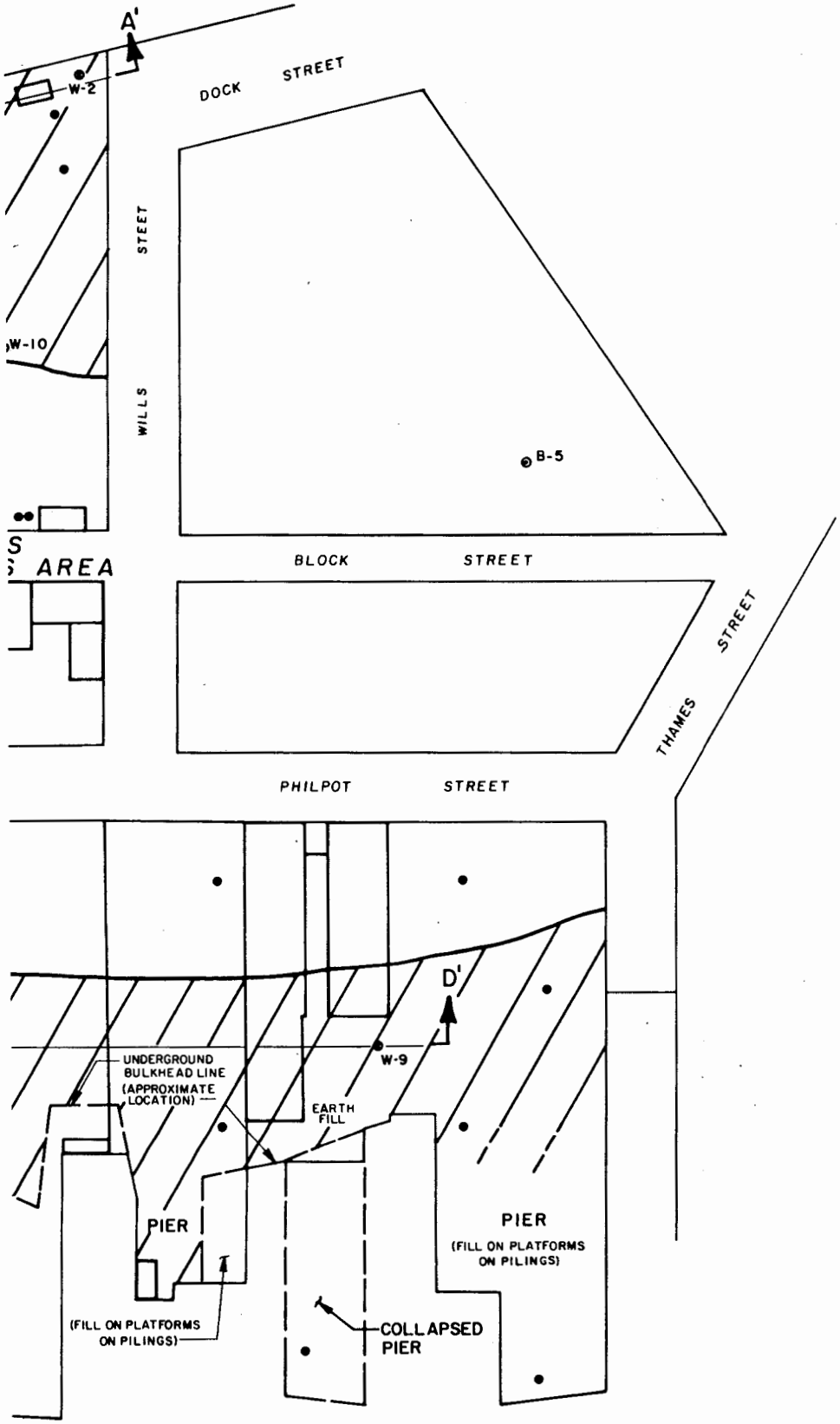


NOTE:
FOR CROSS SECTIONS A-A', B-B', C-C', AND D-D', SEE FIG.5

LEGEND

- ● BORINGS DRILLED IN CONJUNCTION WITH PILE DRIVING OR OTHER CONSTRUCTION (DRILLED BY RAYMOND CONCRETE PILE CO., GOW DIVISION, BETWEEN 1941 AND 1972)
- ⊙ B-2 BORINGS RECENTLY INSTALLED BY IT CORPORATION
- ● W-4 WELLS RECENTLY INSTALLED BY IT CORPORATION
- AREAS UNDERLAIN BY NEAR-SURFACE SOFT SILTS OR CLAYEY SILTS

SCALE
0 60 120 FEET

FIGURE 6

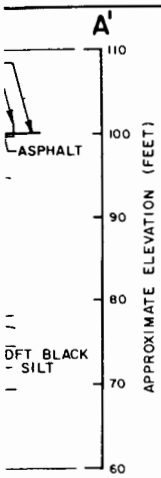
APPROXIMATE BOUNDARY OF NEAR-SURFACE SOFT SILT DEPOSITS

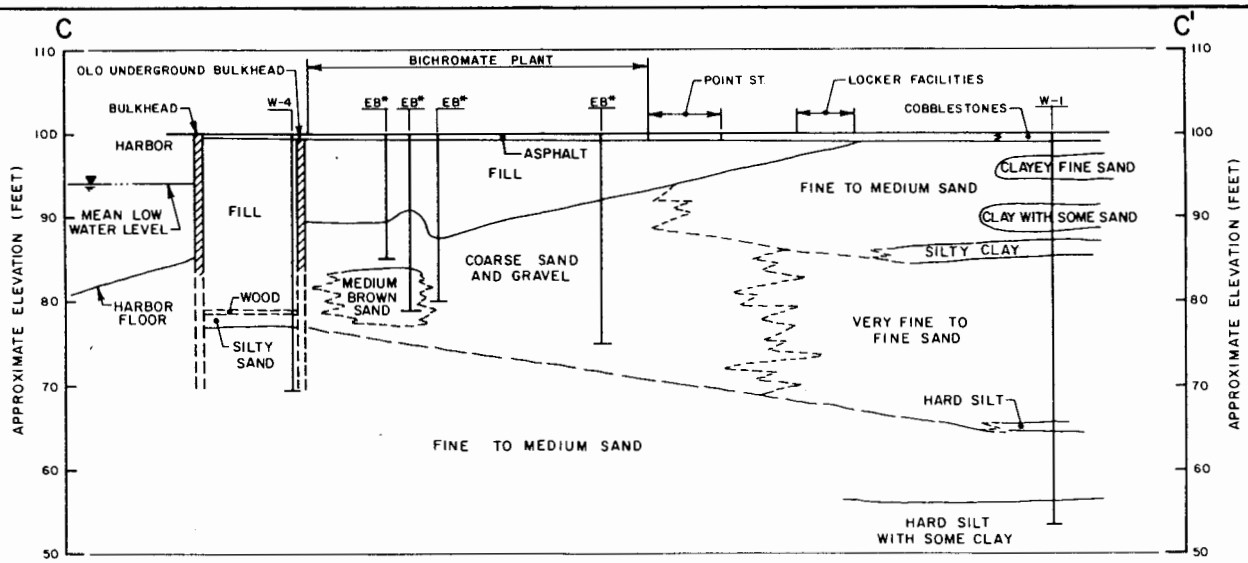
BALTIMORE CHROME WORKS

PREPARED FOR

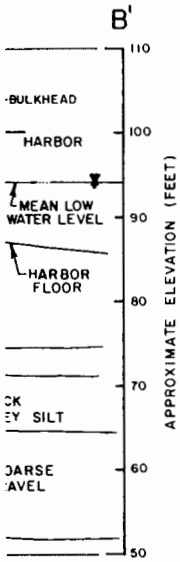
ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION





SECTION C-C'
(LOOKING NORTH)

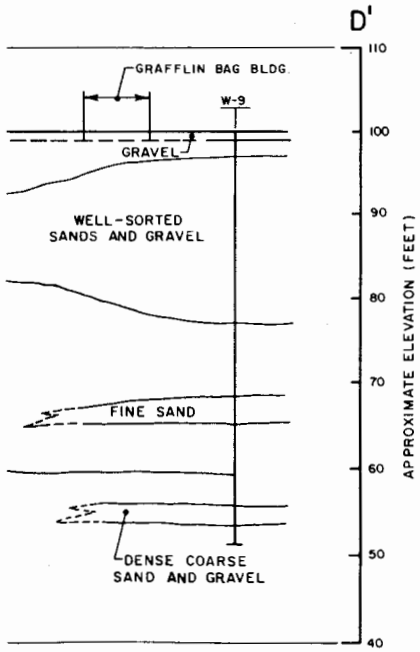


THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURRING AT THESE BORING LOCATIONS. ALSO THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.

THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED.

NOTES:

1. FOR CROSS SECTION LOCATIONS SEE FIGURE 4
2. *EB DENOTES EXISTING BORING; HISTORIC LOGS OBTAINED FROM PLANT FILES.
3. DEPTHS OF BULKHEADS ARE UNCERTAIN.



VERTICAL SCALE
0 10 20 30 FEET

HORIZONTAL SCALE
0 60 120 180 FEET

VERTICAL SCALE EXAGGERATED 6X

FIGURE 5

CROSS SECTIONS A-A', B-B', C-C' AND D-D'

BALTIMORE CHROME WORKS

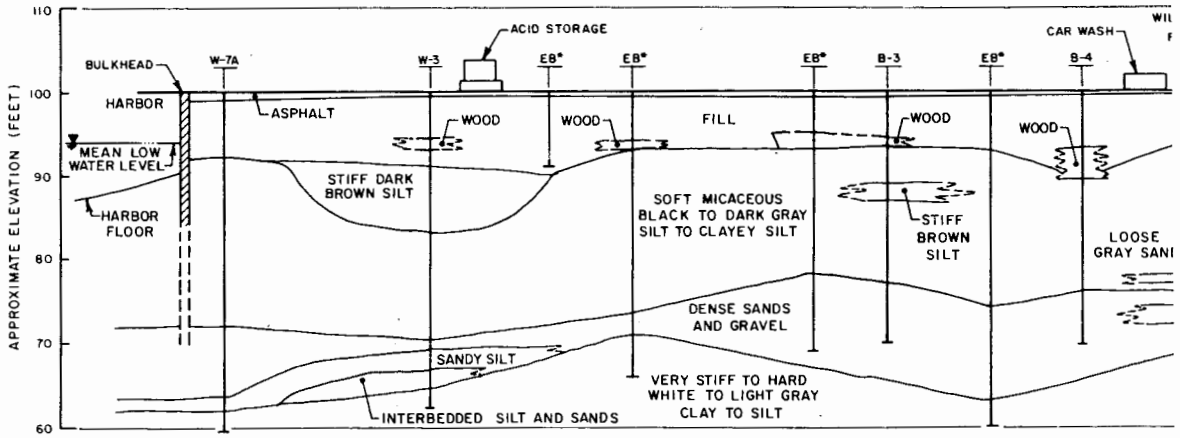
PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

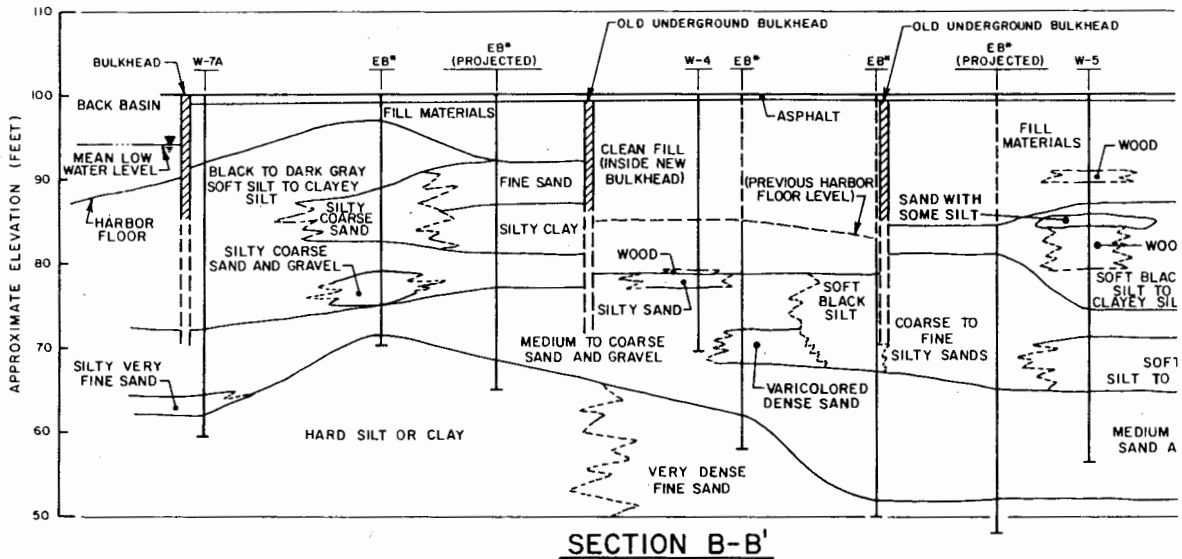
DRAWN BY	RW	CHECKED BY	LRS	4-29-85	DRAWING NUMBER 846502-E2
	1-31-85	APPROVED BY	JLH	4-29-85	

A



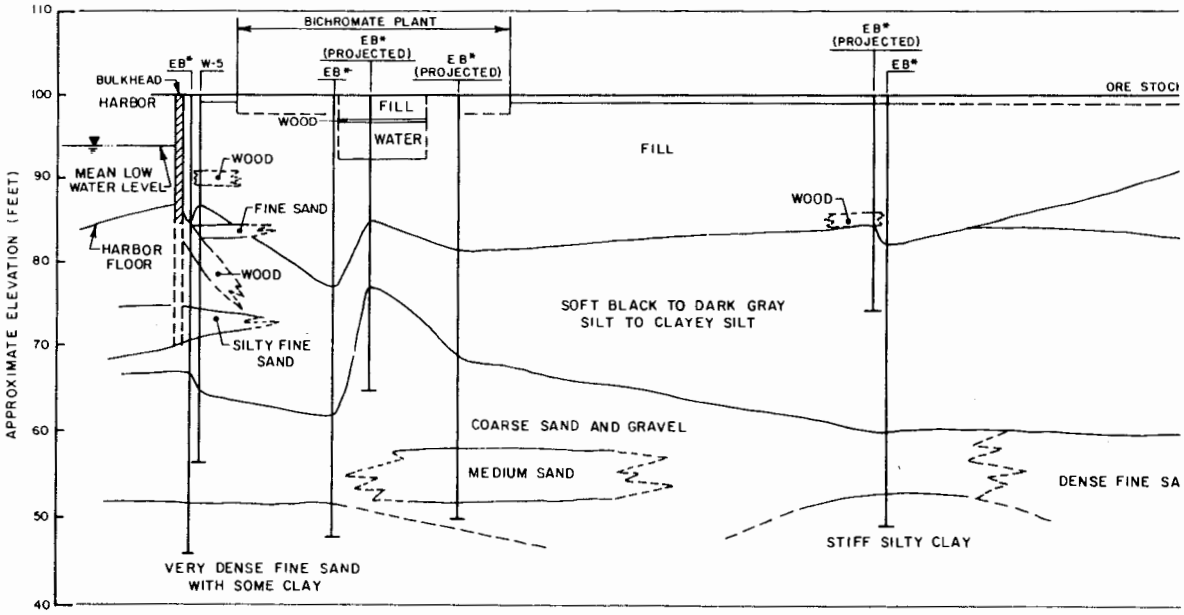
SECTION A-A'
(LOOKING NORTH)

B



SECTION B-B'
(LOOKING EAST)

D



SECTION D-D'
(LOOKING NORTH)

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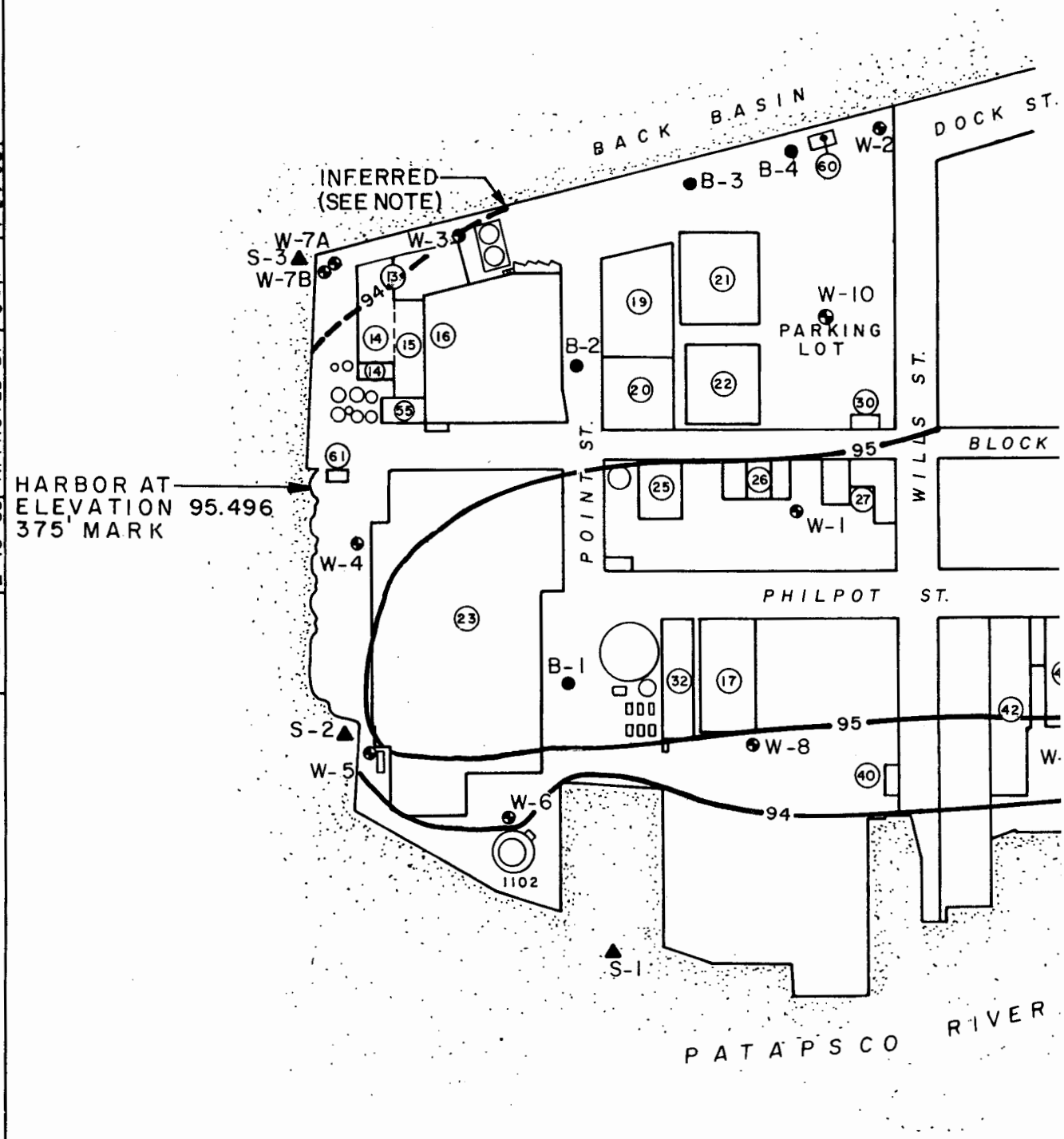
			APPROVED BY	JLH	4-29-85		



NOT

1.

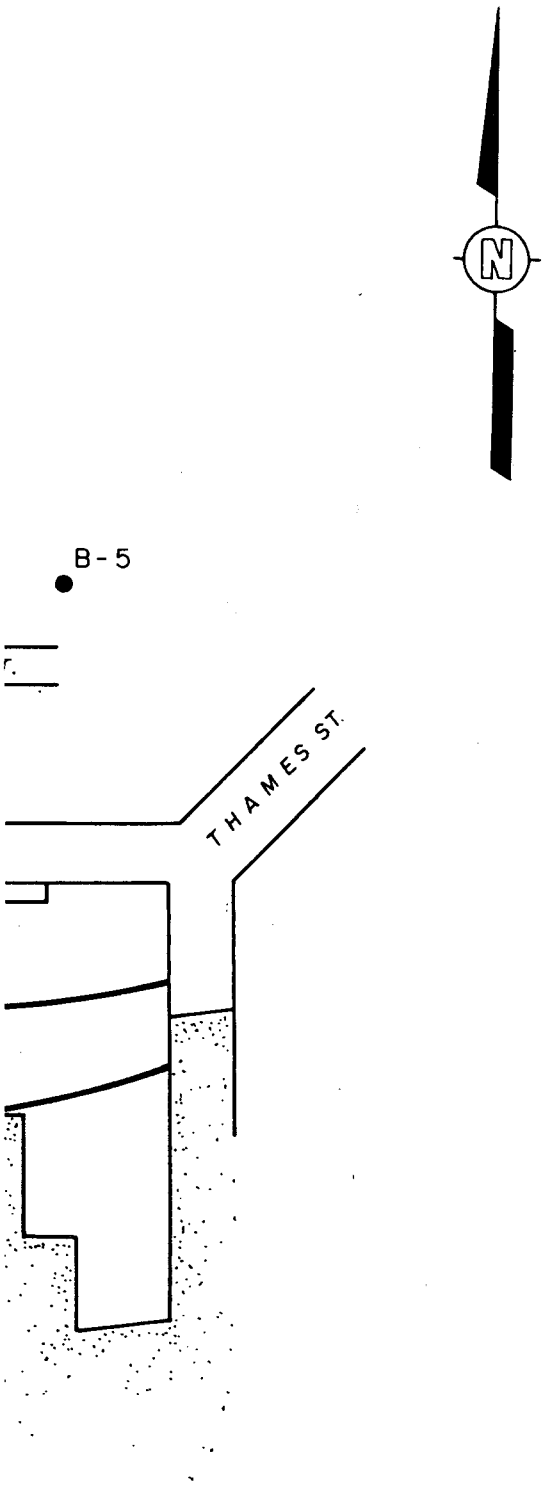
2.

3.

REFERENCE:

ALLIED CHEMICAL CORP. INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12·27·78; SCALE: 1" = 125'

19 1253 HERCULENE, A&B SMITH CO., PGH., PA



LEGEND:

- (13) POTASH & KOREON PLANTS
- (14) SOD. CHROMATE PLANT
- (15) REPACK WAREHOUSE
- (16) S.P. WAREHOUSE
- (17) STORAGE BLDG.
- (19) CONTAINER WAREHOUSE
- (20) BOILER HOUSE
- (21) STORES BLDG.
- (22) SHOPS BUILDING
- (23) SODIUM BICH. PLANT
- (25) LOCKER BLDG.(HOURLY)
- (26) PERSONNEL & MEDICAL
- (27) MAIN OFFICE & ACCOUNTING
- (30) GUARD HOUSE.
- (32) STORAGE BLDG.
- (40) BOWIE SMITH BLDG.
- (42) GRAFFLIN BAG BLDG.
- (43) MILLER BLDG.
- (55) CHROMIC ACID PLANT
- (60) CAR WASH
- (61) BOAT HOUSE
- W-2 MONITORING WELL
- B-2 SOIL BORING
- S-1 HARBOR SAMPLING LOCATION; WATER AND SEDIMENT

SCALE

0 175 350 FEET

FIGURE 7

GROUND WATER SURFACE CONTOUR MAP
HIGH TIDE CONDITIONS
BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

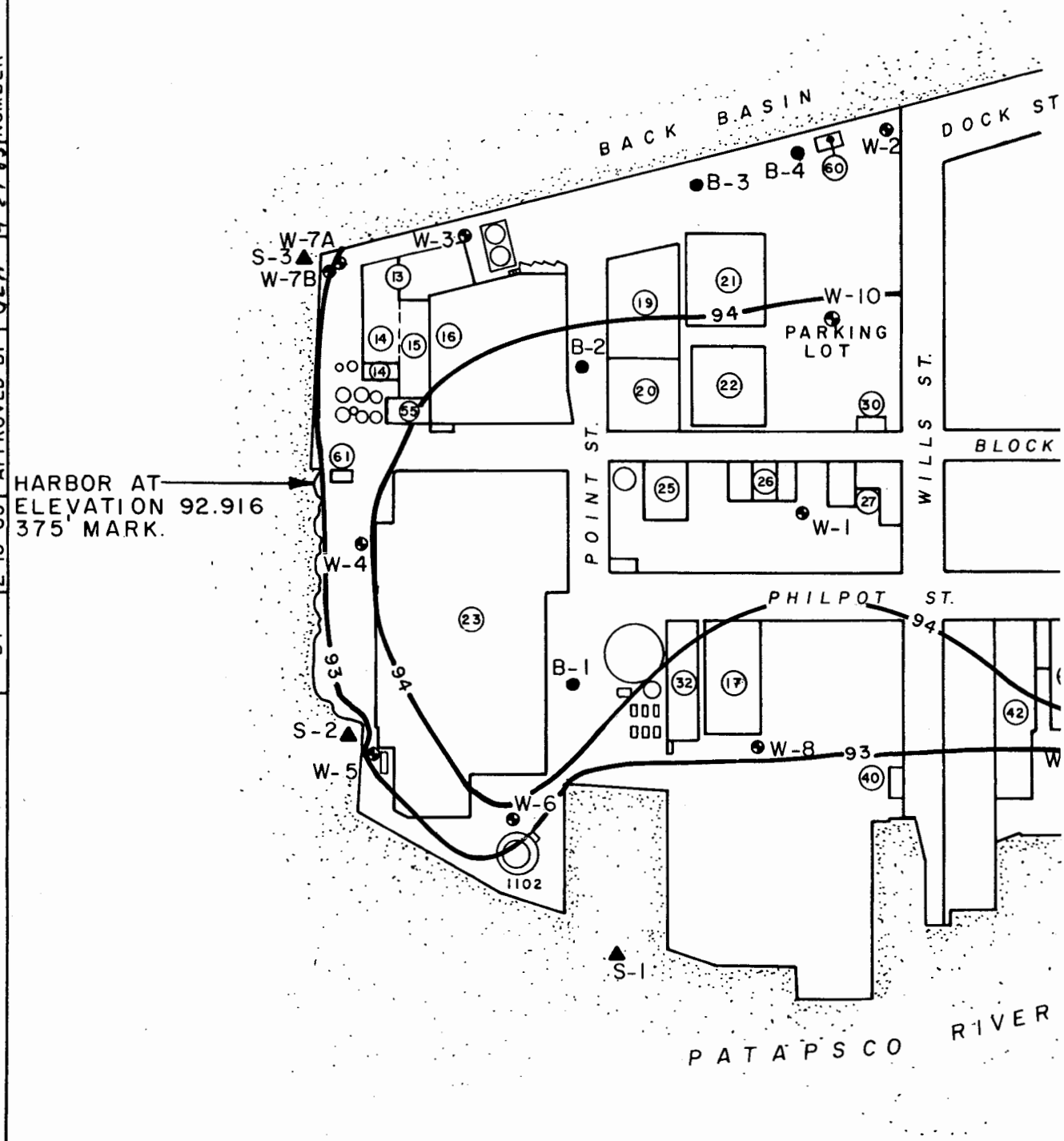
IT CORPORATION

:
ROUND WATER LEVEL MEASUREMENTS MADE
30/85 AT 1330-1430 HOURS.

'C CAPS AT W-3, W-7A, AND W-7B WERE
CKED IN ICE INSIDE PROTECTIVE CASING.
) DATA FOR THESE LOCATIONS ON THIS
TE.

.EVATIONS REFERENCED FROM PLANT DATUM.

DRAWN BY	CHECKED BY	DRAWING NUMBER
mg	LRS	846502-B2
2-15-85	7-29-85	
	APPROVED BY	
	JLH	
	4-29-85	



NOTI

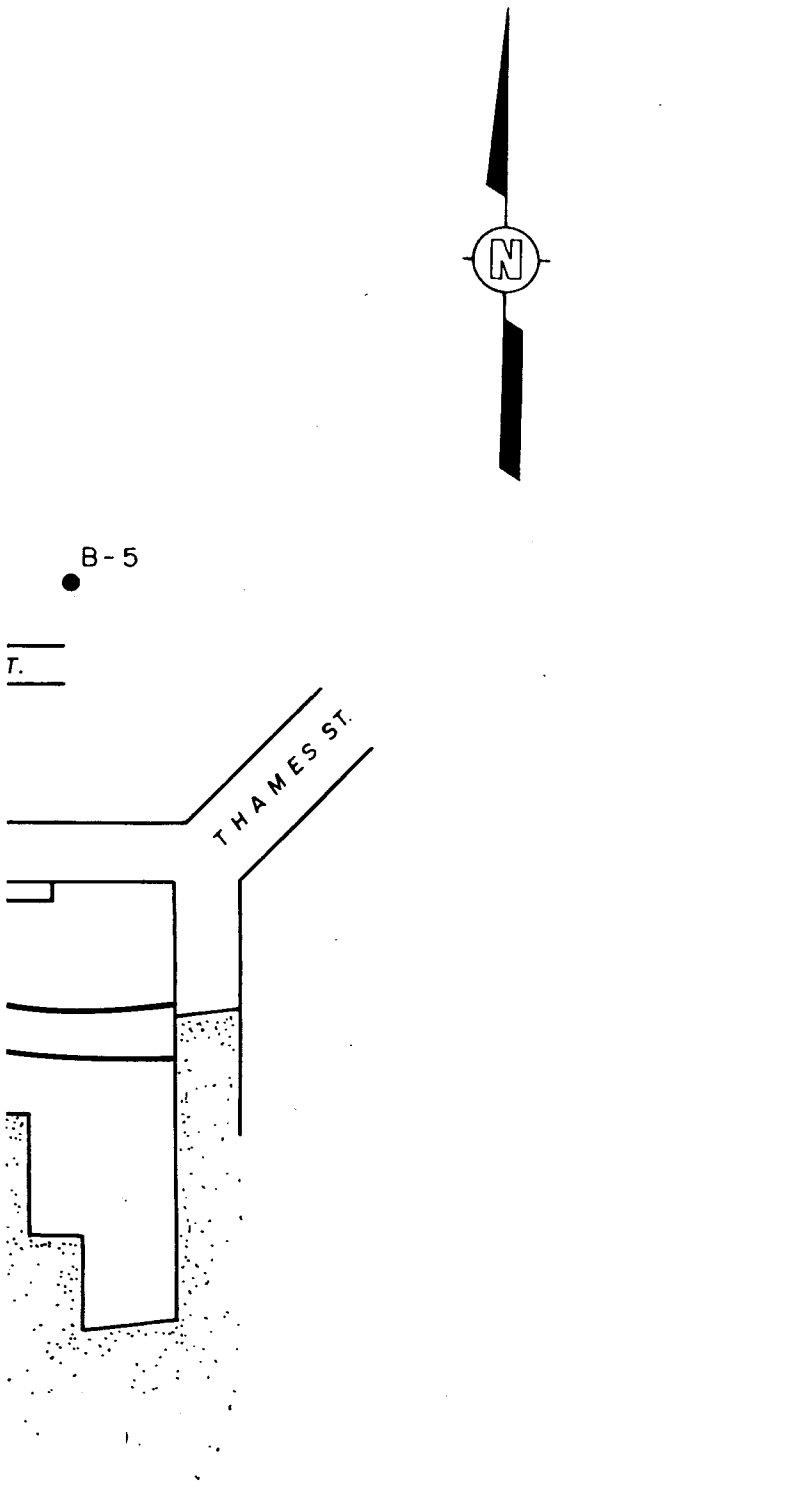
1.

2

REFERENCE:

ALLIED CHEMICAL CORP. INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12·27·78; SCALE: 1" = 125'

19 1253 HERCULENE. A&B SMITH CO., PGH., PA



LEGEND:

- (13) POTASH & KOREON PLANTS
- (14) SOD. CHROMATE PLANT
- (15) REPACK WAREHOUSE
- (16) S.P. WAREHOUSE
- (17) STORAGE BLDG.
- (19) CONTAINER WAREHOUSE
- (20) BOILER HOUSE
- (21) STORES BLDG.
- (22) SHOPS BUILDING
- (23) SODIUM BICH. PLANT
- (25) LOCKER BLDG.(HOURLY)
- (26) PERSONNEL & MEDICAL
- (27) MAIN OFFICE & ACCOUNTING
- (30) GUARD HOUSE.
- (32) STORAGE BLDG.
- (40) BOWIE SMITH BLDG.
- (42) GRAFFLIN BAG BLDG.
- (43) MILLER BLDG.
- (55) CHROMIC ACID PLANT
- (60) CAR WASH
- (61) BOAT HOUSE
- W-2 MONITORING WELL
- B-2 SOIL BORING
- S-1 HARBOR SAMPLING LOCATION; WATER AND SEDIMENT

SCALE

0 175 350 FEET

FIGURE 8

GROUND WATER SURFACE CONTOUR MAP
LOW TIDE CONDITIONS
BALTIMORE CHROME WORKS

PREPARED FOR

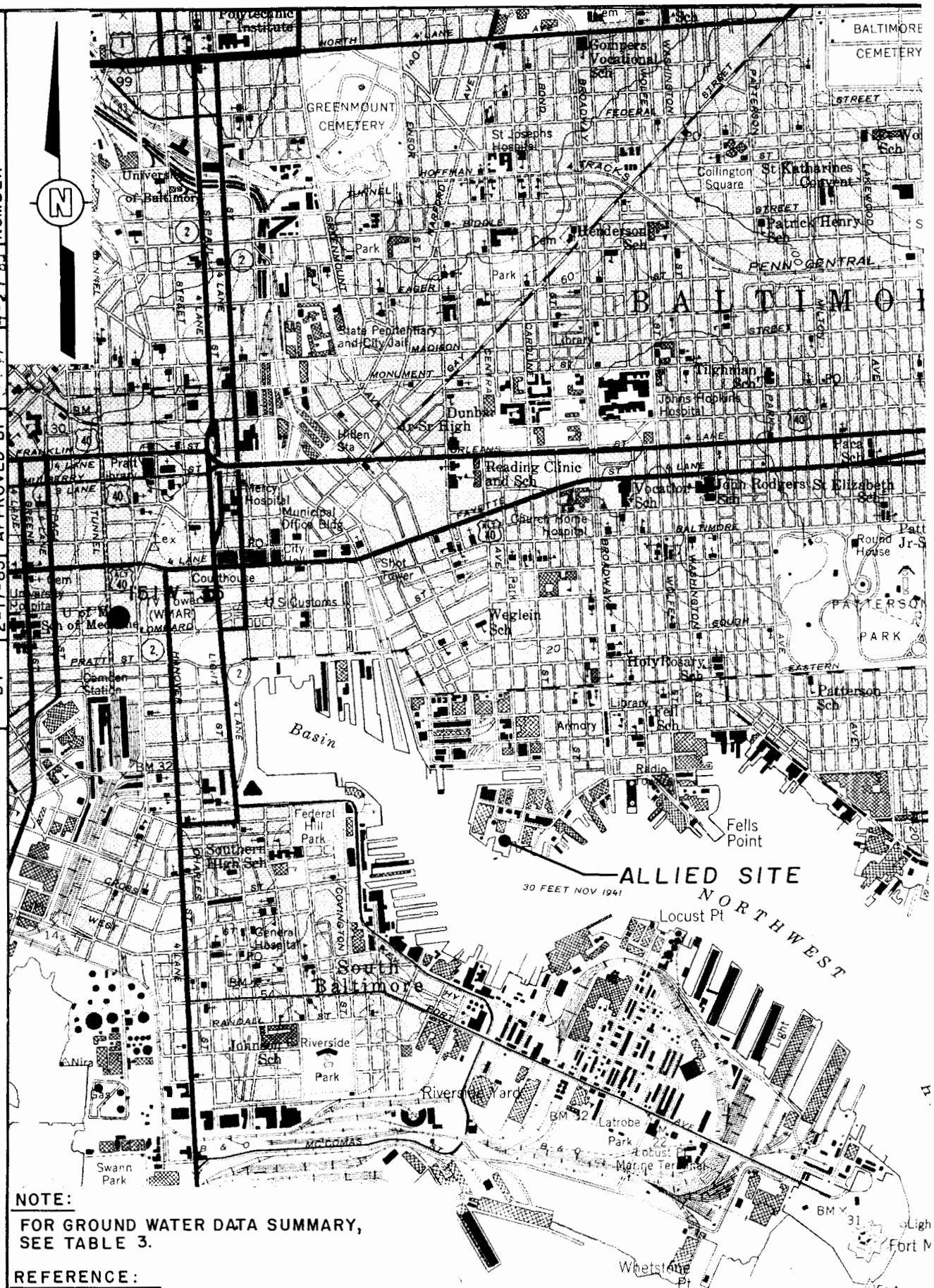
ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IOST GROUND WATER LEVEL MEASUREMENTS
IADE 12/7/84 AT 0715-0815 HRS. DUE TO
HEIR LACK OF RECOVERY FROM PUMPING, VALUES
ROM 12/3/84 WERE UTILIZED FOR W-3 AND W-6,
ND FROM 12/6/84 FOR W-8.

LEVATIONS REFERENCED FROM PLANT DATUM.

IT CORPORATION

DRAWN BY	CHECKED BY	DRAWING NUMBER
mel 2-17-85	LRS 4-29-85	846502-B4
	APPROVED BY 4-29-85	



NOTE:

FOR GROUND WATER DATA SUMMARY, SEE TABLE 3.

REFERENCE:

U.S.G.S. 7.5 MIN. TOPOGRAPIC QUADRANGLE BALTIMORE EAST, MARYLAND, DATED 1953, PHOTOREVISED 1966 AND 1974, SCALE 1:2500

19 1253 HERCULENE, A&B SMITH CO., PGH., PA

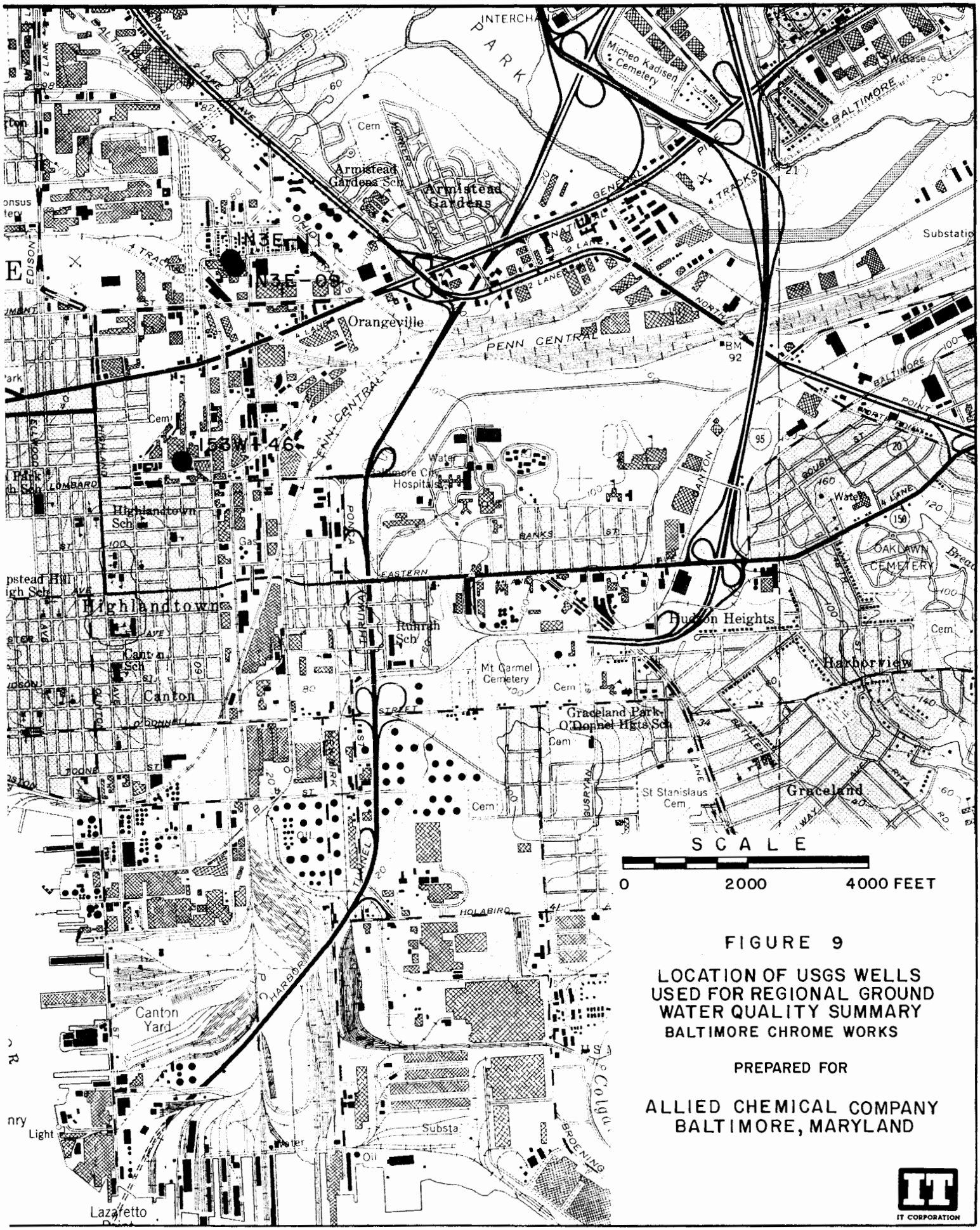


FIGURE 9

LOCATION OF USGS WELLS USED FOR REGIONAL GROUND WATER QUALITY SUMMARY

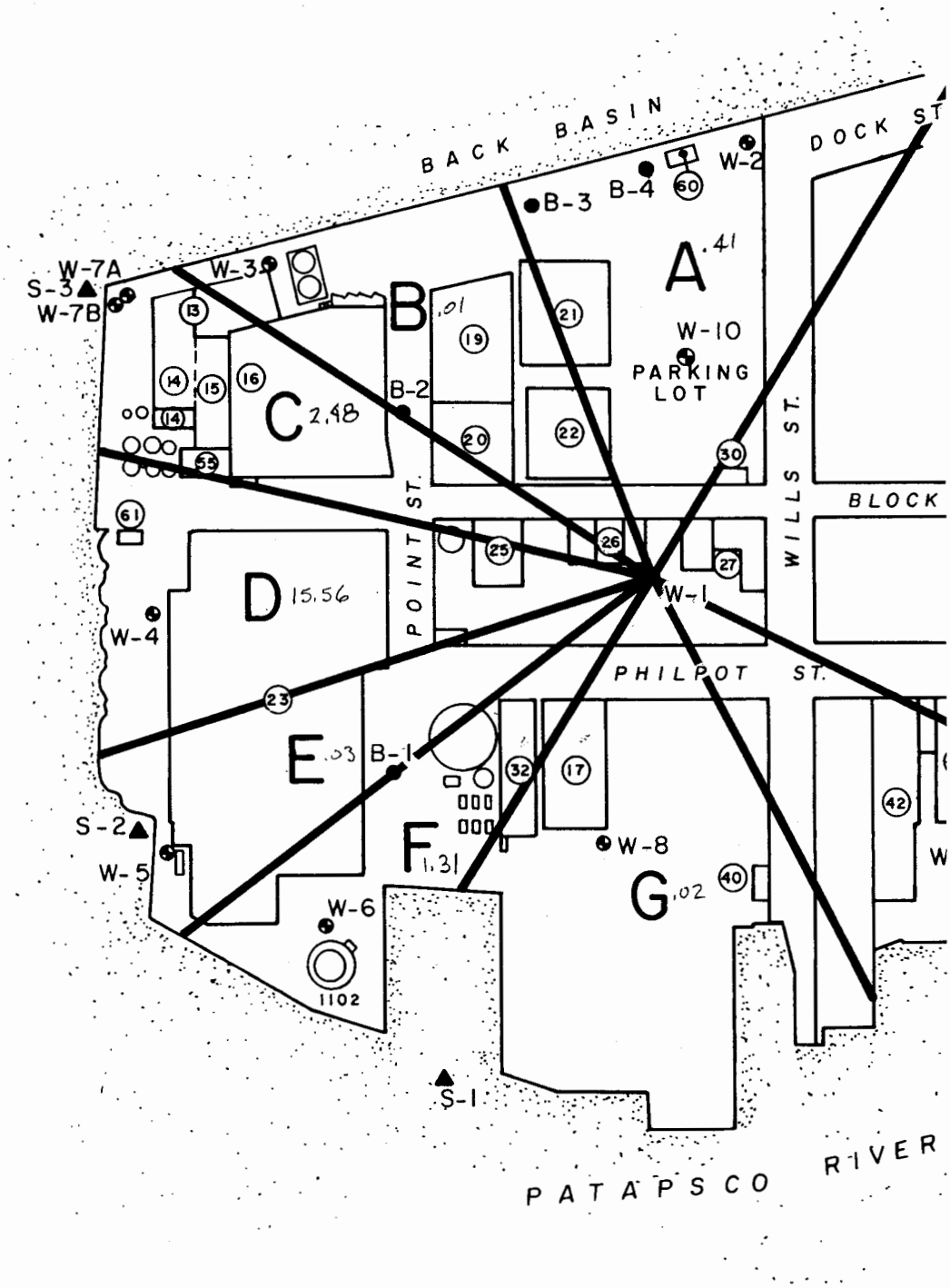
BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

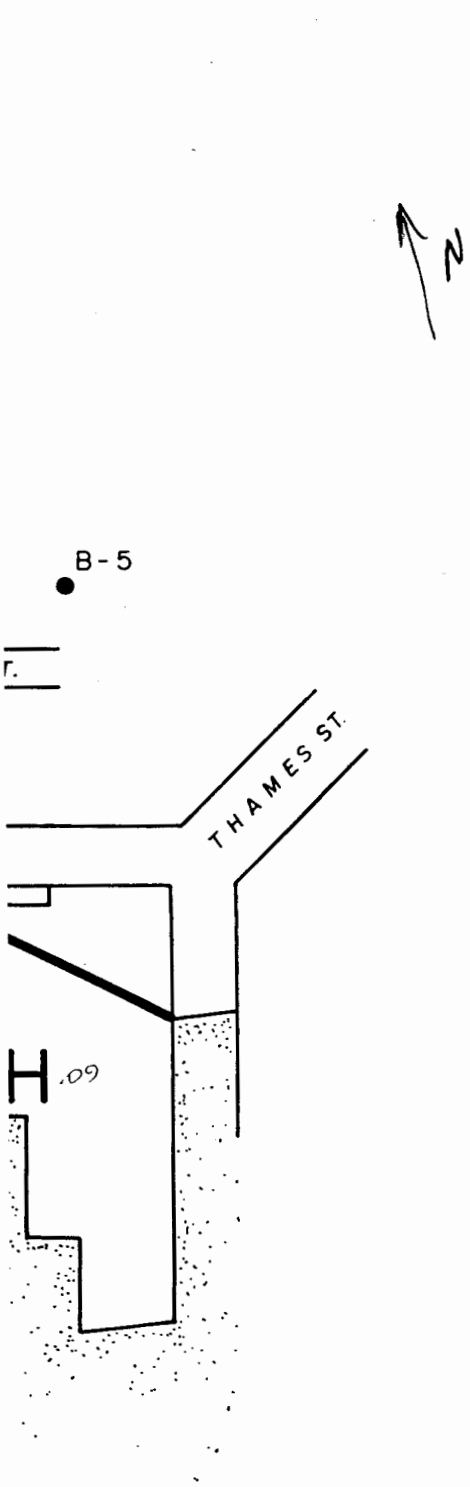
DRAWN BY	CHECKED BY	DRAWING NUMBER
cjb/ 02-26-85	LRS 4-29-85	846502-B5
	APPROVED BY JLH 4-29-85	



REFERENCE:

ALLIED CHEMICAL CORP. INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12-27-78; SCALE: 1" = 125'

19 1253 HERCULENE, A&B SMITH CO. PGH. PA



LEGEND:

- (13) POTASH & KOREON PLANTS
- (14) SOD. CHROMATE PLANT
- (15) REPACK WAREHOUSE
- (16) S.P. WAREHOUSE
- (17) STORAGE BLDG.
- (19) CONTAINER WAREHOUSE
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- (25) LOCKER BLDG.(HOURLY)
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- (43) MILLER BLDG.
- (55) CHROMIC ACID PLANT
- (60) CAR WASH
- (61) BOAT HOUSE
- W-2 MONITORING WELL
- B-2 SOIL BORING
- S-1 HARBOR SAMPLING LOCATION; WATER AND SEDIMENT

SCALE

0 175 350 FEET

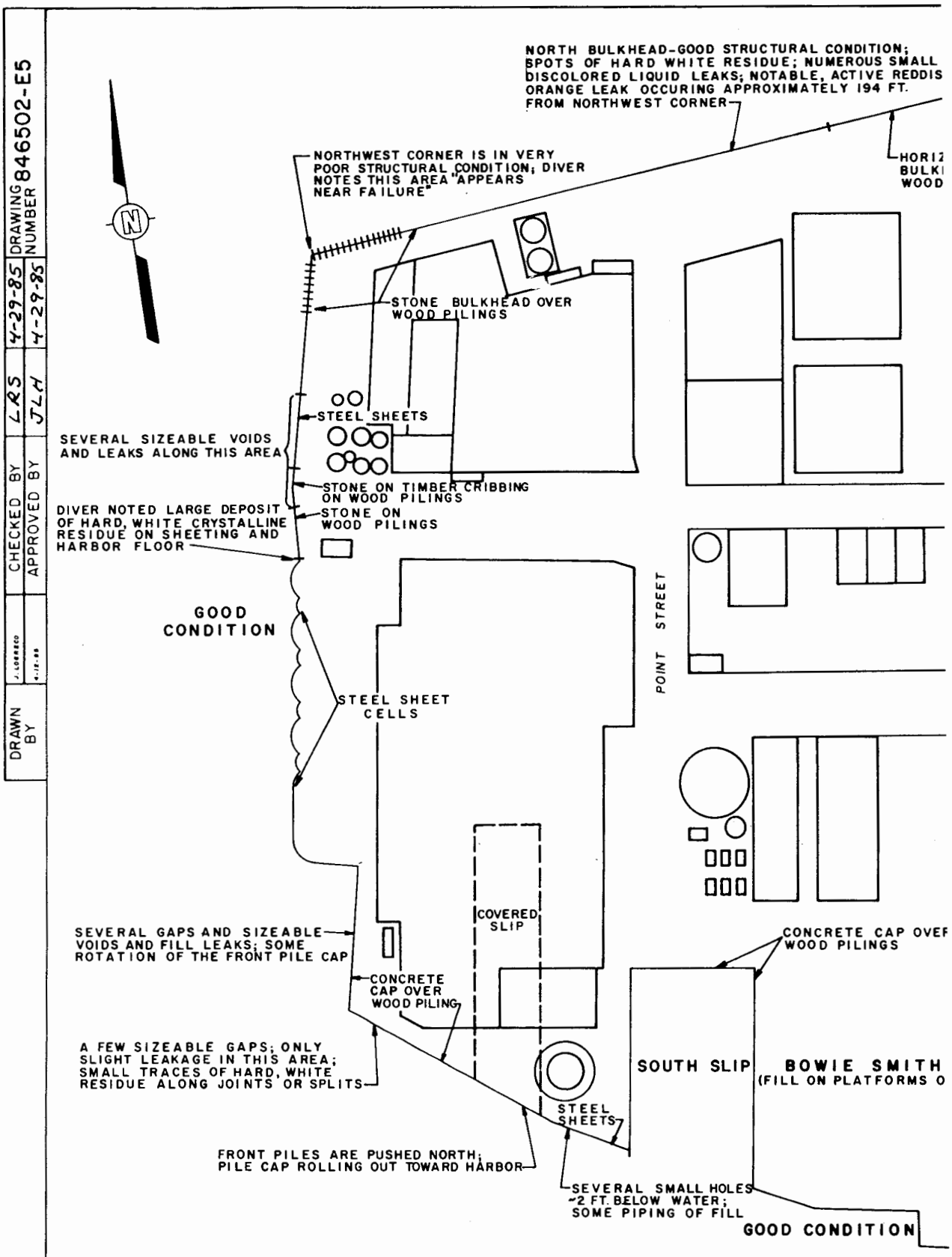
FIGURE 10

GROUND WATER FLOW SECTORS
UTILIZED IN MASS LOADING CALCULATIONS
BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

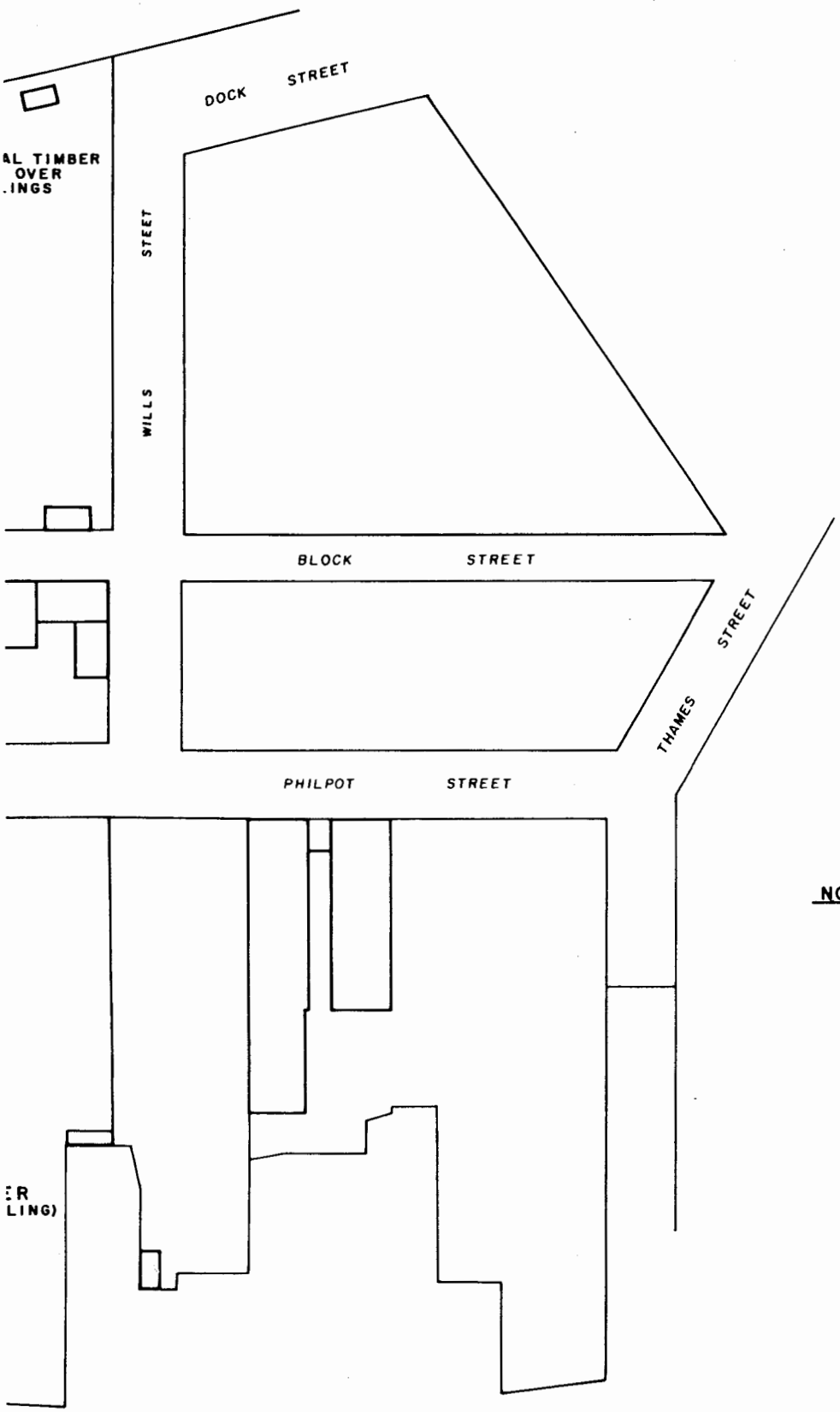


DRAWN BY	CHECKED BY	DRAWING NUMBER
J. LORENZO 4-12-85	LRS 4-29-85	846502-E5
	APPROVED BY JLH 4-29-85	

REFERENCES:

1. ALLIED CHEMICAL CORP INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12-27-78, SCALE: 1" = 125'.
2. ALLIED CHEMICAL CORPORATE ENGINEERING DEPARTMENT, DRAWING No. 10785-44; EXISTING DRAINAGE SYSTEM; DATED 10-5-72, SCALE: 1" = 60'.
3. UNDERWATER INSPECTION REPORT, OCTOBER, 1984, BOB CROOT, DIVER, LTD.

10-1232 HERCULENE ASB SMITH CO. PGH. PA.



NOTE: INSPECTION BEGAN ALONG EASTERN SIDE OF BOWIE SMITH PIER AND PROGRESSED CLOCKWISE AROUND SITE BULKHEAD TO DOCK STREET.

SCALE
0 60 120 FEET

FIGURE 11

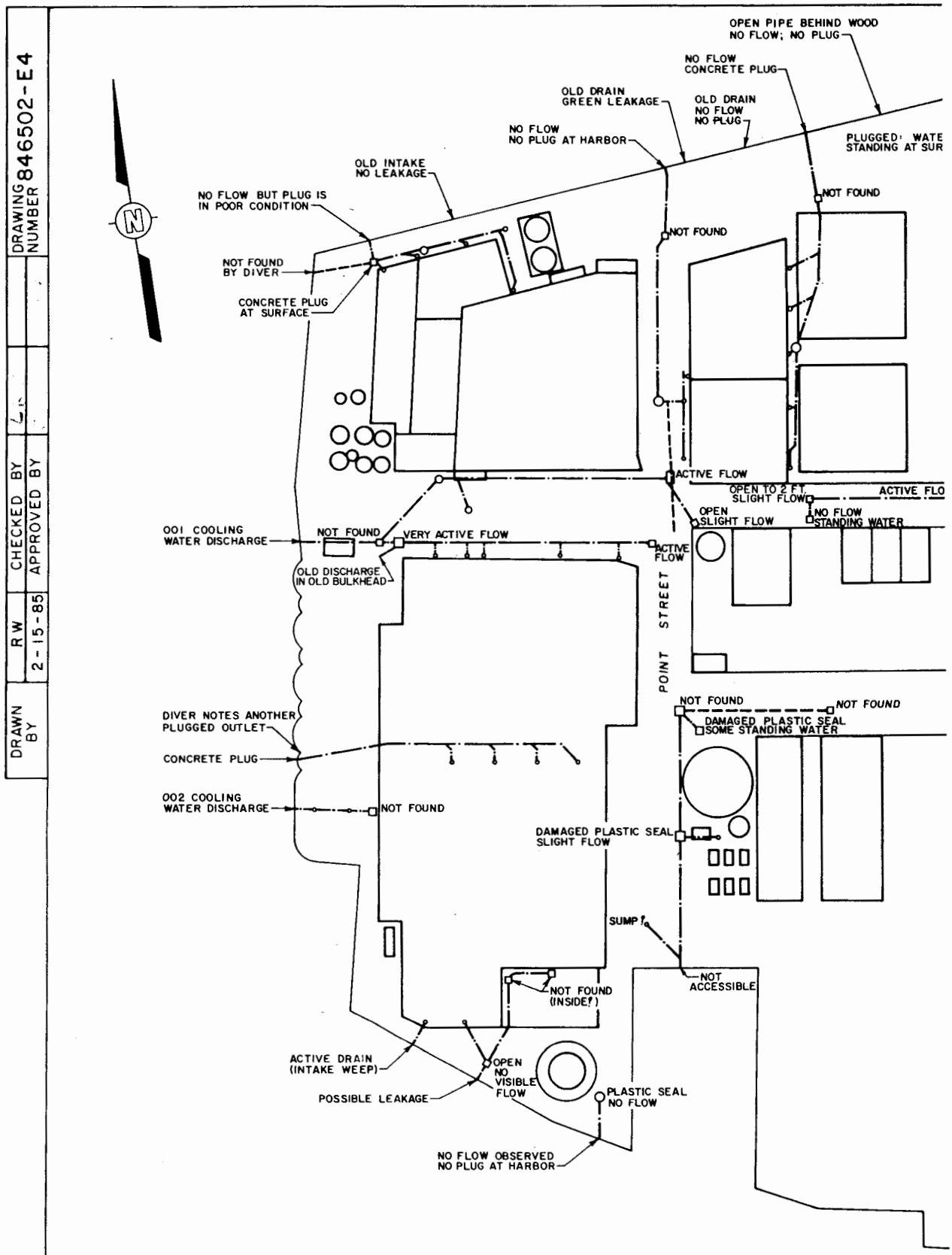
SUMMARY OF BULKHEAD UNDERWATER INSPECTION - NOVEMBER 1984

BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION

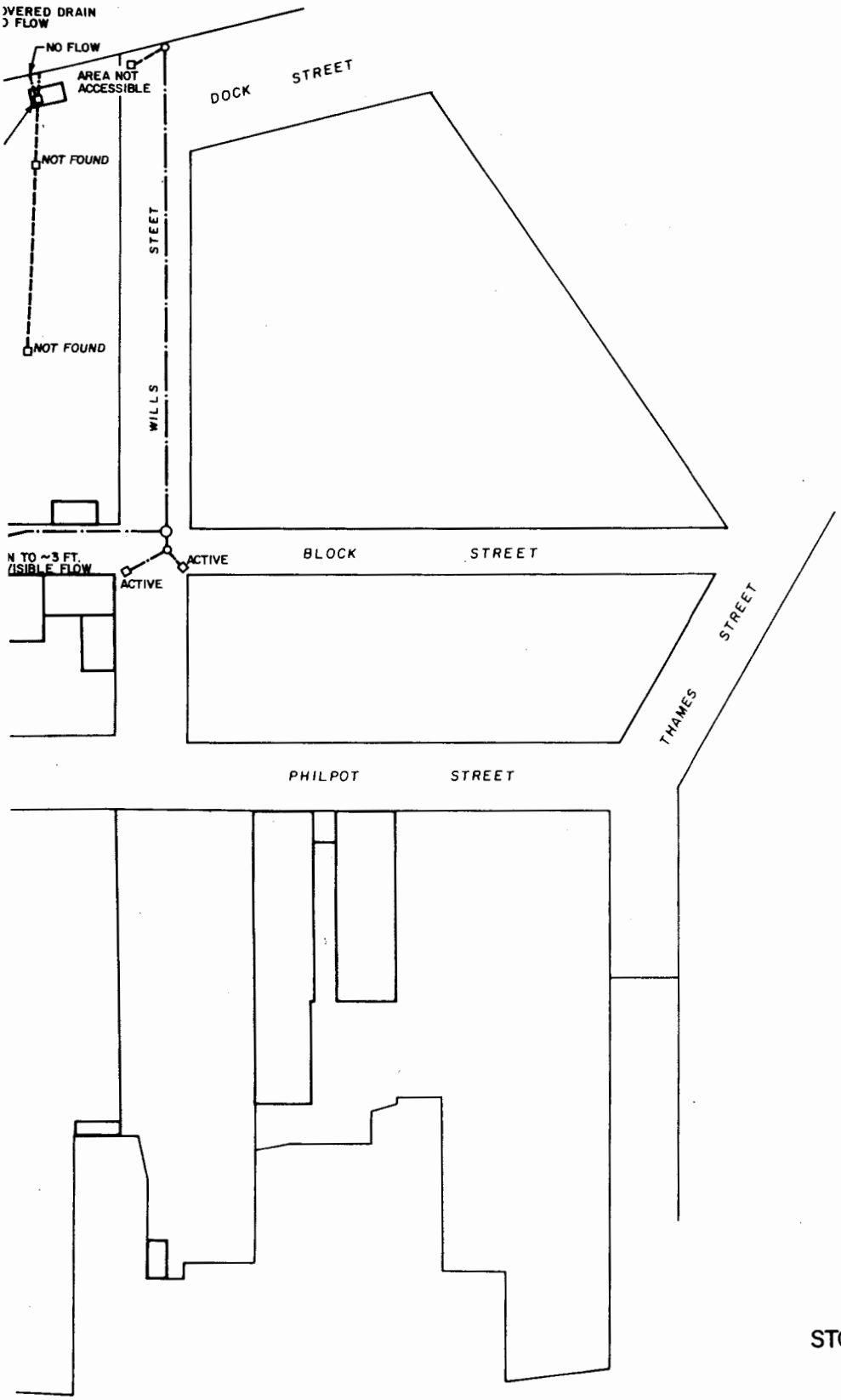


REFERENCES:

1. ALLIED CHEMICAL CORP INDUSTRIAL CHEMICAL DIV., DRAWING TITLED: PROPERTY PLAT, DATED: 12-27-78, SCALE: 1" = 125'.
2. ALLIED CHEMICAL CORPORATE ENGINEERING DEPARTMENT, DRAWING No. 10785-44; EXISTING DRAINAGE SYSTEM; DATED 10-5-72, SCALE: 1" = 60'.
3. UNDERWATER INSPECTION REPORT, OCTOBER 1984, BOB CROOT, DIVER, LTD.

DRAWN BY	RW	CHECKED BY		DRAWING NUMBER 846502-E4
	2-15-85	APPROVED BY		

18-1853 HERCULENE AND SMITH CO. PGH. PA.



LEGEND

—·— KNOWN STORM SEWERS AS SHOWN BY ALLIED RECORDS

— — — ADDITIONAL STORM SEWERS SHOWN BY CITY OF BALTIMORE, PUBLIC WORKS DEPT. RECORDS

□ SURFACE DRAIN

SCALE

0 60 120 FEET

FIGURE 12

LOCATIONS AND CONDITIONS OF STORM SEWER INLETS AND DISCHARGES

BALTIMORE CHROME WORKS

PREPARED FOR

ALLIED CHEMICAL COMPANY
BALTIMORE, MARYLAND

IT CORPORATION