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**SUPPORTING DOCUMENTS FOR
ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES**

Winsmith Division - UMC Corp. Site No. 915058

Village of Springville Erie County



Prepared for:

**New York State
Department of
Environmental Conservation**

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., *Director*

By:

DUNN ENGINEERING COMPANY

In association with

TAMS CONSULTANTS, INC.

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**ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES**

PRELIMINARY SITE ASSESSMENT

**Winsmith Division - UMC Corp. Site No 915058
Village of Springville Erie County**

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January 1994

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PRELIMINARY SITE ASSESSMENT

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SUPPORTING DOCUMENTS

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References

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Section 1
References

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A-1

ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES
IN THE STATE OF NEW YORK
PHASE I INVESTIGATIONS

WINSMITH DIVISION-UMC CORP.
NYS SITE NUMBER 915058
CITY OF SPRINGVILLE
ERIE COUNTY
NEW YORK STATE

Prepared For

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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A-2

GEOLOGY
OF
ERIE COUNTY
New York

By

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BUFFALO SOCIETY OF NATURAL SCIENCES
BULLETIN

Vol. 21. No. 3

Buffalo, 1963

BUEHLER AND TESMER: GEOLOGY OF ERIE COUNTY, NEW YORK

<i>Agoniatites vanuxemi</i> (Hall)	Cephalopods
<i>Goniatites</i> sp.	<i>Michelinoceras</i> (?) <i>subulatum</i> (Hall)
<i>Aviculopecten exacutus</i> Hall	Pelecypods
<i>Gossettia triquetra</i> (Conrad)	<i>Modiomorpha subulata</i> (Conrad)
<i>Leptodesma marcellense</i> Hall	<i>Nuculites nyssa</i> Hall
<i>Lunulicardium curtum</i> Hall	<i>Orthonota</i> (?) <i>parvula</i> Hall
<i>L. fragilis</i> (Hall)	<i>Panoplia lincklaeni</i> Hall
<i>Styliolina fissurella</i> (Hall)	Cricoconarida
<i>Ischilina</i> (?) <i>fabacca</i> Jones	<i>Tentaculites gracilistriatus</i> Hall
<i>Greenops boothi</i> (Green)	ARTHROPODS
	<i>Primitiopsis punctulifera</i> (Hall)
	Trilobites
	<i>Phacops rana</i> (Green)
	INCERTAE SEDIS
	<i>Coleolus tenuicinctum</i> Hall

SKANEATELES FORMATION

TYPE REFERENCE: Vanuxem (1840, p. 380).

TYPE LOCALITY: Skaneateles Lake, Onondaga County, New York; Skaneateles quadrangle.

TERMINOLOGY: See Cooper (1930). In Erie County, the Skaneateles is represented by two members: the Stafford Limestone Member (older) and the Levanna Shale Member.

AGE: Middle Devonian (Erian).

THICKNESS: 60 - 90 feet.

LITHOLOGY: In western New York, the Skaneateles Formation consists of gray limestone overlain by fissile gray to black shale.

PROMINENT OUTCROPS: Lake Erie shore between Bayview and Hamburg Town Park; Cazenovia Creek west of Ebenezer; Buffalo Creek between Gardenville and Blossom; Cayuga Creek at entrance to Como Lake Park; Plumbottom Creek in Lancaster.

CONTACTS: The lower contact is transitional with the older Oatka Creek Shale Member of the Marcellus Formation. The upper contact, at the base of the Centerfield Limestone Member of the Ludlowville Formation, cannot be seen in Erie County.

PALEONTOLOGY: The Skaneateles Formation has a varied fauna including coelenterates, bryozoans, brachiopods, gastropods, pelecypods, cephalopods, and arthropods.

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Stafford Limestone Member

TYPE REFERENCE: Clarke (1894, p. 342).

TYPE LOCALITY: Stafford township, Genesee County, New York; Batavia quadrangle.

TERMINOLOGY: See Clarke (1901), Wood (1901) and Cooper (1930).

AGE AND CORRELATION: According to Cooper (1930), the Stafford is the oldest member of the Skaneateles Formation. However, Cooper *et al.* (1942, p. 1788) included the Stafford as the uppermost member of the Marcellus Formation. The Stafford correlates with the Mottville of central New York.

THICKNESS: According to Wood (1901), the Stafford is 8.5 feet thick at Lancaster and 15 feet thick at Lake Erie. Cooper (1930) suggests that the lower 6.5 feet of Wood's Stafford at Lancaster should be assigned to the Marcellus Formation.

LITHOLOGY: The Stafford is a gray limestone which weathers chocolate brown. Bedding varies from massive to shaly.

PROMINENT OUTCROPS: Buffalo Creek near junction of Mineral Springs Road and Indian Church Road; Cayuga Creek at entrance to Como Lake Park; Plumbottom Creek in Lancaster.

CONTACTS: The lower contact with the Oatka Creek Shale Member of the Marcellus Formation is often transitional in Erie County. The contact with the overlying Levanna Shale Member is usually fairly distinct.

PALEONTOLOGY: This faunal list has been modified from Wood (1901, pp. 139-181):

COELENTERATES

<i>Aulopora</i> sp.	<i>Favosites placenta</i> Rominger
<i>Aulocystis dichotoma</i> (Grabau)	<i>Stereolasma rectum</i> (Hall)
<i>A. jacksoni</i> (Grabau)	

BRYOZOANS

<i>Fistulipora</i> sp.	<i>Orthoptera tortalinica</i> (Hall and Simpson)
<i>Hederella canadensis</i> (Nicholson)	<i>Reptaria stolonifera</i> Rolle
<i>H. cirrhosa</i> Hall	<i>Stictopora</i> sp.

BRACHIOPODS

<i>Ambocoelia nana</i> Grabau	<i>Cryptonella planirostra</i> (Hall)
<i>Atrypa spinosa</i> Hall	<i>C. rectirostra</i> (Hall)
<i>Camarotoechia horsfordi</i> Hall	<i>Douvillina inaequistriata</i> (Conrad)
<i>C. pauciplicata</i> Wood	<i>Elytha fimbriata</i> (Conrad)
<i>C. prolifica</i> (?) (Hall)	<i>Emanuella subumbona</i> (Hall)
<i>C. sappho</i> Hall	<i>Leiorhynchus limitare</i> (Vanuxem)
<i>Chonetes lepidus</i> Hall	<i>Meristella barrisi</i> Hall
<i>C. mucronatus</i> Hall	<i>M. meta</i> Hall
<i>C. scitulus</i> Hall	<i>Mucrospirifer mucronatus</i> (Conrad)
<i>Crania recta</i> Wood	<i>Nucleospira concinna</i> (Hall)

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- Productella dumosa* Hall
Protoleptostrophia perplana (Conrad)
Rhipidomella vanuxemi Hall
Schizobolus concentricus (Vanuxem)
Schuchertella arctostomata (Hall)
- Spinulicosta spinulicosta* Hall
Trematospira gibbosa Hall
Tropidoleptus carinatus Conrad
Truncalosis truncata Hall
- ANNELID (?)
Spirorbis sp.
- MOLLUSKS
 Gastropods
Bembexia capillaria rustica (Conrad)
Loxonema sp.
Mourloniaitys (Hall)
Michelinoceras (?) *erriense* (Hall)
M. (?) exile (Hall)
Nephriticeras bucinum (Hall)
- M. lucina* (Hall)
Platyceras (*Orthonychia*) *attenuatum* Hall
Pleurotomaria sp.
- Cephalopods
Protokionoceras fenestrulatum (Clarke)
Spyraceras aegae (Hall)
Stracoceras typum (Saemann)
- Pelecypods
Panetia lincklaeni Hall
P. mollis Hall
Pterinopecten exfoliatus Hall
Pterochaenia fragilis (Hall)
- Cricoconarida
Styliolina fissurella (Hall)
Tentaculites gracilistriatus Hall
- ARTHROPODS
Onychochilus nitidulus (?) Clarke
Primitiopsis punctulifera (Hall)
- Trilobites
Greenops boothi (Green)
Otarion craspidota (Hall and Clarke)
Phacops rana (Green)

Levanna Shale Member

TYPE REFERENCE: Cooper (1930, p. 217).

TYPE LOCALITY: Near Levanna, east shore of Cayuga Lake, Cayuga County, New York; Auburn quadrangle.

TERMINOLOGY: See Cooper (1930). Wood (1901, pp. 153-154) referred to approximately three feet of shale and shaly limestone above the Stafford as Marcellus. Grabau (1898, pp. 65-66) used the term Upper Marcellus and Houghton (1914, pp. 21-23) applied the name Cardiff to beds now called Levanna. Luther (1914, pp. 14-16) also used the term Cardiff Shale but for only the lower beds of the Levanna. He called the upper beds of the Levanna the Skaneateles Shale.

AGE AND CORRELATION: Middle Devonian (Erian). The Levanna correlates with the Delphi Station, Pompey and Butternut Members of the Skaneateles Formation in central New York.

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THICKNESS: The Levanna thickens eastward from about 45 feet at Lake Erie to 80 feet at the eastern edge of the county.

LITHOLOGY: The Levanna is a fissile shale, dark gray or black near the bottom, and lighter olive gray near the top. There are some calcareous beds and some pyritiferous concretions.

PROMINENT OUTCROPS: Lake Erie shore between Bayview and Hamburg Town Park; Cazenovia Creek west of Ebenezer; Buffalo Creek between Gardenville and Blossom.

CONTACTS: The contact with the underlying Stafford Limestone Member is usually fairly sharp. The upper contact with the Centerfield Limestone Member of the Ludlowville Formation cannot be seen in Erie County.

PALEONTOLOGY: Most of the following species were listed by Grabau (1898) and Wood (1901, pp. 139-181) from beds termed "Upper Marcellus" by them and now recognized as Levanna:

PLANTS

various spores

COELENTERATES

Aulocystus dichotoma (Grabau)

BRACHIOPODS

<i>Ambocoelia umbonata</i> (Conrad) <i>Atrypa reticularis</i> (Linnaeus) <i>Chonetes lepidus</i> Hall <i>C. mucronatus</i> Hall <i>C. setigerus</i> (Hall)	<i>Leiorhynchus limitare</i> (Vanuxem) <i>Meristella barrisi</i> Hall <i>Mucrospirifer mucronatus</i> (Conrad) <i>Spinulicosta spinulicosta</i> Hall <i>Truncalosis truncata</i> (Hall)
--	---

MOLLUSKS

Gastropods

<i>Paracyclas lirata</i> (Conrad)	<i>Serpulospira laxus</i> (Hall)
-----------------------------------	----------------------------------

Cephalopods

<i>Centroceras marcellense</i> (Vanuxem) <i>Protokionoceras fenestriatum</i> (Clarke)	<i>Spyroceras aegae</i> (Hall)
--	--------------------------------

Pelecypods

<i>Lunulicardium curtum</i> Hall <i>Nuculites triqueter</i> Conrad	<i>Pterochaenia fragilis</i> (Hall)
---	-------------------------------------

Cricoconarida

<i>Styliolina fissurella</i> (Hall)	<i>Tentaculites gracilistriatus</i> (Hall)
-------------------------------------	--

ARTHROPOD

Trilobite

Phacops rana (Green)

A-3

GROUND-WATER RESOURCES OF THE ERIE-NIAGARA BASIN, NEW YORK



Prepared for the
Erie-Niagara Basin Regional Water Resources
Planning Board

by

A. M. La Sala, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

in cooperation with

THE NEW YORK STATE CONSERVATION DEPARTMENT
DIVISION OF WATER RESOURCES

700 850 1040
STATE OF NEW YORK
CONSERVATION DEPARTMENT
WATER RESOURCES COMMISSION

Basin Planning Report ENB-3

1968

Table 5.--Development of ground water for public water supplies in the Erie-Niagara basin

Community	Source ^{1/}	Average use (gallons per day)
Alden	253-829-3, 254-829-1, -2, -3	200,000
Arcade (includes Sandusky)	229-822-1, -2 231-825-2 232-825-1	700,000
Batavia	259-809-2, -6	1,000,000
Cattaraugus	Four areas of springs, 3 mi south to southeast of village and 219-851-1	200,000
Chaffee	233-828-1	15,000
Collins	229-856-1 230-856-1	50,000
Collins Center	229-849-1, -2	25,000
Corfu	257-824-1	60,000
Delevan	Numerous springs, 1 mi southwest of village, including 228-829-1Sp, -2Sp	50,000
East Aurora	246-836-1, -2, -3, -4	750,000
Gowanda	227-856-1	100,000
Holland	238-832-1, -2	80,000
Lawtons	Several springs including 232-855-1Sp	10,000
Machias	Springs south of village	50,000
North Collins	234-856-1, -3, -4, -5	250,000
North Java	Infiltration galleries and well 240-819-1	15,000
Otto	Infiltration gallery about 1 mi south of village	5,000
Springville	230-840-2, -3	400,000
Varysburg	Springs 1 mi east of village and 246-818-1	25,000
West Valley	Infiltration galleries including 223-836-1, -2	35,000

^{1/} Well or spring number is given for those sources that were inventoried during the study and are listed in tables 6 and 7.

Table 6.--Records of selected wells in the Erie-Mingora basin

Well number: See 'Well-Numbering and Location System' in text for explanation.

Year completed: a - about
b - before

Type of well: Drl - drilled
Drv - driven

Depth of well: All depths below land surface.
a - about
r - reported
all others measured

Diameter of well: Diameters of dug wells are approximate.
Where two or more sizes of casings were used, they are shown
in descending order.

Depth to bedrock: All depths below land surface
a - about
m - measured
all others reported

Water-bearing material: Gravel, sand, silt, and till - glacial deposits of
Pleistocene age.
Camillus Shale - Camillus Shale of Silurian age.
Limestone - Limestone unit consisting of the Onondaga Limestone of
Devonian age and the Bertie Limestone and Akron Dolomite of
Silurian age.
Lockport Dolomite - Lockport Dolomite of Silurian age.
Shale - Hamilton Group and Conneaut Group of Chadwick (1934) and
intervening units, all of Devonian age.

Altitude above sea level: Estimated from topographic maps to nearest 5 feet.

Water level: All water levels are below land surface except those preceded by a (+) sign,
which are above land surface.
a - about
p - pumping effect is probable
Flow - water flows above land surface but static head could not be measured.
r - reported
all others measured by U.S.G.S. personnel

Method of lift: AL - air lift
Dw - deep well cylinder pump
Jet - deep well jet pump
Sub - submersible pump
Sw - shallow-well pump
Tur - turbine pump

Type of power is indicated as -- I - internal combustion engine
M - manual
all others are electrically powered

Estimated pumpage: Average daily pumpage supplied by owner, tenant, or operator, or computed
on basis of per capita consumption of 50 gpd per person or 20 gpd per
milk cow.

Use: A - abandoned In - institutional
Ag - agricultural Ir - irrigation only
C - commercial PS - public supply
D - domestic T - test
F - dairy farm U - unused
GT - gas test X - destroyed
I - industrial

Remarks: anal - chemical analysis in this report
dd - drawdown
est - estimated
gas - flammable gas issues from well
gpd - gallons per day
gpm - gallons per minute
H₂S - hydrogen sulfide gas present in ground water
Iron - water has noticeable iron content
LS - land surface
OW - observation well, series of water-level measurements available
r - reported
swl - static water level
temp - temperature, in degrees Fahrenheit, measured by U.S.G.S. on same day water
level was measured unless otherwise noted

258-813-1 do. R. Cleveland -- Drl 11.7 3 -- Shale 900 d.l. 6-26-61 -- -- Anal. from temp 43.0

258-813-1 do. -- Drl 11 6 -- do. 900 12.1 6-26-61 -- --

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level (feet)	Date	Method of lift	Estimated pumping or flow (gallons per day)	Use	Remarks
258-815-1	Genesee	F. Pack	--	Drl	31	6	--	Shale	920	8.1	6-26-61	Sw	50	D	Anal; Iron, temp 49.0; yield 12 gpm (r).
258-822-1	do.	E. Lewis	1964	Drl	41.6	6	41.6	Sand	870	9.1	8-19-64	Sw	400	Ag	Anal; H ₂ S; yield 11 gpm (r).
258-827-1	do.	E. Pomanski	1952	Drl	36.5	6	34	Limestone	815	31.3	8-19-64	Jet	250	D	H ₂ S; yield 7 gpm (r).
258-833-1	Erie	B. Fields	1960	Drl	62.6	6	61.3	do.	775	22.7	8-18-64	Sub	300	U	Anal.
258-837-1	do.	A. Bowman	1956	Drl	76.2	6	22	do.	740	19.4	8-18-64	Jet	300	D	Do.
258-843-1	do.	M. Voss	--	Drl	62	8	--	Camillus Shale	615	Flow	--	--	5,000	A	Anal; H ₂ S; temp 50.0; 8-14-64; flows about 5 gpm at 15.
258-853-1	do.	Linde Div., Union Carbide Corp.	1944	Drl	1375	8	87	Camillus Shale and Lockport Dolomite	600	r.p.115	1944	Tur	--	U	H ₂ S; drilled to 130-ft depth in 1941 and deepened in 1944; "black" water entering from Lockport Dolomite after deepening made well unusable; yield 3,000 gpm (r); pumping test, 1,090 gpm, dd 51 ft.
-2	do.	do.	1944	Drl	1375	8	86	do.	600	r.p.82	1944	Tur	--	U	H ₂ S; drilled to 157-ft depth in 1941 and deepened in 1944; water obtained at 90 ft from a gypsumiferous zone in Camillus Shale and "black" water at 312 ft from the Lockport Dolomite which was tested penetrated at 288 ft; yield from upper water-bearing zone 90 gpm, dd 22 ft; lower zone was not tested.
X 258-855-1	do.	Dunlop Tire & Rubber Co.	1943	Drl	1137	12	69	Camillus Shale	590	p.36	10-27-52	Tur	--	I	H ₂ S; pumping rate 1,000 gpm (r); pumping test 500 gpm, swl 36 ft, dd 17 ft; this well and well 258-855-2 yield a combined total of 600,000 gpd.
X -2	do.	do.	1943	Drl	1139.7	--	71	do.	590	p.54.3	7-16-64	Tur	--	I	H ₂ S; pumping rate about 1,000 gpm (r); pumping test 1,000 gpm, swl 36 ft, dd 26 ft; this well and well 258-855-1 yield a combined total of 600,000 gpd.
X -3	do.	do.	1951	Drl	1120	--	--	do.	592	p.39	10-27-52	Tur	--	I	H ₂ S; pumping test 1,500 gpm, swl 38 ft, dd 18 ft.
259-809-1	Genesee	O-AT-KA Milk Products Cooperative, Inc.	1963	Drl	160	20, 16	--	Sand and gravel	890	r.15	4-27-62	Tur	1,000,000	I	Anal; screens, 13 1/8-inch diameter, 10 ft at 60-stair, 10 ft at 125-stair, from 40-60 ft; pumping rate about 1,400 gpm (r); pumping test 600 gpm, swl 15 ft, dd 1.5 ft (r).
-2	do.	City of Batavia	1963	Drl	169	16	--	do.	890	14.0	5-8-63	Tur	--	PS	Anal; H ₂ S; screen, 16-inch telescope, 125-stair, 52.9-69 ft; pumping rate 1,000 gpm.
-3	do.	do.	1962	Drl	54.1	8	--	do.	890	11.7	5-6-63	--	--	I	Depth 61 ft (r); screen, 6-inch diameter, 110-stair, from 51-61 ft; pumping test 235 gpm, swl 18.3 ft, dd 0.5 ft (r); DW.
-4	do.	O-AT-KA Milk Products Cooperative, Inc.	1963	Drl	52.2	8	--	do.	890	p.13.0	5-7-63	--	--	I	
-5	do.	City of Batavia	1962	Drl	60.2	8	--	do.	890	13.7	5-8-63	--	400,000	I	Depth 70 ft (r); screen, 6-inch diameter, 100-stair, from 60-70 ft; pumping test (r), 235-250 gpm, swl 18.5 ft, dd 0.5 ft after 24 hours discharge.
-6	do.	do.	1963	Drl	175	16	--	do.	895	r.14.2	5-27-63	Tur	--	PS	Screen, 16-inch diameter; test pumped at 1,000 gpm.
-7	do.	do.	1963	Drl	160	8	--	do.	890	r.13.7	2-15-62	--	400,000	X, I	H ₂ S (r); pumping test 200 gpm, swl 13.7 ft, dd 4.4 ft after 24 hours discharge.
259-817-1	do.	D. Beals	1960	Drl	133	--	--	do.	865	r.3	1960	Sw	100	D	Anal; H ₂ S; yield 4 gpm (r).
259-818-1	do.	Blitterman Bros., Inc.	--	Drl	18.3	12, 6	--	do.	--	6.6	9-17-63	Sw	--	C, D	
259-820-1	do.	A. Winters	1960	Drl	22.6	6	--	Limestone	880	7.4	9-17-63	Sw	500	C, D	
259-821-1	do.	J. Dalay	1956	Drl	70	6	--	Sand	900	22.1	8-19-64	Jet	200	D	Anal; H ₂ S.

Table 6.--Records of selected wells in the Erie-Niagara basin (Continued)

Well number	County	Owner	Year completed	Type of well	Depth of well (feet)	Diameter (inches)	Depth to bedrock (feet)	Water-bearing material	Altitude above sea level (feet)	Water level		Method of lift	Estimated pumpage or flow (gallons per day)	Use	Remarks
										Below land surface (feet)	Date				
230-838-1	Erie	B. Mooney	--	Drv	14.1	1 1/4	--	Sand and gravel	1,380	3.8	5-6-64	--	--	A	OW.
* 230-840-1	do.	Village of Springville	1931	Dr	r139	18, 6	--	do.	1,350	16	7-31	--	--	A, PS	Originally finished with shutter screen, 12-inch diameter from 121-135 ft; pumping test 830 gpm, dd 25 ft; gravel packed liner with 6-inch diameter screen from 119.5-135 ft, then installed to reduce amount of sand pumped from well; abandoned about 1944 because of sand pumping.
-2	do.	do.	1944	Dr	r137	18, 12	--	do.	1,350	pr27	1-29-63	Tur	200,000	PS	H ₂ S; pumping rate 630 gpm; screen, 12-inch diameter from 122-137 ft; gravel packed; pumping test on 8-5-44, 672 gpm, swl 27.4 ft, dd 16.4 ft after 8 hours pumping (swl at this time probably was affected by pumping from wells 230-840-1 and -3).
-3	do.	do.	1942	Dr	r159	18, 10	--	do.	1,350	p31.5	1-29-63	Tur	200,000	PS	H ₂ S; pumped at 600 gpm; screen, 10-inch diameter, 100-slot from 144-149 ft; 80-slot from 149-159 ft; gravel packed; pumping test 5-14-42, 513 gpm, swl 37.7 ft, dd 20.6 ft (swl probably affected by pumping of well 230-840-1).
230-842-1	do.	G. Kroll	1962	Dr	125	6	19	Shale	1,335	p46	7-28-64	Jet	200	D	Anal; iron; yield 1 gpm (r).
230-843-1	do.	C. Hunt	1964	Dr	r330	6, 4	--	Sand	1,385	199	8-11-64	--	--	D	Yield 5 gpm (r); casing backfilled with washed gravel to 310 ft.
230-845-1	do.	F. Schue	1961	Dr	37.9	6	--	Gravel	1,390	20.6	8-28-64	Sw	200	D	Yield 5 gpm.
230-856-1	do.	Town of Collins, Water Districts Nos. 1 & 2	1948	Dr	r42	18, 10	--	do.	835	r17	1948	Tur	--	PS	Pumping rate 150 gpm; construction details are reported to be similar to those of well 229-856-1.
-2	do.	Dan Gernatt Gravel Products, Inc.	1956	Dr	r36	--	--	Sand and gravel	830	--	--	Tur	100,000	I	Anal; supplies gravel plant, use is seasonal; yield 400 gpm.
-3	do.	do.	1962	Dr	30.3	18	--	do.	840	3.7	8-12-64	Tur	2,000	I	Anal; supplies cleaner at asphalt plant, use is seasonal; casing perforated from 26-30 ft; pumping test, 150 gpm, swl 4 ft, dd 7 ft.
231-825-1	Wyoming	Village of Arcade	1962	Dr	r50	12	--	Gravel	1,490	r16	3-26-62	--	--	T	Screen and gravel pack, 38-48 ft; pumping test, 150 gpm, swl 16 ft, dd 3.
-2	do.	do.	1962	Dr	r49	20, 12	--	Sand and gravel	1,490	r17	11-28-62	Tur	--	PS	Screen, 12-inch diameter, 100-slot, 39-49 ft; gravel packed; pumping test 500 gpm, swl 17 ft, dd 7.1 ft after 24 hours pumping.
231-830-1	Cattaraugus	M. Schaper	1956	Dr	100	6	--	do.	1,355	10.5	8-7-64	Jet	300	D	On same property two wells, 60 ft deep, penetrated clay and were dry; a well 400 ft deep flowed but yielded sulfurous water and was destroyed.
-2	do.	C. Kims	1959	Dr	450	6	454	do.	1,375	Flow	8-7-64	Sub	3,000	F	
231-831-1	Erie	W. Schlaner	1962	Drv	r22	1 1/4	--	do.	1,410	--	--	Sw	400	D	
231-833-1	do.	A. Zisser	1964	Dr	280	6, 4	--	Sand	1,390	8.1	8-5-64	Sub	--	D	Yield 2 1/2 gpm (r).
-2	do.	J. Rung	1959	Dr	59.3	6	--	Gravel	1,430	39.7	8-5-64	Jet	350	D	Anal; yield about 25 gpm better test.
-3	do.	C. Butler	1962	Dr	94.4	6	--	do.	1,430	p47.2	8-5-64	Jet	3,000	F	Iron; cased to 150 ft (r, driller); yield 35 gpm better test when drilled; yield was inadequate in summer 1964; well may be partly filled in with sand entering at bottom of casing.
231-835-1	do.	P. Schuster	1958	Dr	99.7	6	--	Sand and gravel	1,445	p90.8	8-6-64	Sub	100	D	Anal.
231-838-1	do.	G. Lancaster	--	Drv	17.6	1 1/4	--	do.	1,400	3.5	5-12-64	--	--	A, Ag	Screened from 14.9-17.6 ft; OW.
231-839-1	do.	K. Floetz	1956	Dr	29.0	6	--	do.	1,400	18.8	5-6-64	Jet	200	D	

A-4

DONNELLEY MARKETING INFORMATION SERVICES
A COMPANY OF THE DUN & BRADSTREET CORP

Page 1

DUNN GEOSCIENCE CORP

SEPTEMBER 6, 1990

AREANAME	AREADISC	POP90
RTE 242/RTE 16, MACHIAS, NY	Ring: 1 mile(s): 42.4078 78.4842	139
RTE 242/RTE 16, MACHIAS, NY	Ring: 2 mile(s): 42.4078 78.4842	2004
RTE 242/RTE 16, MACHIAS, NY	Ring: 3 mile(s): 42.4078 78.4842	2004
STRINGHAM RD S OF RTE 55, LAGRANGE, NY	Ring: 1 mile(s): 41.6633 73.7972	0
STRINGHAM RD S OF RTE 55, LAGRANGE, NY	Ring: 2 mile(s): 41.6633 73.7972	4758
STRINGHAM RD S OF RTE 55, LAGRANGE, NY	Ring: 3 mile(s): 41.6633 73.7972	12222
CRICKET HILL RD EAST OF RT 22, DOVER, NY	Ring: 1 mile(s): 41.6756 73.5711	2068
CRICKET HILL RD EAST OF RT 22, DOVER, NY	Ring: 2 mile(s): 41.6756 73.5711	4137
CRICKET HILL RD EAST OF RT 22, DOVER, NY	Ring: 3 mile(s): 41.6756 73.5711	7161
PINE HILL RD/RTE 44, PLEASANT VALLEY, NY	Ring: 1 mile(s): 41.7506 73.8078	2469
PINE HILL RD/RTE 44, PLEASANT VALLEY, NY	Ring: 2 mile(s): 41.7506 73.8078	2469
PINE HILL RD/RTE 44, PLEASANT VALLEY, NY	Ring: 3 mile(s): 41.7506 73.8078	6366
S ROBERTS RD/NEW RD, DUNKIRK, NY	Ring: 1 mile(s): 42.4736 79.3056	1987
S ROBERTS RD/NEW RD, DUNKIRK, NY	Ring: 2 mile(s): 42.4736 79.3056	14905
S ROBERTS RD/NEW RD, DUNKIRK, NY	Ring: 3 mile(s): 42.4736 79.3056	24419
WASHINGTON AVE/18TH ST, JAMESTOWN, NY	Ring: 1 mile(s): 42.1081 79.2456	11132
WASHINGTON AVE/18TH ST, JAMESTOWN, NY	Ring: 2 mile(s): 42.1081 79.2456	33672
WASHINGTON AVE/18TH ST, JAMESTOWN, NY	Ring: 3 mile(s): 42.1081 79.2456	40054
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NE OF OBI RD/RTE 417, LITTLE GENESEE, NY	Ring: 2 mile(s): 42.0361 78.1931	703
NE OF OBI RD/RTE 417, LITTLE GENESEE, NY	Ring: 3 mile(s): 42.0361 78.1931	2078
E NIAGARA ST/WALES AVE, TONAWANDA, NY	Ring: 1 mile(s): 43.0221 78.8595	16569
E NIAGARA ST/WALES AVE, TONAWANDA, NY	Ring: 2 mile(s): 43.0221 78.8595	45789
E NIAGARA ST/WALES AVE, TONAWANDA, NY	Ring: 3 mile(s): 43.0221 78.8595	94917
WALES AVE/FILLMORE AVE, TONAWANDA, NY	Ring: 1 mile(s): 43.0153 78.8595	15379
WALES AVE/FILLMORE AVE, TONAWANDA, NY	Ring: 2 mile(s): 43.0153 78.8595	51604
WALES AVE/FILLMORE AVE, TONAWANDA, NY	Ring: 3 mile(s): 43.0153 78.8595	100617
MILITARY RD/SAYRE AVE, BUFFALO, NY	Ring: 1 mile(s): 42.9473 78.8909	23669
MILITARY RD/SAYRE AVE, BUFFALO, NY	Ring: 2 mile(s): 42.9473 78.8909	74062
MILITARY RD/SAYRE AVE, BUFFALO, NY	Ring: 3 mile(s): 42.9473 78.8909	157259
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MILITARY RD/WHEELER ST, TONAWANDA, NY	Ring: 3 mile(s): 43.0025 78.8814	97769
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2250 MILITARY RD, TONAWANDA, NY	Ring: 3 mile(s): 42.9984 78.8822	106180
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KENMORE AVE/I-190, TONAWANDA, NY	Ring: 2 mile(s): 42.9753 78.9108	30012
KENMORE AVE/I-190, TONAWANDA, NY	Ring: 3 mile(s): 42.9753 78.9108	81425
MILITARY RD/HAMPTON PKWY, TONAWANDA, NY	Ring: 1 mile(s): 42.9786 78.8856	14991

ANACONDA

spaulding

ALUM. MTCNPLATE

AREANAME : AREANAME
AREADISC : AREADISC
POP90 : CUR EST TOTAL POPULATION

DONNELLEY MARKETING INFORMATION SERVICES
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DUNN GEOSCIENCE CORP

Page

SEPTEMBER 6, 1990

AREANAME	AREADISC	POP90
MILITARY RD/HAMPTON PKWY, TONAWANDA, NY	Ring: 2 mile(s): 42.9786 78.8856	59560
MILITARY RD/HAMPTON PKWY, TONAWANDA, NY	Ring: 3 mile(s): 42.9786 78.8856	128481
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172 EATON ST, SPRINGVILLE, NY	Ring: 2 mile(s): 42.5144 78.6604	5006
172 EATON ST, SPRINGVILLE, NY	Ring: 3 mile(s): 42.5144 78.6604	6991
HOPKINS ST/MARILLA ST, BUFFALO, NY	Ring: 1 mile(s): 42.8360 78.8326	12461
HOPKINS ST/MARILLA ST, BUFFALO, NY	Ring: 2 mile(s): 42.8360 78.8326	55717
HOPKINS ST/MARILLA ST, BUFFALO, NY	Ring: 3 mile(s): 42.8360 78.8326	91920

AREANAME : AREANAME
AREADISC : AREADISC
POP90 : CUR EST TOTAL POPULATION

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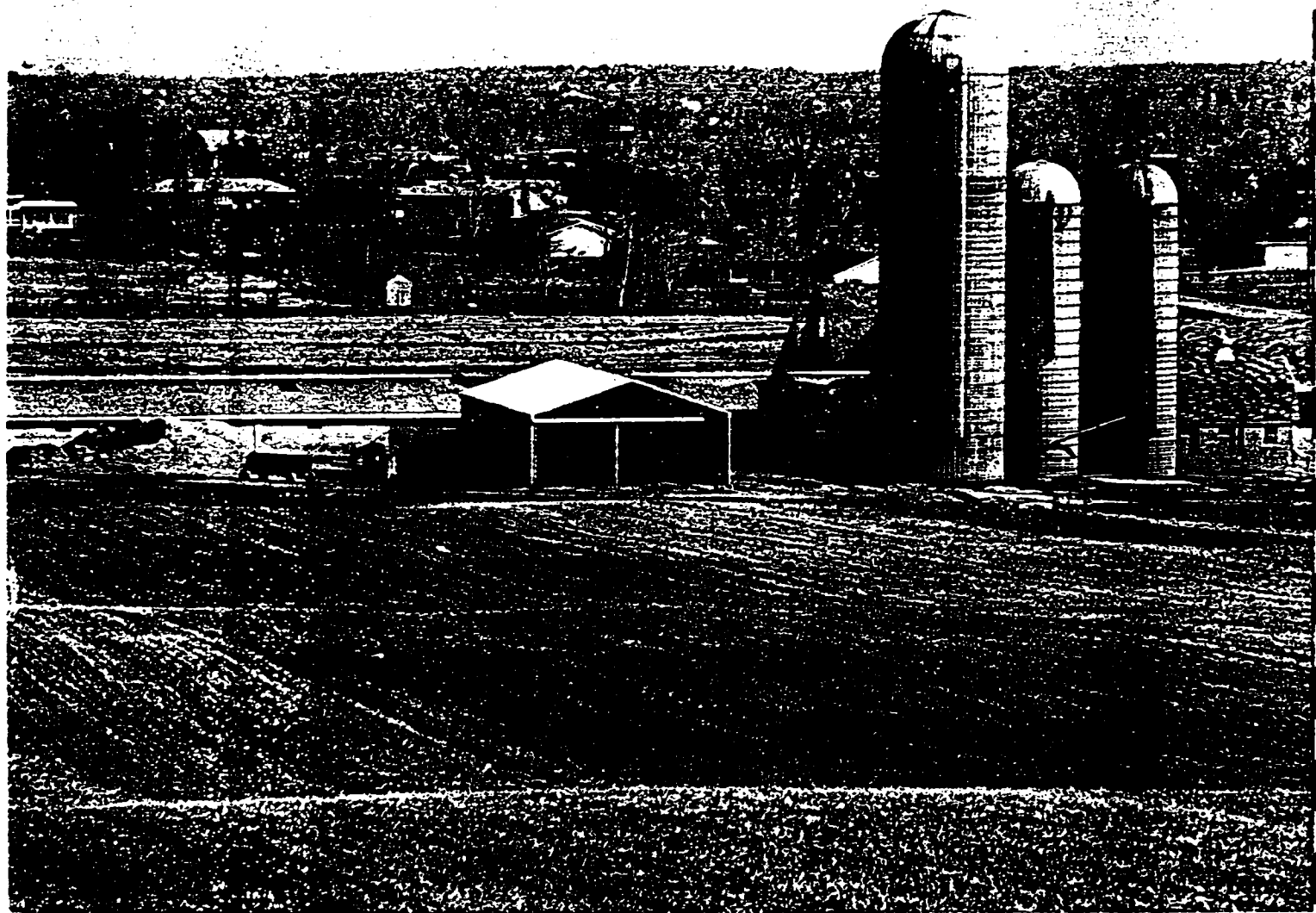
United States
Department of
Agriculture

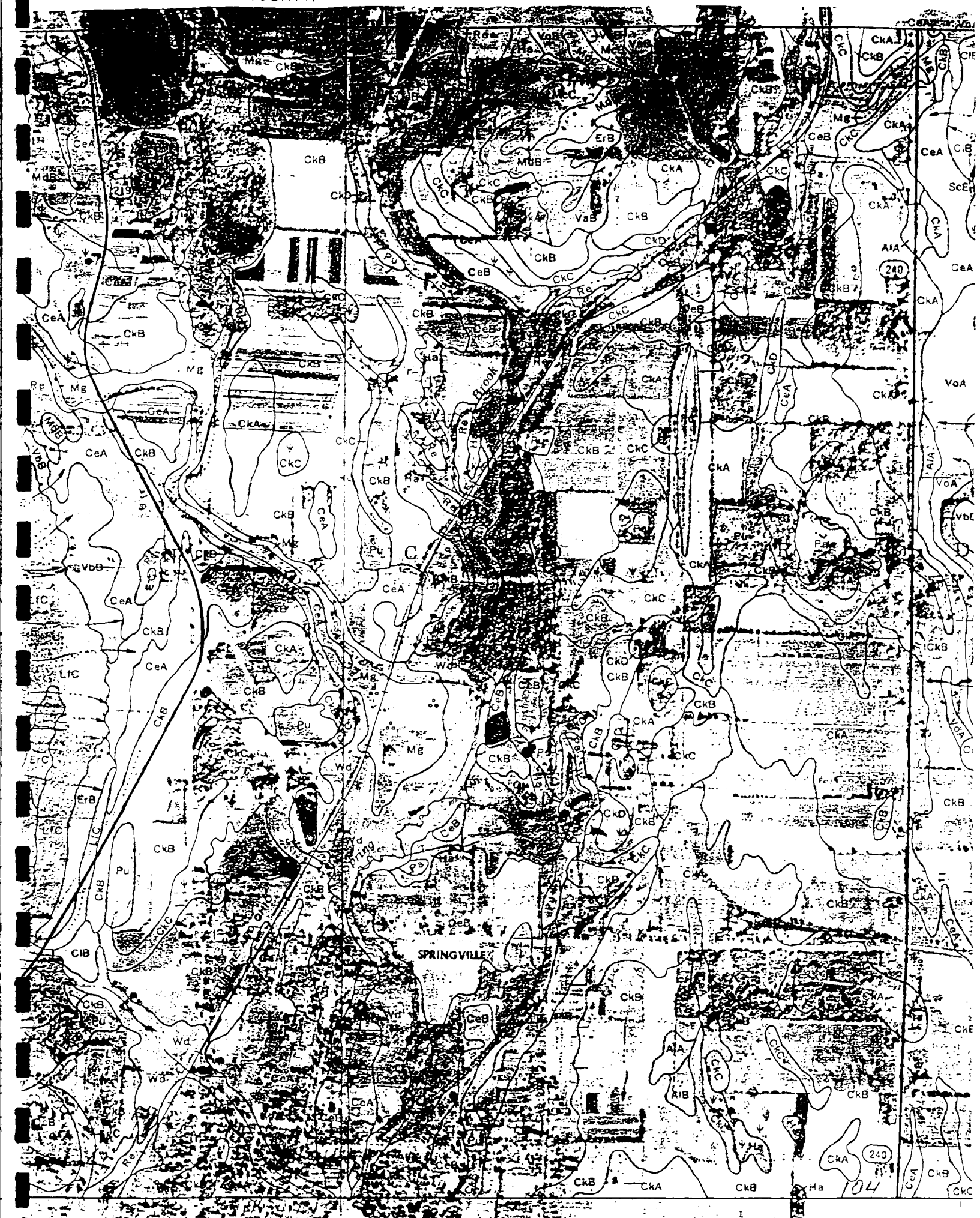
Soil
Conservation
Service

In Cooperation with
the Cornell University
Agricultural
Experiment Station

JSM

Soil Survey of Erie County, New York





A-6

KEY TO MAP

500-Year Flood Boundary	-----	ZONE B
100-Year Flood Boundary	-----	
Zone Designations*		
100-Year Flood Boundary	-----	ZONE B
500-Year Flood Boundary	-----	
Base Flood Elevation Line With Elevation In Feet**	~~~~~ 513 ~~~~~	
Base Flood Elevation in Feet Where Uniform Within Zone**		(EL 987)
Elevation Reference Mark		RM7x
Zone D Boundary	-----	
River Mile		•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

INITIAL IDENTIFICATION:
MAY 17, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
JUNE 4, 1976

NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

VILLAGE OF
SPRINGVILLE,
NEW YORK
ERIE COUNTY

ONLY PANEL PRINTED

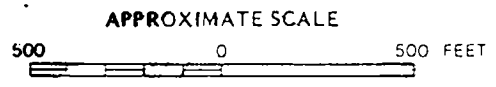
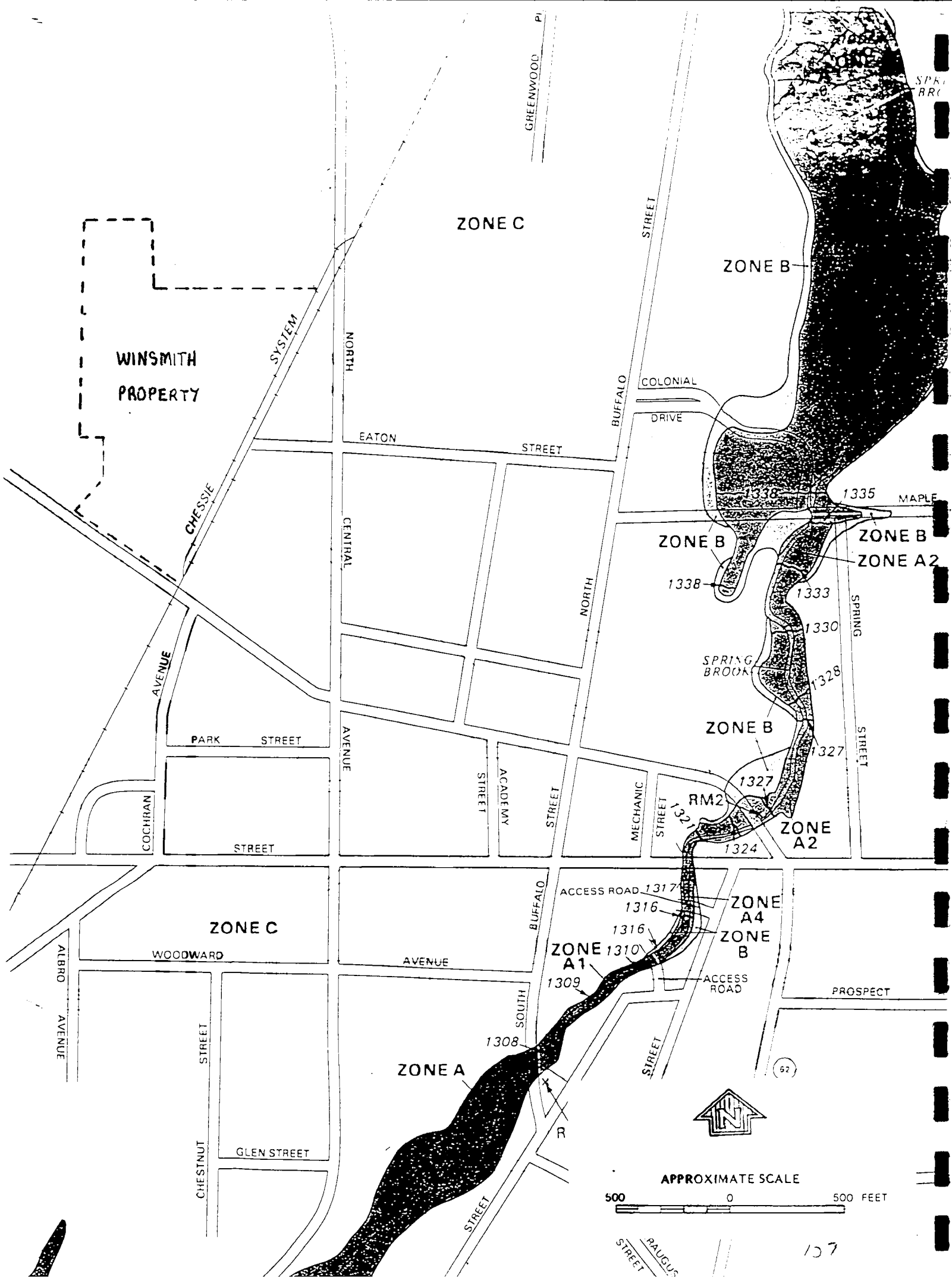
COMMUNITY-PANEL NUMBER

360258 0001 C

MAP REVISED:
JULY 17, 1986



Federal Emergency Management Agency



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**New York State Atlas of
Community Water System Sources
1982**

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

ERIE COUNTY

ID NO COMMUNITY WATER SYSTEM POPULATION SOURCE

Municipal Community

	Akron Village (See No 1 Wyoming Co, Page 10)	3640	
1	Alden Village	3460	Wells
2	Angola Village	8500	Lake Erie
3	Buffalo City Division of Water	357870	Lake Erie
4	Calfee Water Company	210	Wells
5	Collins Water District #3	704	Wells
6	Collins Water Districts #1 and #2	1384	Wells
7	Erie County Water Authority (Surgeon Point Intake)	375000	Lake Erie
8	Erie County Water Authority (Van Dewater Intake)	NA	Niagara River - East Branch
9	Grand Island Water District #2	9190	Niagara River
10	Holland Water District	1670	Wells
11	Lawtons Water Company	138	Wells
12	Lockport City (Niagara Co)		Niagara River - East Branch
13	Niagara County Water District (Niagara Co)		Niagara River - West Branch
14	Niagara Falls City (Niagara Co)		Niagara River - West Branch
15	North Collins Village	1500	Wells
16	North Tonawanda City (Niagara Co)		Niagara River - West Branch
17	Orchard Park Village	1671	Pipe Creek Reservoir
18	Springville Village	4169	Wells
19	Tonawanda City	18538	Niagara River - East Branch
20	Tonawanda Water District #1	91269	Niagara River
21	Wanakah Water Company	10750	Lake Erie

Non Municipal Community

22	Aurora Mobile Park	125	Wells
23	Bush Gardens Mobile Home Park	270	Wells
24	Circle B Trailer Court	50	Wells
25	Circle Court Mobile Park	125	Wells
26	Creekside Mobile Home Park	120	Wells
27	Donnelly's Mobile Home Court	99	Wells
28	Cowanda State Hospital	NA	Clear Lake
29	Hillside Estates	160	Wells
30	Hunters Creek Mobile Home Park	150	Wells
31	Knob Apartments	NA	Wells
32	Maple Grove Trailer Court	72	Wells
33	Millgrove Mobile Park	100	Wells
34	Perkins Trailer Park	75	Wells
35	Quarry Hill Estates	400	Wells
36	Springville Mobile Park	114	Wells
37	Springwood Mobile Village	112	Wells
38	Taylor's Grove Trailer Park	19	Wells
39	Valley View Mobile Court	42	Wells
40	Villager Apartments	NA	Wells

NIAGARA COUNTY

ID NO COMMUNITY WATER SYSTEM POPULATION SOURCE

Municipal Community

	Lockport City (See No 12, Erie Co)	25000	
1	Middleport Village	2000	Wells (Springs)
	Niagara County Water District (See No 13, Erie Co)	48	
2	Niagara Falls City (See also No 14 Erie Co)	77184	Niagara River - East Branch
	North Tonawanda City (See No 16 Erie Co)	36000	

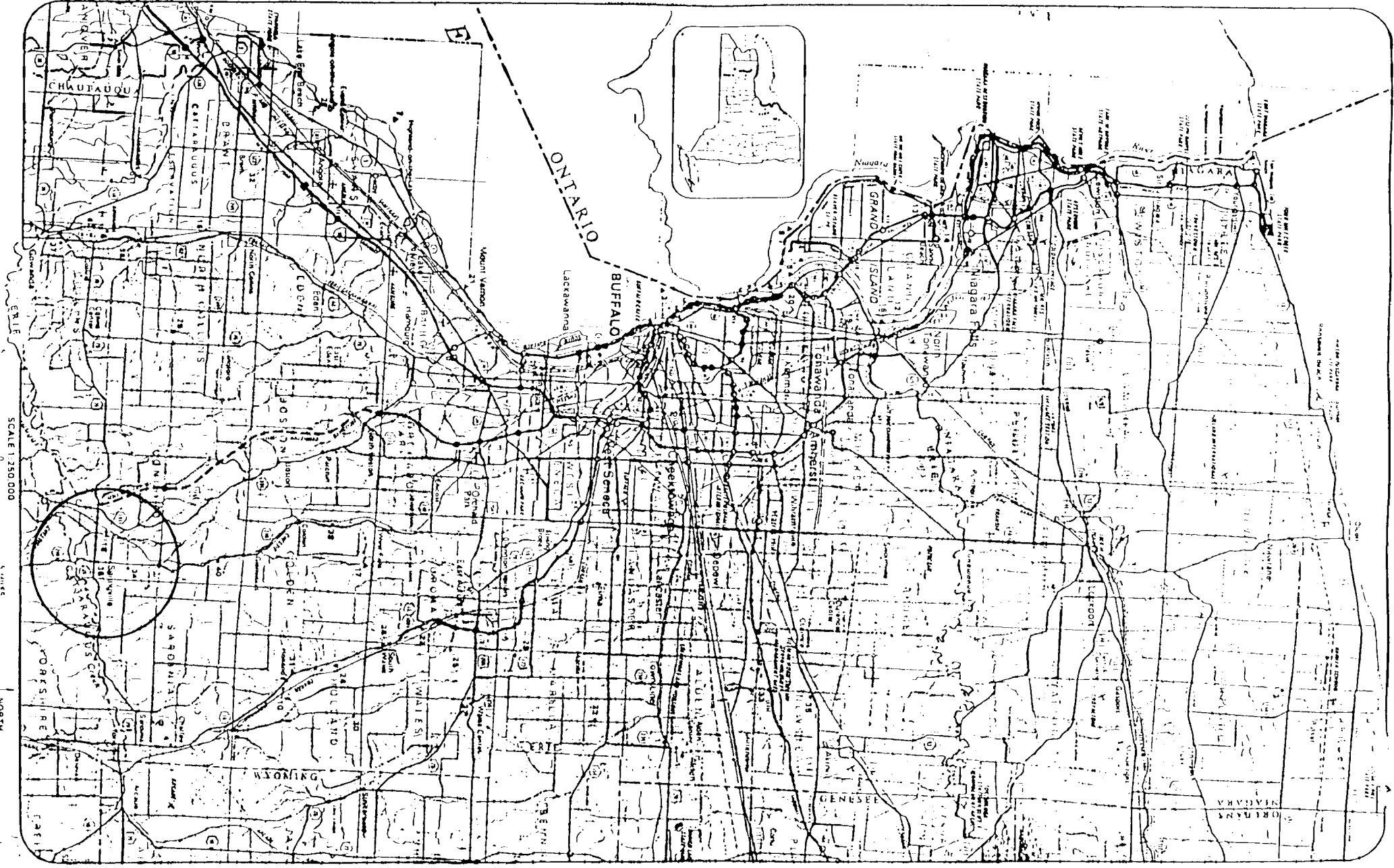
Non Municipal Community

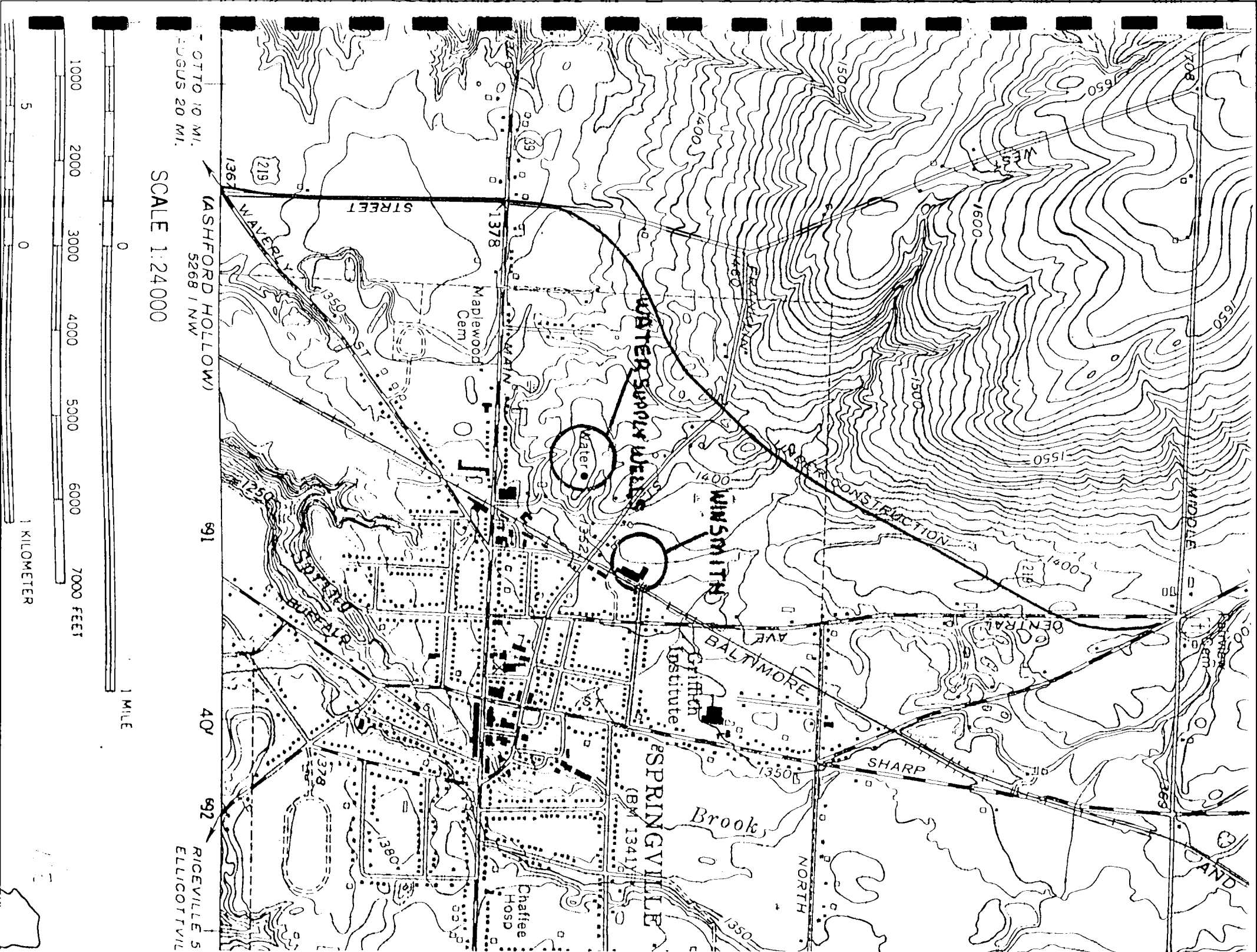
3	Country Estates Mobile Village	28	Wells
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LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

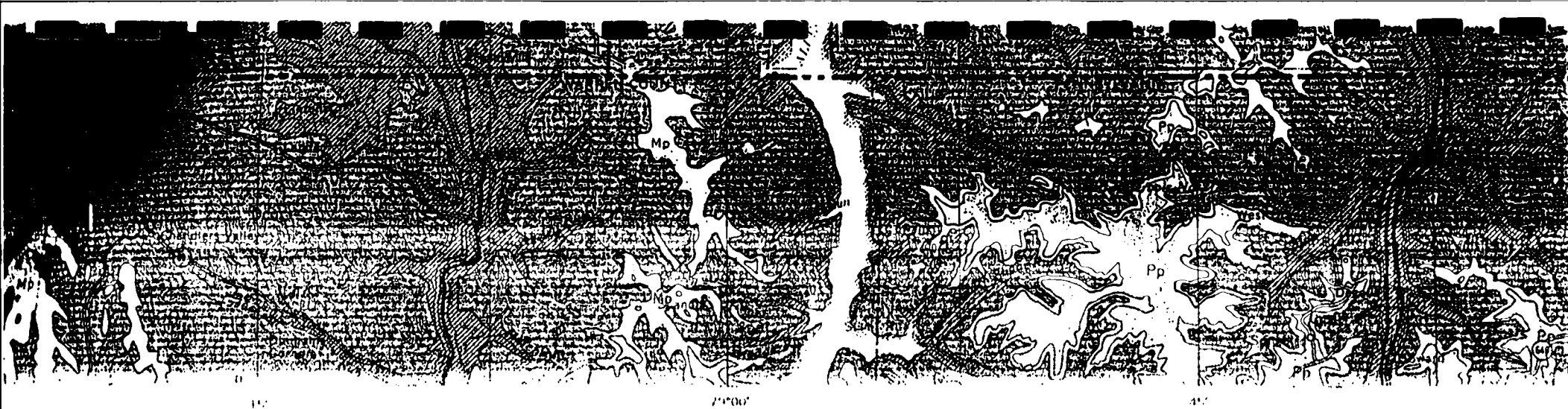
NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

ERIE and NIAGARA COUNTIES





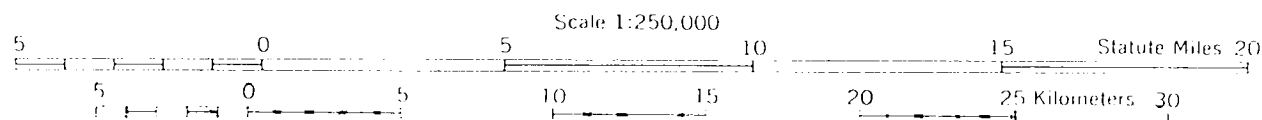
A-8



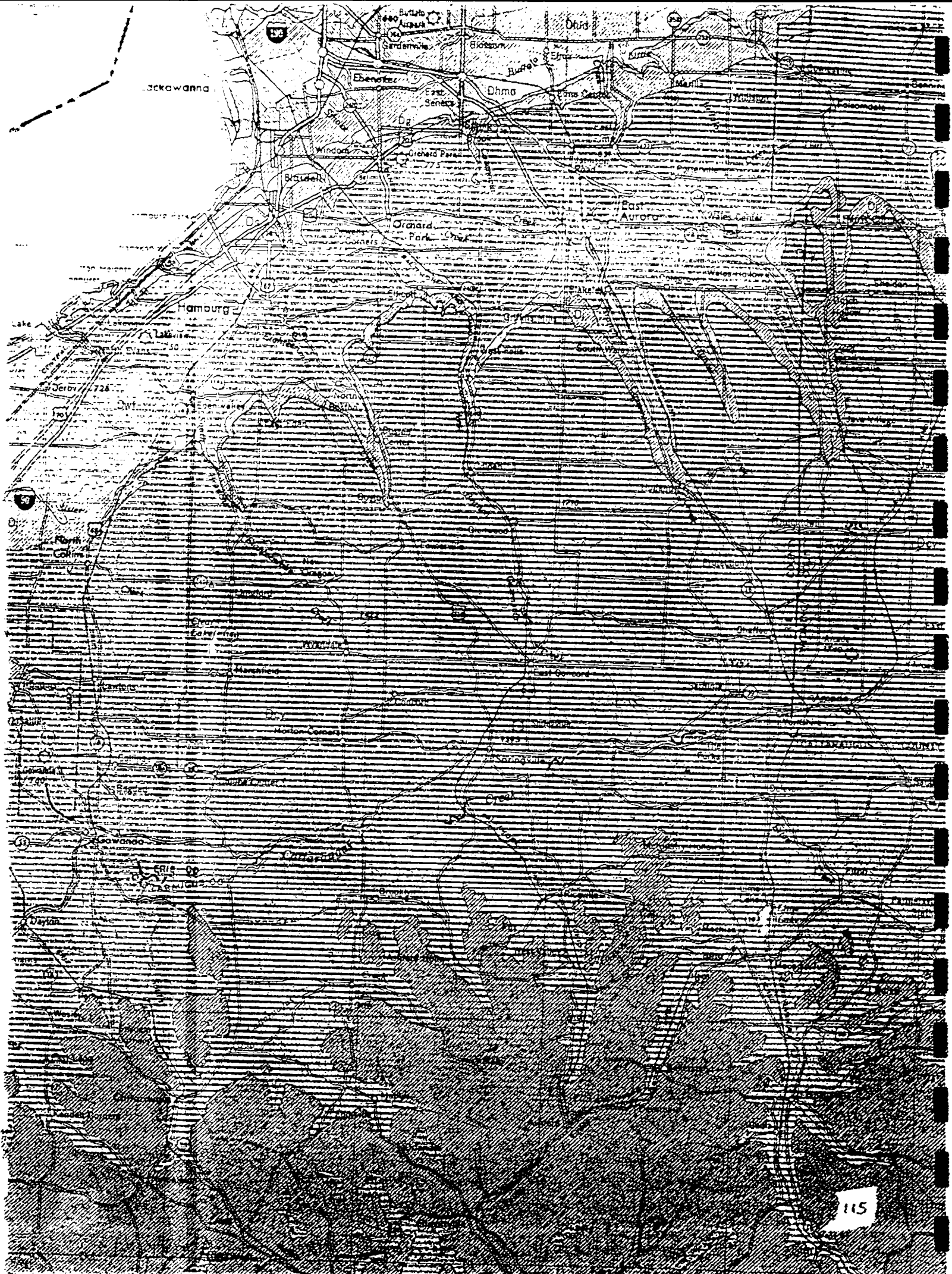
GEOLOGIC MAP OF NEW YORK

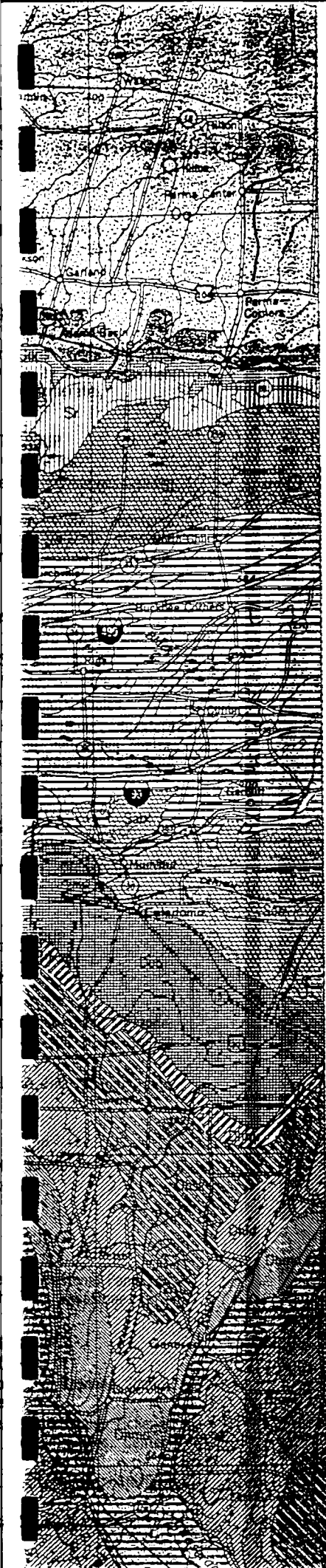
1970

Niagara Sheet



CONTOUR INTERVAL 100 FEET





15'

43°00'

45'

PALEOZOIC

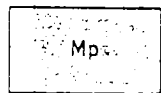
Lower Pennsylvanian
Lower Mississippian

Upper Devonian

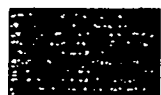
Middle Devonian



Pp **POTTSVILLE GROUP**
Connoquenessing Formation—sandstone, shale; **Sharon Formation**—shale, sandstone, conglomerate; **Olean Conglomerate** 50-100 ft. (15-30 m.)



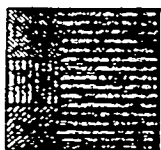
Mp **POCONO GROUP**
Cuyahoga Formation—shale, sandstone; **Corry Sandstone**; **Knapp Formation** 60-100 ft. (20-30 m.)—shale, conglomerate.



Dco **CONEWANGO GROUP**
450-650 ft. (140-200 m.)
Oswayo and Venango Formations—shale, siltstone, sandstone; **replaced eastwardly** by **Cattaraugus Formation**—shale, sandstone, conglomerate.



Dct **CONNEAUT GROUP**
250-600 ft. (75-200 m.)
In west: **Ellicott and Dexterville Formations**—shale, siltstone.
In east: **Germania Formation**—shale, sandstone; **Whitesville Formation**—shale, sandstone; **Minsdale Sandstone**; **Wellsville Formation**—shale, sandstone; **Cuba Sandstone**.



Dcys **CANADAWAY GROUP**
700-1200 ft. (210-370 m.)
Northeast Shale; **Shumla Siltstone**.
Dcyl **Westfield Shale**; **Laona Siltstone**.
Dcyd **Gowanda, South Wales, and Dunkirk Shales**.
Dcy **Machias Formation**—shale, siltstone; **Rushford Sandstone**; **Canadea, Canisteo, and Hume Shales**; **Canaseraga Sandstone**; **South Wales and Dunkirk Shales**.



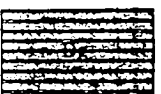
Dj **JAVA GROUP**
100-200 ft. (30-60 m.)
Hanover Shale; **Wiscony Formation**—sandstone, shale; **Pipe Creek Shale**.



Dwf **WEST FALLS GROUP**
400-950 ft. (120-290 m.)
Angola and Rhinestreet Shales.
Dwn **Nunda Formation**—sandstone, shale.
Dwg **West Hill and Gardeau Formations**—shale, siltstone; **Roricks Glen Shale**; **upper Beers Hill Shale**; **Grimes Siltstone**.
Dwr **lower Beers Hill Shale**; **Dunn Hill, Millport, and Moreland Shales**.



Ds **SONYEA GROUP**
50-200 ft. (15-60 m.)
Cashqua and Middlesex Shales.



Dg **GENESEE GROUP**
10-150 ft. (3-45 m.)
West River Shale; **Genundewa Limestone**; **Penn Yan and Genesee Shales**; **North Evans Limestone**.



Dhmo **HAMILTON GROUP**
200-500 ft. (60-150 m.)
Moscow Formation—Windom and Kashong Shales, Menteth Limestone Members.
Dhld **Ludlowville Formation**—Deep Run Shale, Tichenor Limestone, Wanakah and Ledyard Shales, Centerfield Limestone Members.
Dhsk **Skaneateles Formation**—Levanna Shale, Stafford Limestone Members.
Dhmr **Marcellus Formation**—Oatka Creek Shale Member. 116

A-9

Tech/5322/4.2.19

02-8603-32A-SI

FINAL DRAFT
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
UMC aka PEERLESS WINSMITH

PREPARED UNDER
TECHNICAL DIRECTIVE DOCUMENT NO. 02-8603-32A
CONTRACT NO. 68-01-6699

FOR THE
ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

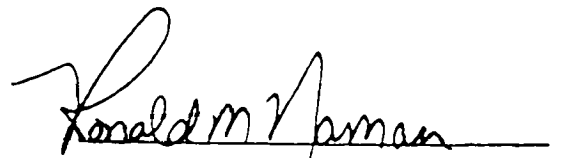
OCTOBER 17, 1986

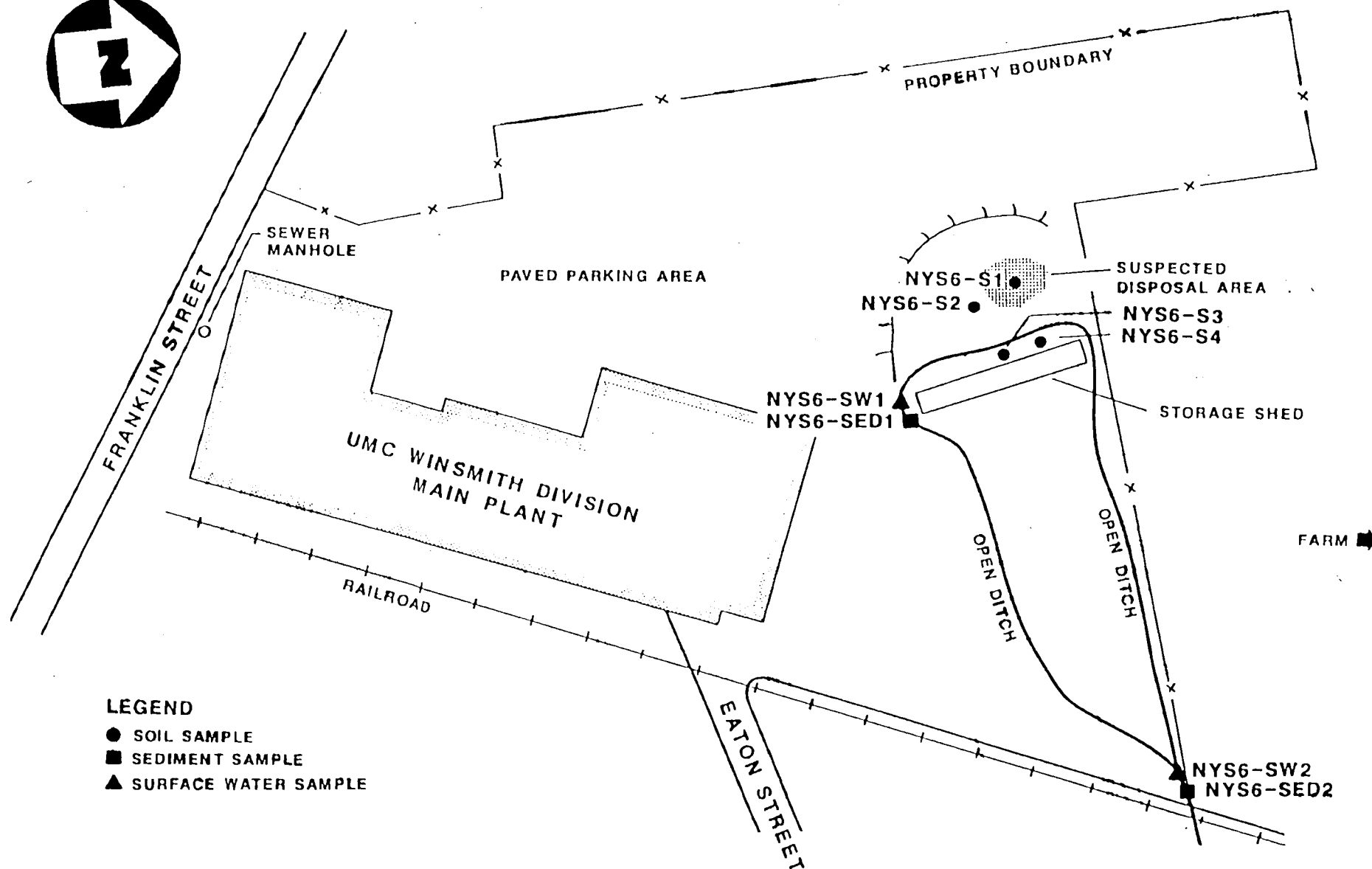
NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY


JOSEPH MAYO
PROJECT MANAGER

REVIEWED/APPROVED BY


RONALD M. NAMAN
REGIONAL PROJECT MANAGER



LEGEND

- SOIL SAMPLE
- SEDIMENT SAMPLE
- ▲ SURFACE WATER SAMPLE

SAMPLE LOCATION MAP

UMC aka PEERLESS WINSMITH, SPRINGVILLE, N.Y.

(NOT TO SCALE)

FIGURE 3



A Halliburton Company

ANALYTICAL DATA
 NAME: UMC a.k.a. PEERLESS WINSMITH
 SAMPLING DATE: 6/10/06
 CASE: 6064

VOLATILES

SAMPLE NUMBER	NYS6-SW1	NYS6-SED1	NYS6-SW2	NYS6-SED2	NYS6-S1	NYS6-S2	NYS6-S3	NYS6-S4	NYS6-BL1
MATRIX	WATER	SEDIMENT	WATER	SEDIMENT	SOIL	SOIL	SOIL	SOIL	BLANK
UNITS	UG/L	UG/KG	UG/L	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
Chloromethane									
Bromomethane									
Vinyl Chloride									
Chloroethane									
Methylene Chloride		E		59	J	J	J	E	J
Acetone		E		162	49	8530	13	26	
Carbon Disulfide									
1,1-Dichloroethene									
1,1-Dichloroethane									
Trans-1,2-Dichloroethene									
Chloroform									
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane				J	J				
Carbon Tetrachloride									
Vinyl Acetate									
Bromodichloromethane						J			
1,1,2,2-Tetrachloroethane									
1,2-Dichloropropane							J		
Trans-1,3-Dichloropropene						J			
Trichloroethene						J			
Bibromochloromethane						J			
1,1,2-Trichloroethane						J			
Benzene						J			
Cis-1,3-Dichloropropene						J			
2-Chloroethylvinylether						J			
Bromoform						J			
2-Hexanone			J			J			
4-Methyl-2-Pentanone					J	J		J	
Tetrachloroethene						J			
Toluene				J		J			
Chlorobenzene				J		J			
Ethylbenzene				J					
Styrene									
Total Xylenes						195000			

NOTES:
 Blank space - compound analyzed for but not detected
 E - analysis did not pass QA/QC requirements
 J - compound present below the specified detection limit.
 B - compound found in laboratory blank as well as the sample,
 indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: UNC a.k.a. PEERLESS WINSMITH
SAMPLING DATE: 6/10/86
CASE: 6064

SEMI-VOLATILES

SAMPLE NUMBER	NYS6-SW1	NYS6-SED1	NYS6-SW2	NYS6-SED2	NYS6-S1	NYS6-S2	NYS6-S3	NYS6-S4	NYS6-BL1
MATRIX	WATER	SEDIMENT	WATER	SEDIMENT	SOIL	SOIL	SOIL	SOIL	BLANK
UNITS	UG/L	UG/KG	UG/L	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
N-Nitrosodimethylamine									
Phenol									
Aniline									
Bis(2-Chloroethyl)Ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl Alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
Bis(2-Chloroisopropyl)Ether									
4-Methylphenol									
N-Nitroso-Di-n-Propylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic Acid									
Bis(2-Chloroethoxy)Methane									
2,4-Dichlorophenol									
1,2,4-Trichlorobenzene									
Naphthalene						J			
4-Chloroaniline						J			
Hexachlorobutadiene									
4-Chloro-3-Methylphenol						J			
2-Methylnaphthalene									
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethyl Phthalate									
Acenaphthylene									
3-Nitroaniline									
Acenaphthene						J			
2,4-Dinitrophenol									
4-Nitrophenol									
Dibenzofuran									
2,4-Dinitrotoluene									
2,6-Dinitrotoluene									
Diethylphthalate							J		
4-Chlorophenylphenyl ether									
Fluorene									
4-Nitroaniline									

ANALYTICAL DATA

NAME: UMC a.k.a. PEERLESS WINSMITH

SAMPLING DATE: 3/10/86

CASE: 6064

SEMI-VOLATILES

SAMPLE NUMBER	NYS6-SW1	NYS6-SED1	NYS6-SW2	NYS6-SED2	NYS6-S1	NYS6-S2	NYS6-S3	NYS6-S4	NYS6-BL1
MATRIX	WATER	SEDIMENT	WATER	SEDIMENT	SOIL	SOIL	SOIL	SOIL	BLANK
UNITS	UG/L	UG/KG	UG/L	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
4,6-Dinitro-2-Methylphenol									
N-Nitrosodiphenylamine									
4-Bromophenylphenyl ether									
Hexachlorobenzene									
Pentachlorophenol									
Phenanthrene									
Anthracene									
Di-n-Butylphthalate									
Fluoranthene							B	I	
Benzidine									
Pyrene									
Butylbenzylphthalate									
3,3'-Dichlorobenzidine									
Benzo(a)Anthracene									
Bis(2-Ethylhexyl)Phthalate									
Chrysene									
Di-n-Octyl Phthalate									
Benzo(b)Fluoranthene									
Benzo(k)Fluoranthene									
Benzo(a)Pyrene									
Indeno(1,2,3-cd)Pyrene									
Bibenzo(a,h)Anthracene									
Benzo(ghi)Perylene									

NOTES:

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 J - compound present below the specified detection limit
 K - compound found in laboratory blank as well as the sample,
 indicates possible/probable blank contamination

ANALYTICAL DATA
 NAME: UMC a.k.a. PEERLESS WINSMITH
 SAMPLING DATE: 6/10/06
 CASE: 6064

PESTICIDES/PCBs

SAMPLE NUMBER	NYS6-SW1	NYS6-SED1	NYS6-SW2	NYS6-SED2	NYS6-S1	NYS6-S2	NYS6-S3	NYS6-S4	NYS6-BL1
MATRIX	WATER	SEDIMENT	WATER	SEDIMENT	SOIL	SOIL	SOIL	SOIL	BLANK
UNITS	UG/L	UG/KG	UG/L	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/L
Alpha-BHC	E	E	E	E	E				E
Beta-BHC	E	E	E	E	E				E
Delta-BHC	E	E	E	E	E				E
Gamma-BHC (Lindane)	E	E	E	E	E				E
Heptachlor	E	E	E	E	E				E
Aldrin	E	E	E	E	E				E
Heptachlor Epoxide	E	E	E	E	E				E
Endosulfan I	E	E	E	E	E				E
Dieldrin	E	E	E	E	E				E
4,4'-DDE	E	E	E	E	E				E
Endrin	E	E	E	E	E				E
Endosulfan II	E	E	E	E	E				E
4,4'-DDD	E	E	E	E	E				E
Endosulfan sulfate	E	E	E	E	E				E
Endrin Aldehyde	E	E	E	E	E				E
4,4'-DDT	E	E	E	E	E				E
Methoxychlor	E	E	E	E	E				E
Endrin Ketone	E	E	E	E	E				E
Chlordane	E	E	E	E	E				E
Toxaphene	E	E	E	E	E				E
Aroclor-1016	E	E	E	E	E				E
Aroclor-1221	E	E	E	E	E				E
Aroclor-1232	E	E	E	E	E				E
Aroclor-1242	E	E	E	E	E				E
Aroclor-1248	E	E	E	E	E				E
Aroclor-1254	E	E	E	E	E				E
Aroclor-1260	E	E	E	E	E	J	J		E

NOTES:

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 B - compound found in laboratory blank as well as the sample,
 indicates possible/probable blank contamination

ANALYTICAL DATA
NAME: UMC a.k.a. PEERLESS WINSMITH
SAMPLING DATE: 6/10/86
CASE: 6064

INORGANICS

SAMPLE NUMBER MATRIX UNITS	NYS6-SW1 WATER UG/L	NYS6-SED1 SEDIMENT MG/KG	NYS6-SW2 WATER UG/L	NYS6-SED2 SEDIMENT MG/KG	NYS6-S1 SOIL MG/KG	NYS6-S2 SOIL MG/KG	NYS6-S3 SOIL MG/KG	NYS6-S4 SOIL MG/KG	NYS6-BL1 BLANK UG/L
Aluminum	995	1900	3200	10300	9520	8240	10700	9930	
Antimony		J		J	J	J	J	J	
Arsenic					B	15	B	B.4	
Barium	J		J	J	J	J	J	J	
Beryllium									
Cadmium	E		E				14		
Calcium	49300	130000	60700	9440	7440	6110	2160	2220	290
Chromium		J		E	E	E	E	E	
Cobalt					J	J	J	J	
Copper		J		J	41	96	50	24	
Iron	E	4450	E	19400	26100	51300	24800	22900	424
Lead		17		38	27	27	53	33	
Magnesium	7710	2670	9010	3220	4960	3700	3550	2700	E
Manganese	79	187	197	323	643	850	849	865	
Mercury	0.3		1.2	J		0.1			
Nickel	J	J	J	J	44	130	44	30	J
Potassium	E	E	E	J	J	J	J	J	J
Selenium		J		J	J	J	J	J	
Silver									
Sodium	E	E	E	E	E	E	E	E	E
Thallium									
Tin	J	J	J			J	J	J	
Vanadium	J	J		27	J	J	J	J	
Zinc	E	90	E	602	155	200	174	183	J
Cyanide			J						

NOTES:
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B - compound found in laboratory blank as well as the sample,
indicates possible/probable blank contamination

A-10

Geology of New York

adapted from the text of
"Geologic Map of New York State"
by J. G. Broughton, D. W. Fisher,
Y. W. Isachsen, L. V. Rickard

REPRINTED 1976

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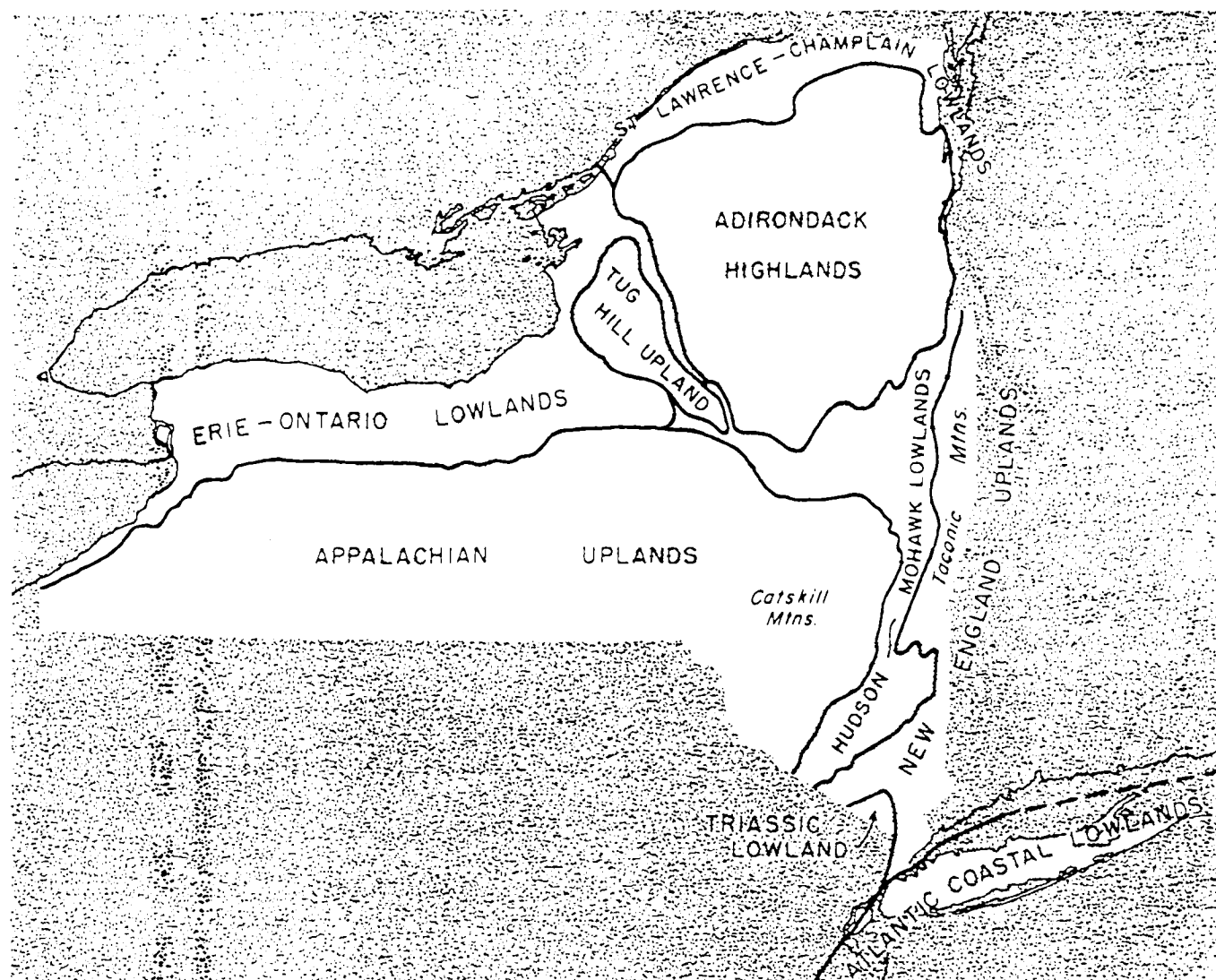


FIGURE 19. Physiographic provinces of New York, based on relief and geology (Modified after G. B. Cressey, 1952)

Cenozoic Era

PHYSIOGRAPHIC PROVINCES AND TERTIARY HISTORY

The physiographic provinces of New York are shown in figure 19. Modern landscapes of the State were shaped largely during the Cenozoic Era, the most recent 65 million years of geologic history. Although the overall features later would be modified and blurred by glaciation, the broad outlines of modern mountain, valley, and plain first were carved by the unrelenting rush of water to the earlier Cenozoic seas.

The long sequence of erosion presumably began with the arching of the Jurassic Fall Zone erosion surface in

mid-Cretaceous time. As its eastern flank dipped beneath the encroaching Atlantic Ocean to receive Coastal Plain deposits, the axis domed sufficiently to initiate the sculpture of the Appalachians and Adirondacks. Few, if any of today's land forms can be traced so far back, however. Most researchers believe that all the exposed remnants of the dissected Fall Zone surface were obliterated by subsequent erosion.

South of New York, at least a partial record of Tertiary geology persists in the Coastal Plain deposits. In addition to a sedimentary record, datable igneous intrusions cut rocks of varying degrees of deformation in the western states. But in New York, no such tangible evidence of Cenozoic events exists. The Coastal Plains sediments derived from the long-continued degradation of New York and New England now rest on the Continental

Appalachian Uplands

The Appalachian Uplands (the northern extreme of the Appalachian Plateau) were formed by dissection of the uplifted but flat lying sandstones and shales of the Middle and Upper Devonian Catskill Delta (figure 17). The southeastern border of the province, between Kingston and Port Jervis, is formed by the Silurian Shawangunk Conglomerate. Relief is high to moderate. Maximum dissection is in the Catskill Mountain area, where only the mountain peaks approximate the original plateau surface. (Slide Mountain, at 4,202 feet, is the highest peak.) Farther west, the plateau surface is represented by flat-topped divides. Except for Cattaraugus Creek, the Genesee River, the Finger Lakes, and minor streams along the Catskill front, drainage generally is southwest into the Allegheny, Susquehanna, and Delaware River systems.

The northern edge of the province is cut by the Finger Lake troughs, which are glacially modified valleys of preglacial rivers (figure 20). At least two of the lakes (Cayuga and Seneca) have bedrock floors below sea level. Glacial cover generally is thin, although deposits in some north-south valleys are so thick that they are completely buried. The major eastwest drainage divide of central New York, the Valley Heads Moraine, is a recessional moraine south of the present Finger Lakes. Only the Alleghany State Park area has escaped glaciation (figure 21).

New England Uplands

Another diverse and geologically complex province is the New England Uplands. To the south it includes the Hudson Highlands and the area underlain by the New York City Group; farther north it encompasses the hilly country (Taconic Mountains) between the Hudson River and the Connecticut, Massachusetts, and Vermont borders. Rocks in the New England Uplands are either metamorphic or igneous, and land forms are closely related to their durability.

Maximum relief is in the Hudson Highlands, where elevations range from 800 feet below sea level (bedrock of the Hudson River Valley) to more than 1,500 feet. Strong topographic linearity characterizes the Hudson Highlands; most of the ridges and valleys follow the northeast-southwest strike of the metamorphosed rocks.

Although the rocks of the New York City Group do not show a similar regularity of trend, here, too, the geology and topography are closely related.

The general north-south trend of the Taconic Mountains depends on the strike of the schist (which forms the hills) and the limestone in the valleys. The Rensselaer Plateau, which is held up by the resistant Rensselaer



FIGURE 20. Hypothetical Tertiary drainage systems

Graywacke, is an exception. Its rolling surface, with a relief of about 500 feet, is approximately 20 miles long (north-south) by 9 miles wide (east-west). The Taconic Mountains generally are considered to be bounded on the west by the Chatham thrust and on the east by the limestone valley lying just west of the Green Mountains and the Berkshires.

The entire province has been glaciated.

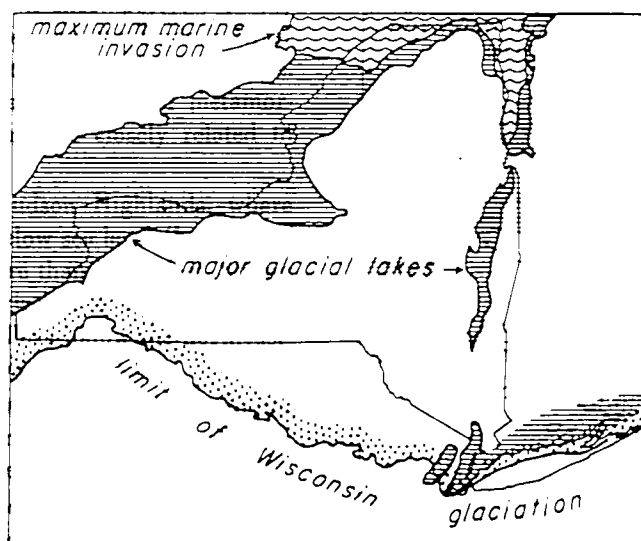
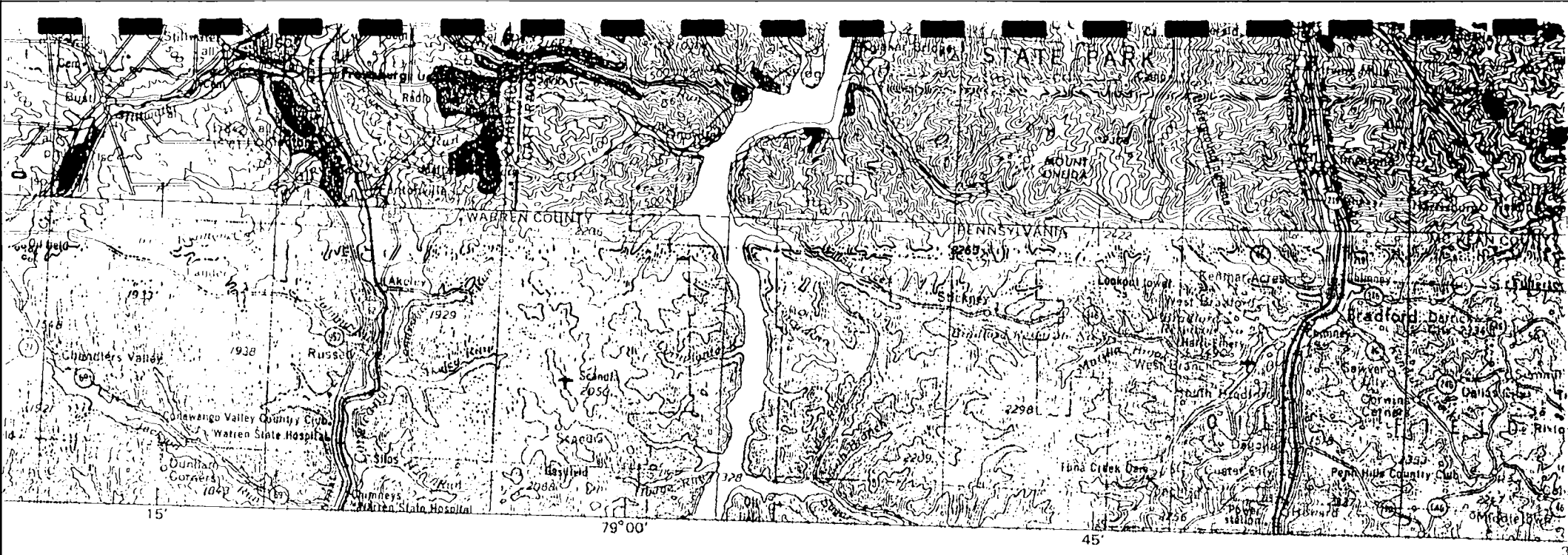


FIGURE 21. Pleistocene features, including maximum extent of Wisconsin glaciation, areas inundated by major lakes and by marine invasions

A-11

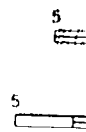


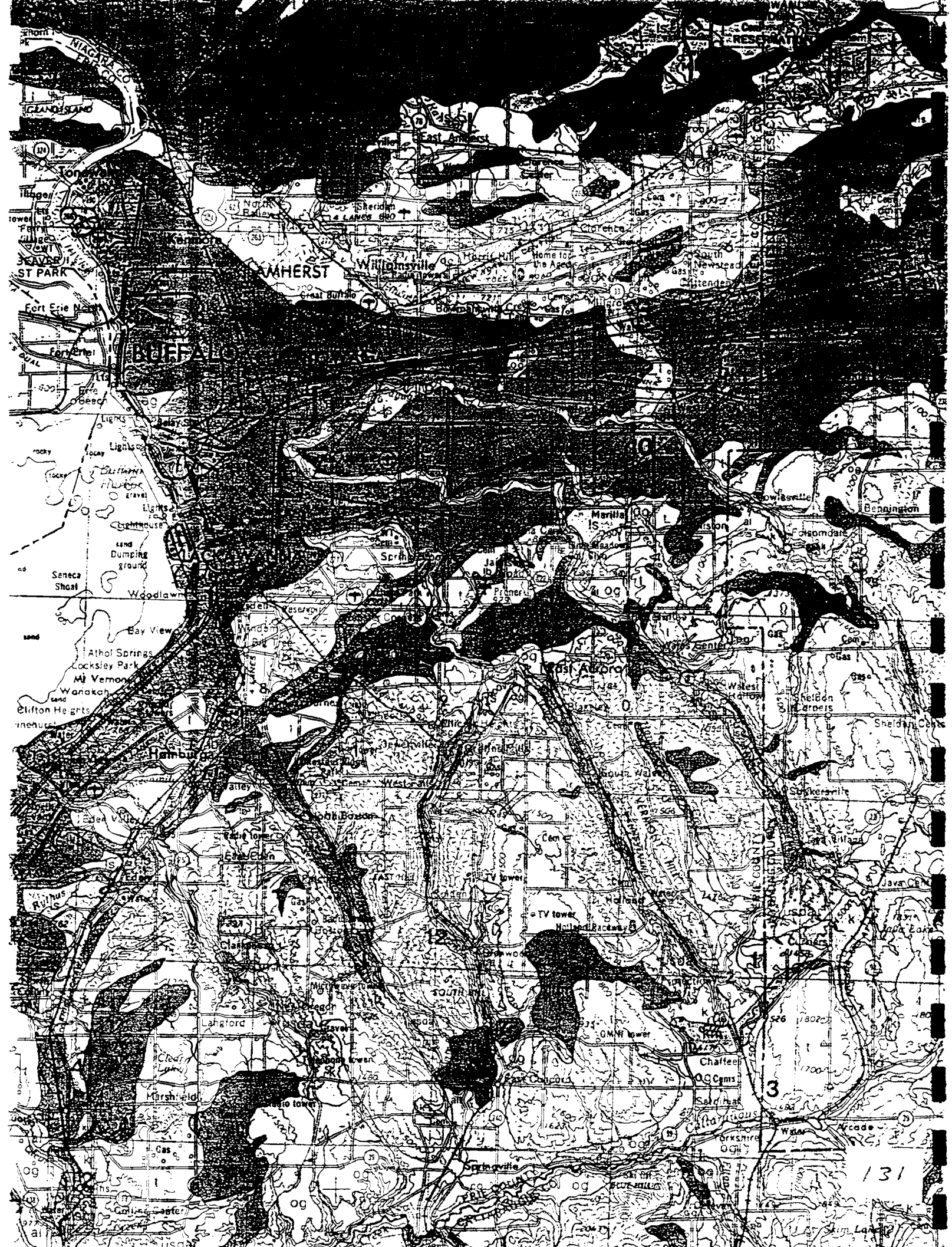
SURFICIAL GEOLOGIC MAP OF NEW YORK

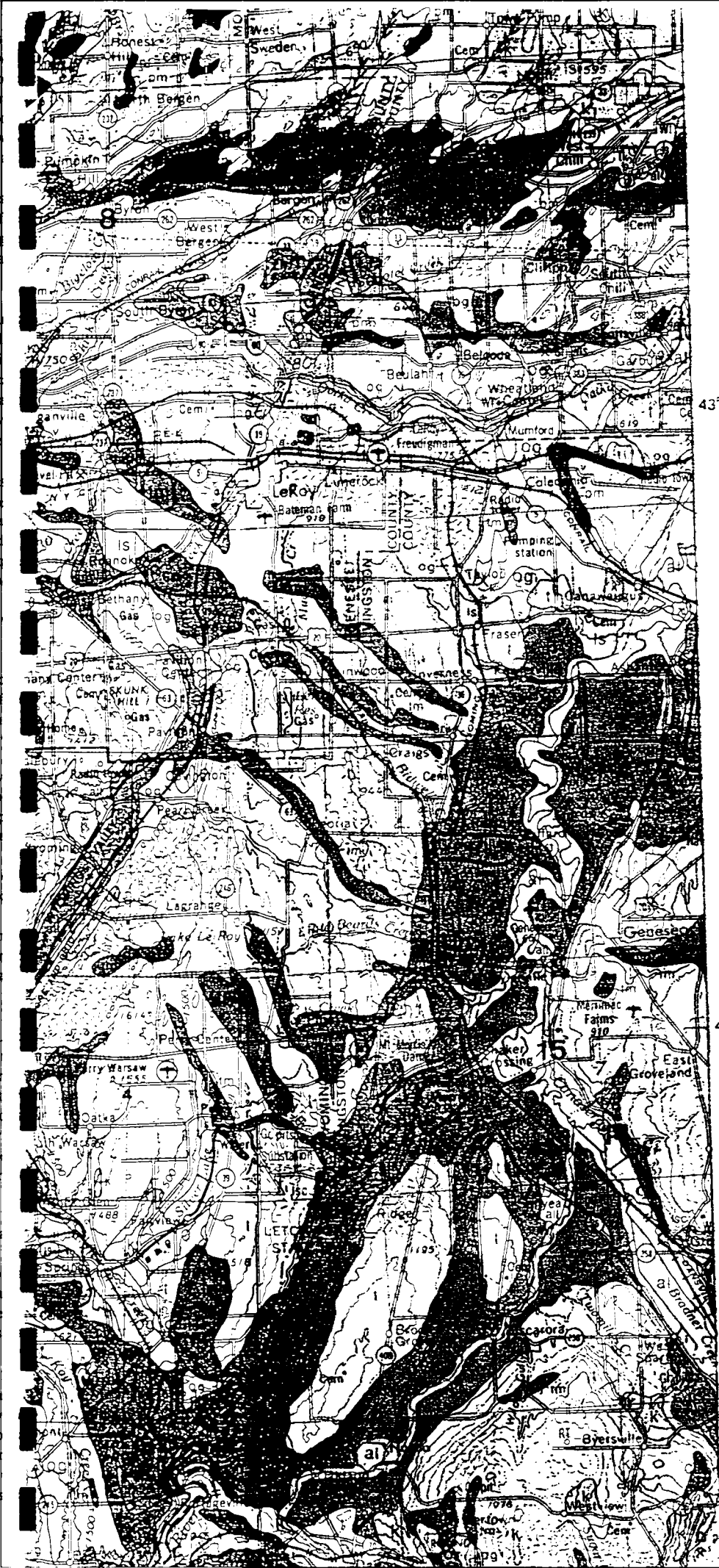
NIAGARA SHEET

Compiled and Edited by Donald H. Cadwell

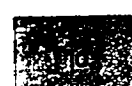
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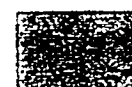




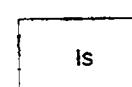
lb — Lacustrine beach
Generally well sorted **sand and gravel**, stratified, permeable and **well drained**, deposited at a lake shoreline, generally non-calcareous, may have wave-winnowed lag gravel, thickness variable (1-5 meters).



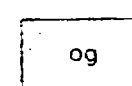
ld — Lacustrine delta
Coarse to fine gravel and **sand**, stratified, generally **well sorted**, deposited at a lake shoreline, thickness variable (3-15 meters).



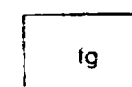
lsc — Lacustrine silt and clay
Generally laminated **silt and clay**, deposited in proglacial lakes, generally calcareous, potential land instability, thickness variable (up to 100 meters); stipple overprint where bedrock is within 1-



ls — Lacustrine sand
Sand deposits associated with large bodies of water, generally a near-shore deposit or near a sand bar, generally well sorted, stratified, generally quartz sand, thickness variable (2-20 meters).



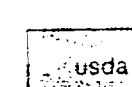
og — Outwash sand and gravel
Coarse to fine gravel with sand, proglacial fluvial deposition, well rounded and stratified, generally finer texture away from ice border, may be calcareous beyond Wisconsinan glacial limit, thickness variable (2-20 meters).



fg — Fluvial gravel
Same as outwash sand and gravel, except deposition farther from glacier, age uncertain.



k — Kame deposits
Includes kames, eskers, kame terraces, kame ridges, coarse to fine gravel and/or sand, deposition adjacent to ice (if at ice margin lateral variability in sorting, coarseness and thickness may be calcareous beyond Wisconsinan glacial limit, thickness variable (10-30 meters).



usda — Undifferentiated stratified drift as defined by the Wisconsin Geological Survey. Dominantly clay, silt and sand, limited gravel and diamicton, stratification includes undisturbed and deformed ice contact structures, lenticular, discontinuous bodies of gravel may represent dead-ice, disintegration and other depositional environments, thickness variable (3-30 meters).



km — Kame moraine
Variable texture (size and sorting) from beach to delta, deposition at an ice margin during deglaciation, relief is above elevation of associated outwash, locally cemented with calcareous cement, thickness variable (10-30 meters).



tm — Till moraine
More variably sorted than till, generally more permeable than till, deposition adjacent to ice, more variably drained, may include ablation till, thickness variable (10-30 meters).



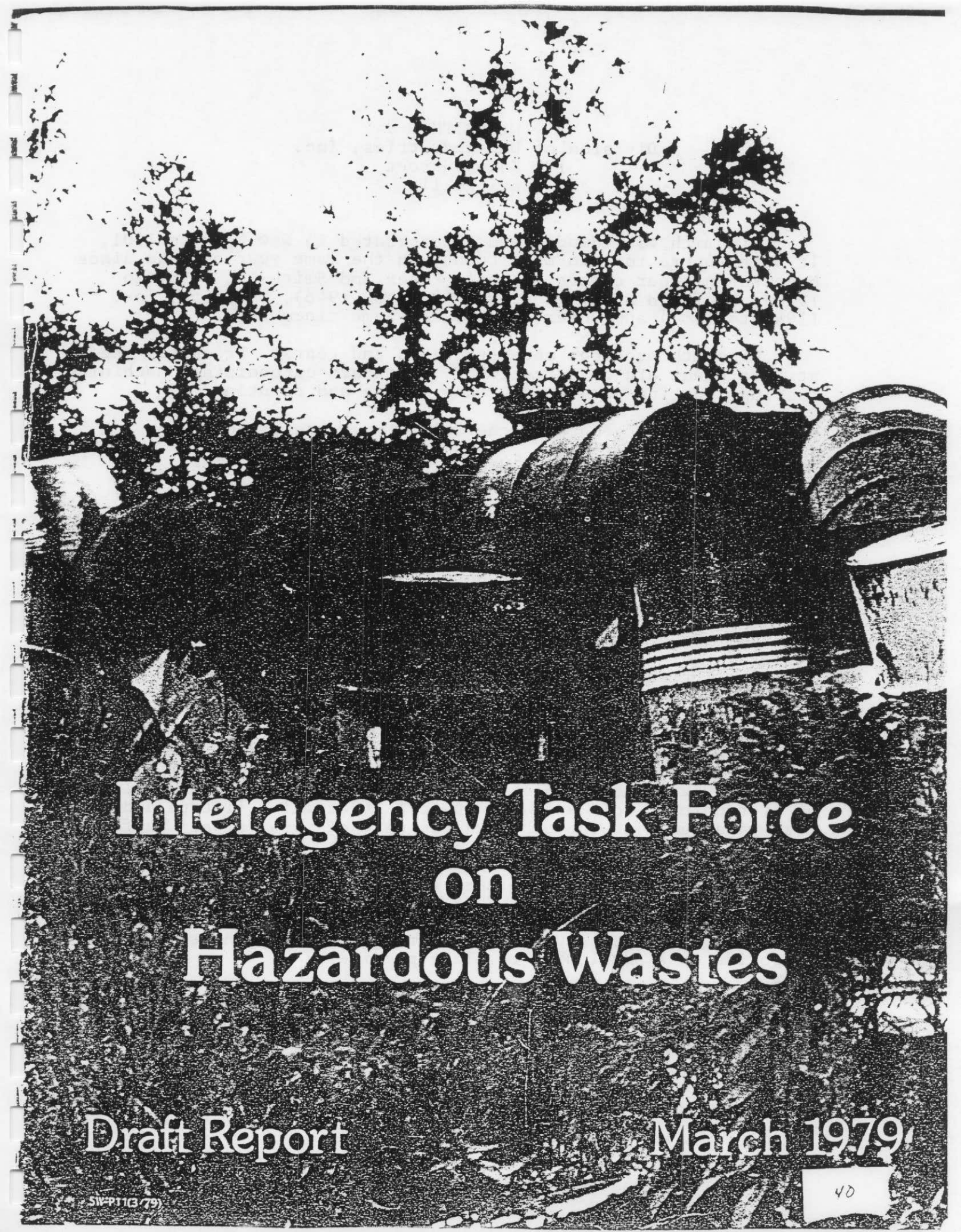
t — Till
Variable texture (e.g. clay, silt-clay, boulders, etc.)

Section 2
Documents Cited

LIST OF DOCUMENTS CITED

- B-1 *Interagency Task Force on Hazardous Wastes*, Draft Report, March 1979.
- B-2 *Process Waste and Landfill Investigations*, Calspan Advanced Technology Center, December 4, 1978.
- B-3 Telephone interview of Mike McMurray, NYSDEC Region 9, by Engineering Science, January 3, 1980.
- B-4 Telephone interview of Greg G. Ecker, NYSDEC Region 9, by Leslie Gracz, DUNN, March 6, 1991.
- B-5 UMC Corporation, Winsmith Division, DEC #915058, Erie County Department of Environment and Planning, October 1983.

B-1



Interagency Task Force on Hazardous Wastes

Draft Report

March 1979

WINSMITH
Division of UMC Industries, Inc.
172 Eaton Street
Springville

Winsmith was founded and incorporated in New York in 1901. It began operations in Erie County in the same year and has since been known under several names! Essex and Smith Co. (1901 to 1924), Winfield H. Smith, Inc. (1924 to 1946), Winsmith, Inc. (1946 to 1963) and under its present name since 1963.

Winsmith produces speed reducers and gears. Processes used at this plant are heat treatment, salt bath carbonizing, machining (boring, cutting and facing), degreasing and painting.

The company generates the following waste products:

1. Steel fines, grinding fines (98 percent) mixed with waste coolant oil and water (2 percent).
2. Kolene heat treatment spillage ("Marquench #296", a salt material containing sodium cyanide).
3. Hydrochloric acid neutralized with sodium hydroxide. Some iron is present in this solution.
4. Machine, cutting and cooling oils.
5. Dried paint filters.
6. General industrial wastes.

From 1956 to 1976, all of the wastes identified above (except waste oils) were disposed of at the Chaffee Landfill. In 1976, 3750 gallons of Kolene heat treatment spillage, 600 gallons of hydrochloric acid and 462 square feet of paint filters and unknown amounts of the other wastes were disposed of at Chaffee.

Since 1976, Southtown Sanitation has hauled Winsmith's waste to either the Lancaster Sanitary Landfill or the Chaffee Landfill.

The company has also indicated that it dumped Kolene heat treatment spillage, neutralized hydrochloric acid and sodium hydroxide on a small hill on plant premises.

B-2

3/29/82

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CALSPAN ADVANCED TECHNOLOGY CENTER

PROCESS WASTE AND LANDFILL INVESTIGATIONS

Calspan Report No. 6419-M-1

by

Richard P. Leonard
Environmental Sciences Department
December 4, 1978

Prepared For:

Winsmith Division
UMC Industries Inc.
172 Eaton Street
Springville, New York 14141

Purchase Order No. P33921

A DIVISION OF CALSPAN CORPORATION
AN ARVIN COMPANY PO BOX 400 BUFFALO NEW YORK 14226

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SUMMARY

A number of process solid and liquid wastes from the Winsmith plant, Springville, New York were sampled and analyzed for selected constituents including cyanide, oil and grease, and chlorinated hydrocarbons. Present waste treatment and disposal practices have been evaluated. Recommendations for improved treatment and disposal practices have been made. Disposal of cyanide salt bath wastes in secured chemical landfill (or cyanide destruction if not accepted in chemical landfill) is included. Other recommendations include segregation of other wastes from waste and tramp oil, and discharge of O.D. coolant water and neutralized acid and alkaline wastes to sanitary sewers rather than storm sewers.

Storm drainage from the manufacturing and abandoned landfill areas did not have significant concentrations of cyanide (<1 ppm) or chlorinated hydrocarbons (<1 ppb). Storm drainage from the plant area was slightly elevated in oil and grease content.

Soil borings taken in the vicinity of the abandoned on-site landfill show that the landfilled material was restricted to a pit with measurements of ~20' x 15' x 10' deep. Samples of water and solids taken from the pit did not contain measurable cyanide. Some oil and grease were present. It was concluded that the abandoned landfill did not present ground or surface water contamination problems.

TASK I

WASTE CHARACTERIZATION AND INTERPRETATION

On October 2, 1978 Richard Leonard and George Zigrossi of Calspan obtained samples of the following process solid and liquid wastes from the Winsmith plant.

- Sample #1 - cyanide salt bath waste (solid)
- Sample 2 - neutral pot skimmings (solid)
- Sample 3 - quench pot skimmings (solid)
- Sample 4A - cooling water from metal salt bath treatments
- Sample 4B - cooling water tank sludge
- Sample 5 - waste and tramp oils
- Sample 6 - coolant from O.D. grinders
- Sample 12 - Roto-Brite Cleaner

The purpose of sampling these wastes was to chemically analyze them for selected constituents (i.e., cyanide, chlorinated hydrocarbons) which may necessitate special care in disposal. Results of chemical analyses of the above samples are given in Table 1.

The solubility of the cyanides in the cyanide salt bath waste (Sample #1) and the neutral pot skimmings (Sample #2) was ascertained by leaching one gram samples with 250 ml deionized water at a pH of approximately 5.0 and measuring soluble cyanide concentration. Concentrations of cyanide in the leach solution for the cyanide salt bath and the neutral pot skimmings were 520 ppm and 8.4 ppm respectively.

Recommendations For Process Waste Treatment and Disposal

Cyanide Bath Wastes. The elevated levels of total cyanide present in the cyanide salt bath waste, and to a lesser extent the neutral pot skim, result from the use of sodium cyanide salts in the metal heat treatment processes. The quench pot skimmings had no measurable cyanide (<0.001%). Because of the

TABLE 1

CHEMICAL ANALYSES OF PROCESS WASTE SAMPLES

<u>Sample Number and Description</u>	<u>Cyanide (CN)</u>	<u>Chlorinated[*] Hydrocarbons</u>
1. Cyanide salt bath	5.5%	-
2. Neutral pot skimmings	0.1%	-
3. Quench pot skim	<0.001%	-
4A. Cooling water	2.75 ppm	-
4B. Cooling water sludge	<0.04 ppm	-
5. Waste tramp oil	15.0 ppm	23,000 ppb
6. Coolant O.D. grinders	<0.02 ppm	17 ppb
12. ROTO-BRITE Cleaner	<0.02 ppm	9 ppb

- not analyzed and not believed present

* Specific chlorinated compounds not identified. Chlorinated hydrocarbons reported as lindane standard although lindane not present.

danger of cyanide release as HCN if acids come in contact with cyanide salt bath or neutral pot skim in the disposal environment, and appreciable water solubility, it is recommended that these wastes be put into secured chemical landfills. In secured chemical landfills they would be put in drums isolated from any acids, and covered with lime. In the event that the cyanide wastes cannot be accepted by a licensed secured chemical landfill, methods of cyanide destruction (i.e., alkaline chlorination) should be investigated. If cyanides can be destroyed then disposal in a municipal landfill appears acceptable.

It may be expected that cooling water and cooling water sludge from the metal treating processes may have small amounts of cyanide. Discharge of these wastes to storm sewers could be eliminated by collection and recycle of overflow and periodic disposal of sludge to chemical landfill.

The source of the somewhat elevated-cyanide level (15 ppm) in the waste and tramp oil is difficult to identify. Further sampling and analysis is recommended to confirm if it is often present in waste oils.

Waste and Tramp Oils, Waste tramp oil was found to contain elevated levels of chlorinated hydrocarbons. O.D. grinder coolant and Roto-Brite Cleaner were also found to contain significant concentrations of chlorinated hydrocarbons.

The source of chlorinated hydrocarbons in the above process wastes appears to be TRIM SOL which is used as a cutting additive. TRIM SOL is reported to have chlorinated paraffin wax as a major constituent* (i.e., greater than 10%). Data is presented by the manufacturer indicating that TRIM SOL is non-toxic and non-hazardous.*

The presence of cyanides and chlorinated hydrocarbons in waste and tramp oils suggests that care should be taken to exclude these contaminants if the oil is to be collected and spread on roads for dust cover. Any runoff of cyanide or chlorinated hydrocarbons from road surfaces to ditches is undesirable.

* Letter from W.A. Sluhan to Mr. Earl Bartley dated 30 April, 1976
Confidential

It is cautioned that the gas chromatographic method of analyses used for chlorinated hydrocarbon analyses does not identify specific chlorinated hydrocarbon compounds and only gives strong evidence of chlorinated hydrocarbon presence (specific identification of chlorinated hydrocarbons generally requires analyses by gas chromatography-mass spectrometer and is costly, approximately \$350 per sample).

It may be possible to ascertain if the chlorinated hydrocarbons found in the oil, O.D. grinder coolant and Roto-Brite Cleaner are the same as those in the TRIM-SOL by analyzing a sample of the TRIM-SOL in the gas chromatograph.

O.D. Grinder Coolant. The water soluble coolant is an approximately 1% solution of a water soluble coolant known as Cimplus. Presently five to six barrels/month (approximately 330 gal) of spent coolant are discharged to the storm drain. Major constituents of cimplus according to the manufacturers are sodium nitrite (NaNO_2) and amines. The product does not contain oil or chlorinated hydrocarbon.

The sample of spent coolant analyzed by Calspan was found to contain a small but undesirable concentration of chlorinated hydrocarbons (17 ppb) which may have been contaminated by the TRIM-SOL product.

It appears that the most environmentally sound method of disposing of this waste would be bleed into the sanitary sewer system. The Springville sewage treatment plant is a biological trickling filter handling about 500,000 gallons/day. An estimate of sanitary sewage discharge from the Winsmith plant based on 60 gpd/employee is approximately 30,000 gpd. It appears that bleed of 25 to 50 gal/day of spent O.D. grinder coolant would not upset the biological treatment plant and would result in high removal of organics from this waste.

Acid and Alkaline Cleaners. The acid and alkaline cleaners used by Winsmith are manufactured by Oakite. Major constituents are:

Oakite 32 - 30% HCl

Oakite 443 - 15% sodium silicate (Na_2SiO_2) 5% nitrite salts

Oakite Formula C - 10% alkanolamine, 0.5% organic phosphorus

Oakite Dynadet - 50%, NaOH, 6% inorganic phosphate

At present acid and alkaline cleaner wastes are neutralized by mixing together and disposed of in the storm sewer. It is estimated that 100-200 gal/week of this waste are discharged.

It appears that neutralization of the above wastes within a pH range of 7.0 to 8.5, followed by discharge to the sanitary sewer, is a more environmentally sound method of pretreatment and disposal. Bleed of this neutralized waste should not upset the biological treatment system.

Roto-Brite Cleaner. Since only approximately 5 gallons/day of this ceramic media cleaner is used/day, discharge to the sanitary sewer would be negligible.

Paint Spray Booth Residue. Discharge to sanitary or storm sewers is undesirable because of volatility and flammability. Present method of spreading on ground appears good. Periodic tillage of ground will encourage biodegradation.

TASK II

DRAINAGE AND WATER EFFLUENT ANALYSIS

On October 2, 1978 Calspan sampled a number of water discharge points from the Winsmith plant for chemical analyses at Calspan chemical laboratories. These included:

Sample #7 - upstream storm drainage

Sample # 8 - drainage ditch downstream from plant storm drainage (Franklin Street)

Sample # 9 - subsurface drain into ditch on northern property boundary (east of storage building)

Sample #10 - surface drainage into swale at S.E. corner of hill with landfill

Sample #11 - drainage ditch at culvert under northern road entrance to plant

In addition to the above discharge points, a drainage ditch on Route 219, northwest of the plant, was sampled in order to compare water quality of storm water entering the plant area (Sample #7) to that leaving the plant area (Sample #8).

The above samples were analyzed for cyanide (CN), oil and grease, and chlorinated hydrocarbons. Results of analyses are given in Table 2.

The analysis for cyanides indicate that there are negligible to no cyanide discharges from the plant area or seepage containing cyanide from the hill containing the abandoned landfill. It may be noted that storm drainage entering the plant area (Sample #7) had higher measured cyanide than storm drainage leaving the plant area.

Analyses of water samples indicate that there are no discharges of chlorinated hydrocarbons greater than 1 ppb. Slightly elevated levels of oil and grease in the downstream storm drainage (Sample #8) indicates some discharge of oil and grease through plant storm drains. This discharge may

TABLE 2

<u>Sample Number</u>	<u>Cyanide (ppm)</u> (CN)	<u>Chemical Analyses</u>	
		<u>Oil & Grease (ppm)</u>	<u>Chlorinated*</u> <u>Hydrocarbons (ppb)</u>
# 7 (upstream storm drainage)	0.19	3	<1
8 (downstream storm drainage)	0.05	11	<1
9 (subsurface drain to ditch northern boundary)	<0.02	3	<1
10 (surface drainage to swale, S.E. corner of hill)	<0.02	1	<1
11 (drainage ditch, northern road entrance)	<0.02	4	<1

* Specific chlorinated compounds not identified. Chlorinated hydrocarbons reported as lindane standard although lindane not present.

be minimized by good housekeeping practices to prevent oils and greases from reaching storm drains. The limitations of one time grab sampling must be recognized in interpretation of data.

TASK III

LANDFILL CHARACTERIZATION AND RECOMMENDATIONS

On October 10, 1978 the Earth Dimensions Inc. conducted test borings at the location which had been used at one time by Winsmith for landfill of process wastes. The placement of bore holes was directed by Mr. Richard Leonard, Principal Environmental Engineer, Calspan Corporation. The purpose of the borings was to ascertain the extent of landfilled material and to sample the wastes for chemical tests. Samples of landfilled material were chemically analyzed by Calspan for pH, conductivity, cyanide content, and oil and grease content.

Figure 1 shows the location of bore holes relative to the location of a small water filled pit in which process wastes were believed to have been disposed a number of years ago (i.e., greater than 10 years ago). Official logs of these borings contained as Enclosure 1 show that no process wastes were encountered in soil borings. Except for hole #1 and the pond itself, the sequence of layers consisted of 10-12 feet of silt loam soil carried in from other areas (soil removed during construction of parking lots and plant expansion) over the natural soil layers. The natural soils encountered in all bore holes consist of sand, silt, and gravel deposits typical of glacial outwash soils. The natural soils at hole #1 had not been covered by soil fill.

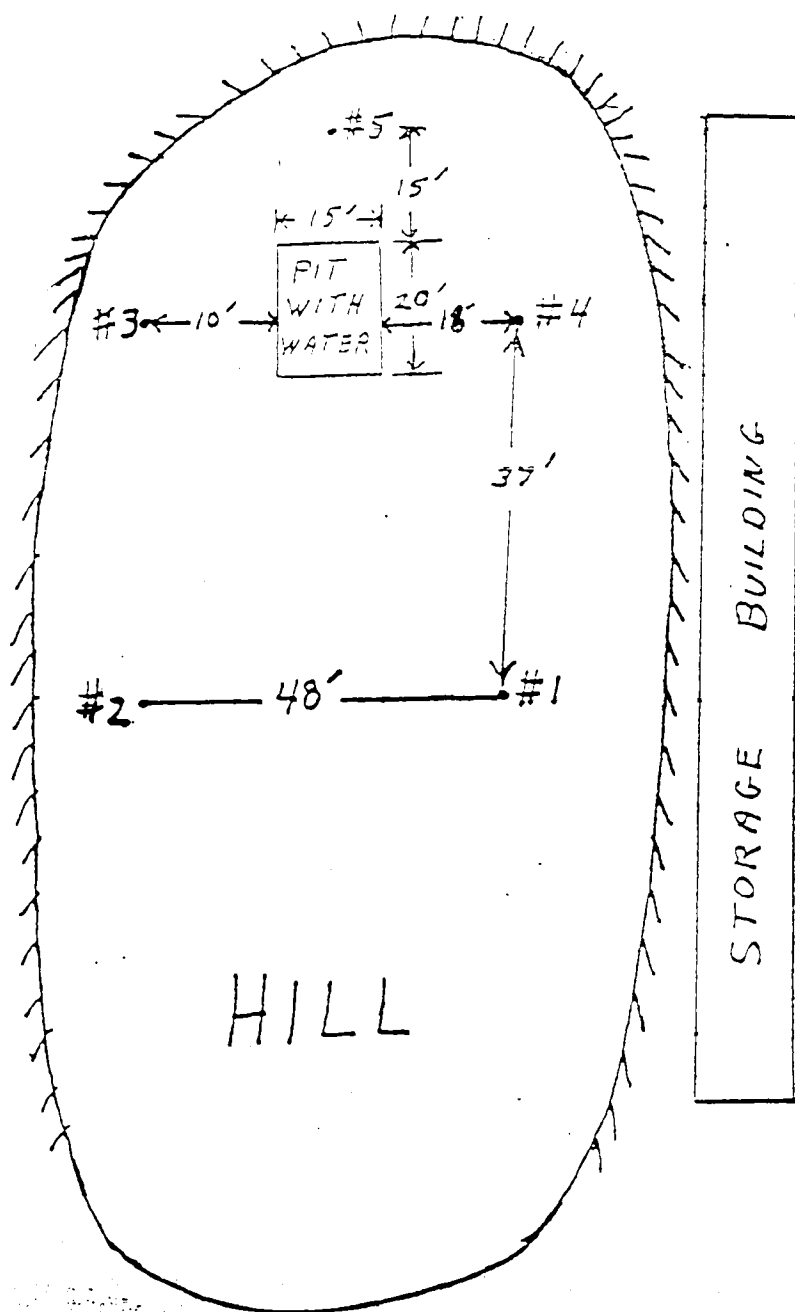
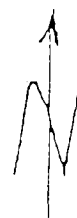
It is apparent from the borings that landfilling was confined to the small (20' x 15') ponded area. A boring was made in the ponded area to obtain samples for laboratory testing and to ascertain how deep the pit was dug prior to depositing process wastes. The boring showed that the depth of the original pit was approximately 10'. Samples of landfilled material obtained for laboratory testing were:

Sample #13,14 - water from the top of the pit.

Sample 15 - soft slag-like material probably salt residues from heat treatment, taken at approximately 2' depth

Sample 16 - mixed sediments, fine slag-like material, oily smell, taken at approximately 7' depth

FIG. 1
LOCATION OF BORINGS



The above samples were analyzed for cyanide, and oil and grease. Results are given in Table 3. Based on the sample analyses, and considering the small volume of landfilled material ($\approx 3,000 \text{ ft}^3$), the abandoned landfill is not considered to pose any danger of ground or surface water contamination.

TABLE 3

<u>Sample Number</u>	<u>Chemical Analyses (ppm)</u>		
	<u>CN (ppm)</u>	<u>Oil and Grease (ppm)</u>	<u>pH</u>
13,14 (water from top of pit)	<0.02	13	7.35
15 (soft slag-like material)	<0.02	-	-
16 (mixed sediments, fine slag-like material)	<0.02	1500	-

- not analyzed

APPENDIX A

October 10, 1978

SOILS REPORT
WINSMITH DIVISION
Springville, New York

Five soil borings were augered northwest of the existing industrial buildings in the Village of Springville, October 10, 1978 to define the extent of a small industrial waste landfill. These five borings were placed around a small pond, the suspected center of the landfill. The placement of the individual bore sites of this soil investigation were under the direction of Mr. Richard C. Leonard, Principal Engineer - Environmental Sciences Department, of Calspan Corporation.

The area of investigation was on top of a knave, the nearby hill formed through glacial action. The original soil consisted of a permeable, well drained stratified gravelly soil over stone-free silty glacial lake sediment. This contrast in sediments is quite evident in the exposed vertical soil exposure along the east side of this hill.

Typically, this soil is not considered suitable for pond construction as water would readily flow outward from the pond through the permeable stratified gravelly sediments. The present existing pond is the result of extensive land filling of impervious soil as indicated in the soil logs. Only soil description #1 indicated an industrial soil.

The above soil report and included soil logs were based on split spoon sampling that were advanced through hollow stem augers into critical soil zones.

Continued on Page 2.....

SOILS REPORT
INDUSTRIAL SITE
Springville, New York
October 18, 1978
Page 2

Soil samples were secured below the landfill pond for special laboratory analysis at Calspan Corporation. The properties or characteristics of the industrial waste material were not recorded.

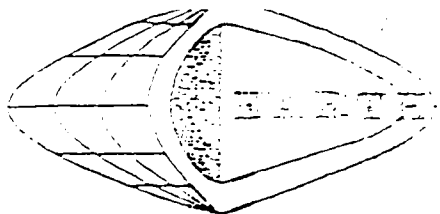
Soil Report Prepared by:

Don Owens

Donald W. Owens
Soil Scientist

DWO/dew
2578

CC: Mr. Richard P. Leonard ✓
Principal Engineer
Environmental Sciences Dept.
Calspan Corporation



Earth Dimensions, Inc.

Test Borings and Logs

737 Center Street • East Aurora, New York 14052 • (716) 655-1717

2573

HOLE NO. _____

SURF. ELEV. _____

PROJECT _____

LOCATION _____

CLIENT _____

DATE STARTED _____ COMPLETED _____

DEPTH	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0	5	10	15	20	25		
								Moist black gravelly loam (SANDY-SILT) topsoil, very friable	
								Moist to wet dark brown gravelly heavy loam (SANDY-SILT-CLAY) with 15 to 25% rounded mixed lithology gravel, friable.	
									Distinct seepage in- to bore hole at (SANDY-SILT-CLAY) and (CLAYEY-SILT) contact
								Extremely moist gray heavy silt loam (CLAYEY-SILT) with 5% fine rounded gravels, firm, slightly sticky, slightly plastic	5.0'
									8.0'
								Boring completed at 8.0 feet	Water table at 5.0 feet below surface at completion.
									Water sorted sand, gravel and silt to 5.0 feet over silty lake sediment to end of boring.

NEW

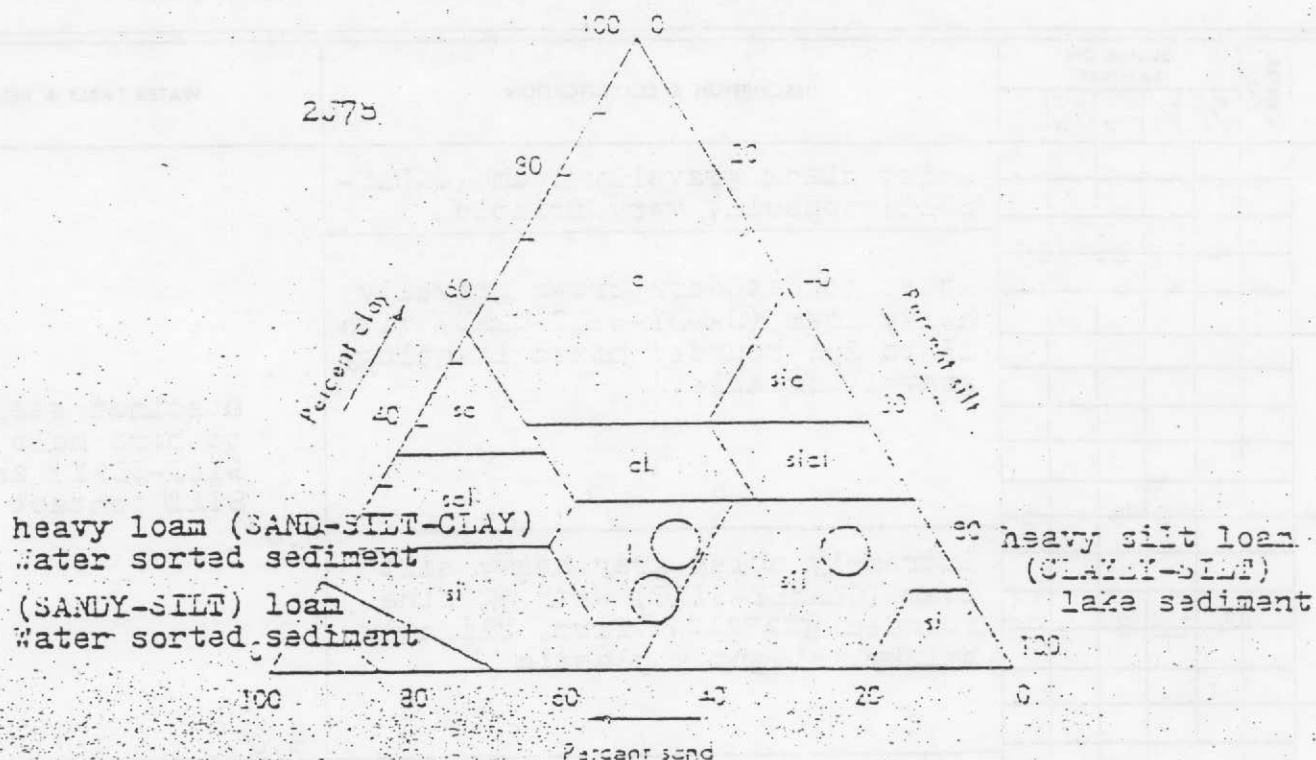
N = NUMBER OF BLOWS TO DRIVE _____ " SPOON _____ " WITH _____ "S WT FALLING _____ " PER BLOW

LOGGED BY _____

40

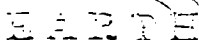
SHEET _____ OF _____

HOLE -1:



c	Clay	scl	Sandy clay loam
sl	Silt	scl	Silty clay loam
s	Sand	cl	Clay loam
l	Loam	sl	Silt loam
sc	Sandy clay	cl	Sandy loam
scl	Silty clay	sl	Silty loam

Ternary triangle showing the percentages of clay (less than 0.002 mm), silt (0.002-0.075 mm), and sand (0.075-2.0 mm) in the basic soil textural classes. (adapted from Soil Survey Staff 1938)



Test Borings and Logs

797 Center Street • East Aurora, New York 14052 • (716) 655-1717

SURF. ELEV.

LOCATION ~~the south end of base 420~~

DATE STARTED 10/10/78 COMPLETED 10/10/78

DEPTH

SAMPLE NO.	BLOWS ON SAMPLER			
	1	2	3	4
1	6	12	18	24

DESCRIPTION & CLASSIFICATION

WATER TABLE & REMARKS

Moist light brown gravelly heavy
silt loam (CLAYEY-SILT) with 15
to 25% rounded mixed lithology
gravel, firm, slightly plastic,
slightly sticky

2.0

Moist light brown heavy silt loam (CLAYEY-SILT) with 10 to 15% sub-angular mixed lithology gravel, very firm, slightly plastic, slightly sticky

NO water at completi

Moist brown gravelly loam (SILTY-SAND) with 15 to 25% rounded mixed lithology gravel, friable

9.0

Boring completed at 12.0 feet

12.0

Fill to end of boring
Fill to 9.0 feet over
water sorted strati-
fied sand, gravel and
silt to end of boring

N = NUMBER OF BLOWS TO DRIVE _____ IN _____ INCHES _____ FEET _____ INCHES _____ FEET

LOGGED BY Deana A. Smith

10-11-68

HOLE 2:

2573

(SILTY-SAND) loam,
water sorted strati-
fied sediment.

heavy silt loam
(CLAYEY-SILT, fill

DIMENSIONS, INC.

Test Borings and Logs

197 Center Street • East Aurora, New York 14052 • (716) 655-1717

2575

HOLE NO.

3

SURF. ELEV.

PROJECT

• Stressors - things that put stress on the body

LOCATION

10. For the purpose of this section, the term "person" shall mean

CLIENT

1000

DATE: STARTED

COMPLETED

7 2 1 7 2 1

DEPTH	SAMPLE NO.	BLOWS ON SAMPLER					DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		1	2	3	4	5		
0.0								
0.5							Moist dark brown silt loam (CLAY-SILT) with 5 to 10% rounded fine gravel, friable	0.5'
1.0							Moist brown gravelly heavy loam (CLAY-SILT-CLAY) with 20 to 30% sound mixed lithology gravel, friable	1.0'
10.5							Moist dark brown heavy silt loam (CLAY-SILT) with 10 to 15% sub-angular mixed lithology gravel, very firm, slightly plastic, slightly sticky.	Fill to 10.5 feet over water sorted stratified sand, gravel with some silt to end of boring.
17.0							Moist brown very gravelly sandy loam (SILT-SAND) with 30 to 40% rounded mixed lithology gravels, stratified, friable.	10.5'
17.5								Sand layer extends from 17.0 to 17.5 feet with abrupt boundary to next layer.
17.0							Moist light brown medium and coarse SAND, loose	17.0'
17.5								17.5'

Cont. on Page 2

Cont. on page 2

1. 2. 3.

11-10-1964

— — —

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

LOGGED BY

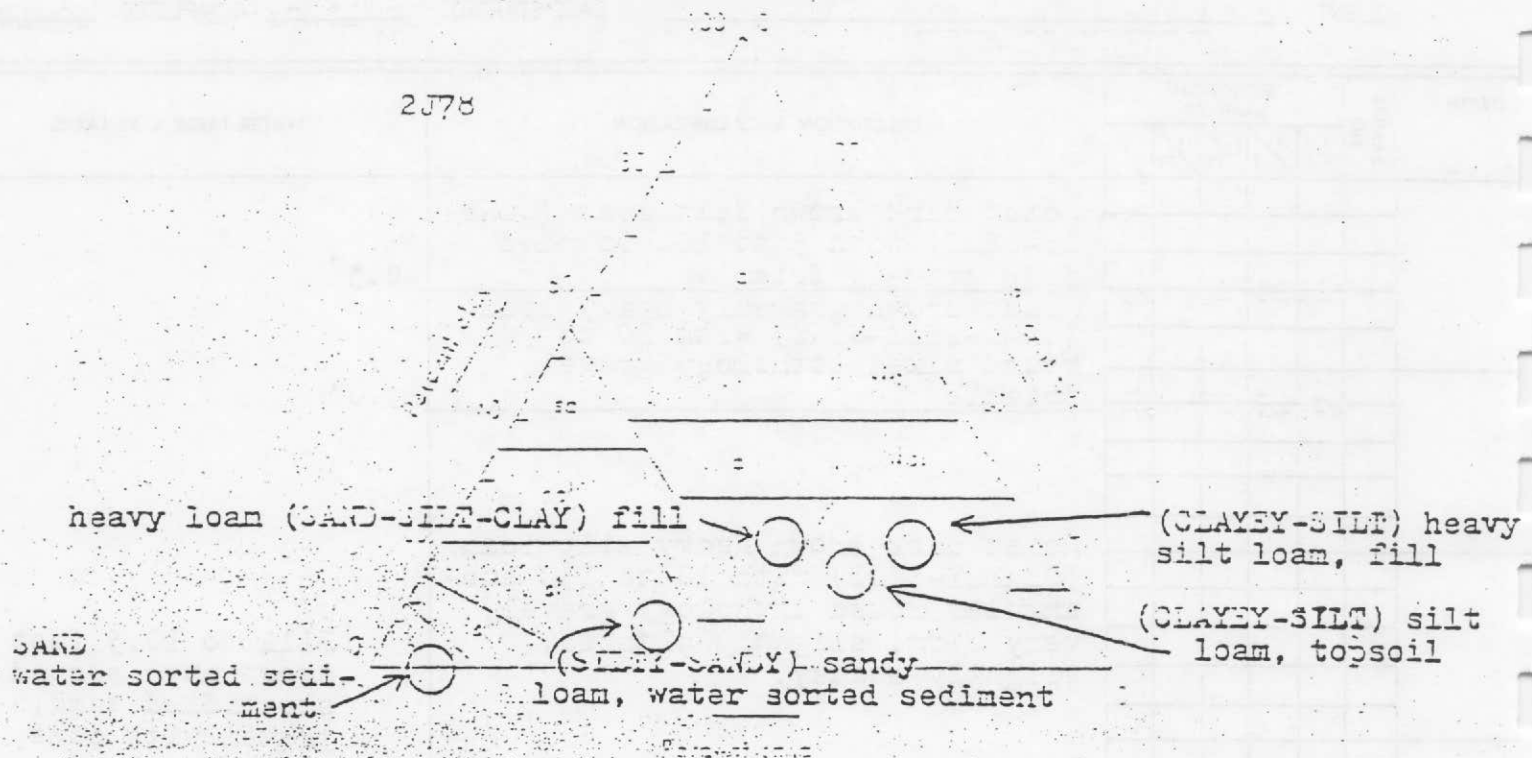
12

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler and Whistler (1972).

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HOLE 131

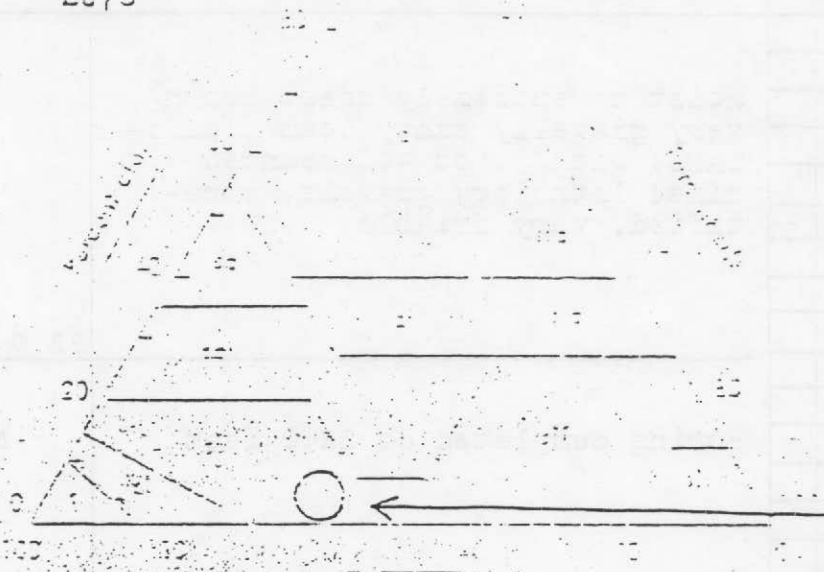
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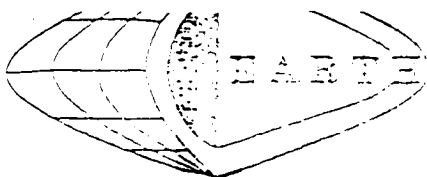
2000-01-01

HOLE #3, continued:

2578



(SILTY-SAND)
sandy loam, water
sorted sediment



Earth Dimensions, Inc.

Test Borings and Logs

797 Center Street • East Aurora, New York 14052 • (716) 655-1717

2578 HOLE NO. 2

SURF. ELEV.

PROJECT Landfill Investigation

LOCATION 15 feet east of pond

CLIENT Lincoln Division

DATE STARTED 10/10/74 COMPLETED 10/10/74

DEPTH Feet	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0	5	10	15	20	N		
								Moist brown gravelly clay loam (SAND-SILT-CLAY) with 15 to 25% mostly rounded mixed lithology gravels, firm, slightly plastic, slightly sticky.	
									4.0'
5								Extremely moist gray gravelly clay loam (SAND-SILT-CLAY) with 15 to 25% mostly rounded mixed lithology gravels, firm, slightly plastic, slightly sticky.	Fill to 10.0 feet over water sorted stratified sand, gravel and some silt to end of boring.
10									10.0'
								Moist brown gravelly loam (SILT-SAND) with 15 to 25% rounded mixed lithology gravels, stratified, friable	No water at completion.
									12.5'
								Boring completed at 12.5 feet	
15									

NEW

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 1-0 LB. WT. FALLING 30 " PER BLOW

LOGGED BY W. H. H. H.

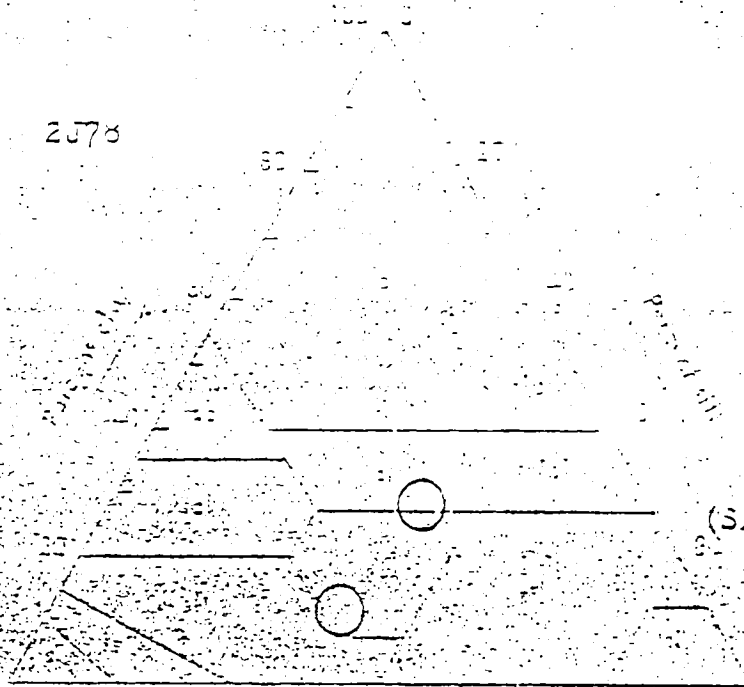
24

DATE 10/10/74 OF 1

60

HOLE 4:

2578



(SAND-SILT-CLAY) clay
loam, fill

(SILTY-SAND) loam
stratified sedi-
ments



797 Center Street • East Aurora, New York 14052 • (716) 655-1717

SURF. ELEV. _____

LOCATION 12 feet north of pond

DATE STARTED 10/10/78 COMPLETED 10/10/78

DEPTH (Feet)	SAMPLE NO.	BLOWS ON SAMPLER	DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30		
			Moist dark brown heavy silt loam (CLAYEY-SILT) with 5 to 10% mostly rounded mixed lithology gravel, firm, slightly sticky, slightly plastic	
5				5.0'
	14	5 8 8 16		
			Moist black and gray heavy silt loam (CLAYEY-SILT) with 5 to 15% mostly rounded mixed lithology gravel, firm, slightly sticky, slightly plastic.	
10	8	12 13 10 23	This zone contained layers higher in organic content	Fill to 13.5 feet over water sorted stratified sand and gravel to end of boring.
	6	7 11 13 24		
	17	18 10 9 19	Moist brown very gravelly loamy sand (SAND), stratified, loose	13.5'
15				15.5'
			Boring completed at 15.5 feet	No water at completion.

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 " OF FALLING 10 " OFT. IN ONE

11-1-77

HOLE #5:

2578

SAND (loamy sand) Heavy silt loam
(CLAYEY-SILT) fill

October 11, 1978

Mr. George Mangiarelli
WinSmith Division
Springville, New York 14141

Dear Mr. Mangiarelli:

Enclosed are the soil reports of our soils investigation in Springville, October 10, 1978, conducted under the guidance of Mr. Richard P. Leonard, Principal Engineer - Environmental Sciences Department, of Calspan Corporation.

Please contact Mr. Leonard or myself if you have any questions concerning the enclosed.

We thank you for choosing Earth Dimensions, Inc. for this investigation. Hopefully, we can be of service to you in the future.

Sincerely yours,

Donald W. Owens
Soil Scientist

DWO/dew
2J78
Enclosures

CC: Mr. Richard P. Leonard/
Principal Engineer
Environmental Sciences Department
Calspan Corporation

B-3

**ES ENGINEERING-SCIENCE
INTERVIEW FORM**

Interviewee/Code Mike McMurry /

Title-Position Environmental Analyst

Address 600 Delaware Ave.

City Buffalo State New York Zip 14202

Phone (716) 847-4551 Residence Period to

Location DEC Regulatory Affairs Interviewer NYE - DIM

Date/Time 1/3/86 / Buffalo

Subject: Wetlands & Flood Info - Region 9

Remarks: Met with Mike who gave me access to both Wetland and Floodway
maps for the local region.

*Also left site locations for the Identification of wildlife critical habitat & National Wildlife Refuges.

Winsmith Div - Umc Corp site

1) Fresh water wetland 0.6 miles NE of site

(designated as SP - 11)

2) There is no critical habitat of an endangered species or national wild life refuge within 1 mile of site.

I agree with the above summary of the interview:

Signature: /s/Michael J. McMurray, Environmental Analyst

Comments:

B-4

SITE INTERVIEW FORM

SITE: WINSMITH - UMC PROJECT NUMBER: 00296 - 01698DATE: 3-6-91 TIME: PMINTERVIEWER (DUNN/TAMS): LESLIE E GRACZ (DUNN)INTERVIEWEE (OF SITE): GREG G ECKER (NYS DEC)NO. OF YEARS WORKING AT THE SITE: NADATES FROM: NA TO: NAJOB RESPONSIBILITIES AT SITE: NA

INTERVIEW:

MR. ECKER IS A WILDLIFE REPRESENTATIVE FOR NYS DEC. MR. ECKER ASSISTED MS GRACZ IN IDENTIFYING SIGNIFICANT WILDLIFE AND WETLAND AREAS WITHIN A THREE MILE RADIUS. THERE ARE FOUR SIGNIFICANT WILDLIFE AREAS WITHIN A THREE MILE RADIUS OF WINSMITH - UMC; IDENTIFICATION NUMBERS SW15-005, SW15-508, 07-504 AND 05-500; THERE IS ONE SIGNIFICANT PLANT AREA, SP15-012 AND ONE AREA POTENTIALLY SIGNIFICANT FOR WILDLIFE, PW15-006. THERE IS ALSO A DEER CONCENTRATION DC-15-113 WITHIN A THREE MILE RADIUS OF WINSMITH - UMC. THERE ARE SEVERAL WETLAND REGULATED AREAS WITHIN A THREE MILE RADIUS:

SP-2, SP-6, SP-7, SP-5, SP-4, SP-8, SP-11 AND A14-1.

MR. KEN DOBLEE ALSO A REPRESENTATIVE OF NYS DEC STATED THAT REGULATED WETLANDS ARE THOSE LARGER THAN 12.4 ACRES. WETLAND AREAS SMALLER THAN 12.4 ACRES ARE STILL A CONCERN EVEN THOUGH THEY ARE NOT REGULATED.

SIGNATURES:

INTERVIEWEE: Greg G Ecker DATE: 3/27/91INTERVIEWER: Leslie E Gracz DATE: 3-2/91

B-5

UMC CORPORATION
WINSMITH DIVISION
172 EATON STREET
SPRINGVILLE, NEW YORK
DEC #95058

Prepared By
Erie County Department of
Environment and Planning
October 1983

U.M.C. Corporation

Winsmith Division

172 Eaton Street

Springville, New York

DEC #95058

FRANKLIN ST

ST

WINSMITH DIV - U.M.C.
PLANT

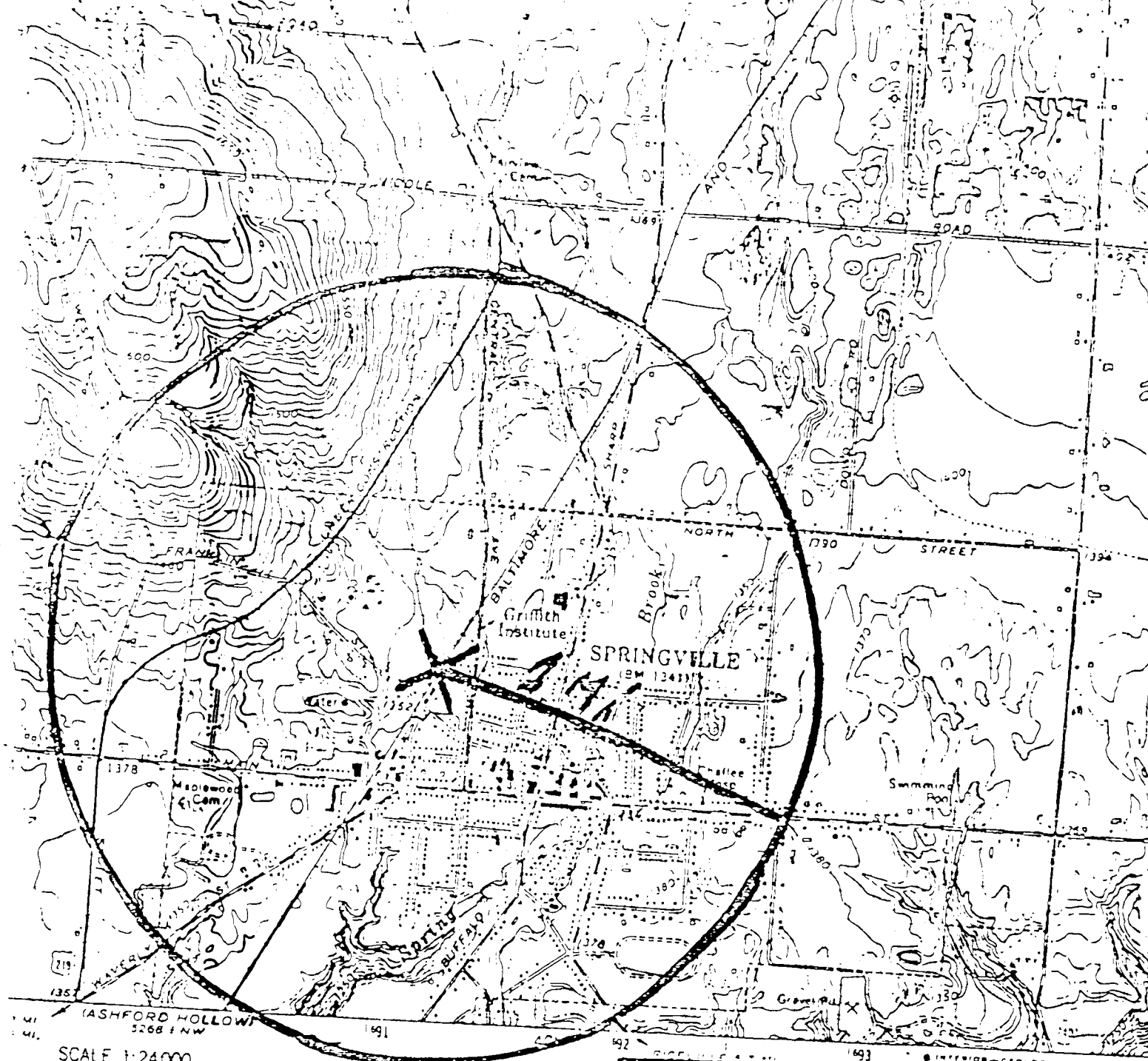
PARKING

lot

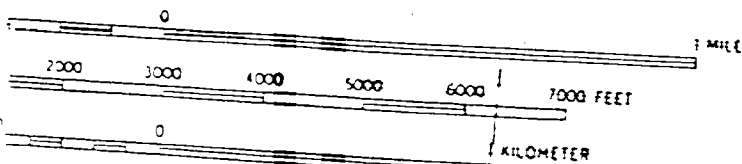
SHED

dump

x Calspan test site



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

IS WITH NATIONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
GRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

U.M.C. Corporation
Winsmith Division
172 Eaton Street
Springville, New York

DEC #95058

GENERAL BACKGROUND

U.M.C. Industries, Winsmith Division, is located on Eaton Street in the Village of Springville. This plant produces speed reduction equipment and gears. The facility produces the following wastes: cyanides, oil & grease, acids, scrap metals, water soluble coolants, and painting wastes. At one time the plant maintained a small on-site disposal pit.

DATA REVIEW

Following the 1978 IATF report this firm contracted with a consultant to evaluate its waste streams. As a portion of the consultants study the area of on-site disposal was also evaluated. The consultant's work included soil boring and sample analysis to determine the extent of the problem created by on-site waste disposal. It became apparent that the landfilling was confined to a small (20' x 15') area. Borings indicated that the disposal pit was approximately 10 feet deep. It was concluded that 3000 ft³ of material was disposed of on-site. Samples were taken of water ponded over the disposal area, soil was taken from the 2 foot level, and from the 7 foot level. The samples were analyzed for cyanide, and oil and grease. Contaminated soil (1500 ppm oil and grease) was reported for the 7 foot deep sample. The cyanide concentration of <0.02 ppm was reported following analysis of water and soil. The groundwater standard for cyanide is .2 mg/l.

CONCLUSION AND RECOMMENDATION

The firm has discontinued use of the site and now utilizes a private hauler for off-site disposal. Past disposal was limited to a small area. Analysis of soil and water samples taken from the area of disposal does not indicate that the site poses a serious environmental threat. We would recommend that the site be removed from the list of sites suspected of posing a hazard.