

Appendix O
Wetlands Delineation Technical Memorandum

**WETLANDS DELINEATION
TECHNICAL MEMORANDUM**

**PREPARED FOR:
STEPAN COMPANY
MAYWOOD, NEW JERSEY**

**PREPARED BY:
CH2M HILL
PARSIPPANY, NEW JERSEY**

DECEMBER 1992



December 1, 1992

NJO22948.ST.WF

Mr. Jeffrey Gratz, Project Manager
U.S. Environmental Protection Agency
Special Programs Branch, Rm. 2930
26 Federal Plaza
New York, N.Y. 10278

Dear Mr. Gratz:

Subject: Maywood Chemical Company Sites
Administrative Order Index No. II-CERCLA-10105 and Administrative
Order on Consent, Index No. II-CERCLA-70104

In accordance with the referenced orders, the enclosed Wetlands Delineation Technical Memorandum is forwarded for your information. Should you have any questions regarding the memorandum, please call me at (201) 316-9300.

Sincerely,

CH2M HILL

A handwritten signature in dark ink, appearing to read "T. B. Norris", is written over the typed name.

Tom B. Norris
Environmental Scientist

tld/NJC9/047C9.51

cc: Rodger Julin/Stepan Company
Susan Cange/USDOE
Tim Bryan/TRC Environmental
Susan Stoloff/TRC Environmental
Mary Manto/CH2M HILL/NJO

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TECHNICAL MEMORANDUM

Stepan and Adjacent Properties
Maywood, Bergen County, New Jersey

CH2M HILL



SUBJECT: Wetlands Delineation

PREPARED

BY: Kerry Iliff, CH2M HILL Environmental Scientist
John Longo, CH2M HILL Environmental Scientist

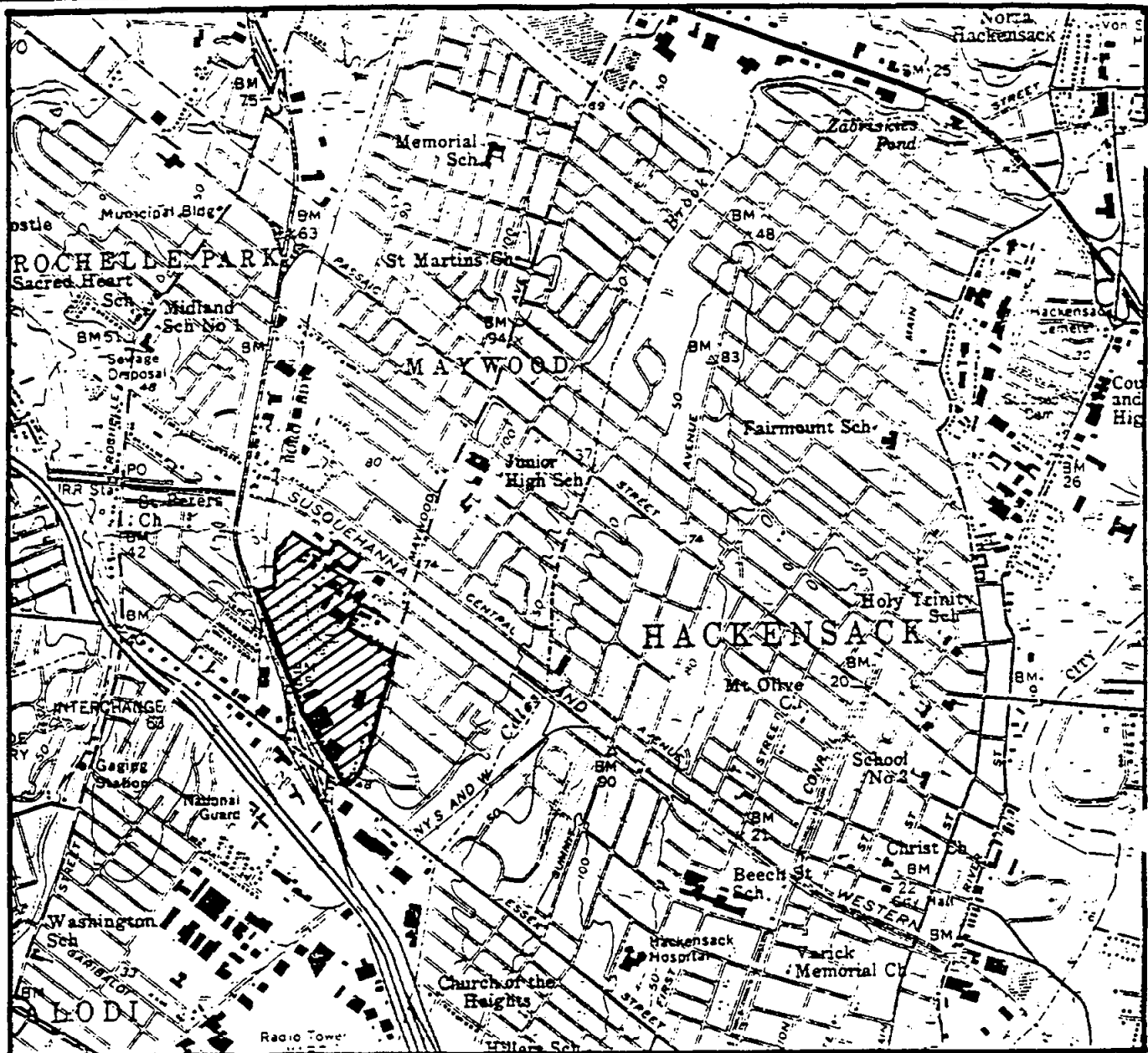
DATE: December 3, 1992

PROJECT: NJO22948.SR.WF

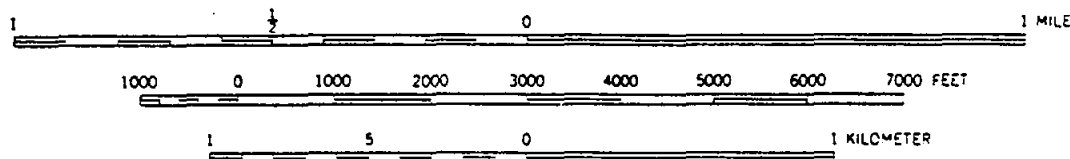
1.0 Introduction

A detailed jurisdictional wetland delineation has been conducted on the study area in the Township of Maywood, Bergen County, New Jersey. The area is bounded by Route 17 on the west, and Maywood Avenue on the east (Figure 1). The area includes the properties shown on Table 1. Land use consists of commercial and light industrial facilities located in a predominately residential area. The study area is within the Hackensack River watershed, and encompasses approximately 60 acres of urban development, drainage ditches, and mixed emergent/forested/mowed wetland areas.

Table 1 Property List	
Block	Lot
124	Lots 31, 32, 40, 47, 48
124	Lot 30
124	Lot 17
124	Lot 1
124	Lot 2
124	Lot 3
124	Lot 4
124	Lot 5



SCALE 1:24000



QUADRANGLE LOCATION

REFERENCE: HACKENSACK QUADRANGLE
U.S.G.S. 7.5 MIN. SERIES
DATED: 1981

LOCATION MAP

FIGURE 1



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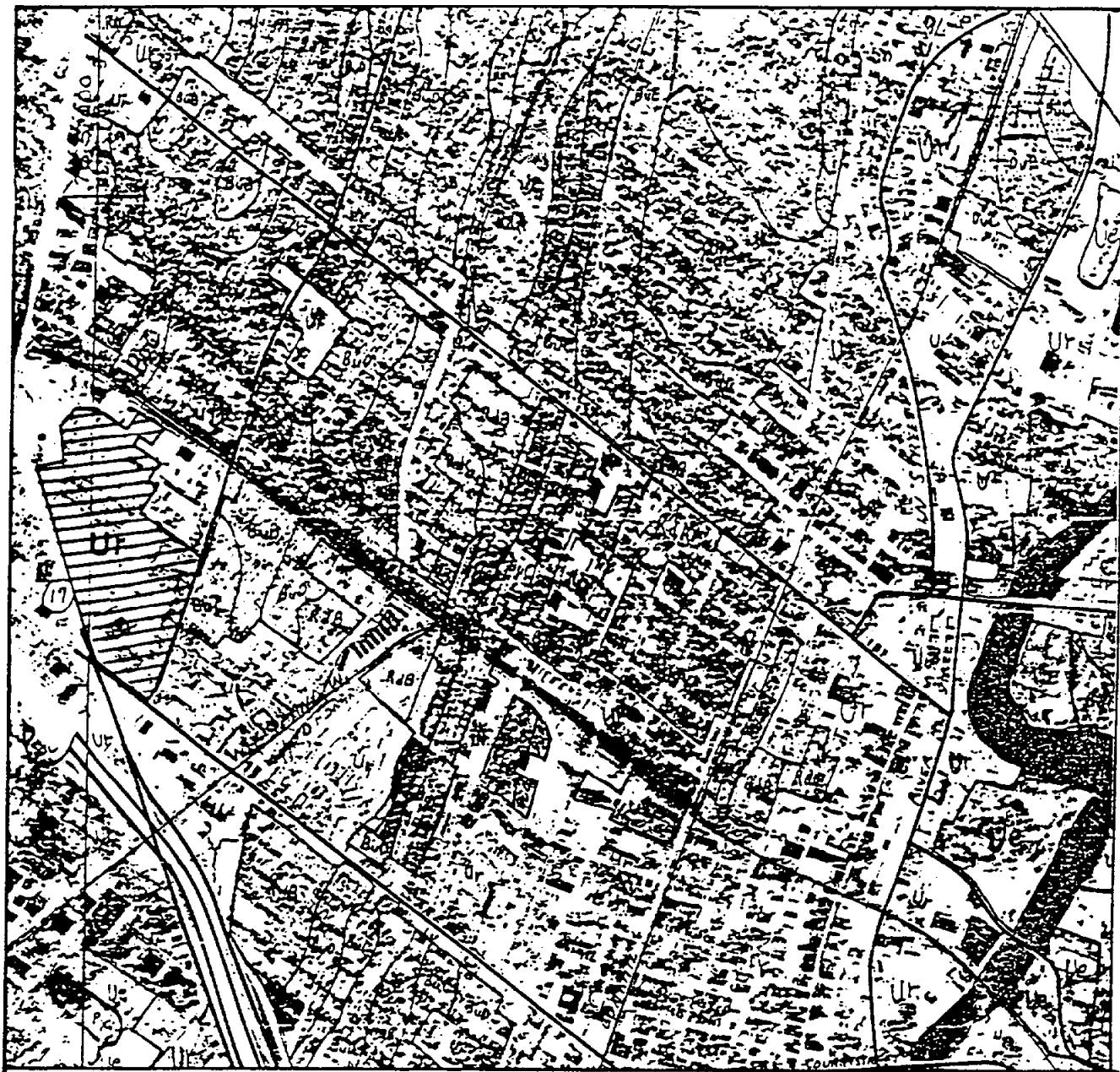
August 28, 1992

NJO22948.SR.WF

2.0 Field Investigation Methods and Procedures

A preliminary wetlands assessment was performed at the site on February 24, 1992 to identify and map potential jurisdictional wetland areas. The results of this assessment were used to identify the portions of the site that had the greatest probability to contain wetlands. CH2M HILL also conducted a preliminary review of existing environmental information to assist in the wetland delineation process. The hydric soils list for the state of New Jersey (Tiner, 1985) was reviewed to determine the location of potential wetlands on the site. Soil descriptions from the Bergen County Soil Survey (Bergen County Soil Conservation District, 1990) were also reviewed to further identify areas of hydric soils and to prepare a soils map (Figure 2). The National Wetland Inventory map (NWI) for the area was reviewed to assist in determining possible wetland areas on the site (Figure 3).

A detailed wetland delineation was performed on the site on April 20-21, 1992 utilizing the three parameter approach outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineations, 1989). A reconnaissance of the entire site was performed. Soil borings were located at noticeable changes in vegetation and topography. Locating the extent of the soil types and changes in plant community was difficult because of minimal topographic relief, presence of disturbed soil, and lack of native vegetation. To assist in the location of hydric soils and the extent of wetland-upland areas, random soil samples were taken with a soil auger within the mowed areas. Federal manual routine data sheets were completed at eight data points, including information on herbaceous species, shrubs, woody vines, saplings, trees, soil and hydrology. Photographs were taken at each data point to document site characteristics. Copies of the completed data sheets and photographs are included in the Appendix A and B, respectively. Data points were numbered and marked in the field with orange and black flagging, tied to vegetation or pink wire stakes. Wetland boundaries were identified in the field with numbered pink wire stakes, and pink and black flagging to indicate their location. Data point locations and wetland boundaries were surveyed and placed on a map (Figure 4).



REFERENCE: INTERIM SOIL SURVEY OF BERGEN COUNTY
BERGEN COUNTY SOIL CONSERVATION DISTRICT
JULY 1990

SOILS MAP

FIGURE 2

[illegible]

40°52'3
24°25'

WACKENSACK, NJ

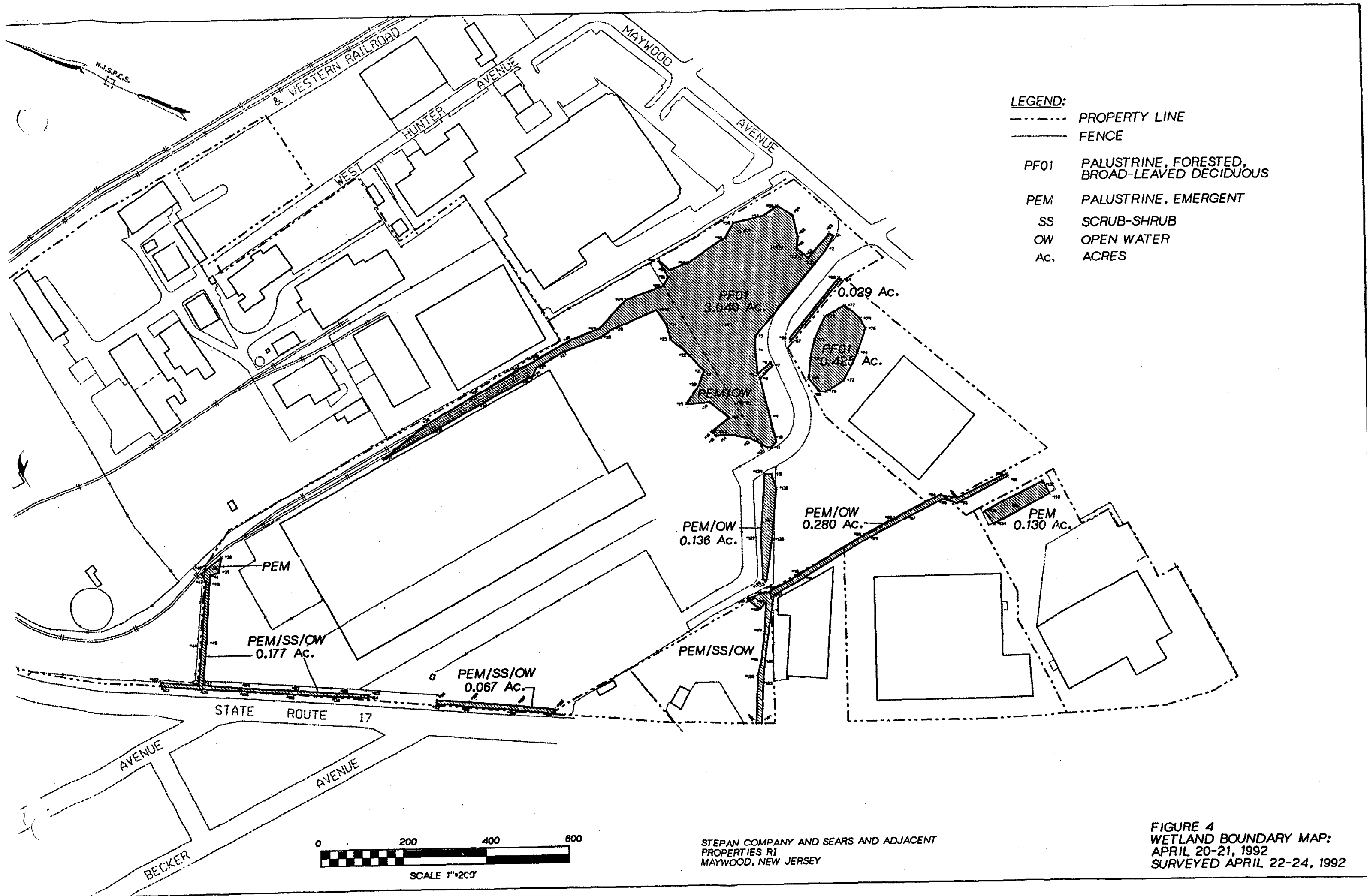


FIGURE 4
WETLAND BOUNDARY MAP:
APRIL 20-21, 1992
SURVEYED APRIL 22-24, 1992

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3.0 Results

Soils

According to the Bergen County Soil Survey (Bergen County Soil Conservation District, 1990) only Urban Land (Ur) soil type is mapped on the 60 acre site. According to the survey, urban land consists of nearly level or gently sloping areas that have been developed for residential, commercial, or industrial use. During development these areas were leveled or cut and filled and covered with an impervious surface to such an extent that over 85 percent of the original soil has been altered. Included in the mapping unit are high density residential areas that are less than 85 percent covered and contain reworked soil material or Udorthents. No hydric soil types are mapped on the site.

Disturbed soil conditions were encountered in the vicinity of data points T2.1, D1 and D2. The upper 18 inches or so of soil, in the vicinity of T2.1 and D1, appeared to be fill material. The fill material consisted of clayey loam and displayed little or no horizonization, and few, if any mottles, or other signs of hydric conditions. A 3 inch layer of organic material was found immediately below the fill material. The organic material consisted of distinguishable vegetative matter. Soil characteristics below the organic layer in the wetland areas displayed hydric indicators such as mottling and gleying. In upland areas the soil below the organic layer was fairly bright and sandy, with few signs of inundation.

Radioactive material was encountered in the vicinity of T2.1 and D2. The material generally occurred approximately 12 inches below the ground surface near T2.1. This material, though moist, displayed no hydric characteristics. D2 is located within a Palustrine Broad-Leaved Deciduous (PFO1) area on the DeSaussure property. The natural soil in this location is buried under approximately 3.5 feet of bright-blue, silty fill material (See photograph of D2 in the Appendix). The extent of the fill was limited to the PFO1 area. Based upon the size of the trees growing in the immediate area, it appears that the fill material has been in place for many decades. The water table in this location was about 8-12 inches below the surface. The buried soil displayed strong hydric characteristics.

Wetlands

The NWI map did not show the presence of any wetlands within the study area boundaries. However, the results of the onsite delineation identified Palustrine Emergent (PEM) areas associated with the ditches that traverse the area. Two PFO1 areas were identified adjacent to Maywood Avenue entrance to the Sears property.

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The PEM wetlands were dominated by common reed (*Phragmites australis*), and in a few areas, Cattails (*Typha latifolia*). In the area of data point T2.1, the vegetation consisted primarily of mowed turf grass, mixed with a few sedges and spike grass (*Eleocharis sp.*). The PFO1 wetlands were dominated by mature stands of red maple (*Acer rubrum*), sycamore (*Platanus occidentalis*), American elm (*Ulmus americana*), sweetgum (*Liquidambar styraciflua*), and mowed turf grass. The upland areas on the site are either impervious surfaces, or previously filled, mowed turf grass, or otherwise disturbed areas. Wetlands encompass approximately 4.1 acres of the study area.

4.0 Summary and Conclusions

The majority of the wetlands identified in the study area are PEM, mowed PEM, and PFO1. The hydrologic regime for the site is primarily influenced by run-off and a relatively high water table. The ditches in the area appear to have been put in place for offsite and onsite drainage control. All of the ditches contained flowing water at the time of the delineation.

The New Jersey Department of Environmental Protection and Energy (NJDEPE) requires transition areas around all wetland boundaries. The width of the transition area varies depending upon the type of classification assigned to the wetland by NJDEPE. Because there were no endangered or threatened plant or animal species identified in the area, the wetlands will not be classified as exceptional resource value wetlands. However, the wetlands within the site boundaries may be classified as freshwater wetlands of intermediate or ordinary resource value, and therefore, would have at least a 50 foot transition area assigned to them.

This jurisdictional wetland determination represents the best professional judgement of CH2M HILL, but a final administrative determination can be made only by the U.S. Army Corps of Engineers, the New Jersey Department of Environmental Protection and Energy, or both.

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References Cited

Tiner Jr., R.W., *Wetlands of New Jersey*. U.S. Fish and Wildlife Service.
Newton Corner, Massachusetts. pp. 40-53. 1985.

United States Department of Agriculture, *Interim Soil Survey of Bergen County*.
pp. 59-135. 1990.

KERRY P. ILIFF
Environmental Scientist

Education

B.S., Renewable Natural Resources, University of Connecticut, Storrs

Experience

Mrs. Iliff is an environmental scientist with CH2M HILL with more than 4 years of experience in wetland projects. She has participated in wetland mitigation planning, design, and implementation projects in New Jersey, Maryland, and Virginia.

Recently, Mrs. Iliff managed and designed a mitigation plan for Atlantic Electric Company. She is project biologist for design, implementation, and monitoring for the life of the project. She is currently involved in a mitigation design project in Pompton Lakes, New Jersey. She has extensive experience in wetland delineation and permitting. Within the last 3 years, she has participated in more than 50 projects involving wetland issues.

Currently, Mrs. Iliff is involved in two wetland delineations in New Jersey: EPA-Raymark and Stepan Company. She is reviewing data and analyzing results, mapping wetlands, and writing a project report. At Raymark she is also conducting a characterization of the macrobiota and assessing the health of aquatic species.

On a similar project, Mrs. Iliff delineated and mapped the wetlands potentially affected by a proposed gravel-quarry operation for Genstar and the Bridgeton Port Authority in New Jersey.

In King and Queen County, Virginia, and the Oak Forest property in Cumberland County, Virginia, Mrs. Iliff helped with the wetland delineation component of the sanitary landfill Part A permit application for Browning-Ferris Industries. She was involved in reviewing and preparing data, mapping, and writing a report for the project.

Mrs. Iliff worked on wetland delineation and mapping as part of the environmental impact statements for the partial closure and realignment project at the U.S. Army's base at Fort Meade in Maryland and the base realignment and closure project at Fort Belvoir in Virginia.

Mrs. Iliff also participated in the benthic, water-quality, and alternatives analysis for the City of Norfolk's Lake Wright Dredging Program in Virginia. Her duties included field investigation of the wetlands on the site, sampling of lake-bottom sediment, various tasks related to analyzing alternatives for disposing of the dredged material, and a partial cost analysis for the dredging program.

KERRY P. ILIFF

As part of an environmental assessment (EA), Mrs. Iliff assisted in the bathymetric survey at the proposed Tompkins Basin Recreation Center at Fort Belvoir in Virginia. Her duties included survey work and obtaining depth soundings in Gunston Cove, where dredging is proposed, so that the location of the marina facility can be incorporated into the final plans. Mrs. Iliff also wrote sections of the EA pertaining to submerged aquatic vegetation, boating, and safety.

Mrs. Iliff participated as an assistant to the field biologists on the Du Pont surface water study of the James River in Richmond, Virginia. Water-quality data, such as dissolved oxygen, conductivity, turbidity, and pH, were collected, as were data on sediment, water, and fish for tissue analysis.

Mrs. Iliff helped review all National Environmental Policy Act documentation to determine CH2M HILL involvement and the responsibilities of various agencies with regard to the U.S. Army Corps of Engineers (COE) Coyote Creek mitigation project in San Jose, California. She identified environmental commitments by reach and phase, determined the status of the project, and listed updated or changed requirements for each agency in table form for COE planning.

Membership in Professional Organizations

Society of Wetland Scientists
The Oceanography Society

WDCRES2/020.51

JOHN P. LONGO
Environmental Scientist

Education

B.S., Biology, William Paterson College

Experience

Mr. Longo is an Environmental Scientist in CH2M HILL's Parsippany, New Jersey office. He is responsible for organizing and implementing field sampling events in accordance with regulatory requirements, compiling data, and assisting in report and document preparation.

Recently, Mr. Longo assisted in a jurisdictional wetland delineation on the Stepan Company site. At Stepan, he identified plants and animals, characterized soil, conducted hydrologic studies, and assisted in mapping.

Before joining CH2M HILL, Mr. Longo served as a laboratory assistant in a mobile laboratory performing PCB and lead analyses. He conducted soil, water, and air sampling for hazardous waste operations.

Mr. Longo assisted in the remedial evaluation of a construction site oil spill. He oversaw the spill's remediation and submitted a summary evaluation and remediation report. Mr. Longo also reviewed and edited final hazardous waste assessment reports for New York State Department of Transportation (NYSDOT) contracts.

As part of his academic research, Mr. Longo conducted field and laboratory duties to determine the seasonal variations of pore water chemistry in a salt water marsh. These duties included collecting soil core samples and determining field parameters. Mr. Longo performed the pore water extraction and subsequent chemical analysis using ion chromatography and ICP emissions spectroscopy.

WDCRES4/11479.51

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: KI / JL Date: 4/20/92
 Project Site: STEPAN CO
 County: Bergen State: N.J.
 Applicant/Owner: Sevens Plant Community #/Name: T1.1

Do normal environmental conditions exist at the plant community? Yes: X No: (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: No: X (If yes, explain on back)

VEGETATION

Dominant Plant Species		Indicator	
Stratum		% Cover	Status
1.	<u>Phalaris arundinacea</u>	<u>10</u>	<u>FACW+</u> <u>H</u>
2.	<u>Gramineae sp. (Turf grass)</u>	<u>70</u>	<u> </u> <u>H</u>
3.	<u>Poa verticillata</u>	<u>5</u>	<u>OBL</u> <u>H</u>
4.	<u>Carex sp.</u>	<u>10</u>	<u> </u> <u>H</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Percent of dominant species that are OBL, FACW, and/or FAC: 50
 the hydrophytic vegetation criterion met? Yes: X No:
 Rational: Although turf grass is dominant, other plant sp. present are hydrophytic.

SOILS

Series/Phase: Urban Land Subgroup:
 Is the soil on the hydric soils list? Yes: No: X Undetermined:
 Mark other soil conditions below:
 Histosol Mottled Gleyed Histic epipedon present
 Matrix Color: 10YR 2/1 Mottle Colors:
 Other hydric soil indicators: few oxidized concretions of iron
 Is the hydric soil criterion met: Yes: X No:
 Rational: Soil has chroma < 2

HYDROLOGY

Is the ground surface inundated? Yes: X No: Surface water depth: Surface
 Is the soil saturated? Yes: X No:
 Depth to free-standing water in pit/soil probe hold: Surface
 Mark other field indicators of surface inundation or soil saturation below:
 Oxidized root zones Water-stained leaves X Water marks X Water-borne sediment deposits
X Wetland drainage pattern X Surface scoured leaves X Drift lines X Morphological adaptations
 Is wetland hydrology criterion met: Yes: X No:
 Rational: Although surface ponding may be due to runoff from road, the area appears to pond often.

JURISDICTION

Is the plant community a wetland: Yes: X No:
 Rational: All criteria met

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD

Date: 4/20/92

Plant Community #/Name: T1.2

Do normal environmental conditions exist at the plant community? Yes: X No: (If no, explain on back)
Has the vegetation, soils, and/or hydrology been disturbed? Yes: No: X (If yes, explain on back)

VEGETATION

Indicator

Dominant Plant Species

% Cover

Status

Siratum

1.	<i>Glechoma hederacea</i>	50	FACU	H
2.	<i>Gramineae</i> sp	10	—	H
3.	<i>Rosa multiflora</i>	30	FACU	SH
4.	<i>Acer rubrum</i>	30	FACU	STP
5.	<i>Acer rubrum</i>	30	FAC	I
6.	<i>Ulmus americana</i>	20	FACU	T
7.	<i>Quercus alba</i>	10	FACU-	T
8.	Red oak Sp. (<i>Quercus</i>)	10	—	T
9.				
10.				
11.				
12.				
13.				
14.				
15.				

Percent of dominant species that are OBL, FACW, and/or FAC: 450

Is the hydrophytic vegetation criterion met? Yes: ☒ No: ☒

Rational: Most trees & shrubs are growing on hummocks.
Little or no understory. Ponding. Area slightly higher than T.H.I.

SOILS

Series/Phase: Urban Land Subgroup: —

Is the soil on the hydric soils list? Yes: _____ No: X Undetermined: _____

Mark other soil conditions below:

Histosol

✓ Mottled

Gleved

Histic epipedon present

Matrix Color: 10 YR 2/1 @ 18" Mottle Colors: 2.5 YR 3/3

Other hydric soil indicators: Rockin Soil / mottles are many & small

Is the hydric soil criterion met: Yes: Y No:

Rational: Chroma < 2 w/ mottles.

HYDROLOGY

Is the ground surface inundated? Yes: No: ☒ Surface water depth: 1

Is the soil saturated? Yes: _____ No: X

Depth to free-standing water in pit/soil probe hold: 11 14"

Mark other field indicators of surface inundation or soil saturation below:

☒ Oxidized root zones ☐ Water-stained leaves ☐ Water marks ☐ Water-borne sediment deposits

Wetland drainage pattern Surface scoured leaves Drift lines Morphological adaptations

Is wetland hydrology criterion met: Yes: ☒ No: ☐
Rational: Sign of hydrology (water table) above 18".

JURISDICTION

Is the plant community a wetland: Yes: ☒ No: ☐

Rational: Borderline Situation: Small area surrounded by
very wet characteristic PFD.

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: KI/JL Date: 4/20/92
 Project Site: Stepan Co
 County: Berkshire State: NY
 Applicant/Owner: Sears Plant Community #/Name: T1.3

Do normal environmental conditions exist at the plant community? Yes: X No: (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: No: X (If yes, explain on back)

VEGETATION

Dominant Plant Species		Indicator	
Stratum		% Cover	Status
1.	<u>Gramineae. sp.</u>	<u>30</u>	<u>—</u> <u>H</u>
2.	<u>Cnicus luteolus</u>	<u>30</u>	<u>FACW</u> <u>H</u>
3.	<u>Allium canadense</u>	<u>5</u>	<u>FACW</u> <u>H</u>
4.	<u>Rumex verticillatus</u>	<u>5</u>	<u>OBL</u> <u>H</u>
5.	<u>Solidago sp.</u>	<u>5</u>	<u>—</u> <u>H</u>
6.	<u>Urtica americana</u>	<u>20</u>	<u>FACW</u> <u>SH</u>
7.	<u>Eragrostis americana</u>	<u>20</u>	<u>FACW</u> <u>SIT</u>
8.	<u>Toxicodendron radicans</u>	<u>2</u>	<u>FAC</u> <u>✓</u>
9.	<u>Acer rubrum</u>	<u>60</u>	<u>FAC</u> <u>—</u>
10.	<u>Red Oak sp.</u>	<u>10</u>	<u>—</u> <u>—</u>
11.			
12.			
13.			
14.			
15.			

Percent of dominant species that are OBL, FACW, and/or FAC: 50%

Is the hydrophytic vegetation criterion met? Yes: X No:

Rational: Predominance of hydrophytic veg. (some not able to identify)

SOILS

Series/Phase: Urban Land Subgroup:
 Is the soil on the hydric soils list? Yes: No: X Undetermined:
 Mark other soil conditions below:
 Histosol Mottled Gleyed Histic epipedon present
 Matrix Color: 10YR 2/1 @ 12" Mottle Colors:
 Other hydric soil indicators: Black loam
 Is the hydric soil criterion met? Yes: X No:
 Rational: Chroma < 2

HYDROLOGY

Is the ground surface inundated? Yes: X No: Surface water depth: Surface
 Is the soil saturated? Yes: X No:
 Depth to free-standing water in pit/soil probe hold: Surface
 Mark other field indicators of surface inundation or soil saturation below:
 Oxidized root zones Water-stained leaves Water marks X Water-borne sediment deposits
X Wetland drainage pattern X Surface scoured leaves X Drift lines X Morphological adaptations
 Is wetland hydrology criterion met? Yes: X No:
 Rational: Wetland Hydrology present. High water table.

JURISDICTION

Is the plant community a wetland? Yes: X No:
 Rational: All criteria met

NO PHOTO.

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: KI 1JZ Date: 9/24/92
 Project Site: Stepan Co.
 County: Bergh State: N.S.
 Applicant/Owner: Secur's Plant Community #/Name: T1 4

Do normal environmental conditions exist at the plant community? Yes: X No: (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: No: X (If yes, explain on back)

VEGETATION

Dominant Plant Species		Indicator	
Stratum	% Cover	Status	
1. <u>Viburnum racematum</u>	<u>10</u>	<u>FACW-</u>	<u>H</u>
2. <u>Symplocarpus fortidus</u>	<u>20</u>	<u>OBL</u>	<u>H</u>
3. <u>Allium canadense</u>	<u>3</u>	<u>FACW</u>	<u>H</u>
4. <u>Cornus sp.</u>	<u>5</u>	<u> </u>	<u>H</u>
5. <u>Rosa multiflora</u>	<u>5</u>	<u>FACW</u>	<u>SH</u>
6. <u>Acer rubrum</u>	<u>10</u>	<u>FACW-</u>	<u>SH</u>
7. <u>Prunus serotina</u>	<u>10</u>	<u>FAC</u>	<u>SH</u>
8. <u>Toxicodendron radicans</u>	<u>3</u>	<u>FACW</u>	<u>SH</u>
9. <u>Fraxinus pennsylvanica</u>	<u>3</u>	<u>FAC</u>	<u>V</u>
10. <u>Acer rubrum</u>	<u>10</u>	<u>FACW-</u>	<u>SAP</u>
11. <u>Fraxinus pennsylvanica</u>	<u>20</u>	<u>FAC</u>	<u>T</u>
12. <u>Ulmus americana</u>	<u>5</u>	<u>FACW-</u>	<u>T</u>
13. <u>Liquidambar styraciflua</u>	<u>10</u>	<u>FACW-</u>	<u>T</u>
14. <u> </u>	<u>5</u>	<u>FAC</u>	<u>T</u>
15. <u> </u>	<u> </u>	<u> </u>	<u> </u>

Percent of dominant species that are OBL, FACW, and/or FAC: 250

Is the hydrophytic vegetation criterion met? Yes: X No:

Rational: 250 FAC, FACW, OBL veg. present.

SOILS

Series/Phase: Urban Land Subgroup:
 Is the soil on the hydric soils list? Yes: No: X Undetermined:
 Mark other soil conditions below:
 Histosol X Mottled Gleyed Histic epipedon present
 Matrix Color: 10 yr 3/1 Mottle Colors: Syr 3/3
 Other hydric soil indicators: Sand loam
 Is the hydric soil criterion met? Yes: X No:
 Rational: Chroma < 2 w/ mottles.

HYDROLOGY

Is the ground surface inundated? Yes: No: X Surface water depth:
 Is the soil saturated? Yes: X No:
 Depth to free-standing water in pit/soil probe hold: 2"
 Mark other field indicators of surface inundation or soil saturation below:
X Oxidized root zones X Water-stained leaves Water marks Water-borne sediment deposits
X Wetland drainage pattern X Surface scoured leaves Drift lines X Morphological adaptations
 Is wetland hydrology criterion met? Yes: No:
 Rational: Presence of hydrology high water table.

JURISDICTION

Is the plant community a wetland? Yes: X No:
 Rational: All criterion met

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: Kerry Ilett / John Longo Date: 4/20/92
 Project Site: Stepan Co.
 County: Bergen State: NJ
 Applicant/Owner: Sears Plant Community #/Name: T2.1

Do normal environmental conditions exist at the plant community? Yes: ☒ No: ☐ (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: ☐ No: ☒ (If yes, explain on back)

VEGETATION

Dominant Plant Species		% Cover	Indicator	
Stratum				
1.	<u>Typha latifolia</u>	<u>40</u>	<u>OBL</u>	<u>++</u>
2.	<u>Echinochloa sp.</u>	<u>10</u>	<u>—</u>	<u>++</u>
3.	<u>Cyrtus salicaria</u>	<u>5</u>	<u>FACW+</u>	<u>++</u>
4.	<u>Rumex verticillatus</u>	<u>5</u>	<u>OBL</u>	<u>++</u>
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

Percent of dominant species that are OBL, FACW, and/or FAC: 250

Is the hydrophytic vegetation criterion met? Yes: ☒ No: ☐
 Rational: >50% FAC, FACW, OBL plant sp. present

SOILS

Series/Phase: Urban Land Subgroup: —
 Is the soil on the hydric soils list? Yes: ☐ No: ☒ Undetermined: ☐
 Mark other soil conditions below:
 Histosol ☒ Mottled ☐ Gleyed ☐ Histic epipedon present ☐
 Matrix Color: 7.5YR 2/0 Mottle Colors: 10YR 3/3
 Other hydric soil indicators: Deep organic layer
 Is the hydric soil criterion met? Yes: ☒ No: ☐
 Rational: Data point is w/in 3' of stream (ditch)
& soil criteria met.

HYDROLOGY

Is the ground surface inundated? Yes: ☐ No: ☒ Surface water depth: —
 Is the soil saturated? Yes: ☒ No: ☐
 Depth to free-standing water in pit/soil probe hold: 6
 Mark other field indicators of surface inundation or soil saturation below:
 Oxidized root zones ☒ Water-stained leaves ☒ Water marks ☒ Water-borne sediment deposits ☒
 Wetland drainage pattern ☒ Surface scoured leaves ☒ Drift lines ☒ Morphological adaptations ☒
 Is wetland hydrology criterion met? Yes: ☒ No: ☐
 Rational: Hydrology present

JURISDICTION

Is the plant community a wetland? Yes: ☒ No: ☐
 Rational: All criteria met

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: KI/JL Date: 4/21/92
 Project Site: Stapan Co
 County: Berrien State: MS
 Applicant/Owner: Swains Plant Community #/Name: T2.2

Do normal environmental conditions exist at the plant community? Yes: No: X (If no, explain on back) MOCCED
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: X No: (If yes, explain on back) FILE

VEGETATION

Dominant Plant Species		Indicator	
Stratum		% Cover	Status
1.	<u>Carex sp.</u>	<u>5</u>	<u>—</u> <u>H</u>
2.	<u>Glechoma hederacea</u>	<u>20</u>	<u>FACU</u> <u>H</u>
3.	<u>Cirsium sp.</u>	<u>5</u>	<u>—</u> <u>H</u>
4.	<u>Gramine sp. (Turf Grass) mowed</u>	<u>80</u>	<u>—</u> <u>H</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Percent of dominant species that are OBL, FACW, and/or FAC: <50

Is the hydrophytic vegetation criterion met? Yes: No: X

Rational: < 50% OBL, FACW, FAC sp present. Area has been filled & mowed recently.

SOILS

Series/Phase: Urbanland Subgroup:
 Is the soil on the hydric soils list? Yes: No: X Undetermined:

Mark other soil conditions below:

Histosol Mottled Gleyed Histic epipedon present

Matrix Color: 5Y 2.5/1 @ 6 Mottle Colors: 5Y 5/1 @ 6

Other hydric soil indicators: AT 12" Thorium begins

Is the hydric soil criterion met: Yes: X No: X

Rational: Aggregate fill placed on top of Thorium - d.f. met to distinguish hydric characteristics.

HYDROLOGY

Is the ground surface inundated? Yes: No: X Surface water depth:

Is the soil saturated? Yes: X No:

Depth to free-standing water in pit/soil probe hold: ~16"

Mark other field indicators of surface inundation or soil saturation below:

X Oxidized root zones Water-stained leaves Water marks X Water-borne sediment deposits

X Wetland drainage pattern Surface scoured leaves Drift lines Morphological adaptations

Is wetland hydrology criterion met: Yes: X No:

Rational: Flooding occurs, evidence by areas w/ little or no vegetation. Saturated soil. Ox. root zones on mow.

JURISDICTION

Is the plant community a wetland: Yes: X No:

Rational: Determined by hydrologist & location on slope. Wetland boundary determined by topography is the area.

**DATA FORM
ROUTINE ONSITE DETERMINATION METHOD**

Investigators: KI / JL Date: 4/21/92
 Project Site: Stepan Co
 County: Bergen State: NJ
 Applicant/Owner: Securs Plant Community #/Name: D1

Do normal environmental conditions exist at the plant community? Yes: No: X (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been disturbed? Yes: X No: (If yes, explain on back) →

VEGETATION

Dominant Plant Species		% Cover	Indicator	
Stratum				
1.	<u>Phragmites australis</u>	<u>60</u>	<u>FACW</u>	<u>H</u>
2.	<u>Typha latifolia</u>	<u>30</u>	<u>OBL</u>	<u>H</u>
3.	<u>Carex sp.</u>	<u>3</u>	<u> </u>	<u>H</u>
4.	<u>Cirsium sp.</u>	<u>3</u>	<u> </u>	<u>H</u>
5.	<u>Hydrocotyle americana</u>	<u>5</u>	<u>OBL</u>	<u>H</u>
6.	<u>Greenland sp. (mowed)</u>	<u>20</u>	<u> </u>	<u>H</u>
7.	<u>Asclepias incarnata</u>	<u>2</u>	<u>OBL</u>	<u>H</u>
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

Percent of dominant species that are OBL, FACW, and/or FAC: >50
 Is the hydrophytic vegetation criterion met? Yes: X No:
 Rational: >50 OBL, FACW or FAC veg. sp. present.

SOILS

Series/Phase: Urban Land Subgroup:
 Is the soil on the hydric soils list? Yes: No: X Undetermined:
 Mark other soil conditions below:
 Histosol Mottled Gleyed Histic epipedon present
 Matrix Color: 2.5Y 2.5/0 Mottle Colors:
 Other hydric soil indicators: Possible buried remnant soil. (~15" deep)
 Is the hydric soil criterion met? Yes: X No:
 Rational: Chrom C D no mottles Hydrophytic veg. assumes wet conditions.

HYDROLOGY

Is the ground surface inundated? Yes: No: X Surface water depth:
 Is the soil saturated? Yes: No: X
 Depth to free-standing water in pit/soil probe hold: 16"
 Mark other field indicators of surface inundation or soil saturation below:
 Oxidized root zones X Water-stained leaves Water marks X Water-borne sediment deposits
 Wetland drainage pattern X Surface scoured leaves Drift lines Morphological adaptations
 Is wetland hydrology criterion met? Yes: X No:
 Rational: Drainage pattern slight, however area appears to pond frequently.

JURISDICTION

Is the plant community a wetland? Yes: X No:
 Rational: All criteria met.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD

Investigators: KI/IT Date: 4/21/92
Project Site: Stepan Co
County: Bureau State: Ill
Applicant/Owner: J DeSousa Plant Community #/Name: DZ

Do normal environmental conditions exist at the plant community? Yes: X No: (If no, explain on back)
Has the vegetation, soils, and/or hydrology been disturbed? Yes: X No: (If yes, explain on back) →

VEGETATION

Dominant Plant Species		Indicator	
Stratum		% Cover	Status
1.	<u>Vitis sp.</u>	<u>5</u>	<u>—</u> <u>V</u>
2.	<u>Toxicodendron radicans</u>	<u>5</u>	<u>FAC</u> <u>V</u>
3.	<u>Acer rubrum</u>	<u>10</u>	<u>FAC</u> <u>SAP</u>
4.	<u>Fraxinus americana</u>	<u>10</u>	<u>FACW</u> <u>SAP</u>
5.	<u>Nyssa sylvatica</u>	<u>5</u>	<u>FAC</u> <u>SAP</u>
6.	<u>Ailanthus altissima</u>	<u>2</u>	<u>NE</u> <u>SAP</u>
7.	<u>Platanus occidentalis</u>	<u>20</u>	<u>FACW</u> <u>T</u>
8.	<u>Ulmus americana</u>	<u>20</u>	<u>FACW</u> <u>T</u>
9.	<u>Acer rubrum</u>	<u>30</u>	<u>FAC</u> <u>T</u>
10.	<u>Liquidambar styraciflua</u>	<u>10</u>	<u>FAC</u> <u>T</u>
11.			
12.			
13.			
14.			
15.			

Percent of dominant species that are OBL, FACW, and/or FAC: 250
Is the hydrophytic vegetation criterion met? Yes: X No:
Rational: > 50 OBL, FACW or FAC veg. Sp. present

SOILS

Series/Phase: Urban Land Subgroup:
Is the soil on the hydric soils list? Yes: No: X Undetermined:
Mark other soil conditions below:
Histosol Mottled Gleyed Histic epipedon present
Matrix Color: 10 yr 5H@4' Mottle Colors: 2.5 Y 3/0 — (Buried Soil)
Other hydric soil indicators: Data taken below fill material (~4') 3.5' of blue soil has
Is the hydric soil criterion met? Yes: X No:
Rational: Chrom < 2 been placed over entire wetland area.

HYDROLOGY

Is the ground surface inundated? Yes: No: X Surface water depth:
Is the soil saturated? Yes: X No:
Depth to free-standing water in pit/soil probe hold: 10"
Mark other field indicators of surface inundation or soil saturation below:
 Oxidized root zones Water-stained leaves Water marks X Water-borne sediment deposits
 Wetland drainage pattern Surface scoured leaves Drift lines Morphological adaptations
Is wetland hydrology criterion met? Yes: X No:
Rational: High water table - disturbed wetland.

JURISDICTION

Is the plant community a wetland? Yes: X No:
Rational: All criteria met

CHM HILL



T2.1
PEM (Mowed)
+ Turf Grass



T2.2
PEM & Ditch



T1.1
PF01/Turf Grass



T1.2
PF01/Turf Grass



T1.4
PF01-No
Understory



D1-PEM
Phrag/Turf Grass



D2
PF01-Showing
Bright-Blue-Silty
Soil and Remnant Soil