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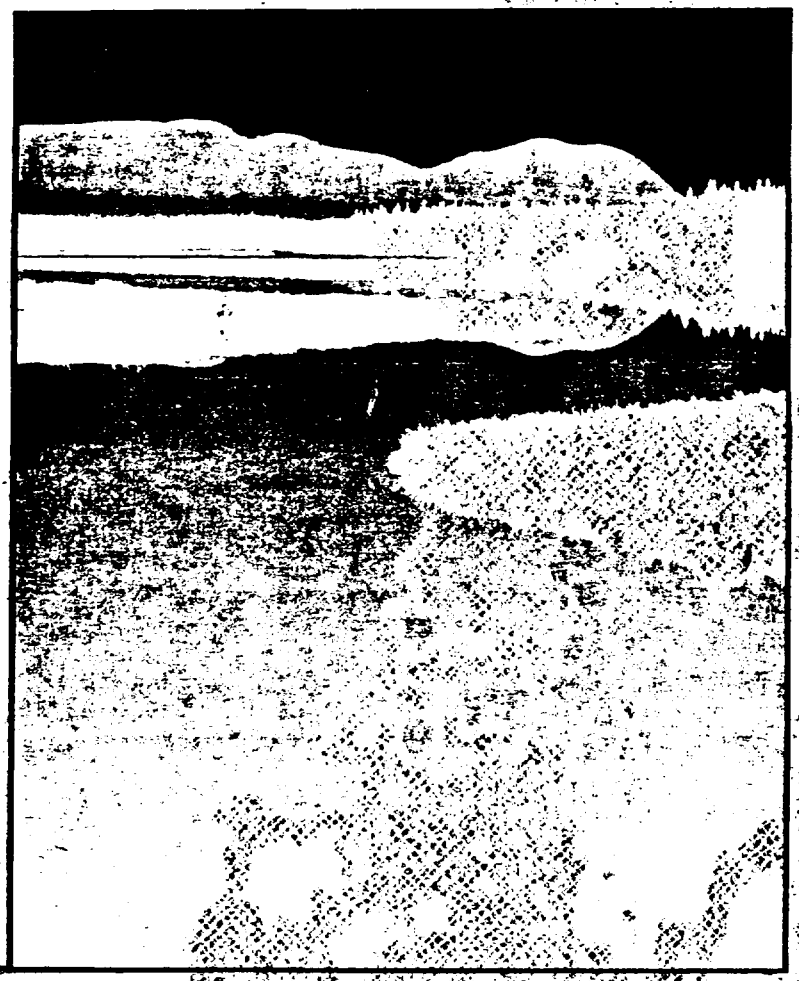

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302939

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July 16, 1996

WETLANDS EVALUATION AND HABITAT SURVEY REPORT
PPG PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

302940

Wetlands Evaluation and Habitat Survey Report

McLaren/Hart Project No. 09.0803591.001.001

PPG Pulverizing Services Site Moorestown, New Jersey

July 16, 1996

Prepared for: **PPG Industries, Inc.**
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1.0 INTRODUCTION

As part of supplemental remedial investigative work being conducted at the PPG Pulverizing Services site (the Site) in Moorestown, New Jersey, the U.S. Environmental Protection Agency (USEPA) requested a field assessment of the entire Site be conducted for the presence of wetlands. If wetlands were identified on the subject property, then the boundaries of the wetlands would be delineated using the appropriate methodology.

The USEPA also requested the evaluation of property located off-site, between the onsite Area A and the Coca Cola bottling facility east of the Site, for the presence of wetlands. There is the potential for future investigative and/or remediation activities to be completed in this area and as such, wetland regulatory issues may have to be considered. The USEPA also requested that a habitat survey be conducted of the entire Site and a habitat cover type map be prepared to document the results.

The wetlands assessments and habitat survey were based on visual surveys made at the Site on April 9 and 18, 1996, by a McLaren/Hart Environmental Engineering (ChemRisk Division) biologist. The Site visit on April 9 was conducted under adverse weather conditions, and was utilized as a reconnaissance of the property. Weather at the time was cloudy and cold, with steady freezing precipitation. The detailed field observations were obtained on April 18. Weather at that time was clear, cool (50°), with the winds at approximately 10 mph out of the north. The April 9 visit began at 0830 EST, and ended at approximately 1200 EST. The April 18 visit began at 0900 EST, and ended at approximately 1800 EST. The following sections describe the results of the wetlands assessment/delineation and habitat survey for the Site.

2.0 WETLAND EVALUATION

Wetlands were identified at the southern end of Area B, on the Coca Cola property east of Area A, and in the drainage swale on the western side of Area A and Area C. The approximate boundaries of wetlands in Area B and on the Coca Cola property were flagged. It was determined that the boundaries for the drainage swale wetland conform to the topographic lay of the swale border.

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas".

2.1 DELINEATION METHODOLOGY

The wetland assessment and delineation at the property was conducted in accordance with the three parameter approach which is described in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1989) ("1989 Manual"). Such an approach dictates that areas meeting defined criteria of vegetation, soils and hydrology will be designated as jurisdictional wetlands. This presently means that for vegetation, more than 50% of the composition of the dominant species from all strata must be categorized as hydrophytic or adapted to living in saturated areas. Vegetative species must be classified as obligate, facultative wetland or facultative as defined in the "National List of Plant Species That Occur in Wetlands", published by the United States Fish & Wildlife Service. Soils are considered hydric if they meet the criteria defined by the National Technical Committee for Hydric Soils. Hydrology must be present to effect either permanent or periodic saturation of the soil. The 1989 Manual does allow you to assume that the hydrologic parameter is present if hydric soils and hydrophytic vegetation are present and field indications of hydrology are present.

The vegetation parameter is considered met when a predominance of the vegetation present is either obligate, facultative wet or facultative. The U.S. Fish and Wildlife Service has compiled data on the habitat characteristics of plants of the United States. This list categorizes plant species by their frequency of occurrence in a wetland habitat, and these categories are as follows:

(1) Obligate Wetland Plants (OBL) are those species that occur almost exclusively in wetlands (>99% of the time);

(2) Facultative Wetland Plants (FACW) are those species that usually occur in wetlands (67 - 99%);

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(3) Facultative Plants (FAC) are those species that are equally likely to occur in wetland or nonwetland (34 - 66%);

(4) Facultative Upland Plants (FACU) are those species that usually occur in nonwetlands (67 - 99%);

(5) Upland Plants (UPL) are those species that occur almost exclusively in uplands (>99%); and,

(6) No Indicator (NI) are those species that have not been given a wetlands indicator. These species are generally assumed to be upland.

To determine whether a predominance of wetland species are present on a site, the community prevalence index value is developed for the dominant vegetative species. Each species is given a value based upon their habitat classification (*i.e.*, OBL=1.0, FACW=2.0, FAC=3.0, FACU=4.0, UPL=5.0). If the sum of the values for all of the dominant species is less than 3.0, then the predominant vegetation is indicative of a wetlands.

To determine the presence of the second parameter, hydric soils, direct observations of the soil were made to study the nature of the soil below the A Horizon (generally between 10 and 24 inches below grade). This was accomplished through the digging of small, open pits to a depth of 24" to visually determine soil characteristics. These characteristics include the presence of high organic content, gleying, histic epipedons, sulfidic materials, aquic or peraquic moisture regime, and iron or manganese concretions were also evaluated. Other observations include the description of the soil profile and the identification of soil structural classes.

The hydric nature of soils is also determined by color changes that have occurred as a result of chemical reduction of some soil components during extended periods of saturation or inundation. The Munsell Soil Color Charts were used in order to give values to these colors in an effort to make classification easier. The Munsell system utilizes three components in designating color to a soil (*i.e.*, hue, value and chroma). The hue is related to one of the main spectral colors: red, yellow, green, blue, or purple, or various mixtures of these principle colors. The value refers to the degree of lightness, while the chroma notation indicates the color strength or purity. In mineral soils there may be two or more colors within the same soil. The dominant color is referred to as the matrix

while the less dominant is referred to as the mottle. Mottling tends to occur under fluctuating conditions of saturation, and mineral soils are considered hydric if the matrix chroma is 2 or less when mottling is present, or when the matrix chroma is 1 or less if no mottling is present.

The last parameter, hydrology, is present when inundation or saturation of the soil within 6 to 18" of the surface occurs for a minimum of 7 consecutive days during the growing season. During the periods when inundation or saturation is not present, there are a number of characteristics (*e.g.*, hummocking, aerial roots, stained leaves, *etc.*) that can be used to determine whether hydrology exists.

The wetlands delineation at the Site involved the determination of the boundary line between the areas in which the three hydric parameters are present and where they are not. Using perceived changes in elevation and vegetation as a guide, representative observation points were selected along the border of the wetland areas. At each of the observation points, soil borings were made to determine soil and hydrologic conditions. Observations of floral species and surface hydrologic conditions were made. Observations were made on both the wetland and upland side. Based on professional judgement, the boundary was arbitrarily located between the two. Each observation point was flagged and numbered to facilitate surveying. Observation points were placed no greater than fifty feet apart.

2.2 AREA B WETLANDS DELINEATION RESULTS

Wetlands were positively identified in the southern end of Area B (Figure 1). The position of this area on the landscape places it to receive runoff from uphill areas adjacent to New Albany Road, as well as from properties to the west and east. The presence of the elevated railroad bed at the rear of the property acts to retain the surface drainage of water from this portion of the Site. The ponding of water at the extreme southern end of the property and the subsequent lack of observable drainage from this part of Area B supports this theory. The wetland delineation data sheets are included as Appendix A to this report.

A preliminary review of National Wetland Inventory maps for the region did not suggest the presence of wetlands at the Site. A review of the County Soil Survey for Burlington County notes that the soils in the area of interest at the Site are listed as Woodstown fine sandy loam, 0 - 2 percent slopes (WmA). WmA is not listed as a hydric soil in Hydric Soils of the United States. However, the Soil Survey for Burlington County notes that in depressions and swales, Fallsington inclusions can be found within areas of WmA listed soils. Fallsington soils are listed as hydric.

The results of the field investigation indicated that wetlands were present on the southern end of the property in question. The soils had well defined field indicators present indicating that hydric soils were present. In general, soil observations indicated that the 0" - 8" interval (A Horizon) was categorized as a sandy loam, with a coloration of 5YR 4/1. Oxidized rhizosheres were present in all of the samples. The 8" - 24" interval (B Horizon) was 2.5Y 6/1, with prominent mottles (10YR 5/8) of medium size occupying approximately 30% of the pedon. An E Horizon was not present.

The required hydrologic characteristic was supported by the presence of soil saturation at a depth ranging from 8" to 19" below the soil surface, depending on the location of the pit on the landscape. Drift lines, surface saturation and water staining on the tree trunks were noted in the forested portion of Area B. In the extreme southern end, standing water was observed.

Approximately 60% of the wetland area is covered by a hardwood forest community. This forested area occupies the extreme southern portion of the Site. The remainder of the wetlands is between the forested wetland and the upland area in the central and northern portion of the Site. This area is under occasional vegetation management, and is mowed on a infrequent periodic basis. In the mowed part of the wetland, the vegetation is dominated by herbaceous species. In particular, soft rush (*Juncus effusus*), a FACW species, was dominant in this community and was used as an indicator of the extent of the wetland boundaries. Other vegetative species identified in or adjacent to the wetlands at the Site include:

Forested Area

Overstory

Sweet gum	*Liquidambar styraciflua*	FAC
Red maple	*Acer rubrum*	FAC
White birch	*Betula alba*	FAC
Pin oak	*Quercus palustris*	FACW
Black cherry	*Prunus serotina*	FACU

Understory

Common highbush blueberry	*Vaccinium corymbosum*	FACW
Morrow's honeysuckle	*Lonicera morrowii*	NI
Silky dogwood	*Cornus amomum*	FACW
Multi-flora rose	*Rosa multiflora*	FACU

Mowed Area

Soft rush	*Juncus effusus*	FACW
Wool grass	*Scirpus cyperinus*	FACW
Bushy bluestem	*Andropogon glomeratus*	FACW
Sensitive fern	*Onoclea sensibilis*	FACW

2.4 RESULTS OF THE WETLANDS ASSESSMENT ON THE COCA COLA PROPERTY

Wetlands were identified on the off-site property, between the Coca Cola bottling facility and Area A onsite (Figure 1). The wetlands appear to be supported by surface runoff and originate at a drainage swale leading from Area A into the Coca Cola property. At the time of the wetlands survey, the drainage swale opened up into an area of standing water approximately 50' by 100', abutting the Coca Cola parking lot. The physical state of leaves and other depositional material within the ponded water suggests that the size and/or presence of the standing water fluctuates significantly with precipitation and storm water runoff. The wetlands area included the drainage swale, an area on either side of the swale that increases in width with proximity to the ponded area, and the ponded area.

A representative soil sample from adjacent to the swale showed an O Horizon at the 0"-1" interval. From 1"-16" is an A Horizon consisting of silty clay loam (with an increase of sand at the bottom of the horizon interval. The soil in this horizon had a matrix coloration of 10YR 6/1, with many, bright, and distinct mottles with a coloration of 7.5YR 5/8. Oxidized rhizospheres were present in the A horizon. The B Horizon (> 16" in depth) consisted of a coarse gravel. An E Horizon was not noted. The soil was saturated at 10".

The vegetative community throughout the wetlands on the Coca Cola property was dominated by a number of hydrophytic species. They include:

Sweet gum	*Liquidambar styraciflua*	FAC
Red maple	*Acer rubrum*	FAC
White birch	*Betula alba*	FAC
Pin oak	*Quercus palustris*	FACW
Black gum	*Nyssa sylvatica*	FAC
Stiff dogwood	*Cornus foemina*	FAC
Soft rush	*Juncus effusus*	FACW
Wool grass	*Scirpus cyperinus*	FACW
Tussock sedge	*Carex crinita*	OBL

The vegetative community in the upland area surrounding the wetlands on this property was dominated by black locust (*Robinia pseudoacacia*), a FACU species.

2.5 RESULTS OF THE WETLANDS ASSESSMENT OF THE DRAINAGE SWALE

The assessment of the drainage swale on the west side of the property, leading from a discharge point in Area A to a drainage point along Crider Lane, resulted in the positive identification of wetlands. The wetlands associated with the swale are primarily found within the boundaries of this land feature (Figure 1). The boundaries of the wetlands are defined by the topographic lay of the borders of the swale. This area is vegetated by:

Red oak	*Quercus rubra*	FACU
Sweet gum	*Liquidambar styraciflua*	FAC
Red maple	*Acer rubrum*	FAC

White birch	*Betula alba*	FAC
Pin oak	*Quercus palustris*	FACW
Black gum	*Nyssa sylvatica*	FAC
Black cherry	*Prunus serotina*	FACU
Common highbush blueberry	*Vaccinium corymbosum*	FACW
Morrow's honeysuckle	*Lonicera morrowii*	NI
Silky dogwood	*Cornus amomum*	FACW
Stiff dogwood	*Cornus foemina*	FAC
Multi-flora rose	*Rosa multiflora*	FACU
Soft rush	*Juncus effusus*	FACW

3.0 HABITAT SURVEY

Habitats are defined by ecologists as the places were organisms live. In evaluating the habitats of macro-organisms such as mammals, birds, reptiles or amphibians, the determination of habitat availability can be based on the description of the vegetative community where those organisms could live. One manner in which the vegetative community can be described is through the identification of cover types for a given area. The cover type is a description of the dominant physiognomic, or structural forms (trees, grasses, shrubs, *etc.*) present in a location. The identification of the vegetative community through the description of a cover type can provide a general understanding of the faunal species expected to utilize that habitat. In this instance, the dominant cover types for the various areas of the Site were determined through simple visual observation. A map illustrating the cover types for the Site is provided as Figure 2.

The Site is located in the Inner Coastal Plain physiographic region of New Jersey. This is an area of uplands and wetlands which generally drain to the Delaware River. The upland area, which is typical of the majority of the Site, consists of well-drained soils that are mesic in nature (neither excessively wet or excessively dry).

3.1 AREA A COVER TYPES

Four distinct cover types were identified in the Area A portion of the Site. These cover types consist of:

Unvegetated, Impervious Surface	(UIS)
Disturbed Area, Early Successional	(DA)
Short Grass/Herbaceous	(SG)
Mixed Hardwoods	(MH)

These cover types are discussed below.

UIS The UIS cover type includes areas where vegetation has been removed and the soil surface has been covered with paved areas and buildings. As Area A includes the majority of the buildings found on the Site, most of Area A includes this cover type (approximately 5 acres). This cover type is impervious to precipitation and vascular plants are only minor, incidental components. Black willow (*Salix nigra*) and American crabapple (*Pyrus coronaria*) were observed in this area.

DA The disturbed area, early successional or DA cover type includes areas where historic anthropogenic activities have significantly disturbed the soil base and removed the original plant cover. The result is a mesic terrestrial cover type, where short grasses and herbaceous species typical of early successional stages have begun to establish themselves. Some short trees and shrubs are present, though a significant quantity of bare ground is also evident. Some of the ground which does not support vascular plants is covered with a thick layer of moss (Order Bryophyta, most likely common haircap moss, *Polytrichum commune*). This cover type is found in the area of the test pit excavations north/northwest of Building 29 and the open area north/northeast of Building 5 and Building 29. Dominant species noted in this cover type include:

Trees

Pin cherry	*Prunus pensylvanica*
Black cherry	*Prunus serotina*
Sweet gum	*Liquidambar styraciflua*
Red oak	*Quercus rubra*
American crabapple	*Pyrus coronaria*

Shrubs

Staghorn sumac	*Rhus typhina*
Multi-flora rose	*Rosa multiflora*

Herbs

Queen Anne's Lace	*Daucus carota*
Common evening primrose	*Oenothera biennis*
Canada goldenrod	*Solidago canadensis*
Small-flowered bitter cress	*Cardamine maxima*
Field garlic	*Allium vineale*
Small white aster	*Aster vimineus*

Grasses

Bushy bluestem	*Andropogon glomeratus*
Switchgrass	*Panicum virgatum*

SG The short grass/herbaceous cover type includes areas that have been historically mowed or cultivated. These areas have 100% vegetative cover, dominated by short grasses and herbaceous species. In Area A, some trees and shrubs have been introduced into this cover type through successional processes. This cover type can be found on the north/northwest side of Building 29, on the south/southwest side of Building 29, and between Building 6 and New Albany Road. Dominant species in this cover type include:

Trees

Black cherry	*Prunus serotina*
Sweet gum	*Liquidambar styraciflua*
Red oak	*Quercus rubra*
American crabapple	*Pyrus coronaria*

Shrubs

Staghorn sumac	*Rhus typhina*
Multi-flora rose	*Rosa multiflora*
Blackberry	*Rubus allegheniensis*

Herbs

Common evening primrose	*Oenothera biennis*
Canada goldenrod	*Solidago canadensis*
Small-flowered bitter cress	*Cardamine maxima*
Field garlic	*Allium vineale*
Indian hemp	*Apocynum cannabinum*
Early winter cress	*Barbarea verna*
Field mustard	*Brassica rapa*

Grasses

Bushy bluestem	*Andropogon glomeratus*
Switchgrass	*Panicum virgatum*

MH The mixed hardwood cover type is found in the western portion of Area A, where the soil base has remained relatively undisturbed. As such, a stand of hardwood trees and shrubs of approximately 25 years in age has established itself. The species found in this forest are consistent with the sweet gum successional forest suggested by Plant Communities of New Jersey (B. R. Collins and K.H. Anderson, Rutgers University Press, 1994). Dominant species seen in this cover type include:

Trees

Sweet gum	*Liquidambar styraciflua*
Red maple	*Acer rubrum*
White birch	*Betula alba*
Pin oak	*Quercus palustris*
Red oak	*Quercus rubra*
Black cherry	*Prunus serotina*
Black gum	*Nyssa sylvatica*

Shrubs

Silky dogwood	*Cornus amomum*
Multi-flora rose	*Rosa multiflora*

Herbs

Soft rush	*Juncus effusus*
Field garlic	*Allium vineale*

Grasses

Bushy bluestem	*Andropogon glomeratus*
Switchgrass	*Panicum virgatum*

3.2 AREA B COVER TYPES

Five distinct cover types were identified in the Area B portion of the Site. Those cover types consist of:

Unvegetated, Impervious Surface	(UIS)
Shrub/Scrub	(SS)
Short Grass/Herbaceous	(SG)
Emergent Wetlands/Cultivated	(EWC)
Forested Wetlands	(FW)

These cover types are discussed below.

UIS As described in Section 3.1, the UIS cover type includes areas where vegetation has been removed and the soil surface has been covered with paved areas and buildings. This cover type is impervious to precipitation and vascular plants are only minor, incidental components. This cover type is found in association with the old office building located at the northwestern end of Area B, adjacent to New Albany Road. Some mature trees, including red maple, pin oak, black cherry, American crabapple, and American sycamore (*Platanus occidentalis*) can be found adjacent to the old office building.

SS The shrub/scrub cover type consists of woody vegetation less that 6 feet in height. Grass and herbaceous cover can be found below the shrubs. This cover type is found in association with debris piles and historic disturbance and is found running adjacent to the eastern fence line from just off New Albany Road to just north of the forested wetlands. This cover type is dominated by:

Trees

American crabapple	*Pyrus coronaria*

Shrubs

Staghorn sumac	*Rhus typhina*
Multi-flora rose	*Rosa multiflora*
Silky dogwood	*Cornus amomum*
Stiff dogwood	*Cornus foemina*

SG As noted in Section 3.1, the short grass/herbaceous cover type includes areas that have been historically mowed or cultivated. These areas have 100% vegetative cover, dominated by short grasses and herbaceous species. The dominant species of this cover type were described in Section 3.1. An additional species identified within this cover type in Area B was running dewberry (*Rubus flagellaris*).

EWC The emergent wetlands/cultivated cover type in Area B consists of the delineated wetlands dominated by soft rush, that has been periodically mowed. This area is describe in detail in Section 2.2.

FW The forested wetlands cover type consists of the forested area within the delineated wetlands at the southern end of Area B. This area has been described in detail in Section 2.2.

3.3 AREA C COVER TYPES

Three distinct cover types were identified in the Area C portion of the Site. Those cover types consist of:

Shrub/Scrub	(SS)
Short Grass/Herbaceous	(SG)
Forested Wetlands	(FW)

These cover types are discussed below.

SS As described in Section 3.2, the shrub/scrub cover type consists of woody vegetation less that 6 feet in height. Grass and herbaceous cover can be found below the shrubs. This cover type is found in association with debris piles and historic disturbance. In Area C, the shrub/scrub cover type can be found in a small area approximately 75' by 25', adjacent to the boundary between Area

C and Area A. In this instance, the vegetative community is composed exclusively of staghorn sumac *(Rhus typhina)*.

SG As noted in Section 3.1, the short grass/herbaceous cover type includes areas that have been historically mowed or cultivated. These areas have 100% vegetative cover, dominated by short grasses and herbaceous species. Few woody species are found in this cover type within Area C. This cover type comprises the majority of Area C. The dominant species of this cover type are described below.

Shrubs		
	Multi-flora rose	*Rosa multiflora*
Herbs		
	Common evening primrose	*Oenothera biennis*
	Canada goldenrod	*Solidago canadensis*
	Small-flowered bitter cress	*Cardamine maxima*
	Field garlic	*Allium vineale*
	Early winter cress	*Barbarea verna*
	Field mustard	*Brassica rapa*
	Garlic mustard	*Alliaria officinalis*
Grasses		
	Bushy bluestem	*Andropogon glomeratus*
	Switchgrass	*Panicum virgatum*

FW The last cover type in found in Area C is a forested wetlands cover type found along the western boundary of the Area in association with the drainage swale leading to Crider Avenue. This cover type has been described in detail in Section 2.4.

Figure 1

Map of Delineated Wetlands

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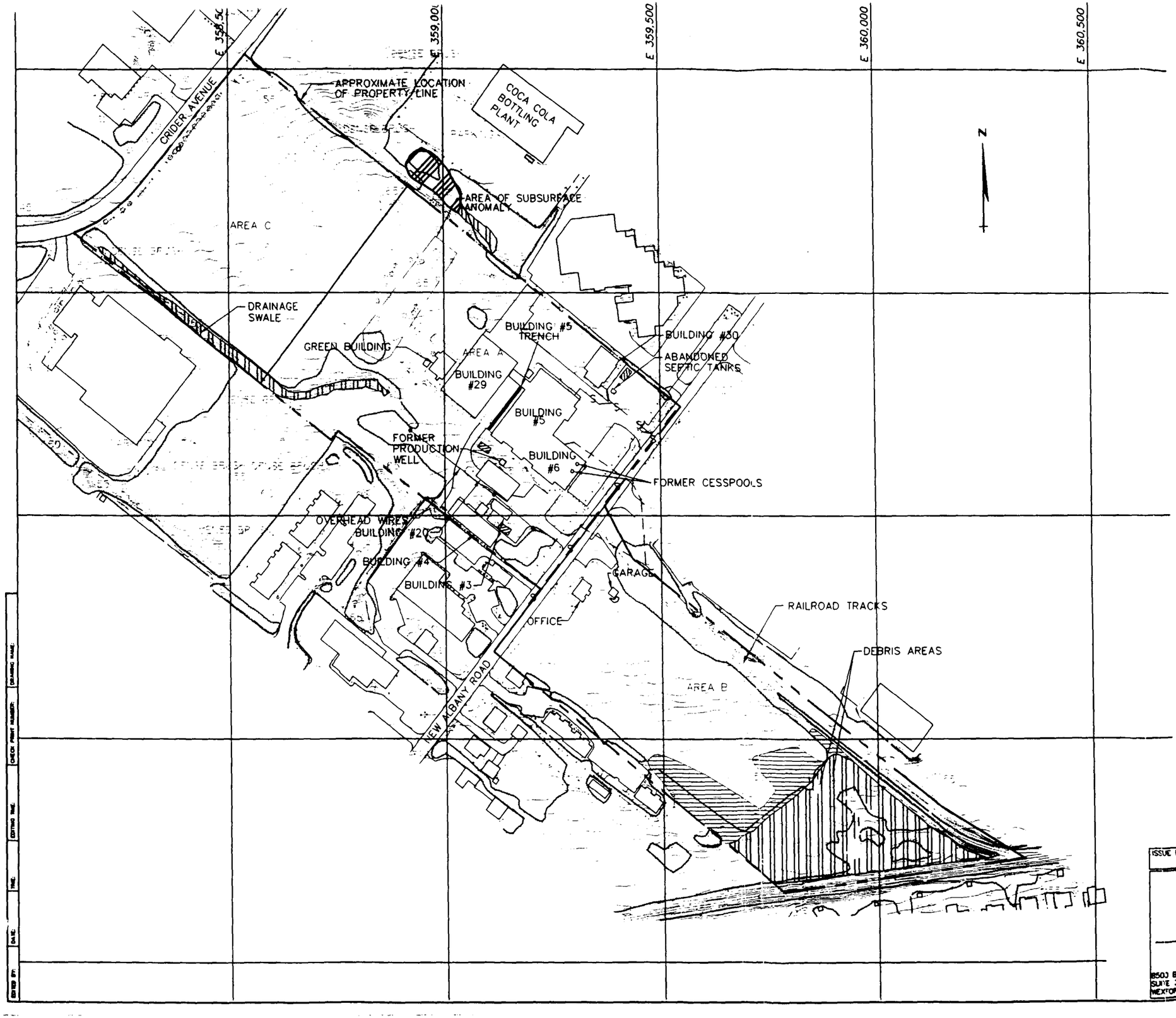

LEGEND:

- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- FW - FORESTED WETLANDS
- EWC - EMERGENT WETLANDS/CULTIVATED
- OFF-SITE EMERGENT WETLAND COCA-COLA PROPERTY

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE

0 100 200 300-FEET

REV #	DATE	DESCRIPTION	APPD
△			
△			
△			

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA

ISSUE DATE:

DATE

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

DRAWN: LHK	DATE: 6/7/98
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 100'

WETLANDS EVALUATION AND HABITAT SURVEY REPORT
PULVERIZING SERVICES SITE
MOORSTOWN, NEW JERSEY

8503 BROOKTREE ROAD
SUITE 300
WEXFORD, PA 15090

MAP OF DELINEATED WETLANDS

DRAWING NUMBER
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FIGURE 1

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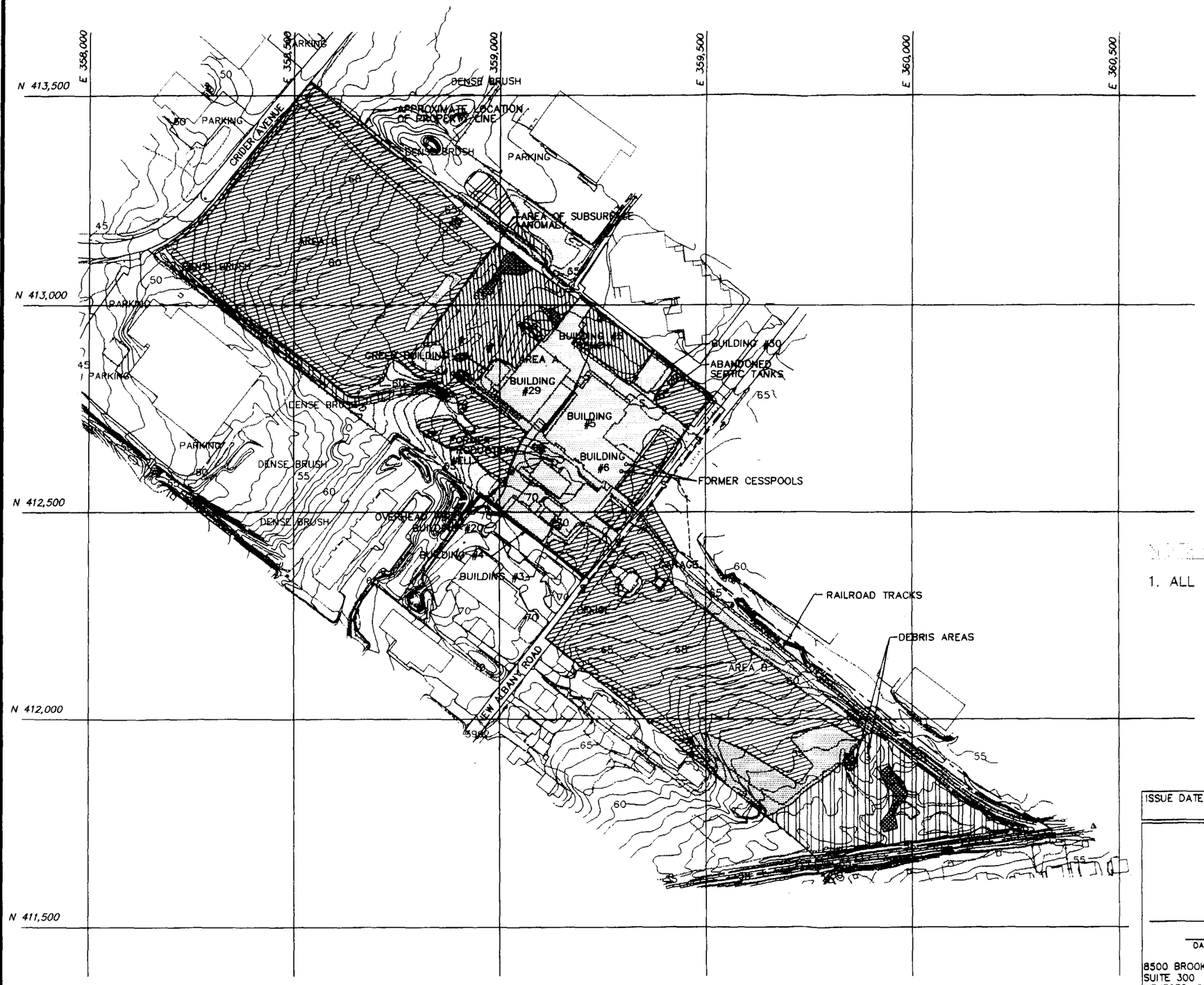
DATE:
EDITED BY:

Figure 2

Habitat Cover Type Map



FENCE
TREELINE
SANITARY SEWER DRAIN LINE
STORM SEWER DRAIN LINE
UNDERGROUND STORAGE TANK
GROUND SURFACE ELEVATION CONTOUR
PROPERTY LINE (APPROXIMATE LOCATION)
AREA DIVIDE LINE
NONVEGETATED AREAS
FW – FORESTED WETLANDS
SG – SHORT GRASS/HERBACEOUS
DA – DISTURBED AREA, EARLY SUCCESSIONAL
UIS – UNVEGETATED, IMPERVIOUS SURFACE
MH – MIXED HARDWOODS
SS – SHRUB/SCRUB
EWC – EMERGENT WETLANDS/CULTIVATED
OFF-SITE COCA-COLA PROPERTY EMERGENT WETLAND

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE

0 50 100 150-FEET

REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA

ISSUE DATE:

DATE

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

McLaren Hart
ENVIRONMENTAL ENGINEERING CORPORATION

DRAWN: MTB	DATE: 5/30/96
CHKD:	DATE:
APPD:	DATE:
SCALE: 1" = 250'-0"	

WETLANDS EVALUATION AND HABITAT SURVEY
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

HABITAT COVER TYPE MAP

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FIGURE 2

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DATE:
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Appendix A

Area B Wetland Data Sheets

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DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): C. R. Harman, P.W.S. Date: 4/18/96
Project/Site: 331 New Albany Rd State: NJ County: Burlington
Applicant/Owner: PPG Industries Plant Community #/Name: Data Pt 1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ✓ No ____ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ✓ No ____ (If yes, explain on back) Periodic mowing taking place

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Cornus amomum	FACW	Shrub	11.		
2. Juncus effusus	FACW	Herb	12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100%
Is the hydrophytic vegetation criterion met? Yes ✓ No ____
Rationale: Greater than 50% FAC or better

SOILS

Series/phase: Woodstown fine sandy loam (WnA) Subgroup:[2] Aquic Hapludults
Is the soil on the hydric soils list? Yes ____ No ✓ * Undetermined ____
Is the soil a Histosol? Yes ____ No ✓ Histic epipedon present? Yes ____ No ✓
Is the soil: Mottled? Yes ✓ No ____ Gleyed? Yes ____ No ✓
Matrix Color: 2.5 Y 6/1 Mottle Colors: 10 YR 5/8
Other hydric soil indicators: Oxidized Rhizospheres
Is the hydric soil criterion met? Yes ✓ No ____
Rationale: * Folbigs Town inclusions with series are hydric

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 hole: 14"
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes ✓ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ✓ No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

302962

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): C. R. Harman P.W.S. Date: 4/18/96
Project/Site: 331 New Albany Rd State: NJ County: Burlington
Applicant/Owner: PPG Industries Plant Community #/Name: Data Pt 5
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes ✓ No ____ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ✓ No ____ (If yes, explain on back) Periodic Mowing taking place

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Juncus Effusus	FACW	Herb	11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100%
Is the hydrophytic vegetation criterion met? Yes ✓ No ____
Rationale: > 50% FAC or wetter

SOILS (WnA)

Series/phase: Woodstown Fine Sandy Loam Subgroup:[2] Aquic Hapludalfs
Is the soil on the hydric soils list? Yes ____ No ✓* Undetermined ____
Is the soil a Histosol? Yes ____ No ✓ Histic epipedon present? Yes ____ No ✓
Is the soil: Mottled? Yes ✓ No ____ Gleyed? Yes ____ No ✓
Matrix Color: 2.5 Y 6/1 Mottle Colors: 10 YR 5/8
Other hydric soil indicators: Oxidized Rhizospheres
Is the hydric soil criterion met? Yes ✓ No ____
Rationale:
* Burlington Inclusions are hydric

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 hole: 24"
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes ✓ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ✓ No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

302963

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): C. R. Norman, P.W.S. Date: 4/18/96
Project/Site: 331 New Albany Rd State: NJ County: Burlington
Applicant/Owner: PPG Industries Plant Community #/Name: Data Pt 10
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

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

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Juncus effusus	FACW	Herb	11.		
2. Onoclea sensibilis	FACW	Herb	12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 100%
Is the hydrophytic vegetation criterion met? Yes ✓ No _____
Rationale: > 50% FAC or better

SOILS

Series/phase: WmA Subgroup:[2] Aquic Hapludults
Is the soil on the hydric soils list? Yes _____ No ✓* Undetermined _____
Is the soil a Histosol? Yes _____ No ✓ Histic epipedon present? Yes _____ No ✓
Is the soil: Mottled? Yes ✓ No _____ Gleyed? Yes _____ No ✓
Matrix Color: 2.5Y 6/1 Mottle Colors: 10YR 5/8
Other hydric soil indicators: Oxydized Rhizospheres
Is the hydric soil criterion met? Yes ✓ No _____
Rationale:
* Burlington Inclusion not hydric

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 hole: 10%
List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes ✓ No _____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ✓ No _____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

303961

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): C. R. Harman, P.W.S. Date: 4/18/96
Project/Site: 221 New Albany Rd State: NJ County: Burlington
Applicant/Owner: PPG Industries Plant Community #/Name: Data Pt 15
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

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

VEGETATION

Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum
1. Acer Rubrum	FAC	Canopy	11.		
2. Liquidambar styraciflua	FAC	Canopy	12.		
3. Quercus palustris	FAC	Canopy	13.		
4. Quercus sensibilis	FACW	Hydro	14.		
5. Vaccinium corymbosum	FACW	Shrub	15.		
6. Lonicera morrowii	UI	Shrub	16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Percent of dominant species that are OBL, FACW, and/or FAC 83 %
Is the hydrophytic vegetation criterion met? Yes ✓ No ____
Rationale: >50% FAC or wetter

SOILS

Series/phase: WnA Subgroup:[2] Aquic Hapludults
Is the soil on the hydric soils list? Yes ____ No ✓* Undetermined ____
Is the soil a Histosol? Yes ____ No ✓ Histic epipedon present? Yes ____ No ✓
Is the soil: Mottled? Yes ✓ No ____ Gleyed? Yes ____ No ✓
Matrix Color: 2.5 Y 6/1 Mottle Colors: 10 YR 5/8
Other hydric soil indicators: Oxidized rhizospheres
Is the hydric soil criterion met? Yes ✓ No ____
Rationale:
* Fallsington inclusion are hydric

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 hole: 8"
List other field evidence of surface inundation or soil saturation.
Surface staining, dark lines
Is the wetland hydrology criterion met? Yes ✓ No ____
Rationale:

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ✓ No ____
Rationale for jurisdictional decision:

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] Classification according to "Soil Taxonomy."

302965