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Finderne Farm Mitigation Site Wetland Delineation and Supplemental Spot Elevation Survey for the Green Brook Flood Control Project, Somerset County, New Jersey



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1 Introduction

1.1 Purpose of Study

The Finderne Farm wetland mitigation site (site) is located in the Township of Bridgewater, Somerset County, New Jersey (Figure 1-1). The site serves to compensate for wetland impacts related to the Green Brook Flood Control Project being constructed by the U.S. Army Corps of Engineers (Corps) in Bound Brook, Somerset County.

The Corps performed a wetland delineation utilizing the 1987 Corps of Engineers Wetland Delineation Manual (1987 Corps Manual) manual and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region, Version 2.0 (Regional Supplement) at the site in April 2014 to supplement ongoing field and technical investigations associated with evaluating whether the site is meeting wetland mitigation success criteria.

1.2 Background

The Finderne Farm mitigation site is located south of the New Jersey Route 28, west of Finderne Avenue, and is bound to the south, east and west by the Raritan River. The site occupies Block 303, Lot 8, and Block 303, Lot 1.03. The former Egan Machinery plant, a barn, and a historical building (the Van Veghten House) are located along the north border of the site. The Raritan River is located on the southern and eastern site boundary. Several easements are located on the property, including a one-acre area set aside by Somerset County Parks as green acres land, a trunk sewer line right-of-way for the Somerset-Raritan Valley Sewer Authority and a PSE&G transmission line right-of-way.

On August 5, 2005 the New Jersey Department of Environmental Protection, Division of Land Use and Regulation (NJDEP LUR) approved the New York District of the U.S. Army Corps of Engineers (Corps) wetland mitigation proposal, entitled, "Wetland Mitigation Design for the Finderne Site, Green Brook Flood Control Project, Bridgewater Township, Somerset County, New Jersey". Wetland mitigation on the Finderne Farm site was initiated by the Corps to mitigate for environmental impacts associated with the Green Brook Flood Control Project Segments U, T and R in accordance with the NJDEP Permit issued for that project.

The overall design goal of the mitigation plan is to provide in-kind mitigation for wetlands impacted by the Green Brook Flood Control Project at a minimum ratio of 2:1. Therefore, the mitigation plan was developed to provide a minimum of 21 acres of created forested wetlands to mitigate for anticipated wetland impacts. The project includes the enhancement of approximately 32 acres of existing forested wetlands, six acres of scrub-shrub wetland, five acres of emergent wetland. Figure 1-2 identifies the created and enhanced wetland areas.

The project also includes preservation of six acres of palustrine emergent wetland, six acres of upland forest and 27 acres of riparian forest. Restoration of the unnamed stream on the western portion of the site (herein after referred to as Finderne Brook) was also performed along approximately 800 linear feet of the stream.

Construction of the Finderne Farm mitigation site was completed in July 2006. To document compliance with Corps policy and the NJDEP wetland mitigation regulations, the mitigation site was monitored for six full growing seasons from 2007 to 2012. Additional field and technical investigations related to identifying potential adaptive management measures to address mitigation deficiencies identified during site monitoring were initiated in 2008 and have been ongoing.

The determination to conduct the wetland delineation utilizing the 2012 Regional Supplement was made during an onsite meeting held on 11 September 2013 with representatives from the Corps, NJDEP LUR and Bureau of Dam Safety and Flood Control, Somerset County and the Corps' consultant primarily because the 2012 Regional Supplement includes a comprehensive section focused on how to evaluate hydric indicators for problematic hydric soils. The use of the problematic hydric soils guidance is further explained in Chapter 3.

1.3 Site Description

1.3.1 Topography

The Finderne Farm mitigation site is located within a flood plain along the Raritan River in Bound Brook, Somerset County, New Jersey. The site itself is nearly flat and is bordered by the river on the east, south and west sides. The northern portion of the site is bordered by a steep slope that is 10-30 feet (ft) in height.

The site is generally vegetated with herbaceous plants. Woodlands occur along the shoreline of the Raritan River and along the slope that borders the northern portion of the site. Pockets of planted trees (approximately12-14 ft in height) occur sporadically across the site.

1.3.2 Geology and Soils

Most of the site consists of alluvial fine-grained deposits. Lithic material was limited to gravel material along the river bank. The only rock outcrops on site were observed within the slope that border the northern side of the site. Outcrops of red-brown siltstone and mudstone (shale) of the Jurassic-Triassic aged Passaic Formation are visible (Photo 2). The Passaic Formation is also exposed in northern portion of Finderne Brook. The Passaic Formation underlies the whole site. Beds dip 9 to 10° toward the north-northwest.

The U.S. Department of Agriculture (USDA), Soil Conservation Service (now called the Natural Resources Conservation Service [NRCS]), Soil Survey of Somerset County, New Jersey (USDA-SCS, 1989) was reviewed prior to the design and construction of the wetland mitigation site. Soils within the mitigation site primarily consist of Rowland silt loam, 0 to 2 percent slopes, frequently flooded (RorAt).

NRCS describes the Rowland soils as deep, moderately well drained to somewhat poorly drained soils located on floodplains along major streams. The typical Rowland silt loam soil type is generally nearly level, but there are minor hummocky areas and slopes of more than 2 percent. This soil series includes sandy loam, loam, and gravelly loam soils. These soils are located approximately 3 to 8 ft above normal stream levels and are subject to frequent flooding from the Raritan River. The seasonal high water table for the Rowland series, as described by the NRCS, is

1 to 3 ft below the surface. Some areas of well-drained Rowland soils are found nearer to streams and at slightly higher elevations. Bowmansville soils, a minor component of the series, are included in mapping of Rowland silt loam and are sometimes found in depression areas.

In 2012, borings were taken to a depth of 40 inches in the creation and enhancement areas throughout the site. Soils on site consisted of clays, clay loams, and silty clay loams. Scientists conducting the soil investigations noted in most locations throughout the site, the upper half of the soil cores was generally clay loams and the lower half denser clay materials. Laboratory analyses for many of the core samples indicated the soils were comprised of over 88 percent fine particles (silts and clays) (AECOM 2012).

1.3.3 Hydrology

The site receives hydrologic input from several sources including direct precipitation, surface runoff from offsite areas, and flooding from the Raritan River. Hydrologic losses include evapotransporation and runoff. Due to the low permeability of the soils, groundwater likely has little influence on the site hydrology.

Two small streams flow into the site. A north-south flowing stream, Finderne Brook (E9 on Figure 1-2) flows to the Raritan River. The drainage basin for Finderne Brook totals approximately 206 acres. The area encompassed by the drainage basin is highly urbanized and a high volume of water reaches the stream channel very quickly during storm events. Because of the relatively small drainage area, it is assumed that base flow in Finderne Brook is from groundwater. Another small ephemeral stream feeds wetland EC1, which flows to Finderne Brook.

The Raritan River forms the west, east and south boundaries on the site. Periodic flooding of the Raritan River and rain water provide hydrology to most of the wetlands on site. During major flood events (flows of substantial discharge), water inundates the entire site. Photographs 3-6 illustrate the level of flooding, scour and deposition onsite.

2 Wetland Delineation Overview

The Corps regulates "waters of the United States", pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) (hereinafter referred to as Section 404). The term "waters of the United States" includes navigable lakes, rivers, streams, tributaries to navigable waters, all waters which are subject to the ebb and flow of the tide, interstate waters and tributaries. Waters of the United States (US) also include wetlands adjacent to any of the above and <u>all</u> other waters of the US not identified above, such as isolated wetlands and lakes, intermittent streams and other waters, the destruction of which could affect interstate or foreign commerce.

The interpretation of interstate commerce is broad and extends to waters that are presently used, or have been used in the past, or may be susceptible for use by interstate or foreign travelers for recreation, waters from which fish or shellfish are or could be taken and sold in interstate commerce or foreign commerce, waters which are or could be used by industries in interstate commerce and waters which are or could be used by migratory birds or waterfowl. While the determination of wetlands is the focus of this report, it must be emphasized that waters in general

are subject to regulation, since in all likelihood such waters would be considered "waters of the United States."

The Corps (Federal Register 1982) and the US Environmental Protection Agency (Federal Register 1980) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

From this definition of wetlands, the Corps developed a three-parameter method to evaluate areas of land for the existence of wetlands, based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. This method is primarily contained in the 1987 Corps Manual. Generally, an area must exhibit all three parameters in order to be considered a jurisdictional wetland. A detailed field sampling methodology was developed and published in the Federal Manual, based on the following definitions of the three parameters:

- <u>Hydrophytic Vegetation</u> The sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.
- <u>Hydric Soil</u> A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.
- <u>Wetland Hydrology</u> Encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively.

A detailed description of these three parameters is provided in the following sections.

2.1 Hydrophytic Vegetation

Hydrophytic vegetation is adapted to life in permanently or periodically inundated or saturated soils. There are five main plant indicator status categories, based on the plant species' frequency of occurrence in wetlands:

- Obligate wetland plants (OBL) occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but may also occur rarely (estimated probability <1 percent) in nonwetland areas;
- Facultative wetland plants (FACW) usually occur in wetlands (estimated probability >67-99 percent), but occasionally are found in nonwetlands (estimated probability 1-33 percent);
- Facultative plants (FAC) are equally likely to occur in wetlands or nonwetlands (estimated probability 33-67 percent);
- Facultative upland plants (FACU) usually occur in nonwetlands (estimated probability >67-99 percent), but occasionally are found in wetlands (estimated probability 1-<33 percent); and

• Upland plants (UPL) occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands.

An area is considered to have hydrophytic vegetation when, under normal circumstances, more than 50 percent of the dominant species are OBL, FACW, or FAC species. Additional indicators of wetland vegetation include:

- Observation of plant species growing in areas of prolonged inundation and/or soil saturation;
- Morphological adaptations;
- Information from technical literature;
- Physiological adaptations; and
- Reproductive adaptations.

2.2 Hydric Soils

Indicators of hydric soils can be placed into two categories: 1) soil series and phases on the national and state hydric soils lists; and 2) field indicators of hydric soils. In addition, direct evidence can be used such as the observation of ponding, flooding and saturation, taking into account factors such as the time of year and likely duration. Direct evidence may be the only indication in newly developing soils or in areas of recent change. The US Department of Agriculture (USDA), Soil Conservation Service (SCS), in conjunction with the National Technical Committee for Hydric Soils has developed national and state lists of hydric soils (NTCHS, 1991).

The 1987 Corps Manual has identified that the presence of any one of the following field identifiable factors may indicate that hydric soils are present:

- Organic Soils contain a high amount of organic matter and water content;
- **Histic Epipedon** is a layer of a mineral hydric soil between 8 to 16 inches in depth at or near the surface that is saturated for 30 consecutive days or more in most years and contains a minimum of 20 percent of organic matter when no clay is present or a minimum of 30 percent of organic matter when 60 percent or greater clay is present;
- **Sulfidic materials** in mineral soils emit an odor of rotten eggs. The odor is produced by the presence of hydrogen sulfide. These odors are present in permanently saturated water logged soils with sulfidic material only a few inches from the soil surface. Sulfides are produced only in a reducing environment;
- Aquic or peraquic moisture regimes in soils that are almost completely free of dissolved oxygen due to the presence and/or saturation of groundwater at the soil surface i.e., soils of tidal marshes and soils of closed, landlocked depressions that are fed by permanent streams;
- **Reducing soil conditions** (e.g. black anoxic soil) occur when soils have been saturated for long or very long durations of time;
- Gleyed, low chroma or low chroma mottled soils refer to the coloration of hydric soils. The colors of various soil components are often the most diagnostic indicator of soils. Gleyed soils or gray-colored soils develop when anaerobic conditions result in pronounced chemical reduction of iron, manganese, and other elements, thereby producing a gray soil colors. Mottled means "marked with spots of contrasting color."

Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table;

- **Iron and/or manganese concretions** less than 0.07 in (2 mm) in diameter occurring within 3 in (7.5 cm) of the surface are evidence that the soil is saturated for long periods near the surface; and
- Coarse textured soils with:
 - a) High organic matter content in the surface horizon,
 - b) Dark vertical streaking of subsurface horizons by organic matter; and/or
 - c) Wet spodosols.

2.3 Hydrology

Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. The 1987 Corps Manual discusses hydrology in terms of a percent of the growing season when an area is wet. Generally speaking, areas which are seasonally inundated and/or saturated to the surface for more than 12.5 percent of the growing season are wetlands. Areas saturated to the surface between 5 percent and 12.5 percent of the growing season are sometimes wetlands and sometimes uplands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. The length of time an area is wet for the hydrology criterion is based on consecutive days during the growing season.

The hydrology parameter may be quite evident (i.e., overbank flooding), or it can be difficult to observe. In contrast to the vegetation and soil parameters, the hydrology parameter has much more spatial and temporal variation, making the determination of wetland boundaries generally impracticable on the basis of the hydrology parameter alone. Hydrologic indicators are useful in confirming that a site with hydrophytic vegetation and hydric soils still exhibits hydrological conditions typically associated with such vegetation and soils.

Hydrologic indicators associated with wetlands can be based on recorded data and/or field data. Recorded data can be obtained from tide gauges, stream gauges, flood predictions, historical data (i.e., aerial photographs and soil surveys) and piezometers. Field data include the following characteristics:

- Visual observation of inundation;
- Visual observation of soil saturation;
- Water marks;
- Drift lines;
- Sediment deposits;
- Surface scouring; and
- Wetland drainage patterns.

In addition, the March 1992 guidance issued by the Office of the Chief of Engineers allows use of two or more secondary indicators, including: oxidized root channels; water-stained leaves; local soil survey data; the FAC-neutral test; and "other" (to be explained by the delineator).

2.4 Corps Regional Supplements

The Corps developed regional supplements to the 1987 Corps Manual following a recommendation from the National Academy of Sciences to improve the accuracy and efficiency of wetland delineation procedures by making them more regionally based. As part of the regional supplement development, the US, including US territories, were broken into ten regions with similar climate, geology, soils, hydrology, plant and animal communities. Regional supplements began being issued in 2006 with the final regional supplement being published in May 2012 and are designed to be used in conjunction with the 1987 Corps Manual.

3 Survey Methods

The team's wetland scientists (John Rollino and Melissa Smith, AECOM) conducted a wetland delineation survey at the Finderne Farm mitigation site in April 2014. A review of existing mapping was conducted prior to execution of the field surveys.

3.1 Resource Information Review

Prior to conducting the field activities, the wetland scientists conducted a review of the following material to prepare for the wetland assessments in the field:

- United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map (Figure 1-1);
- United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Figure 3-1);
- New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetlands (FWW) Map (Figure 3-2); and
- United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Soil Surveys for Somerset and Union Counties, New Jersey;

3.2 Field Survey

Scientists delineated wetlands within wetland creation and enhancement areas EC1, E1, E2, E4, E5, E6, E7, E8, C1, C2, and C3. The wetland delineation methodologies outlined in the 1987 Corps Manual and *the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region, Version 2.0 (Regional Supplement)* (USACE 2012), described in Section 2, were used to identify and delineate wetlands.

Wetland boundary flag positions and data point locations were located by the team's GPS operators (Kurt Schollmeyer and Bruce Ward, e4sciences) using a Trimble SPS985 GPS utilizing RTK corrections through an internet data stream from NearSite_RTCMv3. The wetland scientist independently reviewed and confirmed the plotting of the wetland boundaries. Information for each observation plot has been recorded on field data sheets (Appendix B).

It should be noted that the NJDEP and New Jersey Administrative Code (NJAC) specify the use of the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, published in 1989

by the U.S. Environmental Protection Agency (USEPA), USACE, U.S. Fish and Wildlife Service (USFWS), and the U.S. Department of Agriculture's Natural Resource Conservation Service (USDA/NRCS), hereafter referred to as the 1989 Federal Manual. Based on the 1989 Federal Manual, the delineation method selected is based on the size, complexity, homogeneity/diversity, and expertise of the individuals performing the wetland determination and results in the selection of the Routine Onsite, Intermediate-Level Onsite or Comprehensive Onsite determination method.

The use of the Regional Supplement is more comprehensive and includes all of the data specified in the Intermediate-Level Onsite Determination Method outlined in the 1989 Federal Manual and therefore satisfies both USACE and NJDEP requirement for identifying wetlands.

The specific methods used for characterizing and evaluating vegetation, hydrology, and soils are provided in the following sections

3.2.1 Hydrophytic Vegetation

Species abundance in both upland and wetland communities was visually estimated by percent cover within each vegetation stratum. Dominant trees/vines and shrubs/saplings and herbaceous plants were recorded within sample plots of 30-foot, 15-foot, and 5-foot radius, respectively. The wetland scientists identified plant species using botanical references for the region. The hydrophytic indicator status of each species was identified using "The National Wetland Plant List" (Lichvar *et al.*, 2014). Indicators of hydrophytic vegetation are satisfied if the results of the rapid assessment include all species rated as OBL or FACW (Indicator 1), the dominance test is greater than 50% (Indicator 2), or the prevalence index is less than or equal to 3.0 (Indicator 3). The wetland classification system developed by Cowardin et al. (1979) was utilized to classify delineated wetland vegetated community cover type as palustrine forested (PFO), palustrine scrub-shrub (PSS), palustrine emergent (PEM), or palustrine open water (POW).

3.2.2 Hydric Soils

For each observation plot, the wetland scientists characterized the soil profile to determine the presence or absence of hydric soil indicators. Soil borings were taken with a hand-held auger to depths of approximately 18-24 inches (or depth of refusal) to observe the soil profile and evaluate redoximorphic features, if present. Information collected for each soil profile included horizon depth, texture, color, and the presence or absence of redoximorphic features. Colors of the soil matrix and redoximorphic features were identified using Munsell® colors (Gretag/Macbeth 2000). The wetland scientists based all hydric soil determinations on criteria established in the 1987 Corps Manual and the Regional Supplement.

Soils were also investigated using alpha, alpha-dipyridyl, a reagent that reacts with reduced iron. Alpha, alpha-dipyridyl can be used to provide evidence that a soil is hydric when other indicators are obscured or lacking. Alpha, alpha-dipyridyl will normally result in changing the soil to a pink or red coloration. Due to the soil composition and strong red coloration, alpha, alpha-dipyridyl results were not possible to interpret in the field.

3.2.3 Hydrology

Indicators of wetland hydrology were evaluated by determining the presence of primary indictors, noting whether the soil at the surface was inundated or contained free water or saturation within the upper 12 inches of the soil profile. If primary indicators were not observed, the presence of secondary indicators was investigated. If two or more secondary indicators were observed, the area was determined to contain wetland hydrology. Table 3-1 contains a list of primary and secondary wetland hydrology indicators. Additionally, the wetland scientists noted the presence of any saturation and/or standing water encountered within the soil profile.

Primary Indicators (minimum of one is	required)	Secondary Indicators (minimum of two is required)
Surface Water (A1)	True Aquatic Plants (B14)	Surface Soil Cracks (B6)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Drainage Patterns (B10)
Water Marks (B1)	Presence of Reduced Iron (C4)	Moss Trim Lines (B16)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)
Drift Deposits (B3)	Thick Muck Surface (C7)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)		Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)		Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)		Geomorphic Position (D2)
Water Stained Leaves (B9)		Shallow Aquitard (D3)
Aquatic Fauna (B13)		Microtopographic Relief (D4)
		FAC-Neutral Test (D5)

Table 3-1 Wetland Hydrology Indicators for the Eastern Mountains and Piedmont Region

Source: 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0.

3.2.4 Problematic Wetland Conditions

Problematic wetlands are defined as those which contain conditions that may make wetland identification difficult. These are because field indicators of the three parameters may be obscured or are absent.

The 1987 Corps Manual outlines problematic scenarios encountered in the field and contains protocols for dealing with such situations. The Corps Regional Supplements for the Atlantic and Gulf Coastal Plain Region and the Eastern Mountains and Piedmont Region provides detailed information on problematic hydric soils and methods for identifying them. Problematic hydric soils applicable for the site included: soils with red parent material; fluvial deposits within floodplains; recently developed wetlands; and seasonally ponded soils.) The soils on site are derived from red parent material and are located within a floodplain comprised of fluvial deposits. Some of the delineated wetlands were created wetlands in 2006.

Situated in a floodplain with depositional soils and the presence of red parent material, the site contains a combination of variables which make the identification of wetlands difficult. In order to delineate wetlands on site, the wetland scientists relied heavily on the specific guidance of the regional supplements for identifying hydric soils in red parent material, floodplains with fluvial deposition, newly created wetlands, and/or seasonally ponded wetlands. These methods are described in Chapter 3.

Descriptions of the problematic hydric soils or otherwise challenging conditions encountered at the site are provided below.

3.2.4.1 Red Parent Material

Soils derived from red parent material were encountered throughout the site. The red parent material is primarily mudstones of the Passaic Formation. These soils are particularly problematic due to the red colorization which obscures hydric soil indicators used for wetland identification. Soils with red parent material fails to develop the low-chroma colors normally found in wetlands soils due to the iron mineral hematite. Some soils may show faint mottling within the A horizon, however most do not. In these instances, other indicators for wetland determination including observing hydrology and vegetation are heavily relied on. Based on federal guidance red parent material is defined to be hydric if a layer of at least 4 inches thick within the top 10 inches of soil has a hue of 7.5YR or redder. The matrix must have a value and chroma greater than 2 and less than or equal to 4. The layer must also contain 10% or more of redoximorphic features. Depletions should differ in color by having value one or more higher and chroma one or more lower than the matrix, or have a value of 4 or more and chroma of 2 or less. Red parent material also commonly contains features which include redox depletions and soft manganese masses. If the soils are saturated, drying the sample may make redox features become more visible. Additionally, transect sampling may be beneficial to help define and compare wetland and upland areas in red parent soils.

For many wetlands, especially the created wetlands, the wetland scientists collected a series of soil cores along a transect from inundated areas to obvious upland areas. The scientist closely examined each core for the presence of hydric soil features, If hydric features were observed, scientists then observed the vegetation and evidence of hydrology to make a determination if the location was within a wetland or an upland. Conversely, if facultative vegetation and evidence of hydrology was observed, but no hydric soil features, the scientists assessed whether other factors may have precluded the formation of hydric features (e.g., recent deposition and scour, etc.). Numerous soil cores were collected throughout the site.

3.2.4.2 Fluvial Deposits within Floodplains

Depositional environments such as floodplains contain alluvial soils, characterized by stratified deposited layers brought in during flood events. In these areas, the top depositional layer may lack redoximorphic features, despite the presence of wetland hydrology and vegetation. Redox features may only be observed at greater depths, past the deposited surface. Such soils can be observed throughout the site, and could be best observed in Enhancement Areas E7 and E8 where soils are actively scoured and flooded.

3.2.4.3 Newly Formed Soils

In newly created wetlands, soils may lack indicators which would define them to be hydric. This is due to undeveloped soils, which lack sufficient time to develop under anaerobic conditions. It is important to note though, that if a soil is flooded for more than one week during the growing season, it is considered hydric by definition. For example, within Creation Area C3, standing water was observed during each survey day which spanned approximately one to several days a week during the month of April. However, the soils found in this area had only faint mottling within the top several inches. Moreover, there were several areas observed with no vegetation, suggesting prolonged inundation, these areas too had very limited mottling.

3.2.4.4 Seasonally Ponded Soils

Seasonally ponded areas are found in portions of wetland creation areas as well as the wetland enhancement areas onsite. Some soil profiles observed in these areas have redoximoprhic features present within the first few inches, however are reduced or completely lack hydric soil features below several inches from the surface. In this instance, impermeable clay has created perched wetland systems, which prevent soil saturation below the surface. For example, in Creation Area C2 during an investigation conducted in the Spring of 2012 (AECOM 2012) and the 2014 wetland delineation, soils below 8-12 inches at depth were very dense and did not exhibit evidence of permeability.

3.2.4.5 Low Organic Matter

As noted in the chemical soil tests conducted as part of annual monitoring (USACE, 2013) during the period of 2007-2012, the site has low levels of organic matter within the soils (average of 1.6% to 4.0% organic matter for random samples taken between 2007 and 2012). Probable causes could be from frequent flood events which wash away any surface accumulations. With the combination of low organic matter and saturation from aerated water, floodplain environments lack the proper conditions for oxidation-reduction to take place.

3.2.4.6 Problematic Hydrophytic Vegetation

Natural disturbances, such as flood events, have dramatically altered the vegetation at the site. Vegetation in some areas has been partially removed or completely removed and has created bare surface areas, preventing the identification of hydrophytic vegetation. Additionally flood events have promoted the spread of noxious weeds including Japanese hops and reed canary grass. Even though species such as reed canary grass has a FACW indicator, these species, due to their invasive nature, are found in upland areas. In these instances, identification of other indicators was needed.

3.3 Wetland Delineation Method – Finderne Farm Wetland Site

As previously stated, the site's soils are comprised of alluvial deposited, fine-grained, red parent material within a floodplain that is subject to periodic flooding. Moreover, several of the wetlands on site, were recently created wetlands that too are subject to this recent deposition and scour. The created wetlands were constructed by excavation.

During the delineation, the field team employed the following methods for delineating each wetland:

- First, the team investigated obvious upland areas to determine soil characteristics of an upland.
- Second, the field team then went to an area of prolonged inundation and saturation and investigated the soils for hydric characteristics.
- Third, after identifying areas that were unquestionably wetlands and uplands, the field team traversed a line between the two points looking for evidence of hydric soils. Due to the prevalence of red parent material, the field team investigated each core to determine if there was a change in value or chroma, or redox depletions of greater than 10 percent. Redox depletions were identified as greyer soil inclusions within the soil profile. Redox depletions were often slight but visible in the profile. Once observed, the field team then

investigated to determine the presence of vegetation dominated by facultative vegetation and evidence of hydrology. If an area was observed to have hydric soils, wetland hydrology, and a dominance of hydric vegetation the point was identified as a wetland¹.

Once an initial wetland and upland boundary point was identified in the field, the field team proceeded and delineated the wetland/upland boundary as per the method identified in the previous paragraphs. The field team performed countless soil investigations along the boundary to confirm hydric soil conditions and the placement of the wetland delineation flags.

For the nine wetlands that were delineated on site, a total of 45 representative observation points (Appendix B) were collected. For the Enhancement areas, traditional paired wetland and upland observation points were collected. In order to demonstrate the various conditions in the wetlands in Creation Areas 1 and 2, a series of observation points along a transect were collected that identified conditions from the wettest locations to the driest.

4 Results and Discussion

During the previously described field investigations, the wetland scientists surveyed for and delineated wetlands identified within wetland creation and enhancement areas EC1, E1, E2, E4, E5, E6, E7, E8, C1, C2, and C3 totaling 45.13 acres. Representative wetland and upland data forms are provided in Appendix B. Maps depicting the delineated wetlands are located in Appendix C.

4.1 General Observations

According to the NWI and NJDEP, FWW mapping, several freshwater emergent and forested wetlands as well as ponded areas occur on site. In general, the wetland scientists' surveys confirmed the presence of these wetlands. Additionally, created wetlands such as within wetland creation areas C2 and C3 that were not depicted on NWI mapping, were documented during the wetland delineation.

4.2 Hydrology and Soils

4.2.1 Hydrology

Scour and deposition from overbank flooding have strongly influenced the site. Along the eastern border near wetland enhancement areas E7 and E8 active deposition and scour occurs regularly. Within the other wetlands evidence of significant flooding and scour (Photos 3-5) was observed. The flooding regularly deposits significant amounts of vegetation and large pieces of flotsam (Photo 7).

¹In several areas, hydric vegetation was not present due to active scour (e.g., shoreline areas of Wetlands E7/E8), in these areas, wetlands were identified based on the presence of hydric soils and evidence of hydrology.

4.2.2 Soils

Red parent material significantly influences the colors of the soils (Photo 8). The red parent material often obscured hydric indicators in saturated and inundated areas. Soils also had very low organic material and generally consisted of fine-grained silts and clays.

4.3 Vegetation - Identified Species

Table 4-1 below identifies the species that were observed in the wetlands and uplands during the wetland delineation. The table identifies the species per vegetative strata and provides the wetland indicator status.

Н	0 10		
	Sweetflag	Acorus calamus	OBL
Н	Common ragweed	Ambrosia artemisiifolia	FACU
Н	Mugwort	Artemisia vulgaris	UPL
Н	Swamp milkweed	Asclepias incarnata	OBL
Н	Devil's beggartick	Bidens frondosa	FACW
Н	Rosette grass	Dicanthelium sp.	NI
Н	Soft rush	Juncus effusus	FACW
Н	Purple loosestrife	Lythrum salicaria	FACW
Н	Switch grass	Panicum virgatum	FAC
Н	Arrowleaf tearthumb	Persicaria sagittata	OBL
Н	Reed Canary Grass	Phalaris arundinacea	FACW
Н	Timothy	Phleum pratense	FACU
Н	-	Poa	NI
Н	Marshpepper knotweed	Polygonum hydropiper	OBL
Н	Swamp smartweed	Polygonum hydropiperoides	OBL
Н	Lesser celendine	Ranunculus ficaria	FAC
Н	Goldenrod	Solidago sp.	NI
Н	Goldenrod	Solidago gigantea	FACW
Н	Stinging nettle	Urtica dioica	FACU
S	False indigobush	Amorpha fruticosa	FACW
S	Honey locust	Gleditsia triacanthos	FAC
S	Swamp white oak	Quercus bicolor	FACW
S	Pin oak	Quercus palustris	FACW
S	Multiflora rose	Rosa multiflora	FACU
S	Willow	Salix sp.	NI
Т	River birch	Betula nigra	FACW
Т	Black locust	Robinia pseudoacacia	FACU
V	Japanese hops	Humulus japonicus	FACU

Table 4-1 Species Identified on Site

Notes: S/S-shrub/scrub, V-vine, H-herbaceous, and H/V-herbaceous/vine; NI – Not Indicated Source: Lichvar, R. W. et al., 2014.

4.4 Delineated Wetlands

Table 4-2 contains a summary of data collected for each wetland creation and enhancement area characterizing representative wetland and/or upland community types identified within each wetland area. Data includes wetland area ID, data point ID, wetland class, hydrology indicator,

hydrophytic vegetation indicator, hydric soil indicator, latitude and longitude of data point, and acreage.

The attached Photographs (Appendix A), Field Data Sheets (Appendix B), and Appendix C (Delineated Wetlands) depict detailed information of the wetlands identified during the survey.

Wetlands were delineated within wetland areas E1, E2, E5, E7, E8, EC1, C1, C2, and C3. Discussion of each area is presented below. Wetlands were not identified within enhancement areas E4 and E6. Boundary lines delineated within E1 and E2 as well as E7 and E8 were continuous; therefore are discussed together.

E1/E2 – Wetlands are primarily palustrine emergent wetlands (Photo 9) interspersed with seasonal ponds and upland ridges located at the base of a steep slope defining the northern reach of the site. Wooded vegetation is present along the slope and the northern portion of the delineated wetland (Photo 10). The wetland complex is bounded to the south by the sewer line ROW. Dominant vegetation included arrowleaf tearthumb, *Dicanthelium sp.*, swamp smartweed, reed canary grass, and sweetflag. Soil properties included a texture ranging between silty clay loam to dense clay. Areas with stronger hydrology produced soil profiles with depleted matrices, while other areas were characteristic of red parent materials or piedmont floodplain soils with colors 5YR3/3 with redoximorphic concentrations beginning at approximately six inches.

Upland areas were characterized by grasses such as timothy as well as reed canary grass which appeared to have spread from wetlands areas. Soils matrices were similar to wetland profiles but lacked redoximorphic features.

E5 – The wetland complex within enhanced wetland area E5 was palustrine emergent as well as palustrine forested wetlands surrounding a seasonally inundated ponded area (Photo 11). Upland mounds (Photos 12 and 13) elevated approximately five feet are scattered within the forested areas. A drainage pipe conveys hydrology eastward from E5, through a raised berm that serves as much of the eastern boundary of E5. At the mouth of the pipe a small depressed area contained wetland hydrology, vegetation, and soils, and was mapped as a wetland. This area is defined by flags E5-501 through E5-509 (Photo 14). Dominant vegetation included reed canary grass in emergent areas and green ash in forested areas. The soil profile was a silty clay loam with matrix 5YR3/3 and redoximorphic concentrations beginning at the surface. The water table was present at the surface including standing water of 1.5 inches at the data collection point.

Upland areas were generally dominated by reed canary grass; however soils revealed redoximorphic concentration and water table began at 20-24 inches from below the surface and elevation increased 2-4 feet from the wetland boundary.

E7/E8 – The wetland complex within enhanced wetland areas E7 and E8 is located along the eastern side of the site along the west bank of the Raritan River and includes both palustrine emergent and scrub-shrub wetland communities (Photo 15). Portions of the wetland include areas sparsely vegetated, affected by recent scour and deposition (Photos 16 and 17), as well as areas dominated by Japanese hops or reed canary grass. The scrub-shrub community consists of primarily native, planted, and recruited willow species established within a depression/oxbow channel appearing to have sustained seasonal inundation. Soils were silt loams with depositional sand and gravel lenses. Matrix colors were depleted with redoximophic concentrations beginning at varied depths from surface to six inches.

The adjacent upland areas were dominated by Japanese hops or common mugwort. Soils were consistent (no redoximorphic features) with a silt loam texture. Uplands were associated with a walking trail.

EC1 – Wetlands identified within enhanced/creation wetland area EC1 were palustrine emergent wetlands generally dominated by reed canary grass. Hydrology was conveyed to the wetlands by a small west-east flowing stream and runoff from a step (approximately 25-ft high slope) to the north. The abrupt change in elevation resulted is a clearly defined line between the wetlands and uplands (Photos 18). Evidence of recent flooding including drift deposits and drainage patterns were observed. Soils were a silty clay loam with a depleted matrix 5YR4/2 with concentrations in the pore lining of 5YR4/6 beginning at the surface and increasing with depth. Red parent material influenced soil matrix. Photo 19 depicts the soil cores from the wetland and upland observation points. Wetland observation point EC1-W1 represents a saturated location; however, red parent material made hydric features difficult to discern.

Upland areas were dominated by grass species (*Poa*) as well as honey locust and multiflora rose. Soil profile was a silty clay loam with matrix 5YR3/3 with oxidized root channels throughout.

C1 – C1 is a created wetland that is dominated by palustrine emergent vegetation, with planted facultative tree species. The southern, eastern and western borders of the wetland are bounded by an artificially created 45° slope. The northern boundary of the site consists of a shallow ditch adjacent to the sewer line. The wetland was originally constructed with a shallow swale to allow inflow from the Raritan River and outflow from E2 to the north portion of C1. However, field observations identified water now flows from C1 to E2 (Photo 20).

Hummocks, which varied in height from 0.5-1.5 feet, were present throughout the wetland. The western portion of the wetland, which was dominated by emergent vegetation, has large hummocks. In the eastern portion of the wetland, the hummocks were smaller and the vegetation contained numerous planted trees. It is unclear if the size differential in hummocks was a result of original design, or the synergistic effects of original design and scour from flooding.

Vegetative communities associated with wetland creation area C1 included three areas. Switchgrass and tree plantings (Photo 21) are found at the southern portion of the wetland, followed by an expanse of reed canary grass (Photo 22) with much fewer surviving plantings scattered with created vernal pools, followed by a narrow depression "ditch" running along the northern boundary of the wetland. The ditch is also dominated by reed canary grass, loosestrife, and soft rush (Photo 23). The soil profiles were dense clays with slight mottling and matrix color typically 5YR3/3. Additionally, several smaller isolated wetlands (Photos 24 and 25) were delineated adjacent to the large C1 complex. These areas were generally small, disturbed and located within the sewer line ROW.

The wetland was delineated by taking a series of soil cores in the various communities and identifying the presence or absence of hydric features in the soil profiles. Photo 26 shows the soil cores from the ditch, reed canary grass, switchgrass, and upland communities (Photo 27). Although often obscured by red parent material, redoximorphic features were observed in the ditch, reed canary grass, and switchgrass soil cores. The delineated wetland line often corresponded to the toe-of-slope of the created slopes surrounding the wetland.

Uplands adjacent to C1 wetlands were elevated one or more feet above C1 and were dominated by common mugwort along the perimeter. Soils were similar to wetlands however with fewer

redoximorphic concentrations. The soils were also loose and friable and showed no evidence of saturation or inundation.

C2 - C2 is primarily a palustrine emergent wetland depression, with a shallow swale at the north end allowing inflow from the Raritan River and directing outflow to wetland creation area C1 during significant flood events. Also, a very shallow swale connects the eastern boundary of C2 to E3.

In order to delineate the wetland, a series of transects with observation points were placed perpendicular to the upland /wetland boundary. These transects included the following grouping of observation points:

- C2-U1, C2-W1A, and C2-W1B (Photo 28)
- C2-U2A, C2-U2B, C2-W2A, C2-W2B, and C2-W2C
- C2-U3, C2W3A, C2-W3B, and C2-W3C.

Data sheets for all the observation points are provided in Appendix B. The wetland was created by excavating floodplain soils. The delineated wetland line often corresponded to the toe-of-slope of the created slopes surrounding the wetland. All soils were strongly influenced by red parent material. Wetland cores displayed evidence of redoximorphic features; however, upland cores were loose and friable with no evidence of long-term saturation or inundation. During the delineation and previous investigations, wetland soils below 12 inches in depth were observed to be very dense and compacted. It is believed that these dense clay soils are mimicking bedrock which limits the downward migration of groundwater infiltration and the formation of redoximporhic features at depth in the soil profile.

Switchgrass and reed canary grass were dominant species. Additionally, pin oak was also identified as dominant in the sapling stratum at one data point. In general, trees/saplings averaged between approximately 8 and 15 feet and were largely not dominant within C2. Areas of standing water, saturated soil, scattered vernal pools, as well as hummock/hollow microtopography were noted throughout C2. Additionally, anthropogenic and natural wrack debris was deposited throughout C2 as a result of past flooding events. The soil profiles matrix ranged from 5YR3/2 to 3/4 or 4/3 with redoximorphic features identified at varying depths and texture of dense clay loam.

Uplands (Photo 30) adjacent to C2 were elevated roughly two to four feet above the wetland and dominated by species such as Japanese hops, switchgrass, lesser celandine, stinging nettle, and reed canary grass. Soils were 5YR3/3 or 4/3 friable clay loam or silty clay loam and lacked redoximorphic features.

C3 – Wetland creation area C3 is a created wetland. C3 is a palustrine scrub-shrub and palustrine emergent wetland depression. The northern portion of the wetland is dominated by emergent species such as switchgrass and smartweed (Photo 31), with species such as river birch saplings (Photo 32) and soft rush at the south end. Surface water ranging from six to eight inches was present at the time of survey. Soil matrix was between 7.5YR3/3 and 5YR3/2 to 3/4 with redoximorphic concentrations beginning at the surface with texture ranging from clay to silt loam.

Uplands were elevated approximately two to four feet above C3 and were dominated by mugwort and grasses (*Poa*). No evidence of hydrology was observed. The soil matrix color was 7.5YR3/3 silt loam throughout the profile.

Wetland Area ID	Data Point ID	Class ^a	Wetland Hydrology Indicator	Hydrophytic Vegetation Indicator	Hydric Soil Indicator	Wetland Y/N	
	E2-U1	NA	-	-	-	Ν	
	E2-U2	NA	A2	-	-	Ν	
	E2-U3	NA	-	-	-	Ν	
	E2-U4	NA	-	2	-	Ν	
E1/E2 (PEM)	E2-W1	PEM	B3, D5	2	F21	Y	
	E2-W2	PEM	A2	2	F19, F21	Y	
	E2-W3	PEM	A1, A2, C3, D2	2	F19	Y	
	E2-W4A	PEM	A2, D2, D5	2	F3	Y	
	E2-W4B	PEM	A1, A2, A3, C3, B8, D2	2	F3	Y	
	E4-U1	NA	-	-	-	Ν	
E4	E4-U2	NA	-	2	-	Ν	
	E4-U3	NA	-	2	-	Ν	
	E5-U1	NA	-	2	-	Ν	
ED (PSS/PEM)	E5-W1	PEM	A1, A2, A3, C3, D2	2	F21	Y	
50	E6-U1	NA	B6, B8	-	-	Ν	
Eb	E6-U2	NA	B6, B8	2	-	Ν	
	E7-U1	NA	-	-	-	Ν	
E7/E8	E7-U2	NA	-	-	-	Ν	
(PEM/PSS)	E7-W1	PEM	B8, D2	*	F3	Y	
· · · /	E7-W2	PSS	A3, B9, D4	2	F3, F19	Y	
	EC1-U1	NA	-	-	F21	Ν	
EC1 (PEM)	EC1-W1	PEM	B3. B10	2	F3	Y	
	C1-Ditch	PEM	A1, A2, A3	2	F3	Y	
	C1-Mugwort	NA	-	-	-	Ν	
	C1-SG	PEM	A1, A3, D2, D5	2	F8	Y	
C1 (PEM)	C1-RCG	PEM	A1, A3	2	F8, F19	Y	
· · · ·	C1-U1	NA	-	-	-	Ν	
	C1-W1	PEM	A1, A3, D2, D4	3	F8, F21	Y	
	C1-W2	PEM	A1, A3, C3, D2, D4	2	F19, F21	Y	
	C2-U1	NA	-	-	-	Ν	
	C2-U2A	NA	A2	-	-	Ν	
	C2-U2B	NA	-	2	-	Ν	
	C2-U3	NA	-	2	-	Ν	
	C2-W1A	PEM	D2, D4	2	F21	Y	
C2 (PEM)	C2-W1B	PEM	D2, D4	2	F8	Y	
· · /	C2-W2A	PEM	D2, D4	2	F3	Y	
	C2-W2B	PEM	A1, A2, A3, D2	2	**	Y	
	C2-W2C	PEM	A1, A2, A3, D2,	2	F21	Y	
	C2-W3A	PEM	C3	2	F8, F21	Y	
	C2-W3B	PEM	B3, B10	2	F8, F21	Y	
	C2-W3C	PEM	B3, B10, D2, D4	2	F21	Y	
C3 (PSS/PEM)	C3-U1	NA	-	-	-	Ν	
	C3-U2	NA	-	-	-	Ν	
	C3-W1	PSS	A1, A2, A3	2	F21	Y	
	C3-W2	PEM	A1, A3	2	F3, F8	Y	
a: Cowardin et al. (1979) wetland classifications: PEM = Palustrine Emergent Wetland; PSS = Palustrine Scrub-Shrub Wetland; PFO = Palustrine Forested Wetland. NA= Not applicable							
bare soil, no vege	etation present in data (JIOL AT TIME OF S	survey.				

Table 4-2 Summary of Representative Wetland and Upland Data within the Study Area

** Meets criteria for problematic hydric soil.

4.5 Wetland Acreages: As Built and 2014

Table 4-3 identifies the 2014 delineated square feet (sq ft) and acreage of each wetland and enhancement area. Table 4-4 identifies the differences in wetland size between the 2014 delineation and the as-built conditions.

Wetland/ Enhancement ID	Total Deline	ated Area	Sub-Parcels of Total Delineated Area			Area of Upland Inclusion With the Delineated Wetlands			
	Net Wetland Area	Net Wetland Area	Wetland Sub-area 1	Wetland Sub-area 2	Wetland Sub-area 3	Wetland Sub-area 4	Wetland Sub-area 5		
	Sq ft	Acres	Sq ft	Sq ft	Sq ft	Sq ft	Sq ft	Sq ft	Acres
C1*	466,253.2	10.70	447,663.9	16,548.4	375.7	312.0	1,353.4		
C2	403,250.1	9.25	402,786.2	463.9					
C3	103,424.0	2.37	103,424.0						
EC1	212,383.3	4.88	212,383.3						
E1/E2	541,143.8	12.42	477,741.0	79,800.9				16,398.2	0.38
E4	0.0	0.00							
E5	38,752.7	0.89	40,513.7	463.0				2,224.0	0.05
E6	0.0	0.00							
E7/E8	200,767.9	4.61	209,375.4					8,607.5	0.20
TOTAL	1,965,974.9	45.13							
Notes: For Creation Area C1, Wetland Sub area-1 corresponds to the 2006 created wetland area. Sub-area 2 is the remnants of what appears to have been a lay-down area associated with the construction of the sewer line. The area was delineated as a wetland during the original delineation. Sub-areas 3, 4, and 5 are within the sewer line and are contiguous to Sub-area 1. Sub-areas 3, 4, and 5 have formed in low spots of the line in areas of former erosion and scour.									

Table 4-3 Wetland Acreages: 2014 Delineation

Wetland	2014 Delineation		Original Desig	ın (2006)	Net Change			
vvetiand	Sq ft	Acres	Sq ft	Acres	Sq ft	Acres		
Creation Areas								
C1*	447,663.9	10.27	444,843.4	10.21	2,820.5	0.06		
C2	403,250.1	9.25	411,585.3	9.44	-8,335.2	-0.19		
C3	103,424.0	2.37	99,628.4	2.28	3,795.6	0.09		
Enhancement Ar	reas**							
EC1	212,383.3	4.88						
E1/E2	541,143.8	12.42						
E4***	0.0	0.00000						
E5	38,752.7	0.89						
E6***	0.0	0.00000						
E7/E8	200,767.9	4.61						
Notes:								

Table 4-4 Net Change In Wetland Area: 2014 Delineation and the Original design

*In 2014, 0.43 acres of wetlands associated with C1 were delineated within the sewer line, which was not part of the original creation area.

** Only the delineated 2014 acreages are identified. The previous enhancement activities did not encompass the entire wetland. As such, the net change between 2006 and 2014 wetland acreages cannot be assessed.

*** Enhancement areas were not delineated as wetlands in 2014.

Review of the data presented in Table 4-4 identifies that the created wetlands (C1, C2, and C3) are similar in size to the original design. No wetlands were delineated in the E4 and E6 enhancement areas. The other enhancement areas are difficult to compare as the boundaries of the 2014 delineation extended beyond the boundaries of some of the previous enhancement areas.

5 Conclusions

The top three feet of soils on site are generally comprised of fine grained materials (clay loams and silt clays). The soil material is of alluvial origin. Rainwater and flooding appear to be the chief source of hydrology for much of the site. Due to the composition of the soil material, it is likely that that there is a high degree of runoff from the site to the Raritan River as opposed to vertical infiltration through the soil.

The presence of red parent material, the density of the soils, and active scour of flood events together combine to obscure wetland indicators on site. Features commonly associated with hydric soils (e.g., mottling, redox, etc.) were faint and difficult to observe – even in areas of prolonged inundation.

Due to the aforementioned factors, wetland scientists utilized methods adapted for delineating wetlands with problem conditions. Delineated wetlands in both creation areas and enhancement areas are dominated by facultative vegetation. Also, evidence of sufficient hydrology (saturation and inundation) was observed throughout the delineated wetlands.

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FIGURES

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APPENDIX A

Photographs

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A	ΞΟΟΛ	PHOTOGRAPHIC LOG
Photo No. 1 Descript: Looking ridge tha northern the site. taken on 2014 wh water dis exceedec 8,300ft ³ /	Date: April, 2014 ion: at site from at borders the portion of This photo April 16 th , en flood scharge d	

Photo No. 2	Date: April, 2014	Y
Descript	ion:	14
Rock ou that borc boundar Note red material	tcrop in ridge lers the north y of site. parent and soils.	
































A	ECON	PHOTOGRAPHIC LOG
Photo No. 20 Descripti	Date: April, 2014	
View loc showing draining Planting the backy	oking south swale C1 to E2. area C1 is in ground. In	
mowed g shallow s represent line that across th	grass and swale t the sewer travels e site.	
		Torrest Barris

























APPENDIX B

Field Data Sheets

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Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/14/14</u>
Applicant/Owner: USACE	State:	<u>NJ</u> Sampling Point: <u>C1 - Ditch</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	/I classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this tir	me of year? Yes <u>x</u> No (If no, ex	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Are "Normal Circums	stances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natu	urally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>I</u>	No
Remarks:					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
<u>x</u> Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
<u>x</u> High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
<u>x</u> Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Se	bils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 3-4	
Water Table Present? Yes x No Depth (inches): 0	
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Includes capillary fringe Includes capillary fringe	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u>
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	Wetland Hydrology Present? Yes <u>X</u> No
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	Wetland Hydrology Present? Yes <u>X</u> No tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> No
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> No tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> tions), if available:
Water Table Present? Yes x No Depth (inches): 0 Saturation Present? Yes x No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>X</u> No tions), if available:

Sampling Point: C1-Ditch

	Absolute Dominant Indicat	or Dominance Test worksheet:
Tree Stratum (Plot size:) 1)	<u>% Cover Species?</u> Statu	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2.		
3		Species Across All Strata: 2 (B)
4		Percent of Dominant Species
5		— That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6		Prevalence Index worksheet:
7		Total % Cover of: Multiply by:
	= Total Cover	OBI species $x 1 =$
50% of total cover:	20% of total cover:	
Sapling/Shrub Stratum (Plot size:)		FAC species x 3 -
1		
2		K4 =
3		
4		Column Lotals: (A) (B)
5		Prevalence Index = B/A =
0		Hydrophytic Vegetation Indicators:
/		1 - Rapid Test for Hydrophytic Vegetation
8		X 2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phalaris arundinacea	<u>50 D FAC</u>	<u>N</u>
2. Panicum virgatum	<u>45</u> <u>D</u> FAC	² Indicators of hydric soil and wetland hydrology must
3. Artemisia vulgarus	<u> 5 ND UPI</u>	- be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		
6		I ree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH) regardless of
7		height.
8		
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11.		Herb All borbaccous (non woody) plants, regardlass
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:)		Woody vine – All woody vines greater than 3.28 ft in height
1.		hogh
2.		
3.		
4		—
5		Hydrophytic Vogetation
<u> </u>	- Total Covor	Present? Yes X No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet)	—
	Shoot.)	

SOIL	

Profile Des	cription: (Describe	to the dep	th needed to docu	ment the i	ndicator	or confirm	n the absence of indicators.)
Depth	Matrix		Rede	ox Feature	s1	. 2	
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc	Texture Remarks
0-8	5YR4/2	70	5YR3/4	30	C	Μ	SCL (dense)
8	GRAVEL	·					· · · · · · · · · · · · · · · _ · · _ · _ · _ · _ · _ · · · · · · · · · · ·
8-18	5YR4/3	85	7.5YR4/6	15	C	M	<u>SCL (Dense)</u>
		·					
¹ Type: C=C Hydric Soil	Concentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³
Histoso Histic E Black H Hydroge Stratifie 2 cm M Deplete Stratic P	I (A1) ipipedon (A2) listic (A3) en Sulfide (A4) ed Layers (A5) uck (A10) (LRR N) ed Below Dark Surface vark Surface (A12) Mucky Mineral (S1) (L	e (A11) .RR N,	Dark Surfac Polyvalue B Thin Dark S Loamy Gley X Depleted M Redox Dark Depleted Da Redox Depr Iron-Mangar	e (S7) elow Surfa urface (S9) ed Matrix (fatrix (F3) Surface (F ark Surface essions (Fa nese Massi 26)	ce (S8) (M) (MLRA 1 F2) - (F7) 8) es (F12) (I	ILRA 147, 47, 148) LRR N,	 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Sandy (Sandy F Stripped	Gleyed Matrix (S4) Redox (S5) d Matrix (S6)		Umbric Surf Piedmont FI Red Parent	ace (F13) (oodplain S Material (F	(MLRA 13 oils (F19) (21) (MLR)	6, 122) (MLRA 14 A 127, 147	 ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Restrictive	Layer (if observed):						
Туре: <u>G</u>	ravel						
Depth (in	nches): <u>8"</u>						Hydric Soil Present? Yes <u>x</u> No
Remarks:							

Project/Site: Finderne Farm Wetland Mitigation Site	<u>City/County: Bridgewater, Somerset</u>	Sampling Date: 4/14/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C1 - Mugwort
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI cla	assification:
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes <u>x</u> No (If no, explai	n in Remarks.)
Are Vegetation, Soil, or Hydrology signif	ficantly disturbed? Are "Normal Circumstand	ces" present? Yes <u>x</u> No
Project/Site: Finderne Farm Wetland Mitigation Site City/County: Bridgewater, Somerset Sampling Date: 4/14/14 Applicant/Owner: USACE State: NJ Sampling Point: C1 - Mugw Investigator(s): JR/RW/MS Section, Township, Range:		
SUMMARY OF FINDINGS Attach aits man abo	wing compling point locations, trans	anta important factures ato

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Primary Indicators (minimum of one is required; check all that apply)	 Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes No _X Depth (inches): Water Table Present? Yes No _X Depth (inches): Saturation Present? Yes No _X Depth (inches): (includes capillary fringe) No Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	Wetland Hydrology Present? Yes No <u>X</u> tions), if available:
Remarks:	

Sampling Point: C1-Mugwort

	Absolute Domin	ant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Speci</u>	es? <u>Status</u>	Number of Dominant Species
1			That Are OBL, FACW, or FAC:0 (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4			
5.			Percent of Dominant Species
6.			
7			Prevalence Index worksheet:
	= Total	Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total co	ver.	OBL species x 1 =
Sanling/Shruh Stratum (Plot size:	20% 01 10101 00		FACW species x 2 =
			FAC species x 3 =
			FACU species x 4 =
2			
3			
4			
5			Prevalence Index = B/A =
6			Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8			2 - Dominance Test is >50%
9			$3 - Prevalence Index is \leq 30^{1}$
	= Total	Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total co	ver:	data in Romarks or on a sonarate sheet)
Herb Stratum (Plot size:)			Drahlamatia Understatia Vagetatian ¹ (Eurlein)
1. Artemisia vulgaris	<u>90 D</u>	UPL	Problematic Hydrophytic Vegetation (Explain)
2. Humulus japonicus	5 NC	FACU	
3. Phalaris arundinacea	2 ND	FACW	Indicators of hydric soil and wetland hydrology must
4			De finitione of Form Venetation Otosta
5			Definitions of Four vegetation Strata:
6			Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
	·		more in diameter at breast height (DBH), regardless of
7			neight.
8			Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than or equal to 3.28 ft (1
10			m) tali.
11			Herb – All herbaceous (non-woody) plants, regardless
	<u>97</u> = Tot	al Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total co	ver:	Woody vine – All woody vines greater than 3 28 ft in
Woody Vine Stratum (Plot size:)			height.
1			
2	<u> </u>		
3			
4			Underschutte
5.			Hydropnytic Vegetation
	= Total	Cover	Present? Yes No X
50% of total cover:	20% of total co	ver:	
Remarks: (Include photo numbers here or on a separate	sheet)		
	Sheet.)		

Depth Matrix Redox Features (inches) Color (moist) % Type' Loc' Texture Remarks 0-18 5YR3/3 98 5YR3/4 2 C M S C L Slight increase mottles at dep	Profile Desc	ription: (Describe t	o the dep	th needed to docur	nent the i	indicator	or confirm	n the absence	of indicators.)	
Interies) Codd (mbst) /// /// 1///<	Depth (inches)	Matrix Color (moist)	0/2	Color (moist)	x Feature	S Type ¹		Toyturo	Pemarks	
0-18 5YR3/3 96 5YR3/4 2 C M S C L Slight increase motiles at dep					/0	<u> </u>				
"Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Histosol (A1) Dark Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 147, 148) Thick Dark Surface (A11) Depleted Matrix (F3) (MLRA 147, 148) Sandy Gleyed Matrix (S4) Lron-Manganese Masses (F12) (LRR N, Other (Explain in Remarks) Sandy Gleyed Matrix (S6) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, unless disturbed or problematic. Stratified Layer (If observed): Type: Type: No x Type: Depletion, RM=Reduce (F12) Murch 127, 147 No x	0-18	5YR3/3	98	5YR3/4		<u> </u>	<u> </u>	<u>SCL</u>	Slight increase mottles	at depth
'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ?Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils Histic Epipedon (A2) Polyvalue Below Surface (S9) (MLRA 147, 148)										
'Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ?Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Hydrigen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Sandy Mucky Mineral (S1) (LRR N, Umbric Surface (F13) (MLRA 136, 122) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type:										
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, Sandy Redox (S5) Red Parent Material (F21) (MLRA 127, 147) anless disturbed or problematic. Restrictive Layer (if observed): Type: Piedmont Floodplain Soils (F19) (MLRA 127, 147) nuless disturbed or problematic. Type: Depth (inche										
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) Coast Prairie Redox (A16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic. Type:										
Hydric Soil Indicators: Indicators for Problematic Hydric Soils	¹ Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, M	S=Masked	d Sand Gra	ains.	² Location: PL	-=Pore Lining, M=Matrix.	
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16) Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147) 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) Other (Explain in Remarks) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 127, 147) unless disturbed or problematic. Type:	Hydric Soil I	ndicators:						Indica	tors for Problematic Hydric	Soils ³ :
Stratified Layers (A5)	Histosol Histic Ep Black His Hydroge	(A1) pipedon (A2) stic (A3) n Sulfide (A4)		Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye	e (S7) elow Surfa irface (S9 ed Matrix (ce (S8) (N) (MLRA 1 (F2)	ILRA 147, 47, 148)	148) 2 Co Pi	cm Muck (A10) (MLRA 147) bast Prairie Redox (A16) (MLRA 147, 148) edmont Floodplain Soils (F19)
2 cm Middk (A10) (LRKK)	Stratified	Layers (A5)		Depleted Ma	trix (F3) Surface (F	6)		Va	(MLRA 136, 147) ary Shallow Dark Surface (TE	12)
Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic. Restrictive Layer (if observed): Type: Depth (inches): Remarks:	2 cm Mu Depleted	Below Dark Surface	e (A11)	Depleted Dark	rk Surface (i	e (F7)		O	ther (Explain in Remarks)	12)
	Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)			- (
MLRA 147, 148) MLRA 136)	Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,			
	MLRA	A 147, 148)		MLRA 13	6)					
	Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13)	(MLRA 13	6, 122)	³Indi	cators of hydrophytic vegetati	on and
	Sandy R	edox (S5)		Piedmont Flo	odplain S	ioils (F19)	(MLRA 14	18) wei	land hydrology must be prese	ent,
Type: Hydric Soil Present? Yes No x Depth (inches):	Stripped	Matrix (S6)			laterial (F	·21) (MLR	A 127, 147	() uni	ess disturbed or problematic.	
Type:	Turner	-ayer (il observed):								
Remarks:	Type:							Ubudaia Cail	Dressent2 Vac N	
Remarks:								Hyuric Soll	riesent? tes No	U <u>X</u>
	Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/14/14</u>
Applicant/Owner: USACE	State: _	NJ Sampling Point: <u>C1 - RCG</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes <u>x</u> No (If no, exp	plain in Remarks.)
Are Vegetation, Soil, or Hydrology signified	cantly disturbed? Are "Normal Circumst	ances" present? Yes <u>x</u> No
Are Vegetation, Soil _ x, or Hydrology natur	rally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	N <u>o</u>
Remarks:					
Red parent material.					

Primary Indicators (minimum of one is required: check all that apply) Surface Soil Cracks (B6)	
X Surface Water (A1) True Aquatic Plants (B14) Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)	
X Saturation (A3) Oxidized Rhizospheres on Living Roots (C3) Moss Trim Lines (B16)	
Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8)	
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)	
Iron Deposits (B5) Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)	
Water-Stained Leaves (B9) Microtopographic Relief (D4)	
Aquatic Fauna (B13) FAC-Neutral Test (D5)	
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 4"	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes <u>x</u> No Depth (inches): Surface ponding Wetland Hydrology Present? Yes <u>x</u> No (includes capillary fringe)	_
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

Sampling Point:C1 - RCG

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1			·	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3			·	Species Across All Strata: (B)
4			·	Percent of Dominant Species
5			·	That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6			·	Prevalence Index worksheet:
7			·	Total % Cover of: Multiply by:
		= Total Cov	er	OBL species x 1 =
50% of total cover:	20% 01	total cover		FACW species x 2 =
Sapling/Snrub Stratum (Plot size: 15)	0		54014/	FAC species x 3 =
1. Quercus palustris			FACW	FACIJ species x 4 =
2. Quercus bicolor		<u>ND</u>	FACW	
3			·	Column Totals: (A) (B)
4				
5			·	Prevalence Index = B/A =
6			·	Hydrophytic Vegetation Indicators:
7			·	1 - Rapid Test for Hydrophytic Vegetation
8				<u>x</u> 2 - Dominance Test is >50%
9			·	3 - Prevalence Index is ≤3.0 ¹
	5	= Total Co	over	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover		data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)		_		Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Phalaris arundinacea</u>	70	D	FACW	
2			·	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4			·	Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in, (7.6 cm) or
6			·	more in diameter at breast height (DBH), regardless of
7				height.
8			·	Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	70	= Total C	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover		Woody vine – All woody vines greater than 3 28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
		= Total Cov	rer	Present? Yes <u>x</u> No
50% of total cover:	20% of	total cover	·	
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redo	x Features	6				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-18	5YR3/3	80	5YR3/4	20	С	М	SCL (Dense)	Slight increase in mottles at depth.	
							·		
·									
						·			
						·			
·									
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL=	Pore Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicate	ors for Problematic Hydric Soils ³ :	
Histosol	(A1)		Dark Surface	e (S7)			2 cr	m Muck (A10) (MLRA 147)	
Histic Ep	oipedon (A2)		Polyvalue Be	elow Surfac	ce (S8) (N	ILRA 147,	148) <u> </u> Coa	ast Prairie Redox (A16)	
Black Hi	stic (A3)		Thin Dark Su	urface (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (I	F2)		Pie	dmont Floodplain Soils (F19)	
Stratified	Layers (A5)		Depleted Ma	trix (F3)	-		(MLRA 136, 147)	
2 cm Mu	ick (A10) (LRR N)	- ()	Redox Dark	Surface (F	6)		Ver	ry Shallow Dark Surface (TF12)	
Depleted	D Below Dark Surfac	e (A11)	Depleted Da	гк Surface	(F7)		Oth	ier (Explain in Remarks)	
	ark Surface (A12)		<u>x</u> Redox Dep	ressions (F	-8) - (F12) (
	100Ky Willeral (31) (1 147 149)	LKK N,			5 (F 12) (LKK N,			
	Leved Matrix (S4)			ю) асе (F13) (6 122)	³ Indice	ators of hydrophytic vegetation and	
Sandy R	(S5)		x Piedmont F	loodnlain S	Soils (F19) (MI RA 1	48) wet	and hydrology must be present	
Stripped	Matrix (S6)		Red Parent I	Material (E	21) (MLR	A 127. 147	7) unles	ss disturbed or problematic	
Restrictive I	_aver (if observed):				, (
Type:	,								
Depth (in	ches).						Hydric Soil P	resent? Yes x No	
Boperko:							injune com		
Remarks.									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/14/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: <u>C1 - SG</u>
Investigator(s): _JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes <u>x</u> No (If no, exp	plain in Remarks.)
Are Vegetation, Soil, or Hydrology signifi	icantly disturbed? Are "Normal Circumst	ances" present? Yes <u>x</u> No
Are Vegetation, Soil _ x, or Hydrology natu	rally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
x Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
x Saturation (A3) Oxidized Rhizospheres on Living R	coots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils	s (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	<u>X</u> Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	X Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inches): 2"	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes <u>X</u> No Depth (inches <u>): surface p</u> onding V (includes capillary fringe)	Netland Hydrology Present? Yes <u>X</u> N <u>o</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspectio	ns), if available:
Remarks:	

Sampling Point: C1-SG

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1. Quercus palustris	7	ND	FACW	That Are OBL, FACW, or FAC: (A)
2. Quercus bicolor	2	ND	FACW	Tatal Number of Dominant
3				Species Across All Strata: 1 (B)
4.				(-,
5				Percent of Dominant Species
6				Inat Are OBL, FACW, or FAC: <u>100</u> (A/B)
0				Prevalence Index worksheet:
/			<u> </u>	Total % Cover of: Multiply by:
50% (1) 1	9	= Total Cov	/er	OBL species x 1 =
50% of total cover: <u>4.5</u>	20% of	total cover:	1.8	
Sapling/Shrub Stratum (Plot size:)				
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4.				Column Totals: (A) (B)
5.				
6.	-			Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
··				1 - Rapid Test for Hydrophytic Vegetation
8				x 2 - Dominance Test is >50%
9		<u> </u>	<u> </u>	3 - Prevalence Index is ≤3.0 ¹
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Panicum virgatum	80	D	FAC	
2. Phalaris arundinacea	2	ND	FACW	1
3. Juncus effusus	2	ND	FACW	Indicators of hydric soil and wetland hydrology must
4				De fielding of Free Manatolian Otosta
5				Definitions of Four vegetation Strata:
<u> </u>				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0		<u> </u>	<u> </u>	more in diameter at breast height (DBH), regardless of
/				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants regardless
	84	= Total Co	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		We achieve Allow a device a superior that there 0.00 ft is
Woody Vine Stratum (Plot size:)				woody vine – All woody vines greater than 3.28 ft in beight
1.				noight.
2				
2				
<u> </u>				
4				Hydrophytic
5				Vegetation
		= Total Cove	er	Present? res <u>x</u> No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate s	heet.)			

Depth (inches) Matrix Redox Features 0-18 5YR3/3 90 5YR3/4 1 0 C M SCL (dense)
Color (moist) % Color (moist) % Type' Loc' Texture Remarks 0-18 5YR3/3 90 5YR3/4 10 C M SCL (dense)
0-18 5YR3/3 90 5YR3/4 10 C M SCL (dense)
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Dark Surface (S7) 2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prairie Redox (A16)
Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Pledmont Floodplain Solis (F19)
Stratilied Layers (A5) Depieted Matrix (F5) (MLRA 130, 147)
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks)
Thick Dark Surface (A12) x Redox Depressions (F8)
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N,
MLRA 147, 148) MLRA 136)
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ³ Indicators of hydrophytic vegetation and
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present,
Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147) unless disturbed or problematic.
Restrictive Layer (if observed):
Туре:
Depth (inches): No
Remarks:

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerse	t Sampling Date: 4/21/14
Applicant/Owner: USACE	State	: <u>NJ</u> Sampling Point: <u>C1-U1</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Concave slope Slope (%): 2
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	N	WI classification:
Are climatic / hydrologic conditions on the site typical for this ti	me of year? Yes <u>x</u> No (If no,	explain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	nificantly disturbed? Are "Normal Circu	nstances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology na	turally problematic? (If needed, explain	n any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>_x</u> No <u>_x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Set	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes <u>No</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No <u>x</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

Sampling Point: C1-U1

	Absolute	Dominant I	ndicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 1 (A)
2				
2		·		Total Number of Dominant
3		·		Species Across All Strata: (B)
4				Dereent of Dominant Species
5				That Are OBL_EACW or EAC: 50 (A/B)
6				
7		·		Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
		= Total Cove	r	OBL species x 1 =
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACW species 40 x 2 = 80
1.				FAC species <u>5</u> x 3 = <u>15</u>
2				FACU species x 4 =
2				UPL species 55 x 5 = 275
3				$\frac{1}{2} = \frac{1}{2} = \frac{1}$
4		·		Column Totals: <u>100</u> (A) <u>370</u> (B)
5				Drovelence Index - D/A -
6				
7		·		Hydrophytic Vegetation Indicators:
1		·		1 - Rapid Test for Hydrophytic Vegetation
8		·		2 - Dominance Test is >50%
9		. <u> </u>		$3 - \text{Prevalence Index is } < 3.0^{1}$
		= Total Cove	r	
50% of total cover:	20% of	total cover:		4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5')				data in Remarks or on a separate sheet)
		5		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Artemisia vulgaris	55	D	UPL	
2. Panicum virgatum	5	ND	FAC	¹ Indicators of hydric soil and wotland hydrology must
3. <u>Solidago gigantea</u>	40	D	FACW	be present unless disturbed or problematic
4				Definitions of Frank Variation Otrata
5				Definitions of Four vegetation Strata:
<u> </u>		·		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
6		·		more in diameter at breast height (DBH), regardless of
7				height.
8				
9				than 3 in DPH and greater than or equal to 3.28 ft (1
10				m) tall
10		·		
11		·		Herb – All herbaceous (non-woody) plants, regardless
	100	= Total C	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Weedwaine Allweedwaines prester then 2.20 ft in
Woody Vine Stratum (Plot size:)				beight
1				
1		·		
2				
3				
4				Ludron hutio
5				Vegetation
		- Total Cava	-	Present? Yes No X
	2001/ -		:r	
	20% 01	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL

Profile Desc	ription: (Describe t	o the depth	needed to docun	nent the i	ndicator	or confirm	n the absence of	f indicato	ors.)
Depth	Matrix		Redo	x Features	8				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks
0-2	5YR3/3	100					SCL		
2-6	5YR3/4	100					SCL w/ gravel		
6+								REFUS	SAL
						·	·		
						·	<u> </u>		
¹ Type: C=Co	oncentration, D=Depl	etion, RM=R	educed Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL=	Pore Lini	ng, M=Matrix.
Hydric Soil	ndicators:						Indicate	ors for Pr	oblematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cr	m Muck (A	A10) (MLRA 147)
Histic Ep	oipedon (A2)		Polyvalue Be	low Surfac	ce (S8) (N	ILRA 147,	148) <u> </u> Coa	ast Prairie	Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	(MLRA 14	7, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (I	F2)		Pie	dmont Flo	oodplain Soils (F19)
Stratified	Layers (A5)		Depleted Mat	trix (F3)			(MLRA 13	6, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	6)		Ver	y Shallow	/ Dark Surface (TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		Oth	er (Explai	in in Remarks)
Thick Da	ark Surface (A12)		Redox Depre	ssions (F8	3)				
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangane	ese Masse	es (F12) (I	LRR N,			
MLRA	A 147, 148)		MLRA 13	6)			3		
Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	°Indica	ators of hy	ydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	18) wetla	and hydro	logy must be present,
Stripped	Matrix (S6)		Red Parent M	Aaterial (F:	21) (MLR	A 127, 147	7) unles	ss disturb	ed or problematic.
Restrictive I	_ayer (if observed):								
Type: <u>GF</u>	RAVEL		_						
Depth (ind	ches): <u>6+</u>						Hydric Soil P	resent?	Yes <u>No x</u>
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C1-W1
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Cor</u>	ncaveSlope (%): 0
Subregion (LRR or MLRA): MLRA 148 Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	I classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for the	his time of year? Yes x No (If no, ex	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "Normal Circums	stances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology	naturally problematic? (If needed, explain a	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
x Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) x Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled Soc Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 1"	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes x No Depth (inches):surface (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes X No
Remarks:	

Sampling Point: C1-W1

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:	% Cover Species? Status	Number of Deminent Opening
1		That Are OBL_EACW or EAC: (A)
I		
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		
5		Percent of Dominant Species
°		
0		Prevalence Index worksheet:
/		Total % Cover of: Multiply by:
	= Total Cover	
50% of total cover:	20% of total cover:	
Sapling/Shrub Stratum (Plot size:)		FACW species 25 x 2 = 50
1.		FAC species x 3 =
2		FACU species x 4 =
2		UPL species x 5 =
3		$\begin{array}{c} c = c \\ c = c \\$
4		Column rotals. 25 (A) 50 (B)
5		Prevalence Index = B/A = -2
6.		
7.		Hydrophytic vegetation indicators:
		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		X 3 - Prevalence Index is ≤3.0
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	deta in Demarka er en e concrete sheet)
Herb Stratum (Plot size: 5')		
1 Lythrum salicaria	15 ND FACW	Problematic Hydrophytic Vegetation' (Explain)
2. Bidana frandana		
		¹ Indicators of hydric soil and wetland hydrology must
3. Dicanthelium sp.	<u>75</u> <u>D</u> <u>NI</u>	be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		· ·
6.		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of
·		neight.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb - All herbaceous (non-woody) plants, regardless
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover	20% of total cover:	
Woody Vine Stratum (Plot size:		Woody vine – All woody vines greater than 3.28 ft in
		height.
1		
2		
3		
4.		
5		Hydrophytic
	- Total Cavar	Present? Yes X No
EO0/ of total accurate		
50% of total cover.		
Remarks: (Include photo numbers here or on a separate	sheet.)	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix	Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-6	7.5YR3/3	90	7.5YR3/4	10	C	Μ	SCL w/ gravel Disturbed
6-8	7.5YR3/3						SCL w/ less gravel
¹ Type: C=Co	oncentration, D=Deple	tion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ins.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	ndicators:	,	,			-	Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2 cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (M	LRA 147,	148) Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	Irface (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		Piedmont Floodplain Soils (F19)
Stratified	l Layers (A5)		Depleted Ma	trix (F3)			(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface (F	6)		Very Shallow Dark Surface (TF12)
Depleted	Below Dark Surface	(A11)	Depleted Date	rk Surface	(F7)		Other (Explain in Remarks)
Thick Da	ark Surface (A12)		<u>x</u> Redox Depr	ressions (F	-8)		
Sandy M	lucky Mineral (S1) (Lf	RR N,	Iron-Mangan	ese Masse	es (F12) (l	.RR N,	
MLRA	A 147, 148)		MLRA 13	6)			<u>^</u>
Sandy G	leyed Matrix (S4)		Umbric Surfa	ice (F13) (MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	 wetland hydrology must be present,
Stripped	Matrix (S6)		<u>x</u> Red Parent	Material (F21) (MLF	RA 127, 14	7) unless disturbed or problematic.
Restrictive I	_ayer (if observed):						
Туре:							
Depth (ind	ches):						Hydric Soil Present? Yes <u>x</u> No
Remarks:							,

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C1-W2
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>C</u>	oncave depression Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NV	VI classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes <u>x</u> No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrologysi	gnificantly disturbed? Are "Normal Circum	nstances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrologyr	naturally problematic? (If needed, explain	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
X Saturation (A3) X Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	<u>X</u> Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inches): 2-3"	
Water Table Present? Yes <u>No</u> Depth (inches):	
Saturation Present? Ves X No Depth (inches): surface	Wetland Hydrology Present? Yes <u>X</u> No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	ions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	ions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	ions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	ions), if available:

Sampling Point: C1-W2

	Absolute Dominant Indicator	Dominance Test worksheet:						
Tree Stratum (Plot size: <u>30'</u>)	<u>% Cover Species? Sta</u> tus	Number of Dominant Species						
1		That Are OBL, FACW, or FAC: (A)						
2		Total Number of Dominant						
3.		Species Across All Strata: 1 (B)						
4		(=)						
5		Percent of Dominant Species						
<u> </u>		That Are OBL, FACW, or FAC: <u>100</u> (A/B)						
6		Prevalence Index worksheet:						
7		Total % Cover of: Multiply by:						
	= Total Cover							
50% of total cover:	20% of total cover:	OBL species x 1 =						
Sapling/Shrub Stratum (Plot size: 15')		FACW species x 2 =						
1. Quercus palustris	5 ND FACW	FAC species x 3 =						
2		FACU species x 4 =						
2		UPL species x 5 =						
		Column Totals: (A) (B)						
4								
5		Prevalence Index = B/A =						
6		Hydrophytic Vegetation Indicators:						
7		1 - Panid Test for Hydrophytic Vegetation						
8.								
9		<u>x</u> 2 - Dominance Test is >50%						
	E Total Cover	3 - Prevalence Index is ≤3.0 ¹						
EQ9/ of total approxim	$\underline{5}$ = 1 otal Cover	4 - Morphological Adaptations ¹ (Provide supporting						
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)						
Herb Stratum (Plot size: 5')		Problematic Hydrophytic Vegetation ¹ (Explain)						
1. Phalaris arundinacea	<u>100</u> D FACW							
2		1						
3.		Indicators of hydric soil and wetland hydrology must						
4		De present, unless disturbed of problematic.						
5		Definitions of Four Vegetation Strata:						
5		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or						
б		more in diameter at breast height (DBH), regardless of						
7		height.						
8		Sanling/Shrub – Woody plants, excluding vines, less						
9		than 3 in. DBH and greater than or equal to 3.28 ft (1						
10.		m) tall.						
11								
		of size, and woody plants less than 3 28 ft tall						
50% of total cover: 100	20% of total cover:							
Woody Vine Stratum (Plot size:		Woody vine – All woody vines greater than 3.28 ft in						
		neight.						
1								
2								
3								
4		Hydrophytic						
5.		Vegetation						
	= Total Cover	Present? Yes <u>x</u> No						
50% of total cover:	20% of total cover:							
Remarks: (Include photo numbers here or on a separate s	heet)							
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
---	--	----------	----------------------	------------------	--------------------	-------------------	---	---
Depth	Matrix		Redo	ox Feature	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	5YR3/3	93	5YR3/4	3	C	<u>PL</u>	<u>Clay loam</u>	
6-12	5YR3/3	80	5YR4/6	20	<u> </u>	<u> </u>	<u>Clay loam</u>	
12-18	5YR3/3	80	5YR4/6	20	С	М	Clay	
					<u> </u>			
					· .			
						·		_
¹ Type: C=Co	oncentration D=Deple	etion RM	=Reduced Matrix M	S=Maske	d Sand Gr	ains	² l ocation [·] PI =Pore Li	ning M=Matrix
Hydric Soil	Indicators:		i toudood indding in				Indicators for	Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2 cm Muck	(A10) (MLRA 147)
Histic Fr	pipedon (A2)		Polyvalue Be	elow Surfa	ace (S8) (N	ILRA 147	. 148) Coast Prai	rie Redox (A16)
Black Hi	istic (A3)		Thin Dark St	urface (S9) (MI RA 1	47 148)	(MIRA)	147 148)
Hydroge	en Sulfide (A4)		Loamy Glev	ed Matrix	(F2)	H, H)	Piedmont F	Floodplain Soils (F19)
Stratified	1 avers (A5)		Depleted Ma	atrix (F3)	(• _)		(MI RA	136 147)
2 cm Mu	ick (A10) (I RR N)		Bedox Dark	Surface (I	F6)		Very Shall	w Dark Surface (TE12)
Depleter	d Below Dark Surface	(A11)	Depleted Da	rk Surface	- (F7)		Other (Exp	lain in Remarks)
Depicted	ark Surface (Δ12)	(/(11)	Beday Depr	essions (F				
Thick Da	And Sullace (A12) Aughy Minoral (S1) (L				(E12)			
	10CKy WILLELAL (ST) (L	nn n,				LNN N,		
Sandy G	- 147, 140)		Umbric Surf	00) 000 (E13)		6 122)	³ Indicators of	hydrophytic vogotation and
Sandy B	Pedox (S5)		v Piedmont F		Soile (F10	(\mathbf{MIRA})	148) wetland hy	drology must be present
Stripped	Matrix (S6)		<u>x</u> Red Parent	Material	(F21) (ML	RA 127, 1	47) unless dist	urbed or problematic.
Restrictive I	Layer (if observed):				. , .			·
Туре:								
Depth (ind	ches):						Hydric Soil Present	? Yes <u>x</u> No <u> </u>
Remarks:							•	

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater</u> , Somerset	Sampling Date: <u>4/21/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: C2-U1
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): top (of slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification:
Are climatic / hydrologic conditions on the site typical for this tin	me of year? Yes <u>x</u> No (If no, exp	olain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Are "Normal Circumst	ances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology na	turally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes N Yes Yes	No <u>x</u> No <u>_x</u> No <u>_x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

quired)
ж (В8) (С9)
<u>(</u>
() ()

Sampling Point: C2-U1

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1. Betula nigra	3	Ν	FACW	That Are OBL, FACW, or FAC: (A)
2				Tatel Number of Deminent
3.				Species Across All Strata: 2 (B)
4				
5				Percent of Dominant Species
<u> </u>				That Are OBL, FACW, or FAC: <u>50</u> (A/B)
0				Prevalence Index worksheet:
7				Total % Cover of Multiply by
	3	= Total Cov	/er	
50% of total cover:	20% of	total cover:	<u> </u>	
Sapling/Shrub Stratum (Plot size:)				FAC vv species 3 $x^2 = 6$
1				FAC species 31 x 3 = 93
2				FACU species <u>69</u> x 4 <u>= 276</u>
3				UPL species x 5 =
4.				Column Totals: <u>103</u> (A) <u>375</u> (B)
5				Provolution Index = P/A = -2.64
6	<u> </u>			Hydrophytic Vogetation Indicators:
7	<u> </u>			1 Danid Toot for Undrandutio Venetation
8.				
9				2 - Dominance Test is >50%
<u> </u>		- Total Cov		3 - Prevalence Index is ≤3.0 ⁺
50% of total cover:	20% of	total cover:	51	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5	20 /0 01		<u> </u>	data in Remarks or on a separate sheet)
	F 4			Problematic Hydrophytic Vegetation ¹ (Explain)
	54	<u> </u>	FACU	
2. <u>Ranunculus ficaria</u>	1	<u>ND</u>	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Panicum virgatum	30	D	FAC	be present, unless disturbed or problematic.
4. Urtica dioica	15	ND	FACU	Definitions of Four Vegetation Strata:
5				The Management and the second states of the second
6				Iree – woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH) regardless of
7				height.
8				
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				
	100	- Total (Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	20% of	total cover:	Jover	
Weedy Vine Stratum (Plet size:	20 /0 01		<u> </u>	Woody vine – All woody vines greater than 3.28 ft in
				height.
[]				
2	- <u> </u>			
3				
4				Hydrophytic
5				Vegetation
		= Total Cove	er	Present? Yes <u>No x</u>
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Desc	ription: (Describe	to the dep	oth needed to docu	ment the	indicator	or confirm	n the absence of indicators.)	
Depth	Matrix		Redo	ox Feature	s			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-20	5YR3/3	100					SCL	
20-24	5YR3/3	90	5YR4/6	10	<u> </u>	M	<u>SCL</u>	
					·			
<u> </u>					·			
					·	·		
¹ Type: C=Co	oncentration, D=De	pletion, RM	Reduced Matrix, M	S=Maske	d Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.	
Hydric Soil	ndicators:						Indicators for Problematic Hydric Soils	3 ³ :
Histosol	(A1)		Dark Surface	e (S7)			2 cm Muck (A10) (MLRA 147)	
Histic Ep	oipedon (A2)		Polyvalue Be	elow Surfa	ace (S8) (N	ILRA 147,	148) Coast Prairie Redox (A16)	
Black Hi	stic (A3)		Thin Dark S	urface (S9) (MLRA 1	47, 148)	(MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		Piedmont Floodplain Soils (F19)	
Stratified	Layers (A5)		Depleted Ma	atrix (F3)			(MLRA 136, 147)	
2 cm Mu	ick (A10) (LRR N)	- (1 1 1)	Redox Dark	Surface (I	-6)		Very Shallow Dark Surface (TF12)	
Depleted	Below Dark Surface	ce (ATT)	Depleted Da	irk Surface	e (F7)		Other (Explain in Remarks)	
Thick Da	lucky Mineral (S1)			CSSIULIS (F	0) 00 (E12) (I			
Oandy N	147 148)		MI RA 13	1636 Mass	es (1 12) (1	LIXIX I X ,		
Sandy G	leved Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation an	d
Sandy R	edox (S5)		Piedmont Fl	oodplain S	Soils (F19)	(MLRA 14	(18) wetland hydrology must be present.	u
Stripped	Matrix (S6)		Red Parent	Material (F	=21) (MLR	、 A 127, 147	7) unless disturbed or problematic.	
Restrictive I	_ayer (if observed)):			, (
Type:								
Depth (inc	ches):						Hydric Soil Present? Yes No X	
Remarks [.]								
. comanto.								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Some</u>	rset Samp	ling Date: 4/4/14
Applicant/Owner: USACE	St	ate: <u>NJ S</u> am	pling Point: <u>C2 - U2A</u>
Investigator(s): _JR/RW/MS	Section, Township, Range:		
Landform (hillslope, terrace, etc.): Floodplain Lo	cal relief (concave, convex, none):	Concave	Slope (%): <u>15</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:		Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		NWI classification:	
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes <u>x</u> No (If r	no, explain in Remark	s.)
Are Vegetation, Soil, or Hydrology significantl	y disturbed? Are "Normal Cir	cumstances" present	? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology naturally	problematic? (If needed, exp	olain any answers in F	Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations	, transects, imp	ortant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes _x	No <u>x</u> No <u>x</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)			
 Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) 	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) 			
Field Observations:				
Surface Water Present? Yes <u>No x</u> Depth (inches):				
Water Table Present? Yes x No Depth (inches): 12				
Water Table Present? Yes x No Depth (inches): 12 Saturation Present? Yes No Depth (inches): (includes capillary fringe) Ves No	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>			
Water Table Present? Yes x No Depth (inches): 12 Saturation Present? Yes No Depth (inches): (includes capillary fringe) Ves No Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u> tions), if available:			

Sampling Point: C2-U2A

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1.	<u>% Cover</u>	Species?	<u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2	_			
3				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>33</u> (A/B)
6		·		Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cov	er	OBI species x 1 =
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				
1		. <u></u>		
2		·		FACU species X 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5		· . <u></u>		Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
7		·		1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
		= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Ranunculus ficaria	40	D	FAC	
2. Artemisia vulgaris	20	D	UPL	¹ Indicators of hydric soil and wetland hydrology must
3. Urtica dioica	40	D	FACU	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7.				height.
8.				
9				Sapling/Shrub – Woody plants, excluding vines, less
10		·		m) tall.
11				,
· · · ·	100	- Total		Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	20% of	total cover:	Cover	or size, and woody plants less than 5.20 it tall.
Woody Vine Stratum (Plot size:	20% 01			Woody vine – All woody vines greater than 3.28 ft in
				height.
I				
2		·		
3		·		
4				Hydrophytic
5				Vegetation
		= Total Cov	er	Present? Yes <u>No X</u>
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			
Vegetation not documented for transect test plot.				

Depth	Matrix		Redo	x Features					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks
0-12	5YR3/3	100					SCL		
12-15								Gravel	
45.40	EVID2/2	100					0.01		
15-18	51R3/3	100		<u> </u>		<u> </u>	SUL		
		·		<u> </u>		·			
		·		<u> </u>					
¹ Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked Sa	and Gra	iins.	² Location: P	L=Pore Lini	ng, M=Matrix.
Hydric Soil	Indicators:						Indic	ators for Pr	oblematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2	cm Muck (A	A10) (MLRA 147)
Histic E	pipedon (A2)		Polyvalue Be	low Surface	(S8) (M	LRA 147,	148) (Coast Prairie	Redox (A16)
Black H	istic (A3)		Thin Dark Sι	ırface (S9) (N	ILRA 1	47, 148)		(MLRA 14	7, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		F	Piedmont Flo	odplain Soils (F19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 13	6, 147)
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface (F6)			\	ery Shallow	Dark Surface (TF12)
Deplete	d Below Dark Surface	e (A11)	Depleted Da	rk Surface (F	7)		0	Other (Explai	in in Remarks)
Thick D	ark Surface (A12)		Redox Depre	essions (F8)					
Sandy M	Aucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Masses	(F12) (l	.RR N,			
MLR	A 147, 148)		MLRA 13	6)			2		
Sandy C	Gleyed Matrix (S4)		Umbric Surfa	ice (F13) (MI	_RA 13	6, 122)	°Inc	licators of hy	drophytic vegetation and
Sandy F	Redox (S5)		Piedmont Flo	odplain Soils	s (F19)	(MLRA 14	8) we	etland hydro	logy must be present,
Stripped	d Matrix (S6)		Red Parent N	Material (F21) (MLR/	A 127, 147	') un	less disturb	ed or problematic.
Restrictive	Layer (if observed):								
Type: <u>gr</u>	avel								
Depth (in	ches): <u>12</u>						Hydric Soi	Present?	Yes No <u>x</u>
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State: _	NJ Sampling Point: C2 - U2B
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>No</u>	ne Slope (%): <u>0</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification:
Are climatic / hydrologic conditions on the site typical for this t	time of year? Yes <u>x</u> No (If no, exp	plain in Remarks.)
Are Vegetation, Soil, or Hydrology sig	nificantly disturbed? N Are "Normal Circum	stances" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil _ x, or Hydrology na	aturally problematic? (If needed, explain a	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map s	howing sampling point locations, trai	nsects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes Yes	N <u>o</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

Wetland Hydrology Indicator	s:		<u>S</u>	econdary Indicators (minimum of two required)
Primary Indicators (minimum or	f one is required; che	ck all that apply)		_ Surface Soil Cracks (B6)
Surface Water (A1)		_ True Aquatic Plants (B14)		_ Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)		_ Hydrogen Sulfide Odor (C1)	_	_ Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living				_ Moss Trim Lines (B16)
Water Marks (B1)		Presence of Reduced Iron (C4)	_	_ Dry-Season Water Table (C2)
Sediment Deposits (B2)		_ Recent Iron Reduction in Tilled So	oils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)		_ Thin Muck Surface (C7)	_	_ Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		Other (Explain in Remarks)	_	_ Stunted or Stressed Plants (D1)
Iron Deposits (B5)			_	_ Geomorphic Position (D2)
Inundation Visible on Aeria	al Imagery (B7)		_	_ Shallow Aquitard (D3)
Water-Stained Leaves (B9)			Microtopographic Relief (D4)
Aquatic Fauna (B13)			_	_ FAC-Neutral Test (D5)
Field Observations:				
Surface Water Present?	Yes No	<u>C</u> Depth (inches <u>):</u>		
Water Table Present?	Yes No	Depth (inches <u>):</u>		
Saturation Present? (includes capillary fringe)	Yes No	C Depth (inches):	Wetland Hy	drology Present? Yes No <u>x</u>
Describe Recorded Data (strea	am gauge, monitoring	well, aerial photos, previous inspec	tions), if availa	ble:
Demontres Flooduloin				
Remarks: Floodplain				

Sampling Point: C2-U2B

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2 3				Total Number of Dominant Species Across All Strata: (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A
6				Provolence Index workshoot
7	<u> </u>			Total % Cover of: Multiply by:
		= Total Cov	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				
1				FAC species x 3 =
2				FACU species X 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6	<u> </u>			Hydrophytic Vegetation Indicators:
7	<u> </u>			1 - Rapid Test for Hydrophytic Vegetation
8				x 2 - Dominance Test is >50%
9				$3 - Prevalence Index is \leq 30^{1}$
	=	= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a senarate sheet)
Herb Stratum (Plot size: 5')				Broblomatia Hydrophytia Vagatatian ¹ (Evaluin)
1. Phalaris arundinacea	80	D	FACW	
2. Artemisia vulgaris	10	ND	UPL	The discharge of building of the edge of the edge of the degrad of the second s
3. Solidago sp.	5	ND	NI	be present unless disturbed or problematic
4. Humulus japonicus	3	ND	FACU	Definitions of Four Vegetation Strata:
5.				Deminions of Four Vegetation Ottata.
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of height
8				noight.
9 9				Sapling/Shrub – Woody plants, excluding vines, less
3 10				m) tall
10				,
II				Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	<u>98</u> =	total cover:	er	or size, and woody plants less than 5.20 it tail.
Woody Vine Stratum (Plot size:	20 /0 01			Woody vine – All woody vines greater than 3.28 ft in
				height.
1				
2				
<u>د.</u>				
3				
3 4				Hydrophytic
3 4 5				Hydrophytic Vegetation
3 4 5		Total Cov	 	Hydrophytic Vegetation Present? Yes <u>x</u> No

Profile Desc	cription: (Describe	e to the dep	th needed to docur	nent the inc	dicator o	or confirn	n the absence of indicators.)	
Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-6	5YR3/3	100					<u>SCL</u>	
6-10	5YR3/3	100						
10-18	5YR3/3	100					CLAY LOAM FRIABLE	
¹ Type: C=Co Hydric Soil	oncentration, D=De	 pletion, RM=	Reduced Matrix, MS	S=Masked S	Sand Gra	iins.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hyd	dric Soils ³ :
 Histosol Histic Ep Black Hi Hydroge Stratified 2 cm Mu 	(A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5) uck (A10) (LRR N)		Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark S	(S7) low Surface rface (S9) (I d Matrix (F2 trix (F3) Surface (F6)	e (S8) (M MLRA 1 2))	LRA 147, 47, 148)	2 cm Muck (A10) (MLRA 14 148) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (I (MLRA 136, 147) Very Shallow Dark Surface	7) =19) (TF12)
Depleted Depleted Thick Da Sandy M MLRA	d Below Dark Surfa ark Surface (A12) /lucky Mineral (S1) A 147, 148)	ce (A11) (LRR N,	Depleted Dar Redox Depre Iron-Mangan MLRA 13	rk Surface (F essions (F8) ese Masses 6)	, F7) s (F12) (l	.RR N,	Other (Explain in Remarks)	. ,
Sandy G Sandy R Stripped	Gleyed Matrix (S4) Redox (S5) I Matrix (S6)		Umbric Surfa Piedmont Flo Red Parent M	ce (F13) (M oodplain Soil /laterial (F21	ILRA 13 Is (F19) 1) (MLR/	6, 122) (MLRA 14 A 127, 14	 ³Indicators of hydrophytic vege wetland hydrology must be pi unless disturbed or problema 	tation and esent, tic.
Restrictive I	Layer (if observed):						
Туре:								
Depth (in	ches):						Hydric Soil Present? Yes	No <u>X</u>
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C2-U3
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain, 3' above associated we	tland. Local relief (concave, convex, none): flat, none Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification:
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes <u>x</u> No (If no, exp	olain in Remarks.)
Are Vegetation, Soil, or Hydrology significantl	y disturbed? Are "Normal Circumsta	ances" present? Yes No <u>x</u>
Are Vegetation, Soil _x, or Hydrology naturally	problematic? (If needed, explain ar	ny answers in Remarks.)
CLIMMARY OF FINIDINCS Attach site man showin	a compliant point locations from	

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes Yes	N <u>o</u> No <u>_X</u> No <u>_X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living Root	ts (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C	C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No x</u> Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes <u>No x</u> Depth (inches): Wet	tland Hydrology Present? Yes No <u>x</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections)), if available:
Remarks:	

Sampling Point: C2-U3

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Species? Status</u>	Number of Dominant Species
1	· · ·	That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Demont of Deminent Creation
5		That Are OBL. FACW. or FAC: 100 (A/B)
6		
7.		Prevalence Index worksheet:
	= Total Cover	Total % Cover of:Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:		FACW species x 2 =
1.		FAC species x 3 =
2		FACU species x 4 =
3		UPL species x 5 =
3		Column Totals: (A) (B)
4	· ·	()
5	· ·	Prevalence Index = B/A =
0	· ·	Hydrophytic Vegetation Indicators:
1	· · ·	1 - Rapid Test for Hydrophytic Vegetation
8	·	x 2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a senarate sheet)
Herb Stratum (Plot size: 5')		Broblematic Hydrophytic Vegetation ¹ (Evaluation)
1. Phalaris arundinacea	95 D FACW	
2		1
3		Indicators of hydric soil and wetland hydrology must
4.		Definitions of Four Vegetation Strate:
5.		Demittons of Four Vegetation Strata.
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of
7	· /	neight.
0	· ·	Sapling/Shrub – Woody plants, excluding vines, less
9	·	than 3 in. DBH and greater than or equal to 3.28 ft (1
10	· ·	m) tan.
11	·	Herb – All herbaceous (non-woody) plants, regardless
	<u>95</u> = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		height.
1	·	
2	· ·	
3	· · ·	
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes x No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate s	sheet.)	

Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	ndicator o	or confirm	m the absence of indicators.)
Depth	Matrix		Redo	x Features	;		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-3	5YR4/3	100					Clay Loam with many fine and coarse roots, loose friable
3-18	5YR4/3	100					Clay loam, loose friable
¹ Type: C=Co	oncentration, D=Dep	Detion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	iins.	² Location: PL=Pore Lining, M=Matrix.
Histosol Histic Ep Black Hi Hydroge Stratified 2 cm Mu Depleted Thick Da Sandy M	(A1) pipedon (A2) stic (A3) n Sulfide (A4) I Layers (A5) lick (A10) (LRR N) d Below Dark Surface ark Surface (A12) lucky Mineral (S1) (1 A 147 148)	e (A11) L RR N,	Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark Redox Dark I Depleted Dai Redox Depre Iron-Mangan	e (S7) How Surface Inface (S9) ed Matrix (I trix (F3) Surface (F rk Surface essions (F8 esse Masse 6)	ce (S8) (M (MLRA 1 72) 6) (F7) 8) es (F12) (L	LRA 147, 47, 148) -RR N,	 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Sandy G Sandy R Sandy R Stripped	ileyed Matrix (S4) edox (S5) Matrix (S6) _ayer (if observed)		Umbric Surfa Piedmont Flo	oce (F13) (podplain So Material (F:	MLRA 130 bils (F19) 21) (MLR/	6, 122) (MLRA 14 A 127, 14	 ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Type: Depth (ind Remarks:	ches):						Hydric Soil Present? Yes <u>No x</u>
ł							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerse	t Sampling Date: <u>4/21/14</u>
Applicant/Owner: USACE	State:	: <u>NJ</u> Sampling Point: <u>C2-W1A</u>
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	oncave, toe of slope Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	N	WI classification:
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes <u>x</u> No (If no,	explain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	ficantly disturbed? Are "Normal Circur	nstances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology natu	urally problematic? (If needed, explain	n any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> No Yes <u>X</u> N <u>o</u> Yes <u>X</u> No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.				

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Primary indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled Sc Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	 Surface Soli Clacks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) x Geomorphic Position (D2) Shallow Aquitard (D3)
Water-Stained Leaves (B9)	x Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No x</u> Depth (inches):	
Water Table Present? Yes Nox Depth (inches):	
Saturation Present? Yes <u>No x</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

Sampling Point: C2-W1A

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1		·		That Are OBL, FACW, or FAC: (A)
2		·		Total Number of Dominant
3		·		Species Across All Strata: <u>1</u> (B)
4		·		Percent of Dominant Species
5		·		That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6		·		Prevalence Index worksheet
7		·		Total % Cover of: Multiply by:
		= Total Cove	er	OBL species x1 =
50% of total cover:	20% of	total cover:		EACW species x 2 =
Sapling/Shrub Stratum (Plot size:)				
1				
2		·		
3				OFE species x 5 Column Totalo (A)
4		·		
5		·		Prevalence Index = B/A =
6		. <u> </u>		Hydrophytic Vegetation Indicators:
7		·		1 - Rapid Test for Hydrophytic Vegetation
8				x 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Persicaria sagitatta	10	ND	OBL	
2. Panicum virgatum	78	D	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Polygonum hydropiper	7	ND	OBL	be present, unless disturbed or problematic.
4. Phalaris arundinacea	5	ND	FACW	Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH) regardless of
7				height.
8				Sanling/Shrub Woody plants evoluting vince loss
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	100	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Woody vine All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4	<u> </u>			Hydrophytic
5				Vegetation
		= Total Cove	er	Present? Yes x No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL	
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Profile Desc	ription: (Describe te	o the dep	th needed to docum	ent the i	ndicator	or confirn	n the absence of indicators.)
Depth	Matrix		Redox	Feature	s1	. 2	
(inches)	Color (moist)	%	Color (moist)	%	Туре		Texture Remarks
0-4	5YR3/3	90	5YR2.5/2	10	D	Μ	Clay
4-12	5YR3/3	80	5YR2.5/2	10	D	Μ	Clay
12-18	<u>5YR4/3</u>	100					Clay
¹ Type: C=Co Hydric Soil	oncentration, D=Deple	etion, RM=	Reduced Matrix, MS	=Masked	I Sand Gr	ains.	² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :
Histosol Histic Ep Black Hi Hydroge Stratified 2 cm Mu	(A1) bipedon (A2) stic (A3) en Sulfide (A4) d Layers (A5) ick (A10) (LRR N)		Dark Surface Polyvalue Bele Thin Dark Sur Loamy Gleyee Depleted Matr Redox Dark S	(S7) ow Surfa face (S9 d Matrix (rix (F3) surface (F	ce (S8) (N) (MLRA 2 (F2) ⁻ 6)	ILRA 147, 147, 148)	2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 147, 148) Piedmont Floodplain Soils (F19) (MLRA 136, 147) Very Shallow Dark Surface (TF12)
Depleted Thick Da Sandy M	d Below Dark Surface ark Surface (A12) Mucky Mineral (S1) (L I	(A11) RR N ,	Depleted Dark Redox Depres Iron-Mangane	< Surface ssions (F se Mass	e (F7) 8) es (F12) (LRR N,	Other (Explain in Remarks)
Sandy G Sandy R Sandy R Stripped	Gleyed Matrix (S4) Redox (S5) Matrix (S6)		Umbric Surfac Piedmont Floo Red Parent M	ce (F13) (odplain S Material ((MLRA 13 ioils (F19) F21) (ML I	6, 122) (MLRA 14 RA 127, 14	 ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Restrictive I	Layer (if observed):						
Туре:							
Depth (ind	ches):						Hydric Soil Present? Yes <u>x</u> No
Remarks:							·

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C2-W1B
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Cor</u>	ncave Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	/I classification:
Are climatic / hydrologic conditions on the site typical for this til	me of year? Yes <u>x</u> No (If no, ex	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	nificantly disturbed? Are "Normal Circums	stances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology na	turally problematic? (If needed, explain	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A2) Ovidized Phizeenberge on Living	Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10)
	Dry-Season Water Table (C2) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) X Geomorphic Position (D2) Shallow Aguitard (D3)
Water-Stained Leaves (B9) Aquatic Fauna (B13)	<u>X</u> Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No X</u> Depth (inches):	
Water Table Present? Yes <u>No X</u> Depth (inches):	
Saturation Present? Yes <u>No X</u> Depth (inches <u>):</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

Sampling Point: C2-W1B

	Absolute	Dominant Ir	ndicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata:1 (B)
4 5		·		Percent of Dominant Species
6				
7				Prevalence Index worksheet:
		= Total Cover	-	Total % Cover of:Multiply by:
50% of total cover:	20% of	f total cover:		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2		·		FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5		·	<u> </u>	Prevalence Index = B/A =
6		·		Hydrophytic Vegetation Indicators:
7		·		1 - Rapid Test for Hydrophytic Vegetation
8				x 2 - Dominance Test is >50%
9		·		3 - Prevalence Index is ≤3.0 ¹
		= Total Cover	-	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	f total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Polygonum hydropiper	15	ND	OBL	
2. Panicum virgatum	75	D	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Persicaria sagitatta	10	ND	OBL	be present, unless disturbed or problematic.
4		·		Definitions of Four Vegetation Strata:
5		·		
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH) regardless of
7				height.
8				Serling/Shuth Woody plants evaluating vince loss
9	<u> </u>			than 3 in. DBH and greater than or equal to 3.28 ft (1
10	<u> </u>			m) tall.
11				Herb – All berbaceous (non-woody) plants, regardless
	100	= Total Co	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	f total cover:		Weedy vine All weedy vines greater than 2.29 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2	<u> </u>			
3				
4				Lively a shutia
5				Vegetation
		= Total Cover		Present? Yes X No
50% of total cover:	20% of	f total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Descr	iption: (Describ	e to the dep	oth needed to docun	nent the inc	dicator	or confirm	n the absence of indicat	tors.)
Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	%	Color (moist)		Type'	Loc	Texture	Remarks
0-4	5YR3/3	100					Clay	
4-16	5YR3/3	65	5YR3/2	35	С	М	Clay	
16-18	5YR4/4	65	5YR3/2	35	С	М	Clay	
·								
							·	
			-Reduced Matrix MS	-Mookod 9	Cond Cr		² Location: DL=Doro Lit	aina M-Matrix
Hydric Soil In	dicators:		=Reduced Matrix, Ma	s=iviaskeu a		anis.	Indicators for F	Problematic Hydric Soils ³
Histosol (A1)		Dark Surface	(S7)			2 cm Muck	(A10) (MI RA 147)
Histic Epi	pedon (A2)		Polyvalue Be	low Surface	e (S8) (N	LRA 147	148) Coast Prair	e Redox (A16)
Black Hist	tic (A3)		Thin Dark Su	rface (S9) (MLRA 1	47, 148)	(MLRA 1	47, 148)
Hydrogen	Sulfide (A4)		Loamy Gleye	d Matrix (F2	2)	. ,	Piedmont F	loodplain Soils (F19)
Stratified	Layers (A5)		Depleted Mat	rix (F3)			(MLRA 1	36, 147)
2 cm Muc	k (A10) (LRR N)		Redox Dark S	Surface (F6))		Very Shallo	w Dark Surface (TF12)
Depleted	Below Dark Surfa	ace (A11)	Depleted Dar	k Surface (I	F7)		Other (Expl	ain in Remarks)
Thick Dar	k Surface (A12)		X Redox Depr	ressions (F8	3)			
Sandy Mu	ucky Mineral (S1)	(LRR N,	Iron-Mangane	ese Masses	s (F12) (I	_RR N,		
MLRA	147, 148)		MLRA 13	6)				
Sandy Gle	eyed Matrix (S4)		Umbric Surfa	ce (F13) (M	ILRA 13	6, 122)	³ Indicators of	hydrophytic vegetation and
Sandy Re	edox (S5)		Piedmont Flo	odplain Soi	ls (F19)	(MLRA 14	 wetland hydr 	ology must be present,
Stripped M	Matrix (S6)		Red Parent M	laterial (F2	1) (MLR	A 127, 14	7) unless distur	bed or problematic.
Restrictive La	ayer (if observed	:):						
Туре:								
Depth (inch	nes):						Hydric Soil Present?	Yes <u>X</u> No
Remarks:								
1								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C2-W2A
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): toe	e of slope Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	N\	VI classification:
Are climatic / hydrologic conditions on the site typical for this ti	ime of year? Yes <u>x</u> No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	nificantly disturbed? Are "Normal Circum	nstances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology na	aturally problematic? (If needed, explain	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	g Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled S	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	X Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Ves No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Yes No Depth (inches):	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u>
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes X No ctions), if available: Image: Comparison of the second seco
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u>
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Remarks:	Wetland Hydrology Present? Yes X No
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes X No
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Remarks:	Wetland Hydrology Present? Yes X No
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes X No ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Remarks:	Wetland Hydrology Present? Yes X No ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes X No ctions), if available:

Sampling Point: C2-W2A

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6	. . 			Prevalence Index worksheet:
7	<u> </u>			Total % Cover of: Multiply by:
	. <u> </u>	= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FAC vv species x 2 =
1				FAC species x 3 =
2	<u> </u>			FACU species X 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5	·			Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				X 2 - Dominance Test is >50%
9	• •			3 - Prevalence Index is $≤3.0^1$
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phalaris arundinacea	80	D	FACW	
2. Ranunculus ficaria	5	ND	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Polygonum hydropiper	15	ND	OBL	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Iree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7				height.
8				Conting/Chrub Mandy plants avaluding vines loss
9	<u> </u>			than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All berbaceous (non-woody) plants, regardless
	100	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Weady vine All weady vince greater than 2.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2	<u> </u>			
3				
4				Hudrophytic
5				Vegetation
		= Total Cove	er	Present? Yes X No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Des	cription: (Describe	to the dept	th needed to docu	ment the i	ndicator	or confiri	m the absence of indicators.)	
Depth	Matrix		Redo	ox Feature	s			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-6	5YR3/2	100				. <u> </u>	Clay Loam	
6-20	5YR3/2	65	5YR3/3	35	С	Μ	Clay Loam to 16" then hard clay at 16+"	
	· · · · · · · · · · · · · · · · · · ·	<u> </u>						
	·	·				·	· · · · · · · · · · · · · · · · · · ·	
		·				·		
	·	. <u> </u>						
		·				·	· · · · · · _ · _	
	·	·				·	· · · · · · · · · · _	
		·						
¹ Type: C=C	Concentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	I Sand Gr	ains.	² Location: PL=Pore Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicators for Problematic Hydric	Soils':
Histoso	l (A1)		Dark Surface	e (S7)			2 cm Muck (A10) (MLRA 147)	
Histic E	pipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	ILRA 147	, 148) Coast Prairie Redox (A16)	
Black H	listic (A3)		Thin Dark S	urface (S9)) (MLRA '	147, 148)	(MLRA 147, 148)	
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix (F2)		Piedmont Floodplain Soils (F19))
Stratifie	a Layers (A5)		<u> </u>	atrix (F3)	6)		(MLRA 136, 147)	12)
2 cm M Deplete	d Below Dark Surface	e (A11)	Redux Dark	Surface (F	(F7)		Other (Explain in Remarks)	12)
Thick D	ark Surface (A12)	c (////)	Redox Depr	essions (Fi	8)			
Sandy I	Mucky Mineral (S1) (L	.RR N.	Iron-Mangar	nese Mass	es (F12) (LRR N.		
MLR	A 147, 148)	,	MLRA 13	36)		,		
Sandy (Gleyed Matrix (S4)		Umbric Surfa	, ace (F13) ((MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation	on and
Sandy I	Redox (S5)		Piedmont Fl	oodplain S	oils (F19)	(MLRA 1	48) wetland hydrology must be prese	ent,
Stripped	d Matrix (S6)		Red Parent	Material (F	21) (MLR	A 127, 14	7) unless disturbed or problematic.	
Restrictive	Layer (if observed):							
Туре:								
Depth (in	nches):						Hydric Soil Present? Yes X	۱ <u>۰</u>
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State: <u>N</u>	JSampling Point: <u>C2 - W2B</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>2</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI clas	ssification:
Are climatic / hydrologic conditions on the site typical for this tir	me of year? Yes <u>x</u> No (If no, explair	n in Remarks.)
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Are "Normal Circumstanc	es" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology nat	turally problematic? (If needed, explain any a	answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X No</u> Yes <u>No X</u> Yes <u>X No</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.				

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
<u>x</u> Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
x High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
<u>x</u> Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	pils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	x Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 2-3"	
Water Table Present? Yes X No Depth (inches): 0	
Saturation Present? Yes X No Depth (inches): 0	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec Remarks:	tions), if available:

Sampling Point: C2-W2B

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1		·		That Are OBL, FACW, or FAC: (A)
2		·		Total Number of Dominant
3			·	Species Across All Strata: <u>1</u> (B)
4		. <u> </u>		Percent of Dominant Species
5		·		That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6				Brouglange Index worksheet
7		. <u> </u>		Total % Cover of Multiply by
		= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				x 2 Dominance Test is >50%
9				$\frac{1}{2}$ - Dominance results > 50 %
		= Total Cove	er	5 - Flevalence Index is \$5.0
50% of total cover:	20% of	total cover:		4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5)				data in Remarks or on a separate sheet)
1. Panicum virgatum	80	D	FAC	Problematic Hydrophytic Vegetation' (Explain)
2. Polvaonum hydropiperoides	10	ND	FACW	
3				¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				Definitions of Four Vegetation Strata:
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
		·		neight.
0		·		Sapling/Shrub – Woody plants, excluding vines, less
9		·		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		·		111 <i>)</i> tan.
11		·	<u> </u>	Herb – All herbaceous (non-woody) plants, regardless
	90	= Total Co	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2		. <u> </u>	<u> </u>	
3		. <u> </u>		
4				Hydrophytic
5				Vegetation
		= Total Cove	er	Present? Yes <u>X</u> No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Desc	ription: (Describe to	the depth	needed to docun	nent the ir	ndicator	or confirm	n the absence	of indicators.)		
Depth	Matrix		Redox	K Features						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-8	5YR3/2-3						Clay Loam			
8-20	5YR4/3						Clay Loam			
$\frac{1}{1}$ Type: C=Cc		tion RM=E	educed Matrix MS	-Masked	Sand Gra	ine	² Location: P		M=Matrix	
Hydric Soil I	ndicators:			-maskea			Indic	ators for Proble	ematic Hydi	ric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A10)	(MLRA 147	')
Histic Ep	ipedon (A2)		Polyvalue Be	ow Surfac	e (S8) (N	ILRA 147,	148) (Coast Prairie Re	dox (A16)	
Black His	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)		(MLRA 147, 1	48)	
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F	-2)		F	Piedmont Floodp	lain Soils (F	19)
Stratified	Layers (A5)		Depleted Mat	rix (F3)				(MLRA 136, 1	47)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark S	Surface (F	6)		\	ery Shallow Da	rk Surface (1	FF12)
Depleted	Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		<u>_X</u>	Other (Explain i	in Remarks)	
Thick Da	rk Surface (A12)		Redox Depre	ssions (F8	5) /= / a \ //					
Sandy M	ucky Mineral (S1) (LF	KR N,	Iron-Mangane	ese Masse	es (F12) (I	LRR N,				
Sandy G	leved Matrix (S4)		Umbric Surfa	7) re (E13) (I	MI RA 13	6 122)	³ Inc	licators of hydro	nhytic veget	ation and
Sandy B	edox (S5)		Piedmont Flo	odplain Sc	oils (F19)	(MLRA 14	18) we	etland hydrology	must be pre	esent
Stripped	Matrix (S6)		Red Parent M	laterial (F2	21) (MLR	A 127, 147	7) un	less disturbed o	r problemati	C.
Restrictive L	ayer (if observed):				, ,					
Туре:										
Depth (inc	:hes):						Hydric Soi	Present? Ye	es	No <u>x</u>
Remarks:										
Red parent r	naterial.									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: 4/4/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C2 - W2C
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): Con	slope (%): 2
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NV	VI classification:
Are climatic / hydrologic conditions on the site typical for this tin	ne of year? Yes <u>x</u> No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrologysigni	ificantly disturbed? N Are "Normal Circu	mstances" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil _X, or Hydrology nat	turally problematic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map she	owing sampling point locations, tr	ansects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes X	No
Remarks:					
Red Parent Material.					

Wetland Hydrology Indicat	ors:				Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is require	ed; check all that app	ly)		Surface Soil Cracks (B6)
X Surface Water (A1)			Sparsely Vegetated Concave Surface (B8)		
X High Water Table (A2)		Hydrogen	Sulfide Odor (C1)		Drainage Patterns (B10)
X Saturation (A3)		Oxidized F	Rhizospheres on Living	Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)		Presence of	Reduced Iron (C4)		Dry-Season Water Table (C2)
Sediment Deposits (B2)		Recent Iron	Reduction in Tilled So	ils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)		Thin Muck S	Surface (C7)		Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		Other (Expl	ain in Remarks)		Stunted or Stressed Plants (D1)
Iron Deposits (B5)					X Geomorphic Position (D2)
Inundation Visible on Ae	rial Imagery (B7)			Shallow Aquitard (D3)
Water-Stained Leaves (I	B9)				Microtopographic Relief (D4)
Aquatic Fauna (B13)					FAC-Neutral Test (D5)
Field Observations:					
Surface Water Present?	Yes X	No Depth (in	ches <u>): 6"</u>		
Water Table Present?	Yes X	No Depth (in	ches <u>): surface</u>		
Saturation Present? (includes capillary fringe)	Yes X	No Depth (in	ches <u>): surface</u>	Wetland H	ydrology Present? Yes <u>X</u> N <u>o</u>
Describe Recorded Data (str	eam gauge, mor	nitoring well, aerial pl	otos, previous inspect	tions), if avai	ílable:
Remarks:					

Sampling Point: C2-W2C

	Absolute	Dominant I	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: _2(A)
2				Tatal Number of Dominant
3.				Species Across All Strata: 2 (B)
4				(=)
5				Percent of Dominant Species
<u> </u>		·		Inat Are OBL, FACW, or FAC: <u>100</u> (A/B)
0		·		Prevalence Index worksheet:
7		·		Total % Cover of Multiply by
		= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACVV species X 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5				
6				Prevalence Index = B/A =
			·	Hydrophytic Vegetation Indicators:
[/		. <u> </u>	·	1 - Rapid Test for Hydrophytic Vegetation
8		·		x 2 - Dominance Test is >50%
9				$3 - Prevalence Index is \leq 30^{1}$
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		deta in Demarka er on a congrate shoot)
Herb Stratum (Plot size: 5')				
1. Phalaris arundinacea	60	D	FACW	Problematic Hydrophytic Vegetation' (Explain)
2 Panicum virgatum	40	D	FAC	
3			<u> </u>	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4		·		Definitions of Four Vegetation Strata:
5		·		Tree – Woody plants, excluding vines, 3 in, (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				Senling/Shrub Woody planta avaluding vines loss
9				than 3 in DBH and greater than or equal to 3 28 ft (1
10.				m) tall.
11				
	100	= Total (Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	20% of	total cover:	JUVEI	
Weedu Vine Stratum (Plat size)	20 /0 01			Woody vine - All woody vines greater than 3.28 ft in
				height.
1		·		
2				
3				
4				Hydrophytic
5				Vegetation
	:	= Total Cove	er	Present? Yes X No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet)			
	0.1001.)			

Profile Desc	ription: (Describe t	o the dept	h needed to docur	nent the i	ndicator	or confirr	n the absence of ir	ndicators.)	
Depth	Matrix		Redo	x Feature	S				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-4	5YR3/3	65	5YR4/2	35	D	M	Clay Loam	_	
4-20	5YR3/3	100					Clay		
	·		<u> </u>						
	·								
							<u> </u>		
¹ Type: C=Co	ncentration, D=Deple	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL=Po	pre Lining, M=Matrix.	3
Hydric Soil I	ndicators:						Indicators	for Problematic Hydric S	ioils":
Histosol	(A1)		Dark Surface	e (S7)			2 cm I	Muck (A10) (MLRA 147)	
Histic Ep	ipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147	, 148) Coast	Prairie Redox (A16)	
Black His	stic (A3)		Thin Dark Su	irface (S9)) (MLRA 1	47, 148)	(ML	_RA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		Piedm	ont Floodplain Soils (F19)	
Stratified	Layers (A5)		Depleted Ma	trix (F3)			(ML	_RA 136, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface (F	6)		Very S	Shallow Dark Surface (TF12	2)
Depleted	Below Dark Surface	e (A11)	Depleted Date	rk Surface	(F7)		Other	(Explain in Remarks)	
Thick Da	irk Surface (A12)		Redox Depre	essions (F	8)				
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Mass	es (F12) (I	LRR N,			
MLRA	147, 148)		MLRA 13	6)			3		
Sandy G	leyed Matrix (S4)		Umbric Surfa	ice (F13) (MLRA 13	6, 122)	Indicato	rs of hydrophytic vegetation	n and
Sandy R	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 1	48) wetland	I hydrology must be presen	it,
Stripped	Matrix (S6)		x Red Parent	Material (F21) (MLF	RA 127, 1	47) unless	disturbed or problematic.	
Restrictive L	ayer (if observed):								
Туре:									
Depth (inc	ches):						Hydric Soil Pres	sent? Yes <u>x</u> No	<u>></u>
Remarks:									
Red parent r	material and dense cl	ay texture.							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: <u>C2-W3A</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification:
Are climatic / hydrologic conditions on the site typical for this tir	ne of year? Yes <u>x</u> No (If no, exp	plain in Remarks.)
Are Vegetation, Soil, or Hydrologysign	ificantly disturbed? Are "Normal Circumst	tances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology nat	turally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) X Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	Image Patterns (B10) Roots (C3) Moss Trim Lines (B16) Image Patterns (B10) Moss Trim Lines (B16) Image Patterns (B10) Image P
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes <u>X</u> N <u>o</u>
Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective	Wetland Hydrology Present? Yes X No

Sampling Point: C2-W3A

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1)	<u>% Cover</u>	<u>Species?</u>	<u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2 3				Total Number of Dominant Species Across All Strata: (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:00 (A
6		. <u></u>		Provalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cov	er	$\frac{1}{10000000000000000000000000000000000$
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				
1				
2				FACU species x 4 =
3				OPL species X 5 =
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
0				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				<u>x</u> 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
		= Total Cov	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Panicum virgatum	70	D	FAC	
2. <u>Phalaris arundinacea</u> 3	30	D	FACW	¹ Indicators of hydric soil and wetland hydrology must
4				Definitions of Four Vegetation Strata:
5	_			Semilions of Four Vegetation officia.
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	100	= Total	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				Li droph tio
5.				Vegetation
		= Total Cov	er	Present? Yes <u>x</u> No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			
	,			

SOIL	
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Profile Desc	cription: (Describe to	o the dep	h needed to docur	nent the i	indicator	or confirm	n the absence of indicators.)
Depth	Matrix		Redo	x Feature	s		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-4	5YR4/3	90	5YR4/4	10	С	Μ	<u>Clay l</u> o <u>am</u>
4-12	5YR4/3	70	5YR4/2	20	D	Μ	Clay Loam
			5 Y R 4 / 6	10	С	PL	
12-22	5YR4/3	50	5YR4/2	50	D	М	Clay loam
<u> </u>							
¹ Type: C=C	oncentration, D=Deple	etion, RM=	Reduced Matrix, MS	S=Masked	d Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cm Muck (A10) (MLRA 147)
Histic E	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147	, 148) Coast Prairie Redox (A16)
Black H	istic (A3)		Thin Dark Su	rface (S9) (MLRA 1	47, 148)	(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	d Matrix ((F2)		Piedmont Floodplain Soils (F19)
Stratifie	d Layers (A5)		Depleted Mar	trix (⊢3) Deurfalaa (1			(MLRA 136, 147)
	JCK (A10) (LRR N) d Bolow Dork Surface	(11)	Redox Dark :	Surface (F	-6) \(E7)		Very Shallow Dark Surface (TF12)
Depiete	u Below Dark Surface	(ATT)			= (F/) EQ)		
Sandy M	dik Sullace (A12) Jucky Mineral (S1) (L1		Iron-Mangan	essions (i See Mass	65 (F12) (I		
	A 147, 148)	i i i i i i	MLRA 13	6)	00 (1 12) (1	,	
Sandy C	Gleved Matrix (S4)		Umbric Surfa	ce (F13)	(MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation and
Sandy F	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	48) wetland hydrology must be present.
Stripped	Matrix (S6)		x Red Parent	Material (F21) (MLF	RA 127, 14	47) unless disturbed or problematic.
Restrictive	Layer (if observed):						
Туре:							
Depth (in	ches):						Hydric Soil Present? Yes <u>x</u> No
Remarks:							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C2-W3B
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI @	classification:
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes <u>x</u> No (If no, expl	lain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	ficantly disturbed? Are "Normal Circumsta	nces" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology natu	urally problematic? (If needed, explain an	y answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

wettand hydrology indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No X</u> Depth (inches):	
Water Table Present? Yes X No Depth (inches):18"	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	tions) if available
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	tions), if available:

Sampling Point: C2-W3B

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6		·	·	Brouglange Index worksheet:
7			·	Total % Cover of: Multiply by:
		= Total Cov	rer	OBL species x1 =
50% of total cover:	20% of	total cover	·	EACW species x 2 =
Sapling/Shrub Stratum (Plot size: 15')		5	54014	FAC species x3 =
1. Quercus palustris	15	D	FACW	
2		·	·	
3		·	· <u> </u>	Column Totals: (A) (B)
4			·	
5		·	·	Prevalence Index = B/A =
0		·	·	Hydrophytic Vegetation Indicators:
7		·	·	1 - Rapid Test for Hydrophytic Vegetation
8		·	· <u> </u>	<u>x</u> 2 - Dominance Test is >50%
9				3 - Prevalence Index is $≤3.0^1$
50% of total cover:	<u>15</u> 20% of	= I otal C	over	4 - Morphological Adaptations ¹ (Provide supporting
S0% of total cover.	20% 01		·	data in Remarks or on a separate sheet)
1 Denieum virgetum	00	Р	EAC	Problematic Hydrophytic Vegetation ¹ (Explain)
	00			
2. Acelonica incorrecto				¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
4		·	·	Definitions of Four Vegetation Strata:
5		·	·	Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0		·	· <u> </u>	more in diameter at breast height (DBH), regardless of
/		·	·	neight.
8		·	·	Sapling/Shrub – Woody plants, excluding vines, less
9		·	· <u> </u>	than 3 in. DBH and greater than or equal to 3.28 ft (1
10		·	·	
11	100	- Total	Cover	Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	20% of	total cover	Cover	or size, and woody plants less than 5.20 it tail.
Woody Vine Stratum (Plot size:)				Woody vine – All woody vines greater than 3.28 ft in height.
2		·	·	
3		·		
4		·		
5				Hydrophytic Vogetation
··		= Total Cov		Present? Yes <u>x</u> No
50% of total cover:	20% of	f total cover		
Remarks: (Include photo numbers here or on a separate	sheet)		·	
	onoot.)			

Profile Desc	cription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirr	n the absence of	indicators.)	
Depth	Matrix		Redo	x Features	s				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-8	5YR4/3	50	5YR3/4	50	C	M	Clay loam		
8-20	5YR3/4	100					Clay loam		
				·					
1							2		
'Type: C=C	oncentration, D=Deple	etion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	Location: PL=P	Pore Lining, M=Matrix.	dria Caila ³ .
Hydric Soli	indicators:			(07)			indicato	rs for Problematic Hy	aric Solis :
Histosol	(A1)		Dark Surface	(S7) Iour Surfa			2 cm	1 MUCK (A10) (MLRA 1 at Drairia Daday (A16)	47)
	pipedon (AZ)		Polyvalue Be	rfaco (SQ)		12KA 147	(146) <u>(</u> Ua	SI PIAIRE REGOX (A 16)	
Black Th	Suc(A3)			d Matrix (47, 140)	(N Pied	Imont Floodolain Soils	(E19)
Tryutoge	d Lavers (Δ5)		Depleted Mat	riv (E3)	12)		1 ieu	ΠΙ RA 136 147)	(113)
Oranie			Depicted Wat	Surface (F	6)		Verv	Shallow Dark Surface	(TE12)
2 cm Mit	d Below Dark Surface	(A11)	Depleted Dark	k Surface	(F7)		Very Othe	r (Explain in Remarks)
Depicter	ark Surface (A12)	(,,,,)	x Redox Depr	essions (F	=8))
Sandy M	Aucky Mineral (S1) (RR N	Iron-Mangan	ese Mass	es (F12) (RR N			
<u> </u>	A 147. 148)	,	MLRA 13	6)		,			
Sandy C	Gleved Matrix (S4)		Umbric Surfa	-, ce (F13) (MLRA 13	6, 122)	³ Indica	tors of hydrophytic vec	etation and
Sandy F	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 1	48) wetla	nd hydrology must be	present,
Stripped	Matrix (S6)		x Red Parent	Material (F21) (MLF	RA 127, 1	47) unle	ss disturbed or probler	natic.
Restrictive	Layer (if observed):								
Туре:									
Depth (in	ches):						Hydric Soil Pr	esent? Yes <u>x</u>	No
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/21/14</u>
Applicant/Owner: USACE	State:N	IJ Sampling Point: <u>C2-W3C</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>none</u>	<u>S</u> lope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI clas	ssification:
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes <u>x</u> No (If no, explain	n in Remarks.)
Are Vegetation, Soil, or Hydrology signi	ficantly disturbed? Are "Normal Circumstance	es" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology natu	urally problematic? (If needed, explain any a	answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes X	No
Remarks: Red parent material.					

Drimony Indicators (minimum of one is required; sheet, all that apply)	Secondary indicators (minimum of two required)
Primary indicators (initiation of one is required, check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled S X Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	 Sparsely Vegetated Concave Surface (B8) x Drainage Patterns (B10) g Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) oils (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) x Geomorphic Position (D2) Shallow Aquitard (D3) x Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes <u>No x</u> Depth (inches):	
Saturation Present? Yes <u>No x</u> Depth (inches):	Wetland Hydrology Present? Yes <u>x</u> No
(includes capillary fringe)	
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	ctions), if available:

Sampling Point: C2-W3C

	Absolute Dominant Indicator	Dominance Test worksheet:					
Tree Stratum (Plot size:)	<u>% Cover Species? Status</u>	Number of Dominant Species					
1		That Are OBL, FACW, or FAC: (A)					
2		Total Number of Dominant					
3		Species Across All Strata: <u>1</u> (B)					
4		Percent of Dominant Spacing					
5		That Are OBL, FACW, or FAC: 100 (A/B)					
6		()					
7		Prevalence Index worksheet:					
	= Total Cover	Total % Cover of: Multiply by:					
50% of total cover:	20% of total cover:	OBL species x 1 =					
Sapling/Shrub Stratum (Plot size:)		FACW species x 2 =					
1.		FAC species x 3 =					
2.		FACU species x 4 =					
3		UPL species x 5 =					
<u>.</u>		Column Totals: (A) (B)					
4							
0		Prevalence Index = B/A =					
0	<u> </u>	Hydrophytic Vegetation Indicators:					
7		1 - Rapid Test for Hydrophytic Vegetation					
8		x 2 - Dominance Test is >50%					
9		3 - Prevalence Index is ≤3.0 ¹					
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting					
50% of total cover:	20% of total cover:	data in Remarks or on a senarate sheet)					
Herb Stratum (Plot size: 5')		Broblematic Hydrophytic Vegetation ¹ (Evaluation)					
1. Panicum virgatum	<u>100 D FAC</u>						
2		1					
3		Indicators of hydric soil and wetland hydrology must					
4.		Definitions of Four Vagetation Strate:					
5		Demnitions of Four vegetation Strata:					
6		Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or					
7		more in diameter at breast height (DBH), regardless of					
7		neight.					
0		Sapling/Shrub – Woody plants, excluding vines, less					
9		than 3 in. DBH and greater than or equal to 3.28 ft (1					
10							
11		Herb – All herbaceous (non-woody) plants, regardless					
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.					
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in					
Woody Vine Stratum (Plot size:)		height.					
1							
2							
3							
4		Hydrophytic					
5.		Vegetation					
	= Total Cover	Present? Yes <u>x</u> No					
50% of total cover:	20% of total cover:						
Remarks: (Include photo numbers here or on a separate sheet)							
Depth (inches) Matrix Redox Features 0-12 5YR4/3 60 5YR4/4 40 C M C a y o a m 0-12 5YR4/3 60 5YR4/4 40 C M C a y o a m 12-18 5YR3/2 60 5YR3/4 40 C M C a y o a m 12-18 5YR3/2 60 5YR3/4 40 C M C a y o a m							
--	--	--	--	--	--	--	--
(inches) Color (moist) % Type1 Loc2 Texture Remarks 0-12 5YR4/3 60 5YR4/4 40 C M C I a y I o a m -12 5YR4/3 60 5YR4/4 40 C M C I a y I o a m -12.18 5YR3/2 60 5YR3/4 40 C M C I a y I o a m -12.18 5YR3/2 60 5YR3/4 40 C M C I a y I o a m							
0-12 5YR4/3 60 5YR4/4 40 C M C a y o a m 12-18 5YR3/2 60 5YR3/4 40 C M C a y o a m 12-18 5YR3/2 60 5YR3/4 40 C M C a y o a m							
12-18 5YR3/2 60 5YR3/4 40 C M C a y o a m							
Image: Indicators: Indicators: Image: Indicators: Indicators: Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Image: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Image: Indicators for Problematic Hydric Soils ³ : Image: Indicators: Image: Indicator for Problematic Hydric Soils ³ : Image: Indicator for Problematic Hydric Soils Image: Indicator for Problematic Hydric Soils ³ : Image: Indicator for Problematic Hydric Soils Image: Indicator for Problematic Hydric Soils ³ : Image: Indicator for Problematic Hydric Soils Image: Indicator for Problematic Hydric Soils ³ : Image: Indicator for Problematic Hydric Soils							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
Hydric Soil Indicators: Indicators for Problematic Hydric Soils ³ :							
Black Histic (A3)Inin Dark Surface (S9) (MLRA 147, 148) (MLRA 147, 148)							
Hvidrodon Sulfido (1/1) Loomy (Elovid Matrix (E1)) Diodmont Eloodolain Soile (E10)							
Stratified Layers (A5) Depleted Matrix (F3) (MLRA 136, 147)							
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)							
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks)							
Thick Dark Surface (A12) Redox Depressions (F8)							
Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N,							
MLRA 147, 148) MLRA 136)							
Sandy Glevel Matrix (S4) Umbric Surface (E13) (MLRA 136 122) ³ Indicators of hydrophytic vegetation and							
Sandy Podey (S5) Didmont Elocation (110) (mileter 100, 122) million di deploya vegetatati and							
Salidy Kedok (SS) Fredholin Holdpain Suis (FB) (MLKA 146) wetalia hydrology hids: to present,							
Restrictive Layer (if observed):							
Type:							
Depth (inches): Hydric Soil Present? Yes _ x No							
Remarks:							
Creation of hummocks and exacerbation via alluvial flows has distubed lower portion of soil profile. Upper portion subject to deposition and scour.							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State:	JSampling Point: C3 - U1
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%): <u>6</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI class	sification:
Are climatic / hydrologic conditions on the site typical for this time of	of year? Yes <u>x</u> No (If no, explain	in Remarks.)
Are Vegetation, Soil, or Hydrology significa	antly disturbed? Are "Normal Circumstance	es" present? Yes <u>x</u> No
Are Vegetation, Soil _X, or Hydrology natura	ally problematic? (If needed, explain any a	nswers in Remarks.)
SUMMARY OF FINDINGS Attach site man about	ving compling point locations, transp	ata important faaturaa ata

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) ills (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No X</u> Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present? Yes <u>No X</u> Depth (inches <u>):</u> (includes capillary fringe)	Wetland Hydrology Present? Yes No X
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
Remarks:	

Sampling Point: C3-U1

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Species? Status</u>	Number of Dominant Species
1		That Are OBL, FACW, or FAC: (A)
2.		
3		I otal Number of Dominant Species Across All Strata: 0 (B)
۰		
		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: 0 (A/B)
6		Prevalence Index worksheet
7		Total % Cover of:
	= Total Cover	
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)		FACW species x 2 =
1		FAC species x 3 =
2.		FACU species x 4 =
3		UPL species x 5 =
		Column Totals: (A) (B)
4		
5		Prevalence Index = B/A =
6		Hydrophytic Vegetation Indicators:
7		1 - Ranid Test for Hydronhytic Vegetation
8		1 - Rapid rest for Hydrophytic Vegetation
9.		
	= Total Cover	3 - Prevalence Index is ≤3.0°
50% of total cover:	20% of total cover:	4 - Morphological Adaptations ¹ (Provide supporting
Horb Stratum (Diot size: E'		data in Remarks or on a separate sheet)
		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Artemisia vulgaris	<u>100 D UPL</u>	
2		¹ Indicators of hydric soil and wetland hydrology must
3		be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata
5		
6.		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7		more in diameter at breast height (DBH), regardless of
7		neight.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:)		Woody vine – All woody vines greater than 3.28 ft in height
1		
·		
2		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>No X</u>
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	l
······		

Profile Desc	ription: (Describ	e to the dep	th needed to docur	nent the ind	icator c	or confirm	the absence of inc	licators.)	
Depth	Matrix		Redo	x Features					
(inches)	Color (moist)	%	Color (moist)	<u>%</u> 1	Гуре ¹	Loc ²	Texture	Remar	ks
0-20	7.5YR3/3	100					Silt loam		
						·			
·									
				<u> </u>					
						·			
					<u> </u>	<u> </u>			
'Type: C=C	oncentration, D=De	epletion, RM=	Reduced Matrix, MS	S=Masked Sa	and Gra	ins.	² Location: PL=Por	e Lining, M=Mat	rix.
Hydric Soil	Indicators:						Indicators	or Problematic	Hydric Soils":
Histosol	(A1)		Dark Surface	e (S7)			2 cm M	uck (A10) (MLR	A 147)
Histic El	bipedon (A2)		Polyvalue Be	low Surface	(S8) (M	LRA 147,	148) Coast F	Prairie Redox (A	16)
Black Hi	Stic (A3)			Ifface (S9) (N		47, 148)	(MLI Diadrad	KA 147, 148)	
			Loany Gleye	triv (E2))			ni Fiooupiain So	JIIS (F 19)
3uauneo			Depleted Ma	Surface (F6)			(IVILI Verv Sl	vallow Dark Surf	ace (TE12)
Deplete	d Below Dark Surfa	ace (A11)	Depleted Dark	rk Surface (F	7)		Other (Explain in Rema	rks)
Thick Da	ark Surface (A12)		Redox Depre	essions (F8)	.,		<u> </u>		
Sandy N	lucky Mineral (S1)	(LRR N,	Iron-Mangan	ese Masses	(F12) (L	.RR N,			
MLR	A 147, 148)		MLRA 13	6)	. , .				
Sandy C	Gleyed Matrix (S4)		Umbric Surfa	ice (F13) (ML	.RA 136	6, 122)	³ Indicator	s of hydrophytic	vegetation and
Sandy F	Redox (S5)		Piedmont Flo	odplain Soils	s (F19) ((MLRA 14	8) wetland	hydrology must	be present,
Stripped	Matrix (S6)		Red Parent N	Aaterial (F21)) (MLRA	A 127, 147) unless d	sturbed or probl	ematic.
Restrictive	Layer (if observed	d):							
Туре:									
Depth (in	ches):						Hydric Soil Pres	ent? Yes	<u>No x</u>
Remarks:							1		

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/4/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: C3 - U2
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI c	classification:
Are climatic / hydrologic conditions on the site typical for this tir	ne of year? Yes <u>x</u> No (If no, expla	ain in Remarks.)
Are Vegetation, Soil X, or Hydrology sig	nificantly disturbed? Are "Normal Circumst	tances" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil, or Hydrology natu	Irally problematic? (If needed, explain any	answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Primary Indicators (minimum of one is required; check all that apply) Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) oils (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aguitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No <u>x</u> Depth (inches):	
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches):	
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) Yes No _x Depth (inches):	Wetland Hydrology Present? Yes No <u>x</u>
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) No _x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes No <u>x</u>

Sampling Point: <u>C3-U2</u>

	Absolute	Dominant In	dicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	<u>Status</u>	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3.				Species Across All Strata: (B)
4				
5				Percent of Dominant Species
<u> </u>				That Are OBL, FACW, or FAC: (A/B)
0		<u> </u>		Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
		= Total Cover		OBL species x 1 =
50% of total cover:	20% of	total cover:	<u> </u>	
Sapling/Shrub Stratum (Plot size:)				
1				FAC species x 3 =
2				FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5.				
6				
7				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9		<u> </u>		3 - Prevalence Index is ≤3.0 ¹
		= Total Cover		4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: <u>5'</u>)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Poa sp.	99	D	NI	
2. <u>Solidago sp.</u>	1	ND	NI	1
3.				Indicators of hydric soil and wetland hydrology must
4.				Definitions of Four Verstation Strate:
5				Definitions of Four vegetation Strata:
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
/				neight.
8				Sapling/Shrub – Woody plants, excluding vines, less
9			<u> </u>	than 3 in. DBH and greater than or equal to 3.28 ft (1
10		<u> </u>		m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	100	= Total Co	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Weedy vine All weedy vince greater than 2.29 ft in
Woody Vine Stratum (Plot size:)				height
1.				
2.				
3				
0				
+				Hydrophytic
o				Vegetation Present? Ves No v
		= Total Cover		
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox	Features				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture R	Remarks
0-20	7.5YR3/3	100					Silt Loam	
		<u> </u>	<u> </u>					
		· ·						
<u> </u>		<u> </u>					·	
		·	· ·					
·								
¹ Type: C=Co	oncentration, D=Depl	etion, RM=I	Reduced Matrix, MS=	Masked \$	Sand Gra	ains.	² Location: PL=Pore Lining, N	/I=Matrix.
Hydric Soil I	ndicators:						Indicators for Proble	ematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface (S7)			2 cm Muck (A10)	(MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Belo	w Surface	e (S8) (M	LRA 147,	148) Coast Prairie Red	lox (A16)
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(MLRA 1	47, 148)	(MLRA 147, 14	18)
Hydroge	n Sulfide (A4)		Loamy Gleyed	Matrix (F	2)		Piedmont Floodpl	ain Soils (F19)
Stratified	I Layers (A5)		Depleted Matrix	x (F3)			(MLRA 136, 14	47)
2 cm Mu	ck (A10) (LRR N)		Redox Dark Su	Irface (F6	S)		Very Shallow Darl	k Surface (TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dark	Surface ((F7)		Other (Explain in I	Remarks)
Thick Da	ark Surface (A12)		Redox Depress	sions (F8)) - (E40) (I			
		KK N,	Iron-Manganes	e masses	s (F12) (LKK N,		
WILKA Sondy C	(147, 140)		WILKA 130)	(E12) /N	AL DA 42	6 422)	³ Indicators of hydror	abutic vocatation and
Sandy B	odox (S5)		Unblic Surface	(F13) (N dalain Sa		0, 122) (MI DA 14	8) wotland bydrology	
Strinned	Matrix (S6)		Red Parent Ma	torial (F2	1) (MI R	Δ 127 147	() unless disturbed or	nusi de present,
Restrictive I	aver (if observed):					- 1 - 1, 1-1		problemato.
Type:								
Type								
Depth (Inc	cnes):						nyaric Soli Present? Yes	sNO <u>_X</u>
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater</u> , Somers	set Sampling Date: 4/4/14
Applicant/Owner: USACE	Stat	e: <u>NJ</u> Sampling Point: <u>C3 - W1</u>
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	None Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of	f year? Yes <u>x</u> No (If nc	, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significar	ntly disturbed? Are "Normal Circi	umstances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed, explai	n any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> M Yes <u>X</u> M Yes <u>X</u> M	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	<u>(</u>	No
Remarks:						

Trolland Hydrology maloatoron	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
x Surface Water (A1)	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 8	
Mater Table Decard (in the second sec	
Water Table Present? Yes <u>x</u> No Depth (inches): surface	
Water Table Present? Yes x No Depth (inches): surface Saturation Present? Yes x No Depth (inches): surface (includes capillary fringe) Inches Inches	Wetland Hydrology Present? Yes <u>x</u> No
Water Table Present? Yes x No Depth (inches): surface Saturation Present? Yes x No Depth (inches): surface (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	Wetland Hydrology Present? Yes _x No tions), if available: Item (Second Second Se

Sampling Point: C3-W1

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover	Species?	Status	Number of Dominant Species
1. Betula nigra	15	<u> </u>	ACW	That Are OBL, FACW, or FAC: (A)
2				Total Number of Deminent
3.				I otal Number of Dominant Species Across All Strata: 2 (B)
4				
5				Percent of Dominant Species
<u> </u>				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
b				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
	15	= Total Co	over	
50% of total cover: <u>7</u> .	<u>5</u> 20%	of total cov	er: 3	
Sapling/Shrub Stratum (Plot size: 15)				FACW species x 2 =
1. Amorpha fruticosa	< 1	ND	FACW	FAC species x 3 =
2. <u>Salix sp.</u>	2	ND	NI	FACU species x 4 =
3. Quercus palustris	2	ND	FACW	UPL species x 5 =
4				Column Totals: (A) (B)
5				
<u> </u>				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7			<u> </u>	1 - Rapid Test for Hydrophytic Vegetation
8			. <u> </u>	x 2 - Dominance Test is >50%
9				3 - Prevalence Index is < 3.01
	4	= Total Cov	/er	0 Installation index to 20.0
50% of total cover: 2	20% of to	otal cover:		4 - Morphological Adaptations (informe supporting
Herb Stratum (Plot size: 5)				data in Remarks of on a separate sneet)
1. Juncus effusus	35	D	FACW	Problematic Hydrophytic Vegetation' (Explain)
2 Phalaris arundinacea	5		FACW	
				¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
4			<u> </u>	Definitions of Four Vegetation Strata:
5				Tree Weedy plants excluding vines 3 in (7.6 cm) or
6				more in diameter at breast height (DBH), regardless of
7				height.
8				
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				
	- 10			Herb – All herbaceous (non-woody) plants, regardless
	40	= I otal Co	over	of size, and woody plants less than 5.26 it tail.
	20%	of total $cove$	<u>. o</u>	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				Hudrophytic
5.				Vegetation
		= Total Cove	۶r	Present? Yes X No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate s	heet)			
	neet.)			

Profile Desc	ription: (Describe	e to the dep	oth needed to docu	nent the	indicator	or confir	rm the absence	of indicators.)
Depth	Matrix		Redo	x Feature	s		_	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	7.5YR3/3	95	5YR3/4	5	С	M	Silt Loam	
5-17	7.5YR3/3	85	5YR3/4	15	С	Μ	Silt Loam	
					·			
					·			
1							2	
Type: C=Co	oncentration, D=De	pletion, RM	=Reduced Matrix, M	S=Maske	d Sand Gi	ains.	Location: Pl	L=Pore Lining, M=Matrix.
			Deals Orafe e	(07)			inuica	
Histosol	(A1)		Dark Surface	e (S7)			- ²	cm Muck (A10) (MLRA 147)
HISTIC Ep	ortic (A2)		Polyvalue Be		ice (58) (I	WLRA 14	7, 148) <u> </u>	
Black Hi	SIIC (A3)			Inace (59		147, 148)		(MLRA 147, 148)
Hyuroge Stratified			Loany Gleye	triv (E3)	(Г2)		F	
Stratinet			Depleted Ma	Surfaco (I	-6)		V	(WERA 130, 147)
2 cm wu	N Below Dark Surfa	co (A11)	Neulot Dalk	rk Surface	0) (F7)		_ `	ther (Explain in Remarks)
Depieted	ark Surface (A12)		Depieted Da	rk Suriace	= (1 <i>1)</i> :8)		0	
Thick Da	lucky Mineral (S1)				0) ee (E12)			
	147 148)			(6)	(i 12)	(= 1 (1 (1 (1 (
Sandy G	leved Matrix (S4)		Umbric Surf	ore (F13)	(MI RA 1)	36 122)	³ Ind	icators of hydrophytic vegetation and
Sandy R	(S5)		Piedmont Flo	odolain S	Soils (F19)	(MI RA 1	148) we	tland hydrology must be present
Stripped	Matrix (S6)		x Red Parent	Material	(F21) (ML	RA 127, ²	147) ur	nless disturbed or problematic.
Restrictive I	_ayer (if observed)):			. , .			·
Туре:								
Depth (ind	ches):						Hydric Soil	Present? Yes <u>x</u> No <u></u>
Remarks:							1	

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State:	NJ Sampling Point: C3 - W2
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI c	lassification:
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes <u>x</u> No (If no, expla	ain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	icantly disturbed? Are "Normal Circumstan	nces" present? Yes <u>x</u> No
Are Vegetation, Soil _ x, or Hydrology natu	arally problematic? (If needed, explain any	y answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)		
x Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)		
x Saturation (A3) Oxidized Rhizospheres on Living R	Roots (C3) Moss Trim Lines (B16)		
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)		
Sediment Deposits (B2) Recent Iron Reduction in Tilled Sc	ils (C6) Crayfish Burrows (C8)		
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)		
Water-Stained Leaves (B9)	Microtopographic Relief (D4)		
Aquatic Fauna (B13)	FAC-Neutral Test (D5)		
Field Observations:			
Surface Water Present? Yes x No Depth (inches): 6			
Water Table Present? Yes No Depth (inches):			
Saturation Present? Yes <u>x</u> No Depth (inches): surface	Wetland Hydrology Present? Yes <u>x</u> No		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	tions), if available:		
	,		
Remarks:			

Sampling Point: C3-W2

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4.				
5.				Percent of Dominant Species
6				That Ale OBL, FACW, OF FAC. 100 (A/B)
7			·	Prevalence Index worksheet:
1		Tatal Oas		Total % Cover of: Multiply by:
E0% of total action	200% of		er	OBL species x 1 =
	20% 01	total cover.		FACW species x 2 =
Sapling/Shrub Stratum (Plot size: 15)				
1. Quercus palustris	4	ND	FACW	
2			·	FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				
6.				
7				Hydrophytic Vegetation Indicators:
o				1 - Rapid Test for Hydrophytic Vegetation
0			·	<u>x</u> 2 - Dominance Test is >50%
9			·	3 - Prevalence Index is ≤3.0 ¹
	4	= Total Co	over	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Panicum virgatum	50	D	FAC	
2. Polygonum hydropiperoides	50	D	OBL	¹ Indiactors of hydric coil and watland hydrology must
3				be present unless disturbed or problematic
4				Definitions of Four Vegetation Strata:
5.				Demittons of Four Vegetation Strata.
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
7				neight.
8				Sapling/Shrub – Woody plants, excluding vines, less
9			·	than 3 in. DBH and greater than or equal to 3.28 ft (1
10			·	m) tan.
11				Herb – All herbaceous (non-woody) plants, regardless
	100	= Total	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover	·	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2.				
3				
4				
				Hydrophytic
- 5		Tatal Oas		Present? Yes X No
E0% of total cover:	20% of		er	
	20% 01		·	
Remarks: (Include photo numbers here or on a separate s	sheet.)			

Profile Desc	ription: (Describe	to the depth	n needed to docur	nent the i	ndicator	or confirm	the absence of indicators.)	
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-12	5YR3/2	90	5YR2/4	10	С	Μ	Silty Clay	
12-16	5YR3/4	100					Clay	
¹ Type: C=Co	oncentration, D=Dep	letion. RM=F	Reduced Matrix. MS	S=Masked	Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix,	
Hydric Soil	ndicators:		, ···-,				Indicators for Problematic Hydric Soils ³ :	
Histosol	(A1)		Dark Surface	(S7)			2 cm Muck (A10) (MLRA 147)	
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147,	148) Coast Prairie Redox (A16)	
Black Hi	stic (A3)		Thin Dark Su	rface (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)		Piedmont Floodplain Soils (F19)	
Stratified	l Layers (A5)		x Depleted Ma	atrix (F3)			(MLRA 136, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark	Surface (F	6)		Very Shallow Dark Surface (TF12)	
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		Other (Explain in Remarks)	
Thick Da	ark Surface (A12)		Redox Depression	ssions (F	3)			
Sandy M	lucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Masse	es (F12) (LRR N,		
MLRA	A 147, 148)		MLRA 13	6)				
Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation and	
Sandy R	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) wetland hydrology must be present,	
Stripped	Matrix (S6)		Red Parent N	Aaterial (F	21) (MLR	A 127, 147	unless disturbed or problematic.	
Restrictive I	_ayer (if observed):							
Туре:								
Depth (ind	ches):						Hydric Soil Present? Yes <u>x</u> No	_
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater</u> , Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State: <u>N</u>	JSampling Point: E2 - U1
Investigator(s): _JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI clas	sification:
Are climatic / hydrologic conditions on the site typical for this time o	of year? Yes <u>x</u> No (If no, explain	in Remarks.)
Are Vegetation, Soil, or Hydrology significa	ntly disturbed? Are "Normal Circumstance	es" present? Yes <u>x</u> No
Are Vegetation, Soil _ X, or Hydrology natural	Ily problematic? (If needed, explain any a	inswers in Remarks.)
SUMMARY OF EINDINGS Attach site man about	ing compling point locations, transp	ata important factures ata

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks:					
Red parent material.					

Secondary Indicators (minimum of two required)		
Surface Soil Cracks (B6)		
Sparsely Vegetated Concave Surface (B8)		
Drainage Patterns (B10)		
3) Moss Trim Lines (B16)		
Dry-Season Water Table (C2)		
Crayfish Burrows (C8)		
Saturation Visible on Aerial Imagery (C9)		
Stunted or Stressed Plants (D1)		
Geomorphic Position (D2)		
Shallow Aquitard (D3)		
Microtopographic Relief (D4)		
FAC-Neutral Test (D5)		
d Hydrology Present? Yes No <u>X</u>		
vailable:		

Sampling Point: E2-U1

	Absolute	Dominant I	ndicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: (A)
2				、,
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				
7.				Prevalence Index worksheet:
		= Total Cove	r	Total % Cover of:Multiply by:
50% of total cover:	20% of	total cover:	•1	OBL species x 1 =
Capling/Chrub Stratum (Dist size)	20 /0 01			FACW species x 2 =
				EAC species x 3 =
1				
2				FACU species x 4 =
3				UPL species x 5 =
4.				Column Totals: (A) (B)
5				
				Prevalence Index = B/A =
0				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9				$2 = \text{Dominance rest is \neq 50\%}$
		= Total Cove	r	3 - Prevalence index is \$3.0
50% of total cover:	20% of	total cover		4 - Morphological Adaptations' (Provide supporting
Horb Stratum (Diot aiza:	20 /0 01			data in Remarks or on a separate sheet)
		-		Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>Poa</u>	70	D	<u>NI</u>	
2. Ambrosia artemisiifolia	5	ND	FACU	¹ Indicators of hydric soil and wotland hydrology must
3. Ranunculus ficaria	10	ND	FAC	be present unless disturbed or problematic
4.				Definitions of Four Vegetation Strate
5				Deminions of Four vegetation Strata.
<u>.</u>				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0				more in diameter at breast height (DBH), regardless of
7				height.
8				Sanling/Shruh - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10.				m) tall.
11				
	05	- Total Ca		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall
50% of total covor: 42 F	<u> </u>	total covor: 1	7	
	20% 01		/	Woody vine - All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2				
3				
4				
5				Hydrophytic Venetation
- J				Present? Yes No X
50% (1.1.1		= Total Cove	er	
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate s	sheet.)			

SOIL

Profile Desc	ription: (Describe	to the depth	n needed to docun	nent the ind	licator c	or confirm	the absence	e of indicato	rs.)	
Depth	Matrix		Redo	x Features						
(inches)	Color (moist)	%	Color (moist)		Type ¹	Loc ²	Texture		Remarks	
0-4	5YR3/3	100						<u></u>		
4-15	5YR3/4	100						<u></u>		
	-	·								
		·								
		·								
		·								
		·								
		·			<u> </u>			·		
¹ Type: C=Co	ncentration, D=Dep	letion, RM=F	Reduced Matrix, MS	S=Masked Sa	and Gra	ins.	² Location: F	PL=Pore Linir	ng, M=Matrix.	
Hydric Soil I	ndicators:						Indic	ators for Pr	oblematic Hyd	tric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	2 cm Muck (A	(10) (MLRA 14	7)
Histic Ep	ipedon (A2)		Polyvalue Be	low Surface	(S8) (M	LRA 147,	148) (Coast Prairie	Redox (A16)	
Black His	stic (A3)		Thin Dark Su	rface (S9) (N	ILRA 1	47, 148)		(MLRA 14	7, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2	.)		F	Piedmont Flo	odplain Soils (F19)
Stratified	Layers (A5)		Depleted Mat	rix (F3)				(MLRA 13	6, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark S	Surface (F6)			`	Very Shallow	Dark Surface	(TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface (F	-7)		(Other (Explai	n in Remarks)	
Thick Da	rk Surface (A12)		Redox Depre	ssions (F8)	(540) (1					
		.RR N,			(F12) (L	.RR N,				
	147, 148)		WILRA 13	0) 00 (F12) (M I	DA 420	400)	³ In-	diantara of h	draphytic year	tation and
Sandy G			Unblic Sulla	ce (FIS) (IVIL adalaia Saila), 122) MIDA 44	e)	atland bydral		
Sanuy R	Matrix (S6)		Fleumont Flu	Jupiain Solis Astorial (E21)	5 (F19) () (MI D/	1912 RA 14	•o) w	elianu nyurui	ogy must be p	tic
Bestrictive I	aver (if observed):					X 1 <i>21</i> , 14 <i>1</i>) u			
Tuno:	ayer (il observeu).									
Type										
Depth (inc	nes):						Hydric Sol	Present?	res	NO <u>X</u>
Remarks:										

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/14/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: E2 - U2
Investigator(s): _JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI c	lassification:
Are climatic / hydrologic conditions on the site typical for this time o	of year? Yes <u>x</u> No (If no, expla	ain in Remarks.)
Are Vegetation, Soil, or Hydrology significa	ntly disturbed? Are "Normal Circumstar	nces" present? Yes <u>x</u> No
Are Vegetation, SoilX, or Hydrology natural	Ily problematic? (If needed, explain any	y answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ing sampling point locations, trans	sects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes YesX	No <u>X</u> No <u>X</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					
Red parent material.					

HYDROL	OGY
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Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)			
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) 	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Is (C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) 			
Field Observations:				
Surface Water Present? Yes <u>No x</u> Depth (inches):				
Water Table Present? Yes x No Depth (inches): 14"				
Saturation Present? Yes <u>x</u> No Depth (inches) <u>: 8"</u> (includes capillary fringe)	Wetland Hydrology Present? Yes X No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ons), if available:			
Remarks:				

US Army Corps of Engineers

Sampling Point: <u>E2-U2</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: 0 (A)
2				Total Number of Deminant
3.				Species Across All Strata: 1 (B)
4				
				Percent of Dominant Species
5		·		That Are OBL, FACW, or FAC: (A/B)
6		·	·	Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2.				FACU species x 4 =
3				UPL species x 5 =
۰				Column Totals: (A) (B)
4				
o		·		Prevalence Index = B/A =
6		·		Hydrophytic Vegetation Indicators:
7		·		1 - Rapid Test for Hydrophytic Vegetation
8				2 Dominanco Tost is >50%
9.				
		= Total Cove	er.	3 - Prevalence Index is ≤3.0°
50% of total cover	20% of	total cover	51	4 - Morphological Adaptations' (Provide supporting
Herb Stratum (Plot size:				data in Remarks or on a separate sheet)
	05	5		Problematic Hydrophytic Vegetation ¹ (Explain)
	95	<u> </u>	FACU	
2. Solidago sp.	5	<u>ND</u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must
3		. <u> </u>		be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6.				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
7			······	neight.
0		·	·	Sapling/Shrub – Woody plants, excluding vines, less
9		·	·	than 3 in. DBH and greater than or equal to 3.28 ft (1
10		. <u> </u>	. <u> </u>	m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	95	= Total Co	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		We achieve Allowed to its a superior that there 0.00 ft is
Woody Vine Stratum (Plot size:)				woody vine – All woody vines greater than 3.28 ft in height
1				noight.
2				
2				
3			·	
4		·		Hydrophytic
5		. <u> </u>		Vegetation
	. <u> </u>	= Total Cove	er	Present? Yes <u>No X</u>
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate s	sheet.)			
	,			

SOIL

Profile Desc	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redo	x Features						
(inches)	Color (moist)	%	Color (moist)	<u>%</u> T	ype ¹	Loc ²	Texture		Remarks	
0-8	2.5YR3/3	100								
8-15	5YR3/4	100								
							·			
							. <u></u>			
							·			
¹ Type: C=Co	oncentration, D=Depl	etion, RM=F	Reduced Matrix, MS	S=Masked Sa	nd Gra	ins.	² Location: PL=	Pore Linir	ig, M=Matrix.	
Hydric Soil I	ndicators:						Indicato	rs for Pr	oblematic Hy	/dric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cn	n Muck (A	10) (MLRA 1	47)
Histic Ep	ipedon (A2)		Polyvalue Be	low Surface (S8) (M I	LRA 147,	148) Coa	st Prairie	Redox (A16)	
Black Hi	stic (A3)		Thin Dark Su	rface (S9) (M	LRA 14	47, 148)	(N	/LRA 147	7, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)			Piec	Imont Flo	odplain Soils	(F19)
Stratified	Layers (A5)		Depleted Mat	trix (F3)			()	/LRA 130	5, 147)	
2 cm Mu	ck (A10) (LRR N)	()	Redox Dark S	Surface (F6)			Very Shallow Dark Surface (TF12)			
Depleted	Below Dark Surface	e (A11)	Depleted Dar	K Surface (F7	()			er (Explai	1 In Remarks)
Thick Da	lik Sullace (A12) lucky Mineral (S1) (I		Redux Depre	SSIUNS (FO) SSO Massas (1	E12) /I					
	147. 148)	IXIX IN,	MLRA 13	6)	1 12) (
Sandy G	leved Matrix (S4)		Umbric Surfa	-, ce (F13) (ML I	RA 136	5, 122)	³ Indica	tors of hv	drophytic veo	etation and
Sandy R	edox (S5)		Piedmont Flo	odplain Soils	(F19) (MLRA 14	8) wetla	nd hydrol	ogy must be	present,
Stripped	Matrix (S6)		Red Parent M	Aaterial (F21)	(MLRA	127, 147) unles	s disturbe	d or problem	atic.
Restrictive L	ayer (if observed):						-			
Туре:										
Depth (inc	hes):						Hydric Soil Pr	esent?	Yes	No <u>X</u>
Remarks:	-						-			

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	t Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: E2-U3
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain, toe of slope	_ Local relief (concave, convex, none): <u>C</u>	onvex, berm Slope (%): 3
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	N\	WI classification:
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes x No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrology signific	antly disturbed? Are "Normal Circum	nstances" present? Yes <u>x</u> No
Are Vegetation, Soil _x, or Hydrology natura	ally problematic? (If needed, explain	n any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)		
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)		
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)		
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)		
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)		
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	bils (C6) Crayfish Burrows (C8)		
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)		
Iron Deposits (B5)	Geomorphic Position (D2)		
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)		
Water-Stained Leaves (B9)	Microtopographic Relief (D4)		
Aquatic Fauna (B13)	FAC-Neutral Test (D5)		
Field Observations:			
Surface Water Present? Yes <u>No X</u> Depth (inches):			
Water Table Present? Yes <u>No X</u> Depth (inches):			
Saturation Present? Yes <u>No X</u> Depth (inches <u>):</u> (includes capillary fringe)	Wetland Hydrology Present? Yes No <u>X</u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:		
Remarks:			

Sampling Point: <u>E2-U3</u>

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover Species? Statu	s Number of Dominant Species
1. Robinia pseudoacacia	5 ND FACU	That Are OBL, FACW, or FAC: 0 (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
5		That Are OBL, FACW, or FAC: 0 (A/B)
6		
7		Prevalence Index worksheet:
	<u>5</u> = Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)		FACW species x 2 =
1		FAC species x 3 =
2		FACU species x 4 =
3.		UPL species x 5 =
4.		Column Totals: (A) (B)
5.		
6		Prevalence Index = B/A =
7		Hydrophytic Vegetation Indicators:
0		1 - Rapid Test for Hydrophytic Vegetation
o		2 - Dominance Test is >50%
9		$_$ 3 - Prevalence Index is $\leq 3.0^1$
50% of total covor:		4 - Morphological Adaptations ¹ (Provide supporting
Horb Stratum (Plot size:		data in Remarks or on a separate sheet)
1 Deleum protonoo		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phieum pratense	<u>100</u> <u>D</u> FACU	
2		¹ Indicators of hydric soil and wetland hydrology must
3		be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		Tree – Woody plants, excluding vines 3 in (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		Sanling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)		height.
1		
2		
3		
4		Ludrophytic
5.		Vegetation
	= Total Cover	Present? Yes <u>No x</u>
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	

SOIL

Profile Desc	cription: (Describe	to the dept	h needed to docur	nent the in	ndicator	or confirm	n the absence of in	dicators.)	
Depth	Matrix Redox Features								
(inches)	Color (moist)	<u> %</u>	Color (moist)	%	Type'	Loc ²	Texture	Remarks	
0-5	7.5YR3.4	100					SCL		
5-10	2.5YR3/3	100					SCL		
10-16	7.5YR3/3	100					SCL		
		- <u> </u>							
	-								
·		<u> </u>					·		
		- <u> </u>					<u></u>		
¹ Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL=Poi	e Lining, M=Matrix	
Hydric Soil	Indicators:			(a=)			Indicators	for Problematic H	ydric Soils":
Histosol	(A1)		Dark Surface	e (S7) Have Countra	- (CO) (N		2 cm N	luck (A10) (MLRA ′	47)
HISTIC E	pipedon (AZ)		Thin Dark Su	elow Surfac urface (SQ)	е (58) (IV / МІРА 1	ILKA 147, 47 148)	, 148) <u> </u>	Prairie Redox (A 16)	
Hydroge	en Sulfide (A4)		Loamy Gleve	ed Matrix (F	(IVILKA I - 2)	47, 140)	Piedmo	ont Floodolain Soils	(F19)
Stratifie	d Lavers (A5)		Depleted Ma	trix (F3)	2)		(ML)	RA 136. 147)	(110)
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface (F6	6)		Very S	hallow Dark Surface	e (TF12)
Deplete	d Below Dark Surfac	e (A11)	Depleted Da	rk Surface	, (F7)		Other (Explain in Remarks	
Thick Da	ark Surface (A12)		Redox Depre	essions (F8	5)				
Sandy N	/lucky Mineral (S1) (I	_RR N,	Iron-Mangan	ese Masse	s (F12) (I	LRR N,			
MLR	A 147, 148)		MLRA 13	6)					
Sandy G	Gleyed Matrix (S4)		Umbric Surfa	ice (F13) (MLRA 13	6, 122)	³ Indicator	s of hydrophytic ve	getation and
Sandy F	Redox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	48) wetland	hydrology must be	present,
Stripped	I Matrix (S6)		Red Parent N	Material (F2	21) (MLR	A 127, 14	7) unless d	isturbed or problem	atic.
Restrictive	Layer (if observed):								
Туре:									
Depth (in	ches):						Hydric Soil Pres	ent? Yes	No <u>X</u>
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State:	NJ Sampling Point: E2 - U4
Investigator(s):	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):C	oncave Slope (%): 10
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	classification:
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes <u>x</u> No (If no, ex	plain in Remarks.)
Are Vegetation, Soil, or Hydrologysig	gnificantly disturbed? no Are "Normal Circums	tances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology n	aturally problematic? (If needed, explain a	ny answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x No</u> Yes <u>No x</u> Yes <u>No x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks: Red parent material.				

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)			
Surface Water (A1)	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) 			
Field Observations:				
Surface Water Present? Yes <u>No x</u> Depth (inches):				
Water Table Present? Yes No _x _ Depth (inches):				
Saturation Present? Yes No x Depth (inches): Wetland (includes capillary fringe)	Hydrology Present? Yes No <u>x</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if a	vailable:			
Remarks:				

Sampling Point: <u>E2-U4</u>

	Absolute Dominant India	cator Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover Species? Sta</u>	tus Number of Dominant Species
1	·	That Are OBL, FACW, or FAC: (A)
2	·	Total Number of Dominant
3		Species Across All Strata: (B)
4	· · ·	Dercent of Deminant Species
5		That Are OBL, FACW, or FAC: 100 (A/B)
6		
7		Prevalence Index worksheet:
	= Total Cover	Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15)		FACW species x 2 =
1.		FAC species x 3 =
2.		FACU species x 4 =
3	·	UPL species x 5 =
<u>.</u>	· · ·	Column Totals: (A) (B)
т. <u></u>		
5	· · ·	Prevalence Index = B/A =
0		Hydrophytic Vegetation Indicators:
/	·	1 - Rapid Test for Hydrophytic Vegetation
8	· · ·	2 - Dominance Test is >50%
9	·	3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	 4 - Morphological Adaptations¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5)		Broblematic Hydrophytic Vegetation ¹ (Evplain)
1. Phalaris arundinacea	<u>100 D FA</u>	
2		
3		Indicators of hydric soil and wetland hydrology must
4.		Definitions of Four Vegetation Strata:
5.		
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7	·	more in diameter at breast height (DBH), regardless of
·		
<u>.</u>	· · ·	Sapling/Shrub – Woody plants, excluding vines, less
9	·	than 3 in. DBH and greater than or equal to 3.28 ft (1
10		
11	·	Herb – All herbaceous (non-woody) plants, regardless
	100 = Total Cove	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size: 10)		height.
1	·	
2	·	
3	·	
4	· · ·	Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>x</u> No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate s	sheet.)	

Profile Desc	ription: (Describe t	o the depth	needed to docur	nent the in	dicator o	or confirm	the absence o	f indicators.)	
Depth	Matrix		Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-18	5YR4/3	100					SCL		
				<u> </u>					
. <u> </u>									<u> </u>
				······································					
				<u> </u>					
<u> </u>							<u> </u>		
¹ Type: C=Co	oncentration, D=Depl	etion, RM=F	Reduced Matrix, MS	S=Masked S	Sand Gra	ains.	² Location: PL=	Pore Lining, M=Matrix.	
Hydric Soil I	ndicators:						Indicate	ors for Problematic Hy	dric Soils':
Histosol	(A1)		Dark Surface	(S7)			2 c	m Muck (A10) (MLRA 1 4	1 7)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surface	e (S8) (M	LRA 147,	148) <u> </u> Coa	ast Prairie Redox (A16)	
Black His	stic (A3)		Thin Dark Su	rface (S9) ((MLRA 1	47, 148)	((MLRA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F	2)		Pie	dmont Floodplain Soils (F19)
Stratified	I Layers (A5)		Depleted Ma	trix (F3)			((MLRA 136, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark \$	Surface (F6	5)		Ver	ry Shallow Dark Surface	(TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface (F7)		Oth	her (Explain in Remarks)	
Thick Da	ark Surface (A12)		Redox Depre	ssions (F8))				
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Masses	s (F12) (L	_RR N,			
MLRA	(147, 148)		MLRA 13	b) aa (F12) (N		6 400)	³ India	ators of hydrophytic year	station and
Sandy G	aday (SE)		Uniblic Suria	ce (FIS) (IV		0, 122) (MI DA 14)		alors of hydrophytic veg	recent
Sanuy R	Matrix (SS)		Pleamont Fig	Antorial (E2	1) (MI D	(IVILKA 14) A 127 147	o) wella	and flydrology must be p	resent,
Supped	aver (if observed):			ialeliai (FZ		4 127, 147) unie		
Turner	ayer (il observeu).								
Type:									
Depth (inc	cnes):						Hydric Soil P	resent? Yes	No <u>X</u>
Remarks:									
Red parent r	material present thou	ghout site.							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/21/14
Applicant/Owner: USACE	State:	NJ Sampling Point: E2 - W1
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NV	VI classification: <u>PEM1A / PUBHh</u>
Are climatic / hydrologic conditions on the site typical for this tin	ne of year? Yes <u>x</u> No (If no, e	explain in Remarks.)
Are Vegetation, Soil, or Hydrologysigni	ificantly disturbed? Are "Normal Circum	stances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natu	rally problematic? (If needed, explain a	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes X	No
Remarks:					

Wetland Hydrology Indicat	ors:				Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is re	equired; ch	eck all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)		Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2)		_	Hydrogen Sulfide Odor (C1)		Drainage Patterns (B10)
Saturation (A3)		_	Oxidized Rhizospheres on Livin	g Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)		_	Presence of Reduced Iron (C4)		Dry-Season Water Table (C2)
Sediment Deposits (B2)		_	Recent Iron Reduction in Tilled	Soils (C6)	Crayfish Burrows (C8)
X Drift Deposits (B3)		_	Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		_	Other (Explain in Remarks)		Stunted or Stressed Plants (D1)
Iron Deposits (B5)					Geomorphic Position (D2)
Inundation Visible on Ae	rial Imager	y (B7)			Shallow Aquitard (D3)
Water-Stained Leaves (I	B9)				Microtopographic Relief (D4)
Aquatic Fauna (B13)					<u>x</u> FAC-Neutral Test (D5)
Field Observations:					
Surface Water Present?	Yes	No	Depth (inches):		
Water Table Present?	Yes	No	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland	Hydrology Present? Yes <u>X</u> N <u>o</u>
Describe Recorded Data (str	eam gauge	, monitorin	g well, aerial photos, previous inspe	ections), if ava	ailable:
Damarka					
Remarks:					

Sampling Point: <u>E2-W1</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1			·	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4			·	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6				
7				Prevalence Index worksheet:
		= Total Cov	/er	Total % Cover of:Multiply by:
50% of total cover:	20% of	f total cover	:	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2	_			FACU species x 4 =
3.				UPL species x 5 =
4.	_			Column Totals: (A) (B)
5	_			
6			·	Prevalence Index = B/A =
7			·	Hydrophytic Vegetation Indicators:
0		·	·	1 - Rapid Test for Hydrophytic Vegetation
0		·	·	<u>x</u> 2 - Dominance Test is >50%
9			·	3 - Prevalence Index is $≤3.0^1$
E0% of total action	200% of	= Total Co	ver	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover.	20% 01	l lotal cover		data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')		-		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Persicaria sagittata	40	D	OBL	
2. Dicanthelium sp.	40	<u>D</u>	NI	¹ Indicators of hydric soil and wetland hydrology must
3. Polygonum hydropiperoides	10	ND	OBL	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5			·	The Minister devices the discussion of the (7.0 and) and
6				more in diameter at breast height (DBH) regardless of
7				height.
8				Senling/Shuth Woody plants evaluding vince loss
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10	_			m) tall.
11				Herb – All herbaceous (non-woody) plants, regardless
	90	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	f total cover		
Woody Vine Stratum (Plot size:)				Woody vine – All woody vines greater than 3.28 ft in height
1.				noight.
2.				
3.				
4	_			
5			·	Hydrophytic
··-		- Total Cov		Present? Yes X No
50% of total cover	20% of	f total cover		
Pemarks: (Include photo numbers here or on a separate	20 /0 01		·	
Remarks. (include photo numbers here of on a separate	Sheet.)			

SOIL	
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Profile Des	cription: (Describe f	to the de	pth needed to docur	nent the i	indicator	or confiri	m the absence	of indicators.)
Depth	Matrix	0/	Redo	x Feature	s	. 2	- (
(inches)	Color (moist)	%	Color (moist)	%	l ype	Loc	lexture	Remarks
0-7	5YR3/3	100					SCL	w/ slight organic staining
7-16	5YR3/3	90	5YR3/4	10	С	М	SCL	
							·	
¹ Type: C=C	concentration. D=Depl	etion. RM	I=Reduced Matrix, MS	S=Masked	d Sand Gra	ains.	² Location: P	PL=Pore Lining, M=Matrix,
Hydric Soil	Indicators:		· · · · · · · · · · · · · · · · · · ·				Indic	ators for Problematic Hydric Soils ³ :
Histoso	l (A1)		Dark Surface	e (S7)			2	2 cm Muck (A10) (MLRA 147)
Histic E	pipedon (A2)		Polvvalue Be	elow Surfa	ce (S8) (N	ILRA 147	. 148) <u> </u>	Coast Prairie Redox (A16)
Black H	listic (A3)		Thin Dark Su	urface (S9) (MLRA 1	47, 148)	, , <u> </u>	(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix ((F2)		F	Piedmont Floodplain Soils (F19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm M	uck (A10) (LRR N)		Redox Dark	Surface (F	-6)		\	/ery Shallow Dark Surface (TF12)
Deplete	d Below Dark Surface	e (A11)	Depleted Da	rk Surface	e (F7)			Other (Explain in Remarks)
Thick D	ark Surface (A12)		Redox Depre	essions (F	8)			
Sandy M	Mucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,		
MLR	A 147, 148)		MLRA 13	6)				
Sandy (Gleyed Matrix (S4)		Umbric Surfa	ace (F13)	(MLRA 13	6, 122)	³ Inc	licators of hydrophytic vegetation and
Sandy F	Redox (S5)		Piedmont Flo	odplain S	ioils (F19)	(MLRA 1	48) we	etland hydrology must be present,
Stripped	d Matrix (S6)		X Red Parent	Material	(F21) (ML	RA 127, 1	l 47) ι	inless disturbed or problematic.
Restrictive	Layer (if observed):							
Туре:								
Depth (in	iches):						Hydric Soi	l Present? Yes <u>X</u> No
Remarks [.]							-	

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somer	set Sampling Date:
Applicant/Owner: USACE	Sta	te: <u>NJ</u> Sampling Point: <u>E2 - W2</u>
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain Lo	cal relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		NWI classification: <u>PUBHh</u>
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes <u>x</u> No (If no	o, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantl	y disturbed? Are "Normal Circ	umstances" present? Yes <u>x</u> No
Are Vegetation, Soil X, or Hydrology naturally	problematic? (If needed, expl	ain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations,	transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No Is the Sampled Area Hydric Soil Present? Yes X No within a Wetland? Yes X No Wetland Hydrology Present? Yes X No No No No No

Remarks:

Red parent material.

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes X No Depth (inches): 7"	
Saturation Present? Yes <u>No</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

Sampling Point: E2-W2

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 1 (B)
4.				()
5				Percent of Dominant Species
6				That Are OBL, FACW, or FAC:(A/B)
7		·		Prevalence Index worksheet:
1				Total % Cover of: Multiply by:
	2001/ -4		er	OBL species x 1 =
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				
1		·	<u> </u>	
2		. <u> </u>		FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5.				Development Instance D/A
6.				Prevalence index = B/A =
7				Hydrophytic Vegetation Indicators:
o				1 - Rapid Test for Hydrophytic Vegetation
8		·	<u> </u>	X 2 - Dominance Test is >50%
9				3 - Prevalence Index is ≤3.0 ¹
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
Herb Stratum (Plot size:)				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Dicanthelium sp.	60	D	NI	
2. Persicaria sagitatta	40	D	OBL	¹ Indiactors of hydric soil and watland hydrology must
3				be present unless disturbed or problematic
4				Definitions of Four Vegetation Strata:
5.				Deminions of Four Vegetation Strata.
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
<u></u>				neight.
8				Sapling/Shrub – Woody plants, excluding vines, less
9		·	<u> </u>	than 3 in. DBH and greater than or equal to 3.28 ft (1
10		·		m) tan.
11		. <u> </u>		Herb – All herbaceous (non-woody) plants, regardless
	100	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1				
2.				
3.				
4				
5				Hydrophytic
		Tatal Oa		Present? Yes X No
E0% of total cover:			er	
	20% 0			
Remarks: (Include photo numbers here or on a separate	sheet.)			

SOIL

Profile Desc	cription: (Describe	to the dep	th needed to docu	ment the i	ndicator	or confirm	n the absence	e of indicators.)
Depth (inchos)	Matrix	0/_	Redo	x Feature	S Typo ¹		Toxturo	Pomarka
				/0	<u> </u>		TEXLUIE	
0-5	<u>5YR3/4</u>	100						Silty clay loam throughout
5-6	2.5YR3/4	100						
6-14	2.5YR3/3	75	5YR3/4	25	С	Μ		
	-	·						
		- <u> </u>						
		·						
¹ Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, M	S=Masked	I Sand Gra	ains.	² Location: F	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indic	cators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			:	2 cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	ILRA 147,	148)	Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	urface (S9)) (MLRA 1	47, 148)		(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		'	(ML DA 126 147)
3tratilied	ick (A10) (I RR N)		Depieted Ma Redox Dark	Surface (F	6)		,	Very Shallow Dark Surface (TE12)
Deplete	d Below Dark Surfac	e (A11)	Depleted Da	rk Surface	(F7)		(Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)			
Sandy N	/lucky Mineral (S1) (I	_RR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,		
MLRA	A 147, 148)		MLRA 13	86)				
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ace (F13) (MLRA 13	6, 122)	³ In	dicators of hydrophytic vegetation and
Sandy F	Redox (S5)		x Piedmont F	loodplain	Soils (F19) (MLRA 1	48) \	wetland hydrology must be present,
Stripped	Matrix (S6)		<u>x</u> Red Parent	Material (F21) (MLI	RA 127, 14	Ι7) ι	unless disturbed or problematic.
Restrictive	Layer (if observed):							
Туре:								
Depth (in	ches):						Hydric Soi	il Present? Yes <u>X</u> No <u></u>
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerse	et Sampling Date: 4/21/14
Applicant/Owner: USACE	State	: <u>NJ</u> Sampling Point: <u>E2-W3</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	_Local relief (concave, convex, none): <u>C</u>	concave depression Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	N	IWI classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes <u>x</u> No (If no,	explain in Remarks.)
Are Vegetation, Soil, or Hydrology signific	cantly disturbed? Are "Normal Circui	mstances" present? Yes <u>x</u> No
Are Vegetation, Soil x, or Hydrology natura	ally problematic? (If needed, explai	n any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	N <u>o</u>
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
<u>x</u> Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
<u>x</u> High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	g Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	x Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 0.5"	
Water Table Present? Yes x No Depth (inches): surface	
Saturation Present? Yes x No Depth (inches): surface	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
Remarks:	

Sampling Point: E2-W3

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Deminent
3.				Species Across All Strata: 1 (B)
4				
5				Percent of Dominant Species
<u> </u>		·		That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6		·		Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2		. <u> </u>		FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5		·		
6				Prevalence Index = B/A =
		·		Hydrophytic Vegetation Indicators:
[/				1 - Rapid Test for Hydrophytic Vegetation
8				x 2 - Dominance Test is >50%
9		. <u> </u>		$3 - Prevalence Index is \leq 3.0^{1}$
		= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		data in Remarka or on a constrate sheet)
Herb Stratum (Plot size: 5')				
1. Phalaris arundinacea	100	D	FACW	Problematic Hydrophytic Vegetation (Explain)
2.				
3	_			¹ Indicators of hydric soil and wetland hydrology must
<u>.</u>				be present, unless disturbed or problematic.
4		·		Definitions of Four Vegetation Strata:
5		·		Tree – Woody plants, excluding vines 3 in (7.6 cm) or
6		·	<u> </u>	more in diameter at breast height (DBH), regardless of
7				height.
8				Sanling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11.				Harb All borbassous (non woody) planta regardless
	100	= Total (Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		
Woody Vine Stratum (Plot size:				Woody vine – All woody vines greater than 3.28 ft in
1				neight.
2		·		
3		·	<u> </u>	
4				Hydrophytic
5				Vegetation
		= Total Cove	er	Present? Yes <u>x</u> No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			
1				

Profile Desc	ription: (Describe t	o the dep	oth needed to docu	nent the i	ndicator	or confirm	the absence of	f indicators.)	
Depth	Matrix		Redo	x Feature	s				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-6	5YR3/3	97	5YR3/4	3	С	Μ	SCL		
6-18	5YR3/2	50	5YR3/3	50	С	М	Clav		
							<u> </u>		
		·				<u> </u>			<u> </u>
		. <u> </u>				·			<u> </u>
						·			
·	·								<u> </u>
						. <u> </u>			
¹ Type: C=Ce	oncentration, D=Deple	etion, RM	=Reduced Matrix, M	S=Masked	I Sand Gra	ains.	² Location: PL=	Pore Lining, M=Matrix	
Hydric Soil	Indicators:	,	,				Indicato	ors for Problematic H	ydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2 cr	m Muck (A10) (MLRA ′	147)
Histic Ep	pipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	LRA 147,	148) Coa	ast Prairie Redox (A16)	
Black Hi	stic (A3)		Thin Dark Sι	urface (S9)) (MLRA 1	47, 148)	()	MLRA 147, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)		Piec	dmont Floodplain Soils	(F19)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)			()	MLRA 136, 147)	
2 cm Mu	ıck (A10) (LRR N)		Redox Dark	Surface (F	6)		Ver	y Shallow Dark Surface	e (TF12)
Depleted	d Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		Oth	er (Explain in Remarks	5)
Thick Da	ark Surface (A12)		Redox Depre	essions (F	8)				
Sandy M	lucky Mineral (S1) (L	RR N,	Iron-Mangan	ese Mass	es (F12) (I	_RR N,			
MLRA	A 147, 148)		MLRA 13	6)					
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ace (F13) (MLRA 13	6, 122)	³ Indica	ators of hydrophytic ve	getation and
Sandy R	Redox (S5)		<u>X</u> Piedmont F	loodplain	Soils (F19) (MLRA 1	48) wet	land hydrology must b	e present,
Stripped	Matrix (S6)		Red Parent I	Material (F	21) (MLR	A 127, 147	') unles	ss disturbed or problem	natic.
Restrictive I	Layer (if observed):								
Туре:									
Depth (in	ches):						Hydric Soil P	resent? Yes <u>X</u>	<u>No</u>
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/4/14
Applicant/Owner: USACE	State:	NJ Sampling Point: E2 - W4A
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Cc</u>	oncave Slope (%): 10
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	/I classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this ti	ime of year? Yes <u>x</u> No (If no, ex	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	nificantly disturbed? N Are "Normal Circums	stances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology na	aturally problematic? (If needed, explain a	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks: Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
<u>x</u> High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living F	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	<u>x</u> Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	<u>x</u> FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes x No Depth (inches): 10	
Saturation Present? Yes <u>x</u> No Depth (inches): 10	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	ions), if available:
Remarks:	

Sampling Point: E2-W4A

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6				Provalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Cov	er	OBL species x1 =
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				
1				
2				
3				$\begin{array}{c} \text{OPL species} \\ \text{Column Tatalay} \\ \text{Column Tatalay} \\ \text{(A)} \\ \text{(B)} \\ \end{array}$
4				Column Totals: (A) (B)
5				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
8				1 - Rapid Test for Hydrophytic Vegetation
0			·	<u>x</u> 2 - Dominance Test is >50%
- 3		- Total Cov		3 - Prevalence Index is ≤3.0 ¹
50% of total cover		total cover	CI	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5)	20/001			data in Remarks or on a separate sheet)
1. Persicaria sadittata	92	П	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Phalaris arundinacea	5		FACW	
3. Panunculus ficaria	3		FAC	¹ Indicators of hydric soil and wetland hydrology must
				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
o				more in diameter at breast height (DBH), regardless of
7				neight.
8		. <u></u>		Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10			·	III) tan.
11			·	Herb – All herbaceous (non-woody) plants, regardless
	100	= Total	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of	total cover:		Woody vine – All woody vines greater than 3.28 ft in
<u>woody vine Stratum</u> (Plot size:)				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
		= Total Cov	er	Present? Tes <u>x</u> No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			
SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redox	Features	1	2			
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc	Texture	Remarks	
0-8	5YR4/3	100					Clay Loam		
8-18	5YR4/2	90	5YR5/8	10	<u> </u>	М	Clay		
·			·						
·			·						
·			·						
		ation DM-	Doducod Motrix MC	-Meeked			² Location: DL-Dor	o Lining M-Matrix	
Hydric Soil I	ndicators:		Reduced Matrix, Mo	=iviaskeu	Sanu Gra	ins.		for Problematic Hv	dric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2 cm M	luck (A10) (MLRA 1	47)
Histic Ep	ipedon (A2)		Polyvalue Bel	ow Surfac	e (S8) (M	LRA 147	, 148) Coast F	Prairie Redox (A16)	,
Black His	stic (A3)		Thin Dark Su	face (S9)	(MLRA 1	47, 148)	(MLI	RA 147, 148)	
Hydrogei	n Sulfide (A4)		Loamy Gleye	d Matrix (F	-2)		Piedmo	ont Floodplain Soils	(F19)
Stratified	Layers (A5)		<u>x</u> Depleted Ma	atrix (F3)			(ML	.RA 136, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark S	Surface (F	6)		Very SI	hallow Dark Surface	(TF12)
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface	(F7)		Other (Explain in Remarks)
Thick Da	rk Sufface (A12)		Redox Depres	SSIONS (F8	5) 				
	147 148)	KK N,			es (F12) (L	.KK N,			
Sandy G	leved Matrix (S4)		Umbric Surfa	77 Ce (E13) (I	MI RA 130	5 122)	³ Indicator	s of hydrophytic vec	etation and
Sandy R	edox(S5)		Piedmont Flo	odplain Sc	oils (F19)	(MLRA 14	48) wetland	hvdrology must be i	present
Stripped	Matrix (S6)		Red Parent M	laterial (F2	21) (MLRA	A 127, 14	7) unless d	isturbed or problem	atic.
Restrictive L	ayer (if observed):			,	, ,				
Туре:									
Depth (inc	hes):						Hydric Soil Pres	ent? Yes <u>x</u>	No
Remarks:							1		

Project/Site: Finderne Farm Wetland Mitigation Site	<u>City/County:</u> Bridgewater, Somerset	Sampling Date: <u>4/4/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: E2 - W4B
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):co	ncave Slope (%): 2
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NW	/I classification: <u>PEM1Cd</u>
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes <u>x</u> No (If no, e>	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	ficantly disturbed? No Are "Normal Circums	stances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natu	arally problematic? (If needed, explain a	any answers in Remarks.)
	aution compliant point locations for	waaata inno stant faatuwaa ata

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	No N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
x Surface Water (A1) True Aquatic Plants (B14)	<u>x</u> Sparsely Vegetated Concave Surface (B8)
<u>x</u> High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
<u>x</u> Saturation (A3) <u>x</u> Oxidized Rhizospheres on Living I	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Sc	bils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	<u>x</u> Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 2"	
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>
_(includes capillary finge) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions) if available:
Remarks:	

Sampling Point: E2-W4B

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
2 3			·	Total Number of Dominant Species Across All Strata:1(B)
4 5.				Percent of Dominant Species
6.			·	
7				Prevalence Index worksheet:
		= Total Cov	rer	Total % Cover of: Multiply by:
50% of total cover:	20% of	total cover		OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3.				UPL species x 5 =
4.				Column Totals: (A) (B)
5				Prevalence Index = B/A =
6			·	Hydrophytic Vegetation Indicators:
7			·	1 - Rapid Test for Hydrophytic Vegetation
8			. <u> </u>	x 2 - Dominance Test is >50%
9				$3 - Prevalence Index is \le 3.0^1$
		= Total Cov	rer	 4 - Morphological Adaptations¹ (Provide supporting
50% of total cover:	20% of	total cover	·	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')				Problematic Hydrophytic Vegetation ¹ (Explain)
1. Acorus calamus	25	D	OBL	
2. Persicaria sagittata	5	ND	OBL	¹ Indicators of hydric soil and wotland hydrology must
3. Lythrum salicaria	5	ND	FACW	be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5			. <u> </u>	
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				height.
8				O an line (Ohmaha). Misa da misarta ana badiana sina a basa
9				than 3 in DBH and greater than or equal to 3 28 ft (1
10.				m) tall.
11.				Harb All berbasseus (non woody) planta, regardloss
	35	= Total C	over	of size, and woody plants less than 3.28 ft tall.
50% of total cover: <u>1</u>	7.5 20	% of total c	over: 7	Woody vine – All woody vines greater than 3.28 ft in
Woody Vine Stratum (Plot size:)				height.
1			·	
2			·	
3			·	
4				Hydrophytic
5				Vegetation
		= Total Cov	rer	Present? Yes <u>x</u> No
50% of total cover:	20% of	total cover	<u> </u>	
Remarks: (Include photo numbers here or on a separa Bare inundated soil	ite sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix		Redo	x Features	8		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-7	5YR4/2	90	5YR4/4	10	С	PL	CLAY
7-12	5YR4/3	80	5YR3/4	2 0	С	PL	CLAY
							·
¹ Type: C=Co	oncentration, D=Deple	etion, RM	=Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			2 cm Muck (A10) (MLRA 147)
Histic Ep	oipedon (A2)		Polyvalue Be	low Surfac	ce (S8) (N	ILRA 147,	, 148) Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Sι	irface (S9)	(MLRA 1	47, 148)	(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (I	F2)		Piedmont Floodplain Soils (F19)
Stratified	l Layers (A5)		X Depleted M	atrix (F3)			(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark	Surface (F	6)		Very Shallow Dark Surface (TF12)
Depleted	Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depre	essions (F8	3)		
Sandy M	lucky Mineral (S1) (LI	RR N,	Iron-Mangan	ese Masse	es (F12) (LRR N,	
MLRA	A 147, 148)		MLRA 13	6)			3
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ice (F13) (MLRA 13	6, 122)	Indicators of hydrophytic vegetation and
Sandy R	ledox (S5)		Piedmont Flo	odplain So	oils (F19)	(MLRA 14	48) wetland hydrology must be present,
Stripped	Matrix (S6)		Red Parent N	Material (F	21) (MLR	A 127, 147	7) unless disturbed or problematic.
	_ayer (if observed):						
Type:							
Depth (ind	cnes):						Hydric Soil Present? Yes <u>X</u> No
Remarks:							

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/7/14
Applicant/Owner: USACE	State:N	IJSampling Point: E4 - U1
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Concav</u>	eSlope (%): <u>1</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum: PEM1a
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI clas	ssification:
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes <u>x</u> No (If no, explain	n in Remarks.)
Are Vegetation, Soil, or Hydrology signification	antly disturbed? N Are "Normal Circumstan	nces" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil X, or Hydrology natura	ally problematic? (If needed, explain any a	answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ving sampling point locations, transe	ects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks:					
Red parent material and dense clay soils.					

Wetland Hydrology Indicator	rs:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum c	of one is required; ch	neck all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	-	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	-	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	-	Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	-	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	-	Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	-	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	-	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)			Geomorphic Position (D2)
Inundation Visible on Aeria	al Imagery (B7)		Shallow Aquitard (D3)
Water-Stained Leaves (B9))		Microtopographic Relief (D4)
Aquatic Fauna (B13)			FAC-Neutral Test (D5)
Field Observations:			
Surface Water Present?	Yes No	Depth (inches):	
Water Table Present?	Yes No	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches):	Wetland Hydrology Present? Yes No X
Describe Recorded Data (strea	am gauge, monitorir	ng well, aerial photos, previous inspec	tions), if available:
Remarks:			

Sampling Point: <u>E4-U1</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size:) 1)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant Species Across All Strata:1(B)
4 5				Percent of Dominant Species
6.				
7.				Prevalence Index worksheet:
		= Total Cov	er	Total % Cover of:Multiply by:
50% of total cover:	20% of	total cover:	-	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:				FACW species x 2 =
1.				FAC species <u>50</u> x 3 <u>= 150</u>
2				FACU species <u>50</u> x 4 <u>= 200</u>
3	_			UPL species x 5 =
3				Column Totals: 100 (A) 350 (B)
4 5				Prevalence Index = $B/A = 3.5$
6				Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 Dominance Test in >50%
9.				
		= Total Cov	er	
50% of total cover:	20% of	total cover:		4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5)				data in Remarks or on a separate sheet)
1 Ranunculus ficanria	50	D	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
	50		FACU	
3				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast beight (DBH) regardless of
7				height.
8	_			
9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11				
	100	- Total	Covor	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall
50% of total cover:	20% of	total cover:	Cover	
Woody Vine Stratum (Plot size:)	2070 01			Woody vine – All woody vines greater than 3.28 ft in height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
		= Total Cov	er	Present? Yes <u>No X</u>
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate	sheet.)			

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redo	x Features	3			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-24	5YR3/3	100					SC	1/2 chroma change within top 5" (2-3)
			<u>.</u>					
·								
¹ Type: C=Co	oncentration, D=Deple	etion, RM=F	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: I	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						India	cators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)			:	2 cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfac	ce (S8) (N	ILRA 147,	148)	Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	irface (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)
Hydroge	n Sulfide (A4)		Loamy Gleye	ed Matrix (F2)			Piedmont Floodplain Soils (F19)
<u> </u>	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 136, 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark	Surface (F	6)			Very Shallow Dark Surface (TF12)
Depleted	d Below Dark Surface	(A11)	Depleted Dat	rk Surface	(⊢7)			Other (Explain in Remarks)
THICK Da	ark Sufface (ATZ) Aucky Mineral (S1) (L		Redox Depre	essions (Fo	5) se (E12) (
Oandy N	147 148)	ых н,	MI RA 13	6)	55 (1 12) (LIXIX IN,		
Sandy G	Bleved Matrix (S4)		Umbric Surfa	•, ice (F13) (MLRA 13	6, 122)	³ In	dicators of hydrophytic vegetation and
Sandy R	ledox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) w	retland hydrology must be present.
Stripped	Matrix (S6)		Red Parent M	Material (Fi	21) (MLR	A 127, 147	, ') u	nless disturbed or problematic.
Restrictive I	_ayer (if observed):							
Туре:								
Depth (ind	ches):						Hydric So	il Present? Yes <u>No x</u>
Remarks:							1	

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: 4/7/14
Applicant/Owner: USACE	State: <u>NJ</u>	Sampling Point: E4 - U2
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Concave</u>	Slope (%): <u>1</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI classi	fication: <u>PEM1a</u>
Are climatic / hydrologic conditions on the site typical for this til	me of year? Yes <u>x</u> No (If no, explain ir	n Remarks.)
Are Vegetation, Soil, or Hydrology sign	nificantly disturbed? N Are "Normal Circumstance	es" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil _ X, or Hydrology na	aturally problematic? (If needed, explain any and	swers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> N <u>o</u> Yes No <u>x</u> Yes No <u>x</u>	Is the Sampled Area within a Wetland?	Yes N	lo <u>x</u>
Remarks: Red parent material.				

	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
	Surface Soli Clacks (B0) Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Roots (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Staturation (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No x</u> Depth (inches):	
Water Table Present? Yes No x Depth (inches):	
Saturation Present? Yes <u>No x</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No_x
Saturation Present? Yes <u>No x</u> Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	Wetland Hydrology Present? Yes No_x .tions), if available:

Sampling Point:<u>E4-U2</u>

Tree Stratum (Plot size:		Absolute	Dominant	Indicator	Dominance Test worksheet:
1	Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
2	1		·		That Are OBL, FACW, or FAC: (A)
3.	2				Total Number of Dominant
4. Percent of Dominant Species 5. Tat Are OBL, FACK 100	3				Species Across All Strata: <u>2</u> (B)
5.	4				Demonst of Deminent Creation
6	5	<u> </u>			That Are OBL, FACW, or FAC: 100 (A/B)
7.	6				
	7.	-			Prevalence Index worksheet:
Soling/Shub Stratum (Plot size:			= Total Cove	er	Total % Cover of:Multiply by:
Saping/Shub Stratum (Plot size:) FACW speciesX 2 =	50% of total cover:	20% of	total cover:		OBL species x 1 =
1	Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
2	1.				FAC species x 3 =
3	2.				FACU species x 4 =
A	3		·		UPL species x 5 =
Prevalence index = B/A =	<u>.</u>		·		Column Totals: (A) (B)
3.	4		·		、 , 、 ,
0.	<u>5.</u>		·		Prevalence Index = B/A =
/	0		·		Hydrophytic Vegetation Indicators:
8.	/		·		1 - Rapid Test for Hydrophytic Vegetation
9.	8		·		<u>x</u> 2 - Dominance Test is >50%
	9		·		3 - Prevalence Index is ≤3.0 ¹
50% of total cover: 20% of total cover: 20% of total cover: 4 60 D FACW 2. Humulus japonicus 10 ND FACU 3. Ranunculus ficaria 30 D FAC 4.			= Total Cove	er	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size:5')	50% of total cover:	20% of	total cover:		data in Remarks or on a separate sheet)
1. Phalaris arundinacea 60 D FACW 2. Humulus japonicus 10 ND FACU 3. Ranunculus ficaria 30 D FAC 4.	Herb Stratum (Plot size: 5')				Problematic Hydrophytic Vegetation ¹ (Explain)
2. Humulus japonicus 10 ND FACU Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 3. Ranunculus ficaria 30 D FAC 4.	1. Phalaris arundinacea	60	D	FACW	
3. Ranunculus ficaria 30 D FAC Inducators of injuites disturbed or problematic. 4.	2. Humulus japonicus	10	ND	FACU	¹ Indicators of hydric soil and wetland hydrology must
4	3. Ranunculus ficaria	30	D	FAC	be present, unless disturbed or problematic.
5.	4				Definitions of Four Vegetation Strata:
6.	5		. <u> </u>		
7.	6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
8.	7				height.
9	8				
10	9.				Sapling/Shrub – Woody plants, excluding vines, less than 3 in DBH and greater than or equal to 3 28 ft (1
11.	10.				m) tall.
Image: Solution of total cover: Image: Solution of total cover:	11				
50% of total cover: 20% of total cover: Woody vine - All woody vines greater than 3.28 ft in height. 1		100	= Total C	over	of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:) Woody vine - All woody vines greater than 3.28 ft in height. 1	50% of total cover:	20% of	total cover:		
1	Woody Vine Stratum (Plot size:				Woody vine – All woody vines greater than 3.28 ft in
2.	1				neight.
3	2		·		
3.	2		·		
4			·		
S	4		·		Hydrophytic
= Total Cover 50% of total cover: 20% of total cover:	o				Vegetation Present? Yes x No
Remarks: (Include photo numbers here or on a separate sheet.)	E0% of total cover:	20% of		er	
Remarks: (include photo numbers here or on a separate sheet.)		20 /0 UI			
	Remarks: (Include photo numbers here or on a separate	sneet.)			

SOIL

Profile Des	cription: (Describe	e to the dept	th needed to docu	ment the indic	cator o	or confirm	the absence of in	dicators.)	
Depth	Matrix		Redo	x Features					
(inches)	Color (moist)	%	Color (moist)	<u>%</u> T	ype'	Loc ²	Texture	Remarks	
0-24	5YR3/3	100					SC		
				<u> </u>					
				<u> </u>					
				<u> </u>					
				<u> </u>					
				. <u> </u>					
¹ Type: C=C	oncentration D=De	nletion RM=	Reduced Matrix M	S=Masked Sa	nd Gra	ins	² Location: PL=Pc	re Lining M=Matrix	,
Hydric Soil	Indicators:						Indicators	for Problematic H	vdric Soils ³ :
Histoso	(A1)		Dark Surface	e (S7)			2 cm 1	Muck (A10) (MLRA	147)
Histic E	pipedon (A2)		Polyvalue Be	elow Surface (S8) (M I	LRA 147,	148) Coast	Prairie Redox (A16)
Black H	istic (A3)		Thin Dark Su	urface (S9) (M I	LRA 14	47, 148)	, <u> </u>	.RA 147, 148)	,
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)			Piedm	ont Floodplain Soils	s (F19)
Stratifie	d Layers (A5)		Depleted Ma	ıtrix (F3)			(ML	.RA 136, 147)	
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface (F6)			Very S	Shallow Dark Surfac	æ (TF12)
Deplete	d Below Dark Surfa	ce (A11)	Depleted Da	rk Surface (F7)		Other	(Explain in Remark	s)
Thick D	ark Surface (A12)		Redox Depre	essions (F8)					
Sandy N		(LRR N,	Iron-Mangan	iese Masses (I	F12) (L	.RR N,			
MLR/ Sondy (A 147, 148)		WILRA 13	0) 000 (E12) (MII)	DA 426	122)	³ Indianta	ra of hydrophytic ys	actation and
Sandy F	Sedox (S5)		Onblic Sura	ace (F13) (MLI	(F10) (, 122) ΜΙ ΡΔ 14	8) wetland	l bydrology must be	nresent
Stripper	Matrix (S6)		Red Parent I	Material (F21)		127 147) unless	disturbed or probler	natic
Restrictive	Laver (if observed):			(
Type:		,							
Denth (in	ches).						Hydric Soil Pres	sent? Yes	No X
Doparko:									<u></u>
Nemaina.									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: 4/7/14
Applicant/Owner: USACE	State:	<u>NJ</u> Sampling Point: <u>E4 - U3</u>
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Co</u>	nvexSlope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NV	VI classification: <u>PEM1a</u>
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes <u>x</u> No (If no, e	xplain in Remarks.)
Are Vegetation, Soil, or Hydrologysig	gnificantly disturbed? Are "Normal Circum	stances" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology na	iturally problematic? (If needed, explain a	any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes Yes	N <u>o</u> No <u>_x</u> No <u>_x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					

Wetland Hydrology Indicato	ors:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is required; ch	eck all that apply)	Surface Soil Cracks (B6)
Surface Water (A1)	_	True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)	_	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3)	_	Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1)	_	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	-	Recent Iron Reduction in Tilled So	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3)	-	Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	-	Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)			Geomorphic Position (D2)
Inundation Visible on Aer	ial Imagery (B7)		Shallow Aquitard (D3)
Water-Stained Leaves (B	9)		Microtopographic Relief (D4)
Aquatic Fauna (B13)			FAC-Neutral Test (D5)
Field Observations:			
Surface Water Present?	Yes No	X_ Depth (inches <u>):</u>	
Water Table Present?	Yes No >	C Depth (inches):	
Water Fable Freedom.			
Saturation Present? (includes capillary fringe)	Yes No>	Depth (inches):	Wetland Hydrology Present? Yes No <u>x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stree	Yes No	C Depth (inches): g well, aerial photos, previous inspectively.	Wetland Hydrology Present? Yes No_x ctions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre	Yes No	C Depth (inches): g well, aerial photos, previous inspectively.	Wetland Hydrology Present? Yes No <u>x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes No <u>x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes No <u>x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes No <u>x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u> tions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u> tions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u> tions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u>
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No eam gauge, monitorin	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No_x</u> tions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No> eam gauge, monitorin	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u> tions), if available:
Saturation Present? (includes capillary fringe) Describe Recorded Data (stre Remarks: Top of slope.	Yes No> eam gauge, monitorin	<u>C</u> Depth (inches <u>):</u> g well, aerial photos, previous inspec	Wetland Hydrology Present? Yes <u>No x</u> tions), if available:

Sampling Point: <u>E4-U3</u>

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	<u>% Cover Species? Stat</u> us	Number of Dominant Species
1. Fraxinus pennsylvanica	5 ND FACW	That Are OBL, FACW, or FAC: (A)
2		Total Number of Deminent
3.		Species Across All Strata: 1 (B)
4		
5		Percent of Dominant Species
<u> </u>		That Are OBL, FACW, or FAC:100 (A/B)
6		Prevalence Index worksheet:
7		Total % Cover of: Multiply by:
	<u>5</u> = Total Cover	
50% of total cover:	20% of total cover:	
Sapling/Shrub Stratum (Plot size:)		FACW species x 2 =
1		FAC species x 3 =
2		FACU species x 4 =
3.		UPL species x 5 =
4		Column Totals: (A) (B)
5		
<u>.</u>		Prevalence Index = B/A =
0		Hydrophytic Vegetation Indicators:
[/		1 - Rapid Test for Hydrophytic Vegetation
8		x 2 - Dominance Test is >50%
9		$3 - Prevalence Index is \leq 30^{1}$
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarka or on a congrate aboat)
Herb Stratum (Plot size: 5)		
1. Phalaris arundinacea	95 D FACW	Problematic Hydrophytic Vegetation (Explain)
2. Ranunculus ficaria	5 ND FAC	
3		¹ Indicators of hydric soil and wetland hydrology must
4		be present, unless disturbed or problematic.
		Definitions of Four Vegetation Strata:
5		Tree – Woody plants, excluding vines 3 in (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		Sanling/Shrub - Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11.		Harb All horbaccous (non woody) plants, regardless
	100 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:		Woody vine – All woody vines greater than 3.28 ft in
1		
1		
<u></u>		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>x</u> No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	

Profile Desc	cription: (Describe	e to the dept	th needed to docu	ment the i	ndicator	or confirn	n the absence o	of indicators.)	
Depth	Matrix		Redo	x Features	<u> </u>	. 2			
(inches)	Color (moist)	%	Color (moist)	%	Туре	Loc	Texture	Remarks	6
0-24	5YR3/3	100					Silty Clay	1/2 chroma change	e in top 5" (3-4)
l									
·									
						·			
¹ Type: C=C	oncentration, D=De	pletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location: PL	=Pore Lining, M=Matri	X.
Hydric Soil	Indicators:						Indicat	ors for Problematic	Hydric Soils":
Histosol	(A1)		Dark Surface	e (S7)			2 c	m Muck (A10) (MLRA	. 147)
Histic Ep	pipedon (A2)		Polyvalue Be	elow Surfac	ce (S8) (N	ILRA 147	, 148) <u> </u>	ast Prairie Redox (A1)	5)
	Suc(A3)			ad Matrix (I	(IVILKA 1 ⊑2)	47, 140)	Die	(IVILKA 147, 140)	e (F10)
Stratified	d Lavers (A5)		Depleted Ma	trix (F3)	12)			(MI RA 136 147)	3 (1 13)
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface (F	6)		Ve	rv Shallow Dark Surfa	ce (TF12)
Deplete	d Below Dark Surfa	ce (A11)	Depleted Da	rk Surface	(F7)		Ot	her (Explain in Remark	(s)
Thick Da	ark Surface (A12)	. ,	Redox Depre	essions (F8	3)				
Sandy M	/lucky Mineral (S1)	(LRR N,	Iron-Mangan	ese Masse	es (F12) (I	LRR N,			
MLRA	A 147, 148)		MLRA 13	6)					
Sandy G	Gleyed Matrix (S4)		Umbric Surfa	ace (F13) (MLRA 13	6, 122)	³ Indic	ators of hydrophytic v	egetation and
Sandy F	Redox (S5)		Piedmont Florence	oodplain Se	oils (F19)	(MLRA 14	48) wetl	and hydrology must be	e present,
Stripped	I Matrix (S6)		Red Parent I	Material (F	21) (MLR	A 127, 14	7) unle	ess disturbed or proble	matic.
Restrictive	Layer (if observed)):							
Туре:									
Depth (in	ches):						Hydric Soil F	Present? Yes	No <u>x</u>
Remarks:									

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/4/14</u>
Applicant/Owner: USACE	State:	NJSampling Point: <u>E5 - U1</u>
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): <u>Conc</u>	saveSlope (%): 10
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI	classification:
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes <u>x</u> No (If no, exp	lain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	icantly disturbed?N Are "Normal Circums	stances" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil _X, or Hydrology natu	rally problematic? (If needed, explain a	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locations, trar	sects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes Yes	N <u>o X</u> No X No X	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks: Red parent material.					

wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
 Surface Water (A1) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled Sc Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) 	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No <u>X</u> Depth (inches):	
Water Table Present? Yes x No Depth (inches): 20"	
Water Table Present? Yes x No Depth (inches): 20" Saturation Present? Yes No Depth (inches): (includes capillary fringe) Ves No	Wetland Hydrology Present? Yes No <u>X</u>
Water Table Present? Yes No Depth (inches): 20" Saturation Present? Yes No Depth (inches): (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes No <u>X</u>

Sampling Point: <u>E5-U1</u>

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Species? Status</u>	Number of Dominant Species
1		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata:1 (B)
4		
5.		Percent of Dominant Species That Are OBLEACW or EAC: 100 (A/B)
6.		
7		Prevalence Index worksheet:
/ ·		Total % Cover of: Multiply by:
50% of total cover:	20% of total cover:	OBL species x 1 =
Sapling/Shruh Stratum (Plot size:		FACW species x 2 =
		FAC species x 3 =
[1		
2		
3		
4		Column Totals: (A) (B)
5		Prevalence Index = B/A =
6	· · ·	Hydrophytic Vegetation Indicators:
7		1 - Panid Test for Hydronbytic Vecetation
8.		
9.		\underline{X} 2 - Dominance 1 est is >50%
	= Total Cover	3 - Prevalence Index is ≤3.0
50% of total cover	20% of total cover	4 - Morphological Adaptations ¹ (Provide supporting
Herb Stratum (Plot size: 5)		data in Remarks or on a separate sheet)
1 Phalaris arundinacea		Problematic Hydrophytic Vegetation ¹ (Explain)
2		¹ Indicators of hydric soil and wetland hydrology must
3		be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		Tree Woody plants evoluting vince 2 in (7.6 cm) or
6		more in diameter at breast height (DBH) regardless of
7		height.
8		Conting/Charte Microbunicate evoluting vines loss
9		than 3 in DBH and greater than or equal to 3.28 ft (1
10.		m) tall.
11.		
	100 = Total Cover	of size, and woody plants less than 3 28 ft tall
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:		Woody vine – All woody vines greater than 3.28 ft in
1		
1		
2		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>X</u> No
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	

SOIL

Profile Desc	ription: (Describe	to the dep	th needed to docun	nent the i	ndicator	or confirn	the absence of indicators.)	
Depth	Matrix		Redox	x Features	6			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Re	marks
0-20	5YR3/3	100					Clay Loam	
20-24	5YR3/3	90	5YR4/6	10	С	М	Sandy Clay Loam w/ some gra	vel
		·						
		·				······		
·		·						
		·						
		·						
		·				·	2	
'Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Location: PL=Pore Lining, M=	Matrix.
Hydric Soll	indicators:			(a=)			Indicators for Problem	atic Hydric Solis :
Histosol	(A1)		Dark Surface	(S7) Iour Curfo			2 cm Muck (A10) (N	1LRA 147)
HISUC Ep	stic (A2)		Polyvalue Be	rface (SQ)	Ce (58) (IV	ILRA 147, 17 119)		(A16)
Black Th Hydroge	$\sin (A3)$			d Matrix (47, 140)	Piedmont Floodplai	n Soils (F19)
Stratified	Lavers (A5)		Depleted Mat	rix (F3)	/		(MI RA 136 147)	
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	6)		Verv Shallow Dark	, Surface (TF12)
Depleted	Below Dark Surfac	e (A11)	Depleted Dar	k Surface	(F7)		Other (Explain in Re	emarks)
Thick Da	ark Surface (A12)	、 ,	Redox Depre	ssions (F8	3)			,
Sandy M	lucky Mineral (S1) (L	.RR N,	Iron-Mangane	ese Masse	es (F12) (I	LRR N,		
MLRA	A 147, 148)		MLRA 13	6)				
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	³ Indicators of hydroph	ytic vegetation and
Sandy R	ledox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	 wetland hydrology m 	ust be present,
Stripped	Matrix (S6)		Red Parent M	laterial (F	21) (MLR	A 127, 14	unless disturbed or p	roblematic.
Restrictive	_ayer (if observed):							
Туре:								
Depth (in	ches):						Hydric Soil Present? Yes	<u>No x</u>
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/7/14</u>
Applicant/Owner: USACE	State:	IJSampling Point: E5 - W1
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	_Local relief (concave, convex, none): <u>Concave</u>	e Slope (%) <u>: 0</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI clas	ssification:
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes <u>x</u> No (If no, explair	n in Remarks.)
Are Vegetation, Soil, or Hydrology signifi	cantly disturbed? N Are "Normal Circumstar	nces" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil _X, or Hydrology natu	rally problematic? (If needed, explain any a	answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map sho	wing sampling point locations, transe	ects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Red parent material.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
<u>x</u> Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
<u>x</u> High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
<u>x</u> Saturation (A3) <u>x</u> Oxidized Rhizospheres on Living	g Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled S	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	<u>x</u> Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes x No Depth (inches): 1.5	
Water Table Present? Yes x No Depth (inches): surface	
Saturation Present? Yes <u>x</u> No Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	ctions), if available:
Remarks:	
Toe of slope at plot location.	

Sampling Point: E5-W1

[Absolute Do	minant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:30)	% Cover	Species? Status	Number of Dominant Species
1. Betula nigra	2	ND FACW	That Are OBL, FACW, or FAC: (A)
2			Total Number of Deminert
3.			Species Across All Strata: 2 (B)
4	· ·		
			Percent of Dominant Species
0			That Are OBL, FACW, or FAC: <u>100</u> (A/B)
6		·	Prevalence Index worksheet:
7			Total % Cover of: Multiply by:
	<u>2</u> = T	otal Cover	
50% of total cover:	20% of tota	l cover:	
Sapling/Shrub Stratum (Plot size:)			FACW species x 2 =
1	<u> </u>		FAC species x 3 =
2.			FACU species x 4 =
3			UPL species x 5 =
۰			Column Totals: (A) (B)
4			、 , 、 ,
5			Prevalence Index = B/A =
6		·	Hydrophytic Vegetation Indicators:
7			1 - Rapid Test for Hydrophytic Vegetation
8	<u> </u>		\sim 2 Dominance Test is >50%
9.			\underline{X} 2 - Dominance Test is >50%
	= Tc	tal Cover	
50% of total cover:	20% of tota	cover:	4 - Morphological Adaptations' (Provide supporting
Herb Stratum (Plot size: 5			data in Remarks or on a separate sheet)
1 Dhelerie erundingene	<u> </u>		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phalans arundinacea	60	D FACVV	
2. Polygonum hydropiper	40	D <u>OBL</u>	¹ Indicators of hydric soil and wetland hydrology must
3			be present, unless disturbed or problematic.
4		·	Definitions of Four Vegetation Strata:
5			
6.			Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7			more in diameter at breast height (DBH), regardless of
7			neight.
8	- <u> </u>		Sapling/Shrub – Woody plants, excluding vines, less
9			than 3 in. DBH and greater than or equal to 3.28 ft (1
10			m) tall.
11			Herb – All herbaceous (non-woody) plants, regardless
	100 :	= Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of tota	l cover:	
Woody Vine Stratum (Plot size:)			Woody vine – All woody vines greater than 3.28 ft in height
1			neight.
·			
2			
3			
4			Hydrophytic
5			Vegetation
	= To	otal Cover	Present? Yes <u>X</u> N <u>o</u>
50% of total cover:	20% of tota	l cover:	
Remarks: (Include photo numbers here or on a separate a	sheet.)		
	,		

Profile Desc	ription: (Describe te	o the dep	oth needed to docun	nent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix		Redo	x Feature	S			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-12	5YR3/3	90	5YR4/6	10	С	PL&M	Silty Clay	
12-24	5YR3/3	90	5YR4/6	10	C	Μ	<u>Sandy</u>	<u>Clay Loamw/Gravel</u>
¹ Type: C=Co	oncentration, D=Deple	etion, RM	=Reduced Matrix, MS	S=Masked	I Sand Gr	ains.	² Location: P	L=Pore Lining, M=Matrix.
Hydric Soil	ndicators:						Indica	ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface	(S7)			2	cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147,	148) C	Coast Prairie Redox (A16)
Black Hi	stic (A3) s Sulfido (A4)		Thin Dark Su	rface (S9)) (MLRA 1 52)	47, 148)	П	(MLRA 147, 148)
Hydroge Stratified	I avers (A5)		Depleted Mat	rix (E3)	ΓΖ)		F	(MI RA 136 147)
2 cm Mu	ick (A10) (LRR N)		Redox Dark S	Surface (F	6)		V	(inclusion for the second s
Depleted	Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		c	Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depre	ssions (F	8)			
Sandy M	lucky Mineral (S1) (L l	RR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,		
MLRA	A 147, 148)		MLRA 13	6)				
Sandy G	leyed Matrix (S4)		Umbric Surfa	ce (F13) (MLRA 13	6, 122)	³ Ind	licators of hydrophytic vegetation and
Sandy R	edox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 14	8) we	etland hydrology must be present,
Stripped	Matrix (S6)		<u>x</u> Red Parent	Material (F21) (ML I	RA 127, 14	7) u	nless disturbed or problematic.
Restrictive I	_ayer (if observed):							
Туре:								
Depth (ind	ches):						Hydric Soil	Present? Yes <u>x</u> No
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somer	set Samplir	ng Date: <u>4/7/14</u>
Applicant/Owner: USACE	Sta	te: <u>NJ </u> Sampl	ing Point: <u>E6-U1</u>
Investigator(s): JR/RW/MS	Section, Township, Range:		
Landform (hillslope, terrace, etc.): Floodplain	cal relief (concave, convex, none):	Concave	Slope (%): <u>0</u>
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:		Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		NWI classification: P	EM1a
Are climatic / hydrologic conditions on the site typical for this time of y	rear? Yes <u>x</u> No (If n	o, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantl	y disturbed? N Are "Normal Ci	rcumstances" present	?Ye <u>s x</u> No
Are Vegetation, Soil _X, or Hydrology naturally	problematic? (If needed, exp	lain any answers in Re	emarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations,	transects, impo	rtant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					
Red parent material floodplain soils.					

|--|

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	<u>x</u> Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	x Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Se	oils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No x</u> Depth (inches):	
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches):	
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) Yes No x Depth (inches):	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes No :tions), if available:
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) Ves No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Second	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No x Depth (inches): Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>x</u> No ctions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) No _x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) No _x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:
Surface Water Present? Yes No _x Depth (inches): Water Table Present? Yes No _x Depth (inches): Saturation Present? Yes No _x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes <u>x</u> No ctions), if available:
Surface Water Present? YesNo _xDepth (inches): Water Table Present? YesNo _xDepth (inches): Saturation Present? YesNo _xDepth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Remarks:	Wetland Hydrology Present? Yes <u>x</u> No tions), if available:

Sampling Point: E6-U1

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Deminent
3.				Species Across All Strata: 2 (B)
4				
		·	·	Percent of Dominant Species
0	·	·	·	That Are OBL, FACW, or FAC: <u>50</u> (A/B)
6	·	· . <u> </u>	·	Prevalence Index worksheet
7	·	·		
		= Total Cov	ver	
50% of total cover:	20% of	total cover	:	OBL species X 1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1			. <u> </u>	FAC species x 3 <u>= 135</u>
2.				FACU species <u>15</u> x 4 <u>= 60</u>
3				UPL species x 5 =
0	·	·		Column Totals: 60 (A) 195 (B)
4		·	·	
5		·	·	Prevalence Index = $B/A = 3.25$
6		·	·	Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 Deminence Test is > 50%
9.				
			/er	3 - Prevalence Index is ≤3.0°
50% of total cover:	20% of	total cover		4 - Morphological Adaptations ¹ (Provide supporting
Horb Stratum (Diot aize: 5'	20 /0 01			data in Remarks or on a separate sheet)
A Desumenting (Flot Size: <u>3</u>)	45	-	540	Problematic Hydrophytic Vegetation ¹ (Explain)
1. Ranunculus ficaria	45	D	FAC	
2. Humulus japonicus	15	D	FACU	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4		·	. <u> </u>	Definitions of Four Vegetation Strata
5.				Sommone of Four Vogetation Chatan
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
7	·	·	·	neight.
8	·	·	·	Sapling/Shrub – Woody plants, excluding vines, less
9	·	· . <u> </u>	·	than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11			. <u> </u>	Herb – All herbaceous (non-woody) plants, regardless
	60	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover: 30	20% of	total cover:	15	
Woody Vine Stratum (Plot size:				Woody vine – All woody vines greater than 3.28 ft in
1				
1	·	·	·	
2	·	·	·	
3		·		
4		·		Hydrophytic
5				Vegetation
		= Total Cov	ver	Present? Yes No x
50% of total cover:	20% of	total cover		
Remarks: (Include photo numbers here or on a senarate s	sheet)			
	sileet.)			

SOIL

Profile Desc	ription: (Describe	to the depth	n needed to docu	nent the i	ndicator o	or confirm	the absence	of indicate	ors.)	
Depth	Matrix		Redo	x Features	6					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-12	5YR3/3	100					SCL			
12-24	5YR3/3	100					Silty Clay	Half chro	ma change from up	<u>per 12" (3.</u> 5)
		·								
		·								
Type: C=Co	oncentration, D=Depl	etion, RM=F	Reduced Matrix, M	S=Masked	Sand Gra	ins.	² Location: P	L=Pore Lini	ng, M=Matrix.	3
Histosol Histic Ep Black Hi Hydroge Stratified 2 cm Mu Depleted Thick Da Sandy W	(A1) pipedon (A2) stic (A3) n Sulfide (A4) I Layers (A5) lick (A10) (LRR N) Below Dark Surface ark Surface (A12) lucky Mineral (S1) (L	e (A11) RR N ,	 Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma Redox Dark Depleted Da Redox Depre Iron-Mangan 	(S7) (S7) (Inface (S9) (Inface (S9) (Inf	ce (S8) (M (MLRA 1 F2) (6) (F7) 3) es (F12) (I	LRA 147, 47, 148) .RR N,	148) 2 148) C P V C	cm Muck (coast Prairie (MLRA 14 iedmont Flo (MLRA 13 ery Shallow other (Expla	A10) (MLRA 147) Redox (A16) 7, 148) Dodplain Soils (F19) 6, 147) V Dark Surface (TF1) in in Remarks)	2)
MLRA Sandy G Sandy R Stripped	A 147, 148) Eleyed Matrix (S4) Edox (S5) Matrix (S6) Aver (if observed):		MLRA 13 Umbric Surfa Piedmont Flo Red Parent I	6) ace (F13) (podplain So Material (F:	MLRA 13 oils (F19) 21) (MLR/	6, 122) (MLRA 14 A 127, 147	³ lnd 8) we) un	icators of h tland hydro less disturb	ydrophytic vegetatio logy must be preser ed or problematic.	n and ht,
Type ¹										
Depth (inc	ches):						Hydric Soil	Present?	Yes No	x
Remarks:										
Ded percent p	actorial									

Red parent material.

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somers</u>	et Sampling Date: <u>4/7/14</u>
Applicant/Owner: USACE	State	e: <u>NJ</u> Sampling Point: <u>E6 - U2</u>
Investigator(s): _JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	.ocal relief (concave, convex, none): _(Concave Slope (%): 0
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		WI classification: <u>PEM1a</u>
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes <u>x</u> No (If no	explain in Remarks.)
Are Vegetation, Soil, or Hydrology significan	tly disturbed? N Are "Normal Circ	cumstances" present? Ye <u>s x</u> N <u>o</u>
Are Vegetation, Soil <u>X</u> , or Hydrology naturally	y problematic? (If needed, expla	in any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	ng sampling point locations,	transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u> </u>	N <u>o</u> No <u></u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					
Red parent material floodplain location.	Plot taken in c	overwash area.			

HYDROLOGY

	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	<u>x</u> Surface Soil Cracks (B6)		
Primary Indicators (minimum of one is required; check all that apply)	x Surface Soil Cracks (B6) x Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) s (C3) Moss Trim Lines (B16) Dry-Season Water Table (C2) C6) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)		
Water-Stained Leaves (B9)	Microtopographic Relief (D4)		
Aquatic Fauna (B13)	FAC-Neutral Test (D5)		
Surface Water Present? Yes NoX Depth (inches): Water Table Present? Yes NoX Depth (inches): Saturation Present? Yes NoX Depth (inches):			
(includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> No		
(includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:		

Sampling Point: <u>E6-U2</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Neuroban of Dansia and
3.				Species Across All Strata 2 (B)
4				
5	·	·		Percent of Dominant Species
<u> </u>	·	·		That Are OBL, FACW, or FAC: <u>100</u> (A/B)
b	·	·		Prevalence Index worksheet:
7	·	·		Total % Cover of: Multiply by:
	. <u> </u>	= Total Cove	er	
50% of total cover:	20% of	total cover:		
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 =
1				FAC species x 3 =
2				FACU species x 4 =
3.				UPL species x 5 =
4				Column Totals: (A) (B)
5	·	·		
6	·	·		Prevalence Index = B/A =
0		·		Hydrophytic Vegetation Indicators:
/	·	·		1 - Rapid Test for Hydrophytic Vegetation
8	·			x 2 - Dominance Test is >50%
9	·			3 - Prevalence Index is < 3.01
		= Total Cove	er	Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of	total cover:		4 - Molphological Adaptations (Provide supporting
Herb Stratum (Plot size: 5)				data in Remarks of on a separate sneet)
1. Ranunculus ficaria	12	D	FAC	Problematic Hydrophytic Vegetation' (Explain)
2 Phalaris arundinacea	3	D	FACW	
3			1 <u>///0//</u>	¹ Indicators of hydric soil and wetland hydrology must
3	·			be present, unless disturbed or problematic.
4	·	·		Definitions of Four Vegetation Strata:
5	·			Tree – Woody plants, excluding vines, 3 in (7.6 cm) or
6	·			more in diameter at breast height (DBH), regardless of
7				height.
8	·	. <u> </u>		Conting/Chrysh Washington available views
9				than 3 in DBH and greater than or equal to 3.28 ft (1
10.				m) tall.
11				
	15	- Total C		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall
50% of total cover: 7.5	20% of to	ntal cover: 3		
Weedy Vine Stratum (Plot size:	<u></u>		,	Woody vine – All woody vines greater than 3.28 ft in
				height.
[]	·	·		
2	·			
3	·			
4	·			Hydrophytic
5				Vegetation
		= Total Cove	er	Present? Yes X No
50% of total cover:	20% of	total cover:		
Remarks: (Include photo numbers here or on a separate s	sheet.)			
	,			

SOIL

Profile Desc	ription: (Describe	to the depth	n the absence of indicators.)					
Depth	Matrix Redox Features							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	
0-12	5YR3/3	100					<u>SCL</u>	
12-24	5YR3/3	100					Silty Clay	
						·		
								—
1 T			NA tois				² Landing DL Dage Liging M Matrix	
Type: C=Co	ncentration, D=Depl	etion, RM=R	educed Matrix, Ma	S=Masked	Sand Gra	ains.	⁻ Location: PL=Pore Lining, M=Matrix.	
Listool	(14)		Dark Surface	(07)			2 om Muck (A10) (ML DA 147)	
Histosol Histic Er	(AT) vinedon (A2)		Dark Surface	low Surface	o (S8) (N		1/18) Coast Prairie Redox (A16)	
Black Hi	stic (A3)		Thin Dark Su	rface (S9)	(MIRA 1	47 148)	(MI RA 147, 148)	
Hydroge	n Sulfide (A4)		Loamy Gleve	d Matrix (F	() 2)	41, 140)	Piedmont Floodplain Soils (F19)	
<u>Stratified</u>	Lavers (A5)		Depleted Ma	trix (F3)	_)		(MLRA 136, 147)	
2 cm Mu	ck (A10) (LRR N)		Redox Dark S	Surface (F6	6)		Very Shallow Dark Surface (TF12)	
Depleted	Below Dark Surface	e (A11)	Depleted Dar	k Surface (, (F7)		Other (Explain in Remarks)	
Thick Da	ark Surface (A12)		Redox Depre	ssions (F8)			
Sandy M	lucky Mineral (S1) (L	.RR N,	Iron-Mangan	ese Masse	s (F12) (I	LRR N,		
MLRA	147, 148)		MLRA 13	6)				
Sandy G	ileyed Matrix (S4)		Umbric Surfa	ce (F13) (N	ILRA 13	6, 122)	³ Indicators of hydrophytic vegetation and	
Sandy R	edox (S5)		Piedmont Flo	odplain So	ils (F19)	(MLRA 14	 wetland hydrology must be present, 	
Stripped	Matrix (S6)		Red Parent N	Aaterial (F2	21) (MLR	A 127, 147	7) unless disturbed or problematic.	
Restrictive L	.ayer (if observed):							
Туре:								
Depth (inc	ches):						Hydric Soil Present? Yes <u>No x</u>	-
Remarks:								

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/9/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: <u>E7 - U1</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	_Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI cl:	assification:
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes <u>x</u> No (If no, expla	in in Remarks.)
Are Vegetation, Soil, or Hydrology signifi	cantly disturbed? Are "Normal Circumstan	ices" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natura	ally problematic? (If needed, explain any a	answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled S	coils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No x</u> Depth (inches):	
Water Table Present? Yes <u>No x</u> Depth (inches):	
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) Yes No x Depth (inches):	Wetland Hydrology Present? Yes No <u>x</u>
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes No_x ctions), if available:
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective)	Wetland Hydrology Present? Yes No <u>x</u>
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) Ves No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes No <u>x</u>
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes No_x ctions), if available:
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes No <u>x</u>
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes No_x ctions), if available:
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) Image: Constraint of the second dependence	Wetland Hydrology Present? Yes <u>No x</u> ctions), if available:
Water Table Present? Yes No x Depth (inches): Saturation Present? Yes No x Depth (inches): (includes capillary fringe) No x Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No x</u> ctions), if available:
Water Table Present? Yes No _ x Depth (inches): Saturation Present? Yes No _ x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No_x</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspective Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No_x</u> ctions), if available:
Water Table Present? Yes No _ x Depth (inches): Saturation Present? Yes No _ x Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No_x</u> ctions), if available:
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No x</u> ctions), if available:
Water Table Present? Yes No _ x Depth (inches): Saturation Present? Yes No _ x Depth (inches): (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect Remarks: Alluvial deposited ridge.	Wetland Hydrology Present? Yes <u>No x</u> ctions), if available:

Sampling Point: <u>E7-U1</u>

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1)	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:0 (A)
2 3.	<u>.</u>			Total Number of Dominant Species Across All Strata: 1 (B)
4.				(2)
5				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
6				Prevalence Index worksheet:
/				Total % Cover of: Multiply by:
50% of total cover:	20% of	total cover:	er.	OBL species x 1 =
Sanling/Shruh Stratum (Plot size:	20 /0 01			FACW species x 2 =
				FAC species x 3 =
1				FACU species x 4 =
2				UPL species $x 5 =$
3				Column Totals: (A) (B)
4				
5 6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
0				1 - Rapid Test for Hydrophytic Vegetation
0				2 - Dominance Test is >50%
9		Tatal Oau		3 - Prevalence Index is $≤3.0^1$
E0% of total approx	200/ of		er	4 - Morphological Adaptations ¹ (Provide supporting
Uerh Stretum (Plet eizer	20 % 01		<u> </u>	data in Remarks or on a separate sheet)
<u>Herb Stratum</u> (Plot size. <u>5</u>)	<u> </u>	P		Problematic Hydrophytic Vegetation ¹ (Explain)
		<u> </u>	FACU	
2. Ranunculus ficaria 3.	10	<u>ND</u>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of
7		. <u> </u>		height.
8				Sapling/Shrub – Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11	70	= Total Co	over	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover: 3	5 20%	of total cove	er: 14	Woody vine – All woody vines greater than 3.28 ft in
(Plot size:)				height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover:	20% of	= Total Cove total cover:	er	
Remarks: (Include photo numbers here or on a separate	sheet.)			
	,			

Profile Des	cription: (Describe	to the dept	n needed to docun	nent the in	dicator of	or confirm	the absence	of indicato	rs.)	
Depth	Matrix		Redo	x Features						
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture		Remarks	
0-16	7.5YR3/3	100					Silt loam	Dry, friable	9	
		· ·		·						
		· ·		<u> </u>						<u> </u>
		· ·		<u> </u>						<u> </u>
		· ·								
		· ·		·				·		
1					0		21	Dens Linia	- NA Matrice	
Type: C=C	Concentration, D=Dep	letion, Rivi=i	Reduced Matrix, Mis	S=Masked 3	Sand Gra	ains.	Location: P	L=Pore Linir	oblomatic H	dric Soils ³ :
			Dark Curfage	(07)			indica			47)
	DI (AI) Eninadan (A2)		Dark Surface	(37) Iow Surfoor	- (S9) /M		149) <u> </u>	CIII WUCK (F		47)
Fisher	$\frac{1}{2}$		Folyvalue Be	ille Suilace	(MI DA 1	12 KA 147,	140)		Redux (ATO) 7 1/8)	
Hvdrog	ien Sulfide (A4)		Loamy Gleve	d Matrix (F	2)	47, 140)	P	Piedmont Flo	odolain Soils	(F19)
Stratifie	ed Lavers (A5)		Depleted Ma	trix (F3)	_)		·	(MLRA 13)	6. 147)	(1.10)
2 cm M	luck (A10) (LRR N)		Redox Dark S	Surface (F6	5)		V	ery Shallow	Dark Surface	(TF12)
Deplete	ed Below Dark Surfac	e (A11)	Depleted Dar	k Surface (, F7)			Other (Explai	n in Remarks)
Thick D	Dark Surface (A12)		Redox Depre	ssions (F8))					
Sandy	Mucky Mineral (S1) (I	.RR N,	Iron-Mangan	ese Masses	s (F12) (I	LRR N,				
MLR	RA 147, 148)		MLRA 13	6)						
Sandy	Gleyed Matrix (S4)		Umbric Surfa	ce (F13) (N	ILRA 13	6, 122)	³ Ind	licators of hy	drophytic veg	etation and
Sandy	Redox (S5)		Piedmont Flo	odplain Soi	ils (F19)	(MLRA 14	8) we	etland hydrol	ogy must be p	present,
Strippe	d Matrix (S6)		Red Parent N	Aaterial (F2	1) (MLR	A 127, 147) un	less disturbe	ed or problem	atic.
Restrictive	Layer (if observed):									
Туре:										
Depth (ir	nches):						Hydric Soil	Present?	Yes	No <u>X</u>
Remarks:										
1										

Project/Site: Finderne Farm Wetland Mitigation Site	<u>City/County: Bridgewater, Somerset</u>	Sampling Date: 4/9/14
Applicant/Owner: USACE	State: <u>NJ</u>	Sampling Point: E7 - U2
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none): toe of slope	<u>S</u> lope (%): 3
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI classific	cation:
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes <u>x</u> No (If no, explain in F	Remarks.)
Are Vegetation, Soil, or Hydrology signi	ificantly disturbed? Are "Normal Circumstances" p	present? Yes <u>x</u> No
Are Vegetation, Soil _ x, or Hydrology nate	urally problematic? (If needed, explain any answ	vers in Remarks.)
		• • • • • •

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					
Red parent material.					

Wetland Hydrology Indicat	ors:			Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is re	quired; che	eck all that apply)	Surface Soil Cracks (B6)
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Ae Water-Stained Leaves (B Aquatic Fauna (B13) 	rial Imagery 39)		 True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled So Thin Muck Surface (C7) Other (Explain in Remarks) 	 Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:				
Surface Water Present?	Yes	No	Depth (inches):	
Water Table Present?	Yes	No	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland Hydrology Present? Yes No <u>x</u>
Describe Recorded Data (str	eam gauge,	monitoring	g well, aerial photos, previous inspec	tions), if available:
Remarks:				

Sampling Point: E7-U2

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Species?</u> Status	Number of Dominant Species
1		That Are OBL, FACW, or FAC: 0 (A)
2		Total Number of Deminent
3.		Species Across All Strata: 1 (B)
4		
5		Percent of Dominant Species
<u> </u>		That Are OBL, FACW, or FAC: (A/B)
6		Prevalence Index worksheet:
7		Total % Cover of Multiply by
	= Total Cover	$\frac{1}{1} \frac{1}{1} \frac{1}$
50% of total cover:	20% of total cover:	
Sapling/Shrub Stratum (Plot size:)		FACW species
1		FAC species x 3 =
2		FACU species x 4 =
3.		UPL species x 5 =
4.		Column Totals: (A) (B)
5		
6		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
/		1 - Rapid Test for Hydrophytic Vegetation
8		2 - Dominance Test is >50%
9		 3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Romarka er on a congrate shoot)
Herb Stratum (Plot size: 5')		
1. Artemisia vulgaris	100 D UPL	Problematic Hydrophytic Vegetation (Explain)
2		
3		¹ Indicators of hydric soil and wetland hydrology must
<u>.</u>		be present, unless disturbed or problematic.
4		Definitions of Four Vegetation Strata:
5		Tree – Woody plants, excluding vines 3 in (7.6 cm) or
6		more in diameter at breast height (DBH), regardless of
7		height.
8		Sanling/Shrub Woody planta avaluding vince loss
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10.		m) tall.
11		
		Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3 28 ft tall
50% of total cover:	20% of total cover:	
Woody Vine Stratum (Plot size:		Woody vine – All woody vines greater than 3.28 ft in
		height.
2		
3		
4		Hydrophytic
5		Vegetation
	= Total Cover	Present? Yes <u>No X</u>
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	

Profile Desc	cription: (Describe	e to the dep	th needed to docur	nent the i	ndicator	or confirn	n the absenc	e of indicato	rs.)	
Depth	Matrix		Redo	x Features	6					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remark	S
0-18	5YR3/3	100					Silt Loam			
¹ Type: C=C	oncentration, D=De	pletion, RM=	Reduced Matrix, M	S=Masked	Sand Gra	ains.	² Location:	PL=Pore Linii	ng, M=Matr	ix.
Hydric Soil	Indicators:						Indi	cators for Pr	oblematic	Hydric Soils ³ :
Histosol	(A1)		Dark Surface	e (S7)				2 cm Muck (A	(MLRA	A 147)
Histic E	pipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	ILRA 147,	, 148)	Coast Prairie	Redox (A1	6)
Black H	istic (A3)		Thin Dark Sι	urface (S9)	(MLRA 1	47, 148)		(MLRA 14	7, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2)			Piedmont Flo	odplain So	ils (F19)
Stratifie	d Layers (A5)		Depleted Ma	trix (F3)				(MLRA 13	6, 147)	
2 cm Mi	uck (A10) (LRR N)		Redox Dark	Surface (F	6)			Very Shallow	Dark Surfa	ace (TF12)
Deplete	d Below Dark Surfa	ce (A11)	Depleted Da	rk Surface	(F7)			Other (Explai	n in Remar	ks)
Thick D	ark Surface (A12)		Redox Depre	essions (Fa	3)					
Sandy N	/lucky Mineral (S1)	(LRR N,	Iron-Mangan	ese Masse	es (F12) (I	LRR N,				
MLR	A 147, 148)		MLRA 13	6)			2			
Sandy C	Gleyed Matrix (S4)		Umbric Surfa	ace (F13) (MLRA 13	6, 122)	°In	dicators of hy	/drophytic v	regetation and
Sandy F	Redox (S5)		Piedmont Flo	podplain S	oils (F19)	(MLRA 14	48) w	etland hydrol	logy must b	e present,
Stripped	I Matrix (S6)		Red Parent N	Material (F	21) (MLR	A 127, 147	7) u	nless disturbe	ed or proble	ematic.
Restrictive	Layer (if observed):								
Туре:										
Depth (in	ches):						Hydric So	il Present?	Yes	<u>No x</u>
Remarks:							•			

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/9/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: E7 - W1
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI d	classification: <u>PEM1E/PEM1A</u>
Are climatic / hydrologic conditions on the site typical for this tir	ne of year? Yes <u>x</u> No (If no, expl	lain in Remarks.)
Are Vegetation, Soil, or Hydrology sign	ificantly disturbed? Are "Normal Circumsta	nces" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natu	rally problematic? (If needed, explain any	answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes <u>x</u> Yes <u>x</u>	No <u>x</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Bare soil. No vegetation.					

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14)	X Sparsely Vegetated Concave Surface (B8)
High Water Table (A2) Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Saturation (A3) Oxidized Rhizospheres on Living R	Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled So	ils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)	X Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes <u>No X</u> Depth (inches):	
Water Table Present? Yes <u>No X</u> Depth (inches):	
Saturation Present? Yes <u>No X</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspect	tions), if available:
Remarks:	

Sampling Point: E7-W1

[Absolute	Dominant I	ndicator	Dominance Test worksheet:	
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species	
1				That Are OBL, FACW, or FAC: (A))
2					
3				Total Number of Dominant	、 、
)
4				Percent of Dominant Species	
5		<u> </u>		That Are OBL, FACW, or FAC: (A/	/B)
6					
7.				Prevalence Index worksheet:	
		= Total Cove	r	Total % Cover of: Multiply by:	
50% of total cover	20% of	total cover:		OBL species x 1 =	
Sapling/Shrub Stratum (Plot size:				FACW species x 2 =	
				$F\Delta C$ species $x 3 =$	
1			<u> </u>		
2				FACU species X 4 =	
3		. <u></u>		UPL species x 5 =	
4.				Column Totals: (A) (B	B)
5					
<u> </u>				Prevalence Index = B/A =	
0				Hydrophytic Vegetation Indicators:	
7				1 - Rapid Test for Hydrophytic Vegetation	
8		. <u></u>		2 - Dominance Test is >50%	
9				$\frac{1}{2} = 2 \text{Drawalance restriction} 00\%$	
		= Total Cove	r	3 - Prevalence index is ≤3.0	
50% of total cover	20% of	total cover:		4 - Morphological Adaptations' (Provide support	ing
Horb Stratum (Plot size:				data in Remarks or on a separate sheet)	
				Problematic Hydrophytic Vegetation ¹ (Explain)	
1		<u> </u>			
2				¹ Indicators of hydric soil and wetland hydrology must	ł
3				be present, unless disturbed or problematic.	L
4.				Definitions of Four Vegetation Strate:	
5				Demittoris of Four Vegetation Strata.	
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm)	or
0				more in diameter at breast height (DBH), regardless	of
7				height.	
8				Sanling/Shrub - Woody plants, excluding vines, les	e.
9				than 3 in. DBH and greater than or equal to 3.28 ft (1	1
10.				m) tall.	
11					
		- Total Cava		Herb – All herbaceous (non-woody) plants, regardles	SS
E0% of total cover:	200/ of		1		
	20% 01	total cover.	<u> </u>	Woody vine - All woody vines greater than 3.28 ft ir	า
Woody Vine Stratum (Plot size:)				height.	
1					
2					
3.					
4					
				Hydrophytic	
5				Vegetation Present? Yes No X	
		= Total Cove	r		
50% of total cover:	20% of	total cover:	<u> </u>		
Remarks: (Include photo numbers here or on a separate	sheet.)				
Bare soil. No vegetation.					

SOIL	SOIL
------	------

Profile Des	cription: (Describe t	o the dep	oth needed to docur	nent the i	indicator	or confiri	n the absence of ind	icators.)	
Depth	Matrix		Redo	x Feature	s				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-6	5 <u>YR3/2</u>	100					Silt Loam		
6-16	5YR3/2	90	5YR3/4	10	C	Μ	Silt Loam		
						·			
						·	·		,
						·			
						·			
						·	<u> </u>		
¹ Type: C=C	oncentration, D=Depl	etion, RM	=Reduced Matrix, M	S=Masked	d Sand Gr	ains.	² Location: PL=Pore	e Lining, M=Matrix.	
Hydric Soil	Indicators:						Indicators for	or Problematic Hyd	ric Soils':
Histoso	l (A1)		Dark Surface	e (S7)			2 cm Mu	uck (A10) (MLRA 14 7	7)
Histic E	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147	, 148) Coast P	rairie Redox (A16)	
Black H	istic (A3)		Thin Dark Su	irface (S9) (MLRA ′	147, 148)	(MLR	A 147, 148)	
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix ((F2)		Piedmoi	nt Floodplain Soils (F	19)
Stratifie	d Layers (A5)		X Depleted M	atrix (F3)	-0)		(ML	RA 136, 147)	
2 cm Mi	uck (A10) (LRR N) Id Balaw Dark Surface	(111)	Redox Dark	Surface (F	-6) \(F7)		Very Sh	allow Dark Surface (TF12)
Depiete	ark Surface (A12)	e (ATT)	Depleted Da	rk Suriace	9) 9)			xplain in Remarks)	
Sandy M	Mucky Mineral (S1) (RR N	Iron-Mangan	eee Mass	0) As (F12) (
Oundy I	A 147, 148)	ixix ix,	MLRA 13	6)	(112)	LIXIX IX,			
Sandy (Gleved Matrix (S4)		Umbric Surfa	ce (F13)	MLRA 13	6. 122)	³ Indicators	of hydrophytic yeaet	tation and
Sandy F	Redox (S5)		Piedmont Flo	odplain S	oils (F19)	(MLRA 1	48) wetland h	vdrology must be pre	esent.
Stripped	d Matrix (S6)		Red Parent	Material (F	21) (MLR	A 127, 14	7) unless dis	sturbed or problemat	ic.
Restrictive	Layer (if observed):				, (·	
Type:									
Depth (in	iches):						Hydric Soil Prese	nt? Yes <u>X</u>	No
 Remarks [.]			_				-		

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Somerset</u>	Sampling Date: <u>4/9/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: E7 - W2
Investigator(s): <u>JR/RW/MS</u>	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NWI c	classification: <u>PEM1E</u>
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes <u>x</u> No (If no, expl	ain in Remarks.)
Are Vegetation, Soil, or Hydrology signif	icantly disturbed? Are "Normal Circumsta	nces" present? Yes <u>x</u> No
Are Vegetation, Soil, or Hydrology natu	Irally problematic? (If needed, explain any	y answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>x</u> Yes <u>x</u> Yes <u>x</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes <u>x</u>	No
Remarks:					
Red parent material.					

Wetland Hydrology Indicato	rs:	5	Secondary Indicators (minimum of two required)		
Primary Indicators (minimum c	of one is required; cheo		 Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) 		
Surface Water (A1)		-			
High Water Table (A2)		-	Drainage Patterns (B10)		
x Saturation (A3)		g Roots (C3)	Moss Trim Lines (B16)		
Water Marks (B1)		-	Dry-Season Water Table (C2)		
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6)			oils (C6)	Crayfish Burrows (C8)	
Drift Deposits (B3) Thin Muck Surface (C7)			-	Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Other (Explain in Remarks)			-	Stunted or Stressed Plants (D1)	
Iron Deposits (B5)				Geomorphic Position (D2)	
Inundation Visible on Aeri	al Imagery (B7)	-	Shallow Aquitard (D3)		
<u>x</u> Water-Stained Leaves (E	39)		-	x Microtopographic Relief (D4)	
Aquatic Fauna (B13)			-	FAC-Neutral Test (D5)	
Field Observations:					
Surface Water Present?	Yes No	Depth (inches):			
	Mara Nia	Donth (inchoo):			
Water Table Present?	Yes No	_ Deptri (incries).			
Water Table Present? Saturation Present? (includes capillary fringe)	Yes <u> </u>	Depth (inches): <u>surface</u>	Wetland Hy	/drology Present? Yes <u>x</u> N <u>o</u>	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (strea	Yes <u>x</u> No Yes <u>x</u> No am gauge, monitoring	_ Depth (inches): _ Depth (inches): surface well, aerial photos, previous inspec	Wetland Hy ctions), if avail	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (stream)	Yes No Yesx No am gauge, monitoring	_ Depth (inches) _ Depth (inches) <u>: surface</u> well, aerial photos, previous inspec	Wetland Hy	ydrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes No Yes No am gauge, monitoring evation from associated	_ Depth (inches): _ Depth (inches): surface well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	vdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes No Yesx No am gauge, monitoring evation from associated	_ Depth (inches): _ Depth (inches): <u>surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes No Yesx No am gauge, monitoring	d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes No Yesx No am gauge, monitoring	Depth (inches): Depth (inches): <u>surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (strea Remarks: 2-3' decrease in ele	Yes No Yesx No am gauge, monitoring	Depth (inches): Depth (inches) <u>: surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (strea Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u></u> am gauge, monitoring	Depth (inches) Depth (inches) <u>: surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes No Yes No am gauge, monitoring evation from associated	d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u>am gauge, monitoring</u>	Depth (inches): Depth (inches): <u>surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u>am gauge, monitoring</u>	Depth (inches): Depth (inches): <u>surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u>am gauge, monitoring</u>	Depth (inches): Depth (inches) <u>: surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u>am gauge, monitoring</u>	Depth (inches): Depth (inches) <u>: surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	
Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat Remarks: 2-3' decrease in ele	Yes <u>x</u> No <u>am gauge, monitoring</u>	Depth (inches): Depth (inches) <u>: surface</u> well, aerial photos, previous inspec d wetland plot E7-U2.	Wetland Hy	rdrology Present? Yes <u>x</u> N <u>o</u> able:	

Sampling Point: E7-W2

	Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species			
1.				That Are OBL, FACW, or FAC: 3 (A)			
2							
2			·	Total Number of Dominant			
			· <u> </u>	Species Across All Strata: (B)			
4			·	Percent of Dominant Species			
5			·	That Are OBL, FACW, or FAC: <u>100</u> (A/B)			
6				Duranda una la dese succelar ha este			
7				Prevalence index worksneet:			
		= Total Cov	ver	Total % Cover of:Multiply by:			
50% of total cover:	20% of	total cover	: <u> </u>	OBL species x 1 =			
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =			
1 Salix sp	80	р	FACW	FAC species x 3 =			
2			1/10/11	FACU species x 4 =			
Z			·				
3							
4				Column Totals: (A) (B)			
5				Prevalence Index = R/A =			
6.							
7.	_			Hydrophytic Vegetation Indicators:			
0			·	1 - Rapid Test for Hydrophytic Vegetation			
o			·	<u>x</u> 2 - Dominance Test is >50%			
9			·	3 - Prevalence Index is ≤3.0 ¹			
	80	= Total C	Cover	4 - Morphological Adaptations ¹ (Provide supporting			
50% of total cover: <u>40</u>	20%	of total cov	ver: 16	data in Romarks or on a sonarate sheet)			
Herb Stratum (Plot size: 5')							
1. Phalaris arundinacea	5	D	FACW	Problematic Hydrophytic Vegetation (Explain)			
2 Persicaria sanittata	10		OBI				
2				¹ Indicators of hydric soil and wetland hydrology must			
3			·	be present, unless disturbed or problematic.			
4			·	Definitions of Four Vegetation Strata:			
5							
6				I ree – Woody plants, excluding vines, 3 in. (7.6 cm) or			
7.				height			
8							
0			·	Sapling/Shrub – Woody plants, excluding vines, less			
9			·	than 3 in. DBH and greater than or equal to 3.28 ft (1			
10			·	m) tan.			
11				Herb – All herbaceous (non-woody) plants, regardless			
	15	= Total C	Cover	of size, and woody plants less than 3.28 ft tall.			
50% of total cover: 7.5	20% of to	otal cover:	3	We advantage Allowed by incomparison that there 0.00 ft in			
Woody Vine Stratum (Plot size:)				Woody vine – All woody vines greater than 3.28 ft in height			
1				neight.			
··			·				
۲			·				
3							
4				Hydrophytic			
5				Vegetation			
		= Total Cov	ver	Present? Yes <u>X</u> No			
50% of total cover:	20% of	total cover	:				
Remarks: (Include photo numbers here or on a separate s	sheet)						
	incet.)						
Profile Desc	ription: (Describe	to the dep	th needed to docur	nent the i	indicator	or confirm	n the absence of indicators.)
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Depth	Matrix		Redo	x Feature	s		
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture Remarks
0-6	5YR3/2	90	5YR3/4	10	С	Μ	Silt material with sand and gravel lenses thoughout
6-16	5YR3/2	70	5YR3/4	30	C	Μ	
. <u>.</u>							
¹ Type: C=Co	oncentration, D=Dep	letion, RM	=Reduced Matrix, MS	S=Masked	d Sand Gra	ains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils':
Histosol	(A1)		Dark Surface	e (S7)			2 cm Muck (A10) (MLRA 147)
Histic Ep	pipedon (A2)		Polyvalue Be	low Surfa	ce (S8) (N	ILRA 147	, 148) Coast Prairie Redox (A16)
Black Hi	stic (A3)		Thin Dark Su	irface (S9) (MLRA 1	47, 148)	(MLRA 147, 148)
Hydroge	en Sulfide (A4)		Loamy Gleye	ed Matrix ((F2)		Piedmont Floodplain Soils (F19)
Stratified	d Layers (A5)		<u>x</u> Depleted M	atrix (F3)			(MLRA 136, 147)
2 cm Mu	ıck (A10) (LRR N)		Redox Dark	Surface (F	-6)		Very Shallow Dark Surface (TF12)
Depleted	d Below Dark Surfac	e (A11)	Depleted Date	rk Surface	e (F7)		Other (Explain in Remarks)
Thick Da	ark Surface (A12)		Redox Depression	essions (F	8)		
Sandy M	lucky Mineral (S1) (I	LRR N,	Iron-Mangan	ese Mass	es (F12) (LRR N,	
MLRA	A 147, 148)		MLRA 13	6)			
Sandy G	Bleyed Matrix (S4)		Umbric Surfa	ice (F13)	(MLRA 13	6, 122)	³ Indicators of hydrophytic vegetation and
Sandy R	Redox (S5)		<u>x</u> Piedmont F	loodplain	Soils (F19) (MLRA ′	148) wetland hydrology must be present,
Stripped	Matrix (S6)		Red Parent N	Aaterial (F	21) (MLR	A 127, 14	7) unless disturbed or problematic.
Restrictive I	Layer (if observed)						
Туре:							
Depth (ind	ches):						Hydric Soil Present? Yes <u>x</u> No
Remarks:							

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: <u>Bridgewater, Some</u>	erset Sampling Date:
Applicant/Owner: USACE	S	ate: <u>NJ S</u> ampling Point: <u>EC1 - U1</u>
Investigator(s): JR/RW/MS	Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>		NWI classification:
Are climatic / hydrologic conditions on the site typical for this time c	of year? Yes <u>x</u> No (If	no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significa	Intly disturbed? Are "Normal Ci	rcumstances" present? Yes <u>x</u> No
Are Vegetation, Soil <u>X</u> , or Hydrology natura	lly problematic? (If needed, ex	plain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ing sampling point location	s, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>x</u> No <u>x</u> No <u>x</u>	Is the Sampled Area within a Wetland?	Yes	No <u>x</u>
Remarks:					
Red parent material.					

HYDROLOGY

Wetland Hydrology Indicate	ors:				Secondary Indicators (minimum of two required)
Primary Indicators (minimum	of one is re	equired; che	eck all that apply)		Surface Soil Cracks (B6)
Surface Water (A1)		_	_ True Aquatic Plants (B14)		Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)		_	_ Hydrogen Sulfide Odor (C1)		Drainage Patterns (B10)
Saturation (A3)		_	Oxidized Rhizospheres on Living	Roots (C3)	Moss Trim Lines (B16)
Water Marks (B1)		_	Presence of Reduced Iron (C4)		Dry-Season Water Table (C2)
Sediment Deposits (B2)		_	_ Recent Iron Reduction in Tilled S	Soils (C6)	Crayfish Burrows (C8)
Drift Deposits (B3)		_	Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		_	Other (Explain in Remarks)		Stunted or Stressed Plants (D1)
Iron Deposits (B5)					Geomorphic Position (D2)
Inundation Visible on Aer	ial Imagery	/ (B7)			Shallow Aquitard (D3)
Water-Stained Leaves (B	9)				Microtopographic Relief (D4)
Aquatic Fauna (B13)					FAC-Neutral Test (D5)
Field Observations:					
Surface Water Present?	Yes	No	Depth (inches):		
Water Table Present?	Yes	No	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes	No	Depth (inches):	Wetland I	Hydrology Present? Yes No <u>x</u>
Describe Recorded Data (stre	eam gauge	, monitoring	g well, aerial photos, previous inspe	ctions), if ava	ailable:
Remarks:					

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: EC1-U1

, , , , , , , , , , , , , , , , , , ,	Absoluto	- Dominant	Indicator	Dominanco Tost workshoot:	
Tree Stratum (Plot size:	% Cover	Species?	Status		
1				That Are OBL EACW or EAC: (A)	
I					
2				Total Number of Dominant	
3				Species Across All Strata: (B)	
4.					
5				Percent of Dominant Species	D \
				That Are OBL, FAGW, of FAG: (A/	в)
0				Prevalence Index worksheet:	
7				Total % Covor of: Multiply by:	
		= Total Cov	er		
50% of total cover:	20% of	total cover:		OBL species x 1 =	
Sapling/Shrub Stratum (Plot size: 15')				FACW species x 2 =	
1 Gleditsia tricanthos	20	П	FAC	FAC species x 3 =	
	45			FACU species x 4 =	
2. Rosa multinora	15	U	<u> </u>		
3				OPL species x 5 =	
4				Column Totals: (A) (B	5)
5.					
6				Prevalence Index = B/A =	
0		·		Hydrophytic Vegetation Indicators:	
/		·		1 - Rapid Test for Hydrophytic Vegetation	
8				2 - Dominance Test is >50%	
9				$\frac{1}{2} = \frac{1}{2} $	
	35	= Total C	over	3 - Prevalence index is ≤3.0	
50% of total cover: 17 f	5 20% of t	otal cover	7	4 - Morphological Adaptations' (Provide supporting)	ng
Liente Christiane (Biet size) 51	<u></u> 2070011			data in Remarks or on a separate sheet)	
Herb Stratum (Prot Size. <u>5</u>)		_		Problematic Hydrophytic Vegetation ¹ (Explain)	
1. <u>Poa</u>	95	D	NI		
2					
3.				ha present upless disturbed or problematic	
1				be present, unless disturbed of problematic.	
				Definitions of Four Vegetation Strata:	
5		·		Tree – Woody plants, excluding vines, 3 in (7.6 cm)	or
6				more in diameter at breast height (DBH) regardless of	of
7				height.	
8					
0				Sapling/Shrub – Woody plants, excluding vines, less	3
9		·		than 3 in. DBH and greater than or equal to 3.28 ft (1	
10					
11				Herb – All herbaceous (non-woody) plants, regardles	s
	95	= Total C	over	of size, and woody plants less than 3.28 ft tall.	-
50% of total cover:	20% of	total cover:			
Woody Vine Stratum (Plot size:				Woody vine – All woody vines greater than 3.28 ft in	
				neight.	
1					
2					
3					
4.					
E				Hydrophytic	
J				Present? Ves No X	
		= Total Cov	er		
50% of total cover:	20% of	total cover:			
Remarks: (Include photo numbers here or on a separate s	sheet.)				

SOIL

Depth Matrix			Redo	x Features				
(inches)	Color (moist)	%	Color (moist)	<u>% Ty</u>	pe ¹ Loc ²	Texture	Rem	arks
0-4	5YR3/3	100				SCL	Oxidized root c	hannels throughout (10
4-16	5YR3/4	100		·		SCL		
¹ Type: C=C	oncentration, D=I	Depletion, RM=	Reduced Matrix, MS	S=Masked San	d Grains.	² Location: P	L=Pore Lining, M=N	latrix.
Hydric Soil	Indicators:					Indica	ators for Problema	tic Hydric Soils ³ :
Histosol Histic E Black H Hydroge Stratifie	I (A1) pipedon (A2) istic (A3) en Sulfide (A4) d Layers (A5)		Dark Surface Polyvalue Be Thin Dark Su Loamy Gleye Depleted Ma	(S7) low Surface (S rface (S9) (ML d Matrix (F2) trix (F3)	8) (MLRA 147 RA 147, 148)	, 148) C	cm Muck (A10) (ML oast Prairie Redox ((MLRA 147, 148) iedmont Floodplain (MLRA 136, 147)	.RA 147) (A16) Soils (F19)
2 cm Mu Deplete Thick Da	uck (A10) (LRR N d Below Dark Sur ark Surface (A12) Mucky Mineral (S) face (A11)	Redox Dark Depleted Dar Redox Depre	Surface (F6) k Surface (F7) ssions (F8) ese Masses (F	12) (I RR N	v c	ery Shallow Dark Sı tther (Explain in Rer	urface (TF12) narks)
MLRA Sandy C Sandy F Stripped	A 147, 148) Gleyed Matrix (S4 Redox (S5) d Matrix (S6))	MLRA 13 Umbric Surfa Piedmont Flc X Red Parent	6) ce (F13) (MLR odplain Soils (I Material (F21)	A 136, 122) ⁻ 19) (MLRA 1 (MLRA 127, 1	³ Ind 48) we 47) u	icators of hydrophyt tland hydrology mus nless disturbed or p	ic vegetation and st be present, roblematic.
Restrictive	Layer (if observe	ed):			(
Type: Depth (in	iches):	-				Hydric Soil	Present? Yes _	No <u>X</u>
Remarks:	-					-		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Finderne Farm Wetland Mitigation Site	City/County: Bridgewater, Somerset	Sampling Date: <u>4/21/14</u>
Applicant/Owner: USACE	State:	NJ Sampling Point: EC1 - W1
Investigator(s): _JR/RW/MS	_Section, Township, Range:	
Landform (hillslope, terrace, etc.): Floodplain Lo	ocal relief (concave, convex, none):	Slope (%):
Subregion (LRR or MLRA): <u>MLRA 148</u> Lat:	Long:	Datum:
Soil Map Unit Name: <u>Rowland Silt Loam</u>	NV	VI classification: <u>PUBHh</u>
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes <u>x</u> No (If no, e	xplain in Remarks.)
Are Vegetation, Soil, or Hydrology significantl	y disturbed? Are "Normal Circum	stances" present? Yes <u>x</u> No
Are Vegetation, Soil _X, or Hydrology naturally	problematic? (If needed, explain	any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations, tra	ansects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	N <u>o</u> N <u>o</u>	Is the Sampled Area within a Wetland?	Yes X	No
Remarks:					
Red parent material.					

|--|

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Plants (B14) High Water Table (A2) Hydrogen Sulfide Odor (C1) Saturation (A3) Oxidized Rhizospheres on Living Water Marks (B1) Presence of Reduced Iron (C4) Sediment Deposits (B2) Recent Iron Reduction in Tilled So X Drift Deposits (B3) Thin Muck Surface (C7) Algal Mat or Crust (B4) Other (Explain in Remarks) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13)	
Field Observations:	
Surface Water Present? Yes No x Depth (inches):	
Water Table Present? Yes No _x Depth (inches):	
Saturation Present? Yes <u>No x</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes <u>x</u> N <u>o</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: EC1-W1

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover Species? Status</u>	Number of Dominant Species
1		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: 1 (B)
4.		()
5		Percent of Dominant Species
6		That are OBL, FACW, of FAC: 100 (A/B)
7		Prevalence Index worksheet:
1		Total % Cover of: Multiply by:
	= I otal Cover	OBL species x 1 =
50% of total cover:	20% of total cover:	$EACW$ species $x^2 =$
Sapling/Shrub Stratum (Plot size:)		
1		
2		FACU species x 4 =
3		UPL species x 5 =
4		Column Totals: (A) (B)
5		Drevelance Index - D/A
6.		Prevalence index = B/A =
7		Hydrophytic Vegetation Indicators:
/·		1 - Rapid Test for Hydrophytic Vegetation
8		<u>x</u> 2 - Dominance Test is >50%
9		3 - Prevalence Index is ≤3.0 ¹
	= Total Cover	4 - Morphological Adaptations ¹ (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a separate sheet)
Herb Stratum (Plot size: 5')		Problematic Hydrophytic Vegetation ¹ (Explain)
1. Phalaris arundinacea	95 D FACW	
2		1
3.		Indicators of hydric soil and wetland hydrology must
4.		Definitions of Four Venetation Strates
5		Definitions of Four Vegetation Strata:
6		Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
0		more in diameter at breast height (DBH), regardless of
[/		height.
8		Sapling/Shrub – Woody plants, excluding vines, less
9		than 3 in. DBH and greater than or equal to 3.28 ft (1
10		m) tall.
11		Herb – All herbaceous (non-woody) plants, regardless
	95 = Total Cover	of size, and woody plants less than 3.28 ft tall.
50% of total cover:	20% of total cover:	We advising Allowed wines are start than 2.20 ft in
Woody Vine Stratum (Plot size:)		height
1.		
2		
3		
4		Hydrophytic
5		Vegetation Present? Ves x No
	= Total Cover	
50% of total cover:	20% of total cover:	
Remarks: (Include photo numbers here or on a separate	sheet.)	

SOIL	
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epth Matrix		Redox Features						
nches) Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Textur	e Remarks	
)-6 <u>5YR4/2</u>	85	5YR4/6	15	С	PL	SCL		
5YR4/2	70	5YR4/6	30	C	<u>PL</u>	SCL		
				. <u> </u>	·			
ype: C=Concentration, D=Deple	tion, RM=	Reduced Matrix, M	S=Masked	I Sand Gr	ains.	² Locatior	n: PL=Pore Lining, M=Matrix.	
dric Soil Indicators:						Ir	ndicators for Problematic Hydric Soils [*] :	
_ Histosol (A1)	Dark Surface	e (S7)				2 cm Muck (A10) (MLRA 147)		
_ Histic Epipedon (A2)		Polyvalue Be	elow Surfa	ce (S8) (N	/LRA 147	, 148)	_ Coast Prairie Redox (A16)	
_ Black Histic (A3)			Inace (59)) (IVILKA '	147, 148)		(MLRA 147, 148) Diadmont Electricia Saila (E10)	
Stratified Layors (A5)	Depleted Matrix (F3)				_	(MI RA 136 147)		
2 cm Muck (A10) (I PP N)		<u> </u>	aurix (13) Surface (E	6)			Very Shallow Dark Surface (TE12)	
Depleted Below Dark Surface	(A11)	Depleted Da	rk Surface	(F7)		_	Other (Explain in Remarks)	
Thick Dark Surface (A12)	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Redox Depre	essions (Fi	8)				
Sandy Mucky Mineral (S1) (LF	RR N.	Iron-Mangan	ese Mass	es (F12) (LRR N.			
MLRA 147, 148)	,	MLRA 13	6)		,			
Sandy Gleved Matrix (S4)		Umbric Surfa	ace (F13) (MLRA 13	86, 122)		³ Indicators of hydrophytic vegetation and	
Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 14					48)	wetland hydrology must be present,		
Stripped Matrix (S6)		Red Parent I	Material (F	21) (MLR	A 127, 14	7)	unless disturbed or problematic.	
estrictive Layer (if observed):							-	
Туре:								
						Hydric	Soil Present? Yes x No	
Depth (inches):								

APPENDIX C

Delineated Wetlands

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Plate 1: General Map

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014



SCALE 0' 200





Plate 2: Wetland Delineation Map 1

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project













Plate 3: Wetland Delineation Map 2

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Approved By: Date: June 10, 2014







Plate 4: Wetland Delineation Map 3

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project













Plate 5: Wetland Delineation Map 4

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project













Plate 6: Wetland Delineation Map 5

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project











APPENDIX D

Topographic Survey

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Supplemental Topographic Information

Supplemental Topographic Information was acquired to assist in developing any required adaptive management measures. This information was developed by two independent methods: survey lines (transects), and spot elevations.

The survey transect lines comprise twenty-two (22) alignments in Wetland Areas C1 & C2 (extending into a portion of Enhancement Area E2). Along these lines topographic elevations were surveyed at 20 feet intervals. Johnson, Mirmiran & Thompson, Inc. obtained approximately 281 elevations using conventional surveying methods. The survey work was conducted on May 21-23 2014, and was supervised by Ambrose Gmeiner, a New Jersey licensed land surveyor. These sections and the surveyed elevations are presented on the Supplemental Topographic mapping. In the field hardwood stakes with red ribbons demarcate the beginning, and end of each survey transect line.

Supplemental spot elevations were collected throughout the project site, from April through June, and in conjunction with the location of the wetland delineation flagging. This data was measured with a Trimble SPS985 GPS utilizing RTK corrections through an internet data stream from NearSite_RTCMv3. Vertical adjustments utilize geoid model Geoid-09 (Conus). 1,035 spot elevations with a vertical accuracy of 0.15 feet or less were taken. Water surface elevations were measured on May 23, 2014, at 28 locations throughout the site.

The coordinates for this supplemental topographic mapping are based on New Jersey State Plane Coordinate System, North American Datum of 1983 (NAD83) in US survey feet. The vertical datum is NGVD29 feet. The survey data's x, y, and z coordinates are in the accompanied spreadsheet at this link.

The collected data are presented on the following plates:

Plate 07- Supplemental Topographic Map – General Map	
Plate 08- Supplemental Topographic Map – Supplemental Topographic Information Map	
Plate 09- Supplemental Topographic Map – Supplemental Topographic Information Map	2
Plate 10- Supplemental Topographic Map – Supplemental Topographic Information Map	3
Plate 11- Supplemental Topographic Map – Supplemental Topographic Information Map	ŀ
Plate 12- Supplemental Topographic Map – Supplemental Topographic Information Map	5

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Plate 7: General Topography Map

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014



SCALE 0' 200





Plate 8: Supplemental Topographic Information Map 1

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014







Plate 9: Supplemental Topographic Information Map 2

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014







Plate 10: Supplemental Topographic Information Map 3

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014







Plate 11: Supplemental Topographic Information Map 4

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014







Plate 12: Supplemental Topographic Information Map 5

Contract # W912DS-13-D-002; Assistance to USACE-NY for conducting a wetland delineation and supplemental topographical surveying at the Finderne Farms Mitigation site of the Green Brook Flood Control Project







Drawn By: Beckett Boyd Approved By: Date: June 10, 2014



