2013 Wetland Delineation & Monitoring Report

RUBBERT WETLAND MITIGATION SITE PHASE 2
WisDOT PROJECT I.D. 0695-12-13
WINNEBAGO COUNTY, WISCONSIN

Stantec

Prepared for:

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INTRODUCTION

Stantec Consulting Services Inc. (Stantec) performed vegetation community mapping and a wetland determination and delineation at the Wisconsin Department of Transportation (WisDOT) Rubbert Wetland Mitigation Site-Phase 2 in the Town of Clayton, Winnebago County, Wisconsin ("the Project"). The Project was constructed in 2012 by WisDOT to compensate for wetland impacts associated with upgrades to the U. S. Highway 45 (USH 45) corridor. The Project site is approximately 54.8 acres, and is located in Section 17, Township 20 North, Range 16 East (Figure 1). The site is bordered by Winnebago County Trunk II to the south, Rubbert Mitigation Site Phase 1 to the west, and agricultural lands to the east and north.

The Project site was constructed to restore wetland hydrology on drained agricultural land. Wetland hydrology was established through the construction of a berm as well as the removal of drain tile. The purpose and objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands within the Project site. In addition to the wetland delineation, a reconnaissance of the Project was conducted to develop a vegetation community map, and to determine the distribution and extent of invasive species. The wetland delineation and site reconnaissance was completed by Melissa Curran and Nik Bertagnoli of Stantec on August 15, 2013.

MITIGATION GOALS, OBJECTIVES, & PERFORMANCE STANDARDS

MITIGATION GOALS

The goals of the Rubbert Wetland Mitigation Site Phase 2 are to provide self-sustaining, passively managed wetlands within the existing landscape and to compensate for loss of wetland function caused by the USH 45 freeway conversion project.

MITIGATION OBJECTIVES

The Project objective was to create and restore converted wetlands to wet meadow and shallow marsh plant communities. This was accomplished through disabling drain tiles, excavating to intercept groundwater, and creating berms. Additionally, two fixed plate weirs and riprap spillways were installed to aid in restoration of the wetlands. Revegetation of the Project was accomplished through planting desired native species and through natural ingress from adjacent wetlands and the soils seed bank. In addition to wetland creation and restoration, the design of the Rubbert Site Phase 2 included on-site enhancement of upland and existing wetland communities.

VEGETATION SUCCESS CRITERIA

Vegetation success criteria will be applied throughout the post-construction monitoring phase to assess progress toward meeting the project objectives. The following lists the vegetation success criteria presented in the U.S. Army Corps of Engineers permit letter dated February 10, 2012 (Appendix A).

1. At least 75% of vegetative areal cover within the wetland communities of the mitigation site shall be composed of FAC, FACW or OBL species.
2. Herbaceous communities (including upland buffers) shall be dominated by 10 or more species of native grasses, sedges, rushes, forbs and/or ferns and shall achieve approximately 80% areal coverage by Year 5.
3. Control of invasive and/or non-native plant species shall be carried out for five full growing seasons. Control shall consist of mowing, burning, disking, mulching, biocontrol and/or herbicide treatments. By the third growing season, and areas one-quarter acre in size or larger that have greater than 50 percent areal cover of invasive and/or non-native species shall be treated and/or cleared and then reseeded. Follow-up control of invasive and/or non-native species shall be implemented as stated above. At the end of the fifth growing season, the vegetative community shall not contain greater than 5 percent vegetative areal cover of invasive and/or non-native species including but not limited to: reed canary grass (*Phalaris arundinacea*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), smooth brome (*Bromus inermis*), giant ragweed (*Ambrosia trifida*), common ragweed (*Ambrosia artemisiifolia*), quack grass (*Elytrigia repens*), black locust (*Robinia pseudoacacia*), sweet clovers (*Melilotus alba, M. officinalis*), non-native honeysuckles (*Lonicera x bella*), and non-native buckthorns (*Rhamnus*

cathartica and *R. frangula*). The mitigation site shall have no purple loosestrife (*Lythrum salicaria*) present at the end of the monitoring period. Failure to meet any of the above criteria shall extend the permittee's responsibility for monitoring and control of invasive/non-native species within the compensation site.

MONITORING METHODS

WETLAND DELINEATION

Wetland determinations were based on the criteria and methods outlined in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (2009), *United States Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1 (1987), and subsequent guidance documents (USACE 1991, 1992), Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996), and the *Basic Guide to Wisconsin's Wetlands and their Boundaries* (Wisconsin Department of Administration Coastal Management Program 1995).

The wetland determination involved the use of available resources to assist in the assessment such as USGS topographic maps, Natural Resources Conservation Service (NRCS) soil survey, Wisconsin Wetland Inventory (WWI) mapping, and aerial photography. In addition to these resources, climate data from the National Weather Service (NWS) and the United States Geological Survey (USGS) were also analyzed to help justify conclusions that were reached in the field.

On-site wetland determinations were made using the three criteria (vegetation, soil and hydrology) and technical approach defined in the NC/NE Regional Supplement. According to procedures described in the NC/NE Regional Supplement, areas that under normal circumstances reflect a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands.

The wetland boundary was surveyed with a Global Positioning System (GPS) capable of sub-meter accuracy and mapped using Geographical Information System (GIS) software.

VEGETATION COMMUNITY MAPPING

Vegetation data was collected at sample points located in each distinct community type and by using a meander survey technique to gather comprehensive species lists for each distinct vegetation community or homogenous stand. In combination, both methods provide a thorough understanding of the floristic quality of the Project and the vegetation's response to mitigation activities.

Twelve sample points were placed in areas representative of each community type within the wetland mitigation area and associated upland buffer (Figure 4). Percent cover of herbaceous and woody vegetation was recorded for each sample point and dominance was determined through use of the 50/20 rule. Prevalence Index (PI) was used to determine the percentage of species FAC or wetter. If the PI was $\leq$3.0, the vegetation was considered hydrophytic.

A meander survey was used to develop a comprehensive plant species list, and identify vegetation cover types present within the Project area. Boundaries of all plant communities/ stands were mapped, and representative photographs were taken. The mapped vegetation cover type boundaries were digitized onto aerial photography using GIS technology. Species lists were compiled for each plant community / stand and a mean Coefficient of Conservatism (C) and Floristic Quality Index (FQI) was calculated for native and non-native species.

The Floristic Quality Assessment (FQA) methodology was used to monitor and assess the wetland floristic quality at the site, following methodology developed by the Wisconsin Department of Natural Resources. This method is based on calculating an average Coefficient of Conservatism (C) and a Floristic Quality Index (FQI) for each community and/or stand using the following formula:

FQI = Mean C($\sqrt{N}$)
C= Coefficient of Conservatism
N= species richness (Identifiable Native & Non-native)

Because it utilizes measures of floristic diversity and quality, the FQI values can be used as one tool to evaluate the biological integrity and lack of disturbance in a particular site; however, they should be used in conjunction with other tools (such as functional assessments, assessments of wildlife habitat, etc.) to evaluate the integrity, quality, and value of a site. While FQI results must be carefully interpreted, especially in small sites or stands, which usually result in lower FQI values regardless of species composition, it is generally accepted that an FQI value of 35 and/or a mean C value of 4.0 indicates a site with very high floristic quality and integrity, while an FQI value of less than 20 and a mean C value of less than 2.5 indicates a site is degraded.

MONITORING RESULTS

SITE DESCRIPTION

The majority of the Project site is comprised of shallow marsh and less commonly wet meadow and upland buffer communities. The USGS Topographic Map (Figure 1) indicates the Project site is located in a relatively flat area adjacent to an intermittent waterway, known as Arrowhead River, which flows south along the western edge of the Project separating Phase 1 from the Phase 2.

Soils mapped on the Project site by the *NRCS Soil Survey of Winnebago County* include Menasha clay (Mn), Poy silty clay loam (Pt), and Neenah silty clay loam (NhA) (Figure 2). According to the NRCS List of Hydric Soils for Winnebago County, Menasha and Poy soils are hydric, while Neenah soils contain hydric inclusions. Menasha soils consist of very deep, poorly drained soils formed in clayey lacustrine deposits on glacial lake basins and stream terraces. The Poy series consists of very deep poorly drained soils that are moderately deep to sandy deposits. They formed primarily in clayey water-laid deposits overlying sandy deposits on glacial lake basins and stream terraces. The Neenah series consists of very deep, somewhat poorly drained soils formed in clayey lacustrine deposits on glacial lake basins and stream terraces. The wetlands identified on the Project are mostly located within the Menasha map units. It is important to note that the soil map was created prior to construction of the Project.

The Wisconsin Wetland Inventory (WWI) map does not indicate the presence of wetlands within the Project (Figure 3). However, it is important to note that the WWI wetland map was created prior to construction of the Project.

According to the NWS Oshkosh Weather Station 3.02 inches of rain were recorded in July, and up until the time of the delineation, 0.58 inches of rain had been recorded in August. Rainfall for July was considered a normal rainfall and August was below normal. According to the USGS' Waterwatch Data, stream flows near the Project were normal. Based on the recorded precipitation and stream flows present near the Project, it was assumed that direct observations of wetland hydrology (inundation or saturation to the surface) may be observed.

WETLAND DELINEATION

Two wetlands were identified and delineated within the Project. USACE data sheets were completed for twelve sample points along transects through the wetlands and adjacent uplands and are contained in Appendix B. The wetland boundaries and sample point locations are shown on Figure 4. The wetlands are summarized in Table 1 and described in detail in the following sections.

Table 1. Summary of the wetlands identified within the Project.

Wetland	Wetland Type	Adjacent Surface Waters	Acreage (on-site)
Wetland 1	WDNR: Shallow Marsh (E1K)/ Wet Meadow (E2K) WisDOT: SM & WM	Directly adjacent to the Arrowhead River	10.75 acres
Wetland 2	WDNR: Shallow Marsh (E1K)/ Wet Meadow (E2K)	Directly adjacent to the Arrowhead River	23.70 acres

	WisDOT: SM & WM		

Wetland 1 (W-1)

Wetland 1 is a 10.75 acre wet meadow/shallow marsh located in the southwest parcel of the Project.

Vegetation

Dominant plant species identified within W-1include narrow-leaved cattail (*Typha angustifolia*), and barnyard grass (*Echinochloa crusgalli*). The dominant species within the wetland are comprised of hydrophytic vegetation (OBL, FACW, and/or FAC) and meet the hydrophytic vegetation criterion.

Hydrology

The wetland appears to have a seasonally inundated/saturated hydroperiod. Primary indicators of wetland hydrology included saturation. Secondary indicators of wetland hydrology included the FAC-neutral test and geomorphic position. Therefore, the wetland hydrology criterion was met.

Soils

Soils within the wetland are mostly mapped by the NRCS as Menasha clay loam (Figure 2). The soils observed at the sample points were not consistent with the Menasha series' characteristics. NRCS field indicators of hydric soil including F6 – Redox Dark Surface, F7 – Depleted Dark Surface, and TF2 – Red Parent Material were observed.

Wetland 2 (W-2)

Wetland 2 is a 23.70 acre wet meadow/shallow marsh located in the northeast parcel of the Project.

Vegetation

Dominant plant species identified within W-2 include narrow-leaved cattail, barnyard grass, northern water-plantain (*Alisma triviale*), heart's-ease (*Polygonum lapathifolium*), green foxtail (*Setaria viridis*), witch grass (*Panicum capillare*), Virginia wild-rye (*Elymus virginicus*), curly dock (*Rumex crispus*), and Kentucky bluegrass (*Poa pratensis*). The dominant species within the wetland are mostly comprised of hydrophytic vegetation (OBL, FACW, and/or FAC) and meet the hydrophytic vegetation criterion.

Hydrology

The wetland appears to have a seasonally inundated/saturated hydroperiod. Primary indicators of wetland hydrology included saturation. Secondary indicators of wetland hydrology included the FAC-neutral test and geomorphic position. Therefore, the wetland hydrology criterion was met.

Soils

Soils within the wetland are mostly mapped by the NRCS as Menasha clay loam (Figure 2). The soils observed at the sample points were not consistent with the Menasha series' characteristics. NRCS field indicators of hydric soil including F6 – Redox Dark Surface and F7 – Depleted Dark Surface were observed.

Wetland Boundary

The wetland boundary was determined based on distinct differences in vegetation, hydrology, and topography consisting of the following: 1) Transition from a wet meadow/emergent wetland complex dominated by hydrophytes to an upland community dominated by upland species; 2) Transition from areas with sufficient evidence of wetland hydrology to areas that lacked wetland hydrology indicators; and 3) Transition from a depressional landscape to a gently sloping landscape.

Uplands

Uplands within the Project consist of a mesic prairie planting dominated by green foxtail, common ragweed (*Ambrosia artemisiifolia*), red clover (*Trifolium pratense*), quackgrass, common dandelion (*Taraxacum officinale*), heart's-ease, plantain (*Plantago major*), and curly dock.

Indicators of hydric soil and wetland hydrology were not observed at the upland data plots. Upland plots were located approximately 2-3 feet higher in elevation than the adjacent wetland plots. The uplands are located in a gently sloping landscape (~2-6%), and are not located in topographic positions that are conducive to wetland formation.

VEGETATION COMMUNITY MAPPING

Three vegetation communities or stands were identified and mapped within the Project (Figure 5), and includes, shallow marsh (SM), wet meadow (M), and upland buffer communities. Species lists for each community are provided in Appendix C and a brief description of each is provided below.

Shallow (SM)

The shallow marsh community comprises 30.79 acres of the Project site and is dominated by narrow-leaved cattail and less commonly soft-stem bulrush (*Schoenoplectus tabernaemontani*), barnyard grass and northern water-plantain. This community comprises the greatest acreage across the Property and is located centrally within the northern and southern units (Figure 5). A total of 27 species (22 native, 5 non-native) were identified within this community. Mean C is 2.8 for all species and FQI is 14.6 for all species, which is the highest value recorded at the Property. Invasive species of concern within this plant community includes reed canary grass, which currently comprises less than 5 percent of the areal coverage.

Wet Meadow (M)

The wet meadow community comprises 3.54 acres of the Project site and is dominated by northern water-plantain, barnyard grass, witch grass, heart's-ease, alsike clover (*Trifolium hybridum*) and red clover. This community is located along the perimeter of the shallow marsh community, adjacent to the upland buffer in three separate stands (Figure 5). A total of 32 species (18 native, 14 non-native) were identified within this community. Mean C is 1.4 for all species and FQI is 7.8 for all species, which is considered low from a floristic quality standpoint. The abundance of non-native species and the present of "weedy" native species contribute to the low mean C and FQI values. However, low values are expected for recently disturbed sites and it's assumed these values will increase over time as more conservative native species become established. Invasive species of concern include reed canary grass, which represents less than 1 percent cover.

Upland Buffer

The upland buffer comprises 24.26 acres of the site and is dominated by common ragweed, giant ragweed (*Ambrosia trifida*), pearl millet (*Pennisetum glaucum*), plantain, heart's-ease and green foxtail. The upland buffer is located along the perimeter berm of the Property and upland areas throughout the Property. A total of 44 species (19 native, 25 non-native) were identified within the upland buffer. Mean C is 1.0 for all species and FQI is 6.5 for all species, which is considered low from a floristic quality standpoint, and is the lowest for any community at the Property. Similar to the wet meadow community, the abundance of non-native species and the present of "weedy" native species contribute to the low mean C and FQI values. These values are expected to increase over time as more conservative native species become established. Invasive species of concern are minimal, represented by only reed canary grass with an estimated 5 percent areal coverage.

PERFORMANCE STANDARDS MET

Progress towards meeting the vegetation success criteria is discussed below.

1. At least 75% of vegetative areal cover within the wetland communities of the mitigation site shall be composed of FAC, FACW or OBL species.

    - Two sample points (W1-1w and W2-3w) were established in the wet meadow communities and four sample points (W1-3w, W1-2w, W2-1w and W2-2w) were established in the shallow marsh communities. The dominance test at sample point W2-3w suggests that 71.4% of the dominant species are OBL, FACW or FAC; whereas 100% of the dominant species are OBL, FACW or FAC at sample point W1-1w. The dominance test at all four sample points within the shallow marsh communities suggests that 100% of the dominant species are OBL, FACW or FAC.

2. Herbaceous communities (including upland buffers) shall be dominated by 10 or more species of native grasses, sedges, rushes, forbs and/or ferns and shall achieve approximately 80% areal coverage by Year 5.

    - Dominant species at the wet meadow sample points includes non-native barnyard grass, green foxtail, curly dock and Kentucky blue-grass, and native heart's-ease, witch grass, and Virginia wild-rye (*Elymus virginicus*). Native species areal cover currently does not meet the vegetation success criteria within the wet meadow communities, but it is expected to increase over time as early successional non-native species get replaced by conservative native species. Dominant species in all four sample points within the shallow marsh community was narrow-leaved cattail, which is an aggressive non-native species. Without aggressive control of this species, native species percent cover will not meet this success criterion. Dominant species within the upland buffer sample points includes common ragweed, green foxtail, common plantain, heat's-ease, dandelion, curly dock, red clover and quack grass. Native species areal cover currently does not meet the vegetation success criteria within the upland buffer communities, but similar to the wet meadow communities, it is expected to increase over time as early successional non-native species get replaced by conservative native species.

3. Control of invasive and/or non-native plant species shall be carried out for five full growing seasons. By the third growing season, and areas one-quarter acre in size or larger that have greater than 50 percent areal cover of invasive and/or non-native species shall be treated and/or cleared and then reseeded. At the end of the fifth growing season, the vegetative community shall not contain greater than 5 percent vegetative areal cover of invasive and/or non-native species as noted above.

    - Currently the site is not meeting the established performance standard for percent cover of the target invasive species listed above. Aggressive non-native species such as reed canary grass contribute less than 5 percent of the wetland area and purple loosestrife, black locust, buckthorns and honeysuckles were not observed. However, giant ragweed, common ragweed, sweet clover and quack grass are present throughout the site and management of these species may be required in order to meet the established vegetation success criteria.

CONCLUSION

Stantec performed a wetland determination and delineation and habitat mapping of the WisDOT Rubbert Wetland Mitigation Site Phase 2 in the Town of Clayton, Winnebago County, Wisconsin. The Property is located in Section 17, Township 20 North, Range 16 East, Town of Clayton, Winnebago County, Wisconsin. The purpose and objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands within the Project. In addition to the wetland delineation, a reconnaissance of the Project was conducted to aid in the development of a vegetation community map, and to determine the distribution and extent of invasive species.

Two wetlands (totaling 34.45 acres) were identified on the Project. Wetlands and their boundaries were surveyed and mapped. Three distinct plant communities were observed at the site: wet meadow (M), shallow marsh (SM), and upland buffer. Aggressive non-native species such as reed canary grass contribute less than 5 percent of the wetland area and purple loosestrife, black locust, buckthorns and honeysuckles were not observed. However, giant ragweed, common ragweed, sweet clover and quack grass are present throughout the site and management of these species may be required in order to meet the established vegetation success criteria.

The information provided by Stantec regarding wetland boundaries is a scientific-based analysis of the wetland and upland conditions present on the site at the time of the fieldwork. The delineation was performed by experienced and qualified professionals using standard practices and sound professional judgment. The ultimate decision on wetland boundaries rests with the USACE and, in some cases, the WDNR or a local unit of government. As a result, there may be adjustments to boundaries based upon review by a regulatory agency. An agency determination can vary from time to time depending on various factors including, but not limited to recent precipitation patterns and the season of the year. In addition, the physical characteristics of the site can change over time, depending on the weather, vegetation patterns, drainage activities on adjacent parcels, or other events. Any of these factors can change the nature and extent of wetlands on the site.

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FIGURES

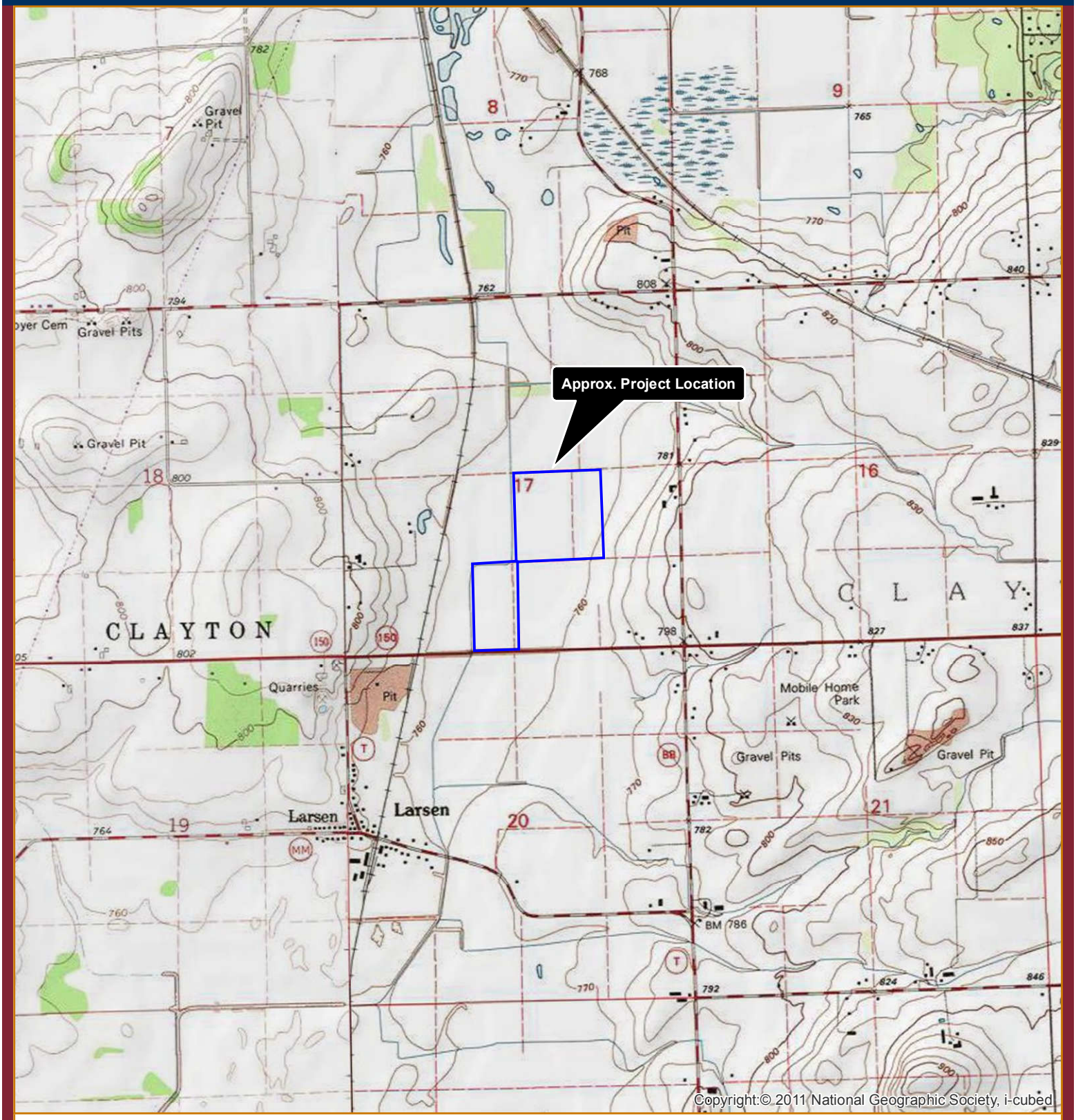
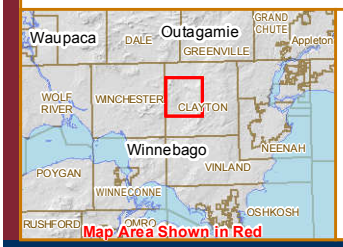


Figure 1. Project Location and Topography
Rubbert Phase II Mitigation Site Monitoring



Location
S17, T20N, R16E;
T. of Clayton, Winnebago Co., WI

Project Information
Project Number: 193702588
Last Modified: October 30, 2013

0 1,000 2,000
Feet

Legend
Approx. Project Location

Data Sources include: Stantec and USGS 7.5' Topographic Quadrangles.

Stantec

	Initials	Date
Prepared by	AB	08/12/2013
Peer Review by	SF	10/24/2013
Final Review by	MC	10/30/2013

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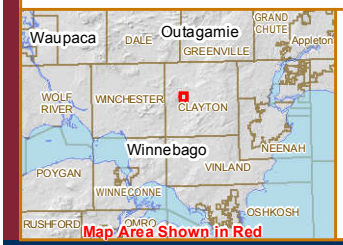
Figure 2. NRCS Soil Survey Data
Rubbert Phase II Mitigation Site Monitoring



Location
S17, T20N, R16E;
T. of Clayton, Winnebago Co., WI

Project Information
Project Number: 193702588
Last Modified: October 30, 2013

0 200 400
Feet

Legend
- Approx. Project Location
- NRCS Soil Survey Data
  - Hydric Soils
  - Poss. Hydric Inclusions
  - Non-Hydric Soils
- DNR 24k Hydrography
  - Perennial Stream
  - Intermittent Stream
  - Waterbody

Data Sources include: Stantec, WDNR, NRCS, and WDOT.
Orthophotography: 2010 WROC.

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	Initials	Date
Prepared by	AB	08/12/2013
Peer Review by	SF	10/24/2013
Final Review by	MC	10/30/2013

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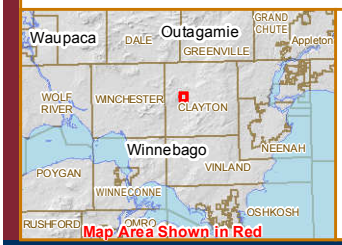
Figure 3. Wisconsin Wetland Inventory
Rubbert Phase II Mitigation Site Monitoring



Location
S17, T20N, R16E;
T. of Clayton, Winnebago Co., WI

Project Information
Project Number: 193702588
Last Modified: October 30, 2013

0 200 400
Feet

Legend
- Approx. Project Location
- Wisconsin Wetland Inventory

DNR 24k Hydrography
- Perennial Stream
- Intermittent Stream
- Waterbody

Data Sources include: Stantec, WDNR, and WDOT.
Orthophotography: 2010 WROC.

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	Initials	Date
Prepared by	AB	08/12/2013
Peer Review by	SF	10/24/2013
Final Review by	MC	10/30/2013

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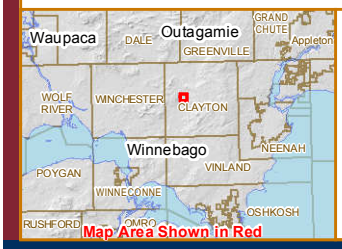
Figure 4. Field Delineated Wetland Data
Rubbert Phase II Mitigation Site Monitoring



Location
S17, T20N, R16E;
T. of Clayton, Winnebago Co., WI

Project Information
Project Number: 193702588
Last Modified: October 30, 2013

0 175 350
Feet

Legend
- Approx. Project Location
- Field Delineated Wetland
- Sample Point
- DNR 24k Hydrography
- Perennial Stream
- Intermittent Stream
- Waterbody

Data Sources include: Stantec, WDNR, and WDOT.
Orthophotography: 2010 WROC.

Stantec

	Initials	Date
Prepared by	AB	08/16/2013
Peer Review by	SF	10/24/2013
Final Review by	MC	10/30/2013

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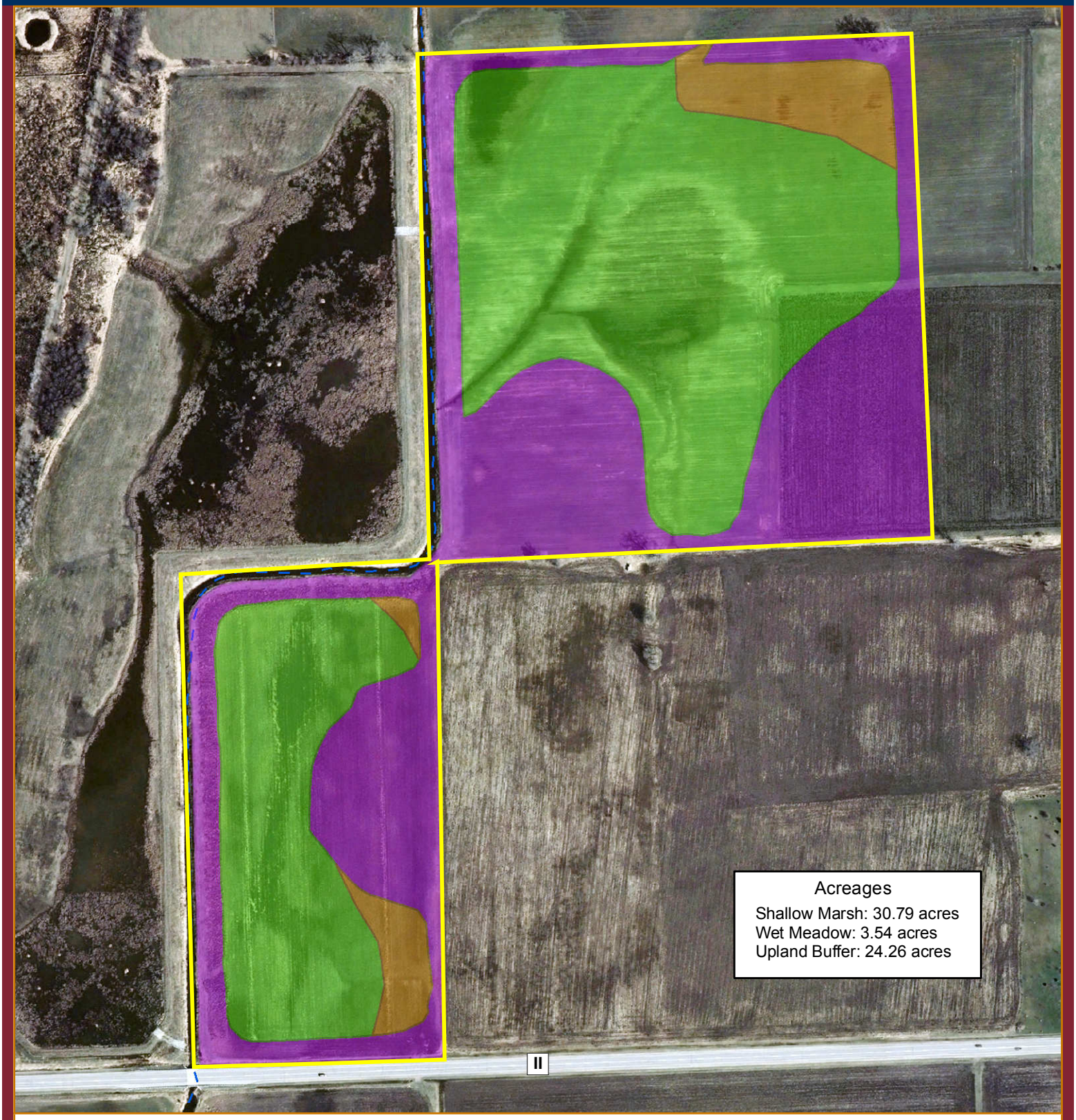
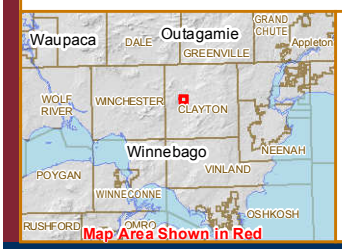


Figure 5. Plant Communities
Rubbert Phase II Mitigation Site Monitoring



Location
S17, T20N, R16E;
T. of Clayton, Winnebago Co., WI

Project Information
Project Number: 193702588
Last Modified: October 31, 2013

0 175 350
Feet

Legend
- Approx. Project Location
- Plant Communities
  - Shallow Marsh
  - Upland Buffer
  - Wet Meadow
- DNR 24k Hydrography
  - Perennial Stream
  - Intermittent Stream
  - Waterbody

Data Sources include: Stantec, WDNR, and WDOT.
Orthophotography: 2010 WROC.

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	Initials	Date
Prepared by	AB	08/16/2013
Peer Review by	SF	10/24/2013
Final Review by	MC	10/31/2013

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APPENDIX A
US ARMY CORPS OF ENGINEERS PERMIT DOCUMENT

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL MINNESOTA 55101-1678

REPLY TO
ATTENTION OF

February 10, 2012

Operations
Regulatory (2010-02579-JRS)

Mr. William Bertrand
Wisconsin Department of Transportation
944 Vanderperren Way
Green Bay, Wisconsin 54303

Dear Mr. Bertrand:

This is in regard to the Rubbert Site Phase 2 Wetland Mitigation Plan you submitted in December 2011 concerning Department of the Army permit 2010-02579-JRS, which was issued on March 10, 2011. You asked that we consider the submitted information and determine if the permit could be modified to include the permittee responsible compensatory mitigation, as allowed in the special conditions of the issued permit.

As a matter of clarifying the record, the Corps decision to authorize the discharge of fill material into 13.26 acres of wetland was partially based on the withdrawal of 14.24 acres of wetland credit from the Hope Marsh mitigation bank site located in Marquette County, Wisconsin. This decision was made with the understanding that the credit withdrawal may be temporary as WisDOT was pursuing permittee responsible mitigation within the watershed.

In accordance with Special Condition #5 of the permit, you have requested approval to utilize permittee responsible compensatory wetland mitigation at the Rubbert Site Phase 2. We have reviewed our decision record and the wetland mitigation plan for the Rubbert Site Phase 2, dated December 2011. Based on that review and coordination with the Wisconsin Department of Natural Resources, we have determined that the requested permit modification is acceptable.

Therefore, I hereby modify permit 2010-02579-JRS by approving the compensatory migitaion plan for the Rubbert Site Phase 2, dated December 2011, prepared by WisDOT. This permit modification is subject to the attached Special Conditions for Permit Modification, hereby made part of this authorization.

Operations
Regulatory (2010-02579-JRS)

Special Condition #5 of the permit required the withdrawal of 14.24 acres of wetland credit from the Hope Marsh Wetland Mitigation Bank site located in Marquette County, Wisconsin. Provided the standards at the Rubbert Phase 2 Site are being satisfactorily met after 3 full growing seasons, 14.24 acres of wetland credit may be returned to the Hope Marsh Wetland Mitigation Bank.

All other terms and conditions of the permit remain unchanged.

This document should be retained as part of your record.

If you have any questions, contact Joey Shoemaker in our Green Bay Field Office at (920) 448-2824. In any correspondence or inquiries, please refer to the Regulatory number shown above.

Sincerely,

Todd Vesper

for For Tamara E. Cameron
Chief, Regulatory Branch

Attachments

Copy:
Bobbi Jo Fischer, WDNR
Mike Helmrick, WDOT
Kathie Van Price, WDOT

Special Conditions for Permit Modification

Special Conditions for Permit Modification
2010-02579-JRS

1. To compensate for the unavoidable loss of 13.26 acres of wetland, WisDOT shall construct the Rubbert Site Phase 2 Wetland Mitigation Site. The site shall generate 29.82 acres of wetland including 22.55 acres of Wet Meadow and 6.9 acres of Shallow Marsh. A 20.24 acre upland buffer area would also be established that will account for 1.72 acres of credit. The site would also provide replacement of 1.37 acres due to the discharge of fill into .9 acres of wetlands for the construction of the site. WisDOT shall adhere to the respective success criteria listed below and to the Rubbert Phase 2 Wetland Mitigation site plans dated December 2011, prepared by the Wisconsin Department of Transportation, NE Region – Green Bay.

2. The following success criteria shall apply to the Rubbert Phase 2 Wetland Mitigation site:

   a. **VEGETATION**:

      i. At least 75 % of vegetative areal cover within the wetland communities of the mitigation site shall be composed of FAC, FACW or OBL species.

      ii. Herbaceous communities (including upland buffers) shall be dominated by 10 or more species of native grasses, sedges, rushes, forbs and/or ferns and shall achieve approximately 80% areal coverage by year 5.

      iii. Control of invasive and/or non-native plant species shall be carried out for 5 full growing seasons. Control shall consist of mowing, burning, disking, mulching, biocontrol and/or herbicide treatments. By the third growing season, any areas one-quarter acre in size or larger that have greater than 50 percent areal cover of invasive and/or non-native species shall be treated (e.g., herbicide) and/or cleared (e.g., disked) and then reseeded. Follow-up control of invasive and/or non-native species shall be implemented as stated above. At the end of the fifth growing season, the vegetative community shall not contain greater than 5 percent vegetative areal cover of invasive and/or non-native species including but not limited to: reed canary grass (*Phalaris arundinacea*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), smooth brome grass (*Bromus inermis*), giant ragweed (*Ambrosia trifida*), common ragweed (*Ambrosia artemisiifolia*), quack grass (*Elytrigia repens*), black locust (*Robinia pseudoacacia*), sweet clovers (*Melilotus alba* and *M. officinalis*), non-native honeysuckles (e.g., *Lonicera* x *bella*), and non-native buckthorns (*Rhamnus cathartica* and *R. frangula*). The mitigation site shall have no purple loosestrife (*Lythrum salicaria*) present at the end of the monitoring period. Failure to meet any of the above criteria shall extend the permittee's responsibility for monitoring and control of invasive/non-native species within the compensation site.

b. **HYDROLOGY** (apply the standard below which corresponds to the proposed cover type as described in the Rubbert Phase 2 Wetland Mitigation site plans, dated December 2011):

i. **Fresh (Wet) Meadows, Sedge Meadows and Wet Prairies (Mineral Soils).** Hydrology shall consist of saturation at or within 12 inches of the surface for a minimum of 28 consecutive days, or two periods of 14 consecutive days, during the growing season under normal to wetter than normal conditions (70 percent of years based on most recent 30-year record of precipitation). Inundation during the growing season shall not occur except following the 10-year frequency or greater storm/flood event. The depth of inundation shall be 6 inches or less and the duration of any inundation event shall be less than 14 days. An exception can be made for sites with hummocky microtopography -- hollows between hummocks can have standing water depths of up to 6 inches for extended duration.

ii. **Shallow Marshes.** Hydrology shall consist of saturation to the surface, to inundation by up to 6 inches of water, for a minimum of 56 consecutive days or two periods of 28 consecutive days or four periods of 14 consecutive days, during the growing season under normal to wetter than normal conditions (70 percent of years based on most recent 30-year record of precipitation). During the growing season, inundation by up to 18 inches of water following the 2-year or greater storm/flood event is permissible provided that the duration does not exceed 30 days (e.g., water depth drops from 18 inches to 6 inches within the 30 days).

3. Monitoring reports are required for the Rubbert Phase 2 Wetland Mitigation site. The reports shall be submitted by December 31 following the 1st, 3rd and 5th growing seasons. A final wetland delineation must be submitted at the end of the monitoring period. Two reports shall be forwarded to the Corps, one to the District Office at 180 Fifth Street E, Suite 700, St. Paul, Minnesota 55101; the other to the Green Bay Field Office, Army Corps of Engineers, at 211 N Broadway, Suite 221 Green Bay, WI 54303. The reports shall, at a minimum, include the following information:

a. All plant species along with their percent cover, identified using standard plots and/or transects, with at least one representative plot/transect in each plant community within the mitigation site including upland buffers. In addition, the presence, location and percent cover of invasive and/or non-native species, such as purple loosestrife and common buckthorn, in any of plant communities shall be noted.

b. Vegetation cover maps at an appropriate scale shall be submitted for each reported growing season.

c. Photographs showing all representative areas of the mitigation site taken at least once each reported growing season during the period of July 1 to September 30. Photographs shall be taken from a height of approximately five to six feet from at least one location per acre. Photos shall be taken from the same reference point and direction of view each reporting year.

d. Surface water and groundwater elevations in representative areas (e.g., at least one sample point in each plant community) recorded at least once each week for the first 10 weeks of each growing season, thereafter taken monthly for the remainder of each growing season. The location of each monitoring site shall be shown on a plan view of the site.

4. The Rubbert Phase 2 Wetland Mitigation site shall be protected in perpetuity by covenants or conservation easement or other land use restrictions acceptable to the District Engineer that prohibit incompatible uses. The covenants shall be reviewed and approved by the District Engineer, the approved covenants shall be recorded within 90 days of the completion of the mitigation site construction (prior to monitoring completion), and a certified copy of the recorded covenant shall be returned to this office.

5. An as-built survey shall be submitted within one month of the completion of the Rubbert Phase 2 Wetland Mitigation site construction. This report will summarize the construction activities, describe any changes to the original plan, describe any corrective actions needed, and provide an as-built survey showing 6" (or 1 foot) elevation contours or spot elevations. This survey shall be prepared by a licensed surveyor and certified by the licensed surveyor or by a registered professional engineer to conform to the design plans and specifications. (Completion of construction will likely be identified as completion of the whole line – certainly these submissions may be piecemealed to our office as well if desired by the permittee)

6. If the performance criteria outlined above for the Rubbert Phase 2 Wetland Mitigation site are not met at any time during the monitoring period, the permittee shall provide the Corps with a proposal detailing corrective actions and/or maintenance actions proposed (if any) and an implementation schedule for those actions. The permittee shall implement the necessary corrective measures following review and approval/modification of those measures by the Corps. Upon completion of corrective measures, the permittee shall provide a written summary of the work to the Corps. Additional remedial actions may be required if the corrective measures do not result in satisfaction of the performance criteria during the next growing season.

7. The Corps may, at any time during the five year monitoring period for the Rubbert Phase 2 Wetland Mitigation site, require removal, treatment or management of undesirable animal species, including physical removal, live trapping, confining wires or nets, etc.

8. The permittee shall assume all liability for accomplishing corrective work should the District Engineer determine that the compensatory mitigation proposed Rubbert Phase 2 Wetland Mitigation site has not been completed satisfactorily. Remedial work may include regrading and/or replanting the mitigation site. This responsibility shall extend for a period of 5 years beginning upon completion of mitigation site construction.

9. Your responsibility to complete the required compensatory mitigation as set forth in these Special Conditions will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers for the Rubbert Phase 2 Wetland Mitigation site.

APPENDIX B
US ARMY CORPS OF ENGINEERS DATA SHEETS

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Neenah silty clay loam		NWI/WWI Classification:	N/A	
Landform:	Side slope	Local Relief:	Convex		
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w1
Sample Point:	w1-1u
Community ID:	mesic prairie
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes	☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes	☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Neenah silty clay loam — Series Drainage Class: somewhat poorly

Taxonomy (Subgroup): Aquollic Hapludalfs

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	--	7.5YR 2/1	100	--	--	--	--	clay loam
10	20	--	5YR 4/4	90	5YR 5/1	10	D	M	clay
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: The soil at the sample plot does not have any field indicators of hydric soil, nor does it appear to be inundated or saturated to the surface for long periods of time during the growing season in most years.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-1u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Ambrosia artemisiifolia*	75	Y	FACU
2.	*Ambrosia trifida*	2	--	FAC
3.	*MELILOTUS OFFICINALIS*	2	--	FACU
4.	*PENNISETUM GLAUCUM*	5	--	FAC
5.	*TRIFOLIUM HYBRIDUM*	2	--	FACU
6	*Polygonum pensylvanicum*	5	--	FACW
7.	*Rudbeckia hirta*	2	--	FACU
8.	*RUMEX CRISPUS*	2	--	FAC
9.	*SETARIA VIRIDIS*	5	--	UPL
10.	*TARAXACUM OFFICINALE*	2	--	FACU
11.	*PLANTAGO MAJOR*	2	--	FACU
12.	*Elymus canadensis*	5	--	FACU
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	109		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	5	x 2 =	10
FAC spp.	9	x 3 =	27
FACU spp.	90	x 4 =	360
UPL spp.	5	x 5 =	25
Total	109 (A)		422 (B)

Prevalence Index = B/A = ***3.872***

Hydrophytic Vegetation Indicators:

☐ Yes	☑ No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Menasha clay		NWI/WWI Classification:	N/A	
Landform:	Depression	Local Relief:	Concave		
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☑, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w1
Sample Point:	w1-1w
Community ID:	wet meadow
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes	☐ No	Hydric Soils Present?	☑ Yes	☐ No
Wetland Hydrology Present?	☑ Yes	☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes**	☐ **No**

Remarks: Sample plot is located in a wet meadow. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	6	--	10YR 2/1	100	--		--	--	clay loam
6	20	--	7.5YR 4/4	85	7.5YR 5/6	15	C	M	clay loam
--	--	--	--		--		--	--	--
--	--	--	--	--	--		--	--	--
--	--	--	--		--		--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☑ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the TF2 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-1w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*ECHINOCHLOA CRUSGALLI*	95	Y	FAC
2.	*RUMEX CRISPUS*	2	--	FAC
3.	*Ambrosia artemisiifolia*	2	--	FACU
4.	*SETARIA VIRIDIS*	2	--	UPL
5.	--		--	--
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	101		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	97	x 3 =	291
FACU spp.	2	x 4 =	8
UPL spp.	2	x 5 =	10
Total	101 (A)		309 (B)

Prevalence Index = B/A = ***3.059***

Hydrophytic Vegetation Indicators:

☑ Yes	☐ No	Rapid Test for Hydrophytic Vegetation
☑ Yes	☐ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Neenah silty clay loam		NWI/WWI Classification:	N/A	
Landform:	Side slope	Local Relief:	Convex		
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w1
Sample Point:	w1-2u
Community ID:	mesic prairie
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie on the upslope of a berm. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2-3 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Neenah silty clay loam — Series Drainage Class: somewhat poorly

Taxonomy (Subgroup): Aquollic Hapludalfs

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	8	--	10YR 4/2	100	--	--	--	--	--	clay
8	20	--	10YR 4/4	55	10YR	4/6	10	C	M	clay
--	--	--	10YR 4/2	35	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: The soil at the sample plot does not have any field indicators of hydric soil, nor does it appear to be inundated or saturated to the surface for long periods of time during the growing season in most years.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-2u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*SETARIA VIRIDIS*	60	Y	UPL
2.	*Ambrosia artemisiifolia*	30	Y	FACU
3.	*Ambrosia trifida*	5	--	FAC
4.	*TRIFOLIUM HYBRIDUM*	5	--	FACU
5.	*PENNISETUM GLAUCUM*	5	--	FAC
6	*Dalea purpurea*	2	--	UPL
7.	*TRIFOLIUM AUREUM*	5	--	UPL
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	112		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	10	x 3 =	30
FACU spp.	35	x 4 =	140
UPL spp.	67	x 5 =	335
Total	112 (A)		505 (B)

Prevalence Index = B/A = ***4.509***

Hydrophytic Vegetation Indicators:

☐ Yes	☑ No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Stantec

Project/Site:	Rubbert Phase II Mitigation Site Monitoring	Stantec Project #:	193702588	Date:	08/15/13
Applicant:	WisDOT			County:	Winnebago
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli	State:	Wisconsin
Soil Unit:	Menasha clay	NWI/WWI Classification:	N/A	Wetland ID:	w1
Landform:	Depression	Local Relief:	Concave	Sample Point:	w1-2w
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: shallow marsh
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)		☐ Yes ☑ No		Section:	17
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	20N
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Sample plot is located in a shallow marsh (recently created wetland). WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☑ Yes	☐ No	Depth: 4	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 1 primary and 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	8	--	10YR 3/1	50	7.5YR 4/6	15	C	M	clay loam
--	--	--	10YR 5/3	35	--		--	--	--
8	18	--	5YR 4/3	90	7.5YR 4/6	10	C	M	clay loam
--	--	--	--	--	--		--	--	--
--	--	--	--		--		--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☑ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☑ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F6 and TF2 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-2w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*TYPHA ANGUSTIFOLIA*	80	Y	OBL
2.	*Alisma triviale*	20	--	OBL
3.	*Schoenoplectus tabernaemontani*	10	--	OBL
4.	*ECHINOCHLOA CRUSGALLI*	5	--	FAC
5.	--		--	--
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	115		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	110	x 1 =	110
FACW spp.	0	x 2 =	0
FAC spp.	5	x 3 =	15
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	115 (A)		125 (B)

Prevalence Index = B/A = ***1.087***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☐ No Morphological Adaptations (Explain) *
- ☐ Yes ☐ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Menasha clay		NWI/WWI Classification:	N/A	
Landform:	Side slope		Local Relief:	Convex	
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w1
Sample Point:	w1-3u
Community ID:	mesic prairie
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes	☑ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☐ Yes	☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie. According to the Army Corps of Engineers NC/NE Supplement, three parameters are required to meet jurisdictional wetland requirements. Although hydric soil is present at the sample plot, the lack of hydrophytic vegetation and wetland hydrology indicate the sample plot is located in an upland. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	8	--	10YR 3/1	40	10YR 4/1	20	D	M	clay loam
--	--	--	7.5YR 4/3	40	--		--	--	--
8	18	--	5YR 4/4	90	5YR 4/1	10	D	M	clay
--	--	--	--	--	--		--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☑ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☑ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F7 and TF2 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-3u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*SETARIA VIRIDIS*	80	Y	UPL
2.	*Ambrosia artemisiifolia*	15	--	FACU
3.	*TRIFOLIUM AUREUM*	5	--	UPL
4.	*Polygonum lapathifolium*	5	--	FACW
5.	--		--	--
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	105		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	5	x 2 =	10
FAC spp.	0	x 3 =	0
FACU spp.	15	x 4 =	60
UPL spp.	85	x 5 =	425
Total	105 (A)		495 (B)

Prevalence Index = B/A = ***4.714***

Hydrophytic Vegetation Indicators:

☐ Yes	☑ No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Menasha clay		NWI/WWI Classification:	N/A	
Landform:	Depression	Local Relief:	Concave		
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w1
Sample Point:	w1-3w
Community ID:	shallow marsh
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Sample plot is located in a shallow marsh (recently created wetland). WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☑ Yes	☐ No	Depth: 3	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 1 primary and 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	8	--	10YR 2/1	85	10YR 4/1	15	D	M	clay loam
8	18	--	7.5YR 5/3	90	7.5YR 5/8	10	C	M	clay
--	--	--	--		--		--	--	--
--	--	--	--	--	--		--	--	--
--	--	--	--		--		--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☑ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F7 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w1 Sample Point **w1-3w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*TYPHA ANGUSTIFOLIA*	80	Y	OBL
2.	*Alisma triviale*	20	Y	OBL
3.	--		--	--
4.	--		--	--
5.	--		--	--
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	100		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	100	x 1 =	100
FACW spp.	0	x 2 =	0
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	100 (A)		100 (B)

Prevalence Index = B/A = ***1.000***

Hydrophytic Vegetation Indicators:

☑ Yes	☐ No	Rapid Test for Hydrophytic Vegetation
☑ Yes	☐ No	Dominance Test is > 50%
☑ Yes	☐ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Stantec

Project/Site:	Rubbert Phase II Mitigation Site Monitoring	Stantec Project #:	193702588	Date:	08/15/13
Applicant:	WisDOT			County:	Winnebago
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli	State:	Wisconsin
Soil Unit:	Neenah silty clay loam	NWI/WWI Classification:	N/A	Wetland ID:	w2
Landform:	Side slope	Local Relief:	Convex	Sample Point:	w2-1u
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: mesic prairie
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			☐ Yes ☑ No	Section:	17
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	20N
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:

- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Neenah silty clay loam — Series Drainage Class: somewhat poorly

Taxonomy (Subgroup): Aquollic Hapludalfs

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	--	10YR	2/1	50	10YR	5/8	5	C	M	clay loam
--	--	--	7.5YR	4/4	45	--			--	--	--
10	18	--	5YR	5/3	85	10YR	5/1	10	D	M	clay loam
--	--	--	--	--	--	10YR	5/8	5	C	M	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):

- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]

- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: The soil at the sample plot does not have any field indicators of hydric soil, nor does it appear to be inundated or saturated to the surface for long periods of time during the growing season in most years.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-1u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*PLANTAGO MAJOR*	15	Y	FACU
2.	*Ambrosia artemisiifolia*	15	Y	FACU
3.	*Polygonum lapathifolium*	10	Y	FACW
4.	*SETARIA VIRIDIS*	10	Y	UPL
5.	*TARAXACUM OFFICINALE*	10	Y	FACU
6	*RUMEX CRISPUS*	10	Y	FAC
7.	*Polygonum pensylvanicum*	5	--	FACW
8.	*TRIFOLIUM HYBRIDUM*	5	--	FACU
9.	*CHENOPODIUM ALBUM*	5	--	FACU
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	85		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***33.3%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	15	x 2 =	30
FAC spp.	10	x 3 =	30
FACU spp.	50	x 4 =	200
UPL spp.	10	x 5 =	50
Total	85 (A)		310 (B)

Prevalence Index = B/A = ***3.647***

Hydrophytic Vegetation Indicators:

☐ Yes	☑ No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Menasha clay		NWI/WWI Classification:	N/A	
Landform:	Depression	Local Relief:	Concave		
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w2
Sample Point:	w2-1w
Community ID:	shallow marsh
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Sample plot is located in a shallow marsh (recently created wetland). WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☑ Yes	☐ No	Depth: 4	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 1 primary and 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	16	--	10YR	2/1	75	10YR	5/1	15	D	M	clay loam
--	--	--	--			10YR	4/6	10	C	M	--
--	--	--	--			--			--	--	--
--	--	--	--	--	--	--			--	--	--
--	--	--	--			--			--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☑ F6 - Redox Dark Surface
- ☑ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F6 and F7 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-1w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*TYPHA ANGUSTIFOLIA*	80	Y	OBL
2.	*Alisma triviale*	20	Y	OBL
3.	--		--	--
4.	--		--	--
5.	--		--	--
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	100		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	100	x 1 =	100
FACW spp.	0	x 2 =	0
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	100 (A)		100 (B)

Prevalence Index = B/A = ***1.000***

Hydrophytic Vegetation Indicators:

☑ Yes	☐ No	Rapid Test for Hydrophytic Vegetation
☑ Yes	☐ No	Dominance Test is > 50%
☑ Yes	☐ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Stantec

Project/Site:	Rubbert Phase II Mitigation Site Monitoring	Stantec Project #:	193702588	Date:	08/15/13
Applicant:	WisDOT			County:	Winnebago
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli	State:	Wisconsin
Soil Unit:	Menasha clay	NWI/WWI Classification:	N/A	Wetland ID:	w2
Landform:	Side slope	Local Relief:	Convex	Sample Point:	w2-2u
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: mesic prairie
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			☐ Yes ☑ No	Section:	17
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	20N
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:

- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	6	--	10YR 2/1	55	10YR 5/2	5	C	M	clay loam
--	--	--	7.5YR 4/3	40	--		--	--	--
6	16	--	7.5YR 4/3	90	7.5YR 4/6	5	C	M	clay
--	--	--	--	--	7.5YR 5/2	5	C	M	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):

- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]

- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: The soil at the sample plot does not have any field indicators of hydric soil, nor does it appear to be inundated or saturated to the surface for long periods of time during the growing season in most years.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-2u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*TRIFOLIUM PRATENSE*	30	Y	FACU
2.	*Ambrosia artemisiifolia*	20	Y	FACU
3.	*SETARIA VIRIDIS*	15	Y	UPL
4.	*ELYTRIGIA REPENS*	15	Y	FACU
5.	*TARAXACUM OFFICINALE*	10	--	FACU
6	*BROMUS INERMIS*	10	--	UPL
7.	*MEDICAGO SATIVA*	5	--	UPL
8.	*ARCTIUM MINUS*	5	--	FACU
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	110		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	0	x 3 =	0
FACU spp.	80	x 4 =	320
UPL spp.	30	x 5 =	150
Total	110 (A)		470 (B)

Prevalence Index = B/A = ***4.273***

Hydrophytic Vegetation Indicators:

☐ Yes	☑ No	Rapid Test for Hydrophytic Vegetation
☐ Yes	☑ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #:	193702588	
Applicant:	WisDOT				
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli		
Soil Unit:	Menasha clay		NWI/WWI Classification:	N/A	
Landform:	Depression	Local Relief:	Concave		
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	08/15/13
County:	Winnebago
State:	Wisconsin
Wetland ID:	w2
Sample Point:	w2-2w
Community ID:	shallow marsh
Section:	17
Township:	20N
Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Sample plot is located in a shallow marsh (recently created wetland). WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	18	--	10YR 2/1	95	7.5YR 4/6	5	C	M	clay loam
--	--	--	--		--		--	--	--
--	--	--	--		--		--	--	--
--	--	--	--	-- --	--		--	--	--
--	--	--	--		--		--	--	--
--	--	--	-- --	--	--	--	--	--	--
--	--	--	-- --	--	--	--	--	--	--
--	--	--	-- --	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☑ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F6 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-2w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*TYPHA ANGUSTIFOLIA*	40	Y	OBL
2.	*ECHINOCHLOA CRUSGALLI*	40	Y	FAC
3.	*Alisma triviale*	20	--	OBL
4.	*Polygonum lapathifolium*	5	--	FACW
5.	*TRIFOLIUM HYBRIDUM*	5	--	FACU
6	--		--	--
7.	--		--	--
8.	--		--	--
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	110		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	60	x 1 =	60
FACW spp.	5	x 2 =	10
FAC spp.	40	x 3 =	120
FACU spp.	5	x 4 =	20
UPL spp.	0	x 5 =	0
Total	110 (A)		210 (B)

Prevalence Index = B/A = ***1.909***

Hydrophytic Vegetation Indicators:

☑ Yes	☐ No	Rapid Test for Hydrophytic Vegetation
☑ Yes	☐ No	Dominance Test is > 50%
☑ Yes	☐ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Stantec

Project/Site:	Rubbert Phase II Mitigation Site Monitoring	Stantec Project #:	193702588	Date:	08/15/13
Applicant:	WisDOT			County:	Winnebago
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli	State:	Wisconsin
Soil Unit:	Menasha clay	NWI/WWI Classification:	N/A	Wetland ID:	w2
Landform:	Side slope	Local Relief:	Convex	Sample Point:	w2-3u
Slope (%):	2-6	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: mesic prairie
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			☐ Yes ☑ No	Section:	17
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	20N
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Sample plot is located in a mesic prairie. WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:

- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The sample plot is located on a gentle slope, approximately 2 feet higher in elevation than the adjacent wetland plot. No evidence of wetland hydrology was observed at the sample plot.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	4	--	10YR 2/1	60	7.5YR 5/2	2	D	M	clay loam
--	--	--	7.5YR 4/4	38	--		--	--	--
4	12	--	7.5YR 4/4	75	7.5YR 5/2	20	D	M	clay
--	--	--	--	--	7.5YR 5/8	5	C	M	--
12	18	--	5YR 4/4	95	5YR 5/8	5	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):

- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]

- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☐ Yes ☑ No

Remarks: The soil at the sample plot does not have any field indicators of hydric soil, nor does it appear to be inundated or saturated to the surface for long periods of time during the growing season in most years.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-3u**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*SETARIA VIRIDIS*	40	Y	UPL
2.	*Ambrosia artemisiifolia*	15	Y	FACU
3.	*Polygonum lapathifolium*	10	--	FACW
4.	*TRIFOLIUM PRATENSE*	10	--	FACU
5.	*RUMEX CRISPUS*	10	--	FAC
6	*TRIFOLIUM HYBRIDUM*	5	--	FACU
7.	*CHENOPODIUM ALBUM*	5	--	FACU
8.	*CIRSIUM ARVENSE*	1	--	FACU
9.	--		--	--
10.	--		--	--
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	96		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is not hydrophytic.

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	10	x 2 =	20
FAC spp.	10	x 3 =	30
FACU spp.	36	x 4 =	144
UPL spp.	40	x 5 =	200
Total	96 (A)		394 (B)

Prevalence Index = B/A = ***4.104***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☐ No Morphological Adaptations (Explain) *
- ☐ Yes ☐ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Rubbert Phase II Mitigation Site Monitoring		Stantec Project #: 193702588	Date:	08/15/13
Applicant:	WisDOT			County:	Winnebago
Investigator #1:	Melissa Curran	Investigator #2:	Nik Bertagnoli	State:	Wisconsin
Soil Unit:	Menasha clay		NWI/WWI Classification: N/A	Wetland ID:	w2
Landform:	Depression	Local Relief:	Concave	Sample Point:	w2-3w
Slope (%):	0-2	Latitude: N/A	Longitude: N/A	Datum: N/A	Community ID: wet meadow
Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks)			☐ Yes ☑ No	Section:	17
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?		Are normal circumstances present?		Township:	20N
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?		☑ Yes ☐ No		Range:	16 Dir: E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Sample plot is located in a wet meadow (recently created wetland). WETS analysis determined that the antecedent precipitation conditions were drier than normal.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks: The presence of 2 secondary indicators at the sample plot provides evidence of wetland hydrology.

SOILS

Map Unit Name: Menasha clay — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Epiaquolls

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)		Matrix %	Mottles Color (Moist)		Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	--	7.5YR	2.5/1	85	5YR	5/1	5	D	M	clay loam
--	--	--	7.5YR	4/4	10	--			--	--	--
10	18	--	7.5YR	4/4	90	7.5YR	5/6	5	C	M	clay loam
--	--	--	--	--	--	7.5YR	5/2	5	D	M	--
--	--	--	--			--			--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (**LRR R, MLRA 149B**)
- ☐ S8 - Polyvalue Below Surface (**LRR R, MLRA 149B**)
- ☐ S9 - Thin Dark Surface (**LRR R, MLRA 149B**)
- ☐ F1 - Loamy Muck Mineral (**LRR K, L**)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☑ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (**LRR K, L, MLRA149B**)
- ☐ A16 - Coast Prairie Redox (**LRR K, L, R**)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (**LRR K, L**)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: N/A Depth: N/A

Hydric Soil Present? ☑ Yes ☐ No

Remarks: The soil at the sample plot meets the F6 Indicator described in the NRCS publication Field Indicators of Hydric Soil in the United States - version 7.0.

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Rubbert Phase II Mitigation Site Monitoring Wetland ID: w2 Sample Point **w2-3w**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*SETARIA VIRIDIS*	15	Y	UPL
2.	*Polygonum lapathifolium*	15	Y	FACW
3.	*Panicum capillare*	15	Y	FAC
4.	*Elymus virginicus*	10	Y	FACW
5.	*RUMEX CRISPUS*	10	Y	FAC
6	*POA PRATENSIS*	10	Y	FACU
7.	*ECHINOCHLOA CRUSGALLI*	10	Y	FAC
8.	*TARAXACUM OFFICINALE*	5	--	FACU
9.	*Ambrosia artemisiifolia*	5	--	FACU
10.	*Amaranthus retroflexus*	1	--	FACU
11.	--		--	--
12.	--		--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	96		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
5.	--	--	--	--
4.	--	--	--	--
	Total Cover =	0		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***71.4%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	25	x 2 =	50
FAC spp.	35	x 3 =	105
FACU spp.	21	x 4 =	84
UPL spp.	15	x 5 =	75
Total	96 (A)		314 (B)

Prevalence Index = B/A = ***3.271***

Hydrophytic Vegetation Indicators:

☑ Yes	☐ No	Rapid Test for Hydrophytic Vegetation
☑ Yes	☐ No	Dominance Test is > 50%
☐ Yes	☑ No	Prevalence Index is ≤ 3.0 *
☐ Yes	☐ No	Morphological Adaptations (Explain) *
☐ Yes	☐ No	Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Remarks: Dominant vegetation was determined through use of the 50/20 rule. Vegetation at the sample plot is hydrophytic.

Additional Remarks:

APPENDIX C
SPECIES LISTS

Rubbert Phase II
2013 Shallow Marsh Species List

Scientific Name*	Common Name	Coefficient of Conservatism	Native	Physiognomy	Region 3 Wetland Coefficient
Alisma triviale	**northern water-plantain**	**4**	**X**	**Aquatic**	
Ambrosia artemisiifolia	common ragweed	0	X	Forb	FACU
Aster puniceus	swamp aster	5	X	Forb	OBL
Bidens cernuus	nodding beggar-ticks	4	X	Forb	OBL
Bidens frondosus	common beggar-ticks	1	X	Forb	FACW
Bolboschoenus fluviatilis	river bulrush	6	X	Sedge	OBL
Cyperus esculentus	field nut sedge	0	X	Sedge	FACW
ECHINOCHLOA CRUSGALLI	**barnyard grass**			**Grass**	**FACW**
Eleocharis obtusa	blunt spike-rush	3	X	Sedge	OBL
Epilobium coloratum	cinnamon willow-herb	3	X	Forb	OBL
Erigeron strigosus	daisy fleabane	2	X	Forb	FAC-
Juncus canadensis	Canadian rush	7	X	Rush	OBL
Juncus dudleyi	Dudley's rush	4	X	Rush	
Leersia oryzoides	rice cut grass	3	X	Grass	OBL
Lythrum alatum	winged loosestrife	6	X	Forb	OBL
Mimulus ringens	monkey-flower	6	X	Forb	OBL
Panicum capillare	witch grass	1	X	Grass	FAC
PHALARIS ARUNDINACEA	reed canary grass			Grass	FACW+
Poa palustris	marsh bluegrass	5	X	Grass	FACW+
Polygonum pensylvanicum	pinkweed	1	X	Forb	FACW+
Potentilla norvegica	Norwegian cinquefoil	0	X	Forb	FAC
RUMEX CRISPUS	curly dock			Forb	FAC+
Sagittaria latifolia var. latifolia	broad-leaved arrowhead	3	X	Aquatic	OBL
Schoenoplectus tabernaemontani	**soft-stem bulrush**	**4**	**X**	**Sedge**	**OBL**
TRIFOLIUM HYBRIDUM	alsike clover			Forb	FAC-
TYPHA ANGUSTIFOLIA	**narrow-leaved cat-tail**			**Aquatic**	**OBL**
Zizania aquatica	annual wild rice	8	X	Grass	OBL

FQI Calculations	Species Richness	Mean C Value	FQI
Native	22	3.5	16.2
All Species	27	2.8	14.6

**Bold denotes dominant species*

Rubbert Phase II
2013 Wet Meadow Species List

Scientific Name*	Common Name	Coefficient of Conservatism	Native	Physiognomy	Region 3 Wetland Coefficient
ABUTILON THEOPHRASTI	Piemarker			Forb	FACU-
Alisma triviale	**northern water-plantain**	**4**	**X**	**Aquatic**	
Amaranthus retroflexus	pigweed	0	X	Forb	FACU+
Ambrosia artemisiifolia	common ragweed	0	X	Forb	FACU
Ambrosia trifida	giant ragweed	0	X	Forb	FAC+
Aster puniceus	swamp aster	5	X	Forb	OBL
CIRSIUM ARVENSE	Canada thistle			Forb	FACU
Cyperus esculentus	field nut sedge	0	X	Sedge	FACW
ECHINOCHLOA CRUSGALLI	**barnyard grass**			**Grass**	**FACW**
Elymus virginicus	Virginia wild-rye	6	X	Grass	FACW-
ELYTRIGIA REPENS	quackgrass			Grass	FACU
Epilobium coloratum	cinnamon willow-herb	3	X	Forb	OBL
HIBISCUS TRIONUM	flower-of-an-hour			Forb	
HORDEUM JUBATUM	squirrel-tail grass			Grass	FAC+
Lactuca canadensis	wild lettuce	2	X	Forb	FACU+
Leersia oryzoides	rice cut grass	3	X	Grass	OBL
Lythrum alatum	winged loosestrife	6	X	Forb	OBL
Mimulus ringens	monkey-flower	6	X	Forb	OBL
Panicum capillare	**witch grass**	**1**	**X**	**Grass**	**FAC**
PENNISETUM GLAUCUM	pearl millet			Grass	FAC
PHALARIS ARUNDINACEA	reed canary grass			Grass	FACW+
PLANTAGO MAJOR	plantain			Forb	FAC+
POA PRATENSIS	Kentucky bluegrass			Grass	FAC-
Polygonum lapathifolium	**heart's-ease**	**2**	**X**	**Forb**	**FACW+**
Polygonum pensylvanicum	pinkweed	1	X	Forb	FACW+
RUMEX CRISPUS	curly dock			Forb	FAC+
SETARIA VIRIDIS	green foxtail			Grass	
Solidago canadensis	common goldenrod	1	X	Forb	FACU
TRIFOLIUM HYBRIDUM	**alsike clover**			**Forb**	**FAC-**
TRIFOLIUM PRATENSE	**red clover**			**Forb**	**FACU+**
Verbena hastata	blue vervain	3	X	Forb	FACW+
Xanthium strumarium	common cocklebur	1	X	Forb	FAC

FQI Calculations	Species Richness	Mean C Value	FQI
Native	18	2.4	10.4
All Species	32	1.4	7.8

**Bold denotes dominant species*

Rubbert Phase II
2013 Upland Buffer Species List

Scientific Name*	Common Name	Coefficient of Conservatism	Native	Physiognomy	Region 3 Wetland Coefficient
ABUTILON THEOPHRASTI	Piemarker			Forb	FACU-
Amaranthus retroflexus	pigweed	0	X	Forb	FACU+
Ambrosia artemisiifolia	**common ragweed**	**0**	**X**	**Forb**	**FACU**
Ambrosia trifida	**giant ragweed**	**0**	**X**	**Forb**	**FAC+**
Andropogon gerardii	big blue-stem	4	X	Grass	FAC-
ARCTIUM MINUS	common burdock			Forb	UPL
Asclepias incarnata	swamp milkweed	5	X	Forb	OBL
Asclepias syriaca	common milkweed	1	X	Forb	UPL
BROMUS INERMIS	smooth brome			Grass	UPL
CHENOPODIUM ALBUM	lamb's-quarters			Forb	FAC-
CICHORIUM INTYBUS	chicory			Forb	
CIRSIUM ARVENSE	Canada thistle			Forb	FACU
CIRSIUM VULGARE	bull thistle			Forb	FACU-
Conyza canadensis	fleabane	0	X	Forb	FAC-
Cyperus esculentus	field nut sedge	0	X	Sedge	FACW
DACTYLIS GLOMERATA	orchard grass			Grass	FACU
Dalea purpurea	violet prairie-clover	7	X	Forb	
DAUCUS CAROTA	Queen Anne's-lace			Forb	
ECHINOCHLOA CRUSGALLI	barnyard grass			Grass	FACW
ELYTRIGIA REPENS	quackgrass			Grass	FACU
Epilobium coloratum	cinnamon willow-herb	3	X	Forb	OBL
Erigeron strigosus	daisy fleabane	2	X	Forb	FAC-
HORDEUM JUBATUM	squirrel-tail grass			Grass	FAC+
Juncus dudleyi	Dudley's rush	4	X	Rush	
Lactuca canadensis	wild lettuce	2	X	Forb	FACU+
MEDICAGO SATIVA	alfalfa			Forb	[UPL]
MELILOTUS ALBA	white sweet-clover			Forb	FACU
MELILOTUS OFFICINALIS	yellow sweet-clover			Forb	FACU
Panicum capillare	witch grass	1	X	Grass	FAC
PENNISETUM GLAUCUM	**pearl millet**			**Grass**	**FAC**
PHALARIS ARUNDINACEA	reed canary grass			Grass	FACW+
PLANTAGO MAJOR	**plantain**			**Forb**	**FAC+**
POA PRATENSIS	Kentucky bluegrass			Grass	FAC-
Polygonum lapathifolium	**heart's-ease**	**2**	**X**	**Forb**	**FACW+**
Polygonum pensylvanicum	pinkweed	1	X	Forb	FACW+
Ratibida pinnata	globular coneflower	4	X	Forb	
Rudbeckia hirta	black-eyed Susan	4	X	Forb	FACU
RUMEX CRISPUS	curly dock			Forb	FAC+
SETARIA VIRIDIS	**green foxtail**			**Grass**	
SONCHUS ARVENSIS	field sow-thistle			Forb	FAC-
TARAXACUM OFFICINALE	common dandelion			Forb	FACU
TRIFOLIUM AUREUM	golden clover			Forb	
TRIFOLIUM HYBRIDUM	alsike clover			Forb	FAC-
TRIFOLIUM PRATENSE	red clover			Forb	FACU+
Verbena hastata	blue vervain	3	X	Forb	FACW+

FQI Calculations	Species Richness	Mean C Value	FQI
Native	19	2.3	9.9
All Species	44	1.0	6.5

**Bold denotes dominant species*