WETLAND DELINEATION REPORT

Siepmann Tallgrass Project
City of Waukesha,
Waukesha County, WI
Stantec Project #: 193705505
Lead Delineator: Eric C. Parker

Stantec

Prepared for:
Siepmann Realty Corporation

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August 4, 2017

Sign-Off Sheet

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Prepared by _____
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Jacob Eeling, Wetland Technician

Reviewed by _____
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Eric C. Parker, P.W.S., Senior Scientist

Independent Review by _____
(signature)

Carol McCoy, Senior Environmental Scientist

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INTRODUCTION

Stantec Consulting Services Inc. (Stantec) performed a wetland determination and delineation of Siepmann Tallgrass Project (the "Property") on behalf of Siepmann Realty Corporation. Eric C. Parker, PWS, Stantec, completed the wetland delineation on July 7th, 2017 (see Appendix E for Delineator Qualifications).

The Property is approximately 16.31 acres in size and located in the southwest quarter of Section 32 and the northwest quarter of Section 29, Township 7 North, Range 19 East, City of Waukesha, Waukesha County, Wisconsin. Specifically, the Property is located southeast of the intersection of Patrick Lane and Northview Road (Figures 1-4, Appendix A). The purpose and objective of the wetland determination and delineation was to identify the presence, extent, and spatial arrangement of wetlands, as well as to identify potentially jurisdictional waterways, within the Property. One wetland area and one waterway were identified within the Property.

The wetlands and waterways identified in this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers (USACE), state regulation under the jurisdiction of the Wisconsin Department of Natural Resources (WDNR), and local jurisdiction under the local county, town, city, or village. Stantec recommends this report be submitted to local authorities, the WDNR, and USACE for final jurisdictional review and concurrence.

METHODS

WETLANDS

Wetland determinations were based on the criteria and methods outlined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1 (1987) and subsequent guidance documents, and applicable Regional Supplements to the *Corps of Engineers Wetland Delineation Manual*.

The wetland determination involved the use of available resources to assist in the assessment such as U.S. Geological Survey (USGS) topographic maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey, WDNR Wisconsin Wetland Inventory (WWI) mapping, and aerial photography.

On-site wetland determinations were made using the three criteria (vegetation, soil, and hydrology) and technical approach defined in the USACE 1987 Manual and applicable Regional Supplement. Per procedures described in the 1987 Manual and applicable 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.

Additionally, as climate plays an important role in the formation and identification of wetlands, the antecedent precipitation in the months leading up to the field investigation was reviewed. The current year's precipitation data was compared to long-term (30-year) precipitation averages and standard deviation to determine if precipitation was normal, wet, or dry for the area using a WETS analysis as developed by the NRCS.

The uppermost wetland boundary and sample points were identified and surveyed with a Global Positioning System (GPS) capable of sub-meter accuracy and mapped using Geographical Information System (GIS) software. The wetland boundaries were also flagged on the ground with pink wetland delineation pin flags and, subject to weathering, will remain in the field for use during subsequent site reviews.

WATERWAYS

Review of waterway characteristics and determination of navigability and jurisdiction was beyond the scope of the investigation. However, if observed, waterways, waterbodies, culverts, and/or other connections to off-site wetland or aquatic features that may be under federal or state authority were surveyed using a GPS and mapped using GIS software.

RESULTS

SITE DESCRIPTION

The Property is currently comprised of vacant land dominated by several non-native un-mowed grass species. Based on a review of historical aerial imagery available on Waukesha County's web site, the Property was formerly used as farm land until approximately ten years ago. Elevations range between approximately 861-920 feet mean sea level (msl) with the lowest part of the Property in the southwest corner and the highest elevation along the west side. Vacant land borders the property to the south, and residential properties are present to the west, north, and east. Contiguous off-site wetlands are present just outside the Property to the west.

Soils present within the Property and their hydric status are summarized in Table 1. The wetlands identified during the field investigation are located primarily within areas mapped as poorly drained hydric soils (Appendix A, Figures 2 and 3).

Table 1. Summary of Soils Identified within the Property

Soil Symbol: Soil Unit Name	Soil Unit Component	Soil Unit Component Percentage	Landform	Hydric Status
KwB: Knowles silt loam, 2 to 6 percent slopes	Knowles	100	Ground moraines	No
Ph: Pella silt loam, 0 to 2 percent slopes	Pella	80-91	Drainageways	Yes
	Kendall	5-9	Drainageways	No
	Lamartine	4-8	Drainageways	No
	Palms-Muck	1-3	Depressions	Yes
Pm: Pella silt loam, bedrock substratum, 0 to 2 percent slopes	Pella-Bedrock substratum	85-95	Drainageways	Yes
	Pella-Cool	5-15	Interdrumlins	Yes

The WWI map identifies one wetland in the western portion of the Property (Appendix A, Figure 4). The field delineated wetland is in the same vicinity as the wetland identified on the WWI map (Appendix A, Figure 5).

Average precipitation for the investigation area was obtained from the Waukesha (WI) USC00478937 weather station and used for the WETS analysis. A total of 15.20 inches of precipitation occurred in the three-month period prior to the field investigation compared to the long-term average of 12.69 inches. Based on the WETS analysis, conditions were in the wetter than normal range (Appendix D). These wet conditions provided atypical climatic/hydrologic conditions; however, when consideration was given to all three parameters, the wetland determinations were made using indicators for all three parameters, in conjunction with best professional judgment.

WETLANDS

One wetland was identified and delineated within the Property comprised of wooded, shrub, and wet meadow cover types. Wetland determination data forms were completed for four (4) sample points in and adjacent to the wetland; and are contained in Appendix B. Photographs of the area determined to be non-wetland, wetland, and the adjacent lands are contained in Appendix C. The wetland boundaries and sample point locations are shown on Figure 5 (Appendix A). The wetland is summarized in Table 2 below and described in detail in the following sections.

Table 2. Summary of Wetlands Identified within the Property

Wetland	Wetland Type	Adjacent Surface Waters	Acreage (on-site)
Wetland 1 (W-1)	Broad-leaved deciduous scrub/shrub & Emergent Wet-meadow narrow-leaved persistent (S3/E2K)	Pebble Creek (WBIC 771300), tributary to the Fox River	1.51 acres

WETLAND W-1

Wetland 1 (W-1) is a riparian wetland within the floodplain of Pebble Creek (designated by the WDNR with Water Body Identification Code – WBIC 771300). W-1 is comprised of a complex of emergent, shrub, and wooded cover types. Topography on the Property is almost entirely natural and drains westerly and northwesterly to wetland W-1 and the associated Pebble Creek.

Vegetation

Dominant plant species identified at sample points P1 and P4 (Hardwood Swamp), completed within W-1, consisted of reed canary grass (*Phalaris arundinacea*, FACW), orange jewelweed (*Impatiens capensis*, FACW), box elder (*Acer negundo*, FAC), black walnut (*Juglans nigra*, FACU), green ash (*Fraxinus pennsylvanica*, FACW), common buckthorn (*Rhamnus cathartica*, FAC), and multiflora rose (*Rosa multiflora*, FACU). Other portions of the wetland dominated by reed canary grass and lacking woody vegetation were comprised of wet meadow, while sandbar willow (*Salix interior*, FACW) and common buckthorn dominated the shrub carr portions of the wetland. Other common species identified in the wetland are listed on the data forms contained in Appendix B. The dominant species within the wetland were comprised mostly of hydrophytic vegetation (OBL, FACW, and/or FAC), and therefore met the hydrophytic vegetation criterion.

Hydrology

The wetland appears to have a seasonally flooded/saturated to permanently saturated hydroperiod. Although the antecedent precipitation was wetter in the three-month period leading up to the field work than the long-term average, given the time of year and a lack of recent rainfall, conditions were somewhat dry. At the time of the field work W-1 did not have standing water in most of its area, and saturated soils were found only in portions nearest Pebble Creek. Two secondary indicators of wetland hydrology were observed at sample points P1 and P4: Crayfish Burrows (C8) and Geomorphic Position (D2). Therefore, the wetland hydrology criterion was met.

Results

Soils

As shown in Table 1 (page 3) and on Figure 2 (Appendix A), the NRCS depicts Pella silt loam (Ph) and Pella silt loam, bedrock substratum (Pm), as mapped within wetland W-1. Hydric soils were identified at sample points P1 and P4 with both points having met NRCS Field Indicators A11-Depleted Below Dark Surface and F3-Depleted Matrix. Therefore, the hydric soil criterion was satisfied within W-1.

Wetland Boundary

The wetland boundary was determined based on distinct differences in vegetation, hydrology, soils, and/or topography consisting of the following: 1) Transition from various wooded and old field uplands to wet meadow, scrub/shrub and hardwood swamp cover types dominated by of reed canary grass, orange jewelweed, box elder, black walnut, green ash, common buckthorn, and multiflora rose in the wetland to an area dominated by bur oak (*Quercus macrocarpa*, FACU), box elder, black walnut, common buckthorn, Kentucky bluegrass (*Poa pratensis*, FACU), reed canary grass, and garlic mustard (*Alliaria petiolata*, FACU) in the upland; 2) Transition from an area exhibiting two secondary wetland hydrology indicators within the wetland to a lack of wetland hydrology indicators within the adjacent upland; and 3) Transition from poorly drained hydric soils in the wetland to well drained non-hydric soils in the adjacent upland. The transition from wetland to upland characteristics generally correlated with a moderately well to poorly-defined slope break.

UPLANDS

Uplands within the Property included mostly old field vegetation that was formerly farmland used for row crops. Also present on the uplands are tree-lines dominated by trees typically found on uplands in Waukesha county such as box elder, various oak species (*Quercus* spp.), and black walnut. The perimeter of the Property was observed to be developed as wooded and non-wooded residential lots, or vacant land similar to the Property.

Uplands are represented at sample points P2 and P3 (see data forms in Appendix B). Sample points P2 and P3 were completed for transects across the delineated wetland-upland boundaries. Overall, the uplands on the Property were dominated by bur oak, box elder, black walnut, common buckthorn, Canada thistle (*Cirsium arvense*, FACU), smooth brome (*Bromus inermis*, UPL), quack grass (*Elymus repens*, FACU), Kentucky bluegrass, reed canary grass, and garlic mustard.

WATERWAYS

Pebble Creek (WBIC 771300) is a state-navigable waterway located along the west border of the Property. This creek flows generally from north to south, and eventually has a confluence with the Fox River approximately four miles to the southeast. Pebble Creek is a perennial waterway with a channel that is approximately 6-10 feet in width. The creek has a depth that ranges from a few inches to approximately two feet, and possesses well-defined banks. Bedrock appears to be close to ground surface near Pebble Creek in the project area based on rock outcrops observed on a steep slope just outside the Property to the west.

OTHER ENVIRONMENTAL CONSIDERATIONS

This report is limited to the identification of state and/or federally regulated wetlands and waterways within the Property. However, there may be other regulated environmental features within the Property, including, but not limited to, historical or archeological features, endangered or threatened species, navigable waters and/or floodplains, etc. Federal, state, and local units of government and regional planning organizations may have regulatory authority to control or restrict land uses within or near these features. Stantec can assist with identification and/or assessment of additional regulated resources at your request, to the extent that the work is within our range of expertise.

Specifically, in the state of Wisconsin, Wis. Adm. Code NR 151.12 requires that a "protective area" or buffer be determined from the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands. In accordance with NR 151.12, the width of the "protective area" for less susceptible wetlands is determined by using 10% of the average wetland width, no less than 10 feet or more than 30 feet. Moderately susceptible wetlands, lakes, and perennial and intermittent streams identified on USGS topographic maps or NRCS county soil survey maps (whichever is more current) require a protective buffer of 50 feet, and outstanding or exceptional resource waters, highly susceptible wetlands, and wetlands in areas of special natural resource interest require protective buffers of 75 feet.

The wetland identified within the Property is only partially dominated by invasive plant species and therefore is expected to be a moderately susceptible wetland. Additionally, Pebble Creek and its adjacent wetlands are part of primary environmental corridor as designated by Southeastern Wisconsin Regional Planning Commission (SEWRPC). Therefore, based on the "protective buffer" standards per NR 151.12, a protective area buffer of 75 feet from W-1 may be expected. Please note that the jurisdictional authority on wetland buffers rests with the WDNR. Local zoning authorities, as recommended by SEWRPC, may have more restrictive buffers from wetlands than that imposed under NR 151.

CONCLUSION

Stantec performed a wetland determination and delineation of the Siepmann Tallgrass Project property on behalf of Siepmann Realty Corporation. Eric C. Parker, PWS, Stantec, completed a wetland delineation on July 7, 2017. The approximately 16.31-acre Property is in the southwest quarter of Section 32 and the northwest quarter of Section 29, Township 7 North, Range 19 East, City of Waukesha, Waukesha County, Wisconsin. The purpose and objective of the wetland determination and delineation was to identify the extent and spatial arrangement of wetlands and potentially jurisdictional waterways within the Property.

One wetland area was identified within the Property. The portion of wetland W-1 that is within the Property is 1.51-acres in size and is comprised of a complex of emergent, shrub, and wooded wetland cover types.

The wetlands identified in this report may be subject to federal regulation under the jurisdiction of the USACE, state regulation under the jurisdiction of the WDNR, and local jurisdiction under the local county, town, city, or village.

Prior to beginning work at this site or disturbing or altering wetlands, waterways, or adjacent lands in any way, Stantec recommends that the owner obtain the necessary permits or other agency regulatory review and concurrence about the proposed work to comply with applicable regulations. Stantec can assist with identification and/or assessment of additional regulated resources at your request, to the extent that the work is within our range of expertise.

The information provided by Stantec regarding wetland boundaries is a scientific-based analysis of the wetland and upland conditions present within the Property at the time of the fieldwork. Experienced and qualified professionals performed the delineation by 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. Therefore, 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 Property 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 within the Property.

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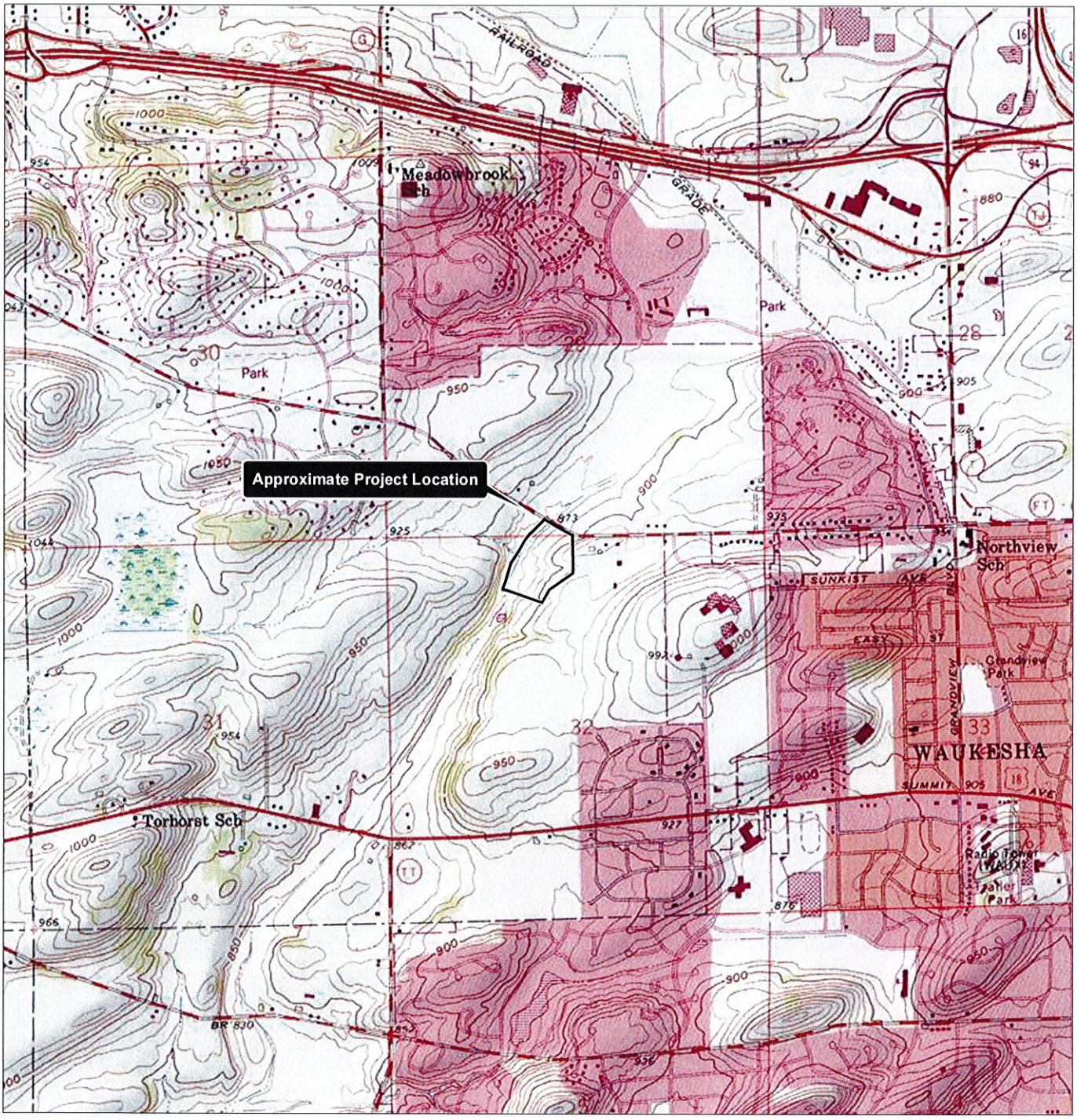
Appendices

Tallgrass Project Wetland Delineation
Appendix A – Figures
August 4, 2017

APPENDIX A – FIGURES



Legend

Approximate Project Boundary

Figure No.
1

Title
Project Location and Topography

Client/Project
Siepmann Realty Corporation
Siepmann Tallgrass Project
Wetland Delineation

Project Location
T7N, R19E, S29, 32,
C. of Waukesha,
Waukesha Co., WI

193705505
Prepared by JM on 2017-06-29
Technical Review by CP on 2017-06-29
Independent Review by EP on 2017-07-11

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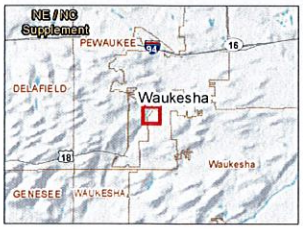
Stantec

Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WDOT, WDNR
3. Background: USGS 7.5' Topographic Quadrangles



Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources include: Stantec, WDOT, WDNR, NRCS
3. Orthophotography: 2015 NAIP

Legend

- Approximate Project Boundary
- NRCS Soil Survey Data
- Hydric Ratings
  - Predominantly Hydric Soil
  - Partially Hydric Soil
  - Non-Hydric Soil
- DNR 24k Hydrography
  - Perennial Stream
  - Intermittent Stream
  - Waterbody

Figure No.
2

Title
NRCS Soil Survey Data
Hydric Ratings

Client/Project
Siepmann Realty Corporation
Siepmann Tallgrass Project
Wetland Delineation

Project Location
T7N, R19E, S29, 32,
C. of Waukesha,
Waukesha Co., WI

193705505
Prepared by JM on 2017-06-29
Technical Review by CP on 2017-06-29
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Legend

- Approximate Project Boundary
- WWI Wetland Class Points
  - Excavated Pond
- WWI Wetland Class Areas
  - Wetland
- DNR 24k Hydrography
  - Perennial Stream
  - Intermittent Stream
  - Waterbody

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WDOT, WDNR
3. Orthophotography: 2015 NAIP

Figure No.
4

Title
Wisconsin Wetland Inventory

Client/Project
Siepmann Realty Corporation
Siepmann Tallgrass Project
Wetland Delineation

Project Location
T7N, R19E, S29, 32,
C. of Waukesha,
Waukesha Co., WI

193705505
Prepared by JM on 2017-06-29
Technical Review by CP on 2017-06-29
Independent Review by EP on 2017-07-11

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1:2,400 (at original document size of 8.5x11)

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Legend

- Approximate Project Boundary
- 2ft Elevation Contour
- Sample Point
- Culvert
- Field Delineated Waterway
- Field Delineated Wetland

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources include: Stantec, WDOT, WDNR
3. Orthophotography: 2015 NAIP

Figure No.
5

Title
Field Collected Data

Client/Project
Siepmann Realty Corporation
Siepmann Tallgrass Project
Wetland Delineation

Project Location
T7N, R19E, S29, 32,
C. of Waukesha,
Waukesha Co., WI

193705505

Prepared by JM on 2017-06-29
Technical Review by CP on 2017-06-29
Independent Review by EP on 2017-07-11

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1:2,400 (at original document size of 8.5x11)

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APPENDIX B – WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM
Northcentral-Northeast Region

Project/Site:	Siepmann Tallgrass Project	Stantec Project #:	193705505
Applicant:	Siepmann Realty Corporation		
Investigator #1:	Eric Parker	Investigator #2:	
Soil Unit:	Pella silt loam	NWI/WWI Classification:	S3/E2K
Landform:	Toeslope	Local Relief:	Concave
Slope (%):	2-4	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 [X] No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed?
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic?

Are normal circumstances present? [X] Yes [ ] No

Date:	07/07/17
County:	Waukesha
State:	Wisconsin
Wetland ID:	W-1
Sample Point:	P1
Community ID:	Hardwood Swamp
Section:	29
Township:	7N
Range:	19E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? [X] Yes [ ] No
Wetland Hydrology Present? [X] Yes [ ] No
Hydric Soils Present? [X] Yes [ ] No
Is This Sampling Point Within A Wetland? [X] Yes [ ] No

Remarks: WETS analysis indicates antecedent precipiation is the wetter than normal range. Determined to be wetland having met all 3 parameters.

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 in Remarks)

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

Field Observations:

Surface Water Present?	[ ] Yes	[X] No	Depth:	(in.)
Water Table Present?	[ ] Yes	[X] No	Depth:	(in.)
Saturation Present?	[ ] Yes	[X] No	Depth:	(in.)

Wetland Hydrology Present? [X] Yes [ ] No

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

Remarks: 2 secondary indicators show that wetland hydrology is present

SOILS

Map Unit Name: Pella silt loam — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Endoaquolls

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 %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	5	1	10YR 3/2	100	--	--	--	--	silt loam
5	11	2	10YR 4/2	97	10YR 3/4	3	C	M	silt loam
11	21	3	10YR 4/2	85	10YR 4/6	15	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
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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
- [X] 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)
- [ ] S11 - High Chroma Sands
- [ ] F1 - Loamy Mucky Mineral (LRR K, L)
- [ ] F2 - Loamy Gleyed Matrix
- [X] 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, MLRA 149B)
- [ ] A16 - Coast Prairie Redox (LRR K, L, R)
- [ ] S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- [ ] S7 - Dark Surface (LRR K, L, M)
- [ ] 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)
- [ ] F21 - Red Parent Material
- [ ] TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- [ ] 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? [X] Yes [ ] No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northcentral-Northeast Region

Project/Site: Siepmann Tallgrass Project | Wetland ID: W-1 | Sample Point: P1

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

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Juglans nigra*	20	Y	FACU
2.	*Acer negundo*	15	Y	FAC
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	35		

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

1.	*Acer negundo*	15	Y	FAC
2.	*Juglans nigra*	2	N	FACU
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	17		

Herb Stratum (Plot size: 2 meter radius)

1.	*Impatiens capensis*	80	Y	FACW
2.	*ALLIARIA PETIOLATA*	15	N	FACU
3.	*POA PRATENSIS*	10	N	FACU
4.	*PHALARIS ARUNDINACEA*	5	N	FACW
5.	*ELYMUS REPENS*	5	N	FACU
6	*Poa palustris*	3	N	FACW
7.	*Juglans nigra*	2	N	FACU
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	120		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	*Vitis riparia*	5	Y	FAC
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	5		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: *80%* (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	88	x 2 =	176
FAC spp.	35	x 3 =	105
FACU spp.	54	x 4 =	216
UPL spp.	0	x 5 =	0
Total	177 (A)		497 (B)

Prevalence Index = B/A = *2.808*

Hydrophytic Vegetation Indicators:

- [ ] Yes [X] No Rapid Test for Hydrophytic Vegetation
- [X] Yes [ ] No Dominance Test is > 50%
- [X] Yes [ ] No Prevalence Index is ≤ 3.0 *
- [ ] Yes [X] No Morphological Adaptations (Explain) *
- [ ] Yes [X] 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 [X] Yes [ ] No

Additional Remarks:

Determined wetland having met all three paramaters

Stantec

WETLAND DETERMINATION DATA FORM
Northcentral-Northeast Region

Project/Site:	Siepmann Tallgrass Project	Stantec Project #:	193705505
Applicant:	Siepmann Realty Corporation		
Investigator #1:	Eric Parker	Investigator #2:	
Soil Unit:	Knowles silt loam	NWI/WWI Classification:	S3/E2K
Landform:	Side slope	Local Relief:	Convex
Slope (%):	6-8	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 [X] No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed?
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic?

Are normal circumstances present? [X] Yes [ ] No

Date:	07/07/17
County:	Waukesha
State:	Wisconsin
Wetland ID:	Adj. to W-1
Sample Point:	P2
Community ID:	D-M Hardwoods
Section:	29
Township:	7N
Range:	19E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? [X] Yes [ ] No
Wetland Hydrology Present? [ ] Yes [X] No
Hydric Soils Present? [ ] Yes [X] No
Is This Sampling Point Within A Wetland? [ ] Yes [X] No

Remarks: WETS analysis indicates antecedent precipiation is the wetter than normal range. Determined non-wetland based on lack of indicators for hydric soils and wetland hydrology, and using professional judgment.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present [X]):

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 in Remarks)

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	[X] No	Depth:	(in.)
Water Table Present?	[ ] Yes	[X] No	Depth:	(in.)
Saturation Present?	[ ] Yes	[X] No	Depth:	(in.)

Wetland Hydrology Present? [ ] Yes [X] No

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

Remarks: No wetland hydrology indicators observed.

SOILS

Map Unit Name: Knowles silt loam — Series Drainage Class: well

Taxonomy (Subgroup): Typic 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 %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	6	1	10YR 3/2	100	--	--	--	--	silt loam
6	11	2	10YR 4/2	100	--	--	--	--	silt loam
11	15	3	10YR 4/3	100	--	--	--	--	silt loam
15	21	4	10YR 5/4	100	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present [X]):
- [ ] 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)
- [ ] S11 - High Chroma Sands
- [ ] F1 - Loamy Mucky 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, MLRA 149B)
- [ ] A16 - Coast Prairie Redox (LRR K, L, R)
- [ ] S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- [ ] S7 - Dark Surface (LRR K, L, M)
- [ ] 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)
- [ ] F21 - Red Parent Material
- [ ] TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- [ ] 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 [X] No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northcentral-Northeast Region

Project/Site: Siepmann Tallgrass Project | Wetland ID: Adj. to W-1 | Sample Point: P2

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

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind Status
1.	*Quercus macrocarpa*	50	Y	FACU
2.	*Acer negundo*	30	Y	FAC
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	80		

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

1.	*RHAMNUS CATHARTICA*	60	Y	FAC
2.	*Acer negundo*	5	N	FAC
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	65		

Herb Stratum (Plot size: 2 meter radius)

1.	*ALLIARIA PETIOLATA*	80	Y	FACU
2.	*RHAMNUS CATHARTICA*	30	Y	FAC
3.	*Ribes cynosbati*	5	N	FACU
4.	*Circaea canadensis*	5	N	FACU
5.	*ELYMUS REPENS*	3	N	FACU
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	123		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	*Vitis riparia*	10	Y	FAC
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	10		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	135	x 3 =	405
FACU spp.	143	x 4 =	572
UPL spp.	0	x 5 =	0
Total	278 (A)		977 (B)

Prevalence Index = B/A = 3.514

Hydrophytic Vegetation Indicators:

- [ ] Yes [X] No Rapid Test for Hydrophytic Vegetation
- [X] Yes [ ] No Dominance Test is > 50%
- [ ] Yes [X] No Prevalence Index is ≤ 3.0 *
- [ ] Yes [X] No Morphological Adaptations (Explain) *
- [ ] Yes [X] 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 [X] Yes [ ] No

Additional Remarks:

Determined non-wetland based on lack of indicators for hydric soils and wetland hydrology

WETLAND DETERMINATION DATA FORM
Northcentral-Northeast Region

Project/Site:	Siepmann Tallgrass Project	Stantec Project #:	193705505
Applicant:	Siepmann Realty Corporation		
Investigator #1:	Eric Parker	Investigator #2:	
Soil Unit:	Knowles silt loam	NWI/WWI Classification:	S3/E2K
Landform:	Side slope	Local Relief:	Convex
Slope (%):	4-6	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 [X] No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed?
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic?

Are normal circumstances present? [X] Yes [ ] No

Date:	07/07/17
County:	Waukesha
State:	Wisconsin
Wetland ID:	Adjacent to W-1
Sample Point:	P3
Community ID:	Old field
Section:	29
Township:	7N
Range:	19E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? [ ] Yes [X] No
Wetland Hydrology Present? [ ] Yes [X] No
Hydric Soils Present? [ ] Yes [X] No
Is This Sampling Point Within A Wetland? [ ] Yes [X] No

Remarks: WETS analysis indicates antecedent precipiation is the wetter than normal range. Determined non-wetland based on a lack of indicators for all three parameters.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present [X]):

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 in Remarks)

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	[X] No	Depth:	(in.)
Water Table Present?	[ ] Yes	[X] No	Depth:	(in.)
Saturation Present?	[ ] Yes	[X] No	Depth:	(in.)

Wetland Hydrology Present? [ ] Yes [X] No

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

Remarks: No wetland hydrology indicators observed.

SOILS

Map Unit Name: Knowles silt loam — Series Drainage Class: well

Taxonomy (Subgroup): Typic 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 %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	7	1	10YR 3/2	100	--	--	--	--	silt loam
7	14	2	10YR 4/3	100	--	--	--	--	silt loam
14	20	3	10YR 4/2	97	10YR 4/4	3	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present [X]):
- [ ] 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)
- [ ] S11 - High Chroma Sands
- [ ] F1 - Loamy Mucky 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, MLRA 149B)
- [ ] A16 - Coast Prairie Redox (LRR K, L, R)
- [ ] S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- [ ] S7 - Dark Surface (LRR K, L, M)
- [ ] 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)
- [ ] F21 - Red Parent Material
- [ ] TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- [ ] 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 [X] No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northcentral-Northeast Region

Project/Site: Siepmann Tallgrass Project | Wetland ID: Adjacent to W-1 | Sample Point: P3

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

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	*Juglans nigra*	10	Y	FACU
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	10		

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.	*POA PRATENSIS*	90	Y	FACU
2.	*PHALARIS ARUNDINACEA*	30	Y	FACW
3.	*Physalis heterophylla*	5	N	UPL
4.	*CIRSIUM ARVENSE*	2	N	FACU
5.	*Vitis riparia*	1	N	FAC
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	128		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	*Vitis riparia*	1	N	FAC
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	1		

Remarks:

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: *33%* (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	30	x 2 =	60
FAC spp.	2	x 3 =	6
FACU spp.	102	x 4 =	408
UPL spp.	5	x 5 =	25
Total	139 (A)		499 (B)

Prevalence Index = B/A = *3.590*

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:

Determined non-wetland based on a lack of indicators for all three parameters.

WETLAND DETERMINATION DATA FORM
Northcentral-Northeast Region

Project/Site:	Siepmann Tallgrass Project	Stantec Project #:	193705505
Applicant:	Siepmann Realty Corporation		
Investigator #1:	Eric Parker	Investigator #2:	
Soil Unit:	Pella silt loam	NWI/WWI Classification:	S3/E2K
Landform:	Toeslope	Local Relief:	Concave
Slope (%):	1-3	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 [X] No

Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed?
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic?

Are normal circumstances present? [X] Yes [ ] No

Date:	07/07/17
County:	Waukesha
State:	Wisconsin
Wetland ID:	W1
Sample Point:	P4
Community ID:	Hardwood Swamp
Section:	29
Township:	7N
Range:	19E

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? [X] Yes [ ] No
Wetland Hydrology Present? [X] Yes [ ] No
Hydric Soils Present? [X] Yes [ ] No
Is This Sampling Point Within A Wetland? [X] Yes [ ] No

Remarks: WETS analysis indicates antecedent precipiation is the wetter than normal range

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 in Remarks)

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

Field Observations:

Surface Water Present?	[ ] Yes	[X] No	Depth:	(in.)
Water Table Present?	[ ] Yes	[X] No	Depth:	(in.)
Saturation Present?	[ ] Yes	[X] No	Depth:	(in.)

Wetland Hydrology Present? [X] Yes [ ] No

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

Remarks: 2 secondary indicators show that wetland hydrology is present.

SOILS

Map Unit Name: Pella silt loam — Series Drainage Class: poorly

Taxonomy (Subgroup): Typic Endoaquolls

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 %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	5	1	10YR 3/2	100	--	--	--	--	silt loam
5	11	2	10YR 4/2	95	10YR 4/6	5	C	M	silt loam
11	17	3	10YR 4/2	85	10YR 4/6	15	C	M	silt loam
17	21	4	10YR 5/2	80	10YR 6/8	20	C	M	silty 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
- [X] 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)
- [ ] S11 - High Chroma Sands
- [ ] F1 - Loamy Mucky Mineral (LRR K, L)
- [ ] F2 - Loamy Gleyed Matrix
- [X] 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, MLRA 149B)
- [ ] A16 - Coast Prairie Redox (LRR K, L, R)
- [ ] S3 - 5cm Mucky Peat of Peat (LRR K, L, R)
- [ ] S7 - Dark Surface (LRR K, L, M)
- [ ] 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)
- [ ] F21 - Red Parent Material
- [ ] TA6 - Mesic Spodic (MLRA 144A, 145, 149B)
- [ ] 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? [X] Yes [ ] No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northcentral-Northeast Region

Project/Site: Siepmann Tallgrass Project | Wetland ID: W1 | Sample Point: P4

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

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind. Status
1.	*Fraxinus pennsylvanica*	15	Y	FACW
2.	*RHAMNUS CATHARTICA*	10	Y	FAC
3.	*Juglans nigra*	10	Y	FACU
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	35		

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

1.	*ROSA MULTIFLORA*	5	Y	FACU
2.	*RHAMNUS CATHARTICA*	2	Y	FAC
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	7		

Herb Stratum (Plot size: 2 meter radius)

1.	*PHALARIS ARUNDINACEA*	75	Y	FACW
2.	*BROMUS INERMIS*	7	N	UPL
3.	*Impatiens capensis*	5	N	FACW
4.	*Solidago canadensis*	3	N	FACU
5.	*Angelica atropurpurea*	3	N	OBL
6	*CIRSIUM ARVENSE*	2	N	FACU
7.	*Amphicarpaea bracteata*	1	N	FAC
8.	*Circaea canadensis*	1	N	FACU
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	97		

Woody Vine Stratum (Plot size: 10 meter radius)

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

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	3	x 1 =	3
FACW spp.	95	x 2 =	190
FAC spp.	13	x 3 =	39
FACU spp.	21	x 4 =	84
UPL spp.	7	x 5 =	35
Total	139 (A)		351 (B)

Prevalence Index = B/A = 2.525

Hydrophytic Vegetation Indicators:

- [ ] Yes [x] No Rapid Test for Hydrophytic Vegetation
- [x] Yes [ ] No Dominance Test is > 50%
- [x] Yes [ ] No Prevalence Index is ≤ 3.0 *
- [ ] Yes [x] No Morphological Adaptations (Explain) *
- [ ] Yes [x] 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 [x] Yes [ ] No

Additional Remarks:

Determined wetland having met all three paramters

APPENDIX C – SITE PHOTOGRAPHS

Stantec	**Photo Log**
Project Name: Siepmann Tallgrass Project	**Project Location:** Waukesha, WI
Client: Siepmann Realty Corporation	**Stantec Project #:** 193705505

Photo No. 1	**Date** 07/07/2017
Direction Photo Taken: East **Photo Description:** Sample point P1	

Photo No. 2	**Date** 0707/2017
Direction Photo Taken: West **Photo Description:** Sample point P2	

Stantec	**Photo Log**
Project Name: Siepmann Tallgrass Project	**Project Location:** Waukesha, WI
Client: Siepmann Realty Corporation	**Stantec Project #:** 193705505

Photo No. 3	**Date** 07/07/2017

Direction Photo Taken:
East

Photo Description:
Sample point P2

Photo No. 4	**Date** 07/07/2017

Direction Photo Taken:
West

Photo Description:
Sample point P2

Stantec	**Photo Log**
Project Name: Siepmann Tallgrass Project	**Project Location:** Waukesha, WI
Client: Siepmann Realty Corporation	**Stantec Project #:** 193705505

Photo No. 5	**Date** 07/07/2017

Direction Photo Taken:
East

Photo Description:
Sample point P3

Photo No. 6	**Date** 07/07/2017

Direction Photo Taken:
West

Photo Description:
Sample point P3

Stantec	**Photo Log**
Project Name: Siepmann Tallgrass Project	**Project Location:** Waukesha, WI
Client: Siepmann Realty Corporation	**Stantec Project #:** 193705505

Photo No. 7	**Date** 07/07/2017

Direction Photo Taken:
North

Photo Description:
Sample point P4

Photo No. 8	**Date** 07/07/2017

Direction Photo Taken:
South

Photo Description:
Sample point P4

Stantec	**Photo Log**
Project Name: Siepmann Tallgrass Project	**Project Location:** Waukesha, WI
Client: Siepmann Realty Corporation	**Stantec Project #:** 193705505

Photo No.	**Date**
9	07/07/2017

Direction Photo Taken:
South

Photo Description:
View of Pebble Creek from Northview Road

Photo No.	**Date**
10	07/07/2017

Direction Photo Taken:
North

Photo Description:
View upstream along Pebble Creek from near the south end of the Property.

APPENDIX D – WETS ANALYSIS

WETS Station: WAUKESHA, WI

Requested years: 1987 - 2016

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max	Avg daily min	Avg daily mean	Avg	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall
					less than	more than		
Jan	28.3	12.6	20.4	1.49	0.96	1.79	5	11.9
Feb	32.2	16.1	24.1	1.47	0.83	1.77	4	9.6
Mar	43.7	25.2	34.5	1.76	1.07	2.13	4	5.0
Apr	56.4	36.3	46.3	3.64	2.66	4.29	7	1.2
May	68.3	46.8	57.6	4.02	2.83	4.77	8	0.0
Jun	78.3	56.7	67.5	5.03	3.05	6.09	8	0.0
Jul	82.5	61.7	72.1	3.79	2.54	4.53	6	0.0
Aug	80.6	60.3	70.4	4.38	2.61	5.31	7	0.0
Sep	73.4	51.4	62.4	3.02	1.85	3.66	6	0.0
Oct	60.6	39.9	50.3	2.41	1.49	2.91	6	0.1
Nov	45.9	29.6	37.7	2.06	1.28	2.50	5	1.8
Dec	33.0	18.1	25.6	1.89	1.15	2.28	5	9.6
Annual:					32.45	37.38		
Average	56.9	37.9	47.4	-	-	-	-	-

WETS Analysis Worksheet

Project Name: Tallgrass Multi-family Project
Project Number: 193705505
Period of interest: April to June 2017
Station: WAUKESHA (WI) USC00478937
County: Waukesha

Long-term rainfall records (from WETS table)

	Month	3 years in 10 less than	Normal	3 years in 10 greater than
1st month prior:	June	3.05	5.03	6.09
2nd month prior:	May	2.83	4.02	4.77
3rd month prior:	April	2.66	3.64	4.29
		Sum =	12.69	

Site determination

Site Rainfall (in)	Condition Dry/Normal*/Wet	Condition** Value	Month Weight	Product
5.10	Normal	2	3	6
4.95	Wet	3	2	6
5.15	Wet	3	1	3
Sum =	15.20		Sum*** =	15

*Normal precipitation with 30% to 70% probability of occurrence

Determination: X Wet / ____ Dry / ____ Normal

**Condition value:
Dry = 1
Normal = 2
Wet = 3

***If sum is:
6 to 9 then period has been drier than normal
10 to 14 then period has been normal
15 to 18 then period has been wetter than normal

Precipitation data source: NOAA Regional Climate Centers - ACIS (http://efotg.sc.egov.usda.gov/efotg_locator.aspx)

Reference: Donald E.Woodward, ed. 1997. *Hydrology Tools for Wetland Determination*. Chapter 19. Engineering Field Handbook. U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.

Daily Data Between Two Dates
WAUKESHA (WI)
USC00478937

Date	Precipitation (in)
4/1/2017	0.00
4/2/2017	0.00
4/3/2017	0.17
4/4/2017	0.76
4/5/2017	0.19
4/6/2017	0.36
4/7/2017	0.00
4/8/2017	0.00
4/9/2017	0.00
4/10/2017	0.00
4/11/2017	0.98
4/12/2017	0.00
4/13/2017	0.31
4/14/2017	0.05
4/15/2017	0.05
4/16/2017	0.23
4/17/2017	0.00
4/18/2017	0.00
4/19/2017	0.00
4/20/2017	0.29
4/21/2017	0.00
4/22/2017	0.00
4/23/2017	0.00
4/24/2017	0.00
4/25/2017	0.00
4/26/2017	0.00
4/27/2017	1.15
4/28/2017	0.00
4/29/2017	0.05
4/30/2017	0.56
Total	**5.15**

M = Missing
T = Trace
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 7/7/2017 7:21:07 AM CDT

Daily Data Between Two Dates
WAUKESHA (WI)
USC00478937

Date	Precipitation (in)
5/1/2017	1.11
5/2/2017	0.40
5/3/2017	0.03
5/4/2017	0.00
5/5/2017	0.00
5/6/2017	0.00
5/7/2017	0.00
5/8/2017	0.00
5/9/2017	0.00
5/10/2017	0.00
5/11/2017	0.00
5/12/2017	0.00
5/13/2017	0.00
5/14/2017	0.00
5/15/2017	0.00
5/16/2017	0.49
5/17/2017	0.00
5/18/2017	0.65
5/19/2017	0.00
5/20/2017	0.13
5/21/2017	0.40
5/22/2017	0.00
5/23/2017	0.02
5/24/2017	0.53
5/25/2017	0.02
5/26/2017	T
5/27/2017	0.09
5/28/2017	0.13
5/29/2017	0.85
5/30/2017	0.08
5/31/2017	0.02
Sum:	**4.95**

M = Missing
T = Trace
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 7/7/2017 7:21:07 AM CDT

Daily Data Between Two Dates
WAUKESHA (WI)
USC00478937

Date	Precipitation (in)
6/1/2017	0.00
6/2/2017	0.00
6/3/2017	0.00
6/4/2017	0.09
6/5/2017	0.00
6/6/2017	0.00
6/7/2017	0.00
6/8/2017	0.00
6/9/2017	0.00
6/10/2017	0.00
6/11/2017	0.00
6/12/2017	0.00
6/13/2017	0.55
6/14/2017	0.03
6/15/2017	0.00
6/16/2017	0.02
6/17/2017	0.49
6/18/2017	0.08
6/19/2017	0.02
6/20/2017	0.25
6/21/2017	0.10
6/22/2017	0.02
6/23/2017	1.25
6/24/2017	0.00
6/25/2017	0.05
6/26/2017	0.06
6/27/2017	0.00
6/28/2017	0.00
6/29/2017	2.00
6/30/2017	0.09
Sum:	**5.10**

M = Missing
T = Trace
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 7/7/2017 7:21:07 AM CDT

WETS Station: WAUKESHA, WI

Requested years: 1987 - 2016

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max	Avg daily min	Avg daily mean	Avg	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall
					less than	more than		
Jan	28.3	12.6	20.4	1.49	0.96	1.79	5	11.9
Feb	32.2	16.1	24.1	1.47	0.83	1.77	4	9.6
Mar	43.7	25.2	34.5	1.76	1.07	2.13	4	5.0
Apr	56.4	36.3	46.3	3.64	2.66	4.29	7	1.2
May	68.3	46.8	57.6	4.02	2.83	4.77	8	0.0
Jun	78.3	56.7	67.5	5.03	3.05	6.09	8	0.0
Jul	82.5	61.7	72.1	3.79	2.54	4.53	6	0.0
Aug	80.6	60.3	70.4	4.38	2.61	5.31	7	0.0
Sep	73.4	51.4	62.4	3.02	1.85	3.66	6	0.0
Oct	60.6	39.9	50.3	2.41	1.49	2.91	6	0.1
Nov	45.9	29.6	37.7	2.06	1.28	2.50	5	1.8
Dec	33.0	18.1	25.6	1.89	1.15	2.28	5	9.6
Annual:					32.45	37.38		
Average	56.9	37.9	47.4	-	-	-	-	-

APPENDIX E – DELINEATOR QUALIFICATIONS

Eric C. Parker PWS

Senior Scientist - Botanist

Stantec

Mr. Parker is a botanist and certified Professional Wetland Scientist, with 30 years of professional and project management experience assisting public and private clientele in Wisconsin, Illinois, Indiana, Michigan, North Dakota, Pennsylvania, Texas, Maryland, Virginia, and North Carolina. His work has supported thousands of transportation, commercial, utility, residential, industrial & institutional projects. Mr. Parker's natural resource specialties include wetland science, botany, endangered resources, restoration & mitigation, environmental regulations & permitting. Mr. Parker has a widespread understanding of the scientific, technical & regulatory aspects of natural resources projects. His interests also include floristic quality assessment (FQA) and wetness categorization of wetland plant species. In 2011 he completed a national study (all 50 states) where he interviewed regional scientists for the purpose of identifying mis-categorized plant species. This work was in response to a CFR public comment solicitation by the U.S. Army Corps of Engineers.

His experience includes the following: Botanical / Biological Surveys & Natural Resource Inventories; Rare Species Surveys, Conservation Plans & Monitoring; Habitat Restoration, Wildlife Surveys, SCAT surveys, Land Reclamation, Planning & Design; Wetland Determination, Delineation & Functional Assessment; Wetland Restoration, Mitigation, Banking & Monitoring; Environmental Assessments & Impact Statements (EA / EIS); Local / State / Federal Permit Applications & Environmental Documentation; Expert Witness Testimony; Wetland investigations and permitting; and Regulatory permit compliance.

EDUCATION

40-Hour HAZWOPER Training per 29 CFR 1920.120(e), Compliance Solutions Occupational Trainers, Inc., Madison, Wisconsin, 2014

BS, Watershed Management, Soils Minor, University of Wisconsin - Stevens Point, Stevens Point, WI, 1983

US Army Terrain Analysis Course, Distinguished Graduate, Defense Mapping School, Fort Belvoir, VA, 1984

Introductory NHI Training (T&E Species Database), Wisconsin Department of Natural Resources, Madison, WI, 2011

Wetland Delineation Regional Supplement Field Practicum, Wetland Training Institute, Portage, WI, 2011

Basic Hydric Soils Identification Continuing Education Course, UW-La Crosse, La Crosse, Wisconsin, 2011

Federal Wetland/Waters Regulatory Policy Course, Wetland Training Institute, Cottage Grove, WI, 2010

Regional Supplement Field Practicum, Wetland Training Institute, Portage, Wisconsin, 2011

Midwest Supplement Training, SEWRPC, Pewaukee, WI, 2009

Midwest Supplement Field Training, LCSMC, Lake County, IL, 2009

Sedges ID & Ecology, UWM Cedarburg Bog Field Station, Saukville, WI, 2006

Critical Methods in Wetland Delineation, Madison, WI, 2006

WDNR NHI Database Training, Wisconsin DNR, Fitchburg, WI, 2005

Advanced Wetland Delineation, UW-LaCrosse, Bayfield County, WI, 2001

Composite Family ID, UWM Cedarburg Bog Field Station, Saukville, WI, 2000

Mosses ID & Ecology, UWM Cedarburg Bog Field Station, Saukville, WI, 1998

Eric C. Parker PWS

Senior Scientist - Botanist

Grasses ID & Ecology, UWM Cedarburg Bog Field Station, Saukville, WI, 1998

Vegetation Description, UWM Cedarburg Bog Field Station, Saukville, WI, 1998

GPS/GIS End User Course, Corvallis Microtech, Milwaukee, WI, 1997

Basic Wetland Delineation Training, WI Department of Administration, Waukesha, Wisconsin, 1997

Field Oriented Wetland Delineation Course (1987 Corps Manual), Wetlands Training Institute, St. Paul, MN, 1994

Creating Wetlands for Habitat Enhancement & Mitigation, UW-Extension, Madison, WI, 1993

Understanding Wetlands and 404 Permitting, ASCE, Chicago, IL, 1992

Wetland Ecosystems (including delineation & assessment), USEPA Graduate School, Washington DC, 1988

REGISTRATIONS

Professional Wetland Scientist #838, Society of Wetland Scientists Certification Program

Certified Wetland Scientist #C-058, Lake County, Illinois, Lake County Stormwater Management Commission

Certified Wetland Scientist #W-057, Kane County, Illinois, Kane County Stormwater Management

MEMBERSHIPS

Past Science Committee Member, Invasive Plants Association of Wisconsin

Board Member, Keep Greater Milwaukee Beautiful, Inc.

Representative, Chicago Wilderness

Past Board Member, Wisconsin Wetlands Association

PROJECT EXPERIENCE

Botanical Surveys

Kalamazoo River and Talmadge Creek 2013 (Baseline) and 2014 Botanical Surveys, Calhoun and Kalamazoo Counties, Michigan

Lead botanist for comprehensive floristic sampling along 40 miles of creek and river floodplain identifying and measuring cover, height and density of herbaceous, shrub, tree and woody vines at pre-determined randomly selected points in both impact and control areas. Invasive plant species surveys were also completed by mapping their locations and determining their percent cover. Rare plant species were also identified and documented.

Tank 80 Mitigation Site Monitoring Final Year Botanical Survey, Lake County, Indiana

Lead botanist for floristic sampling along transects across the site where 50 herbaceous quadrats and a meander survey were completed as part of the final year of monitoring. Invasive plant species were also identified.

Endangered Species Act Assessments

ATC T&E Survey, Straits to Pine River, Michigan

Conducted rare plant species surveys, invasive plant species surveys, and natural resources inventories along existing transmission line rights-of-way in 2010.

ATC T&E Survey, Mukwonago to Whitewater, Waukesha/Walworth Counties, WI (Subconsultant Project Manager and Lead Scientist)

Surveyed a 22-mile corridor where transmission lines were being upgraded for state and federally-listed special concern, threatened and endangered plant species. Provided completed rare plant reporting forms, photographs and site sketches for the report.

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

Endangered Species/Species at Risk Assessments

Prairie White-Fringed Orchid Surveys, Illinois and Wisconsin

Conducted surveys for this federally listed plant species along transmission line rights-of-way and proposed gas / oil pipe routes for various clients in 2013.

Botanical Survey, Greene County, Pennsylvania

Mr. Parker served as lead scientist in a botanical survey for a proposed natural gas gathering pipeline in Greene County, PA. In order to evaluate potential impacts on two state-listed rare plant species, the team conducted a late season survey for passionflower (Passiflora lutea, PA Endangered) and leaf-cup (Smallanthus uvedalius, Proposed PA Rare). In addition to habitat mapping we mapped community types and compiled representative lists of plant species within the project corridor. The team provided the location of one large population of leaf-cup. The resulting reporting and coordination with the Pennsylvania Department of Conservation and Natural Resources (PADCNR) recommended avoidance strategies. This facilitated the client's ability to proceed with the project while providing additional documentation of rare plant populations to PADCNR.

Various Vegetation Inventories, Indiana, Michigan, Illinois, Ohio, Pennsylvania, Texas, Wisconsin

Mr. Parker was responsible for several vegetation inventories in 2011, 2012,2013, and 2014, projects included: West Central Gas Lateral Vegetation Surveys, Eau Claire, Clark, Jackson & Monroe Counties, WI; Griffith Terminal Mitigation Site Plant Inventory, City of Griffith, Lake County, IN; Confidential Client Plant Survey, Town of Bear Bluff, Jackson County, WI; McMahon Woods and Fen Vegetation Survey, Cook County, IL; Deer Grove East Plant Inventory, Cook County, IL; Barrington Hills Transmission Line Survey, Illinois; Southern Access Vegetation Inventory and Monitoring, Sawyer and Washburn Counties, WI; Emerald Park Avian Survey, Waukesha County, WI; Eagle-Ford Shale T&E Species and Plant Surveys, LaSalle and McMullen Counties, TX; 6B Pipeline Rare & Invasive Plant Species Surveys, Kalamazoo and Calhoun Counties, MI (Lead Botanist) and, Porter County, IN; Busse Woods Plant Inventory, Cook County, IL (Lead Scientist); Greene Gathering Rare Plant Survey and DCNR Wild Plant Management Permit Application, Greene County, PA; Marcellus Pipeline Rare & Invasive Plant Species Survey, Clinton, Centre & Mifflin Counties, PA; Gogebic Taconite Mine Site, Ashland and Iron Counties, WI, Rover Pipeline Wetland and Rare Species Surveys, Washtenaw, Livingston, Shiawassee and Genesee Counties, MI.

Environmental Assessments

Various Pipeline Environmental Screening, Wisconsin

Mr. Parker conducted pre-construction wetland, rare species, and waterway mapping and permitting in support for electric distribution and gas pipeline upgrade projects for We Energies. Coordinated with customer service technicians, electrical engineers, erosion control specialists and other environmental staff. Projects included: Lincoln-Arthur Gas Main Replacement; Adams 475 HP Gas Phase 1, Waushara County; Adams 475 Phase 2, Waushara-Adams Counties; Wolf Paving Gas Extension, Waukesha County; Hi Crush Pipeline, Tomah, WI

Southern Access Pipeline (crude oil) Project Stage 1 (321 miles), Douglas to Rock County, Wisconsin

Conducted post-construction erosion control, wetland, rare species and waterway monitoring during the multi-year post-construction monitoring period. Coordinated with other team members on the organization, maintenance, and summaries of data.

Electric Distribution Environmental Screening

Conducted pre-construction wetland, rare species and waterway mapping and permitting in support for electric distribution and gas pipeline upgrade projects for We Energies. Coordinated with customer service technicians, electrical engineers, erosion control specialists and other environmental staff. Projects included STH 26, Jefferson/Rock Counties, WI (2011-2012); Brookfield Square X12863, Brookfield, WI (Jan 2012); Moorland Emerald Drive, Brookfield, WI (Jan 2012); Saylesville X20961 Retire, Dodge County, WI (2011); Saylesville X20962, Dodge County, WI (2011); US Biogas, Sheboygan County, WI (Dec 2011); Saylesville Electric Distribution, Hartford, WI (Mar 2011); Barton Electric Distribution, West Bend, WI (Mar 2011); Sullivan SS Electric Distribution, Waubeka, WI (Jan 2011); Waubeka Electric Distribution, Waubeka, WI (Jan 2011)

* denotes projects completed with other firms

Eric C. Parker PWS

Senior Scientist - Botanist

Guardian II Laterals - Fox Valley, Hartford and West Band*, Outagamie, Calumet, Brown, Washington, and Dodge Counties, WI (Project Manager and Lead Scientist.)

Budgeted, scheduled, coordinated, and participated in numerous activities and scopes of work for the planning and permitting (WI Ch. 30, Section 404/401 and WI NR 103) phases of three gas laterals in 2003, 2006 and 2007; Coordinated with landowners; Determined, delineated, and mapped with a GPS, wetlands, woodlands and waterways; Collected required data and documented all types of natural resources through photography and data forms; Searched for rare species; Assisted in the preparation of data tables summarizing and quantifying impacts to wetlands, woodlands, waterways and agricultural lands; Coordinated with client of minor modifications to the pipeline routes to better protect various natural resources; Assisted client in regulatory agency coordination; Assisted with, prepared, and reviewed all reports.

Ixonia and Port Washington Gas Laterals*, Jefferson, Waukesha, Ozaukee and Washington Counties, WI (Third Party Wetland Monitor (Inspector)/Project Manager and Lead Scientist)

Reported directly to WDNR for permit compliance (Ixonia Lateral) during the construction of approximately 50 miles of natural gas pipelines. Determined, delineated, assessed function, reviewed and staked wetland and waterway wetland boundaries including the use of a GPS; Participated in meetings with client and regulatory agency staff to determine both general and site specific plan modifications to minimize environmental impacts; Installed signage identifying wetland boundaries and worked with the client and regulatory agency staff in determining work space limits to balance project needs with protecting natural systems; Reviewed and approved vegetation clearing limits and equipment access locations based on wetland and other plant community quality and function; Provided specific recommendations to comply with permit conditions regarding horizontal directional drilling and temporary and permanent erosion control issues proximate to wetlands and waterways; Reviewed proposed work space areas for potential damage to high quality natural areas such as relic prairie or woodland, or extant populations of uncommon or listed rare plant species; Responded to urgent construction issues such as a clean-up for a frac-out during an HDD operation; Reviewed proposed methods and locations for agricultural best management practices such as full topsoil removal and triple lift soil segregation; Inspected erosion control facilities for compliance with WDNR's technical standards; Reviewed invasive species control plans; Consulted on the most feasible and efficient BMP for erosion control.

ATC Paris to St. Martins (KK3025) 138KV Line Rebuild*, Kenosha, Racine and Milwaukee Counties, WI (Project Manager and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous project scope activities for an 18-mile corridor such as wetland delineation, waterway identification and data collection, rare species surveys, equipment access road location identification and invasive species populations identification. During the investigation, a total of 59 wetland areas, 10 ditches, 6 ponds, and 3 streams were located within the corridor route. Used GPS equipment for mapping natural resources. Coordinated with landowners. Assisted in the preparation, and reviewed the report that documented the work during the year prior to the 2005 construction.

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

Expert Witness (factual and/or expert for depositions and/or court)

Expert Testimony

WE Energies Elm Road Generating Station, Oak Creek, WI
Laho Property, Kenosha County, WI
Cecchini Property, Racine County, WI
US Department of Justice, A&A Farms, Dane County, WI
James Cape & Sons Sand & Gravel Pit, Washington County, WI

Soil Quality Assessment

Schneider Cheese Factory Soils Investigation, Waldo, WI (Project Scientist)

Evaluated soils on land adjacent to the cheese factory. Sampled soil from nine test pits for sieve and hydrometer analysis for the identification of the most feasible location for a proposed ridge and furrow waste water treatment system. Confirmed location of adjacent wetlands to avoid impacts. Coordinated with the WDNR and wrote the technical memorandum associated with the laboratory analyses of the soils.

Wetlands

Various Wetland Delineations 2014, Various Locations, Wisconsin, Illinois, and Michigan

Performed various wetland delineations across Wisconsin in 2014 including the following projects: Emerald Park Western ExpansionWetland Delineation, City of Muskego, Waukesha County, WI (Oct.); Arcadia Mining Site-Trempealeau County, WI (April); ATC STEM Site, Muskego, WI (October); Avon-Garage Road Mining Site-Black River Falls, WI (August); Basting Site -Town of Lisbon, WI (Oct.); Capital City Bike Path, Dane County, WI (Oct.); Barland Site, City of Cudahy, WI (Sept.); River Glen Site -Town of Lisbon, WI (May, 2014); DeBack Parcel -Muskego, WI (Oct.); Deer Creek Run-Town of Sun Prairie, WI (Oct.); Windsor Crossing -Town of Windsor, Dane County, WI (Sept.); Pleasant View Site -Town of Middleton, Dane County, WI (April); Starfire Site -Franklin, WI (April); G2 Mitigation Site -Town of Omro, Winnebago County, WI (May); Geneva National Site, Walworth County, WI (Nov.); Goerke's Corners Self Storage Site-Town of Brookfield, Waukesha County, WI (April); Handel Site -Town of Holman, LaCrosse County, WI (April); KOA Site -DeForest, WI (Oct.); Kohler Ridge Site -New Berlin, WI (Oct.); Camp 8 Site -Village of Lannon, Waukesha County, WI (Sept.); Mallard Creek Subdivision-Oak Creek, WI (May); Muskego Corporate Park Site -Muskego, WI (Sept.); Nortrax Site - Merrill, WI (Oct.); Pewaukee Corporate Park-City of Pewaukee (Oct.); Gregar Parcel-City of Pewaukee, (Oct.); Toberman Parcel-Town of Prairie du Chien, Crawford County, WI (Oct.); UPS CACH Staging Expansion-Town of La Grange, Cook County, IL;West Prairie Village-Town of Sun Prairie, Dane County, WI; Wheeler Road-City of Madison,

Eric C. Parker PWS

Senior Scientist - Botanist

Various Wetland Delineations 2013, Various Locations, Wisconsin, Illinois, Ohio, and Michigan

Performed various wetland delineations across Wisconsin in 2013 including the following projects: West Central Lateral - Eau Claire, Clark, Jackson & Monroe Counties, WI (April-May 2013); Murphy Farm Wetland & Primary Environmental Corridor, Pewaukee, WI (October 2013); Walker Cranberry 80-acre Parcel - Cranmoor, WI (Sept - Oct 2013); Citizens Bank Property – Oconomowoc,, WI (May 2013); Broken Hill Subdivision, Pewaukee, WI (May, 2013; Agri-Partners Coop Rail siding track, Calumet County, WI (June 2013); Basse Farm Wetland Delineation, City of Muskego, WI (June 2013); Fritz Parcel Wetland Delineation – New Berlin, WI (June 2013); Saltzman Parcel Wetland Investigation – New Berlin, WI (May 2013); Waukesha Gun Club Wetland Delineation- City of Pewaukee, WI (July 2013); Bark Lake Wetland Delineation – Town of Richfield, WI (Aug 2013); Fox River Christian Church Wetland Delineation – Town of Waukesha, WI (Aug 2013); Cedar Grove Warehouse Wetland Delineation – Oostburg, WI (Aug 2013); Waunakee Wetland Delineation – Dane County, WI (Sept 2013); Town of Fulton Wetland Delineation – Rock County, WI (Sept 2013); Berne to Natrium Pipeline, Monroe County, OH (Oct 2013); CNX Noble Pipeline – Noble County, OH (Oct 2013); 4950 Voges Rd Wetland Delineation – Madison, WI (Sept 2013); Pleasant View Subdivision Wetland Delineation – Middleton, WI (Oct 2013); Cherokee Country Club Wetland Delineation – Madison, WI (Oct 2013); Deer Grove Forest Preserve, (November 2013)

Various Wetland Delineations in 2010, Wisconsin

Performed various wetland delineations across Wisconsin in 2010 including the following projects: Substation Site, Cambridge, WI (November 2010); Lake Edge Rd Parcel, McFarland, WI (November 2010); DeBack Parcel, Muskego, WI (October 2010); I-94 at Fox River, Waukesha, WI (October 2010); USH 45, Racine County, WI (October, 2010); ECB Site I, Franklin, WI (October 2010); STH 11 Improvements, Burlington, WI (October, 2010); Glacier Hills Wind Farm, Friesland, WI (Sept-Oct 2010); ISB Site, New Berlin, WI (September 2010); Gilmore Parcel, New Berlin, WI (September 2010); Palmyra SW Park Site, Palmyra, WI (August 2010); Gateway Substation, Beloit, WI (August 2010); Casey Gas Main, Friesland, WI (August 2010); Oakhill Rd Electric Distribution, Deltona, WI (August 2010); Jefferson School District, Jefferson, WI (July 2010); Bothe Property Site, Kenosha, WI (July 2010); WDOT High Speed Rail, Dane, Jefferson and Waukesha Counties, WI (June-September 2010); USH 151 Sun Prairie, (June 2010); Lacy Road Interchange, Fitchburg, WI (May 2010); Sivyer Rd Parcel, St. Francis, WI (April 2010); Seljan Industries, Lake Mills, WI (April 2010); Retail Site, Whitewater, WI (April 2010); Summit Horse Farm Site, Summit, WI (March 2010); STH 11 Site, Walworth County, WI (March 2010);Scot Industries, East Troy, WI (March 2010)

Various Wetland Delineations 2011, Various Locations, Wisconsin, Illinois, Indiana, and Pennsylvania

Performed various wetland delineation projects throughout Wisconsin in 2011 including the following projects: Plum Creek Site Soil & Water Table Investigation, Oneida County, WI (Dec 2011); 6B Pipeline Porter County, IN (Nov 2011); STH 67 Sharon, Walworth County, WI (Nov 2011); STH 67 Geneva, Walworth County, WI (Nov 2011); STH 175 Germantown/Richfield, WI (Nov 2011); USH 12 Interchanges, Walworth County, WI (Oct 2011); I-43 Interchanges, Ozaukee County, WI (Oct 2011); STH 145 Germantown, WI (Oct 2011); STH 164 Town of Vernon, WI (Oct 2011); STH 20 Village of Waterford, WI (Oct 2011); Serosun Farms Verification, Kane County, IL (Oct 2011); Marcellus-Dominion Pipeline Clinton, Centre and Mifflin Counties, PA (Sept 2011); Big Eau Pleine Site, Marathon County, WI (Aug 2011)

** denotes projects completed with other firms*

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Atlas Resins Site, Taylor, WI (Aug 2011); Reynolds Avenue Site, Westport, WI (Aug 2011); Westbridge Site, Waunakee, WI (Aug 2011); ECB Site II, City of Franklin, WI (Aug 2011); Springdale Rd Parcel, New Berlin, WI (Aug 2011); Belleville Industrial Park, Dane County, WI (Aug 2011); Didion Ethanol Plant, Cambria, WI (July 2011); Towns Property, Mukwonago, WI (July 2011); Bagstad Property, Marquette County, WI (June 2011; Life Church Site, Germantown, WI (June 2011); Sauk Prairie Memorial Hospital, Prairie du Sac, WI (June 2011)

Various Wetland Delineations 2012, Various Locations, Wisconsin, Illinois, Indiana, and Texas

Performed various wetland delineations across Wisconsin in 2012 including the following projects: West Central Lateral (190 miles), Eau Claire, Clark, Jackson & Monroe Counties, WI (Sept-Nov 2012); Schwaab Property Wetland & Primary Environmental Corridor, Nashotah, WI (Nov 2012); Trans-Load Rail Loop, Arcadia, WI (Oct 2012); Fiberdome Property Lake Mills, WI (Sept 2012); Morrison Cr Cranberry, Town of Knapp, WI (Aug 2012; London Mitigation Site, Jefferson County, WI (July 2012); Lathers Property Wetland & Primary Environmental Corridor, Waukesha County, WI (June 2012); Southern Access Pipeline, Sawyer and Washburn Counties, WI (June 2012); Reddick Station, Livingston County, IL (May 2012); Confidential Client Site, Jackson County, WI (April 2012); MATC West Parcel, Madison, WI (April 2012); Alpine Business Park, Oregon, WI (April 2012); I-80 Interchange, LaPorte County, IN (March 2012); Eagle-Ford Shale Wetland & Waterway Investigations, LaSalle and McMullen Counties, TX (Jan-Feb 2012)

Various Preliminary Wetland Identifications 2010-2012, Wisconsin

Performed various preliminary wetland identifications and delineations throughout Wisconsin which included these projects: I-43 Glendale to Grafton (34 miles) - Milwaukee and Ozaukee Counties, WI (May-Aug 2012); STH 60 Jackson to Grafton (9 miles) - Washington and Ozaukee Counties, WI (June-Nov 2012); UW All-Season Softball Site, Madison, WI (Dec 2011); Fiber-Optic Route (40 miles), Wausau, WI (Apr 2011); 27th Street Ponds, Franklin-Oak Creek, WI (July 2010); Burlington Bypass (15 miles), Burlington, WI (Aug 2010); STH 167, Germantown-Mequon, WI (Jul-Aug 2010); USH 45 (10 miles), Bristol, WI (November 2010) STH 20 Roundabout, Dover, WI (November 2010).

USH 41 Wetlands Investigation*, Township of Eldorado, WI (Project Manager and Lead Scientist)

Conducted an investigation to identify all wetlands and determine their boundaries along a 4.5-mile segment of highway. Located a rare tree species and delineated the location of the population. Prepared a report for use in a Section 404 Permit application and the environment document.

STH 175 Wetlands Investigation*, Theresa, WI (Project Manager and Lead Scientist)

Conducted wetland delineation and assessment services for a 1.5-mile segment of rural highway where vertical and horizontal re-alignments were proposed. Prepared a report which was used to document wetland impacts in a Section 404 Permit application with the U.S. Army Corps of Engineers and Wisconsin Department of Natural Resources.

STH 67 Wetland Investigation*, Fond du Lac County, WI (Project Manager and Lead Scientist)

Conducted wetland delineation and assessment for WDOT Southeast Region associated with a 4.2-mile segment of highway proposed to be reconstructed. Coordinated the survey of the wetland boundary flags and prepared the report.

STH 23 Wetlands Investigation*, Fond du Lac County, WI (Project Manager and Lead Scientist)

Conducted wetland delineation and assessment for WDOT Southeast Region. Identified, delineated, and assessed all wetlands within two highway corridors totaling 7.1 miles in length. Coordinated the survey of the wetland boundary flags and prepared the report.

STH 149 Wetlands Investigation*, Fond du Lac County, WI (Project Manager and Lead Scientist)

Provided initial consultation to the client and recommended a scope of services. Conducted the field work for the wetland delineation and assessment, wildlife habitat analysis, stream navigability check, and environmental assessment of open land. Coordinated all graphic preparation and drafted the report.

* denotes projects completed with other firms

Eric C. Parker PWS

Senior Scientist - Botanist

Rawson Avenue Wetlands Investigation*, Franklin, WI (Project Professional and Lead Scientist)
Delineated and assessed four wetland plant communities in a 3.4-mile segment of a road which was proposed to be expanded from two to four lanes. Prepared a report. Conducted a study to identify the most feasible location for a compensatory wetland mitigation site for impacts proposed to wetlands and satisfy the requirements of a Section 404 Permit from the U.S. Army Corps of Engineers and project concurrence from the Wisconsin Department of Natural Resources.

West Puerner Street Wetland Investigation*, Jefferson, WI (Project Professional and Lead Scientist)
Conducted wetlands services on a 25-acre corridor crossing the Rock River on the north side of the City of Jefferson. One wetland contiguous with the Rock River was delineated. A report was prepared and the wetland's values were assessed to determine impacts of a proposed bridge, approaches, and roadway. Coordinated with U.S. Army Corps of Engineers and the Wisconsin Department of Natural Resources to obtain their concurrence on the preferred alternative and all necessary permits. Studied the feasibility to conduct compensatory wetland mitigation, both on-site and near-site.

Lake Forest Health and Fitness Institute Wetlands Study*, Lake Forest, IL (Project Professional and Lead Scientist)
Identified and delineated all wetlands on 60 acres of property on and adjacent to a proposed development site. Wrote the initial investigation report and advised the client on wetlands regulations. Assessed the wetlands' functions and values. Prepared the preliminary and final mitigation plans, as well as the Mitigation Implementation Plan. Prepared the joint federal and state permit application. Coordinated with agency personnel, engineers, and the client in a successful effort to obtain a U.S. Army Corps of Engineers permit (with state certification).

Wetland Investigation*, Oak Creek, WI (Project Manager and Lead Scientist)
Conducted wetland delineation services on a 22-acre site proposed for development as a residential property. Identified one 2.5-acre wetland on the site. Prepared the report.

Wetland Enhancement Pond*, Burlington, WI (Project Professional and Lead Scientist)
Flagged wetland boundaries within the potential storm water management area and assessed the functional values of the wetland using the WDNR's Rapid Assessment Methodology for Evaluating Wetland Functional Values (RAM). The RAM was the basis for the final recommendations to create a 4-foot-deep two-stage pond with gradual side slopes that both enhances wildlife habitat and the quality of water entering the Fox River.

29-Acre Retail Building Site Wetlands Investigation*, Franklin, WI (Project Manager and Lead Scientist)
Conducted wetland delineation for a commercial development. Coordinated with agencies to review the validity of previously identified wetlands that have become uplands. Obtained concurrence on delineated wetland boundaries from the regulatory agencies. Prepared a report documenting the investigation that included a review of regulatory constraints.

55-Acre Retail Building Site Wetlands Investigation*, Menomonee Falls, WI (Project Manager and Lead Scientist)
Conducted wetland delineation on a site proposed to be used for a commercial development. Prepared a report documenting the investigation that included a review of regulatory constraints. Coordinated with jurisdictional agency personnel and obtained their concurrence on wetland boundary locations.

Cedar Lake Road Utility Extensions Wetland Investigation*, Roud Lake, IL (Project Professional and Lead Scientist)
Identified and delineated three jurisdictional wetland areas in the vicinity of proposed sewer and water utility extensions. Provided agency coordination for approvals of the project adjacent to an "Advance Identification" (ADID) wetland associated with Squaw Creek, and receipt of a nationwide permit No. 12 for proposed work in an isolated wetland adjacent to Nippersink and Cedar Lake Roads.

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

West Puetz Road Wetlands Investigation*, Franklin, WI (Project Professional and Lead Scientist)

Assessed the functional values of five wetland plant communities and prepared a report for use in obtaining agency concurrence and permits. Conducted a feasibility study to determine the best location for compensatory mitigation for wetland impacts in the project area. Prepared a plan to complete a wetland creation/restoration project on-site and assisted in agency coordination to obtain a FONSI for a Type II environmental document and obtain a Section 404 Permit. Discovered the state champion black cherry (Prunus serotina) tree in the project corridor and documented with WDNR.

Proposed Quarry Stream and Wetland Hydrology Study*, Saukville, WI (Project Manager and Lead Wetland Scientist)

Conducted a two year study to collect baseline data from a navigable stream and adjacent wetlands on a 185-acre site. Data included measurements of stream discharges and shallow ground water levels in the wetlands, and a fisheries habitat analysis. The purpose of the study was to identify potential impacts of the proposed quarry on wetland functions and values with an emphasis in fisheries habitat enhancements.

Proposed Quarry Wetland Hydrology Study*, Lannon, WI (Project Professional and Lead Wetland Scientist)

Conducted two investigations of wetlands adjacent to the Fox River to determine water table depths, ground water flow directions, and sediment conductivity adjacent to proposed quarry locations. The projects involved monitoring well location, installation, monitoring, and agency/landowner coordination. The studies involved hydrogeologic modeling and wetland assessment to determine effects of an adjacent quarry on wetland hydrology.

Oconomowoc Bypass Wetland Mitigation Design*, Jefferson County, WI (Lead Scientist)

Prepared concepts, preliminary and final plans & specifications for the restoration and enhancement of forested wetlands and wetland buffer on a 117-Acre site located partly in the floodplain of the Rock River; Determined, delineated and assessed wetlands on the existing site and prepared a report; Coordinated with a contractor to cut and herbicide invasive species such as reed canary grass and common buckthorn prior to site construction.

Glacier Ridge Wetland Mitigation Bank Design*, Dodge County, WI (Project Manager and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks to design the first private wetland mitigation bank in Wisconsin under NR 350; Prepared concepts, preliminary plans and final plans and specifications for the restoration and enhancement of wetland and upland prairie/woodland buffer plant communities on four sites totaling 245 acres; Reviewed the delineation of all existing wetlands; Coordinated and met with the Mitigation Bank Review Team (MBRT) comprised of staff from the Wisconsin Department of Natural Resources, the US Fish & Wildlife Service, the US Army Corps of Engineers, the US Environmental Protection Agency, and the US Dept of Agriculture Natural Resource Conservation Service; Assisted in the preparation of a compensation site plan including a management and monitoring plan for 10 years post construction.

North End Quarry Environmental Investigation*, Lisbon, WI (Project Professional and Wetland Scientist)

Provided initial consultation to the client and recommended a scope of services. Conducted the field work for the wetland delineation and assessment, wildlife habitat analysis, stream navigability check, and environmental assessment of open land. Coordinated all graphic preparation and drafted the report.

Franklin Quarry Wetland Investigation*, Franklin, WI (Project Manager and Wetland Scientist)

Conducted wetland delineation, assessment, and mitigation services on a 40-acre quarry expansion site. Developed a site history to document land uses and assisted in the preparation of the report to be included in the Section 404 permit application with the U.S. Army Corps of Engineers. Provided jurisdictional agency coordination.

Bartelt Parcel Wetlands Investigation*, Lisbon, WI (Project Manager and Wetland Scientist)

Conducted wetlands delineation and assessment services on an 80-acre site proposed for sand and gravel extraction. Prepared a Chapter 30/NR 340 permit application for future quarrying adjacent to a pond and wetland and a Section 404 permit for an acceleration lane adjacent to wetlands. Coordinated with jurisdictional agencies.

* denotes projects completed with other firms

Eric C. Parker PWS

Senior Scientist - Botanist

Bristol Interceptor Environmental Assessment*, Bristol, WI (Project Professional and Wetland Scientist)
Performed a flora and fauna study of a utility corridor 75 to 100 feet wide and two miles long. Identified, delineated and assessed 5 wetlands that coincided with the corridor. Wrote the environmental assessment and wetland investigation reports. Prepared permit application and coordinated with the jurisdictional agencies.

Village of Jackson Utility Extensions, Wetland Investigation*, Jackson, WI (Project Manager and Lead Scientist)
Identified, delineated, and classified wetland areas along 5.5 miles of proposed sewer and water utility extensions. Provided an endangered, threatened, and special concern species survey along the proposed corridor. Coordinated with agencies for wetland boundary concurrence. Providing Chapter 30 and Section 404 permitting assistance.

Town of Mt. Pleasant, Pike River Improvements*, Racine County, WI (Project Manager and Lead Wetland Scientist)
Identified, delineated, and assessed 37 wetlands in a 920-acre study area to identify potential wetland impacts from a stream channel improvement and realignment project. Presented and assisted at facilitated meetings with agencies, engineers, and the client. Prepare conceptual wetland restoration plans.

Big Rib River Crossing at CTH O Wetlands Investigation*, Marathon, WI (Project Manager and Lead Wetland Scientist)
Identified, delineated, and assessed wetlands and other valuable habitats within a 70-acre study area. The results of the study may be used to evaluate environmental impacts of a highway project. Recommended a corridor for a new bridge and approaches and potential mitigation sites. Coordinated with jurisdictional agencies. Prepared all documentation and drafted the report.

STH 31 Reconstruction Wetland Investigation*, Caledonia and Mount Pleasant, WI (Project Professional and Lead Scientist)
A wetland investigation was conducted to identify the location and extent of jurisdictional wetlands within a 110-acre study area. Ten wetland plant communities were identified, flagged in the field, and surveyed. A total of 0.956 acres of wetlands were determined to be within the fill limits of the proposed highway reconstruction. Wetland functional values were assessed for the wetlands that were to be incorporated, and a mitigation siting study was conducted. The results of the investigations were presented in reports to WDOT Southeast Region as a component of the project's environmental documentation. Prepared the Section 404 permit application and coordinated with jurisdictional agency personnel.

STH 33 Reconstruction Wetland Investigation*, West Bend, WI (Project Professional and Lead Scientist)
A wetland investigation was conducted to identify the location and extent of jurisdictional wetland within an 8.5-acre study area, assess functional values, and describe effects of a highway reconstruction project on wetlands. Two wetland plant communities were identified, flagged in the field, surveyed, and described. It was determined that a 0.84-acre of wetland would be impacted by the reconstruction. Jurisdictional agencies were contacted and a scope of work to identify a potential mitigation site was generated. The work was documented in a report and submitted to WDOT Southeast Region. Completed a wetland mitigation site search and recommended a site for selection and prepared a plan for wetlands restoration.

USH 151 Reconstruction and Bypass Wetlands Investigation*, Fond du Lac County, WI (Project Professional and Lead Scientist)
Conducted wetland delineation and assessment services for Wisconsin Department of Transportation Southeast Region associated with a highway reconstruction project. Identified, delineated, and assessed 103 wetlands within selected highway corridors totaling approximately 33 miles in length. Information from the investigations were used by the client to determine impacts to wetlands and to secure permits and approvals from jurisdictional agencies.

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

Mukwonago Bypass Wetlands Assessment*, Waukesha County, WI (Project Manager and Lead Scientist)

Conducted an assessment of wetland functional values for three wetlands in a 400-acre study area traversed by the Mukwonago River. The wetland assessment was used to evaluate impacts of a proposed bypass for STH 83 around the east side of Mukwonago. Fourteen endangered, threatened, or special concern plant and animal species were known from the Mukwonago River corridor, and were considered in the assessments where high to exceptional significance ratings prevailed.

CTH Q Wetlands Investigation*, Shawano County, WI (Project Professional and Lead Scientist)

Delineated and assessed eleven wetlands along a 3.5-mile segment of rural highway and a 0.7-mile realignment corridor. Prepared a report and coordinated with agency personnel. Prepared and submitted a Section 404 Permit application and secured all necessary wetlands related permits and approvals from regulatory agencies. Prepared the compensatory wetland mitigation plan.

USH 10 Wetland and Waterway Mapping (I-39 to Marshfield)*, Portage and Wood Counties, WI (Project Manager, Principal-in-Charge, Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks to map wetlands and waterways along two contiguous freeway corridor segments totaling approximately 35 miles in length during the growing seasons of 2005 and 2007; Supervised and participated in the final determination, delineation, classification and GPS survey of 174 wetlands; Reviewed and helped write the report.

Deer Grove Forest Preserve Wetland Delineation and Restoration*, Cook County, IL (Project Manager and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks to map and classify wetlands and waterways on a 628-acre site located on lands owned by the Forest Preserve District of Cook County. Supervised and participated in final wetland determinations and delineations of 40 wetlands comprising 188 acres; Used GPS to locate wetland boundaries and coordinated with the client, forest preserve district staff and US Army Corps of Engineers regulatory staff in the concurrence of the wetland delineation work; Assisted in the preparation and reviewed the report; Assisted in the preparation of a wetland and upland prairie/woodland restoration concept for the purpose of helping to meet the mitigation requirements of the O'Hare International Airport expansion.

Germantown Sand & Gravel Pit Wetland Restoration*, Washington County, WI (Project Manager and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks for analyzing alternatives to discharging water from a non-metallic mining operation, and analyzing the effects of ceasing water discharges through an existing waterway into downstream wetlands on an adjacent property; Completed wetland functional assessment and water budget analysis to determine the effects of the discharge on the sustainability and quality of the wetlands; Prepared applications and plans to obtain Wisconsin Pollution Discharge Elimination System (WPDES) and Chapter 30 permits to discharge into a state navigable waterway; Provided expert testimony for same; Assisted in the design of a sedimentation pond to remove 80% of the suspended solids at a discharge flow of over 1,000,000 gallons per day from the 130-Acre sand & gravel pit; Coordinated with the adjacent landowner, client, agency staff to prepare and implement a plant to remove sediment deposited on an adjacent property.

* *denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

I-94 Corridor Wetland and Primary Environmental Corridor Mapping and Endangered Species Study*, Milwaukee, Rachine, and Kenosha Counties, WI (Project Manager and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks to map wetlands, primary environmental corridor and waterways, and search for rare species in a freeway corridor approximately 34 miles long. Supervised and participated in the preliminary determination, delineation, GPS mapping, and classification of 171 wetlands and 19 separate plant communities within primary environmental corridor; Supervised and participated in the final determination, delineation, classification and surveying of 85 wetlands within seven interchange areas that were designated for significant improvements; Reviewed and helped write the report; Supervised and conducted a rare species survey during the 2006 growing season to search for plant species that were listed as special concern, threatened or endangered by the State of Wisconsin; Prepared the report; Mapped locations of rare species using a GPS, and coordinated with the client and regulatory agency staff; Prepared a plan to mitigate roadway improvement impacts to seaside crowfoot (Ranunculus cymbalaria) through transplantation to an on-site location and obtained concurrence from the WDNR.

Elm Road Generating Station*, Oak Creek & Caledonia, WI (Project Manager & Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous environmental projects involving the planning and construction of a power plant. Beginning in 2002 determined, delineated and classified over 70 different wetlands on properties totaling approximately 1,000 acres including over three miles of railroad. Located wetland boundaries, sample points and other natural features through the use of GPS equipment with real-time one-meter accuracy; Assessed the functions of 127 wetlands for Chapter 30, Section 404/401 and NR 103 permitting purposes; Searched for suitable sites (both on-site and near-site) for compensatory wetland mitigation to off-set over 20 acres of wetland impacts; Studied potential sites for feasibility of wetland restoration, enhancement and creation; Prepared conceptual and final compensation site plans and designed four selected sites that included restoration and/or enhancements to wet meadow, shallow marsh, hardwood swamp, mesic woodland, savanna, tallgrass prairie and streams; Submitted the mitigation plans to the client and agencies and obtained all necessary permits and approvals; Prepared bid documents and specifications for the construction of the mitigation sites; Provided direct consultation with the site contractor during construction of the mitigation sites which concluded in 2007.

McMahon Woods and Fen Plant Community Mapping*, Cook County, IL (Principal-in-Charge and Lead Scientist)

Budgeted, scheduled, coordinated and participated in numerous tasks to map and classify plant communities on a 470-acre site where rare habitat for a federally-listed Hines emerald dragonfly and uncommon flora exist. Supervised and participated in the identification of 75 plant communities in accordance with the Chicago Wilderness Terrestrial Community Classification System outlined in their Biodiversity Recovery Plan; Used GPS to locate plant community boundaries and coordinated with the client, forest preserve district staff and US Army Corps of Engineers regulatory staff; Assisted in the preparation and reviewed the report; Assisted in the preparation of a wetland restoration concept for the purpose of helping to meet the mitigation requirements of the O'Hare International Airport expansion.

* *denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

Tri-State Tollway, Deerfield Plaza Wetland and Endangered Species Investigation*, Lake and Cook Counties, IL (Lead Scientist)

Conducted wetland delineation and assessment services for segments of the Tollway, totaling 5 miles. Wetland impacts were determined for reconstruction of the toll plaza and widening of the highway facilities adjacent to the plaza. Conducted an investigation to determine the extent of occurrence of Seaside Crowfoot, an endangered plant species in Illinois. Prepared plans to mitigate impacts of the highway and toll plaza reconstruction on both wetlands and the endangered species. Coordinated with agency personnel, prepared construction documents and specifications and wrote reports. Prepared Section 404 permit applications and obtained the permits with 401 Certification from the Illinois Department of Natural Resources. Conducted an investigation of trees and shrubs that would be impacted by the expansion of the toll plaza.

Guardian II Laterals*, Fox Valley, Hartford and West Bend, WI

Project Manager and Lead Scientist. Budgeted, scheduled, coordinated and participated in numerous activities and scopes of work for the planning and permitting (Chapter 30, Section 404/401 and NR 103) phases of three gas laterals in 2003, 2006 and 2007; Coordinated with landowners; Determined, delineated and mapped with a GPS, wetlands, woodlands and waterways; Collected required data and documented all types of natural resources through photography and data forms; Searched for rare species; Assisted in the preparation of data tables summarizing and quantifying impacts to wetlands, woodlands, waterways and agricultural lands; Coordinated with client on minor modifications to the pipeline routes to better protect various natural resources; Assisted client in regulatory agency coordination; Assisted prepare, and reviewed all reports.

Wildlife Surveys and Studies

Confidential Client, Williston, North Dakota

Conducted Shoreline Contamination Assessment Technique (SCAT) surveys and assessed wildlife presence along a creek corridor in Williams County, ND. Assessed habitat and assisted in the selection of wildlife trap locations. Recorded and reported on all wildlife sightings on a daily basis for a total of 31 days in two rotations. Served as the lead wildlife biologist while deploying amphibian and turtle traps to monitor populations during the initial early spring monitoring event; supervised chorus surveys. (February, March, and April, 2015).

** denotes projects completed with other firms*

Eric C. Parker PWS

Senior Scientist - Botanist

PUBLICATIONS

Potentially Mis-Categorized Wetland Plant Species NC-NE & Midwest Land Resource Regions of the U.S.. *Wisconsin Wetlands Association Annual Conference*, 2012.

Presentation: Importance of Strategic Planning for Long Range Success in Natural Area Restoration and Management (Parker, Parish, Feggestad, Sellar, Wilhelm). *LTA Midwest Land Conservation Conference*, 2009.

Saving the Hines Emerald Dragonfly (Parker, Parish). *LTA Midwest Land Conservation Conference*, 2009.

Presentation: Arriving at a Workable Definition of Coastal Wetlands (Parker, Parish, Schumacher). *WWA*, 2006.

Presentation: General Wetland Functions. *American Public Works Association*, 2000.

Presentation. Wetland Permitting Primer. *WDNR Permitting Workshop*, 1996.

Carol Richardson McCoy

Senior Environmental Scientist

Stantec

Ms. McCoy assists clients with early identification of environmental issues; development of alternatives to minimize environmental impact; coordination with regulatory agency personnel; preparation and submittal of permit applications; and development of environmental mitigation measures. Ms. McCoy has been a consultant for the past 20 years and worked for the US Army Corps of Engineers, US. Navy, US Forest Service and Wisconsin Department of Natural Resources for the five years prior to that.

Her experience includes: wetland investigations and permitting; wetland compensatory mitigation planning; biological surveys, including threatened and endangered species surveys; Endangered Species Act consultation and biological assessments; ecological risk assessment; baseline ecological assessments; and National Environmental Policy Act documentation (EA and EIS).

Ms. McCoy has assisted clients with compliance and permitting under the Clean Water Act; Rivers and Harbors Act; Endangered Species Act; National and Wisconsin Environmental Policy Acts; state environmental regulations for wetlands, water quality, and navigable waterways; and local regulations for zoning, shorelands, and wetlands.

EDUCATION

BS, Elementary Education, Vanderbilt University, Nashville, Tennessee, 1985

BS, Biological Aspects of Conservation, University of Wisconsin, Milwaukee, Wisconsin, 1989

MS, Water Resources Management, University of Wisconsin, Madison, Wisconsin, 1991

Advanced Delineation Training, Wisconsin Department of Natural Resources, Madison, WI, 2008

Creating Wetlands for Habitat Enhancement and Mitigation, University of Wisconsin-Madison, Madison, WI, 2006

Wetland Delineation Training, PRC Environmental Management, Atlanta, GA, 1994

Habitat Evaluation Procedure (HEP), U.S. Fish and Wildlife Service, Phoenix, AZ, 1993

Wetland Delineation Course, U.S. Army Corps of Engineers, Baltimore, MD, 1993

Regulatory II, U.S. Army Corps of Engineers, Baltimore, MD, 1993

Regulatory I, U.S. Corps of Engineers, Summit, NJ, 1992

Soils Training, Soil Conservation Service, Utica, NY, 1992

Erosion and Sediment Control Workshop, Soil Conservation Service, Westchester County, NY, 1991

MEMBERSHIPS

Point of Contact, Society of American Military Engineers, Chicago Post

Point of Contact, Society of American Military Engineers, Lake Michigan Post

Member, Wisconsin Wetlands Association

Member, Society of Wetland Scientists

PROJECT EXPERIENCE

Assessment, Permitting and Compliance

Utility Scale Wind Development Projects, Various Locations

Provided environmental coordination for the projects including wetland and waterway delineation, state and federal permitting, wetland mitigation planning, and threatened and endangered species coordination.

Carol Richardson McCoy

Senior Environmental Scientist

American Transmission Company, Paris to Burlington Line 8962 Rerate, Kenosha and Racine Counties, Wisconsin

Provided environmental coordination for the project, a partial rebuild of existing transmission line. Determined wetland impacts, coordinated endangered species review and subsequent surveys and monitoring, and subcontracted archaeological screening and field survey. Prepared and procured erosion control permit and evaluated compliance with State and Federal Wetland permits. Provided environmental monitoring during construction and inspection subsequent to restoration.

American Transmission Company, Pleasant Prairie to Zion Energy Center, Kenosha and Lake County, Wisconsin and Illinois

Provided environmental support for a new 8 mile transmission line from WI to IL, requiring environmental permitting in both states. Prepared and submitted permit applications to USACE Chicago and St. Paul Districts for wetland impacts, as well as Lake County Stormwater Management Commission Erosion Control Permit. Provided environmental training for construction crews and conducted weekly environmental monitoring during the course of the project construction.

We Energies, Various Transmission Line Replacements and Upgrades, Multiple Sites, Wisconsin

Assisted in managing the Master Services Contract with We Energies to provide environmental review for a variety of projects to include wetland assessments, threatened and endangered species coordination, and permitting.

American Transmission Company, Pole Replacement Projects, Multiple Sites, Wisconsin

Managed environmental aspects of numerous pole replacement projects to include wetland assessments, threatened and endangered species coordination, permitting, and construction monitoring.

American Transmission Company, Shorewood Underground Transmission Line, Shorewood, Wisconsin

Provided environmental coordination for the project, including wetland delineation, threatened and endangered species assessment, federal, state, and local permitting, environmental training, and construction monitoring.

Moffatt Field Naval Air Station*, California

Provided wetland delineation, permitting and endangered resources review assistance associated with landfill construction.

Milwaukee Metropolitan Sewerage District Ryan Road Pump Station*, Milwaukee, Wisconsin

Coordinated the environmental aspects of the Ryan Road Pump Station construction project including wetland delineation and permitting.

Wisconsin Department of Transportation, State Highway 36 Expansion Study*, Waukesha, Wisconsin

Managed the State Highway 36 expansion study, completing wetland delineations, functional values assessments, Section 404 Clean Water Act permitting, and wetland mitigation design from Burlington to Franklin, WI.

Jefferson Proving Ground*, Madison, Indiana

National Environmental Policy Act (NEPA) documentation to provide a categorical exclusion for a technology demonstration planned at the base, wetland delineation, threatened and endangered species survey, and permitting.

Ecological Risk Assessment

Georgia Pacific*, Beckley, West Virginia

Conducted sediment and water sampling along landfill drainages; completed an ecological risk assessment to determine need for cleanup action.

Ecological Risk Assessment along the Kalamazoo River*, Allegan, Michigan

Wrote work plan for remedial investigation and feasibility study including sampling activities to support an ecological risk assessment.

Delatte Metals*, Ponchatoula, Louisiana

Conducted vegetation, fish, mammal, and invertebrate sampling; and threatened and endangered species surveys as part of the U.S. EPA ecological risk assessment.

** denotes projects completed with other firms*

Carol Richardson McCoy

Senior Environmental Scientist

Ecosystem Restoration

Ulao Ponds Mitigation Project, Grafton, Wisconsin

Managed mitigation project to restore wetland impacted by mining activities, in association with the development of a golf course and housing development. Conducted wetland delineations, permitting, mitigation plan and implementation, and monitoring and maintenance for seven years.

Heritage Crossing Mitigation Project, Saukville, Wisconsin

Managed mitigation project to compensate for wetland impacts associated with a commercial development. Services included wetland delineation, permitting coordination, mitigation plan and implementation, and monitoring and maintenance for 10 years.

Grasslyn Nature Preserve Stewardship Committee, Mequon, Wisconsin

Conducted planning and restoration of native prairie, trail maintenance, and coordinating volunteers for work days.

Water Quality Assessment

U.S. EPA Emergency Response Action*, Gadsden, Alabama

Conducted fish, invertebrate, sediment, and water sampling along a river and lake downstream from a steel mill.

Wetlands

Wetland Project Management, U.S. Army Corps of Engineers, New York District*, Multiple Sites, New York and New Jersey

Completed wetland jurisdictional determinations, wetland delineations, environmental assessments, and permit applications for sites in New York and New Jersey.

Dodgeland K-12 Development, Juneau, Wisconsin

Completed wetland delineation, state and federal permitting, stormwater planning, and natural resource restoration for the school's "outdoor laboratory."

Great Lakes Naval Training Center Golf Course*, Waukegan, Illinois

Provided wetland delineation and permitting assistance.

Completion of wetland and water resource services

Provided wetland delineations, permitting, mitigation design and monitoring for numerous private residential and commercial clients throughout Wisconsin, Illinois, Indiana, and Louisiana.

Wetland Delineation Environmental Training Center*

Instructor in wetland delineation training course in Wisconsin, Louisiana, and Georgia. The course combined classroom and field training exercises.

Wildlife Biology

Wisconsin Department of Natural Resources*, Milwaukee, Wisconsin

Conducted fisheries surveys along Lake Michigan and assessed relative abundance, movement, year-class-strength, spawning success, age, growth, harvest, and mortality. Electro-fished trout and salmon on tributary streams and collected salmonids brood stock and eggs for fish hatchery.

Baseline Ecological Assessment*, South Bend, Indiana

Identified onsite habitats and sensitive areas, wildlife and aquatic populations. Constructed a conceptual site model identifying the effects of site contamination on habitats and ecological receptors.

Bethlehem Steel*, Porter, Indiana

Conducted ecological sampling and habitat assessment through vegetation identification and wildlife observations.

** denotes projects completed with other firms*

Carol Richardson McCoy

Senior Environmental Scientist

PUBLICATIONS

Wetlands in the Yahara-Monona Watershed: Functional Classification and Management Alternatives. *Masters Degree*, 1990.