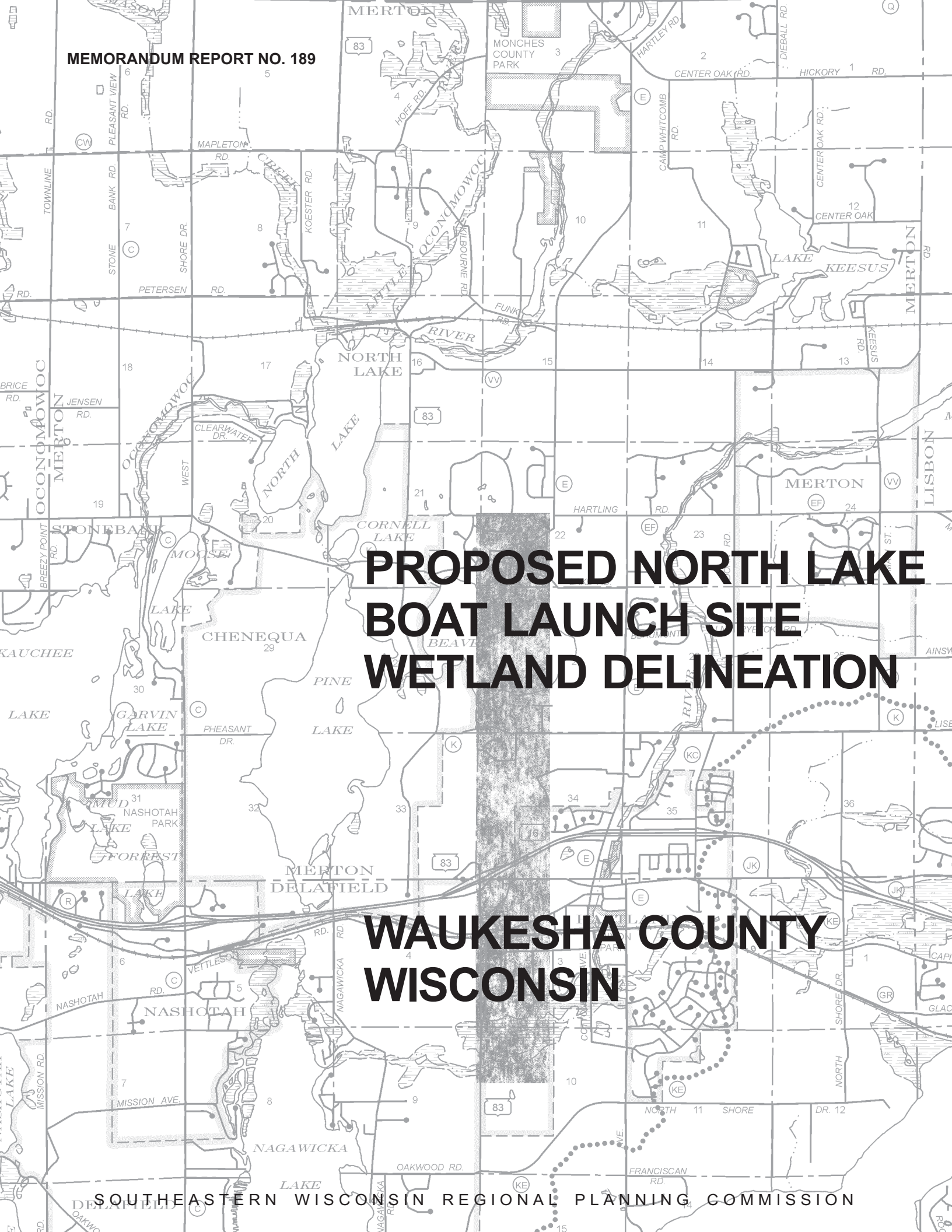
MEMORANDUM REPORT NO. 189



PROPOSED NORTH LAKE BOAT LAUNCH SITE WETLAND DELINEATION

WAUKESHA COUNTY WISCONSIN

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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ERRATA SHEET

PAGE No. 122 of Appendix G- 4 (continued)

Lower photograph text should read:

"West view of Soil Sample Site No. 4"

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PROPOSED NORTH LAKE BOAT LAUNCH SITE WETLAND DELINEATION WAUKESHA COUNTY, WISCONSIN

Prepared by the

Southeastern Wisconsin Regional Planning Commission

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$10.00

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INTRODUCTION

On June 4, 2008, an electronic mail message was received from Ms. Joanne Kline, Environmental Analysis and Review Specialist of the Wisconsin Department of Natural Resources, Southeast Region staff, requesting the Commission staff to conduct an interagency field inspection of the proposed North Lake Boat Launch Site (see Map 1) on the former Kraus property (SEWRPC No. CA-718-49). The subject property is currently under ownership by the Wisconsin Department of Natural Resources.

The purpose of the requested field inspection was: 1) to re-identify and re-stake in the field the boundary of the wetlands within the project area, and 2) to verify any changes to the wetland boundaries that may have occurred since the Commission's July 24, 2003, delineation on the project area (see Appendix A for delineation report).

The approximately 1.4 acre proposed North Lake Boat Launch Site project area is located in the Southeast one-quarter of U. S. Public Land Survey Section 17, Township 8 North, Range 18 East, Town of Merton, Waukesha County, Wisconsin (see Maps 1 and 2). It is proposed to provide a public boat access to North Lake.

Interagency field inspections of the project area were conducted on July 8, 2008, and October 14, 2008, by Dr. Donald M. Reed, Chief Biologist; Dr. Lawrence A. Leitner, Principal Biologist; Mr. Christopher J. Jors, Biologist; and Ms. Jennifer L. Dietl, Research Analyst, of the Commission staff and Ms. Joanne Kline of the Department staff.

METHODS

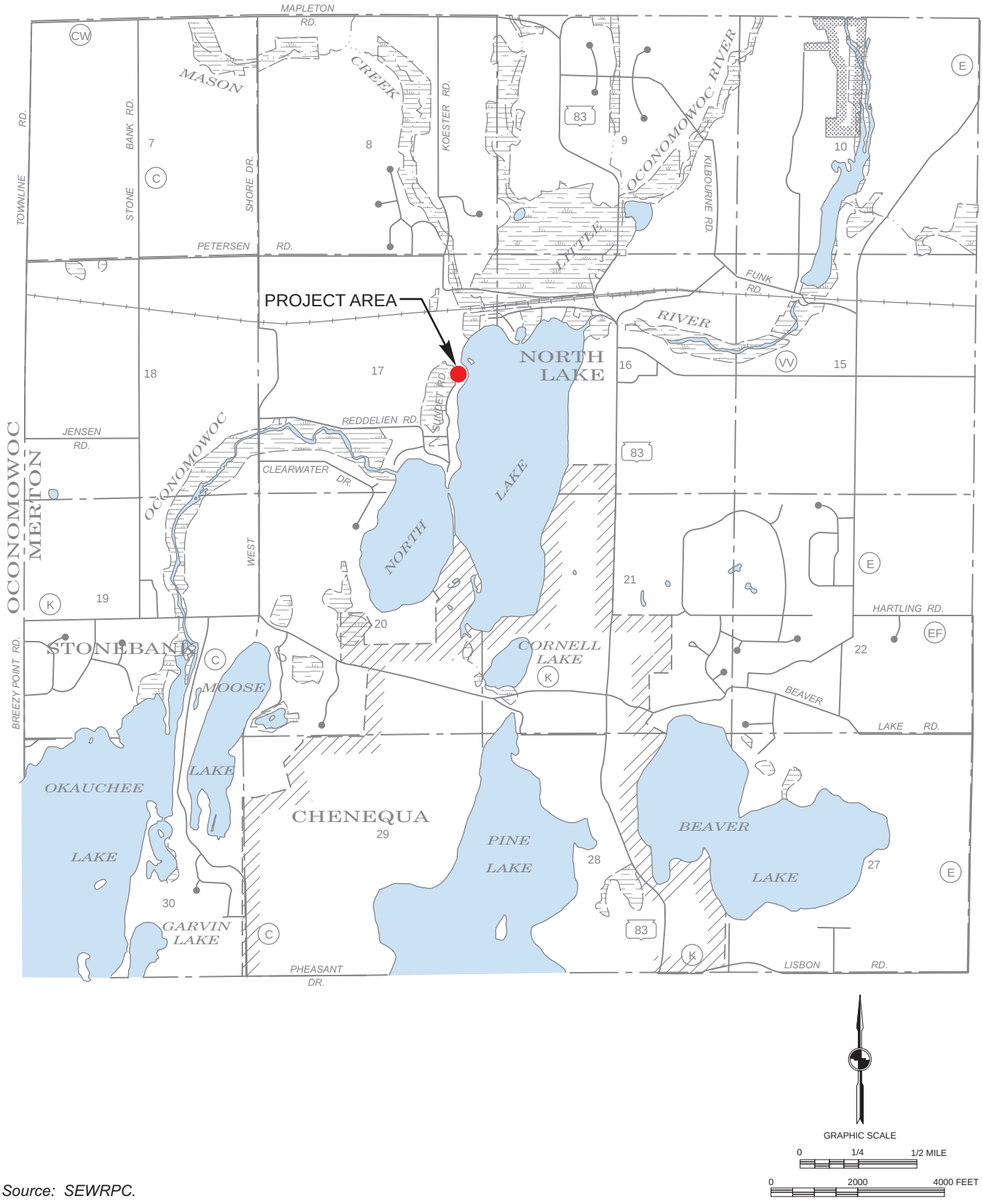
The interagency staff re-identified and re-staked the wetlands within the project area. The field methods used follow the recommendations of the Routine On-site Method set forth in the Corps of Engineers, "Wetlands Delineation Manual," Wetlands Research Program Technical Report Y-87-1 by the Environmental Laboratory, U.S. Army Corps of Engineers, Waterways Experiment Station, dated January 1987 (1987 Manual); regulatory guidelines issued by the St. Paul District Corps of Engineers, in particular Public Notice 96-01078-SDE issued May 22, 1996, entitled "Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers;" and the "Basic Guide to Wisconsin's Wetlands and their Boundaries" issued by the Wisconsin Coastal Management Program, Wisconsin Department of Administration in 1995. In addition, the wetland indicator status of plants were determined using the 1988 "National List of Plant Species That Occur in Wetlands: Wisconsin" by Porter B. Reed, Jr., Inland Freshwater Ecology Section, U.S. Fish and Wildlife Service

The following data sources have been utilized throughout the wetland determination process:

- The July 24, 2003, and July 8, 2008, wetland delineation reports prepared by the Commission staff for the Boat Launch site located on the former Thomas and Elaine Krause property (see Appendix A).
- Topographic, 100-year Floodplain, and U. S. Public Land Survey Control Station Mapping: Includes the Commission's large scale topographic mapping dated April 14, 1994, a 2007 aerial photograph base map with 100-year floodplain and topographic overlay from the Waukesha County Internet Mapping Site, and a Record of U. S. Public Land Survey Control Station located on the subject property (see Appendix B).

Map 1

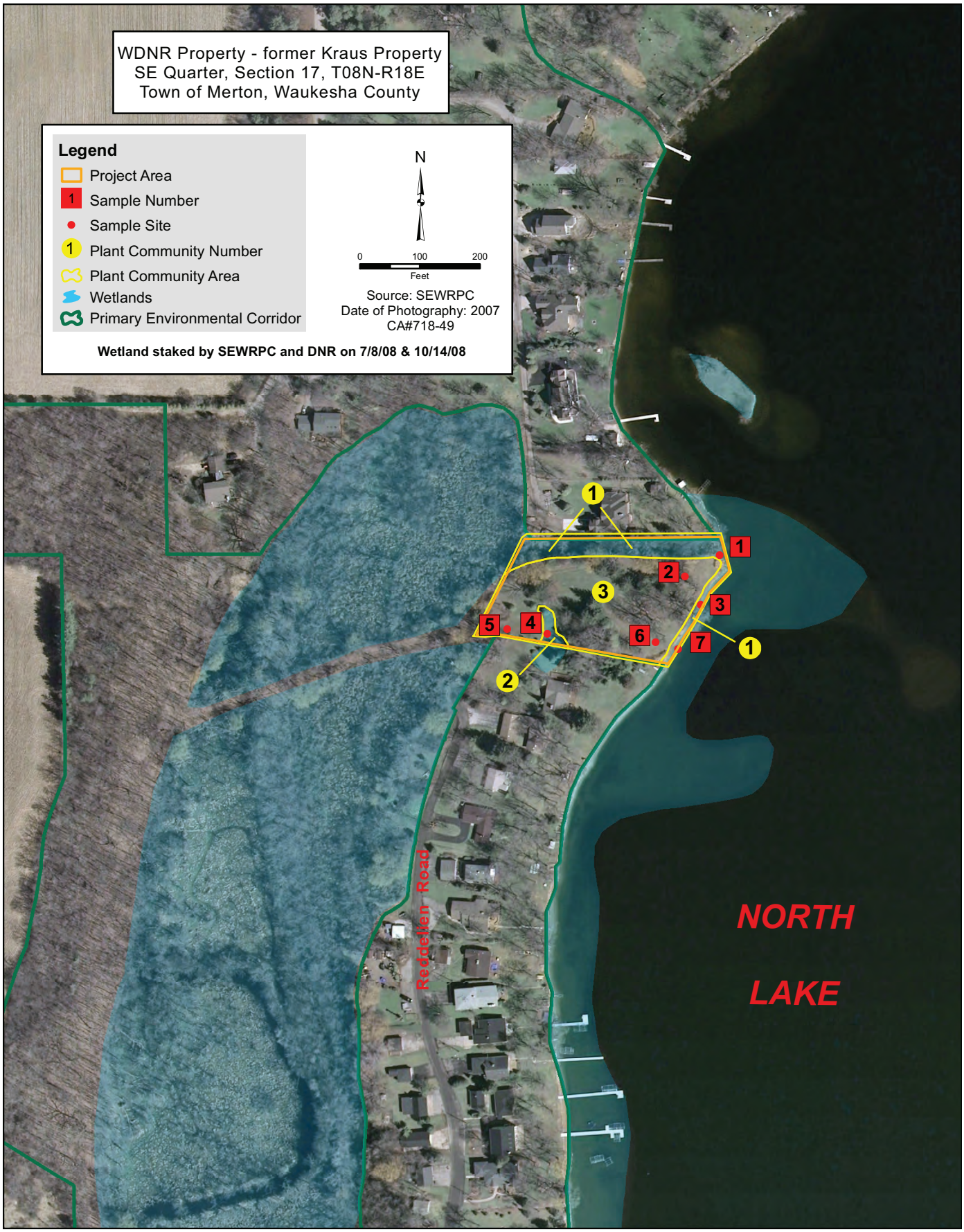
LOCATION OF PROJECT AREA



Source: SEWRPC.

Map 2

LOCATION OF PROJECT AREA



- Aerial photography for the years 1941, 1950, 1963, 1970, 1980, 1985, 1990, 1995, 2000, 2005, and 2007, from Waukesha County Internet Mapping site and the Commission's large scale aerial photography (see Appendix C)
- Wetland inventory maps, including the Natural Resources Conservation Service (NRCS) draft wetland inventory map and the 1985 and 2005 Wisconsin Wetland Inventory maps from the Wisconsin Department of Natural Resources (see Appendix D)
- The Soil Survey of Milwaukee and Waukesha Counties Wisconsin issued by the U.S. Department of Agriculture, Soil Conservation Service in July, 1971. An aerial base-map with soil types and hydric status from the Waukesha County website as well as profile descriptions for soils mapped for the project area has been attached in Appendix E.
- The Wisconsin Department of Natural Resources, Bureau of Endangered Resources files for endangered, threatened, and special concern species.
- SEWRPC Community Assistance Planning Report No. 54, "A Water Quality Management Plan for North Lake, 1982."
- SEWRPC Planning Report No. 42, "A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin," September 1997.
- State of Wisconsin, Department of Natural Resources Development Project Request (Form 9300-197 (R7/04) dated 07-09).
- Rainfall/ Precipitation records obtained from the National Oceanic and Atmospheric Administration (NOAA) website (see Appendix F).

Seven sample sites were selected to represent the wetland plant communities within the subject project area. SEWRPC Field Data Forms were completed for each sample site (see Appendix G). Data recorded included sample site conditions, vegetation cover values (%), any primary and/or secondary hydrology indicators observed, and soils information relative to wetland soil conditions.

Three plant community areas were identified and inventoried. A list of plant species identified within each of the subject wetland plant communities was prepared (see Appendix G).

The wetland boundaries were accordingly re-identified and re-staked using 21" orange wire flags[1]. Orange "wetland boundary" tape was used to mark the location of the flagging to accommodate ready location by the survey staff.

The wetland flags were scheduled to be surveyed by Wisconsin Department of Natural Resources surveyors. A list of metes and bounds were also to be prepared by the surveyors. The surveyed wetland boundaries are to be shown on design plans related to the development of the boat launch facilities within the North Lake Boat Launch Site project area.

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[1]This is a departure from the normal 5-year re-verification procedure for wetland boundaries on sites which have experienced no significant alterations to vegetation, soils, or hydrology. Normally, owner(s)/developer(s) of sites scheduled for a 5–year re-verification of the wetland boundary are asked to replace the original staking using the surveyors list of metes and bounds. The wetland delineation staff then can review the replaced boundary stakes. If no change is observed, the site owner(s)/ developer(s) are so notified in writing. If changes are observed, sample sites and data forms are prepared for the areas of change and the changed boundary is accordingly marked and surveyed. In this case, however, the original wetland boundary staking apparently had not been surveyed. Therefore, a list of the original metes and bounds was not available. Further, it was determined by field staff that new field data forms should be prepared due to the potential controversial nature of the subject development project.

RESULTS AND DISCUSSION

Description of the Site:

Site History (see Appendix C):

A review of historical aerial photography dating back to 1941 indicates that clearing and grading for residential development in the area had begun by 1950. The 1963 aerial photograph shows that the subject site had been cleared and that a driveway had been constructed across the wetland from the west to the southwest corner of the project area, including a circular turn-around area at the end of the driveway. Another smaller driveway spur extends from the main driveway near its end and curves along the northwest and northern edge of the property, likely to allow for vehicle access to the lake shore (a pier is evident on 1980 & 2000 aerial photos). A concrete pad/foundation appears on the 1963 aerial at the end of the smaller driveway near the lake shore. It is not clear from the aerial photos if a structure was present but it may have supported a small cottage or storage shed. The turn-around area located at the southwest corner of the property is not evident on recent aerial photos. The area is thought to have been covered with topsoil and planted to turf-grass.

Topography (see Appendix B):

Generally, the topography along this portion of the western shoreline of North Lake consists of a strip of land immediately west of the lake measuring approximately 250 to 300 feet wide. This strip of land has been developed with residences and cottages. Immediately west of this strip of developed land there exists a wetland approximately 300 to 400 feet wide with a steep wooded slope west of the wetland.

The subject parcel is fairly level with minor variations in ground surface elevations. The lowest elevations (below 898 feet NGVD 29) on the subject parcel occur on the eastern edge at the North Lake shoreline and at the northern edge in the artificial swale running parallel to the north property line. Ground surface elevations on the central portion of the site generally fall between 898 and 899 feet NGVD 29, while elevations in the northwest portion of the site exceed 899 feet NGVD 29.

Soil sample pits dug on site reveal a buried horizon (see Appendix G, Sample Site No. 2), an indication that fill had been placed on the site. The construction of the main driveway and the driveway spur, discussed above in the site history, would have involved filling and grading. Further, excavation of the swale along the north property line would have likely resulted in dredge spoil material being placed immediately adjacent to the swale near where the spur driveway was constructed.

A SEWRPC Survey Control Station monument immediately south of the drainage swale records an elevation of 898.34 feet NGVD 29. The entire site is located within the 100-year flood inundation zone. The water surface of North Lake was estimated at 896.5 feet NGVD 29 at the time of aerial photography for the topographic map preparation on April 14, 1994.

Plant Communities (see Appendix G):

Six plant community types were identified in the project area. They include southern wet to wet-mesic lowland hardwoods, shrub carr (willow thicket), fresh (wet) meadow, shallow marsh, and sandy beach in the wetlands and "retired" lawn with scattered horticultural and invasive shrubs and planted native and horticultural trees in the uplands. Some of the older native tree species have naturally recruited to the site. In addition, portions of the unconsolidated lake bed adjacent to the project area (below the ordinary high water level) form a littoral zone sparsely colonized by submerged and floating-leaved aquatic macrophytes.

Mapped Soils (see Appendix E):

Soils mapped in the project area include the well drained Fox silt loams (Typic Hapludalls) on 0 to 2% slopes and the somewhat poorly drained Matherton silt loams (Udollic Endoaqualfs) on 1 to 3% slopes. Comparison of the mapped soils to the Hydric Soil List for Milwaukee and Waukesha Counties, Wisconsin, indicates that depressional landforms of the poorly drained Sebewa silt loam (Typic Argiaquolls) occur as inclusions in the mapped Matherton soil unit and would be a hydric soil.

Hydrology Information (see Appendix F):
The subject site is located along the west shore of North Lake, a drainage (flow-through) lake, fed largely by surface waters draining lands in northern Waukesha County and southern Washington County. The major lake inlet stream, the Oconomowoc River, enters the lake in the northeast corner, while less significant flows are contributed from Mason Creek in the northwest corner and a channel draining from Cornell Lake located to the south. The Oconomowoc River drains the lake at its western shoreline, southwest of the project area. There is no water level control structure at the lake's outlet.

As noted above, the water surface elevation at North Lake on April 14, 1994, is listed at 896.5 feet NGVD 29. Other water level measurements include Ordinary High Water Mark (OHWM) determinations by DNR staff. The Commission staff was able to obtain three recent records of OHWM elevations at North Lake provided by DNR and Waukesha County staff. These include OHWM elevations at a parcel on the southwest shore of the lake (897.10 feet), a parcel on the west shore (897.20), and a parcel on the east shore (897.22). A review of historical records indicates that an OHWM determination of 897.10 feet was recorded for North Lake during a 1970 visit by DNR staff. Based upon these fairly consistent records of the OHWM at North Lake, it seems reasonable to use an average of these four elevations to determine an approximate OHWM for the Boat Launch site – 897.16 feet.

The filling, grading, and swale excavation activities described above have certainly altered the hydrology on the site. Excavation of the swale along the north property line has provided a surface water connection between the wetland west of the site with North Lake to the east. Side casting of dredge spoil material from the swale excavation as well as the filling and grading for the driveway has raised the elevation in this area, creating a "damming effect" along the western and northern parcel lines. The "damming effect" on the western and northern property lines likely acts to intercept and re-direct water flows around the parcel which may have entered the site in the past. Further, construction of the turn-around at the southwest corner of the parcel would have resulted in the placement of fill in that area, again having a "damming effect" on that portion of the property. This placement of fill at the southwest corner may also have created a very shallow depression just east of the old turn-around, where water may become trapped, particularly during high precipitation events. This shallow depression contains the small, isolated wetland delineated by the Commission staff.

Long term precipitation records from NOAA for stations in the vicinity of the Oconomowoc River watershed were reviewed. These included the Oconomowoc station, west of the Waukesha County part of the watershed, and the Hartford station, west of the Washington County part of the watershed. Precipitation records and departure from normal precipitation records indicate a significantly wetter than normal time period leading up to, and within, the 2008 growing season. Records from December 2007 through November 2008 for the Oconomowoc and Hartford stations are shown in Table 1.

A large departure from normal precipitation was recorded at the Oconomowoc (+7.59 in.) & Hartford (+10.27 in.) stations in the month of June. Further, the overall long-term precipitation records for the months of December 2007 through November 2008, indicate a departure from normal of +11.22 in. for the Oconomowoc station and +12.72 in. for the Hartford station. During the week of the Commission's July 8, 2008 (July 1st through July 8th, 2008), site visit, the Oconomowoc station recorded a large amount of precipitation equaling 3.62 inches. These above normal rainfall conditions not only affected water levels in North Lake, but also affected levels in the wetland complex located to the west of the subject parcel and drainage on the essentially level parcel itself. Accordingly, the Commission staff's hydrology determination reflects these above normal water levels which occurred during the 2008 growing season.

It should be noted that, given the significant above normal precipitation records leading up to our July 8, 2008, field inspection, the Commission staff determined that it would be worthwhile to re-visit the site towards the end of the growing season (October 14, 2008), to view the site after water levels had settled somewhat. If conditions remained unclear, a site visit in the spring of a normal year, with respect to an assessment of precipitation impacts on water levels, would be warranted.

Table 1

MONTHLY PRECIPITATION AT HARTFORD AND OCONOMOWOC STATIONS: DECEMBER 2007 THROUGH NOVEMBER 2008

Date	Hartford		Oconomowoc	
	Precipitation in Inches	Departure from Normal in Inches	Precipitation in Inches	Departure from Normal in Inches
December 2007	3.94	+2.37	3.94	+2.23
January 2008	2.83	+1.52	2.20	+0.88
February 2008	3.49	+2.42	3.31	+2.11
March 2008	1.25	-0.68	2.24	+0.28
April 2008	5.80	+2.78	6.53	+3.28
May 2008	1.35	-1.72	1.65	-1.49
June 2008	14.09	+10.27	11.56	+7.59
July 2008	3.78	-0.35	5.41	+1.20
August 2008	1.13	-3.02	0.88	-3.64
September 2008	3.17	-0.44	3.49	-0.20
October 2008	2.80	+0.18	2.50	-0.13
November 2008	1.61	-0.61	1.41	-0.89
Total	45.24	+12.72	45.12	11.22

Source: National Oceanic and Atmospheric Administration and SEWRPC.

A review of the historical aerial photography for the years 1985, 1990, 1995, 2000, 2005, and 2007, suggest a "wet signature" for all years along the ditched drainage way along the north property boundary. An apparent discharge plume/sediment deposit from the drainage way into the lake is clearly observed for 6 of the years - 1990, 1995, 2000, 2005, and 2007. No distinct "wet signature" can be seen in the vicinity of Plant Community Area No.2.

Existing Wetland Mapping**:** (see Appendix C)
The original Wisconsin Wetland Inventory mapping (prepared using 1 inch = 2000 feet scale aerial photos in 1985) shows no wetland on the subject property. However, the updated 2005 Wisconsin Wetland Inventory map (prepared at scale of 1"=400' scale) shows a wetland symbol (wetlands less than ¼ acre) on the subject property. Further, the lake bed area immediately to the east of the subject property is classified as Submergent Aquatic Bed (A1L). The NRCS wetland inventory map for Section 17 in the Town of Merton (T.8N., R.18E.), Waukesha County shows the project area as NI – non-inventoried.

Previous Wetland Delineations (see Appendix A):
The Commission staff conducted field inspections of the project area on July 24, 2003, at the request of the Town of Merton and again July 8, 2008, at the request of the DNR. During both field inspections, two wetland areas were observed. These wetlands consisted of a second growth, southern wet to wet-mesic lowland hardwoods, and fresh (wet) meadow along the drainage way and lake shoreline (Plant Community Area No. 1) and an ephemeral fresh (wet) meadow (Plant Community Area No. 2). These wetland types may be classified as follows: Plant Community Area No. 1- Forested, broad-leaved deciduous, wet soil, palustrine (T3K) and Emergent/wet meadow, broad-leaved persistent, wet soil and standing water, palustrine (E2K and E2H); and Pant Community Area No. 2- Emergent/ wet meadow, broad-leaved persistent, wet soil, palustrine (E2K).

Natural Areas and Critical Species Habitat:
Two special concern fish species, Lake chubsucker (*Erimyzon sucetta*) and Least darter (*Etheostoma microperca*) have been recorded in North Lake. Further, populations of the State of Wisconsin threatened Pale green orchid (*Platanthera flava*), Forked aster (*Aster furcatus*), Blanding's turtle (*Emydoidea blandingii*) and Butler's

gartersnake (*Thamnophis butleri*) have been recorded at sites within 5 miles of the project area. In addition, Hooker orchis (*Platanthera hookeri*), a special concern orchid species, has been recorded within 5 miles of the project area. However, no Federal or State designated endangered, threatened, or special concern species were observed in or immediately adjacent to the project area during the field inspections.

Findings (see Appendix G):
VEGETATION
Plant Community Area No. 1:
Second growth, southern wet to wet-mesic lowland hardwoods and fresh (wet) meadow/shallow marsh communities were observed in Plant Community Area No. 1 (Map 2). A total of 50 plant species were observed and recorded. Of this total, 12 species (24 percent) were non-native species. Sample Site Nos. 1, 3, and 7 were sampled within this Plant Community Area.

Seven species were determined to be major dominant species at Sample Site No. 1 (which sampled the subdominant "shrub carr" near the southeast edge of the lowland hardwood community). The major dominant plant species include: Lake sedge (*Carex lacustris*) [OBL], White snakeroot (*Eupatorium rugosum*) [FACU], and Riverbank grape (*Vitis riparia*) [FACW-] in the herbaceous layer; Silky dogwood (*Cornus amomum*) [FACW+] and Common buckthorn (*Rhamnus cathartica*) [FAC-] in the shrub layer; and Green ash (*Fraxinus pennsylvanica*) [FACW] and Boxelder (*Acer negundo*) [FACW-] in the tree layer. In total, 71% of the major dominant plant species are hydrophytes [OBL, FACW, or FAC plant species]. It should be noted that the Lake sedge, Riverbank grape, Silky dogwood, Green ash, and Boxelder were also found to be major dominants during the 2003 field inspection.

Major dominant plant species along the lake shoreline sandy beach portion of the fresh (wet) meadow/shallow marsh and shrub carr (willow thicket) include: Eastern cottonwood (*Populus deltoides*) [FAC+] in both the tree and herbaceous (as seedlings) strata and Silver maple (*Acer saccharinum*) [FACW] seedlings, also in the herbaceous stratum of Sample Site No. 3 and Sandbar willow (*Salix exigua*) [OBL] in both the shrub and herbaceous strata of Sample Site No. 7. In total, 100% of the major dominant plant species are hydrophytes at Sample Site Nos. 3 and 7. The shallow marsh portion of this wetland plant community extends from the shore to a 6" standing water depth. This is consistent with the shallow marsh definitions used in Eggers and Reed (1997) and Shaw and Fredine (1971). No emergent vegetation stratum was observed on the lake bed during the field inspections. Vegetation present on the lake bed was limited to scattered stands of floating-leaved and submergent macrophytes composed primarily of Yellow water lily (*Nuphar advena*), Water milfoil (*Myriophyllum exalbescens*), Curly-leaf pondweed (*Potamogeton crispus*), and Sago pondweed (*Potamogeton pectinatus*). The aquatic bed community observed was a permanently inundated, Lacustrine, littoral system on an unconsolidated sand bottom (Cowardin, et.al, 1979).
Therefore, no deep marsh community was present in or adjacent to the project area.

Plant Community Area No. 2:
An ephemeral fresh (wet) meadow was observed in Plant Community Area No. 2 (Map 2). A total of nine plant species were observed and recorded. Of this total, five (56 percent) were non-native species. Sample Site No. 4 was sampled within this Plant Community Area. This area has been maintained as a lawn over the years. However, it had not been recently mowed prior to the July 8, 2008, field inspection.

The dominant plant species observed in the ephemeral fresh (wet) meadow included Kentucky blue grass (*Poa pratensis*) [FAC-], Needle spike-rush (*Eleocharis acicularis*) [OBL], Redtop grass (*Agrostis stolonifera*) [FACW] and patches of Silver maple seedlings (*Acer saccharinum*) [FACW]. Three of these dominants - Kentucky blue grass, Needle spike rush, and the Silver maple seedlings - were determined to be major dominant plant species at Sample Site No. 4. The Redtop grass did not occur as a major dominant in the quadrat. In total, 67% of the major dominant plant species are hydrophytes.

Plant Community Area No. 3:
A "retired" lawn with planted ornamentals and upland woodland were observed in Plant Community Area No. 3 (Map 2). A total of 62 plant species were observed and recorded. Of this total, 27 (44 percent) were non-native species. Sample Site Nos. 2, 5, and 6 were sampled within this Plant Community Area.

Dominant plant species at Sample Site No. 2 include Kentucky bluegrass (*Poa pratensis*) [FAC-], Bur oak (*Quercus macrocarpa*) [FAC-], Eastern cottonwood (*Populus deltoides*) [FAC+], and Green ash (*Fraxinus pennsylvanica*) [FACW]. A comparison of dominant hydric versus non-hydric species indicates that each category constitutes 50 percent. A further comparison of the non-dominant hydric versus non-hydric plant species indicates that only 25 percent of non-dominant species are hydric. Accordingly, the vegetation at Sample Site No. 2 was determined to be non-hydrophytic.

Dominant plant species at Sample Site No. 5 include Kentucky bluegrass (*Poa pratensis*) [FAC-] and planted White cedar (*Thuja occidentalis*) [FACW]. A comparison of dominant hydric versus non-hydric species indicates that each category constitutes 50 percent. A further comparison of non-dominant hydric versus non-hydric plant species indicates that each category also represents 50 percent. Accordingly, the total number of hydrophytes did not exceed 50% when looking at both dominant and non-dominant plant species. Further, when considering percent cover of all species recorded, the non-hydrophytic species have a larger cover value. Therefore, sample Site No. 5 did not meet the criteria for being dominated by wetland vegetation.

Dominant plant species at Sample Site No. 6 include Kentucky bluegrass (*Poa pratensis*) [FAC-], Basswood (*Tilia americana*) [FACU] in the tree and shrub layers, Common buckthorn (*Rhamnus cathartica*) [FAC-], Bur oak (*Quercus macrocarpa*) [FAC-], and Green ash (*Fraxinus pennsylvanica*) [FACW]. The percent of hydrophytes among dominant species at this sample is only 17 percent, making this a sample site which does not meet the wetland vegetation criteria.

SOILS (See Appendix G):
Soil profiles prepared from data collected within the subject project area do not conform to the mapped units (see page 5 and Appendix E). No silt loams were observed on the site. All soils sampled were essentially low chroma loams, silty clay loams, sands, and sand and gravel. Much of the soil material present appeared to be old fill.

Sample Site No. 1, a wetland sample in the northern drainage swale, exhibited low chroma soils throughout the profile: 10YR2/1 at the surface and 10YR3/1 beginning at 6 inches. Soils, hydrology, and vegetation were all determined to meet the wetland criteria at this sample site.

Sample Site No.2, an upland sample adjacent to Sample Site Nos. 1 and 3, exhibited a surface layer of 7.5YR2.5/1 with mottles at a depth of 6 to 8 inches. However, the remainder of the profile did not contain redox features. A double matrix consisting of 10YR4/2 & 10YR3/1 were recorded at a depth between 8 and 15 inches. A buried horizon beginning at 15 inches consisted of 7 inches of 10YR3/1 loam over a 10YR7/2 sandy marl. Soils, hydrology, and vegetation were all determined to be non-wetland at this sample site.

Sample Site No.3, a wetland sample at the lake shore, consisted of 22 inches of low chroma (7.5YR4/1) saturated sand (hydric) with no observed surface horizon. Accordingly, soils, hydrology, and vegetation were determined to meet the wetland criteria at this sample site.

Sample Site No.4, a wetland sample in the southwestern portion of the property, exhibited low chroma soils (7.5YR2.5/1 muck from 0-1.5 inches deep and a 10YR4/1 loam with mottles between 1.5-4 inches deep). This site could not be sampled below 4" (four attempts) with a sharp shooter shovel, soil auger, or soil probe because of a gravel layer (fill). However, the 1.5 inch muck layer at the surface met the A10. 2-cm Muck test indicator for this USDA Land Resource Region (see Field Indicators of Hydric Soils in the United States, Version 6.0). Accordingly, for wetland delineation purposes, this soil was determined to be a wetland soil. Wetland vegetation and hydrology were also observed at this sample site.

Sample Site No. 5 was an upland sample site adjacent to Sample Site No. 4. Evidence of past disturbance was evident at this site, including construction of a driveway turn-around. This sample exhibited a 10YR2/2 loam at a depth of 0-1.5 inches and a 10YR5/2 sand and gravel layer between 1.5-9 inches deep. The Commission staff was unable to dig any deeper than 9 inches due to refusal at that depth, likely due to the gravel fill and compaction of these soils. Vegetation, hydrology, and soils were determined to be non-wetland at this sample site.

Sample Site No. 6, an upland sample from the southeastern portion of the property, consisted of a 10YR2/2 loam from 0-8.5 inches deep. The Commission staff was unable to dig any deeper than the 8.5 inches due to refusal at that depth where large cobbles/glacial till were encountered. Vegetation, hydrology, and soils were determined to be non-wetland at this location.

Sample Site no. 7, a wetland sample at the lake shore adjacent to Sample Site No. 6, consisted of a 10YR3/1 sand and gravel from 0-3 inches in depth, a 10YR4/2 sand and gravel with redox mottles from 3-8 inches, and a 10YR3/2 coarse sand with redox mottles from 8-17 inches. All three wetland criteria were determined to be met at this sample.

Comparison of the soil profiles prepared from the original wetland delineation (July 24, 2003) to those prepared for the present effort (2008) indicate considerable variation due largely to past filling and grading. The resulting findings, however, are the same: Sample Site No. 1 from 2003 and Sample Site No. 1 from 2008, located very close to one another, were both found to have wetland profiles. Further, Sample Site No. 2 from 2003 and Sample Site No. 2 from 2008, located very in close proximity to each other, were both found to have upland profiles. The hydric soil finding at Sample Site No. 4 from 2008 is consistent with the conclusion made at nearby Sample Site No. 3 in 2003. That earlier soil profile revealed a buried horizon at 15" consisting of a 1" muck layer overlaying a sand and gravel. Fill materials overlaying that original horizon consisted of a low chroma matrix with common and prominent (7.5YR4/6) redox mottles (which began at 2"). The fill materials at that location were found to meet the F3. Depleted matrix; A11. (formerly F4) Depleted Below Dark Surface; and F6. Redox Dark Surface USDA hydric soil field indicators (See appendix E).

HYDROLOGY:

During the July 8, 2008, field inspection, primary wetland hydrology indicators were observed at Sample Site Nos. 1, 3, and 4. The primary indicators included saturation in the upper 12" of the root zone (Sample Site Nos.1 and 3 – water saturation 6" below the surface and at the surface (0"), respectively), drift lines (Sample Site No. 3), and inundation (Sample Site No. 4 – surface water 7.5" deep). Positive FAC – neutral tests (a secondary indicator of wetland hydrology) were recorded at all four sample sites. Other secondary indicators of wetland hydrology observed include the observation of several water-stained leaves at Sample Site No. 1, morphological plant adaptations (shallow roots) at Sample Station No. 3, and landscape position – a slight depressional area at Sample Site No. 4. The latter two secondary indicators are based upon professional judgment. While water levels in the project area were abnormally high during the July 8, 2008, field inspection, as documented above, it was the consensus of the field staff that the results presented herein are reflective of the long-term hydrology conditions on the site.

This finding was further confirmed during the return visit on October 14, 2008. On that date, wetland hydrology indicators were observed at Sample Site No. 7, including soil saturation at a depth of 4.5 inches, a primary indicator of wetland hydrology, and oxidized root channels in the root zone and a positive FAC-neutral test, both secondary indicators of wetland hydrology. Only a single secondary hydrology indicator (a positive FAC-neutral test) was observed at Sample Site No. 5. No wetland hydrology indicators were observed at Sample Site No. 6 during this field visit.

Types of other waters identified: Two other surface water systems are present at the project site: 1) North Lake is a 437 acre surface water lake with a maximum depth of 78 feet (SEWRPC, 1982). It is a flow through lake of glacial origin on the Oconomowoc River system, and 2) Intermittent ditched drainage way constructed along the north property line. The drainage way is about 300 feet long, about 22.5 to 25.5 feet wide and about 1.8 to 2.2 feet

deep. The drainage way flows to North Lake from a large wetland complex located just to the west of the project area.

Conclusions:
Based on these findings, Sample Site Nos. 1, 3, 4, and 7, support a predominance of hydrophytes (Major dominances of 71%, 100%, 67% and 100% respectively are hydrophytes). Hydrophytes accounted for only 50% of the total major dominant species for Sample Site No. 2, only 50 % of the major dominant and non-dominant plant species at Sample Site No. 5, and only 17% of major dominant plant species for Sample Site No. 6. Therefore, these sample sites do not support a predominance (> 50%) of hydrophytes.

Sample Site Nos. 1, 3, 4, and 7 consist of hydric soils, while Sample Site Nos. 2, 5, and 6 were determined to consist of upland soils.

To meet the criteria for wetland hydrology one primary indicator or two secondary indicators are required. Wetland hydrology was observed at Sample Site Nos. 1 (one primary and two secondary indicators), 3 (two primary and two secondary), 4 (one primary and two secondary), and 7 (one primary and two secondary). Wetland hydrology was not observed at Sample Site Nos. 2 (only one secondary indicator), 5 (only one secondary indicator), and 6 (no indicators).

Therefore, Sample Site Nos. 1, 3, 4, and 7 represent wetland sample points while Sample Site Nos. 2, 5, and 6 are determined to be upland sample points. The approximant areal extent of the wetlands as well as the location of sample sites and plant community areas is shown on Map 2 and the aerial map exhibit in Appendix G.

Literature Cited:

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe, 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., 103 pp.

Eggers, Steve D. and Donald M. Reed, 1997. *Wetland Plants and Plant Communities of Minnesota & Wisconsin*, Second Edition. U.S. Army Corps of Engineers, St. Paul District, 263 pp.

Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1 (on-line edition), U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., 101 pp. plus appendices.

Reed, Jr., Porter B. 1988. *National List of Plant Species That Occur in Wetlands: 1988 Wisconsin.* NERC - 88/18.49, United States Department of the Interior, Fish and Wildlife Service, 41 pp.

Shaw, Samuel and C. Gordon Fredine, 1971. *Wetlands of the United States*. Circular 39, U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., 67 pp.

Southeastern Wisconsin Regional Planning Commission, 1982. *A Water Quality Management Plan for North Lake*. Community Assistance Report No. 54, 139 pp.

Southeastern Wisconsin Regional Planning Commission, 1997. *A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin.* Planning Report No. 42, 531 pp.

Steingraeber, J.A. and Charles A. Reynolds 1971. *Soil Survey of Milwaukee and Waukesha Counties, Wisconsin.* U.S. Department of Agriculture, Soil Conservation Service, U.S. Government Printing Office, Washington, D.C., 266 pp including maps.

United States Department of Agriculture, Natural Resources Conservation Service, 2006. *Field Indicators of Hydric Soils in the United States.* Version 6.0 G.W. Hurt and L.M. Vasilas (eds.). USDA,NRCS, in cooperation with the National Technical Committee for Hydric Soils, 39 pp.

Wisconsin Department of Administration, Wisconsin Coastal Management Program, 1995. *Basic Guide to Wisconsin's Wetlands and Their Boundaries,* PUBL-WZ-029-94. Madison, Wisconsin, 87 pp.

APPENDICES

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Appendix A

PAST WETLAND DELINEATION REPORTS

- Appendix A-1: July 24, 2003, SEWRPC wetland delineation report
- Appendix A-2: July 8, 2008, SEWRPC wetland delineation report

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October 6, 2003

Ms. Susan Oman
Clerk
Town of Merton
P.O. Box 128
North Lake, WI 53064

Re: SEWRPC No. 718-49

Dear Ms. Oman:

This will respond to a letter dated March 11, 2003, by Ms. Jeanne Ann Frederickson, former Deputy Clerk with the Town of Merton, requesting the Commission staff to conduct a field inspection of the eastern portion of the Thomas and Elaine Kraus property along North Lake for the purpose of identifying in the field the boundary of any wetland on the subject portion of the property. The property is located in parts of the Southeast one-quarter of U. S. Public Land Survey Section 17, Township 8 North, Range 18 East, Town of Merton, Waukesha County, Wisconsin.

The wetland boundary was identified and staked in the field by Dr. Donald M. Reed, Commission Chief Biologist, on July 24, 2003. Staff from the Wisconsin Department of Natural Resources, including Ms. Patricia A. Trochlell, Wetland Ecologist, Mr. Thomas W. Bernthal, Water Resources Management Specialist, and Ms. Geri M. Radermacher, Water Regulation and Zoning Specialist, were also present to assist in the wetland delineation. It is the Commission staff's expectation that the wetland boundary will be surveyed and identified on a forthcoming plat of survey attendant to the development of the subject property. A list of plant species identified within the subject wetlands is attached hereto as Exhibit A.

Should you have any questions regarding this information, please do not hesitate to call.

Sincerely,

Philip C. Evenson
Executive Director

PCE/DMR/mlh
#87044 v1 - ca708-49

Enclosures

cc: Mr. Thomas Kraus
Mr. Mark Powers, Lake Country Engineering, Inc.
Mr. Richard Mace, Waukesha County Department of Parks and Land Use
Ms. Geri M. Radermacher, DNR-Waukesha Service Center
Ms. Patricia A. Trochlell, DNR-Madison
Mr. Dale J. Pfeiffle, COE-Waukesha

SVY2800
CA718-49

EXHIBIT A

PRELIMINARY VEGETATION SURVEY
THOMAS AND ELAINE KRAUS PROPERTY WETLANDS

Date: July 24, 2003

Observer: Donald M. Reed, Ph.D., Chief Biologist
Lawrence A. Leitner, Ph.D., Principal Biologist
Christopher J. Jors, Biologist
Southeastern Wisconsin Regional Planning Commission

Location: Town of Merton in parts of the Southeast one-quarter of U.S. Public Land Survey Section 17, Township 8 North, Range 18 East, Waukesha County, Wisconsin.

Species List: Plant Community Area No. 1

GRAMINEAE
- Phalaris arundinacea[1]--Reed canary grass

CYPERACEAE
- Scirpus atrovirens--Green bulrush
- Carex stipata--Sedge
- Carex bebbii--Sedge
- Carex lacustris--Lake sedge

ARACEAE
- Symplocarpus foetidus--Skunk cabbage

LILIACEAE
- Hemerocallis fulva[1]--Day-lily

IRIDACEAE
- Iris virginica--Virginia blueflag

SALICACEAE
- Populus deltoides--Cottonwood
- Salix babylonica[1]--Weeping willow
- Salix nigra--Black willow
- Salix exigua--Sand-bar willow

BETULACEAE
- Alnus rugosa--Tag alder

ULMACEAE
- Ulmus americana--American elm

URTICACEAE
- Pilea pumila--Clearweed

POLYGONACEAE
- Polygonum persicaria[1]--Lady's thumb

SAXIFRAGACEAE
- Ribes americanum--Wild black currant

ROSACEAE
Geum canadense--White avens
Rubus occidentalis--Black raspberry

ACERACEAE
Acer saccharinum--Silver maple
Acer negundo--Boxelder

BALSAMINACEAE
Impatiens biflora--Jewelweed

RHAMNACEAE
Rhamnus cathartica[1]--Common buckthorn
Rhamnus frangula[1]--Glossy buckthorn

VITACEAE
Vitis riparia--River-bank grape
Parthenocissus quinquefolia--Virginia creeper

LYTHRACEAE
Lythrum salicaria[1]--Purple loosestrife

ONAGRACEAE
Circaea quadrisulcata--Enchanter's nightshade

UMBELLIFERAE
Cicuta bulbifera--Water-hemlock
Cicuta maculata--Spotted water-hemlock

CORNACEAE
Cornus amomum--Silky dogwood
Cornus stolonifera--Red-osier dogwood

PRIMULACEAE
Lysimachia thyrsiflora--Tufted loosestrife

OLEACEAE
Fraxinus pennsylvanica--Green ash

CONVOLVULACEAE
Convolvulus sepium--Hedge bindweed

VERBENACEAE
Verbena urticifolia--White vervain

LABIATAE
Glechoma hederacea[1]--Creeping Charlie
Stachys palustris--Hedge-nettle

SOLANACEAE
Solanum dulcamara[1]--Deadly nightshade

CAPRIFOLIACEAE
Sambucus canadensis--Elderberry

COMPOSITAE
Ambrosia artemisiifolia--Common ragweed
Xanthium strumarium[1]--Cocklebur

Total number of plant species: 42
Number of alien, or non-native, plant species: 10 (24 percent)

This approximately 0.2-acre plant community area is part of a larger wetland complex adjacent to North Lake and consists of second growth, Southern wet to wet-mesic lowland hardwoods and fresh (wet) meadow/shallow mash along the shoreline. Disturbances to the plant community area include dumping, past filling, mowing, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to past ditching. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

_____

[1] Alien or non-native plant species

Plant Community Area No. 2

CYPERACEAE
Eleocharis acicularis[1]--Needle spike-rush
Carex stipata--Sedge

POLYGONACEAE
Polygonum persicaria[2]--Lady's thumb

PORTULACACEAE
Portulaca oleracea[2]--Purslane

LABIATAE
Glechoma hederacea[2]--Creeping Charlie
Prunella vulgaris--Selfheal

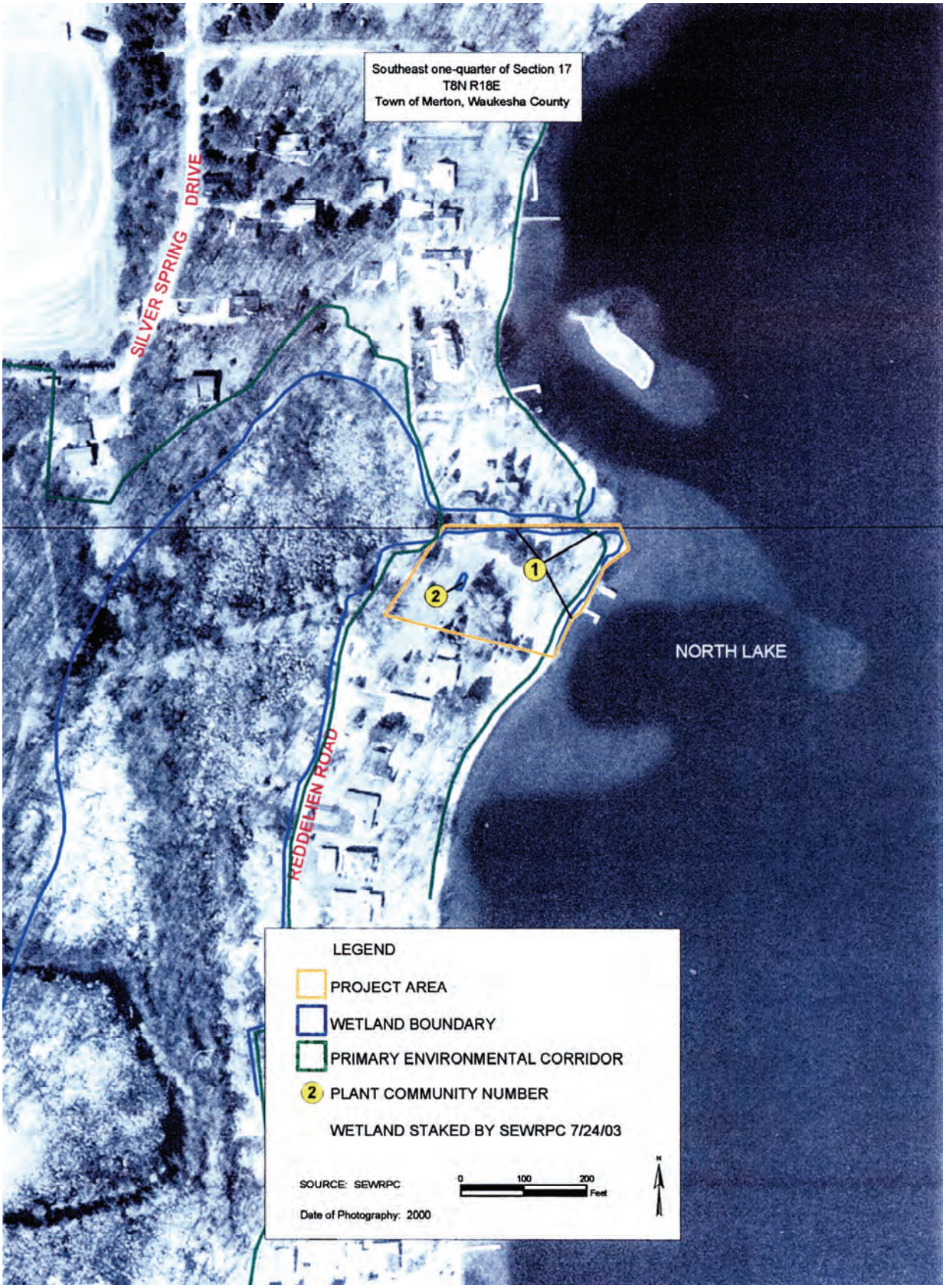
Total number of plant species: 6
Number of alien, or non-native, plant species: 3 (50 percent)

This approximately 0.05-acre plant community area consists of an ephemeral fresh (wet) meadow. Disturbances to the plant community area include past filling and frequent mowing. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

_____

[1] Dominant plant species
[2] Alien or non-native plant species

PLANT COMMUNITY AREAS



Appendix A-1 (continued)
SEWRPC FIELD DATA FORM
ROUTINE WETLAND DETERMINATION

PROJECT NAME: Thomas and Elaine Kraus Property **FILE NO.: CA** 718-49

LOCATION: Town of Merton, Waukesha **COUNTY,** SE ¼ **SECTION** 17**, T** 8 **N, R** 18 **E**

DATE: July 24, 2003

OBSERVERS: Donald M. Reed, Ph.D., SEWRPC; Pat Trochell, Tom Bernthal, and Geri Radermacher, DNR

PLANT COMMUNITY AREA NO.: 1 **TRANSECT NO.:** 1 **SAMPLE SITE NO.:** 1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Other NON-Dominant Plant Species	Stratum	Indicator
Acer negundo	Tree	FACW-	Alnus rugosa	Shrub	OBL
Fraxinus pennsylvanica	Tree	FACW	Rhamnus cathartica	Shrub	FAC-
Ulmus americana	Tree	FACW-	Ribes americanum	Shrub	FACW
Acer negundo	Shrub	FACW-	Salix exigua	Shrub	OBL
Cornus amomum	Shrub	FACW+	Carex bebbi	Herb	OBL
Cornus stolonifera	Shrub	FACW	Carex stipata	Herb	OBL
Vitis riparia	Vine	FACW-	Cornus stolonifera	Herb	FACW
Carex lacustris	Herb	OBL	Impatiens biflora	Herb	FACW
Phalaris arundinacea	Herb	FACW+	Iris virginica	Herb	OBL
			Scirpus atrovirens	Herb	OBL
			Vitis riparia	Herb	FACW-

Percent of Dominant Species that are OBL, FACW, OR FAC: 100%

Remarks:

HYDROLOGY **WETLAND HYDROLOGY INDICATORS**

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**

☒ **No Recorded Data Available**

Primary Indicators:

- ☐ **Inundated**
- ☐ **Saturated in Root Zone**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☒ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	19+**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	--**(in.)**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone**
- ☒ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Adventitious and/or shallow root growth**
- ☐ **Other (Explain in Remarks)**

Remarks:

SOILS

Map Unit Name
(Series and Phase): Fox silt loam **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No**

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-6		10YR 2/1			Sandy muck
6-11		10YR 2/1			Mucky sand
11-14		N 1/0			Muck
14-19		10YR 2/1			Peat
19+		10YR 3/1			Peat

Wetland Soil Indicators:

☒**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☒**Sulfidic Odor**	☒**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator: A1. Histosol; A4. Hydrogen Sulfide

Remarks:

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No**☐**(If no, explain)** **Yes** ☐ **No**☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☐ **No**☒**(If yes, explain)**

Remarks: Sample site taken at northern project area boundary approximately 15 feet from lake shoreline.

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

This Sampling Point is within a Wetland? ☒**Yes** ☐**No**

This Sampling Point Meets:
The Federal Jurisdictional Wetland Criteria? ☒**Yes** ☐**No**
The State of Wisconsin Wetland Criteria? ☒**Yes** ☐**No**

Remarks:

PLANT COMMUNITY AREA NO.: -- TRANSECT NO.: 1 **SAMPLE SITE NO.:** 2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Other NON-Dominant Plant Species	Stratum	Indicator
Medicago lupulina	Herb	FAC-	Ambrosia artemisiifolia	Herb	FACU
Poa pratensis	Herb	FAC-	Erigeron sp.	Herb	NI
			Plantago lanceolata	Herb	FAC
			Taraxacum officinale	Herb	FACU
			Viola sp.	Herb	NI

Percent of Dominant Species that are OBL, FACW, OR FAC: 0%

Remarks:

HYDROLOGY **WETLAND HYDROLOGY INDICATORS**

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**

☒ **No Recorded Data Available**

Primary Indicators:

- ☐ **Inundated**
- ☐ **Saturated in Root Zone**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	18**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	--**(in.)**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☐ **FAC-Neutral Test**
- ☐ **Adventitious and/or shallow root growth**
- ☐ **Other (Explain in Remarks)**

Remarks: No hydrology indicators observed

SOILS

Map Unit Name
(Series and Phase): Fox silt loam **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No**

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-9		10YR 2/1			Loam
9-15		10YR 4/3			Sand and Gravel
15-18		10YR 2/1 75%			Sand
		10YR 5/3 25%			

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☐**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator: NA

Remarks: Old fill material

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ **No**☐**(If no, explain)**

Is the site a problem area?
Yes ☐ **No**☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No**☐**(If yes, explain)**

Remarks: Site has been filled in the past

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☐**Yes** ☒**No**
Wetland Hydrology Present? ☐**Yes** ☒**No**
Wetland Soils Present? ☐**Yes** ☒**No**

This Sampling Point is within a Wetland? ☐**Yes** ☒**No**

This Sampling Point Meets:
The Federal Jurisdictional Wetland Criteria? ☐**Yes** ☒**No**
The State of Wisconsin Wetland Criteria? ☐**Yes** ☒**No**

Remarks:

PLANT COMMUNITY AREA NO.: 2 **TRANSECT NO.:** -- **SAMPLE SITE NO.:** 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Other NON-Dominant Plant Species	Stratum	Indicator
Carex stipata	Herb	OBL	Portulaca oleracea	Herb	FAC-
Eleocharis acicularis	Herb	OBL			
Percent of Dominant Species that are OBL, FACW, OR FAC: 100%					
Remarks: Manicured lawn					

HYDROLOGY

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**

☒ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	16+**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	0**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☒ **Saturated in Root Zone**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Adventitious and/or shallow root growth**
- ☐ **Other (Explain in Remarks)**

Remarks: Saturated to the surface

SOILS

Map Unit Name
(Series and Phase): Fox silt loam **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No**

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-2		10YR 3/1			Loam
2-11		5Y 3/1	7.5YR 4/6	Common/Prominent	Clay loam
			2.5Y 5/3	Inclusions	
11-15		10YR 4/4 50%	7.5YR 4/6	Common/Prominent	Clay loam
		10YR 3/2 50%			
15-16		N 2/0			Muck
16+					Sand and Gravel

Wetland Soil Indicators:

☐**Histosol**	☒**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Indicated

USDA Hydric Soils Field Indicator: F3. Depleted Matrix; F4. Depleted Below Dark Surface; F6. Redox Dark Surface

Remarks: Buried horizon at 15 inches

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ **No**☐**(If no, explain)**

Is the site a problem area?
Yes ☒ **No**☐**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No**☐**(If yes, explain)**

Remarks: Problem area - seasonal wetland; Disturbance - site has been filled in the past and is currently mowed

WETLAND DETERMINATION

Based on the foregoing, are:

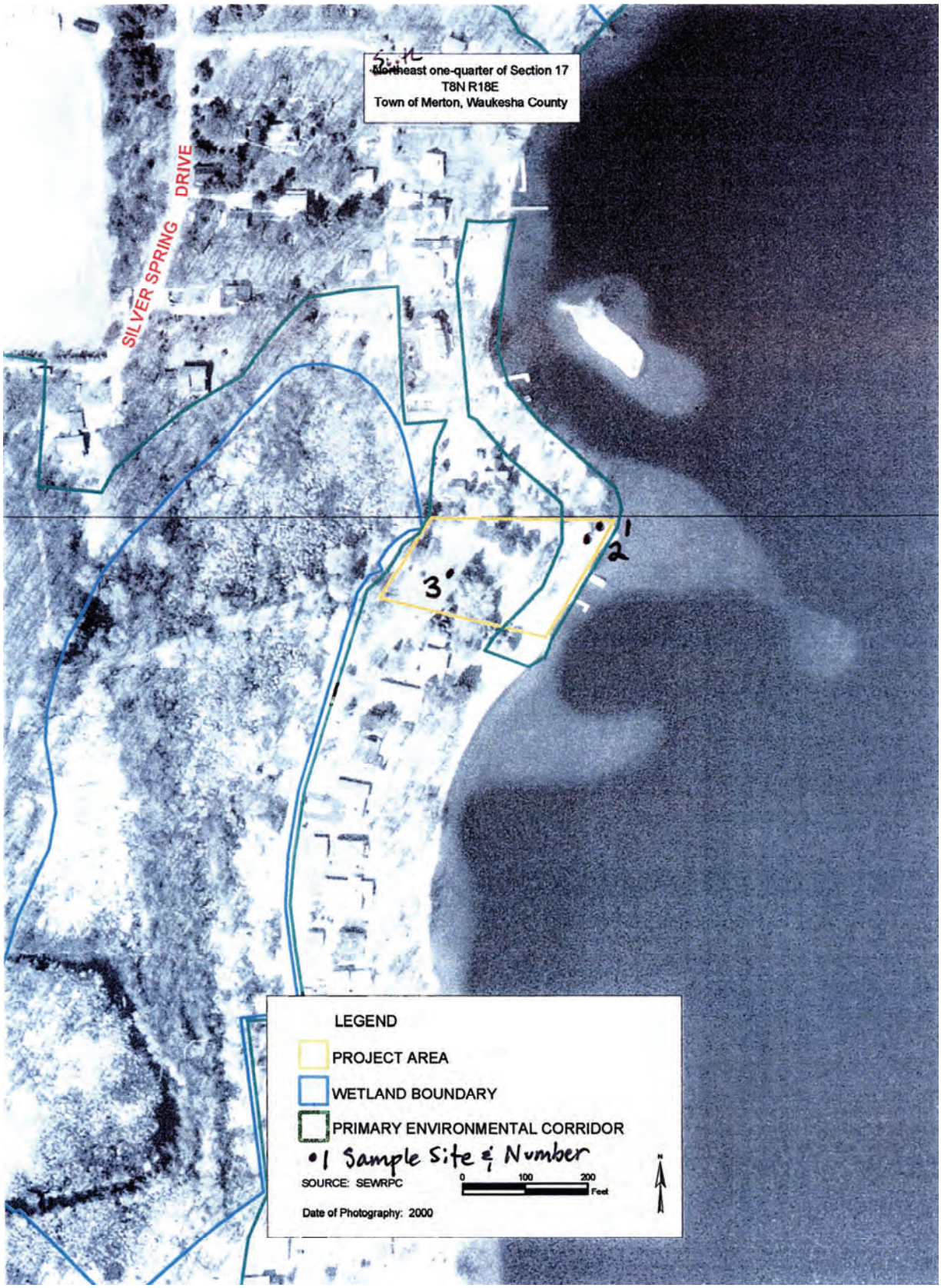
Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

This Sampling Point is within a Wetland? ☒**Yes** ☐**No**

This Sampling Point Meets:
The Federal Jurisdictional Wetland Criteria? ☒**Yes** ☐**No**
The State of Wisconsin Wetland Criteria? ☒**Yes** ☐**No**

Remarks:

SAMPLE SITE LOCATIONS



COPY

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August 27, 2008

Ms. Joanne Kline
Regional Wetland Biologist
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212

Re: SEWRPC No. CA-718-49

Dear Ms. Kline:

This will respond to your electronic mail message of June 4, 2008, requesting the Commission staff to conduct an interagency field inspection of the proposed North Lake Boat Launch site on the former Kraus property (current ownership by the Wisconsin Department of Natural Resources). The purpose of the field inspection would be to re-identify and re-stake in the field the boundary of the wetlands within the project area. The project area is located in parts of the Southeast one-quarter of U. S. Public Land Survey Section 17, Township 8 North, Range 18 East, Town of Merton, Waukesha County, Wisconsin. As you know, the wetland boundaries were originally identified and staked on the Kraus property on July 24, 2003.

Pursuant to your request, an interagency field inspection was conducted on July 8, 2008, including yourself and the Commission staff: Dr. Donald M. Reed, Chief Biologist; Dr. Lawrence A. Leitner, Principal Biologist; Mr. Christopher J. Jors, Biologist; and Ms. Jennifer L. Dietl, Research Analyst. With your assistance, the Commission staff re-identified the re-staked the wetlands within the project area. A list of plant species identified within the subject wetlands is attached hereto as Exhibit A.

Should you have any questions regarding this information, please do not hesitate to call.

Sincerely,

Philip C. Evenson
Executive Director

PCE/DMR/CJJ/mlh
#138778 v1 - ca718-49 restake

Enclosures

cc: Ms. Susan Oman, Town of Merton
Mr. Richard L. Mace, Waukesha County
Ms. Gloria McCutcheon, DNR-Milwaukee
Mr. James P. Morrissey, DNR-Milwaukee
Mr. Dale J. Pfeiffle, COE-Waukesha

SVY2800a
CA718-49

EXHIBIT A

PRELIMINARY VEGETATION SURVEY
PROPOSED NORTH LAKE ACCESS - WDNR PROPERTY
(FORMER THOMAS AND ELAINE KRAUS PROPERTY) WETLANDS

Dates: July 8, 2008
July 24, 2003

Observers: Donald M. Reed, Ph.D., Chief Biologist
Lawrence A. Leitner, Ph.D., Principal Biologist
Christopher J. Jors, Biologist
Southeastern Wisconsin Regional Planning Commission

Joanne Kline, Regional Wetland Biologist
Wisconsin Department of Natural Resources

Location: Town of Merton in parts of the Southeast one-quarter of U.S. Public Land Survey Section 17, Township 8 North, Range 18 East, Waukesha County, Wisconsin.

Species List: Plant Community Area No. 1

GRAMINEAE
- Phalaris arundinacea[1]--Reed canary grass
- Miscanthus sp.[1,2]--Japanese plume grass

CYPERACEAE
- Scirpus atrovirens--Green bulrush
- Carex stipata--Sedge
- Carex bebbii--Sedge
- Carex lacustris--Lake sedge

ARACEAE
- Symplocarpus foetidus--Skunk cabbage

LILIACEAE
- Hemerocallis fulva[1]--Day-lily

IRIDACEAE
- Iris virginica--Virginia blueflag

SALICACEAE
- Populus deltoides--Cottonwood
- Salix babylonica[1]--Weeping willow
- Salix nigra--Black willow
- Salix exigua--Sand-bar willow

BETULACEAE
- Alnus rugosa--Tag alder

ULMACEAE
- Ulmus americana--American elm

URTICACEAE
- Pilea pumila--Clearweed

POLYGONACEAE
- Polygonum persicaria[1]--Lady's thumb

SAXIFRAGACEAE
Ribes americanum--Wild black currant

ROSACEAE
Geum canadense--White avens
Rubus occidentalis--Black raspberry

ACERACEAE
Acer saccharinum--Silver maple
Acer negundo--Boxelder

BALSAMINACEAE
Impatiens capensis--Jewelweed

RHAMNACEAE
Rhamnus cathartica[1]--Common buckthorn
Rhamnus frangula[1]--Glossy buckthorn

VITACEAE
Vitis riparia--River-bank grape
Parthenocissus quinquefolia--Virginia creeper

LYTHRACEAE
Lythrum salicaria[1]--Purple loosestrife

ONAGRACEAE
Circaea lutetiana--Enchanter's nightshade

UMBELLIFERAE
Cicuta bulbifera--Water-hemlock
Cicuta maculata--Spotted water-hemlock

CORNACEAE
Cornus amomum--Silky dogwood
Cornus stolonifera--Red-osier dogwood

PRIMULACEAE
Lysimachia thyrsiflora--Tufted loosestrife

OLEACEAE
Fraxinus pennsylvanica--Green ash

CONVOLVULACEAE
Convolvulus sepium--Hedge bindweed

VERBENACEAE
Verbena urticifolia--White vervain

LABIATAE
Glechoma hederacea[1]--Creeping Charlie
Stachys palustris--Hedge-nettle

SOLANACEAE
Solanum dulcamara[1]--Deadly nightshade

CAPRIFOLIACEAE
Sambucus canadensis--Elderberry

COMPOSITAE
Ambrosia artemisiifolia--Common ragweed
Xanthium strumarium--Cocklebur
Eupatorium rugosum--White snakeroot

3

Total number of plant species: 44
Number of alien, or non-native, plant species: 10 (23 percent)

This approximately 0.2-acre plant community area is part of a larger wetland complex adjacent to North Lake and consists of second growth, Southern wet to wet-mesic lowland hardwoods and fresh (wet) meadow/shallow marsh along the shoreline. Disturbances to the plant community area include dumping, past filling, mowing, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to past ditching. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

---

[1] Alien or non-native plant species
[2] Planted species

Plant Community Area No. 2

GRAMINEAE
Agrostis stolonifera[1,2]--Redtop grass

CYPERACEAE
Eleocharis acicularis[1]--Needle spike-rush
Carex stipata--Sedge

POLYGONACEAE
Polygonum persicaria[2]--Lady's thumb

PORTULACACEAE
Portulaca oleracea[2]--Purslane

LABIATAE
Glechoma hederacea[2]--Creeping Charlie
Prunella vulgaris--Selfheal

Total number of plant species: 7
Number of alien, or non-native, plant species: 4 (57 percent)

This approximately 0.05-acre plant community area consists of an ephemeral fresh (wet) meadow. Disturbances to the plant community area include past filling and frequent mowing. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

---

[1] Co-dominant plant species
[2] Alien or non-native plant species

PLANT COMMUNITY AREAS AND SAMPLE SITE LOCATIONS

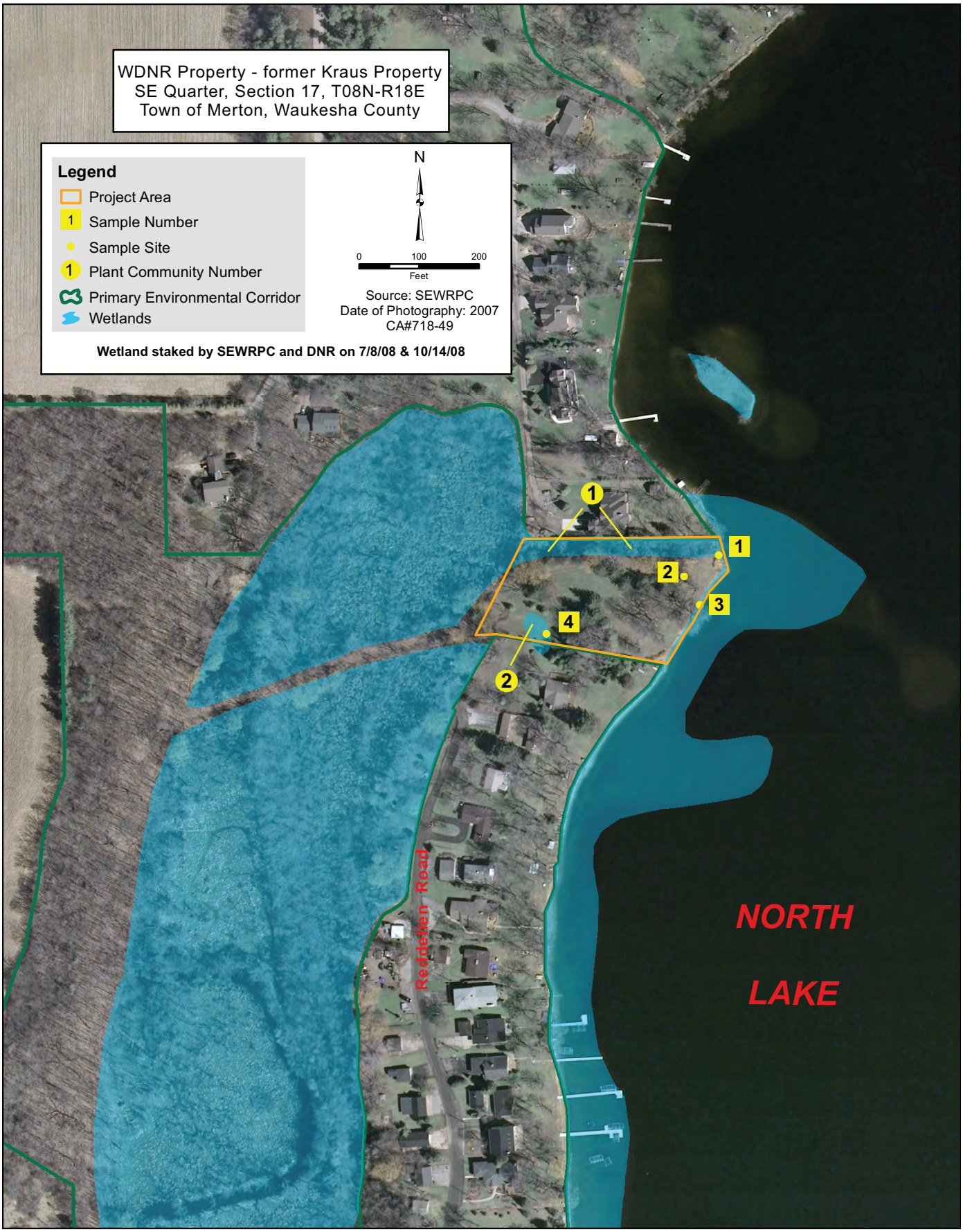

EXHIBIT B

SEWRPC FIELD DATA FORM
ROUTINE WETLAND DETERMINATION

PROJECT NAME: Proposed North Lake Boat Launch Site **FILE NO.: CA** 718-49

LOCATION: Town of Merton, Waukesha **COUNTY,** SE ¼ **SECTION** 17, **T** 8 **N, R** 18 **E**

DATE: July 8, 2008

OBSERVERS: Donald M. Reed, Ph.D. - SEWRPC
Joanne Kline - DNR

PLANT COMMUNITY AREA NO.: 1 **TRANSECT NO.:** 1 **SAMPLE SITE NO.:** 1

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Carex lacustris (50)	Herb	OBL	Tragopogon dubious (8)	Herb	NI
Eupatorium rugosum (20)	Herb	FACU	Poa pratensis (5)	Herb	FAC-
Vitis riparia (20)	Herb	FACW-	Aster lateriflorus (2)	Herb	FACW-
Cornus amomum (8)	Shrub	FACW+	Stachys palustris (2)	Herb	OBL
Rhamnus cathartica (8)	Shrub	FAC-	Impatiens capensis (3)	Herb	FACW
Fraxinus pennsylvanica (10)	Tree	FACW	Salix exigua (5)	Shrub	OBL
Acer negundo (10)	Tree	FACW-	Fraxinus pennsylvanica (2)	Shrub	FACW
			Juglans nigra (2)	Shrub	NI
			Vitis riparia (2)	Shrub	FACW-
Percent of Dominant Species that are OBL, FACW, OR FAC: 71%					
Plant Community Type: Shrub-carr with scattered lowland hardwoods					
Remarks:					

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☒ **Aerial Photographs**
- ☒ **Other**
- ☐ **FSA Slide Review**

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--(in.)
Depth of Soil Pit:	18(in.)
Depth to Free Water in Pit:	--(in.)
Depth to Saturated Soil:	6(in.)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☒ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☒ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Other (Explain in Remarks)**

Remarks: SEWRPC 2007 aerial photography; Sample point is located within the 2003 SEWRPC wetland delineation area.

SOILS

Map Unit Name
(Series and Phase): Matherton silt loam (MmA) **Drainage Class:** Somewhat poorly drained

Taxonomy (Subgroup): Udollic Endoaqualfs

Field Observations Confirm Mapped Type? ☐Yes ☒No ☐Other hydric soil within County*

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-6		10YR 2/1			Loam
6-14		10YR 3/1			Clay loam
14-18		10YR 3/1			Gravelly loam

Wetland Soil Indicators:

☐Histosol	☐Bright Mottling
☐Histic Epipedon	☐Concentrations
☐Sulfidic Odor	☐High Organic Content in Surface Layer
☐Aquic Moisture Regime	☐Organic Streaking in Sandy Soils
☐Reducing Conditions	☐Listed on Local Hydric Soils List
☐Gleyed	☐Listed on National Hydric Soils List
☒Low-Chroma Colors	☐Other (Explain in Remarks)

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ No ☐(If no, explain)

Is the site a problem area?
Yes ☐ No ☒(if yes, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☐ No ☒(If yes, explain)

Remarks:

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒Yes ☐No
Wetland Hydrology Present? ☒Yes ☐No
Wetland Soils Present? ☒Yes ☐No

This Sampling Point is within a Wetland? ☒ Yes ☐No

Remarks: S3k wetland

PLANT COMMUNITY AREA NO.: -- TRANSECT NO.: 1 and 2 **SAMPLE SITE NO.:** 2

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (80)	Herb	FAC-	Viola sororia (15)	Herb	FACU
Quercus macrocarpa (33)	Tree	FAC-	Plantago lanceolata (10)	Herb	FAC
Populus deltoides (25)	Tree	FAC+	Glechoma hederacea (10)	Herb	FACU
Fraxinus pennsylvanica (25)	Tree	FACW	Larix laricina (15)	Tree	FACW
Percent of Dominant Species that are OBL, FACW, OR FAC: 50%					
Plant Community Type: Former lawn, currently not maintained.					
Remarks:					

HYDROLOGY

☐ **Recorded Data (Describe in Remarks):**

- ☐ Stream, Lake or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other
- ☐ FSA Slide Review

☒ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--(in.)
Depth of Soil Pit:	23(in.)
Depth to Free Water in Pit:	21.5(in.)
Depth to Saturated Soil:	21.5(in.)

Remarks:

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☐ Saturated in Root Zone (Upper 12")
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands
- ☐ Floodway

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Root Zone(Upper 12")
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Plant morphological adaptations
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name
(Series and Phase): Matherton silt loam (MmA) **Drainage Class:** Somewhat poorly drained

Taxonomy (Subgroup): Udollic Endoaqualfs

Field Observations Confirm Mapped Type? ☐Yes ☒No ☐Other hydric soil within County*

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-6		7.5YR 2.5/1			Silty clay loam
6-8		7.5YR 2.5/1	7.5YR 5/4	Common/Distinct	Silty clay loam
8-15		10YR 4/2 (67%)			Clay loam
		10YR 3/1 (33%)			
15-22		10YR 3/1			Loam
22-23		10YR 7/2			Sandy marl

Wetland Soil Indicators:

- ☐Histosol
- ☐Histic Epipedon
- ☐Sulfidic Odor
- ☐Aquic Moisture Regime
- ☐Reducing Conditions
- ☐Gleyed
- ☒Low-Chroma Colors
- ☐Bright Mottling
- ☐Concentrations
- ☐High Organic Content in Surface Layer
- ☐Organic Streaking in Sandy Soils
- ☐Listed on Local Hydric Soils List
- ☐Listed on National Hydric Soils List
- ☐Other (Explain in Remarks)

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
0 to 15" of old fill material associated with past land use activities; Buried horizon at 15"

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ No ☐(If no, explain) Yes ☐ No ☒(if yes, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ No ☐(If yes, explain)

Remarks: Past filling

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☐Yes ☒No
Wetland Hydrology Present? ☐Yes ☒No
Wetland Soils Present? ☐Yes ☒No

This Sampling Point is within a Wetland? ☐ Yes ☒No

Remarks: Upland, formerly maintained yard.

PLANT COMMUNITY AREA NO.: -- TRANSECT NO.: 2 SAMPLE SITE NO.: 3

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Populus deltoides (8)	Herb	FAC+			
Acer saccharinum (5)	Herb	FACW			
Populus deltoides (45)	Tree	FAC+			
Percent of Dominant Species that are OBL, FACW, OR FAC: 100%					
Plant Community Type: Exposed sandy beach with scattered lowland hardwoods					
Remarks:					

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ Stream, Lake or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other
- ☐ FSA Slide Review

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--(in.)
Depth of Soil Pit:	22(in.)
Depth to Free Water in Pit:	2(in.)
Depth to Saturated Soil:	0(in.)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ Inundated
- ☒ Saturated in Root Zone (Upper 12")
- ☐ Water Marks
- ☒ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands
- ☐ Floodway

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Root Zone(Upper 12")
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☒ Plant morphological adaptations
- ☐ Other (Explain in Remarks)

Remarks: SEWRPC 2007 aerial photography; Soils saturated to the surface; Shallow roots

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐Yes ☒No ☐Other hydric soil within County*

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-22		7.5YR 4/1			Sand

Wetland Soil Indicators:

- ☐Histosol
- ☐Histic Epipedon
- ☐Sulfidic Odor
- ☐Aquic Moisture Regime
- ☐Reducing Conditions
- ☐Gleyed
- ☒Low-Chroma Colors
- ☐Bright Mottling
- ☐Concentrations
- ☐High Organic Content in Surface Layer
- ☐Organic Streaking in Sandy Soils
- ☐Listed on Local Hydric Soils List
- ☐Listed on National Hydric Soils List
- ☐Other (Explain in Remarks)

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
Sample site is better represented by the mapped Sandy Lake Beaches (Sfb) soils unit.

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ No ☐(If no, explain)

Is the site a problem area?
Yes ☒ No ☐(if yes, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☐ No ☒(If yes, explain)

Remarks: Problem Soils: Sandy soil

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒Yes ☐No
Wetland Hydrology Present? ☒Yes ☐No
Wetland Soils Present? ☒Yes ☐No

This Sampling Point is within a Wetland? ☒ Yes ☐No

Remarks: Wetland on sandy soils

PLANT COMMUNITY AREA NO.: 2 TRANSECT NO.: -- SAMPLE SITE NO.: 4

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (33)	Herb	FAC-	Polygonum persicaria (8)	Herb	FACW
Eleocharis acicularis (20)	Herb	OBL	Agrostis stolonifera (3)	Herb	FACW
Acer saccharinum (20)	Herb	FACW			
Percent of Dominant Species that are OBL, FACW, OR FAC: 67%					
Plant Community Type: Mowed lawn when dry					
Remarks:					

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ Stream, Lake or Tide Gauge
- ☒ Aerial Photographs
- ☒ Other
- ☐ FSA Slide Review

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	7.5(in.)
Depth of Soil Pit:	4(in.)
Depth to Free Water in Pit:	--(in.)
Depth to Saturated Soil:	--(in.)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☒ Inundated
- ☐ Saturated in Root Zone (Upper 12")
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands
- ☐ Floodway

Secondary Indicators (2 or more required):

- ☐ Oxidized Root Channels in Root Zone(Upper 12")
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☒ FAC-Neutral Test
- ☐ Plant morphological adaptations
- ☒ Other (Explain in Remarks)

Remarks: SEWRPC 2007 aerial photography; Sample point is located within the 2003 SEWRPC wetland delineation area; Depressional area

SOILS

Map Unit Name (Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐Yes ☒No ☐Other hydric soil within County*

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-1.5		7.5YR 2.5/1			Muck
1.5-4		10YR 4/1	7.5YR 4/6	Common/Distinct	Loam
4					Refusal - Gravel

Wetland Soil Indicators:

- ☐Histosol
- ☐Histic Epipedon
- ☐Sulfidic Odor
- ☐Aquic Moisture Regime
- ☐Reducing Conditions
- ☐Gleyed
- ☒Low-Chroma Colors
- ☐Bright Mottling
- ☐Concentrations
- ☐High Organic Content in Surface Layer
- ☐Organic Streaking in Sandy Soils
- ☐Listed on Local Hydric Soils List
- ☐Listed on National Hydric Soils List
- ☐Other (Explain in Remarks)

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator: A10, 2cm Muck (Test indicator in this region)

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
Old fill, refusal at 3 to 4" in 5 attempts. Soils are inundated; hydric by definition (criteria 3)

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? Yes☒ No ☐(If no, explain)

Is the site a problem area? Yes ☒ No ☐(if yes, explain)

Has the vegetation, soils, and/or hydrology been significantly disturbed? Yes☒ No ☐(If yes, explain)

Remarks: Problem area - Seasonal wetland. Past filling and regular mowing when dry.

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒Yes ☐No
Wetland Hydrology Present? ☒Yes ☐No
Wetland Soils Present? ☒Yes ☐No

This Sampling Point is within a Wetland? ☒ Yes ☐No

Remarks: Seasonal/Atypical wetland

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Appendix B

TOPOGRAPHIC/SURVEY INFORMATION

- Appendix B-1: SEWRPC large scale topographic map with 100-year floodplain
- Appendix B-2: 2007 aerial photo with topography & 100-year floodplain - Waukesha Co. website
- Appendix B-3: SEWRPC Record of U. S. Public Land Survey Section Control Station

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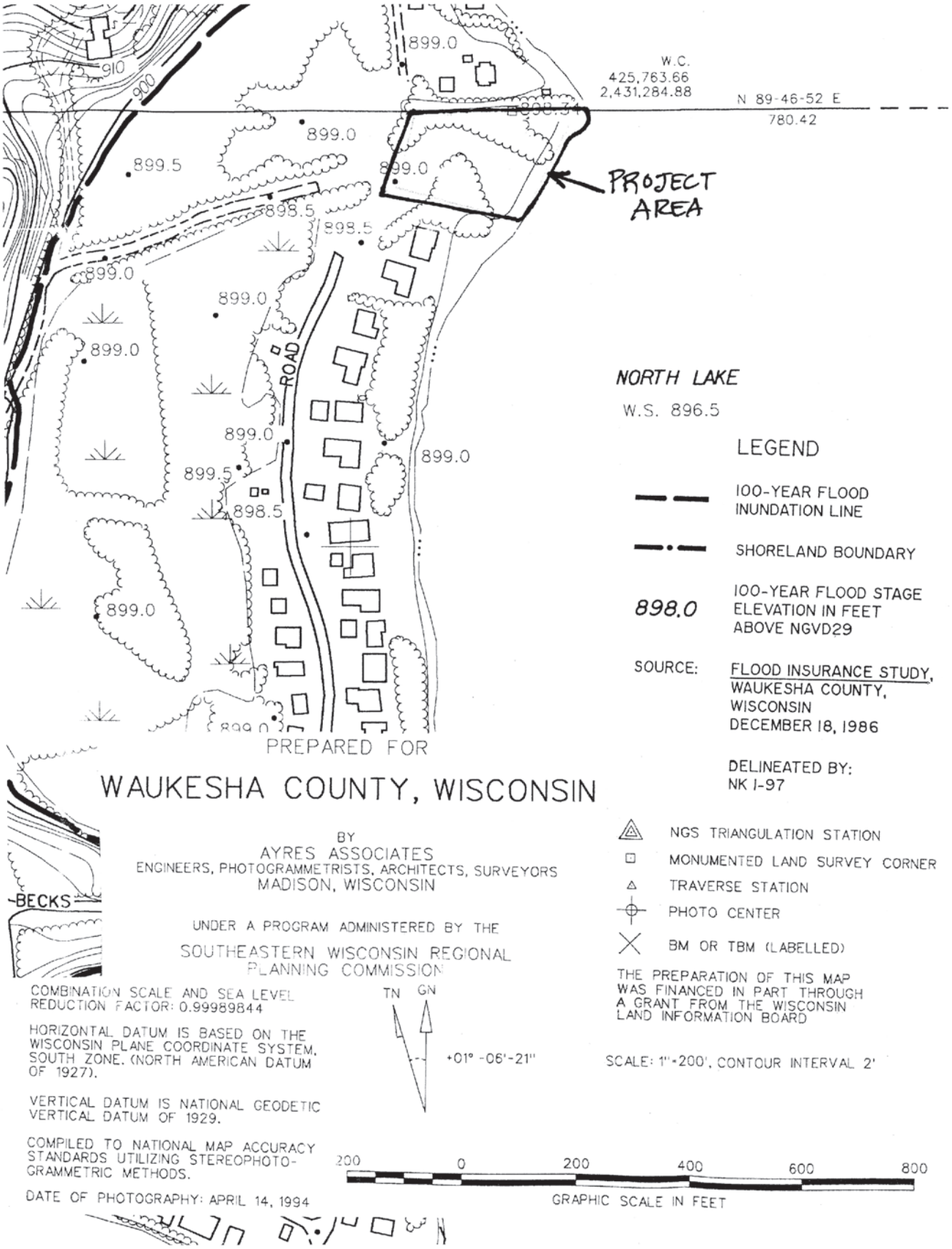
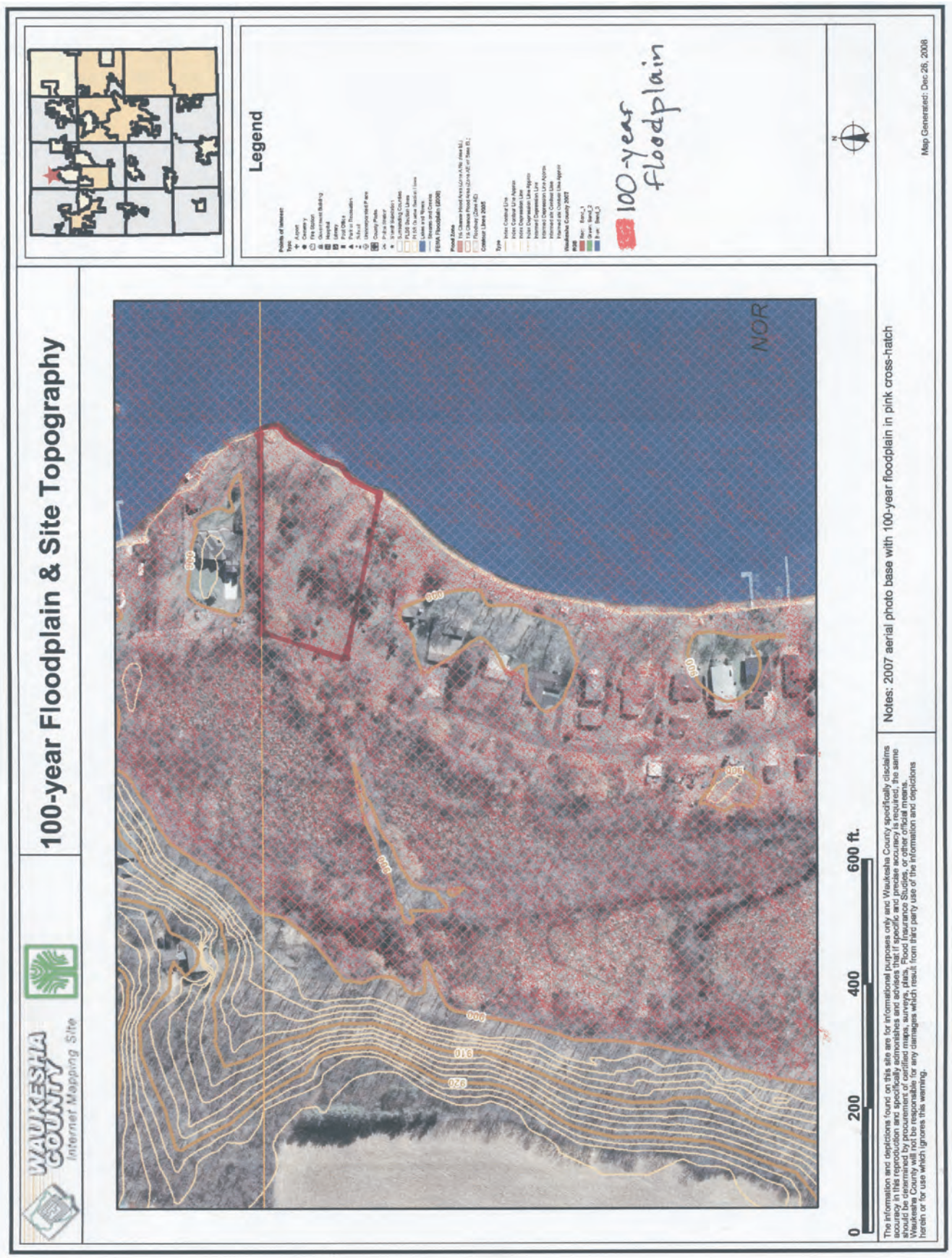


Source: Waukesha County and SEWRPC.



Source: Waukesha County.

Appendix B-3

RECORD OF U. S. PUBLIC LAND SURVEY CONTROL STATION

U. S. PUBLIC LAND SURVEY CORNER $\frac{17|16}{17|16}$ T 8 N, R 18 E, WAUKESHA COUNTY, WIS.

GEODETIC SURVEY BY: ALSTER & ASSOCIATES,INC. YEAR: 1976

STATE PLANE COORDINATES OF: WITNESS CORNER

NORTH 425,763.66

EAST 2,431,284.88

ELEVATION OF STATION: 898.34

HORIZONTAL DATUM: WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE

VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM OF 1929

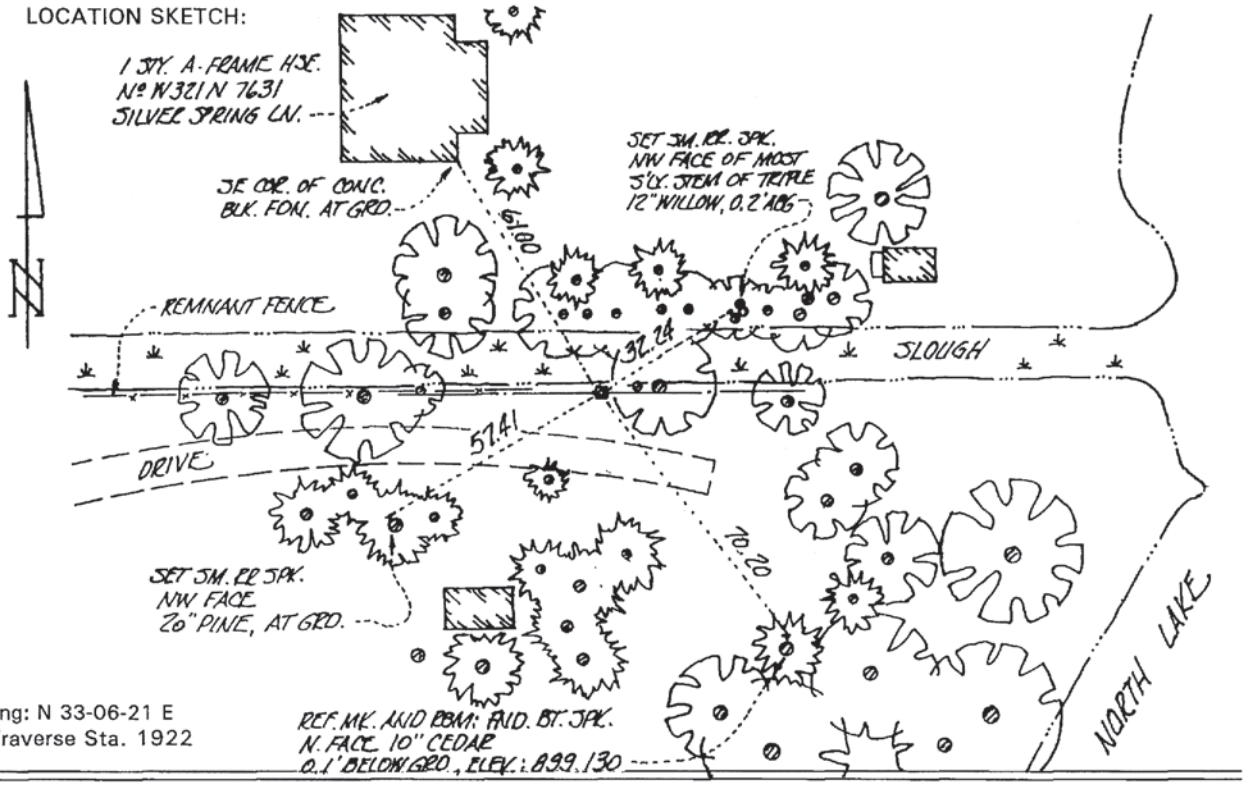
CONTROL ACCURACY:

HORIZONTAL: THIRD ORDER, CLASS I

THETA ANGLE: + 1-06-38

VERTICAL: SECOND ORDER, CLASS II

LOCATION SKETCH:



Bearing: N 33-06-21 E
To Traverse Sta. 1922

SURVEYOR'S AFFIDAVIT:

STATE OF WISCONSIN)
WAUKESHA COUNTY) SS

I hereby certify that I found a concrete monument with SEWRPC brass cap as set to define the location and direction of the south line of the northeast one-quarter of Section 17, Township 8 North, Range 18 East, in May 1976 by John H. Mielke, S-55; using monumentation for and information shown on the plat of Silver Spring Park Subdivision; that I referenced the same as shown hereon; and that this record is correct and complete to the best of my knowledge and belief.

WISCONSIN
K. W. BAUER
MILWAUKEE, WIS.
LAND SURVEYOR

DATE OF SURVEY: 26 April 1997

Karl W. Bauer
REGISTERED LAND SURVEYOR

S - 157

FORM PREPARED BY SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION 70-4

Source: SEWRPC.

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APPENDIX C

AERIAL PHOTOGRAPHY

- Appendix C-1: 1941 – Waukesha Co. website
- Appendix C-2: 1950 – Waukesha Co. website
- Appendix C-3: March, 1963 – Waukesha Co. website
- Appendix C-4: April, 1970 – Waukesha Co. website
- Appendix C-5: April, 1980 – Waukesha Co. website
- Appendix C-6: March, 1985 – SEWRPC files
- Appendix C-7: March, 1990 – Waukesha Co. website
- Appendix C-8: March, 1995 – Waukesha Co. website
- Appendix C-9: March, 2000 – Waukesha Co. website
- Appendix C-10: April, 2005 – Waukesha Co. website
- Appendix C-11: April, 2007 – Waukesha Co. website

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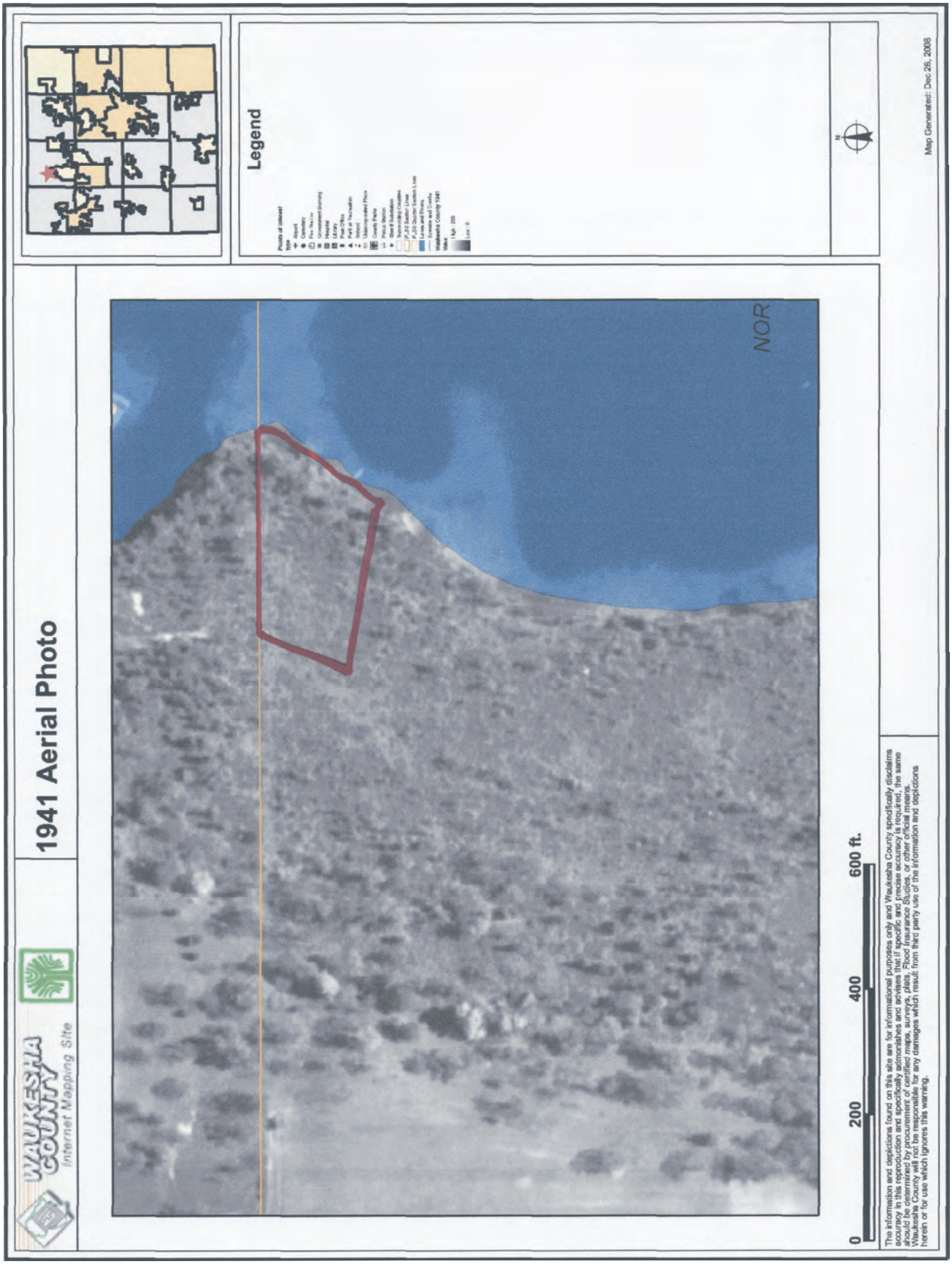
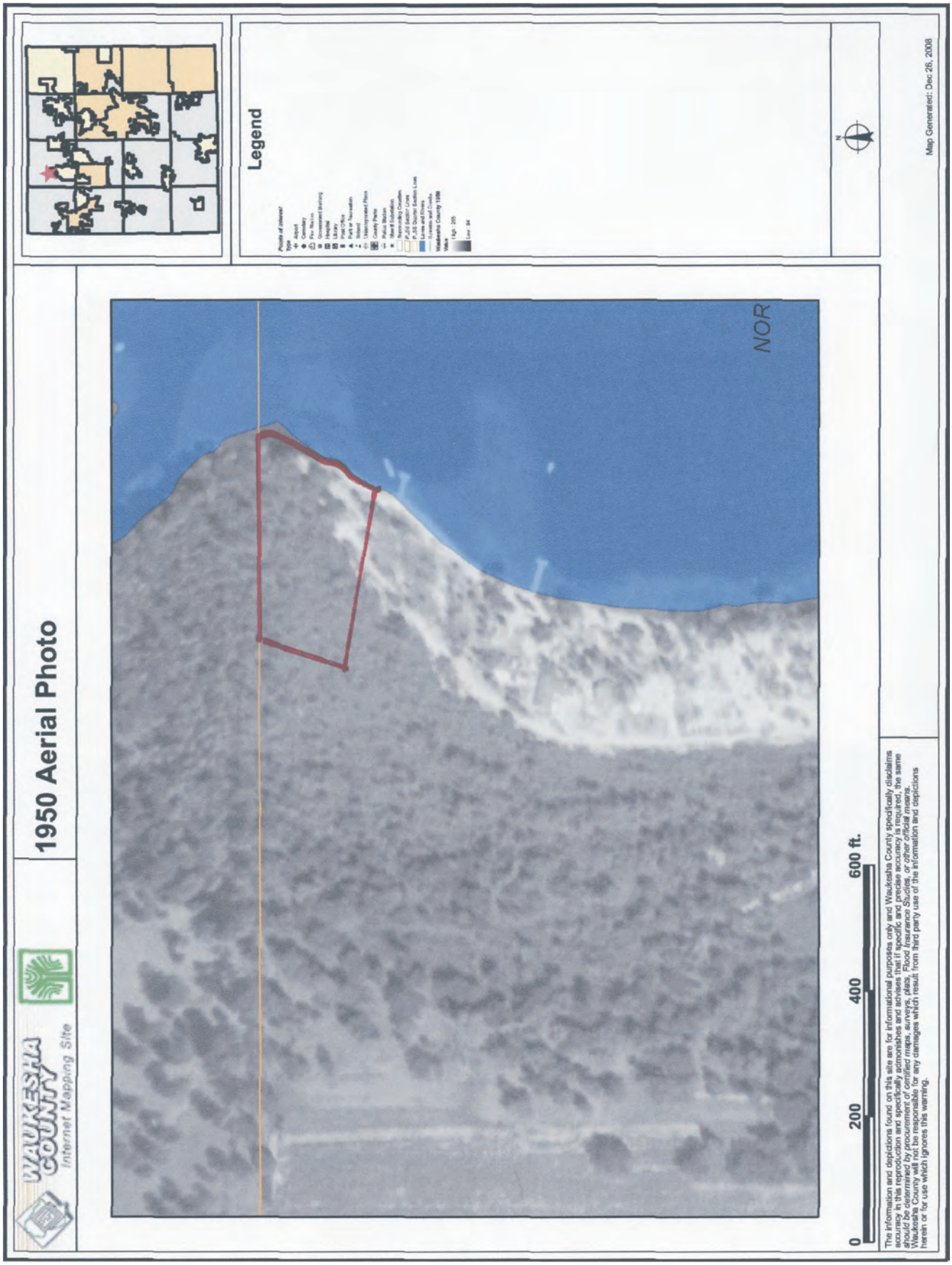
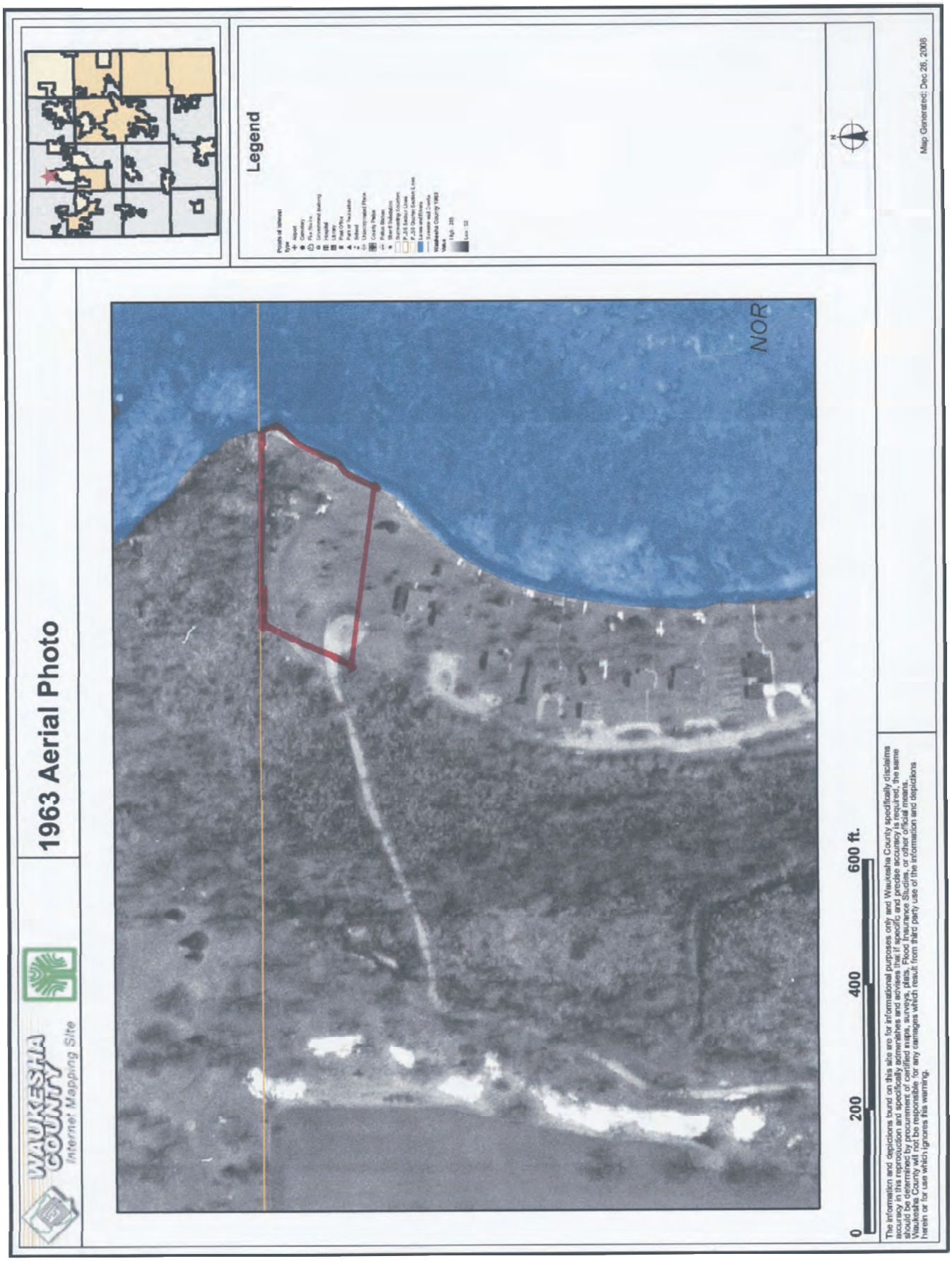


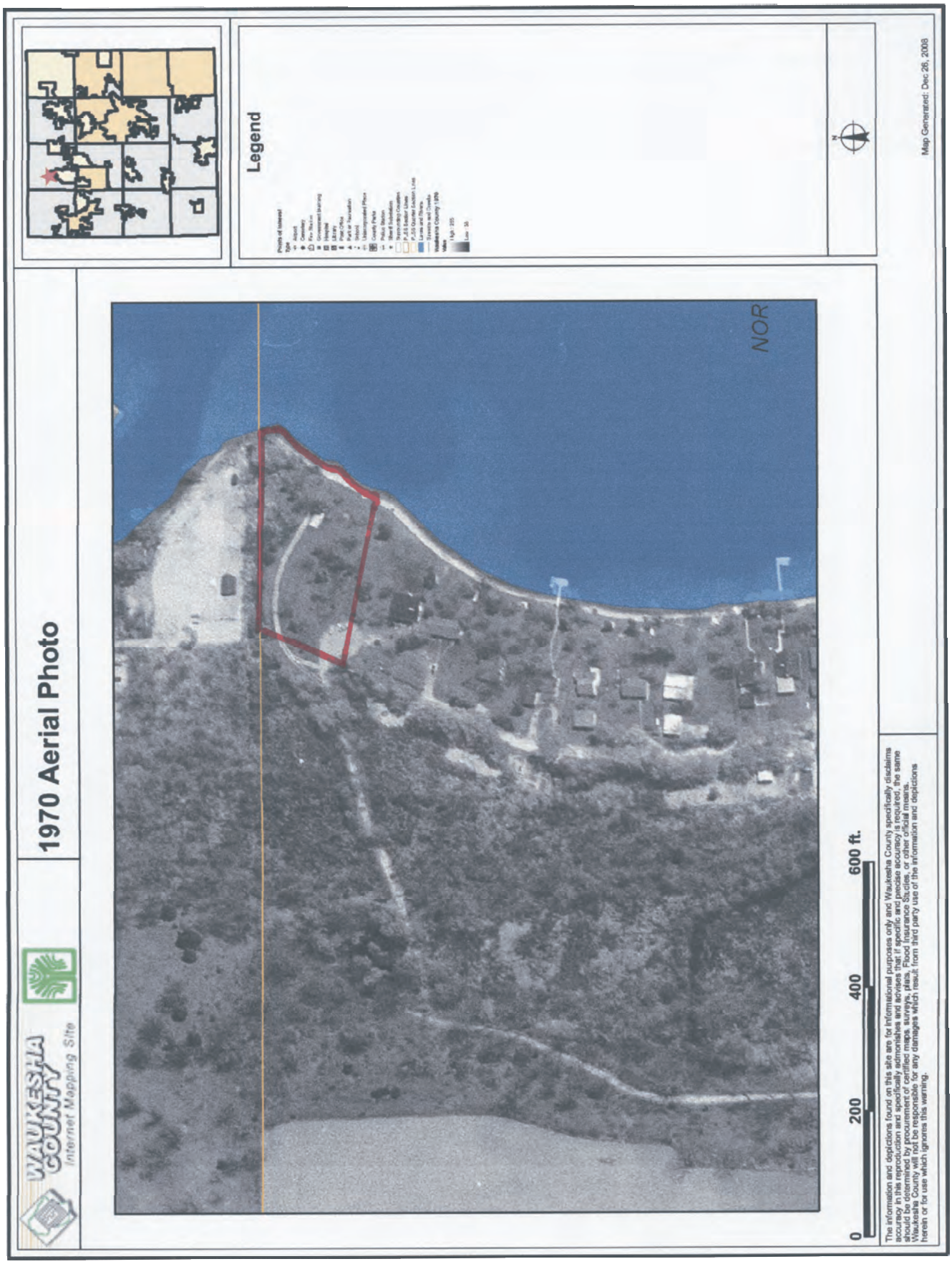
Source: Waukesha County.



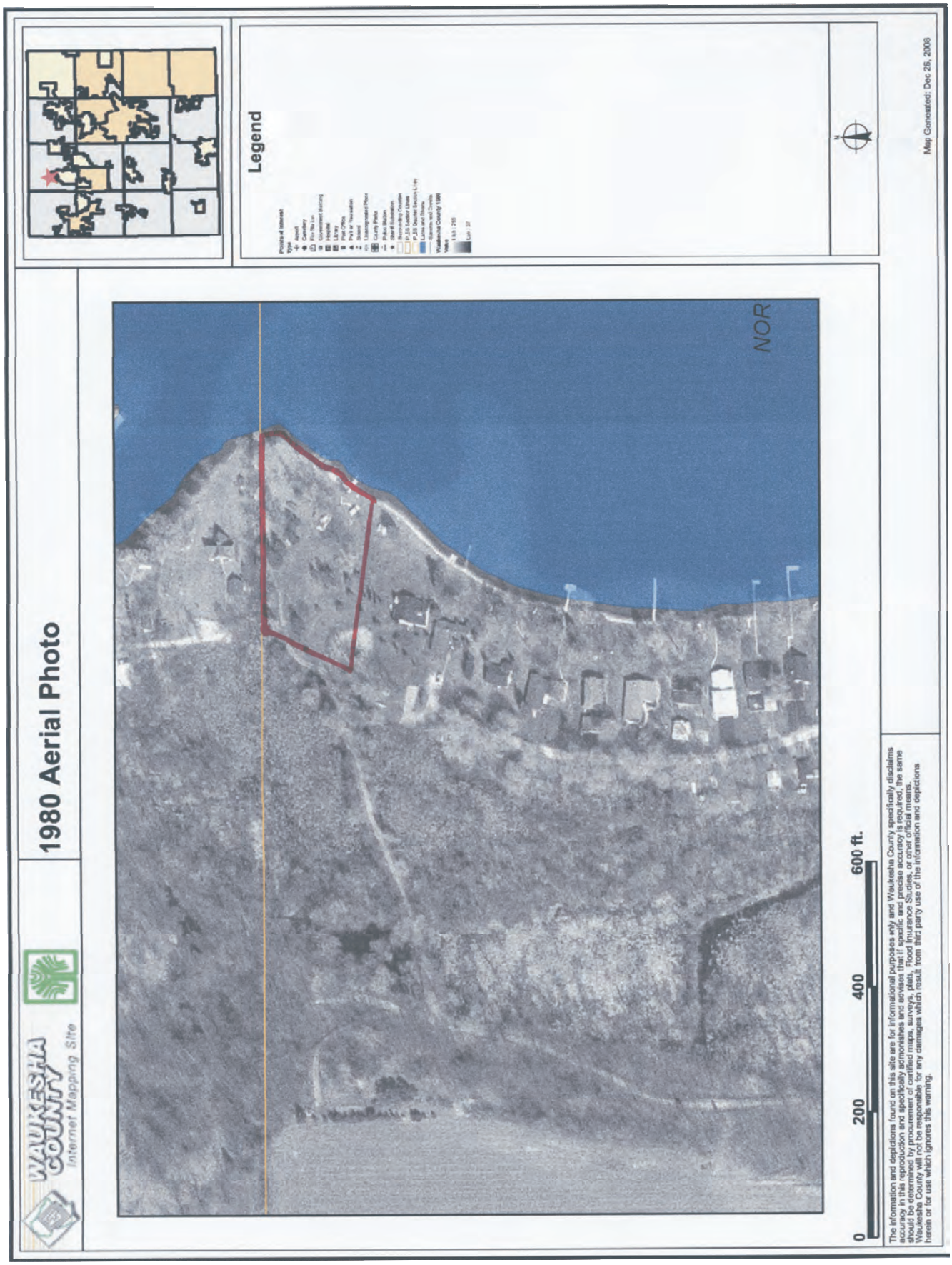
Source: Waukesha County.



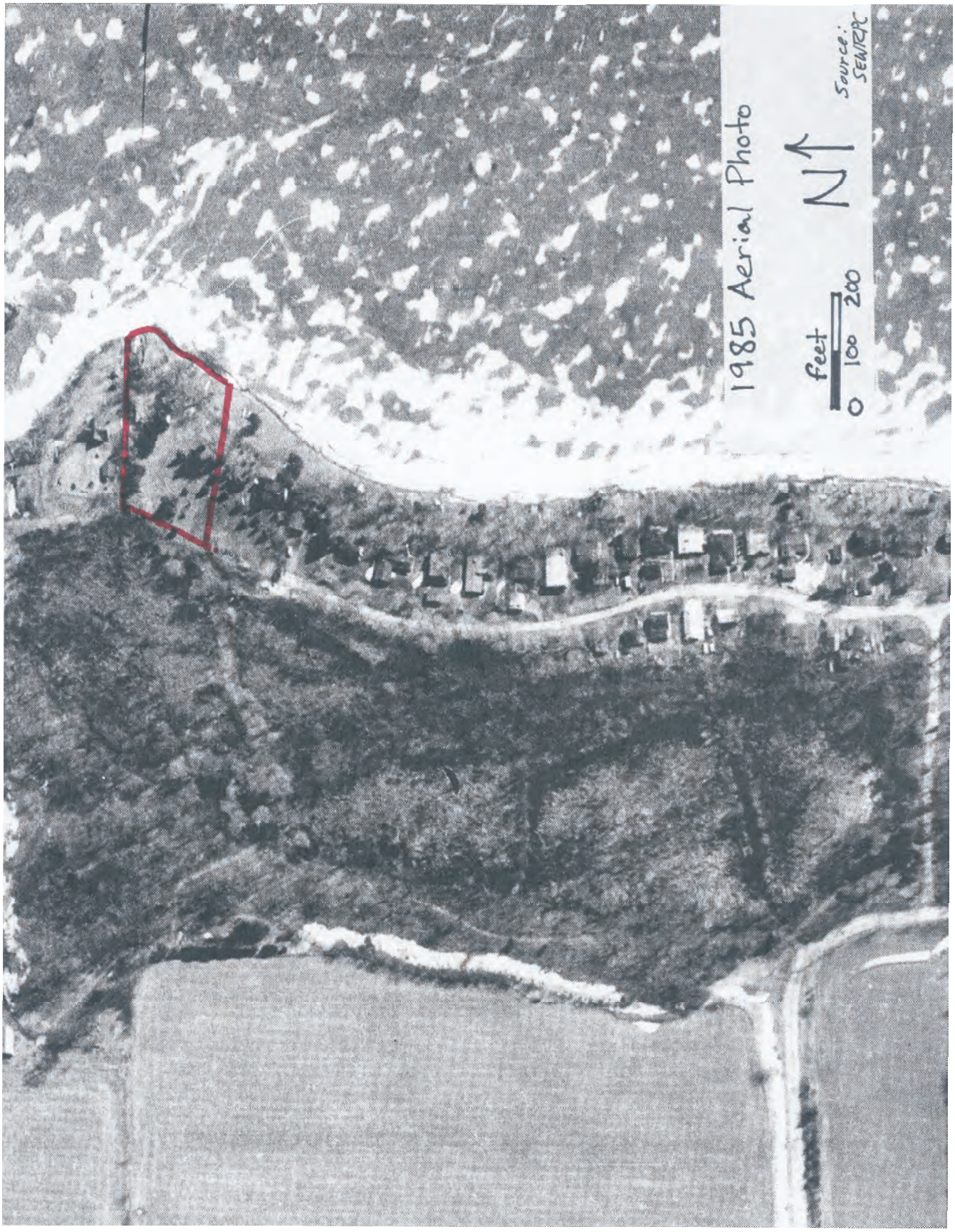
Source: Waukesha County.



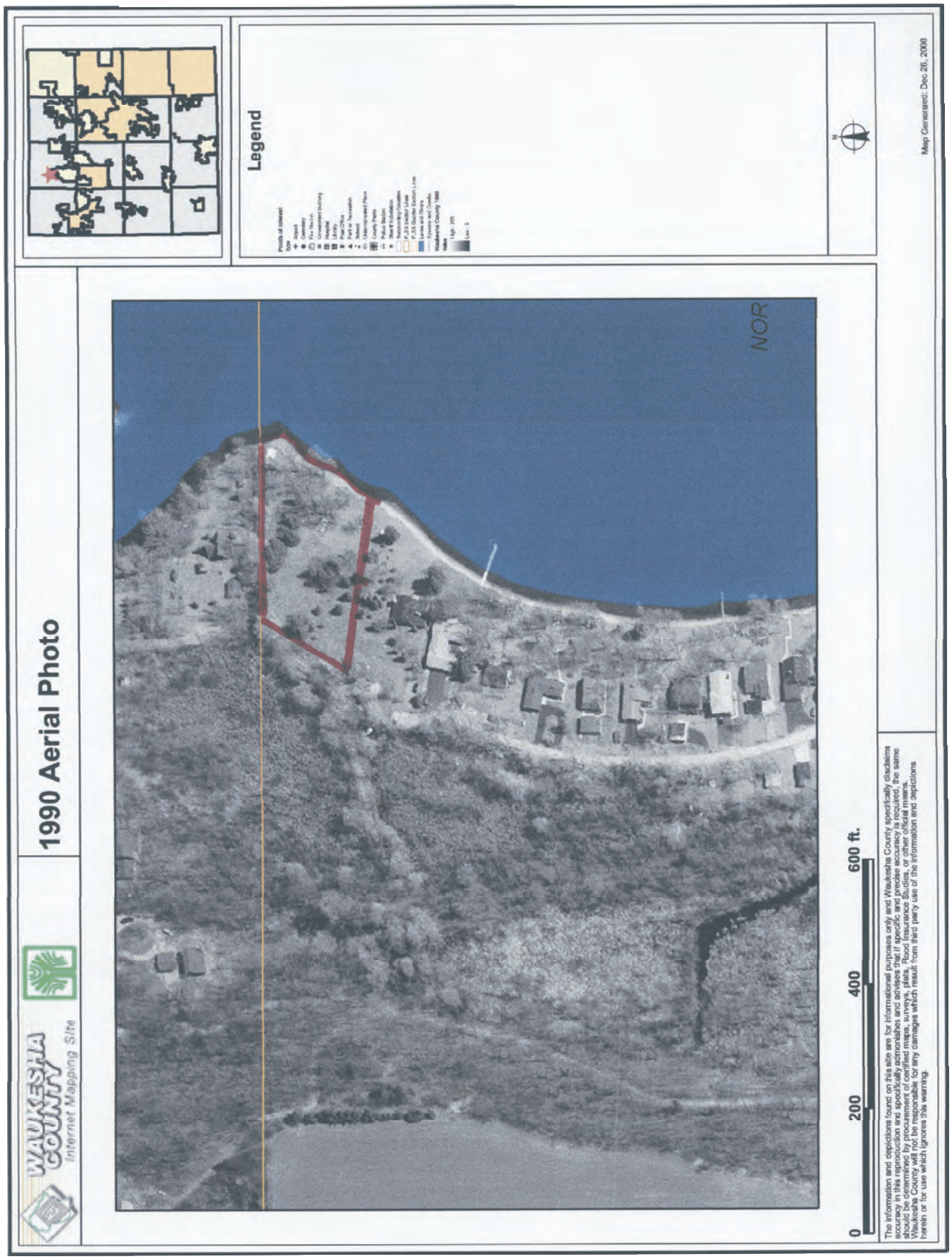
Source: Waukesha County.



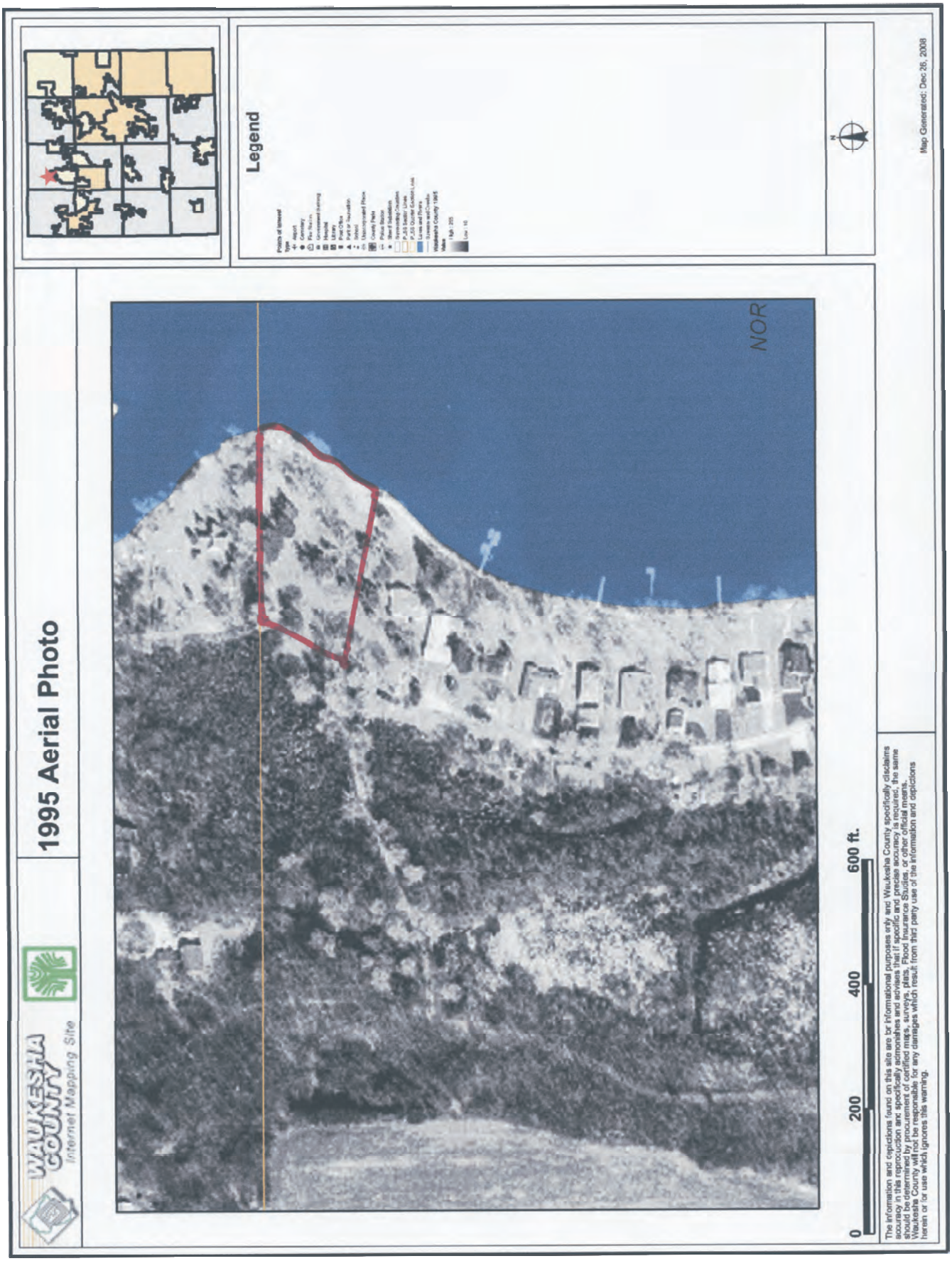
Source: Waukesha County.



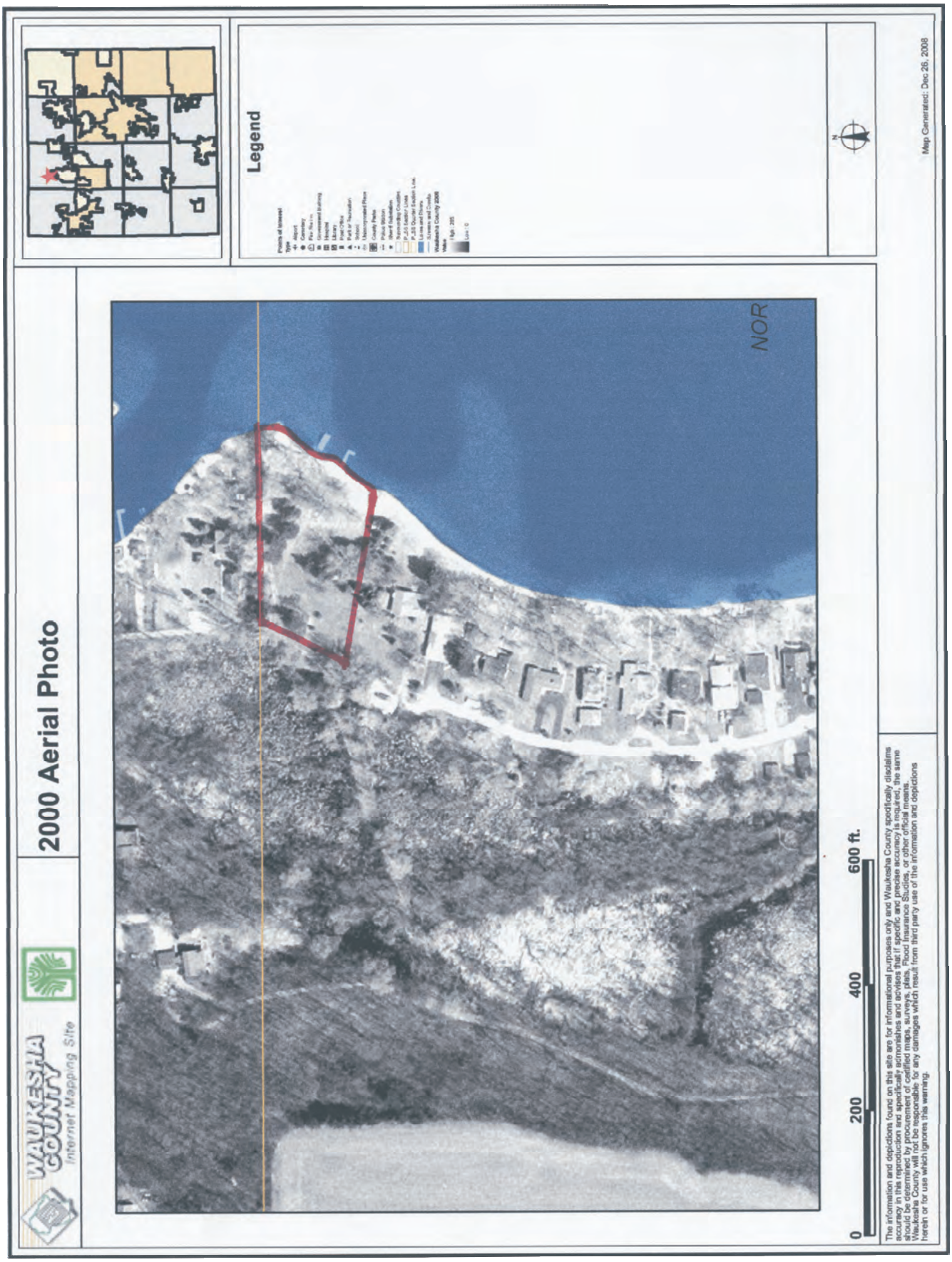
Source: SEWRPC.



Source: Waukesha County.

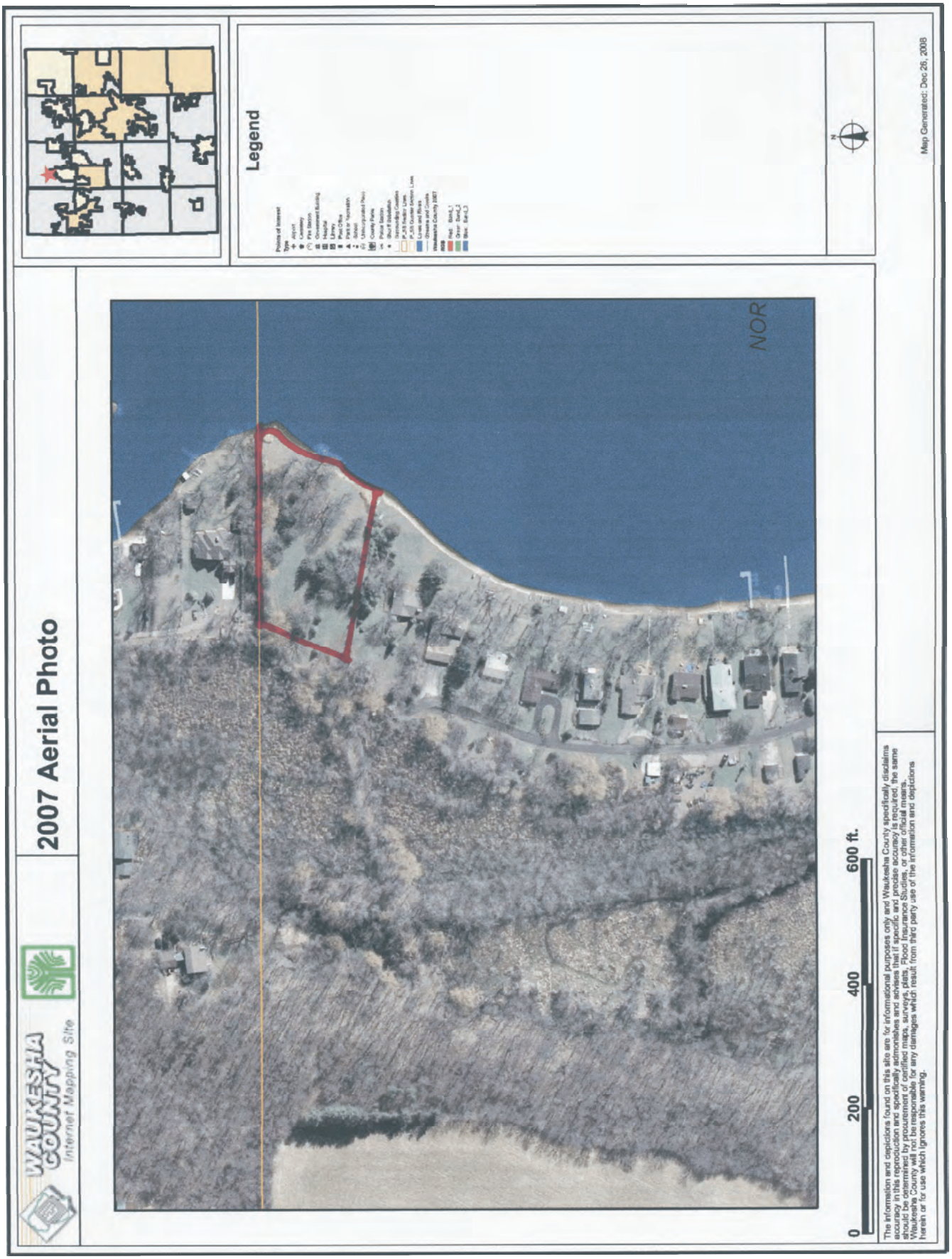


Source: Waukesha County.



Source: Waukesha County.

Source: Waukesha County.



Source: Waukesha County.

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Appendix D

WETLAND INVENTORY MAPS

- Appendix D-1: Natural Resources Conservation Service Draft Wetland Map
- Appendix D-2: 1985 Wisconsin Wetland Inventory Map
- Appendix D-3: 2005 Wisconsin Wetland Inventory Map

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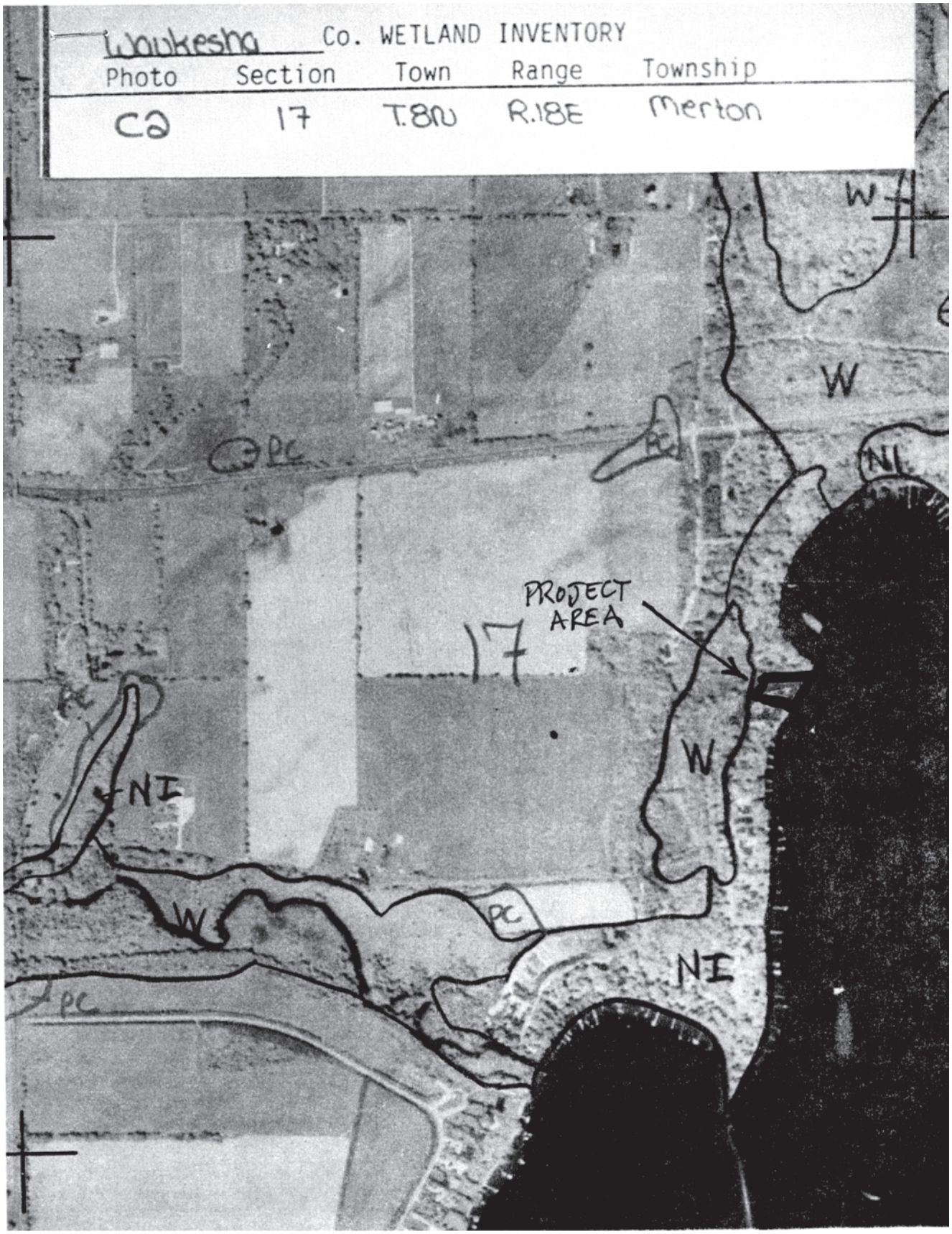
Appendix D-1

NATURAL RESOURCES CONSERVATION SERVICE DRAFT WETLAND MAP



Source: Natural Resources Conservation Service.

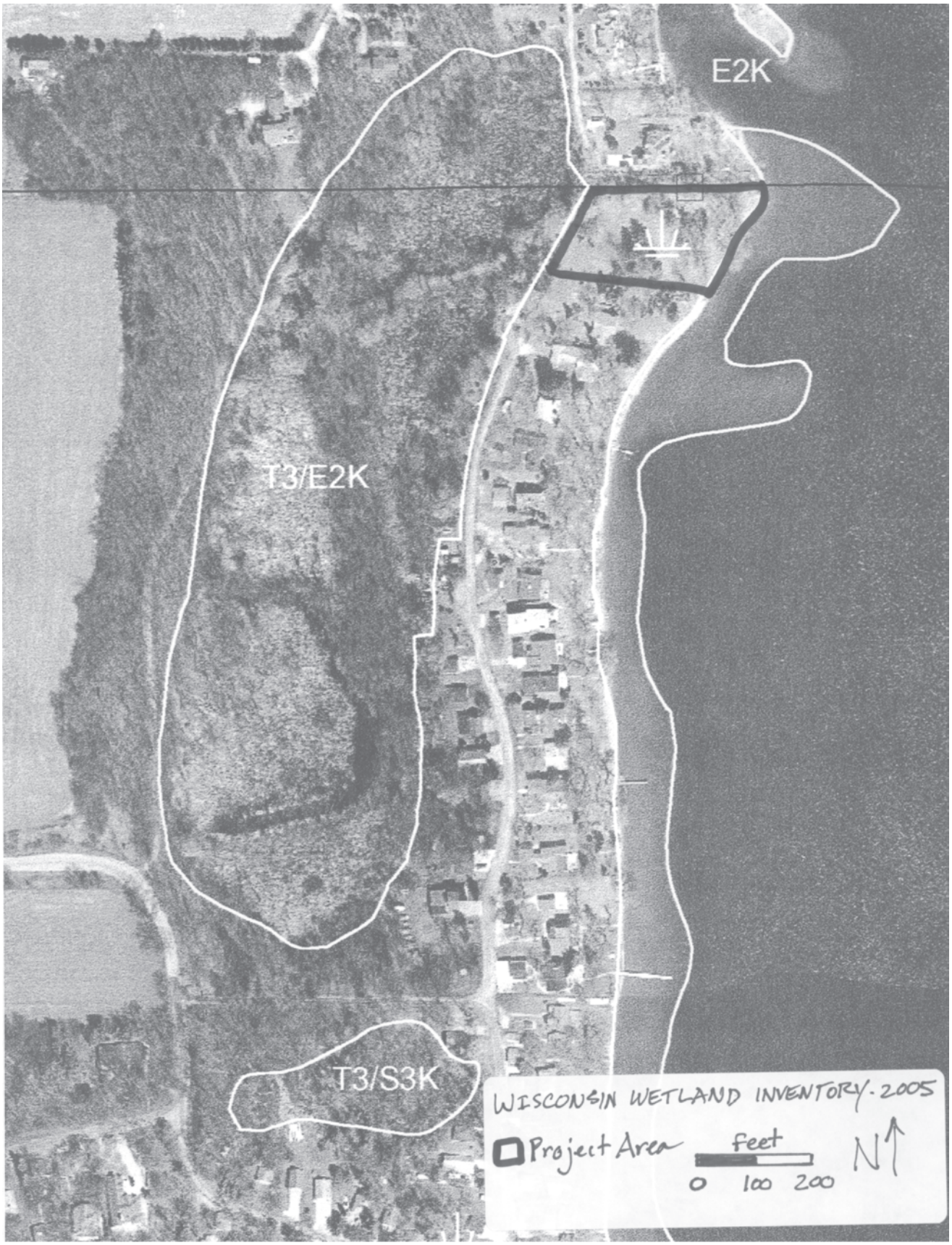
Appendix D-2

1985 WISCONSIN WETLAND INVENTORY MAP

Source: Wisconsin Department of Natural Resources.

Appendix D-3

2005 WISCONSIN WETLAND INVENTORY MAP



Source: Wisconsin Department of Natural Resources and SEWRPC.

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Appendix E

SOILS INFORMATION

- Appendix E-1: 2007 aerial photo with soil types and hydric status – Waukesha Co. website
- Appendix E-2: Typical soil series profiles mapped on site - The Soil Survey of Milwaukee and Waukesha Counties, USDA, SCS, July, 1971.
- Appendix E-3: Summary list of applicable hydric soil field indicators (v. 6.0) – USDA, NRCS

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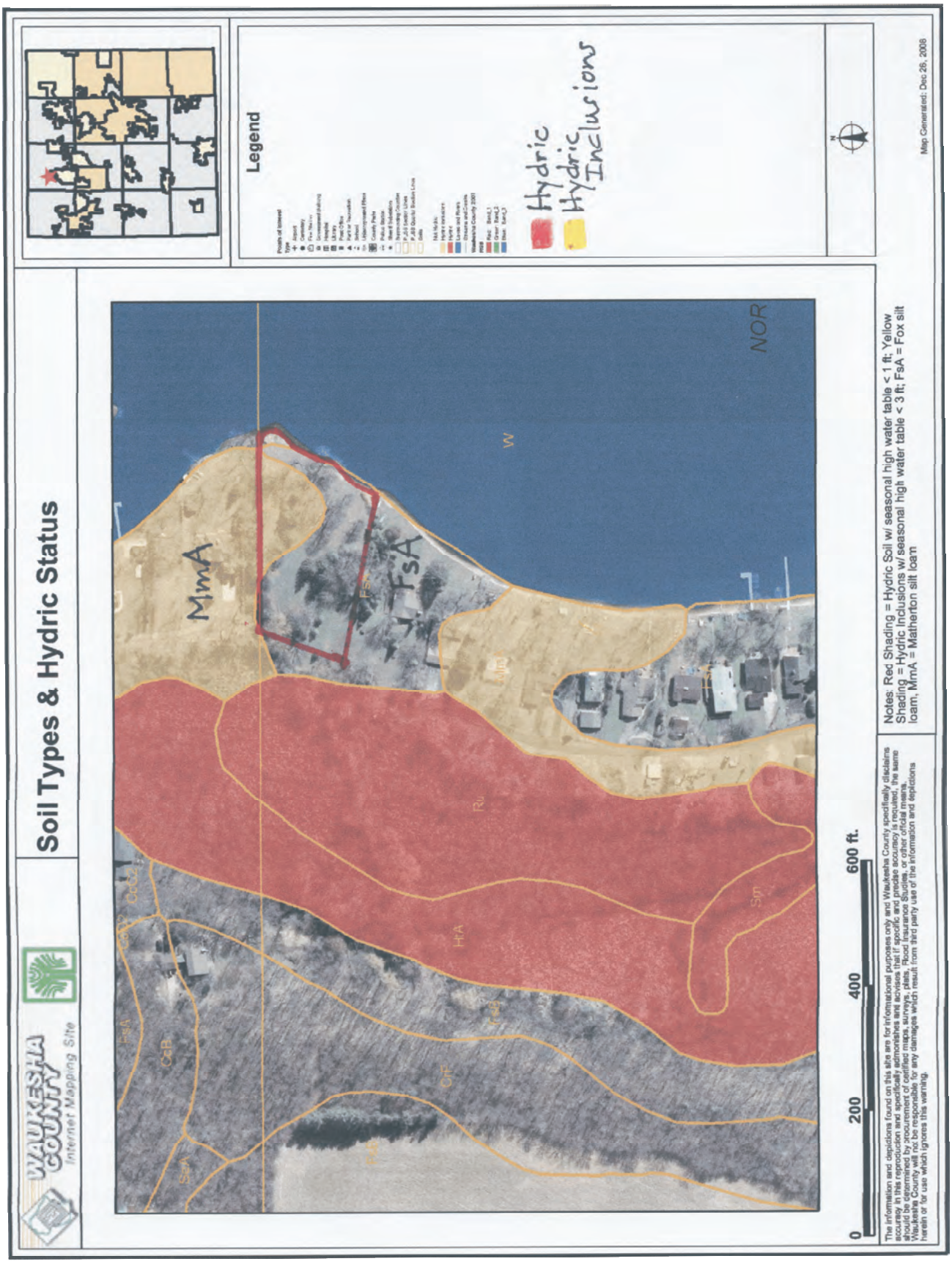

Source: Waukesha County.

Soil Types Mapped and Their Associated Published Profile Descriptions Within the Project Area

FsA – Fox silt loam, 0 to 2 percent slopes
Fox Series – Well drained
0-8” 10YR 4/2 to 3/2 loam, 10YR 6/2 when dry
8-14” 10YR 4/4 clay loam
14-28” 10YR 4/4 gritty clay loam

MmA – Matherton silt loam, 1 to 3 percent slopes
Matherton Series – Somewhat poorly drained soil; hydric inclusion – Sebewa (see below)
0-6” 10YR 3/2 silt loam
6-11” 10YR 4/2 silt loam
11-14” 10YR 4/2 loam w/ 10YR 5/2 & 5/8 mottles
14-17” 10YR 4/2 loam w/ 10YR 5/2 & 5/8 mottles
17-29” 10YR 4/3 clay loam w/ 10YR 5/2 & 5/8 mottles

Sm – Sebewa silt loam, 0-2 percent slopes
Sebewa Series – Poorly drained
0-7” 10YR 2/2 silt loam
7-12” 10YR 2/2 to 3/2 silt loam
12-14” 2.5Y 3/1 to 4/1 silt loam w/ 10YR 4/3 mottles
14-18” 2.5Y 4/2 heavy silt loam w/ 10YR 4/4 mottles
18-26” 5Y 5/1 clay loam w/ 7.5YR 4/4 mottles

Source: Adapted from 1971 Soil Survey of Milwaukee and Waukesha Counties U. S. Department of Agriculture, Soil Conservation Service.

FIELD INDICATORS OF HYDRIC SOIL FOR WISCONSIN LRRs K AND M - Version 6.0

Hydric Soil Indicators for ALL Soils: use for all soil textures.

A1. Histosol. Classifies as a Histisol (≥16" organic material in the upper 32").

A2. Histic Epipedon. 8-24" of organic material over mineral soil of chroma ≤2. Saturation or artificial drainage is required.

A3. Black Histic. 8-24" of organic material starting within 6" of soil surface with hue 10YR or yellower, value ≤3, and chroma ≤1. Saturation or artificial drainage is not required.

A4. Hydrogen Sulfide. Hydrogen sulfide odor within 12" of the surface.

A5. Stratified Layers. Several stratified layers starting within 6" of the soil surface. One or more of the layers has value ≤3 with chroma ≤1 and/or it is muck, mucky peat, peat or mucky modified mineral texture. The remaining layers have a chroma ≤2.

A10. 2 cm Muck. Use in LRR M; test in LRR K. A layer of muck 2 cm (0.75") or more thick with value ≤3 and chroma ≤1 starting within 6" of the soil surface.

A11. Depleted Below Dark Surface. A layer with a depleted or gleyed matrix that has ≥60% chroma ≤2 starting within 12" of the surface that has a minimum thickness of either:

a. 6" or
b. 2" if the 2" consists of fragmental soil material.

Loamy layer(s) above have value ≤3 and chroma ≤2. Sandy layers have value ≤3, chroma ≤1, and ≥70% organic coatings on the soil particles.

A12. Thick Dark Surface. A layer ≥6" thick with a depleted matrix that has ≥60% chroma ≤2 (or gleyed) below 12". The layers above has value ≤2.5 and chroma ≤1 to 12" and value ≤3 and chroma ≤1 in the remainer of the epipedon. If sandy, ≥70% of particles are covered with organic material.

Hydric Soil Indicators for LOAMY and CLAYEY Soils:

F1. Loamy Mucky Mineral. A mucky modified mineral layer ≥4" thick, within 6" of the soil surface.

F2. Loamy Gleyed Matrix. A gleyed matrix that occupies 60% or more of a layer starting within 12" of the soil surface.

F3. Depleted Matrix. A layer with a depleted matrix that has ≥60% chroma ≤2 that has a minimum thickness of either:

a. 2" if the 2" is entirely within the upper 6" of the soil, or
b. 6" and starts within 10" of the soil surface.

F6. Redox Dark Surface. A layer at least 4" thick entirely within the upper 12" of the mineral soil that has:

a. matrix value ≤3 and chroma ≤1 and 2% or more distinct or prominent redox concentrations as soft masses or pore linings, or
b. matrix value ≤3 and chroma ≤2 and 5% or more distinct or prominent redox concentrations as soft masses or pore linings.

F7. Depleted Dark Surface. Redox depletions, with value ≥5 and chroma ≤2, in a layer at least 4" thick entirely within the upper 12" of the mineral soil that has:

a. matrix value ≤3 and chroma ≤1 and 10% or more redox depletions, or
b. matrix value ≤3 and chroma ≤2 and 20% or more redox depletions.

F8. Redox Depressions. In closed depressions subject to ponding, 5% or more distinct or prominent redox concentrations as soft masses or pore linings in a layer ≥2" thick entirely within the upper 5" of the soil surface.

FIELD INDICATORS OF HYDRIC SOIL FOR WISCONSIN LRRs K AND M - Version 6.0

Hydric Soil Indicators for SANDY Soils:

S1. Sandy Mucky Mineral. A mucky modified mineral layer ≥2" starting within 6" of the soil surface.

S3. 2 in Mucky Peat or Peat. Use in LRR M. A layer of mucky peat or peat ≥2" thick with value ≤3 and chroma ≤2 starting within 6" of the soil surface.

S4. Sandy Gleyed Matrix. A gleyed matrix which occupies ≥60% of a layer starting within 6" of the soil surface.

S5. Sandy Redox. A layer starting within 6" of the soil surface that is ≥4" thick and has a matrix with ≥60% chroma ≤2 with ≥2% distinct or prominent redox concentrations.

S6. Stripped Matrix. A layer starting within 6" of the surface in which Fe/Mn oxides and/or organic matter have been stripped from the matrix exposing the primary base color of soil materials. The stripped areas and translocated oxides and/or organic matter form a diffuse splotchy pattern of two or more colors. The stripped zones are ≥10% of the volume; they are rounded and about 0.5 to 1" in diameter.

TEST Indicators of Hydric Soils

A16. Coast Prairie Redox (old TS5 Chroma 3 Sandy Redox) Testing in LRR K and M. A layer starting within 6" of the soil surface that is ≥4" thick and has a matrix chroma ≤3 with 2% or more distinct or prominent redox concentrations as soft masses and/or pore linings.

NOTE: TEST INDICATORS ARE NOT TO BE USED!

F12. Iron/Manganese Masses. For testing in LRR M. On flood plains, a layer ≥4" thick with 40% or more chroma ≤2, and 2% or more distinct or prominent redox concentrations as soft Fe/Mn masses with diffuse boundaries. The layer occurs entirely within 12" of the soil surface. Fe/Mn masses have value ≤3 and chroma ≤3; most commonly they are black. The thickness requirement is waived if the layer is the mineral surface layer.

S8. Polyvalue Below Surface. For testing in LRR K. A layer with value ≤3 and chroma ≤1 starting within 6" of the soil surface underlain by a layer(s) where translocated organic matter unevenly covers the soil material forming a diffuse splotchy pattern. At least 70% of the visible soil particles in the upper layer must be covered, coated or masked with organic material. Immediately below this layer, the organic coating occupies 5% or more of the soil volume and has value ≤3 and chroma ≤1. The remainder of the soil volume has value ≥4 and chroma ≤1.

S9. Thin Dark Surface. For testing in LRR K. A layer 2" or more thick entirely within the upper 6" of the surface, with value ≤3 and chroma ≤1. At least 70% of the visible soil particles in this layer must be covered, coated, or masked with organic material. This layer is underlain by a layer(s) with value ≤4 and chroma ≤1 to a depth of 12" or to the spodic horizon, whichever is less.

TF2. Red Parent Material. For testing in LRR K. In parent material with a hue of 7.5YR or redder, a layer at least 4" thick with a matrix value ≤4 and chroma ≤4 and 2% or more redox depletions and/or redox concentrations as soft masses and/or pore linings. The layer is entirely within 12" of the soil surface. The minimum thickness requirement is 2" if the layer is the mineral surface layer.

Appendix F

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION PRECIPITATION RECORDS

- Appendix F-1: December 2007 through August 2008 total precipitation and departure from normal records (see Hartford and Oconomowoc stations) in tabular format
- Appendix F-2: September 2008 through November 2008 precipitation records (see Hartford and Oconomowoc stations) shown graphically

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TOTAL PRECIPITATION AND DEPARTURE FROM NORMAL (INCHES)

WISCONSIN
2007

STATION	JUL		AUG		SEP		OCT		NOV		DEC		ANNUAL	
	PRECIP.	DEPART.	PRECIP.	DEPART.	PRECIP.	DEPART.	PRECIP.	DEPART.	PRECIP.	DEPART.	PRECIP.	DEPART.	PRECIP.	DEPART.
BRODHEAD	2.20	-1.74	15.57	11.38	1.71	-1.87	3.05	.35	.09	-2.30	4.73	2.89	42.46	6.92
CHARMANY FARM	1.87	-2.16	14.62	10.57	2.28	-.97	3.56	1.14	.33	-2.04	4.35	3.03	M 42.67	
CLINTON	M 3.29		16.24	11.65	1.47	-2.06	1.54	-1.06	.20	-2.34	M 4.47		M	
CLYMAN							2.44		.28		7.17			
COTTAGE GROVE	2.49		14.22		1.64		M 3.12		.38		M 4.16		M 40.83	
FT ATKINSON	2.21	-1.71	10.64	6.48	2.04	-1.37	2.37	-.19	.24	-2.25	4.46	2.81	35.86	2.40
HORICON	4.90	.57	11.50	7.45	1.78	-1.98	2.28	-.36	.29	-1.82	3.80	2.33	M 39.29	
HUSTISFORD WWTP	3.84		9.50		1.68		2.31		.27		3.03		M 33.72	
JEFFERSON WWTP	5.82		12.68		2.23		2.60		.33		4.20		46.39	
LAKE MILLS	3.03	-1.09	17.75	13.14	1.90	-1.70	2.41	-.03	M .33		4.82	3.14	M 44.84	
LODI	2.91		15.18		2.52		3.96		.59		4.20		44.50	
MADISON DANE CO AP R	2.69	-1.24	15.18	10.85	2.45	-.63	3.35	1.17	.39	-1.92	3.63	1.97	44.41	11.46
MAZOMANIE	1.47		14.92		2.75		4.87		.22		M 3.28		M	
MILTON WWTP							1.88		.14		5.03			
MONROE 1 W	1.52	-2.72	15.43	10.90	2.44	-1.34	3.09	.50	.25	-2.23	4.70	2.92	42.75	5.92
MT HOREB	1.62		18.48		2.22		3.96		.31		M 4.48			
PORTAGE	2.11	-2.34	11.30	6.97	3.13	-.41	4.33	1.93	.32	-2.13	3.52	2.11	39.03	4.50
POYNETTE 7 WNW	1.68		14.70		2.82		4.53		.23		M 3.02		M 41.30	
STOUGHTON	2.03	-1.79	16.40	12.34	2.05	-1.35	2.93	.61	.44	-1.98	4.75	3.15	M 45.57	
SULLIVAN 3SE	3.48		12.78		2.37		3.02		.33		4.28		43.09	
TOWN OF WESTFORD	3.45		12.32		2.27		2.37		.52		4.09		40.73	
WATERLOO	3.03		12.54		1.81		2.49		.40		4.14			
WATERTOWN	4.07	-.36	14.39	9.90	1.57	-2.09	2.16	-.42	.30	-2.07	5.65	3.98	42.59	8.10
WISCONSIN DELLS	2.65	-1.45	11.88	7.31	3.13	-.34	3.12	.82	.35	-1.76	3.62	2.36	M 39.30	
--DIVISIONAL DATA------>	2.89	-1.18	13.74	9.50	2.13	-1.38	2.90	.42	.32	-2.09	4.25	2.64	41.68	7.57
SOUTHEAST 09														
ALLENTON	2.48		9.88		1.63		2.78		.39		3.41			
BROOKFIELD	4.28		8.37		1.81		2.70		.17		M 3.93			
BURLINGTON	3.92	.15	11.47	7.31	1.50	-1.77	3.02	.71	.36	-2.20	3.65	1.71	M 39.05	
GENOA CITY	5.14		12.83		1.26		2.77		.47		3.63			
GERMANTOWN	6.38	2.33	10.77	6.49	1.92	-1.61	2.30	-.17	.21	-2.38	3.06	1.27	37.78	4.33
HALES CORNERS-WHITNALL	1.52		10.16		1.48		3.16		.37		M 4.48		M	
HARTFORD 2 W	3.27	-.86	9.41	5.26	1.77	-1.84	1.70	-.92	.27	-1.95	3.94	2.37	37.26	4.74
HOLY HILL 2 E									.45		4.11			
KENOSHA	3.81	.13	11.50	7.31	M .84		2.82	.33	.69	-1.99	M 3.77		M	
MILWAUKEE MT MARY COL	1.97	-1.49	7.44	3.46	M .45		2.68	.40	M .16		2.65	.84	M 29.75	
MILWAUKEE MITCHELL AP R	1.40	-2.18	7.92	3.89	1.93	-1.37	2.96	.47	.36	-2.34	3.41	1.19	33.06	-1.75
OCONOMOWOC	2.84	-1.37	10.72	6.20	1.82	-1.87	2.29	-.34	.34	-1.96	3.94	2.23	37.49	3.59
PADDOCK LAKE	4.51		9.96		1.50		2.57		.69		3.90		39.95	
PELL LAKE	3.95		13.16		1.74		2.98		.40		3.40			
PORT WASHINGTON	5.28	1.47	8.85	4.64	1.72	-1.76	2.41	.11	.62	-1.63	3.69	1.87	M 37.07	
RACINE	2.77	-.80	11.58	7.50	2.16	-1.54	3.05	.57	.32	-2.56	M 4.26		M 41.69	
SOUTH MILWAUKEE WWTP	1.67		9.16		2.09		3.43		.51		M 3.75		M 36.58	
UNION GROVE	3.97	.33	12.44	7.95	1.27	-2.19	2.77	.34	.46	-2.08	M 3.10		M 38.13	
WAUKESHA	2.95	-.88	9.62	4.85	1.51	-2.01	2.41	-.21	.21	-2.42	M 3.11		M	
WEST ALLIS	2.30	-1.28	8.68	4.75	1.67	-1.85	2.92	.31	.48	-2.30	4.98	2.96	38.93	5.07
WEST BEND FIRE STN	5.10		10.49		1.27		2.44		M .59		3.55		M	

WISCONSIN
JANUARY 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)								
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
HUSTISFORD WWTP	25.6	8.6	17.1		50	8	-19	24	1477	0	0	17	27	13	2.95		1.12	8	M15.5	13	27	7	2	1
JEFFERSON WWTP	27.2	10.1	18.7		56	8	-12	25+	1429	0	0	17	27	11	2.10		.56	9	13.0	10	23	8	1	0
LAKE MILLS	26.3	9.8M	18.1M	1.0	53	8	-12	20	1449	0	0	18	26	11	1.48	.05	.43	9	14.1	9	2	5	0	0
LODI	26.0	7.2	16.6		46	29+	-23	20	1496	0	0	19	27	15	2.19		.47	9	18.0	15	27	9	0	0
MADISON DANE COUNTY AP R	25.5	9.2	17.4	.1	50	7	-12	20+	1468	0	0	18	27	12	2.17	.92	.59	7	23.2	12	22	7	1	0
MAZOMANIE	27.6M	7.8M	17.7M		48	8	-21	21+	1456	0	0	15	23	11	M 1.45		.50	11	M12.5	12	27	5	1	0
MONROE 1 W	26.6	4.0M	15.3M		52	7	-16	25+	1576	0	0	18	24	13	1.81	.50	.45	11	17.0	16	27	5	0	0
PORTAGE	25.9	9.3M	17.6M	2.4	47	29	-13	20+	1473	0	0	19	27	11	1.97	.71	.52	9	20.3	14	26	8	1	0
POYNETTE 7 WNW	25.3M	8.3M	16.8M		45	9+	-15	25	1500	0	0	19	27	12	1.72		.52	9	M17.0	19	26	6	1	0
STOUGHTON	25.9	9.0M	17.5M	.9	51	8	-14	25+	1462	0	0	18	26	12	1.79	.45	.52	9	M18.9	12	27	7	1	0
SULLIVAN 3SE	27.1	9.2	18.2		58	8	-15	21	1444	0	0	17	27	12	2.20		.63	9	17.5	9	22	9	1	0
TOWN OF WESTFORD	24.7	5.7M	15.2M		44	29+	-18	20	1549	0	0	18	26	15	2.55		.89	8	25.5	15	27	8	1	0
WATERLOO	26.5	9.0M	17.8M		51	8	-12	20	1465	0	0	17	26	13	2.47		.72	8	17.2	9	26	6	2	0
WATERTOWN	26.4	9.2	17.8	1.6	55	8	-13	21+	1458	0	0	18	27	11	1.96	.65	.59	9	12.3	7	22	5	2	0
WISCONSIN DELLS	24.8	5.9	15.4	1.1	47	29	-26	20	1536	0	0	20	28	15	M 2.29		.63	10	21.6	16	26	8	2	0
--DIVISIONAL DATA----->			17.4	.6											2.14	.86			17.6					
SOUTHEAST 09																								
BROOKFIELD	28.0	11.6	19.8		58	8	-12	21	1394	0	0	17	27	9	1.65		.41	9	M10.9	7	22	6	0	0
BURLINGTON	28.3	10.3	19.3	1.7	60	8	-10	25+	1411	0	0	18	27	11	M 2.44		1.25	8	M 9.0	7	1	5	1	1
GENOA CITY	M	M	M																M	M				
GERMANTOWN	27.0	10.5	18.8	2.3	56	8	-10	20	1428	0	0	16	28	10	1.82	.47	.58	8	19.9	15	27	4	1	0
HALES CORNERS-WHITNALL	30.3	9.4	19.9		60	8	-13	21	1395	0	0	16	28	12	2.61		.82	8	M 8.1	7	24	5	2	0
HARTFORD 2 W	25.6	8.8	17.2	1.7	53	8	-13	24+	1475	0	0	19	27	13	2.83	-1.52	1.16	8	M12.2	10	22	6	1	1
HOLY HILL 2 E	24.9	7.2	16.1		53	8	-14	21+	1512	0	0	21	30	14	2.41		.68	9	20.8	11	22	6	1	0
KENOSHA	32.5	14.4	23.5	2.7	65	7	-6	24+	1280	0	0	16	26	6	1.70	.03	.41	8	M 9.8	5	31	4	0	0
MILWAUKEE MT MARY COL	30.9	13.1	22.0	2.0	59	8	-8	24+	1327	0	0	15	27	9	M 1.07		.37	22	11.9	8	22	2	0	0
MILWAUKEE MITCHELL AP R	30.0	14.7	22.4	1.7	63	7	-6	20	1313	0	0	17	26	5	2.07	.22	.50	7	18.4	7	22	6	1	0
OCONOMOWOC	28.0	10.6	19.3	2.1	57	8	-11	24+	1413	0	0	16	27	11	2.20	.88	.65	9	13.8	9	22	7	1	0
PADDOCK LAKE	30.7	12.3	21.5		62	8	-8	25+	1340	0	0	17	27	10	1.74		.42	11	11.0	7	1	5	0	0
PORT WASHINGTON	29.5	13.9	21.7	1.4	50	8	-8	21	1338	0	0	17	26	8	2.48	1.01	.70	8	12.3	9	23	6	1	0
RACINE	30.7	13.5	22.1	1.4	64	8	-7	21	1323	0	0	16	27	8	1.75	.03	.47	8	14.0	7	28	7	0	0
SOUTH MILWAUKEE WWTP	30.6	13.2	21.9		62	8	-7	21+	1327	0	0	16	27	10	2.31		.73	8	9.2	6	28	6	1	0
UNION GROVE	30.1	12.0	21.1		63	8	-9	24	1353	0	0	16	27	11	2.48	1.11	1.10	8	M13.5	10	27	6	1	1
WAUKESHA	27.7	10.3	19.0	-.5	58	8	-11	21	1418	0	0	18	27	11	.96	-.52	.40	22	M10.5	8	25	5	0	0
WEST ALLIS	30.1	13.0	21.6	1.7	56	8	-8	20	1339	0	0	16	27	8	1.96	.66	.55	11	17.2	8	22	5	1	0
WHITEWATER	27.5	10.5	19.0	2.5	58	8	-12	20	1422	0	0	17	27	12	M 2.76		1.00	26	M16.0	10	22	5	2	1
--DIVISIONAL DATA----->			20.3	1.4											2.06	.50			14.9					

WISCONSIN
FEBRUARY 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)								
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
HUSTISFORD WWTP	23.8	7.6M	15.7M		36	26	-13	21	1417	0	0	23	27	9	M 3.12		.82	18	27.7	14	10	8	2	0
JEFFERSON WWTP	25.1	6.9	16.0		35	25+	-11	21	1413	0	0	23	29	13	3.45		.69	18	30.9	13	15	9	3	0
LAKE MILLS	24.5	7.3	15.9	-6.0	35	26+	-12	21	1419	0	0	23	29	11	3.14	1.92	.68	18	32.3	14	13	8	2	0
LODI	24.7	2.9	13.8		38	25	-18	21	1479	0	0	25	29	17	3.65		1.25	17	27.2	22	23	9	2	1
MADISON DANE COUNTY AP R	24.9	8.7	16.8	-5.8	39	29	-15	21	1392	0	0	22	29	10	3.30	2.02	1.36	17	31.6	14	29	7	2	1
MAZOMANIE	24.7	6.3	15.5		36	26+	-19	21	1429	0	0	23	29	13	2.58		1.00	17	21.5	15	21	8	1	1
MONROE 1 W	25.2	4.6	14.9		38	9	-12	11	1448	0	0	21	29	16	3.71	2.34	.75	17	30.4	19	16	9	3	0
PORTAGE	25.1	3.9	14.5	-6.1	38	25	-18	21	1458	0	0	22	29	13	2.66	1.44	.56	18	39.3	30	21	7	1	0
POYNETTE 7 WNW	25.8	3.1	14.5		39	25	-15	21	1458	0	0	21	29	16	M 2.78		.73	18	27.9	33	25	6	2	0
STOUGHTON	23.7	4.2	14.0	-7.7	34	26+	-12	21	1475	0	0	24	29	14	3.34	2.07	.99	18	M36.3	29	16	8	2	0
SULLIVAN 3SE	24.6	7.6	16.1		40	18	-11	11	1412	0	0	23	29	11	4.00		.93	7	33.5	12	11	11	2	0
TOWN OF WESTFORD	23.6	4.9	14.3		36	26	-18	21	1466	0	0	24	29	15	3.76		.81	7	39.8	23	21	7	3	0
WATERLOO	24.5	7.3	15.9		34	26+	-11	21	1418	0	0	23	29	10	3.11		.92	18	29.9	16	8	6	1	0
WATERTOWN	24.0	6.3	15.2	-5.9	34	18+	-14	21	1442	0	0	25	29	13	2.82	1.59	.72	18	27.6	12	8	7	2	0
WISCONSIN DELLS	25.0	-1.6	11.7	-8.3	38	25	-22	21	1542	0	0	25	29	20	3.05	2.04	1.02	17	30.5	24	20	8	2	1
--DIVISIONAL DATA----->			15.2	-7.1											3.53	2.28			31.1					
SOUTHEAST 09																								
BROOKFIELD	25.4	9.4	17.4		40	18	-9	21	1371	0	0	23	29	8	3.19		.69	17	M26.4	12	13	7	1	0
BURLINGTON	25.6	7.2	16.4	-6.2	42	18	-9	11	1402	0	0	23	29	10	4.92	3.63	1.15	6	30.5	13	13	9	5	1
EAST TROY	M	M	M																M	M				
GENOA CITY	M	7.2M	M		45	23	-6	11+			0	9	20	5	3.02		.64	7	34.7	20	14	8	2	0
GERMANTOWN	24.9	8.0	16.5	-4.9	36	18	-12	21	1402	0	0	23	29	9	3.21	2.01			51.6	33	16	8	0	0
HALES CORNERS-WHITNALL	27.5	7.9	17.7		44	18	-12	21	1367	0	0	20	29	10	4.15		.73	17	39.1	17	16	9	2	0
HARTFORD 2 W	23.9	6.0	15.0	-5.4	35	25	-14	21	1446	0	0	26	29	12	3.49	2.42	.73	18	M21.1	13	9	8	2	0
HOLY HILL 2 E	22.9	3.0	13.0		35	25	-18	22+	1504	0	0	28	29	17	3.94		.83	7	M30.6	16	7	10	3	0
KENOSHA	29.2	15.3	22.3	-2.8	46	17	-7	10	1232	0	0	20	29	3	4.03	2.74	.92	17	35.6	19	6	10	2	0
MILWAUKEE MT MARY COL	29.8	11.6	20.7	-3.8	43	18+	-7	11+	1278	0	0	19	28	5	2.64	1.33	.56	17	30.1	14	13	6	2	0
MILWAUKEE MITCHELL AP R	28.2	15.8	22.0	-3.4	43	17	-5	10	1240	0	0	19	28	2	3.32	1.67	1.18	17	31.0	13	12	7	2	1
OCONOMOWOC	25.7	7.7	16.7	-5.5	38	18	-13	21	1394	0	0	22	29	11	3.31	2.11	.73	17	29.5	9	16	8	2	0
PADDOCK LAKE	27.0	9.4	18.2		44	18	-8	11	1352	0	0	21	29	8	4.54		.87	7	37.0	15	13	10	4	0
PORT WASHINGTON	28.0	10.8	19.4	-5.1	40	25	-10	12	1316	0	0	18	28	5	3.08	1.90	.71	18	30.3	11	15	9	2	0
RACINE	27.4	13.6	20.5	-4.7	45	18	-7	12+	1285	0	0	20	28	3	5.82	4.37	1.17	6	M48.5	21	8	11	4	2
SOUTH MILWAUKEE WWTP	27.3	12.7	20.0		44	18	-6	11+	1300	0	0	20	28	4	M 4.08		.80	7	31.6	14	8	10	3	0
UNION GROVE	27.2	9.7	18.5		45	18	-8	11+	1345	0	0	21	29	10	M 2.94		.63	17	M42.0	22	7	9	1	0
WAUKESHA	25.5	8.8	17.2	-7.5	40	18	-9	11+	1380	0	0	24	29	6	M 2.08		.65	7	M25.9	13	8	6	1	0
WEST ALLIS	28.3	12.1	20.2	-4.5	39	18	-6	11+	1292	0	0	20	29	5	5.21	3.86	1.05	7	45.8	19	13	9	4	1
WHITEWATER	24.7	7.7	16.2	-5.3	37	18	-9	21+	1410	0	0	23	29	10	3.92	2.79	1.01	7	25.2	12	7	8	3	1
--DIVISIONAL DATA----->			18.2	-5.8											3.86	2.54			34.8					

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Appendix F-1 (continued)

WISCONSIN
MARCH 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
LAKE MILLS	37.7	21.2	29.5	-3.9	51	27+	3	9+	1095	0	0	9	28	0	1.57	-.71	.46	22	10.2	12	2	4	0	0
LODI	38.9	17.6	28.3		53	14	-9	8	1127	0	0	8	29	3	1.70		.75	22	8.8	17	1	4	2	0
MADISON DANE COUNTY AP R	38.0	21.3	29.7	-4.0	51	2	0	8+	1089	0	0	7	26	2	2.47	.19	.75	31	10.9	13	1	4	2	0
MAZOMANIE	38.4	20.3	29.4		52	26	-9	8	1099	0	0	7	27	2	M 1.22		.65	3	M 6.0	13	1	1	1	0
MONROE 1 W	39.6	20.0	29.8		53	26	0	8	1086	0	0	6	30	1	2.24	-.03	.75	3	6.3	16	2	7	2	0
PORTAGE	37.7	18.8	28.3	-3.7	52	14	-3	8	1129	0	0	8	29	2	1.82	-.43	.70	22	9.8	22	2	4	2	0
POYNETTE 7 WNW	40.0M	18.1M	29.1M		53	14	-2	8	1107	0	0	7	22	1	M 1.43		.80	21	M13.0	21	1	2	2	0
STOUGHTON	37.9	21.4	29.7	-3.5	51	27+	2	8	1090	0	0	8	29	0	1.90	-.12	.55	4	8.8	11	1	6	1	0
SULLIVAN 3SE	37.2	20.0	28.6		55	3	4	8	1120	0	0	11	29	0	2.95		1.33	22	19.5	10	22	7	2	1
TOWN OF WESTFORD	36.0	19.0	27.5		50	26	-2	8	1156	0	0	12	30	1	2.42		.74	22	19.5	21	22	6	2	0
WATERLOO	38.1	20.3	29.2		51	27+	-1	8	1101	0	0	8	29	1	1.68		.65	22	8.5	12	2	5	1	0
WATERTOWN	37.0	19.7	28.4	-4.3	52	3	2	8	1128	0	0	10	30	0	.96	-1.18	.47	3	12.1	9	22	3	0	0
WISCONSIN DELLS	38.0	12.0	25.0	-6.4	49	26+	-15	8	1232	0	0	9	30	4	3.29	1.20	1.61	2	9.0	19	1	3	3	1
--DIVISIONAL DATA------>			29.0	-4.5											1.97	-.23			10.7					
SOUTHEAST 09																								
BROOKFIELD	37.3	21.6	29.5		53	3	8	8	1095	0	0	7	29	0	2.41		.67	22	12.0	10	22	5	3	0
BURLINGTON	37.4	20.7	29.1	-3.9	53	3	8	8	1107	0	0	10	29	0	3.01	.71	1.10	22	14.1	11	22	7	2	1
EAST TROY	M	M	M																M	M				
GENOA CITY	41.6	25.0	33.3		55	15	10	8	976	0	0	1	25	0	2.52		.81	31	12.4	10	2	6	3	0
GERMANTOWN	36.8	21.1	29.0	-2.8	54	3	7	8+	1109	0	0	10	29	0	1.29	-.75	.42	21	14.4	14	21	5	0	0
HALES CORNERS-WHITNALL	39.4	19.5	29.5		53	14+	7	9+	1093	0	0	6	30	0	3.40		1.79	22	20.6	16	22	6	2	1
HARTFORD 2 W	35.7	19.6	27.7	-4.3	50	14	4	9+	1152	0	0	11	29	0	1.25	-.68	.33	3	M11.3	9	21	4	0	0
HOLY HILL 2 E	35.4	15.0	25.2		50	3	-1	8	1225	0	0	11	31	1	2.04		1.07	22	16.7	12	22	4	1	1
KENOSHA	38.6	26.1	32.4	-2.0	57	3	13	9+	1004	0	0	7	24	0	M 4.30		1.54	22	17.3	12	22	6	3	2
MILWAUKEE MT MARY COL	40.5	22.3	31.4	-3.5	56	14	10	7	1034	0	0	5	27	0	M 1.81		1.16	22	16.1	15	22	3	1	1
MILWAUKEE MITCHELL AP R	38.9	26.1	32.5	-2.4	58	31	13	8+	1000	0	0	7	24	0	3.11	.52	1.19	31	18.7	13	22	6	2	1
OCONOMOWOC	38.5	21.0	29.8	-3.9	55	3	6	8	1083	0	0	8	29	0	2.24	.28	.82	22	11.4	10	22	5	1	0
PADDOCK LAKE	38.7	22.1	30.4		56	3	10	9+	1064	0	0	8	29	0	3.05		1.35	22	16.9	12	22	5	2	1
PORT WASHINGTON	39.2	22.4	30.8	-3.1	55	14	8	8+	1052	0	0	5	26	0	1.39	-.51	.38	31	10.6	9	2	5	0	0
RACINE	37.7	26.1	31.9	-2.6	53	26+	13	8	1020	0	0	8	25	0	2.89	.47	.99	31	13.2	12	22	5	2	0
SOUTH MILWAUKEE WWTP	38.5	24.6	31.6		54	26	12	8	1029	0	0	6	27	0	3.06		1.00	22	17.0	12	22	7	2	1
UNION GROVE	38.2	22.4	30.3		55	3	9	9+	1066	0	0	6	27	0	M 1.87		.85	31	15.8	12	22	5	1	0
WAUKESHA	37.8	21.3	29.6	-5.7	52	3	8	8	1091	0	0	8	29	0	2.38	.10	1.01	22	15.0	12	23	5	3	1
WEST ALLIS	40.1	23.6	31.9	-2.6	54	27+	10	8+	1020	0	0	7	28	0	3.07	.85	1.02	22	22.5	18	22	6	3	1
WHITEWATER	37.4	20.9	29.2	-3.9	54	3	6	8	1106	0	0	10	30	0	2.20	.18	.65	22	9.8	7	22	6	2	0
--DIVISIONAL DATA------>			30.3	-3.7											2.46	.27			15.3					

WISCONSIN
APRIL 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
LODI	57.4	36.0	46.7		78	22	22	3+	541	0	0	0	9	0	6.91		2.00	11	T	T		10	4	3
MADISON DANE COUNTY AP R	57.3	37.9	47.6	1.7	76	21	22	2	514	0	0	0	6	0	6.43	3.08	1.78	25	.7	T		10	4	3
MAZOMANIE	56.9	39.8	48.4		78	22	24	2	496	3	0	0	4	0	M 6.84				M .0	0		7	4	2
MONROE 1 W	59.1	38.3	48.7		77	26	24	2	484	1	0	0	5	0	7.65	4.06	2.29	11	.5	T		9	4	3
PORTAGE	56.3	37.5	46.9	1.7	76	22	22	2	535	0	0	0	8	0	8.32	4.82	2.36	11	T	T		11	5	3
POYNETTE 7 WNW	56.6	35.5	46.1		77	22	24	2	561	0	0	0	10	0	7.37		1.95	11	T	3	2	10	6	3
STOUGHTON	57.2	37.3	47.3	1.7	77	24+	23	3+	525	0	0	0	6	0	7.00	3.60	1.47	26	.0	0		9	5	4
SULLIVAN 3SE	57.2	36.8	47.0		77	26	23	2	532	0	0	0	7	0	6.24		2.05	26	.2	T		9	4	3
TOWN OF WESTFORD	55.4	37.6	46.5		75	22	22	2	547	0	0	0	7	0	4.24		1.04	9	.6	2	1	7	3	1
WATERLOO	57.3	37.1	47.2		77	22	22	2	527	0	0	0	7	0	5.89		1.75	25	.0	0		8	4	3
WATERTOWN	56.3	36.9	46.6	1.2	76	22	23	2	544	0	0	0	7	0	5.44	2.31	1.26	26	.3	0		6	4	4
WISCONSIN DELLS	55.7	33.7	44.7	.3	78	22	19	3+	603	0	0	0	12	0	M 4.62		1.30	11	.0	0		9	4	1
--DIVISIONAL DATA------>			47.1	1.3											6.34	2.87			.1					
SOUTHEAST 09																								
BROOKFIELD	55.9	38.2	47.1		77	26	22	2	532	0	0	0	5	0	5.71		1.40	11	.2	0		9	4	2
BURLINGTON	56.9	36.2	46.6	1.7	76	21	22	3+	547	0	0	0	8	0	3.93	.24	1.15	11	.0	0		8	2	2
EAST TROY	M	M	M																M	M				
GENOA CITY	59.6	40.2	49.9		78	25	28	2	446	4	0	0	3	0	4.41		1.15	11	.5	T		10	4	2
GERMANTOWN	55.3	38.2	46.8	3.3	76	26	22	2	541	0	0	0	8	0	7.79	4.49	2.63	26	.3	0		7	5	4
HALES CORNERS-WHITNALL	57.6	34.5	46.1		78	26	18	2	562	0	0	0	9	0	5.43		1.70	11	.2	0		8	4	2
HARTFORD 2 W	56.4	37.6	47.0	3.0	75	26	21	2	534	2	0	0	6	0	5.80	2.78	1.40	26	.0	0		7	4	4
HOLY HILL 2 E	54.3	31.8	43.1		74	26+	16	3+	653	0	0	0	17	0	6.40		1.64	26	.1	T		8	4	4
KENOSHA	52.1	38.4	45.3	1.2	73	26+	25	2	586	0	0	0	5	0	M 4.18		1.78	11	.0	0		6	3	1
MILWAUKEE MT MARY COL	57.5	38.7	48.1	1.4	79	26	22	2	497	0	0	0	8	0	4.94	1.53	1.55	11	T	T		7	4	2
MILWAUKEE MITCHELL AP R	54.3	38.2	46.3	1.1	78	25	25	2	554	0	0	0	5	0	4.42	.64	1.66	10	.2	T		5	3	2
OCONOMOWOC	57.4	38.0	47.7	1.5	76	26+	22	2	511	0	0	0	5	0	6.53	3.28	1.52	26	.2	T		7	4	4
PADDOCK LAKE	57.4	36.9	47.2		76	26	24	2	527	0	0	0	8	0	4.89		1.60	11	.0	0		8	4	2
PORT WASHINGTON	51.8	37.4	44.6	.8	73	26	26	4+	603	0	0	0	6	0	6.31	3.16	1.57	25	.0	0		7	4	4
RACINE	51.4	39.0	45.2	1.0	73	26	26	2	586	0	0	0	1	0	3.54	-.49	1.95	11	.0	0		6	1	1
SOUTH MILWAUKEE WWTP	53.0	38.0	45.5		80	26	24	2	575	0	0	0	4	0	4.66		2.00	11	T	T		7	2	1
UNION GROVE	57.0	36.9	47.0		78	26	23	2	535	0	0	0	8	0	3.37	-.26	1.00	11	.0	0		7	2	1
WAUKESHA	56.2	36.8	46.5	-.8	75	26+	21	2	549	0	0	0	7	0	5.58	2.05	1.47	11	.1	0		8	4	3
WEST ALLIS	57.6	38.8	48.2	2.1	78	26	25	3+	500	0	0	0	7	0	5.62	1.76	1.63	11	.5	T		8	5	2
WHITEWATER	57.6	36.8	47.2	2.0	76	26+	23	3+	525	0	0	0	7	0	5.51	2.11	1.41	26	T	T		8	3	3
--DIVISIONAL DATA------>			46.6	1.6											5.27	1.79			.1					

WISCONSIN
MAY 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
LODI	67.5	42.4	55.0		83	27+	30	4	317	12	0	0	2	0	2.87		.86	30	.0	0		6	1	0
MADISON DANE COUNTY AP R	66.7	42.4	54.6	-3.1	82	26	32	4	317	2	0	0	1	0	2.55	-.70	1.00	30	T	T		6	2	1
MAZOMANIE	M	M	M		77	26	31	4			0	0	1	0	2.48				.0	0		3	0	0
MONROE 1 W	69.2	44.5	56.9		83	27+	32	4	254	8	0	0	1	0	3.56	-.35	.91	30	.0	0		10	3	0
PORTAGE	66.4	43.7	55.1	-2.0	83	27	35	4	310	10	0	0	0	0	2.67	-.88	.61	7	.0	0		7	2	0
POYNETTE 7 WNW	67.4	41.5	54.5		83	27	33	1	323	3	0	0	0	0	2.65		.80	30	.0	0		5	2	0
STOUGHTON	67.0	41.9	54.5	-3.4	82	27	30	4	325	5	0	0	1	0	2.81	-.63	1.00	26	.0	0		7	2	1
SULLIVAN 3SE	65.6	41.2	53.4		80	27+	31	19	357	4	0	0	1	0	2.62		.73	30	.0	0		7	2	0
TOWN OF WESTFORD	65.8	43.3	54.6		84	27	32	4	325	8	0	0	1	0	1.36		.65	30	.0	0		4	1	0
WATERLOO	67.0	43.0	55.0		83	27	34	19+	311	9	0	0	0	0	1.56		.78	30	.0	0		4	1	0
WATERTOWN	65.9	41.7	53.8	-3.8	83	27	33	28+	341	3	0	0	0	0	1.29	-1.88	.51	30	.0	0		4	1	0
WISCONSIN DELLS	67.5	40.4	54.0	-2.6	84	27	29	4	340	3	0	0	3	0	3.05	-.45	.75	30	.0	0		7	3	0
--DIVISIONAL DATA----->			54.6	-3.2											2.42	-.98			.0					
SOUTHEAST 09																								
BROOKFIELD	64.2	42.0	53.1		80	27+	32	19+	368	6	0	0	2	0	1.65		.50	30	.0	0		5	1	0
BURLINGTON	64.2	37.8	51.0	-5.4	79	27+	27	1	426	0	0	0	1	0	2.49	-.65	.86	26	.0	0		5	3	0
EAST TROY	M	M	M																M	M				
GENOA CITY	68.0	43.5	55.8		81	7	36	11+	279	1	0	0	0	0	3.82		1.31	26	.0	0		5	3	2
GERMANTOWN	64.2	40.2	52.2	-2.8	82	27	31	28	392	4	0	0	2	0	1.33	-1.70	.56	30	.0	0		4	1	0
HALES CORNERS-WHITNALL	65.5	38.7	52.1		82	27	29	1	393	0	0	0	4	0	2.76		1.25	30	.0	0		6	2	1
HARTFORD 2 W	64.1	40.9	52.5	-3.5	82	27	30	19	380	1	0	0	2	0	1.35	-1.72	.60	30	.0	0		4	1	0
HOLY HILL 2 E	62.7	33.7	48.2		79	27	24	1	513	0	0	0	15	0	1.51		.52	30	.0	0		4	1	0
KENOSHA	61.0	43.5	52.3	-2.6	82	27	37	28	389	0	0	0	0	0	2.62	-.76	.59	26	.0	0		6	3	0
MILWAUKEE MT MARY COL	65.5	43.1	54.3	-4.5	83	27	35	4	329	5	0	0	0	0	1.58	-1.27	.67	30	.0	0		6	1	0
MILWAUKEE MITCHELL AP R	63.3	42.9	53.1	-3.0	81	26	38	19+	359	0	0	0	0	0	2.92	-.14	1.39	30	.0	0		4	2	1
OCONOMOWOC	65.9	43.7	54.8	-3.1	82	27	32	4	313	8	0	0	1	0	1.65	-1.49	.49	30	.0	0		6	0	0
PADDOCK LAKE	64.9	40.4	52.7		81	27	34	19	375	0	0	0	0	0	3.23		1.33	26	.0	0		5	3	1
PORT WASHINGTON	60.6	42.3	51.5	-2.9	85	27	32	1	415	2	0	0	1	0	1.11	-1.82	.49	30	.0	0		2	0	0
RACINE	59.5	44.8	52.2	-2.4	81	27	39	19+	389	0	0	0	0	0	2.63	-.65	1.23	26	.0	0		5	2	1
SOUTH MILWAUKEE WWTP	61.3M	43.5M	52.4M		81	27	38	4	384	0	0	0	0	0	2.57		1.82	30	.0	0		2	2	1
UNION GROVE	64.6	41.8	53.2		81	27	32	19	362	5	0	0	1	0	3.18	-.06			.0	0		5	2	0
WAUKESHA	64.3	41.5	52.9	-6.4	79	27+	28	1	373	4	0	0	1	0	2.23	-.79	.66	26	.0	0		6	2	0
WEST ALLIS	66.5	43.2	54.9	-3.7	83	27	35	4	312	6	0	0	0	0	2.66	-.42	.85	30	.0	0		6	3	0
WHITEWATER	65.6	41.9	53.8	-3.1	81	7	32	19	352	10	0	0	1	0	2.47	-.71	.84	30	.0	0		6	2	0
--DIVISIONAL DATA----->			52.8	-3.5											2.30	-.83			.0					

WISCONSIN
JUNE 2008

MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
JEFFERSON WWTP	79.6	60.1	69.9		88	9+	51	1	11	165	0	0	0	0	9.95		2.84	9	.0	0		7	4	4
LAKE MILLS	78.1	59.0	68.6	-.2	88	8	50	1	16	130	0	0	0	0	11.38	7.47	2.90	13	M .0	0		8	4	4
LODI	78.1	56.9	67.5		87	8	46	19	28	109	0	0	0	0	11.24		4.02	9	.0	0		10	4	3
MADISON DANE COUNTY AP R	77.5	58.6	68.1	1.1	86	7	50	19+	16	111	0	0	0	0	10.93	6.88	4.11	8	T	T		7	4	4
MAZOMANIE	77.2M	57.3M	67.3M		87	8	51	30+	23	99	0	0	0	0	8.96				.0	0		4	3	3
MONROE 1 W	80.5	59.2	69.9		90	8	51	19	10	162	1	0	0	0	10.25	5.27	3.12	9	.0	0		9	5	3
PORTAGE	77.3	59.5	68.4	1.8	85	8	50	1	19	131	0	0	0	0	18.27	14.10	6.21	8	.0	0		8	4	4
POYNETTE 7 WNW	77.4	57.8	67.6		85	8	47	19	18	104	0	0	0	0	M16.69				.0	0		6	4	3
STOUGHTON	78.0	58.4	68.2	.7	87	8	51	2	13	115	0	0	0	0	9.57	5.73	3.14	9	.0	0		8	5	3
SULLIVAN 3SE	77.1	56.7	66.9		86	8	48	1	34	97	0	0	0	0	12.08		3.80	8	.0	0		7	5	4
TOWN OF WESTFORD	76.5	57.8	67.2		84	27+	48	1	25	97	0	0	0	0	13.97		4.11	9	.0	0		8	4	4
WATERLOO	77.7	58.5	68.1		85	21	49	1	15	114	0	0	0	0	12.13		4.45	9	.0	0		8	4	4
WATERTOWN	76.7	58.2	67.5	.0	84	27+	49	1	20	100	0	0	0	0	14.82	10.51	3.98	8	.0	0		9	5	4
WISCONSIN DELLS	76.8	54.4	65.6	-.2	85	21	44	17	47	71	0	0	0	0	M11.34		4.08	8	.0	0		7	4	2
--DIVISIONAL DATA------->			67.9	.7											11.20	7.01			.0					
SOUTHEAST 09																								
BROOKFIELD	76.3	56.6	66.5		88	8	47	2	44	95	0	0	0	0	13.00		5.66	8	.0	0		8	4	4
BURLINGTON	77.2	55.9	66.6	.3	85	27+	45	1	36	92	0	0	0	0	6.55	2.59	2.55	9	.0	0		9	5	2
EAST TROY	M	M	M																M	M				
GENOA CITY	77.7	59.9	68.8		87	8	50	1	15	134	0	0	0	0	6.22		2.31	9	.0	0		9	4	1
GERMANTOWN	76.1	55.9	66.0	1.5	86	8	47	19+	48	88	0	0	0	0	9.87	6.05	2.85	13	.0	0		8	5	5
HALES CORNERS-WHITNALL	77.5	54.4	66.0		87	8	44	19+	55	91	0	0	0	0	13.75		5.00	8	.0	0		10	6	4
HARTFORD 2 W	75.8	56.1	66.0	.7	84	28+	47	1	44	81	0	0	0	0	14.09	10.27	4.95	8	.0	0		9	4	4
HOLY HILL 2 E	73.5	50.4	62.0		83	8	42	19	108	22	0	0	0	0	9.64		2.78	8	.0	0		9	4	4
KENOSHA	75.1	57.4	66.3	1.3	88	25+	49	1	41	84	0	0	0	0	5.29	1.70	2.25	8	.0	0		8	3	1
MILWAUKEE MT MARY COL	78.0	57.8	67.9	-.8	88	27+	49	1	32	125	0	0	0	0	8.53	4.82	2.05	9	.0	0		8	6	3
MILWAUKEE MITCHELL AP R	75.5	58.2	66.9	.6	86	26+	50	4+	49	109	0	0	0	0	12.27	8.71	4.93	7	.0	0		10	4	3
OCONOMOWOC	77.4	57.4	67.4	.2	86	8	48	1	22	102	0	0	0	0	11.56	7.59	3.56	8	.0	0		9	4	4
PADDOCK LAKE	78.1	57.4	67.8		87	27+	46	1	29	120	0	0	0	0	6.88		2.90	9	.0	0		10	3	2
PORT WASHINGTON	74.7	53.9	64.3	.1	89	27	48	2	63	49	0	0	0	0	11.02	7.44	3.10	13	.0	0		11	4	4
RACINE	74.4	57.4	65.9	.9	88	27	49	4	40	76	0	0	0	0	6.42	2.74	2.05	8	.0	0		9	4	2
SOUTH MILWAUKEE WWTP	76.2	57.0	66.6		88	27	48	4	48	103	0	0	0	0	11.95		5.06	8	.0	0		9	5	3
UNION GROVE	77.8	56.9	67.4		87	27+	46	1	34	112	0	0	0	0	7.35	3.34	2.54	9	.0	0		10	5	2
WAUKESHA	76.8	57.3	67.1	-2.0	85	8+	47	1	33	105	0	0	0	0	10.27	6.49	2.25	8	.0	0		12	5	4
WEST ALLIS	78.4	57.2	67.8	-.5	88	8	49	1	31	121	0	0	0	0	11.33	7.72	4.55	8	.0	0		11	4	4
WHITEWATER	77.8	57.4	67.6	1.0	86	8	46	1	24	108	0	0	0	0	10.86	7.08	3.37	9	.0	0		7	5	4
--DIVISIONAL DATA------->			66.6	.6											9.83	6.07			.0					

WISCONSIN
JULY 2008

MONTHLY STATION AND DIVISION SUMMARY

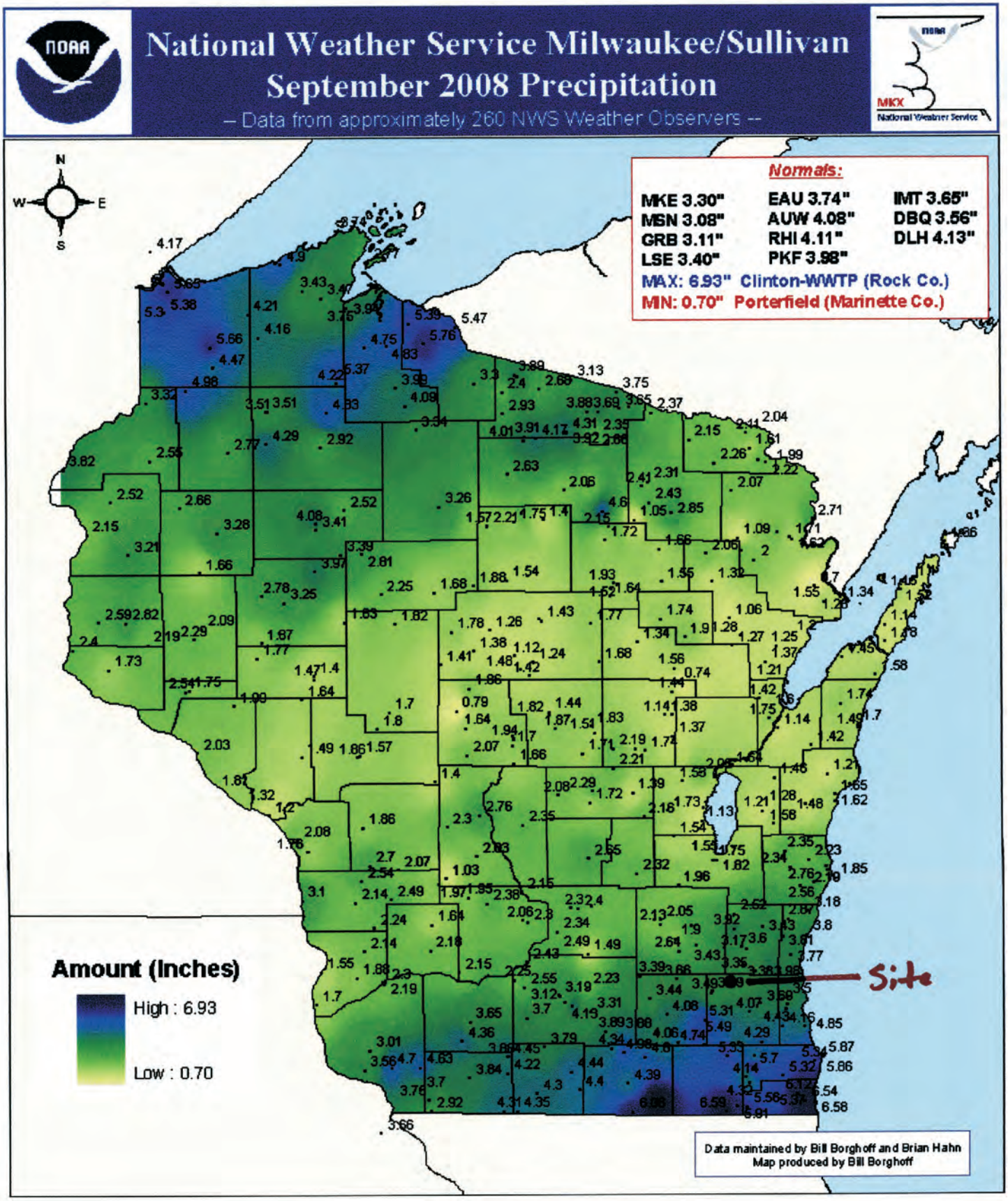
STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
JEFFERSON WWTP	83.6	63.1	73.4		91	17	53	4	1	270	2	0	0	0	5.44		2.02	11	.0	0		5	3	3
LAKE MILLS	82.7	62.2	72.5	-1.0	89	31+	51	4	2	241	0	0	0	0	6.14	2.02	2.63	12	.0	0		5	3	3
LODI	83.3	59.0	71.2		91	18+	49	1	2	198	2	0	0	0	4.85		1.67	12	.0	0		9	3	2
MADISON DANE COUNTY AP R	82.0	61.6	71.8	.2	88	16	49	4	2	220	0	0	0	0	5.62	1.69	2.74	11	.0	0		6	3	2
MAZOMANIE	82.7	59.6	71.2		88	31+	47	5+	5	204	0	0	0	0	6.69		4.45	11	.0	0		5	3	2
MONROE 1 W	84.3	61.4	72.9		90	30+	52	1	0	249	5	0	0	0	3.78	-.46	.80	8	.0	0		7	4	0
PORTAGE	82.2	61.5	71.9	1.3	90	17	52	4	2	223	1	0	0	0	3.84	-.61	1.25	12	.0	0		6	3	2
POYNETTE 7 WNW	82.5	61.1	71.8		90	17	52	6+	1	216	1	0	0	0	M 3.30		1.54	11	.0	0		5	2	2
STOUGHTON	82.6	60.6	71.6	.1	89	29	51	4	2	214	0	0	0	0	4.42	.60	2.28	11	.0	0		4	3	1
SULLIVAN 3SE	81.2	59.7	70.5		88	31+	46	4	9	187	0	0	0	0	5.40		2.64	11	.0	0		5	3	2
TOWN OF WESTFORD	81.0	60.1	70.6		87	17+	50	4	5	186	0	0	0	0	3.86		1.33	8	.0	0		4	4	2
WATERLOO	82.2	61.4	71.8		89	17	49	4	3	223	0	0	0	0	3.89		1.27	8	.0	0		5	3	3
WATERTOWN	81.1	60.6	70.9	-.9	87	31+	51	4	4	191	0	0	0	0	7.11	2.68	2.48	12	.0	0		4	3	3
WISCONSIN DELLS	82.8	58.0	70.4	.4	89	16	46	4	4	178	0	0	0	0	6.43	2.33	2.90	10	.0	0		4	4	2
--DIVISIONAL DATA----->			71.3	.0											5.21	1.14			.0					
SOUTHEAST 09																								
BROOKFIELD	M	M	M																M	M				
BURLINGTON	80.0	58.8	69.4	-1.6	87	18+	46	6	14	158	0	0	0	0	5.05	1.28	1.40	11	.0	0		6	4	3
EAST TROY	M	M	M																M	M				
GENOA CITY	81.5	62.5	72.0		89	17	54	5	0	223	0	0	0	0	6.62		1.70	8	.0	0		6	5	4
GERMANTOWN	80.6	60.2	70.4	1.1	89	17	46	4	12	187	0	0	0	0	3.37	-.68	1.34	8	.0	0		5	2	1
HALES CORNERS-WHITNALL	81.5	57.8	69.7		91	17	46	5+	13	165	2	0	0	0	3.94		1.23	8	.0	0		6	4	1
HARTFORD 2 W	80.1	59.4	69.8	.1	88	17	48	5+	12	168	0	0	0	0	3.78	-.35	1.12	8	.0	0		6	2	1
HOLY HILL 2 E	78.0	52.1	65.1		86	18	41	4	55	65	0	0	0	0	3.20		1.46	8	.0	0		6	2	1
KENOSHA	79.5	62.3	70.9	-.4	90	17	52	4	7	198	1	0	0	0	5.16	1.48	1.41	11	.0	0		7	4	3
MILWAUKEE MT MARY COL	82.0	62.2	72.1	-2.2	91	18+	50	4	8	235	3	0	0	0	3.77	.31	1.48	8	.0	0		7	3	1
MILWAUKEE MITCHELL AP R	80.2	62.4	71.3	-.7	88	30+	50	4	11	214	0	0	0	0	3.20	-.38	1.29	7	.0	0		6	2	1
OCONOMOWOC	81.2	60.5	70.9	-.9	89	17	49	4	5	193	0	0	0	0	5.41	1.20	3.38	8	.0	0		5	2	2
PADDOCK LAKE	81.2	59.5	70.4		89	18+	47	5	10	184	0	0	0	0	5.82		2.20	12	.0	0		6	4	2
PORT WASHINGTON	77.8	58.8	68.3	-2.5	90	16	51	4	19	127	1	0	0	0	4.86	1.05	1.41	8	.0	0		6	4	2
RACINE	78.9	62.5	70.7	-.6	90	18	50	5	10	195	1	0	0	0	2.44	-1.13	.64	8	.0	0		6	1	0
SOUTH MILWAUKEE WWTP	79.5	62.4	71.0		89	31+	52	5	10	203	0	0	0	0	3.12		1.13	8	.0	0		6	2	1
UNION GROVE	81.2	59.9	70.6		89	18+	46	5	14	193	0	0	0	0	4.07	.43	1.26	11	.0	0		7	3	1
WAUKESHA	80.2	59.2	69.7	-4.1	87	17+	47	4	10	163	0	0	0	0	4.08	.25	1.70	8	.0	0		5	3	2
WEST ALLIS	82.9	61.4	72.2	-1.6	91	17	50	4	3	234	3	0	0	0	3.04	-.54	1.17	8	.0	0		6	2	1
WHITEWATER	81.3	59.9	70.6	-.3	88	8	46	4	9	189	0	0	0	0	3.83	-.11	1.59	11	.0	0		4	3	2
--DIVISIONAL DATA----->			70.3	-.9											4.15	.33			.0					

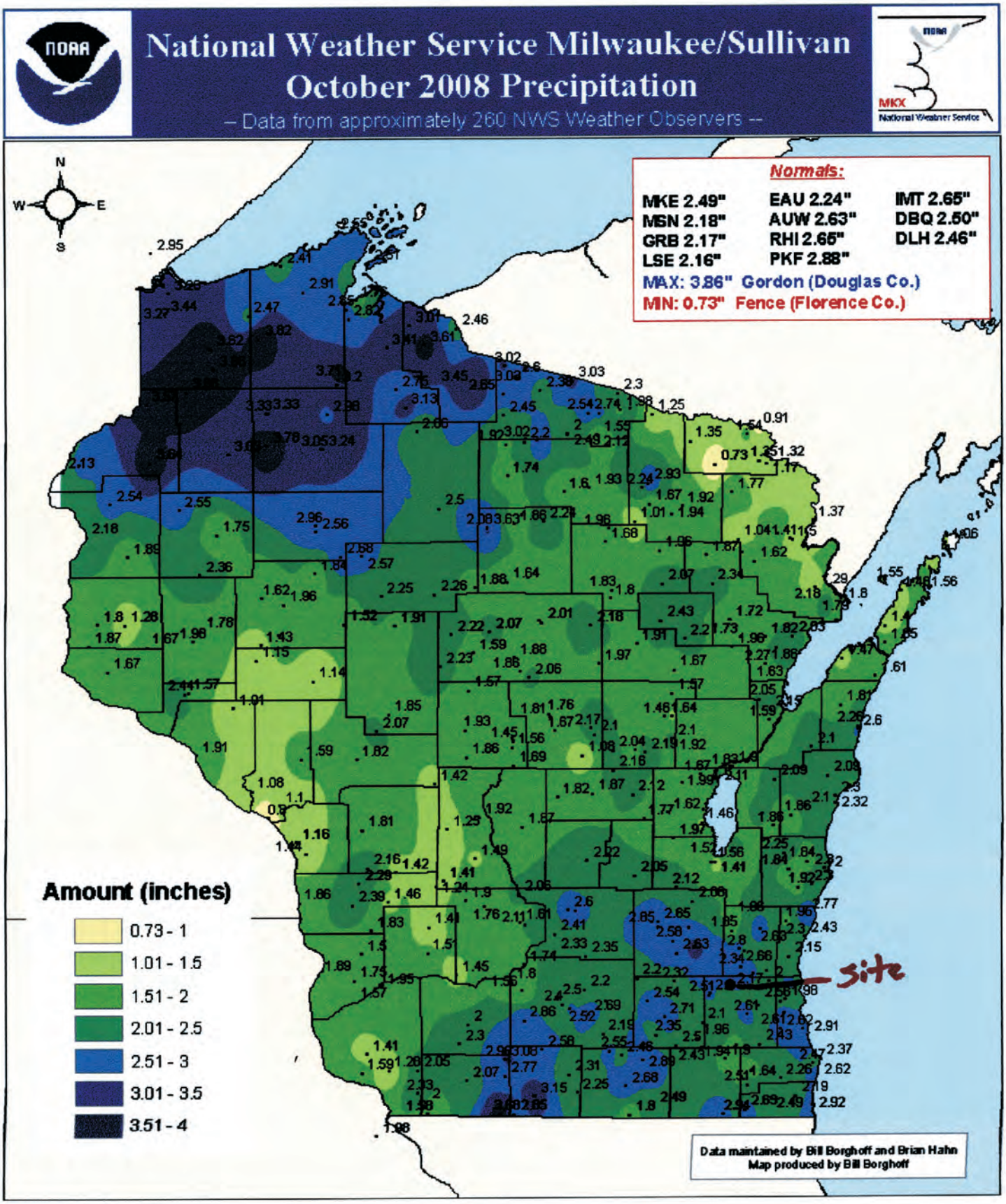
WISCONSIN
AUGUST 2008

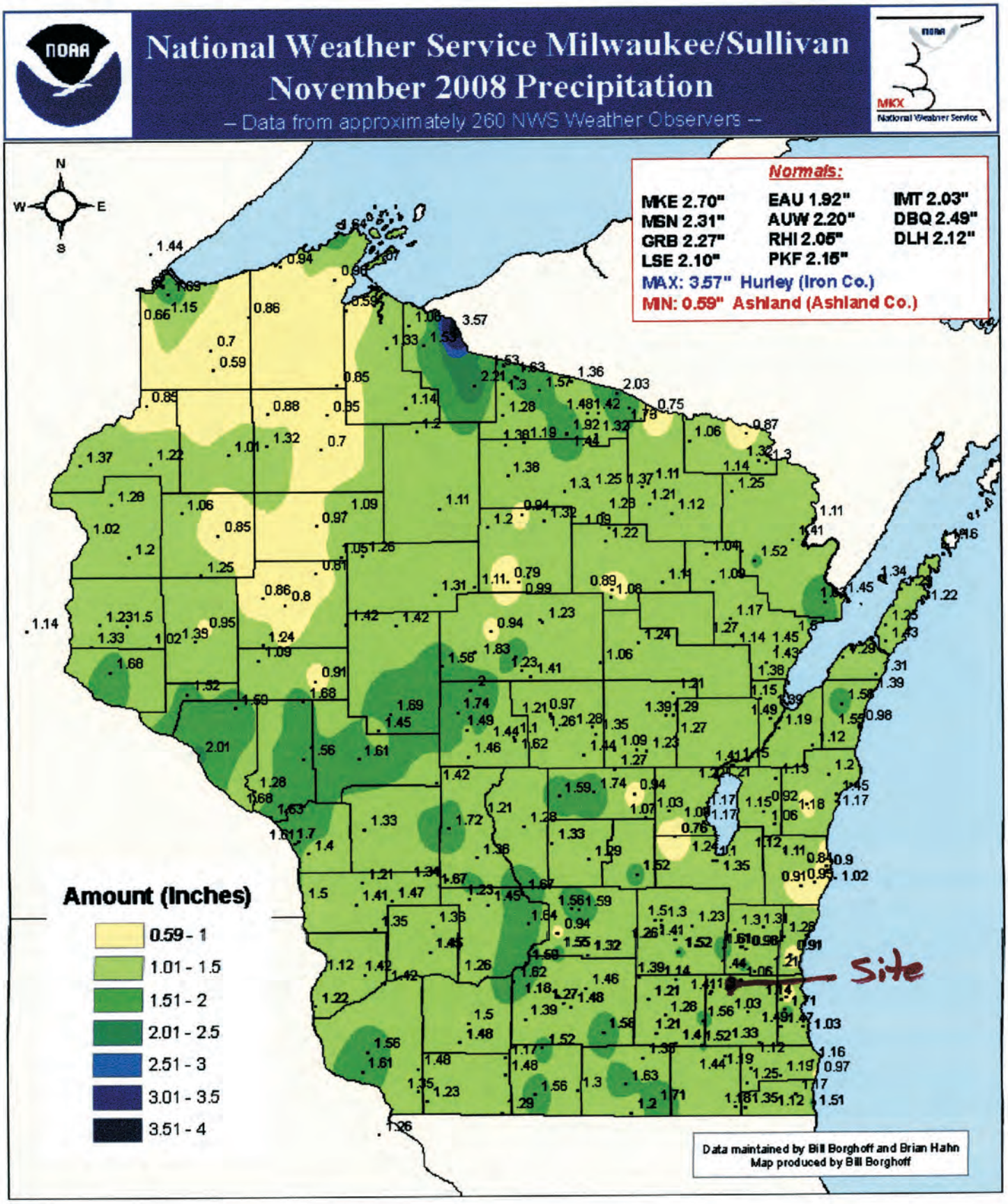
MONTHLY STATION AND DIVISION SUMMARY

STATION	TEMPERATURE (°F)														PRECIPITATION (IN)									
											NO. OF DAYS								ICE PELLETS, SNOW			NO. OF DAYS		
											MAX		MIN											
	AVERAGE MAXIMUM	AVERAGE MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	HIGHEST	DATE	LOWEST	DATE	HEATING DEG. DAYS	COOLING DEG. DAYS	>=90	<=32	<=32	<=0	TOTAL	DEPARTURE FROM NORMAL	GREATEST 24 HOURS	DATE	TOTAL	MAX DEPTH ON GROUND	DATE	.10 OR MORE	.50 OR MORE	1.00 OR MORE
HUSTISFORD WWTP	80.2	55.3	67.8		87	2	47	26	16	108	0	0	0	0	.87		.28	4	.0	0		4	0	0
JEFFERSON WWTP	82.2	59.5	70.9		90	2	53	30+	1	189	1	0	0	0	1.16		.46	14	.0	0		2	0	0
LAKE MILLS	81.8	58.5	70.2	-.4	89	2	50	27+	3	171	0	0	0	0	1.12	-3.49	.56	4	M .0	0		2	1	0
LODI	81.4	55.3	68.4		87	31+	46	26	12	123	0	0	0	0	2.97		.88	4	.0	0		9	2	0
MADISON DANE COUNTY AP R	81.1	57.2	69.2	.1	88	31	48	27+	8	144	0	0	0	0	1.41	-2.92	.95	4	.0	0		2	1	0
MAZOMANIE	81.1	55.3	68.2		88	31+	43	27+	15	121	0	0	0	0	M 1.36		.75	4	.0	0		3	1	0
MONROE 1 W	82.4	57.1	69.8		87	5+	50	25+	2	156	0	0	0	0	1.74	-2.79	.67	14	.0	0		6	1	0
PORTAGE	81.0	57.6	69.3	1.1	88	2	46	26	10	149	0	0	0	0	1.42	-2.91	.67	4	.0	0		3	2	0
POYNETTE 7 WNW	80.7	58.0	69.4		88	2	50	26+	3	148	0	0	0	0	2.57		.80	4	.0	0		5	3	0
STOUGHTON	81.4	57.8	69.6	.5	88	2	51	27	2	152	0	0	0	0	1.86	-2.20	.82	4	.0	0		5	1	0
SULLIVAN 3SE	80.9	56.7	68.8		88	31+	49	10	8	132	0	0	0	0	.98		.61	4	.0	0		2	1	0
TOWN OF WESTFORD	79.5	57.0	68.3		87	2	50	16+	5	115	0	0	0	0	1.52		.45	29	.0	0		4	0	0
WATERLOO	81.2	57.9	69.6		88	31+	49	27+	4	153	0	0	0	0	1.88		.68	4	.0	0		3	2	0
WATERTOWN	M	M	M																M	M				
WISCONSIN DELLS	81.5	54.3	67.9	.1	87	2	43	26	13	107	0	0	0	0	M 1.64		.53	5	.0	0		4	2	0
															1.76	-2.48			.0					
--DIVISIONAL DATA----->			69.0	.1																				
SOUTHEAST 09																								
BROOKFIELD	79.6	58.0	68.8		87	2	48	26	13	137	0	0	0	0	1.04		.51	4	.0	0		5	1	0
BURLINGTON	79.5	56.0	67.8	-1.1	87	2	49	27	12	103	0	0	0	0	1.18	-2.98	.64	5	.0	0		2	1	0
EAST TROY	M	M	M																M	M				
GENOA CITY	80.0	61.0	70.5		87	2	48	27+	6	183	0	0	0	0	1.74		.65	14	.0	0		4	2	0
GERMANTOWN	80.5	55.5	68.0	.7	88	31+	46	26	14	116	0	0	0	0	1.48	-2.80	.85	5	.0	0		4	1	0
HALES CORNERS-WHITNALL	80.8	55.7	68.3		89	2	48	26+	14	121	0	0	0	0	2.22		.95	14	.0	0		4	2	0
HARTFORD 2 W	78.9	54.9	66.9	-.6	85	31+	46	26	24	92	0	0	0	0	1.13	-3.02	.45	4	.0	0		4	0	0
HOLY HILL 2 E	76.5	49.2	62.9		83	31+	41	11+	91	35	0	0	0	0	1.35		.50	4	.0	0		4	1	0
KENOSHA	78.3M	63.7	71.0M	.2	87	18	55	10	0	191	0	0	0	0	1.09	-3.10	.92	4	.0	0		1	1	0
MILWAUKEE MT MARY COL	81.5	59.6	70.6	-1.4	89	2+	53	26+	3	184	0	0	0	0	1.11	-2.87	.80	4	.0	0		3	1	0
MILWAUKEE MITCHELL AP R	79.0	62.9	71.0	.4	88	5	54	10	2	195	0	0	0	0	.88	-3.15	.68	4	.0	0		2	1	0
OCONOMOWOC	81.1	58.6	69.9	.4	87	2	51	25	3	158	0	0	0	0	.88	-3.64	.43	4	.0	0		3	0	0
PADDOCK LAKE	80.4	57.0	68.7		89	2	49	27+	11	131	0	0	0	0	1.12		.50	4	.0	0		4	1	0
PORT WASHINGTON	78.7	59.9	69.3	-.9	89	18	52	10	5	149	0	0	0	0	2.42	-1.79	.98	2	.0	0		5	2	0
RACINE	76.9	64.7	70.8	.0	86	18	55	10	0	187	0	0	0	0	1.49	-2.59	.60	4	.0	0		4	1	0
SOUTH MILWAUKEE WWTP	78.5	63.1	70.8		88	31+	55	10	0	190	0	0	0	0	1.07		.78	4	.0	0		2	1	0
UNION GROVE	79.5	56.8	68.2		87	2+	48	30+	17	125	0	0	0	0	1.23	-3.26	.71	4	.0	0		2	1	0
WAUKESHA	79.5	57.2	68.4	-3.3	86	2	50	30	7	118	0	0	0	0	1.04	-3.73	.56	4	.0	0		3	1	0
WEST ALLIS	82.0	60.8	71.4	-.6	89	2	52	10	0	205	0	0	0	0	1.59	-2.34	1.00	4	.0	0		3	1	1
WHITEWATER	80.6	55.7	68.2	-.1	87	2	45	26	15	121	0	0	0	0	1.11	-3.53	.55	4	.0	0		2	1	0
--DIVISIONAL DATA----->			69.0	-.4											1.32	-2.90			.0					

Source: National Oceanic and Atmospheric Administration.


National Weather Service Milwaukee/Sullivan
September 2008 Precipitation
-- Data from approximately 260 NWS Weather Observers --
MKX
National Weather Service
Normals:
MKE 3.30"
MSN 3.08"
GRB 3.11"
LSE 3.40"
EAU 3.74"
AUW 4.08"
RHI 4.11"
PKF 3.98"
IMT 3.65"
DBQ 3.56"
DLH 4.13"
MAX: 6.93" Clinton-WWTP (Rock Co.)
MIN: 0.70" Porterfield (Marinette Co.)
N
W
E
S
Amount (Inches)
High : 6.93
Low : 0.70
Site
Data maintained by Bill Borghoff and Brian Hahn
Map produced by Bill Borghoff


National Weather Service Milwaukee/Sullivan
October 2008 Precipitation
– Data from approximately 260 NWS Weather Observers –
NOAA
MKX
National Weather Service
N
W
E
S
Normals:
MKE 2.49"
MSN 2.18"
GRB 2.17"
LSE 2.16"
EAU 2.24"
AUW 2.63"
RHI 2.65"
PKF 2.88"
IMT 2.65"
DBQ 2.50"
DLH 2.46"
MAX: 3.86" Gordon (Douglas Co.)
MIN: 0.73" Fence (Florence Co.)
Amount (inches)
0.73 - 1
1.01 - 1.5
1.51 - 2
2.01 - 2.5
2.51 - 3
3.01 - 3.5
3.51 - 4
site
Data maintained by Bill Borghoff and Brian Hahn
Map produced by Bill Borghoff



Source: National Oceanic and Atmospheric Administration.

Appendix G

CURRENT SEWRPC WETLAND DELINEATION REPORT

- Appendix G-1: 2007 aerial map exhibit showing project area, plant community numbers/locations, sample site numbers/locations, and wetland and primary environmental corridor boundaries
- Appendix G-2: Preliminary Vegetation Survey
- Appendix G-3: SEWRPC Field Data Forms
- Appendix G-4: Site Photographs

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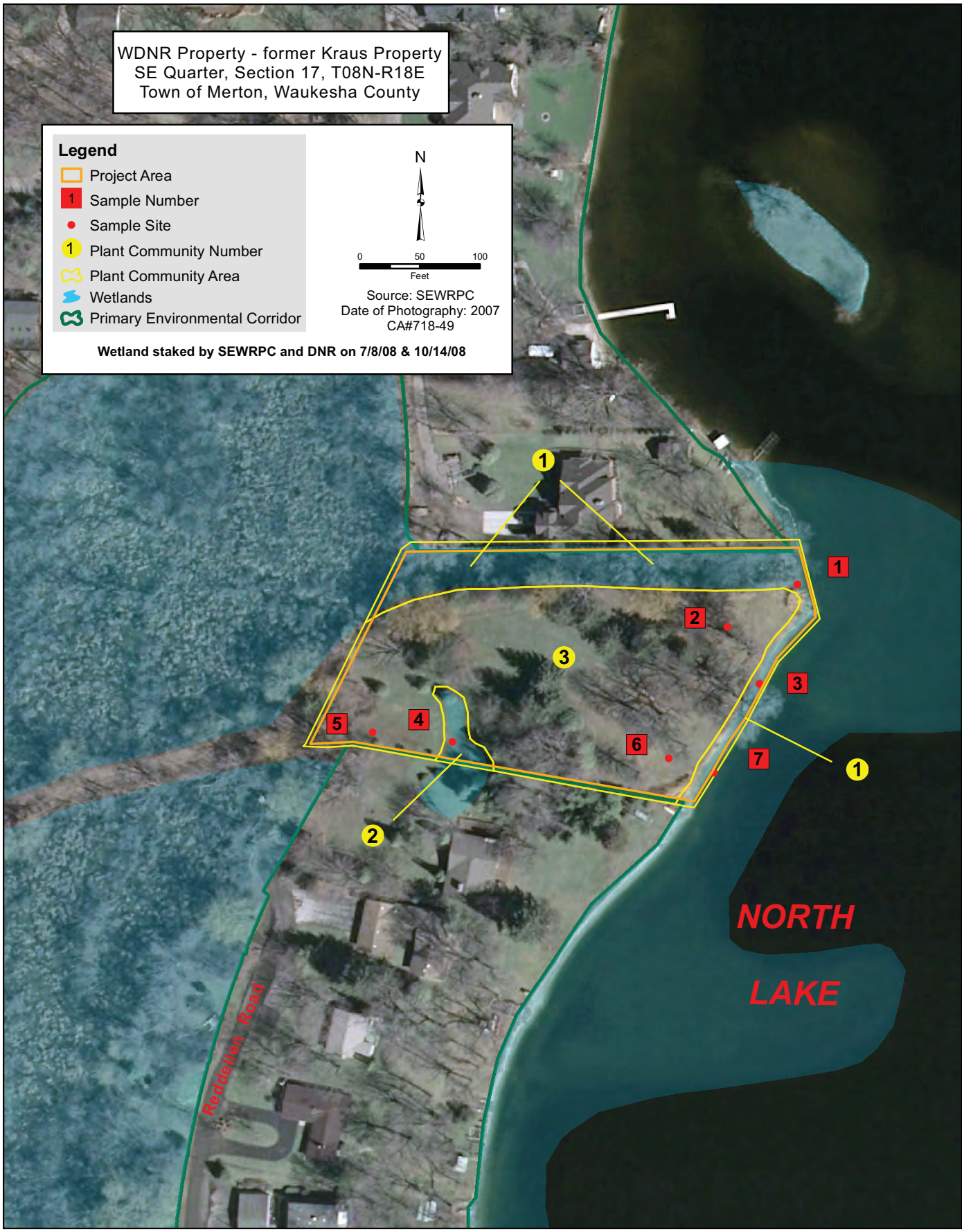
Appendix G-1

PLANT COMMUNITY AREAS AND SAMPLE SITE LOCATIONS



Appendix G-2

EXHIBIT A

PRELIMINARY VEGETATION SURVEY
PROPOSED NORTH LAKE ACCESS – WDNR PROPERTY
(FORMER THOMAS AND ELAINE KRAUS PROPERTY) WETLANDS

Dates: October 14, 2008
July 8, 2008
July 24, 2003

Observers: Donald M. Reed, Ph.D., Chief Biologist
Lawrence A. Leitner, Ph.D., Principal Biologist
Christopher J. Jors, Biologist
Southeastern Wisconsin Regional Planning Commission

Joanne Kline, Regional Wetland Biologist
Wisconsin Department of Natural Resources

Location: Town of Merton in parts of the Southeast one-quarter of U.S. Public Land Survey Section 17, Township 8 North, Range 18 East, Waukesha County, Wisconsin.

Species List: Plant Community Area No. 1

GRAMINEAE
- Poa pratensis[1]—-Kentucky bluegrass
- Phalaris arundinacea[1]--Reed canary grass
- Miscanthus sp.[1,2]--Japanese plume grass

CYPERACEAE
- Scirpus atrovirens--Green bulrush
- Carex stipata--Sedge
- Carex bebbii--Sedge
- Carex lacustris--Lake sedge

ARACEAE
- Symplocarpus foetidus--Skunk cabbage

LILIACEAE
- Hemerocallis fulva[1]--Day-lily

IRIDACEAE
- Iris virginica--Virginia blueflag

SALICACEAE
- Populus deltoides--Cottonwood
- Salix babylonica[1]--Weeping willow
- Salix nigra--Black willow
- Salix exigua--Sand-bar willow

JUGLANDACEAE
- Juglans nigra—-Black walnut

BETULACEAE
- Alnus rugosa--Tag alder

ULMACEAE
- Ulmus americana--American elm

Appendix G-2 (continued)

URTICACEAE
Boehmeria cylindrical—-False nettle
Pilea pumila--Clearweed

POLYGONACEAE
Polygonum persicaria[1]--Lady's thumb

SAXIFRAGACEAE
Ribes americanum--Wild black currant

ROSACEAE
Geum canadense--White avens
Rubus occidentalis--Black raspberry

ACERACEAE
Acer saccharinum--Silver maple
Acer negundo--Boxelder

BALSAMINACEAE
Impatiens capensis--Jewelweed

RHAMNACEAE
Rhamnus cathartica[1]--Common buckthorn
Rhamnus frangula[1]--Glossy buckthorn

VITACEAE
Vitis riparia--River-bank grape
Parthenocissus quinquefolia--Virginia creeper

LYTHRACEAE
Lythrum salicaria[1]--Purple loosestrife

ONAGRACEAE
Circaea lutetiana--Enchanter's nightshade

UMBELLIFERAE
Cicuta bulbifera--Water-hemlock
Cicuta maculata--Spotted water-hemlock

CORNACEAE
Cornus amomum--Silky dogwood
Cornus stolonifera--Red-osier dogwood

PRIMULACEAE
Lysimachia thyrsiflora--Tufted loosestrife

OLEACEAE
Fraxinus pennsylvanica--Green ash

CONVOLVULACEAE
Convolvulus sepium--Hedge bindweed

VERBENACEAE
Verbena urticifolia--White vervain

LABIATAE
Glechoma hederacea[1]--Creeping Charlie
Stachys palustris--Hedge-nettle

SOLANACEAE
Solanum dulcamara[1]--Deadly nightshade

CAPRIFOLIACEAE
Sambucus canadensis--Elderberry

COMPOSITAE
Ambrosia artemisiifolia--Common ragweed
Xanthium strumarium—Cocklebur
Aster lateriflorus—-Calico aster
Eupatorium rugosum--White snakeroot
Cirsium arvense[1]—-Canada thistle
Tragopogon dubius[1]—-Sand goat's beard

Total number of plant species: 50
Number of alien, or non-native, plant species: 12 (24 percent)

This approximately 0.2-acre plant community area is part of the North Lake floodplain-wetland complex and consists of second growth, Southern wet to wet-mesic lowland hardwoods and fresh (wet) meadow/shallow marsh along the shoreline. Disturbances to the plant community area include dumping, past filling, mowing, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to past ditching. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

_____

[1] Alien or non-native plant species
[2] Planted species

Plant Community Area No. 2

GRAMINEAE
Poa pratensis[1,2]—-Kentucky bluegrass
Agrostis stolonifera[1,2]--Redtop grass

CYPERACEAE
Eleocharis acicularis[1]--Needle spike-rush
Carex stipata--Sedge

POLYGONACEAE
Polygonum persicaria[2]--Lady's thumb

PORTULACACEAE
Portulaca oleracea[2]—Purslane

ACERACEAE
Acer saccharinum[1,3]—-Silver maple

LABIATAE
Glechoma hederacea[2]--Creeping Charlie
Prunella vulgaris--Selfheal

Total number of plant species: 9
Number of alien, or non-native, plant species: 5 (56 percent)

This approximately 0.05-acre plant community area consists of an ephemeral fresh (wet) meadow. Disturbances to the plant community area include past filling, establishment of a lawn, and frequent mowing. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

_____

[1] Co-dominant plant species
[2] Alien or non-native plant species
[3] Seedlings

Plant Community Area No. 3

PINACEAE
- Picea glauca[1]--White spruce
- Picea abies[1,2,3]--Norway spruce
- Larix decidua[1,2]--European larch
- Pinus strobus[1]--White pine

CUPRESSACEAE
- Thuja occidentalis[1]--White cedar

GRAMINEAE
- Poa pratensis[2,3]--Kentucky bluegrass
- Agropyron repens[2]--Quack grass
- Agrostis stolonifera[2]--Redtop grass
- Muhlenbergia schreberi--Muhly grass
- Phalaris arundinacea[2]--Reed canary grass
- Miscanthus sacchariflorus[2]--Silver grass

CYPERACEAE
- Carex blanda--Wood sedge

LILIACEAE
- Hemerocallis fulva[2]--Day-lily
- Smilacina stellata--Starry Solomons plume
- Convallaria majalis[2]--Lily-of-the-valley

SALICACEAE
- Populus deltoides--Cottonwood

JUGLANDACEAE
- Juglans nigra--Black walnut

FAGACEAE
- Quercus macrocarpa--Bur oak
- Quercus rubra--Northern red oak

ULMACEAE
- Ulmus americana--American elm

MORACEAE
- Morus alba[2]--White mulberry

URTICACEAE
- Parietaria pensylvanica--Pellitory

POLYGONACEAE
- Polygonum persicaria[2]--Lady's thumb

ROSACEAE
- Geum canadense--White avens
- Rubus occidentalis--Black raspberry
- Rubus strigosus--Red raspberry
- Prunus serotina--Black cherry

FABACEAE
- Melilotus alba[2]--White sweet clover

OXALIDACEAE
- Oxalis stricta--Common wood sorrel

ANACARDIACEAE
- Rhus glabra--Smooth sumac

Appendix G-2 (continued)

ACERACEAE
- Acer saccharinum--Silver maple
- Acer negundo--Boxelder

RHAMNACEAE
- Rhamnus cathartica[2,3]--Common buckthorn
- Rhamnus frangula[2,3]--Glossy buckthorn

VITACEAE
- Vitis riparia--Riverbank grape
- Parthenocissus sp.--Virginia creeper

TILIACEAE
- Tilia americana--Basswood

VIOLACEAE
- Viola sororia--Woolly blue violet

ELAEAGNACEAE
- Elaeagnus angustifolia[2]--Russian-olive

UMBELLIFERAE
- Daucus carota[2]--Queen Anne's lace

OLEACEAE
- Fraxinus americana--White ash
- Fraxinus pennsylvanica--Green ash

VERBENACEAE
- Verbena urticifolia--White vervain

LABIATAE
- Glechoma hederacea[2,3]--Creeping Charlie
- Prunella vulgaris--Selfheal
- Leonurus cardiaca[2]--Motherwort

SOLANACEAE
- Solanum dulcamara[2]--Deadly nightshade

BIGNONIACEAE
- Catalpa speciosa[2]--Catalpa

PLANTAGINACEAE
- Plantago major[2]--Common plantain
- Plantago lanceolata[2]--English plantain

CAPRIFOLIACEAE
- Viburnum opulus[2]--European highbush-cranberry
- Viburnum rafinesquianum--Downy arrowwood
- Lonicera X bella[2]--Hybrid honeysuckle

COMPOSITAE
- Ambrosia artemisiifolia--Common ragweed
- Xanthium strumarium--Cocklebur
- Solidago gigantea--Giant goldenrod
- Solidago altissima--Tall goldenrod
- Aster lateriflorus--Calico aster
- Eupatorium rugosum--White snakeroot
- Cirsium arvense[2]--Canada thistle
- Taraxacum officinale[2]--Common dandelion
- Sonchus arvensis[2]--Sow thistle

Total number of plant species: 62
Number of alien, or non-native, plant species: 27 (44 percent)

This approximately 1.2-acre upland plant community area is part of a larger primary environmental corridor complex and consists of lawn, planted ornamentals, and upland woodland. Disturbances to the plant community area include mowing and selective cutting of trees. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

_____

[1] Planted tree species
[2] Alien or non-native plant species
[3] Co-dominant plant species

DOC'S # 138994

SEWRPC FIELD DATA FORM
ROUTINE WETLAND DETERMINATION

PROJECT NAME: Proposed North Lake Boat Launch Site **FILE NO.: CA** 718-49

LOCATION: Town of Merton, Waukesha **COUNTY,** SE ¼ **SECTION** 17**, T** 8 **N, R** 18 **E**

OBSERVERS: Donald M. Reed, Ph.D. - SEWRPC
Joanne Kline - DNR

PLANT COMMUNITY AREA NO.: 1 **TRANSECT NO.:** 1 **SAMPLE SITE NO.:** 1

DATE: July 8, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Carex lacustris (50)	Herb	OBL	Tragopogon dubius (8)	Herb	NI
Eupatorium rugosum (20)	Herb	FACU	Poa pratensis (5)	Herb	FAC-
Vitis riparia (20)	Herb	FACW-	Aster lateriflorus (2)	Herb	FACW-
Cornus amomum (8)	Shrub	FACW+	Stachys palustris (2)	Herb	OBL
Rhamnus cathartica (8)	Shrub	FAC-	Impatiens capensis (3)	Herb	FACW
Fraxinus pennsylvanica (10)	Tree	FACW	Salix exigua (5)	Shrub	OBL
Acer negundo (10)	Tree	FACW-	Fraxinus pennsylvanica (2)	Shrub	FACW
			Juglans nigra (2)	Shrub	NI
			Vitis riparia (2)	Shrub	FACW-

Percent of Dominant Species that are OBL, FACW, OR FAC: 71%

Plant Community Type: Shrub-carr with scattered lowland hardwoods

Remarks:

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☒ **Aerial Photographs**
- ☒ **Other**
- ☐ **FSA Slide Review**

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--(in.)
Depth of Soil Pit:	18(in.)
Depth to Free Water in Pit:	--(in.)
Depth to Saturated Soil:	6(in.)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☒ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☒ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Other (Explain in Remarks)**

Remarks: SEWRPC 2007 aerial photography; Sample point is located within the 2003 SEWRPC wetland delineation area.

SOILS

Map Unit Name
(Series and Phase): Matherton silt loam (MmA) **Drainage Class:** Somewhat poorly drained

Taxonomy (Subgroup): Udollic Endoaqualfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-6		10YR 2/1			Loam
6-14		10YR 3/1			Clay loam
14-18		10YR 3/1			Gravelly loam

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here): None of the gravel material was covered with organic material. The soils at this site have been manipulated in the past. An adjacent sample site (collected in 2003) was a Histosol (A1) and had an A4. Hydrogen sulfide hydric soils indicator.

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No** ☐**(If no, explain)** **Yes** ☐ **No** ☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No** ☐**(If yes, explain)**

Remarks: Soils were manipulated in the past to accommodate drainage from the west.

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

This Sampling Point is within a Wetland? ☒ **Yes** ☐**No**

Remarks: S3k wetland

PLANT COMMUNITY AREA NO.: 3 **TRANSECT NO.:** 1 and 2 **SAMPLE SITE NO.:** 2

DATE: July 8, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (80)	Herb	FAC-	Viola sororia (15)	Herb	FACU
Quercus macrocarpa (33)	Tree	FAC-	Plantago lanceolata (10)	Herb	FAC
Populus deltoides (25)	Tree	FAC+	Glechoma hederacea (10)	Herb	FACU
Fraxinus pennsylvanica (25)	Tree	FACW	Larix decidua (15)	Tree	NI
Percent of Dominant Species that are OBL, FACW, OR FAC: 50%					
Plant Community Type: Former lawn, currently not maintained.					
Remarks:					

HYDROLOGY

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**
- ☐ **FSA Slide Review**

☒ **No Recorded Data Available**

Field Observations:

- **Depth of Surface Water:** --**(in.)**
- **Depth of Soil Pit:** 23**(in.)**
- **Depth to Free Water in Pit:** 21.5**(in.)**
- **Depth to Saturated Soil:** 21.5**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☐ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Other (Explain in Remarks)**

Remarks:

SOILS

Map Unit Name
(Series and Phase): Matherton silt loam (MmA) **Drainage Class:** Somewhat poorly drained

Taxonomy (Subgroup): Udollic Endoaqualfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-6		7.5YR 2.5/1			Silty clay loam
6-8		7.5YR 2.5/1	7.5YR 5/4	Common/Distinct	Silty clay loam
8-15		10YR 4/2 (67%)			Clay loam
		10YR 3/1 (33%)			
15-22		10YR 3/1			Loam
22-23		10YR 7/2			Sandy marl

Wetland Soil Indicators:

☐**Histosol** ☐**Bright Mottling**
☐**Histic Epipedon** ☐**Concentrations**
☐**Sulfidic Odor** ☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime** ☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions** ☐**Listed on Local Hydric Soils List**
☐**Gleyed** ☐**Listed on National Hydric Soils List**
☐**Low-Chroma Colors** ☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
0 to 15" of old fill material associated with past land use activities; Buried horizon at 15"

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No** ☐**(If no, explain)** **Yes** ☐ **No** ☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No** ☐**(If yes, explain)**

Remarks: Past filling

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☐**Yes** ☒**No**
Wetland Hydrology Present? ☐**Yes** ☒**No**
Wetland Soils Present? ☐**Yes** ☒**No**

This Sampling Point is within a Wetland? ☐ **Yes** ☒**No**

Remarks: Upland, formerly maintained yard.

PLANT COMMUNITY AREA NO.: 1 **TRANSECT NO.:** 2 **SAMPLE SITE NO.:** 3

DATE: July 8, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Populus deltoides (8)	Herb	FAC+			
Acer saccharinum (5)	Herb	FACW			
Populus deltoides (45)	Tree	FAC+			
Percent of Dominant Species that are OBL, FACW, OR FAC: 100%					
Plant Community Type: Exposed sandy beach with scattered lowland hardwoods					
Remarks:					

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☒ **Aerial Photographs**
- ☐ **Other**
- ☐ **FSA Slide Review**

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	22**(in.)**
Depth to Free Water in Pit:	2**(in.)**
Depth to Saturated Soil:	0**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☒ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☒ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☒ **Plant morphological adaptations**
- ☐ **Other (Explain in Remarks)**

Remarks: SEWRPC 2007 aerial photography; Soils saturated to the surface; Shallow roots

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-22		7.5YR 4/1			Sand

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
Sample site is better represented by the mapped Sandy Lake Beaches (Sfb) soils unit.

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ **No** ☐**(If no, explain)**

Is the site a problem area?
Yes ☒ **No** ☐**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☐ **No** ☒**(If yes, explain)**

Remarks: Problem Soils: Sandy soil

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

This Sampling Point is within a Wetland? ☒ **Yes** ☐**No**

Remarks: Wetland on sandy soils

PLANT COMMUNITY AREA NO.: 2 **TRANSECT NO.:** 3 **SAMPLE SITE NO.:** 4

DATE: July 8, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (33)	Herb	FAC-	Polygonum persicaria (8)	Herb	FACW
Eleocharis acicularis (20)	Herb	OBL	Agrostis stolonifera (3)	Herb	FACW
Acer saccharinum (20)	Herb	FACW			
Percent of Dominant Species that are OBL, FACW, OR FAC: 67%					
Plant Community Type: Mowed lawn when dry					
Remarks:					

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☒ **Aerial Photographs**
- ☒ **Other**
- ☐ **FSA Slide Review**

☐ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	7.5**(in.)**
Depth of Soil Pit:	4**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	--**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☒ **Inundated**
- ☐ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**
- ☐ **Floodway**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☒ **Other (Explain in Remarks)**

Remarks: SEWRPC 2007 aerial photography; Sample point is located within the 2003 SEWRPC wetland delineation area; Depressional area

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-1.5		7.5YR 2.5/1			Muck
1.5-4		10YR 4/1	7.5YR 4/6	Common/Distinct	Loam
4					Refusal - Gravel

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator: A2. 2cm Muck (Test indicator in this region)

WWI Classification: --

Remarks (*If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here):
Old fill, refusal at 3 to 4" in 5 attempts. Soils are inundated; hydric by definition (criteria 3)

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No** ☐**(If no, explain)** **Yes** ☒ **No** ☐**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No** ☐**(If yes, explain)**

Remarks: Problem area - Seasonal wetland. Past filling and regular mowing when dry.

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

This Sampling Point is within a Wetland? ☒ **Yes** ☐**No**

Remarks: Seasonal/Atypical wetland

PLANT COMMUNITY AREA NO.: 3 **TRANSECT NO.:** 3 **SAMPLE SITE NO.:** 5

DATE: October 14, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (99)	Herb	FAC-	Glechoma hederacea (3)	Herb	FACU
Thuja occidentalis (3)	Tree	FACW	Acer saccharinum (1)	Herb	FACW
			Ulmus americana (1)	Herb	FACW-
			Taraxacum officinale (1)	Herb	FACU
Percent of Dominant Species that are OBL, FACW, OR FAC: 50%					
Plant Community Type: Formerly maintained lawn area					
Remarks: Thuja occidentalis was planted					

HYDROLOGY

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**
- ☐ **FSA Slide Review**

☒ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	9**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	--**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☐ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Floodway**
- ☐ **Other (Explain in Remarks)**

Remarks: One secondary indicator of hydrology present (however, the FACW species was planted).

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-1.5		10YR 2/2			Loam
1.5-9		10YR 5/2			Sand and gravel
9					Refusal

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☐**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks: *If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here:

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No** ☐**(If no, explain)** **Yes** ☐ **No** ☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No** ☐**(If yes, explain)**

Remarks: Past mowing and filling

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☐**Yes** ☒**No**
Wetland Hydrology Present? ☐**Yes** ☒**No**
Wetland Soils Present? ☐**Yes** ☒**No**

This Sampling Point is within a Wetland? ☐ **Yes** ☒**No**

Remarks:

PLANT COMMUNITY AREA NO.: 3 **TRANSECT NO.:** 4 **SAMPLE SITE NO.:** 6

DATE: October 14, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Poa pratensis (98)	Herb	FAC-	Plantago lanceolata (4)	Herb	FAC
Tilia americana (3)	Shrub	FACU	Glechoma hederacea (4)	Herb	FACU
Rhamnus cathartica (2)	Shrub	FAC-	Rhamnus cathartica (2)	Herb	FAC-
Tilia americana (33)	Tree	FACU	Taraxacum officinale (1)	Herb	FACU
Quercus macrocarpa (25)	Tree	FAC-	Ulmus americana (1)	Herb	FACW-
Fraxinus pennsylvanica (25)	Tree	FACW	Vitis riparia (1)	Shrub	FACW-
			Lonicera X bella (1)	Shrub	NI
Percent of Dominant Species that are OBL, FACW, OR FAC: 17%					
Plant Community Type: Former maintained lawn area with scattered hardwoods					
Remarks:					

HYDROLOGY

☐ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☐ **Aerial Photographs**
- ☐ **Other**
- ☐ **FSA Slide Review**

☒ **No Recorded Data Available**

Field Observations:

Depth of Surface Water:	--**(in.)**
Depth of Soil Pit:	8.5**(in.)**
Depth to Free Water in Pit:	--**(in.)**
Depth to Saturated Soil:	--**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☐ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**

Secondary Indicators (2 or more required):

- ☐ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☐ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Floodway**
- ☐ **Other (Explain in Remarks)**

Remarks: No hydrology indicators observed.

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-8.5		10YR 2/2			Loam
8.5					Refusal 1-3" cobbles and glacial till material

Wetland Soil Indicators:

☐**Histosol**	☐**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☐**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator:

WWI Classification: --

Remarks: *If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here:

SITE CONDITIONS

Do normal environmental conditions exist at the plant community? **Is the site a problem area?**
Yes☒ **No** ☐**(If no, explain)** **Yes** ☐ **No** ☒**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☒ **No** ☐**(If yes, explain)**

Remarks: Mowing of vegetation and past filling.

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☐**Yes** ☒**No**
Wetland Hydrology Present? ☐**Yes** ☒**No**
Wetland Soils Present? ☐**Yes** ☒**No**

This Sampling Point is within a Wetland? ☐ **Yes** ☒**No**

Remarks:

PLANT COMMUNITY AREA NO.: 1 **TRANSECT NO.:** 4 **SAMPLE SITE NO.:** 7

DATE: October 14, 2008

VEGETATION

Dominant Plant Species (%)	Stratum	Indicator	Other NON-Dominant Plant Species (%)	Stratum	Indicator
Salix exigua (33)	Herb	OBL	Ulmus americana (2)	Herb	FACW-
Phalaris arundinacea (25)	Herb	FACW+	Polygonum persicaria (2)	Herb	FACW
Salix exigua (15)	Shrub	OBL	Acer saccharinum (1)	Herb	FACW
			Cirsium arvense (1)	Herb	FACU
			Boehmeria cylindrica (1)	Herb	OBL
			Ambrosia artemisiifolia (1)	Herb	FACU
			Vitis riparia (1)	Shrub	FACW-

Percent of Dominant Species that are OBL, FACW, OR FAC: 100%

Plant Community Type: Fresh (wet) meadow with shrubs

Remarks:

HYDROLOGY

☒ **Recorded Data (Describe in Remarks):**

- ☐ **Stream, Lake or Tide Gauge**
- ☒ **Aerial Photographs**
- ☐ **Other**
- ☐ **FSA Slide Review**

☐ **No Recorded Data Available**

Field Observations:

- **Depth of Surface Water:** --**(in.)**
- **Depth of Soil Pit:** 17**(in.)**
- **Depth to Free Water in Pit:** 5.5**(in.)**
- **Depth to Saturated Soil:** 4.5**(in.)**

WETLAND HYDROLOGY INDICATORS

Primary Indicators:

- ☐ **Inundated**
- ☒ **Saturated in Root Zone (Upper 12")**
- ☐ **Water Marks**
- ☐ **Drift Lines**
- ☐ **Sediment Deposits**
- ☐ **Drainage Patterns in Wetlands**

Secondary Indicators (2 or more required):

- ☒ **Oxidized Root Channels in Root Zone(Upper 12")**
- ☐ **Water-Stained Leaves**
- ☐ **Local Soil Survey Data**
- ☒ **FAC-Neutral Test**
- ☐ **Plant morphological adaptations**
- ☐ **Floodway**
- ☐ **Other (Explain in Remarks)**

Remarks: Oxidized root channels from 0-3"

SOILS

Map Unit Name
(Series and Phase): Fox silt loam (FsA) **Drainage Class:** Well-drained

Taxonomy (Subgroup): Typic Hapludalfs

Field Observations Confirm Mapped Type? ☐**Yes** ☒**No** ☐**Other hydric soil within County***

Profile Description

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Redox Concentrations Color (Munsell Moist)	Redox Concentrations (Abundance/ Contrast)	Texture, Concretions, Structure, etc.
0-3		10YR 3/1			Sand and gravel
3-8		10YR 4/2	7.5YR 5/6	Common/Prominent	Sand and gravel
8-17		10YR 3/2	7.5YR 5/6	Common/Prominent	Course sand

Wetland Soil Indicators:

☐**Histosol**	☒**Bright Mottling**
☐**Histic Epipedon**	☐**Concentrations**
☐**Sulfidic Odor**	☐**High Organic Content in Surface Layer**
☐**Aquic Moisture Regime**	☐**Organic Streaking in Sandy Soils**
☐**Reducing Conditions**	☐**Listed on Local Hydric Soils List**
☐**Gleyed**	☐**Listed on National Hydric Soils List**
☒**Low-Chroma Colors**	☐**Other (Explain in Remarks)**

NRCS Mapped Type: NI - Not Inventoried

USDA Hydric Soils Field Indicator: Meets the A16. Coast Prairie Redox test indicator

WWI Classification: A1L

Remarks: *If field observations do not confirm mapped type but represent another hydric soil found in the county, check "other hydric soil" and describe here:

SITE CONDITIONS

Do normal environmental conditions exist at the plant community?
Yes☒ **No** ☐**(If no, explain)**

Is the site a problem area?
Yes ☒ **No** ☐**(if yes, explain)**

Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes☐ **No** ☒**(If yes, explain)**

Remarks: Problem area due to Sandy soils

WETLAND DETERMINATION

Based on the foregoing, are:

Hydrophytic Plants Dominant? ☒**Yes** ☐**No**
Wetland Hydrology Present? ☒**Yes** ☐**No**
Wetland Soils Present? ☒**Yes** ☐**No**

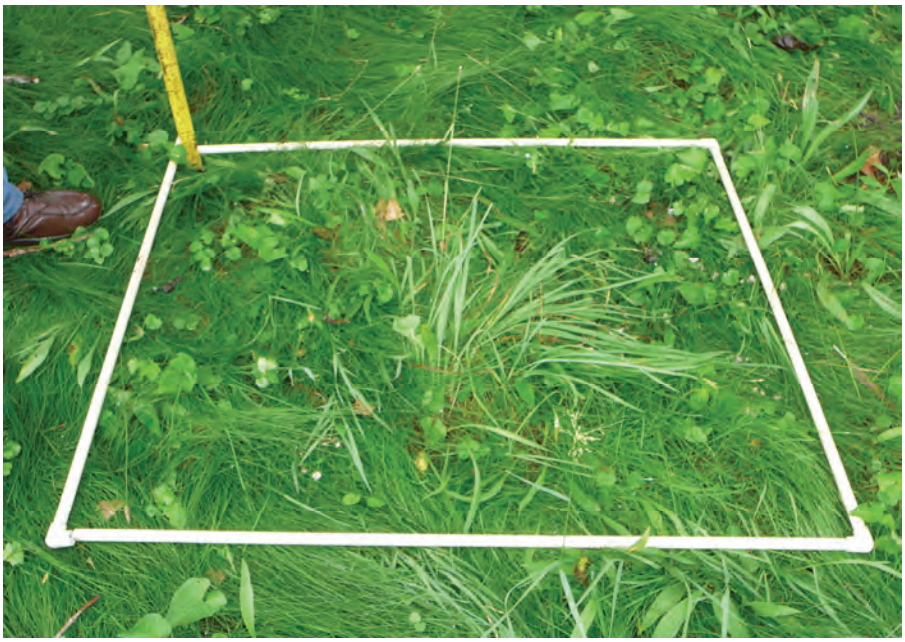
This Sampling Point is within a Wetland? ☒ **Yes** ☐**No**

Remarks:

Soil Sample Site No. 1: Plot
Date: 07/08/08

Soil Sample Site No. 1: 0 – 18”
Date: 07/08/08

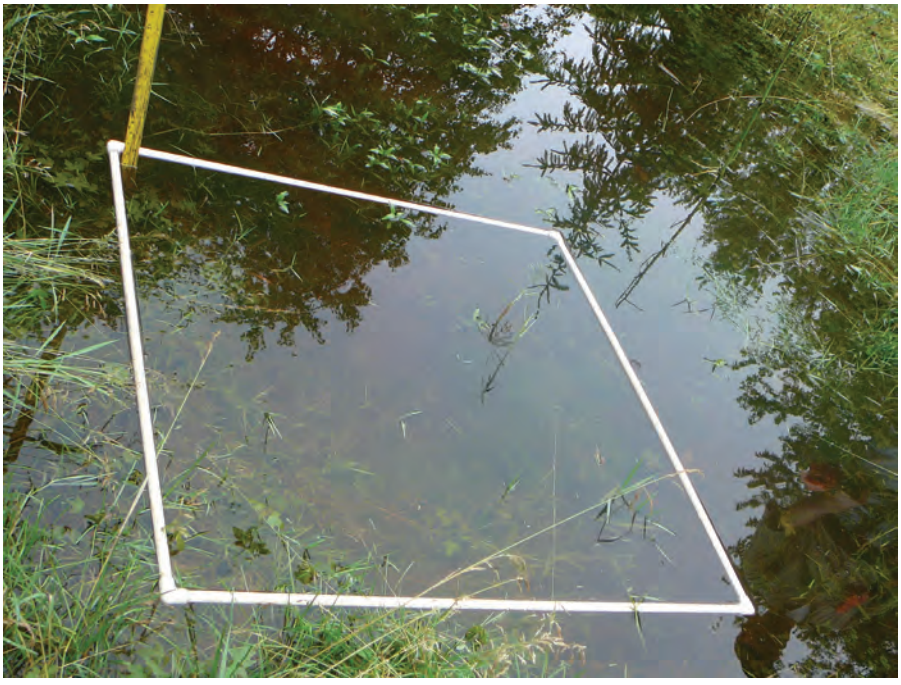
Soil Sample Site No. 2: Plot
Date: 07/08/08



Soil Sample Site No. 3: Plot
Date: 07/08/08

Soil Sample Site No. 3: 0 to 21”
Date: 07/08/08

Soil Sample Site No. 4: Plot with 7.5” of standing water
Date: 07/08/08



Soil Sample Site No. 5: Plot
Date: 10/14/08

Soil Sample Site No. 5: 0 – 2”
Date: 10/14/08

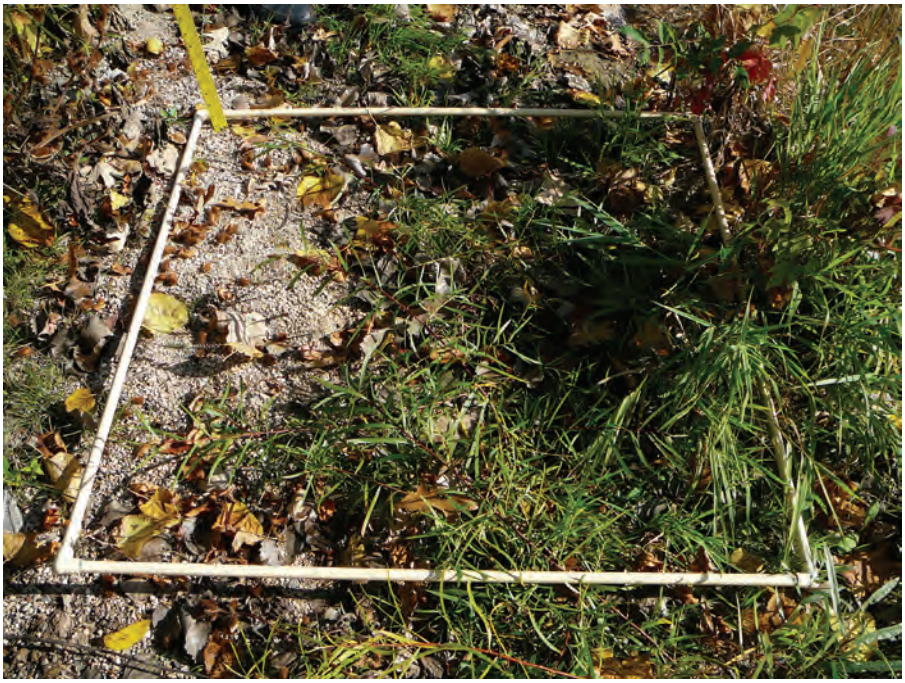
Soil Sample Site No. 5: 2 – 9”
Date: 10/14/08

Soil Sample Site No. 5: Pit
Date: 10/14/08

Soil Sample Site No. 6: Plot
Date: 10/14/08

Soil Sample Site No. 6: 0 – 8.5” with glacial cobbles
Date: 10/14/08

Soil Sample Site No. 7: Plot
Date: 10/14/08



Soil Sample Site No. 7: 0 – 3” oxidized root channels
Date: 10/14/08

Soil Sample Site No. 7: 3 – 8" rock with oxidized areas and saturation
Date: 10/14/08

North View of Soil Sample Site No. 1
Date: 07/08/08

North View from Soil Sample Site No. 5
Date: 10/14/08

North View from Soil Sample Site No. 6
Date: 10/14/08