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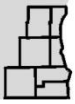


January 21, 2016

Ms. Jackie Kohn, P.E.
Senior Design Engineer
Kunkel Engineering Group, LLC
107 Parallel Street
Beaver Dam, WI 53916

Re: SEWRPC No. CA-618-140

Dear Ms. Kohn:

This will respond to your email message of September 3, 2015, requesting that the Commission staff conduct a field inspection of a proposed sanitary sewer extension easement across the Quaas Creek wetland complex north of Rusco Road and east of CTH P. The project area is located in parts of the Southwest one-quarter of U.S. Public Land Survey Section 25, Township 11 North, Range 19 East, City of West Bend, Washington County, Wisconsin. The purpose of the field inspection was to identify and stake the boundaries of any wetlands contained within the project area.

Pursuant to your request, Commission staff identified and staked the wetland boundaries within the project area on September 29, 2015. A copy of the wetland delineation report is attached for your reference.

Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Senior Specialist-Biologist (*cjors@sewrpc.org* or 262-953-3246).

Sincerely,

Kenneth R. Yunker, P.E.
Executive Director

KRY/TMS/CJJ/kmd
#230002 – CA618-140 Sewer Extension at Quaas Creek N of Rusco Rd Letter

Enclosure (#230010)

cc: Mr. Max Marechal, P.E., City of West Bend (w/enclosure)
Ms. Kathleen Kramasz, Wisconsin Department of Natural Resources (w/enclosure)
Mr. Neil Molstad, Wisconsin Department of Natural Resources (w/enclosure)
Ms. Marie Kopka, U.S. Army Corps of Engineers (w/enclosure)

WETLAND DELINEATION REPORT

CITY OF WEST BEND PROPOSED SANITARY SEWER EXTENSION UNDER QUAAS CREEK

SW Quarter, Section 25, T11N, R19E
CITY OF WEST BEND
WASHINGTON COUNTY
WISCONSIN

Prepared by:

Jennifer Dietl
Christopher Jors
Daniel Carter

Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Jackie Kohn, Kunkel Engineering Group - on behalf of the City**
- Why the delineation was undertaken – **Proposed sanitary sewer extension under Quaas Creek**
- Date the field work was completed – **September 29, 2015**
- Who conducted field work – **Jennifer Dietl, Christopher Jors, Daniel Carter**
- Statement of Qualifications

METHODS

- Description of Methods
- Sources Reviewed
    - Topographic Map – **Exhibit 1**
    - WDNR Surface Water Data Viewer - Wisconsin Wetland Inventory (WWI) Map – **Exhibit 2**
    - Soil Survey and Floodplain Map – **Exhibit 3**
    - Historical Aerial Photos – **Exhibits 4A to 4K (2015, 2010, 2005, 2000, 1995, 1990, 1980, 1970, 1963, 1950, and 1941)**
    - Sanitary Sewer Service Map – **Exhibit 5**
    - Draft NRCS Wetland Inventory Map **- Exhibit 6**
    - Advanced Identification (ADID) Wetland Map – **Exhibit 7**
- Description of any site specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis **- Normal**
- Previous wetland delineation mapping – **None**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetland and upland forest in the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other water resources located in the project area
- Other considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 8**

Vegetation Survey and Wetland Delineation Data Forms

- Preliminary Vegetation Survey – **Exhibit 9**
- Wetland Determination Data Forms – NE/NC Region – **Exhibit 10**

Site Photos – **Exhibit 11**

Farm Service Agency Slide Review **- Not Applicable**

INTRODUCTION

This wetland delineation report responds to an e-mail request from Jackie Kohn, PE, Kunkel Engineering Group on behalf of the City of West Bend to identify the boundaries of any wetland in a specified project area for a proposed sanitary sewer extension under Quaas Creek. The subject project area is located in the Southwest one-quarter of U.S. Public Land Survey Section 25, Township 11 North, Range 19 East, City of West Bend, Washington County, Wisconsin.

Statement of Qualifications

Jennifer Dietl, Specialist-Biologist, earned a Bachelor's degree in Biology and Environmental Science from Carroll University in 1992. She has worked at the Commission from 1992 to 1997 and from 2006 to the present conducting wetland delineations, primary environmental corridor delineations, and vegetation surveys. In between years of service at the Commission she worked for the Wisconsin Department of Transportation – Green Bay as an LTE Environmental Analysis and Review Specialist – and the Wisconsin Department of Natural Resources – Green Bay as an LTE Hydrologist. Jennifer attended a Wisconsin Dept. of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014 and the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015.

Christopher Jors, Senior Specialist-Biologist, has worked at SEWRPC since 1993, and has been part of the wetland delineation team since 1994. He received a Bachelor's degree in Conservation Aspects of Biology from the University of Wisconsin – Milwaukee in 1992. Prior to working at SEWRPC, Chris worked at the UWM Field Station at the Cedarburg Bog in Saukville, WI, where he learned methods of sampling wetland plant communities within the Bog. Chris has attended various wetland training workshops including the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; a Wisconsin Dept. of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014; and a U.S. Army Corps of Engineers Workshop on the Midwest Supplement to the 1987 Wetland Delineation Manual on February 3, 2009.

Daniel Carter, PhD, Principal Biologist, has worked at SEWRPC since 2013. He graduated with honors from Grinnell College with a Bachelor's degree in Biology. He later received a PhD in Biology from Kansas State University. Daniel has published several plant ecology articles in peer-reviewed journals, served on the botany team for the Wisconsin Wildlife Action Plan, and co-teaches the UW-La Crosse Basic Wetland Plant Identification course. He has completed both basic and advanced wetland delineation training as well as Wisconsin Natural Heritage Inventory training. Prior to working for the Commission, Daniel served as project coordinator for a grassland restoration project overseen jointly by the United States Department of Agriculture and The Nature Conservancy and taught high school Biology.

METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the January 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources*; and the State of Wisconsin 2014 Wetland Plant List.

Specific methods used to field identify wetland boundaries included the U.S. Department of the Army Corps of Engineers Routine Onsite Determination Method – Plant Community Assessment Procedure. This procedure requires an initial identification of representative plant community types in the project area followed by a characterization of vegetation, soils, and hydrology for each type.

Sources Reviewed

Prior to conducting field work, Commission staff reviewed the following data sources: Washington County's topographic mapping (Exhibit 1), WDNR Surface Water Data Viewer - Wisconsin Wetland Inventory Map (Exhibit 2), Natural Resource Conservation Service's (NRCS) soil survey and FEMA Floodplains (Exhibit 3), Commission aerial photography (Exhibits 4A – 4K), Sanitary Sewer Service Map (Exhibit 5), draft NRCS Wetland Inventory Map (Exhibit 6), ADID Wetland Map (Exhibit 7), and precipitation data from the NRCS "WETS" tables.

RESULTS AND DISCUSSION

Jennifer Dietl, lead investigator, Christopher Jors and Dr. Daniel Carter, identified and staked the boundaries of the wetlands contained within the project area on September 29, 2015. Wetland boundaries were marked with orange wire flags and ribbon. Kunkel Engineering or City staff were responsible for surveying the wetland boundary markers.

The results of the wetland delineation field inspection for this project area are shown on Exhibit 8, which includes sample site numbers and locations, and staked wetland boundaries.

Antecedent Hydrologic Conditions

WETS Station: GERMANTOWN, WI3058 Observed Precip: WEST BEND PUBLIC WORKS WI9052

Climatological data were taken from the nearest WETS stations with relevant data.

	Month	3 yrs. In 10 less than	Normal	3 yrs. In 10 more than	Observed precip.	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month	September	2.03	3.53	4.35	3.94	Normal	2	3	6
2nd prior month	August	2.98	4.28	5.08	5.53	Wet	3	2	6
3rd prior month	July	2.70	4.05	4.85	3.31	Normal	2	1	2
								sum	14

If sum is	
6 - 9	drier than normal
10 - 14	normal
15 - 18	wetter than normal

Conclusion Normal

Previous wetland delineation mapping – None

Existing Environmental Mapping

The Washington County topographic map (Exhibit 1) shows the project area encompassing a high point of 934 feet above sea level at Rusco Drive in the southern most portion of the project area and dropping down to 918 feet above sea level at Quaas Creek near the northern portion of the project area. A small intermittent drainage way running from south to north is also visible in the project area.

The WDNR Surface Water Data Viewer - Wisconsin Wetland Inventory map (WWI) (Exhibit 2) indicates one mapped wetland complex in the project area that is classified as containing two wetland types. The first area encompasses lands along either side of Quaas Creek and is classified as shrub-carr (S3K). The second, on the south part of the project area, is classified as shrub-carr/wet meadow (S3/E1K). Quaas Creek flows from west to east across the project area and is classified by WDNR as a Cool-Cold Headwater, Cool-Warm Headwater, 2nd order stream. It is considered to be in good condition.

The NRCS Soil Survey map (Exhibit 3) shows the Quaas Creek floodway and the 100-year floodplain coincide within the project area. The following soils are in the project area:

Soil Name	Slope %	Hydric Rating	% Soil Component in Project Area	Sample site(s)
Colwood silt loam (Cw)	0-2%	Hydric	46.7%	3 and 4
Granby fine sandy loam (GfA)	0-3%	Hydric	53.1%	1 and 2
Ozaukee silt loam (OuC2)	6-12%, eroded	Non-hydric	0.2%	

Historical aerial photos of the project area were reviewed going back to 1941. Orthophotographs (2015, 2010, 2005, 2000, and 1995) and aerial photos (1990, 1980, 1970, 1963, and 1941) are attached (see Exhibits 4A-4K). This review is summarized in the table below.

CHANGES IN LAND USE OBSERVED ON AERIAL PHOTOGRAPHY FROM 1941 TO 2015

Year	General Land Use Description
1941	Lands in the project area are in agricultural production. A farmstead is present, outside of the project area, to the southwest. A farm access road from the farmstead crosses Quaas Creek in the project area.
1950	Lands in the project area appear to be fallow or have been taken out of row crop production.
1963	Lands in the project area are fallow. While the bridge over Quaas Creek is still visible, the farm access road on the north side of Quaas Creek is less visible. Farm buildings in and outside of the project area have been torn down.
1970	No changes.
1980	Lands on the southeast side of the project area appear to be farmed once again. The farm access road shows usage again with visible trails on the north side of Quaas Creek. Vegetation on the west side of the project area is increasing in shrub and tree coverage.
1990	Lands to east are fallow once again. Vegetation in project area is increasing in shrub and tree coverage.
1995	No changes.
2000	No changes in the project area. Lands to the northwest of the project area are being developed into a residential subdivision.
2005	Continued development to the north of the project area. A constructed stormwater pond is directly north of the project area.
2010	No changes.
2015	Silt fences have been installed in part of the project area and continue outside of the project area towards the east. The photo also shows that outside of the project area filling, dumping, and grading work is going on inside portions of the silt fence.

SEWRPC's sanitary sewer map (Exhibit 5) shows that the project area is located in the City of West Bend and Environs planned sanitary sewer service area. Lands in the project area fall in a Primary Environmental Corridor (PEC).

The draft NRCS Wetland Inventory Map (Exhibits 6) shows that lands in the project area are identified as wetland (W).

The ADID wetland map (Exhibit 7) indicates that all lands in the project area are located in a designated Primary Environmental Corridor (PEC) and, as such, have been designated as ADID wetlands under the Section 404(b)(1) Guidelines of the Clean Water Act.

Amount and Types of Wetlands in the Project Area

One wetland was identified and inventoried within the project area (Exhibit 8). This approximately 1.6-acre wetland is part of the Quaas Creek floodplain-wetland complex and consists of second growth, Southern wet to wet-mesic lowland hardwoods with scattered stands of fresh (wet) meadow. Disturbances to the wetland include dumping, past filling for a farm access road, ditching and side casting of dredge spoil material south of Quaas Creek, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to ditching. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

Exhibit 9 contains a list of vascular plant species observed in the wetlands during the field inspection.

Wetland/Upland Boundary Explanation

Four representative sample sites were identified within the project area. The Wetland Determination Data Forms describing the findings at each sample site are attached as Exhibit 10. The locations of the sample sites are shown on Exhibit 8. The wetland boundary was determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

Disturbed and Problematic Areas Encountered

Soils at wetland sample sites 2 and 4 were naturally problematic hydric soils. The Problematic hydric soil indicator A16. Coast Prairie Redox, was observed at wetland sample site 2. Low chroma colors were present in the upper layers over a depleted matrix at sample site 4. Professional judgment was used to include sample site 4 as wetland due to the presence of low chroma soils with dominant hydric vegetation and observation of three secondary wetland hydrology indicators.

Other Water Resources Located in the Project Area

No other water resources are located in the project area. However, Quaas Creek and the wetlands delineated continue outside of the project area.

Other Considerations

Please be advised that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report. The wetlands located within the recorded Primary Environmental Corridor (PEC) shown on Exhibit 8 have been designated as Advance Delineation and Identification (ADID) wetlands under Section 404(b)(1) Guidelines of the Clean Water Act and are deemed generally unsuitable for the discharge of dredge and fill material. In addition, recent revisions of the nonagricultural performance standards set forth in Section NR 151.125 of the Wisconsin Statues, requires establishment of a 75-foot impervious surface protective area to protect these higher quality wetland. This designated protective area boundary is measured horizontally from the delineated wetland boundary to the closest impervious surface. The protective area requirements should be taken into consideration for any planned improvements on the subject property and it is suggested that you contact WDNR regarding approaches to meet the requirements.

LITERATURE CITED

U.S. Army Corps of Engineers, 2015, Special Public Notice: *Guidance for Submittal of Delineation Reports to the St. Paul District Corps of Engineers and the Wisconsin Department of Natural Resources*, U.S. Army Corps of Engineers, March 2015.

U.S. Army Corps of Engineers, 2014, State of Wisconsin Wetland Plant List

U.S. Army Corps of Engineers, 2012, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0). U.S. Army Engineer Research and Development Center, January 2012.

USDA Natural Resources Conservation Service, 2010, *National Food Security Act Manual, Fifth Edition, Part 514.60*, November 2010.

U.S. Army Corps of Engineers, 1987, U.S. Army Corps of Engineers wetlands delineation manual. Wetlands Research Program Technical Report Y-87-1.

WDNR, Surface Water Data Viewer, website at http://dnrmaps.wi.gov/sl/?Viewer=SWDV

JLD/CJJ/kmd
#229912 – CA618-140 City of West Bend Proposed Sewer under Quaas Creek WD
300-2000

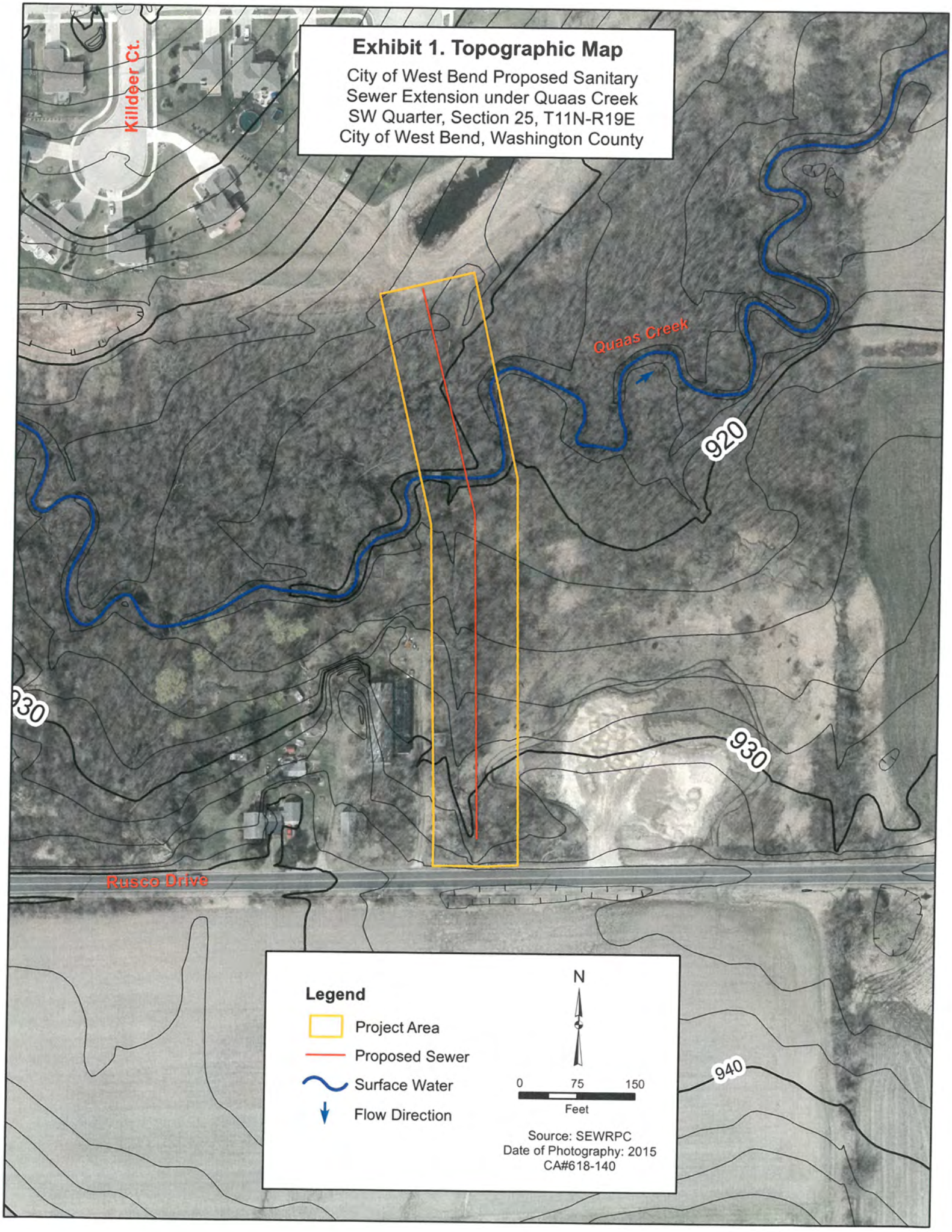


Exhibit 1. Topographic Map
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Quaas Creek
920
930
930
Rusco Drive
940
Legend
Project Area
Proposed Sewer
Surface Water
Flow Direction
N
0
75
150
Feet
Source: SEWRPC
Date of Photography: 2015
CA#618-140

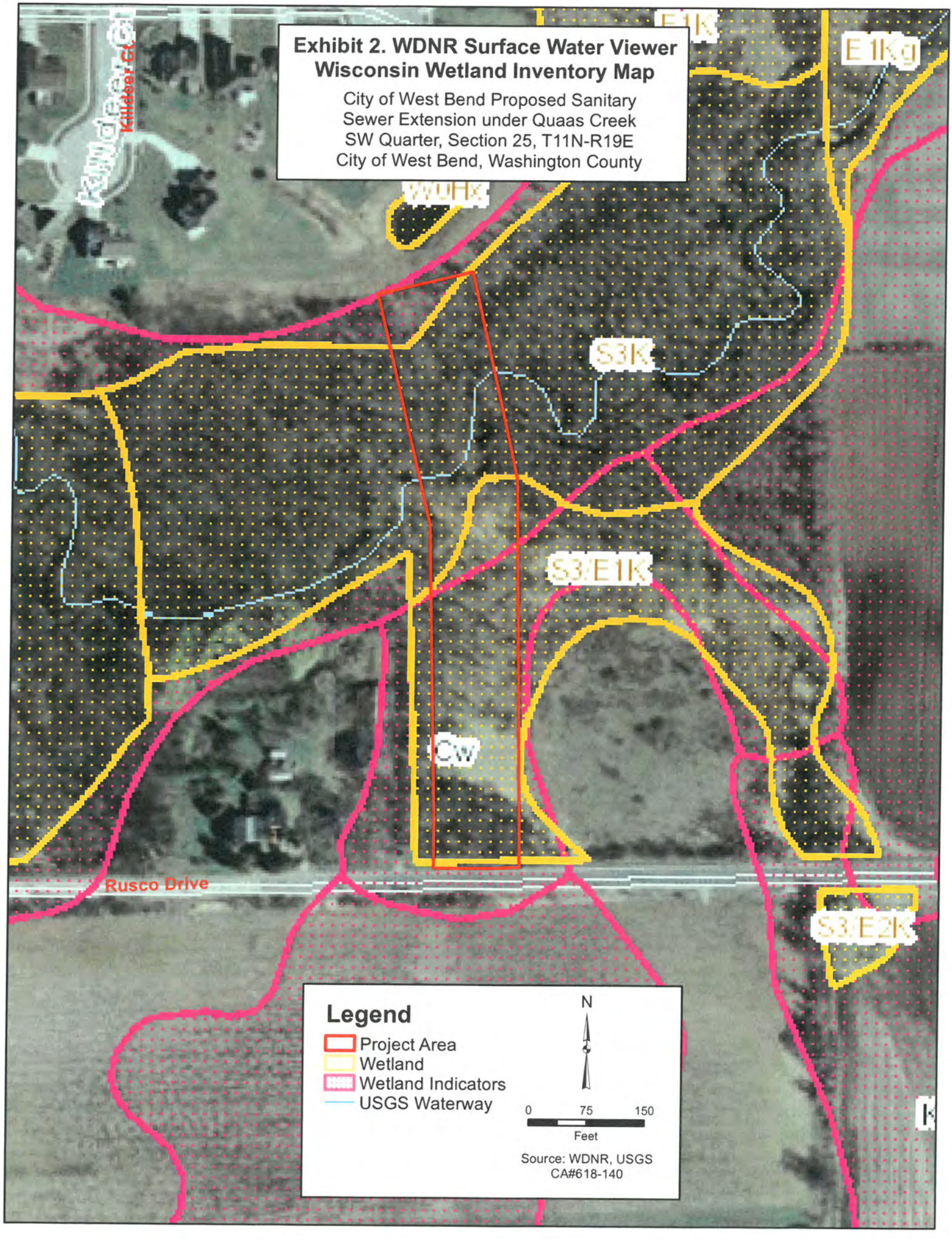


Exhibit 2. WDNR Surface Water Viewer
Wisconsin Wetland Inventory Map
City of West Bend Proposed Sanitary
Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
E1K
E1Kg
W6Hx
S3K
S3/E1K
Cw
S3/E2K
Killdeer Ct.
Rusco Drive
Legend
Project Area
Wetland
Wetland Indicators
USGS Waterway
N
0
75
150
Feet
Source: WDNR, USGS
CA#618-140

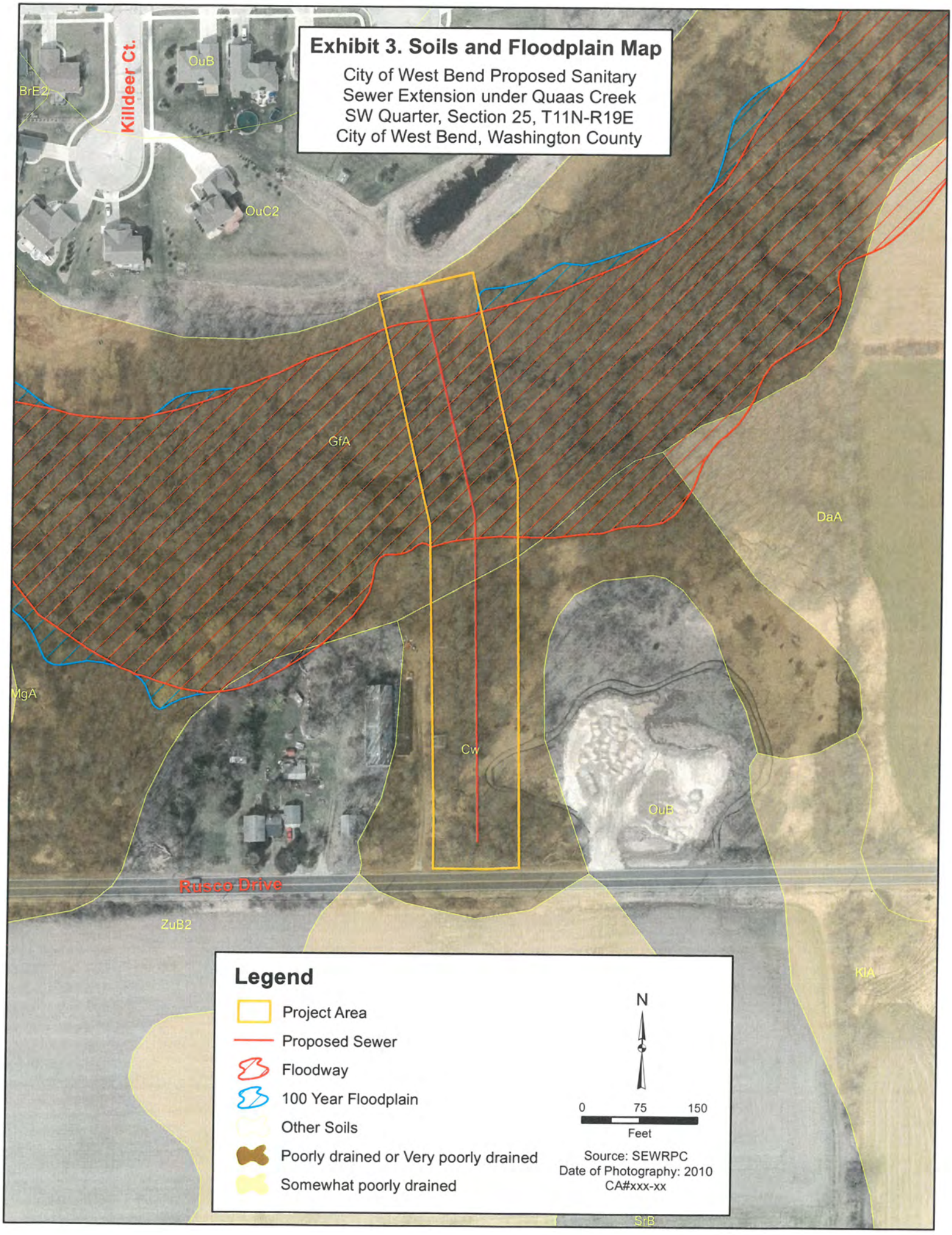


Exhibit 3. Soils and Floodplain Map
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Rusco Drive
BrE2
OuB
OuC2
GfA
DaA
MgA
Cw
OuB
ZuB2
KlA
SrB
Legend
Project Area
Proposed Sewer
Floodway
100 Year Floodplain
Other Soils
Poorly drained or Very poorly drained
Somewhat poorly drained
N
0
75
150
Feet
Source: SEWRPC
Date of Photography: 2010
CA#xxx-xx

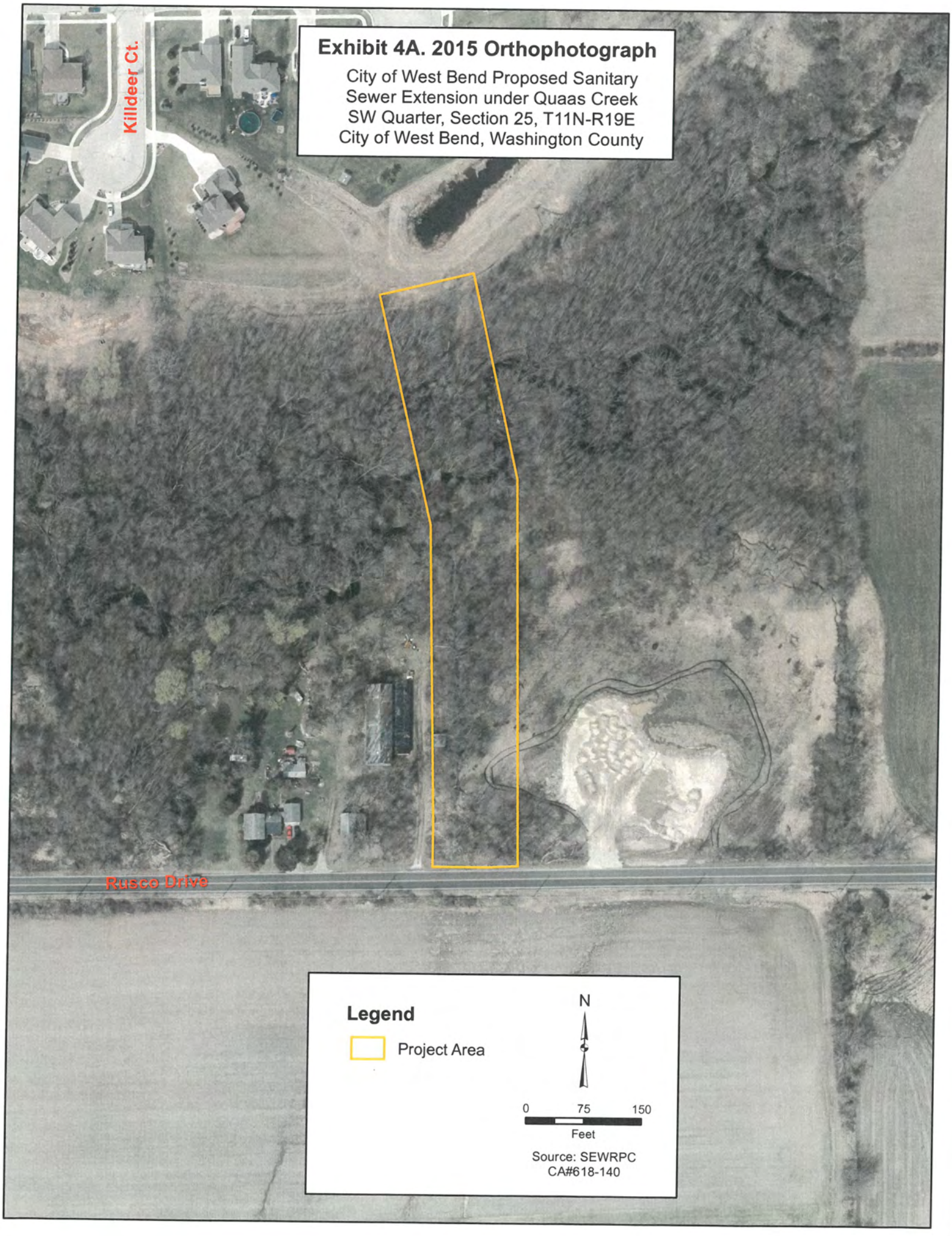


Exhibit 4A. 2015 Orthophotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

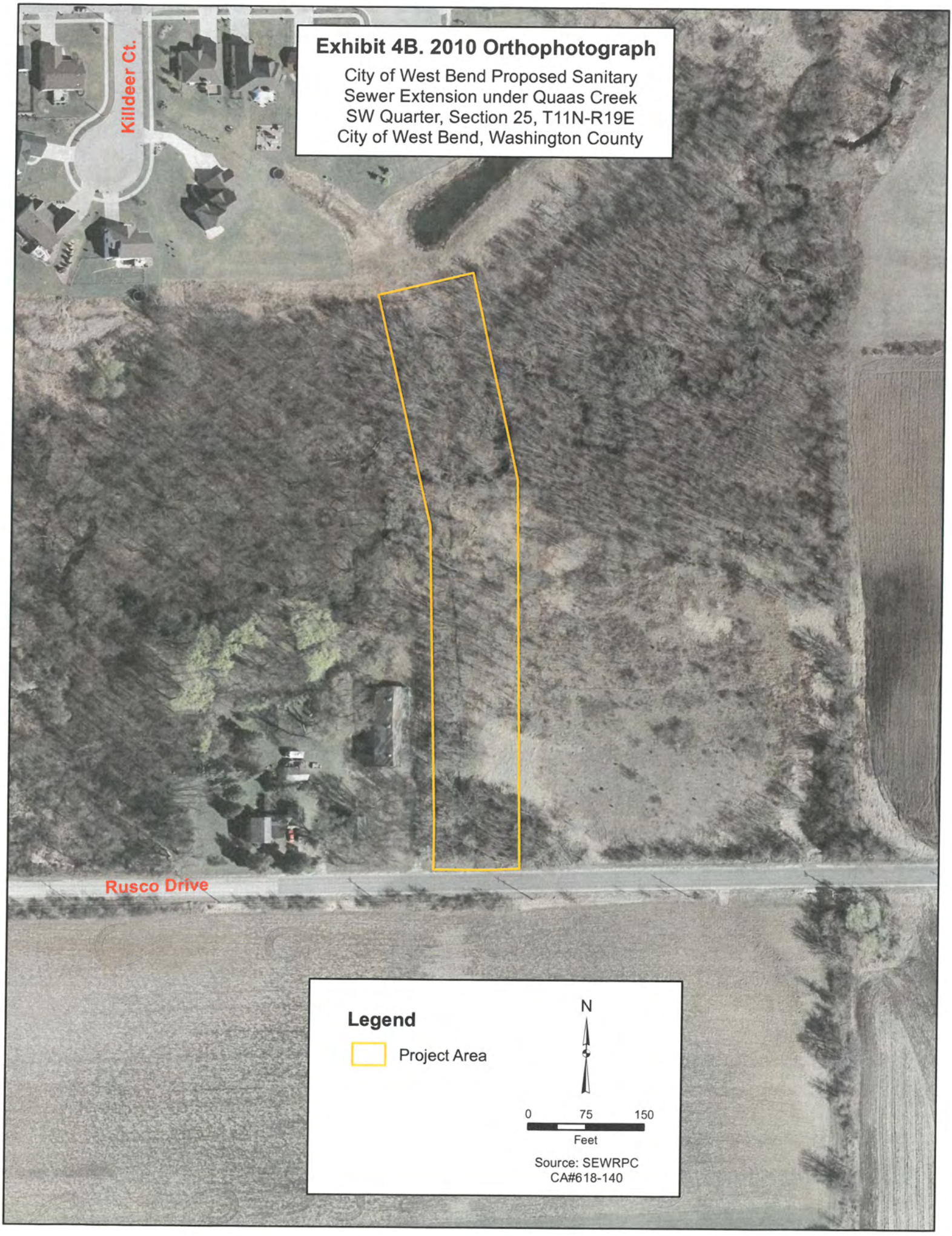


Exhibit 4B. 2010 Orthophotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

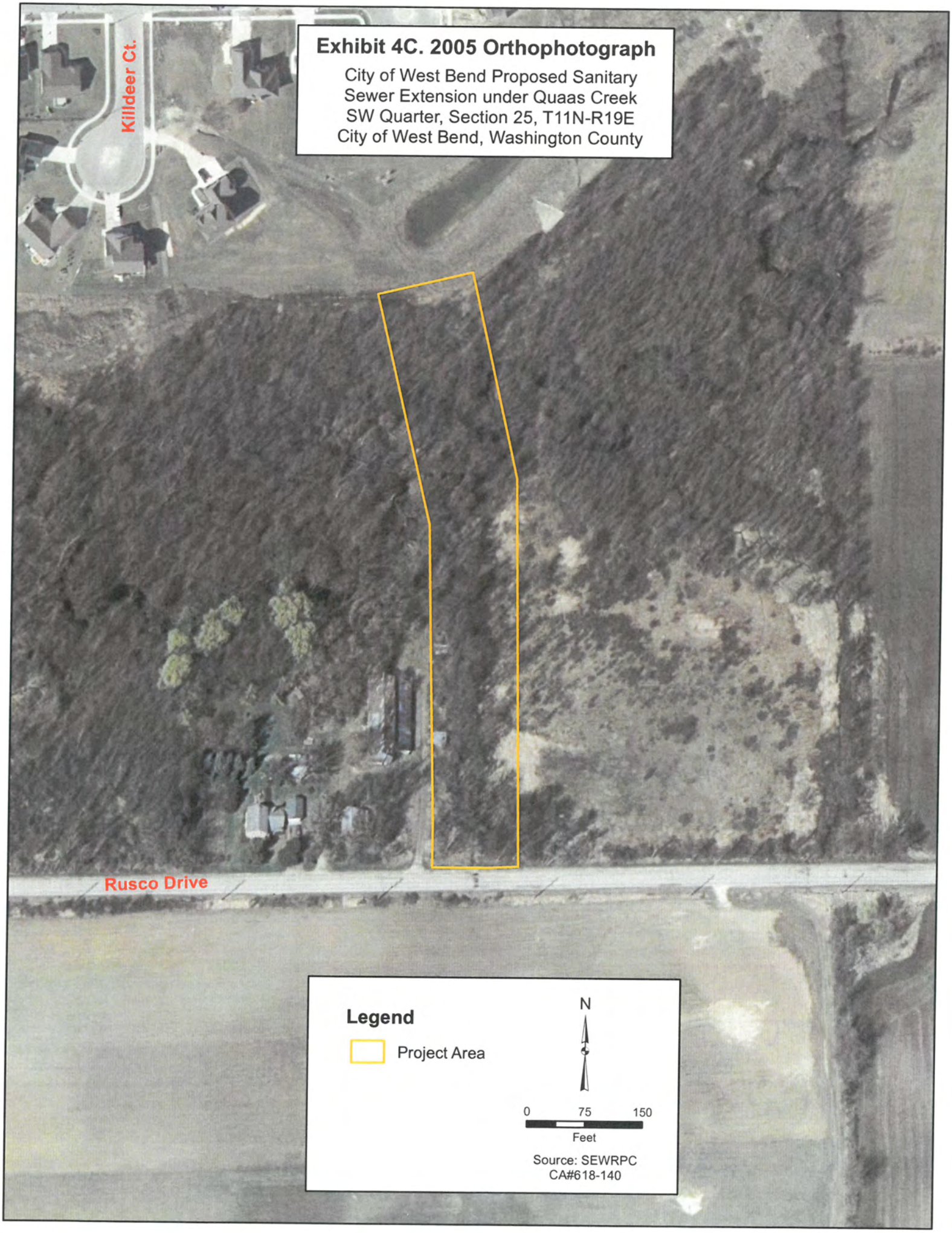


Exhibit 4C. 2005 Orthophotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

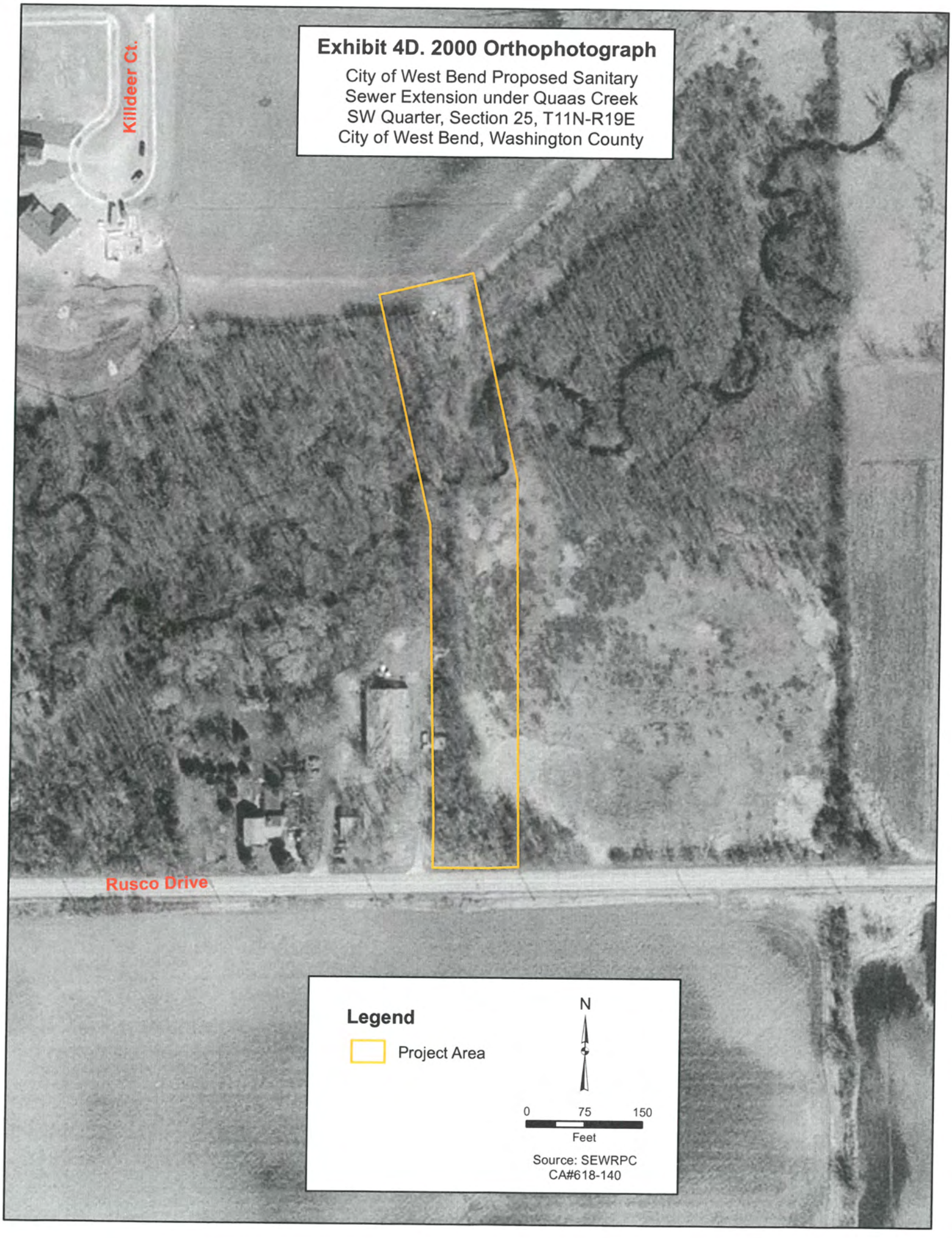


Exhibit 4D. 2000 Orthophotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

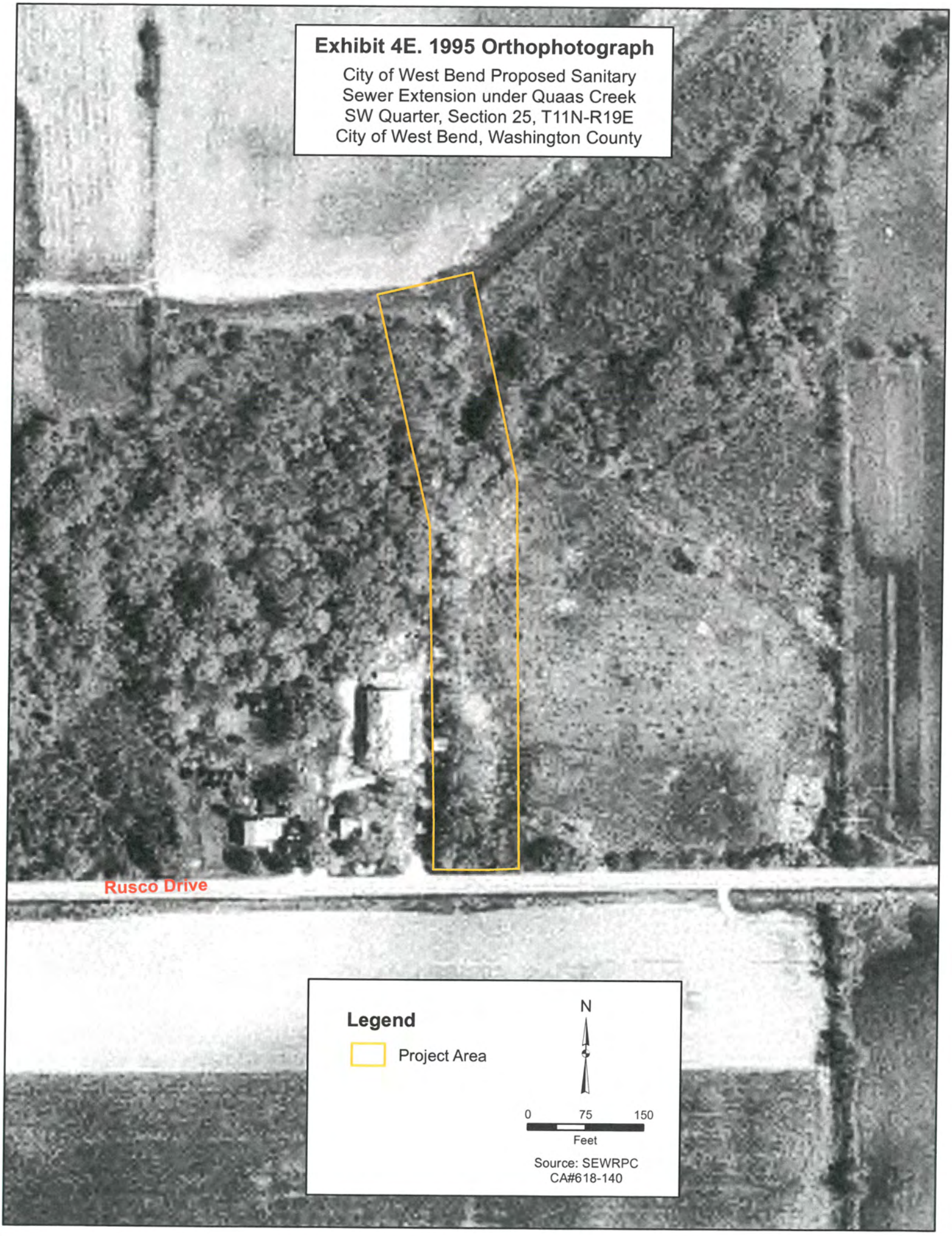


Exhibit 4E. 1995 Orthophotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

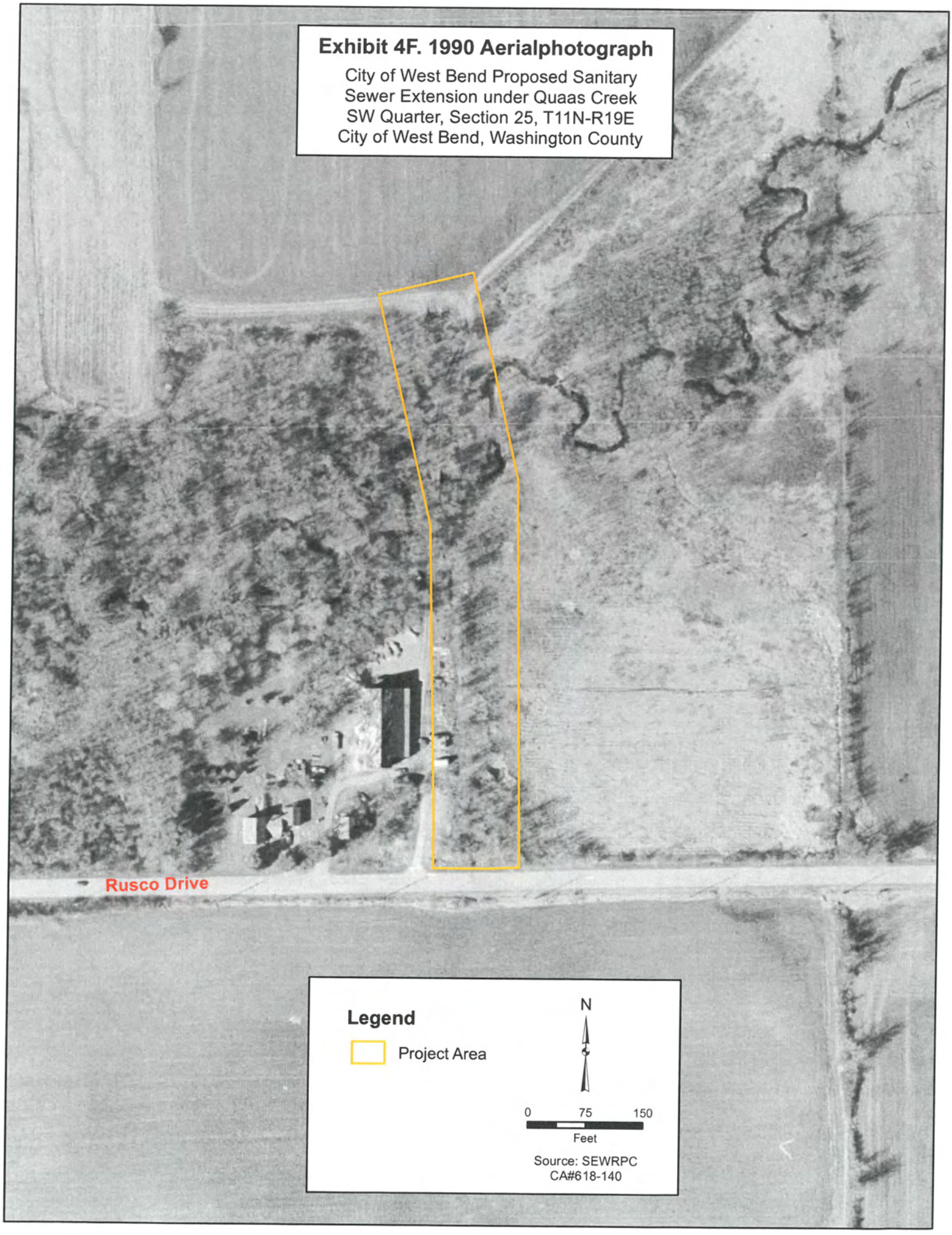


Exhibit 4F. 1990 Aerialphotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

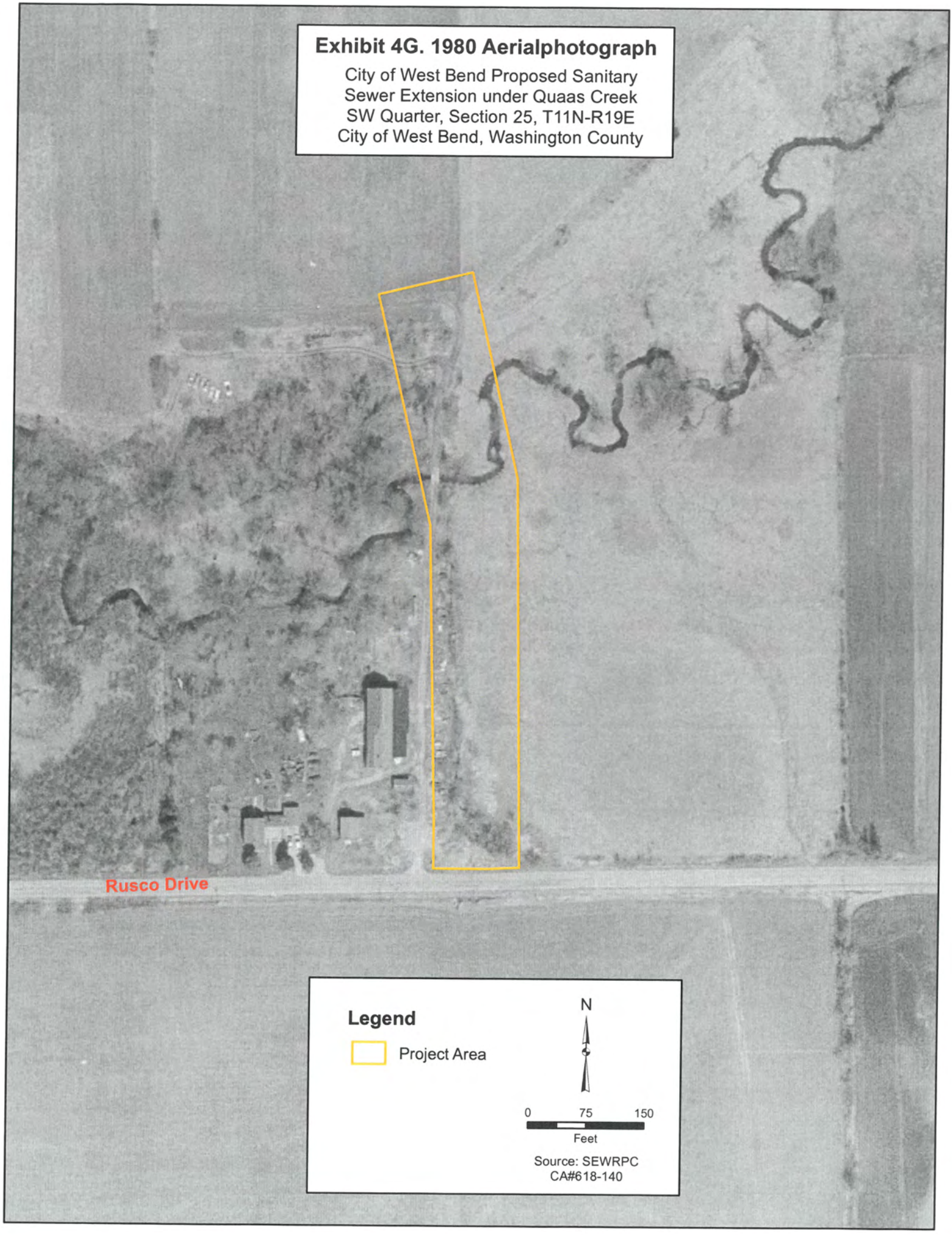


Exhibit 4G. 1980 Aerialphotograph
City of West Bend Proposed Sanitary
Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

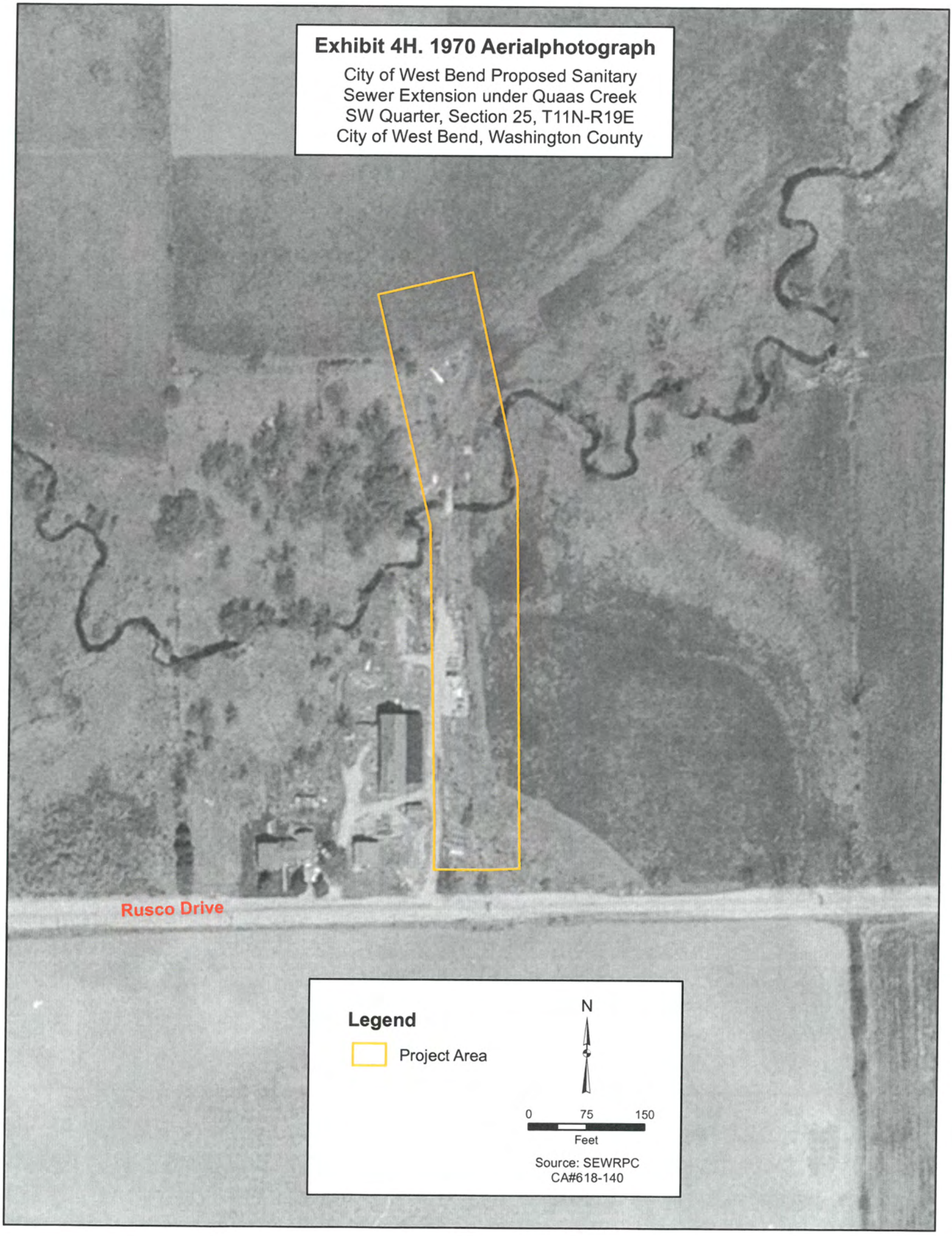


Exhibit 4H. 1970 Aerialphotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

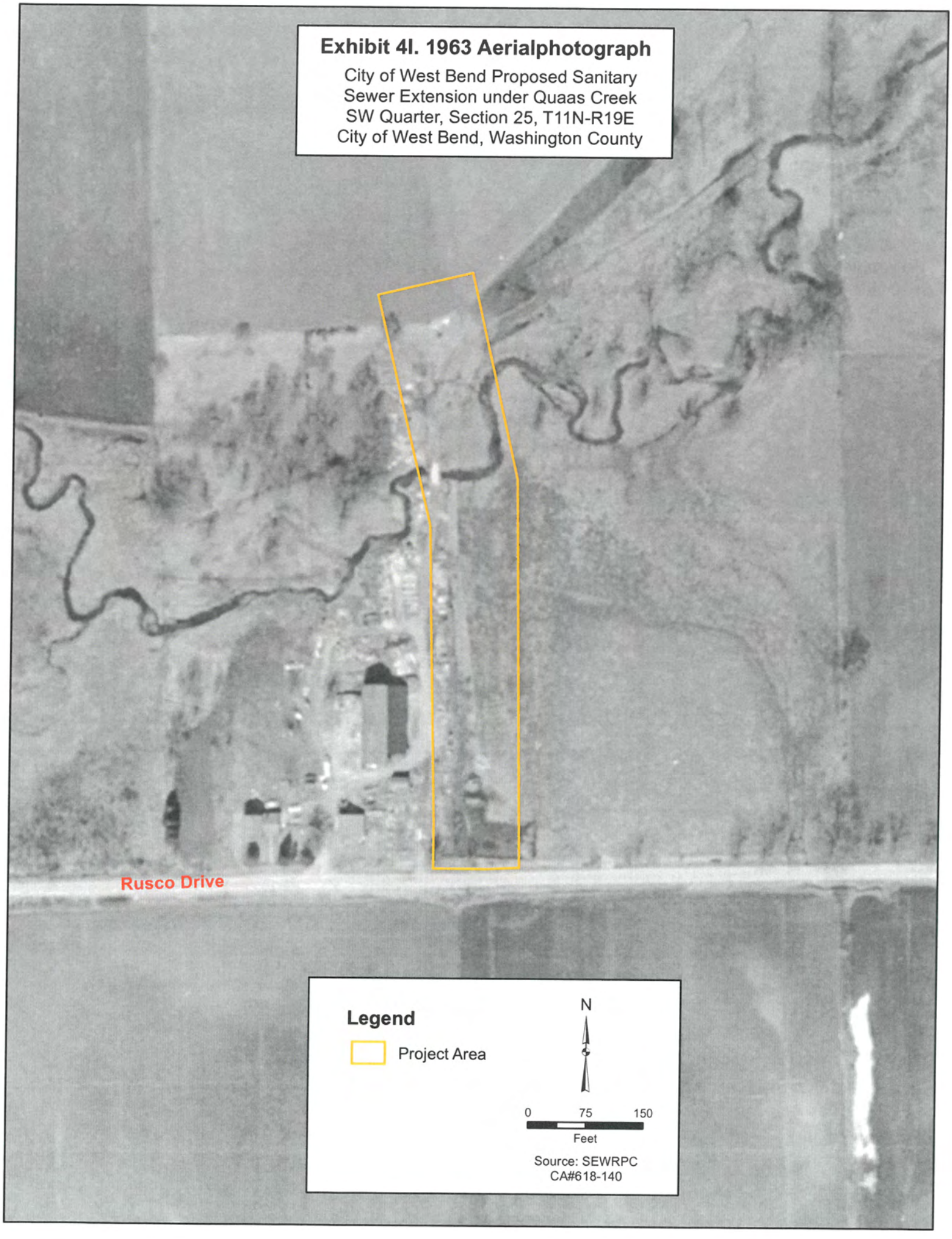


Exhibit 4I. 1963 Aerialphotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

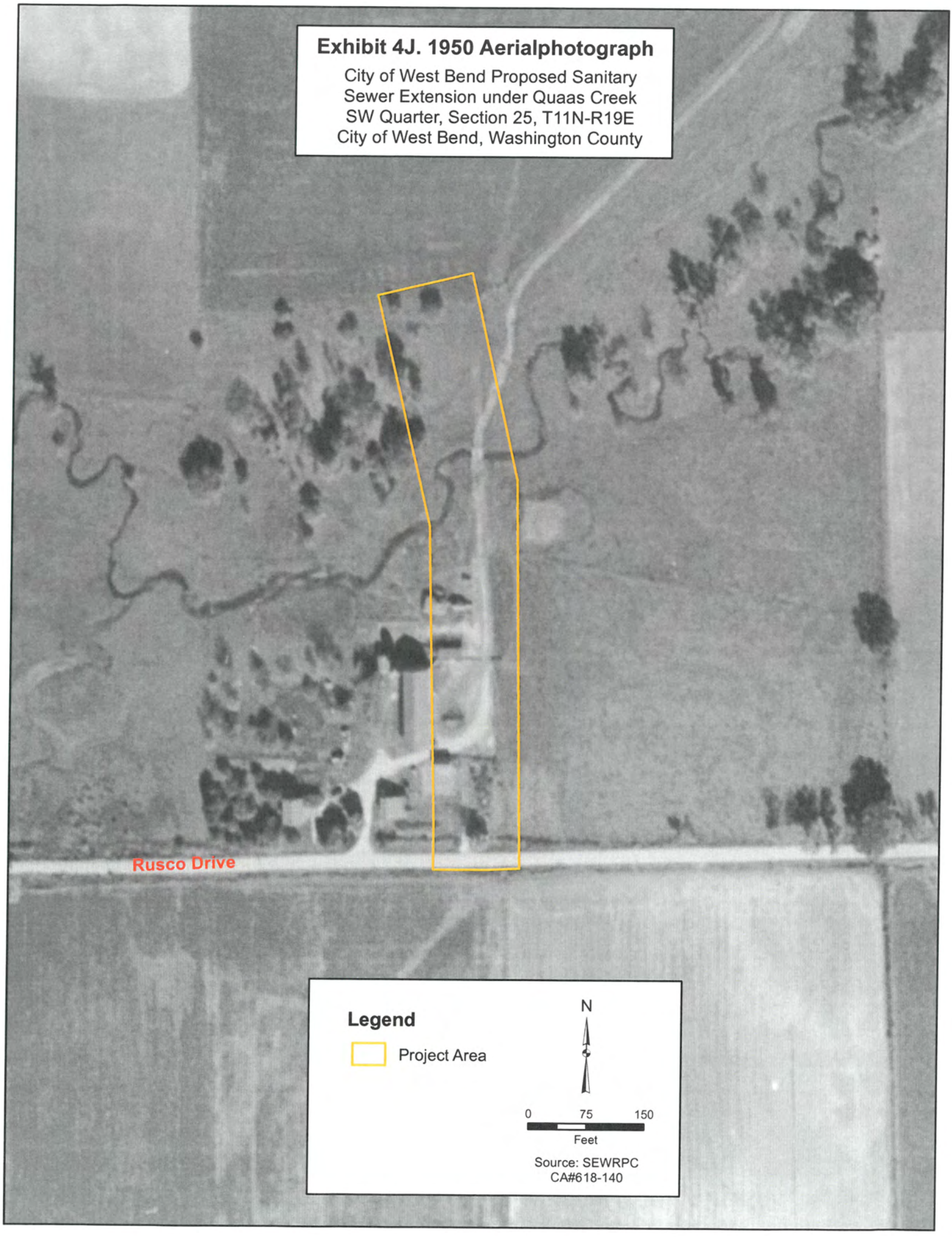


Exhibit 4J. 1950 Aerialphotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

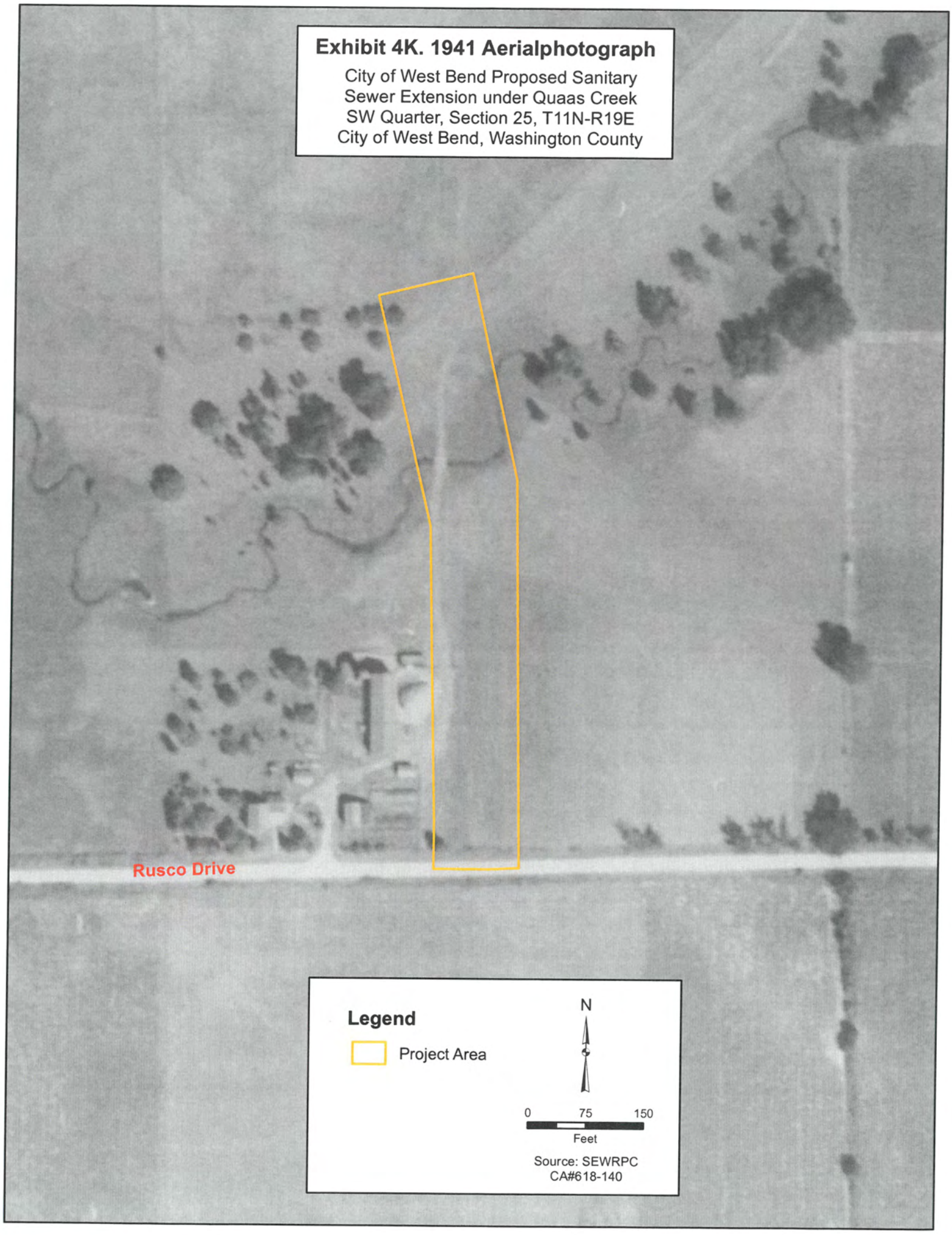


Exhibit 4K. 1941 Aerialphotograph
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Rusco Drive
Legend
Project Area
N
0
75
150
Feet
Source: SEWRPC
CA#618-140

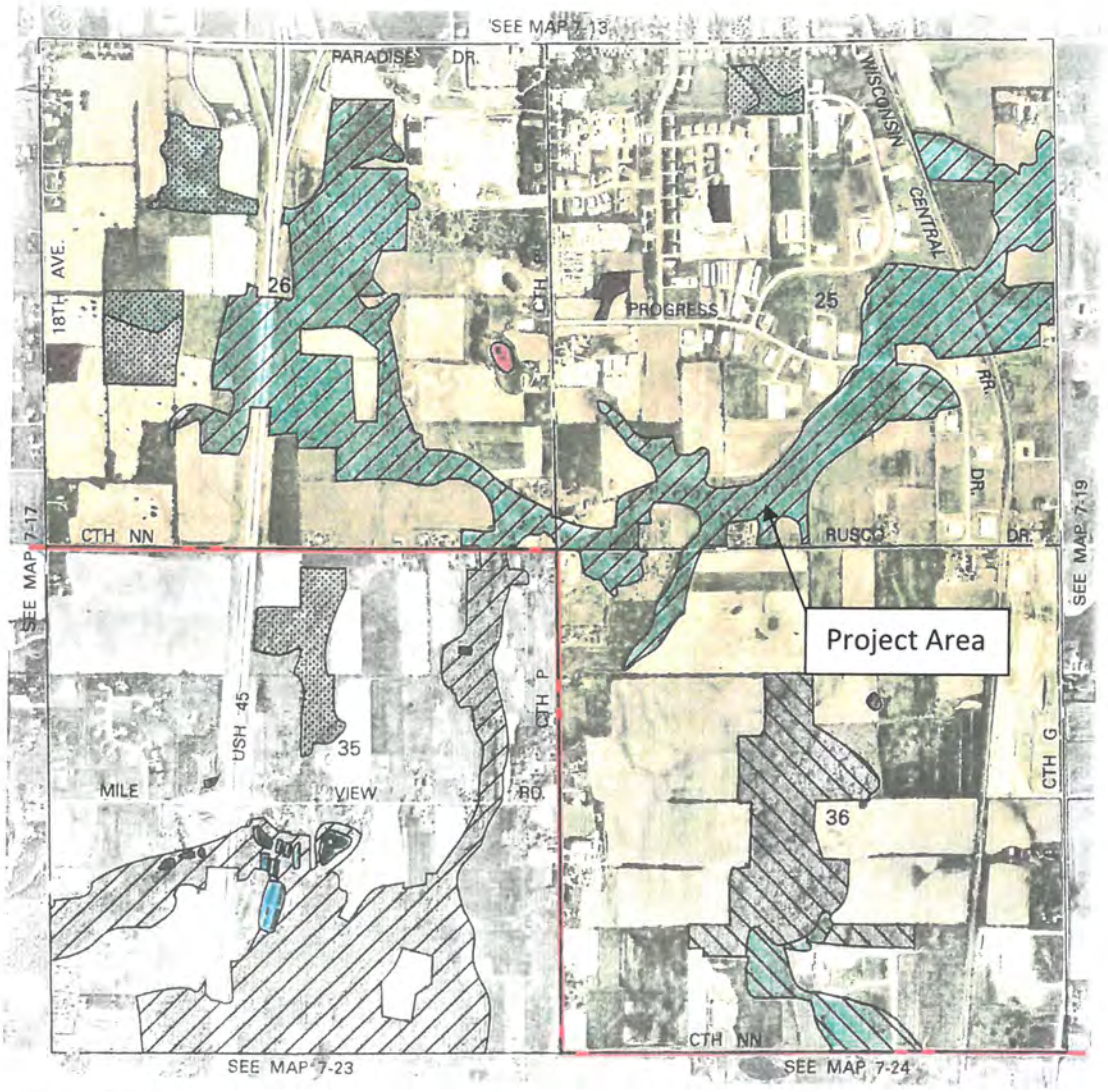
EXHIBIT 5. Sanitary Sewer Service Map

City of West Bend Proposed Sanitary
Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County

Map 7-18

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF WEST BEND AND ENVIRONS

U. S. Public Land Survey Sections 25, 26, 35, and 36
Township 11 North, Range 19 East



LEGEND

- PRIMARY ENVIRONMENTAL CORRIDOR
- SECONDARY ENVIRONMENTAL CORRIDOR
- ISOLATED NATURAL RESOURCE AREA
- WETLANDS AND SURFACE WATER AREAS LESS THAN FIVE ACRES IN SIZE
- SURFACE WATER WITHIN ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS
- PLANNED SANITARY SEWER SERVICE AREA
- GROSS SANITARY SEWER SERVICE AREA BOUNDARY
- LANDS WITHIN THE PLANNED SANITARY SEWER SERVICE AREA INELIGIBLE FOR SEWER SERVICE

GRAPHIC SCALE

Source: SEWRPC.

EXHIBIT 6. Draft NRCS Wetland Inventory Map

City of West Bend Proposed Sanitary
Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County

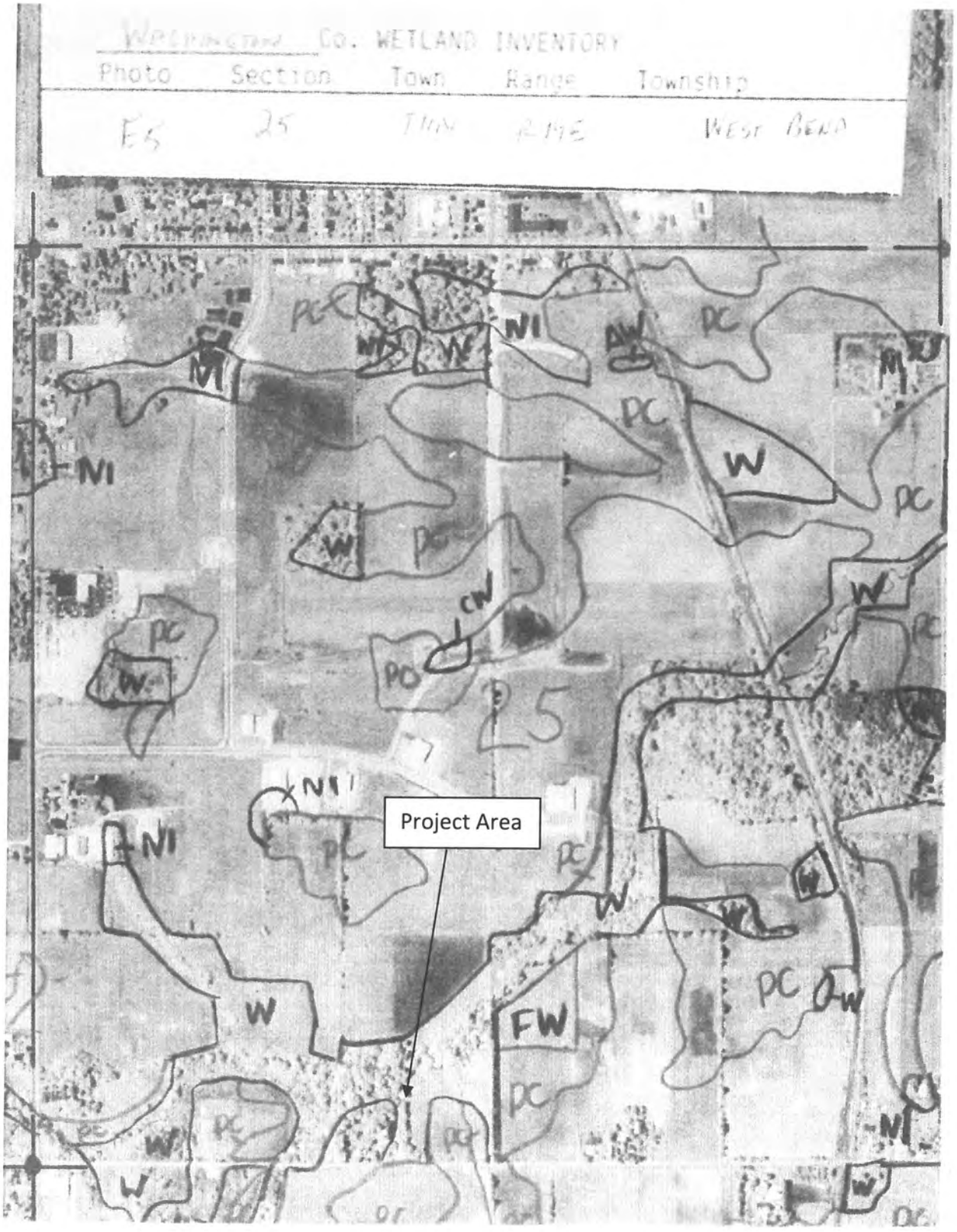
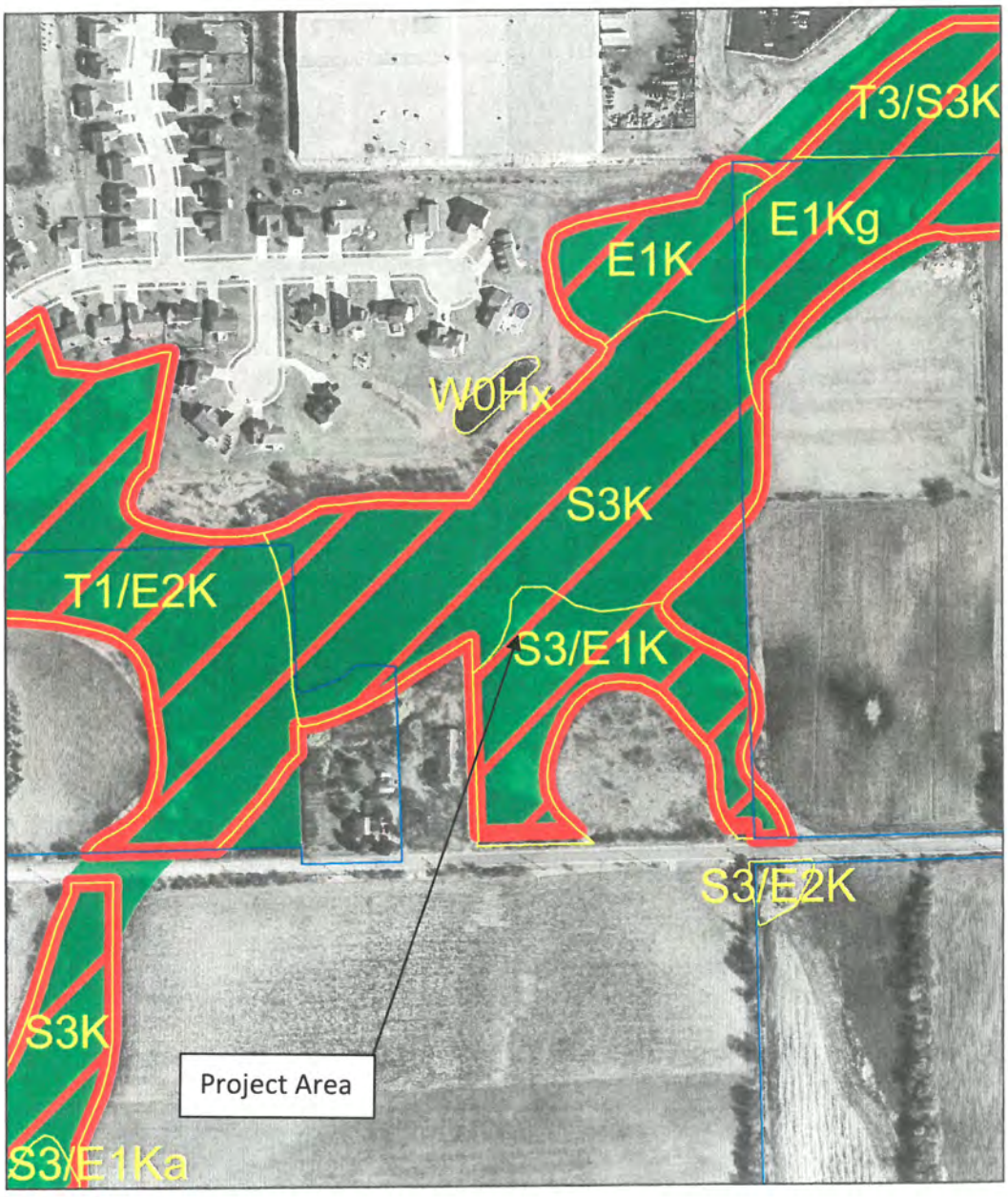


EXHIBIT 7. ADID Wetland Map
City of West Bend Proposed Sanitary
Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County

ADID Wetlands In Southeast Wisconsin



Legend

- 2010 Wetlands
- ADID Wetlands
- ADID Lakes and Ponds
- ADID Natural Area Wetlands
- 2010 Primary Environmental Corridors

1 inch = 269 feet

N
W E
S

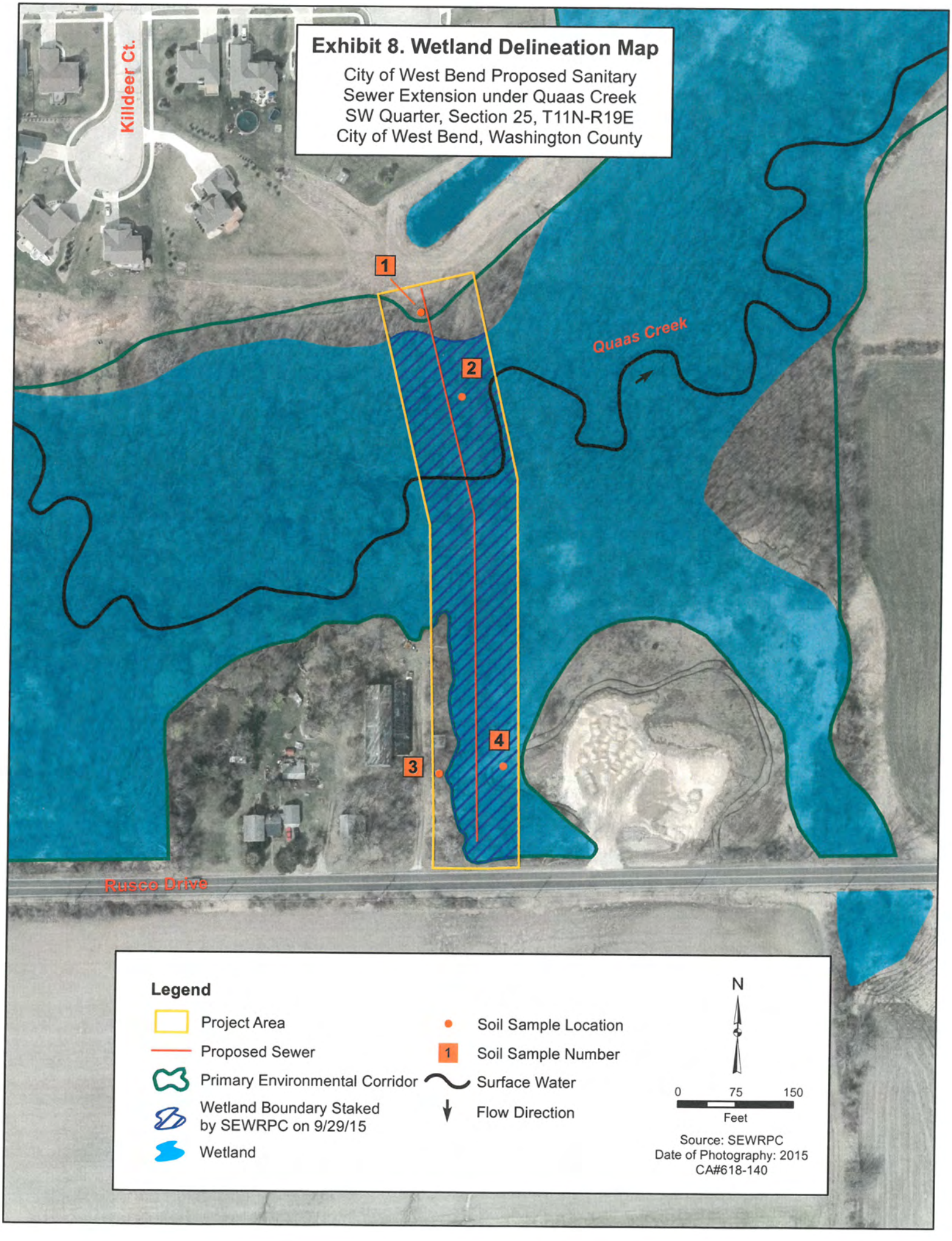


Exhibit 8. Wetland Delineation Map
City of West Bend Proposed Sanitary Sewer Extension under Quaas Creek
SW Quarter, Section 25, T11N-R19E
City of West Bend, Washington County
Killdeer Ct.
Quaas Creek
Rusco Drive
1
2
3
4
Legend
Project Area
Proposed Sewer
Primary Environmental Corridor
Wetland Boundary Staked by SEWRPC on 9/29/15
Wetland
Soil Sample Location
Soil Sample Number
Surface Water
Flow Direction
N
0
75
150
Feet
Source: SEWRPC
Date of Photography: 2015
CA#618-140

SVY4221
CA618-140

EXHIBIT 9

PRELIMINARY VEGETATION SURVEY
CITY OF WEST BEND PROPOSED SANITARY SEWER EXTENSION UNDER QUAAS CREEK

Date: September 29, 2015

Observers: Daniel L. Carter, Ph.D., Principal Biologist
Christopher J. Jors, Senior Biologist
Jennifer Dietl, Biologist
Southeastern Wisconsin Regional Planning Commission

Location: City of West Bend in parts of the Southwest one-quarter of U.S. Public Land Survey Section 25, Township 11 North, Range 19 East, Washington County, Wisconsin.

Species List: Native Plant Species
Co-dominant species

***Acer negundo*--Boxelder**
Amphicarpaea bracteata--Hog peanut
Angelica atropurpurea--Angelica
Bidens frondosa--Common beggars-ticks
***Boehmeria cylindrica*--False nettle**
Carex cristatella--Crested sedge
Carex grisea--Wood gray sedge
Carex sp.--Sedge
Cicuta maculata--Spotted water-hemlock
Cornus alba--Red-osier dogwood
Cryptotaenia canadensis--Honewort
Echinocystis lobata--Wild cucumber
Elymus virginicus--Virginia wild rye
Equisetum arvense--Common horsetail
***Fraxinus pennsylvanica*--Green ash**
Geum aleppicum--Yellow avens
Glyceria striata--Fowl manna grass
Hackelia virginiana--Stickseed
Heracleum maximum--Cow parsnip
Hydrophyllum virginianum--Virginia waterleaf
***Impatiens capensis*--Jewelweed**
Iris virginica--Virginia blueflag
Juniperus virginiana--Red-cedar
Laportea canadensis--Wood nettle
Osmorhiza longistylis--Anise-root
Parthenocissus inserta--Virginia creeper
Pilea fontana--Clearweed
Plantago rugelii--Red-stalked plantain
Prunus virginiana--Chokecherry
Ranunculus hispidus var. *nitidus*--Bristly buttercup
Ranunculus recurvatus--Hooked buttercup
Ribes americanum--Wild black currant
Rubus occidentalis--Black raspberry
Salix amygdaloides--Peach-leaved willow
Scirpus atrovirens--Green bulrush

Native Species cont.

Scutellaria lateriflora--Sideflower skullcap
Solidago gigantea--Giant goldenrod
Symphyotrichum lateriflorum--Calico aster
Thalictrum dasycarpum--Tall meadow rue
Ulmus americana--American elm
Urtica dioica--Stinging nettle
Viburnum lentago--Nannyberry
Vitis riparia--Riverbank grape

NON-Native Species

Agrostis gigantea--Redtop grass
Arctium minus--Common burdock
Glechoma hederacea--Creeping Charlie
Hesperis matronalis—Dame's rocket
Lonicera X *bella*--Hybrid honeysuckle
Lythrum salicaria--Purple loosestrife
***Phalaris arundinacea*--Reed canary grass**
Rhamnus cathartica--Common buckthorn
Rosa multiflora--Multiflora rose
Salix fragilis--Crack willow
Taraxacum officinale--Common dandelion
Viburnum opulus--European highbush-cranberry

Total number of plant species: 55
Number of alien, or non-native, plant species: 12 (22 percent)

This approximately 1.6-acre plant community area is part of the Quaas Creek floodplain-wetland complex and consists of second growth, Southern wet to wet-mesic lowland hardwoods with scattered stands of fresh (wet) meadow. Disturbances to the plant community area include dumping, the establishment of footpaths, past filling for a farm access driveway, ditching and side casting of dredge spoil material south of Quaas Creek, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to ditching. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

EXHIBIT 10.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: City of West Bend Proposed Sewer under Quaas Creek City/County: City of West Bend/Washington County Sampling Date: 09/29/2015
Applicant/Owner: ____ State: WI Sampling Point: 1
Investigator(s): Jen Dietl, Dan Carter, Chris Jors; SEWRPC Section, Township, Range: Section 25, T11N, R19E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-3%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Granby fine sandy loam (GfA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** ☒ No ☐ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☐ Yes	☒No
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.) Sample taken at this location due to field observations of a hydric plant community; however, elevation is increasing and visual observations of wetland hydrology were not observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial Photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	**20**	☒	**FACW**
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**15**	☒	**FAC**
2. Zanthoxylum americanum	**10**	☒	**FACU**
3. Viburnum opulus	5	☐	FACW
4. Cornus obliqua	3	☐	FACW
5.		☐	
6.		☐	
7.		☐	
	33	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Solidago altissima	**45**	☒	**FACU**
2. Hydrophyllum virginianum	**25**	☒	**FAC**
3. Geum canadense	12	☐	FAC
4. Pastinaca sativa	10	☐	UPL
5. Poa pratensis	10	☐	FACU
6. Symphyotrichum lateriflorum	8	☐	FAC
7. Osmorhiza longistylis	5	☐	FACU
8. Phalaris arundinacea	5	☐	FACW
9. Equisetum arvense	3	☐	FAC
10. Hackelia virginiana	3	☐	FACU
11.		☐	
12.		☐	
	126	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Old field with scattered shrubs and trees.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-13	10YR 2/2	100					Silt loam	
13-22	10YR 2/1	100					Loam	
22-26	10YR 5/3	100					Loamy fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: City of West Bend Proposed Sewer under Quaas Creek City/County: City of West Bend/Washington County Sampling Date: 09/29/2015
Applicant/Owner: ____ State: WI Sampling Point: 2
Investigator(s): Jen Dietl, Dan Carter, Chris Jors; SEWRPC Section, Township, Range: Section 25, T11N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 0-3%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Granby fine sandy loam (GfA) NWI classification: S3K
Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** ☒ No ☐ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil **X** , or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? **Yes** ☒ No ☐ Depth (inches): 24.5
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 19

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial Photos (Exhibit 4).

Remarks: Oxidized rhizospheres observed at 9 inches. Sample site is located in the Quaas Creek floodway.

VEGETATION – Use scientific names of plants. Sampling Point: 2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	**50**	☒	**FACW**
2. Acer negundo	**25**	☒	**FAC**
3. Salix fragilis	**20**	☒	**FAC**
4. ____	____	☐	____
5. ____	____	☐	____
6. ____	____	☐	____
7. ____	____	☐	____
	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**25**	☒	**FAC**
2. Acer negundo	**20**	☒	**FAC**
3. Frangula alnus	**15**	☒	**FAC**
4. ____	____	☐	____
5. ____	____	☐	____
6. ____	____	☐	____
7. ____	____	☐	____
	60	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Geum aleppicum	**25**	☒	**FAC**
2. Hackelia virginiana	**20**	☒	**FACU**
3. Carex grisea	**15**	☒	**FAC**
4. Arctium minus	12	☐	FACU
5. Glechoma hederacea	10	☐	FACU
6. Parthenocissus inserta	5	☐	FACU
7. Rhamnus cathartica	5	☐	FAC
8. Thalictrum dasycarpum	5	☐	FACW
9. Frangula alnus	3	☐	FAC
10. Fraxinus pennsylvanica	3	☐	FACW
11. Symphyotrichum lateriflorum	3	☐	FAC
12. ____	____	☐	____
	106	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1. ____	____	☐	____
2. ____	____	☐	____
3. ____	____	☐	____
4. ____	____	☐	____
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x 1 =	____
FACW species	____	x 2 =	____
FAC species	____	x 3 =	____
FACU species	____	x 4 =	____
UPL species	____	x 5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Lowland hardwoods.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy loam	with gravel
4-9	10YR 6/3	60	10YR 5/6 - 5/8	25	C	PL M	Loamy fine sand	with gravel and stones (fill
	10YR 2/1	15						material for farm access road?)
9-20	10YR 2/1	90	7.5YR 3/4	10	C	PL M	Loam	
20-25	10YR 2.5/1	85	7.5YR 3/4	10	C	PL M	Clay loam	
	10YR 6/3	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☒ **Coast Prairie Redox (A16) (LLR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: Hydrophytic vegetation and wetland hydrology were present. Therefore we used the A16. Coast Prairie Redox indicator for Problematic hydric soils and determined the sample to be in wetland.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: City of West Bend Proposed Sewer under Quaas Creek City/County: City of West Bend/Washington County Sampling Date: 09/29/2015
Applicant/Owner: ____ State: WI Sampling Point: 3
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 25, T11N, R19E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Colwood silt loam (Cw) NWI classification: S3/E2K
Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** ☒ No ☐ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☐ Yes ☒**No**
Hydric Soils Present?	☐Yes	☒**No**		
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): ____
Water Table Present? Yes ☐ No ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial Photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 3

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	**40**	☒	**FACW**
2. Acer negundo	**30**	☒	**FAC**
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**15**	☒	**FAC**
2. Acer negundo	**10**	☒	**FAC**
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	25	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Helianthus tuberosus	**60**	☒	**FACU**
2. Glechoma hederacea	**30**	☒	**FACU**
3. Solidago altissima	10	☐	FACU
4. Hackelia virginiana	5	☐	FACU
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	105	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Lowland hardwoods.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10YR 2/2	100					Loam	with stones
20-24	10YR 4/3	100					Loamy sand	with gravel and stones

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: City of West Bend Proposed Sewer under Quaas Creek City/County: City of West Bend/Washington County Sampling Date: 09/29/2015
Applicant/Owner: ____ State: WI Sampling Point: 4
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 25, T11N, R19E
Landform (hillslope, terrace, etc.): low terrace/slight drainage way Local relief (concave, convex, none): none/slightly concave Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Colwood silt loam (Cw) NWI classification: S2/E2K
Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** ☒ No ☐ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil **X** , or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐No
Hydric Soils Present?	☒**Yes**	☐No			
Wetland Hydrology Present?	☒**Yes**	☐No	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 18

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial Photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 4

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	**50**	☒	**FACW**
2. Acer negundo	**40**	☒	**FAC**
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**20**	☒	**FAC**
2. Juniperus virginiana	3	☐	FACU
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	23	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Impatiens capensis	**40**	☒	**FACW**
2. Phalaris arundinacea	**30**	☒	**FACW**
3. Ribes americanum	15	☐	FACW
4. Hydrophyllum virginianum	10	☐	FAC
5. Urtica dioica	8	☐	FAC
6. Arctium minus	5	☐	FACU
7. Echinocystis lobata	5	☐	FACW
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	113	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow and lowland hardwoods.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					Silt loam	
8-15	10YR 2/1	100					Silt loam	
15-25	10YR 4/2	60	10YR 4/6 - 6/6	40	C	PL M	Loamy fine sand	with gravel
25+								Refusal: Gravel and rocks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ **Other (Explain in Remarks)**

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

Restrictive Layer (if observed):

Type: Gravel and rocks

Depth (inches): 25

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: While no hydric soil indicators were observed, professional judgment was used to include this sample site as wetland. Sample site is located in a drainage way where hydric vegetation and several indicators of wetland hydrology are present. The surface layer was likely deposited over soils that would otherwise meet A11.

EXHIBIT 11. SITE PHOTOS
City of West Bend Sanitary Sewer Extension
Under Quaas Creek
SW Quarter, Section 25, T11N, R19E
City of West Bend, Washington County

Photo 1. Upland sample site 1, old field with scattered shrubs and trees.

Photo 2. Wetland sample site 2, lowland hardwoods.

EXHIBIT 11. SITE PHOTOS
City of West Bend Sanitary Sewer Extension
Under Quaas Creek
SW Quarter, Section 25, T11N, R19E
City of West Bend, Washington County

Photo 3. Upland sample site 3, lowland hardwoods.

Photo 4. Wetland sample site 4, fresh (wet) meadow and lowland hardwoods.

EXHIBIT 11. SITE PHOTOS
City of West Bend Sanitary Sewer Extension
Under Quaas Creek
SW Quarter, Section 25, T11N, R19E
City of West Bend, Washington County

Photo 5. South view from upland sample site 1 of wetland.

Photo 6. South view from wetland sample site 4 of wetland.

EXHIBIT 11. SITE PHOTOS
City of West Bend Sanitary Sewer Extension
Under Quaas Creek
SW Quarter, Section 25, T11N, R19E
City of West Bend, Washington County

Photo 7. Northview from sample site 4 of wetland.

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607• TELEPHONE (262) 547-6721
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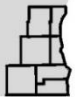


January 22, 2016

Mr. Nasser Shabi, P.E.
Project Manager
City of Waukesha
Department of Public Works
Engineering Division
130 Delafield Street
Waukesha, WI 53188

Re: SEWRPC No. CA-737-264

Dear Mr. Shabi:

This will respond to your email message of November 18, 2014, requesting that the Commission staff conduct an additional field inspection of a revised project area related to the proposed sanitary forcemain extension located along East Sunset Drive in parts of U.S. Public Land Survey Sections 11 and 14, Township 6 North, Range 19 East, City and Town of Waukesha, Waukesha County, Wisconsin. As you know, the Commission staff completed a wetland delineation for the original project area at your request in 2013, including submittal of a wetland delineation report for that work on November 21, 2013.

Pursuant to your November 18, 2014, request, Commission staff identified and staked the wetland boundaries within the revised project area on April 15, 2015. Subsequent to this field inspection, on June 12, 2015, the Commission received a request from Ms. Sara Arnold, P.E., Municipal Engineer with Ayres Associates, for a wetland delineation related to proposed East Sunset Drive improvements. Ms. Arnold asked that we expand the East Sunset Drive project area further eastward up to STH 164/59.

Following conversations between City of Waukesha engineering staff, Ayres Associates, and Commission staff, it was determined that the newly expanded project area would satisfy the wetland delineation requirements for both projects, the forcemain extension and roadway improvement projects. Further, it was agreed that a final wetland delineation report could wait until all fieldwork was completed for the expanded project area. Accordingly, Commission staff conducted the final field inspection of the project area on September 9, 2015. A copy of the wetland delineation report is attached for your reference. This report includes information gathered during all three field inspections on May 28, 2013, and April 15 and September 9, 2015.

Should you have any questions regarding this information, please do not hesitate to contact Mr. Christopher J. Jors, Senior Specialist-Biologist (*cjors@sewrpc.org* or 262-953-3246).

Sincerely,

Kenneth R. Yunker, P.E.
Executive Director

KRY/TMS/CJJ/kmd
#229995 – CA737-264 Proposed Forcemain & Sunset Drive Improvements Letter

Enclosure (#230033)

cc: Mr. James Coyle, Greenberg Farrow (w/enclosure by email)
Ms. Sara Arnold, P.E., Ayres Associates (w/enclosure by email)
Ms. Margaret Liedtke, P.E., City of Waukesha DPW – Engineering Division (w/enclosure)
Mr. Craig Webster, Wisconsin Department of Natural Resources (w/enclosure by email)
Ms. Geri Radermacher, Wisconsin Department of Natural Resources (w/enclosure)
Mr. Neil Molstad, Wisconsin Department of Natural Resources (w/enclosure)
Ms. Marie Kopka, U.S. Army Corps of Engineers (w/enclosure)

WETLAND DELINEATION REPORT

EAST SUNSET DRIVE FROM TENNY AVENUE TO STH 164/59

SW & SE One-quarters, Section 11,
NW & NE One-quarters, Section 14, T6N, R19E
CITY AND TOWN OF WAUKESHA
WAUKESHA COUNTY
WISCONSIN

Prepared by:

Christopher Jors
Jennifer Dietl
Daniel Carter
Zofia Noe

Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
P.O. Box 1607
Waukesha, WI 53187-1607

WETLAND DELINEATION REPORT OVERVIEW

(Based upon WDNR WETLAND Delineation Confirmation Request Check List)

INTRODUCTION

- Who requested the delineation – **Nasser Shabi, P.E., City of Waukesha (Nov. 18, 2014, request); and Sara Arnold, P.E., Ayres Associates (June 12, 2015, request)**
- Why the delineation was undertaken –**East Sunset Drive proposed forcemain**
- Date the field work was completed – **April 15 and September 9, 2015**
- Who conducted field work – **Christopher Jors, Jennifer Dietl, Daniel Carter, Zofia Noe**
- Statement of Qualifications

METHODS

- Description of Methods
- Sources Reviewed
    - Topographic Map – **Exhibit 1**
    - WDNR Surface Water Data Viewer – Wisconsin Wetland Inventory (WWI) Map – **Exhibit 2**
    - Soil Survey and Floodplain Map – **Exhibit 3**
    - Historical Aerial Photos – **Exhibits 4A to 4L (2015, 2010, 2007, 2005, 2000, 1995, 1990, 1980, 1970, 1963, 1950, 1941)**
    - Sanitary Sewer Service Map – **Exhibits 5A & 5B**
    - Draft NRCS Wetland Inventory Map – **Exhibit 6A & 6B**
    - Advanced Identification (ADID) Wetland Map – **Exhibit 7**
- Description of any site specific agency guidance (site meetings, etc.) – **None**

RESULTS AND DISCUSSION

- Antecedent hydrologic condition analysis – **April 15, 2015 - Normal; September 9, 2015 – Drier than Normal; and May 28, 2013 – Wetter than Normal**
- Previous wetland delineation mapping – **May 28, 2013 SEWRPC wetland delineation documentation incorporated into this report**
- Existing environmental mapping (WWI mapping, Soil survey, etc.)
- Amount and types of wetland located within the project area
- Wetland/upland boundary explanation
- Disturbed and problematic areas encountered
- Other water resources located in the project area
- Other considerations

LITERATURE CITED

Wetland Delineation Map – **Exhibit 8**

Vegetation Survey and Wetland Delineation Data Forms

- Preliminary Vegetation Survey – **Exhibit 9**
- Wetland Determination Data Forms – NE/NC Region – **Exhibit 10**

Site Photos – **Exhibit 11**

Farm Service Agency Slide Review - **Not Applicable**

INTRODUCTION

This wetland delineation report responds to requests from Nassar Shabi, P.E., City of Waukesha, on November 18, 2014, and Sara Arnold, P.E., Ayres Associates, on June 15, 2015, to identify the boundaries of any wetland in a specified project area along East Sunset Drive from Tenny Avenue to STH 59. The project area is located in U.S. Public Land Survey Sections 11 and14, Township 6 North, Range 19 East, City and Town of Waukesha; Waukesha County, Wisconsin.

Statement of Qualifications

Christopher Jors, Senior Specialist-Biologist, has worked at SEWRPC since 1993, and has been part of the wetland delineation team since 1994. He received a Bachelor's degree in Conservation Aspects of Biology from the University of Wisconsin – Milwaukee in 1992. Prior to working at SEWRPC, Chris worked at the UWM Field Station at the Cedarburg Bog in Saukville, WI, where he learned methods of sampling wetland plant communities within the Bog. Chris has attended various wetland training workshops including the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015; a Wisconsin Dept. of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014; and a U.S. Army Corps of Engineers Workshop on the Midwest Supplement to the 1987 Wetland Delineation Manual on February 3, 2009.

Jennifer Dietl, Specialist-Biologist, earned a Bachelor's degree in Biology and Environmental Science from Carroll University in 1992. She has worked at the Commission from 1992 to 1997 and from 2006 to the present conducting wetland delineations, primary environmental corridor delineations, and vegetation surveys. In between years of service at the Commission she worked for the Wisconsin Department of Transportation – Green Bay as an LTE Environmental Analysis and Review Specialist – and the Wisconsin Department of Natural Resources – Green Bay as an LTE Hydrologist. Jennifer attended a Wisconsin Dept. of Natural Resources Wetland Delineation & Wetland Rapid Assessment Methodology Workshop on April 23, 2014 and the UW-La Crosse Basic and Advanced Wetland Delineation Workshops on August 10-15, 2015.

Daniel Carter, PhD, Principal Biologist, has worked at SEWRPC since 2013. He graduated with honors from Grinnell College with a Bachelor's degree in Biology. He later received a PhD in Biology from Kansas State University. Daniel has published several plant ecology articles in peer-reviewed journals, served on the botany team for the Wisconsin Wildlife Action Plan, and co-teaches the UW-La Crosse Basic Wetland Plant Identification course. He has completed both basic and advanced wetland delineation training as well as Wisconsin Natural Heritage Inventory training. Prior to working for the Commission, Daniel served as project coordinator for a grassland restoration project overseen jointly by the United States Department of Agriculture and The Nature Conservancy and taught high school Biology.

Zofia Noe, Specialist-Biologist, earned a Bachelor's degree in Biology and Chemistry from St. Mary's College of Maryland in 2003. She earned a Master's Degree in Coastal Marine and Wetland Studies from Coastal Carolina University in 2009 and completed an Aquatic Plant Identification course in 2015. Zofia has experience in a variety of environmental assessments including water quality, aquatic plant, and upland vegetation surveys. Zofia began assisting with wetland delineations in the summer of 2013.

METHODS

Description of Methods

The wetland boundary determinations were based upon the criteria and methodologies set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*; the January 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0); the March 4, 2015, *Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources*; and the State of Wisconsin 2014 Wetland Plant List.

Specific methods used to field identify wetland boundaries included the U.S. Department of the Army Corps of Engineers Routine Onsite Determination Method – Plant Community Assessment Procedure. This procedure requires an initial identification of representative plant community types in the project area followed by a characterization of vegetation, soils, and hydrology for each type.

Sources Reviewed

Prior to conducting field work, Commission staff reviewed the following data sources: Waukesha County's topographic mapping (Exhibit 1), WDNR Surface Water Data Viewer - WWI mapping (Exhibit 2), Natural Resource Conservation Service's (NRCS) soil survey and FEMA floodplain mapping (Exhibit 3), Commission aerial photography (Exhibits 4A – 4L), Sanitary Sewer Service Map (Exhibit 5), the Draft NRCS Wetland Inventory Map (Exhibit 6), ADID Wetland Map (Exhibit 7), and precipitation data from the NRCS "WETS" tables and the Global Historical Climatology Network (GHCN).

RESULTS AND DISCUSSION

Christopher Jors, lead investigator, Jennifer Dietl, Dr. Daniel Carter, and Zofia Noe, assisted in identifying and staking the boundary of the wetland contained within the project area on April 15 and September 9, 2015. Wetland boundaries were marked with orange wire flags and ribbon. Commission staff used a sub-meter GPS to locate the wetland boundary markers, the centerline of any wet roadside ditches, and sample site locations. The results of the wetland delineation field inspection for this project area are shown on Exhibit 8, which includes staked and GPS-located wetland boundaries, wet roadside ditches, sample site numbers and locations, and plant community area numbers and locations.

Antecedent Hydrologic Conditions

Climatological data were taken from the nearest WETS station(s) and GHCN Stations with relevant data. The first table below reflects conditions leading up to the visit by Commission staff on April 15, 2015. The second table reflects conditions leading up to the visit on September 9, 2015. The third table reflects conditions leading up to the May 28, 2013 site visit.

WETS Station: WAUKESHA, WI 8937 Observed Precip.: Waukesha, WI US GHCND:USC00478937

2015	Month	3 yrs. In 10 less than	Normal	3 yrs. In 10 more than	Observed precip.	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month	April	2.46	3.53	4.20	4.08	normal	2	3	6
2nd prior month	March	1.34	2.28	2.77	0.70	dry	1	2	2
3rd prior month	February	0.74	1.31	1.62	0.19	dry	1	1	1
								sum	9

If sum is	
6 - 9	drier than normal
10 - 14	normal
15 - 18	wetter than normal
Conclusion	Drier

WETS Station: WAUKESHA, WI 8937 Observed Precip.: Waukesha 2.1SSW, WI US GHCND:US1WIWK0004

2015	Month	3 yrs. In 10 less than	Normal	3 yrs. In 10 more than	Observed precip.	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month	August	3.28	4.77	5.69	3.14	dry	1	3	3
2nd prior month	July	2.82	3.83	4.49	1.79	dry	1	2	2
3rd prior month	June	2.46	3.78	4.54	4.54	normal	2	1	2
								sum	7

If sum is	
6 - 9	drier than normal
10 - 14	normal
15 - 18	wetter than normal

Conclusion Drier

WETS Station: WAUKESHA, WI 8937 Observed Precip.: Same as WETS Station

2013	Month	3 yrs. In 10 less than	Normal	3 yrs. In 10 more than	Observed precip.	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month	May	2.03	3.02	3.61	7.24	wet	3	3	9
2nd prior month	April	2.46	3.53	4.20	7.57	wet	3	2	6
3rd prior month	March	1.34	2.28	2.77	1.64	normal	2	1	2
								sum	17

If sum is	
6 - 9	drier than normal
10 - 14	normal
15 - 18	wetter than normal

Conclusion Wetter

Previous Wetland Delineation Mapping

At the request of the City of Waukesha - Department of Public Works, the Commission staff completed a wetland delineation on a portion of the current project area along Sunset Drive on May 28, 2013. The Commission's findings were provided to the City with a wetland delineation report on November 21, 2013. Those 2013 findings have been incorporated into this report.

Existing Environmental Mapping

The topographic map (Exhibit 1) depicts a project area with elevations ranging from a high of 942 feet above sea level on the west side of the project area, just southeast of the Tenny Avenue and East Sunset Drive intersection, to a low of 850 feet at two drainage ways on the eastern portion of the project area. East Sunset Drive skirts the base of a kame, a conical glacial feature, on the west side of the project area, and drops quickly until the middle of

the project area where it levels off for the remainder of the project area. Two unnamed tributaries to Pebble Brook flow in a southerly direction through the project area, one just east of Gramling Lane and another at the southwest corner of East Sunset Drive and STH 164/59.

The WDNR Surface Water Data Viewer (WWI) map (Exhibit 2) indicates one large wetland complex south of East Sunset Drive that is classified as S3/E2K (Scrub/shrub – Emergent/wet meadow) and T3/S3K (Forested – Schrub/shrub), and one small wetland (less than 0.25-acre) in the northwest corner of Gramling Lane and East Sunset Drive. An unnamed tributary to Pebble Brook is also identified on Exhibit 2. Identified by WDNR as a 1st order stream, other information was not available for this waterway. It's shown to terminate just south of the project area on the suface water data viewer. However, based upon field observations, it was determined that this tributary should be extended further north into the project area. In addition, a second unnamed tributary to Pebble Brook was identified at the southwest corner of East Sunset Drive and STH 164/59.

The NRCS Soil Survey map (Exhibit 3) shows the following soils in the project area:

Soil Name	Slope %	Hydric Rating	% Soil Coverage in Project Area	Comments
Fox silt loam (FsB)	2-6%	Non-hydric	2.8%	
Hochheim loam (HmB)	2-6%	Hon-hydric	10.0%	
Hochheim loam (HmB2)	2-6%, eroded	Non-hydric	16.0%	
Hochheim loam (HmC2)	6-12%, eroded	Non-hydric	5.0%	
Hochheim loam (HmD2)	12-20%, eroded	Non-hydric	0.1%	
Houghton muck (HtA)	0-2%	Hydric	28.1%	Sample site: 2, 3, 4, 5, 7, A, B, E, and H
Lamartine silt loam (LmB)	1-4%	Predominantly Non-hydric	3.7%	Sample site: 8 and 9
Loamy land (Lu)	--	Predominantly Non-hydric	8.3%	Sample site: 1
Matherton silt loam (MmA)	1-3%	Predominantly Non-hydric	15.0%	Sample site: 6, C, D, F, G
Mayville silt loam (MoA)	0-2%	Non-hydric	8.3%	
Ogden muck (Oc)	0-2%	Hydric	0.01%	
Palms muck (Pa)	0-2%	Hydric	2.4%	

Exhibit 3 also indicates that FEMA-mapped floodplain encroaches onto the southern edge of the project area where the unnamed tributary to Pebble Brook flows in a southerly direction.

Historical aerial photos of the project area were reviewed going back to 1941. Orthophotographs (2015, 2010, 2007, 2005, 2000, and 1995) and aerial photos (1990, 1980, 1970, 1963, and 1941) are attached (see Exhibits 4A-4L). This review is summarized in the table below.

CHANGES IN LAND USE OBSERVED ON AERIAL PHOTOGRAPHY FROM 1941 TO 2015

Year	
1941	East Sunset Drive is a small two lane road. There is one farmstead on the south side of East Sunset Drive where present day Sunset View is located. All other land use in the project area is in farm production as row crops or pasture. The unnamed tributary to Pebble Brook running through the middle of the project area is ditched.
1950	Another farmstead has been built on north side of East Sunset Drive, east of the unnamed tributary. Also, a barn (which still stands today) has been constructed on the south side of East Sunset Drive, just east of the unnamed tributary. Otherwise, land use remains the same.
1963	Additional buildings on the south side of East Sunset Drive, near the first farmstead, are present. Some of the agricultural fields (the wettest ones) are fallow.
1970	Land use changes are occurring from agricultural to residential uses. East Sunset Drive road improvements and re-alignment have occurred. Tenny Avenue is now built and Larchmont Drive is under construction north of Sunset Drive. Heyer Elementary school has been built north of project area. Extensive filling and grading is occurring along the northern edge of the project area near present day Gramling Lane. The original homestead south of Sunset Drive has been razed and replaced with a small subdivision along newly built Sunset View.

1980	East Sunset Drive has been returned to its original alignment, abandoning the roadbed apparent on the 1970 photo. Larchmont Drive has been extended eastward and new roads (Gramling Lane, Camden Way, and STH 164/59) have been built. Single family homes are being constructed along Larchmont Drive and Camden Way. Undeveloped lands are becoming increasingly shrubby.
1990	The southwest corner of East Sunset Drive and STH 164/59 has started to be developed, including a pond excavation and what appears to be ditching near the pond. Residential development in the project area resembles present day conditions.
1995	Additional development in the southwest corner of East Sunset Drive and STH 164/59 is occurring. Increased shrub and tree coverage is noticeable in undeveloped lands.
2000	No changes.
2005	No changes.
2007	No changes.
2010	No changes.
2015	No changes.

SEWRPC's sanitary sewer service area mapping (Exhibits 5A & 5B) shows that the project area is located within the planned sanitary sewer service area for the City of Waukesha and Environs.

The NRCS wetland inventory maps (Exhibits 6A & 6B) indicate lands on the north side of East Sunset Drive are Not Inventoried (NI). Lands to the south of East Sunset Drive are identified as upland in the western project area and wetland (W) in the eastern project area.

The ADID wetland map (Exhibit 7) indicates that wetlands located to the south of East Sunset Drive are located in a designated Primary Environmental Corridor (PEC) and, as such, have been designated as ADID wetlands under the Section 404(b)(1) Guidelines of the Clean Water Act..

Amount and Types of Wetlands in the Project Area

Five wetland plant community areas (PCA) were identified and inventoried during the field inspections, including a wet roadside ditch along the south side of East Sunset Drive, just east of Sunset View. A list of vascular plant species observed during the field inspection was prepared for each plant community area as well as plant community type(s), dominant plant species, disturbances, and any critical plant and animal species (Exhibit 9). The table below summarizes characteristics for each PCA.

PCA Number	Acreage*	PCA Type(s)	Dominant Species	Critical Species
1	0.8	Constructed stormwater detention basin and drainage ways with Shallow marsh, fresh (wet) meadow, and small stands of shrub-carr (willow thicket).	*Cirsium arvense*-Canada thistle *Dipsacus laciniatus*-Cut-leaved teasel *Phalaris arundinacea*-Reed canary grass *Typha angustifolia*-Narrow-leaved cat-tail	None
2	0.7	Fresh (wet) meadow and Southern wet to wet-mesic lowland hardwoods.	*Acer negundo*-Boxelder *Cares pellita*-Woolly sedge *Phalaris arundinacea*- Reed canary grass *Rhamnus cathartica*-Common buckthorn	None
3	--	Constructed roadside ditch with fresh (wet) meadow	*Phalaris arundinacea*-Reed canary grass	None
4	1.2 --	Fresh (wet) meadow, shrub-carr, open water, and Southern wet to wet-mesic lowland hardwoods. Constructed roadside ditch with shrub-carr.	*Fraxinus pennsylvanica*-Green ash *Phalaris arundinacea*-Reed canary grass *Rhamnus cathartica*-Common buckthorn *Symphyotrichum puniceum*-Red-stemmed aster	None
5	0.1	Open water, fresh (wet) meadow, and shrub-carr	*Phalaris arundinacea*-Reed canary grass *Sambucus nigra*-Elderberry *Typha angustifolia*-Narrow-leaved cat-tail	None

**Acreages not calculated for wet roadside ditches since the wetlands contained in them were not staked.*

Wetland/Upland Boundary Explanation

A total of seventeen representative sample sites were identified within or just outside the project area during the one field inspection in 2013 and two field inspections in 2015. The Wetland Determination Data Forms describing the findings at each sample site are attached as Exhibit 10. The locations of the sample sites are shown on Exhibit 8. The sample sites labeled with letters in orange boxes were recorded during the 2013 visit while the sample sites labeled with numbers in green boxes were recorded during the 2015 field inspections. The wetland boundaries were determined using breaks in topography, changes in vegetation composition, visual identification of wetland hydrology, and presence of hydric soils.

Disturbed and Problematic Areas Encountered

Sample site 5 contained "significantly disturbed" vegetation due to land management activities (regular mowing) leading to obscured hydrophytic vegetation. Commission staff determined that, based upon the presence of wetland hydrology and hydric soils, this sample site would have a predominance of hydrophytic vegetation, similar to wetland sample site 6, if left unmanaged. Accordingly, sample site 5 was determined to be wetland.

Other Water Resources Located in the Project Area

No other water resources are located in the project area; however, all wetlands staked south of East Sunset Drive continue out of the project area.

Other Considerations

The wetlands located within the recorded Primary Environmental Corridor (PEC) as shown on Exhibit 8, have been designated as Advanced Delineation and Identification (ADID) wetlands under the Section 404(b)(1) Guidelines of the Clean Water Act and are deemed generally unsuitable for the discharge of dredge and fill material. In addition, recent revisions of the nonagricultural performance standards set forth in Section NR 151.125 of the *Wisconsin Statutes*, require establishment of a 75-foot impervious surface protective area to protect these higher quality wetlands. The 75-foot protective area would apply to Plant Community Area (PCA) Number 4. PCA number 5 and the eastern portions of PCA's 1 and 2, associated with the unnamed tributaries to Pebble Brook, should receive a 50-foot protective area due to the presence of these waterways. PCA number 3 and the western portions of PCA's 1 and 2, designed for storm water conveyance and treatment purposes, and are exempt from protective area performance standards. This designated protective area boundary is measured horizontally from the delineated wetland boundary to the closest impervious surface. The protective area requirements should be taken into consideration for any planned improvements along East Sunset Drive and it is suggested that you contact WDNR regarding approaches to meet the requirements. Finally, please be advised that no Federal or State regulatory jurisdiction determinations relative to any wetland permits or certifications are made under this report.

LITERATURE CITED

U.S. Army Corps of Engineers, 2015, Special Public Notice: *Guidance for Submittal of Delineation Reports to the St. Paul District Corps of Engineers and the Wisconsin Department of Natural Resources*, U.S. Army Corps of Engineers, March 2015.

U.S. Army Corps of Engineers, 2014, State of Wisconsin Wetland Plant List

U.S. Army Corps of Engineers, 2012, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0). U.S. Army Engineer Research and Development Center, January 2012.

USDA Natural Resources Conservation Service, 2010, *National Food Security Act Manual, Fifth Edition, Part 514.60*, November 2010.

U.S. Army Corps of Engineers, 1987, U.S. Army Corps of Engineers wetlands delineation manual. Wetlands Research Program Technical Report Y-87-1.

WDNR, Surface Water Data Viewer, website at http://dnrmaps.wi.gov/sl/?Viewer=SWDV

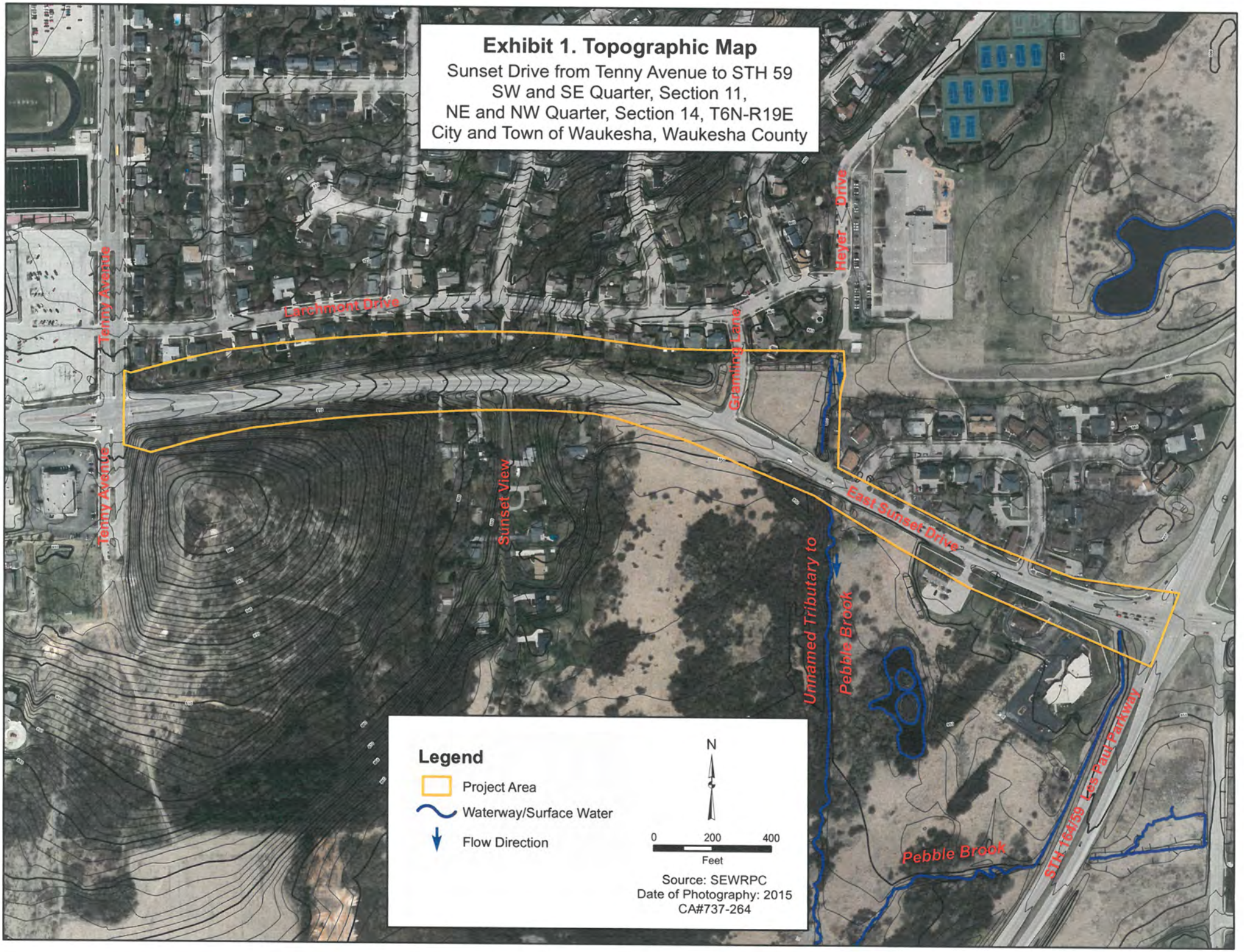


Exhibit 1. Topographic Map
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Sunset View
East Sunset Drive
Unnamed Tributary to
Pebble Brook
Pebble Brook
STH 164/59 Les Paul Parkway
Legend
Project Area
Waterway/Surface Water
Flow Direction
N
0
200
400
Feet
Source: SEWRPC
Date of Photography: 2015
CA#737-264

Exhibit 2. WDNR Surface Water Data Viewer
Wisconsin Wetland Inventory Map

Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County

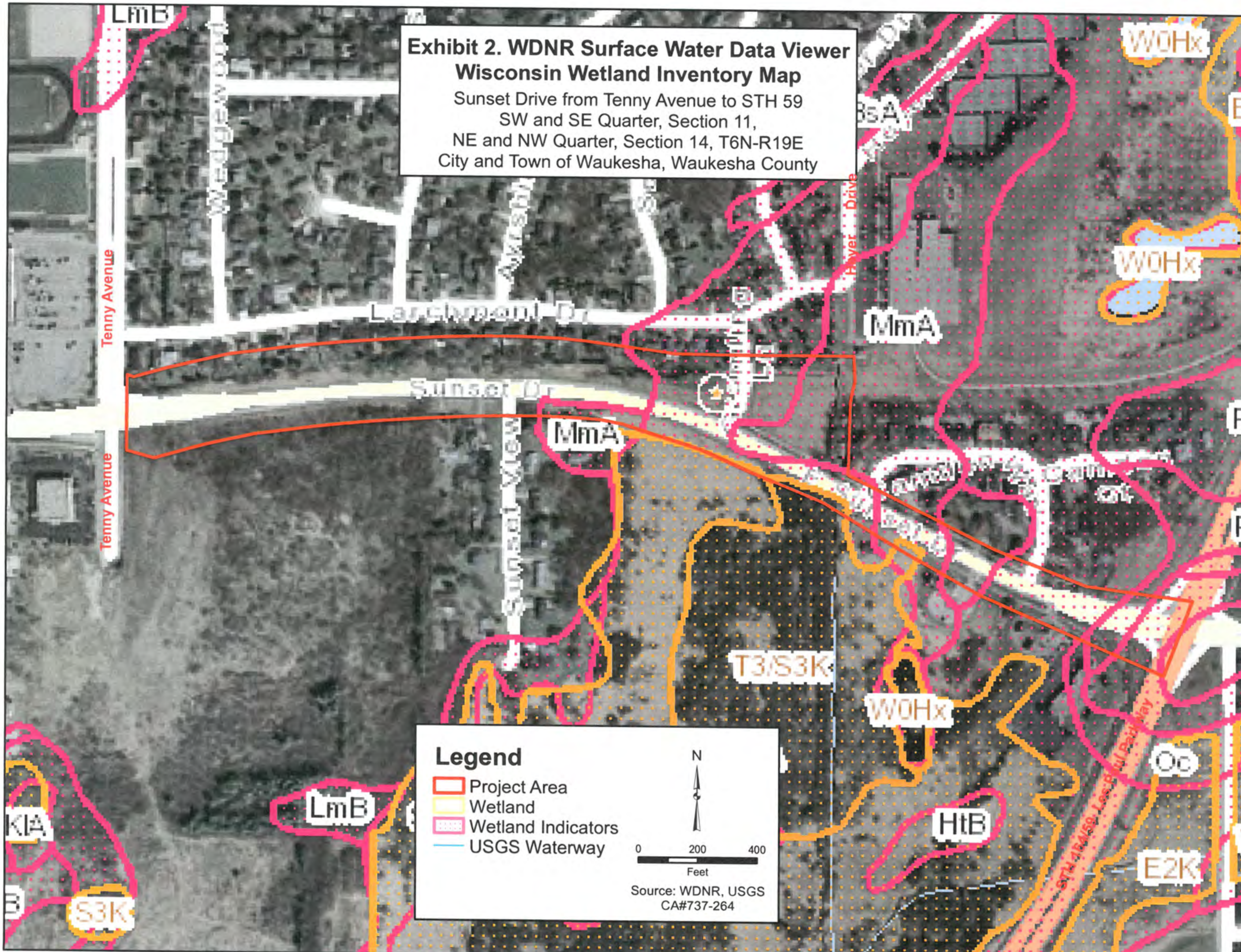



Exhibit 3. Soils and Floodplain Map
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Sunset View
Heyer Drive
Graming Lane
East Sunset Drive
STH 164/59 Les Paul Parkway
LmB
Lu
HmB2
HmB
HmC2
MoA
MmA
ScB
CeB
BsA
W
HmD2
HmC2
HtA
HtB
FsB
Ph
Pa
Oc
Sm
Legend
Project Area
Floodway
100 Year Floodplain
Other Soils
Poorly drained or Very poorly drained
Somewhat poorly drained
N
0
200
400
Feet
Source: SEWRPC
Date of Photography: 2015
CA#737-264


Exhibit 4A. 2015 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Tenny Avenue
Larchmont Drive
Sunset View
Graming Lane
Heyer Drive
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

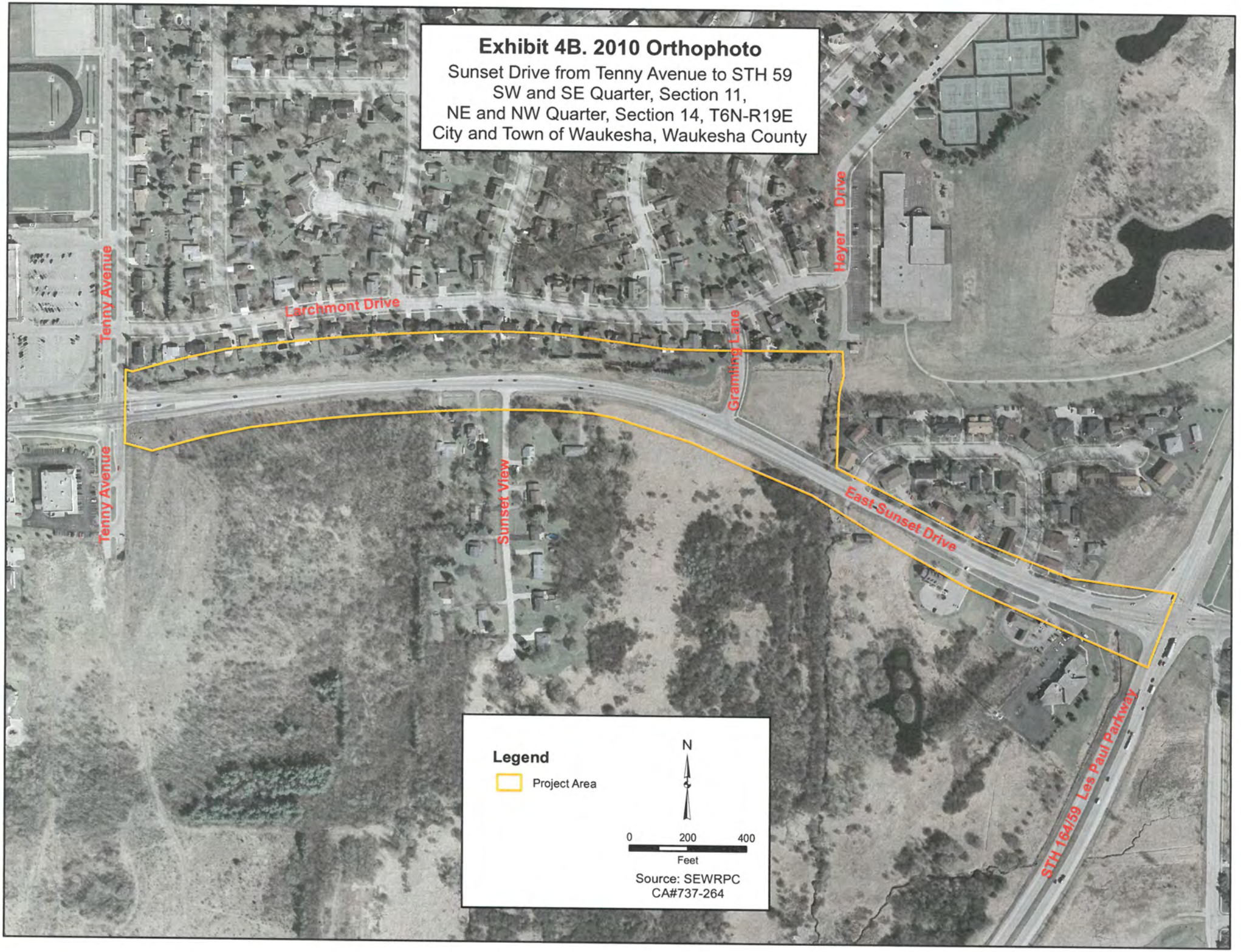


Exhibit 4B. 2010 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264


Exhibit 4C. 2007 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

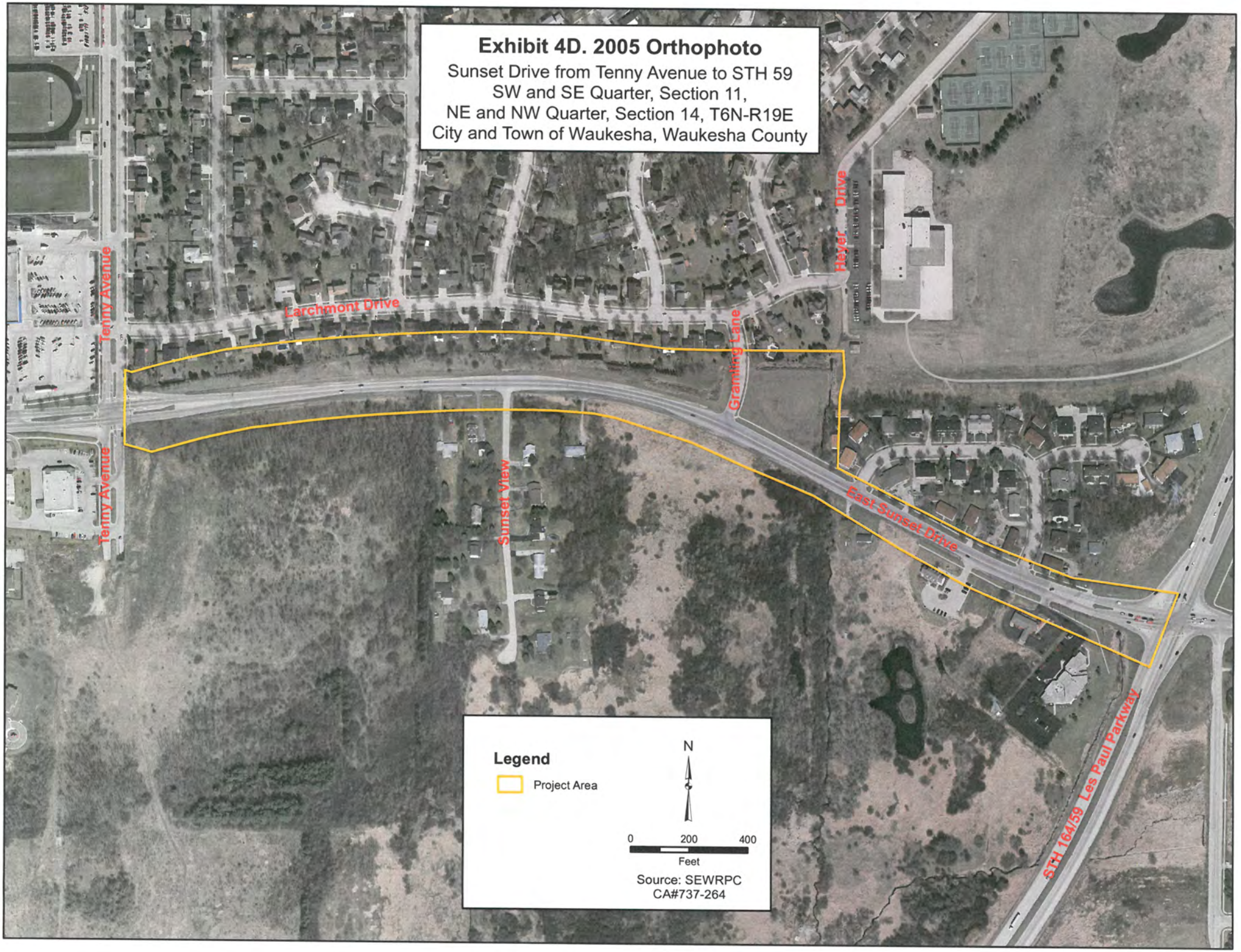


Exhibit 4D. 2005 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Tenny Avenue
Larchmont Drive
Granting Lane
Heyer Drive
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

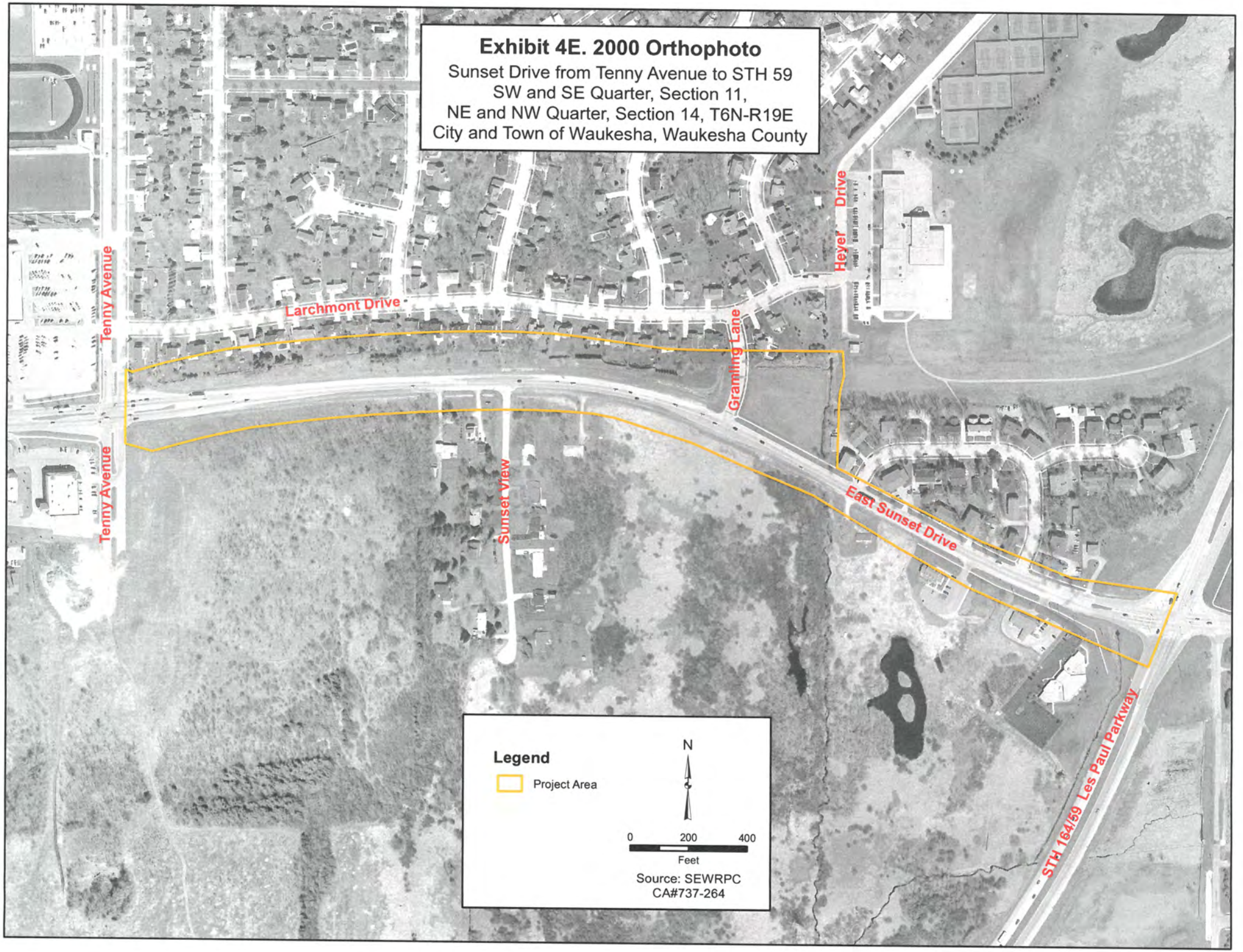


Exhibit 4E. 2000 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Tenny Avenue
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

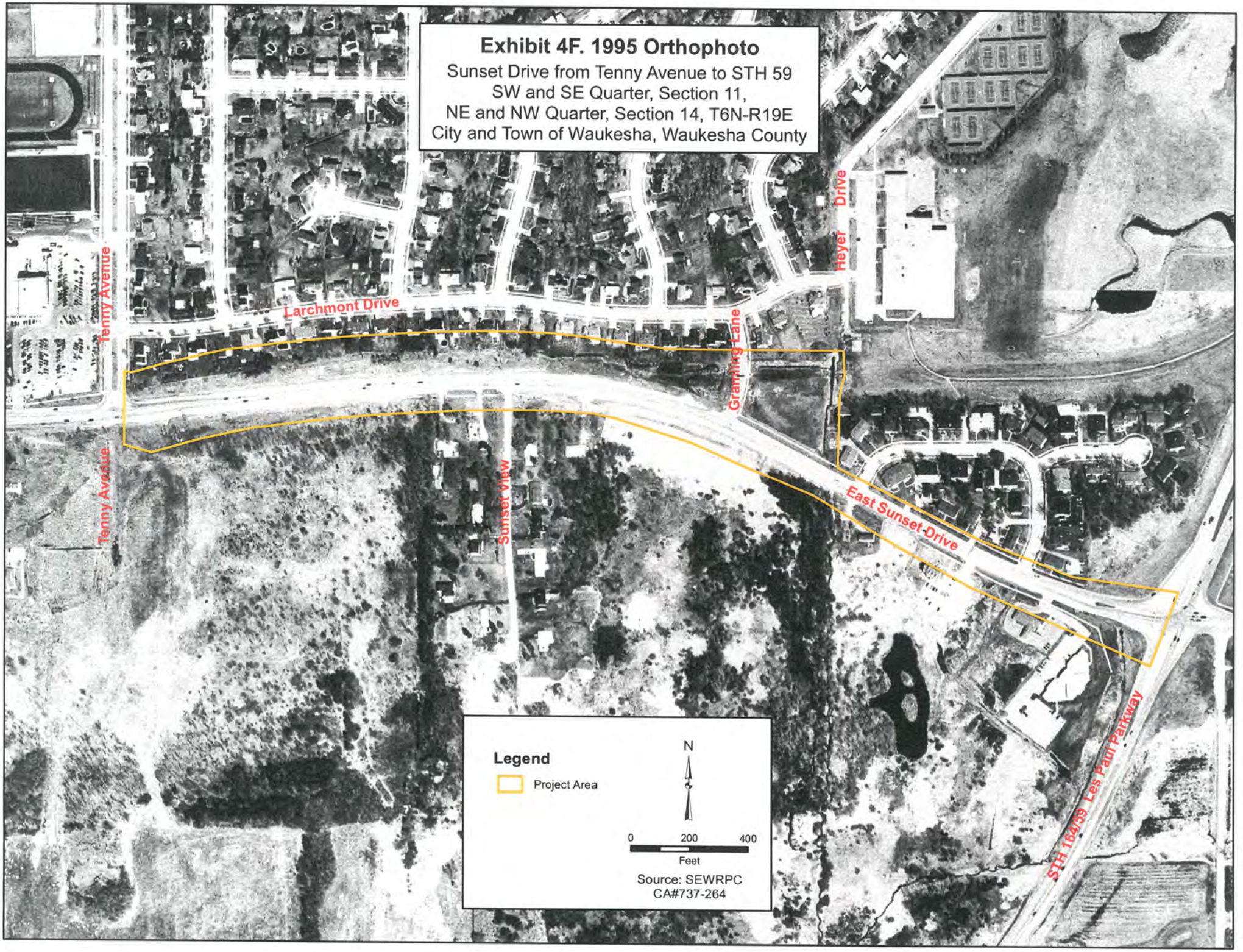


Exhibit 4F. 1995 Orthophoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Tenny Avenue
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

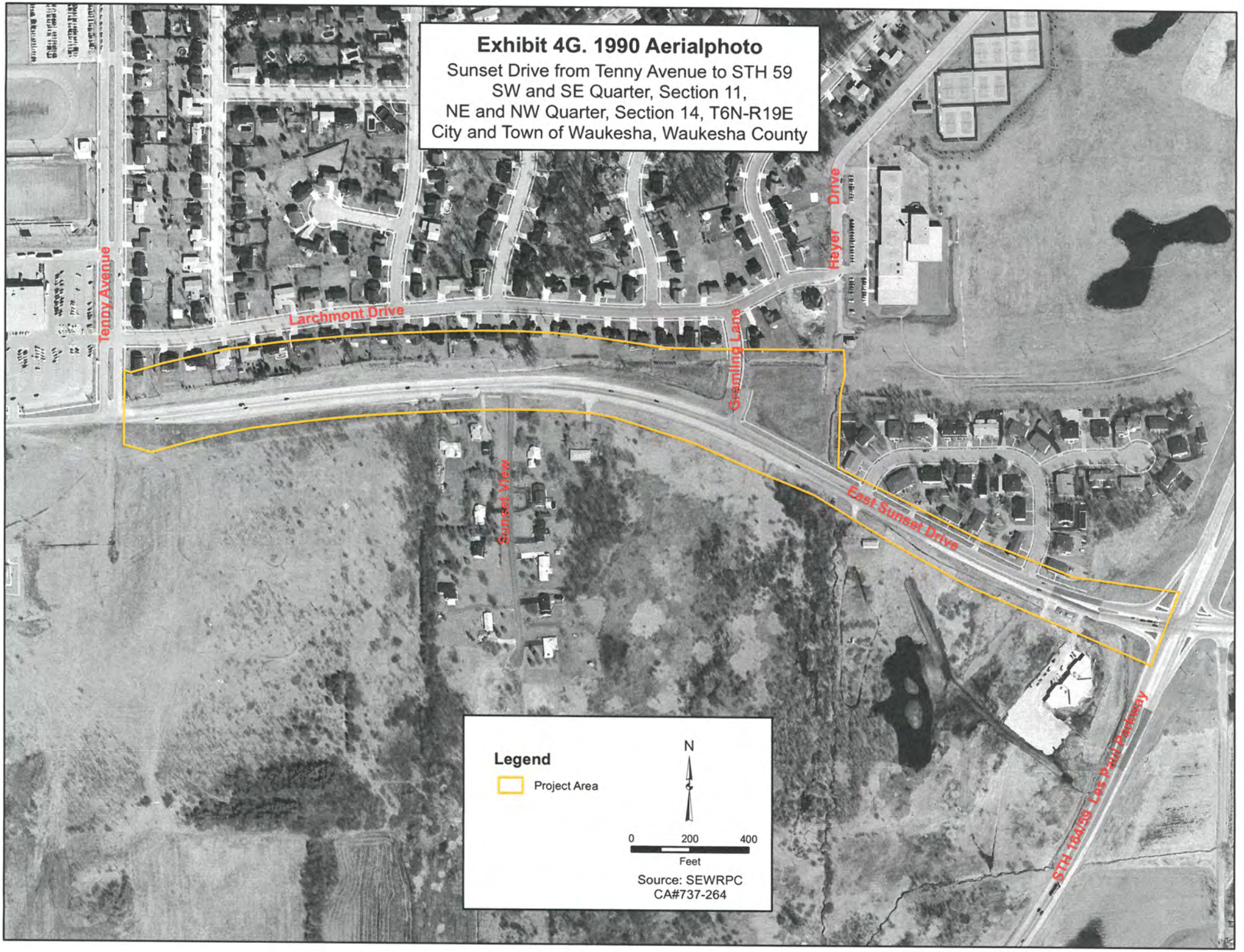


Exhibit 4G. 1990 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Sunset View
East Sunset Drive
STH 164/59 Les Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

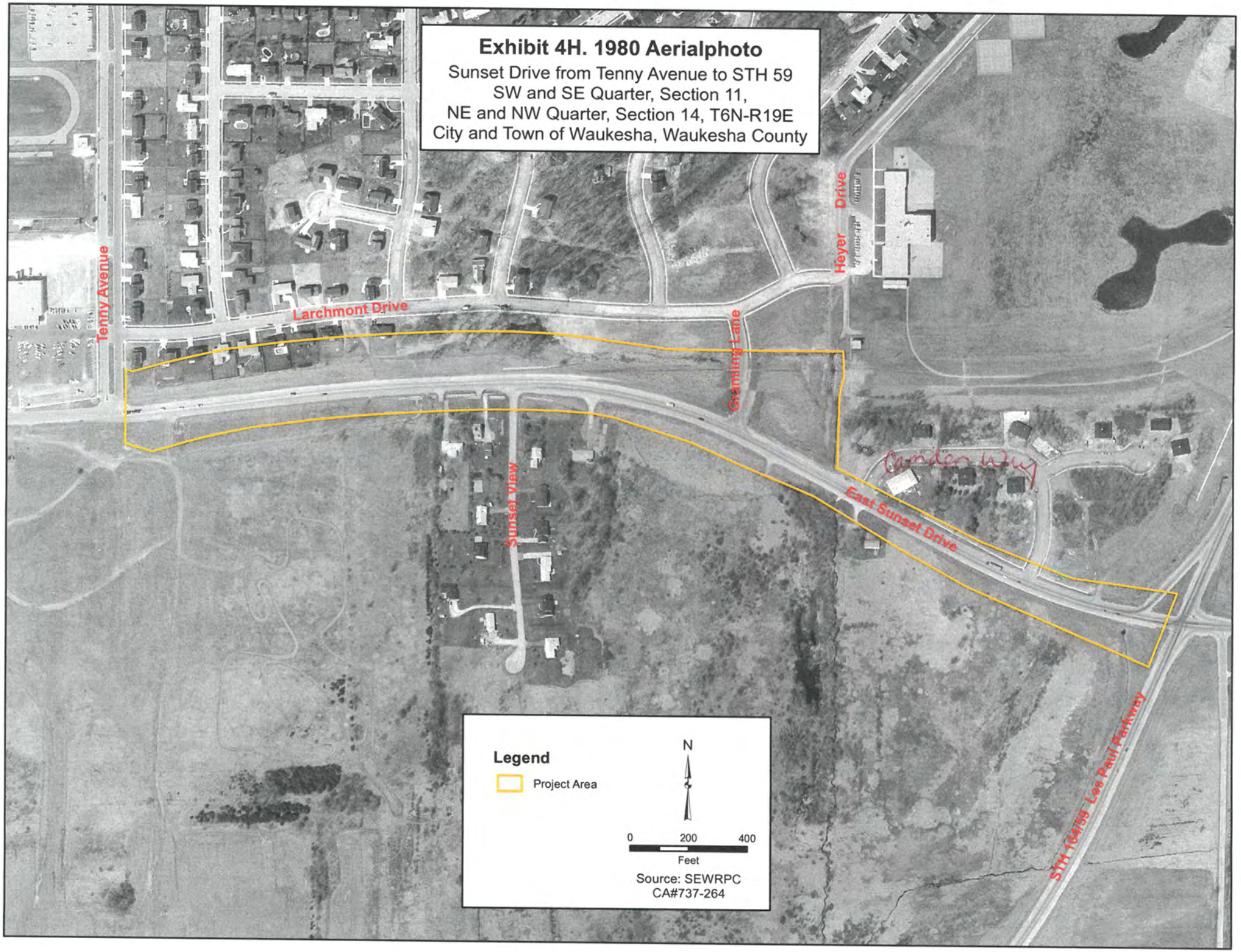


Exhibit 4H. 1980 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Heyer Drive
Gramling Lane
Sunset View
East Sunset Drive
Camden Way
STH 164/59 Lee Paul Parkway
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

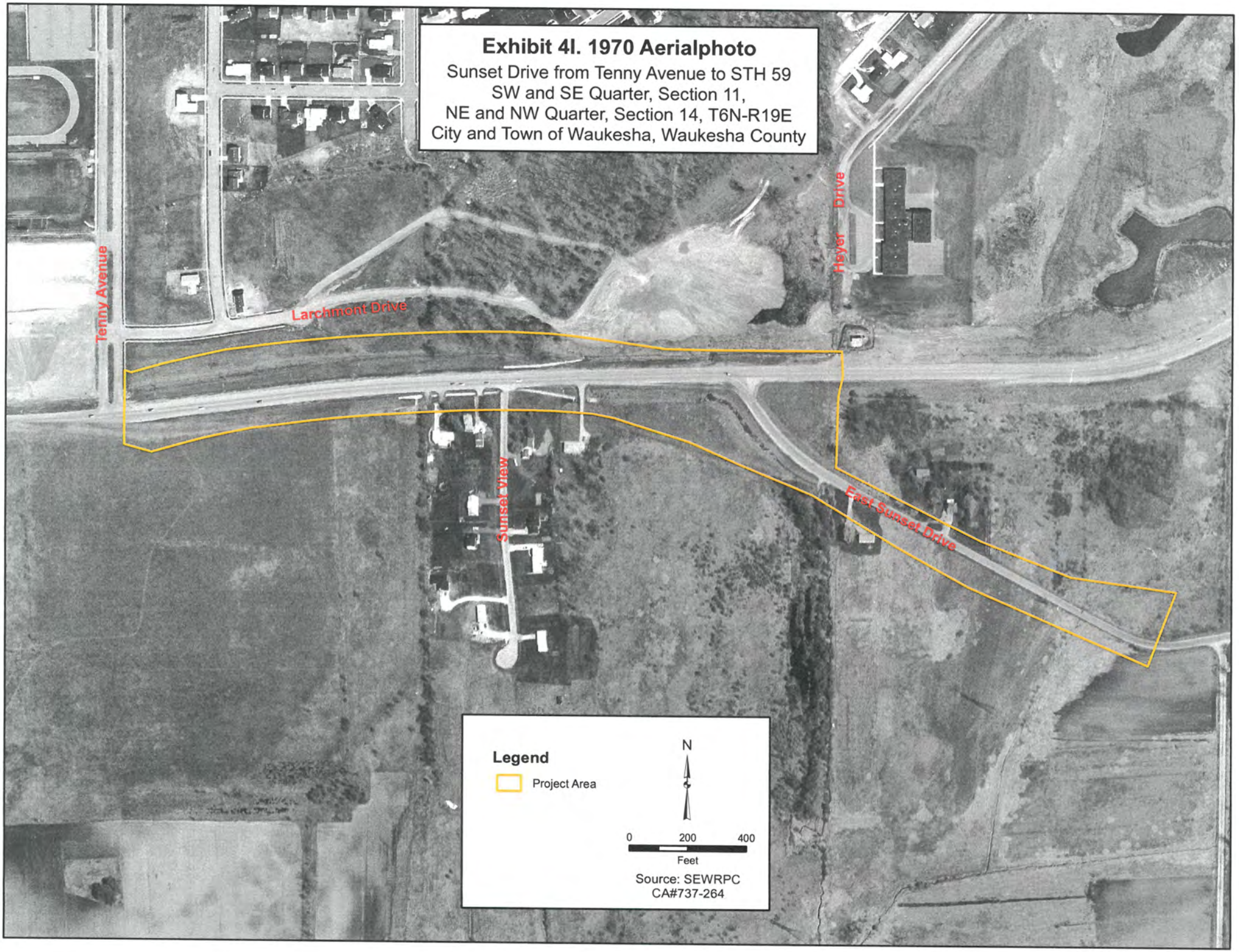


Exhibit 4I. 1970 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
Tenny Avenue
Larchmont Drive
Hoyer Drive
Sunset View
East Sunset Drive
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

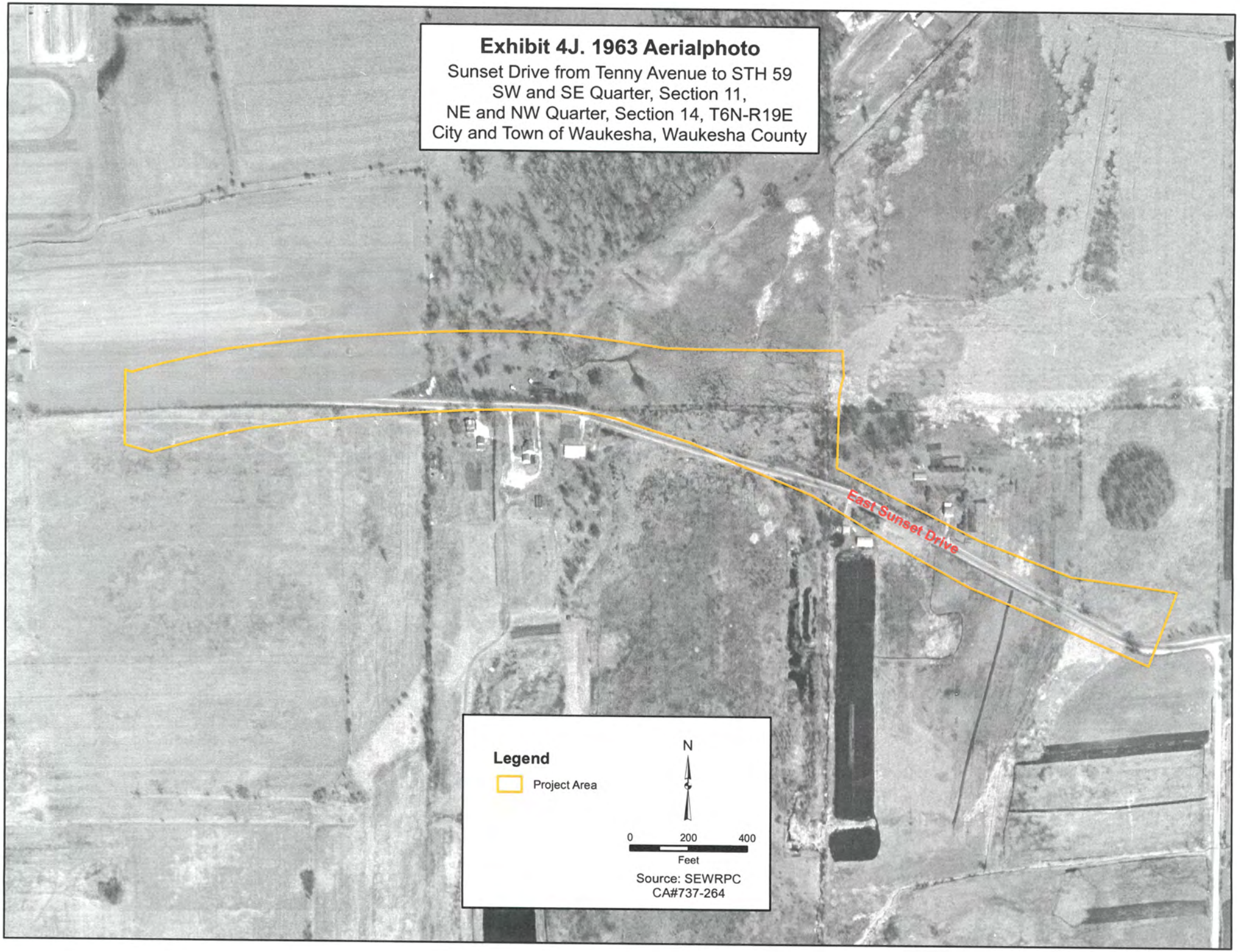


Exhibit 4J. 1963 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
East Sunset Drive
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

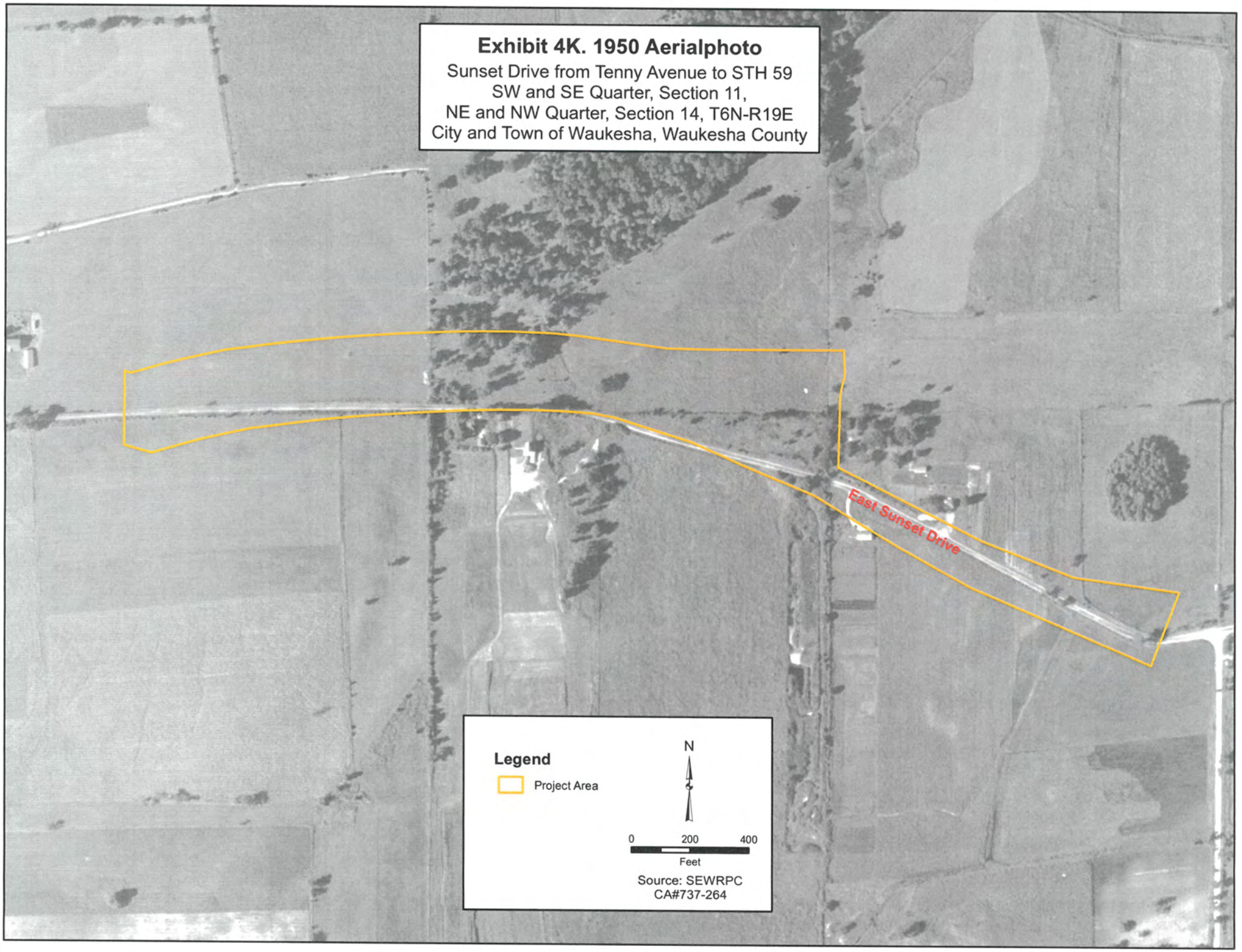


Exhibit 4K. 1950 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
East Sunset Drive
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

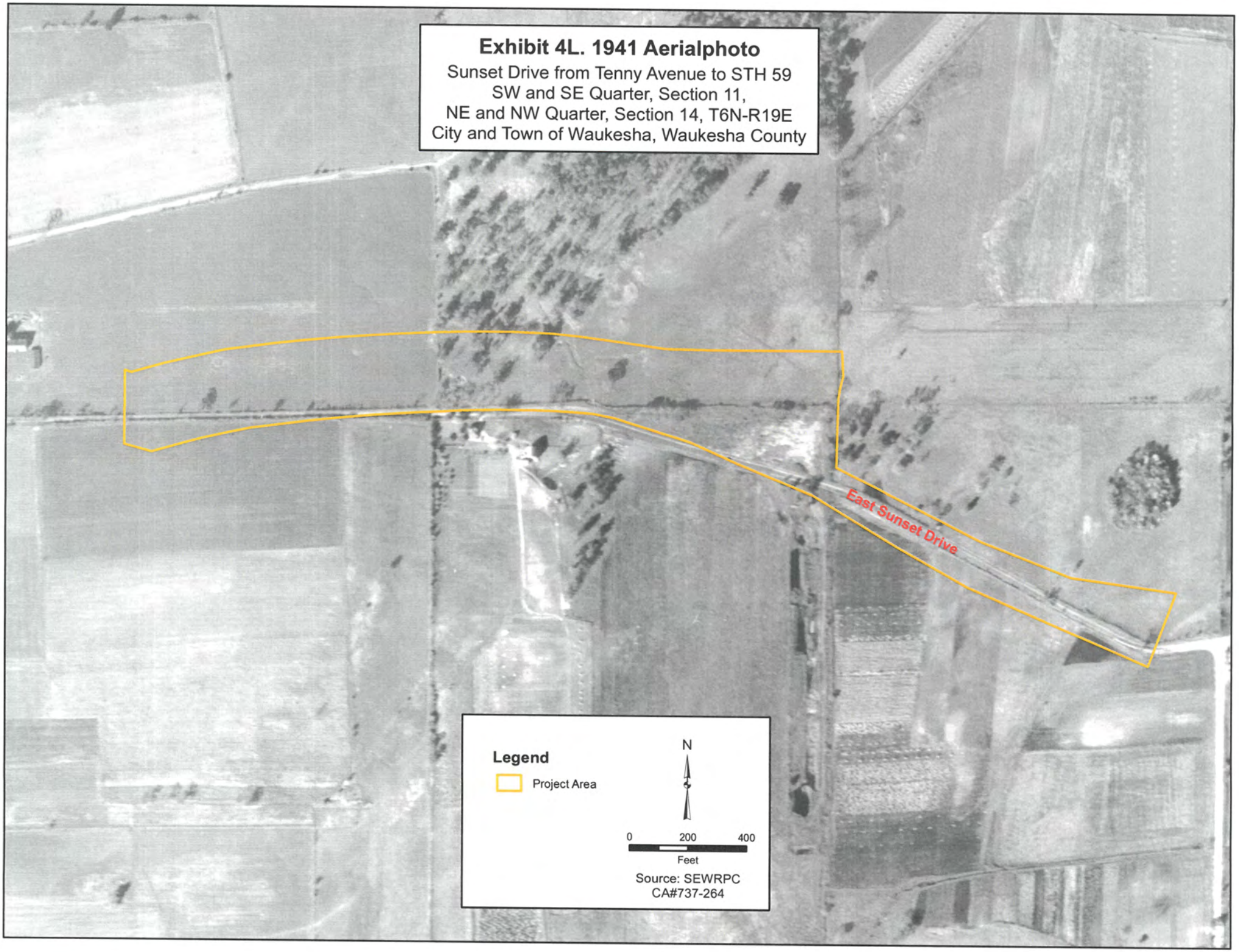


Exhibit 4L. 1941 Aerialphoto
Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County
East Sunset Drive
Legend
Project Area
N
0
200
400
Feet
Source: SEWRPC
CA#737-264

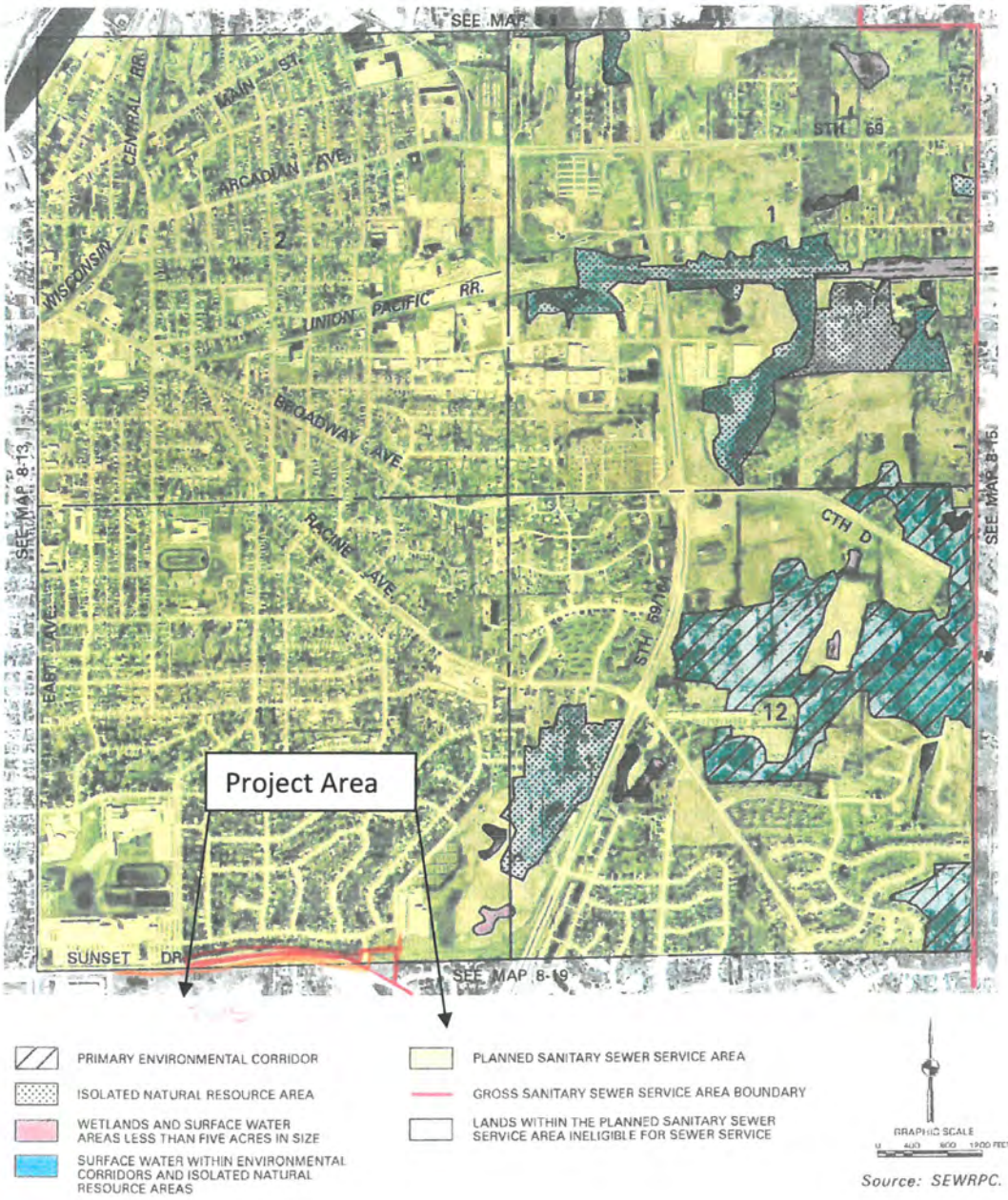
EXHIBIT 5. Sewer Service Area Map

East Sunset Drive Proposed Forcemain
From Tenny Avenue to STH 59
Sections 11 and 14, T6N-R19E
City and Town of Waukesha, Waukesha County

Map 8-14

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED
SANITARY SEWER SERVICE AREA FOR THE CITY OF WAUKESHA AND ENVIRONS

U. S. Public Land Survey Sections 1, 2, 11, and 12
Township 6 North, Range 19 East



PRIMARY ENVIRONMENTAL CORRIDOR

ISOLATED NATURAL RESOURCE AREA

WETLANDS AND SURFACE WATER AREAS LESS THAN FIVE ACRES IN SIZE

SURFACE WATER WITHIN ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS

PLANNED SANITARY SEWER SERVICE AREA

GROSS SANITARY SEWER SERVICE AREA BOUNDARY

LANDS WITHIN THE PLANNED SANITARY SEWER SERVICE AREA INELIGIBLE FOR SEWER SERVICE

GRAPHIC SCALE
0 400 800 1900 FEET

Source: SEWRPC.

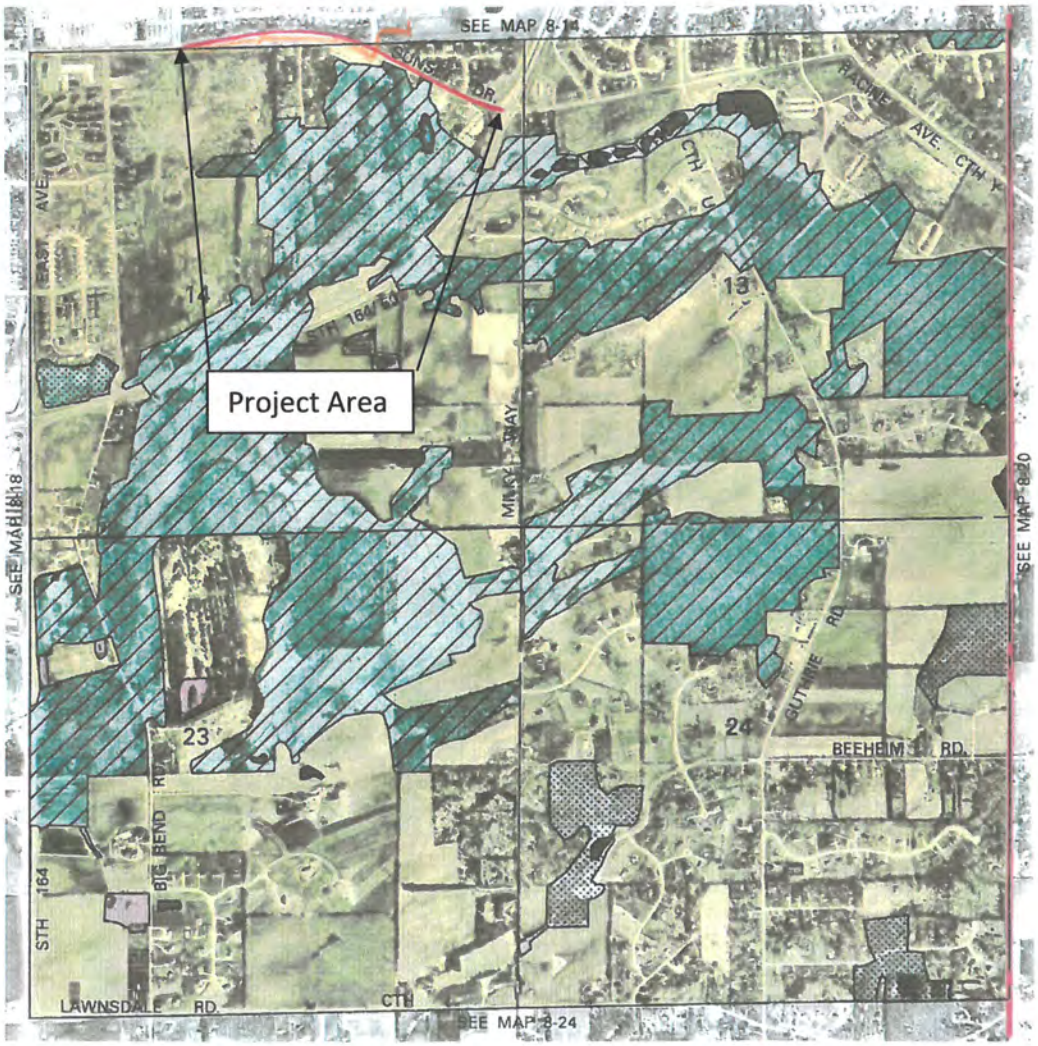
EXHIBIT 5. Sewer Service Area Map

East Sunset Drive Proposed Forcemain
From Tenny Avenue to STH 59
Sections 11 and 14, T6N-R19E
City and Town of Waukesha, Waukesha County

Map 8-19

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF WAUKESHA AND ENVIRONS

U. S. Public Land Survey Sections 13, 14, 23, and 24
Township 6 North, Range 19 East



- PRIMARY ENVIRONMENTAL CORRIDOR
- SECONDARY ENVIRONMENTAL CORRIDOR
- ISOLATED NATURAL RESOURCE AREA
- WETLANDS AND SURFACE WATER AREAS LESS THAN FIVE ACRES IN SIZE
- SURFACE WATER WITHIN ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS
- PLANNED SANITARY SEWER SERVICE AREA
- GROSS SANITARY SEWER SERVICE AREA BOUNDARY
- LANDS WITHIN THE PLANNED SANITARY SEWER SERVICE AREA INELIGIBLE FOR SEWER SERVICE

GRAPHIC SCALE
0 400 800 1200 FEET

Source: SEWRPC.

EXHIBIT 6. Draft NRCS Wetland Inventory Map

East Sunset Drive Proposed Forcemain
From Tenny Avenue to STH 59
Sections 11 and 14, T6N-R19E
City and Town of Waukesha, Waukesha County

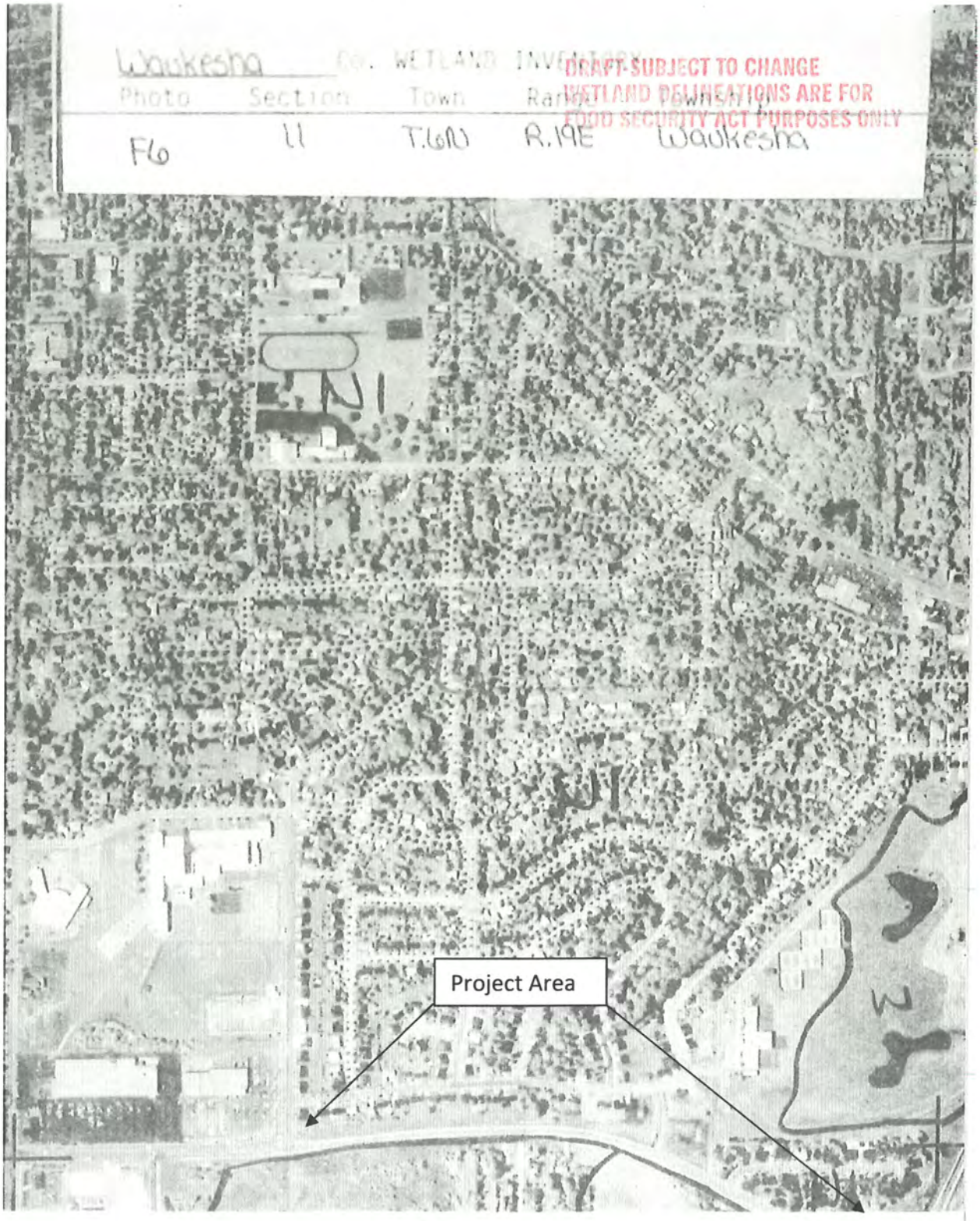


EXHIBIT 6. Draft NRCS Wetland Inventory Map

East Sunset Drive Proposed Forcemain
From Tenny Avenue to STH 59
Sections 11 and 14, T6N-R19E
City and Town of Waukesha, Waukesha County

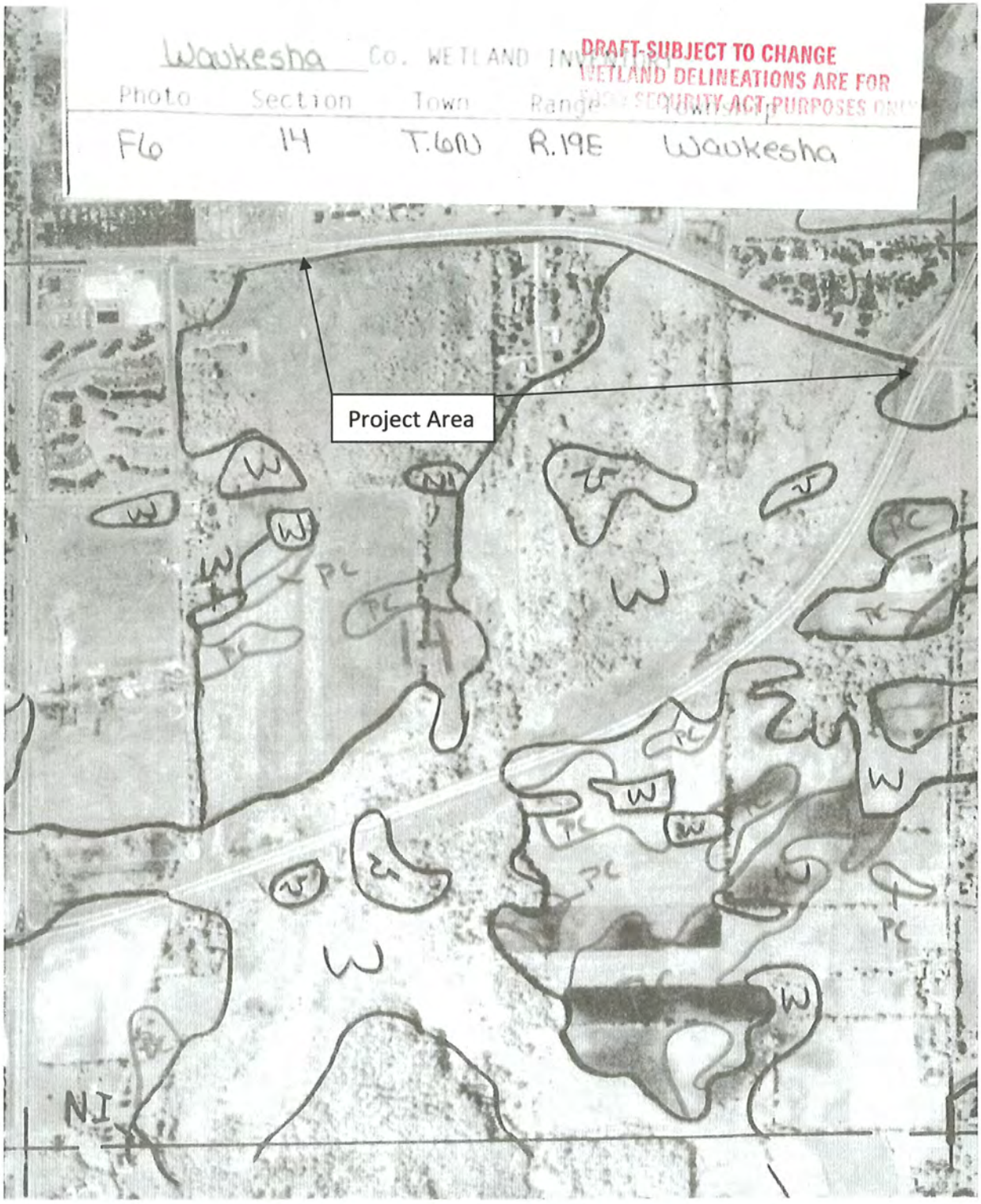
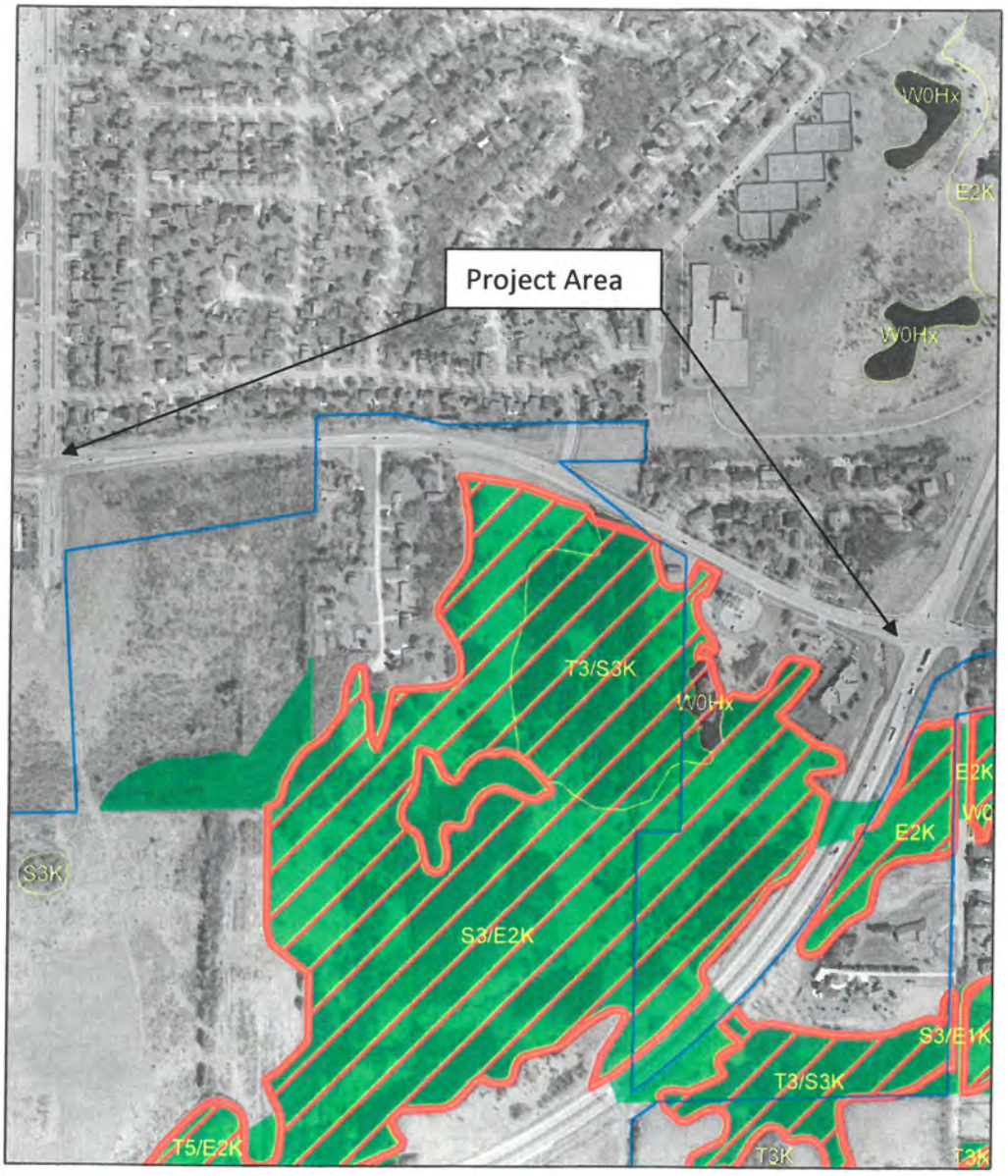


EXHIBIT 7. ADID Wetland Map
East Sunset Drive Proposed Forcemain
From Tenny Avenue to STH 59
Sections 11 and 14, T6N-R19E
City and Town of Waukesha, Waukesha County

ADID Wetlands In Southeast Wisconsin



Legend

- 2010 Wetlands
- ADID Wetlands
- ADID Lakes and Ponds
- ADID Natural Area Wetlands
- 2010 Primary Environmental Corridors

1 inch = 568 feet

N
W E
S

Exhibit 8. Wetland Delineation Map

Sunset Drive from Tenny Avenue to STH 59
SW and SE Quarter, Section 11,
NE and NW Quarter, Section 14, T6N-R19E
City and Town of Waukesha, Waukesha County

Tenny Avenue
Larchmont Drive
Heyer Drive
Graming Lane
East Sunset Drive
Sunset View
Unnamed Tributary Pebble Brook
STH 164/59 Les Paul Parkway
Pebble Brook

Legend

- Project Area
- Primary Environmental Corridor
- Wetland Boundary Staked and Surveyed by SEWRPC on 4/15/15 and 9/9/15
- Wetland
- 1 Plant Community Number
- Plant Community Boundary
- Sample Site Location 5/28/13
- A Sample Site Letter 5/28/13
- Sample Site Location 4/15/05 and 9/9/15
- 1 Sample Site Number 4/15/05 and 9/9/15
- Wet Ditch
- Waterway/Surface Water
- Flow Direction

N

0 125 250
Feet

Source: SEWRPC
Date of Photography: 2015
CA#737-264

SVY4215
737-264

EXHIBIT 9.

PRELIMINARY VEGETATION SURVEY
SUNSET DRIVE FROM TENNY AVENUE TO STH 59

Dates: May 28, 2013
April 15 and September 9, 2015

Observers: Daniel L. Carter, Ph.D., Principal Biologist
Christopher J. Jors, Senior Biologist
Jennifer Dietl, Biologist
Zofia Noe, Biologist
Donald M. Reed, Ph.D., Former Chief Biologist
Lawrence A. Leitner, Ph.D., Former Principal Biologist
Southeastern Wisconsin Regional Planning Commission

Location: City and Town of Waukesha in parts of U.S. Public Land Survey Sections 11 and 14, Township 6 North, Range 19 East, Waukesha County, Wisconsin.

Species List: Plant Community Area No. 1 – Native Species

Co-dominant species

Acer negundo—Boxelder
Carex lacustris—Lake sedge
Carex pellita--Woolly sedge
Carex stipata—Common fox sedge
Carex stricta—Tussock sedge
Cornus alba--Red-osier dogwood
Epilobium coloratum--Willow-herb
Euthamia graminifolia—Grassleaf goldenrod
Eutrochium maculatum—Joe-Pye weed
Impatiens capensis--Jewelweed
Juglans nigra--Black walnut
Salix amygdaloides--Peach-leaved willow
Salix bebbiana—Beaked willow
Salix interior--Sandbar willow
Sambucus nigra—Elderberry
Schoenoplectus tabernaemontani—Soft-stem bulrush
Scirpus atrovirens--Green bulrush
Solidago altissima--Tall goldenrod
Solidago gigantea--Giant goldenrod
Spartina pectinate—Prairie cordgrass
Symphyotrichum lanceolatum--Marsh aster
Symphyotrichum puniceum--Red-stemmed aster
Urtica dioica—Stinging nettle
Verbena hastata--Blue vervain
Vitis riparia—Riverbank grape
Typha latifolia-Broad-leaved cat-tail

NON-Native Species

Agrostis sp.--Redtop grass
Alliaria petiolata--Garlic-mustard

PCA No. 1 cont.

Barbarea vulgaris--Yellow rocket
***Cirsium arvense*--Canada thistle**
Cirsium vulgare--Bull thistle
***Dipsacus laciniatus*--Cut-leaved teasel**
Hesperis matronalis—Dames rocket
Lonicera X *bella*--Hybrid honeysuckle
Pastinaca sativa—Wild parsnip
***Phalaris arundinacea*--Reed canary grass**
Poa pratensis--Kentucky bluegrass
Rhamnus cathartica--Common buckthorn
Rumex crispus--Curly dock
Solanum dulcamara—Deadly nightshade
Thlaspi arvense—Penny cress
***Typha angustifolia*--Narrow-leaved cat-tail**

Total number of plant species: 42
Number of alien, or non-native, plant species: 16 (38 percent)

This approximately 0.8-acre plant community area consists of a constructed stormwater basin and drainage way associated with the upper reaches of Pebble Brook. Plant community types include shallow marsh, fresh (wet) meadow, and small stands of shrub-carr (willow thicket). Disturbances to the plant community area include pond excavation, side-casting of dredge spoil material, water level changes due to ditching and draining, dumping of yard waste, past filling along a former road bed, mowing along the wetland edge, and siltation and sedimentation due to stormwater runoff from adjacent lands. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

Plant Community Area No. 2 – Native Species

***Acer negundo*--Boxelder**
Carex granularis--Pale sedge
***Carex pellita*--Woolly sedge**
Cornus racemosa--Grey dogwood
Fraxinus pennsylvanica—Green ash
Ulmus Americana—American elm

NON-Native Species

Achillea millefolium--Yarrow
Alliaria petiolata--Garlic-mustard
Cirsium arvense--Canada thistle
Convolvulus arvensis--Field bindweed
***Phalaris arundinacea*--Reed canary grass**
Poa pratensis--Kentucky bluegrass
***Rhamnus cathartica*--Common buckthorn**

Total number of plant species: 13
Number of alien, or non-native, plant species: 7 (54 percent)

This approximately 0.7-acre plant community area, associated with the upper reaches of Pebble Brook, consists of fresh (wet) meadow and second growth, Southern, wet to wet-mesic lowland hardwoods. Disturbances to the plant community area include water level changes due to ditching and draining, past filling along a former road bed, mowing, and siltation and sedimentation due to stormwater runoff from adjacent lands. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

Plant Community Area No. 3 – Native Species

Acer negundo--Boxelder
Salix discolor--Pussy willow
Solidago altissima--Tall goldenrod
Solidago gigantea--Giant goldenrod
Symphyotrichum novae-angliae--New England aster

NON-Native Species

***Phalaris arundinacea*--Reed canary grass**
Rhamnus cathartica--Common buckthorn

Total number of plant species: 7
Number of alien, or non-native, plant species: 2 (29 percent)

This plant community area consists of a constructed roadside wet ditch with fresh (wet) meadow. Disturbances to the plant community area include siltation and sedimentation due to stormwater runoff from adjacent lands and water level changes due to ditching and concrete-lining. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

Plant Community Area No. 4 – Native Species

Acer negundo--Boxelder
Cornus alba--Red-osier dogwood
Cornus obliqua--Silky dogwood
Echinocystis lobata--Wild cucumber
Euthamia graminifolia—Grassleaf goldenrod
***Fraxinus pennsylvanica*--Green ash**
Helianthus tuberosus--Jerusalem artichoke
Impatiens capensis--Jewelweed
Solidago altissima--Tall goldenrod
***Symphyotrichum puniceum*--Red-stemmed aster**
Urtica dioica--Stinging nettle
Vitis riparia--Riverbank grape

NON-Native Species

Alliaria petiolata--Garlic-mustard
Arctium minus--Common burdock
Barbarea vulgaris--Yellow rocket
Cirsium arvense--Canada thistle
Glechoma hederacea--Creeping Charlie
Lonicera X *bella*--Hybrid honeysuckle
***Phalaris arundinacea*--Reed canary grass**
***Rhamnus cathartica*--Common buckthorn**
Solanum dulcamara--Deadly nightshade
Sonchus arvensis—Field sow-thistle
Typha angustifolia--Narrow-leaved cat-tail

PCA No. 4 cont.

Total number of plant species: 20
Number of alien, or non-native, plant species: 9 (45 percent)

This approximately 1.2-acre plant community area is part of a larger wetland complex associated with an unnamed tributary to Pebble Brook and consists of open water, fresh (wet) meadow, shrub-carr, and second growth, Southern wet to wet-mesic lowland hardwoods. In addition, this plant community area includes a constructed roadside wet ditch with shrub-carr. Disturbances to the plant community area include past agricultural land management activities, water level changes due to ditching and stream channel re-alignment, side-casting of dredge spoil material, clearing of vegetation, past filling, and mowing. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

Plant Community Area No. 5 – Native Species

Asclepias syriaca--Common milkweed
Carex pellita--Woolly sedge
Fraxinus pennsylvanica--Green ash
Salix interior--Sandbar willow
***Sambucus nigra*--Elderberry**
Solidago altissima--Tall goldenrod
Solidago gigantea--Giant goldenrod
Symphyotrichum lanceolatum--Marsh aster
Symphyotrichum puniceum--Red-stemmed aster
Urtica dioica--Stinging nettle
Vitis riparia--Riverbank grape

NON-Native Species

***Phalaris arundinacea*--Reed canary grass**
Rhamnus cathartica--Common buckthorn
***Typha angustifolia*--Narrow-leaved cat-tail**

Total number of plant species: 14
Number of alien, or non-native, plant species: 3 (21 percent)

This approximately 0.1-acre plant community area is part of a larger wetland complex associated with the upper reaches of Pebble Brook and consists of open water, fresh (wet) meadow, and shrub-carr. Disturbances to the plant community area include mowing along the wetland edge, siltation and sedimentation due to stormwater runoff from adjacent lands, and water level changes due to ditching and draining. No Federal- or State-designated Special Concern, Threatened, or Endangered species were observed during the field inspection.

EXHIBIT 10.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 04/15/2015
Applicant/Owner: ____ State: WI Sampling Point: 1
Investigator(s): Jen Dietl and Zofia Noe; SEWRPC Section, Township, Range: Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): constructed drainage way Local relief (concave, convex, none): linear Slope (%): --
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Loamy land (Lu) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No			

If yes, optional Wetland Site ID: Plant Community Area (PCA) No. 1

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. Sample site is part of a constructed roadside drainage way that is located in an unmapped wetland just upslope of a mapped wetland symbol (less than 0.25 acre). Sample is near the western wetland boundary of PCA No. 1.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 0 (at surface)

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**100**	☒	**FACW**
2. Dipsacus laciniatus	20	☐	FACU
3. Solidago gigantea	5	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	125	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Clay loam	
6-12	10YR 3/1	95	10YR 4/4	5	C	PL M	Silty clay loam	with gravel
12-15	10YR 3/1	90	10YR 4/4	5	C	PL M	Clay	with gravel
	7.5YR 3/3	5						
15+								Refusal: Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel (possible fill?)

Depth (inches): 15

Hydric Soil Present? **Yes** ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 04/15/2015
Applicant/Owner: ____ State: WI Sampling Point: 2
Investigator(s): Jen Dietl and Zofia Noe; SEWRPC Section, Township, Range: Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): constructed stormwater basin Local relief (concave, convex, none): concave Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: wet < 0.25
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐No
Hydric Soils Present?	☒**Yes**	☐No			
Wetland Hydrology Present?	☒**Yes**	☐No	If yes, optional Wetland Site ID: PCA No. 1		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. Constructed stormwater detention basin.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? **Yes** ☒ No ☐ Depth (inches): 2
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 0 (at surface)

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 2

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Typha angustifolia	**100**	☒	**OBL**
2. Epilobium coloratum	10	☐	OBL
3. Polygonum sp.	1	☐	FACU
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	111	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Shallow marsh.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					Mucky loam	
9-15	10YR 4/2	95	7.5YR 4/4	5	C	PL M	Sandy clay loam	with gravel
15-19	N 2.5/1	90	7.5YR 3/4	10	C	PL M	Silty clay loam	
19+								Refusal: Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel (fill material?)

Depth (inches): 19

Hydric Soil Present? **Yes** ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 04/15/2015
Applicant/Owner: ____ State: WI Sampling Point: 3
Investigator(s): Jen Dietl and Zofia Noe; SEWRPC Section, Township, Range: Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): linear Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☐Yes	☒**No**	**Is the Sampled Area within a Wetland?**	☐ Yes	☒**No**
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. This upland sample site is located between E. Sunset Drive and wetland sample site 2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 3

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Elymus repens	**100**	☒	**FACU**
2. Poa pratensis	2	☐	FACU
3. Symphyotrichum pilosum	2	☐	FACU
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	104	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ☐ **No** ☒

Remarks: (include photo number here or on a separate sheet.) Upland meadow.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Clay loam	
10-12	10YR 2/1	88	7.5YR 4/4	2	C	M	Clay loam	
	10YR 4/2	10						
12+								Refusal: Gravel fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel fill material

Depth (inches): 12

Hydric Soil Present? Yes ☐ **No** ☒

Remarks: Gravel fill material from past construction of E. Sunset Drive.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 4
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): linear Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☐Yes	☒**No**	**Is the Sampled Area within a Wetland?**	☐ **Yes**	☒No
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. This upland sample site is located between E. Sunset Drive and wetland sample site 5.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 14

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 4

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Poa pratensis	**60**	☒	**FACU**
2. Elymus repens	**20**	☒	**FACU**
3. Glechoma hederacea	15	☐	FACU
4. Schedonorus arundinaceus	13	☐	FACU
5. Cirsium arvense	5	☐	FACU
6. Convolvulus arvense	5	☐	UPL
7. Daucus carota	3	☐	UPL
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	121	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (include photo number here or on a separate sheet.) Upland meadow, occasionally mowed for right-of-way maintenance.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					Loam	fill material
8-19	10YR 3/4	30					Sandy clay	with gravel, fill material
	10YR 4/3	30						
	10YR 4/4	30						
	10YR 3/1	10						
19-32	N 2.5/0	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 5
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation **X**, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ **No** ☒
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 4		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. Distubed vegetation due to land management activities (regular mowing). This sample site would be similar to vegetation at sample site six if left unmanaged.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? **Yes** ☒ No ☐ Depth (inches): 14
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 10

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks: Sample site is located in the Pebble Brook 100 year floodplain.

VEGETATION – Use scientific names of plants. Sampling Point: 5

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Glechoma hederacea	**40**	☒	**FACU**
2. Phalaris arundinacea	**35**	☒	**FACW**
3. Alliaria petiolata	20	☐	FACU
4. Cirsium arvense	10	☐	FACU
5. Symphyotrichum lanceolatum	5	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	110	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	0	x 1 =	0	
FACW species	35	x 2 =	70	
FAC species	5	x 3 =	15	
FACU species	70	x 4 =	280	
UPL species	0	x 5 =	0	
Column Totals:	110	(A)	365	(B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation
☐ Dominance Test is >50%
☐ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☒ **Problematic Hydrophytic Vegetation[1] (Explain)**

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Problematic hydrophytic vegetation due to land management activities (regular mowing). Indicators of hydric soils and wetland hydrology area present. If left unmanaged this sample site would be similar to vegetation at sample site six.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-32	N 2.5/0	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 6
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 1-3%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Matherton silt loam (MmA) NWI classification: T3/S3K
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 4		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 10

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks: Sample site is located in the Pebble Brook 100 year floodplain.

VEGETATION – Use scientific names of plants. Sampling Point: 6

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**90**	☒	**FACW**
2. Symphyotrichum puniceum	15	☐	OBL
3. Symphyotrichum lanceolatum	10	☐	FAC
4. Solidago gigantea	8	☐	FACW
5. Cirsium arvense	3	☐	FACU
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	126	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-19	N 2.5/0	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 7
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): terrace/slight drainage way Local relief (concave, convex, none): none to slightly concave Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☐ Yes ☒**No**
Hydric Soils Present?	☐Yes	☒**No**		
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____	

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal. Sample site located in a very slight drainage way between two developed parcels. Field observation of Rhamnus cathartica led to further investigation to determine if the site also had wetland hydrology and hydric soils, which it did not. The roadside ditch approximately 10 feet north of the sample, between E. Sunset Dr. and the sidewalk, is lower in elevation and is probably altering the hydrology in this sample area by intercepting surface water that likely flowed into the drainage way in the past.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 7

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhamnus cathartica	**80**	☒	**FAC**
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**40**	☒	**FAC**
2. Prunus virginiana	10	☐	FACU
3. Lonicera x bella	5	☐	FACU
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	55	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Rhamnus cathartica	1	☐	FAC
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	1	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Buckthorn thicket.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					Loam	
9-17	10YR 3/1	80					Clay loam	
	10YR 5/3	20						
17-21	10YR 4/3	80	10YR 4/6	10	C	PL M	Clay loam	
	10YR 3/1	10						
21-24	10YR 4/4	70	10YR 4/6	10	C	PL M	Clay	with grit and gravel
	10YR 4/2	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☒

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 8
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-4%??
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Lamartine silt loam (LmB) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☐Yes	☒**No**	**Is the Sampled Area within a Wetland?**	☐ Yes	☒**No**
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: ____		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): ____

Wetland Hydrology Present? Yes ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 8

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rhamnus cathartica	**5**	☒	**FAC**
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	5	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Elymus repens	**90**	☒	**FACU**
2. Asclepias syriaca	15	☐	FACU
3. Convolvulus arvensis	12	☐	FACU
4. Daucus carota	10	☐	UPL
5. Barbarea vulgaris	5	☐	FAC
6. Alliaria petiolata	2	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	134	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ☐ **No** ☒

Remarks: (include photo number here or on a separate sheet.) Upland meadow.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					Loam	
8-17	10YR 3/2	60					Loam	with cobbles and gravel
	10YR 4/2	40						
17+								Refusal: Cobbles and gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Cobbles and gravel (fill material?)

Depth (inches): 17

Hydric Soil Present? Yes ☐ **No** ☒

Remarks: Possible fill material from past property development, stream re-alignment, and E. Sunset Dr. and STH 59 intersection improvements.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Force Main City/County: City of Waukesha/Waukesha County Sampling Date: 09/09/2015
Applicant/Owner: ____ State: WI Sampling Point: 9
Investigator(s): Jen Dietl and Dan Carter; SEWRPC Section, Township, Range: Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 1-4% ?
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Lamartine silt loam (LmB)? NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐No
Hydric Soils Present?	☒**Yes**	☐No			
Wetland Hydrology Present?	☒**Yes**	☐No	If yes, optional Wetland Site ID: PCA No. 5		

Remarks: (Explain alternative procedures here or in a separate report.) Antecedent precipitation drier than normal.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): ____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Topo Map (Exhibit 1), WWI Map (Exhibit 2), Soils Map (Exhibit 3), and Aerial photos (Exhibit 4).

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: 9

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**100**	☒	**FACW**
2. Asclepias syriaca	10	☐	FACU
3. Urtica dioica	5	☐	FAC
4. Alliaria petiolata	3	☐	FACU
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	118	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Loam	with gravel
12-14	10YR 2/1	60	10YR 3/6	10	C	PL M	Clay loam	with gravel
	10YR 5/2	30						
14-16	2.5Y 4/1	98	10YR 4/6	2	C	PL M	Clay	
16-26	2.5Y 5/2	80	10YR 5/6	20	C	PL M	Clay	with disintegrating dolomite

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: Town of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: A
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: SE 1/4 Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): drainage way Local relief (concave, convex, none): concave Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No			

If yes, optional Wetland Site ID: Plant Community Area (PCA) No. 1

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

☒ **Surface Water (A1)**	☒ **Water-Stained Leaves (B9)**	☐ Surface Soil Cracks (B6)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13)	☐ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Marl Deposits (B15)	☐ Moss Trim Lines (B16)
☒ **Water marks (B1)**	☐ Hydrogen Sulfide Odor (C1)	☐ Dry-Season Water Table (C2)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Crayfish Burrows (C8)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Stunted or Stressed Plants (D1)
☐ Iron Deposits (B5)	☐ Thin Muck Surface (C7)	☒ **Geomorphic Position (D2)**
☐ Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Remarks)	☐ Shallow Aquitard (D3)
☐ Sparsely Vegetated Concave Surface (B8)		☐ Microtopographic Relief (D4)
		☒ **FAC-Neutral Test (D5)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present? **Yes** ☒ No ☐ Depth (inches): 7.5
Water Table Present? Yes ☐ No ☐ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ No ☐

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

Remarks: Three primary and two secondary wetland hydrology indicators present.

VEGETATION – Use scientific names of plants. Sampling Point: A

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Typha angustifolia	**50**	☒	**OBL**
2. Carex lacustris	10	☐	OBL
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Shallow marsh along drainage ditch.

SOIL

Sampling Point: A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: Stream bottom - Soils inundated with 7.5 inches of water - hydric by definition - Criteria 3.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: Town of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: B
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: SE 1/4 Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☐Yes	☒**No**	**Is the Sampled Area within a Wetland?**	☐ Yes	☒**No**
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: _____		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): _____
Water Table Present? **Yes** ☒ No ☐ Depth (inches): 18
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 17

Wetland Hydrology Present? Yes ☐ **No** ☒

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

Remarks: Water is moving along gravel bed. No wetland hydrology indicators observed in the upper portion of the root zone.

VEGETATION – Use scientific names of plants. Sampling Point: B

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Poa pratensis	**67**	☒	**FACU**
2. Cirsium arvense	25	☐	FACU
3. Taraxacum officinale	15	☐	FACU
4. Convolvulus arvensis	10	☐	NI
5. Dactylis glomerata	10	☐	FACU
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	127	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ☐ **No** ☒

Remarks: (include photo number here or on a separate sheet.) Upland field.

SOIL

Sampling Point: B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 2/1	100					Silty clay loam	with a few small stones
17-20	10YR 2/1	50					Sandy clay loam	
	10YR 4/2	50						
20								Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 20

Hydric Soil Present? Yes ☐ **No** ☒

Remarks: Low chroma soils. But, no redox features observed. No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: City of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: C
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: SE 1/4 Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-3%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Matherton silt loam (MmA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☐Yes	☒**No**	**Is the Sampled Area within a Wetland?**	☐ Yes	☒**No**
Hydric Soils Present?	☐Yes	☒**No**			
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: _____		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): _____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ **No** ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ **No** ☒

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

Remarks: No wetland hydrology indicators observed.

VEGETATION – Use scientific names of plants. Sampling Point: C

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Poa pratensis	**75**	☒	**FACU**
2. Cirsium arvense	20	☐	FACU
3. Taraxacum officinale	15	☐	FACU
4. Cornus racemosa	10	☐	FAC
5. Dactylis glomerata	5	☐	FACU
6. Daucus carota	5	☐	NI
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	130	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes ☐ **No** ☒

Remarks: (include photo number here or on a separate sheet.) Upland field.

SOIL

Sampling Point: C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Silt loam	(top dressing?)
10								Refusal

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel fill material

Depth (inches): 10

Hydric Soil Present? Yes ☐ **No** ☒

Remarks: No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: City of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: ____ State: WI Sampling Point: D
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: SE 1/4 Section 11, T6N, R19E
Landform (hillslope, terrace, etc.): drainage way Local relief (concave, convex, none): concave Slope (%): 1-3%
Subregion (LRR or MLRA): LRR K Lat: ____ Long: ____ Datum: ____
Soil Map Unit Name: Matherton silt loam (MmA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation____, Soil____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation____, Soil____, or Hydrology ____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 1		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? **Yes** ☒ No ☐ Depth (inches): 7.5
Water Table Present? Yes ☐ No ☐ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): ____

Wetland Hydrology Present? **Yes** ☒ No ☐

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

Remarks: Two primary and one secondary wetland hydrology indicators present.

VEGETATION – Use scientific names of plants. Sampling Point: D

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Typha angustifolia	**1**	☐	**OBL**
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	1	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Only Typha angustifolia growing in moving stream. Phalaris arundinacea and Urtica dioica are growing along the drainage way banks.

SOIL

Sampling Point: D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ **Other (Explain in Remarks)**

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: Stream bottom - Soils inundated with 7.5 inches of water, hydric by definition - Criteria 3.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: City of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: E
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: NE 1/4 Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 2		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? **Yes** ☒ No ☐ Depth (inches): 1
Water Table Present? Yes ☐ No ☐ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ No ☐

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

Remarks: One primary and two secondary wetland hydrology indicators present.

VEGETATION – Use scientific names of plants. Sampling Point: E

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Carex pellita	**50**	☒	**OBL**
2. Phalaris arundinacea	**33**	☒	**FACW**
3. Convolvulus arvensis	10	☐	NI
4. Cirsium arvense	3	☐	FACU
5. Cornus racemosa	1	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	97	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow and Southern sedge meadow.

SOIL

Sampling Point: E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-19	N 1/0	100					Muck	with gravel
19								gravel fill material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: gravel fill

Depth (inches): 19

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: One hydric soil indicator present - A1. Histosol.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: Town of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: F
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: NE 1/4 Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 1-3%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Matherton silt loam (MmA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒**Yes**	☐No	**Is the Sampled Area within a Wetland?**	☐ Yes ☒**No**
Hydric Soils Present?	☒**Yes**	☐No		
Wetland Hydrology Present?	☐Yes	☒**No**	If yes, optional Wetland Site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): _____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): _____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 16

Wetland Hydrology Present? Yes ☐ **No** ☒

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

Remarks: Drainage has been altered due to past road construction. Only one secondary wetland hydrology indicator present.

VEGETATION – Use scientific names of plants. Sampling Point: F

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**80**	☒	**FACW**
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	80	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	N 2.5/0	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: Soil has been graded and sloped to accommidate drainage from the East Sunset Drive roadway. 18 inches of soil compressed to 7 inches in soil probe. One hydric soil indicator present - A1. Histosol.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: Town of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: G
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: NE 1/4 Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 1-3%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Matherton silt loam (MmA) NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 3		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): _____
Water Table Present? **Yes** ☒ No ☐ Depth (inches): 15
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 0 (at surface)

Wetland Hydrology Present? **Yes** ☒ No ☐

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

Remarks: One primary and two secondary wetland hydrology indicators present.

VEGETATION – Use scientific names of plants. Sampling Point: G

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**67**	☒	**FACW**
2. Cirsium arvense	1	☐	FACU
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	68	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: G

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-19	N 2.5/0	100					Muck	
19-23	N 2.5/0	67	7.5YR 4/6	c/p	C	M	Clay	
	5Y 4/1	33						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: One hydric soil indicator present - A1. Histosol.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: E. Sunset Dr. Proposed Forcemain City/County: Town of Waukesha/Waukesha County Sampling Date: 05/28/2013
Applicant/Owner: _____ State: WI Sampling Point: H
Investigator(s): Donald M. Reed, PhD., and Jennifer Dietl; SEWRPC Section, Township, Range: NE 1/4 Section 14, T6N, R19E
Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): 0-2%
Subregion (LRR or MLRA): LRR K Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Houghton muck (HtA) NWI classification: _____
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ **No** ☒ (If no, explain in Remarks)
Are Vegetation_____, Soil_____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? **Yes** ☒ No ☐
Are Vegetation_____, Soil_____, or Hydrology _____ naturally problematic? (If, needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	☒ **Yes**	☐ No	**Is the Sampled Area within a Wetland?**	☒ **Yes**	☐ No
Hydric Soils Present?	☒ **Yes**	☐ No			
Wetland Hydrology Present?	☒ **Yes**	☐ No	If yes, optional Wetland Site ID: PCA No. 3		

Remarks: (Explain alternative procedures here or in a separate report.) Above normal (4 to 6 Inches) precipitation for the past 90 days.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☐ **No** ☒ Depth (inches): _____
Water Table Present? Yes ☐ **No** ☒ Depth (inches): _____
Saturation Present? (includes capillary fringe) **Yes** ☒ No ☐ Depth (inches): 0 (at surface)

Wetland Hydrology Present? **Yes** ☒ No ☐

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

Remarks: One primary and two secondary wetland hydrology indicators present.

VEGETATION – Use scientific names of plants. Sampling Point: H

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	**80**	☒	**FACW**
2. Solidago altissima	3	☐	FACU
3. Cirsium arvense	1	☐	FACU
4. Sonchus arvensis	1	☐	FACU
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
11.		☐	
12.		☐	
	85	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
	0	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	x 1 =		
FACW species	x 2 =		
FAC species	x 3 =		
FACU species	x 4 =		
UPL species	x 5 =		
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ **Dominance Test is >50%**
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must Be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1 m) tall.

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

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ No ☐

Remarks: (include photo number here or on a separate sheet.) Fresh (wet) meadow.

SOIL

Sampling Point: H

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-17	N 2.5/0	100					Muck	
17								Refusal - rocks?

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains

[2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LLR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LLR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) **(LRR K, L**)
- ☐ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rocks

Depth (inches): 17

Hydric Soil Present? **Yes** ☒ No ☐

Remarks: One hydric soil indicator present - A1. Histosol.

EXHIBIT 11. SITE PHOTOS
E. Sunset Drive Proposed Force Main
From Tenny Avenue to STH 59
Sections 11 and 14, T6N, R19E
City of Waukesha, Waukesha County

Photo 1. Wetland sample site 1 (04/15/2015).
Fresh (wet) meadow, PCA 1.

Photo 2. Wetland sample site 2 (04/15/2015).
Shallow marsh, PCA 1.

Photo 3. Upland sample site 3 (04/15/2015).
Upland old field between Sunset Dr. and wetland sample 2.

Photo 4. Upland sample site 4 (09/09/2015).
Upland old field between Sunset Dr. and wetland sample 5.

Photo 5. Wetland sample site 5 (09/09/2015).
Mowed fresh (wet) meadow, PCA 4.

Photo 6. Wetland sample site 6 (09/09/2015).
Fresh (wet) meadow, PCA 4.

EXHIBIT 11. SITE PHOTOS
E. Sunset Drive Proposed Force Main
From Tenny Avenue to STH 59
Sections 11 and 14, T6N, R19E
City of Waukesha, Waukesha County

Photo 7. Upland sample site 7 (09/09/2015).
Buckthorn thicket.

Photo 8. Upland sample site 8 (09/09/2015).
Old field/meadow.

Photo 9. Wetland sample site 9 (09/09/2015).
Fresh (wet) meadow, PCA 5.

Photo 10. Wetland sample site A (05/28/2013)
PCA 1.

Photo 11. Upland sample site B (05/28/2013).
Old field.

Photo 12. Upland sample site C (05/28/2013).
Old field.

EXHIBIT 11. SITE PHOTOS
E. Sunset Drive Proposed Force Main
From Tenny Avenue to STH 59
Sections 11 and 14, T6N, R19E
City of Waukesha, Waukesha County

Photo 13. Wetland sample site D (05/28/2013).
Fresh (wet) meadow along open water stream, PCA 1.

Photo 14. Wetland sample site E (05/28/2013).
Fresh (wet) meadow PCA 2.

Photo 15. Upland sample site F (05/28/2013).
Upland meadow/old field between Sunset and wetland.

Photo 16. Wetland sample site G (05/28/2013).
Fresh (wet) meadow, PCA 4.

Photo 17. Wetland sample site H (05/28/2013).
Fresh (wet) meadow PCA 4.

Photo 18. West view from sample site 1, PCA 1.

EXHIBIT 11. SITE PHOTOS
E. Sunset Drive Proposed Force Main
From Tenny Avenue to STH 59
Sections 11 and 14, T6N, R19E
City of Waukesha, Waukesha County

Photo 19. 04/25/2015 East view from Gramling Lane of sample site A (05/28/2013), PCA 1.

Photo 20. 05/28/2013 East view from Gramling Lane of site A, PCA 1.

Photo 21. West view from Gramling Lane of PCA 1. (04/15/2015).

Photo 22. East view of wet ditch starting at Sunset View. (09/09/2015).

Photo 23. 05/28/2013 East view of PCA 4 near sample site F.

Photo 24. South side of Sunset, Pebble Brook culverts, PCA 4 (09/09/2015).

EXHIBIT 11. SITE PHOTOS
E. Sunset Drive Proposed Force Main
From Tenny Avenue to STH 59
Sections 11 and 14, T6N, R19E
City of Waukesha, Waukesha County

Photo 25. West view PCA 4, near wetland sample site 6 (09/09/2015).

Photo 26. South view PCA 5, sample sites 8 and 9 (09/09/2015).

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