CONDITIONAL USE / SITE PLAN REVIEW APPLICATION **PH ITEM # 3** Racine County, Wisconsin

Owner: Kyle Roadt Applicant/Agent: Kyle Roadt

Town: Norway Zoning district(s): R-3 (Proposed)

TO THE RACINE COUNTY ECONOMIC DEVELOPMENT & LAND USE PLANNING COMMITTEE:

The undersigned requests a conditional use / site plan review permit to *(specify use, project, structure, size, etc.)*

Place Fill in the floodplain in accordance with a hydraulic and hydrologic analysis approved by the Wisconsin Department of Natural Resources, for the purpose of constructing a pole Barn.

AT (*site address*): 8608 Hart Dr Wind Lake WI 53185

Subdivision: Second addition to lakeview park Lot(s): 42 Block: —

Parcel # 01004200 05 139000 Section(s) 05 T 04 N R 20 E

If served by municipal sewer, check here: X Sanitary permit #:

Attached are:

✓ zoning permit application

✓ 12 SETS: drawn-to-scale site plan that is based on a survey (10 of the 12 should be sized or folded to 8.5" x 11")

N/A letter of agent status

X hearing/review fee (Fees are non-refundable, & re-publication/amendment fees will be charged where applicable.)

N/A 3 SETS: landscaping/lighting plan

N/A 12 SETS: report/cover letter & operations plan

✓ abutting property owners' names & mailing addresses

____ other

print name: Kyle Roadt e-mail address: Kyle.Roadt@gmail.com

address: 8608 Hart Dr Wind Lake WI 53185 telephone #: 262-525-8043

signed:

STAFF USE ONLY:

BASED ON CURRENT MAPPING, check applicable statement(s) below & underline or circle the word "all" or "partially".

X The *property* is (all) / partially located in the Long Lake shoreland area.

X The project is (all) / partially located in the Long Lake shoreland area.

X The *property* is all / (partially) located in the Long Lake floodplain.

X The project is (all) / partially located in the Long Lake floodplain.

X The *property* is all / (partially) located in the wetland.

N/A The project is all / partially located in the wetland.

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JUL 19 2022
RACINE COUNTY

The applicant is subject to the following Racine County Ordinance provisions (specify article/section):

Article VI Division 5 R-3, Suburban Residential District (Sewered); Section 20-1291 Uses Permitted Conditionally
Article XII Floodlands

Shoreland contract: yes ____ no X

Public hearing date: August 15, 2022 Site plan review meeting date: N/A

Submittal received by: STM Date petition filed: 7-19-2022

cash or check #: 288 amount received: $ 520.00

APPLICATION FOR ZONING PERMIT (Rev. 02/22)
RACINE COUNTY, WISCONSIN

PERMIT NO. _____
DATE PERMIT ISSUED _____

OWNER Kyle Rood
Mailing Address 8608 Hart Dr
Wind Lake WI 53185
City State Zip

APPLICANT Same
Mailing Address _____
_____
City State Zip

Phone 262-525-8043
Email Kyle.Rood1@gmail.com

Phone _____
Email _____

Parcel Id. # 01004 2005 139 000
Site Address 8608 Hart Drive

Municipality Norway Section(s) 05 Town 04 North, Range 20 East

Lot 42 Block — Subdivision Name Second addition to lakeview park CSM # —

Proposed Construction/Use Place fill in the floodplain in accordance with a hydraulic and hydrologic analysis approved by the Wisconsin DNR, for the purpose of constructing a Pole Barn

New	X	Principal Bldg.		Size (38 x 60)	(— x —) (— x —)
Addition		Accessory	X	Area (sq ft) (2280)	(—) (—)
Alteration		Deck		Peak Ht. (ft.)	100-Yr. Floodplain Elev. 779.4
Conversion		Sign		Eave Ht. (ft.)	Flood Protection Elev. 801.4
Temporary		Other		Building Ht.-Avg. (ft.)	

Contractor _____ Est. Value w/Labor $ 30,000 ZONING DISTRICT R-3

				Yard Setbacks	Proposed	OK?
Existing Nonconforming?	N/A X	Yes	No			
Structure in Shoreland? (per map)		Yes X	No	Street-1st	350'	Yes
Mitigation or Buffer Needed?		Yes	No X	Street-2nd	—	—
Structure in Floodplain? (per map)		*Yes X	No	Side-1st	5'	Yes
*Structure's Fair Market Value $	N/A	Cumulative %		Side-2nd	272'	Yes
*>50% of Fair Market Value?	N/A X	Yes	No	Shore	—	—
Structure in Wetland? (per map)		Yes	No X	Rear	116'	Yes
Substandard Lot?		Yes	No X	Total Acc. Structures	2 Allowable	
BOA Variance Needed?		Yes	No X	Date of Approval	—	
Conditional Use/Site Plan Needed?		Yes X	No	Date of Approval		
Shoreland Contract Needed?		Yes	No X	Date of Approval	—	

Additional Zoning Permit Stipulations Listed on Back of this Form? Yes ____ No X (If "Yes," see back)

The applicant hereby acknowledges receipt of notice contained herein and certifies that submitted information/attachments are true and correct to the best of the knowledge and belief of the signer, and that all construction/use will be done in accordance with the Zoning Ordinance, applicable stipulations, and Wisconsin laws.

BOA/Conditional Use/Site Plan Pd: $ 520.00
CC Date/Check#/Cash 288

Signature of Owner/Applicant/Agent 7/19/22 Date

Shoreland Contract Fee Pd: $ _____
CC Date/Check#/Cash _____

Print Name(s)

Zoning Permit Fee Pd: $ 175.00
CC Date/Check#/Cash _____

Notes (revisions, extensions, etc.)

Other: _____ Pd: $ _____

✓ ☐ if shoreland erosion review fee is included above Zoning Administrator

RECEIVED JUL 19 2022 RACINE COUNTY (Staff Initials) SJM

Make checks payable to "Racine County Development Services" - Note: ALL FEES ARE NONREFUNDABLE (OVER)

PIN 01004 20 05 139 000

STORMWATER SOLUTIONS ENGINEERING LLC

ATT: Racine County Development Services
14200 Washington Ave.
Sturtevant, WI 53177

SITE ADDRESS: 8608 Hart Drive
Wind Lake, WI 53185

SITE NAME: Roadt Floodplain Fill for Barn

CLIENT: Kyle Roadt
8608 Hart Drive
Wind Lake, WI 53185

ENGINEER: Stormwater Solutions Engineering, LLC
Adrienne Cizek, PhD, P.E.
247 Freshwater Way, Suite 410
Milwaukee, WI 53204
262-490-1434

ASSOCIATED PERMITS:
- Floodplain fill

ENCLOSED:

- WDNR Floodplain Study Checklist
- Project Narrative
- Project Location Map
- WDNR Wetland Determination Results
- Fill Grading Plan
- Detailed Storage Calculations

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Checklist for Submitting a Floodplain Study

Wisconsin Department of Natural Resources

This outline for department review of floodplain studies may not contain all of the requirements of the administrative code. It is a general outline and detailed examination of the codes should be done to be assured that a submittal may meet department approval. Appropriate areas should be filled in by the engineer submitting the study for WDNR review.

Community/Zoning Authority: Racine County

Official Stream Name: Long Lake (WBIC 761100)

County: Racine County

Study Author: Adrienne Cizek, PhD, PE

Submission Date: September 9, 2021

Submitted to: Jean Schneider (Racine County); Andrea Stern (WDNR)

Legal Description:

Upstream Limit NE 1/4(QQ), SE 1/4(Q), Section(s) 06, Township 4N, Range 20E

Downstream Limit NE 1/4(QQ), SE 1/4(Q), Section(s) 06, Township 4N, Range 20E

Study Type (circle): Bridge/Culvert Channel Realignment Enclosure (Filling/Grading) BFE determination

Other _____

I) General Documentation

X Contact (Telephone Conservation) Reports

_____ Meeting Minutes/Reports

_____ General Correspondence

_____ Submittal letter or e-mail from zoning authority requesting review

II) Narrative Report

X Purpose of the study

X Geographic location of the study

X Detailed description of the methodology used for hydrology, hydraulics and any special applications used in the study

X Description of the project location related to model river stations

X Documentation of the changes made between each model run

NA Floodway Data Table

Note: Include at least one table with the following output variables:
'River Sta' 'Q Total' 'W.S. Elev' 'Top Wdth Act' 'Flow Area' 'Vel Total'

NA Previous studies on the same watercourse – date/author/source of study

NA Data collection methods

NA Past flooding

NA Benchmark identification and location

NA Coordination with other agencies

X Other supporting documentation provided

(circle) Soils Maps Watershed Maps Photographs Stream Flow Records

Other: Project Location Map, WDNR Wetland Determination

III) Engineering Analyses

1) Hydrologic Analysis (electronic input/output files)

X Is there an existing model?

Existing model input file name: Racine Co FIS, Stillwater Elev for Long Lake

The *two* techniques used to determine the regional flood flow discharges:

NA Log-Pearson Type III, described in Technical Bulletin #17B

NA Regional Regression Equations (i.e. Congers)

NA Synthetic hydrographs (i.e. HEC-HMS)

_____Was floodplain storage explicitly taken into account to attenuate flood peak flow?

_____If yes, have flood storage district maps been created for the community to adopt?

_____Which rainfall distribution was used?

_____If a distribution other than NRCS's MSE3/MSE4 was used, what duration was the critical duration when the critical duration analysis was performed to identify the peak storm duration?

NA Technical Release No. 55 (TR-55)

NA Comparison of similar drainage basins at gaged sites

NA Historic flood data

NA Other methods with department approval (comment on what method)

Input file name: _____

NA New peak flows tie in with upstream and downstream published flows

2) Hydraulic Analyses (electronic input/output files)

Note: The same model must be used for both existing and proposed conditions for relative consistency

N Is there an existing model?

Existing model input file name: _____

_____ Existing model was not truncated from its original study reach

New hydraulic model type (i.e. HEC-RAS) Stage-Storage Table

New input file name (project model name that has one or multiple runs):

Flood Storage Analysis

Model plan descriptions: Effective Flood Storage & Proposed Flood Storage; as labeled in table

(ex. p.01 = effective, p.02 = corrected effective, p.03 = pre-project, p.04 = post-project…)

What is the vertical datum of the survey/geometric data (NAVD88, NGVD29...) NGVD29

N Is there a dam with operable gates in the study reach?

_____If yes, does the modeled operation represent the DNR approved Inspection, Operations, and Maintenance Plan (IOM)? The dam operator then assumes liability that the gates will be operated as outlined in the IOM.

If not, explain There is a dam, but no operable gates to the engineer's knowledge

N Is there a detailed study upstream of the submitted reach? (Y/N)

_____If yes, do the profiles match within 0.5' at the boundary? (Y/N)

N Is there a detailed study downstream of the submitted reach? (Y/N)

_____If yes, do the profiles match exactly at the boundary? (Y/N)

N Model shows increases due to development (proper legal arrangements required)

3) Miscellaneous

X Supporting hand calculations, sketches and figures used in analyses

NA Key to Cross-Section Labeling

NA Key to Transect Labeling (coastal study only)

IV) Mapping information

NA Workmaps including floodway, floodfringe, cross sections, and stream centerlines

NA Floodway Data Table

Note: Include at least one table with the following output variables:
'River Sta' 'Q Total' 'W.S. Elev' 'Top Wdth Act' 'Flow Area' 'Vel Total'

Digital mapping data provided: Digital site plan map can be provided upon request

(Circle) ESRI shapefile(s)/database CAD data Other

Horizontal coordinate system used: WI State Plane S

V) Certification

X Signed, stamped, and submitted by a Professional Engineer registered in Wisconsin

Name Adrienne R Cizek Registration # 46560

STORMWATER SOLUTIONS ENGINEERING LLC

PROJECT NARRATIVE

Background

Kyle Roadt, property owner of 8608 Hart Drive in Wind Lake, WI 53185 wishes to install a pole barn on his property. The property is located in urban flood fringe overlay (FFO) district near Wind Lake, Long Lake, and Waubeesee Lake (see attachment Project Location Map). Nearly half the property is located within the Flood Hazard Zone AE for Long Lake with and established Base Flood Elevation (BFE) of 779.40 ft (Racine County FIS, Long Lake 1% Annual Chance Stillwater Elevation). Wisconsin Department of Natural Resources (WDNR) identified wetlands on the site on October 6, 2020 (see attachment WDNR Wetland Determination Results), which restricted barn location to within the floodplain zone. Kyle Roadt contracted with Stormwater Solutions Engineering, LLC (SSE) to perform a flood study analysis of the impact of placing the barn and fill.

The proposed barn is 60 feet by 46 feet located the flood fringe zone for Long Lake within the C-1 Resource Conservation Zoning District and will be used for storage. The barn will not have any utilities installed at this time. To meet Racine County Code Section 20-1595(c)1., approximately 28.40 cubic yards of compacted fill will be placed to ensure that the lowest floor elevation of the proposed barn is at or above the BFE. The proposed barn will be located outside of the wetland boundary, close to the eastern property boundary. According to Racine County Code Section 496 and 497, there are not property setbacks for accessory structures in C-1 Zoning Districts.

The Long Lake Dam (recorded as Lake Kee Nong A Mong) is too small to have a dam failure analysis, and the formal flood hydraulic model does not begin until the downstream Waubeesee Lake. Therefore, there is not an existing hydraulic flood model on record for Long Lake. SSE consulted with Andrea Stern of WDNR about the best approach for analyzing the barn impact using the information available. The agreed upon method includes removing the fill volume from the Long Lake 1% Annual Chance Flood Storage and determining its impact on BFE.

Effective Flood Storage

The effective Long Lake flood storage capacity was calculated by determining the volume between the existing ground as determined by Racine County 2-ft contour data and the FIS 1% Annual Chance Stillwater Elevation of 779.4 feet. Incremental storage shown in Table 1 was calculated using 2020 AutoCAD Civil 3D. The total effective flood storage is 19,249,110 cubic feet with a surface area at the BFE of 17,698,711 square feet.

Proposed Flood Storage

The proposed grading plan for the barn building pad (attached) includes the placement of 28.40 cubic yards of compacted fill to bring the barn floor elevation to 779.4 feet. Incremental fill volume was calculated using 2020 AutoCAD Civil 3D. The incremental removal of storage results in a cumulative 764 cubic feet of storage loss (or 28.40 cubic yards). This storage difference results in a 4.31E-5 ft change in BFE across the surface area at 779.40 ft, which meets NR 116.03(28) of no increase in regional flood height. Detailed calculations are attached to this study submission.

STORMWATER SOLUTIONS ENGINEERING LLC

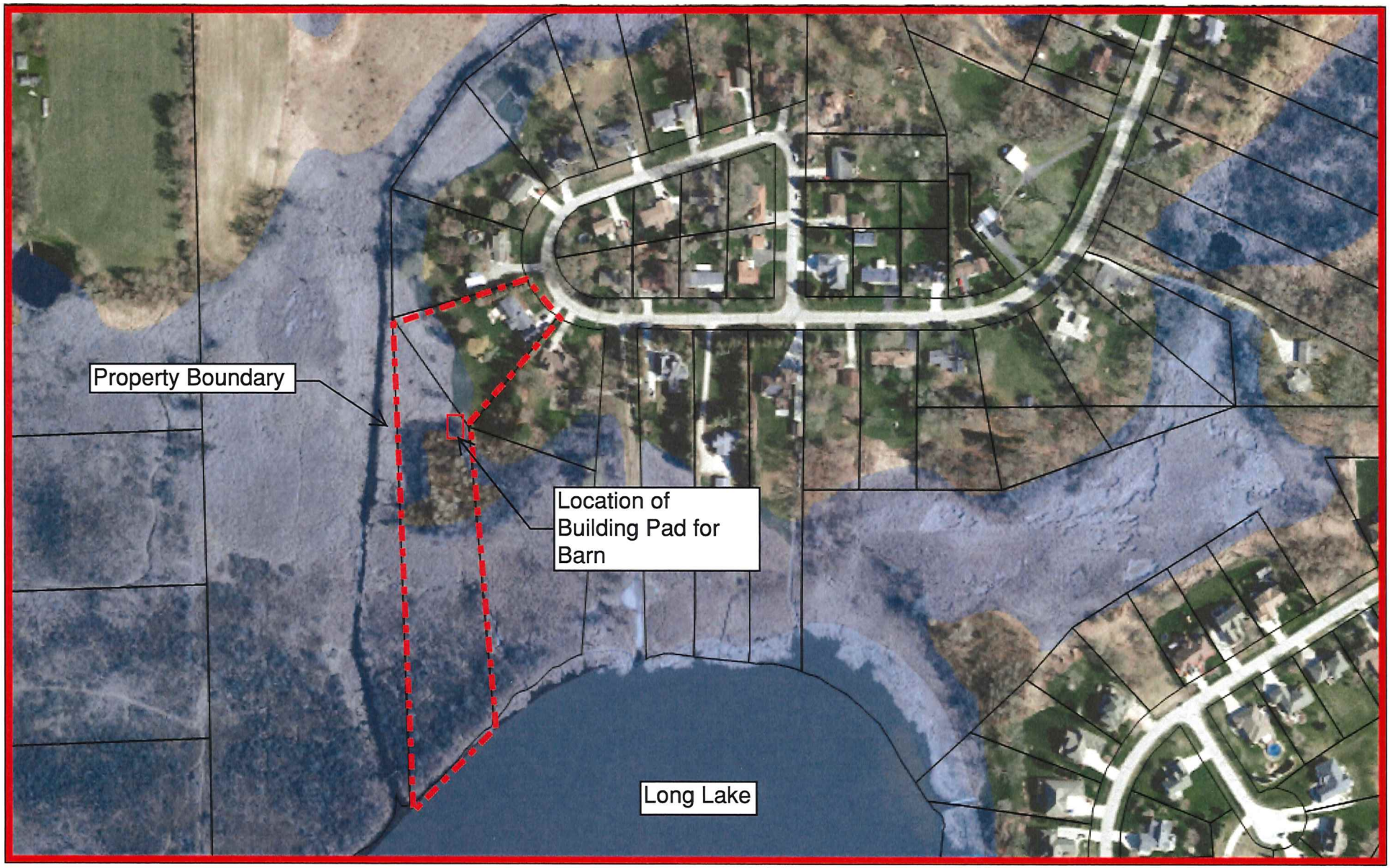
Table 1. Summary of storage volume changes between the Long Lake effective and proposed flood storage for the 1% Annual Chance Flood.

	Effective Storage		Proposed Storage		Δ Between Effective and Proposed		Equivalent Cumulative Δ in BFE (ft)
Contour Elevation	Surface Area (sf)	Cum Vol (cf)	Surface Area (sf)	Cum Vol (cf)	Surface Area (sf)	Cum Vol (cf)	
777.5	692	0	692	0	0	0	0.00
778.0	1,345,189	448,396	1,345,189	448,396	0	0	0.00
778.5	2,146,144	1,521,468	2,145,928	1,521,414	216	54	0.00
779.0	15,715,990	9,379,463	15,715,513	9,379,290	477	173	0.00
779.4	17,698,711	19,249,110	17,696,349	19,248,346	2,362	764	0.00

Conclusion

The proposed barn at 8608 Hart Drive results in 28.40 cubic yards of compacted fill to be placed in Flood Hazard Zone AE. The placement of fill does not result in an increase in regional flood height (BFE) and, therefore, meets both Racine County Codes Section 20 and Wisconsin regulations NR 116.

Roadt Property Location Map



September 9, 2021

Tax Parcels

Waterbody

Water lines

Fema FloodPlain

2020 Spring Aerial

Red: Band_1

Green: Band_2

Blue: Band_3

1:4,800

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.19 km

Racine County, SEWRPC, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN,

ArcGIS WebApp Builder

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212-3128

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

October 6, 2020

WIC-SE-2020-52-03125

Kyle Roadt
8608 Hart Dr
Wind Lake, WI 53185

RE: Wetland Determination Results for property located in the SE1/4 of the NE1/4 of Section 06, Township 04 North, Range 20 East, Town of NORWAY, Racine County

Dear Mr. Roadt:

On September 22, 2020, Kara Brooks conducted a wetland determination at the above-mentioned property. According to the request form you sent us, the reason for the wetland determination was to identify any wetlands located in the area in which you are hoping to build a storage garage.

Approximate wetland boundaries were identified following 1987 Wetland Delineation Manual and applicable regional supplement guidelines. Wetlands are defined by the 1987 Wetland Delineation Manual as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. If any wetland areas were detected, their approximate boundaries were sketched onto an aerial photograph (see attached map).

Methods used to detect the presence of wetlands within the project area involved on-site and off-site techniques, including a field visit as well as a review of antecedent hydrologic conditions, recent aerial photography, Wisconsin Wetland Inventory (WWI) mapping, NRCS Soil Survey mapping, and an interview with the land owner.

The following is a summary of the off-site review.

- Results of the antecedent hydrologic condition review indicate the site was likely experiencing normal conditions at the time of the field investigation.
- The WWI has a T3K wetland mapped in the majority of the Review Area.
- Soils mapped in the project area include hydric soil units throughout the entire review area.

Based on the data analyzed for the off-site review, as well as the field conditions observed during the 9/22/2020 field review, **wetlands are located in the reviewed area**.

The wetland boundaries depicted on the associated field sketch are approximate only and cannot be used for design purposes, such as set-back or permit requirements. If wetlands are located on your property, we recommend that a wetland delineation be conducted on your property by a qualified wetland delineator or have wetland flagging from site visit surveyed. Wetlands are regulated by various state, federal, and local units of government. At minimum, be sure not to

impact the wetland. Best Management Practice construction is recommended to protect the wetland. Prior to conducting any activities in or around wetlands, we recommend you contact the appropriate staff from Wisconsin Department of Natural Resources, U.S. Army Corps of Engineers and local county regulatory agents.

If you have any questions, please contact me at (414) 308-6780 or email kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enc. Site Information
WWI Mapping
Wetland ID Field Sketch
Wetland Determination Data Forms

Site Information - Complete

Address: 8608 Hart Dr

City: Wind Lake

State: WI

Zip Code: 53185

Acreage: 0.119

Government Lot #:

Site Map ID1322-Garage

September 11, 2020

1:1,980

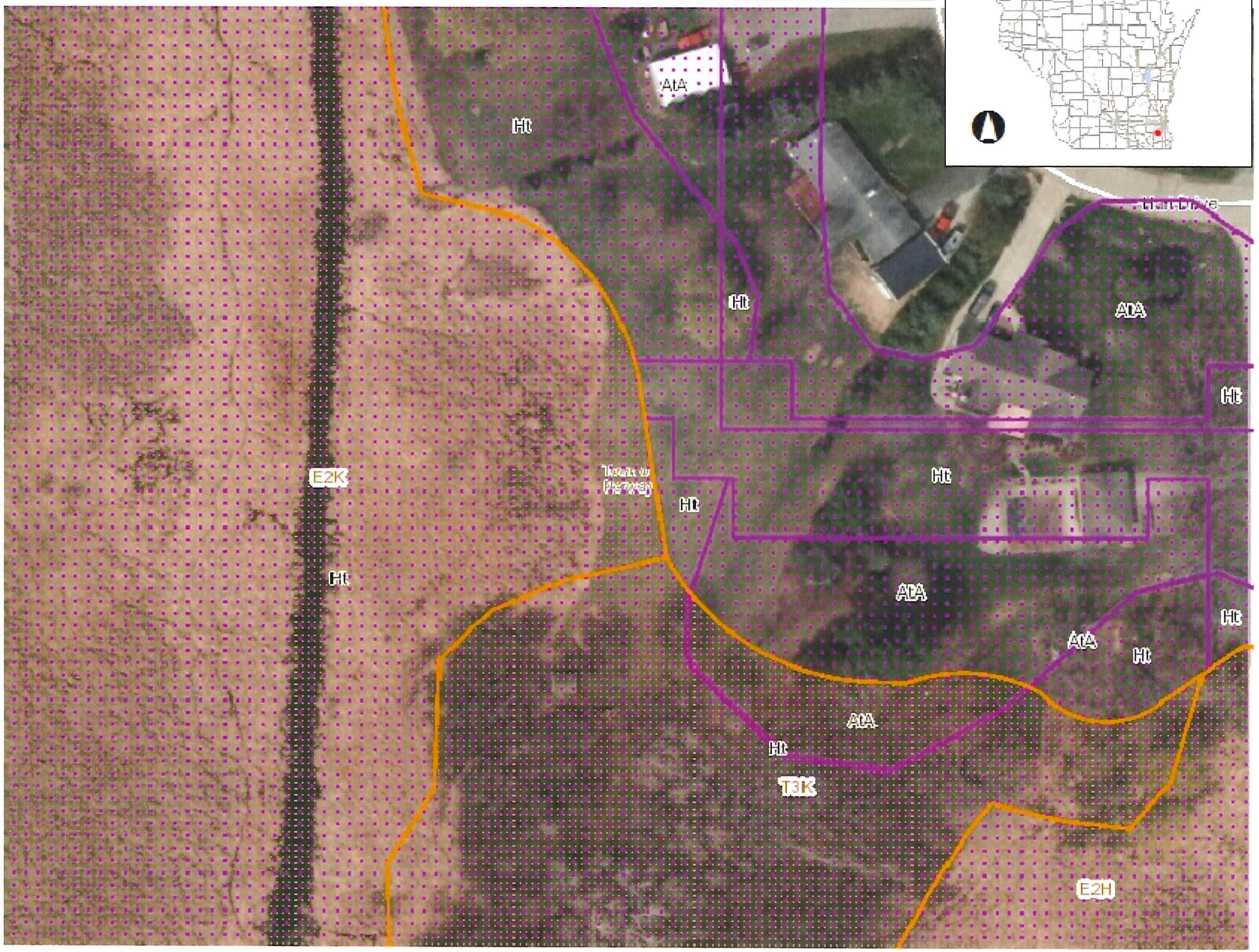
0 0.01 0.03 0.06 mi

0 0.03 0.05 0.1 km

You must include a map showing the exact location of the parcel(s) of land for your request. If you do not wish to have an entire area considered, you must indicate on the map the exact location of the area(s) for your request.

Wetland Identification Request areas must be 5 acres or less.

Surface Water Data Viewer Map



Legend

- Wetland Identifications and Confirmations
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
  - Wetland
  - Upland
- Filled Areas
- NRCS Wetspots
- Maximum Extent Wetland Indicators

Notes

0.0 0 0.02 0.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 990

Wetland ID request field sketch

Legend

0.0 0 0.01 0.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 495

Notes

* Boundary shown is Approximate. Exact Boundary to not be impacted was flagged the field on 9/22/20 by K. Brooks

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Roadt City/County: Wind Lake Sampling Date: 9/22/2020

Applicant/Owner: Roadt State: WI Sampling Point: SP1

Investigator(s): Kara Brooks, WDNR Section, Township, Range: See Map

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope %: 1-3%

Subregion (LRR or MLRA): LRR K Lat: See Map Long: See Map Datum: _____

Soil Map Unit Name: See Map NWI classification: See Map

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	No _____	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No _____	**within a Wetland?** **Yes** X **No** _____
Wetland Hydrology Present?	Yes X	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Wooded area at back of residentail lot. South of current shed. Shed is within current wetalnd boundary.

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)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
WWI, NCRC soil Map, Air Photos, Interview with the land owner

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: SP1

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	10	Yes	FACW
2. *Populus deltoides*	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft r)			
1. *Rhamnus cathartica*	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Herb Stratum (Plot size: 5ft r)			
1. *Phalaris arundinacea*	10	Yes	FACW
2. *Symphyotrichum lanceolatum*	10	Yes	FACW
3. *Fraxinus pennsylvanica*	5	No	FACW
4. *Rhamnus cathartica*	5	No	FAC
5. *Rubus occidentalis*	5	No	UPL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	=Total Cover	
Woody Vine Stratum (Plot size: 30ft r)			
1.			
2.			
3.			
4.			
		=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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	60 (A)		155 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 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** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point SP1

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
0-10	10YR 2/1	100					Loamy/Clayey	
10-24	10YR 5/1	80	10YR 5/6	20	c	m	Loamy/Clayey	Prominent redox concentrations

[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)
- X 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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ 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 (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Roadt City/County: Wind Lake Sampling Date: 9/22/2020

Applicant/Owner: Roadt State: WI Sampling Point: SP2

Investigator(s): Kara Brooks, WDNR Section, Township, Range: See Map

Landform (hillside, terrace, etc.): Backslope Local relief (concave, convex, none): Convex Slope %: 4-7%

Subregion (LRR or MLRA): LRR K Lat: See Map Long: See Map Datum: _____

Soil Map Unit Name: See Map NWI classification: See Map

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 X	**Is the Sampled Area**
Hydric Soil Present?	Yes _____	No X	**within a Wetland?** **Yes** _____ **No** X
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Wooded area at back of residentail lot. East of current shed.

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 x	Depth (inches): _____
Water Table Present?	Yes _____	No x	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No x	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
WWI, NCRC soil Map, Air Photos, Interview with the land owner

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: SP2

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	30	Yes	FACU
2. *Betula papyrifera*	15	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	45	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft r)			
1. *Rhamnus cathartica*	10	Yes	FAC
2. *Lonicera tatarica*	10	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 5ft r)			
1. *Rubus occidentalis*	30	Yes	UPL
2. *Rhamnus cathartica*	20	Yes	FAC
3. *Plantago lanceolata*	5	No	FACU
4. *Symphyotrichum lanceolatum*	2	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	57	=Total Cover	
Woody Vine Stratum (Plot size: 30ft r)			
1. *Vitis riparia*	10	Yes	FAC
2.			
3.			
4.			
	10	=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: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	40	x 3 =	120
FACU species	60	x 4 =	240
UPL species	30	x 5 =	150
Column Totals:	132 (A)		514 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - 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 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 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** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loamy/Clayey	
14-24	10YR 5/3	90	10YR 5/6	10	c	m	Loamy/Clayey	Distinct redox concentrations

[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)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
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- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

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- ___ Other (Explain in Remarks)

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

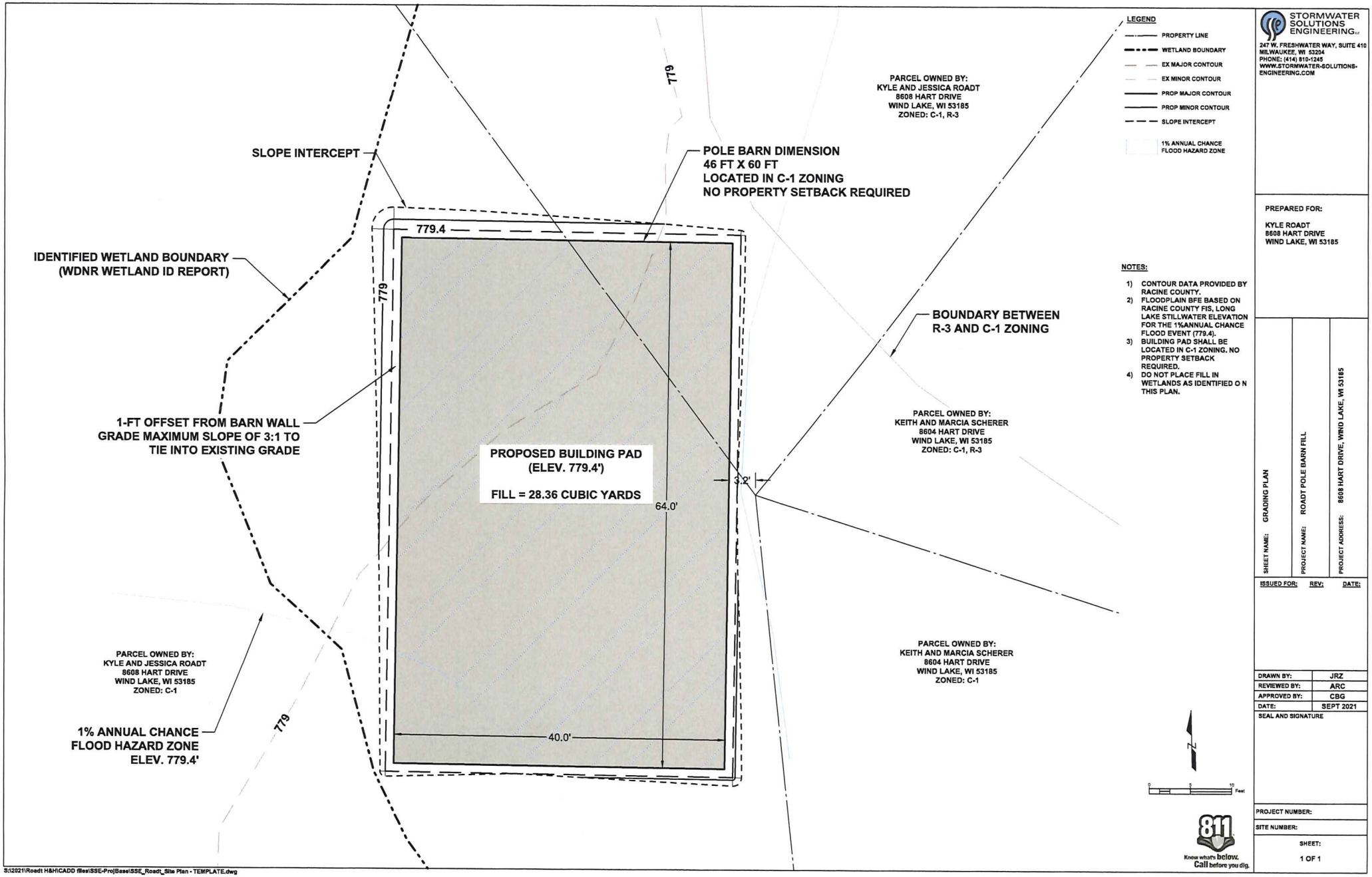
Restrictive Layer (if observed):

Type: N/A

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:



STORMWATER SOLUTIONS ENGINEERING LLC
247 W. FRESHWATER WAY, SUITE 410
MILWAUKEE, WI 53204
PHONE: (414) 810-1245
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PREPARED FOR:

KYLE ROADT
8608 HART DRIVE
WIND LAKE, WI 53185

SHEET NAME: GRADING PLAN
PROJECT NAME: ROADT POLE BARN FILL
PROJECT ADDRESS: 8608 HART DRIVE, WIND LAKE, WI 53185

ISSUED FOR:	REV:	DATE:

DRAWN BY:	JRZ
REVIEWED BY:	ARC
APPROVED BY:	CBG
DATE:	SEPT 2021

SEAL AND SIGNATURE

PROJECT NUMBER:

SITE NUMBER:

SHEET:
1 OF 1

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8608 Hart Drive
Wind Lake, WI 53185

Effective Flood Storage:

Contour Elev (	Total SA (sf)	Inc. Vol (cf)	Cum Vol (cf)
777.5	692	0	0
778	1,345,189	448,396	448,396
778.5	2,146,144	1,073,072	1,521,468
779	15,715,990	7,857,995	9,379,463
779.4	17,698,711	9,869,647	19,249,110

Proposed Flood Storage

Fill Placement

Elevation	SA	Inc Vol (cf)	Cum Vol (cf)
778	0	0	0
778.5	216	54	54
779	477	119.25	173.25
779.4	2362	590.5	763.75

Resulting Flood Storage

Contour Elev (	Total SA (sf)	Inc. Vol (cf)	Cum Vol (cf)		Δ WSE to account for storage loss		
777.5	692	0	0				
778	1,345,189	448,396	448,396				
778.5	2,145,928	1,073,018	1,521,414				
779	15,715,513	7,857,876	9,379,290				
779.4	17,696,349	9,869,056	19,248,346	--->	4.31586E-05 ft	<	0.01 ft

Storage Volume Offset by Fill =	764	cf
Δ BFE due to Fill =	4.31586E-05	ft